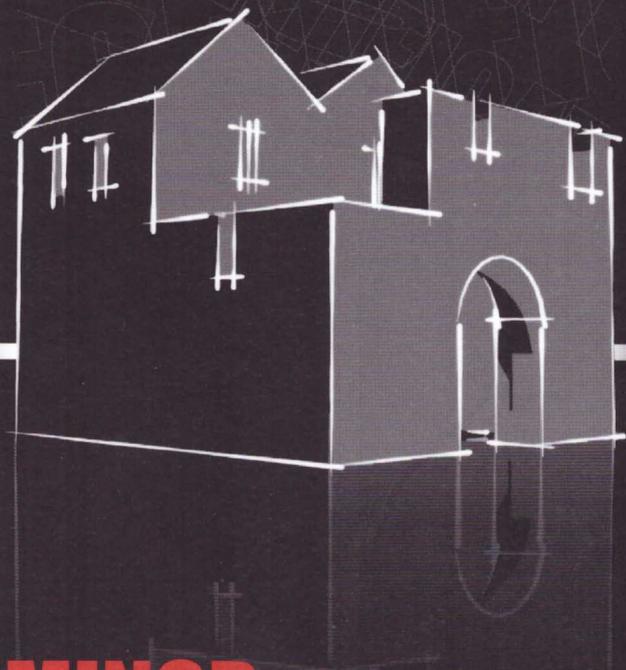


Constantin Băjenaru



**MINOR  
FORTIFICATIONS**

IN THE BALKAN-DANUBIAN AREA  
FROM DIOCLETIAN TO JUSTINIAN

CONSTANTIN BĂJENARU

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FROM DIOCLETIAN TO JUSTINIAN**

NATIONAL MUSEUM OF ROMANIAN HISTORY

THE CENTER FOR ROMAN MILITARY STUDIES

8

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OVIDIU ȚENEA

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CONSTANTIN BĂJENARU

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# I

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## INTRODUCTION

The study of constructions and military architecture in the Late Roman and Early Byzantine periods is reflected by a rich scientific literature, but the level of knowledge reached is much lower than that in the same field, but for the Early Roman period<sup>1</sup>. Even if the archaeological research during the last decades made significant contributions to the domain, many of the specialized works use a schematic approach by dating the fortifications or analyzing the evolution of military architecture based primarily on the literary and epigraphic sources, but also on an incorrect interpretation of the archaeological data. This led, in the absence of clear epigraphic data and without a serious analysis of the archaeological material, to a datation of military or urban fortifications only according to the analogies provided by the specialized literature and without the use of a critical approach<sup>2</sup>.

Starting from this situation, the present work tries to systematize the data available for minor fortifications (those with a reduced surface) in the territories of the dioceses of Dacia and Thrace in the 4<sup>th</sup> – 6<sup>th</sup> c. AD and to establish the chronology for these structures that has started controversies in many cases. The approach we used is a critical one, based especially on the results of the archaeological research (in many cases insufficient or incorrectly interpreted), but also on comparisons with similar situations in different areas of the Empire.

The authors that studied Late Roman fortifications tried to divide them into categories using several criteria. Thus, M. Biernacka-Lubanska, who wrote one of the first syntheses on fortifications in the present day territory of Bulgaria, used the geographic criterion according to which she differentiated border fortifications from those inside the provinces. The functional criterion was used only for fortifications inside the province, where three main categories were identified: urban fortifications, military and roadside fortifications and, finally, rural fortifications<sup>3</sup>. A classification according to the geographic criterion (Danubian limes, Western Black Sea coast and *intra provinciam*) was also used by S. Torbatov for the

<sup>1</sup> For an analysis of the situation based on the interpretation of the latest archaeological discoveries see REDDÉ 2004, 157–167. Also see LANDER 1980; LANDER 1984, 181 f.; REDDÉ 1995, 91 f.; MAGNESS 1999; MACKENSEN 1999, 201 f.

<sup>2</sup> REDDÉ 2004, 163: “Nos connaissances archéologiques reposent encore trop souvent, il est vrai, sur des fouilles anciennes, des plans obsolètes, et les chronologies proposées sont plus les fruit d’un argumentaire historique que d’un examen sérieux des contextes, qu’on connaît trop mal. Cette situation de la recherche au sol fige en retour la réflexion historique, en contribuant à justifier ses schémas traditionnels de pensée, et les sources, elle-mêmes partielles et lacunaires, sur lesquelles elle repose presque exclusivement”.

<sup>3</sup> BIERNACKA-LUBANSKA 1982, 51 f.

fortifications in province Scythia<sup>4</sup>. Classifications based on the structures' functionality were established by R. Brulet for fortifications in Northern Gaul, located inside the province. Brulet differentiated the regular fortifications (along the coastline or public roads) from the irregular (rural) ones and analyzed the urban fortifications separately<sup>5</sup>. The newest synthesis on fortifications in the dioceses of Thrace and Dacia, but which includes only those from the 5<sup>th</sup> – 6<sup>th</sup> c. and excludes urban fortifications, belongs to V. Dinčev, who divides the structures into three categories: fortified settlements (here he included semi-urban settlements with a surface over 1 ha and the “fortified villages” with a surface below 1 ha), military fortifications (without establishing a surface limit) and other types (refuges, Christian establishments, villas and residential complexes)<sup>6</sup>.

None of these classifications solve the problems that arise when attempting to define the status of certain settlements that have a defense wall<sup>7</sup>. I believe that, as during the Late Roman period and especially in the 5<sup>th</sup> – 6<sup>th</sup> c. the differences between an urban centre and a fortress (fort, fortification) gradually disappeared, classifications according to the functional or juridical status criteria are not useful.

This is why a classification of Late Roman and Early Byzantine fortifications according to their size is more appropriate, as it can avoid the confusions caused when using the functional or morphological criteria. Using this approach, D. Pringle<sup>8</sup> divided the fortifications in Byzantine Africa into three main categories: 1. “towers” (*turres, burgi*); 2. “fortlets and forts” (*castra, castella*) with surfaces between 0.05–1.75 ha; 3. “fortresses, citadels, town walls”, with surfaces over 1.80 ha. For the dioceses of Dacia and Thrace, while sticking with the 5 ha limit proposed by V. Dinčev for urban fortifications – that we believe close to the realities of the period under scrutiny but which is not always “respected” by the discoveries in the field<sup>9</sup> –, we can distinguish three main categories:

- large fortifications (with a surface over 5 ha);
- medium-sized fortifications (between 1 and 5 ha);
- minor fortifications (below 1 ha).

The first category is generally made up of urban fortifications, but also of several military bases. The second category contains different types of fortified settlements, ranging from the military (*castra, castella*) to the semi-urban and rural ones. At a later period (5<sup>th</sup> – 6<sup>th</sup> c.) we can also include in this category very few roadside fortifications or refuges, fortified residences, but also trade centres (*emporia*) or production centres (especially those on the mining districts).

The third category can be divided in two main types, clearly differentiated by their role: military or roadside fortifications and rural civilian fortified settlements respectively. In the

<sup>4</sup> TORBATOV 2002.

<sup>5</sup> BRULET 1990, 118 f.

<sup>6</sup> DINČEV 2006; DINČEV 2007 a.

<sup>7</sup> For example: a new city mentioned by Hierocles at the beginning of the 6<sup>th</sup> c. in Scythia is Capidava, whose surface delimited by the defense wall (1.30 ha) is below the limit of 5 ha proposed by V. Dinčev for urban fortifications. It is true that during the 6<sup>th</sup> c. there must have existed a dwelling district outside the walls, but even if we take that into consideration it does not add up to the conventional limit. For other similar cases see DINČEV 2000, 65–84.

<sup>8</sup> PRINGLE 1981 (2001), 139 f.

<sup>9</sup> There are examples of fortifications with a surface over 5 ha whose urban character remains uncertain. Among these are the large fortifications built at the beginning of the 4<sup>th</sup> c. inside the Pannonian provinces (Ságvár – 7.8 ha, Keszthely – 13.5 ha, Alsóhetény – 23 ha), used by the mobile army and especially as supply bases for the units on the limes (SOPRONI 1978, 139–140; FITZ 1980; TÓTH 1985; SOPRONI 1985, 100 f.; BÁRKOCZI 1994, 92–95; BORHY 1996, 207–210). For the Balkans see below the fortifications at Vojvoda and Kovačevac.

same category can be included a series of refuges, trade and production centres and fortified residences (villas, palaces, churches and monasteries).

The present analysis focuses on **minor military and roadside fortifications, to which we added the small fortified residences**. These form a rather homogenous group that can be clearly differentiated from minor rural fortified settlements or refuges for three reasons:

- they have a regular plan (with minor deviations);
- they all have elements of military architecture (towers, gates, *poternae*, access staircases etc.) or an organized internal space (barracks);
- they were built in a classic manner (*opus quadratum*, *opus mixtum*, etc.), always using mortar<sup>10</sup>.

I considered that pertinent conclusions can be drawn only by studying data from a very large territory. The dioceses of Dacia and Thrace offer a general image of the Late Roman and Early Byzantine defensive constructions in the Balkan area, for which specialists in this field have identified a series of characteristics. But the constant comparison to similar structures in other parts of the Empire (especially to those that were excavated) is absolutely necessary for dating the Balkan fortifications.

The extraordinary frequency of these small fortifications in the late Empire is already a well-known fact<sup>11</sup>. Their study can solve certain less-known aspects of the Late Roman military architecture, economic and social life. Chronological refinements can contribute to the inclusion of other fortifications in this chronological frame by identifying in them certain construction characteristics and types of defensive installations such as towers or gates. The analysis of the minor fortifications' location can contribute to understanding the deployment of military units both along the frontiers and inside the provinces. As we shall see in the following pages, their location also transforms these constructions into true ranging-poles that mark the trajectory of ancient roads.

We considered necessary to include in the structure of our work a chapter that presents the administrative and military organization of the Balkan provinces as an introduction to the geographical, administrative and military context in which these fortifications were built. There is also a selected inventory of the roads and fortifications (large and medium-sized) in the two dioceses, as they appear in literary, epigraphic and archeological sources, in order to obtain a general image of the constructive activities during the chosen period of time and to identify the fortifications that, through their characteristics, can help date minor fortifications. Equally important is the chapter that presents the state of the research on minor fortifications (terminology, typology, pre-Roman-Byzantine origins), doubled by an inventory of such structures in the Empire, which we consider crucial in obtaining analogies for Balkan minor fortifications. The volume's main chapter is a repertory of sites, followed by a typological and chronological analysis of minor fortifications in the chosen area, accompanied by comments on the characteristics of military architecture and space organizing (towers, gates, staircases, barracks etc.) and ends with a series of conclusions.

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<sup>10</sup> Many of the rural minor fortifications use dry set masonry ("Troockenmauer") or very little mortar. Cf. MIKULČIĆ 2002, 91; KIRILOV 2007, 331.

<sup>11</sup> LANDER 1984, 261: "a very large minority and perhaps a majority of new construction in the late Roman period are less than 1.0 ha in size".



## II

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# THE DIOCESES OF THRACE AND DACIA: ADMINISTRATIVE AND MILITARY ORGANIZATION

### 1. ADMINISTRATIVE ORGANIZATION: DIOCESES, PROVINCES, CITIES

After overcoming the crisis that swept the Empire during the second half of the 3<sup>rd</sup> century, the administrative configuration of the Balkan-Danubian area was modified starting with the reign of Emperor Aurelian (270–275). The retreat from Dacia determined the emperor to create a new province south of the Danube, bearing the same name, by limiting the territories of old provinces such as Moesia Superior, Moesia Inferior and Thrace<sup>1</sup>.

The administrative reforms started by Diocletian and continued by Licinius and Constantine lead to the increase in the number of provinces and their grouping in 12 dioceses<sup>2</sup>. Constantine grouped the dioceses in prefectures (*praefectura per Orientem*, *praefectura per Illyricum*, *Italiae et Africae* and *praefectura Galliarum*). The frontier between the prefecture of the Orient and Illyricum ran through the Balkan Peninsula<sup>3</sup>. As early as the reign of Diocletian the eastern part of the peninsula belonged to **diocese Thracia** (part of the prefecture of the Orient), which was divided into six provinces: Europa, Rhodope, Thrace, Haemimontus, Moesia Inferior<sup>4</sup> and Scythia. The western part belonged to **diocese Moesia** in the prefecture Illyricum, which was made up of 10 provinces: Dacia<sup>5</sup>, Moesia Superior, Dardania, Praevalis, Macedonia, Thessaly, Achaia, Epirus Nova, Epirus Vetus and Crete.

During the reign of Constantine or at the latest in the middle of the 4<sup>th</sup> c. the diocese Moesia was divided in two<sup>6</sup> smaller dioceses: the southern provinces (Macedonia, Thessaly,

<sup>1</sup> VETTERS 1950, 6–7; VELKOV 1977, 21. An inscription from 282–283 AD (AÉ 1912, 200 = ILB, 188) seems to attest the existence of two provinces Dacia, later known as Ripensis and Mediterranea.

<sup>2</sup> For the history of the administrative organization in the Late Roman Empire see SESTON 1946, 311–342; STEIN 1959, 47–50; JONES 1964, 42–52; BARNES 1982, 201 f. The main document attesting the administrative reform is *Laticulus Veronensis* (BURY 1923), dated by most specialists to the reigns of Licinius and Constantinus (for a synthesis of the opinions see ZUCKERMAN 2002, who brings arguments for dating it around the year 314).

<sup>3</sup> For the evolution in time of this “border” between the eastern and western parts of the Roman Empire, see WEILER 1996, 123–143.

<sup>4</sup> As late as the end of the 3<sup>rd</sup> c. and the first half of the 4<sup>th</sup> c. the two provinces Moesia were still called Inferior and Superior (see below, n. 42).

<sup>5</sup> Diocletian may have united the two Dacias created by Aurelian in a single province (BURY 1923, 135). A new division (Dacia Ripensis and Dacia Mediterranea) could have taken place during the reign of Constantine (Dacia Ripensis is represented at the Council of Serdica in 343) or even later (but surely before 386, when Dacia Mediterranea is attested in CTh, I, 32,5).

<sup>6</sup> The exact date of the division remains unknown. There are indications for a date before 327 (CTh, XI, 3, 2 attests a *comes Macedoniae*). The most certain source is dated around 369 (Rufius Festus, *Brev.*, 52.8–10). Cf. DEMOUGEOT 1981, 231–232.

Achaia, Epirus Nova, Epirus Vetus and Crete) formed **diocese Macedonia**, while the northern provinces (Praevalitana, Dardania, Dacia Mediterranea, Dacia Ripensis and Moesia Prima) formed **diocese Dacia**. The two new dioceses, along with diocese Pannonia, were part of the *praefectura praetorio Illyrici, Italiae et Africae* (which later, after it got separated from Africa and Italy, became *praefectura Illyrici*, with the capital at Sirmium) and later (395), after the prefecture was finally divided between the East and the West, became part of Eastern Illyricum<sup>7</sup>.

The administrative organization at the beginning of the 6<sup>th</sup> c. was clearly described by Hierocles' *Synecdemos*<sup>8</sup>. Thus, in the Balkan Peninsula existed only two dioceses at that time: Thrace (*Thrakike*), made up of provinces Europa, Rhodope, Thrace, Haemimontus, Moesia Secunda and Scythia, and diocese Illyricum (*Illyrikon*), made up of provinces Macedonia Prima, Macedonia Secunda, Thessaly, Hellas, Crete, Epirus Vetus, Epirus Nova, Dacia Mediterranea, Dacia Ripensis, Dardania, Praevalis, Moesia Prima and Pannonia. One can notice that to the west the old dioceses Dacia and Macedonia are not mentioned anymore, as they – along with what remained of Pannonia (the territory around Sirmium) – were integrated in the large administrative unit called Illyricum.

During the reign of Justinian the administrative organization of the Balkan provinces remains largely the same, even if some of the territories were reconfigured. Two important moments for this period are the promotion of Iustiniana Prima to the status of archbishopric in Illyricum and the creation of district *Quaestura Exercitus*. According to the *novella* published in 535, Iustiniana Prima, as a new imperial foundation, was proclaimed an archbishopric over “*tam ipsa Mediterranea Dacia quam Dacia Ripensis, nec non Mysia prima, et Dardania et Praevalitana provincia e Secunda Macedonia, et pars secundae etiam Pannoniae, quae in Bacensi est civitas*”. At the same time, according to the same document, authorities tried to transfer in the new city the capital of prefecture Illyricum (which was moved to Thessalonica after Sirmium was conquered by the Gepids), but this transfer was never finalized, as sources continue to mention Thessalonica as the capital of the prefecture<sup>9</sup>.

The most important change took place in 536, when provinces Moesia Secunda, Scythia, the Cycladic islands, Caria and Cyprus were subordinated to a *quaestor Iustiniani exercitus* based in Odessos<sup>10</sup>. Several opinions exist on the attributions of this administrative unit and there is a general agreement on its military role in reinforcing the Danubian frontier against the barbarian threat<sup>11</sup>. A recent analysis of the data on the *quaestura exercitus* belongs to S. Torbatov, who supports the idea that this institution also played a financial role, apart from the military and juridical one<sup>12</sup>.

The dioceses were commanded by a *vicarius* with the rank of *vir spectabilis*, who represented civilian rule. It seems that during the reign of Anastasius the vicar of Thrace was replaced with the two vicars of the Long Wall (*vikarios tou Makrou Teichos*), one of which held the civilian power and the other the military one. During the reign of Justinian a new position appeared in the administrative apparatus of the diocese of Thrace, namely a *praetor Iustinianus Thraciae* (*Iust. Nov.*, XXVI, dated May 18, 535), which received the supreme civilian and military authority. In the second half of the 6<sup>th</sup> c. there was a return to the old position of vicar<sup>13</sup>. The finances of

<sup>7</sup> DEMOUGEOT 1981, 236, 249–250; WEILER 1996, 136–137. The administrative situation after 395 is well documented by the Notitia Dignitatum.

<sup>8</sup> Hierocles, *Synecd.*, 631–657.

<sup>9</sup> *Iust. Nov.* XI = FHDR II, 377–379. Cf. CURTA 2002, 130; CURTA 2006, 68, n. 12 (with references).

<sup>10</sup> *Iust. Nov.* XLI = FHDR II, 380–383.

<sup>11</sup> JONES 1964, 280; VELKOV 1977, 62; Al. Barnea, in SUCEVEANU, BARNEA 1991, 243–244.

<sup>12</sup> TORBATOV 1997, 80.

<sup>13</sup> VELKOV 1977, 64.

the dioceses were administered during the reign of Diocletian by a *rationalis dioceseos*, and later by a *comes largitionum* or *comes thesaurorum*.

According to the picture presented by the Notitia Dignitatum, the civilian government of the provinces was entrusted either to *consulares* with the rank of *vir clarissimus* (Thrace, Europa<sup>14</sup>, Dacia Mediterranea), or to *praesides* with the rank of *vir perfectissimus* (Haemimontus, Rhodope, Moesia Secunda, Scythia, Dacia Ripensis<sup>15</sup>, Moesia Prima, Praevalitana, Dardania). Their main attributions were administrative, fiscal and juridical. But often during the reign of Diocletian we come across *praesides* involved in the building of urban and military fortifications (*castra, centenaria*) and even in military operations<sup>16</sup>.

The city and its territory represented the last administrative subdivision of a province. During the 4<sup>th</sup> – 5<sup>th</sup> c. the urban administrative authority was gradually transferred from the *curiales* to the bishops, and the urban territories were at the same time ecclesiastical districts. A major change in the Late Roman period was that the cities did not attain urban status through the old *ius civitatis*, but by the public buildings they contained<sup>17</sup>. V. Dinčev drew up a classification of the cities in the dioceses of Dacia and Thrace based on the dimensions of the *intra muros* surface, which was considered an indicator of the number of inhabitants<sup>18</sup>.

In the following pages it will be presented each province's borders and main cities known from the literary and archaeological sources.

**MOESIA PRIMA.** The successor of the former province Moesia Superior kept its western border on the river Drina<sup>19</sup>. To the north it neighbored Pannonia Secunda on the lower course of the river Sava (between the latter's junction with the Drina and its confluence with the Danube) and along the Danube (from Singidunum to the confluence with the river Porečka) it had a common frontier with the *barbaricum*. During the 4<sup>th</sup> c. this province also contained territories located north of the Danube.

Historical sources indicate that during the 4<sup>th</sup> – 6<sup>th</sup> c. six cities existed in the province. Five of them are mentioned by Hierocles<sup>20</sup> at the beginning of the 6<sup>th</sup> c.: *Viminacium* (Kostolac) – the province's capital, *Singidunum* (Belgrade), *Tricornium* (Ritopek), *Gratiana* (unidentified at the present moment, but surely located on the limes, where it is mentioned by the Notitia Dignitatum) and *Horreum Margi* (Čuprija). From the bishops lists it is clear that, at least in the 4<sup>th</sup> – 5<sup>th</sup> c., *Margum* (Kulič) also attained city status. Therefore there was a concentration of urban life on the Danubian limes, as most cities were former Roman *municipia*<sup>21</sup> and their

<sup>14</sup> An inscription from Perinthos, dated to 324, mentioned a *consularis provinciae Europae et Thraciae* (CROW 2002, 342, after G. Dagron).

<sup>15</sup> Probably replaced by a *consularis* in the second half of the 5<sup>th</sup> c. and the beginning of the 6<sup>th</sup> c., as mentioned by Hierocles, *Synecd.* 655, 1 (VELKOV 1977, 70–71).

<sup>16</sup> There are many examples in the African provinces (Numidia, Mauretania Caesariensis, Mauretania Sitifensis, Tripolitania) and in the Eastern (Arabia, Augusta Libanensis) or Western provinces (Raetia, Britannia). For their inventory see HOFFMANN 1974, 383–384, n. 22. See also a new inscription in Syria: SARTRE 2007, 263–264 (= IGLSyr XVI, 708). Cf. MANN 1977, 12: during the reign of Diocletian “the *praeses* was still in most provinces also the military commander”. There is also a Balkan foundation inscription from Paleokastra, in Epirus Vetus, which attests the building of the fort during the reign of Licinius (311–313) and mentions a *praeses* (BAČE 1981, 207–208, 217; MIKULČIĆ 2002, 16).

<sup>17</sup> Al. Barnea, in SUCEVEANU, BARNEA 1991, 178–179.

<sup>18</sup> DINČEV 1999. See below, p. 41.

<sup>19</sup> ZANINOVIĆ 1983, 93.

<sup>20</sup> Hierocles, *Synecd.* 657, 2–6.

<sup>21</sup> For the urban evolution in Moesia Superior and then in Moesia Prima see MIRKOVIĆ 1968 and MÓCSY 1974, 115 f., 308 f.

prosperity was ensured by the proximity of the imperial mines in the northern part of the province<sup>22</sup>. As the name shows, *Gratiana* was founded during the Valentinian I/Valens period as a base for a border unit (*auxilium Gratianense*) and later attained city status<sup>23</sup>. Archaeological excavations did not provide enough information on the province's city life, as the urban area at *Viminacium* was delimited only topographically (over 30 ha during the 4<sup>th</sup> – 5<sup>th</sup> c. and for the 6<sup>th</sup> c. there is a segment of the defense wall at Svetinja), there are only few discoveries at *Singidunum* (in the 4<sup>th</sup> c. the Roman fort of approx. 20 ha extended northwards with another 10 ha and during the 6<sup>th</sup> c. the urban area was reduced to 6–7 ha, in the fort's NW area) and the situation is very unclear at *Horreum Margi* (the defense wall encloses 14 ha)<sup>24</sup>.

**DACIA RIPENSIS.** The province's western border (neighboring Moesia Prima) started at the mouth of the river Porečka and continued southwards to the springs of the river Timok (*Timacus*). To the east the border with Moesia Secunda was on the river Vit (*Utus*). To the south it neighbored Dacia Mediterranea on a trajectory that lead along the peaks of the Balkans<sup>25</sup>.

Hierocles mentioned five cities in this province: *Ratiaria* (Arčar) – the capital, *Bononia* (Vidin), *Aques* (Prahovo), *Castra Martis* and *Oescus* (Gigen)<sup>26</sup>. The other sources and especially the archaeological research do not provide concrete data on the size of these cities, which were located mainly on the limes: *Ratiaria* had a surface of approx. 30–35 ha during the Late Roman period, *Oescus* increased its size to approx. 28 ha, *Bononia* was a new city that covered a surface of 23 ha, and *Aquae* reached approx. 29 ha<sup>27</sup>. About *Castra Martis*, the only city in the province's interior, we know for sure that it was also a bishopric as early as the 4<sup>th</sup> c. (council of Serdica, 343) and it is traditionally located at Kula, where there is a Tetrarchic *quadriburgium* and a small fortification of only 1.25 ha attached to it, too small to be considered an urban centre<sup>28</sup>. An important urban centre in the province's interior was the one at Čomakovci, located on the river Iskār valley, along the Oescus – Serdica road. The fortified area covers approx. 15 ha and I believe this is a powerful argument in favor of locating here the *Castra Martis* mentioned by the ancient sources<sup>29</sup>.

**DACIA MEDITERRANEA.** Based on ancient itineraries we can recreate the borderline with Dardania and Thrace. Its trajectory at the frontier with Dacia Ripensis is also well known, as it followed the peaks of the Balkans up to the source of the river Vit. The border with Macedonia underwent some changes in the 5<sup>th</sup> – 6<sup>th</sup> c. when Bargala, which was initially part of Dacia Mediterranea (according to an inscription from 371), appears in other sources as being part of the territory of Macedonia<sup>30</sup>.

<sup>22</sup> DUŠANIĆ S. 1995, 219–225 (with considerations on the role of *metalla Tricorniensia*); DUŠANIĆ S. 2004, 256, n. 47: “the Danube (and the Save) facilitated the transport of metals as well as miners' commodities (...); the administration, defence and peregrine labour in the mines of the *ripa Danuvii* were all centered in the Danubian forts (*Tricornium, Pincum, Aquae...*)”.

<sup>23</sup> PETROVIĆ P. 1982–1983b proposes the identification with the fortification at Dobra-“Saldum”, a theory with no conclusive arguments.

<sup>24</sup> DINČEV 1999, 45–46, 50–51, with references. At *Horreum Margi a scutaria Horreomargensis*, mentioned by NDOr. XI, illustrates the importance of this city for the Late Roman army.

<sup>25</sup> VETTERS 1950, 7; VELKOV 1977, 85–86.

<sup>26</sup> Hierocles, *Synecd.* 655, 1–6.

<sup>27</sup> VELKOV 1977, 86 f.; DINČEV 1999, 44, 46–48 (with references). The same authors also included *Augustae* (Hârlec) among the province's possible cities, based on it being mentioned by Procopius as a *polis*. Its fortified area is of approx. 8 ha.

<sup>28</sup> DINČEV 2000, 69–70, who questions the identification of Kula with *Castra Martis*.

<sup>29</sup> For the discoveries at Čomakovci see VETTERS 1950, 13–14; VELKOV 1977, 89; DINČEV 1999, 50.

<sup>30</sup> VELKOV 1977, 93; PAPAZOGLU 1988, 97–98; MIKULČIĆ 2002, 22–24, who tries to draw the border between the two provinces based on the position of the fortifications.

At the beginning of the 6<sup>th</sup> c. the province had five cities: *Serdica* (Sofija), *Pautalia* (Kjustendil), *Germania* (Sapareva Banja), *Naissus* (Niš) and *Remesiana* (Bela Palanka)<sup>31</sup>. Procopius also mentioned several administrative districts on the territory of the two Dacias during the 6<sup>th</sup> c.<sup>32</sup>. Apart from the territories of the above-mentioned large cities, Procopius mentions the territories *Cabetzos* and *Scassetana*. Other cities that were part of Dacia Mediterranea are *Bargala* (Kozjak) in the 4<sup>th</sup> c. and *Iustiniana Prima* (Caričin Grad), founded in the 6<sup>th</sup> c.

From an archaeological point of view the only well known situation is that of *Serdica*, a true metropolis of the Balkans and even the residence of several emperors, whose urban surface during the 4<sup>th</sup> c. is estimated at 84 ha. *Pautalia* developed on the same location as the Early Roman town (29 ha) and in the 6<sup>th</sup> c. it was added a fortification of 2.1 ha. For *Naissus* (a surface estimated at 20 ha) and *Remesiana* (5 ha) we have little archaeological data. About *Bargala* we know that it covered a surface of 4.7 ha, and the bishop's basilica excavated here proves the settlement's urban status<sup>33</sup>. About *Germania*, which during the Early Roman period was the headquarters of an auxiliary unit stationed in Thrace (*cohors II Lucensium*), we only know the trajectory of a segment of the defense wall, which enclosed a surface of 2.2 ha. The city developed especially during the 5<sup>th</sup> – 6<sup>th</sup> c., when a basilica decorated with mosaics was built<sup>34</sup>.

**DARDANIA.** The province's territory was made up of the historical Dardania that represented, during the Early Roman period, the southern part of the province Moesia Superior. It had borders with Dacia Mediterranea, Moesia Prima, Praevalitana and Macedonia Secunda. V. Popović supposes that from 545 onwards the territory of Iustiniana Prima, until then a part of Dacia Mediterranea, was transferred to Dardania<sup>35</sup>.

According to the list drawn up by Hierocles for this province run by a *praeses*, Dardania had three cities: *Scupi* (the capital), *Merion* and *Ulpiana*<sup>36</sup>. Archaeological research demonstrated the remarkable development of the metropolis *Scupi* (Skopje), which in the 4<sup>th</sup> – 5<sup>th</sup> c. covered over 43 ha and had many public monuments, but after the devastating earthquake of 518 was reorganized around a new, much smaller fortification (2.30 ha). *Ulpiana* (Gračanica) developed as well, covering an urban area of approx. 35 ha, to which was added in the 6<sup>th</sup> c. another fortification of almost 16 ha. An important city, whose name remains unknown, was identified at Konjuh (located in the border area between Dardania, Macedonia and Dacia Mediterranea), covering a surface of 17 ha, with many public buildings and a Christian basilica. According to some authors, in the category of small urban centres we can also include two important sites located in the southern part of the province: Čučer (9 ha, 4<sup>th</sup> – 6<sup>th</sup> c.) and Vodno-“Markovi Kuli” (6<sup>th</sup> c.)<sup>37</sup>.

<sup>31</sup> Hierocles, *Synecd.* 654, 2–7.

<sup>32</sup> Because in the list of toponyms presented by Procopius (*De aedif.*, IV, 4) Moesia Prima, Dacia Ripensis and Dacia Mediterranea are not mentioned as separate provinces, it is highly probable that during the reign of Justinian these were united in a single great province Dacia. The same seems to happen with Praevalitana and Dardania, united under the latter's name. For arguments see S. Olteanu (<http://soltm.com/geolarts/orgprov/orgprov.htm>), who starts from certain observations made by J. B. Bury.

<sup>33</sup> VELKOV 1977, 93 f.; DINČEV 1999, 42–43, 46, 49, 54 (with references).

<sup>34</sup> VELKOV 1977, 97; BIERNACKA-LUBANSKA 1982, 255.

<sup>35</sup> POPOVIĆ V. 1989–1990, 279–280.

<sup>36</sup> Hierocles, *Synecd.* 655, 7 – 656, 2.

<sup>37</sup> DINČEV 1999, 43–44, 50, 52 (with references); MIKULČIĆ 2002, 128–133 (Konjuh, identified by the author with *Tranupara* mentioned by Tabula Peutingeriana on the road between Stobi and Pautalia), 153–158 (Čučer), 190–195 (Vodno). The exact location of *Merion* is still under discussion, as it very probably was the same with the *Meridio* mentioned by Procopius and *Iust. Nov.* XI, a bishopric to which Aquae (in Dacia Ripensis) was subordinated (VELKOV 1977, 87). I. Mikulčić proposed Nikuštak as a location for *Merion*, on the road between Scupi and Pautalia, but with no conclusive arguments (MIKULČIĆ 2002, 177). Al. Jovanović identified it with the fortification at Balajnac, near Naissus (JOVANOVIĆ 2001, 167–174; JOVANOVIĆ 2003, 26–30).

**PRAEVALITANA.** The data on this province is scarce<sup>38</sup>. It occupied the southern part of the former province Dalmatia, but there is no concrete data on its territory. To the west there was Dalmatia, to the north and east Moesia Prima and Dardania<sup>39</sup>, while to the south it neighbored Epirus Nova along a line that started immediately south of Lissus.

Hierocles mentioned that the province was run by a *praeses* and had three cities: *Scodra*, *Lissus* and the capital *Doclea*<sup>40</sup>. About *Scodra* (Shkodër) we know that it covered approx. 35–40 ha, while *Doclea* (Duklja) was an important bishopric that developed on a surface of approx. 25 ha and had representative buildings, including Christian basilicas. About *Lissus* (Lezhe, on the Adriatic coast) we know almost nothing. An important centre on the border with Epirus Nova must have existed at Grazhdani (identified by some authors with *Dober*), which had a fortified area of 34 ha<sup>41</sup>.

**MOESIA SECUNDA.** As we have mentioned, when Dacia Ripensis was created by Aurelian, its border with the former Moesia Inferior (which later became Moesia Secunda<sup>42</sup>) was established on the river Vit (*Utus*). The border between the two provinces most probably ran along the entire course of the river<sup>43</sup>. To the south the border with Thrace was set on the peaks of the Balkans, but all mountain passes (Trojan, Šipka, Pass of the Republic, Tvărdica, Vratnik, Kotel, Vărbica, Riš) belonged to Moesia Secunda. The territory of Odessos on the Black Sea coast (starting to the north near Kranevo and ending south probably near Cape Emine) represented the province's eastern limit<sup>44</sup>.

Moesia Secunda had seven cities in the first decades of the 6<sup>th</sup> c.: *Marcianopolis*, *Odessos*, *Durostorum*, *Nicopolis ad Istrum*, *Novae*, *Appiaria* and *Abrittus*<sup>45</sup>. Historical sources and archaeological discoveries indicate the capital *Marcianopolis* (Devnja, which covered approx. 70 ha) and *Odessos* (Varna, 43 ha) as the province's true metropolises. The latter reached its highest degree of development during the reign of Justinian, when it became the headquarters of the *quaestura exercitus*. *Durostorum* (Silistra) represents a highly instructive situation for urban evolution in Late Antiquity: the fort of *legio XI Claudia* (19 ha) was used throughout the 4<sup>th</sup> – 6<sup>th</sup> c., the external area (the former *canabae*) were intensely populated during the 4<sup>th</sup> c. and several hundred meters northwards a new fortification was built on the bank of the Danube (3–4 ha). *Novae* (Svištov) developed around the headquarters of the *legio I Italica*, whose Early Roman fort was extended in the 4<sup>th</sup> c., which created a final urban area of 26 ha. About *Nicopolis ad Istrum* (Nikjup) we know that during the 4<sup>th</sup> – 5<sup>th</sup> c. it still had its Early Roman defense that enclosed a surface of 21.5 ha and that the *extra muros* area was intensely inhabited. But in the second half of the 5<sup>th</sup> c. and the 6<sup>th</sup> c. the fortified area was reduced to a *castellum* of only 5.74 ha, with no urban elements. It is presumed that most of the inhabitants of the old town took refuge southwards, in Veliko Tărnovo, where a prosperous urban centre developed during the 6<sup>th</sup> c. (approx. 12 ha, identified by some authors with *Zikideva* mentioned by Procopius and Theophilact Simocatta,

<sup>38</sup> RE XXII, A (1954), col. 1673–1980, see *Praevalitana* (B. Saria).

<sup>39</sup> Based on the information in the Notitia Dignitatum, according to which there existed a *Praevalis et pars Macedoniae Salutaris* and an *Epirus Nova et pars Macedoniae Salutaris*, I. Mikulčić also proposed a temporary border with Macedonia Secunda (MIKULČIĆ 2002, 27–28).

<sup>40</sup> Hierocles, *Synecd.* 656, 3–6.

<sup>41</sup> DINČEV 1999, 43–45, 47 (with references).

<sup>42</sup> In inscriptions dated at the end of the 3<sup>rd</sup> – beginning of the 4<sup>th</sup> c. (AÉ 1980, 793.1 and 793.2), as well as in 4<sup>th</sup> c. sources (Laterculus Veronensis, Laterculus Polemii Silvii, Rufius Festus) the province was still mentioned by its old name – Moesia Inferior.

<sup>43</sup> VELKOV 1977, 99; ZAHARIADE 1988, 34.

<sup>44</sup> ZAHARIADE 1988, 36.

<sup>45</sup> Hierocles, *Synecd.* 636, 2–8.

but also by the *Notitia Episcopatum*)<sup>46</sup>. If most cities in Moesia Secunda started as Greek or Early Roman towns, *Abrittus* (Razgrad) was a new city founded in the 4<sup>th</sup> c., which covered an area of almost 12 ha. There is no information on *Appiaria* (Rjahovo). *Sexaginta Prista* (Ruse), which is mentioned as a bishopric, also seems to have enjoyed city status, as did the centers at Vojvoda (10 ha, identified by some with the *Diniskarta* mentioned by Procopius and the 11<sup>th</sup> c. *Dineia*) and Kovačevac (5.2 ha)<sup>47</sup>.

**SCYTHIA.** The province's southern limit, on the border with Moesia Secunda, passed east of the Marcianopolis – Durostorum road and was recently mapped with a high degree of accuracy by S. Torbatov. It started at Lake Oltina, followed a north-south trajectory on the Suha Reka Valley, then turned on an east-west trajectory through the valley of the Batovska Reka (the ancient *Zyras*) until it reached the Black Sea north of Kranevo<sup>48</sup>.

The number of cities mentioned by Hierocles in this province is surprisingly high (15) and can be compared to the situation in province Europa. These are *Tomis*, *Dionysopolis*, *Akraï*, *Callatis*, *Istros*, *Constantiana*, *Zaldapa*, *Tropaion*, *Axiopolis*, *Capidava*, *Karsos*, *Troesmis*, *Noviodunum*, *Aegyssus* and *Halmyris*. The presence of such a high number of cities is clearly connected to the changes in the ecclesiastic organization of province Scythia. When *Tomis* was promoted from the only bishopric accepted in the province to a metropolitan centre, all the cities subordinated to it became bishoprics themselves<sup>49</sup>. From an archaeological point of view the cities on the coastline developed in different manners: if *Tomis* (approx. 60–70 ha) and *Callatis* (10 ha known at the present moment, but a significant area of the city is submerged) reached a high degree of urban development, the fortified area at *Histria* was reduced to only 7 ha during the Late Roman period, apart from which there also existed a more extensive *extra muros* dwelling area during the 6<sup>th</sup> c. *Dionysopolis* (Balčik) was a prosperous city in the 4<sup>th</sup> – 5<sup>th</sup> c., but the old Hellenistic urban area was devastated by an earthquake. During the reign of Anastasius or Justinian a new city was built on another location (approx. 15 ha). Another city on the coastline was *Acrae* (Kaliakra), which had in the 4<sup>th</sup> – 5<sup>th</sup> c. a fortified area of approx. 25 ha. There is little information on the urban characteristics of the cities on the Danubian limes, with the exception of *Capidava* and *Halmyris*, where archaeological excavations have revealed good quality buildings and Christian basilicas. Three important cities were located on the province's central road: *Zaldapa* (Abrit, covering over 25 ha), *Tropaeum Traiani* (9 ha) and *Ibida* (Slava Rusă), which was not mentioned by Hierocles, but whose surface of 24 ha places it among the large cities in the province and justifies the term *polis* used by Procopius (*De aedif.* IV, 7, 19). *Constantiana* could very well be located on the coastline, either at Cape Doloșman (ancient *Argamum*) or at Enisala<sup>50</sup>.

**THRACE.** The northern border with Moesia Secunda followed the peaks of the Balkans and to the west it bordered Dacia Mediterranea on an approximately NE-SW trajectory through the “Trajanova Vrata” (the Suki Pass). The southern border with province Rhodope followed the

<sup>46</sup> DINČEV 1997 b (with bibliographical references). A new hypothesis on the location of this city was launched by S. Olteanu, who supports the identification of *Zikideva* with the fortress at Kovačevac (OLTEANU 2007, 68 f.).

<sup>47</sup> VELKOV 1977, 99 f.; DINČEV 1999, 42, 47 f. (with references). The limited excavations at Vojvoda did not bring any proof for the settlement's urban status. At Kovačevac (*Zikideva*?) the research is still in its initial phase.

<sup>48</sup> TORBATOV 2000 b, 70 f., fig. 7; TORBATOV 2002, 14–21, fig. 1. For an older attempt to map the border see VULPE 1972.

<sup>49</sup> POPESCU 1969.

<sup>50</sup> For the urban development in the province Scythia see VELKOV 1977, 107 f.; Al. Barnea, in SUCEVEANU, BARNEA 1991, 178 f.; DINČEV 1999, 42 f.; TORBATOV 2002, 86 f.; ZAHARIADE 2006, 61 f.

peaks of the Rhodope Mountains. To the east the border with Haemimontus passed somewhere west of the river *Tonzos* (Tundža)<sup>51</sup>.

Hierocles mentioned that it was governed by a *consularis* and had five cities: *Philippopolis*, *Beroe*, *Diocletianopolis*, *Sebastopolis* and *Diospolis*<sup>52</sup>. The capital *Philippopolis* (Plovdiv) reached a new degree of development during the Late Roman and Early Byzantine period, with an urban area estimated at approx. 80 ha and a population of approx. 100,000. *Beroe/Augusta Traiana* (Stara Zagora) was still defended by the wall built during the reign of Marcus Aurelius, which enclosed a surface of 48.5 ha. As the name shows, *Diocletianopolis* (Hisarja) was a new city built at the end of the 3<sup>rd</sup> – beginning of the 4<sup>th</sup> c. Archaeological excavations have delimited a fortified area of approx. 30 ha, with many public and private buildings. We cannot say much about *Sebastopolis* and *Diospolis*, the other cities mentioned by Hierocles, as they have not been identified yet. A smaller town must have existed at Simeonovgrad (known in medieval sources as *Constantia*), whose fortified area covered 5 ha<sup>53</sup>.

**HAEMIMONTUS.** The province was made up of the eastern territories of historical Thrace, down to the Black Sea. To the north it bordered Moesia Secunda (see above) and the western border with Thrace lay somewhere west of the river Tundža. To the south-west the province ended with the territories of Hadrianopolis and Plotinopolis and the southern border with province Europa is supposed to have followed the river Ekrene, north of the cities Bergule and Bizye and down to the Black Sea coast<sup>54</sup>.

Hierocles mentions in the province the cities of *Hadrianopolis*, *Anchialos*, *Debeltos*, *Plotinopolis* and *Tzoides* at the beginning of the 6<sup>th</sup> c.<sup>55</sup>. From an archaeological point of view there is no sufficient data on large cities such as *Hadrianopolis* (Edirne) and *Anchialos* (Pomorje), but their importance is made clear by ancient sources. There is no sufficient data on *Plotinopolis* (Didymoteichon) either, a city founded by Trajan and restored by Justinian. Among the province's smaller towns, *Debeltos* (the former Roman colony of *Deultum*) was in decline, its fortified area being reduced to only 5–6 ha in the 4<sup>th</sup> c. *Tzoides* (Sliven) was a city newly built at the beginning of the 4<sup>th</sup> c., which covered an area of 4.5 ha. *Mesambria* (Nesebăr) and *Sozopolis* (former *Apollonia*, Sozopol) were not mentioned by Hierocles, but there is enough data to attest their urban character at least in the 6<sup>th</sup> c. Both coastline towns covered an area estimated at approx. 25 ha<sup>56</sup>.

**RHODOPE.** The province was made up by the southern slopes of the Rhodope Mountains and the northern coast of the Aegean Sea. To the west it bordered Macedonia on the river *Nestos* (Mesta), to the east it contained the lower course of the river *Hebros* (Marica) and bordered both Haemimontus, as well as Europa just east of the city of Ainos.

From Hierocles we learn that Rhodope had six cities: *Ainos*, *Maximianopolis*, *Traianopolis*, *Maroneia*, *Topeiros*, *Nicopolis* and *Kereopyrgos*<sup>57</sup>. Apart from those, ancient sources mention *Abdera* (Ammianus Marcellinus) and *Anastasiopolis* (Procopius). The province included old Greek cities on the Aegean coast, such as *Ainos*, *Abdera* and *Maroneia*, Early Roman imperial foundations – *Topeiros* (Paradeisos), *Traianopolis* (Loutros) and *Nicopolis ad Nestum* (Goce

<sup>51</sup> VELKOV 1977, 127–128.

<sup>52</sup> Hierocles, *Synecd.* 635, 3–8.

<sup>53</sup> VELKOV 1977, 127 f. (where there is an attempt to identify *Diospolis* with the old *Cabyle*); DINČEV 1999, 42–43, 45–46, 55 (with references). A recent epigraphical discovery indicates the location of *Diospolis* at Rupkite, the former roadside station *Carassura* (LOZANOV 2005).

<sup>54</sup> VELKOV 1977, 115.

<sup>55</sup> Hierocles, *Synecd.* 635, 9–14.

<sup>56</sup> VELKOV 1977, 114 f.; DINČEV 1999, 43–44, 47, 51, 54–55 (with references).

<sup>57</sup> Hierocles, *Synecd.* 634, 4 – 635, 2.

Delčev), but also new cities such as *Maximianopolis* (founded during the Tetrarchy over the former *Porsulae*, located at Komotini) and *Anastasiopolis* (Amaxades, founded at the beginning of the 6<sup>th</sup> c.). The archaeological research of this province's urban centres is still at its beginnings. The best known sites are the fortified area at *Nicopolis ad Nestum* (11 ha), then *Maroneia* (19 ha during the Late Roman period) and *Traianopolis* (over 20 ha)<sup>58</sup>.

**EUROPA.** The province covered the south-eastern part of historical Thrace down to the Sea of Marmara, including the Thracian Chersonesos.

Hierocles mentions no less than 14 cities in the province at the beginning of the 6<sup>th</sup> c., which makes it one of the best urbanized in the diocese of Thrace: *Eudoxiopolis* (the new name of *Selymbria*), *Heraclea* (former *Perinthos*), *Arcadiopolis* (former *Bergule*), *Bizye*, *Panion* (re-baptized *Theodosiopolis*), *Hormoi*, *Ganos*, *Gallipolis*, *Merizos*, *Siltike*, *Sanadia*, *Aphrodisias*, *Apros* (the old Roman colony *Apri*) and *Koila*<sup>59</sup>. As in the case of Rhodope, there is no sufficient archaeological data to illustrate this extraordinary urban development. The best known sites are *Eudoxiopolis/Selymbria* (Silivri, approx. 12 ha) and *Bizye* (Vize, approx. 7 ha)<sup>60</sup>. Remarkably, in Europa – unlike in other provinces – a massive urbanization effort is attested during the first decades of the 5<sup>th</sup> c., during the reigns of Arcadius and Theodosius II<sup>61</sup>.

## 2. MILITARY ORGANIZATION

The army of the two dioceses was commanded by a *magister militum per Thracias* and a *magister militum per Illyricum* respectively, both with the rank of *vir illustris*. They had the supreme command over the *comitatenses* and the *duces* of the border provinces. Before the creation of this position (at the end of the 4<sup>th</sup> c.) it seems that, at least for the diocese of Thrace, the army was commanded by a *comes rei militaris per Thracias*, also mentioned by Ammianus Marcellinus. In the 4<sup>th</sup> c. Notitia Dignitatum mentions three permanent bases for mobile units: *cohors IV Gallorum* at *Ulucitra* (in province Rhodope), *cohors I Aureliana* at *Sub Radice–Viamata* and *cohors III Valeria Bracarum* at *Drasdea* (province Thracia). Most probably these units reflect the early organization of the mobile army during the reign of Diocletian and were commanded by the *comes per Thracias*<sup>62</sup>. The *comitatenses*<sup>63</sup> were spread in all the cities and forts inside the provinces, including those on the Black Sea coast. Epigraphic sources attest garrisons at Anchialos (*vexillatione equitum Dalmatarum comitatensium Anchialitana*), Odessos (*Constantini seniores*), Tomis (*cuneus Dalmatarum?*, *sagittarii iuniores*), Histria (*vexillatio catafractariorum*) and Ulmetum (*lanciarum iuniores*)<sup>64</sup>.

In the diocese Dacia Notitia Dignitatum mentions units of *pseudocomitatenses Scupenses*, *Ulpianenses* and *Merenses*<sup>65</sup> under the command of the *magister militum per Illyricum*, which indicates the three cities as the place of origin for the units.

<sup>58</sup> VELKOV 1977, 124 f.; DINČEV 1999, 48–50, 52 (with references). *Anastasiopolis* seems to be the successor of the old roadside station *Stabulum Diomedis* on the *Via Egnatia* (PANTOS 1983, 176–177).

<sup>59</sup> Hierocles, *Synecd.* 631, 4b – 634,3. For their location see VELKOV 1977, 119 f.

<sup>60</sup> DINČEV 1999, 51, 54 (with references).

<sup>61</sup> CROW 2002, 346.

<sup>62</sup> NDOr XL, 44–49. Cf. VELKOV 1977, 69–70; ZAHARIADE 1988, 42, 44.

<sup>63</sup> The creation of the mobile army started during the Licinius/Constantine period (313–324), but got well under way especially after 324. See BERCHEM 1952, 75 f.; ZAHARIADE 2006, 167.

<sup>64</sup> Most are mentioned in Notitia Dignitatum as subordinated to the commander of Thrace, or among the Palatine legions. Cf. VELKOV 1977, 67–68; ARICESCU 1977, 121–125; ZAHARIADE 1988, 95.

<sup>65</sup> NDOr. IX, 42–44. Cf. JOVANOVIĆ 2003, 23–26.

A *dux* commanded the border army in each of the four Danubian provinces<sup>66</sup>. They initially held the rank of *vir perfectissimus*, but during the 4<sup>th</sup> c. and at the beginning of the 5<sup>th</sup> c. they were promoted to the rank of *vir clarissimus* and then *vir spectabilis*<sup>67</sup>. The first known *dux* is that of province Scythia, Aurelius Firminianus, mentioned by an inscription from Tomis dated by most specialists during the first Tetrarchy (293–305)<sup>68</sup>. Other names mentioned by ancient sources are Latronianus (293), Valerius Romulus (322–323), Sappo (337–340), Flavius Stercorius (369), Iunius Soranus (373–374), probably Gerontios (386) and Flavius Servandus (beginning of the 5<sup>th</sup> c., mentioned with the title *komes kai archon*)<sup>69</sup>. In Moesia Secunda only Fortunius is attested with certainty (4<sup>th</sup> or 5<sup>th</sup> c.)<sup>70</sup>, and only Tautomedes (366)<sup>71</sup> is mentioned in Dacia Ripensis.

Two legions were stationed in each province: *IV Flavia* (Singidunum) and *VII Claudia* (Viminacium) in Moesia Prima, *XIII Gemina* (Ratiaria) and *V Macedonica* (Ratiaria) in Dacia Ripensis, *I Italica* (Novae) and *XI Claudia* (Durostorum) in Moesia Secunda, *I Iovia* (Noviodunum) and *II Herculia* (Troesmis) in Scythia.

Many auxiliary units were stationed in forts along the limes. Notitia Dignitatum presents a clear picture of their distribution at the end of the 4<sup>th</sup> – beginning of the 5<sup>th</sup> c.

Thus, in Moesia Prima<sup>72</sup>, apart from the two legions stationed at Singidunum and Viminacium, the most important auxiliary forts were, from the west eastwards: *Tricornium* (Ritopek), *Aureus Mons* (Seona), *Margum* (Kulič), *Contra Margum/Castra Augustoflavianensis* (Kubin), *Lederata* (Ram), *Pincum* (Veliko Gradište), *Cuppae* (Golubac), *Novae* (Čezava) and *Taliata* (Donji Milanovac). All auxiliary units were recruited locally, as shown by their names: *auxiliares Reginenses*, *auxiliares Tricornienses*, *auxiliares Novenses*, *auxilium Margense*, *auxilium Cuppense*, *auxilium Gratianense*, *auxilium Taliatense*, *auxilium Aureomontanum*. The cavalry units were the *cuneus equitum Dalmatarum* (at Aureus Mons, Pincum and Cuppae), *cuneus equitum sagittariorum* (at Tricornium and Lederata), *cuneus equitum promotorum* (at Flaviana and Viminacium), *cuneus equitum Constantacorum* (at Pincum). An important role was played by the Danubian fleet that had bases at Margum (*praefectus classis Stradensis et Germensis*) and Viminacium (*praefectus classis Histricae*).

The limes of Dacia Ripensis<sup>73</sup> was defended by the two legions brought from Dacia: *legio XIII Gemina* (at Ratiaria) and *legio V Macedonica* (at Oescus), whose detachments were stationed, along with many auxiliary units, in a series of forts and fortresses. There are (from the west eastwards): *Translucus* (Hajdučka Vodenica?), *Dierna* (Orșova), *Transdierna* (Tekija), *Transdrobeta* (Kostol), *Aegeta* (Brza Palanka), *Dorticum* (Vrâv), *Bononia* (Vidin), *Almus* (Lom), *Cebus* (Gorni Cibăr), *Augustae* (Hârlec), *Variana* (Leskovec), *Utus* (Milkovica), but also several unidentified ones, such as *Burgonovo*, *Crispitia*, *Transalba* and *Siosta*. Detachments of the *legio XIII*

<sup>66</sup> There is a theory that during the Tetrarchy Moesia Secunda and Scythia formed a single unit (covering the territory of the former Moesia Inferior) commanded by a *dux* that also controlled the northern territories of the Black Sea (SARNOWSKI 1990, 859).

<sup>67</sup> ZAHARIADE 1988, 46–47.

<sup>68</sup> CIL III, 764 = ILS, 4103 = IGLR, 2. Recently ZUCKERMAN 2002, 636 proposed to date this famous inscription to a later period (*Augusti* Galerius and Licinius, *Caesares* Constantine and Maximinus, more precisely the years 308–310). LEWIN 2004, 229 also has a different interpretation of CIL III, 14450 = IGLR, 3, traditionally attributed to the same *dux* (see below, p. 35).

<sup>69</sup> ZAHARIADE 1988, 42–44.

<sup>70</sup> ZAHARIADE 1988, 44.

<sup>71</sup> CTh, XV, 1, 13; VETTERS 1950, 26; VELKOV 1977, 66.

<sup>72</sup> NDOr. XLI.

<sup>73</sup> NDOr. XLII. Cf. IVANOV R. 1997, 520.

*Gemina* were also stationed at Dierna, Transdrobeta, Aegeta and Burgonovo, and of the *legio V Macedonica* at Sucidava, Variniana and Cebrus. The most important cavalry units were the *cuneus equitum Dalmatarum Divitensium* (at Drobeta and Dorticum), *cuneus equitum Dalmatarum Fortensium* (at Bononia), *cuneus equitum Dalmatarum* (at Augustae and Variana), *cuneus equitum scutariorum* (at Aegeta and Cebrus) and *cuneus equitum stablesianorum* (at Almus). There are several auxiliary units recruited locally: *auxilium primorum Daciscorum* (Drobeta), *auxilium secundorum Daciscorum* (Burgonovo) and *auxilium Crispitiense* (Crispitia). The Danubian fleet was made of the *classis Histrica* (at Aegeta) and the *classis Ratiarensis* (at Ratiaria).

In Moesia Secunda<sup>74</sup> the limes sectors were divided among the legions at Novae and Durostorum, each stationed in two bases: *legio I Italica* at Novae and Sexaginta Prista, *legio XI Claudia* at Durostorum and Transmarisca. Auxiliary units were stationed in the following forts (from the west eastwards): *Ansamus* (Čerkovica), *Securisca* (Bjala Voda), *Dimum* (Belene), *Iatrus* (Krivina), *Trimammium* (Mečka-Stălpîște), *Mediolana*, *Sexaginta Prista* (Ruse), *Tegra* (Marten), *Appiaria* (Rjahovo), *Transmarisca* (Tutrakan), *Candidiana* (Malăk Preslavec), *Tegulicium* (Vetren), *Durostorum* (Siliistra), *Cimbriana* (Gura Canliei), *Altinum* (Oltina) and *Sucidava* (Izvoarele). Their local origin is illustrated by names of units like *milites Dacisci* (at Mediolana), *milites Novenses* (at Transmarisca), *milites primi Moesiaci* (at Candidiana), *milites Moesiaci* (at Tegulicium), *milites Cimbriani* (at Cimbriana), *milites nauclarii Altinenses* (at Altinum). Among the cavalry units we remark those based both in Moesia Secunda and in Scythia: *cuneus equitum scutariorum* (Securisca and Iatrus, but also at Sacidava), *cuneus equitum armigerorum* (at Sexaginta Prista, but also at Aegyssus), *cuneus equitum Solensium* (at Dimum and at Capidava), *cuneus equitum stablesianorum* (at Sucidava, but also at Cius and Beroe).

The defense of the Scythian limes<sup>75</sup> was entrusted to the two legions created by Diocletian. According to the Notitia Dignitatum, they were each stationed in two bases: *legio I Iovia* at Noviodunum and Aegyssus, and *legio II Herculia* at Troesmis and Axiopolis. The auxiliary units of the Scythian limes were *cunei* and *milites* stationed in the forts at *Sacidava* (Muzait), *Flaviana* (Rasova), *Axiopolis* (Cernavodă), *Capidava* (Capidava), *Carsium* (Hârșova), *Cius* (Gârliciu), *Beroe* (Piatra Frecăței), *Troesmis* (Iglița), *Arrubium* (Măcin), *Dinogetia* (Garvăn), *Noviodunum* (Isaccea), *Aegyssus* (Tulcea), *Salsovia* (Mahmudia), *Talamonium* (= *Halmyris*, Murighiol) and *Gratiana* (Dunavățu de Jos?). Among these units we remark those created by the successors of Constantine (*milites primi Constantiani* at Noviodunum, *milites secundi Constantiani* at Troesmis, *milites quinti Constantiani* at Salsovia)<sup>76</sup>; others were created later (*milites primi Gratianenses* at Gratiana, *cuneus equitum Arcadum* at Talamonium). There are also locally recruited *milites Scythici* at Carsium and Dinogetia, and specialized units like *milites nauclarii* at Flaviana and *milites superventores* at Axiopolis.

Stamped bricks are an important source for understanding the chronology and structure of the defensive system on the limes. T. Sarnowski has undertaken a systematic analysis of the stamped bricks in provinces Dacia Ripensis and Moesia Secunda, for which he distinguished four main chronological stages<sup>77</sup>:

- Diocletian/Tetrarchy (284–311): the classic production of stamped bricks continued (LEGXIIIIGEM, LEGXIIIIG, LEGIIITAL, LEGXICL) with slight innovations in the case of *legio V Macedonica*, whose stamps mention a specific cohort (LEGVMCII, LEGVMCIII, LEGVMCIII etc.)<sup>78</sup>;

<sup>74</sup> NDOr. XL. Cf. ZAHARIADE 1988, 55 f.; IVANOV R. 1997, 520.

<sup>75</sup> NDOr. XXXIX. Cf. ARICESCU 1977, 107 f.; ZAHARIADE 1988, 55 f.

<sup>76</sup> See also in Moesia Secunda the *milites quarti Constantiani* at Durostorum (NDOr. XL, 26).

<sup>77</sup> SARNOWSKI 1985, 107–127. Cf. IVANOV R. 1997, 523–529.

<sup>78</sup> For Scythia the only known stamps are those of the *legio I Iovia* (IGLR, 241: LEGIIIOVIAESCY, LEGIIIOVT).

- Constantine (311–337): the stamps clearly mention the division of detachments among different bases, usually along with the name of the fort they were produced in (LXIIIIGPSLEG, LEGXIIIIGRAT, LEGVMOES, LVMVAR, PRLVMOES, PRLVMVTO, PRLVMVAL, LEPIFIGVCRTV, LEPIFICOR, IITALFICOR, LEGXICL/FIGKAS, LEGXICLFTRM, LEGXICLCAND etc.)<sup>79</sup>;

- Constans/Constantius II (337–361): in Dacia Ripensis there are still legionary stamps that mention the name of the base (PPRIP, PROES, PRVAR), but most of them simply mention the fort they came from (DIERNA, DRVBETA, AQVIS, DIERTRA, AVGVSTISFO, ALM, BON, DIANA, OESCO, VARINIA, VTO, CEBR), as the latter were also produced by auxiliary units;

- Valentinian I/Valens (364–378): on the stamps in Dacia Ripensis appears the abbreviation of the province's name (DARAQVIS, DRP/AQVIS, DARPAST, DARDIANA, DRPDRVB, DRPDIERNA, DRDI etc.), and in Moesia Secunda were recorded the RVMORID<sup>80</sup> stamps.

An important role in the military organization of the Danubian provinces was played by the fleet. When the provinces were reformed at an administrative and military level, it is highly probable that the great Early Roman naval unit that defended this area – the *classis Flavia Moesica* – was also reorganized. For each sector of the limes separate units were formed. The most important bases of the Danubian fleet, as mentioned by the Notitia Dignitatum, were in Moesia Prima at Viminacium (*praefectus classis Histricae*) and Margum (*praefectus classis Stradensis et Germensis*), in Dacia Ripensis at Aegeta (*praefectus classis Histricae*) and Ratiaria (*praefectus classis Ratiarensis*), in Moesia Secunda at Appiaria (*milites tertii nauclarii*) and Altinum (*milites nauclarii*), and in Scythia at Flaviana (*milites nauclarii*) and Plateypegiis(?) (*praefectus... musculorum Scythicorum et classis inplateypegiis*)<sup>81</sup>.

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<sup>79</sup> For the repartition of legions in Moesia Prima in different bases see DUŠANIĆ M. 1976, 275–283; DUŠANIĆ M. 1978, 343–345.

<sup>80</sup> Probably from Flavius Rumoridus, *magister militum per Thracias* during the reign of Theodosius I (year 384) and consul in 403. According to T. Sarnowski, he was the *dux* of Moesia Secunda at the beginning of his career, more precisely during the reign of Valens; at the same time Tautomedes commanded in Dacia Ripensis and Flavius Stercorius in Scythia and all of them were entrusted with the task of restoring the Danubian limes (SARNOWSKI 1985, 125 f.). The RVMORID stamp also appears in Scythia, at Cius (ISM V, 125).

<sup>81</sup> ZAHARIADE 1988, 88–91; BOUNEGRU, ZAHARIADE 1996, 22 f.; IVANOV R. 1997, 529; ZAHARIADE 2006, 175–176.

### III

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## ROADS AND FORTIFICATIONS IN THE DIOCESES OF THRACE AND DACIA

### 1. ROADS

Until the present moment there is no updated synthesis on the Roman roads in the Balkan provinces. Most works that treat different aspects of the history of these provinces do not present a clear roadmap and in many cases the roads are drawn in an arbitrary manner on maps, confusing anyone who wants to use these maps for other studies<sup>1</sup>. This is why such a synthesis should take into account all available sources. Apart from ancient itineraries, milestones and other epigraphic sources like the ones attesting *beneficarii*, archaeological discoveries are also extremely important, from classic roadside stations (*praetoria*, *mansiones*, *mutationes* and *tabernae*) to larger or smaller fortifications that were usually built along the roads. Also, such a study should be based on each area's geographic characteristics<sup>2</sup>, as well as on field surveys or aerophotogrammetry.

The road network developed over time in the Balkan provinces following the ancient natural roads used by the local populations, as well as the roads used by the Greek colonists along the coasts of the Aegean, Adriatic and Black Sea. Roman military roads were built gradually, after the provinces were established, and became the main axes of this road system. Apart from these, during the 2<sup>nd</sup> – 3<sup>rd</sup> c. other main roads developed, whose structure is very well described in ancient itineraries. In the 4<sup>th</sup> c., and later as well, a series of changes occur in the axes of communication, due especially to the changes in military organization and the increase in the number of fortifications (bases for the mobile units, supply centres, roadside fortifications, etc.), but also to the development of new urban centres or imperial residences. These changes increase the importance of certain roads which had been secondary until then.

To have a general picture of the road network in the dioceses of Thrace and Dacia we will try to organise the available data, taking into consideration what we have mentioned above. Based on this information we distinguish four road categories:

1. The Danube road and Trans-Balkan strategic roads (*viae militares*<sup>3</sup>);
2. Coastline roads;

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<sup>1</sup> We will see that establishing the exact trajectory of Roman roads helps determine the exact character of certain Late Roman-Early Byzantine minor fortifications.

<sup>2</sup> Very instructive from this point of view is the work by Ivan Mikulčić regarding the fortifications in the Former Yugoslav Republic of Macedonia, where the trajectory of the communication routes also takes into account this important aspect (MIKULČIĆ 2002, 30 f.).

<sup>3</sup> Cf. ŠAŠEL 1977. 253–254.

3. Interprovincial roads;
4. Provincial and regional roads (*semitae*).

**The Danube road** follows the Empire's frontier between Singidunum and the mouths of the Danube. Its construction in the Moesian sector, beginning at Singidunum, started as early as Tiberius' reign<sup>4</sup> and continued in time towards the mouth of the Danube, advancing as new Roman garrisons were established in this area. Ancient itineraries mention the most important forts and fortresses on this road, as well as several road stations (*Singidunum – Aureus Mons – Margum – Viminacium – Pincum – Cuppae – Novae – Ad Scrofulas – Taliata – Gerulata – Una – Egeta – Clevora – Aquae – Dorticum – Ad Malum – Bononia – Ratiaria – Remetodia – Almus – Pomodiana – Cebrus – Augustae – Variana – Pedoniana – Valeriana – Oescus – Utus – Ansamus – Securisca – Dimum – Novae – Iatrus – Scaidava – Trimammium – Sexaginta Prista – Tigra – Appiaria – Transmarisca – Candidiana/Nigrinianis – Tegulicium – Durostorum – Sacidava – Altina – Sucidava – Axiopolis – Capidava – Carsium – Cius – Beroe – Troesmis – Arrubium – Dinogetia – Noviodunum – Aegyssus – Salsovia – Halmyris – Ad Stoma*). The maintenance of the Danube road was a constant worry for the emperors of the Late Empire, especially during the Tetrarchy and the reign of Constantine<sup>5</sup> but also later, under Anastasius and Justinian, when many of the old fortifications were restored and new ones were built<sup>6</sup>.

The first category also includes the two great **Trans-Balkan roads** mentioned in most of the ancient sources concerning this field, as they practically represented bridges between the Empire's eastern and western areas. The oldest is *Via Egnatia*, built as early as the 2<sup>nd</sup> c. B.C. in order to significantly shorten the distance between Italy and the oriental provinces. The itineraries and milestones discovered along its trajectory prove the high degree of attention paid by 4<sup>th</sup> c. emperors to its maintenance<sup>7</sup>. Its starting point was on the Adriatic coast, at *Dyrrachium* or *Apollonia*, then it passed through Epirus Nova and Macedonia on the following itinerary: *Clodiana – Ad Quintum – Scampa* (Elbasan)<sup>8</sup> – *Treieto – Ad Dianam – Candavia – Tres Tabernas – Pons Servili – Claudanon – Patras – Lychnidus* (Ohrid) – *Scirtiana – Castra Nicaea* (Dolenci)<sup>9</sup> – *Heraclea Lyncestis* (Bitola) – *Cellis – Edessa – Pella* (renamed *Diocletianopolis*) – *Thessalonica – Mellisurgin – Apollonia – Amphipolis – Domeros – Ad Duodecimum – Philippi – Neapolis – Acontisma*, then crossed the river Nestos into the diocese of Thrace, passing through *Topeiros – Cosintus – Stabulum Diomedis* (Amaxades)<sup>10</sup> – *Porsulae* (renamed *Maximianopolis*) – *Tempyra – Traianopolis – Ainos – Dymai – Cypsela* (the terminus of the old road<sup>11</sup>) – *Syracella – Apri – Rhaedestos – Perinthos* (renamed *Heraclea*.)

The central Trans-Balkan road, that connected the Middle Danube area to Constantinople, is the most important to the history of these provinces during the 4<sup>th</sup> – 6<sup>th</sup> c. On this artery, vital to the imperial authority (in the Byzantine sources it appears as “imperial road”: βασιλική ὁδός), which started in *Viminacium* and passed through the most important towns in the Balkans (*Naissus, Serdica, Philippopolis* and *Hadrianopolis*), ancient itineraries mention 62 stations (many

<sup>4</sup> GABRICEVIĆ 1972; PETROVIĆ P. 1990.

<sup>5</sup> HOLLENSTEIN 1975, *passim*; ARICESCU 1977, 134 f.; IVANOV R. 1997, 481–490; BARNEA AL. 1997, 32; BĂRBULESCU, CÂTEIA 1997; BĂRBULESCU, CÂTEIA 1998; TORBATOV 2004b.

<sup>6</sup> ARICESCU 1972; IRMSCHER 1977; PATOURA-HATZOPOULOS 1980; IVANOV S. 1983.

<sup>7</sup> COLLART 1976; MOUTSOPOULOS 1979; WALBANK 1986; ADAMS 1986.

<sup>8</sup> Large fort (approx. 348 × 308 m, round corner-towers and U-shaped intermediary ones), very probably the headquarters of those *pseudocomitatenses Scampenses* mentioned in NDOr. IX, 48 (KARAIŠKAJ 1971).

<sup>9</sup> Early Roman fort, rebuilt in the 4<sup>th</sup> c. (125 × 122 m, round corner-towers and U-shaped intermediary ones), urban and episcopal centre during the 5<sup>th</sup> – 6<sup>th</sup> c. (MIKULČIĆ 2002, 271–273).

<sup>10</sup> In the 6<sup>th</sup> c. the town of *Anastasiopolis* was founded nearby (PANTOS 1983, 176–177).

<sup>11</sup> The next part of the road, down to Constantinople, was built later.

*mansiones* and *mutationes* are mentioned by the *Itinerarium Burdigalense*): *Viminacium* – *Ad Nonum* – *Municipium* – *Iovis pagus* – *Bao* – *Mansio Idimum* – *Ad Octavum* – *Horreum Margi* – *Sarmatae* – *Cametae* – *Praesidium Dasmini* – *Praesidium Pompei* – *Gramrianis* – *Naissus* – *Radices* – *Ulmus* – *Remesiana* – *Latina* – *Turribus* – *Translitae* – *Ballanstra* – *Meldia* – *Scretisca* – *Serdica* – *Extuomne* – *Burgaraca* – *Sparata* – *Helice* – *Egerica* – *Soneium* – *Ponce Ucas* – *Bona Mansio* – *Lissae* – *Alusore* – *Zyrmae* – *Bessapara* – *Tugugerum* – *Philippopolis* – *Sernota* – *Ranilum* – *Parembole* – *Cellae* – *Carassura* – *Pizus* – *Arzus* – *Palae* – *Castra Rubra* – *Subzupara* – *Rhamae* – *Burdipta* – *Hadrianopolis* – *Daphabae* – *Ostudizus* – *Burtudizus* – *Bergulae* – *Narcus* – *Druzipara* – *Tipsum* – *Tzurullum* – *Beodizus* – *Perinthos/Heraclea* – *Cenophrurion* – *Melantiada* – *Byzantium/Constantinopolis*. Its construction started during Nero's reign. From the age of Diocletian until that of Theodosius I, this road was constantly kept in repair, as the many milestones discovered on its trajectory prove<sup>12</sup>, as well as a number of road and military fortifications<sup>13</sup>.

**Coastline roads** are intrinsically connected to the navigation along the Adriatic and Black Sea coasts. The Adriatic road ensures the connection between the Dalmatian coast and *Aquilea*; we only mention here the stations that appear in the *Tabula Peutingeriana* for the *Epidauros* (Dalmatia) – *Dyrrachium* (Epirus Nova) segment, in the area that belonged to the province *Praevalitana*: *Epidauros* – *Resinium* (Risan) – *Ulcinium* (Ulcinj) – *Batua* – *Scodra* (where it deviates from the coast) – *Lissus* – *Dyrrachium*. The *Itinerarium Antonini* (338, 4 – 339, 5) prefers the road which goes around Lake Scodra: *Narona* – *Dalluntum* – *Leusinium* – *Anderba* (Nikšić-“Onogošt”) – *Salluntum/Salthua* (Riječani-“Budetina grada”) – *Alata* (Podgorica-“Ribnica”, a station near *Doclea*) – *Birziminium* (Samobor) – *Cinna* – *Scodra* – *Dyrrachium*<sup>14</sup>.

The Pontic route is listed in ancient itineraries as the continuation of the Danube road. From North to South, the following stations are mentioned: *Vallis Domitiana* (Agighiol?) – *Ad Salices* (6 Martie?) – *Histria* – *Tomis* – *Stratonis* (Cape Tuzla?) – *Amlaidina* (23 August) – *Callatis* – *Timum* – *Tiris* (Kaliakra) – *Bizone* (Kavarna) – *Dionysopolis* – *Odessos* – *Erite* (Dolni Bliznjak) – *Templum Iovis* (Obzor) – *Mesembria* – *Anchialos* – *Apollonia* – *Thera* – *Buatico* – *Scyllam* – *Philia* – *Thimea* – *Sycas*. It seems that the sector between the Danube's mouth and *Apollonia* was more widely used, while the southern sector, leading towards Constantinople, was less accessible. The maintenance effort in preserving this road is also demonstrated by the many milestones dating from the Tetrarchy, as well as from the reigns of Licinius and Constantine, discovered on the *Histria* – *Apollonia* segment<sup>15</sup>.

The third category we have listed – **interprovincial roads** – is formed of roads that roughly follow a N-S axis in relation to the three main roads (Danube road, Central road and *Via Egnatia*), and on an E-W axis in relation to the coastal roads.

We must first mention the *Lissus* – *Naissus* – *Ratiaria* road, which represents the shortest way between the Adriatic Sea and the Danube<sup>16</sup>. According to the *Tabula Peutingeriana*, on this road there existed a series of stations: *Lissus* – *Ad Picarias* – *Creveni* – *Gabuleum* – *Theranda* – *Viciano* (= *Ulpiana*?) – *Vindenis* – *Ad Fines* (Kuršumlja) – *Hammeum* (Prokuplje) – *Ad*

<sup>12</sup> HOLLENSTEIN 1975, passim. Cf. BEŠEVLIJEV 1969; VELKOV 1977, 192–193; SPEIDEL 1984; VASIĆ, MILOŠEVIĆ 2000, 129 f.

<sup>13</sup> Among those that have been excavated we mention *Mansio Municipio* – Kalište, *Iovis Pagus* – Velike Laole, *Idimum* – Medvedja (VASIĆ, MILOŠEVIĆ 2000, 140 f., see also Gazetteer no. 63), as well as *Stenes* – Trajanova Vrata (Gazetteer no. 86).

<sup>14</sup> MIJOVIĆ, KOVAČEVIĆ 1975, 48 f., fig. 1.

<sup>15</sup> HOLLENSTEIN 1975, passim; BARNEA Al. 1997, 32; BĂRBULESCU, CÂTEIA 1997; TORBATOV 2004b, 88, 94 (who notices that certain segments of the road are built at considerable distance from the coastline). Cf. SUCEVEANU 1992, 196, fig. 1; SOUSTAL 1992, 59 f.

<sup>16</sup> Section *Lissus*–*Naissus*: PETROVIĆ V. 2008. Section *Naissus*–*Ratiaria*: POPOVIĆ V. 1974 and PETROVIĆ, FILIPOVIĆ 2007.

*Herculem* (Žitoradija) – *Naissus* – *Timacum Maius*<sup>17</sup> – *Timacum Minus* (Ravna)<sup>18</sup> – *Combustica* (Kladorup?) – *Ratiaria*.

Another road, almost parallel to the previous, which connected *Via Egnatia* with the Danube, lay between *Heraclea Lyncestis* – *Stobi* – *Pautalia* – *Serdica* – *Oescus*. The following stations are mentioned on this road: *Heraclea Lyncestis* – *Ceramiae* – *Stobi* – *Astibos* – *Tranupara* – *Pautalia* – *Aelea* – *Serdica*. The rest of the road to *Oescus*, even if it is not mentioned in itineraries, almost certainly ran along the river *Iskär* (*Oescus*), probably passing through Botevgrad-“*Ribni Vir*”<sup>19</sup> and the important (urban?) centre at Čomakovci (*Castra Martis?*)<sup>20</sup>.

The road that connected *Thessalonica* – *Stobi* – *Scupi* – *Naissus* (and was continued by the military road to *Viminacium*) was very important during the Late Empire, especially after Thessalonica became the headquarters of the prefecture Illyricum. This road ran through the valleys of the rivers Vardar (*Axios*) and Morava (*Margus*): *Thessalonica* – *Ad Decimum* – *Idomene* (Valandovo?) – *Stenas* – *Antigoneia* – *Stobi* – *Gurbita* – *Bylazora* – *Ad Cephalon* – *Scupi* – *Aquae* – *Anausaro* – *Ad Fines* (Džep) – *Naissus*<sup>21</sup>.

Another road connected *Amphipolis* to *Serdica*<sup>22</sup>, following the *Strymon* (Struma) valley towards *Amphipolis* – *Skotoussa* (Siderokastro?) – *Paroikopolis* (Sandanski?) – *Neine* (Ilindenci?) – *Scaptopara* (Blagoevgrad) – *Germania* (Separeva Banja)<sup>23</sup> – *Serdica*. We cannot exclude the possibility that a branch of this road led to Thessalonica.

The *Philippopolis* – *Oescus* road, that cut through the Balkans through the Trojan pass, was used as a *via militaris* as early as the 1<sup>st</sup> c. AD and was always an object of concern for imperial authorities up to the end of the 4<sup>th</sup> c. It is one of the best archaeologically researched road, as numerous military and specific roadside installations have been discovered on its trajectory, many of them identified with the stations mentioned in ancient itineraries<sup>24</sup>. According to these, the following stations existed between the two cities: *Philippopolis* – *Viamata* (Vojnjagovo-“*Gorni Stenici*”)<sup>25</sup> – *Sub Radice* (Hristo Danovo) – *Montemno* (Beklemeto-“*Karcovija Buk*”) – *Ad Radices* (Beli Osām/Kamen Most) – *Sostra* (Lomec)<sup>26</sup> – *Melta* (Loveč) – *Doriones* – *Storgosia* (Pleven) – *Ad Putea* – *Oescus*.

It seems that another road connected *Philippopolis* to the Aegean Sea coast. Its trajectory is documented archaeologically across the Rhodope Mountains<sup>27</sup>, probably heading for *Topeiros*, which probably connected it to *Via Egnatia*.

<sup>17</sup> Traditionally identified with the modern town Knjaževac, but see recently new arguments for the location of *Timacum Maius* at Niševac-Svrljig (PETROVIĆ, FILIPOVIĆ 2007, 35–40).

<sup>18</sup> Auxiliary Roman fort, rebuilt during the Late Empire (PETROVIĆ P. 1986).

<sup>19</sup> Inscription that mentions this road, dated to 367–375 (AÉ 1969–1970, 570 = ILB, 187). Cf. HOLLENSTEIN 1975, 40, no. 81.

<sup>20</sup> VELKOV 1977, 195. For Čomakovci = *Castra Martis*, see above, p. 15.

<sup>21</sup> MIRKOVIĆ 1960 (who proposes a trajectory deviated from the Upper Morava river, through Ulpiana); MIRKOVIĆ 1980; GEORGIEVSKI 1990–1991; MIKULČIĆ 2002, 33–36, 41.

<sup>22</sup> PAPAZOGLU 1988, carte 20.

<sup>23</sup> Roman auxiliary fort (*cohors II Lucensium*), which received town status in Late Roman period, see VELKOV 1977, 97.

<sup>24</sup> AVRAMOV 1914; TSONTCHEV 1959; MADŽAROV M. 1986; MADŽAROV M. 1990; MADŽAROV M. 2004; HRISTOV et al. 2004.

<sup>25</sup> *Viamata* is not mentioned in the *Tabula Peutingeriana*, but does appear, along with *Sub Radice* in NDOr. XL, 48, as headquarters of the *cohors I Aureliana*. Somewhere at mid-distance between Philippopolis and Viamata, near the modern village Černozem (where a roadside station has been identified) another short road branch started westwards, connecting this road to the new city *Diocletianopolis* (Hisarja).

<sup>26</sup> Roman fort built during the reign of Antoninus Pius, headquarters of the *cohors II Mattiacorum*, completely rebuilt at the end of the 3<sup>rd</sup> c. (HRISTOV et al. 2003; HRISTOV 2006).

<sup>27</sup> MADŽAROV M. 1988.

In the ancient itineraries it is mentioned also the *Philippopolis – Ranilum – Beroe (Augusta Traiana) – Cabyle – Aquae Calidae – Anchialos* road, and a series of milestones have been discovered (Kiril-Metodievo, Kortan, Izvorište) along it<sup>28</sup>.

The *Augusta Traiana – Nicopolis ad Istrum – Novae* road passed through the Šipka pass and along it there were old *emporium (Discoduraterae)* or newer fortifications such as those in Krän, Gabrovo, Držanovec, Kilifarevo or Veliko Tärново.

The road along the *Tonzos (Tundža)* valley, between *Traianopolis – Plotinopolis – Hadrianopolis – Cabyle*, was an important connection between the Aegean coast and inner Thrace, and it was mentioned in itineraries. From *Cabyle* another road went north (towards *Abrittus?*), through the Kotel pass, and along it there existed another series of roadside fortifications (Kotel)<sup>29</sup> and later fortified settlements such as those in Gradec-“Vavovo Kale” (inscription from the reign of Anastasius)<sup>30</sup> or Tärговиšte (5<sup>th</sup> – 6<sup>th</sup> c.)<sup>31</sup>.

Another road, less known from itineraries, but whose trajectory can be reconstituted by identifying certain fortifications and milestones, is the road running parallel to the southern slopes of the Balkan Mountains<sup>32</sup>. It followed an East-West direction, connecting *Serdica* to the Black Sea coast. Its trajectory can first be retraced between Ribni Vir (inscription referring to the construction of a road dated to 367–375)<sup>33</sup> and Pirdop (basilica fortified by a *quadriburgium*, 5<sup>th</sup> – 6<sup>th</sup> c.)<sup>34</sup>. From this point on, the road connected to the *Philippopolis – Oescus* route, very probably at *Sub Radice* (Hristo Danovo), passed near the fortification in Sopot-“Anevsko kale”<sup>35</sup> and headed for the fortification in Krän (5<sup>th</sup> – 6<sup>th</sup> c.)<sup>36</sup>, near Kazanlák and the Šipka pass, and then along the Upper *Tonzos (Tundža)* valley to Sliven (*Tzoides*). From there it continued eastwards, probably as far as the intersection with the *Cabyle – Anchialos* segment, which is mentioned in the itineraries. The milestone discovered at Lozenec (dated to the Tetrarchic period)<sup>37</sup> may have been placed at the intersection of these two roads, but the fortification in Karnobat<sup>38</sup> may just as well mark their junction.

Another important road, *Anchialos – Marcianopolis – Durostorum*, mentioned in the itineraries (*Anchialos – Cazalet – Scatrae – Panissos – Marcianopolis – Palmatae – Durostorum*) was used during Emperor Valens’ Gothic Wars and at the end of the 6<sup>th</sup> c., during the campaigns of the Byzantine army against the Avars<sup>39</sup>. The *Marcianopolis – Durostorum* sector has recently been studied by S. Torbatov, who also proposes locations corresponding to toponyms such as *Questris* (Popkralevo), *Palmatae* (Onogur) and *Adina* (Balik)<sup>40</sup>.

Starting with the 4<sup>th</sup> c. and especially during the 5<sup>th</sup> and 6<sup>th</sup> c., the roads that bordered the *limes* became increasingly important. Based on the distribution of fortifications used as supply

<sup>28</sup> Milestones dating from the reign of Hadrian (IGB I<sup>2</sup>, 384, Izvorište), Constantine (SSIB, 200, Kortan) or from an undetermined period (IGB III/2, 1651, Kiril-Metodievo). Cf. HOLLENSTEIN 1975. For recent research on the *Augusta Traiana – Cabyle* sector see SIRAKOV 2007.

<sup>29</sup> Gazetteer, no. 97.

<sup>30</sup> VELKOV, LISICOV 1994.

<sup>31</sup> BIERNACKA-LUBANSKA 1982, 239, fig. 74.

<sup>32</sup> TORBATOV 2004 b, 90, 95; WENDEL 2006, Abb. 1.

<sup>33</sup> V. Vladimirov, ArhSofia 5, 1963, 1, 33–34. Cf. HOLLENSTEIN 1975, 40, no. 81.

<sup>34</sup> Gazetteer, no. 72.

<sup>35</sup> Gazetteer, no. 100.

<sup>36</sup> OVČAROV T. 1978.

<sup>37</sup> IGB III/2, 1835. Cf. HOLLENSTEIN 1975, 37, no. 55.

<sup>38</sup> Cf. WENDEL 2006, 452, Abb.1. For the Early Byzantine and Mediaeval fortress (*Markeli*) in Karnobat see ŠTEREVA, ALADŽOV 2000, 294–298; ALADŽOV et al. 2006.

<sup>39</sup> VELKOV 1977, 195; WENDEL 2006.

<sup>40</sup> TORBATOV 2000 a.

bases for the forts along the *limes*, we believe that such a road, which connected the provinces *Dacia Ripensis* and *Moesia Secunda* on a trajectory parallel to the Danube frontier, seems to have started at *Ratiaria*, following the direction *Montana* – Tlačene<sup>41</sup> – Čomakovci (*Castra Martis?*) – *Storgosia* (or *Melta*) – *Nicopolis ad Istrum* – Kovačevac (*Zikideva?*) – *Abrittus* – *Palmatae*. From there it connected to the central Scythian road (*Zaldapa* – *Tropaeum* – *Noviodunum*). We must notice that this road – practically a belt of large inner fortifications representing important bases for the *comitatenses* units – intersected all the important roads with N-S orientation: *Naissus* – *Ratiaria*, *Serdica* – *Oescus*, *Philippopolis* – *Oescus*, *Augusta Traiana* – *Novae*, *Marcianopolis* – *Sexaginta Prista*, *Marcianopolis* – *Durostorum*.

The *Marcianopolis* – *Zaldapa* – *Tropaeum Traiani* – *Ulmetum* – *Ibida* – *Noviodunum* road became highly important during the Late Roman – Early Byzantine period<sup>42</sup>. We do not know the exact trajectory of this road, but based on the discovery of milestones and of certain fortifications we can propose the following succession: Devnja (*Marcianopolis*) – Kipra<sup>43</sup> – Novo Botevo<sup>44</sup> – Paskalevo<sup>45</sup> – Abrit (*Zaldapa*) – Cetatea (*Civitas Ausdecensium?*)<sup>46</sup> – Adamclisi (*Tropaeum Traiani*) – Mircea Vodă<sup>47</sup> (or Medgidia) – Dorobanțu<sup>48</sup> – Pantelimonul de Sus (*Ulmetum*) – Râmnicu de Jos<sup>49</sup> – Sarighiol de Deal<sup>50</sup> – Camena (*vicus Petra*) – Slava Rusă (*Ibida*) – Mihai Bravu<sup>51</sup> – Izvoarele<sup>52</sup> – Niculițel – Isaccea (*Noviodunum*).

**Provincial and regional roads (*semitae*)** ensured quick connections between different locations, some gaining strategic importance in time. Here is a succinct table of the most important provincial roads:

#### **Moesia Prima:**

- *Praesidium Dasmini* – Kraljevo (formerly *Municipium Celegerorum*) and on towards the border with Dalmatia<sup>53</sup>;
- *Pincum* – Kraku lu Jordan – Majdanpek (along the valley of the Pek River, a rich mining area)<sup>54</sup>.

#### **Dacia Ripensis:**

- *Timacum Minus* – *Aquae* (along the valley of the Timok River), a road connecting the inner military road to the *limes*;
- *Bononia* – Kula – Gamzigrad (*Romuliana*), probably leading to *Horreum Margi* (a highly important road starting with the Tetrarchic period);
- *Montana* – *Augustae* (along the valley of the Ogosta River), connecting the mining area to the *limes*.

<sup>41</sup> Milestone dated to 323–326 (SSIB, 45; HOLLENSTEIN 1975, 38).

<sup>42</sup> For the importance of this road, starting with the reign of Constantine: ARICESCU 1977, 132–133, who stresses the high frequency of milestones and new fortifications.

<sup>43</sup> Milestone from the reign of Theodosius I, 383–393 (SSIB, 149; HOLLENSTEIN 1975, 41, no. 82).

<sup>44</sup> Roadside fortification, see TORBATOV 2002, 341–345.

<sup>45</sup> Milestone dated to the reign of Severus Alexander (CIL III, 12519; HOLLENSTEIN 1975, 32).

<sup>46</sup> Roadside fortification? Cf. TORBATOV 2002, 308–309.

<sup>47</sup> Gazetteer, no. 91 (*quadriburgium*).

<sup>48</sup> Milestone from the Tetrarchic period (IGLR, 83).

<sup>49</sup> Station of *beneficarii* during the Early Roman period (V. Pârvan, ARMSI, 35, 1913, 518–526; Cr.-G. Alexandrescu, ZPE 164, 2008, 259–262).

<sup>50</sup> Possible fortification, cf. TIR L 35, 63; TORBATOV 2002, 379.

<sup>51</sup> Gazetteer, no. 90 (*quadriburgium*).

<sup>52</sup> Roman fort, probably rebuilt in the 4<sup>th</sup> c. Cf. TIR, L 35, 41 (s.v. Filimon Sârbu); OPAIȚ et al. 1991, 203; TORBATOV 2002, 273–274.

<sup>53</sup> Cf. MÓCSY 1974 b, fig. 60.

<sup>54</sup> TOMOVIĆ 2000.

### **Dacia Mediterranea:**

- *Pautalia – Germania* – on the border with Thrace, making the connection with the central road;
- *Naissus* – Leskovac – Caričin Grad (*Iustiniana Prima*), which was especially important during the reign of Justinian.

### **Dardania:**

- *Ulpiana* – Sočanica – Ras<sup>55</sup> – the border with Dalmatia (a densely populated area, with numerous fortified settlements);
- *Scupi – Pautalia* (fortifications along the road)<sup>56</sup>.

### **Moesia Secunda:**

- *Melta – Nicopolis ad Istrum* – Tărgoviște – Šumen – Madara – *Marcianopolis* (road mentioned in the Tabula Peutingeriana) and on towards *Odessos*;
- *Sexaginta Prista – Abrittus* – Vojvoda – *Marcianopolis*, which connects an important fluvial base to the capital of the province<sup>57</sup>.

### **Scythia:**

- *Tomis – Straja*<sup>58</sup> – *Mirištea*<sup>59</sup> – *Plopeni*<sup>60</sup> – *Zaldapa*;
- *Tropaeum Traiani* – *Plopeni* – *Callatis*;
- *Tomis – Poiana*<sup>61</sup> – *Castelu*<sup>62</sup> – *Mircea Vodă*<sup>63</sup> – *Axiopolis* (along the Carasu valley);
- *Histria – Ulmetum – Capidava*;
- *Tomis – Mihail Kogălniceanu*<sup>64</sup> – *Ulmetum – Carsium*;
- *Enisala (Constantiana?) – Babadag-“Topraichioi”*<sup>65</sup> – *Mihai Bravu*<sup>66</sup> – *Izvoarele – Horia*<sup>67</sup> – *Cerna*<sup>68</sup> – *Troesmis* (along the valley of the Taița River);
- *Ibida* – *Babadag-“Topraichioi”* – *Cataloi* – *Aegyssus* (at least in the 6<sup>th</sup> c. it was a variant to the central Dobrudjan road, as reflected in Procopius, *De aedif.* IV, 7, 19–20);
- *Troesmis – Nifon*<sup>69</sup> – *Noviodunum*.

### **Thrace:**

- *Philippopolis – Nicopolis ad Nestum*, as proven by a milestone<sup>70</sup>;
- *Constantia* (Simeonovgrad) – *Tuida* (Sliven), marked by a series of fortifications such as those in Znamenosec, Gipsovo, Djadovo, Asenovc<sup>71</sup>.

### **Haemimontus:**

- *Anchialos – Ostudizo*, mentioned in the itineraries and connected to the imperial Trans-Balkan road.

<sup>55</sup> Semi-urban fortified settlement (POPOVIĆ M. 1999).

<sup>56</sup> MIKULČIĆ 2002, 41.

<sup>57</sup> VELKOV 1977, 195, n. 756 (road studied by K. Škorpić).

<sup>58</sup> Fortification, see TORBATOV 2002, 307–308.

<sup>59</sup> Milestone Valentinian I/Valens/Gratian, dated to 367–369 (IGLR, 81). Cf. BARNEA AL. 1997, 31.

<sup>60</sup> Roadside fortification, see TORBATOV 2002, 309.

<sup>61</sup> See the recently identified *quadriburgium* (Gazetteer, no. 93).

<sup>62</sup> Probably a small *castellum* (Gazetteer, no. 92).

<sup>63</sup> Gazetteer, no. 91 (*quadriburgium*).

<sup>64</sup> Tetrarchic milestones recently published by BĂRBULESCU et al. 2009, 414–417.

<sup>65</sup> Gazetteer, no. 89 (*horreum, burgus*).

<sup>66</sup> Gazetteer, no. 90 (*quadriburgium*).

<sup>67</sup> Possible fortification, see TORBATOV 2002, 272–273.

<sup>68</sup> Possible fortification, see TORBATOV 2002, 272.

<sup>69</sup> Station for the *beneficarii* and late fortification, see TORBATOV 2002, 271.

<sup>70</sup> SSIB, 232 (Kovačevića), dated to 337–340. Cf. HOLLENSTEIN 1975, 40, no. 76.

<sup>71</sup> Cf. BORISOV 2001. Also see Gazetteer, no. 104 (Znamenosec) and no. 105 (Djadovo).

## Europa:

- *Apri – Aphrodisias – Gallipolis – Sestos* (road across the Thracian Chersonesos).

If we consider the chronology of late Roman milestones we can identify five periods of especially intense road construction and repairs<sup>72</sup>. These correspond to the Tetrarchic period (293–305), the reigns of Licinius/Constantine (308–323), of Constantine and his successors (323–340), of Valentinian I, Valens and Gratian (367–375), as well as that of Theodosius I (383–392). These periods coincide with the times when fortifications were also built or restored.

## 2. FORTIFICATIONS – LITERARY AND EPIGRAPHIC SOURCES

### 2.1. A new beginning: Post-Gothic reconstructions (second half of the 3<sup>rd</sup> c.)

The results of the frequent barbarian attacks at the middle of the 3<sup>rd</sup> c. were felt throughout the Balkan Peninsula. A great number of settlements, military or civilian, cities or villages, were destroyed and turned into ruins. The proportions of the disaster are clearly shown by the famous text in the *Historia Augusta*, which mentions the *excidium Histriae*, but also by the disappearance of the Roman provincial coins or the desertion of certain monumental sculpture workshops in *Tomis* and *Odessos*<sup>73</sup>. It is clear that the defence walls of cities and forts sustained heavy damage, which the emperors in the second half of the 3<sup>rd</sup> c. tried to remedy.

The first repairs are mentioned during the reign of Gallienus. It is the case of the inscriptions at *Philippopolis*<sup>74</sup> and *Serdica*<sup>75</sup> regarding the repair of the defence walls during the reign of Gallienus (more exactly between 260–268). To the same reign are dated two inscriptions in Montana that attest either the construction of surveillance points (256)<sup>76</sup>, or the construction *a fundamentis* of the gates and towers of the fortification by the *cohors III Collecta* (in 258)<sup>77</sup>. It is also noteworthy to mention a text from *Historia Augusta*, which states that Gallienus charged the commanders Cleodamos and Athenaios, both from Byzantium, with the reconstruction of the cities destroyed by the attacks of the Goths come on the sea<sup>78</sup>. An inscription from *Oescus* referring to the eastern gate (*porta Utensis*)<sup>79</sup> can also be connected with the defence wall repairs during this period.

During the reigns of Aurelian and Probus, repairs are attested regarding certain defence walls (*Sucidava-Celei*, *Tomis*), especially by archaeological data. Some authors give a certain interpretation (as a “Bauinschrift”) to the inscription in *Durostorum* that mentions the emperor’s

<sup>72</sup> HOLLENSTEIN 1975; BARNEA Al. 1997; BĂRBULESCU, CĂTEIA 1998.

<sup>73</sup> R. Vulpe, in DID II, 248. *Histria*, *Dionysopolis* and *Odessos* issue their last coins during the reign of Gordian III, and the workshops in *Tomis*, *Callatis*, *Nicopolis ad Istrum* and *Marcianopolis* close during the reign of Philippus.

<sup>74</sup> IGB III/1, 883.

<sup>75</sup> IGB IV, 1911.

<sup>76</sup> CIL III, 12376: [...burgum constitui iuxit] un[de latrunculos o]bservare[nt pro]pter tutela[m ca]strensium et [ci]vium Montanesium Maximo et [Gla]brione cos.

<sup>77</sup> CIL III, 7450 = ILS, 2622: P. Ael. Antonianus [trib.] coh. III Coll[ectae] [Valerianae Gallienae] portam praetoriam cum turre a fundamento somptibus suis et instantis fabricavit, Tusco et Basso cos. Cf. V. Božilova, in *Montana* I, Sofia, 1977, 20–36.

<sup>78</sup> SHA, V. *Gall.* 13, 6 = FHDR II, 102–103.

<sup>79</sup> ILB, 12: [---por]ticus Utensis [---]. Cf. IVANOV T. 1990, 919 (who connects it with Oescus II, which is harder to prove with archaeological arguments, taking into account that this precinct may have been built during the reign of Constantine).

victory against the Carpi, which might connect it to the repairs of the fort of the *legio XI Claudia*<sup>80</sup>. Another inscription, from *Callatis*, could also be connected to the restoration of this city during the reign of Aurelian<sup>81</sup>.

In these inscriptions one can notice the emphasis laid on the rebuilding of civilian settlements rather than military fortifications, which is in fact also true of other provinces in the Empire<sup>82</sup>. In my opinion this observation demonstrates a continuity of most legionary and auxiliary forts, without essential changes in the appearance of the defence walls. We must not omit the fact that military roads were constantly maintained during this period, as proven by the milestones dated to the reign of Decius (249–251, discovered at Sinoe and Rasova) and Gallienus (from *Carsium*, 255–258), therefore it is possible that the forts on the *limes* were equally well maintained (as they may have been less damaged). Anyway, the answer to this problem should be provided by archaeological research, still insufficient as far as the given period of time is concerned.

## 2.2. From Diocletian to the reigns of Valentinian I/Valens (284–378)

Diocletian's new empire is marked from the beginning by an unprecedented construction effort, tied to the military and administrative reforms implemented in this period. Ancient authors, such as Lactantius, write about the emperor's "unlimited passion" for constructions. The same author also mentions that the provinces were compelled to provide manpower, technicians and technical means to sustain this effort<sup>83</sup>. Special attention was paid to the frontiers by Diocletian and the Tetrarchs in general, and this is evident in certain texts by Eumenes, Eunapios and Zosimos<sup>84</sup>.

The reconstruction effort during the first Tetrarchy is well described by five almost identical inscriptions, discovered in five key places on the Danube *limes*: Donje Butorke (dated 294–300)<sup>85</sup>, Sexaginta Prista (298–301)<sup>86</sup>, Transmarisca (297)<sup>87</sup>, Durostorum (post 297)<sup>88</sup> and Halmyris (301–305)<sup>89</sup>. One cannot exclude the inscription in Seimeni from this category<sup>90</sup>. As has already been affirmed<sup>91</sup>, this is probably a standard text of the imperial chancellery (*pro futurum in aeterno rei publicae praesidium constituerunt*), applied to each location according to the year the construction was finished.

As far as urban restorations are concerned, the inscription in *Tomis* referring to the *porta praesidaria* is equally well-known, dated approximately to 285–292 (IGLR, 3). The traditional view is that this inscription mentions the same Aurelius Firminianus, *dux limitis provinciae*

<sup>80</sup> CIL III, 12456: [quot] *Imperator Aurelianus [reginam Ze]nobiam in viso[sque] tyrranos et Carpos ... inter Ca]rsium et Sucid[avam] delevit*. Cf. R. Vulpe, in DID II, 273–274; IVANOV R. 1997, 588, n. 446.

<sup>81</sup> CIL III, 7586 = ISM III, 96 (year 274, with the mention of a *praeses provinciae*).

<sup>82</sup> REDDÉ 2004, 159–160. The large towns inside the province suffered the most (such as *Philippopolis* in 250–251), as well as those on the West-pontic shore (especially as a consequence of the seaborne attacks in 258, 263 and 267–268 – see the destruction of *Histria* and *Anchialos*, but also the resistance of *Tomis*).

<sup>83</sup> Lactantius, *De mort.*, VII, 8–9.

<sup>84</sup> Eumenes, *Paneg. Lat.* IV, 18; Zosimos, *Hist. nova* II, 34.

<sup>85</sup> CERMANOVIĆ-KUZMANOVIĆ 1977–1978, 134–135. For the hypothesis on the origin of the inscription in the fort in *Diana* (Karataš) see VASIĆ 2003, 18–19.

<sup>86</sup> J. Kolendo, *Eirene* 5, 1966, 139–154 = AÉ 1966, 357.

<sup>87</sup> CIL III, 6151 = ILS, 641.

<sup>88</sup> I.I. Russu, *AISC* 2, 1933–1935, 210–212 = AÉ 1936, 10.

<sup>89</sup> ZAHARIADE 1997 b.

<sup>90</sup> CIL III, 7487 = IGLR, 205.

<sup>91</sup> SARNOWSKI 1990, 857; ZAHARIADE 1997 b, 233. For the term *praesidium*, see below, p. 55.

*Scythiae*, who appears in another inscription in *Tomis* (IGLR, 2). But recently there have been doubts to this respect. C. Zuckerman and A. Lewin have contested the identity between the two characters. The inscription referring to the restoration of the gate seems to imply the initiative of the city administration (*civitas Tomitanorum*), and the personage under whose patronage the work was carried out (C. Aurel.?) may have been a city magistrate<sup>92</sup>. But he may just as well have been a *praeses* of the new province of Scythia, if we take into account the fact that several inscriptions attest a sustained involvement of civilian governors in the construction effort during the Tetrarchy and even later<sup>93</sup>.

From the second Tetrarchy (308) an inscription on brick has been discovered “in a solid wall” in *Diocletianopolis*<sup>94</sup>, which probably attests the continuation of construction works started under Diocletian in this city. We must also mention the inscription that attests the name given by Galerius to the fortified palace he built at Gamzigrad (*Felix Romuliana*)<sup>95</sup>. During the joint rule of Emperors Licinius and Constantine (308–324) other important construction projects were undertaken. The inscription at *Tropaeum Traiani* attests the building *a fundamentis* of the city walls during the joint rule (315–317), a very important document for the connection between the *limes* and the interior of the province during the Late Roman Period. The expression *ad confirmandam limitis tutelam* shows just how important the fortifications inside the provinces were for the defence of the Danube *limes*<sup>96</sup>. To the same period (year 313) belongs an inscription discovered at *Diocletianopolis*, which mentions the building of a bath complex<sup>97</sup>.

Some written sources also mention the effort undertaken by Constantine in building defences. The construction of the *Daphne* fortress, on the left bank of the Danube, opposite the fort in *Transmarisca*, is a tradition perpetuated up to the 6<sup>th</sup> c., when Procopius mentions it<sup>98</sup>. The construction of the bridge between *Palatiolon* and *Sucidava*<sup>99</sup>, inaugurated in 328, must also be connected to the emperor’s policy north of the Danube.

Two epigraphic sources attest the construction of fortifications in province Scythia at the beginning of Constantius II’s reign. The first one is the inscription in Carcaliu (337–340) that mentions the construction of a fortification (*munitio*) under the care of Sappo, *dux limitis Scythiae*, the reasons for the endeavour being amply presented in the text: to enclose the location, ensure the local citizens’ security and stop enemy raids<sup>100</sup>. It is hard to say what

<sup>92</sup> LEWIN 2004, 228–229, with the mention that it is not clear that the letter on the stone is an F for Firminianus, but rather a P or a D, hence a possible C. Aurel. D[...], as Gr. Tocilescu, the first editor, opined when he read the inscription.

<sup>93</sup> For a list of inscriptions mentioning *praesides* as construction patrons (aqueducts, *castra*, *castella*, *centenaria* in the provinces Numidia, Mauretania Caesariensis, Mauretania Sitifensis, Tripolitania, Arabia, Phoenice, Raetia and Britannia) in the period 289/293 – 315/316 see HOFFMANN 1974, 383–384, n. 22. For discussions regarding the *duces*, *praesides* and *comites* also see MANN 1977.

<sup>94</sup> Iv. Velkov, *Izvestija-Sofia* 5, 1928–1929, 379: *d.d.n.n. Maximiani et Licini Augg. et Maximini et Constantini filios [aed]ificatum*. Cf. VELKOV 1958, 128.

<sup>95</sup> SREJOVIĆ 1985.

<sup>96</sup> CIL III, 13734 = ILS, 8938 = IGLR, 170. Compare it with the inscription in Paleokastron (Epirus Vetus), which attests the construction of the fort in 311–313 and only mentions Licinius (BAÇE 1981, 207–208, 217; MIKULČIĆ 2002, 16).

<sup>97</sup> VELKOV 1958, 128.

<sup>98</sup> Amm. Marcell. XXVII, 5, 2–3; Procopius, *De aedif.* IV, 7, 7. Compare with the foundation inscription on the fort in *Divitia* (Köln-Deutz), also a bridgehead, this time on the Rhine, “on Frankish territory” (CIL XIII, 8502 = ILS, 8937).

<sup>99</sup> Aurelius Victor, *Caes.*, 41, 18: “*Pons per Danubium ductus; castra castellaque pluribus locis commode posita*”.

<sup>100</sup> CIL III, 12483 = ILS, 724 = IGLR, 238: “(…) *locum in parte limitis positum, gentilium Gothorum temeritati semper aptissimum ad confirmandam provincialium suorum aeternam securitatem erecta istius fabricae munitione clausurunt latrunculorumque impetum perennis muniminis* (...)”

type of fortification it was, but the expression “to enclose the location” suggests a barrage-wall or a rampart. The second inscription was discovered in Kaliakra (*Tirisis/Acrae*) and attests the construction *a fundamentis* of a tower by Flavius Hermogenes, *magister equitum* during the reign of Constantius II (341–342)<sup>101</sup>.

A fragmentary inscription recently discovered at Iatrus was dated to 340–350 and seems to refer to the restoration of the fortification walls and some sort of work inside the compound<sup>102</sup>.

A number of literary sources (Claudius Mamertinus and Ammianus Marcellinus) reflect the attention paid by Emperor Julian to constructions in the dioceses of Dacia and Thrace, including the ones along the Danube<sup>103</sup>.

An edict issued by Valentinian in 365, addressed to Tautomedes, *dux Daciae Ripensis*, mentions the obligation to restore old towers (*turres*) and build new ones, therefore highlighting the interest in reinforcing the Danube frontier as early as the first years of the two *Augusti*'s joint rule<sup>104</sup>.

One of the most important literary sources for the knowledge of the intense construction effort undertaken by Valens on the Lower Danube is the work of Themistios, who personally visited Thrace and Scythia in 368–369 when accompanying the emperor on his campaigns against the Trans-Danubian Goths. The author notices the construction of new forts and the restoration of old ones (whose walls were heightened or thickened, according to need) and stresses that the river bank was full of fortifications. He also mentions the restoration of supply centres, the construction of aqueducts and repair of harbours (among them those at *Odessos*, *Callatis*, *Tomis* and *Histria*)<sup>105</sup>. An inscription (epigram) discovered at Vojvoda, but which seems to come from *Odessos*, refers precisely to the restoration of certain ports and is connected by certain authors to the information provided by Themistios<sup>106</sup>.

The same construction effort includes a well-known inscription in *Cius* (Gârliciu), dated to 369, which informs us that, under the supervision of Flavius Stercorius, the provincial governor, the units of *milites primani*, led by a *tribunus* (Marcianus) and a *praepositus* (Ursicinus), built a fortification *ob defensionem rei publicae* after one of the emperor's victories against the Goths<sup>107</sup>. It is not impossible that the inscription should refer to the same fortification whose construction is described in detail in another text by Themistios. The author highlights the importance of the location chosen for the fortification (a small peninsula, where an ancient city had once been erected but left unfinished) and lists all the materials used (stone, bricks and lime), specifying that it had been brought from another location, as it did not exist in the respective area. The transport of these material using traction animals fell under the charge of

<sup>101</sup> A. Balkanska, *ArhSofia* 16, 1974, 1, 66–72 (= *Klio* 62, 1980, 1, 27–45): *Ἐπὶ Φλ(αβίου) Ἑρμογήνου τοῦ λαμπροτάτου ἡγεμόνος καὶ τοῦτος ὁ πύργος ἀνεβλήθη ἀπὸ θεμελίων*. This is connected to the internal precinct, the smallest on the promontory.

<sup>102</sup> WACHTEL 1999.

<sup>103</sup> *Amm. Marcell.* XXII, 7, 7. Cf. VELKOV 1958, 129.

<sup>104</sup> *CTh* XV, 1, 13: “(Valentinianus) Tautomedis duci Daciae Ripensis. In limite gravitati tuae commisso praeter eas turres, quas refici oportet, si forte indigeant refectioe, turres administrationis tempore quottanis locis opportunis extrue. Quod si huius praecepti auctoritatem neglexeris, finita administratione revocatus, in limitem ex propriis facultatibus eam fabricam, quam administrationis tempore adiumentis militum et impensis debueras fabricare, extruere cogaris. Dat. XIII Kal. Iun. Med. divo Ioviano et Varroniano cos.”. Cf. VELKOV 1958, 130, n. 46.

<sup>105</sup> Themistios, *Or.* X, 135–136. Cf. BARNEA I. 1967 b.

<sup>106</sup> *SSIB*, 25; VELKOV 1958, 130 and note 50 (based on the interpretation proposed by J. Stroux, *Hermes* 79, 1944, 192–206).

<sup>107</sup> *CIL* III, 6159 = 7494 = *ILS*, 770 = *I GLR*, 233. The restitution [*hunc burgum a fundamentis*] remains hypothetical, as it was mentioned in a gap within the inscription and therefore we cannot be sure of the type of fortification the text refers to.

the local population, while the building proper was performed by soldiers, who were assigned small segments<sup>108</sup>.

The toponyms *Gratiana*<sup>109</sup> and *Valentiniana*<sup>110</sup>, which appear among the fortifications in Scythia, are edifying regarding Emperor Valens' construction policy undertaken in the Lower Danube area.

A concern for restoring fortifications is also attested within the Balkan provinces. The inscription in *Bargala*<sup>111</sup>, dated to 371, mentions the construction of a gate in this town located on the border between Dacia Mediterranea and Dardania. The construction was supervised by the governor of Dacia Mediterranea, Antonius Alypius.

Valens' military disaster at Hadrianopolis in 378 concludes a first stage in the history of construction in the Balkan provinces. The results of the construction policy of 4<sup>th</sup> c. emperors are described in detail by Ammianus Marcellinus (XXVII, 4, 6): "...*Hister, qua Romanum caespitem lambit, urbibus multis et castris contiguus et castellis*".

### 2.3. From Theodosius I to Zenon (379–491)

During the Theodosian Dynasty a massive restoration and building effort was undertaken, especially in the province Europa, therefore in the *hinterland* of Constantinople, obviously in close connection with the vast construction programme in the Empire's capital<sup>112</sup> and the demographic increase probably caused by the influx of population from the areas affected by barbarian attacks. An inscription in the Byzantine Museum in Thessaloniki, dated to 395 (Arcadius), mentions the construction of a defence wall (*τείχος*). D. Feissel demonstrated that it came from *Panion*, a city located on the Propontis shore, now renamed *Theodosiopolis*<sup>113</sup>. Another inscription comes from *Perinthos/Heraclea* and probably attests the restoration of the defence wall (*το τείχος*) during the reign of emperors Arcadius and Honorius (395–408)<sup>114</sup>. The erection of the cities *Arcadiopolis* (formerly *Bergule*, on the imperial road) and *Eudoxiopolis* (formerly *Selymbria*, on the Propontis shore), both mentioned later by Hierocles<sup>115</sup>, is another example of imperial involvement in reinforcing the defence system around the capital. The concern for urban defence walls during the Theodosian Dynasty is also proven by centres close to the area we focus upon<sup>116</sup>.

<sup>108</sup> Themistios, *Or.* X, 136 d – 138 b. For the hypothesis on its origin in Gârliciu, see VELKOV 1958, 131; BARNEA I. 1967 b, 569; Al. Barnea, in SUCEVEANU, BARNEA 1991, 219. Another hypothesis in ZAHARIADE 1988, 152, who identifies this fortification with *Gratiana* and locates it at Dunavățu de Jos.

<sup>109</sup> NDOr. XXXIX, 27; Procopius, *De aedif.* IV, 11.

<sup>110</sup> Procopius, *De aedif.* IV, 11.

<sup>111</sup> VENEDIKOV 1948, 84, fig. 58; MIKULČIĆ 2002, 396, Abb. 301: "[An]no VII dd. nn. victoriosissimorum / triumfatorum semper Augustorum / Valentiniani et Valentis Bargalen(si)bus / porta constructa est, disponen/[te A]ntonio Alypio v(iro) c(larissimo), con(sulari) provinc(iae) D(aciae) Mediterraneae".

<sup>112</sup> CROW 2002, 346: "(...) in Europa the principle factor underpinning revival of urbanism was the empire's needs for defence and more particularly the security of the capital". During the same period the massive defence wall of Theodosius II (also known as the "Landmauer", "Land Walls") was built in Constantinople, but it had in fact been initiated under Arcadius (J. Bardill, *AJA* 103, 1999, 4, 671–696). See recent research on this issue by M. Ahunbay, Z. Ahunbay, *DOP* 54, 2000, 227–239.

<sup>113</sup> D. Feissel, *BCH* 100, 1976, 1, 273–275; CROW 2002, 345.

<sup>114</sup> Cf. VELKOV 1958, 132, and n. 64 (after Dumont-Homolle). Also see stamped bricks dated to the first half of the 5<sup>th</sup> c., discovered in the defence wall of the "Lower city" (CROW 2002, 343).

<sup>115</sup> Hierocles, *Synecd.* 631.

<sup>116</sup> See the construction of defence walls at *Chersonesos* (IOSPE I<sup>2</sup>, 450 = IOSPE IV, 464, years 383–395) and *Thessalonica* (VICKERS 1974, probably under Theodosius II).

Constructions are also attested at *Marcianopolis*, where a Latin inscription mentions repair works on the city walls and one of the gates (during the reign of Arcadius/Honorius?)<sup>117</sup>. Then an inscription in Greek language, found among the ruins of the fortification in Osenovo, near Varna, and dated to the reign of the *Augusti* Arcadius and Honorius, mentions construction works in the same period<sup>118</sup>. Another inscription in Bulgaria, discovered in Stan, near Novi Pazar, refers to the construction of a gate under the supervision of a *vicarius* (it is dated June 1<sup>st</sup> 431 by the first editor, D. Detschew)<sup>119</sup>. It is interesting to notice that these three inscriptions are concentrated in an area near the cities of Marcianopolis and Odessos, which might indicate a construction programme for an area which constituted a first line of defence for the capital, Constantinople.

Another inscription from the beginning of the 5<sup>th</sup> c., this time discovered in Berkovica<sup>120</sup>, seems to refer to the construction of a defence wall for this fortification located in the Montana mining area. The inscription is dated approximately to 408–410.

We have to mention that for the reign of Theodosius II there are attestations of the activity of prefect Anthemius (405–413), who took care of restoring the defences of cities and fortifications along the frontier which, at that time, were under the threat of frequent attacks initiated by the Huns. Thus, a decree published in 408 mentions constructions in Illyricum, where the urban population was supposed to pay special taxes and take part in restoration work. Another decree, from 443, imposes that frontier fortifications be kept in a proper state and asks for a report on the number of soldiers, forts and river boats at the frontiers of the dioceses Thrace and Illyricum<sup>121</sup>.

We also believe that the well-known inscription in Ulmetum that mentions the construction of the fortification with the help of *comitatenses* or even *palatine* units (*milites lanciarii iuniores*) should be dated to the Theodosian period rather than to the reign of Justinian<sup>122</sup>.

After the Huns' devastating attacks in mid-5<sup>th</sup> c., in the second half of the same century written information concerning constructions in the Balkan provinces is very rare, as these areas were continuously under the threat of Ostrogothic and Bulgarian attacks. An inscription in verse discovered in Deultum<sup>123</sup> mentions certain construction activities during the reign of Emperor Marcianus (450–457.)

#### 2.4. The Anastasius – Justinian period (491–565)

The huge effort of reconstructing the Empire, initiated by Emperor Anastasius, is best illustrated by the Long Wall (*To Makron Teichos*) built as a barrier in front of the imperial

<sup>117</sup> CIL III, 14213.1 = SSIB, 81 (discovered at Plačidol): ...*mo]enia muros [se]d d(omi)n(us) mundi custo[di]a]t hostia porta[e].*

<sup>118</sup> SSIB, 86: *Τῶν δεσποτῶν ἡμῶν Ἀρκαδίου καὶ Ὀνορή(ου) Ἀὔγουστ[των].*

<sup>119</sup> SSIB, 75: + *m(ense) Iunio k(alen)d(is) zie Lune facta e[st]/leista porta en zies Danilelo bicario et Probinu/Maiure, ind(ictione) XIII SERSONSEBD.*

<sup>120</sup> D. Mitova-Džonova, *ÉtBalk* 12, 1976, 1, 142–144; V. Velkov, *ArhSofia* 26, 1984, 4, 28; idem *Byzantina* 13, 1985, 883–886 (dated to 408–423). Cf. POULTER 2007 b, 93–94, who believes the inscription was reused in another city in the 6<sup>th</sup> c.

<sup>121</sup> CTh XI, 17, 4; Nov. Theod. II, XXIV, 5. Cf. VELKOV 1958, 132–133.

<sup>122</sup> IGLR, 211. Recent research has not brought to light elements that might attest a restoration of the fortress *a fundamentis*, as suggested by the famous text in Procopius. The arguments in favour of an earlier date for the inscription (end of the 4<sup>th</sup> c. – beginning of the 5<sup>th</sup> c.) in C. Băjenaru, *Sur la date de construction de la forteresse romaine tardive d'Ulmetum* (forthcoming paper, 2011).

<sup>123</sup> CIL III, 12328 = 14207<sup>2</sup> = ILS, 8954 = SSIB, 184 (discovered in Aitos).

capital<sup>124</sup>. Located 65 km away from Constantinople, this wall has a length of 45 km and closes the end of the Thracian peninsula, between the Sea of Marmara and the Black Sea<sup>125</sup>. Several ancient authors (Procopius, Agathias and Malalas) mention this wall in the context of numerous barbarian attacks in the 6<sup>th</sup> c. and appreciate its sturdiness, even if it was broken down several times (by the Bulgarians in 540, the Kutrigurs in 558/559 and the Avars in 626). Besides these destructions, a series of earthquakes affected parts of it, but Justinian and his successors restored it each time.

The chronicler Ioannes Malalas informs us on the construction endeavours of Emperor Anastasius: “in each city of the Empire various buildings, defence walls and aqueducts were raised, harbours were cleaned, public baths were newly built and many more”<sup>126</sup>. The information is confirmed by certain epigraphic discoveries in the Balkan area.

An inscription on a limestone block discovered in *Ratiaria*, in front of the main gate of the city (*†Anastasiana Ratiaria semper floreat*) was connected by the first editor to the reconstruction of the city during the reign of Anastasius<sup>127</sup>, a date that was contested by certain researchers<sup>128</sup>. In the province Scythia the restorations during the reign of Anastasius are eloquently illustrated by the discovery of stamped bricks in Dinogetia,<sup>129</sup> Histria (an inscription on brick was also discovered here)<sup>130</sup> and Sacidava<sup>131</sup>, as well as several inscriptions in Tomis, found in the defence wall<sup>132</sup>.

The most recent epigraphic source on Anastasius’ construction effort is the inscription (“*Indictione imperii Anastasi*”) discovered in the fortification at Gradec-“Vavovo Kale”, located at the frontier between Moesia Secunda and Haemimontus<sup>133</sup>.

Regarding the vast construction programme initiated by Justinian in the Balkan Peninsula, most researchers agree that the information provided by Procopius, especially in *De aedificiis*, present a clear description of this programme<sup>134</sup>. The information provided by the ancient author is confirmed not only by archaeological discoveries, but also by inscriptions, the most interesting of which mention the architect Viktorinos and were discovered in *Corinth* and the city of *Byllis* (Ballshi) in Epirus Nova. In one of these inscriptions Viktorinos is credited

<sup>124</sup> Most ancient sources credit Anastasius with the construction of this wall. There is also the opinion that the construction is even older, dating from the 5<sup>th</sup> c. (cf. HARRISON 1974, 247 and WHITBY 1985, 560 f., after an hypothesis advanced by E. Stein). For the traditional dating to Anastasius: CROKE 1982, 69 f.; CROW 1995, 109 f.; NAPOLI 1997, 389; CROW, RICCI 1997, 239; CROW 2007, 397 (stamped bricks).

<sup>125</sup> Technical details in HARRISON 1974; NAPOLI 1997, 379–389; CROW, RICCI 1997; CROW 2007, 397–400.

<sup>126</sup> Malalas, *Chron.*, XVI, 409, 46–49. See VELKOV 1958, 133; Al. Barnea, in SUCEVEANU, BARNEA 1991, 171.

<sup>127</sup> V. Velkov, *ArhSofia* 26, 1984, 2–3, 92–94; idem, *Byzantina* 13, 1985, 886–889.

<sup>128</sup> Vl. Popović believes that this is a more recent inscription, from the reign of Justinian, interpreting “*anastasiana*” as an adjective which refers to “resurrection”, “rebirth”, “restoration after disaster”. This is appropriate for Justinian’s reign, as Procopius (*De aedif.* IV, 6, 24) mentions that the emperor reconstructed everything that had fallen into ruins at *Ratiaria* (POPOVIĆ V. 1989–1990, 283).

<sup>129</sup> IGLR, 112, 113.

<sup>130</sup> IGLR, 246.

<sup>131</sup> SCORPAN 1980, 70, 73.

<sup>132</sup> IGLR, 7–9. For a synthesis on the situation in Dobrudja during the reign of Anastasius see BARNEA I. 1960 and BARNEA I. 1967 a.

<sup>133</sup> VELKOV, LISICOV 1994, 257–265 (the inscription is dated to 498–513). See also CROW 2007, for other evidence on the construction effort during the reign of Anastasius: the new city *Anastasiopolis* in the province Rhodope (Procopius, *De aedif.*, IV, 11) and an inscription from *Dyrrachium* (K. Zhaku, Monumentet 3, 1972, 35–46).

<sup>134</sup> ARICESCU 1972; IVANOV S. 1983; IVANOV S. 1984; CURTA 2001, 47–49; CURTA 2006, 131–146.

with having reinforced the cities in Moesia, Scythia, Illyricum and Thrace (*Μουσῶν ἐγείρας καὶ Σκυθῶν τὰ φρούρια καὶ τῆς Ἰλλυρικῆς σὺν Θράκη πάση χώρας*), that is the entire Balkan area, “according to the sketches and methods of Justinian” (*ὀρθῶς ὑπουργῶν τῶ σκοπῶ καὶ τοῖς τρόποις Ἰουστινιανοῦ τοῦ κρατίστου δεσπότης*)<sup>135</sup>. It is one of the clearest pieces of evidence on the massive restoration efforts in the Balkan provinces (the inscription presents the picture of the three important administrative districts: along with the dioceses of Thrace and Illyricum, there is mention of Moesia and Scythia too, which at that time were part of the *quaestura exercitus*). The inscription in *Byllis* is probably dated to the second part of Justinian’s reign (post 548), maybe even after Procopius’ *De aedificiis* was written<sup>136</sup>.

Proof on this process of reconstructing fortifications is also provided by certain inscriptions such as that discovered in the quarry of Ezerovo, near *Odessos*, in which a fortification named *Theodorias* is mentioned (the inscription is dated to 556/557), for which there is no clear location<sup>137</sup>.

In a period when the bishop had authority not only over the city, but also over the fortifications on its territory<sup>138</sup>, the inscription discovered in Izbičanj (province Dardania) is revealing, as it mentions the construction of walls, basilicas, houses, fountains, baths etc. under the patronage of a bishop<sup>139</sup>.

At *Callatis* a fragmentary architrave was discovered, which belonged to a public building (basilica?) and bears an inscriptions that mentions an emperor, most probably Justinian, as a “construction-lover” (*philoktistes*)<sup>140</sup>, which supposes a series of massive reconstruction endeavours in this period, which is also confirmed by Procopius. Also dated to the reign of Justinian are the stamped bricks in *Mesambria* (some of them bearing the same epithet *philoktistes*)<sup>141</sup>, which have good analogies in the tegular material in Constantinople and are one more proof of the involvement of the imperial authority in the reconstruction of important cities. Bricks stamped with Justinian’s monogram were also discovered in *Scodra*<sup>142</sup> and *Iustiniana Prima*<sup>143</sup>.

In the second half of the 6<sup>th</sup> c. epigraphic information is scarce. An inscription discovered near *Stara Zagora*, dated to 575–576, mentions a construction whose function is unclear<sup>144</sup>, and the last epigraphic information on the Balkan constructions was discovered in *Serdica*, where an inscription mentions the reconstruction of the aqueduct during the reign of Tiberius II Constantine (year 580), a project initiated by the administrative and ecclesiastical authorities of the city<sup>145</sup>.

<sup>135</sup> FEISSEL 1988, 136 f.; FEISSEL 2000, 92, no. 17–20.

<sup>136</sup> FEISSEL 1988, 143–145.

<sup>137</sup> SSIB, 148, where V. Beševliev tries to identify the toponym with *Pulchra Theodora* mentioned by Procopius, *De aedif.* IV, 11, for which see the doubts expressed by FEISSEL 2000, 93, no. 25. Cf. VELKOV 1958, 134–135.

<sup>138</sup> According to *Iust. Nov.* XI (dated to 535), the bishop of *Aquae* extended his authority over all the *castella* in the territory. For this see CURTA 2001, 48–51.

<sup>139</sup> POPOVIĆ V. 1989–1990, 289–290 : † *Omnia quae cernis magno constructa labore / moenia, templa, domus, fontes, stabula, atria, thermas / auxilio Crristi (!) paucis construxit in annis / antistes Stefanus sub principe Iustiniano*. The inscription was reused at Izbičanj, therefore its place of origin remains uncertain. Cf. FEISSEL 2000, 91, no. 15. Compare it with an inscription dated to 561, in which the bishop of *Heraclea Lyncestis* in Macedonia oversees the construction of a fountain (IG X.2.2, 149; FEISSEL 2000, 93, no. 23).

<sup>140</sup> IGLR, 87, where the restitution of the name of emperor Justinian is only a hypothesis. Also see FEISSEL 2000, 93, n. 103 with the observation that the epithet is not exclusively used for the emperor, but also for certain bishops.

<sup>141</sup> L. Ogenova-Marinova, in VENEDIKOV et al. 1969, 109–120. Cf. FEISSEL 2000, 93, no. 24.

<sup>142</sup> CURTA 2006, 145, with references.

<sup>143</sup> FEISSEL 2000, 92, no. 16 a.

<sup>144</sup> SSIB, 198 (discovered at Kolarovo). Cf. VELKOV 1958, 135.

<sup>145</sup> SSIB, 3. Cf. VELKOV 1958, 135.

### 3. FORTIFICATIONS – ARCHAEOLOGICAL SOURCES

Archaeological research remains the main source for the knowledge of Late Roman and Early Byzantine fortifications in the Balkan provinces. In the following pages we shall present the map of fortifications which have been researched archaeologically and have offered valuable chronological data, except, of course, for the minor fortifications which are in fact the object of our study and will be treated separately.

#### 3.1. Large fortifications (over 5 ha)

These are in general **urban fortifications**, but one must not forget that in practically all Late Roman towns the military element was present. A very instructive classification of the cities in the dioceses of Dacia and Thrace was drawn by V. Dinčev in a study published in 1999. According to the Bulgarian researcher, an urban settlement in the Late Roman period can be defined, from an archaeological perspective, by the surface between its defence walls and the buildings erected on it. Taking into account the available archaeological data, the author proposes as limit between an urban and a non-urban settlement the surface of 5 ha (with a tolerance of  $\pm 1$  ha, as the case may be). Thus, based on the dimensions of the fortified area one can identify three categories of urban settlements: large (over 30 ha), medium (between 30 and 10 ha) and small (between 10 and 5 ha)<sup>146</sup>.

The archaeology of urban fortifications in the Balkan provinces has evolved during the last decades especially due to the preventive excavation of sites superposed by modern cities such as Sofia, Plovdiv, Stara Zagora, Kjustendil, Constanța, Varna and others. Unfortunately the results are poorly known. In other cases the archaeological research is at its beginning or has not even started. With the available data we have put together a map of Late Roman – Early Byzantine cities that offer data concerning the architecture of urban defence walls and their chronology. We have considered this useful precisely because a series of elements of military architecture developed in these urban settlements can be found in the fortifications which constitute the object of the present study.

On the West-pontic shore, at *Histria*, the Late Roman defence wall (phase A) was built in the second half of the 3<sup>rd</sup> c. over the ruins of the town destroyed by the Goths, which resulted in the reduction of the fortified surface to only 7 ha. Several phases of reconstruction have been discovered, the most important being phase B (**fig. 3**), dated after 295 and characterized by rectangular towers and bastions and by the inclusion of new spaces into the fortified surface, such as the so-called “economic district”. Another important reconstruction phase (phase D) is dated to the reign of Anastasius (based on the stamped bricks used)<sup>147</sup>. At *Tomis* the Late Roman wall encloses a surface of approximately 60 ha (parts of it have since collapsed into the sea, so the original surface could have surpassed 70 ha). The initial construction moment is the second half of the 3<sup>rd</sup> c. (Aurelian, Probus, Diocletian.) Rectangular towers flank two of the city gates. One notices the U-shaped towers flanking the “Great Gate”, “the butchers’ tower” (also U-shaped and dated to the 6<sup>th</sup> c.), as well as the rectangular towers of the other gates. In the 6<sup>th</sup> c. the city expanded westwards with a new defence wall<sup>148</sup>. At *Callatis*, the archaeological research

<sup>146</sup> DINČEV 1999, 41. On the distinction between urban and non-urban also see DINČEV 2000, 65 f. Regarding the reduction of urban surfaces in the Late Roman – Early Byzantine period see KIRILOV 2006.

<sup>147</sup> DOMĂNEANȚU, SION 1982. Cf. SUCEVEANU 1982, 85–86; TORBATOV 2002, 174–182 (dates phase B to the Constantinian period).

<sup>148</sup> A synthesis of research in RĂDULESCU 1995–1996 and TORBATOV 2002, 188–193. See also Gh. Papuc, L. Lungu, *Pontica* 31, 1998, 201–208 for excavations at the main gate of the city.

has demonstrated that the Roman defence wall, built during the reign of Marcus Aurelius, was still in use in the Late Roman and Early Byzantine period. It had entirely protruding rectangular towers (**fig. 4**). Its reconstructions have been dated to the reigns of Aurelian, Diocletian or Constantine, and Justinian<sup>149</sup>.

To the south there is now important data concerning the evolution of defence walls in *Tirisia/Acrae (Kaliakra)*, where the present-day surface of the promontory, fortified at three different times, is of 25 ha. The oldest defence wall is the one in the middle, with  $\frac{3}{4}$  protruding circular towers, which has been dated to 272–287/289 according to stratigraphical arguments. Later (beginning of the 4<sup>th</sup> c.), this defence wall was completed with a rectangular tower gate. The inner defence wall, which covers the smallest surface, has been dated to the reign of Constantius II (based on the inscription dated to 341–342) and includes a rectangular tower with an internal pillar on its trajectory. The most recent defence wall is the external one, researched over a length of 422 m. It is 2.80–2.90 m thick, has external square towers (cross-shaped inside) and horse-shoe-shaped towers (two of which flank the main gate and have a *propugnaculum* inside). It is dated to the reign of Valens. At a later stage (end of the 4<sup>th</sup> c. – beginning of the 5<sup>th</sup> c.) it was reinforced with trapezium-shaped bastions, then in the 6<sup>th</sup> c. an outer segment was thickened and completed with a triangular tower<sup>150</sup>.

If for the 4<sup>th</sup> – 5<sup>th</sup> c. there is no clear data regarding the defence system in *Dionysopolis*, in the 6<sup>th</sup> c. (most probably during the reign of Anastasius) a new fortification (15 ha) was built, nowadays covered by the modern district “Horizont” (**fig. 5**). It has rectangular, round and pentagonal towers (two of which flank the main gate), as well as triangular bastions<sup>151</sup>. The defence wall investigated archaeologically at *Mesembria* has several phases of construction, the oldest dated to the Hellenistic period. The early Roman defence wall (1<sup>st</sup> – 2<sup>nd</sup> c.) seems to have still been in use during the 4<sup>th</sup> c. A major reconstruction took place in the second half of the 5<sup>th</sup> c. or beginning of the 6<sup>th</sup> c. (Leon I, Zenon or more probably Anastasius), when it was completed with two round towers and a monumental gate flanked by pentagonal towers<sup>152</sup>.

Passing to the urban centres located inland in the provinces, we start with *Ibida* in Scythia, whose plan has been reconstructed according to aerial photographs. It has rectangular and U-shaped towers on the sides and circular (or rather fan-shaped) ones at the corners. Recent archaeological excavations have brought arguments in favour of dating the first phase to the reign of Constantine<sup>153</sup>. *Tropaeum Traiani* developed during the Late Roman period inside the defence wall completed in 316, which enclosed a surface of 9 ha. It had U-shaped and rectangular towers and an initial, unfinished phase (probably because of the attack in 295) dated to the reign of Aurelian (even if it could just as well be that of Diocletian). At a later stage, maybe in the second half of the 6<sup>th</sup> c., a *castellum* of approx. 95 × 75 m was set against its SE side, displaying two probably round corner towers and an intermediary tower whose shape has not yet been ascertained<sup>154</sup>. *Nicopolis ad Istrum*, the colony founded by Trajan, continued to use the defence wall built in the 2<sup>nd</sup> c. (enclosing a surface of 21.5 ha) during the 4<sup>th</sup> c. and the first half of the 5<sup>th</sup> c. A major change took place in the second half of the 5<sup>th</sup> c., when the old town was abandoned and a new fortification was built, enclosing 5.74 ha, and reinforced with

<sup>149</sup> IONESCU, GEORGESCU 1998; IONESCU, PAPUC 2005, 93–100. Cf. TORBATOV 2002, 194–197.

<sup>150</sup> DŽINGOV et al. 1990. Cf. TORBATOV 2002, 226–232.

<sup>151</sup> TORBATOV 2002, 263–270 (bibliography included).

<sup>152</sup> VENEDIKOV et al. 1969.

<sup>153</sup> ȘTEFAN 1977 b. See also recent excavation reports in *CCA*, starting with 2002.

<sup>154</sup> BARNEA et al. 1979. Cf. TORBATOV 2002, 301–307. Recent research on the secondary fortifications undertaken by Al. Barnea and M. Ionescu (brief reports in *CCA* 2001, 2002, 2003 and 2006).

triangular and circular towers<sup>155</sup>. At *Abrittus* the defence wall encloses a surface of approx. 15 ha (c. 300 × 500 m) and has U-shaped towers on three sides, while on the fourth one it has rectangular towers. It also has fan-shaped corner-towers and the gates are flanked by U-shaped towers (**fig. 10**). One notices the design of the main gate (“halbrund Exedra” type), similar to those at *Iatrus* and *Nicopolis ad Nestum*. The defence wall was built at the end of the 3<sup>rd</sup> – beginning of the 4<sup>th</sup> c.<sup>156</sup>, although more probably during the joint reign of Licinius and Constantine, and at the beginning it was a base for the mobile army, later (5<sup>th</sup> – 6<sup>th</sup> c.) becoming an urban centre.

The Thracian metropolis, *Philippopolis*, covered a surface of 80 ha during the Late Roman period, but during the 6<sup>th</sup> c. dwelling was limited to the old Hellenistic acropolis (35 ha)<sup>157</sup>. *Augusta Traiana/Beroe* continued to function on a fortified area of approx. 48.5 ha, as the defence wall built during the reign of Marcus Aurelius was used up to the 6<sup>th</sup> c. The wall is characterised by pillars set on its inner face and an external wall (*proteichisma*)<sup>158</sup>.

The new city *Diocletianopolis* had a quadrangular defence wall, enclosing a surface of approx. 30 ha (**fig. 7**). It is reinforced mainly by rectangular towers, both on the sides and at the gates. At two of the corners there are towers, circular at the base and octagonal in their elevation. It is dated to the end of the 3<sup>rd</sup> – beginning of the 4<sup>th</sup> c. according to the archaeological discoveries. At a later stage (5<sup>th</sup> – 6<sup>th</sup> c.) its northern side was reinforced with a *proteichisma*<sup>159</sup>.

Also in the diocese of Thrace, the Late Roman – Early Byzantine city *Nicopolis ad Nestum* covered a surface of 11 ha, its defence wall reinforced by round towers at the corners and on the sides. It also has a gate pertaining to the “halbrund Exedra” type (just like those in *Abrittus* and *Iatrus*), flanked by rectangular towers (**fig. 9**). It is dated to the Constantinian period<sup>160</sup>.

In the diocese of Dacia, the metropolis *Serdica* reached a remarkable urban development. The old defence wall, built during the reign of Marcus Aurelius and enclosing a surface of 18 ha was repaired and consolidated in phase II (290–450), when the fortified surface increased to 84 ha. In this phase the defence wall had entirely protruding corner- and intermediary towers. In phase III (Zenon-Justinian) triangular and pentagonal towers were built (**fig. 6**)<sup>161</sup>. The defence wall of *Pautalia*, built during the reign of Commodus, was still in use in the 4<sup>th</sup> – 5<sup>th</sup> c., with several changes such as the introduction of rectangular intermediary towers. In the second half of the 5<sup>th</sup> c. or rather in the 6<sup>th</sup> c. (Anastasius or Justinian) a new fortification was built on the “Hisarlâk” Hill, covering a surface of 2.10 ha (**fig. 15 a, b**). The latter has circular corner-towers and triangular towers at the main gate<sup>162</sup>. *Bargala* had a quadrangular defence wall (280 × 185/150 m), enclosing a surface of 4.70 ha and reinforced by 21 rectangular towers both at the corners and on the sides. The main gate was also flanked by rectangular towers. In the eastern corner there is an “Acropolis” of 32 × 22 m, which probably had a military role (**fig. 8**). The fortification is dated to the reign of Licinius and Constantine, and it naturally underwent reconstructions during the reign of Valentinian I and Valens (see the above-mentioned inscription)<sup>163</sup>.

<sup>155</sup> POULTER 1995.

<sup>156</sup> IVANOV T. 1980.

<sup>157</sup> BOTUŠAROVA, KESJAKOVA 1983.

<sup>158</sup> KALTCHEV 1998.

<sup>159</sup> MADŽAROV K. 1967; MADŽAROV K. 1982; MADŽAROV K. 1993. Cf. BIERNACKI 1984.

<sup>160</sup> DIMITROVA-MILČEVA 1992; DIMITROVA-MILČEVA 2002.

<sup>161</sup> STANČEVA 1989; BOBČEV 1989.

<sup>162</sup> Roman defence wall: RUSEVA-SLOKOSKA 1989. Late Roman fortification: J. Ivanov, IBAD 7, 1919–1920, 66–123; Z. Gočeva, IBID 27, 1970, 233–254 (dated according to a coin of Anastasius). Also see the recent publication of KACAROVA 2005.

<sup>163</sup> MIKULČIĆ 2002, 391–396 (bibliography included).

In Dardania, *Ulpiana* had a defence wall that enclosed, during the Late Roman Period, a surface of 35.5 ha. Excavations have shown that it had U-shaped towers, even by one of the town gates. It was probably built in the 4<sup>th</sup> c.<sup>164</sup>. The defence wall of *Scupi* covered a rectangular surface of approx. 43 ha (740 × 600 m) in the 4<sup>th</sup> – 5<sup>th</sup> c., but it has been less excavated (**fig. 16 a**). The town was destroyed by the earthquake of 518. Afterwards a new fortification was built at “Kale”, approx. 280 × 110 m (a surface of 2.3 ha), reinforced by two round corner-towers and rectangular and triangular towers on the sides (**fig. 16 b**)<sup>165</sup>.

*Iustiniana Prima (Caričin Grad)*, a classical example of imperial foundation, developed on a surface of approx. 7.25 ha. It was formed of a polygonal acropolis reinforced with rectangular and U-shaped towers, and of two other regular-shaped fortified areas, built next to each other: the “Upper City”, with corner-towers that are round at the base and octagonal in elevation, rectangular intermediary towers and a gate flanked by pentagonal towers; the “Lower City” is reinforced only with rectangular towers (at the corners, intermediary ones and at the gate)<sup>166</sup>.

The Danube *limes* also offers important data regarding urban fortifications. At *Bononia (Vidin)* the Late Roman defence wall<sup>167</sup> is quadrangular and encloses an area of approximately 23 ha. On the sides it has towers that are round at foundation level and decagonal in elevation, identical to the ones in the *castellum* at Kula. Based on analogies it is highly probable that it should be dated to the first decades of the 4<sup>th</sup> c. (the Tetrarchs or Licinius/Constantine). At *Augustae (Hârlec)* the Early Roman fort was extended, during the Tetrarchy or in the first part of Constantine’s reign, with a strong fortification (Augustae II, with a surface of approx. 8 ha) reinforced by circular corner-towers and U-shaped or rectangular towers on the sides (**fig. 11**)<sup>168</sup>. In *Oescus (Gigen)* the reassignment of the *legio V Macedonica* to its old barracks had an important consequence for the local Roman colony, which was reflected mainly by the extension of the city eastwards until it reached a surface of 28 ha. The new defence wall had horse-shoe shaped corner-towers and U-shaped towers on the sides (**fig. 12**)<sup>169</sup>. At *Novae (Svištov)*, apart from the fort of the *legio I Italica* (16 ha), at the end of the 3<sup>rd</sup> – beginning of the 4<sup>th</sup> c. a new fortified area appeared (Novae II, approx. 10 ha), its defence wall reinforced with rectangular towers and a tower-gate. Novae I was reconstructed during the reign of Constantine, when it had U-shaped towers flanking two of the gates, but also on the sides and at the corners. The main gate was flanked by two massive rectangular towers (**fig. 13**)<sup>170</sup>.

Recent research has brought to light parts of the Late Roman defence wall in *Transmarisca (Tutrakan)*. The wall, which enclosed a surface of approx. 6.5 ha, was dated, based on stratigraphical data, to the Tetrarchy (between 292 – 309/310), which is confirmed by the foundation inscription found there. The wall had rectangular towers on its northern side and U-shaped ones on its southern side (**fig. 14**), seemingly added during the Constantinian period<sup>171</sup>. At *Durostorum (Silistra)*, the research undertaken by P. Donevski led to the identification of the fort of the *legio XI Claudia*, which was most probably restored during the reign of Aurelian or Diocletian (the defence wall was thickened and an entirely protruding, massive rectangular tower was built at the SW corner.) It seems that in the 5<sup>th</sup> – 6<sup>th</sup> c. the fort lost its military function and, together with its *canabae*, became part of the Late Roman town

<sup>164</sup> PAROVIČ-PEŠIKAN 1981.

<sup>165</sup> MIKULČIĆ 2002, 182–186 (bibliography included).

<sup>166</sup> BAVANT et al. 1990; BAVANT 2007; BAVANT, IVANIŠEVIĆ 2007.

<sup>167</sup> ATANASOVA-GEORGIEVA 1974, 337–338; IVANOV R. 1997, 538, Abb. 8.

<sup>168</sup> MAŠOV 1990 (dated to the Severan period!); IVANOV R. 1997, 543–548.

<sup>169</sup> IVANOV T. 1990; IVANOV R. 1997, 548–554.

<sup>170</sup> A synthesis of the archaeological results in IVANOV R. 1997, 556–574.

<sup>171</sup> VAGALINSKI 1999; VAGALINSKI, PETKOV 2006.

there; at the same time, on the bank of the Danube a strong fortification was built, displaying “saw-teeth” segments and a pentagonal tower<sup>172</sup>.

Other fortifications of remarkable size have not yet produced proof convincing enough for specialists to consider them as urban centres, which suggests that a military function was more likely. This category includes two fortifications in the province of Moesia Secunda. **Vojvoda** is a polygonal fortress with a surface of approx. 10 ha, fan-shaped corner-towers and U-shaped towers at the gates. It is dated to the 4<sup>th</sup> c. (Constantine?) and had a *proteichisma* added at a later stage (5<sup>th</sup> c.)<sup>173</sup>. **Kovačevac** is a polygonal fortification too, adapted to the terrain and enclosing a surface of 5.2 ha. The defence wall is 3.20 m thick, has 17 towers and two gates. Archaeological excavations have identified its western gate, flanked by U-shaped towers and two other similar towers on the sides. It is dated to the reign of Constantine<sup>174</sup>.

### 3.2. Medium-size fortifications (between 1–5 ha)

This category includes most fortifications identified on the territory of the two dioceses. Because their typology is not the object of the present study, we have adopted the geographical criterion in presenting them, starting on the Danube frontier, where in most cases we are dealing with former Roman auxiliary forts, then continuing with the cities on the Black Sea coast (and here only the West-pontic shore has provided concrete archaeological data so far) and concluding with the inland area of the provinces.

Let us review the situation of the different forts which have been researched archaeologically on the **Danube limes**.

In the Iron Gates sector the Early Roman fort of **Novae (Čezava)** (143 × 123 m) continued to function, with changes, during the Severan period. Research has shown that the *principia* suffered a series of restoration works, dated according to coins from the reigns of Gallienus and Aurelian, and the same situation occurred at the *porta praetoria*. A complete restoration (which also meant the construction of round towers at the corners and on the sides, **fig. 17**) most probably took place during the reign of Constantine<sup>175</sup>. At **Taliata (Donji Milanovac)** the Roman fort (134 × 126 m) was completely restored in the second half of the 3<sup>rd</sup> c., and in the 4<sup>th</sup> c. protruding semicircular corner-towers were added (**fig. 18**)<sup>176</sup>. **Diana (Karataš)** (138 × 123 m) underwent several changes during the Late Roman Period; there are two remarkable entirely protruding rectangular towers at the corners and another one that blocks the Western gate, as well as horseshoe-shaped towers flanking the Southern gate<sup>177</sup>. **Drobeta** (137.5 × 123 m) was restored in the second half of the 3<sup>rd</sup> c. and again during the reign of Constantine (**fig. 19**), receiving fan-shaped corner-towers, as well as rectangular towers blocking the former gates of the Early Roman fort<sup>178</sup>.

<sup>172</sup> IVANOV R. 1997, 587–590 (bibliography included.) The proposal to identify the late fortress with the *praesidium* attested by the Tetrarchic inscription brings no valid arguments, especially since the fortress on the Danube bank evidences a later building technique, which suggests a later moment of construction, most probably in the 5<sup>th</sup> – 6<sup>th</sup> c.

<sup>173</sup> MILČEV, DAMIANOV 1972; MILČEV, DAMIANOV 1984; BIERNACKA-LUBANSKA 1982, 240, no. 93.

<sup>174</sup> DONČEVA 2002; RUSEV 2007.

<sup>175</sup> VASIĆ 1982–1983; VASIĆ 1990.

<sup>176</sup> POPOVIĆ V. 1982–1983. Cf. VASIĆ, KONDIĆ 1986, 542 f., fig. 4, 9, 30; VASIĆ 1994–1995, 46 f., fig. 6.

<sup>177</sup> J. Rankov, *Djerdapske Sveske* 1, 1980, 51–69; 2, 1984, 7–14; 4, 1987, 5–36.

<sup>178</sup> DAVIDESCU 1980 b, 12–32 (dates the corner-towers to the end of the 3<sup>rd</sup> c.); ZAHARIADE 1997 a (reign of Constantine).

In Dacia Ripensis we have archaeological data from *Dimum (Belene)*, where the Early Roman fort (c. 240 × 180 m) underwent fundamental changes in the Constantinian period, receiving external towers (fan-shaped at the corners, U-shaped on the sides and rectangular at the gates, **fig. 20**)<sup>179</sup>. Most probably the walls of the Roman town at *Sucidava (Celei)* were restored during the reign of Aurelian. In the same period, if not during the reign of Gallienus, a strong military fortification (**fig. 24**) was built in this strategic north-danubian bridgehead, the new project including half-protruding rectangular towers and a row of pillars along the inner face of the wall. An important restoration, that included the construction of a defence wall set against the old one, has been dated to the reign of Constantine. This fortification was destroyed by the Huns in mid 5<sup>th</sup> c. and was later rebuilt by Justinian<sup>180</sup>. *Iatrus (Krivina)* is one of the best researched fortification in Moesia Secunda. Dated to the Licinius/Constantine period, it is the first in the series of fortifications with a massive rectangular tower (*phrourion*) and has also U-shaped interval-towers and fan-shaped corner-towers (**fig. 23**)<sup>181</sup>.

On the Scythian limes *Sacidava (Dunăreni)* saw a *fundamentis* reconstruction of the former auxiliary fort. The southern side has been completely researched (125 m), as well as an important part of the western side with powerful rectangular towers (**fig. 21**). The new defence wall is dated to the beginning of the 4<sup>th</sup> c. (post-295 according to C. Scorpan)<sup>182</sup>. The plan of the Early Roman fort at *Capidava* (approx. 130 × 100 m) was entirely modified during the Tetrarchy or later (Licinius/Constantine), when fan-shaped corner-towers were added, as well as two massive rectangular towers (*phrouria*) and other U-shaped towers on the sides (**fig. 22**)<sup>183</sup>. Of the two ancient fortresses that existed at *Troesmis*, only the plan of the Eastern one is known (145 × 120 m), and not to full extent<sup>184</sup>. The fan-shaped corner-towers, the U-shaped intermediary ones and the so-called *phrourion* have analogies at *Iatrus*, *Capidava* and *Noviodunum*, and partially at Halmyris and Ulmetum too. *Dinogetia (Garvăn)* is a new fortification of approx. 152 × 80 m (surface of 1 ha), built during the reign of Diocletian or Constantine, with fan-shaped towers at the corner and U-shaped ones on the sides (**fig. 25**)<sup>185</sup>. At *Halmyris (Murighiol)* the Early Roman fort was replaced by a new fortification (182 × 142 m) whose construction started during the Aurelian-Probus period, but whose final plan (with the classic U-shaped towers) dates from the time of the Tetrarchy, as is shown by the foundation inscription discovered during the excavations<sup>186</sup>.

For the **West-pontic coastline**, chronological clues concerning the newly-built defence walls appear in the case of three middle-sized fortifications. At **Cape Doloşman (Argamum)** the fortification with rectangular towers and bastions that enclosed a surface of approx. 2.5 ha (**fig. 26**) is dated to the end of the 3<sup>rd</sup> – beginning of the 4<sup>th</sup> c.<sup>187</sup>. **Kamen Brjag-“Jajlata”** is a fortification whose present day surface is of 0.45 ha (maximal dimensions 100 × 75 m),

<sup>179</sup> IVANOV R. 1997, 554–556, Abb. 22; IVANOV R. 1999, 507–508, fig. 2.

<sup>180</sup> A synthesis of the research prior to 1970 in TUDOR 1978, 197–208, 423–448. Several chronological details in BARBU 1973 (construction dated to the reign of Gallienus) and TOROPU, TĂTULEA 1982 (Gallienus-Aurelian).

<sup>181</sup> VAGALINSKI 2003, with an up-to-date chronological frame and bibliography.

<sup>182</sup> SCORPAN 1980, 50–74. For recent observations see TORBATOV 2002, 88–95 (who finds arguments for dating it to the last years of Constantine's reign).

<sup>183</sup> A critical approach to the research at Capidava in TORBATOV 2002, 102–110, who dates it to the Licinius/Constantine period or after 324.

<sup>184</sup> ŞTEFAN 1971; ŞTEFAN 1974, 97–100; TORBATOV 2002, 121–126.

<sup>185</sup> BARNEA AI. 1984; BARNEA AI. 1986. Cf. TORBATOV 2002, 131–139.

<sup>186</sup> M. Zahariade, in SUCEVEANU et al. 2003, 43–64.

<sup>187</sup> COJA 1971; COJA 1972; TORBATOV 2002, 170–173.

but which seems to have been highly affected by the erosion of the coastline (**fig. 27**). The defence wall had rectangular bastions and three inner segments thickened in order to accommodate access stairs. The entrance was made through a tower-gate<sup>188</sup>. With a preserved surface of approx. 0.80 ha, the fortification at **Sveti Nikola-“Rusalka”** was built at roughly the same time and in the same manner as the one mentioned above. The defence wall has two rectangular bastions and has been dated based on a coin from the reign of Anastasius (post-498), discovered on the construction level<sup>189</sup>.

In the **inland part of the provinces** not many middle-sized military and roadside fortifications have undergone archaeological research. We shall offer below an inventory of those that are best known archaeologically among them.

A group of three fortifications are former Roman auxiliary forts (*Timacum Minus*, *Sostra*, *Germania*) inside the provinces Moesia Superior, Moesia Inferior and Thrace. At **Ravna** (*Timacum Minus*) the old auxiliary fort (*coh. I Thracum Syriaca*, followed by the *coh. II Aurelia Dardanorum*), dimensions 144 × 112 m (1.7 ha), was completely restored at the end of the 3<sup>rd</sup> – beginning of the 4<sup>th</sup> c., when entirely protruding rectangular towers were added at the corners and on the sides (**fig. 28**)<sup>190</sup>. The auxiliary fort at **Lomec** (*Sostra*), located on the Philippopolis-Oescus road, was probably built during the reign of Antoninus Pius (*coh. II Mattiacorum*, then *coh. I Cisipadensium*) with typical dimensions of 125 × 121.5 m (surface of approx. 1.50 ha). It was entirely restored in the last quarter of the 3<sup>rd</sup> c. (*terminus post quem* provided by coins from the reigns of Claudius II and Aurelian, discovered in the mortar of the defence wall), when they added half-protruding round corner-towers and similar rectangular towers at the gates (**fig. 29**)<sup>191</sup>. In the fort of *coh. II Lucensium* at **Sapareva Banja** (*Germania*), with dimensions 180.75 × 139.50 m (surface of 2.5 ha), only the western gate has been researched, and it was discovered that it had been flanked by rectangular towers dated to the Severan period and that it had been blocked at a later stage (4<sup>th</sup> c.?) by a thick wall set against the outer face of the defence wall<sup>192</sup>.

In the same time with the strengthening of the old military camps, some important economic and commercial sites (*emporion*) receive defence walls. In the area of the former Roman *emporium* at **Sliven** (*Tzoides*) appeared in the first half of the 4<sup>th</sup> c. a rectangular fortification of approx. 4.5 ha, with round-shaped towers at the corners and rectangular tower-gates in the middle of three curtains (**fig. 31**)<sup>193</sup>. The fortified Roman *emporium* at **Gostilica** (*Discoduraterae*) covers a surface of approx. 1 ha, with round corner-towers (only on one side.) The defence wall is dated to the 4<sup>th</sup> c., but it is presumed to have been built on an older trajectory (dating at least from the mid 3<sup>rd</sup> c.)<sup>194</sup>.

Even if it does not have a regular plan, the military character of the fortification in **Mihajlovgrad** (*Montana*) (150 × 70 m) is proven by the inscriptions dated to the end of the 3<sup>rd</sup> c. (which refer to it as *castra*), and it must have held this function at least throughout the 4<sup>th</sup> – 6<sup>th</sup> c. The defence wall is 3.20 m thick, built in *opus mixtum*; one notices the massive tower

<sup>188</sup> TORBATOV 2002, 215–220.

<sup>189</sup> TORBATOV 2002, 223–226.

<sup>190</sup> PETROVIĆ P. 1975; PETROVIĆ P. 1986. See NDOr. IX: *Timacenses auxiliarii*, legion of *pseudocomitatenses*.

<sup>191</sup> HRISTOV et al. 2003; HRISTOV 2006.

<sup>192</sup> IVANOV T. 1957. Cf. BIERNACKA-LUBANSKA 1982, 255, no.140, fig. 129; OVČAROV 1982, 61, fig. 40.

<sup>193</sup> *Emporion Thuidas*: IGB V, 5636. The results of the excavations in the Late Roman fortification: ŠTEREVA et al. 2001. For the urban character in the Early Byzantine period see DINČEV 1999, 54–55.

<sup>194</sup> SULTOV 1966. Cf. IVANOV T. 1980, fig. 22; BIERNACKA-LUBANSKA 1982, 234, fig. 77; ZAHARIADE, GUDEA 1997, 92, no. 117.

with rounded front and central pillar, as well as the important buildings inside. At a later stage (5<sup>th</sup> – 6<sup>th</sup> c.) a *proteichisma* was added<sup>195</sup>.

Another group of fortifications were important road-stations. At **Kula**, in Dacia Ripensis, in the SW part of a *quadriburgium*-type fortification a *castellum* was built (at a later stage?) covering a surface of approx. 1.8 ha, whose defence wall was constructed using a technique similar to that used in *Bononia* (towers with round foundation and decagonal elevation)<sup>196</sup>. It has been dated to the reign of Constantine, but there is nothing to prevent us from proposing that the *quadriburgium* and the *castellum* functioned at the same time, more precisely during the Tetrarchy or in the first decade of the 4<sup>th</sup> c. (Galerius?). The fortress at **Komotini**, in the province Rhodope, located near the *via Egnatia*, is traditionally dated in the Theodosian period and has a surface of approx. 1.6 ha (c. 125 × 125 m). The wall has round-shaped corner-towers and rectangular intermediary ones (**fig. 32**)<sup>197</sup>. In Scythia, the fortification in **Pantelimonul de Sus (Ulmetum)** is an exception from the strictly rectangular shape as one of its sides accommodates the configuration of the terrain; it has horseshoe- or round-shaped corner-towers, rectangular towers on the irregular side and U-shaped towers at the gates; also, on the NW side there is a massive rectangular tower (*phrourion*) (**fig. 33**). Recent research has dated the construction to the end of the 4<sup>th</sup> – beginning of the 5<sup>th</sup> c. After a period of abandonment, it was restored during the reign of Justinian, as demonstrated by archaeological discoveries and the mention Procopius makes of it<sup>198</sup>. In Moesia Secunda, on the site of an Early Roman fortification in **Šumen**, probably a road station, a new one was built (on a surface of 1.71 ha or 2.80 ha, according to different sources) at the end of the 3<sup>rd</sup> – beginning of the 4<sup>th</sup> c. It was reinforced by U-shaped towers, a rectangular one and a tower-gate (**fig. 34**)<sup>199</sup>. **Rupkite (Carassura, Diospolis?)** is a station on the Philippopolis – Augusta Traiana road that gradually evolved into a semi-urban fortified settlement. If for the 4<sup>th</sup> c. and the first half of the 5<sup>th</sup> c. the station was protected by ancient Thracian walls, in the second half of the 5<sup>th</sup> c. (or rather in the 6<sup>th</sup> c., during the Anastasius-Justinian period) a new fortification was built, covering a large area on both sides of the Stara Reka river; it had round towers at the corner and polygonal or rectangular ones on the sides (**fig. 35**)<sup>200</sup>.

Probably also a road-station function had the fortification in **Bushati** (in the province Praevalitana), with an almost rectangular plan (surface of approx. 0.70 ha, which places it at the border with minor fortifications), round corner-towers and U-shaped or rectangular towers on the sides. The gate is flanked by rectangular towers with a rounded front and has a *propugnaculum* inside (**fig. 30**). It is dated to the reign of Constantine<sup>201</sup>. Its plan and dimensions make it very similar to that in *Dinogetia*.

**Vodno-“Markovi Kuli”** (Dardania, near *Scupi*) is a fortification of approx. 2 ha, formed of a triangular acropolis whose defence wall had rectangular towers and a terrace fortified with

<sup>195</sup> ALEKSANDROV 1987 (the author connects the large tower-donjon with the *burgus* mentioned in the inscription from 258).

<sup>196</sup> ATANASOVA-GEORGIEVA 1974; ATANASOVA et al. 2005, 43–47.

<sup>197</sup> MOUTSOPOULOS 1979, 216–217, fig. 15–17.

<sup>198</sup> PÂRVAN 1912; PÂRVAN 1913–1914; PÂRVAN 1915. Cf. Al. Barnea, in SUCEVEANU, BARNEA 1991, 202–204; TORBATOV 2002, 288–297. Results of the new excavations in CCA (2004–2009) and also C. Băjenaru, forthcoming paper 2011, v. *supra*, n. 122.

<sup>199</sup> ANTONOVA 1973; ANTONOVA 1978. Cf. BIERNACKA-LUBANSKA 1982, 239, fig. 53, 142; DINČEV 2006, fig. 20.

<sup>200</sup> HERMANN 1992; DÖHLE 1992; BÜLOW 1992; SPRAFKE 1992; BÖTTGER 1992; BUJUKLIEV 2002.

<sup>201</sup> PĚRZHITA 1986.

pentagonal or triangular towers (fig. 37). It is dated with certainty to the 6<sup>th</sup> c., probably during the reign of Justinian<sup>202</sup>. In Moesia Secunda, at **Tărgoviște-“Krumovo Kale”** there is a polygonal fortification with “saw-teeth” segments and U-shaped bastions (fig. 36). It is dated to the 5<sup>th</sup> c. but reached a maximum development during the 6<sup>th</sup> c., when a large, three-nave Christian basilica with an atrium was built inside<sup>203</sup>. Also in Moesia Secunda is **Madara**, a polygonal fortification located on a steep rocky height, enclosing a surface of over 1 ha. It has a rectangular corner-tower and a gate flanked by pentagonal towers (fig. 38). Based on the typology of the pentagonal towers it is dated to the 5<sup>th</sup> – 6<sup>th</sup> c.<sup>204</sup>. At **Odărci**, in the southern part of the province Scythia, a fortification of approx. 1.1 ha, with rectangular and U-shaped towers (fig. 39), was built in the Constantinian period and repaired during the 5<sup>th</sup> and 6<sup>th</sup> c.<sup>205</sup>.

The same category of medium-size fortifications also includes the two fortifications in Dacia Ripensis (Gamzigrad and Vrelo-Šarkamen), whose plan is typical of Tetrarchic military architecture, but which also have a strong civilian character (which has led to their classification as fortified residences). **Gamzigrad (*Felix Romuliana*)** is the fortification built by Emperor Galerius, following the model of Diocletian’s palace in Split. The defence wall has a quadrangular plan of approx. 225 × 210 m (a surface of 4.5 ha), it was built in two stages and has 20 massive protruding polygonal towers, of which the ones at the corners are truly gigantic (external diameter of approx. 20 m). Several dwelling complexes have been researched inside, as well as temples, a *horreum* etc. The fortification was used throughout the 6<sup>th</sup> c. and it probably had a semi-urban status<sup>206</sup>. The fortified residence from **Vrelo-Šarkamen** was probably built by Emperor Maximinus Daia (305–313), naturally after the model used at Split (Diocletian) and Gamzigrad (Galerius.) It has internal dimensions of approx. 92 × 96 m (approx. 0.90 ha) and an over 3 m-thick defence wall with 10 massive polygonal towers (external diameter of almost 16 m). Excavations have shown that the fortification was never completed<sup>207</sup>.

Most middle-size fortifications are actually **fortified settlements**, inhabited by a civilian population and many of them built on heights (which led to their being referred to as “Hill-top defences”, “Höhensiedlungen”). The main characteristic of fortified settlements is the more or less irregular plan of the defence wall and the internal space division, the use of inferior techniques when building the defence wall (often made of stones bound with earth or nothing at all), the rare use or even lack of towers or other elements specific to military architecture (such as barracks.) A series of recent studies<sup>208</sup> has shown a high occurrence of this type of fortification in the Balkans, as well as other regions of the Empire<sup>209</sup>, their chronological span ranging from the end of the 4<sup>th</sup> – beginning of the 5<sup>th</sup> c. to the 6<sup>th</sup> c., even if there are examples that can be dated as early as the second half of the 3<sup>rd</sup> c. According to V. Dinčev,<sup>210</sup> during the 5<sup>th</sup> – 6<sup>th</sup> c. a major change affected dwelling inside fortifications in the Balkan Peninsula. An important part

<sup>202</sup> MIKULČIĆ 2002, 190–195.

<sup>203</sup> OVČAROV 1971; IVANOV T. 1980, fig. 224; OVČAROV 1982, 27–28, fig. 10, 17; BIERNACKA-LUBANSKA 1982, 239, fig. 74. Similar to the massive U-shaped bastions in Tărgoviște are the pentagonal bastions flanking the gate of the fortification at **Dolna Kabda**, probably built in the same period (OVČAROV 1971; BIERNACKA-LUBANSKA 1982, 233, fig. 99, 127).

<sup>204</sup> OVČAROV 1982, 37–38, fig. 18; BIERNACKA-LUBANSKA 1982, 236, fig. 52, 79, 98; DINČEV 2006, 36, fig. 86, 87.

<sup>205</sup> TORBATOV 2002, 356–369.

<sup>206</sup> SREJOVIĆ et al. 1980; SREJOVIĆ 1985; SREJOVIĆ 1993.

<sup>207</sup> TOMOVIĆ et al. 1995; SREJOVIĆ et al. 1996; TOMOVIĆ, JOVANOVIĆ 2000; VASIĆ, TOMOVIĆ 2005.

<sup>208</sup> MIKULČIĆ 2002, 58–60; DINČEV 2006; KIRILOV 2007.

<sup>209</sup> JOHNSON 1983, 226–244; CIGLENECKI 1987.

<sup>210</sup> DINČEV 1997 a; DINČEV 1998; DINČEV 2006.

of the fortifications that had clear military features in the 4<sup>th</sup> c. (as they were used to station garrisons that defended the *limes* or mobile armies) bore predominantly civilian characteristics starting with the end of the 4<sup>th</sup> and especially during the second half of the 5<sup>th</sup> c., which led to their being described as “fortified settlements”. We cannot rule out the possibility that it was in these fortifications that flourished the rural dwelling in the Balkans during the 5<sup>th</sup> – 6<sup>th</sup> c., whose lack of evidence elsewhere has been highly stressed by specialists<sup>211</sup>.

Out of the fortified settlements on the territory of the diocese of Dacia, which have undergone archaeological excavations, several can be singled out: those in **Berkovica** (**fig. 40**)<sup>212</sup> and **Sadovec-“Golemanovo Kale”**<sup>213</sup> (both in Dacia Ripensis – the former was located in an important mining area and its construction mentioned in an inscription dated to the beginning of the 5<sup>th</sup> c.; the latter was located at the border with Moesia Secunda and was a “model” of fortified settlement inhabited by a civilian population with the status of *foederati*), **Pernik** (**fig. 41**, in Dacia Mediterranea, on the Serdica – Pautalia road, a rural settlement fortified as early as the second half of the 3<sup>rd</sup> c.)<sup>214</sup>, **Potočac-“Momčilov Grad”** (in Moesia Prima, on the Morava Valley, south of *Horreum Margi*, covering a surface of approx. 2 ha and dated to the 6<sup>th</sup> c.)<sup>215</sup>, **Kraku lu Jordan** (**fig. 42**, in Moesia Prima, a fortification built in one of the most important gold-mining areas)<sup>216</sup>, and **Ras** (in northern Dardania, built as early as the 4<sup>th</sup> c., probably with a semi-urban character)<sup>217</sup>.

A number of fortifications are also to be mentioned in the provinces of the diocese of Thrace: **Gabrovo** in Moesia Secunda (**fig. 43**, surface of 2.4 ha, that, apart from the defence wall with a rounded tower and another rectangular one, also has a *proteichisma*; it was dated to the middle of the 4<sup>th</sup> c.)<sup>218</sup>, **Batoševo**, also in Moesia Secunda (**fig. 44**, surface approx. 1.5 ha, probably constructed about the end of the 5<sup>th</sup>-beginning of the 6<sup>th</sup> c.)<sup>219</sup>, **Kipilovo-“Sajganskoto Kale”** (**fig. 45**, Haemimontus, a surface of 0.80 ha, a defence wall with one pentagonal and one triangular tower, dated to the end of the 4<sup>th</sup> c.)<sup>220</sup>, **Bălgari** (Haemimontus, a surface of 1.10 ha, dry-set defence wall dated to the end of the 5<sup>th</sup> – beginning of the 6<sup>th</sup> c.)<sup>221</sup>, **Panagjurište-“Krasen Kale”** (Thrace, a surface of 2.50 ha, with a massive triangular tower, dated to the 4<sup>th</sup> c.)<sup>222</sup>.

To these we add an even higher number of minor fortifications (under 1 ha) with irregular plans, that were either fortified rural settlements or mere places of refuge, for which we recommend two recent studies that have analysed such constructions too<sup>223</sup>.

<sup>211</sup> KIRILOV 2007, 334. Other researchers see a “militarisation of the rural regions” after 382, the moment when the *foederati* were integrated in the Empire (POULTER 2007, 378–379).

<sup>212</sup> MITOVA-DŽONOVA 1977. See also the 5<sup>th</sup> c. building inscription, *supra*, n. 120.

<sup>213</sup> UENZE 1992.

<sup>214</sup> KIRILOV 2007, 338, Abb. 14.

<sup>215</sup> BRMBOLIĆ 1986.

<sup>216</sup> TOMOVIĆ 2000, 155–183.

<sup>217</sup> POPOVIĆ M. 1999.

<sup>218</sup> KOJČEVA 2002. Cf. DINČEV 2006, 11 f., fig. 19; KIRILOV 2007, 336, Abb. 9.

<sup>219</sup> MILČEV 1983. Cf. DINČEV 2006, 27–28, fig. 30.

<sup>220</sup> LISICOV 1975; OVČAROV 1982, 40–41, fig. 21.

<sup>221</sup> KIRILOV 2007, 329–330, Abb. 1.

<sup>222</sup> TOPTANOV et al. 1994; KIRILOV 2007, 336–337.

<sup>223</sup> MIKULČIĆ 2002, 58 f.; DINČEV 2006, 45–46, 79–80; DINČEV 2007 a, 528–530.



## IV

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# MINOR FORTIFICATIONS DURING THE LATE EMPIRE

### 1. TERMINOLOGY

During the Late Roman period literary and epigraphical sources use several terms when referring to fortifications. But in most cases these terms cannot be verified against the archaeological situation, as they do not have a clear correspondent from a functional or typological point of view and can sometimes lead to confusion<sup>1</sup>.

G. Forni, in his synthesis on the *limes*, identifies the following terms<sup>2</sup> used in literary and especially epigraphical sources when referring to fortifications:

- **Castra**: is the classical term used to define regular fort, used for sheltering frontier units along the main communication routes and in other important strategic points. They are built according to the *castrametatio* rules (Hyginus, Vegetius) and differ in size, according to the number of troops they house. In the 1<sup>st</sup> – 3<sup>rd</sup> c. the *castra* could be legionary, auxiliary forts and even forts for *numeri* (e.g. CIL III, 13796 = ILS 9180, in Dacia Inferior, 140 A.D.: *castran(umerus) burg(ariorum) et vered(ariorum)*, from *Praetorium*).

- **Castellum**: is the diminutive for *castrum*, and it refers to a smaller-sized fort (Vegetius, *Epit.* II, 8); usually it is to be connected to auxiliary units or *numeri* forts; it is generally considered that the Greek correspondent of *castellum* is *phrourion*, which in its turn is different from *praesidium* or *burgus* (according to the inscriptions from Thrace, where there is a difference between *praesidia*, *burgi* and *phruri*, as we will see in comments to follow).

- **Praesidium**: the term appears in different contexts, usually referring to a garrison stationed in a fortification, a *castra* or *castellum*. The most dwelled upon remain the inscriptions from Donje Butorke, Sexaginta Prista, Transmarisca, Durostorum, Halmyris and possibly Seimeni<sup>3</sup>, which all seem to refer to old Roman forts along the Danubian *limes*, rebuilt during the Tetrarchy<sup>4</sup>.

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<sup>1</sup> TORBATOV 2004 a, 45 remarks the “terminological chaos”, amplified by ancient authors (even by inscriptions), that often use contradictory definitios for the same site. See also JOUFFROY 1997.

<sup>2</sup> FORNI 1959–1962, 1086–1094.

<sup>3</sup> SARNOWSKI 1990; ZAHARIADE 1997 b.

<sup>4</sup> A different interpretation of these inscriptions is put forward by S. Torbatov, which connects them to *burgus*-type fortifications: TORBATOV 2002, 78–79; TORBATOV 2004 a, 36–37, 46–47. The author bases his theory on the inscriptions from two forts of this type identified at Donje Butorke (*Gazetteer*, no. 22B) and probably Seimeni (*Gazetteer*, no. 41), considering that the inscriptions discovered in the other forts were brought over from elsewhere as construction material.

- **Centenarium**: the term is used only in the African provinces, in a series of inscriptions dated to the 3<sup>rd</sup>–4<sup>th</sup> c., and clearly in connection to a building<sup>5</sup>; different interpretations have been put forward, the most widely accepted one relating the *centenarium* to the *centenarius*, the commander of 100 soldiers and the equivalent of the early Roman *centurio*<sup>6</sup>.

- **Burgus**: is mentioned as the *castellum parvulum* by Vegetius (*Epit.* IV, 10), and other sources mention the *burgarii* (the personnel that resides in a *burgus*)<sup>7</sup>, *burgus speculatorius* and even a *burgus centenarius* (see below, note 12); because the inscriptions make a clear distinction between this fortification and the *turris* or *pyrgos*, G. Forni identifies the *burgus* with “una torre di dimensioni tali da servire anche da abitazione”.

- **Turris/Pyrgos**: the inscriptions mention this term when referring to either towers belonging to the above-mentioned fortifications or to separate structures; unlike the *burgus*, a *turris* is small in size and is used primarily for signaling or survey.

- **Oppidum**: defines a fortified centre and is generally used for urban centres and more rarely for military fortifications.

- **Fossatum, Vallum, Praetentura, Clausurae**: terms that define linear fortifications, many of them being used in defensive systems which also contain some of the above-mentioned fortifications (usually a *castellum*, *burgus* or *turris*).

To this scheme drawn up by de G. Forni one can add other terms that often appear in literary or epigraphical sources, such as **munimentum/munitio** (e.g. *munimentum Robur*<sup>8</sup>, *munitio* in an inscription from Carcaliu<sup>9</sup>) and **ochyroma** (a Greek term meaning “fortification” or “precinct wall”, used especially by Procopius when referring to a series of fortifications restored by Justinian)<sup>10</sup>.

Regardless of the typology of Roman fortification names, we will find out that in the Late Roman period identified or researched minor fortifications that have a similar plan appear in written sources under different names. Thus, a fortification with four corner-towers on the Arabian frontier, which at a first glance should not be named anything but *tetrapyrgia* or *quadriburgium*, is named in its Tetrarchic foundation inscription *castra* (Qasr Bshir = *castra praetorii Mobeni*)<sup>11</sup>. Also, we have seen that, although the name *phourion* is assimilated by most researchers to the Latin *castellum*, there are indications that this term is also used for certain minor fortifications (see below the inscriptions from Thrace that lead us to think that a

<sup>5</sup> IRTrip, 880 (Gasr Duib, dated 244–249): ... *con[s]tituto novo centenario*; CIL VIII, 20215 = ILS, 6886 (year 293): *centenarium Aqua Frigida*; CIL VIII, 22763 = ILS, 9352 (Qsar Tarcine, ca. 294–306): *Centenarium Tibubuci*; AÉ 1942–1943, 81 (M'doukal, year 303): *centenarium quod Aqua Viva appellatur*; CIL VIII, 9010 (Bir Hadada, dated 315–316): *centenarium Solis*; IRTrip, 877: *centenare(um)*; IRTrip, 889: *centeinari(um)*.

<sup>6</sup> Against this interpretation see REDDÉ 1995, 100. Several small fortifications (*gsour*) researched on the limes of the province Tripolitania were considered *centenaria* (especially based on the inscription discovered at Gasr Duib) and interpreted as “fortified farms”, inhabited by *limitanei* (GOODCHILD 1950, 34 f.). Recent research contest their military character and consider them “reinforced farms”, whose precincts are designed to protect the inhabitants against banditism and have no direct connection to the limes. (MATTINGLY, HITCHNER 1995, 195; REDDÉ 1995, 95).

<sup>7</sup> CIL III, 13796; IGLR, 172; IGB III, 1690; CTh VII, 14.

<sup>8</sup> Fortification in the province Sequania, on the Rhine limes, mentioned by Amm. Marcell. XXX, 3, 1 and CTh VIII, 5, 33. Probably located near Basel, on the opposite shore of the Rhine (Kleinbasel, see catalogue below). Cf. SCHÖNBERGER 1969, 186; PETRIKOVITS 1971, 217; MOOSBRUGGER-LEU 1974; FELLMANN 2006 b, 218.

<sup>9</sup> IGLR, 238.

<sup>10</sup> Procopius, *De aedif.* IV, 6, 1 (*Pincus, Cuppae, Novae*); 6, 34 (*Palatiolum, Sucidava*); 7, 17 (*Ulmetum*).

<sup>11</sup> CIL III, 14149. For research at Qasr Bshir see CLARK 1987.

*phourion* was smaller than a *burgus*!). In the meantime, inscriptions that mention fortifications such as the *centenarium* which, at a first glance, should constitute a specific architectural type, are countered by the archaeological discoveries showing that this name can hide fortifications of different size and plans<sup>12</sup>.

I believe that a typology of fortifications up to 1 ha drawn up only based on written sources cannot stand, as an important contribution must be made by confronting it against the results of archaeological excavations. After combining the written sources with the archaeological ones we can still identify the following distinct types of minor fortifications, generally separated according to the surface of the fortified area:

1. **Towers (*turris/pyrgos/phourion*)** – this is the smallest type of fortification (an average of 5 × 5 m, but starting from approx. 3 × 3 m up to 10 × 10 m). In studies dedicated to this type of defensive structure it appears under different names: “Wachturm”, “tour de garde”, “watchtower”, “tour de guet”, “signal-station”. A series of studies focusing on towers<sup>13</sup> have shown their importance in the organization of the Roman frontier defense systems.
2. **Burgus-type fortifications (*burgus/pyrgos/centenarium*)** – we can include here “towers” of over 10 × 10 m, that were inhabited by a sizeable population. Generally these structures could house different types of dwelling structures, usually made of light material, but also of stone walls in the case of larger structures (see type Topraichioi in the Balkans, but also those *gsour* in Tripolitania, considered by some authors *centenaria*). Many of them are characterized by the presence of a central yard, around which are laid the dwelling structures. Their surface varies between 0.01 – 0.05 ha, with rare exceptions below and above these figures.
3. **Quadriburgium-type of fortifications (*tetrapyrgia / quadriburgium / praesidium / centenarium / castra / castellum / phourion*)** – apart from the classic plan (that is rectangular with four corner-towers), there is also a whole list of variants (with intermediary towers, with towers flanking the gates, or even with a non-rectangular plan) and certainly an evolution in time. The surface of such a fortification varies between 0.05 – 0.40 ha, again with rare exceptions below and above these figures.
4. **Small *castellum*-type (*praesidium / centenarium / castra / castellum / phourion*):** this category is typical of the Early Roman period and was usually used for stationing *numeri* units; during the Late Empire, though there are different shapes of fortifications, rectangular or polygonal, that usually serve a military purpose. We consider that in this category should be included fortifications with a surface of more than 0.40 ha and up to 1 ha, which constitutes the upper limit of minor fortifications.

<sup>12</sup> REDDÉ 1995, p. 100 stresses D. J. Mattingly’s observation that the *centenarium Aqua Viva* (with a plan more similar to a *quadriburgium*, with towers inserted in the fort’s sides) has 0.74 ha and is 33 times larger than the *centenarium Tibubuci*, that has a surface of only 0.02 ha, thus being considered more likely a *burgus*. For this also see PRINGLE 1981, 431, n. 6; TORBATOV 2004 a, 82; LE BOHEC 2004, 258. Considering the attested toponym *burgus Centenarius*, I think that there is an important similarity between the two terms (see in province Valeria, NDOcc. XXXIII, 62: *tribunus cohortis, ad burgum Centenarium*).

<sup>13</sup> GICHON 1974b (*limes Palaestinae*); TROUSSET 1990 (*limes Tripolitanus*); GUDEA 1997 (*limes Daciae Porolissensis*). Also see ZAHARIADE 2003; JEREMIĆ 2007.

## 2. HELLENISTIC AND EARLY ROMAN ORIGINS

What we define as minor fortifications can be found in periods preceding the one on which this analysis is focused. When we consider the typology drawn up above, we can identify ancestors for each and every one of the respective categories. Each types of minor fortifications mentioned above appear in inscriptions or literary texts beginning with the Hellenistic period, confirmed sometimes by field research or archaeological excavations.

### Towers

The Hellenistic period offers a large array of tower types, and apart from the literary and epigraphical mentions there are numerous examples, some still standing, others set to value by archaeological excavations. There are still arguments on the function of towers, most opinions oscilating between their civil, rural, agricultural related function and a military, defensive one. A recent study of S. Thielemans is dedicated to the study of Hellenistic towers in the mining regions of Laurion, Syphnos and Thasos, and it tries to connect the numerous towers discovered in these areas of ancient Greece with the need for enforcing the security of the mining facilities; it also highlights their important role in surveillance. The author rightly stresses that their basic function, regardless of them being located in agricultural, mining, quarrying areas or at the frontier (including those on the Aegean shores), was that of ensuring the security of that respective area<sup>14</sup>. The most recent synthesis on these fortifications in Greece emphasizes the relation between the towers and the agricultural and artisan exploitations using slave labor<sup>15</sup>. It also presents the standard model for the Greek tower (**Cheimarrou** in the island of Naxos, very well preserved), which is circular (external diameter of 9.20 m and internal diameter of 8.50 m) and whose height is estimated at 15 m. It was located inside a yard of approximately 35 m<sup>2</sup> that contained installations for olive oil production and was delimited by a stone wall<sup>16</sup>.

We have to mention here the old argument between Al. Suceveanu and Emilia Doruțiu-Boilă, concerning the character of the towers mentioned by two Early Roman inscriptions, discovered on the western Black Sea shore (*Laikos Pyrgos* and *vicus Turris Muca...*, to which can be added the *Stratonis Turris* recorded on the shield from Dura Europos)<sup>17</sup>, the former stressing the towers' military role and integrating them in a system for the defense of the seashore, the latter connecting them to agricultural exploitations. The issue to be raised is not that of the role that they played (clearly of surveillance of the territory), but whether these towers are the result of a civilian or a military initiative<sup>18</sup>. The lack of systematic research on this matter makes it hard to give a definitive answer at the present moment.

The epigraphical documentation concerning surveillance towers in the Early Roman period is especially rich in the African provinces, where a series of important inscriptions dated

<sup>14</sup> THIELEMANS 1999, 154–155. See also GRIMAL 1939; YOUNG 1956; OSBORNE 1986; ÉTIENNE 1990, 31–34, figs. 1–2 (circular tower at Smovolon, square at Avdo, connected with the defensive system of the city of **Tenos** and its territory, **Fig. 46**); E. Skafida, BCH 124, 2000, 962–963, figs. 251–252 (the round towers at Skopelos-Glossa, connected to the local agricultural exploitations).

<sup>15</sup> MORRIS, PAPADOPOULOS 2005. The earliest examples that have been excavated are dated to the 5<sup>th</sup> c. B.C.

<sup>16</sup> MORRIS, PAPADOPOULOS 2005, 155–156, fig. 1.

<sup>17</sup> SUCEVEANU 1974, 229; DORUȚIU-BOILĂ 1975.

<sup>18</sup> See for example the situation in Syria for the Late Roman – Early Byzantine period, where epigraphic documentation about *pyrgoi*, *burgi* and *phrouria* attests both civilian and military initiative (SARTRE 2007, 269).

to the reign of Commodus were discovered. One of these mentions that during the emperor's reign *turres novas instituit et veteres refecit opere militum*<sup>19</sup>.

Archaeological discoveries in the Empire's different provinces attest, as it was to be expected, the frequency of these installations with signalling, guarding and surveillance functions. A series of special studies is dedicated to their typology and chronology, as well as to the tactical implications deriving from their layout in the territory. Thus, for the western provinces we must mention the studies concerning the Rhine and Danube frontiers<sup>20</sup>, where an impressive number of such towers have been identified. On the border of Dacia Porolissensis many towers have been archaeologically and topographically investigated (as well as a series of *burgi* and minor *castra*), as they were part of an "advanced line of defence"<sup>21</sup>. Their location was chosen according to necessity, usually in spots with a good visibility over the territory, and played the role of signal-stations or watchtowers. We notice the diversity of shapes used (circular, square) and the constant use of stone as construction material.

Also, some constructions in Palestine reflect local inheritance on one side, and on the other Roman innovations<sup>22</sup>. The typical example of watchtower is the one excavated at **Migdal Tsafit**, that has a square plan (6.15 × 6.15 m), an interior staircase for access at the upper level (**Fig. 47**) and is dated to Trajan's reign (with the mention that it was also in use during the 4<sup>th</sup> c.)<sup>23</sup>.

In Africa, more precisely on the *limes Tripolitanus*, circular or square towers are usually located near the Roman forts, their surveillance and signaling role therefore evident<sup>24</sup>. The dimensions of towers in the Lybian provinces vary between 4.5 × 4.5 m and 6.5 × 6.5 m (see the typical example at **Guebba**<sup>25</sup>, **Fig. 48**), but there are also larger ones (**Zaviet Msus**, in Cyrenaica, external dimensions 7.5 × 6 m, with an outer enclosure<sup>26</sup>, **Fig. 50**).

### *Burgus*

The origins of this type of fortification can also be found in the Early Roman period. A series of inscriptions mention the construction of such *burgi* in different regions of the Empire (Thrace, Pannonia, Africa, Eastern provinces).

In Thrace there are famous inscriptions that concern the fortification of the territories of certain cities (*Marcianopolis*, *Augusta Traiana*, *Serdica*, *Deultum*, *Bizye*) during Antoninus Pius' reign (152–155): *praesidia et burgos ob tutelam provinciae Thraciae*. The texts mention, apart from the term *praesidium*, that of *burgus*, *phourion* or *pyrgos*<sup>27</sup>. The most complex is the inscription from the territory of *Serdica*<sup>28</sup>, more exactly from the *regio Dyptensium*, where it states that 4 *praesidia*, 12 *burgi*<sup>29</sup> and 109 *phruri* were raised. One can clearly see the difference between these types of structures: if the *praesidium* can be considered a type of fort or only a type of roadside fortification, close to a *mansio*, the *burgus* is clearly a considerably smaller

<sup>19</sup> CIL VIII, 20816 = ILS, 396 (in the Auzia region).

<sup>20</sup> FITZ 1955; VISY 1980; VISY 1995. See also traces of the Roman military presence in the North Pontic area – recently excavated tower at **Kavkaz Bair** in Crimea (**Fig. 49**) (SARNOWSKI et al. 2007, 65–66, fig. 8).

<sup>21</sup> GUDEA 1997 c.

<sup>22</sup> GICHON 1974 b; GICHON 1999 b.

<sup>23</sup> GICHON 1974 c, 16 f, fig. 2.

<sup>24</sup> TROUSSET 1990.

<sup>25</sup> TROUSSET 1990, 259, fig. 6.

<sup>26</sup> GOODCHILD 1953, 68, fig. 17.

<sup>27</sup> MIHAILOV 1961, 5–19; H. Bujukliev, L. Getov, ArhSofia 6, 1964, 1, 29–33.

<sup>28</sup> AÉ 1957, 279 = ILB, 211 (discovered at Bălgarski Izvor).

<sup>29</sup> An almost equal number (11) are attested in the territory of the city *Augusta Traiana*.

fortification, but not small enough to be mistaken with a *phrurion*, which must have represented simply an easy-to-build (thus its largely attested presence) watchtower.

Type	Number	%	%	Dimensions	Surface	Calculation
Praesidia	4	1		26 × 26 m	675 m <sup>2</sup>	25 mp × 27 phruri 220 mp × 3 burgi
Burgi	12	3	1	15 × 15 m	220 m <sup>2</sup>	25 mp × 9 phruri
Phruri	109	27	9	5 × 5 m	25 m <sup>2</sup>	

From the table above several interesting observations can be made. First of all we can see there is a clear ratio between the three types of fortifications: for every *praesidium* there are 3 *burgi* and 27 de *phruri*, and for every *burgus* there are 9 *phruri*. If this observation works not only as a number, but also when it comes to surface ratio, and if we consider the standard dimensions of a tower (*phrurion*) 5 × 5 m, that is 25 m<sup>2</sup>, then every *burgus* should cover approximately 220 m<sup>2</sup>, which implies a structure of approximately 15 × 15 m, and for a *praesidium* approximately 675 m<sup>2</sup>, that is a fort of approximately 26 × 26 m. If this theory is right, then the *praesidium* should be included in the category of minor roadside fortifications, as it is a structure similar to the *praetorium*. Of course, this calculation is purely speculative in the absence of archaeological proof, but it represents an interesting direction to be followed in the study of these minor fortifications from the Early Roman period.

For now there is no clear identification through archaeological methods for the fortifications built during Antoninus Pius' reign. We will only mention a recent tentative to identify the auxiliary fort at Lomec (*Sostra*) with one of the *praesidia* mentioned by these inscriptions, theory which its authors based on the fact that fortification was built during the same emperor's reign<sup>30</sup>.

To the reign of Commodus is dated a group of inscriptions with identical texts, discovered in the fort at Dunaujvaros (*Intercisa*), to which we add another inscription from Szazhalombatta (*Matrica*), that mention the construction of a chain of *burgi* and *praesidia* on the limes of province Pannonia Inferior (*ripa omnem burgis a solo exstructis item praesidis per loca oportuna ad clandestinos latrunculorum transitus oppositis munivit*)<sup>31</sup>. This is another example that proves the distinction to be made between the *praesidium* and the *burgus* in the Early Empire. We must mention that some of these constructions have been identified through archaeological methods or on aerial photographs, such an example being **Budapest-Csillaghegy (59 Kossuth Lajos st.)**, dimensions 8 × 8 m (**Fig. 52**), dated to the reign of Commodus based on the archaeological material<sup>32</sup>.

Another interesting inscription from Commodus' reign was found in Africa, and it clearly mentions that *burgis novis provincia munita miliaria conlapsa vetustate restituit* in the territory of Mauretania Caesariensis<sup>33</sup>, which highlights the close relationship between the restoration of the road system and the building of minor fortifications to guard it.

In Africa, more precisely in the province Numidia, two inscriptions mentioning a *burgus speculatorius* were discovered near El Kantara (*Calceus Herculis*). The first one, from Ksar Sidi el Hadj, is dated to the reign of Commodus and mentions the construction of such a *burgus* "between two roads"<sup>34</sup>. The second one, found at Loth Bordj (only 3 km away from the

<sup>30</sup> HRISTOV 2006, 105.

<sup>31</sup> RIU, 1127–1136, 1426.

<sup>32</sup> L. Nagy, BpRég 12, 1937, 271. Cf. SOPRONI 1978, Taf. 76.2.

<sup>33</sup> CIL VIII, 22629 = ILS, 5849 (from Ain Temouchent/*Albulae*).

<sup>34</sup> CIL VIII, 2495: *burgum* [[Commodianum]] *s[p]eculatorium inter duas vias ad salutem commeantium novae tute*[[a c[o]nstitui iussit]. Cf. FORNI 1962, 1090; TROUSSET 1990, 262.

previous location), is dated to the reign of Caracalla and mentions another *burgus* of this type, namely a *burgus speculatorius Antoninianus*, constructed under the supervision of a centurion of the *Legio III Augusta* from Lambaesis, that was in the same time *praepositus* of a *numerus Hemesenorum Antoninianus*<sup>35</sup>. These inscriptions clearly attest the existence of a roadside fortification, probably under the supervision of a *beneficiarius consularis*, as is indicated by an inscription that mentions such a function, discovered at the same location<sup>36</sup>.

An inscription dated to the reign of Severus Alexander, discovered in the province Tripolitania, mentions a *burgus* raised *a fundamentis* by the vexillation of a legion: *[b]ur[g]um [a] solo per eandem vexillationem instituit*<sup>37</sup>. Some time later, during the reign of Philippus (between 244–246), it is for the first time that we have an epigraphical mention (also confirmed by excavations) of a *centenarium* at **Gasr Duib**, also in Tripolitania. It is a rectangular structure (approx. 15 × 15 m), with de 2 m-thick walls and internal division of the space<sup>38</sup>, whose aspect associates it with the *burgus*-type fortifications known in other areas of the Empire (**Fig. 54**).

Archaeology proves extremely useful in acquiring knowledge on the types of *burgi* from the Early Roman period. A tower of 15 × 15 m, surrounded by two ditches of approx. 26 × 26 m and 45 × 45 m was excavated in the eastern sector of the fort at **Nyergesújfalu** (*Crumerum*) on the Pannonian limes. The structure was built in the 2<sup>nd</sup> c. AD (probably Commodus's reign), then restored during the reign of Valentinian I<sup>39</sup>. A parallel situation (tower of approx. 15 × 15 m, with external defensive ditch) can be seen on the limes of Moesia Superior, at **Mihajlovac-“Mora Vagei”** (**Fig. 51**)<sup>40</sup>.

On the so-called “limes of the Meseş River”, researched by N. Gudea, were identified a series of wooden *burgi*, with external defensive ditch and rampart. What catches the eye is the fact that, unlike the towers – that are usually located on higher ground –, function of their surveillance and signaling necessities, the *burgi* appear only in mountain passes or in low areas and are often accompanied by linear fortifications (*clausurae*)<sup>41</sup>.

The Roman military presence in the Northern Black Sea area is proven by both inscriptions and archaeological excavations. Apart from the large military bases such as Charax or Chersonesos, recent excavations have also brought to light small fortifications such as the fort at **Kazackaja**, in the chersonesian territory (**Fig. 53**). This is an oval precinct with a surface of 750 m<sup>2</sup>, with barracks set against the walls and a square tower in the middle (external dimensions 6.60 × 6.60 m)<sup>42</sup>, a structure that cannot be named anything but a *burgus*. The construction was dated to the middle of the 2<sup>nd</sup> c. by stamped bricks (VEMI: *vexillatio exercitus Moesiae Inferioris*) and by its stratigraphy. The entire complex was destroyed in the later Severan period.

<sup>35</sup> CIL VIII, 2494 = ILS 2636. Cf. FORNI 1962, 1090; PRINGLE 2001, 78–79, 280–281 (where details are given on the archaeological situation here).

<sup>36</sup> AÉ 1925, 125.

<sup>37</sup> CIL VIII, 3 = IRTrip, 895.

<sup>38</sup> GOODCHILD, WARD-PERKINS 1949, 88–92, fig. 17. Cf. IRTrip, 880; PRINGLE 1981 (2001), 142, fig. 46.b; LANDER 1984, 158–159. On the controversies surrounding the civilian or military character of this type of fortification see above, note 6.

<sup>39</sup> SOPRONI 1978, 111, n. 522; WILKES 2005, 200.

<sup>40</sup> CERMANOVIĆ-KUZMANOVIĆ, STANKOVIĆ 1986. In the 4<sup>th</sup> c. A.D. on its ruins was built a *burgus* with *tetrapylon* (see Gazetteer, No. 31).

<sup>41</sup> GUDEA 1997 c, 22. The dimensions of such a *burgus* are of 20 × 20 m (Poic). But the author also includes in this category fortifications of 47 × 50 m (Poieni) or 50 × 50 m (Negreni, Ortelec), which should rather be considered small forts (see below).

<sup>42</sup> SARNOWSKI 2005, 741 f., Abb. 5, 6; SARNOWSKI et al. 2007, 60–65, fig. 3.

## *Tetrapyrgial/Quadriburgium*

The term *quadriburgium* (or *quadriburgus*) is a neologism invented at the beginning of the 20<sup>th</sup> c. by the pioneers of research on the Empire's Eastern frontier<sup>43</sup> to define a certain type of small-size fortification, with four towers at its corners, a model often encountered especially on the *Strata Diocletiana* in Syria and considered by A. Poidebard a distinctive «Diocletianic type»<sup>44</sup>. This term does not appear in ancient sources except as a 4<sup>th</sup> c. toponym (Amm. Marc. XVIII, 2, 4, where, among the *civitates occupatae* by Franks and Alamanni in 355 on the Rhine limes, the toponym *Quadriburgium* is mentioned, identified by most researchers with the present-day Qualburg ; NDOcc. XXXIV, 6 and 17: *equites sagittarii, Quadriburgio*, on the limes of Pannonia I and that of the Noricum Ripense, with an uncertain location; NDOcc. XXXIII, 60: *tribunus cohortis, Quadriborgio*, on the limes of province Valeria, also of an uncertain location)<sup>45</sup>. For now, there is no positive identification between any of these toponyms and a fortification with towers located at each of its four corners.

A different situation arises in the case of the Greek term *tetrapyrgia*<sup>46</sup>, less used by certain researchers, but with a certain origin in the name of Hellenistic fortifications of this type. Unlike the Latin term, the Greek one is found in Syria, where it is used as a toponym that describes a settlement which contains a fortification with four corner-towers: more precisely *Tetrapyrgium*, positively identified with the site at Qusair as-Saila, between Sura and Resafa<sup>47</sup>. Moreover, the only explicit mention concerning *tetrapyrgia* as the name of a fortification with four corner-towers is to be found in Procopius' *De aedificiis*. When describing Emperor Justinianus' homeland, the author mentions that near the city of *Bederiana* there was a small market-town called *Taurision*, the emperor's birthplace, which the latter has reinforced with a small quadrangular fortification with a tower at each of its corners, whence its name of *Tetrapyrgia* (τετραπυργία)<sup>48</sup>. Besides these two archaeologically-confirmed mentions<sup>49</sup>, there are two such toponyms in Asia Minor<sup>50</sup>. If we interpret the term only from a linguistic point of view, it should define only fortifications with four corner-towers; but the archaeological discoveries demonstrate that in this category one can also include structures derived from this "standard".

Arguments on the Hellenistic origin of this type of fortification were put forward as early as the first serious studies on the so-called "Diocletianic type" fortifications. P. Debord identifies *tetrapyrgia* in epigraphical texts concerning rural fortifications in Asia Minor<sup>51</sup>. Also, a

<sup>43</sup> The term is used for the first time by de A. von Domaszewski when describing the forts at Deir el-Kahf and Qasr Bshir, both dated by Tetrarchic inscriptions (cf. GREGORY 1996, 193).

<sup>44</sup> Which is different from a so-called « pre-Diocletianic » type and from another, « post-Diocletianic » type. For the inconsistency of this much used classification, see LANDER 1980, 1051; LANDER 1984, 181 f.; REDDÉ 1995, 100.

<sup>45</sup> RE XXIV, 1963, col. 678–680, s.v. *Quadriburgium*. See also the stamped bricks which attest this toponym, discovered in the same Norico-Pannonian area: AÉ 1908, 53 (Pilismarot/*Castra ad Herculem*): LEG. II.AAD(iutrix)//Q(u)ADRIB(urgium); CIL III, 10691a-b (Komarom/*Brigetio*): QUADRIB(urgium) and QUADRIBURG(ium); AÉ 1947, 28 (Szentendre/*Ulcisia Castra*): QUADRIB(urgium).

<sup>46</sup> RE V A 1, 1934, col. 1089, s.v. *Tetrapyrgia*. Hellenistic sources: Plutarh, *Eum.*, 8, 5 (in Phrygia); Strabon XVII, 22 (in Cyrenaica); IGRR IV, 1381 = SEG 13, 518 (market days at *Tetrapyrgium*), for which see DEBORD 1994, 57–58; MORRIS, PAPADOPOULOS 2005, 184, 204.

<sup>47</sup> KONRAD 2001 b, 13. The toponym is mentioned in Sts. Sergius and Bacchus' martyrical acts (*in civitate Tetrapyrgio*). Cf. RE V A 1, 1934, col. 1089, *Tetrapyrgia* (4) (E. Honigmann).

<sup>48</sup> Procopius, *De aedif.*, IV, 1, 18. Cf. RE V A 1, 1934, col. 1089, *Tetrapyrgia* (2) (M. Fluss).

<sup>49</sup> For *Taurision* see its possible location at Štulac (Gazetteer, No. 79).

<sup>50</sup> RE V A 1, 1934, col. 1089, *Tetrapyrgia* (1) (V. Huys). Cf. Tab.Peut. IX, 3 (*Tetrapyrgia* in Cilicia, on the road between Iconium and Pompeiopolis, for which see HILD 1991, 311–316).

<sup>51</sup> DEBORD 1994, 57–58.

text from Plutarch mentions that Eumenes, one of the characters in the fights for succession in Asia Minor after Alexander's death, rewarded his soldiers after a victory with "epauleis" (farms) and "tetrapyrgias" (fortified domains)<sup>52</sup>.

The archaeological documentation of *tetrapyrgiai* in the Hellenistic world is ample enough. Among the best known examples we mention the fortifications at **Theangela** (in Caria, **Fig. 57**)<sup>53</sup> and **Prinias** (in Crete, **Fig. 56**)<sup>54</sup>, both of a regular plan and with square corner-towers<sup>55</sup>, the fortified residences at **Latmos** (here with two examples, the so-called "Nordfort" – **Fig. 59** and the one from the "Inner City" – **Fig. 60**)<sup>56</sup>, **Demetrias** (the so-called *anaktoron*, **Fig. 61**)<sup>57</sup> and **Seuthopolis** (**Fig. 62**)<sup>58</sup>. One can notice their military character as the largest of them, located in the neighborhood of cities (Demetrias: 60 × 61 m, Seuthopolis: 67 × 74 m), served at the same time as residence to the local Macedonian or Thracian chieftains, as the palaces built inside prove. Another *tetrapyrgia* is attested in Epirus, at **Malathre**, inside what could possibly be a farm (**Fig. 55**). In this case one notices the strong square bastion-towers set at its corners<sup>59</sup>.

In the Northern Black Sea area such a structure appears at **Panskoye** (central area U 7, **Fig. 63**), and it is one of the earliest (end of the 5<sup>th</sup> – beginning of the 4<sup>th</sup> c. BC), with the mention that it was partially demolished afterwards (around the middle of the 4<sup>th</sup> c. BC) and civilian dwellings were built on its location<sup>60</sup>.

Some researchers have noticed that there is a hiatus between the last Hellenistic *tetrapyrgia* (dated to the 1<sup>st</sup> c. BC)<sup>61</sup> and the first fortifications of this type in the Roman world, built under Diocletian. The fortification at **Eski Hisar** (approx. 35 × 35 m, rectangular corner-towers and others flanking the gate, and rectangular bastions on the other three sides, **Fig. 66**) is considered to be a connection link. Although it was dated by an inscription in 197 AD, Shelagh Gregory does not agree and dates this *tetrapyrgia* in the Hellenistic period<sup>62</sup>, using as arguments other obvious analogies for this type of fortifications in the East (like the fortress on the island of **Failaka**<sup>63</sup>, see **Fig. 64**).

Worth to mention here is the lesser known fort at **Mineralni Bani** in Thrace (**Fig. 348**), construction dated in the 2<sup>nd</sup>–3<sup>rd</sup> c. AD<sup>64</sup>, whose plan resembles some Hellenistic *tetrapyrgiai* and could be considered an evolution of this type of fortification in the Early Roman period.

<sup>52</sup> Plutarch, *Eum.*, 8, 5. Cf. MORRIS, PAPADOPOULOS 2005, 184.

<sup>53</sup> GARLAN 1974, 351, fig. 50.

<sup>54</sup> BIONDI et al. 2005, 264 f., fig. 24. Also see the situation plan presented by D. Palermo in BCH 124, 2000, 998, fig. 288.

<sup>55</sup> To which can be added the fort at **Yeniköy** in Asia Minor (DEBORD 1994, 58, fig. 2), almost identical with some Late Roman *quadriburgia* (**Fig. 58**).

<sup>56</sup> PESCHLOW 1994, 157–159, Abb. 5, 10; SEILHEILMER 2006, 308, Taf. 3.2.

<sup>57</sup> SEILHEILMER 2006, 296 f., Taf. 2.1.

<sup>58</sup> SEILHEILMER 2006, 296, Taf. 1.1.

<sup>59</sup> ÇONDI 1984.

<sup>60</sup> Dimensions 42 × 42 m, round corner-towers: ŠČEGLOV 1987, 242 f., fig. 8, 21; ŠČEGLOV 1992, 238 f.

<sup>61</sup> KONRAD 2001 b, 101, n. 484 (references).

<sup>62</sup> Eski Hisar is located in Mesopotamia, between Samosata and Zeugma. The inscription dated to 197 AD mentions the construction of a *castellum*. See GREGORY 1996, 194, fig. 16 a (plan after J. Wagner), who mentions an older Greek inscription placed above the entrance, seen by S. Guyer (GREGORY 1996, fig. 16 d), an author that also thinks that the construction method is closer to the Hellenistic one. For the traditional dating to 197 AD see EUZENNAT 1989, 271, fig. 200/b; REDDÉ 1995, 101, fig. 21; KONRAD 2001 b, 101.

<sup>63</sup> CALLOT 1989, 130–137 (end of the 4<sup>th</sup> – beginning of the 3<sup>rd</sup> c. BC); GREGORY 1996, 194, fig. 12 a. See also another Hellenistic fort at **Pella** in Jordan (**Fig. 65**), with intermediary rectangular towers (GREGORY 1996, fig. 12 b).

<sup>64</sup> DINČEV 2006, 33, fig. 78; DINČEV 2007 a, 516, fig. 38. See below, Gazetteer, No. 102.

The missing link between the Hellenistic tradition and the Late Roman period was found by some researchers in fortifications from the Parthian and Sassanian world, which had an important influence on *quadriburgia* that were built on the Eastern frontier of the Late Roman Empire. This discovery is based on the typical *quadriburgium* plan of certain fortifications researched, or only topographically investigated, in the Persian world, which also spread in neighboring areas such as the Arab world. One such example is the fortified residence at **Khirbet Jaddalah**, 51 km NE of Hatra (dated to 141–142 by an inscription discovered *in situ*), which is made up of a building with portico and rectangular corner-towers, surrounded by a fortification with rectangular corner- and intermediary towers with rounded edges (**Fig. 67**)<sup>65</sup>. As there are other similar examples in the Parthian world, such as those at **Kish-“Tell Bandar”** (**Fig. 68**) and **Ibn Alwan**, rectangular in plan and with corner- or intermediary towers,<sup>66</sup> the conclusion reached by G. Bergamini regarding the Parthian fortifications is the following: “the square fort with rounded towers, inner courtyard and buildings along the fortified line is fully developed in Parthian Mesopotamia at least in the first half of the II<sup>nd</sup> century AD; the plans fits well with medium-size fortresses, or with smaller fortified dwellings, intended to face disturbances of a feudal state or occasional threats”<sup>67</sup>. The same direction is followed by other specialists, M. Konrad seeing in it an evolution of the original Hellenistic type that developed in the buffer zone between the Roman and Parthian, then Sassanian worlds (after 223)<sup>68</sup>. This observation is based on the fact that the plans of Sassanian fortifications are in many cases identical to that of *quadriburgium*-type fortifications in the Late Roman Empire<sup>69</sup>.

### Small *castellum*

In the Early Roman period many fortifications on the Rhine and Danube frontiers are small forts. They appear as early as the first half of the 1<sup>st</sup> c. and were built of wood and earth. Some of the earliest examples are the forts at **Nersingen** (22.2 × 25.2 m) and **Burlafingen** (28 × 29.5 m), on the Upper Danube limes, whose construction is dated in the fourth decade of the 1<sup>st</sup> c. (**Fig. 72, 73**)<sup>70</sup>. On the limes of Moesia Superior are attested a series of fortlets, built either of wood and earth or stone, whose surfaces are under 0.30 ha, most of them raised in wood during the 1<sup>st</sup> c. AD<sup>71</sup>. For the Antonine period there is to be mentioned the fort at **Degerfeld**<sup>72</sup>, whose characteristics are similar to that of a *burgus*, and another fortlets on the German limes (**Fig. 74–78**)<sup>73</sup>.

<sup>65</sup> BERGAMINI 1987, 201 f., fig. F; GREGORY 1996, 189, fig. 12e.

<sup>66</sup> BERGAMINI 1987, 203, fig. I. We must remark the other larger rectangular fortifications with corner- or intermediary towers at Babylon and Nippur (BERGAMINI 1987, 205–206, figs. I, J).

<sup>67</sup> BERGAMINI 1987, 207–208.

<sup>68</sup> KONRAD 2001 b, 102: “Es ist sehr naheliegend, dass es sich bei den Quadriburgia ursprünglich um einen von den Parthern adaptierten hellenistischen Kastelltyp handelt, der in der römisch-partisch bzw. Römisch-sassanidischen Kontaktzone der orientalischen Provinzen vom römischen Militär übernommen und weiterentwickelt wurde und letztlich als römische Antwort auf das orientalische Militär- und Befestigungswesen zu verstehen ist”.

<sup>69</sup> BERGAMINI 1987, 209–210, figs. O, P (Farrashband, Abu Sh’af); KLEISS 1991, 158, Abb. 3 (Bad-Qal’eh); KLEISS 1992, 185–186, Abb. 11 (Neizar). See **Figs. 69–71**.

<sup>70</sup> MACKENSEN 1990.

<sup>71</sup> GUDEA 2001, nos. 12c, 12e, 12h, 12j, 13a, 13b, 16.

<sup>72</sup> SCHÖNBERGER 1969, 165–166, fig. 18; LANDER 1984, 102, fig. 93; BAATZ 2000, 154, Abb. 23/1. The fort was rebuilt in stone after the Marcomannic wars.

<sup>73</sup> BAATZ 2000, 40–41, Abb. 23/2–4 (Rötelsee, Pohl bei Kemel, Haselburg), 225, Abb. 117 (Hönehaus). Some of them are even smaller structures, c. 20 × 20 m: BAATZ 2000, 201–202, Abb. 108 (Robern), 301, Abb. 140 (Petersbuch), 316, Abb. 148 (Hinteren See-Berg).

The typical example of minor Roman fortification is the *numerus* fort, whose dimensions are usually around 60 × 60 m. The classical examples are the forts at **Hesselbach**<sup>74</sup> and other such structures on the Rhine limes and that of the Upper Danube<sup>75</sup>, as well as a series of fortifications in Dacia Inferior, such as the *numeri* forts built during Hadrian's reign on the *limes Alutanus*: **Stolniceni (Buridava)**, **Sâmbotin (Castrum Traiana)**, **Rădăcinești – Fig. 79**, **Bivolari (Arutela) – Fig. 80**, **Tițești** and **Copăceni (Praetorium I)**<sup>76</sup>. The fort at **Tițești**<sup>77</sup> is representative, with dimensions of 56.60 × 48.20 m, rounded corners and two gates (**Fig. 81**), built probably by the *numerus burgariorum et veredariorum*, stationed at *Praetorium I* (Copăceni), a fort with the same construction characteristics. For most of these forts we notice internal corner-towers, gates flanked by rectangular towers and the existence of buttresses on the walls' inside.

**Harlach** (*limes Raetiae*) is a small square fortification (32 × 32 m, **Fig. 82**), dated to the Severan era and considered by some authors as an example of *centenarium* in the western provinces<sup>78</sup>, but which can more likely be interpreted as a fortified *mansio*.

In Dalmatia we know an example of roadside *castellum* at **Riječani**–“Budetina Grada”, near Nikšić (on the territory of present-day Montenegro), identified with the *Salthua* mentioned in Roman itineraries. The fort is quadrangular (sides of 71 × 67 × 64 × 64 m), has two rounded corners and two edged ones, the 2.30 m-thick walls are made of stone bound with mortar and are pierced by entrances on three sides (**Fig. 83**)<sup>79</sup>.

Archaeological research has established a continuous functioning of these minor forts during the 4<sup>th</sup> c. in places like: **Höflein-“Kirchenberg”** in Noricum<sup>80</sup> – minor fort with rounded corners (approx. 39 × 59 m), used without major transformation also in the 4<sup>th</sup> c.; **Budapest-Pest (Transaquincum)**<sup>81</sup>, in Pannonia – fortification of 76 × 76 m, located on the left bank of the Danube, at the mouth of Rákos River, dated to Commodus' reign and rebuilt under Valentinian I; **Schlögen (Ioviacum)**, also in Noricum – auxiliary fort with a surface of 0.65 ha, rounded corners, reused in the 4<sup>th</sup> c. without essential changes in its plan<sup>82</sup>. In the area we focus on a clear example of continuity is the minor fort at **Boljetin (Smorna)**<sup>83</sup>, that had an initial wooden phase (1<sup>st</sup> c.), then was rebuilt in stone and was radically modified in the 4<sup>th</sup> c., when U- or fan-shaped corner towers appear, as well as square towers that close the two gates of the early fort.

But the most interesting example is a minor fortification (a surface of 0.20 ha) at **Comalău**, an emplacement located at Dacia Inferior's north-eastern frontier, which was dated to the second half of the 3<sup>rd</sup> c. (N. Gudea). This uses building techniques that announce the typical Late Roman military architecture: it has an irregular plan, with its northern side adapted to the terrain, and at three corners, as well as in the middle of two of the sides, there are rectangular towers completely projected towards the exterior (**Fig. 84**)<sup>84</sup>.

<sup>74</sup> SCHÖNBERGER 1969, 167–168, fig. 19; LANDER 1984, 85, fig. 68; BAATZ 2000, 192–193, Abb. 102.

<sup>75</sup> A list for these at SCHÖNBERGER 1985, 491–493. The author places the upper limit for the surface of a “Kleinkastell” at 0.60 ha. See also BAATZ 2000, Abb.

<sup>76</sup> GUDEA 1997 b, nos. 74, 75, 77, 78, 80, 81. Cf. LANDER 1984, 61 f.

<sup>77</sup> POENARU-BORDEA, VLĂDESCU 1981.

<sup>78</sup> LANDER 1984, 116, fig. 102; SCHÖNBERGER 1985, 493; REDDÉ 1995, 97, fig. 11; BAATZ 2000, 298–299, Abb. 139.

<sup>79</sup> MIJOVIĆ, KOVAČEVIĆ 1975, 48–51, fig. 44.

<sup>80</sup> KASTLER 1997. Cf. WILKES 2005, 197.

<sup>81</sup> JOHNSON 1983, 186, fig. 74; BERTÓK 1997, 165; WILKES 2005, 204.

<sup>82</sup> BRANDL et al. 1997, 160–164, Abb. 55–56; HÖCKMANN 1986, 405, Abb. 16.

<sup>83</sup> Gazetteer, No. 11.

<sup>84</sup> GUDEA 1997 b, nos. 41, 64–65 (with references). This fortification may also be dated to a later period if we have in mind the exceptional discoveries made in the same area, such as the golden ingots from Crasna and Feldioara (IGLR, 431, 432), dated either to 379–380 (and connected to the stipends offered by Theodosius I to the Goths, after the disaster at Hadrianopolis), or in the early 5<sup>th</sup> (CURTA 1990). Unfortunately the archaeological data are not so good as we might expect.

In Egypt there are a series of fortified roadside stations in the Eastern desert, more precisely on the road that connect the Nile Valley to the Red Sea (Coptos – Myos Hormos, Coptos – Berenice), dated to the end of the 1<sup>st</sup> c. – first half of the 2<sup>nd</sup> c. The best known are those at El Mweih (55 × 55 m), Tell Al-Zarqa (60 × 60 m), El Homra (56 × 59 m), Ed Duwwi (56 × 57 m), Badia (47 × 37 m) and Wadi Meni el Hir (60 × 50 m)<sup>85</sup>. These fortifications, mentioned by Plinius under the name *hydreumata*, *mansiones*, *praesidia* or *stativa*<sup>86</sup>, considered to be built during the late Roman period, are characterized by a regular quadrangle plan, with round or U-shaped corner-towers and usually intermediary towers on the sides or at the gates<sup>87</sup>.

### 3. THE REGIONAL EVIDENCE

The contribution of archaeological research to the knowledge of different types of fortifications during the Late Roman Empire is, without doubt, the most important. In order to obtain a general image of minor fortifications, their architectural characteristics, dating elements and even the origins of the building programs, we need to take into account the situation for each and every region of the Empire.

Obviously, most of the important information comes from sites where archaeological investigations were conducted in the best of conditions and, unfortunately, such cases are rare enough. In most cases, excavations were undertaken during the 19<sup>th</sup> c. or in the first half of the 20<sup>th</sup> c., when the stratigraphical method and interpretation of the archaeological material were still not fully developed. Also, many of these fortifications are known from only a few soundings that could not offer clear chronological markers. Another category is that of fortifications known only through topographical surveys and the plans drawn starting with the 19<sup>th</sup> c. (see the research by Ch. Diehl for North Africa), continued in the first half of the 20<sup>th</sup> c. (H. C. Butler in Syria, Brünnow and Domaszewski in Arabia), but also through data obtained by the pioneers of aerial photography (A. Poidebard on the Eastern frontier) and completed by the modern aerophotogrammetrical research (D. Kennedy and D. Riley). Fortifications in Africa and in the East are known in great detail also because of their very good state of preservation, as many of them can be seen standing even today.

In the following we thought it necessary to present a selection of the most important minor fortifications, divided into three large areas (West, East and Africa), to which we added the south-Balkans area, as it is not covered by the present study. For each region the fortifications are grouped according to typological characteristics, in order to obtain an instrument capable of identifying analogies for the fortifications in the main area of interest in our research.

#### 3.1. Western provinces

**Britannia.** The so-called “signal stations” identified on the coastline in Yorkshire or in the Channel islands (Huntcliff, Goldsborough and others) have the following characteristic structure: a central square tower of approx. 15 × 15 m, a surrounding courtyard (of an average

<sup>85</sup> REDDÉ, GOLVIN 1987, 8 f.

<sup>86</sup> Plinius, *Nat. Hist.*, VI, 102. *Hydreumata* also appear in the *Itinerarium Antonini*, *Tabula Peutingeriana* and inscriptions, used when referring to roadside stations with cisterns. Cf. REDDÉ, GOLVIN 1987, 57; SIDEBOTHAM, ZITTEKOPF 1995, 42.

<sup>87</sup> REDDÉ, GOLVIN 1987, 54–55, that propose a later construction date. But see REDDÉ 1995, 97, fig. 9 (plans of fortifications at Zarqa and Ed-Duwwi) and 106 (the more recent research at Zarqa, where clear Early Roman elements were identified); REDDÉ 2004, 158.

of 30 × 30 m, with rounded corners and projecting towers or bastions) and a wide ditch. Inside the tower there are usually several pillars (“socket-stones”), probably used for supporting the upper floor. Precise data concerning these forts’ chronology is missing, as the excavations were undertaken before 1930. Even so, their construction is easily dated to the late Roman period. According to some authors (Petrikovits, Wilson) these structures can be connected to the reorganizing of the defenses by the *comes* Theodosius (367–369), so during the reign of Valentinian I, and others (Casey) connect them to the usurper Magnus Maximus (the 380’s)<sup>88</sup>.

**Germania II, Germania I, Belgica II and Belgica I.** The Late Roman defense system along the Rhine’s frontier is made up, on one side, of the old Roman forts (*Noviomagus*, *Mogontiacum*, *Argentoratum* and others), used with minor changes during the 4<sup>th</sup> and at the beginning of the 5<sup>th</sup> c., and on the other of new fortifications raised during the Tetrarchy and especially during the reign of Constantine<sup>89</sup>. Among the small fortifications, “Haus Bürgel”-Monheim is a small-size replica of the Constantinian fort at Köln-Deutz. The construction effort is continued under Constantius II and then under Valentinian I, when ample restorations and new important fortifications are attested, this time the minor types being preferred. The Altrip-*Alta Ripa* example is unique for this period’s architecture (trapezium-shaped plan), and the fortified landing-places at Engers, Zullestein, Mannheim-Neckarau and Ladenburg are the first in a chain that continues in the other sectors of the western limes.

Other important clues regarding the minor fortifications category are offered by research on the sites in the *hinterland* of the Rhine frontier, on a series of roads connecting it to the province’s interior. There have been identified larger roadside fortifications (Trier-Pfalzel), as well as different types of *burgi*, among which stands out the two structures with internal divided spaces at Eisenberg and Bad Dürkheim<sup>90</sup>. Apart from these, larger forts are also built during the 4<sup>th</sup> c., such as the polygonal fortifications at Jünkerath, Bitburg, Neumagen and Saverne, dated to the reign of Constantine<sup>91</sup>, or the fort at Alzey, built during the reign of Valentinian I<sup>92</sup>. In the monographical volume focused on northern Gaul in the Late Roman period, R. Brulet also studied an important road inside the province Belgica (Bavay-Köln), where the research of many *burgi* and small *castella* (some of them built in wood<sup>93</sup>, especially at the end of the 3<sup>rd</sup> and beginning of the 4<sup>th</sup> c.), as well as of a Constantinian *quadriburgium* (Liberchies II) offered clues on the enforcement of road security.

**Maxima Sequanorum, Raetia I and Raetia II.** The sector of the limes that connects the upper courses of the Rhine and Danube was set up after the abandon of the transdanubian

<sup>88</sup> PETRIKOVITS 1971, 186–187, 216, nos. 4, 5; JOHNSON 1983, 212–213, fig. 81; WILSON 1991.

<sup>89</sup> See first Köln-Deutz (*Divitia*), dated by an inscription to 312–315, a representative example of military architecture in the first part of Constantine’s reign (CARROLL-SPILLECKE 1993; CARROLL-SPILLECKE 1997), but also Xanten/*Tricesimae* (JOHNSON 1983, 146–148, fig. 61; REDDÉ 2004, 162, fig. 6; BRULET 2006 a, 158, fig. 145.1), Boppard/*Boudobriga* (PETRIKOVITS 1971, 183–184, 214, no. 46, fig. 26.2; JOHNSON 1983, 152, fig. 57; LANDER 1984, 193, 198, fig. 192).

<sup>90</sup> BERNHARD 1981, both dated to the time of Valentinian I. Cf. PETRIKOVITS 1971, no. 62, fig. 27.2.

<sup>91</sup> SCHÖNBERGER 1969, 180–181, nos. 38–40, 68; PETRIKOVITS 1971, no. 41, fig. 26.4; JOHNSON 1983, 155–158, fig. 60, 61; BORHY 1996, 220, Abb. 8, 10.

<sup>92</sup> Fortification typical for the reign of Valentinian I, who published here edicts in the years 370 and 373. Square plan (165 × 159 m, a surface of 2.6 ha), 3 m-thick wall, round corner-towers, semicircular on the sides (each of them within a rectangular, thin-walled “precinct”), buildings set against the inside of the defense wall. Cf. SCHÖNBERGER 1969, 182, no. 57, fig. 24; PETRIKOVITS 1971, 218, no. 61.; OLDENSTEIN 1986 a; OLDENSTEIN 1986 b.

<sup>93</sup> BRULET 1990, 126 (Morlanwelz I), 130–133 (Liberchies I), 137–138 (Cortil-Noirmont), 139–142 (Taviers), 151–152 (Hüchelhoven).

territories and North-Western Raetia around 260. The first restoration signs appear in Emperor Probus' reign (see the fortification at "Bettmauer"—Isny<sup>94</sup>), but a systematic restoration of the new frontier is started only during the Tetrarchy<sup>95</sup>, when the fort of the *Legio I Martia* at Kaiseraugst (*Castrum Rauracense*)<sup>96</sup> and the fortification at Burg bei Stein-am-Rhein (*Tasgaetium*)<sup>97</sup> are raised, as well as the auxiliary fort at Kellmünz (*Caelius Mons*), with a surface of under 1 ha and where the *cohors III Herculea Pannoniorum* (NDOcc. XXXV, 30) was stationed<sup>98</sup>. We must mention that the fort of the *Legio III Italica* at Regensburg (*Castra Regina*) was still in use, without important changes of the plan<sup>99</sup>, and that a series of minor fortification appeared, such as those at Neuburg and Eining, as well as several *burgi* on the roads in the interior of the provinces (Goldberg-Türkheim).

During Constantine's reign there was a constant preoccupation with the maintenance of existent fortifications, as well as with the construction of new ones, such as the one that surrounds the *burgus* at Goldberg-Türkheim or the fortification at Arbon (*Arbor Felix*)<sup>100</sup>, the general tendency being that of building polygonal structures, adapted to the terrain. The discovery of wooden *burgi* (Schlingen, Baisweil and Meckatz)<sup>101</sup> along one of the main arteries of the province Raetia (Bregenz/*Brigantium*-Kempten/*Cambodunum*-Augsburg/*Augusta Vindelicorum*), dated generally to the reign of Constantine and his successors, could be linked to road organization and surveillance, as well as that of the *cursus publicus*<sup>102</sup>.

Some epigraphical discoveries and especially the archaeological research have made an important contribution to the identification of a large-scale construction program under Valentinian I, both at the frontiers, as well as inside the provinces. This is characterized by the construction of an impressive series of towers or *burgi*<sup>103</sup>, with the aim of improving the control of the frontier and of communication routes, but also by the building of new *horrea* (Schaan,

<sup>94</sup> Pentagonal fortification with an internal surface of 0.27 ha, rectangular corner-towers and gate flanked by semicircular bastions. In its initial phase there was a complex of barracks parallel to the defense wall, which was later redone with the structures set against the defense wall. It is dated certainly before 280–283 (coins found in clear stratigraphical contexts), which makes it one of the rare military fortifications in this period (Gallienus-Aurelianus-Probus). Cf. SCHÖNBERGER 1969, no. 91; PETRIKOVITS 1971, no. 84 (dated before 283); LANDER 1984, 181, fig. 167, 168; CIGLENEČKI 1987, p. 18–20, Abb. 9 (dated to Probus' reign); STRIBRNY 1989, 418–420; MACKENSEN 1999, 205–207, fig. 7.4 (dated before 280).

<sup>95</sup> MACKENSEN 1999, 199 f.

<sup>96</sup> SCHLEIERMACHER 1943–1950, 172; PETRIKOVITS 1971, 181, fig. 29.2; FELLMANN 2004, 203–204; REDDÉ 2004, 159, fig. 4.

<sup>97</sup> Fortification with a rhomboid plan (0.80 ha), semicircular towers, dated by an inscription to 293–305 (CIL XIII, 5256); LANDER 1984, 185, fig. 170; REDDÉ 1995, 101, fig. 24; MACKENSEN 1999, 221.

<sup>98</sup> Fortification at the border between small and medium-sized area (0.86 ha, approx. 98.5 × 101.5 m), almost rectangular plan, with the eastern side following the terrain's configuration; 3.60 m thick defense wall; two round corner-towers, semicircular and one rectangular towers on the sides; the western side is defended by two ditches; the buildings inside, planned around a street network, are not set against the defense wall; we must notice the discovery of a structure raised during the construction phase (wooden building, with hypocaust, dated by coins to 296/297); it is dated certainly during the Tetrarchy, with 297 as a *terminus post quaem*. NDOcc. XXXV, 30. See MACKENSEN 1994 a; MACKENSEN 1995; MACKENSEN 1999, 207–213, 223–228, figs. 7.8, 7.16.

<sup>99</sup> MACKENSEN 1999, 216–218, figs. 7.13.

<sup>100</sup> MACKENSEN 1999, 228.

<sup>101</sup> OHLENROTH 1939; GARBSCH 1967, 53–62.

<sup>102</sup> MACKENSEN 1999, 230. A useful comparison can be made between *burgi* researched on the Bavay-Köln road in northern Gaul (see above, BRULET 1990) or with the results of excavations at Medvedja (*mansio Idimum*) and other sites on the *Viminacium – Horreum Margi* sector of the Trans-Balkan military road (VASIĆ, MILOŠEVIĆ 2000).

<sup>103</sup> DRACK 1993. See below the inscriptions from "Kleiner Laufen" and "Rotte Waag".

Goldberg-Türkheim, Lorenzberg and Eining) or the fortification of the already-existing ones (the case of Wilten–Innsbruck)<sup>104</sup>.

When one considers minor fortifications one notices the large range of *burgus*-type of fortifications, the almost identical three *quadriburgia* at Irgenhausen, Schaan and Wilten–Innsbruck, but also the combination between *burgus* and *quadriburgium* in the case of the small fortifications at Kleinbasel and Untersaal.

**Noricum Ripense, Pannonia I, Valeria and Pannonia II.** The Danubian limes in the Norico-Pannonian section during the Late Roman Period is one of the best known from an archaeological point of view. The system of legionary forts and auxiliary *castella* from the Early Roman period underwent important changes starting with the Tetrarchic period and especially with Constantine, when fan-shaped corner-towers became a rule and some of the gates were blocked with U-shaped or semicircular towers<sup>105</sup>. A classic example for constructions raised during the Tetrarchy is the fort at Pilismarót (*Castra ad Herculem*), that has U-shaped towers on the sides,<sup>106</sup> and for those under Constantius II or Valentinian I the one at Tokod – considered by some authors as unfinished<sup>107</sup>. A range of minor fortifications are very well known in certain sectors, from *burgi* of different dimensions, most of them built under Valentinian I (especially the four *burgi* with *tetrapylon* and surrounding defense wall at Visegrád-Lepence, Leányfalu, Budakalász and Öcsény)<sup>108</sup>, to fortified landing-places identical to the ones on the Rhine limes (Veröce-type). Very important for the chronology of this type of fortification are the *quadriburgia* researched at Passau–Instadt (probably to be dated to the Tetrarchic period) and Visegrád-Gizellamajor (Constantine’s reign).

The interior of these provinces is less known, as far as minor fortifications are concerned. Research focused here especially on urban centres and large fortifications for the *comitatenses* units and at the same time centres for the supply of the limes<sup>109</sup>.

**Noricum Mediterraneum, Venetia et Histria, Savia and Dalmatia.** Several *burgus*-type fortifications have been researched on main roads in these provinces. Most of them are dated to the second half of the 4<sup>th</sup> c., a period when ensuring public roads security was a constant preoccupation for imperial authorities. The construction technique and architectural details demonstrate an influence from the Danubian limes.

The selected catalogue below is organized typologically, starting with towers and *burgi*, then with some specific constructions as *burgi* with internal supporting pillars, fortified landing-places, fortified granaries (?), and finally with *quadriburgia* and the small *castellum* type. For each type the sites located on the limes are presented from West to East.

<sup>104</sup> MACKENSEN 1999, 231 f.

<sup>105</sup> Better known, from an archaeological point of view are Zeiselmauer (*Cannabiaca?*), Iža-Leányvár (*Celamantia*), Almásfüzitő (*Odiavum/Azaum*), Visegrád-Sibrik (*Pone Navata*), Szentendre (*Ulcisia Castra / Castra Constantia*), Dunaújváros-Pentele (*Intercisa*).

<sup>106</sup> Irregular plan, covers a surface of approximately 4.5 ha. Cf. SOPRONI 1978, 46–48, Taf. 50.1; BARKÓCZI 1994, 92, Abb. 18/2.

<sup>107</sup> Rectangular plan, 118 × 142 m, with a gate flanked by square towers (MÓCSY 1981). Cf. BARKÓCZI, SALAMON 1984, 163–167; FITZ 1989, 544; E. Bónis, ActaArchHung 43, 1991, 87–150 (possibly unfinished).

<sup>108</sup> For the epigraphic documentation about Valentinianic *burgi* in these provinces see below Ybbs, Esztergom, Visegrád- Kőbánya (“Steinbruch”), Visegrád-Lepence.

<sup>109</sup> The latter present a series of common characteristics that set them apart from the mass of late Roman fortifications in Pannonia. Their date of construction was much debated, the authors oscillating between Tetrarchic period (L. Barkóczy), Constantine (S. Soproni and J. Fitz) or Constantius II (E. Tóth) for the first phase of construction. Cf. SOPRONI 1978, 139–140; FITZ 1980; TÓTH 1985; SOPRONI 1985, 100 f.; BARKÓCZI 1994, 92–95; BORHY 1996, 207–210.

## Towers and *burgi*

– **Au-Hard**: slightly rhomboid tower with external dimensions 8.40 × 8.60 m, 1.60 m thickness of the wall (interior area c. 28 m<sup>2</sup>). (**Fig. 86**)

DRACK 1993, 11, no. 2.

– **Pferrichgraben**: slightly rhomboidal tower with dimensions 11 × 12 m on the outside, 2.10 m-thick walls (an interior area of approx. 55 m<sup>2</sup>), surrounded by a ditch. (**Fig. 99**)

DRACK 1993, 16–18, no. 4.

– **Rheinsulz**: massive rectangular tower (15.20 × 14.70 m), with 2.70 m-thick walls. (**Fig. 100**)

DRACK 1993, 24–25, no. 16A.

– **“Rote Waag”-Etzgen**: A *burgus*-type fortification existed here, based on the inscription dated to 371 AD (CIL XIII, 11538): *[S]alvis ddd(ominis) nnn(ostris) / Valentiniano / [Va]lente et Gratiano / [Victo]r(ibus) se<m=N>p(er) Aug(ustis) burgum / [in Raur]iaco confine leg(io) octa[va] / [August]anensium fecit sub cur(a) / ri p(rae)p(ositi) consu(libus) d(omino) n(ostro) Gratiano II / [et Fl(avio) P]robo v(iro) c(larissimo).*

DRACK 1993, 25–26, no. 19. Cf. SCHÖNBERGER 1969, 186; PETRIKOVITS 1971, no. 71.

– **Unteres Bürgli**: massive tower, slightly rhomboidal (17.60 × 17.90 m), wall thickness 2.50–2.80 m in foundation and 2.20–2.40 m in elevation, entrance 1.80 m wide; interior divided by a wall in two chambers. Dated by coins from Valentinian I and Gratian. (**Fig. 107**)

DRACK 1993, 26–27, no. 20.

– **Oberes Bürgli**: square tower, 7.50 × 7.50 m, wall thickness 1.20–1.50 m (foundation) and 1.25–1.30 m (elevation), approx. 25 m<sup>2</sup> internal area. Coin finds from Constantine to Gratian on two occupational layers. (**Fig. 87**)

DRACK 1993, 26–27, no. 21.

– **Jüppe**: approx. square tower, dimensions 9.70 × 10 m on the outside, wall thickness between 1.35/1.40–1.60/1.80 m (interior area c. 48 m<sup>2</sup>). (**Fig. 88**)

DRACK 1993, 28, no. 23.

– **“Kleiner Laufen”-Koblenz (*Summa Rapida*)**: approx. square tower (7.80 × 8.10 m on the outside), 1.50–1.60 m thick wall in elevation (1.80–2.00 m in foundation), 24 m<sup>2</sup> interior surface; external rampart and ditch, which probably formed a square precinct. Inscription from 371–374 AD (CIL XIII, 11537 = AÉ 1908, 142): *Salvi[s] ddd(ominis) nnn(ostris)] / Valent[iniano] / Valente e[et Gratiano] / per(petuis) tr(iumphatoribus) se<m=N>p[er Auggg(ustis)] / summa Rapida / fecit sub cura / consul(ibus) d(omino) n(ostro) Gratiano [II et Probo v(iro) c(larissimo)].* (**Fig. 85**)

DRACK 1993, 29, no. 27. Cf. GARBSCH 1967, no. 23; SCHÖNBERGER 1969, 186; PETRIKOVITS 1971, no. 73.

– **Tägerbach**: square tower, c. 9 × 9 m, 1.50 m-thick wall (approx. surface 36 m<sup>2</sup>). (**Fig. 89**)

DRACK 1993, 33–34, no. 31.

– **Hardwald**: square tower, 7.50 × 7.50 m, c. 1.50 m-thick wall (interior surface c. 20.5 m<sup>2</sup>), surrounded by a ditch. (**Fig. 95**)

DRACK 1993, 34–35, no. 36.

– **Tössegg**: square tower of approx. 11.80 × 12 m, 2.20–3.00 m-thick wall (foundations), central pillar, surrounded by ditch on three sides. Dated to Valentinian I, in use until the beginning of the 5<sup>th</sup> c. (**Fig. 102**)

DRACK 1993, 36–38, no. 41.

– **Rheinau-Köpferplatz:** *burgus* made up of a square tower of 9.90 × 9.90 m on the outside, with approx. 1.70 m thick walls, central pillar; surrounded by an earth precinct with round corners and a ditch. Dated to Valentinian I. (**Fig. 96**)

PETRIKOVITS 1971, 217, no. 75, fig. 28.3; DRACK 1993, 39–41, no. 43.

– **Ratihard:** square tower, 10.25 × 10.25 m, 2.00 m-thick wall, enclosing an area of approx. 40 m<sup>2</sup>. (**Fig. 90**)

DRACK 1993, 43, no. 50.

– **Finningen-Neu Ulm:** *Burgus* made of a 11.7 × 12 m tower, surrounded by a 3.6 m wide ditch, located at the confluence of the rivers Iller and Danube. Dated to the reign of Valentinian I. (**Fig. 103**)

MACKENSEN 1999, 231, fig. 7.22.

– **Passau-Haibach:** Square *burgus* (12 × 12 m) with 1.30 m-thick walls, enclosing an area of 88 m<sup>2</sup>; surrounded by a ditch approximately 8 m wide. Dated to the second half of the 4<sup>th</sup> c. (**Fig. 104**)

BENDER 1983; MOOSBAUER 1997, 154–157, Abb. 51–52.

– **Hirschleitengraben:** initially an early Roman tower of 6 × 6 m, replaced by a tower of 9.55 × 9.75 m; the wall's thickness varies from 1.30 m (foundation) to 0.80 m (elevation) and enclose an area of approx. 65 m<sup>2</sup>; dated to Valentinian I based on the Ursicinus-type stamped bricks that were found in the wall.

SCHWANZAR 1997.

– **Ybbs:** on the Danube limes in Noricum Ripense, unidentified *burgus*, mentioned in the inscription dated to 370 AD (CIL III, 5670a = ILS, 774): *DDD(ominorum) NNN(ostrorum) Valentiniani / Valentis et Gratiani perennium Augustorum saluberrima iussione hunc / burgum a fundamentis ordinante / viro clarissimo Equitio comite et / utriusque militiae magistro insistente etiam Leontio p(rae)p(osito) milites auxiliares Lauriacenses cul(r)a(e) eius commissi consulatus / eorundem dominorum principumque nostrorum tertii ad / summam manum perduxerunt / perfectiones.*

PETRIKOVITS 1971, nr. 93.

– **Bacharnsdorf:** *Burgus* of 12.2 × 12.2 m on the outside; the wall has a foundation 1.50 m thick, interior surface being of approx. 85 m<sup>2</sup>; the elevation is preserved on the southern side on a height of 9 m, and it has windows on the first floor; dated to Valentinian I (no conclusive material was discovered though). (**Fig. 101**)

UBL 1997 a.

– **Almásfüzitő (Odiavum/Azaum):** A *burgus*-type fortification in the NW corner of the Roman fort (who was rebuilt during Constantine's reign); external dimensions of 31.80 × 32.50 m, a 2.20 m-thick wall; inside three treading levels were identified. It was dated in the post-Valentinianic period, at the end of the 4<sup>th</sup> – beginning of the 5<sup>th</sup> c. (Soproni). (**Fig. 151**)

SOPRONI 1986, 409, Abb. 2.

– **Esztergom** – inscription from 371 AD (CIL III, 3653 = ILS, 775 = RIU, 771): *Iudicio principali dominorum nostrorum / Valentiniani Valentis et Gratiani / principum maximorum dispositione etiam / illustris viri utriusque militiae magistri / equitis comitis Foscanus praepositus / legionis primae Martiorum una cum / militibus sibi creditis hunc burgum / cui nomen Commercium qua causa et factus / est a fundamentis et construxit et / ad summam manum operis in diebus XXXXVIII / consulatus / divi nostri Gratiani Augusti bis / et Probi viri clarissimi fecit pervenire.* Probably to be connected to one of the archaeologically identified towers in the area of Esztergom.

Cf. SOPRONI 1989, 108, Abb. 4; BORHY 1999.

- **Esztergom-Szentgyörgymező 1**: located 1.2 km east of the fort at Esztergom (*Solva*); square tower (9.62 × 9.72 m on the outside), 1.00 m-thick wall, interior surface approx. 59 m<sup>2</sup>; surrounded by a circular ditch with a diameter of approximately 28 m. Dated in the time of Valentinian I. (**Fig. 97**)  
SOPRONI 1978, 21–24, no. 1, Taf. 4.1; SOPRONI 1985, 28, Abb. 4. Cf. NAGY M. 1999, 133 f., fig. 1.
- **Esztergom-Szentgyörgymező 2**: located 650 m east of Esztergom-Szentgyörgymező 1; a tower of approximately 9.30 × 9.30 m, researched only on the preserved side (the other one was eroded by the Danube); 1.00–1.05 m-thick wall. Dated with certainty to Valentinian I.  
SOPRONI 1978, 24, no. 2, Taf. 7.3.
- **Esztergom-Szentgyörgymező 3**: located 750 m east of Esztergom-Szentgyörgymező 2; a tower similar to the ones already described (of approximately 9 × 9 m), only half-researched; a 1.10–1.15 m-thick wall, enclosing an area of 46 m<sup>2</sup>. Dated to the reign of Valentinian I.  
SOPRONI 1978, 24–25, no. 3, Taf. 7.4.
- **Esztergom-Búbánatvölgy 2**: located 500 m west of the fort at Hidegtelekeskereszt; square tower (8.14 × 8.18 m on the outside), with a 1.00 m-thick wall, interior surface 38 m<sup>2</sup>; the 1.50 m-wide entrance on the southern side was discovered. Dated to Valentinian I only through analogy with the other towers in the region. (**Fig. 91**)  
SOPRONI 1978, 26, no. 8, Taf. 9.1.
- **Pilismarót-Basaharc 2**: located approx. 1.2 km east of the fort at Hidegtelekeskereszt; only the southern side of the tower is preserved (outside length 9.25 m, and was probably square in shape), made of a 1.00–1.05 m-thick wall, in which a 1.60 m-wide entrance is preserved. Dated to Valentinian I.  
SOPRONI 1978, 30–31, no. 10, Taf. 9.2.
- **Pilismarót-“Schiffsstation”**: square tower (approx. 8.60 × 8.60 m on the outside) with a 0.93–0.96 m-thick wall (interior area 45 m<sup>2</sup>), access stairs and entrance; surrounded by a ditch that encloses a surface of 28 × 28 m. Dated to the reign of Valentinian I. (**Fig. 98**)  
SOPRONI 1978, 33–36, no. 16, Taf. 13.1; SOPRONI 1985, 29, Abb. 5.
- **Pilismarót-Malompaták**: *Burgus* made of a square tower of 13.75 × 13.65 m on the outside (1.40 m thick wall, central internal pillar of 1.40 × 1.40 m and entrance on the eastern side) and a defense wall 0.95 m thick that encloses a surface of about 27.50 × 25.50 m and has a 2.40 m-wide entrance on the southern side; in the defense wall's NW corner there is a building with two rooms, one of which has a hypocaust installation; on the eastern side, which lies on the Danube's bank, the defense wall is extended by a yard inside which a structure was built, of around 9 × 10.30 m and made up of three rooms; the entire complex is surrounded on three sides by an approx. 6.50 m-wide ditch; there are interesting changes to the plan of the initial structure, which seems to have been built closer to the Danube. Dated with certainty to Valentinian I, based on the archaeological material, including coins. According to Soproni, it fits the typology of the *centenaria* (see, for the province Valeria, NDOcc. XXXIII, 62: *ad burgum centenarium*). (**Fig. 108**)  
SOPRONI 1978, 36–46, no. 17. Taf. 18, 22; SOPRONI 1985, 28–29, Abb. 6.
- **Dömös-Kövespaták**: square tower (10.90 × 10.95 m on the outside) with a 1.00 m-thick wall and a 1.50 m-wide entrance; inside a hard floor was discovered, the only treading level; surrounded by a ditch that encloses a surface of approx. 34 × (34?) m. Dated with certainty in the time of Valentinian I. (**Fig. 105**)  
SOPRONI 1978, 49–50, no. 19, Taf. 51.1 (what can be seen on the inside is not masonry, but the remains of the floor!).
- **Visegrád-Kőbánya (“Steinbruch”)**: square tower (9.95 × 9.95 m on the outside), 1.05 m-thick wall, massive internal pillar (with no foundation, it was probably built after the destruction of the

initial roof), an entrance with a 1.3 m-wide threshold and access staircase in the eastern corner. Dated with certainty in the time of Valentinian I, based on the inscription from 372 AD (RIU, 804): *Iudicio principali d(ominorum) n(ostorum trium) [Valentiniani] / Valentis et Gratiani principum [maximorum] / dispositionem (!) etiam inlustris viri [utriusque] / [mi]litiae magistri (A)equiti(i) comitis Fo[scanus] / p(rae) p(ositus) legionis primae Martiorum u[na cu]m / militibus sibi creditis hunc bu[r]gum / a fundamentis (!) et construxit et ad sum(m)am / manum operis consulatus Modesti et / Arenth(a)ei v(ironum) c(larissimorum duorum) fecit pervenire. (Fig. 106)*

SOPRONI 1978, 51–55, no. 22, Taf. 54.1. For the foundation inscription also see SOPRONI 1967; SOPRONI 1989, 108–109, no. 3, Abb. 5–6.

– **Visegrád-Sibrik (Pone Navata)**: *Burgus* built in the middle of the western side of the Constantinian fort, that was rebuilt during the reign of Constantius II (it actually closes the fort's ancient gate on this side); internal dimensions of 11.75 × 11.75 m (external of approx. 13.90 × 13.90 m), 1.05–1.10 m-thick wall, a circular-section massive pillar in the centre (diameter of approx. 2.60 m), against which are set other rectangular-section pillars. Dated to the post-Valentinianic period according to S. Soproni, but without clear proof.

SOPRONI 1978, 55–59, Taf. 61.1,2; SOPRONI 1985, 63 f, Abb. 27; SOPRONI 1986, 409–410, Abb. 3. Cf. NAGY M. 1999, 133 f., fig. 3.

– **Dunabogdány (Cirpi)**: *Burgus* built in the Roman fort's eastern corner; internal dimensions of 17 × 16.5 m, 1.60 m-thick wall. Dated by Soproni to the post-380 period. (Fig. 150)

SOPRONI 1986, 409, Abb. 1. SOPRONI 1978, 62; SOPRONI 1985, 64–65, Abb. 36.

– **Budapest-Csillaghegy (Kossuth Lajos 11)**: approx. 10 × 10 m (on the outside), with an entrance on the southern side. Dated to the reign of Valentinian I, based only on the stamped bricks (Frigeridus) discovered there. (Fig. 92)

SOPRONI 1978, 71, n. 388, Taf. 77.1.

– **Slankamen-“Humka”**: tower of 7.75 × 7.75 m on the outside, with a 0.85–1.00 m-thick wall. Dated to the middle of the 4<sup>th</sup> c., based on coins from the reign of Constantius II. (Fig. 93)

PILETIĆ 1964.

– **Mauthen**: on the road to the Adriatic, on the border between Noricum Mediterraneum and Venetia et Histria; rectangular tower (approx. 9.30 × 7.70 m on the outside); 1.40 m-thick wall. Uncertain datation, probably to the second half of the 4<sup>th</sup> c. (Fig. 94)

CIGLENEČKI 1987, 47, 112, Abb. 47.

– **Goldberg-Türkheim (Rostrum Nemaviae)**: on the Augsburg – Kempten road; three separate phases of construction were identified:

1. *Burgus* of 15 × 15 m (on the outside) with a 3.30–3.50 m-thick wall, dated to the Tetrarchs (approx. 300); considered by Mackensen a policing station on the public road; destroyed by a fire (coins from Crispus' reign – 320/321); surrounded by the Constantinian fortification, when the whole ensemble was probably redone. (Fig. 109)

2. Irregular-plan fortification that covers a surface of approximately 0.16 ha, with walls varying in thickness between 2.60–4.20 m, defended by monolith semicircular and rectangular towers; no buildings were identified *intra muros*. Its *terminus post quem* was set by a coin in the foundation level, dated 335/337; according to Mackensen, it is also a road police station, or maybe a fortification for *limitanei* (less probable). (Fig. 157)

3. A *horreum* (15.50 × 33.50 m) was attached to the western side in the period of Valentinian I, dated by a coin that sets a *terminus post quem* to 367/375.

MOOSDORF-OTTINGER 1981. Cf. CIGLENEČKI 1987, p. 23–25, Abb. 14; MACKENSEN 1999, 219, 221, 228–230, 236, figs. 7.14, 7.20.

– **Vrhnika-Turnovšče:** *Burgus* located near the fortification at Vrhnika-Gradišče (*Nauportus*), on the Emona-Aquileia road; square tower of 11.5 × 11.5 m, with a 1.60 m-thick wall; in the SE corner the substruction of a staircase was discovered; on the outside, set against the eastern side, there is a L-shaped building. Dated to the end of the 3<sup>rd</sup> c. (**Fig. 110**)

CIGLENEČKI 1987, 90, Abb. 124.

– **Ptuj:** *Burgus* built on the ruins of a paleochristian basilica; it is made of a rectangular tower of 8.20 × 9.50 m, surrounded by a defense wall of approx. 18 × 21 m (this had corner-towers, according to J. Klemenc, who excavated the site); both tower and defense wall have rather thin walls of about 1.00–1.10 m and the entrance in the defense wall is located near the NE corner. According to J. Klemenc, the basilica should be dated to 375–425, and the fortification should be connected to the Ostrogoths led by Theodoric; J. Šašel puts forward an earlier datation – the basilica should be dated to the reign of Constantine and the fortification to the reign of Valentinian I – this theory is also accepted by Ciglenečki.

CIGLENEČKI 1987, 55, 112, Abb. 59 (with previous literature).

– **Pivka pri Naklem:** located at an important crossroads in northern Dalmatia; *burgus* of approx. 10 × 10 m, with 2 m-thick walls, in which many *spolia* were used; inside a smaller tower? Dated to the second half of the 4<sup>th</sup> c.

CIGLENEČKI 1987, 81, 112, Abb. 102.

### **Burgi with internal supporting pillars**

– **Braives:** *Burgus* (14 × 11.50 m), 1.20 m thick wall, square section pillars; built over a previous, wooden *burgus* (end of the 3<sup>rd</sup> c.); nearby there is a wooden structure, probably a *horreum*; surrounded by a defense ditch. Dated to the reign of Constantine, destroyed by a violent fire in the middle of the 4<sup>th</sup> c. (347/348). (**Fig. 111**)

BRULET 1990, 143–149, 303, fig. 47; BRULET 2006 b.

– **Hulsberg:** *Burgus* – rectangular tower (8.80 × 12.20 m), with four supporting pillars inside; a 0.90–1.00 m thick wall; gate on the southern side; external ditch and palisade. It was the subject of an old excavation (1915), is not dated with certainty, although R. Brulet proposes as the construction date the first half of the 4<sup>th</sup> c. (**Fig. 112**)

BRULET 1990, 149–151, 303, fig. 50.

– **Morlanwelz II:** Stone *burgus* (approximately 20 × 25 m on the outside), with 3 m thick walls, with supporting pillars inside. Considered by Brulet a watchtower, dated to the first half of the 4<sup>th</sup> c. (**Fig. 113**)

BRULET 1977, 109–114, figs. 2, 4; BRULET 1990, 127–129, 302–303, figs. 34, 35.

– **Moers-Asberg (*Asciburgium*):** *burgus* with *tetrapylon*, external dimensions c. 18 × 18 m, square-section pillars, external courtyard and ditch. Dated to the reign of Valentinian I. (**Fig. 114**)

BECHERT 2003. Cf. SCHÖNBERGER 1969, no. 10; JOHNSON 1983, 270, fig. 53; BRULET 1990, 303; BRULET 2006 a, 159, fig. 153.5.

– **Stelli:** *burgus* with *tetrapylon*, dimensions 17.50 × 17.50 on the outside, 2.30–2.38 m thick walls, square-section pillars; surrounded by a ditch. (**Fig. 115**)

DRACK 1993, 19–20, no. 9.

– **Visegrád-Lepence:** *Burgus* with *tetrapylon*, dimensions 18.30 × 18.30 m, square-section pillars, external precinct. The foundation inscription dates it to 371 AD: *Iudicio principali DDD(ominorum) NNN(ostrorum) Valentiniani Valentis / et Gratiani principum maximorum dispositione / etiam inlustris*

*virī utriusque militiæ magistri Equiti comitis Foscianus p(rae)positus legionis prim[ae Mar]tiorum / una cum militibus sibi creditis h[unc burg]um a fundamintis et construxit et ad su[m]mam man]um operis / consulatus Gratiano Augus[t]o bis [et Pr]obo viro clarissimo fecit pervenire. (Fig. 116)*

GRÓF, GRÓH 1998–1999; GRÓF, GRÓH 2001. For the inscription see also AÉ 2000, 1223.

– **Leányfalu:** *Burgus* with *tetrapylon*, with external dimensions of 17.71 × 17.88 m (16.11 × 16.28 m on the inside); 1.60 m-thick wall (its foundation is 1.75–1.90 m thick); square-section pillars (approx. 1.60 × 1.60 m), 2.50 m-wide entrance on the southern side; access staircase in the SW corner; at about 6.75 m it is surrounded by a 0.70 m-thick precinct wall. Based on the archaeological material discovered there, it was dated with certainty to Valentinian I. (Fig. 117)

SOPRONI 1978, 63–66, no. 30, Taf. 67; SOPRONI 1985, 36, Abb. 19. Cf. NAGY M. 1999, 133 f., fig. 4.

– **Budakalász-Lupa Csárda:** *Burgus* with *tetrapylon* of 16.30 × 14.80 m, with square-section pillars; external precinct of approx. 39 × 39 m; dated to the reign of Valentinian I. (Fig. 118)

NAGY L. 1937, 271. Cf. SOPRONI 1978, 66, Taf. 75.3; SOPRONI 1985, 36, Abb. 26.

– **Öcsény:** *Burgus* with *tetrapylon*, internal dimensions 17.5 × 17.5 m, 2.30 m-thick wall, square-section pillars. Dated to the same period of Valentinian I. (Fig. 119)

PÉTERFI 1999; PÉTERFI 2003.

– **Huntcliff:** less than half of the structure is preserved; the defense wall has U-shaped corner-towers doubled on the interior by rectangular rooms. (Fig. 120)

HORNSBY, STANTON 1912; WILSON 1991, fig. 23.2, upper-left side.

– **Goldsborough:** the only entirely-preserved structure; the defense wall has slightly protruding rounded corner-bastions; the southern entrance to the central tower is also preserved; in the tower's N-W corner there is a substruction for the internal staircase. (Fig. 121)

HORNSBY, LAVERICK 1932; WILSON 1991, 142 f., fig. 23.2, upper-right side; PETRIKOVITS 1971, no. 4, fig. 28.1.

– **Ravenscar:** a fort of this type is signaled by old data and especially by an inscription (RIB 721).

WILSON 1991, 142.

– **Scarborough:** the structure's eastern side is missing, as it fell in the sea; the defense wall is 1.40 m thick and has U-shaped corner-towers. (Fig. 122)

WILSON 1991, 142 f., fig. 23.2, lower left side.

– **Filey:** the structure is badly damaged by erosion; the central tower has thicker walls than the above-mentioned examples. (Fig. 123)

WILSON 1991, 142 f., fig. 23.2, lower right side; OTTAWAY 1997.

– **“Nunnery”-Alderney Island:** fortification similar to those on the coastline, with solid bastions at the defense wall's rounded corners; as they were not thoroughly researched, there are no clear dating elements.

JOHNSTON 1977, 31–33, fig. 8, but for more concrete data see JOHNSON 1979, 82 and fig. 47.

– **Asperden:** *burgus* on the Cuijk – Qualburg road; an earlier wooden construction is restored in stone under Valentinian I; square tower (15.60 × 15.60 m) with a massive wall and *tetrapylon* inside, surrounded by a 1 m thick defense wall, with rounded corner-towers and intermediary towers on the sides, except the eastern one, where the gate is located; two external defense ditches; dated to the reign of Valentinian I, in use up to the beginning of the 5<sup>th</sup> c. (Fig. 124)

SCHÖNBERGER 1969, 184–185, no. 6; PETRIKOVITS 1971, 188–189, no. 23, and 216, fig. 28.2; BRULET 1990, 346; FISCHER 2006 a, 203–205, fig. 198–200.

– **Zeiselmauer (Cannabiaca?)**: *Burgus* with *tetrapylon*, located in the NE corner of the Late Roman fort (2.1 ha); external dimensions of 20 × 21 m, and a 1.90 m-thick wall; the gate was initially 2 m wide, then it was narrowed down to 1.20 m; the elevation is well preserved, including traces of the windows; inside there are four L-shaped pillars that create a surface of 3.87 × 4.80 m. Dated by H. Ubl to Valentinian I (stamps with the name Ursicinus and the presumption that the Constantinian fan-shaped tower in this corner was dismantled). According to Soproni, it was built at the end of the 4<sup>th</sup> c. But there is nothing to counterdict a datation during the Tetrarchy, given the fact that forts with fan-shaped corner-towers are usually dated during Constantine's reign (and we have in this case an attached Constantinian fort to the old Tetrarchic *burgus*). Analogies with other three Tetrarchic structures on the Iron Gates limes (Donje Butorke, Ljubičevac, Mihajlovac-“Mora Vagei”) are obvious. The situation is repeated at Wallsee/*Locus Felix* and Traismauer/*Augustiana*, so I think there is a building program through which a Diocletianic *burgus* was adapted to the new Constantinian forts. (Fig. 148)

UBL 1977; UBL 1997 b, 231–236, Abb. 84, 86.

– **Rusovce (Gerulata)**: *Burgus* built in the NW corner of the Roman fort, with a defense wall of approximately 30 × 30 m, 2.40 m thick; inside there are pillars (L-shaped at the corners and several others in between) that delimit an inner court in the middle of which there is a fountain; dated to the second half of the 4<sup>th</sup> c. (*spolia* were used for its construction), but a Tetrarchic datation should not be excluded because of analogies with Zeiselmauer, Traismauer and Wallsee. (Fig. 149)

SNOPKO et al. 1986, 448–450, fig. 2; VARSIK 1997, fig. 1.35; KREKOVIC 1997, 277–280, Abb. 104.

### Fortified landing-places

– **Engers**: across the Rhine, in front of Koblenz; massive tower (21 × 15 m, with four internal pillars) and attached defense wall. Dated to Valentinian I? (Fig. 125)

SCHLEIERMACHER 1942, 191 f. Taf. 33/1; RÖDER 1952; SCHÖNBERGER 1969, 185, no. 46; PETRIKOVITS 1971, no. 43, fig. 24; HÖCKMANN 1986, 399 f., Abb. 14.3.

– **Zullestein**: massive rectangular tower, c. 21 × 15 m; walls with 2.60 m-thick foundation and 2.00 m-thick elevation; two square-section pillars inside; the wharf's defense walls have square corner-towers. Dated in the time of Valentinian I. (Fig. 126)

JORNS 1974; BAATZ 2006, 227–228, fig. 232. Cf. HÖCKMANN 1986, 399 f., Abb. 14.2

– **Mannheim-Neckarau**: across the Rhine, bridgehead for Altrip; rectangular tower (21.5 × 17 m, according to Bernhard 1981), defense wall and external ditch. Dated to the reign of Valentinian I (Schleiermacher) or Constantius II (Soproni). (Fig. 127)

SCHLEIERMACHER 1942, 191 f., Taf. 33/3; SCHÖNBERGER 1969, 185, no. 60; PETRIKOVITS 1971, no. 65; HÖCKMANN 1986, 399 f., Abb. 14.1.

– **Ladenburg (Lopodunum)**: on the river Neckar, several kilometers away from Altrip and Mannheim, in the Roman-controlled area east of the Rhine; massive square tower of approx. 13.40 × 13.40 m, defense wall and external ditch; dated to Valentinian I. (Fig. 128)

HEUKEMES 1981; SOMMER 2006.

– **Veröce (former Nógrádveröce)**: on the left bank of the River Danube, a 23 × 18 m tower (with a 2.80 m-thick wall and two square-section pillars inside), surrounded by a 2.00 m-thick defense wall with square corner-towers of 5 × 5 m. Dated to the reign of Constantius II (Soproni). (Fig. 129)

SOPRONI 1978, 78, no. 42, Taf. 81.1. MÓCSY 1974, 191 f., Abb. 46.1; SOPRONI 1985, 77–78, Abb. 42; HÖCKMANN 1986, 399 f., Abb. 14.5.

– **Tahitótfalu-Balhavár**: on the Szentendre island, tower (24.40 × ? m, 2.50 m-thick walls and two internal pillars) and a defense wall with square corner-towers (Veröce-type). Dated to the reign of Constantius II (Soproni). (Fig. 131)

SOPRONI 1978, 74–75, no. 37, Taf. 78.1. MÓCSY 1974, Abb. 46.2; HÖCKMANN 1986, 399 f., Abb. 14.6.

- **Szentendre-Dera patak**: tower of 20 × 20 m (outside dimensions), connected with two walls that end in two square towers (7.50 × 7.50 m). Dated to the time of Constantius II (Soproni). (**Fig. 133**)  
SOPRONI 1978, 71–72, no. 32, Taf. 75.2. MÓCSY 1974, Abb. 46.5; SOPRONI 1985, 69, Abb. 40; HÖCKMANN 1986, 399 f., Abb. 14.4.
- **Szigetmonostor-Horány**: tower of 22 × 16 m (2.50 m-thick wall) and defense wall with square corner-towers (4 × 4m), located on the Szentendre island. (**Fig. 132**)  
MÓCSY 1974, Abb. 46.4; SOPRONI 1978, 75–76, no. 39, Taf. 80; HÖCKMANN 1986, 399 f., Abb. 14.7.
- **Dunafalva (*Contra Florentiam?*)**: bridgehead for the fort at Dunaszekcső (*Lugio*); tower of approx. 21 × 17 m, with two internal pillars and defense wall with square corner-towers (two of them, located on the river bank, are of the monolith type). Dated to the reign of Constantius II and identified by A. Mócsy with *burgus Contra Florentiam* (NDOcc. XXXIII, 44: *equites sagittarii Altino nunc in burgo contra Florentiam*). (**Fig. 130**)  
MÓCSY 1958; MÓCSY 1974, 193, Abb. 46.8.
- **Bač**: located on a canal on the Danube's left bank, in connection to the fort at Sotin (*Cornacum*); made up of a tower and a defense wall (possibly ended with towers towards the river?). Uncertain datation (Constantius II?). (**Fig. 134**)  
MÓCSY 1969; MÓCSY 1974, 193, Abb. 46.9.

### Fortified granaries (?)

- **Aegerten**: two identical fortified installations were discovered, 125 m distance one to another, on each side of Zihl River; rectangular plan (c. 60 × 22 m), three compartments, with apsidal ends on the short sides; 2.65 m-thick walls. Both were dated by dendrochronology to 368/369. (**Fig. 135**)  
FELLMANN 2006 a, fig. 173 (wrong scale).
- **Mumpf**: rectangular plan, dimensions c. 48 × 17.5 m, apsidal ends on the short sides, 3 m-thick walls; external ditch. Coins from Gratian and Magnus Maximus. A Valentinianic date for this building is very probable. (**Fig. 136**)  
DRACK 1993, 21–23, no. 12. Cf. JOHNSON 1983, 163, fig. 65.
- **Sisseln**: construction with approx. the same dimensions and characteristics as Mumpf. (**Fig. 137**)  
DRACK 1993, 24, no. 14. Cf. JOHNSON 1983, 163, fig. 65.

### Quadriburgia

- **Passau–Innstadt (*Boiodurum/Boiotro*)**: located at the confluence of the Inn and the Danube, approximately 1 km west of the Early Roman fort (destroyed at the middle of the 3<sup>rd</sup> c.); trapezium-shaped fortification (approximately 50 × 50 × 20 m), with fan-shaped corner-towers; the defense wall is sometimes 3.60 m thick; on the inside, along the sides, there is a line of pillars that form a portico that sheltered the soldiers' barracks or the supply rooms (*horrea*); in the S-W corner there is a fountain; on the outside, the fortification is surrounded by a 8 m-wide ditch. Dated to the end of the 3<sup>rd</sup> – beginning of the 4<sup>th</sup> c. The ancient name is known from the *Vita Sancti Severini* (6<sup>th</sup> c.), where it is mentioned that a small monastery was built "in loco nomine Boiotro"; archaeological research has identified the monastery in the SE corner of the fortification, over the ruins of the ancient *horreum*. (**Fig. 138**)  
BRANDL 1997, 145–150, Abb. 47–49 (with previous bibliography). Cf. JOHNSON 1983, 174, 176, fig. 69; SCHNURBEIN, KOHLER 1989, 524.
- **Visegrád–Gizellamajor**: *Quadriburgium* with dimensions 38 × 38 m (= 0.13 ha); 1.65 m-thick wall, built in *opus incertum*; fan-shaped corner towers; inside there were barracks built along all the sides; the

NW tower had a hypocaust installation; outside the walls there was a *fossa*; nearby, a necropolis and kilns were discovered. Dated to the first half of the 4<sup>th</sup> c. (Constantine or Constantius II, post-340), based on the archaeological and numismatic material. (Fig. 139)

GRÓF 1987–1989; GRÓF et al. 2001–2002; GRÓF, GRÓH 2003; GRÓF, GRÓH 2004 .

– **Wyhlen**: fortification (44.5 × 44.5 m) on the opposite side of the Rhine, a bridgehead for the fort at Kaiseraugst; round corner- and intermediary towers; dated to the reign of Valentinian I.

ANTHES 1917, 131; DRACK 1993, 16; NUBER, REDDÉ 2002, 216, fig. 31. Cf. SCHÖNBERGER 1969, 186, no. 75; LANDER 1984, 284, fig. 293.

– **Zurzach**: two minor fortifications – “**Kirchlibuck**”: a small *castellum* with irregular plan (area c. 0.49 ha), round and U-shaped half-protruding towers, uncertain datation (Tetrarchy?); – “**Sidelen**”: *quadriburgium*-type, c. 48 × 50 m (0.15 ha), 2.65–3.50 m thick walls, round corner-towers (8 m in diameter). Connected with the opposite Rheinheim by a wooden bridge dated by dendrochronology in 368 AD. (Fig. 140)

DRACK 1993, 31–33; FELLMANN 2006 d. Cf. LANDER 1984, 289, fig. 294.

– **Rheinheim**: on the opposite bank of the Rhine, a bridgehead for Zurzach. Rectangular plan (c. 45 × 40 m), with square corner-towers and 3 m-thick walls. Valentinianic construction (see dated bridge above). (Fig. 141)

DRACK 1993, 32–33; FELLMANN 2006 d. Cf. LANDER 1984, 289, fig. 294; NUBER, REDDÉ 2002, 216, fig. 31.

– **Liberchies II**: Rectangular (slightly rhomboidal), 45 × 56 m *quadriburgium*-type fortification; 2.80 m thick wall; circular (monolith type?) corner-towers with a diameter of 6.50 m; inside there are traces of buildings set against the defense wall; external ditch and *extra muros* buildings; dated to the reign of Constantine (*terminus post quem* 332, according to Brulet, but also maybe 300/310–332 for an earlier phase, prior to the construction proper, containing wooden structures, but which could in fact mark the construction moment). (Fig. 142)

MERTENS, BRULET 1974; BRULET 1990, 133–136, 303–304, figs. 38, 39.

– **Wilten–Innsbruck (Veldidena)**: on the strategic road leading from Augsburg (*Augusta Vindelicum*) south towards Italy; *quadriburgium* of approx. 60 × 60 m (covering a surface of 0.36 ha); 1.80m-thick walls; rectangular corner-towers, several other rectangular towers in the middle of the sides; tower-gate on the western side. Dated to the reign Valentinian I (it surrounds two of the largest *horrea* from the Constantinian period). (Fig. 143)

WOTSCHITZKY 1959. Cf. SCHÖNBERGER 1969, 185, no. 114; PETRIKOVITS 1971, no. 81, fig. 25; MACKENSEN 1994 b, 507–508, fig. 15; MACKENSEN 1999, p. 236, fig. 7.26. Also see BORHY 1996, 214–216, 222.

– **Schaan**: on the Bregenz (*Brecantia*) - Chur (*Curia*) road; *quadriburgium*-type fortification of 47.50 × 49.50 m, covering a surface of 0.24 ha; square corner-towers and another in the middle of the southern side; a single entrance (tower-gate) on the northern side; inside can be identified two construction phases: I – a stone structure, with baths and wooden buildings set against the defense wall, and phase II – the baths area was enlarged, and in the southern part was built a large *horreum* of 15 × 48 m. Dated to the reign of Valentinian I; according to Mackensen, phase I represents a *mansio*, while during phase II the fortification functioned as a supply base. (Fig. 144)

ANTHES 1917, 140–141, Abb. 21; KELLNER 1978. Cf. SCHÖNBERGER 1969, 185, no. 89; PETRIKOVITS 1971, no. 82; JOHNSON 1983, 166, fig. 66; MACKENSEN 1999, 234–235, fig. 7.24.

– **Irgenhäusen**: South of Oberwinterthur (*Vitudurum*), on an important road towards the interior of the province Sequania, near the border with Raetia I; dimensions approx. 60 × 61 m (surface 0.36 ha), 1.90m-thick wall, square corner-towers and several smaller ones along the sides, a 10.50 m-wide gate,

three *poternae*; small buildings set against the defense wall. According to Schönberger it is to be dated to the reign of Valentinian I by analogy to Schaan and Wilten–Innsbruck. (**Fig. 145**)

ANTHES 1917, 137–140, Abb. 20; MAYER 1969. Cf. SCHÖNBERGER 1969, 185, no. 83; JOHNSON 1983, 164–166, fig. 66; BORHY 1996, 212 f., Abb. 4; BRULET 2006 a, 158, fig. 148.1.

– **Kleinbasel (*Munimentum Robur?*)**: on the opposite side of the Rhine, bridgehead for Basel; small *quadriburgium*, approx. 21 × 21 m on the outside, 4 m-thick walls, round corner-towers (6 m in diameter). Probably dating to Valentinian I, identified with *munimentum Robur* of Amm.Marcell. XXX, 3, 1, attested also in CTh VIII, 5, 33 (see above, n. 8) (**Fig. 146**)

MOOSBRUGGER-LEU 1974; JOHNSON 1983, 158–161; DRACK 1993, 8–10; NUBER, REDDÉ 2002, 216, fig. 31; FELLMANN 2006 b, 218, fig. 218.

– **Untersaal**: near Regensburg (*Castra Regina*), small *quadriburgium*-type fortification (16.80 × 16.80 m on the outside), 1.95–2.00 m-thick wall, round corner-towers (only two are preserved); inside there is a water cistern. Dated to the reign of Valentinian I. (**Fig. 147**)

GARBSCH 1967, 62–72. Cf. JOHNSON 1983, 172, fig. 65.

### Small *castella*

– **“Haus Bürgel”-Monheim**: quadrangular *castellum* (64 × 64 m), with round corner towers and other eight intermediary ones, two gates, external ditch; it is dated to Constantine’s reign (due to its structural similarities to the Constantinian fort at Köln-Deutz). (**Fig. 154**)

FISCHER 1999; FISCHER 2006 b. Cf. SCHÖNBERGER 1969, 185, no. 14; PETRIKOVITS 1971, no. 27; JOHNSON 1983, 148, fig. 53.

– **Dormagen (*Durnomagus*)**: in the Roman fort’s N-W corner a small fortification (52 × 48 m interior dimensions) was built at the beginning of the 4<sup>th</sup> c., with 3.0 m-thick walls and an external ditch. (**Fig. 152**)

GECHTER 2006. Cf. BRULET 2006 a, 159, fig. 149.5.

– **Altrip (*Alta Ripa*)**: trapezium-shaped plan (55 × 57 × 118 × 62 m), internal surface of approximately 0.50 ha; the walls have a 3.00–3.20 m-thick foundation, polygonal and pentagonal corner-towers; two gates (in the middle of the E and W sides), flanked by rectangular Zwinger-type bastions; barracks set against the defense wall; defense ditch on three sides; dated certainly to the reign of Valentinian I (even by dendrochronological data), previous to the year 369, when the emperor’s presence is attested here (CTh XI, 31, 4; Amm. Marcell. XXVIII, 2, 1–4; Symmachus, *Or.*, 2, 20); destroyed in 406/407. (**Fig. 155**)

SCHNURBEIN, KOHLER 1989. Cf. SCHÖNBERGER 1969, 184, no. 61; PETRIKOVITS 1971, no. 64, fig. 19; JOHNSON 1983, 154–155, fig. 58; LANDER 1984, 271–273, fig. 272; HÖCKMANN 1986, 404, Abb. 15; STIRBRNY 1989, 413–414.

– **Sponeck**: minor fortification 10 km N of Breisach, on the opposite bank of the Rhine, near a good ford; surface of approximately 40 × 50 m, with a plan adapted to the terrain, a rectangular tower and two other round bastions. Built in the time of Valentinian I.

NUBER, REDDÉ 2002, 216, fig. 31. Cf. JOHNSON 1983, 158; LANDER 1984, 284, fig. 292; STIRBRNY 1989, 413–414.

– **“Bürgle”-Gundremmingen (*Piniana?*)**: rectangular fort, approximately 28 × 65 m (a surface of 0.16 ha) with a southern wall following a saw-teeth trajectory, 3 m thick defense wall, wooden barracks set against the defense wall on the inside. The date of construction is debated, with Bersu arguing for 335/340, but the most probable one is the end of the 3<sup>rd</sup> c. (Stirbrny and Mackensen, based on the study of the numismatic material).

BERSU 1964. Cf. SCHÖNBERGER 1969, 181, no. 97, fig. 22; PETRIKOVITS 1971, no. 91, fig. 22; JOHNSON 1983, 173, fig. 67; LANDER 1984, 260, fig. 277; CIGLENEČKI 1987, 17–18, Abb. 6; STIRBRNY 1989, 420–422; MACKENSEN 1999, 213–214, fig. 7.10.

– **Eining (Abusina):** *quadriburgium*-type fortification raised in the SW corner of an Early Roman auxiliary fort; interior surface of 33.60 × 44.80 m, more precisely 0.15 ha; two square towers in the NE and NW corners, while the other two corners use the towers of the old fort, one internal and one gate tower respectively; pillars were set against the two new sides (analogies at Nova Černa in Moesia Secunda), from which start walls for 12 barracks; inside the compound there is a building of 10 × 12 m, with hypocaust. At a later stage on the southern side was added a rectangular external tower of 6 × 7.20 m, the northern entrance was transformed in a tower-gate, and between the latter and the NE corner-tower a *horreum* (9.5 × 19 m) was built, set against the defense wall, with its own rectangular tower on its northern side. Chronology: phase I – during the Tetrarchy (based on the numismatic material), phase II – Valentinian I. According to NDOcc. XXXV, 25 there was the seat of *tribunus cohortis III Brittonum*. (Fig. 153)

FISCHER 1980; MACKENSEN 1994 b; MACKENSEN 1999, 214–216, 236, figs. 7.12, 7.25. Cf. JOHNSON 1983, 173–174, fig. 67; SOPRONI 1986, 410 (post-Valentinianic datation, harder to prove though).

– **Esztergom-Hidegtelek-skereszt:** located 6 km west of the auxiliary fort at Esztergom (*Solva*); a late fortification of irregular plan, almost triangular, with the length of the size of 102 × 92 × 65 m; rectangular towers, slightly protruding; dated to Valentinian I. According to Soproni, the inscription found at Esztergom (CIL III, 10596 = ILS 762 = RIU 770, dated between 364–367), which mentions the building of a fortification, *muros cum turribus*, actually came from here.

SOPRONI 1978, 26–29, Taf. 10/1; SOPRONI 1989, 103–108 (foundation inscription). Cf. LANDER 1984, 271, fig. 278.

– **Budapest-Pest, Március 15 Square (Contra Aquincum):** located on the Danube's left bank; rectangular fortification that encloses a surface of 86 × 84 m; it has fan-shaped corner-towers and U-shaped towers on the sides; it has a 3.40 m-thick wall. The fort was preceded by a larger one dated to the 2<sup>nd</sup> c. AD. It is traditionally dated to Diocletian's reign and identified with *Contra Acinco* mentioned in 294 in the *Consularia Constantinopolitana* (see also NDOcc. XXXIII, 48). There are also opinions for a later date (Constantine or even later) (Fig. 156)

NAGY T. 1974, 33–34; NÉMETH 2003. Cf. JOHNSON 1983, 185–186, fig. 73; LANDER 1984, 190, 214, fig. 184; BERTÓK 1997, 167, fig. 1.77/a.

– **Čortanovci:** rectangular fortification of approx. 100 × 70 m, 1.20 m-thick walls (1.40 m in foundation), round corner-towers (the researched SE tower has 13 m in diameter). Dated to the end of the 3<sup>rd</sup> – beginning of the 4<sup>th</sup> c.

DAUTOVA-RUŠEVLJAN, PETROVIĆ 1994.

– **Trier-Pfalz (Palatiolum):** road station north of Trier; elaborated rectangular plan (65 × 56 m), similar to that of the limes fortification at Oedenburg-Altkirch; 1.20 m thick walls; probably an imperial residence during the reign of Valentinian I.

KUTZBACH 1935. Cf. NUBER, REDDÉ 2002, 230–232, Abb. 42.1; NUBER 2005, 766, Abb. 6.

– **Zürich-Lindenhof:** in the hinterland of the Upper Rhine limes, 50 km S-E of Kaiseraugst, the site of the former Early Roman *statio Turicensis*; slightly irregular plan (48 × 96 × 60 × 80 m), adapted to the terrain, rectangular and U-shaped half-protruding towers, two tower-gates. Dated in the Constantinian period. (Fig. 158)

FELLMANN 2006 c. Cf. JOHNSON 1983, 164, fig. 66; LANDER 1984, 204, fig. 205.

– **Mogorjelo:** fortified residence in Dalmatia, 150 km S of Split, identified by I. Bojanovski with *Ad Turres* mentioned by *Tabula Peutingeriana* on the road Narona-Diluntum; rectangular plan, c. 92 × 75 m, three square and one round corner-towers, three gates flanked by rectangular towers; barracks set against the wall and a portico-style building inside. Dated at the end of the 3<sup>rd</sup>-beginning of the 4<sup>th</sup> c. and considered production centre of an imperial estate. Obvious analogies with the imperial palace at Split. (Fig. 159)

DUVAL 1989–1990; WILKES 1993, 75–77. Cf. JOHNSON 1983, 243, fig. 91.

### 3.2. Southern Balkans (Macedonia, Epirus and Thessaly)

In this area, that does not constitute the subject of our analysis, several minor and middle-sized fortifications are known, starting with important bases of the mobile army in the 4<sup>th</sup> – 5<sup>th</sup> c., such as the ones at Elbasan (*Scampa*)<sup>110</sup>, Dolenci (*Castra Nicaea*)<sup>111</sup> or Paleokastrá<sup>112</sup> and ending with the new fortifications built during the 6<sup>th</sup> c.<sup>113</sup>. The fortifications mentioned below should be assigned rather to the category of *castellum* and bear the mark of Greek construction tradition, some of them being in fact Hellenistic constructions (Korešnica-“Markova Kula” and Kalyva). The fortification at Louloudies, covering a surface of approx. 0.70 ha, has a typical *quadriburgium* plan and was built in the 6<sup>th</sup> c. with the clear aim of enclosing a basilical complex, a situation also encountered in Dacia Mediterranea (Pirdop and Škorpilovci) or in Syria (El-Habbat and El-Anderin).

– **Kalugjerica**: Trapezium-shaped fortification of 115 × 60 m, 1.80 m-thick wall, square towers and one triangular. Barracks set against the defense wall and also in the central area. Dated to the 6<sup>th</sup> c. AD. MIKULČIĆ 2002, 372–373, no. 307, Abb. 275.

– **Korešnica-“Kula”**: Rectangular fortification of 103 × 70/34 m, with a 1.80–1.90 m-thick wall. As special features there is a rectangular corner-tower built at the end of one of the sides (a similar situation is encountered at Ovidiu, Gazetteer, No. 54), as well as a triangulat tower. Dated to the 6<sup>th</sup> c. AD. MIKULČIĆ 2002, 335–336, no. 266, Abb. 233.

– **Korešnica-“Markova Kula”**: Rectangular fortification of approx. 40 × 36 m, with a tower built in the NE corner (10 × 7.50 m). The construction technique is Hellenistic (large blocks of stone), the wall is 2.40 m thick. It is probably a Hellenistic construction, reused in the Late Roman period. The plan is highly similar to the one of the *burgus* at Zidinac (Gazetteer, No. 6), which is dated though to an entirely different period. One cannot exclude the possibility of it being in fact a typical Hellenistic tower. MIKULČIĆ 2002, 336, no. 267, Abb. 234.

– **Louloudies**: Fortification located on the Pydna – Dion road, which can be identified with *Anamum* in the Tabula Peutingeriana (7 km south of Pydna). It is a 80 × 90 m structure of the *quadriburgium* type, with a complex inside formed of a basilica, a building with perystile (bishop’s palace?) and installations for wine and oil production. E. Marki connects the structure with an Episcopal complex. It could be that it was here that the bishop of Pydna retreated in 479, after the city was occupied by Ostrogoths. The complex is dated to the 6<sup>th</sup> c. by E. Marki. According to A. Poulter, the perystile building fits the characteristics of a military building (*principia*). Approximately 150 m south of there a fortification of approx. 170 × 180 m was discovered, that was probably part of the same site. The complex has convincing analogies in roadside stations such as the one at *Idimum* (Gazetteer, No. 63), or with Christian complexes such as the one at Pirdop (Gazetteer, No. 72).

E. Marki, AEMT 10 A, 1996, 239–258; POULTER 1998.

– **Kalyva**: On the Nestos river valley, at the border between Thrace and Macedonia. Old Hellenistic fortification (*phourion*), reused in the Early and Late Roman periods. It has an irregular trapezium shape, with circular and square towers. Four phases of functioning were identified, of which the most developed one is dated to the 4<sup>th</sup> c. B.C. – 3<sup>rd</sup> c. A.D., after which there is probably in use again in the 6<sup>th</sup> c. A.D.

D. Triantaphyllos, AEMT 2, 1988, 443–458; idem, BCH 122, 1998, 2, 894–895, figs. 223–225.

<sup>110</sup> KARAISKAJ 1971.

<sup>111</sup> MIKULČIĆ 2002, 271–273, Abb. 165.

<sup>112</sup> BAČE 1981.

<sup>113</sup> Along with small rural fortifications and shelters, these are extremely frequent, as the catalogue put together for northern Macedonia by I. Mikulčić proves.

### 3.3. Eastern provinces

**Pontus.** In the Eastern Pontic area three minor fortifications are known up to the present moment (*quadriburgium*- or triangular types), all built during the 6<sup>th</sup> c. The Eastern (namely Palestinian) influence is obvious in forts like the ones at *Sebastopolis* and *Losorion*, especially when it comes to the shape of corner-towers.

**Syria.** The fortifications on the famous *Strata Diocletiana* are known especially through field surveys and aerial photographs taken during the first two decades of the 20<sup>th</sup> century by R. Brünnow, A. von Domaszewski, A. Poidebard, A. Musil and, more recently, by D. Kennedy and D. Riley. Recent archaeological excavations at Qusair as-Saila, as well as several studies on this area<sup>114</sup>, demonstrate that this strategic road was not a unitary Diocletianic project, but rather the result of an evolution in time, which continued during the Constantinian period<sup>115</sup>. Starting with the legionary fort at *Sura*, a frontier road connects the Euphratus to southern Syria (in front of the major cities of *Damascus*, *Philippopolis* and *Bostra*) and is continued by an important caravan road towards the Arabian Desert (see below the forts at Deir el-Kahf and Qasr al-Azraq). A first information concerning the organization of this new frontier is the construction of the so-called “Diocletian camp” at Palmyra<sup>116</sup>. Located in the city’s western side, it was built in a former residential area transformed in a military one by the construction of buildings specific for a legionary fort (*principia*, barracks).

The frequency of *quadriburgium*-type fortifications on the *Strata Diocletiana* is remarkable and is crucial for the study of fortified roadside stations locations along important roads along the frontier or in the province’s interior. Their plan is usually square, with fan-shaped or square (seldom round) corner-towers, and inside they usually have barracks set against the defense wall. One also notices that part of them (Qusair as-Saila, Al-Hulla and the small *castellum* Ad-Diyateh) were built on the perimeter of civil Roman settlements (*vici*) that were later fortified themselves. It is highly probable that these *quadriburgia* had an influence on similar constructions in the Balkan area (Mihai Bravu and Nova Černa) or in the Western provinces (Visegrád-Gizellamajor).

Three *quadriburgium*-type fortifications (El-Habbat, El-Anderin and Umm el-Hallahil), that seem to play both the role of roadside stations (*mansiones*) and that of fortified Christian complexes, were discovered in Chalcis-Apamea area, one of the richest and densely populated region of Syria. Dated by inscriptions to the 6<sup>th</sup> c., they constitute some of the best analogies for several fortifications in the Balkans (Pirdop, Orlandovci, Louloudies).

**Arabia: the caravan road towards the Arabian Desert.** The two fortifications identified on this road (Deir el-Kahf and Qasr al-Azraq) seem to have been built at the beginning of the 4<sup>th</sup> c. or at the latest during the Constantinian period. Their plan is very similar to that of *mansiones* known on roads in Syria and Arabia<sup>117</sup>, with the difference that they have corner-towers (very slightly protruding) developed on three levels.

<sup>114</sup> BAUZOU 1993, 27 f.: *Strata Diocletiana* is not a single route, but part of a complex of roads in Syria. According to the author, “(...) le nom de *Strata Diocletiana* à été donné au niveau local par les autorités militaires de Palmyre au pistes militaires construites ou réaménagées sous Dioclétien à l’intérieur du territoire dont elles avaient la responsabilité. Dans les secteurs relevant d’un autre commandement local, ces routes étaient simplement dénommées *Strata*, ou même *Istrata*. (...) Le terme précis de *Strata* devait avoir alors un sens technique ou juridique particulier, distinguant ce genre de piste à travers la steppe des autres voies de communication, routes empierrées ou pistes caravanières” (BAUZOU 1993, 36).

<sup>115</sup> REDDÉ 1995, 106.

<sup>116</sup> Dated by an inscription to 303 (CIL III, 133 = 6661). Cf. FELLMANN 1976; REDDÉ 1995, 117 f.

<sup>117</sup> See the so-called “khans” at Umm el-Walid, Palmyra and El-Lejjun (REDDÉ 1995, 95–97, fig. 6–8).

**Arabia: *Via nova* and the western frontier.** *Via nova*<sup>118</sup> is the road built by Trajan after the creation of the province Arabia, in order to connect southern Syria (with the city of *Bostra* as a starting point) and the Gulf of Aqaba at the Red Sea (*Aila*, fort of the *legio X Fretensis*). The fortifications on this road, as well as those on an advanced line, built around 10–20 km east of the *via nova* (the so-called *limes Arabicus*), are much better known from an archaeological point of view. Apart from the traces of Early Roman forts, that distinguish themselves from the classic fortifications on the Western limes through their architecture<sup>119</sup>, we must also mention the fort built during the Tetrarchy at El-Lejjun (*Betthorus*)<sup>120</sup>, whose architecture influenced several fortifications in the Eastern Empire. Among minor fortifications stand out the ones built during the Tetrarchy: Qasr Bshir (considered by some authors as a prototype for the *quadriburgium*-type), Khirbet es-Samra and Khirbet el-Fityan. One easily notices the preference for rectangular or square corner-towers, in the case of Qasr Bshir with obvious architectural ties to the fort at El-Lejjun (large towers divided into compartments). The plan of the fortification at Khirbet ez-Zona reminds us of that of *Dionysias* (Egypt) and the one at Muhattet el-Haj, a *quadriburgium* with intermediary towers, is almost identical to some fortifications of this type in the Western Empire. Also important to mention here is the inscription found at Umm el Jimal, one of the rarest documents attesting *burgus*-type fortifications in the Eastern provinces in the time of Valentinian I and Valens<sup>121</sup>.

**Palaestina.** As far as minor fortifications on the territory of Palaestina are concerned, located inland from the limes and on important roads leading towards the province's interior, one notices a clear preference for the *quadriburgium* type. Their chronology is debated, as some datations to the 4<sup>th</sup> c. are seriously doubted by authors such as S. Gregory and J. Magness. The most commented examples are the fortifications at En Boqeq and "Upper Zohar", that have offered clear indications for a late datation (end of the 5<sup>th</sup> – 6<sup>th</sup> c.). Along with *quadriburgia*, there are also fortifications built inside the perimeter of old towns (*Oboda*, *Nessana* and *Malatha*), whose datation is controversial as well (4<sup>th</sup> c. or 5<sup>th</sup> – 6<sup>th</sup> c., the latter being more plausible).

**Egypt.** Some of the fortifications researched in Egypt can be assigned to the minor *castellum*-type, the one at *Dionysias* representing a clear model of late Roman military architecture in this area, with its specific monolith towers (bastions). These are small and square, semicircular or U-shaped. They are dated to the Tetrarchic period based on the research conducted on the site at Tell el-Herr (a structure that actually stands at the border between minor and middle-sized fortifications), but also on large fortifications such as the ones at Luxor, Nag el-Hagar and Babylon-Cairo<sup>122</sup>.

<sup>118</sup> Often called *Via Nova Traiana*, which is a modern construct, it appears only as *via nova* on milestones (BAUZOU 1993, 28, n. 1).

<sup>119</sup> Recent research in the auxiliary fort at Humayma (*Avara*) confirmed its datation to the 2<sup>nd</sup> c. A.D. Its rectangular, half protruding corner- and intermediary towers announce the architectural style specific of the Late Roman Period. J. Oleson et al., *ADAJ* 37, 1993, 461–502; 39, 1995, 317–354; 43, 1999, 411–450. Also see GREGORY 1996, 196 (compared to Niederbieber and considered "the missing link between 2<sup>nd</sup> and 4<sup>th</sup> c. patterns"); PARKER 1999, 233.

<sup>120</sup> For the results of the excavations see PARKER 2006, 111 f. A surface of approx. 4.60 ha (242 × 190 m), wide-open fan-shaped corner-towers and U-shaped intermediary towers. Dated with a coin of Maximianus (304–305) found in the foundation layer of one of the barracks (PARKER 2006, 120). Cf. PARKER, LANDER 1982; PARKER 1986, 641–643, figs. 2, 3; PARKER 1995, 258, fig. 14; REDDÉ 1995, 119–121, fig. 47. Another important legionary fortress built in the same manner is Udruh, for which see the recently discovered building inscription (KENNEDY, FALAHAT 2008).

<sup>121</sup> CIL III, 88 = ILS, 773 (year 371): *Salvis d(ominis) n(ostris) Valentiniano Valente et Gratiano / victorissimis semper Aug(ustis) dispositione Iuli / v(iri) c(larissimi) com(itis) magistri equitum et peditum fabri/catus est burgus ex fundamento mano devotissimorum equitum VIII Dalm(atarum) s(ub) c(ura) Vahali trib(uni) / in consulatum d(omini) n(ostri) Gratiani perpetui Aug(usti) iterum / et Probi v(iri) c(larissimi).*

<sup>122</sup> FELLMANN 1976, 183, fig. 10; REDDÉ 1995, 101 f., figs. 14, 27–29.

## Towers and *burgi*

– **Qasr Abu Rukba**: 15 km distance from El-Lejjun, massive tower of approx. 10.50 × 10.85 m, 1.35 m thick wall, preserved on three floors. Dated in the Late Roman period, based on ceramic evidence. (Fig. 160)

PARKER 2006, 549, fig. 2.11. Cf. TORBATOV 2004 a, 41, fig. 14 a.

– **Kfellusin**: tower with interior dimensions 5.50 × 5.50 m, preserved on a height of 15 m. Building date provided by an inscription to 492 or 522 AD. (Fig. 161)

DECKER 2006, 504 f., fig. 3.

– **Kerratin**: in central Syria, near Hama, square tower (approx. 12 × 12 m), 1.80 m thick walls. Dated by inscription to 509/510 AD (erected by individual patronage of a certain John and mentioned as a *pyrgos*). (Fig. 162)

DECKER 2006, 507, fig. 4.

## Quadriburgia

– **Qusair as-Saila (*Tetrapyrgium*)**: on the road between Sura and Resafa, identified with the toponym mentioned by Acta Sanctorum, as the place of the martyrdom of St. Sergius and Bacchus by the emperor Maximinus Daia (305–311); square plan (38 × 38 m), foundation and socle made of stone, elevation with unfired bricks, fan-shaped corner-towers (11 m sides) and a simple entrance. Inside there are barracks set against the defense wall. Located at the edge of the civilian settlement (*vicus*), that covers a surface of approx. 230 × 250. Dated to the reign of Constantine (first coins are from 317–320). It is believed that a detachment of the *legio XVI Flavia* from Sura was stationed there, numbering around 65–70 soldiers. (Fig. 163)

KONRAD 2001 a, 153–154, Abb. 7, 8; KONRAD 2001 b. Cf. LANDER 1984, 190, fig. 183 (old plan after Poidebard, with circular towers).

– **Al-Hulla (*Cholle*)**: about 20 km south of Resafa, a *tetrapyrgion* identical to the one above, again with fan-shaped towers. Located in the centre of a civilian settlement (*vicus*) covering a surface of 370 × 225 m, that was later fortified. The site was not excavated.

KONRAD 2001 a, 155–157, Abb. 9; KONRAD 2001 b, 15 f.

– **Khan el-Hallabat (*Veriaraca*)**: Square plan (47 × 47 m), with corner-towers in the shape of wide-open fans (almost circular, but rectangular inside), a single gate and buildings inside. It was not excavated, but it is known through field and aerial surveys (Musil, Poidebard, Kennedy and Riley). NDOr. XXXII, 34 mentions here *ala nova Diocletiana*. (Fig. 164)

LANDER 1984, 248, fig. 267; BAUZOU 1993, 45; REDDÉ 1995, 100, fig. 15; GREGORY 1996, fig. 14.f (left); KOWALSKI 1998, 34, fig. 4 A.

– **Khan el-Abyad**: Located SW of Palmyra; *quadriburgium* of 45.60 × 45.60 m, with fan-shaped corner-towers. Here was discovered an inscription dated to the end of the 4<sup>th</sup> c., that mentions *castrum reddidisti* (IGLSyr V, 2704); the structure was identified by M. Konrad as a *statio* or a *mansio*. (Fig. 165)

LANDER 1984, 248, fig. 268; KONRAD 2001 b, 103; TORBATOV 2004 a, 34, fig. 3 (plan after Poidebard).

– **Khan el-Qattar (*Monte Iovis?*, *Cunna?*)**: square plan (41 × 41 m), with corner towers almost identical to the ones at Khan al-Hallabat (wide-open fan-shaped, almost circular on the outside and square on the inside). Identified with *Monte Iovis* by Bauzou (NDOr. XXXII, 33: *ala I Damascena*), or with *Cunna* (where *ala I Francorum* was stationed) by Poidebard, Kennedy and Riley. (Fig. 166)

LANDER 1980, 1054, fig. 72.3/d; LANDER 1984, 248, fig. 269; BAUZOU 1993, 44; KOWALSKI 1998, 34, fig. 3 F; TORBATOV 2004, 36, fig. 6/a (after Poidebard).

- **Al-Basiri (Avira)**: Rectangular fortification of 49 × 40 m, walls of unfired bricks on a stone foundation, with round (?) corner-towers and traces of buildings set against the defense wall. Recent researches suggest a datation to the Umayyad period. NDOr. XXXII, 24 mentions here *equites sagittarii indigenae*. LANDER 1984, 240; BAUZOU 1993, 42–43 (Umayyad); KOWALSKI 1998, 34, fig. 3E; GENEQUAND 2003, 52–55, fig. 36 (original plan 44.7 × 34.6, and restored on a surface of 50.7 × 30.9 m).
- **Mleke**: square plan, interior dimensions 45 × 45 m, 3.80 m-thick walls, excepting the eastern one (1.80 m-thick, probably rebuilt, with an interval tower), rectangular corner-towers. (Fig. 167)  
LANDER 1984, 201, fig. 201.
- **Khan 'Aneybeh (Onevatha)**: Almost square plan (39 × 40 m), rectangular corner-towers and another one set in the middle of the south-eastern side. The site was not researched, but it is known through topographical surveys made by Poidebard, Musil and Kennedy/Riley. NDOr. XXXII, 41 places here *cohors V pacata Alamannorum*. (Fig. 168)  
LANDER 1984, 201, fig. 202; BAUZOU 1993, 40–41; KOWALSKI 1998, 34, fig. 3 C; TORBATOV 2004, 36, fig. 6/b (after Poidebard).
- **Khan at-Trab (Valle Diocletiana)**: fortification of 43 × 43 m, 3 m-thick wall made of unfired bricks on a stone foundation, 9.1 m square corner-towers entirely protruding, a single gate and interior divided into several compartments. It was not researched and has an uncertain datation. NDOr. XXXII, 43 mentions here *cohors II Aegyptiorum*. (Fig. 169)  
LANDER 1984, 188–190, fig. 181 (after Poidebard); BAUZOU 1993, 37–38; GREGORY 1996, fig. 14.f, right (after Poidebard); KOWALSKI 1998, 34, fig. 3 D (after Musil).
- **Khan Abu-Shamat (Thama)**: 50 m square fort, with rectangular corner-towers and interior divided into several compartments. It was not researched and has an uncertain datation. NDOr. XXXII, 44 places here *cohors I Orientalis*. (Fig. 170)  
BAUZOU 1993, 36–37; KOWALSKI 1998, 33, fig. 3.A (after Musil).
- **Qasr el-Hallabat**: East of the *via nova*, on a road connecting it to Qasr al-Azraq (towards the Arabian Desert). *Quadriburgium* of approx. 35 × 35 m on the inside, with square corner-towers. On the inside were identified several construction phases: an Early Roman structure in the NW corner, fortification (4<sup>th</sup> c.), restorations and internal changes up to the Umayyad period. An inscription dated to 212/213 was traditionally put in connection with the construction of this *quadriburgium* (CIL III, 14419<sup>2</sup>: *novum castellum*, Parker, Euzennat and Gregory), but also see the doubts expressed by Lander, Reddé, Bisheh and Arce. Another inscription discovered here is dated to 519 AD. Another remarkable element is the important number of inscriptions (146) with the edict of Anastasius (considered to have been brought there from other sites as building material). More recent researches undertaken by J. Arce established four main phases in the evolution of this site: I – Early Roman 17.5 m square minor fort (*burgus*-type), dated to the 2<sup>nd</sup> c., extended in the 2<sup>nd</sup>–3<sup>rd</sup> c.; II – construction of the *quadriburgium* at the beginning of the 4<sup>th</sup> c. AD; III – 6<sup>th</sup> c. AD – rebuilt *quadriburgium*, after a major disaster (probably the earthquake from 551 AD); IV – Umayyad phase (Fig. 171)  
LANDER 1980, 1054, fig. 72.3a; LANDER 1984, 138–139, figs. 129, 130; BISHEH 1986; PARKER 1995, 252, fig. 2 (plan after Butler); REDDÉ 1995, 94, fig. 1; GREGORY 1996, 188; ARCE 2006.
- **Khirbet ez-Zona**: East of the *via nova*, a *quadriburgium* of approx. 40 × 35 m, 2.50 m thick wall, with (monolith?) square corner-towers and rectangular in the middle of each side. See the analogies at *Dionysias* in Egypt. (Fig. 172)  
LANDER 1984, 201, fig. 199; PARKER 1995, 253, fig. 6 (dimensions 49 × 44 m, but not in concordance with the scale of the published plan).
- **Muhattet el-Hajj (“upper fort”)**: On the *via nova*, a *quadriburgim* of 51.70 × 49.50 m (area 0.26 ha), 2.20 m thick wall, with slightly protruding square corner-towers. The gate is flanked by two towers,

with other three towers set each in the middle of the sides, all in the same “half-projected” manner. It has analogies in the Western series of fortifications at Irghenhausen-Schaan-Wilten, but see also the larger fortification at Da’janiya. There is no other information apart from the initial plan published by Brünnow and Domaszewski. (Fig. 173)

LANDER 1980, 1051, fig. 72.1 c; LANDER 1984, 145, fig. 136; PARKER 1995, 253, fig. 5.

– **Qasr ath-Thuraiya**: East of the *via nova*, between the fortlets at Khirbet es-Zona and Qasr Bshir. *Quadriburgium* of 35 × 35 m (on the outside), with rectangular corner-towers seemingly added at a later stage (initially there was a towerless defense wall with a gate on the eastern side). (Fig. 174)

LANDER 1984, 145, 201, fig. 198; PARKER 1995, 252, fig. 3.

– **Khirbet El-Khaldi (Praesidium)**: On the *via nova*, south of Al-Quwayra. Rectangular plan, c. 54 × 33 m, with rectangular corner-towers, barracks set against the wall. Identified with *Praesidium* in the NDO. XXXIV, 6, headquarters of a *cohors IV Phrygum*. (Fig. 175)

GRAF 1995, 260, fig. 15; PARKER 1995, 252; FIEMA 1995, 263, 265 (Nabataean origin).

– **Yotvata (Ad Dianam?)**: On the road through the Wadi Araba Valley, 45 km N of Aqaba (*Aila*). Square *quadriburgium* of 39.40 × 39.70 m on the outside, with rectangular corner towers (6.40 × 7.70). The defense wall is 2.45 m thick, it has barracks set against it and there is also possibly a chapel (with the apse integrated in the defense wall). *Extra-muros* baths complex. Dated by a Tetrarchic inscription (293–305): *alam c(um) osti<o> constituerunt per providentia(m) Prisci pr(a)esidis...* (text established in ROLL 1989). But there are also coins from Constantine II and Constans, discovered in the “lower level or beneath” (KINDLER 1989, 260). Destroyed by the earthquake of 363 and never rebuilt. (Fig. 176)

MESHEL 1989; ROLL 1989; KINDLER 1989; AVNER et al. 2004; AVNER et al. 2005; DAVIES, MAGNESS 2005, 2006, 2007. Remarks about the inscriptions at ECK 1992; GICHON 1999a, 241 (“The Diocletian inscription speaks of a ‘wing built’, not of the construction of the fortress. This tallies with the date of the earliest of the five coins found, which belongs to Probus”).

– **Bir Madhkur**: On the Petra – Gaza road, *quadriburgium* of approx. 30 × 30 m, with corner-towers of uncertain shape. Dated by 4<sup>th</sup> c. coins and late Roman pottery discovered in field surveys.

SMITH 2005.

– **Mezad Tamar (Tamara?)**: *Quadriburgium*-type fortification of 38 × 38 m, with square corner-towers (approx. 6 × 6 m), considered to have been added at a moment following the construction of the defense wall. It has a 1.10 m-thick defense wall and barracks set along it, a single gate on the north side, an inner court and a cistern. According to Gichon its construction should be dated to the second half of the 3<sup>rd</sup> c. (Aurelian), and the towers were added during the reign of Diocletian. More recently, the same author proposes a Nabatean origin, followed by the Roman conquest, then an abandon in the 2<sup>nd</sup> c. and reutilisation during the reign of Aurelianus, with a final abandon in the 6<sup>th</sup> c. (Fig. 177)

GICHON 1976; GICHON 1977; GICHON 1999a, 243. GREGORY 1996, 194 (“remains uncertain”, “confusing results”).

– **En Boqq**: Roadside fortification, located at an oasis on the Dead Sea’s SW shore, 13 km S of Masada. It was systematically excavated between 1968–1976. *Quadriburgium*-type, of 20 × 20 m, with square corner-towers (6 × 6 m) and a single gate in the middle of the southern side. Inside there are two-series barracks set along the defense wall. Five dwelling levels have been identified through excavations. The datation proposed by Gichon (first half of the 4<sup>th</sup> c.) was recently corrected by R. P. Harper (end of the 5<sup>th</sup> c., through an analogy with Upper Zohar) and especially by J. Magness (6<sup>th</sup> c., based on the archaeological material, among which coins from the reigns of Iustinus I and Iustinianus, discovered “below Phase I”). Gichon suggests it should be identified with the *Tetrapyrgia* mentioned by the monk Anastasius in the first half of the 7<sup>th</sup> c. (Fig. 178)

GICHON 1971; GICHON 1974 a; GICHON 1993. Cf. HARPER 1995, 115; PARKER 1997, 580–583 (uses the datation proposed by Gichon); MAGNESS 1999, 191–195.

– **“Upper Zohar”**: Another roadside fortification, excavated systematically between 1985–1986 by R. P. Harper. Located in the same area as the one above, about 11 km NW of En Boqeq. It belongs to the *quadriburgium* type (approx. 17 × 17 m), has protruding rectangular corner-towers (approx. 4.00 × 4.50 m), a single entrance on the W side, barracks set along the defense wall (but abandoned at a later stage), a central building divided into three rooms, and a cistern. According to Harper it was in use between the end of the 5<sup>th</sup> c. – the beginning of the 7<sup>th</sup> c. According to J. Magness a more plausible datation would be the middle of the 6<sup>th</sup> c. S. T. Parker has a radically different position, dating the fortification to the 4<sup>th</sup> c. and saying that the layers dated before the 6<sup>th</sup> c. were scoured. (Fig. 179)

HARPER 1995; PARKER 1997, 584–586; MAGNESS 1999, 195–199.

– **Mount Gerizim**: church dedicated to Mary *Theotokos*, built in 484 AD in a fortified enclosure (c. 70 × 55 m) with square corner- and interval towers, as well as with a gate-tower. (Fig. 180)

Cf. DINČEV 2006, 50, fig. 101 (after Y. Magen).

– **El-Habbat**: *Quadriburgium*-type fortification that protects a basilica (located in the centre of a 0.06 ha fortified area). It has square corner-towers with side-entrances, and along the defense wall there were rows of pillars that probably supported a portico. A simple entrance was located closer to one of the towers. According to Butler (*apud* Pringle) it should be dated to the reign of Justinian, based on an inscription dated to 556–557. (Fig. 181)

PRINGLE 1981 (2001), 144, n. 35; GREGORY 1996, 194, fig. 16.c (after Butler, compared to Eski Hisar).

– **El-Anderin (Androna)-“South Church”**: *Mansio* on the Palmyra – Chalcis road, located in the vicinity of a larger civilian settlement (*kome* in an inscription on an early Byzantine mosaic). It is a *quadriburgium*-type fortification with square corner- and intermediary towers, very slightly protruding. In the middle of the eastern and western sides there are two tower-gates. Inside there is a three-naved basilica and a cistern, dated to 528 AD. (Fig. 182)

BUTLER 1969, 207, fig. 209; LIEBESCHUETZ 1977, 493, n. 60 (it dates the basilica to 528 AD and supposes a prior military function for the complex); MUNDELL-MANGO 2002.

– **Umm El-Hallahil**: A fortification named “St. Theodoros’ Inn” (Ξενέων τοῦ ἁγίου Θεοδῶρου) in a 6<sup>th</sup> c. inscription (IGLSyr IV, 1750). Located NE of Hama, it has a plan specific to Early Byzantine fortifications, with rectangular, slightly protruding corner-towers, a tower-gate and a defense wall with pillars on its inner face. (Fig. 183)

LIEBESCHUETZ 1977, 492–493, n. 60; MUNDELL-MANGO 2000, 207, fig. 34 (after J. Lassus).

– **Suhumi (Sebastopolis)**: *Quadriburgium*-type fortification, of which only the northern side is preserved (approx. 50 m), with rectangular, slightly protruding corner-towers. It is dated with certainty to the 6<sup>th</sup> c. based on stratigraphical arguments (one of the towers was built partially on the western side of the Roman fort that was still in use in the 4<sup>th</sup> c.). (Fig. 192)

LEKVINADZE 1969, 82–84, fig. 6; LEKVINADZE 1973, 173, fig. 6/a; VORONOV 1980, 8 f., fig. 2.

– **Tamaris Tziche (Losorion)**: Identified with the *Losorion* mentioned by Procopius (*De aedif.* III, 7) and the *Lisiris* in Iust. Nov. XXVIII. Fortification very similar to the one mentioned above, but somewhat better preserved. Dimensions: approx. 20 × 20 m. It has two slightly protruding pseudo-corner-towers. In another corner there is a rectangular, more protruding monolith-tower. Dated to the 6<sup>th</sup> – 7<sup>th</sup> c. (Fig. 193)

LEKVINADZE 1973, 170 f., fig. 2.

– **Mamaj-Kala (Mochora?)**: Minor fortification located north of Pitiunt (*Pityus*), known from a topographical plan made in 1889 by V. Sizov. Only two sides (N and E) are preserved with two round and two rectangular corner-towers. According to Sizov the fortification had a triangular plan, but

Lekvinadze proposes a rectangular plan (*quadriburgium*-type). Uncertain date. Another theory identifies it with *Mochora* mentioned by NDOr. XXXVIII. (**Fig. 194**)

LEKVINADZE 1969, 88–89, fig. 10.

### Small *castella*

– **Khan al-Manqoura (Valle Alba)**: Square fortification (c. 90 × 90 m) with circular corner-towers (or rather wide-open fan-shaped), rectangular on the inside, U-shaped towers in the middle of two sides of the defense wall and others that flank what seem to be two gates. Uncertain datation, but possible diocletianic. NDOr. XXXII, 42 mentions here *cohors I Iulia Lectorum*. (**Fig. 187**)

LANDER 1984, 226 f., fig. 237; BAUZOU 1993, 38–40; REDDÉ 1995, 100, fig. 16 (after Poidebard); KOWALSKI 1998, 34, fig. 3B.

– **Ad-Diyateh**: Located in the southern extremity of the Syrian territory; fortification located inside the perimeter of a civilian settlement (*vicus*) of 10 ha. Dimensions: 71.70 × 51.70 m; it was built in connection to an ancient square tower (10.50 × 10.50 m), dated to the pre-Roman or early Roman period. It has corner-towers, as well as square intermediary gate towers, slightly protruding. The datation of the fortification is debated: the Severian age (Lander and Reddé), the Tetrarchic period or the middle of the 4<sup>th</sup> c. (Villeneuve) or the 6<sup>th</sup> – 7<sup>th</sup> c. (Gregory). (**Fig. 188**)

LANDER 1984, 145, fig. 137; GREGORY 1996, 179; VILLENEUVE 1986; VILLENEUVE, SADLER 2001.

– **El-Anderin (Androna)-“Kastron”**: located in the eastern territory of Apamea, in the middle of the late antique village of *Androna*, rectangular fortification (c. 80 × 80 m, 6000 m<sup>2</sup> area), hexagonal corner-towers, other two rectangular towers in the middle of two sides, portico on all sides of the interior, small church in the central area. According to the inscription from the western gate (IGLSyr IV, 1682) the *kastron* was built in 558/559 AD under the patronage of a certain Thomas (civil initiative). (**Fig. 190**)

DECKER 2006, 510 f., fig. 6; GENEQUAND 2006, 21, 24, fig. 7/2; STRUBE 2006–2007.

– **Stabl al-Antar**: at 10 km distance from Androna, square plan (c. 75 × 75 m), slightly protruding rectangular or square corner-towers and another one in the middle of one side, gate flanked by rectangular towers. Rich decoration inside (mosaics), signs of agricultural activities as well. Dated by an inscription from 577/578 AD found *in situ*. (**Fig. 191**)

DECKER 2006, 512 f., fig. 7; GENEQUAND 2006, 21, fig. 6/2.

– **Deir el-Kahf**: Rectangular fortification of approx. 61 × 61 m (0.37 ha) with square towers (on three levels), three of them slightly protruding and the fourth entirely restored between 367–375, intermediary towers in the middle of the N and W sides, a single, simple gate on the E side. Barracks were set along the sides (on two levels), around a large court where later a basilica was built. Dated by an inscription found *in situ* to 306 (CIL III, 14380). The original plan was drawn by Butler in 1909, and there are also aerial photographs (Poidebard, Kennedy/Riley). It has clear analogies with Qasr Bshir and Qasr al-Azraq. (**Fig. 185**)

LANDER 1980, 1051, fig. 72.2a; LANDER 1984, 185, fig. 174; PARKER 1995, 253, fig. 4; REDDÉ 1995, 101, fig. 18 (after Kennedy/Riley); GREGORY 1996, 193, fig. 14.a (after Butler and Poidebard).

– **Qasr al-Azraq**: Oasis in the Arabian Desert. Here was discovered a *castellum* of approx. 79 × 72 m (0.57 ha), with slightly protruding rectangular corner- and intermediary towers built on three levels. Two-level barracks were set against the defense wall. It underwent major changes during the Arab period. A partial inscription, dated by some to the Tetrarchic period (Parker) refers to construction activities undertaken by six legions, four of which were brought from the Lower Danube area. More recently, Christol and Lenoir date the inscription to the reign of Aurelian and the fortification to the reign of Constantine. (**Fig. 186**)

PARKER 1995, 254–255, fig. 8 (two inscriptions from the 4<sup>th</sup> c. and pottery); REDDÉ 1995, 94, fig. 2 (notices the indiscriminate use of the Umayyad plan visible today, drawn by Butler, for analogies with other fortifications); PARKER 1999, 231–232 (considers the term *praetensione colligata* in the inscription as referring to a system of military outposts); CHRISTOL, LENOIR 2001, 163–178. For comments on the inscription see also M. P. Speidel, *Historia* 36, 1987, 213–221.

– **Qasr el-Ba’iq**: On the *via nova*, south of Bostra. Square plan (approx. 41 × 41 m = 0.17 ha), with narrow gates on three of the sides and three stories high internal corner-towers. Two-stories buildings inside, a basilica and two small courts. Dated with precision to 411 by an inscription found *in situ*. Good analogy for the so-called “barracks” at Umm el-Jimal (dated to 412), located nearby.

PARKER 1995, 255–256, fig. 12.

– **Umm el-Jimal – “Barracks”**: East of the *via nova*, on the road to Deir el-Kahf. Located inside the civilian settlement. Rectangular fortification of 55 × 33.75 m (approx. 0.19 ha), with a chapel set against the eastern wall’s exterior. One entrance, located on the eastern side. Inside there are two towers (one in the SE corner, six stories high, and one in the middle of the western side, 3 stories high) and buildings set along the defense wall. A large court inside the compound. Dated to 412 by an inscription (*kastellos*); it has analogies at Qasr el-Ba’iq. According to B. de Vries, it replaces the ancient Tetrarchic *castellum* and has a larger civilian component (5<sup>th</sup>–6<sup>th</sup> c.).

DE VRIES 1981; DE VRIES 1983; DE VRIES 1998. Cf. PARKER 1995, 256, fig. 13.

– **Khirbet es-Samra**: On the *via nova*, identified with *Hatita* from Tabula Peutingeriana, 37 km SW of Bostra. It is located inside a civilian settlement. It is an almost trapezium-shaped fortification, with sides of 65 × 65 × 67 × 70 m, enclosing a surface of approx. 0.39 ha. The defense wall is 1.10 m thick, it has protruding rectangular corner-towers, two towers flanking the 3.50 m-wide gate and one rectangular tower in the middle of each of the three other sides. Dated to the Tetrarchic period based on the archaeological discoveries. NDOr. XXXVII, 31 mentions here *cohors I miliaria Thracum*. (**Fig. 189**)

HUMBERT, DESREUMAUX 1990, 257–258; PARKER 1995, 253; GREGORY 1996, fig. 9/c; PARKER 1999, 232; GENEQUAND 2006, 16, fig. 6/1.

– **Qasr Bshir (*castra praetorii Mobeni*)**: East of the *via nova*, around 15 km NE of the fort at El-Lejjun. Fortification dated by a Tetrarchic inscription (CIL III, 14149, dated 293–305 or, according to other authors, 306). Almost square plan (approx. 56 × 56 m) covering a surface of 0.31 ha. It has a 1.50 m-thick defense wall, preserved on a height of approx 6.50 m. It has large (approx. 12 × 12 m), three-stories high square corner-towers, slightly protruding and divided into compartments. The gate is flanked by two smaller rectangular towers, and there is also a *poterna*. Barracks were set along the defense wall, the ground floor used as stables (capacity is estimated to 69 horses) and the upper floor as living quarters for the soldiers. There is also a building interpreted as a command centre. Archaeological excavations confirm its construction at the beginning of the 4<sup>th</sup> c. and its abandon during the 5<sup>th</sup> c. (**Fig. 184**)

CLARK 1987, 457–495. Cf. LANDER 1980, 1058, fig. 72.2c (dates the inscription to 306 AD); LANDER 1984, 185, fig. 173; PARKER 1986, 644–645, fig. 10; PARKER 1995, 252, fig. 1; REDDÉ 1995, 101, fig. 17 (date: 306); GREGORY 1996, 193, fig. 14.b (“is not typical”, dated to approx. 300 AD).

– **Avdat (*Oboda*)**: On the Petra – Gaza road, fortification of 65 × 40 m, located on the city’s citadel, with rectangular corner- and intermediary towers. There is practically no building inside, except for a cistern and a small chapel on the northern side. It is traditionally dated to the 5<sup>th</sup>–6<sup>th</sup> c., but more recent research proposes a Tetrarchic datation (A. Negev).

GREGORY 1996, 180, 194, fig. 9.b (“usually dated 5<sup>th</sup> or 6<sup>th</sup> c.”); GICHON 1999a, 242; PARKER 1999, 234; LEWIN 2007, 471, n. 24.

– **Nessana**: At the Sinai border, a late Roman fortification on the city’s citadel. It has a prolonged rectangular shape (c. 35 × 85 m), with rectangular corner- and intermediary towers and barracks set along the defense wall. The datation is debated: beginning of the 4<sup>th</sup> c. (A. Negev), beginning of the

5<sup>th</sup> c. (H. D. Colt), 5<sup>th</sup> c. or later (A. Lewin). Surely in use during the Byzantine period, when the Nessana papyri (beginning of the 6<sup>th</sup> c.) mention the presence of a military unit.

GREGORY 1996, 180, fig. 9.d; GICHON 1999a, 244; PARKER 1999, 234–235; LEWIN 2007, 470, n. 22 (“fifth century or later”).

– **Qasr-Qarun (*Dionysias*)**: Rectangular fortification of 83 × 70 m, with square monolith corner-towers and another in the middle of the W side, besides four small U-shaped monolith towers on the other three sides. Inside the compound there were barracks set against the defense wall and *principia*. It is dated to Diocletian’s reign, but with no certain proof. NDOr. XXVIII, 34 mentions here *ala V Praelectorum*. (**Fig. 195**)

CARRIÉ 1974 (proposes a Palmyrene origin); LANDER 1984, 190, 201, fig. 185; REDDÉ 1995, 117, fig. 40; BIDWELL 1998, 60, fig. 4; HODGSON 1999, 548.

– **Tell El-Herr (*Magdolum*)**: In the Sinai peninsula, small fort of approx. 90 × 90 m, with square monolith towers (corner-, intermediary, as well as gate towers), barracks set against the defense wall, but also on the inside. Built during the Tetrarchy and used up to the 6<sup>th</sup> c. (**Fig. 196**)

VALBELLE, CARREZ-MARATRAY 2000. Cf. REDDÉ 2004, 162, fig. 9.

– **Mons Porphyrites**: Roadside fortification in the eastern Egyptian desert of 85 × 55 m, with semicircular bastion-towers. Dated probably to the Late Roman period, although one cannot exclude Early Roman origins for the compound.

REDDÉ, GOLVIN 1987, 32, fig. 28.

– **Mons Claudianus**: Initially an early Roman fortification with rounded corners (approx. 75 × 52 m), reconstructed during the Late Roman Period at a larger scale (almost 75 × 75 m) and with the addition of square and U-shaped monolith towers. Even if there is proof of military presence, the civilian character of the dwelling is much more pregnant at this site.

REDDÉ, GOLVIN 1987, 41–42, fig. 35. REDDÉ 1995, 97, fig. 10.

– **Abu Sha’ar (*Myos Hormos*?)**: Rectangular fortification located on the Red Sea shore (77.5 × 64 m), with square corner-towers and U-shaped towers in the middle of the sides, as well as barracks located inside the compound. Recently dated to the 5<sup>th</sup> – 7<sup>th</sup> c. (**Fig. 197**)

REDDÉ, GOLVIN 1987, 36, fig. 30 (plan from the 19<sup>th</sup> c., with rounded towers); SIDEBOTHAM 1991, 494–496.

– **Ed Deir**: Rectangular fortification, c. 74 × 75 m, with circular corner-towers, semicircular interval towers, located on a oasis west of the Nile. (**Fig. 198**)

REDDÉ 2007, 421, fig. 6, 7.

### 3.4. Africa

As far as fortifications in the African provinces are concerned, the best known period is the one ranging between the 6<sup>th</sup> and 7<sup>th</sup> c., as Dennis Pringle’s work<sup>123</sup> is a precious instrument for the knowledge of military architecture during the reign of Justinian and his successors. Even if there is not enough archaeological data, most of the *quadriburgium*-type fortifications, as well as those of irregular plan, are without doubt creations of the reign of Emperor Justinian. This assumption is mainly based on this period’s specific architecture, which is very well illustrated by the fortification at Timgad, the only one that was systematically excavated. We must also mention the fact that many minor fortifications are built within the perimeter of ancient Roman towns and reuse some buildings that belonged to the latter. As a regional characteristic,

<sup>123</sup> PRINGLE 1981 (2001).

we can notice the high frequency of the *quadriburgium*-type in Numidia and Byzacium, the preference for the irregular plan in Carthago Proconsularis (probably adapted to the terrain) and for *centenaria* in Tripolitania.

The theory of M. Euzennat, who dated some fortifications in Mauretania Tingitana to the Severan period, remains hard to prove without archaeological excavations to support it<sup>124</sup>. The same thing applies to a series of fortifications in Numidia (M'doukal, Bourada, Doucen and Loth Bordj), who are dated only based on epigraphic sources.

### ***Burgi/Centenaria***

– **Ksar Tarcine (*Centenarium Tibubuci*)**: Structure made of a central building (tower?) of approx. 5 × 6 m and a quadrangular precinct (approx. 15 × 15 m, covering a surface 0.02 ha). Dated by a Tetrarchic inscription, 297–303 AD (CIL VIII, 22763 = ILS, 9352): *Centenarium Tibubuci quod Valerius Vibianus v(ir) p(erfectissimus) initiari Aurelius Quintianus v(ir) p(erfectissimus) praeses provinciae Tripolitaniae perfeci curavit.* (Fig. 199)

LANDER 1984, 188, fig. 176.

– **Henchir El-Gueciret**: Quadrangular courtyard (30 × 30 m), with pillars and barracks set along the defense wall. An inscription dates it to the end of the 3<sup>rd</sup> c. (*turris* built by M. Manilius Ingenuus and his family). (Fig. 200)

PRINGLE 1981 (2001), 142, fig. 47a.

– **Sbeitla (*Sufetula*)**: Two *burgus*-type fortifications, both surrounding older farms (“gsour”): Sufetula-South (20 × 24 m, 2 m-thick defense wall, surrounding a 10 × 12 m “gsour”) and Sufetula-North (22 × 22 m, surrounding a 13.5 × 13.5 m “gsour”). Dated to the 6<sup>th</sup> c. AD. (Figs. 201, 202)

PRINGLE 1981 (2001), 142, fig. 48.

### ***Quadriburgia***

– **Mselletin**: small *quadriburgium* (22 × 22 m), 1.5 m-thick wall, rectangular corner- and intermediary towers, barracks built up against the walls. Dated in the 4<sup>th</sup> c. by Goodchild, but with no arguments. Much more possible is a 6<sup>th</sup> c. date, see the close analogies with the palaestinian forts at En Boqeq and Upper Zohar (Fig. 203)

GOODCHILD 1950, 33–34, fig. 4.

– **Ksar Sidi el-Hadj (*Aquae Herculis*)**: rectangular structure, 52 × 52 m, with 1.1 m-thick walls, constructed of unfired bricks on a stone foundation; projecting rectangular corner- and intermediary towers, barracks built along the walls. Very close analogy with *centenarium Aqua Viva*, and therefore a 4<sup>th</sup> c. date is probable (Tetrarchic after Lander). (Fig. 204)

LANDER 1984, 190, 208, fig. 182.

– **Zraïa (*Zarai*)**: *Quadriburgium* (41.50 × 41.50 m on the inside, covering a surface of 0.17 ha) located at a crossroads near the border between Numidia and Mauretania Sitifensis. It has square corner-towers (9 × 9 m) with side entrances, a 2.10 m-thick defense wall and a 3.70 m-thick gate. Dated by Pringle to the reign of Justinian, based on analogies with *Diana Veteranorum*. But we cannot exclude an earlier datation (4<sup>th</sup> c., maybe the Tetrarchic period indicated by an inscription from 305: CIL VIII, Suppl., 22490 = ILS, 8933). (Fig. 205)

PRINGLE 1981 (2001), 277–278, fig. 43.

<sup>124</sup> Aïn Schkour and Sidi Moussa bou Fri, in the territory of *Volubilis*, rectangular fortifications, both with an area of c. 0.78 ha, with rectangular, half-protruding corner- and intermediary towers: EUZENNAT 1986, 373; EUZENNAT 1989, 271–272, fig. 200/1, 2. Cf. REDDÉ 1995, 101, n. 56 (“le plan est une reconstitution et ne présente aucune certitude”); VILLAVARDE VEGA 2004, 302, n. 25 (“cronologia indefinida”).

– **Ain Zana (*Diana Veteranorum*):** *Quadriburgium* (49.50 × 57.50 m on the inside, covering a surface of 0.29 ha) built on the ruins of the former Roman colony, east of the forum. It has a 1.60–1.70 m-thick defense wall (the thickness of the towers' walls reaches 2.10–2.30 m), rectangular corner-towers with a side, hallway-type entrance and two gates. According to Pringle, it should be dated to the reign of Justinian based on the construction characteristics. (**Fig. 206**)

PRINGLE 1981 (2001), 256–258, fig. 38.

– **Loth Bordj (*Burgus Speculatorius*):** *Quadriburgium*-type fortification of approx. 40 × 40 m, with square corner-towers, a 2 m-thick defense wall which was dismantled. Euzennat proposes a datation to the Severan period based on an inscription from the reign of Caracalla (215) that mentions a *burgus speculatorius Antoninianus*, built by the *legio VIII Augusta* stationed at Lambaesis. According to Pringle, the inscription refers to a structure that preceded the *quadriburgium*, and that latter was built in the 4<sup>th</sup> or 6<sup>th</sup> c. Pringle makes an interesting remark (p. 280–281), that “The fort encloses a smaller enceinte, measuring about 12 × 15 m and with walls about 1.0 m thick, whose sides are not quite parallel to those of the fort”. This could be in fact the *burgus speculatorius*, enclosed at a later stage (4<sup>th</sup> or 6<sup>th</sup> c.) by the *quadriburgium*. The situation is similar to the succession of a 4<sup>th</sup> c. *burgus* by a 6<sup>th</sup> c. *quadriburgium* in the Iron Gates area.

PRINGLE 1981 (2001), 78–79, 280–281; EUZENNAT 1989, 274, fig. 200/3.

– **Chigarnia (*Uppenna*):** *Quadriburgium*-type fortification (20 × 41.50 m, covering a surface of 0.08 ha) located on the road along the seashore between Hadrumetum and Carthago. It has a 1.95 m-thick walls, square corner-towers (5,60 × 5,60 m) with 1.40–1.75 m-thick walls and diagonal entrance. It has a single gate near one of the towers, 2.80 m wide and flanked on the inside by two small pillars. Dated with certainty to the 6<sup>th</sup> c., after Pringle the post-Justinianic period. (**Fig. 207**)

PRINGLE 1981 (2001), 276–277, fig. 13.

– **Ksar Graouch:** *Quadriburgium*-type fortification (55.50 × 37.70 m, covering a surface of 0.21 ha) located half-way on the road between *Capsa Iustiniana* and the seaside towns *Iunci Sofiana* and *Lariscus*. It has a 1.75 m-thick defense wall, rectangular defense towers (9.60 × 8.15 m) with side entrances, plus an intermediary tower in the middle of the southern side. Its construction technique – walls made of unfired bricks (some of which bear the sign of the cross) set on a stone base – make it a unique example of this type in Africa. Several Christian artefacts discovered there (columns, capitals, frscoes) suggest the existence of a fortified religious centre there (see Cintas 1954). D. Pringle remarks the analogies with the Balkan fortification at Pirdop and dates the African one to the 6<sup>th</sup> c. (**Fig. 208**)

CINTAS 1954; PRINGLE 1981(2001), 260–263, fig. 23.

– **Ksar Sbahi (*Gadiaufala*):** *Quadriburgium*-type fortification (41.80 × 38.80 m on the inside, covering an area of 0.16 ha) located at a major crossroads; it has a 2.60 m thick defense wall, rectangular corner-towers (with side entrances) and another intermediary one of the same type. Dated to the reign of Justinian (539–544). (**Fig. 209**)

PRINGLE 1981 (2001), 198, figs. 5, 23.

– **Sguidan (*Anastasiana*):** Fortification of 53 × 45 m on the inside (covering a surface of 0.24 ha), with a 1.40 m-thick defense wall, rectangular corner- and intermediary towers. The corner-towers have diagonal entrances, with a 0.95 m-wide anteroom. The intermediary towers have a simple entrance (in reality they are not as they appear in Ch. Diehl's plan published by Pringle). The tower in the middle of the western side is also the one that gives access to the fortification from the outside. Dated by an inscription (“almost *in situ*”, above the entrance) to the reign of Tiberius II Constantine (578–582), as the compound bears the name of Empress Anastasia. (**Fig. 210**)

PRINGLE 1981 (2001), 181–182, fig. 19.

– **Bordj Ibrahim (*Agbia*)**: Irregular-plan fortification (36.10 × 30.60 m on the inside, covering a surface of 0.10 ha), located 5 km from Thugga. It has rectangular corner-towers and a simple gate (*poterna*?). It has features similar to the fortification at Ksar Lemsa, which also suggests a possible datation to the reign of Mauricius. (Fig. 211)

PRINGLE 1981 (2001), 253–255, figs. 5, 16.

– **Ksar Lemsa (*Limisa*)**: One of the best preserved fortifications (31.15 × 28.85 m, covering a surface of 0.09 ha) in Africa. It belongs to the *quadriburgium* type, has a 2.20–2.25 m-thick defense wall, except for the SE side (1.30 m-thick), that is actually built on the wall of a former, reused cistern. It has rectangular corner-towers, different in size and aspect, with different types of entrances (normal, lateral and Z-shaped). Dated by an inscription from the reign of Mauricius (post 585), but which refers to the construction of a tower (*turris*). We cannot exclude an earlier datation (Justinian), even though Pringle prefers the traditional date. (Fig. 212)

PRINGLE 1981 (2001), 212–214, figs. 4, 7, 16.

– **Ain Tebournok (*Tubernuc*)**: Slightly irregular trapezium-shaped fortification (42 × 30 × 40 × 34 m, covering a surface of 0.12 ha) built over the ruins of the Roman town. The thickness of the defense wall varies between 2 and 3 m. It has rectangular corner-towers with diagonal entrances. It also has a simple gate and a *poterna*. It defends a water source located in the area of the ancient forum. Inside are visible buildings belonging to the forum (*cellae* of the Capitoline temple, triumphal arch etc). Dated by an inscription to the reign of Tiberius II Constantine (578–582). (Fig. 213)

PRINGLE 1981 (2001), 249–250, fig. 17.

– **M'daourouch (*Madauros*)**: Fortification built in the central area of the Roman town, whose initial plan (38.40 × 63.30 m on the inside, covering a surface of 0.24 ha) was abandoned in favour of a smaller fortification (approx. 0.17 ha) that used the hemicycle of the former theatre as a foundation for its northern side. At the latter's western corner the initial plan is visible, with a rectangular corner-tower from which the sides of the defense wall start, one of them (thicker) reinforced with pillars. The final fortification has two rectangular corner-towers with side entrances, and a tower-gate. According to Pringle, the initial plan could be dated to the first commission of Solomon (534–536), which was interrupted by revolts in 536–537. An inscription discovered *in situ* dates the final construction to 539–544. (Fig. 214)

PRINGLE 1981 (2001), 214–217, figs. 11, 12.

– **Gastal**: *Quadriburgium*-type fortification (43 × 49.50 m on the inside) located 22 km NNE of Theveste, near a Roman bridge. It has a 2.25–2.40 m-thick defense wall, circular corner-towers (8 m in diameter and with walls 2 m-thick) and a rectangular intermediary tower. There are no clear elements for establishing a chronology, but it was probably built during the reign of Justinian. (Fig. 215)

PRINGLE 1981 (2001), 258–259, fig. 38.

– **Bordj Younga (*Iunci Sofiana*)**: Fortification (40 × 47 m, covering a surface of 0.19 ha) located on the road along the seashore, in the perimeter of the former Roman town *Macomades* (*Iunci* starting with the 5<sup>th</sup> c., reconstructed under Justin II and Sophia in 574–578, which explains the new name of *Iunci Sophiana*). Trapezium-shaped, it has circular corner-towers, three of which stand on a polygonal base. In the middle of the sides there are three rectangular towers and one pentagonal (?). We must notice that it was built over the ruins of a Roman cistern. It was massively restored during the Arab period. Even though Pringle contests the fortification's Byzantine origin, most researchers see an initial phase during the 6<sup>th</sup> c. (Saumagne, Poinssot and Troussset). (Fig. 216)

PRINGLE 1981 (2001), 202–203, pls. LXXXI a – LXXXII b; TROUSSET 1991, 350–352, fig. 66.6.

– **Baghai (*Bagai*)**: Against the NW side of the town's defense wall are set two smaller fortifications. The first one (26 × 26 m on the inside, covering a surface of 0.07 ha) has a 1.15 m-thick defense wall and

two small square towers at the corners located towards the town's interior, and on the side of the larger, older defense wall it is defended by the latter's rectangular towers. The second fortification (70 × 63 m on the inside; surface of 0.44 ha) encloses the first, has a 1.40 m-thick defense wall and rectangular corner-towers (3.50 × 4.00 m) and intermediary towers in the middle of the three sides inside the town. Both minor fortifications seem to have been built at the same time with the town's defense wall, dated by an inscription to the reign of Justinian (539–544). At a later period, outside these fortification appears a *proteichisma*.

PRINGLE 1981 (2001), 183–185, fig. 21.

### Small castella

– **M'doukal (*Centenarium Aqua Viva*)**: Quadrangular fortification of 86.80 × 85.90 m on the inside (an area of 0.74 ha), with 1.0 m-thick walls, made of unfired bricks on a stone foundation; half-protruding square corner-towers (6 × 6 m), other rectangular towers in the middle of the sides and two others flanking the gate. The datation is ensured by a Tetrarchic inscription from 303 (AÉ 1942–1943, 81): *Imp(eratoribus) dd(ominis) nn(ostris) Diocletiano et Maximiano aeternis Aug(ustis) et / Constantio et Maximiano fortissimis Caesaribus principib(us) / iuventutis centenarium quod Aqua Viva appellatur ex praecepto / Val(eri) Alexandri v(iri) p(erfectissimi) agent(is) vic(es) praef(ectorum) praet(orio) et Val(eri) Flori v(iri) p(erfectissimi) p(raesidis) p(rovinciae) N(umidiae) a solo fabricatum curante Val(erio) Ingenuo praep(osito) limit(is) dedicatum / dd(ominis) nn(ostris) Diocletiano VIII et Maximiano VII Aug(ustis) cons(ulibus)*. (Fig. 217)

LESCHI 1941; LESCHI 1943. Cf. LANDER 1984, 188, 208, fig. 177; EUZENNAT 1989, 270, fig. 200/5; REDDÉ 1995, 100–101, fig. 19.

– **Bourada**: Rectangular fortification of approx. 80 × 77 m, with rectangular corner- and intermediary towers, a gate flanked by two elongated rectangular towers, divided into compartments (analogy at Gornea, see Gazetteer, No. 5). Dated by J. Guey to the reign of Constantine (324–330) based on a fragmentary inscription (AE 1940, 125) that mentions a *Victor Triumphator semper Aug(ustus)*, as well as on coins. (Fig. 218)

GUEY 1939, 192 f. Cf. LANDER 1984, 193, 208, fig. 189; EUZENNAT 1989, fig. 200/6; REDDÉ 1995, 101 (who contests the date proposed by Guey).

– **Doucen**: Quadrangular fortification of approx. 60 × 60 m, with square corner-towers and a gate flanked by rectangular towers. M. Euzennat puts forward the year 242 as a datation, based on several inscriptions (CIL VIII 8779 = 17988, 17989), whose place of discovery is uncertain though. EUZENNAT 1989, fig. 200/4 (after the Baradez aerial photograph).

– **Seba Mgata**: slightly rhomboidal fort (c. 60 × 84 m), with the same characteristics as the fortifications *Aqua Viva* and *Aquae Herculis*, built probably in the Tetrarchic period. (Fig. 219)

LANDER 1984, 208, fig. 212.

– **Timgad (*Thamugadi*)**: Rectangular fortification (111.25 × 67.55 m; a surface of 0.75 ha) built over the ruins of the Roman colony, 600 m away from the forum and enclosing a former *piscina*. It has rectangular corner-towers (average dimensions of 7 × 6 m, diagonal entrance like a hallway, with a 0.95 m-wide anteroom which was later narrowed to 0.65 m) and three others in the middle of the sides (with simple entrances) plus one tower-gate in the middle of the N side. Inside there were barracks set along the defense wall and also away from it towards the centre, a command building, a cister (the former *piscina*) and a basilica. It was built during the reign of Justinian, as proven by three inscriptions that were placed at the entrances (539–540, *Cibitas Tamogadiensis* – probably referring to the entire town and not only to the military structure). (Fig. 220)

LASSUS 1981; PRINGLE 1981 (2001), 232–236, figs. 2, 5, 6.

– **Tobna (*Tubunae*)**: Fortification (62 × 80.50 m on the inside, covering a surface of 0.50 ha) built on the ruins of the former town and located at an important crossroads. It has a 1.90–2.05 m-thick defense wall, rectangular corner-towers (of approx. 7 × 7 m, with Z-shaped entrances) and other intermediary ones (with a simple entrance), as well as a square tower-gate (8.30 × 8.30 m). Dated with certainty to the 6<sup>th</sup> c., probably to the reign of Justinian. (**Fig. 221**)

PRINGLE 1981 (2001), 274–276, figs. 3, 5, 6, 42.



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## MINOR FORTIFICATIONS IN THE DIOCESES OF THRACE AND DACIA

### 1. GAZETTEER

A gazetteer of minor fortifications identified in the settlements of the dioceses of Dacia and Thrace is absolutely necessary in order to obtain an overall view. It is however an effort often limited by the lack of archaeological data. An important part of these sites remains unknown, apart from several mentions by 18<sup>th</sup> – 19<sup>th</sup> – beginning of the 20<sup>th</sup> c. authors who strove to identify and record ancient settlements in the Balkan Peninsula (Marsigli, Kanitz, the Škorpil brothers, Polonic and Tocilescu), or from certain field surveys in the second half of the 20<sup>th</sup> c. But even in the case of archaeological research, be it systematic or preventive (such as the excavations in the Iron Gates area), the data is in most cases incomplete. There are cases when monuments were dated without a thorough stratigraphic analysis, others when they were dated only based on flimsy analogies with other types of fortification or on the sole interpretation of the archaeological or numismatic material. This has led to several unsupported statements that have been used in a number of other studies on Late Roman – Early Byzantine fortifications, without the necessary critical approach (see below the cases of Gornea, Ravna and Ovidiu).

We have considered necessary to divide the present repertory into three large geographical areas – the Danube *limes*, the West-pontic coastline and the inland part of the provinces – in order to offer a general picture for each, as they all played a well-defined role in the defence system and road network of the provinces under scrutiny.

#### A. THE DANUBE *LIMES* Moesia Prima

##### 1. PANČEVO

North-Danubian bridgehead of *Singidunum*, located at the confluence between the Timiș River and the Danube. Count Marsigli and several maps from the beginning of the 18<sup>th</sup> c. mention a fortification with a typical *quadriburgium* plan and round corner-towers. Today it can no longer be identified on the field, as it has been superposed by the modern city (it is supposed to have been incorporated into an Austrian, Vauban-type fortification).

**Bibliography:** ĐORĐEVIĆ 1996, 126 f.; BENEÀ 1996, 72; BONDOC 2009, 35–36, figs. 1–5.

## 2. RAM (*LEDERATA*)

A *quadriburgium*-type fort (50 × 60 m) has been discovered in the NE part of the Roman *castrum* (200 × 140 m, identified with *Lederata* of the 2<sup>nd</sup> – 4<sup>th</sup> c.). The corner-towers may have been circular and the entrance is on the southern side. No archaeological excavations have been conducted. Taking into account the topographic configuration, this fortification can be dated to the 6<sup>th</sup> c., as it was built over the ruins of the Roman fort abandoned during the 5<sup>th</sup> c.

**Bibliography:** DEROKO 1950, 169–173, fig. 6; DIMITRIJEVIĆ 1982–1983, 55–56, 62, fig. 11; JOVANOVIĆ 1996; BENEÀ 1996, 73–74.

## 3. SAPAJA ISLAND

Sapaja Island, near Stara Palanka, is located between the confluences of the rivers Caraş and Nera with the Danube. This fortification is a North-Danubian bridgehead of the fort in *Lederata* (Ram). Archaeological excavations were conducted here in 1966–1970.

The fortification was identified by D. Dimitrijević with the Late Roman *Lederata* (NDO r. XLI, 8: *castellum Laederata*; XLI, 17: *cuneus equitum sagittariorum, Laedenatae*; XLI, 36: *Praefectus militum Vincentiensium, Laedemata*), the authoress considering that its name had been taken over from the homonymous Early Roman *Lederata*, located on the southern bank of the Danube (and which has been identified with the fort in Ram). Al. Jovanović (1996) supposes that the fortification on Sapaja may have been named *Nova Lederata*.

**Prior elements:** The remnants of a watchtower (in the southern sector of the western side) and those of a *horreum* (outside the fortification), as well as older discoveries and some made during excavations (a gold and silver coin hoard with pieces from Tiberius to Trajan, bricks with the stamps of the *legio VII Claudia*) prove the military presence of the Romans on the island as early as the end of the 1<sup>st</sup> or beginning of the 2<sup>nd</sup> c., when this fort was one of the main crossing points for the Roman armies during the Dacian Wars.

**Architecture:** Almost square fortification (92.5 × 92 × 93 × 92 m on the outside, 88.5 × 88 × 89 × 89 m on the inside), with four corner-towers. The defence wall has a 2.30 m thick foundation and 1.90 m thick elevation. It was built of fashioned stones bound with white mortar containing fine gravel. The corner-towers were square and completely protruding in the first phase (the NE tower is 6.20 × 6.20 m on the outside), and later (6<sup>th</sup> c.) replaced with round ones. Three other rectangular towers appeared on the inner face of the wall (out of which two measure 7.80 × 6.20 m on the outside and 5.30 × 4.80 m on the inside), built approximately in the centre of the E, W and S sides.

**Intra muros buildings:** Along the entire defence wall there are elements from an open portico, made of pillar-buttresses set against the defence wall (built in the *opus listatum* technique) and column bases that supported a wooden roof.

**Stratigraphy** (according to Dimitrijević 1982–1983, who unfortunately did not publish a stratigraphic profile):

- A layer directly above the sandy soil, dated to the 4<sup>th</sup> c. based on abundant archaeological material, including coins. Over 50% of the archaeological material is attributed to the Sarmatians, which implies their presence here as *foederati* or *limitanei* (the author tends to date their presence here as early as Constantine, post-332). This layer was violently destroyed, as is shown by a massive layer of ash and charred remains identified especially

inside the porticoes and near them. The destruction is attributed to the Huns at the middle of the 5<sup>th</sup> c.;

- A layer of barbarian dwellings (Gepids and Sarmatians) in the second half of the 5<sup>th</sup> – beginning of the 6<sup>th</sup> c. – for which see the dwelling discovered in the W portico, as well as the objects attributed to the Eastern Germans;
- A layer corresponding to the 6<sup>th</sup> c. reconstruction (Justinian), discovered in all the sectors that were excavated. At an architectural level the Byzantine reconstruction was identified only in the NE tower;
- Above an alluvial layer formed over approx. five centuries there surges the mediaeval layer (14<sup>th</sup> – 15<sup>th</sup> c.), which corresponds to the restoration of the defence wall on the same trajectory and the building of new complexes inside the compound.

**Archaeological material:** Pottery, lamps, iron weapons and tools, jewels, spindle-whorls, etc. One notices that, among other stamped bricks, there is one bearing the mark LEG VII CL S(ub)C(ura) AVR(elii), which attests a new *praepositus* of the *Legio VII Claudia*.

**Coins:** Claudius II – 1, Aurelian – 9, Probus – 6, Maximian – 3, Galerius – 1, Constantine I – 6, Crispus – 1, Constantine II – 1, Constans – 5, Constantius II – 8, Constantius Gallus – 2, Julian – 2, Valentinian I – 2, Valens – 1, Gratian – 1. For the 6<sup>th</sup> c. there are coins from Anastasius – 1, Justin I – 2, Justinian – 2, Justin II – 2, Mauricius – 1.

**Chronology:** The construction moment has been dated to the reign of Constantine (D. Dimitrijević bases this theory on the internal architecture with pillars in *opus listatum* and porticoes, but also on analogies with other fortifications such as Sucidava, Drobeta, Hinova or Gamzigrad). Then there was the destruction caused by the Huns, followed by the Gepidic dwelling and the reconstruction during the reign of Justinian. The last coin is from Mauricius and suggests that the fortification was destroyed by the Avars. A 7<sup>th</sup> c. grave has been discovered inside the abandoned compound.

**Bibliography:** DIMITRIJEVIĆ 1982–1983, 29–62 (previous bibliography included). Cf. VASIĆ, KONDIĆ 1986, 551, 553, fig. 20; VASIĆ 1994–1995, 44, fig. 1; JOVANOVIĆ 1996, 69–72; BENEÀ 1996, 73; BONDOC 2009, 40–42, 182.

#### 4. VELIKO GRADIŠTE (*PINCUM*)

*Quadrburgium*-type fortification registered by Marsigli (45.5 × 45.5 m). Brick stamps: PINCO, CAST.PINC (dated to the middle of the 4<sup>th</sup> c.), as well as the stamp of the *Legio VII Claudia* (mentioning the name of two *praepositi*, Tara and Victorinus). Byzantine coin hoard (according to V. Popović, *Numizmatičar* 7, 1984, 75–77, the last coin is dated to 580/581).

NDOr. XLI, 12 and 18 mentions at *Pincum a cuneus equitum Dalmatarum* and a *cuneus equitum Constantianorum*.

**Bibliography:** GUDEA 1982, 107, no. 16; BENEÀ 1996, 74; GUDEA 2001, 58–59.

#### 5. GORNEA

*Quadrburgium*-type fortification North of the Danube, bridgehead of the fort in Čezava (*Novae*). Preventive excavations conducted by Nicolae Gudea in 1968–1969.

**Architecture:** Dimensions on the outside: 41.50 × 41.50 m. The defence wall has a 1.80–2.10 m thick foundation and an elevation varying between 1.30 m (E side), 1.50 m (N and W sides) and 1.70 m (S side). The elevation was built in *opus mixtum* (three courses of bricks). The square corner-towers (approx. 9.20 × 9.20 m on the outside) have walls whose thickness has an average of 1.10 m. The entrances to the towers (of different width: 1.60, 1.30, 1.00 m) were built along the N and S sides. The entrances and the towers' internal corners were built of bricks.

The gate is on the S side. It was 5.55 m wide and was flanked by two rectangular towers of approx. 3.50 × 9.15 m (on the outside), with 0.75–0.85 m thick walls. At a later stage the W bastion was modified, its original entrance blocked and its inner space divided into two by a wall. This new space was equipped with a hypocaust heating system.

**Intra muros buildings:** Research has shown that, inside, dwelling was concentrated along the defence wall, on a maximal width of 3.50 m. The walls of the dwellings were made of adobe (0.40 m wide). Out of approx. 1824 m<sup>2</sup>, around 600 were used as dwelling space, which corresponds, according to N. Gudea, to a number of 100–150 soldiers and their families. There was also an intense rate of dwelling in the towers (where a lot of archaeological material has been discovered).

**Stratigraphy** (inside the towers): I – vegetal (0.20–0.30); II – stone debris and plaster rubble (0.40 m); III – stone debris, roof tiles, burn traces (0.30 m); IV – layer containing roof tiles, rare pottery sherds, but less stone (0.40 m); V – layer containing an important quantity of pottery and other objects (0.40 m); VI – the dwelling level proper, reddish, containing a lot of ash, pottery, metal objects and coins (0.30 m); VII – natural earth layer, whose upper part contains coins and metal objects from the layer above.

**Archaeological material** is abundant: pottery (mostly glazed), lamps (mostly glazed), weapons, tools, glass, spindle-whorls and millstones. Stamped bricks: LEG(io) V[II Cl(audia)?]; EQ(uites) SACI(ttarii) S(ub) C(ura) ITALICI P(rae)P(ositi); S(ub) C(ura) BVBALI P(rae)P(ositi) LEG(io) VII CL(audia) MVIT, plus a brick on which there is a cursive inscription.

**Coins:** 107 pieces, many of which were destroyed by secondary burns. The following (79 pieces) have been identified with certainty:

1 <sup>st</sup> – 3 <sup>rd</sup> c.	317– 320	330– 337	<b>337– 341</b>	<b>341– 346</b>	346– 351	351– 361	361– 364	364– 378	378– 383	383– 395	395– 402
3	1	1	4	13	1	12	1	18	2	20	3

**Chronology:** N. Gudea (1977, 68–69) considers that “it was built undoubtedly during the Tetrarchy, more precisely between 294–300” and bases this theory on analogies throughout the Empire, as well as on its construction technique. The author believes that the “lack of coins from the beginning of the century must be interpreted as the result of the coin crisis and must not be connected to a possible construction of the fortification during the third decade of the 4<sup>th</sup> c.” (Gudea 1977, 74). But a more plausible date of construction would be the reign of Constantine, as is strongly suggested by the numismatic material (Benea 1996, 79). The violent end of the complex should be placed somewhere at the end of the 4<sup>th</sup> – beginning of the 5<sup>th</sup> c.

**Bibliography:** GUDEA 1970; GUDEA 1974, 175–176, Abb.2/1; GUDEA 1977; GUDEA 1982, 107–108, no. 21. Cf. LANDER 1984, 206–207; BENEÀ 1996, 76–79; BONDOC 2009, 47–49.

## 6. ZIDINAC

It is located on a plateau near the mouth of the Zidinac stream, between the fort in Čezava-*Novae* (7.5 km to the W) and the fortification in Saldum (2.5 km to the E). Excavated by Petăr Petrović in 1969.

**Architecture:** Square *burgus* (17.50 × 17.50 m). The foundation and elevation are made of stones bound with mortar. The outer face is made of large blocks, the emblecton of small stones. The wall has a 1.50 m thick elevation, and was preserved on a height of up to 1.50 m. In the NE corner of the inner space there is a small watchtower with walls that merge with the defence wall (3.50 × 3.50 m on the inside), with a southern entrance 0.80 m wide. Inside the tower, left of the entrance and set against the southern wall, a kiln (hearth) has been discovered.

The rare remnants found inside seem to support the hypothesis of sporadic dwelling, function of the needs of the moment. P. Petrović put forward the idea that it was used by the troops stationed at Saldum.

**Archaeological material** (very poor): fragmentary pottery, one iron *gladius*, bronze fibula (not illustrated).

**Chronology:** According to the author of the excavation it was built at the end of the 3<sup>rd</sup> – beginning of the 4<sup>th</sup> c. It was destroyed at the end of the 4<sup>th</sup> c., probably during the Hunnic invasion (see a thick layer of burn).

**Bibliography:** KONDIĆ 1974, 45–46; PETROVIĆ P. 1982–1983 a, 127–128; PETROVIĆ M. 1996, 254, fig. 7; BENEÀ 1996, 79; GUDEA 2001, 65–66 (does not take into account the late dating); JEREMIĆ G. 2007, 307, fig. 2/7.

## 7. DOBRA-“SALDUM” (*CANTABAZA*?)

Fortification located near the confluence of the Kožica River and the Danube, in one of the latter's numerous fords (Saldum actually means “ford” in Turkish), between Zidinac (3 km to the W) and Bosman (1.5 km to the E). Identified by some authors with *Cantabaza* mentioned by Procopius (*De aedif.* IV, 6, 5), placed right next to *Novae*. Archaeological excavations were conducted by Petăr Petrović in between 1966–1970.

**Prior elements:** Sporadic traces of prehistoric dwelling (layer F), then two Early Roman levels:

- layer E (= level 5), dated to the second half of the 1<sup>st</sup> c. or to the end of the 1<sup>st</sup> – beginning of the 2<sup>nd</sup> c., in connection either with a small earthen fort with palisades (Petrović 1982–1983 b, who also postulates a reconstruction in stone during the reign of Trajan; Vasić, Kondić 1986, 543–544: “un petit fortin a palissades (...), restes mobiliers pourraient dater le camp a la période flavienne”), or with a civilian settlement (G. Jeremić);
- layer D (= level 4), dated to the 2<sup>nd</sup> – 3<sup>rd</sup> c., to which correspond the walls of a stone fortification partially superposed by the N and E sides of the 6<sup>th</sup> c. *quadriburgium* (Jeremić G. 2003, 39: “in der Anfang des 2. Jh. eine Befestigung unbekannter Grundlage errichtet wurde”). According to P. Petrović (1982–1983 b, 130), it should be dated to the beginning of the 3<sup>rd</sup> c. based on coins from Severus onwards (Aurelian, Probus). Dwelling later interrupted for several decades.

There follows a dwelling level (layer C = level 3) concentrated almost exclusively in the eastern part of the site, which is dated to the second half of the 4<sup>th</sup> c. A rich archaeological

material was discovered on this level (pottery, lamps, agricultural tools, fibulae, glass objects), including 116 bronze coins that cover the period between 351–383, over 80% of them from the time of Valentinian I, Valens and Gratian. Based on these discoveries, P. Petrović considered that the fortification was built during the reign of Valentinian I (and identifies it with *Gratiana* mentioned by the *Notitia Dignitatum*), but later observations dismissed this chronology (Kondić 1984; Vasić 1994–1995; Jeremić G. 2003). According to G. Jeremić, we are faced with “ein bedeutender militärischen Stützpunkt” with dwelling accommodation in wooden barracks. We cannot rule out the possibility that a *burgus*-type fortification also functioned during that period, but it has never discovered, or that the dwelling space was inside the old minor Roman fort.

**Architecture:** The fortification (43.50 × 31.20 m on the inside, covering approx. 0.14 ha) has a 1.90 m thick defence wall (2.20 m at foundation level). The long N and S sides are thickened on the inside (on a length of approx. 23.50 m on the N side and of 21.80 m on the S one) and, at their ends, they have stairs of access to the upper part of the wall, increasing the thickness in the middle sector to 3.20 m (in elevation). The elevation of the thickened sectors is made by pillars set against the defence wall. There is a simple entrance on the W side, near the NW tower.

Three of the corner-towers are round, with entrances “en entonnoir” (semicircular entryways), while the fourth one (NE) is rectangular and rounded on its E side. The SW and SE towers are round only inside (3.70 m in diameter, with walls 1.50 m thick in elevation), while outside their front has a pronounced tendency to bend towards the U-shape. The NW corner-tower is also round on the outside (7.50 m in diameter), but it is different from the others in its monolithic appearance (it is practically a compact mass of masonry), a solution chosen probably because of the unstable ground, very close to the Danube bank.

**Stratigraphy:** two dwelling levels have been discovered:

- Level 2 (layer B) – construction level dated to the 6<sup>th</sup> c. (based on coins from Justinian’s age), continuing under Justin II (according to the coins); it is the level that corresponds to the plinth of the defence wall (this is one of the arguments in favour of dating it to the later period);
- Level 1 (layer A) – sporadic dwelling in the second half of the 6<sup>th</sup> c., or rather towards the end of the same century.

**Archaeological material:** pottery specific for the 6<sup>th</sup> c., especially amphoras, lamps, weapons, tools, glass objects.

**Coins:** five pieces from the reigns of Justinian and Justin II, one piece from Mauricius (592/593), the latter representing a useful element in dating the destruction of the fortification.

**Chronology:** Built in the 6<sup>th</sup> c. (Justinian) and destroyed twice, the second time probably by the Avar attack in 595/596 AD.

**Bibliography:** PETROVIĆ P. 1982–1983 b (previous bibliography included); JEREMIĆ G. 2003. Cf. KONDIĆ 1984, 142–143, fig. 7; VASIĆ, KONDIĆ 1986, 555, 557, fig. 25 a; VASIĆ 1994–1995, 45 f., fig. 3; BENEÀ 1996, 79–80; MILOŠEVIĆ G. 1996, 249, 252, fig. 4; GUDEA 2001, 66.

## 8. BOSMAN

The fortification is located in one of the most difficult and dangerous spots for navigation, on a wide strip between the Danube and a steep mountain mass along the river bank. The river has very strong currents in this area. The fort is located between Saldum (1.5 km to the W) and

Gospodijn Vir (2.5 km to the SE). Its identification with *Ad Scrofulas* mentioned by the Tabula Peutingeriana between Novae and Taliata (Mirković 1968, 107) has not been archaeologically confirmed yet, as no pre-6<sup>th</sup> c. material has been discovered. Archaeological excavations were conducted by Vladimir Kondić in 1968–1969.

**Architecture:** Triangular fortification adapted to the terrain measuring 45.5 × 45.5 × 46 m (towers included) on the outside and approx. 37 × 37 × 36 m (covering a surface of approx. 0.06 ha) on the inside. One of the sides (the E one) was adapted to the configuration of the river bank, which resulted in a slightly concave shape. It seems that when the river level grew, it reached this side and the solution they found – the concave shape – left enough manoeuvring space and prevented the flooding of the fort; it also diminished the eroding power of water. The thickness of the defence wall varies between 2.20–2.50 m. The foundation is made of stone bound with mortar, the elevation is built in *opus mixtum* (with 5 courses of bricks). The E side is thickened in the middle sector up to 3.50 m and has two stairs of access to the upper part at its N and S ends. At the centre of the thickened sector there is an entrance – a central pillar-type gate (the pillar is 1.50 m wide), with a maximal width of 4.60 m. The corner-towers are round, with corridor-entrances “en entonnoir” (external diameter of approx. 9 m, and an internal one of approx. 4.50 m).

**Intra muros buildings:** Some light buildings (“bâtiments en treillis et liant”), brick pavements, a circular fountain with stone and brick walls right in the middle of the fort.

**Stratigraphy:** Two dwelling levels in the 6<sup>th</sup> c., which could not be clearly differentiated from a chronological point of view. The initial level is very thin and suggests that it lasted for a short time.

**Archaeological material:** not illustrated.

**Coins:** A hoard was discovered in 1968 during the excavation of the E side, in a destruction level containing a great quantity of ash. It contains 17 bronze coins (Justin II – 7, Tiberius II – 1, Mauricius – 9), the last coin dated to 595/596, an important clue in dating the destruction of the fortification (and also, it seems, in dating the *limes* downfall in the Iron Gates area). Published by V. Kondić, *Numizmatičar* 7, 1984, 51–54 (= *Trésors*, no. 260), cf. V. Popović, *MÉFRA* 87, 1975, 1, 484.

**Chronology:** The fortification was built during the reign of Justinian and was destroyed by the Avar invasion of 595/596.

**Bibliography:** KONDIĆ 1982–1983 a, 137–145 (previous bibliography included). Cf. KONDIĆ 1974, 46; KONDIĆ 1984, 141–142, fig. 6; VASIĆ, KONDIĆ 1986, 555, 557, fig. 26; VASIĆ 1994–1995, 47 f., fig. 7; BENEÀ 1996, 80 (who classifies it, without any grounds, among 4<sup>th</sup> c. fortifications); MILOŠEVIĆ G. 1996, 251, fig. 9.

## 9. PESAČA

The fortification is located at the mouth of the Pesača River, in a valley surrounded by high cliffs, accessible only through the Danube valley, between Manastir (2 km to the NW) and Velike Livadice (a 1<sup>st</sup> c. AD *castellum*, 4 km to the SE). It was excavated in 1968–1969.

**Architecture:** Square watchtower (7.50 × 7.50 m on the outside, 5 × 5 m on the inside), with walls made of stone bound with mortar, 1.20 m thick (1.50 m at foundation level). The 1.00 m thick entrance is located in the middle of the southern side and leads to the ancient road. It was later included in a lower quality defence wall (dry set masonry with no foundation) of approx. 36 × 34.50 m, with 0.80–0.90 m thick walls.

**Archaeological material:** pottery, fibulae (not illustrated).

**Coins:** They range from the age of Severus Alexander (one piece) to that of Valens (one piece). Most coins are from the last quarter of the 3<sup>rd</sup> and first quarter of the 4<sup>th</sup> c. (out of the 12 coins, two are from Aurelian, three from Diocletian and another two from Crispus, 321–324).

**Chronology:** D. Minić believes that based on the archaeological material and the coins the construction moment should be dated to the middle of the 3<sup>rd</sup> c. and the defence wall (that served both an agricultural and an economic purpose) towards the end of the 3<sup>rd</sup> – beginning of the 4<sup>th</sup> c. The entire ensemble was used throughout the 4<sup>th</sup> c. Possible analogies are constructions from the Severan period in the East (Qasr el-Uweinid – tower of 8.5 × 8.5 m included in a minor *castellum*, according to Lander 1984, 136–138, fig. 127, 128). But one cannot exclude its being dated to a later period, maybe to the span after the troops left Dacia (Aurelian, Probus or Diocletian). The defence wall may just as well have been built at the same time with the tower, if we take into account that it is a precinct rather than a defence wall proper.

**Bibliography:** MINIĆ 1982–1983, 171–175 (previous bibliography included). Cf. KONDIĆ 1974, 47; PETROVIĆ M. 1996, 253, fig.2; BENEÀ 1996, 80; GUDEA 2001, 67; JEREMIĆ G. 2007, 308, fig. 2/8.

## 10. LEPENSKI VIR

Fortification located on a low terrace of the Danube, 1 km NW of Boljetin. It was completely excavated in 1967.

**Architecture:** Almost square watchtower (4.90 × 5.10 m on the outside, 2.90 × 3.10 m on the inside), made of stone bound with mortar, 1.00 m thick at foundation level and 0.70 m thick elevation. The 1.50 m thick entrance is on the E side. The interior was partially paved with stone slabs, and there are clues that suggest a wooden roof.

**Archaeological material:** pottery (mostly 3<sup>rd</sup> c., according to the author of the excavation) and bronze objects, including a fibula (4<sup>th</sup> c.).

**Chronology:** Based on the archaeological material, D. Srejšović dates it to the 3<sup>rd</sup> – 4<sup>th</sup> c. It is most probably an Early Roman tower reused during the 4<sup>th</sup> c. For this see analogies at Migdal Tsafit in Palestine – tower built in the 2<sup>nd</sup> c. and reused until the 4<sup>th</sup> c. (Gichon 1974 c).

**Bibliography:** SREJŠOVIĆ 1982–1983, 197–199; PETROVIĆ M. 1996, 253, fig. 3; BENEÀ 1996, 80; JEREMIĆ G. 2007, 308, fig. 2/1.

## 11. BOLJETIN (*SMORNA*)

Fortification built over the ruins of an Early Roman minor *castellum*, at the confluence of the Boljetin River (also known as the Lepena) with the Danube. It has an excellent view of the opposite bank, which makes it a good spot for crossing over; 1 km to the NW is the tower in Lepenski Vir, and 3.5 km to the SE is the fortification in Ravna. It has been identified with *Smornes* mentioned by Procopius (*De aedif.* IV, 6, 5). The site was excavated in 1966–1970 by a team led by Ljubiša Zotović.

The author of the more detailed report published in 1983 proposed a date that was later corrected. Anyway, there seems to be no concordance between the construction levels of the fort

and the archaeological layers that have been identified (unfortunately no archaeological profile has ever been published).

**Construction stages:**

- Phase I a: small earthen *castellum* (approx. 50 × 50 m), built in the first half of the 1<sup>st</sup> c. (most probably under Tiberius) and maybe destroyed around 69/70 (Vasić, Kondić 1986, 542).
- Phase I b: Reconstruction in stone, on the same trajectory, in the second half of the 1<sup>st</sup> c. A.D. It has round corners, gates on all four sides and buildings inside (command post, barracks and *horreum*). It was possibly destroyed in 85–86 (Vasić, Kondić 1986, 544, 548), but it was certainly in use during the reign of Trajan. It seems that during the reign of Hadrian the fort was abandoned and was reoccupied after the troops left Dacia under Aurelian.
- Phase II: Restoration including the construction of internal rectangular towers at the corners, with the mention that two of these corners are no longer rounded, but right-angled. Inside the excavations uncovered remnants from several wooden buildings with foundations made of stone bound with earth and hearths inside them. According to Zotović, this phase should be dated to the reign of Aurelian, but Vasić and Kondić put forward the reign of Trajan as construction date for the internal towers and a restoration in the second half of the 3<sup>rd</sup> c.
- Phase III: A new restoration including the construction of four corner-towers (two horse shoe- and two fan-shaped) and two other rectangular towers on the NW and SE sides. Also, the defence wall was then rebuilt in *opus mixtum*.

**Architecture (phase III):** It is precisely this third phase that interests us, because it is dated to the Late Roman and Early Byzantine period. The dimensions of the complex in this phase are of approx. 60 × 50 m on the outside (or 57 × 46 m on the inside, that is 0.26 ha). The horse-shoe-shaped towers were built on the edged corners and the fan-shaped ones on the rounded ones. According to the published plan, access to the N and S towers was possible by piercing the corners of the defence wall; we do not know how the access was possible to the other two towers (the architectural details are missing). The two rectangular towers enclose the old gates in the middle of the sides. The gate on the NE side (with access to the Danube) is the only one left, even if slightly modified (it was narrowed). A staircase led to the upper part of the defence wall north of the gate (Zotović 1982–1983, T. II/1, where the two construction phases are visible, the first one probably to be dated to the reign of Constantine, the second one to the reign of Justinian), and the SW side was thickened in its middle sector, probably also for the construction of access stairs.

**Intra muros buildings:** Several modest dwellings, made of stones bound with earth (“deux huttes en pisé recouvertes des tuiles”, according to *Stare kulture...*, 106; “plusieurs constructions faites en torchis et aux sols en mortier”, according to Zotović 1982–1983, 225; also see Vasić 1994–1995, 47–48) and a Christian basilica (with three construction phases: initially mono-nave, in the second phase a narthex and a southern annex were added, and finally several of its entrances were blocked, cf. Vasić 1994–1995, 49).

**Archaeological material:** rich, but unfortunately poorly illustrated (we must mention a storage of iron tools from the second phase).

**Coins:** phase II is dated by coins from the reigns of Septimius Severus, Severus Alexander, Gordianus III, Philip I, Philip II, Trebonianus Gallus, Gallienus, Probus, Diocletian, Maximian, Licinius, Constantine I, Constans, Constantius II, Julian, Jovian, Valentinian I, Valens, Gratian, Valentinian II, Theodosius I, Arcadius, Theodosius II, and phase III by coins from the reigns of

Anastasius, Justin I, Justinian, Justin II and Mauricius, among which a hoard whose *terminus post quem* is established by a coin minted in 577/578 (V. Popović, CRAI, 1978, 71–72).

**Chronology:** The dating of the third phase to the reign of Justinian, proposed by L. Zotović, was rightly corrected by M. Vasić, who puts forward the reign of Constantine. His arguments are given by the shape of the corner-towers and certain stratigraphic observations (in one of the older internal towers – the eastern tower – a pottery kiln was discovered, dated to the age of Constantine according to the material found inside, which means that at that time the internal towers had lost their defensive role to the new, external towers). Anyway, the external towers, as well as the entire defence wall, were reconstructed in the 6<sup>th</sup> c.

The fort was also dwelt in during the early mediaeval period (9<sup>th</sup> – 10<sup>th</sup> c.), while during the 12<sup>th</sup>–15<sup>th</sup> c. part of the *intra muros* area was used as an inhumation necropolis.

**Bibliography:** ZOTOVIĆ 1982–1983 (previous bibliography included); ERCEGOVIĆ-PAVLOVIĆ 1986, 7–44, 95–101 (mediaeval necropolis). Cf. KONDIĆ 1984, 153–155, fig. 11; VASIĆ, KONDIĆ 1986, 542 f., figs. 5, 10, 23; VASIĆ 1994–1995, 45 f., fig. 4; MILOŠEVIĆ G. 1996, 251, fig. 8; BENEÀ 1996, 80–81; GUDEA 2001, 67–69.

## 12. RAVNA (CAMPSA)

Fortification located on the banks of one of the creeks of the Danube, across from Poreč Island, in one of the river's numerous fords. It is located between the fortification in Boljetin (3.5 km NW) and the fort in Donji Milanovac (*Taliata*), about 6 km to the SE. Identified with the *Campses* mentioned in Procopius, *De aedif.* IV, 6, 5 (V. Kondić, *Starinar* 12, 1971, 53 f.). Researched in between 1965–1970 by a team lead by Vladimir Kondić.

**Prior elements:** The first dwelling traces are dated to the end of the 1<sup>st</sup> c. and first decades of the 2<sup>nd</sup> c. (based on the archaeological material and coins from Augustus, Vespasian, Domitian, Trajan and Hadrian) and it is hard to say if they can be connected to an early fortification, as no clear element of military architecture has been discovered. There followed a second dwelling stage, when a multiple-room structure was built, centred around what seems to be a shrine (dedicated to Hercules?), probably dated to the Severan period and which correspond to two dwelling levels dated to the 3<sup>rd</sup> c. The archaeological material is very rich and of very high quality, with coins from Severus Alexander, Gallienus, Aurelian and even a hoard of *denarii* with the last coin from Maximinus Thrax (238). The structure is superposed by the NW and NE sides of the Late Roman fortification.

**Architecture, building stages:** *Quadrivurgium* measuring 42 × 40 m on the outside (it encloses a surface of 36 × 34.5 m, that is 0.12 ha). It is built entirely of stone, without bricks, which is normal if we take into account the existence of stone quarries nearby, which are still used in the modern age.

According to V. Kondić and M. Tomović the architectural evolution of the fortification covered three phases:

- Phase I: the four almost square corner-towers (internal dimensions: 3.80 × 4.00 m for the SE towers, 5.30 × 5.00 m for the SW tower); the thickness of the tower walls varies between 1.10 – 1.25 m; there are two gates in the middle of the NW and SE sides, for which there are no further details.
- Phase II: the walls were partially restored and reinforced, as the SE and NW sides were thickened on the inside by 1 m and external rectangular towers were added to the gates.

- Phase III: the defence wall was completely rebuilt, the NW side even from the foundation level, with its gate blocked by a rectangular tower (2.80 × 2.10 m, with 1.20 m thick walls). The sides which had been thickened in the previous phase were equipped with staircases which provided access to their upper parts. The NE tower was rebuilt on the foundations of the old rectangular tower and was enlarged (it now measured 4.70 × 3.50 m on the inside). The other three corner-towers were entirely rebuilt: the SE tower is U-shaped (or is rather a rectangular tower with a rounded front), 9.70 × 4.70 m on the inside; the NW tower has the same shape but different dimensions (8 × 6 m); the SW tower is also U-shaped, but very short (internal dimensions: 6 × 5.5 m). The walls of the two towers are 1.30 m thick, unlike the rectangular tower that has 1.50 m thick walls on the two external fronts.

**Intra muros buildings:** some of the rooms in the previous complex (more precisely those located inside the fortification) were reused and even completed with new annexes, but only during the 4<sup>th</sup> c. After a destruction dated to 378, but still during phase II, the *intra muros* space was levelled and new dwellings were built out of light material (wood, adobe). Light constructions also appeared in phase III.

**Stratigraphy:** according to V. Kondić the following correspondences are to be made:

- Phase I is dated according to coins from the reigns of Diocletian, Maximian, Maximinus Daza and Constantius II.
- For phase II two distinct levels have been identified, the first one dated according to 4<sup>th</sup> c. pottery and coins (its final moments were around 378, based on coins from Valens and Valentinian I) and the second one dated to the last decades of the 4<sup>th</sup> – first half of the 5<sup>th</sup> c.
- Phase III corresponds to a dwelling level dated according to coins from the reign of Justinian.

It must be mentioned that dwelling inside the compound is also attested for the 9<sup>th</sup>–10<sup>th</sup> c., and in the 14<sup>th</sup> – 15<sup>th</sup> c. a necropolis appeared there (whose graves disturb the 6<sup>th</sup> c. level).

**Archaeological material:** publications mention that it is very rich, but unfortunately do not present it.

**Coins:** besides those mentioned above there are no complete statistics.

**Chronology:** V. Kondić was tempted to date the construction of the *quadriburgium* to the 3<sup>rd</sup> c., mistakenly interpreting the relation between the Roman building and the fortification (he was convinced that the building was an *intra muros* construction raised at the same time as the defence wall). The new archaeological interpretation (Tomović 1996) proved the fortification was raised over the former Roman building and therefore could be dated to the end of the 3<sup>rd</sup> – beginning of the 4<sup>th</sup> c., probably being a Tetrarchic construction. Phase II can be dated roughly to the 4<sup>th</sup> and first half of the 5<sup>th</sup> c., while phase III undoubtedly corresponds to the period when the *limes* was reconstructed during the 6<sup>th</sup> c.

I believe that even this interpretation can be nuanced: apart from the coins that were mentioned as belonging to phase I (for which there is no presentation of the stratigraphic context in which they were discovered) there are no arguments in favour of dating phase I to the Tetrarchy. This chronological moment could actually belong to the phase when the Roman building was extended. For the second phase there are no convincing arguments either, since the thickening of defence walls (as is the case of the NW and SE sides) is specific to the reign of Justinian and should be attributed to phase III. Considering the analogies with the corner-towers of the fortifications at Gornea and Hinova, both built during the reign of Constantine, it is more likely it should be dated to the Constantinian period.

To conclude, a more probable chronological succession could be the following:

- 1 – The Roman complex built in the 3<sup>rd</sup> c. was restored and enlarged towards the end of the 3<sup>rd</sup> – beginning of the 4<sup>th</sup> c. (which corresponds to the so-called first stratigraphic phase, dated according to Tetrarchic coins);
- 2 – During the Constantinian period the *quadriburgium* was built and it functioned as late as the first decades of the 5<sup>th</sup> c.; this period corresponds to the first architectural and second stratigraphic phases;
- 3 – After a period of desertion there followed a massive reconstruction during the reign of Justinian, clearly corresponding to the second and especially third architectural phases, as well as to the third stratigraphic phase.

**Bibliography:** KONDIĆ 1982–1983 b (previous bibliography included); TOMOVIĆ 1996. Cf. ERCEGOVIĆ-PAVLOVIĆ 1982–1983, fig. 1; KONDIĆ 1984, 155–156, fig. 14; VASIĆ, KONDIĆ 1986, 549 f., figs. 14, 24, 32; VASIĆ 1994–1995, 46 f., fig. 5; MILOŠEVIĆ G. 1996, 251–252, fig. 7; BENEÀ 1996, 81; GUDEA 2001, 69 (seen as a “kleines Steinkastell” in the 2<sup>nd</sup> – 3<sup>rd</sup> c.).

## Dacia Ripensis

### 13. POREČKA REKA

Strategic place on the border between the provinces of Moesia Prima and Dacia Ripensis, at the mouth of Porečka River. It is located at the crossroads: the Danube road to *Dierna* continues northwards, the road to *Egeta* continues eastwards (through the Miroč Massif) and a road that leads inland to the rich mining area of Dacia Ripensis continues southwards. Two km to the W there lies the fort in Donji Milanovac (*Taliata*). Archaeological soundings were performed in 1962, then preventive excavations in between 1967–1970.

**Prior elements:** cremation necropolis dated to the 1<sup>st</sup> – 2<sup>nd</sup> c. A.D.

**Architecture:** *quadriburgium*-type fortification set against a blocking wall (*clausura*) defending the access on the River Porečka Valley towards the inland area of the province. The *clausura* has a length of over 450 m, a thickness that varies between 1.50–2.00 m, it has a circular tower at its left end (near the Danube), a rectangular one at its right end (on the Četaće hill) and a sort of reinforcement tower at the corner where the wall changes its trajectory (from NW-SE towards WSW-ENE).

The fortification is set against the above-mentioned wall, on the right side of the Porečka Valley. The dimensions are approx. 60 × 60 m, based on the length of the E side, the only one that has been entirely preserved; the trajectory of the W side is not clear, as it seems to have been destroyed by floods (even if it **cannot be ruled out the possibility that the fortification had not been completed**, according to Petrović P. 1977, 265; Vasić 2003, 19). It is slightly trapezium-shaped, as the S side of the fortification is not parallel to the N one (= the blocking wall). The defence wall is 2.50 m thick (2.80 m at foundation level). The entrance is on the S side, 4 m wide and flanked by two walls that are perpendicular on the defence wall; to it there corresponds a 2 m wide breach in the blocking wall on the N side. It has rectangular corner-towers; the NE one is set against the blocking wall and encloses a rectangular internal area of about 4 × 2 m, and the SE one is square (internal dimensions of 4 × 4 m and external ones of 7.20 × 7.20 m). The entrances to the towers are parallel to the defence wall and are 0.90 m wide.

The elevation of the tower walls is only 1.50–1.60 m thick and is raised on monolithic foundations (compact masonry platforms).

The *intra muros* space, as far as it has been researched, has not provided any data concerning dwelling structures. Moreover, the archaeological material is almost non-existent.

**Chronology:** a small thermal building built over the E side and which uses the SE corner-tower as a *prae-furnium* provides an excellent *terminus ante quem* in dating the fortification. According to Petrović a coin hoard places the closing of the baths around 378, and the construction moment is accordingly dated to the middle of the 4<sup>th</sup> c.

The baths are contemporary with two other nearby structures (buildings A and B, of 16 × 9 m and 15 × 9 m respectively, probably *horrea*, the first of which is dated by coins from the reigns of Constantius II and Valens) and two structures made of monolithic masonry (5 × 5 m) located at the confluence of the Gradašnica stream and the Porečka Reka and disposed 15 m away from each other. They are considered “watchtowers” by the author of the research, but these rectangular structures could in fact represent the pillars of a bridge that crossed the Gradašnica stream and that was probably part of the ancient road (also see the alignment of the other buildings on an approx. N-S direction, as well as the position of the entrances of the *quadriburgium*, which correspond to the trajectory of the Roman road). Therefore, the construction could be dated to the Tetrarchy or as late as the reign of Constantine and his successors.

**Bibliography:** PETROVIĆ P. 1977; PETROVIĆ P. 1982–1983 c (with previous bibliography). Cf. KONDIĆ 1974, 48; PETROVIĆ P. 1980, 757 f.; VASIĆ, KONDIĆ 1986, 551 (dating to the reign of Constantine); PETROVIĆ, VASIĆ 1996, 21–22 (dating to the reign of Constantine); BENEÀ 1996, 81–82; NAPOLI 1997, 104, 286–290; VASIĆ 2003, 19 and n. 29.

## 14. MALO GOLUBINJE

Fortification located 8 km NE of Porečka Reka, in an area with many Roman and Late Roman-Early Byzantine ruins. Preventive excavations made in between 1967–1969.

### 14 A. Malo Golubinje – *Burgus*

On the Eastern side of the *quadriburgium*-type fortification a rectangular construction has been partially identified (the length of the completely-preserved side is of 19.50 m). It had access stairs in its NW corner. From the little data we have we cannot establish the relation between the *quadriburgium* and the rectangular construction. But it can be noticed a difference in the thickness of the two constructions on the published plan (smaller for the rectangular construction: 1.90–2.00 m). I believe that this is actually a *burgus* dated to the 4<sup>th</sup> c. (very probably the reign of Valentinian I), against which the 6<sup>th</sup> c. fortification was set.

The 4<sup>th</sup> c. archaeological material discovered during excavations, as well as the bricks stamped with the marks DRP DIERNA and DIERNA, known from older discoveries (CIL III, 8277; D. Benea, AMN 13, 1976, 205–210), could be connected to this *burgus*. M. Petrović attributes it to the category of *burgi* with *tetrapylon*, even if excavations did not extend southwards to uncover the supposed pillars.

### 14 B. Malo Golubinje – *Quadriburgium*

**Architecture:** since only the N side of the fortification has been researched, we cannot establish its precise surface. According to the plan published by L. Popović the N side has an

external length of approx. 58 m. According to the same plan, the thickness of the defence walls is of approx. 2.00–2.20 m. There are round corner-towers with a typical corridor-entrance “en entonnoir” (semicircular entryway). The NE tower has an external diameter of 5.40 m, the interior is paved with bricks and very little has been preserved of the elevation. The elevation of the NW tower is much better preserved and it is built in *opus mixtum* with 5 courses of bricks. In the middle of the N side, on a length of approx. 12 m, there is a 1 m thickening where there is a staircase that provided access to the upper part of the wall.

**Intra muros buildings:** we do not know whether the multiple buildings that have been discovered in some of the soundings are to be connected to the fortification or were built earlier. Some of these walls were 1.50–1.90 m thick!

**Stratigraphy:** no data or profiles have been made available.

**Archaeological material:** pottery, fibulae, glass objects (none of the discoveries are illustrated).

**Chronology:** even if the author of the excavation dates the fortification to the 4<sup>th</sup> c., it is clear that the plan corresponds to a typical 6<sup>th</sup> c. fortification, with very good analogies on the *limes* in Dacia Ripensis.

**Bibliography:** POPOVIĆ L. 1982–1983 (with previous bibliography). Cf. KONDIĆ 1974, 48; VASIĆ, KONDIĆ 1986, 555, fig. 25 b; PETROVIĆ M. 1996, 256.

## 15. MALO GOLUBINJE – “Nešin potok”

At the mouth of the Nešin potok stream, approx. 1.5 km downstream from the *quadriburgium*-type fortification in Malo Golubinje, a square watchtower (8.53 × 8.53 m) has been researched. The southern and eastern sides have not been preserved. The walls are made of stone bound with mortar, 1.30 m thick at foundation level and 1.00 m at elevation level. There are no dating elements, but it was most probably built during the 4<sup>th</sup> c.

**Bibliography:** POPOVIĆ L. 1982–1983, 297–299 (not illustrated); PETROVIĆ M. 1996, 254; JEREMIĆ G. 2007, 308, fig. 2/3.

## 16. HAJDUČKA VODENICA (*TRANSLUCUS?*)

Fortified position located in the middle of the Cazanele Mari gorge, near one of the fords on the Danube. On the left bank lies the mouth of the Mraconia River, whose valley penetrates deep into the North-Danube territory. The fortification lies near the Roman road, halfway between the fortifications in Malo Golubinje (13 km to the SW) and Tekija (12 km to the NE).

It has been identified by some authors (Dj. Janković) with the *Ducepratum* mentioned by Procopius (*De aedif.*, IV, 6, 5) and by others (M. Zahariade) with the *Translucus* mentioned in NDOr. XLII, 27 as the fort where the *auxilium Claustrinorum* was stationed. Excavations were conducted here in between 1966–1970.

**Prior elements:** Early Roman material (second half of the 1<sup>st</sup> – beginning of the 2<sup>nd</sup> c.) discovered especially in the E part of the excavated area, where traces of stone buildings (dry set masonry) also surfaced. Three graves whose inventory has been dated to the same period were discovered in the nearby mediaeval necropolis.

## 16 A. Hajdučka Vodenica – *Burgus*

**Architecture:** Approx. square shape (12.50 × 11.80 m on the outside and 9.10 × 8.70 m on the inside) with 1.50 m thick walls built in *opus pseudomixtum*.

**Archaeological material:** pottery, fibula, lamps, bricks stamped with the DRPDIERNA mark.

**Coins:** Constantius II, Jovian, Valens and Valentinian II.

**Extra muros:** nearby, approx. 50 m away, several graves have been researched, which are contemporary to this tower (among which one that had a rich inventory: a “Zwiebelknopf” fibula, a glass cup, Constantius II coins, cf. S. Ercegović-Pavlović, *Starinar* 33–34, 1982–1983, 335; also see E. Čerškov, in *Stare kulture...*, T. LVII).

**Chronology:** the archaeological and numismatic material, as well as the analogies with *burgi* on the Pannonian *limes*, indicates that this structure was built during the second half of the 4<sup>th</sup> c. (Valentinian?). It was abandoned at the end of the 4<sup>th</sup> – beginning of the 5<sup>th</sup> c. and during the 6<sup>th</sup> c. it was surrounded by a *quadriburgium*.

## 16 B. Hajdučka Vodenica – *Quadriburgium*

This structure was built around the old tower.

**Architecture:** quadrangular (43 × 41 m on the inside, covering a surface of approx. 0.17 ha), with the side near the Danube slightly deviated. It was built in *opus mixtum* (with five courses of bricks) and is 2.30 m thick (reaching up to 3.00 m at foundation level). At least on two sides (N and E) the defence wall is thickened up to 3.40 m (according to the plan, the whole length of the walls was thickened, but it is hard to tell apart the foundation from the elevation. It has round corner-towers (3.80 m internal diameter) and a pentagonal tower (perhaps added in a second phase?) in the middle of the E side. It seems that in this second phase three of the corner-towers were also coated with an external girdle that doubled their thickness (from 1.60 to 3.20 m). Buttresses were added on the outer part of the NW and NE towers. Two very strong walls start from the two towers located on the side near the Danube and end right on the river bank with a round, monolith-type tower, which clearly suggests that this was in fact a landing-place. On the N side there is a 1 m wide gate or *poterna* (“surélevé par rapport au sol de l’époque”).

On the inside, along the defence wall traces of buildings made of light material were discovered.

**Stratigraphy:** unfortunately no profile has ever been published and it is only mentioned that two 6<sup>th</sup> c. dwelling levels have been identified (each corresponds to a construction stage):

- the first is dated to the first half of the 6<sup>th</sup> c., its later decades being best illustrated by a hoard of *solidi* discovered in a layer of burnt debris;
- the second is dated to the second half of the 6<sup>th</sup> c., when a major restoration took place, which included the reinforcement of the corner towers and the construction of the pentagonal tower.

**Archaeological material:** abundant, specific to the 6<sup>th</sup> c. (pottery, lamps, fibulae).

**Coins:** on the first level – Anastasius (3), Justin I (8) and Justinian (6), on the second level – Justin II (8), Tiberius II Constantine (1) and Mauricius (3). What stands out, however, is a hoard made of 30 gold coins, a balance and several weights, whose most recent pieces are dated to 542–552 (V. Kondić, in *Caričin Grad I*, Rome-Belgrade, 1984, 179–188; *Trésors...*, no. 234).

**Chronology:** built during the reign of Justinian, with a first phase possibly destroyed in 544 (the Kutrigur invasion of Illyricum) or in between 544–551 (Slavic attacks). A complete

restoration was undertaken under the rule of Justin II (according to the first coin dated to his reign, in 569/570) and the compound continued to function up to the last decade of the 6<sup>th</sup> c. (the last coin from the age of Mauricius is dated to 589/590), when it may have been destroyed by the great Avar attacks in 593/594 or 595/596. The fortification was also intensely inhabited during the mediaeval period.

**Bibliography:** JOVANOVIĆ 1982–1983 (previous bibliography included); ERCEGOVIĆ-PAVLOVIĆ 1986, 45–91, 103–110 (mediaeval settlement and necropolis). Cf. JANKOVIĆ 1981, 32, fig. 4 (not convincingly identified with *Ducepratum!*); KONDIĆ 1984, 138–140, fig. 5; VASIĆ, KONDIĆ 1986, 551, 555, fig. 15; MILOŠEVIĆ G. 1996, 250–251, fig. 6; BENEÀ 1996, 82 (does not distinguish between the initial tower and the 6<sup>th</sup> c. fortification); ZAHARIADE 1996; ZAHARIADE 1999, 12; JEREMIĆ G. 2007, 308, 312, fig. 2/2.

## 17. TEKİJA (*TRANSDIERNA*)

An important element in the structure of the Danube *limes*, closely related to the North-Danube centre at *Dierna*. Roman and Late Roman – Early Byzantine dwelling spaces were developed on both sides of the mouth of the River Tekija. The *quadriburgium*-type fortification is located on the river's right bank and was heavily damaged and even superposed by modern settlements. It was excavated between 1968–1970.

**Prior elements:** a Roman complex, dated to the 1<sup>st</sup> – 2<sup>nd</sup> c. (very probably a bath complex) was superposed by the NW wall of the late fortification. It could be considered part of the civilian settlement that developed near the Early Roman fort, whose traces have been identified (and partially researched) on the left bank of the Tekija River. We must also mention that on the emplacement of the early fort a civilian settlement developed in the second half of the 3<sup>rd</sup> c. and throughout the 4<sup>th</sup> c., when it was contemporary with the late fortification.

**Architecture:** Rhomboidal fortification (32 × 25 m on the outside) covering a surface of approx. 0.07 ha (more exactly 728 m<sup>2</sup>). Excavations have shown that there are three construction phases.

In the first phase the defence wall was 1.80 – 1.90 m thick and was built in *opus mixtum*. The corner-towers differ in shape and size:

- tower A (West) is square (5.90 × 5.80 m on the outside, 3.70 × 3.70 on the inside), with 1.00–1.10 m thick walls;
- tower B (North), the best preserved, is also square (5.90 × 5.90 m on the outside, 4.00 × 3.80 m on the inside), with 1 m thick wall; the 1 m wide, 2.40 m high entrance is the best preserved.
- tower C (East) could be only partially researched; no precise dimensions are known (it was larger than the first two), but the shape was probably rhomboidal.
- tower D (South) was rhomboidal and the largest of the four (9.10 × 8.50 m on the outside and 6.50 × 5.80 m on the inside; the walls were 1.30 m thick).

In the second construction phase we notice the coating (reinforcement) of the defence wall and the towers, which sometimes reach a thickness of up to 3 m. The construction technique is again *opus mixtum*. In this phase the coating of rhomboidal tower D was done immediately after the reinforcement of the defence wall.

According to the authors of the excavation, the third construction phase brought radical changes in the architecture of the towers, which implies a change in their defensive use. Three of

them (B, C and D) were filled with a compact mass of rubble (stone, mortar, broken bricks), and the entrances to all four towers were walled up. During the same phase a gate was built on the NW side (towards the Danube). It was 1.75 m wide on the inside and 1.20 m wide on the outside, and had a sewer outside. The location of the entrance during the first two phases is still unknown.

There is no data concerning *intra muros* buildings because no excavations have been conducted in that respective area.

**Stratigraphy:** has not been clearly established; according to the 1982–1983 report, the end of the first phase was marked by a layer of burn, as well as by the remnants of a roof that collapsed inside the N tower and was later covered by the debris produced during the second phase.

**Archaeological material:** pottery, glass and metal objects plus a series of stamped bricks, some of them discovered *in situ* in the defence wall (DARDIANA, DIANA, DRP DIERNA, DRP).

**Coins:** only three pieces were discovered – Licinius (?), Gratian (367–375) and Anastasius (512–517).

**Chronology:** According to the authors of the monograph published in 2004 the fortification was initially built during the reign of Diocletian, after which a second phase was dated to the reign of Licinius or Constantine (in the 1982–1983 report the end of the first phase is dated to 376–378). The third phase is dated to the reign of Anastasius – Justinian.

This chronology is not based on concrete evidence. The presence of brick stamps specific to the second half of the 4<sup>th</sup> c., some of which were discovered *in situ* in the lower part of the walls, weighs rather in favour of the dating of the construction moment to the reign of Constantius II. Support for the late dating of the *quadriburgium*-type fortification is given by the chronology of the Early Roman fort on the other side of the Tekija River, which could be dated as late as the Diocletian – Constantine period.

The units stationed at *Transdierna* in the 4<sup>th</sup> c. were made of *milites exploratores* (NDO. XLII, 29). I believe that by the toponym *Zernes* (= *Dierna*), mentioned among the fortifications rebuilt by Justinian south of the Danube, Procopius (*De aedif.* IV, 6, 5) referred to the fortification in Tekija, which had a strong connection to the North-Danube nucleus at Orșova.

**Bibliography:** CERMANOVIĆ-KUZMANOVIĆ 1982–1983; CERMANOVIĆ-KUZMANOVIĆ, JOVANOVIĆ 2004 (previous bibliography included). Cf. VASIĆ, KONDIĆ 1986, 551; BENE 1996, 82–83.

## 18. ORȘOVA (*DIERNA*)

Fortification located at the confluence of the Cerna River with the Danube, today completely destroyed by the reservoir of the hydroelectric plant Porțile de Fier I. Archaeological excavations were conducted in between 1967–1971.

**Prior elements:** Research has led to the discovery of Roman buildings, more precisely of a wall parallel to the southern side of the defence wall, which was superposed by the SW and SE towers (Benea 1996, after the journals of V. Wollmann). This complex corresponds to a 3<sup>rd</sup> c. layer.

**Architecture:** *Quadriburgium*-type fortification of approx. × 35 m (or 36 × 36 m according to other sources). The defence wall is 2.10 m thick and was built in *opus mixtum*. The square corner-towers (9 × 9 m, with 1.50 m thick walls) are highly protruding; entrances to the towers were obtained by “cutting” 1 m thick passages right at the corners of the fortification;

the passage was built entirely out of bricks. The gate has not been identified, but is presumed to have been located on the southern side. On the eastern side, a 30 m long extension of the fortification was discovered, which ended with square towers and is presumed to have been the harbour. Unfortunately this extension has never been recorded on any published plan.

There is no data concerning *intra muros* buildings. Near the fortification several dwelling complexes that belonged to the civilian settlement (4<sup>th</sup> c.) have been excavated.

**Stratigraphy:** everything we know on this subject is that the SE and SW towers had two dwelling layers, both bearing the marks of destruction by fire: between –1.60–2.00(2.20) m there is a layer of brown earth, containing a lot of roof tiles and brick fragments, then between –2.20–2.70(3.00) m there is a yellow-brownish layer, containing traces of burnt wood and ash. Underneath these two layers there is the 3<sup>rd</sup> c. Roman layer (that continues down to – 4.10 m in depth).

**Archaeological material:** Pottery, lamps, weapons, stamped bricks (LEG XIII G, LEG XIII R, LEG XIII G P S, DIER TRA, DIERNA and DRP DIERNA, the latter type being preponderant).

**Coins:** out of the rich numismatic material, only the coins discovered in 1967 have been published, the rest remaining unpublished. Leaving aside the material dated to the 1<sup>st</sup> – 3<sup>rd</sup> c. (belonging to previous complexes to a great extent), the chronological order of the Late Roman coins that have been dated with precision (207 pieces) is the following:

294– 313	313– 324	324– 330	<b>330– 337</b>	<b>337– 341</b>	<b>341– 346</b>	346– 351	351– 361	361– 364	364– 378	378– 395	395– 402
17	17	3	<b>24</b>	<b>24</b>	<b>23</b>	3	36	1	44	23	3

To these should be added a gold coin from Theodosius II, discovered in the NW corner of the fortification (Bujor 1974, 61).

**Chronology:** According to N. Gudea and D. Benea it should be dated to the 4<sup>th</sup> c., with two phases (Diocletian, then Constantine); it was destroyed at the end of the 4<sup>th</sup> – beginning of the 5<sup>th</sup> c. and the usual 6<sup>th</sup> c. reconstruction has not been discovered yet. But taking into account the discovery of Constantius II (341–346) coins in “S IX a, *when the wall was uncovered*” and especially a posthumous piece from the age of Constantine (337–340) in “S IX d, –0.80 m, *in the mortar of the defence wall*”, as well as the discovery of stamped bricks typical of the second half of the 4<sup>th</sup> c., I believe that a more plausible construction date should be the time of Constantius II. This date is corroborated by the very close analogies with the corresponding fortification in Tekija. The Tetrarchic coins or those from 313–324 are probably to be connected to previous Roman complexes that were superposed by the fortification.

**Bibliography:** BUJOR 1974; GUDEA 1974, 177, Abb. 2/3; CHIȚESCU, POENARU-BORDEA 1981–1982; GUDEA 1982, 109, no. 33; BENEIA 1996, 83–94, fig. 7/2; BONDOC 2002, 167; BONDOC 2009, 53–56.

## 19. “ADA-KALEH” ISLAND (*DUCEPRATUM?*)

On the island now covered by the Danube a *quadriburgium*-type fortification with round or rhomboidal corner-towers is supposed to have existed (according to the plan drawn by Marsigli and to other maps from the 18<sup>th</sup> – 20<sup>th</sup> c.). Also, it seems that on the island there was at least one watchtower.

A clue for the location of the fortification is offered by a Constantine I coin (dated 306–307) discovered during the excavations in between 1967–1968 in the modern layers. The lack of archaeological remnants from the Roman period can be explained by their destruction during the modern period, especially by the construction of the Austrian Vauban-type fortification in the 18<sup>th</sup> c.

Some authors have proposed that this is the location of *Ducepratum*, a toponym mentioned by Procopius, *De aedif.* IV, 6, 5 (V. Kondić, *Starinar* 43–44, 1992–1993, 49–52; M. Garašanin, *Starinar* 45–46, 1994–1995, 35–39).

**Bibliography:** BONDOC 2002, 168; BONDOC 2005; BONDOC 2009, 57–60.

## 20. SIP (*CAPUT BOVIS?*)

Control point for the traffic on the Sip shipping canal built by Trajan. The fortification is located precisely at the entrance to this canal. Salvage excavations were conducted in between 1964–1965.

Identified with *Caput Bovis* (Procopius, *De aedif.* IV, 6, 6) or, according to Dj. Janković and P. Milošević, with another toponym mentioned by Procopius – *Iouliovallai* (*De aedif.* IV, 4, mentioned as placed inside the city of Aquae). In Dj. Janković's opinion, Sip may have been a fortified refuge. V. Kondić (in *Djerdapske Sveske* 4, 1987, 45–46) mentions a second *castellum* (now destroyed) at the exit from the Sip Canal.

**Architecture:** Almost square *quadriburgium*-type fortification, approx. 30 × 30 m (more precisely 31 × 28.80 × 29.60 × 29.95 m), with highly protruding monolithic rectangular corner-towers. We only know the exact dimensions of one tower (tower A in the NW corner, 4.90 × 3.80 m, but the published plan does not indicate which one it is, as it lacks orientation marks), the others were systematically demolished and are only partially preserved. The thickness of the defence wall varies between 2.30–2.50 m. In the limited excavated area the defence wall seems to have had at least one thickened area, 21.20 m long, on the S side (which therefore reached a thickness of 3.80 m); a second thickening is supposed to have existed on the N side (see the plan, even if the report claims that it was researched and even mentions its length as 19.30 m!) We also know that a gate was discovered near one of the towers (“entre la tour D et le chemin du ronde”), but in the published plan it does not appear.

An important remark is that the walls were built using white mortar containing small pebbles, and at a later stage repairs were undertaken using reddish mortar, containing ground brick fragments (and tower B seems to have been entirely built using reddish mortar). Inside there are burnt remnants of structures made of light materials (wood?) A construction of approx. 50 m<sup>2</sup>, burnt down several times, was discovered near one of the towers. Outside the compound, about 3.50 m away from the E side, a brick kiln was partially excavated (6 × 3.80 m). We have no data on the stratigraphy of the site.

**Archaeological material:** 6<sup>th</sup> c. pottery.

**Coins:** Severus Alexander (1 piece), Justinian (2 pieces).

**Chronology:** apart from a coin dated to the reign of Severus Alexander, the only other dating elements are typical Late Roman materials (6<sup>th</sup> c.), which prompted the author of the research to date the complex to the reign of Justinian.

**Bibliography:** JANKOVIĆ 1981, 56, 105 f., fig. 27, 33, 39–41 (with restitutions proposals); MILOŠEVIĆ P. 1982–1983 (previous bibliography included). Cf. VASIĆ, KONDIĆ 1986, 551, 558; BENEÀ 1996, 94.

## 21. INSULA BANULUI (*TRANSDIANA*)

Outpost of the fort in Karataš (*Diana*), on an islet across from Vârciorova, at a location called Gura Văii. Known from the journals of Marsigli and Kanitz, the fortification was first researched by Al. Bărcăcilă in 1931, then by Mișu Davidescu in 1965. V. Kondić (Starinar 43–44, 1992–1993, 49–52) identifies this site with the toponym *Trasiana* (that is *Transdiana*), mentioned by Procopius (*De aedif.* IV, 4).

**Architecture:** Irregular triangular fortification of approx. 108 × 98 × 98 m (around 0.53 ha). The defence wall follows the steep shape of the terrain, was built in *opus mixtum* and is 1.50–1.60 m thick. On the outside it is reinforced by buttresses in several places. At its corners it has towers with semicircular fronts. It was reused, with certain changes, during the mediaeval period (13<sup>th</sup> – 14<sup>th</sup> c).

The rectangular towers on its W side prompted certain authors (N. Gudea, D. Bondoc) to presume the existence of an initial *quadriburgium*-type fortification that was later included in the triangular fortification. Unfortunately, in the absence of a high-standard archaeological excavation this theory cannot be proven.

**Extra muros structures:** On the outside of the E side there are two parallel defence ditches about 5 m deep. On the S shore of the island two (very well preserved) brick-baking kilns have been researched. Also, a necropolis was excavated by V. Boroneanț (the results remain unpublished).

**The archaeological material** is rather poor, also because of the limited character of the research undertaken: relevant discoveries are 6<sup>th</sup> c. pottery and lamps.

**Coins:** only two 6<sup>th</sup> c. pieces were found, more precisely one from the reign of Tiberius II Constantine (according to Davidescu) and one from that of Mauricius, 582–583 (I. Stângă, *Viața economică la Drobeta în secolele II–VI p. Chr.*, București, 1998, 190).

**Chronology:** According to M. Davidescu, the construction of the fortification can be dated to the end of the 3<sup>rd</sup> – beginning of the 4<sup>th</sup> c. and it was reused during the 6<sup>th</sup> c. The plan, construction characteristics, illustrated material and coins support a later construction date, probably during the reign of Justinian.

**Bibliography:** DAVIDESCU 1977; DAVIDESCU 1980, 206–216; DAVIDESCU 1989, 94–103. GUDEA 1982, 110, no. 39; BENEĂ 1996, 94–95; BONDOC 2002, 168; BONDOC 2009, 60–61, 183–184.

## 22. KLADOVO – “DONJE BUTORKE”

Site located near the Turkish fortress Fetislam, approximately halfway between the forts in Karataš (*Diana*) and Kostol (*Pontes*). Excavations were conducted in 1964 and 1972.

### 22 A. Donje Burtorke – *Burgus*

**Architecture:** *Burgus*-type fortification with *tetrapylon*, 18.5 × 19 × 19.5 × 19 m on the outside. The thickness of the defence wall is 3.30 m (probably at foundation level, but the information is not clear). The tower pillars are L-shaped, have a stone socle, courses of bricks in their elevation and enclose a space of approx. 6 × 6 m. The SE corner evinces the traces of an access staircase.

The remarks of Alexandrina Cermanović-Kuzmanović concerning the *tetrapylon*, which she considers part of the *quadriburgium* (she dates both of them to the Tetrarchic period!) and

connects to the imperial cult (!) are entirely wrong and are the result of a flawed interpretation of the archaeological context due to the lack of stratigraphic criteria in the research of the complex.

**Extra muros structures:** I believe that the ditch identified approx. 8 m away from the SE side of the later *quadriburgium* (Janković 1981, fig. 28) actually belongs to the first fortification. Thus, the fort was surrounded by a defence ditch at a distance of approx. 25 m. The fort in Mihajlovac-“Mora Vagei” has a nearly identical plan: there, the second defence ditch was dug precisely 25 m away from the defence wall (and the first 15 m away. This may also have been the case in Donje Butorke, and such a ditch might have been uncovered if the *intra muros* area of the late fortification had been researched in more detail.

The inhumation necropolis nearby was connected to this *burgus*.

**Archaeological material:** pottery and lamps, including glazed material, “Zwiebelknopf” brooches, bricks stamped DIANA and DARDIANA.

The most important discovery was an honorary foundation inscription dated to 294–300 (it was found among the *spolia* used in building the 6<sup>th</sup> c. fortification): *Imp(eratores) Caes(ares) C. Val(erius) Aur(elius) Diocletian / et M. Aur(elius) Val(erius) Maximianus Pii Felices / Invicti Aug(usti) et Fl. Val(erius) Constantius / et Galerius Val(erius) Maximianus / nobilissimi Caesares Germanici / Maximi Sarmatici Maximi pro / futurum in aeterno Rei publicae / praesidium constituerunt.*

**Coins:** Probus, Galerius.

**Chronology:** Even in the absence of clear archaeological proof, the Tetrarchic dating is almost certain, as indicate the nearly identical analogies in Ljubičevac and Mora Vagei or that in Zeiselmauer. A decisive proof for the Tetrarchic dating could be the above-mentioned foundation inscription (the first of a series of five or six such inscription discovered on the Danube *limes*). Even if the stone may have been brought from elsewhere (the fort in *Diana*-Karataš perhaps, VASIĆ 2003, 18–19) and reused in the 6<sup>th</sup> c. in the construction of the *quadriburgium*-type fortification, we cannot exclude the possibility that the inscription should actually refer to this very *burgus* (a hypothesis postulated by Torbatov 2002, 78–79 and Torbatov 2004 a, 37, 47).

In the 6<sup>th</sup> c. the tower was surrounded by the *quadriburgium*-type fortification and was used as dwelling space.

## 22 B. Donje Butorke – *Quadriburgium*

**Architecture:** It encloses an area of approx. 46 × 45 m (around 0.24 ha). The defence wall is 2.00–2.20 m thick at foundation level and 1.85–2.10 m at elevation level. On the SE and SW sides it was coated on a length of 21 and 23 m respectively. The two wall areas thickened to accommodate access staircases reach 3.40 and 3.70 m respectively. The elevation of these thickened segments is made of pillars, 4 × 1 m at the ends and 1.5 × 1 m in the centre. The entrance to the round corner-towers is the typical corridor “en entonnoir”, with semicircular entryways. The almost identical S and W towers have been researched better (external diameter of 6.30 m or 6.55 m at elevation level, internal diameter of 3.20 m; the wall thickness is of 1.65 m at foundation level and 1.40 m at elevation level). The access was made through the typical 3 m long passage “en entonnoir”, with semicircular entryways; the entrance itself is 1.20 m wide. The interior of the S tower is paved with bricks. The towers towards the Danube are reinforced with 1 × 1.5 m external buttresses (partially uncovered at the E tower). As in the case of the site in Hajdučka Vodenica, there is a fifth tower, in this case in the middle of the E side, rectangular with a round front (5.50 × 3.20 m on the inside, 7.20 × 6.40 m on the outside; the thickness of the wall is 1.60 m at foundation level and 1.25 m at elevation level).

**Archaeological material:** none has been published, apart from a few pottery fragments illustrated by Dj. Janković in 1981.

**Chronology:** Undoubtedly a 6<sup>th</sup> c. construction (Justinian).

**Bibliography:** JANKOVIĆ 1973–1974; CERMANOVIĆ-KUZMANOVIĆ 1977–1978; JANKOVIĆ 1981, 35, fig. 6 and especially 91–99, fig. 28–30. Cf. KONDIĆ 1984, 145–147, fig. 8; VASIĆ, KONDIĆ 1986, 551, 557; TOMOVIĆ 1987, 93, fig. 2; MILOŠEVIĆ G. 1996, 250–251, fig. 5; PETROVIĆ M. 1996, 254, fig. 6; BENEÀ 1996, 96; VASIĆ 2003, 18–19; JEREMIĆ G. 2007, 312, fig. 3/4 (the last two authors date the *burgus* to the reign of Valentinian I and regard the inscription as *spolia*).

### 23. HINOVA

North-Danube fortress located 15 km away from Drobeta, at the foot of a cliff, on the first terrace of the Danube (where the river turns southwards). It has a South-Danube equivalent in the fortification in Rtkovo-“Glamija”. Salvage excavations undertaken in between 1976–1981 (Iron Gates II project). There is a proposal of C.C. Petolescu to identify the site with the toponym *Theodora*, mentioned by Procopius, *De aedif.* IV, 6, 15 (accepted by D. Bondoc).

**Prior elements:** It was built over a cremation necropolis from the end of the Bronze Age and beginning of the Iron Age (the famous gold hoard was discovered here).

**Architecture:** Rectangular *quadriburgium* (45.85 × 39.80 m measured on the N and W sides, the only ones entirely preserved). Identification of the other sides was done using the sand and gravel traces on the trajectory of the former foundations. The surface enclosed is of approx. 0.17 ha. The thickness of the defence wall varies between 1.35–1.50 m. The towers on the N side have been excavated: the NW corner-tower (3.70 × 3.95 m on the inside, with a 1.05 m wide entrance) and the NE corner-tower (3.50 × 3.82 m, with a 1.05 m wide entrance) and a middle tower (3.90 × 3.80 m, with a wider entrance of 1.48 m). The same type of towers – approximately square – is present at the SE and SW corners. The entrance gate is in the middle of the S side, flanked by two rectangular towers (the E one is divided into two compartments). The gate is 3.65 m wide.

The construction technique: river stones, sometimes limestone blocks levelled by courses of bricks. The foundation is several centimetres thicker than the elevation. The mortar contains lime mixed with sand.

**Intra muros buildings:** The soldiers’ barracks are along the defence wall and 3.60–3.80 m away from it. The buildings were delimited by a wall 0.50 m wide at foundation level (and only 0.30–0.35 m at elevation level, where it is made of brick); here and there, at distances between 4.10–4.65 m, there are rectangular brick pillars (the ones at the corners – 1.20 × 1.15 m and the rest – 1.12 × 0.90 m). The holes discovered in the pillars and in the defence wall prove the use of wooden beams in the structure of all the walls, which were then completed with adobe. Hearths were discovered in each of the dwellings (made of entire or fragmentary bricks or of roof tiles turned upside down). According to the number of pillars it was established that there were approximately 16 rooms. Above these structures there may have been wooden attics. The towers were also inhabited and the NE one was probably used by a blacksmith.

The “commander’s house” was located right in front of the middle tower on the N side. It is rectangular (5 × 3.45 m) and the entrance is towards the tower. The wall is 1 m thick, with

a foundation made of stones bound with earth. The construction belongs to the fort's second dwelling phase. A large and gold-plated "Zwiebelknopf" *fibula* was discovered inside.

The inner yard evidenced traces of light constructions, probably used for storage – warehouses, as well as garbage pits.

**Extra muros structures:** On the outside the fort was defended by three ditches to the north (dug 4, 11.5 and 23 m away from the defence wall). These are 4 m wide and up to 2 m deep.

**Stratigraphy:** there are two layers, delimited by the street gravel; both bear burn traces.

**Archaeological material:** pottery (predominantly glazed) and lamps; spindle-whorls, millstones, (rare) glass objects, lead weights, brooches, garments; the *umbo* of a Germanic shield, fragments of a Hunnic cauldron discovered in the burn layer; bricks stamped L(egio) V M(acedonica), DIANA, DARDIANA, DRVBETA. Numerous tools discovered there prove intense agricultural and blacksmith activity. Fishing, cattle raising and hunting are also proven by the analysis of the animal remains.

**Coins:** According to the statistics, out of the 489 coins discovered on the site 362 have been identified, and they are dated as follows (Davidescu, Stângă 1986; Benea 1996):

2 <sup>nd</sup> –	284–	313–	<b>330–</b>	<b>337–</b>	346–	361–	364–	378–	383–	402–
3 <sup>rd</sup> c.	305	330	<b>335</b>	<b>346</b>	361	363	378	383	402	408
4	4	2	<b>26</b>	<b>43</b>	61	9	121	53	24	2

**Chronology:** According to M. Davidescu the complex must have been built during the Tetrarchy, based on a coin from the reign of Maximian (304–305) discovered in the mortar of the walls of the northern barracks. This date coincides with Diocletian's third trip to the Danube *limes* in 303. D. Bondoc also agrees with this theory. I believe that it is this coin that should rather be considered a *terminus post quem* for the construction moment, which may just as well have been during the Constantinian period, as suggests the period of progress after 330 (reflected in the high number of coins from Constantine and Constantius II).

The destruction of the first phase took place in 376–378 (as a result of a violent fire that left a continuous layer of burn). The reconstruction is demonstrated by the second dwelling level, by the closing of the entrances to the barracks that led to the inner yard and by the installation of new hearths. There are coins from the whole span of time until the beginning of the 5<sup>th</sup> c. (the last pieces dated to 402–408). The final destruction is attributed to the Huns during the first quarter of the 5<sup>th</sup> c.

**Bibliography:** DAVIDESCU 1978; DAVIDESCU 1980a; DAVIDESCU 1980b, 186–203; DAVIDESCU, STÂNGĂ 1986; DAVIDESCU 1989; EL SUSI 1993; STÂNGĂ 2003. Cf. PETOLESCU 1997; BONDOC 2009, 68–70.

## 24. RTKOVO-“GLAMIJA” (*MAREBURGU?*)

Site located downstream from the fort in Kostol (*Pontes*), in an area where the Danube turns sharply southwards. Its North-Danube correspondent is the fortification of Hinova. Systematic excavations were conducted in between 1980–1982 (Iron Gates II project). It has been identified by S. A. Ivanov (1983, 33) with the toponym *Mareburgu*, mentioned by Procopius (*De aedif.* IV, 6, 18).

## 24 A. Rtkovo-“Glamija” – *Burgus*

**Architecture:** *Burgus*-type fortification with *tetrapylon*. It has a square plan (18.5 × 18.5 m on the outside, 14.5 × 14.5 m on the inside). The walls are 2.92 m thick at foundation level, above which there is a 2.30/2.40 m wide socle and an elevation of 1.92 m. It was built in *opus mixtum*. The gate has been localised on the W side. In the NE corner there are traces of the access staircase. The four central pillars are rectangular, with one of the corners rounded, and they enclose a space of approx. 6.10 × 6.10 m.

**Stratigraphy:** two dwelling phases have been identified:

- A layer of burn directly on the virgin soil, dated according to coins from the reigns of Valentinian I, Gratian, Theodosius I, Honorius, Arcadius; the other two successive burns are part of the same layer.
- Reconstruction layer and another burn layer, dated by coins from Anastasius and Justin I.

**Archaeological material:** very rich on the first level (“Zwiebelknopf” brooches, lamps, varied pottery, weapons, agricultural and fishing tools, spindle-whorls and women’s garments, glass objects – for the latter category see V. Han, *Djerdapske Sveske* 3, 1986, 92–94), poorer on the second level (pottery, one fibula). The high quantity of iron nails proves the existence of a superstructure made of wood. Also, discoveries indicate a roof made of tiles. Osteological analyses were performed and a series of mammals, fish and birds were identified.

**Chronology:** Based on the archaeological data, the complex must have been built in the second half of the 4<sup>th</sup> c. (most probably during the reign of Valentinian I), then destroyed at the beginning of the 5<sup>th</sup> c. The construction technique, similar to that used in the *burgi* at Ljubičevac, Mihajlovac-“Mora Vagei” and Kladovo-“Donje Butorke”, could indicate an even earlier date, during the Tetrarchy. It was partially reconstructed during the 6<sup>th</sup> c., when it was surrounded by a *quadriburgium*.

## 24 B. Rtkovo-“Glamija” – *Quadriburgium*

**Architecture:** Fortification of 55 × 51 m (surface of 0.28 ha) on the inside. The defence wall, which has only been researched with testboxes in some areas, reaches a thickness of 2.40 m. Its elevation is made of brick. Only three round corner-towers have been excavated: the NW one has an internal diameter of 4.40 m and an external one of 7.00 m; the SW one has an internal diameter of 4.40 m and an external one of 7.50 m; the NE tower has an internal diameter of 2.70 m and an external one of 5.30 m). The entrances to the towers are corridors “en entonnoir”, with a semicircular entryway (see the brick pavement at the entrance of the NW tower).

**Archaeological material:** almost none has been discovered. According to M. Gabricević this suggests that the fortification was never finished.

**Chronology:** It is a typical 6<sup>th</sup> c. fortification, probably left unfinished. The proposed dating at the end of the 6<sup>th</sup> c. (M. Gabricević) is based on no concrete proof. But if we take into account the dwelling registered inside the old *burgus* in the first half of the 6<sup>th</sup> c., we can suppose that it took place when the *quadriburgium* was built. Therefore, I cannot exclude the possibility that the old tower was partially restored and inhabited by the people who tried to build the new fortification, but eventually never finished it.

**Bibliography:** GABRICEVIĆ 1986. Cf. KONDIĆ 1984, 145; VASIĆ, KONDIĆ 1986, 551, 557, fig. 16; TOMOVIĆ 1987, 93, fig. 3; MILOŠEVIĆ G. 1996, 250, 252, fig. 3; PETROVIĆ M. 1996, 254; JEREMIĆ G. 2007, 312, fig. 3/5.

## 25. KORBOVO

Site at a location called “Zbradila”, on a promontory set over the terrace of the Danube, where a rectangular construction (4.20 × 3.20 m, with 0.60–0.70 m wide walls) has been excavated. The pottery and coins (Claudius II, Florian) discovered there suggest a construction date during the second half of the 3<sup>rd</sup> c. It was used throughout the 4<sup>th</sup> c. and probably restored in the 6<sup>th</sup> c. The structure was interpreted by the author of the report as a watchtower, but the poor state of conservation of the walls cannot help us determine the precise use of the building.

**Bibliography:** BABOVIĆ 1990. Cf. JEREMIĆ G. 2007, 312, fig. 2/4.

## 26. MILUTINOVAC (*HARMATA?*)

*Quadriburgium*-type fortification located near a ford on the Danube and near another meander of the river. Archaeological excavations were conducted in 1981–1982. It has been hypothetically identified with the toponym *Harmata*, mentioned by Procopius, *De aedif.* IV, 6, 18 (Ivanov S. 1983, 34).

**Prior elements:** the fortification superposes a Dacian edifice from the 2<sup>nd</sup> c. B.C. – 1<sup>st</sup> c. A.D.

**Architecture:** Its internal dimensions are of 54 × 49 m. The defence wall is 2.20 m thick at foundation level in the northern part and up to 2.60–2.70 m in the southern part, and its elevation is 1.90–1.95 m thick. It was built in *opus mixtum*. On the NW and SE sides it was thickened by 1.30 m on the inside, its total thickness thus reaching 3.20 m (3.50 m thick at foundation level). At both ends there are staircases that lead to the upper level. The corner-towers are round and very little of their elevation has been preserved. The W tower, which is the best preserved, has an internal diameter of 3.60–4.00 m and is 1.55 m thick at foundation level and 1.25 m at elevation level. The diagonal on which the entrance was placed (probably also “en entonnoir” type of corridor) is 3.30 m thick. The inner side of the tower was paved with brick fragments and stones. The N tower, which has been only partially researched, has an internal diameter of 3.70 m. The E tower is slightly bigger, with an internal diameter of 4.05–4.40 m and a 1.30–1.40 m foundation for its walls. The S tower has a monolithic foundation (diameter of 7.40 m), a structure imposed by the proximity of the water; even if its elevation has not been preserved, the entrance is marked by the presence of stairs made of large slabs of limestone (which indicates that the height of the monolithic structure, that is the treading level of the tower, was much higher than the treading level inside the fortification). On the outside of the SE side there is a massive rectangular tower too (6.40 × 4.00 m), which reinforced it against the erosion caused by the Danube. A wall fragment made of bricks, 1.80 m wide, was set against the thickened part of the SE side and is connected to the massive rectangular tower on the outside (probably an access platform).

**Intra muros buildings:** only partially preserved brick pavements have been discovered, probably belonging to buildings made of light materials, as well as a kiln.

**Stratigraphy:** from the published report it is not clear if there are multiple 6<sup>th</sup> c. layers. The profile inside the W tower however shows clearly that there existed a first treading level marked by traces of burn, followed by a levelling leading to the uncovered pavement. Thus, we can presume that there were two 6<sup>th</sup> c. levels.

**Archaeological material:** pottery, iron objects, glass objects, all dated to the 6<sup>th</sup> c.

**Coins:** three 4<sup>th</sup> c. pieces, Justinian (1 piece, 522–527), Justin II (1 piece).

**Chronology:** Another 6<sup>th</sup> c. foundation (Justinian), used until the collapse of the Danube frontier.

**Bibliography:** MILOŠEVIĆ, JEREMIĆ 1986. Cf. KONDIĆ 1984, 137, fig. 4; VASIĆ, KONDIĆ 1986, 555, fig. 28; MILOŠEVIĆ G. 1996, 249, 252, fig. 1; ZAHARIADE 1999, 12.

## 27. LJUBIČEVAC (*STILIBURGU?*)

The site at “Glamija”, 6 km upstream from Brza Palanka. Archaeological excavations were conducted by M. Korać in 1980. It is possible to be identified with the toponym *Stiliburgu* mentioned by Procopius (*De aedif.* IV, 6, 18).

### 27 A. Ljubičevac – *Burgus*

**Architecture:** *Burgus* with *tetrapylon*. Square structure, 19.8 × 19.8 m on the outside (and 13.8 × 13.8 m on the inside). The 3 m-thick walls were built in *opus mixtum*. The pillars of the central tower are L-shaped. In the space between the pillars a round pit has been discovered, 2 m in diameter, which has not been excavated (the author of the research presumes it was a fountain).

Around the *burgus* a *vallum* with ditch has been discovered, but it does not appear on the plan.

**Stratigraphy:** the following dwelling phases have been identified:

I – A layer dated as early as the Tetrarchy (based on coins from the reigns of Probus and Diocletian, 289–290, discovered in the W wall and on the pavement of the tower); it was destroyed during the reign of Constantius II (coins from 341–346 in a burn level);

II – Quick restoration during the reign of Constantius II (the floor) and a new destruction during the reign of Valentinian I (*terminus post quem* provided by coins dated to 367–375);

III – Restoration dated by the author of the research to the reign of Theodosius I and then a third destruction during the reign of Theodosius II (coins 423–425).

IV – A final level that lasted throughout the 6<sup>th</sup> c., now surrounded by a new fortification.

**Archaeological material:** no concrete data has been presented or illustrated.

**Coins:** according to Korać 1996, fig. 5, the coins that have been discovered are from the ages of Probus (279), Diocletian (289–290), Galerius (302–303), Galeria Valeria (308–309), Constantine (337–341), Constans (341–346), Constantius II (341–346, 355–361), Julian (355–361), Valentinian I (364–367, 367–375), Gratian (378–383), Valentinian II (378–383), Theodosius I (394–395), Arcadius (402–408), and Theodosius II (408–423 and 423–425). Unfortunately there are no clear statistics according to each level. Likewise, we do not know if among the coins from Justinian’s time (527–537, 548, 559), presented in fig. 5, some were found in this tower.

**Chronology:** the complex was built during Diocletian’s reign (the Tetrarchic period), and it had several stages of evolution until the first half of the 5<sup>th</sup> c. In the 6<sup>th</sup> c. (Justinian) the complex was inhabited again, but it was surrounded by a *quadriburgium*.

### 27 B. Ljubičevac – *Quadriburgium*

**Architecture:** square structure, 52.30 × 52.40 m on the inside (a surface of 0.27 ha). The defence wall is 2.00–2.20 m thick, built in *opus mixtum* with 4 to 5 courses of bricks.

Sometimes the builders used the *opus pseudomixtum*. Two thickenings appear on the NW and SE sides (the total thickness of the coated NW side is of 3 m). The corner-towers are round (we only know the internal diameter of the N tower, approx. 3.00 m, and the thickness of the wall – 1.50–1.60 m).

**Intra muros buildings:** apart from the certitude of the dwelling inside the old *burgus*, there is no other data.

**Stratigraphy:** the limited area of research did not allow the identification of any other dwelling levels. The only certainty is a destruction layer dated to the last decades of the 6<sup>th</sup> c.

**Archaeological material:** pottery and other discoveries, dated exclusively to the 6<sup>th</sup> c. (not illustrated).

**Coins:** Justinian (one piece, dated 548) and Justin II (one piece, dated 576). We do not know if the pieces from Justinian dated to 527–537 and 559 (and presented in Korać 1996, fig. 5) were discovered during the test excavations conducted on the trajectory of the fortification or inside the old *burgus*.

**Chronology:** built during the reign of Justinian (coin from 548, found on the foundation level of the S tower), used until the end of the 6<sup>th</sup> c. (years 584–585, according to Korać). A mediaeval necropolis covers the entire surface of the old fortification.

**Bibliography:** PAROVIĆ-PEŠIKAN 1984; RADOSAVLJEVIĆ-KRUNIĆ 1987; KORAĆ 1996. Cf. KONDIĆ 1984, 144–145; VASIĆ, KONDIĆ 1986, 551, 557; TOMOVIĆ 1987, 93–94, fig. 4; PETROVIĆ M. 1996, 255–256, fig. 9; ZAHARIADE 1999, 12.

## 28. BRZA PALANKA (*EGETA*)

On this important site on the *limes* of Dacia Ripensis, whose central element is the auxiliary fort at the mouth of the river Crkveni potok (located on its right bank), three minor fortifications have been identified north of the confluence of the above-mentioned river with the Danube. Two were partially researched in 1980 and the third fortification, which seems to have existed slightly to the north, was described by Marsigli.

### 28 A. Brza Palanka – “Castellum II”

It is the same fortification B described by F. Kanitz at the end of the 19<sup>th</sup> c. It is located approx. 300 m N of the auxiliary fort on the left bank of the Crkveni River.

It is rectangular (84 × 33 m), with circular corner-towers and one rectangular tower in the middle of the W side. The defence wall is 2.10 m thick and was built in a more rudimentary manner (the outer faces made of large coarsely fashioned stones and an emplecton of stones and mortar). The few test excavations conducted inside did not reveal any traces of dwelling.

**Stratigraphy:** inside the NE tower three stratigraphic sequences have been identified, from bottom to top, as follow:

- N III – “sol en mortier et en chaux qui repose sur une couche épaisse (0.70 m) de briques brûlées secondairement”; superposed by a “Couche C – terre grise, compacte, avec des morceaux de briques et de pierres brisées”;
- N II – “mince couche de suie” superposed by a “Couche B” with “gravier et terre jaunâtre”;
- N I – “couche de suie” (10 cm) under the debris layer of the tower.

**Archaeological material:** mixed, predominantly mediaeval.

**Chronology:** The lack of clear chronological data prevented P. Petrović from dating the complex. The elongated rectangular plan, similar to that of the fortification in Puținei, on the territory of Drobeta, suggests the 4<sup>th</sup> c. The rather abundant mediaeval material probably illustrated its reuse during that period.

### 28 B. Brza Palanka – “Castellum III”

At a distance of approx. 100 m N of “Castellum II” there is a triangular fortification (the W side is around 70 m long), not mentioned in the works of Marsigli or Kanitz, of which only a round corner-tower and a segment of the defence wall have been partially excavated. The latter is 3.40 m thick and was built in *opus mixtum*.

Dated to the 6<sup>th</sup> c. through analogy with the fort at Bosman.

### 28 C. Brza Palanka – *Quadriburgium?*

Rectangular fortification recorded by Marsigli, with round corner-towers. It is probably to be identified with fortification C seen by F. Kanitz in the northern part of the settlement, now destroyed (Petrović P. 1984, 161, n. 10 and 11).

**Bibliography:** PETROVIĆ P. 1984; ERCEGOVIĆ-PAVLOVIĆ, MINIĆ 1984.

## 29. UŠĆE SLATINSKE REKE (*HALICANIBURGU?*)

Two fortifications were excavated in between 1980–1982 approx. 10 km downstream of *Egeta*, in an area at the confluence of the Slatinska River with the Danube. They used to protect a segment of the *Egeta – Aquae* road. Identified by Dj. Janković (1981, 43) with the toponym *Halicaniburgu* mentioned by Procopius (*De aedif.* IV, 6, 18).

### A. Ušće Slatinske reke – *Burgus*

Located on the left bank of the Slatinska River, on a higher promontory.

**Architecture:** *Burgus* with *tetrapylon*, 19 × 18.4 m on the outside. The walls are 1.60 m thick, built in *opus incertum* (only in the SE corner were bricks used exclusively – the authors could not ascertain if this was indicative of repairs). Of the four pillars only two have been excavated. They have a square cross-section (1.40 × 1.40 m), enclose an area of 8.25 × 8.25 m and have imprints that attest the use of bricks in their elevation.

**The stratigraphy** indicates two dwelling levels:

I – the lower level, dated to the second half of the 4<sup>th</sup> c. and destroyed towards the end of the century;

II – restoration during the 6<sup>th</sup> c. (contemporary to the *quadriburgium* located 300 m away).

**Archaeological material:** pottery and coins from Constantius II and Valentinian II.

**Chronology:** the authors do not date the complex with precision, as they do not possess all the data yet, as the excavation has only been partially completed. They tend to attribute it to the 4<sup>th</sup> c. The archaeological material and the analogies indicate the second half of the 4<sup>th</sup> c., most probably the period of Valentinian I.

### B. Ušće Slatinske reke – *Quadriburgium*

Located approx. 300 m away from the *burgus*, right on the Danube bank.

**Prior elements:** a settlement dated to the 1<sup>st</sup> c. B.C. – I A.D. and faint traces of dwelling at the end of the 3<sup>rd</sup> – beginning of the 4<sup>th</sup> c., connected to an open settlement identified in the vicinity.

**Architecture:** internal dimensions of 66 × 44.5 m. It was built in *opus mixtum*, mostly with 5 courses of bricks. The defence wall is 2.20–2.30 m at elevation level and 2.60–2.70 m at foundation level, with thickened segments on three sides (up to 3.20–3.40 m at elevation level). Those on the N and S sides have 5 pillars in their elevation (*opus latericium*), and the thickening on the E side is slightly smaller. The round corner-towers have “en entonnoir” entrances (of different dimensions), but there is also a small rectangular tower (bastion) on the NE side (added at a later stage).

**Intra muros buildings:** close to the S and V sides of the defence wall structures have been discovered, made of light material, with hardened clay floors and hearths.

**Stratigraphy:** two 6<sup>th</sup> c. layers have been identified, separated by a layer of burn.

**Archaeological material:** pottery and Danube lamps, typical of the 6<sup>th</sup> c.

**Coins:** Anastasius (1 piece), Justin I (2 pieces), Justinian (3 pieces). Coin hoard, discovered in a layer of burn inside a building, made of 22 coins from the reigns of Justinian and Justin II, the last one dated to 575/576.

**Chronology:** Construction typical of the 6<sup>th</sup> c., most probably from the reign of Justinian. Based on the coin hoard found the destruction was dated to 578/579 or 584/585, and then a restoration took place during the reign of Mauricius. It was abandoned at the end of the 6<sup>th</sup> c.

**Bibliography:** JOVANOVIĆ, KORAC 1984; JOVANOVIĆ, KORAC, JANKOVIĆ 1986, 380–384. Cf. KONDIĆ 1984, 135–137, fig. 3; VASIĆ, KONDIĆ 1986, 555, fig. 27; TOMOVIĆ 1987, 94, fig. 5; MILOŠEVIĆ G. 1996, 249, 252, fig. 2; JEREMIĆ G. 2007, 312, fig. 3/1.

### 30. MIHAJLOVAC –”BLATO”

It is the first in a series of three fortifications that ensured the surveillance of traffic on the Danube in the Ostrovul Mare area. We must mention that on the opposite side, in the northern part of Ostrovul Mare, a 4<sup>th</sup> c. landing-place made of wooden beams has been discovered (Davidescu 1989, 108–113, fig. 34). *Burgus* with *tetrapylon* researched through salvage excavations in 1964 and 1981.

**Architecture:** square (19.32 × 19.54 m on the outside), with 2.50 m thick foundations (wooden beams were used at the base). The elevations gradually subside from 2.20 m to 1.60 m, through a three plinth system (but only on the external face). On the E side a 2.30 m wide gate has been identified, blocked at a later stage. The pillars of the central towers have a square base. Only three of them have been excavated (1.60 × 1.60 m, 1.52 × 1.52 m, 1.65 × 1.65 m), which enclose a space of 7.30 × 7.30 m.

The *burgus* also has an external precinct, only three sides of which have been excavated (the fourth was completely destroyed in the modern period, as well as the western extremities of the N and S sides). The dimensions of the three excavated sides are: East (complete): 36 m; North: 33.42 m; South: 24.80 m. Based on field observations, the authors of the report believe that we are dealing with a square structure of 36 × 36 m. It was built in *opus incertum* and the defence wall is 1.00/1.10 m thick. On the E side there is a 2.50 m wide gate.

I do not know to what extent the approximation of the dimensions of the external precinct (36 × 36 m) is correct. I believe that the space between the defence wall of the *burgus* and

the W side of the outer defence wall is too narrow. The analogies (see especially the fortification in Budakalász-Lupa Csárda, on the Pannonian *limes*) illustrate symmetry in the positioning of the two defence walls. As far as the difference in construction techniques between the two defence walls is concerned, I do not believe that it proves that the outer defence wall was built at a later stage. The report mentions the inner face of the defence wall of the *burgus* was also built in *opus incertum* (also see Tomović 1986, fig. 3 and fig. 6). As for the external face, apart from the fragmentary bricks used in the three plinth socle, there are no elements to prove that *opus mixtum* was used, but rather that *opus incertum* was used there too.

**The stratigraphy of the site** is the following:

- Layer IV (virgin soil);
- Layer III (second half of the 4<sup>th</sup> c., with burn marks);
- Layer II (end of the 4<sup>th</sup> – first half of the 5<sup>th</sup> c., with burn marks left by a devastating fire and followed by the collapse of the tower);
- Layer I (6<sup>th</sup> c., very poor in archaeological material).

**The archaeological material** is relatively abundant: brooches (including the “Zwiebelknopf” type), iron objects (it is interesting to note the domestic rather than military use of knives!), circular bronze belt buckle (typical of the 4<sup>th</sup> c.), bone objects, mill stones, Pannonian-type glazed lamps, varied pottery from the same period (second half of the 4<sup>th</sup> – first half of the 5<sup>th</sup> c.). We must also mention the discovery of bricks stamped DRP. The discoveries made inside the *tetrapylon* prompted M. Tomović to presume that it served as a warehouse, but also as a forge to produce iron or lead objects or as a “mill”.

**Coins:** very few and badly preserved; two pieces from Valens and Valentinian II could be identified.

**Chronology:** the archaeological material and the analogies allow the dating of the construction moment to the third quarter of the 4<sup>th</sup> c. (almost surely the Valentinian–Valens period). The first destruction is believed to have taken place around 376, followed by a restoration (and probably the construction of the outer defences), then a total collapse during the first half of the 4<sup>th</sup> c. There is no new proof of a 6<sup>th</sup> c. restoration.

**Bibliography:** TOMOVIĆ 1986 (with previous bibliography). Cf. VASIĆ, KONDIĆ 1986, 551, fig. 17; TOMOVIĆ 1987, 94–95, fig. 6; PETROVIĆ M. 1996, 255, fig. 8; JEREMIĆ G. 2007, 312–313, fig. 3/2.

### 31. MIHAJLOVAC – “MORA VAGEI”

Site located at the mouth of the Kamenički River, on its left bank, around 10 km downstream from Mihajlovac-Blato. It was excavated in between 1981–1982.

**Prior elements:** it was raised over the ruins of an Early Roman fortification (1<sup>st</sup> c. AD), probably a *burgus*. It is approx. 15 × 15 m, with a defence ditch on the outside.

**Architecture:** Square *burgus* with *tetrapylon* (18.5 × 18.5 m). The walls are 2 m thick and were built in *opus mixtum*. The foundations are set on a wooden grill, the socle is made up of large blocks of limestone and the elevation is made of bricks. In the middle of the W side a 1.80 m-wide gate has been identified that bears the traces of two restorations (in the last phase it was walled-up). The pillars of the central tower are L-shaped and enclose a space of 6 × 6 m.

A very interesting discovery is an underground structure in the space between the N, E and S sides and the pillars of the central tower. The treading level inside the *burgus* constitutes

in fact the upper part of this shelter, reinforced with thick wooden beams and supported by wooden poles. The calculated height reaches 1.92 m. The staircase set in the NW corner of the defence wall was used to descend into this shelter.

The *burgus* is surrounded by two 3.30 m wide ditches on the outside. The first was set 15 m away from the defence wall, while the second was set 23.63 m away. They have not been researched on all sides, only by a test trench in the western side.

**The stratigraphy** inside the *burgus* led to the identification of two burn and destruction levels: the first one is connected to the events in between 376–378 (Germanic pottery), while the second is connected to the Hunnic attacks. A very thin 6<sup>th</sup> c. layer has been identified, including a pile of stones and 6 *pitthoi* in the SE corner of the defence wall.

**The archaeological material** was found especially inside the underground shelter (which seems to have served as a *horreum*). It evidenced a large quantity of pottery and metal objects, the latter especially agricultural, shepherding or fishing tools. Other (mostly glazed) pottery and lamp fragments, typical of the 4<sup>th</sup> c., have been collected from the perimeter of the fortification. Osteological analyses have shown the preference for the domestic pig rather than the sheep or the goat. Concerning the numismatic discoveries no data is provided by the authors of the report published in 1986.

**Chronology:** built starting with the end of the 3<sup>rd</sup> c. – beginning of the 4<sup>th</sup> c. (Tetrarchic), used until the first half of the 5<sup>th</sup> c.

**Bibliography:** CERMANOVIĆ-KUZMANOVIĆ, STANKOVIĆ 1986. Cf. VASIĆ, KONDIĆ 1986, 551, fig. 18; TOMOVIĆ 1987, 95–96, fig. 8; PETROVIĆ M. 1996, 254, fig. 5; GUDEA 2001, 90; JEREMIĆ G. 2007, 313, fig. 3/6.

## 32. BORDEJ

Site located 12 km upstream from *Aquae* (Prahovo). *Burgus* with *tetrapylon* researched through three test excavations in 1980. Its equivalent on the opposite bank is the fortification on Ostrovul Mare.

**Architecture:** The ideal reconstruction shows that the complex was square (19.6 × 19.6 m) and the walls were 1.80 m thick (at elevation level?) Only two pillars of the central tower (8 × 7 m) have been excavated, whose cross-section is approximately square (1.80 × 2.00 m). The defence wall and the tower were built in *opus mixtum*.

The outer defence wall (in fact a simple precinct) hypothetically circumscribes a surface of 36 × 36 m. The wall is only 0.70 m thick and seems to have been built in a rather careless manner, which prompted the authors of the report to believe that it was built at a later stage (together with a “support wall” identified along the southern side of the *burgus*, which could be the substruction of a staircase that gave access to the upper level of the defence wall).

**Archaeological material:** a surprisingly high number of stamped bricks (around 160 pieces in only three test excavations!) The most frequent stamps are DRP, AQVIS, DIERNA and CO(hors) I. DIIANA and DA.RIP.AQVIS are rarer. In some cases the bricks bear several stamps (such as DRP, AQVIS and CO I or DRP and AQVIS). Within the archaeological material collected we must mention glazed pottery, a lamp, as well as a Germanic bone comb.

**The coins** discovered are from Valens, Valentinian I and Justinian.

**Chronology:** the authors tend to date the construction to the reign of Diocletian, but the analogies and the archaeological material, including the coins, indicate the reigns of Valentinian I–Valens as more likely. We cannot rule out a restoration during the reign of Justinian.

**Bibliography:** CERMANOVIĆ-KUZMANOVIĆ, STANKOVIĆ 1984. Cf. VASIĆ, KONDIĆ 1986, 551, fig. 19; TOMOVIĆ 1987, 96, fig. 7; PETROVIĆ M. 1996, 255–256, fig. 10; JEREMIĆ G. 2007, 313, fig. 3/3.

### 33. OSTROVUL MARE

A fortification has been identified in the southern part of this island, more exactly in the southern side of the “Braniște” forest (fluvial kilometre 861.5). The excavations conducted by Mișu Davidescu in 1983 uncovered only part of the E side.

**Prior elements:** a rich Bronze Age site (dwellings), but also archaeological materials that attest Early and Late Roman dwelling (2<sup>nd</sup> – 4<sup>th</sup> c.).

**Architecture:** we do not have the complete plan of the fortification. The excavated segment of the E side is 23.50 m long. The defence wall is 2.80 m thick and was built in *opus mixtum*. At the corner it would have made with the N side there is a round tower with an internal diameter of 3.50 m, and on the preserved side there is an intermediary tower, pentagonal on the outside and rectangular on the inside (4.05 × 3.45 m). According to M. Davidescu, 8.50 m away from the round corner-tower there was a 3.27 m wide gate, blocked by a rectangular tower (!) On the published plan this situation is not very clear. What we see on the plan looks more like an external structure of the gate (staircase?).

As the other sides have not been discovered, the author of the excavations considers that the fortification was not finished. In this case we do not understand the statement that the gate was “blocked” by a rectangular tower! Based on the construction technique I believe that we could be dealing with a *quadriburgium* (in this case, the pentagonal tower was probably built in the middle of the E side, which may have measured approx. 45 m).

**Extra muros:** a late necropolis was excavated approx. 100 m W of the defence wall. It contained graves with no inventory. According to M. Davidescu, they “belonged to the people who built the fort and the Romanised population on the island” (Davidescu 1989, 117).

**Archaeological material:** pottery, three-edged arrow head, fishing weights.

**Coins:** only two pieces were discovered during the excavations, from the ages of Aurelian and Valens.

**Chronology:** according to M. Davidescu the fortification could be dated to the reign of Justinian. In the absence of clear archaeological and numismatic data, a strong argument in favour of this theory is the architectural type specific to the 6<sup>th</sup> c. and well-known on the *limes* of Dacia Ripensis. A dating prior to the 6<sup>th</sup> c. (put forward by D. Bondoc) has no solid basis. The 4<sup>th</sup> c. coins belong to a dwelling level prior to the Roman one and I believe they can be connected to a possible landing-place in this area, such as that in the northern part of the island, across from the *burgus* in Mihajlovac-Blato.

**Bibliography:** DAVIDESCU 1989, 113–117, fig. 36; BONDOC 2002, 169; BONDOC 2007; BONDOC 2009, 71–73.

### 34. RADUJEVAC

*Quadriburgium*-type fortification built right on the bank of the Danube, on a site called “Karamizar”, halfway between *Aquae*/Prahovo (7 km to the W) and the mouth of the Timok

River (7 km to the S), near a loop made by the Danube as it changes its direction from W-E to N-S. It was partially excavated through several test excavations in 1960.

**Architecture:** its approximate dimensions are 50 × 50 m, the defence wall is 2.40 m thick at foundation level and the thickenings on the N and S sides reach almost 3.50 m at foundation level and 3.10 – 3.20 m at elevation level. The corner-towers are round; only the SE one has been excavated (internal diam. of 3.15 m, external one of 6.70 m; the wall's approx. thickness is of 1.75 m). In the middle of the N side (on the bank of the Danube) an external rectangular tower has been researched through test excavations (its front side is 5.10 m long and the wall is 2.10 m thick at elevation level). The tower encloses an inner space that was 1.85 m wide, but whose length remains unknown. The published plan suggests that similar towers existed on all sides.

**Chronology:** It has a shape typical of the 6<sup>th</sup> c. The existence of a prior fortification is not excluded (Janković).

**Bibliography:** JANKOVIĆ 1981, 45, 94, 208 and fig. 17.

### 35. DOBRI DOL-“KALE BAIR”

On this site, located between the forts in *Ratiaria* and *Almus*, authors from the end of the 19<sup>th</sup> c. mention a quadrangular fortification of 57 × 60 m (D. Marinov) or 57 × 57 m (F. Kanitz, V. Dobruski).

**Bibliography:** STOIČKOV 1995, 253.

### 36. STANEVO (former LABEC) (*POMODIANA*)

Site located E of *Almus*, identified with the toponym *Pomodiana* mentioned in the Tabula Peutingeriana. In 1992 V. Stoičkov excavated the ruins of a tower with 2 m thick walls. We have no concrete data, but the structure has been dated to the Diocletian-Constantine period according to analogies with other *burgi* in the Porțile de Fier area.

**Bibliography:** STOIČKOV 1994; STOIČKOV 1995, 254–255. Cf. IVANOV R. 1997, 543.

## Moesia Secunda

### 37. BATIN

Site located 8 km E of *Iatrus* and 3 km W of the fortification in Batin, identified with *Scaidava* (It. Ant. 222, 1). Salvage excavations were conducted there in 1979.

**Architecture:** approximately square tower, of c. 10 × 10 m on the outside (approx. 7 × 7 m on the inside), with 1.20–1.60 m thick walls. A defence wall is attached to the SW corner of the tower. Only its W half – 17 m long on the outside – has been preserved, and it seems to have enclosed an inner surface of approx. 12.5 m; the other half was destroyed by the Danube. The defence wall is 1.90 m thick. It is most probably a fortified landing-place

(“Lände-burgus”), a well-known type of structure on the Danube or Rhine *limes*. S. Torbatov does not agree, and considers the so-called defence wall an older tower, whose northern side was used in the construction of the smaller tower (cf. Ivanov R. 1997, 582).

**Archaeological material:** relatively poor, but among the most interesting pieces there are six bricks stamped RVMORID(us).

**Coins:** only one piece, badly preserved, probably Constantius II.

**Chronology:** in the absence of conclusive archaeological proof, the dating is based on analogies with other similar fortifications and the Rumoridus stamps, which are dated with certainty to the second half of the 4<sup>th</sup> c., most probably during to the reigns of Valentinian/Valens.

**Bibliography:** STANČEV 1999. Cf. IVANOV R. 1997, 581–582.

### 38. RUSE-“SELIŠTE”

On this site an Early Roman watchtower has been excavated (2<sup>nd</sup> – 3<sup>rd</sup> c. coins, stamps of the legio I Italica). The discovery of a (Rumo)RID(us) stamp prompted the authors of the excavations to presume the tower to have been in use as late as the 5<sup>th</sup> c., but there is no further evidence to support this theory.

**Bibliography:** GEORGIEV, ANGELOV 1957, 42–45. Cf. ZAHARIADE, GUDEA 1997, 74–75.

### 39. NOVA ČERNA (*KYNTON?*)

The Nova Černa site, located between *Appiaria* and *Transmarisca*, has been identified by Bulgarian researchers with the toponym *Kynton* (Procopius, *De aedif.* IV, 7). Three successive fortifications were built on the same terrain (end of the 3<sup>rd</sup> – beginning of the 4<sup>th</sup> c. – *quadriburgium*; 6<sup>th</sup> c. – *castellum*; both surrounded by an 8<sup>th</sup> – 9<sup>th</sup> c. earth fortification). Archaeological excavations were conducted there in between 1967–1970.

#### 39 A. Nova Černa – *Quadriburgium*

**Architecture:** research has led to the identification of the entire S side of the fortification (35 m long) and part of the E (approx. 22 m) and W (approx. 25 m) sides. The plan of the structure must have been square (approx. 35 × 35 m). The rectangular corner-towers of 6.60 × 7.30 m (SW tower) and 7.40 × 7.00 m respectively (the SE tower) are entirely protruding and in the middle of the S side there is another rectangular external tower (7.00 × 3.70 m). The defence wall is 1.30–1.50 m high at elevation level (1.80 m at foundation level) and has regular pillars set on the inner face (the distance between the pillars is of approx. 2.70 m).

**Stratigraphy:** there is no concrete data; we only know that there existed a 6<sup>th</sup> c. dwelling level over the dismantling layer.

**Archaeological material:** pottery, glass, metal objects.

**Coins:** the earliest are from the reign of Constantine (shifted however onto the Late Roman layers near the 6<sup>th</sup> c. defence wall).

**Chronology:** The authors of the research (A. Milčev and St. Angelova, followed by T. Ivanov) presume that the two stone fortifications (*quadriburgium* and *castellum*) were

contemporary. The observations of S. Torbatov are much closer to the truth, as it is clear that we are dealing with an initial *quadriburgium*, probably to be dated to the Tetrarchy or as late as the reign of Constantine. S. Torbatov prefers the last variant, based on the numismatic material. We cannot propose a precise date for its destruction (probably during the 5<sup>th</sup> c.?) In the 6<sup>th</sup> c. the structure was systematically dismantled so that the stones might be used in the construction of a larger fortification.

### 39 B. Nova Černa – *Castellum*

The fortification surrounds the old *quadriburgium*, whose walls were dismantled so that the stones might be used.

**Architecture:** rectangular, almost square structure (approx. 90 × 85 m). Only segments of the S and E sides have been excavated. The defence wall is up to 3.40 m thick at foundation level and it reaches 2.60 m at elevation level. At the corner of the two above-mentioned sides there is a rectangular tower, and approximately in the centre of the E tower there is another rectangular tower, interpreted by the first researchers as a tower-gate (based on no conclusive proof though). From the aerial photographs and the description given by K. Škorpil it results that there were towers at the other corners too, as well as another one in the middle of the W side.

**Stratigraphy:** according to the observations made by S. Torbatov, the foundation trench of the E wall intersects a level marked by a light construction (interpreted as a workshop due to the presence of several pottery kilns, one of which has been dated according to a coin from the age of Justinian).

**Archaeological material:** abundant and varied: pottery, lamps (most of them of the Danube type), glass, metal (brooches, weapons, tools) and bone objects.

**Coins:** 4<sup>th</sup> – 6<sup>th</sup> c., including Justinian.

**Chronology:** according to the new stratigraphic interpretations, the 6<sup>th</sup> c. is the obvious choice. It is most probably a fortification from the period of Justinian. A *terminus post quem* is provided by the Justinian coin (unfortunately not dated with precision) present in the previous level, marked by kilns. According to S. Torbatov the construction should be dated to the second half of Justinian's reign, probably after 551.

**Bibliography:** MILČEV, ANGELOVA 1969; MILČEV, ANGELOVA 1970; MILČEV, ANGELOVA 1971; MILČEV 1977; TORBATOV 1998. Cf. IVANOV T. 1974, 68, Abb. 8; BIERNACKA-LUBANSKA 1982, 58, 60, 228, fig. 21; IVANOV R. 1997, 583–585, Abb. 42.

## 40. GARVĂN ISLAND

A site located across from the Roman fortification in Popina-Gradište, at approximately half the distance between *Candidiana* (Malák Preslavec) and *Tegulicium* (Vetren). The fortification of approx. 60 × 30 m was recorded by K. Škorpil at the beginning of the 20<sup>th</sup> c. No archaeological or chronological details are known.

**Bibliography:** TIR, L 35, 43; BIERNACKA-LUBANSKA 1982, 260; ZAHARIADE, GUDEA 1997, 76.

## Scythia

### 41. SEIMENI

South of Seimenii Mari field research and test excavations conducted by Gr. Florescu in 1924 led to the identification of a small fortification of approx. 20 × 20 m. The construction technique seems to have been *opus quadratum* similar to the defence wall at Capidava. It is most probably a *burgus*, maybe even one with a *tetrapylon* (see the similar dimensions).

A Tetrarchic fragmentary inscription discovered at Seimeni (CIL III, 7487 = IGLR, 205) was connected to the construction of a fortification at this site. We must stress that the so-called Roman fortress defended by a ditch, identified by Polonic mentioned as such in specialized literature, was actually dated to the Early Mediaeval Period (Protobulgarians?). The inscription could therefore be connected to the construction of this *burgus*, if it was not in fact brought from another site (Capidava or Axiopolis). See a similar situation at Donje Butorke, on the Dacia Ripensis limes.

**Bibliography:** FLORESCU 1927–1932, 495; Gr. Florescu, in FLORESCU et al. 1958, 25. Cf. TIR, L 35, 65; IGLR, 205 (comments); SCORPAN 1980, 6; TORBATOV 2002, 101–102.

### 42. GÂRLICIU (*CIUS*)

Around 5 km S of the village, at a site called Hisarlâk, are the ruins of a fortification of approx. 120 × 120 m (probably the old Early Roman fort), inside which there was a smaller one (approx. 85 × 60 m).

No archaeological excavations were conducted and among the archaeological material collected following field research we mention a RVMORID(us) stamp (ISM V, 125) and especially an inscription that mentions the construction or restoration of a fortification in 369 (CIL III, 6159 = 7494 = ILS, 770 = IGLR, 233). We cannot exclude the possibility of this inscription referring to the construction (or restoration) of the smaller fortification. The restitution *hunc burgum a fundamentis* in the inscription's lacuna is uncertain, as this construction has an equal claim to consideration as a *castrum*.

In the 4<sup>th</sup> c. the presence of a *cuneus equitum stablesianorum* (NDOr. XXXIX, 14) is attested at Cius.

**Bibliography:** POLONIC 1935, 22; COMȘA 1959, 764–765; TIR, L 35, 33; SCORPAN 1980, 6; ZAHARIADE 1988, 126–128, fig. 20 (aerial photograph); ZAHARIADE, GUDEA 1997, 79, fig. 58 (wrongly attributed to the city of Beroe); TORBATOV 2002, 116–118, fig. 10, 11.

### 43. OSTROV –“PIATRA FRECĂȚEI” (*BEROE*)

Fortification located in an particularly strategic location, on a 38 m-high promontory advanced into the Danube and with a position that dominates the river at its confluence with the Băroi creek. As with the one at Cius, a *cuneus equitum stablesianorum* (NDOr. XXXIX, 15) is mentioned here in the 4<sup>th</sup> c., which denotes the division of this unit between two forts set 20 km apart.

From the description made by P. Polonic it results that we are dealing with an irregular rectangular-shaped fortification, adapted to the terrain, with three 64 m-long sides and a fourth (the W side, towards the Danube) 30 m long. On the W side in 1898 one could see a square protruding tower. On the outside (on the E side) the fortification was defended by a 10 m-deep and 15 m-wide ditch.

The fortification was superposed by a rich layer of mediaeval dwelling. Recent archaeological research (1998–2002) conducted by D. Paraschiv did not lead to conclusive results concerning the Late Roman – Early Byzantine fort. He discovered several segments of the defence, which seemingly collapsed before habitation was resumed in the 10<sup>th</sup> c. Also, the above-mentioned tower proved to be in fact a water-collection basin.

**Bibliography:** C. Moisil, BCMI 4, 1911, 45–46; POLONIC 1935, 22; COMȘA 1959, 761; TIR, L 35, 33; A. Petre, A. Apostol, SCIV 21, 1970, 1, 165–182 (geophysical survey); SCORPAN 1980, 33; ZAHARIADE 1988, 128, fig. 21 (aerial photograph); ZAHARIADE, GUDEA 1997, 80; TORBATOV 2002, 118–120. See recent research in *CCA 1999*, 72; *CCA 2000*, 173; *CCA 2001*, 225–226.

#### 44. PECENEAGA

3 km south of the village lie the ruins of a square fortification (approx. 36 × 36 m according to Polonic), very probably a *quadriburgium*. No archaeological excavations were conducted on the site.

**Bibliography:** POLONIC 1935, 22; TIR, L 35, 57; ZAHARIADE 1999 b, 14, fig. 4.26; TORBATOV 2002, 120–121.

#### 45. TRAIAN

*Quadriburgium* – type fortification known since the end of the 19<sup>th</sup> c. According to P. Polonic it was square, of approx. 60 × 60 m. Based on the aerial photographs we can see that the plan was actually rather rhomboidal, with a side approx. 45 m long. The corner-towers seem to have been round. Here was discovered a coin hoard made of 25 pieces from Justinian, which suggests that the fortification was used at least as late as the 6<sup>th</sup> c.

**Bibliography:** POLONIC 1935, 22; TIR, L 35, 73; ȘTEFAN 1974, 108, pl. 23.2; ZAHARIADE 1999 b, 14, fig. 4.27; TORBATOV 2002, 121.

#### 46. JIJILA

Field research conducted at the end of the 19<sup>th</sup> c. identified a *quadriburgium*-type fortification of approx. 26 × 27 m. Judging from the plan drawn by Polonic, it had round corner-towers, but only archaeological excavations can confirm this theory.

**Bibliography:** POLONIC 1935, 22; TIR, L 35, 48; SCORPAN 1980, 6; ZAHARIADE 1999 b, fig. 4.28; TORBATOV 2002, 131.

#### 47. GARVĂN (*DINOGETIA*)

The systematic archaeological excavations at Dinogetia have identified inside the fortress a structure with four internal pillars, interpreted until recently as a *praetorium* or *principia*. The building was excavated at the end of the 1940's. Recent observations, based first of all on the striking analogies with fortifications recently researched in certain segments of the Danubian limes (Noricum, Pannonia, Dacia Ripensis), allowed S. Torbatov to identify this construction with a *burgus* with *tetrapylon*.

**Architecture:** Rectangular, of approx. 14.00 × 12.50 m, with an approx. 1 m-thick wall. An entrance was discovered in the middle of the W wall. Inside there are four rectangular pillars, made of stone and brick; there was also a brick pavement. At a later stage, in the 5<sup>th</sup>–6<sup>th</sup> c., the inner surface was divided by walls made of stone bound with earth.

**Chronology:** Unfortunately there is no archaeological discovery that helps date this construction. The traditional opinion is that it was built at the same time with the city's defence wall and should be dated at the end of the 3<sup>rd</sup> – beginning of the 4<sup>th</sup> c., during Constantine's reign at the latest. According to S. Torbatov the building should be dated in the last quarter of the 4<sup>th</sup> c., after 378, for this the author relying on the walls' narrowness and especially on the recent stratigraphical observations that have identified a layer of abandonment of the city after 378 (a good moment for raising a small fortification such as a *burgus*, as a substitute for the ruined fortification).

I believe this dating theory unlikely and without conclusive archaeological support. Some analogies from the western part of the Empire (Braives, Hulsberg) could be taken into account as arguments for a dating during the reign of Constantine, maybe as a forerunner of the fortification visible today, accomplishing the task of watching-surveillance for this important sector of the limes.

**Bibliography:** I. Barnea, in DID II, 1968, 477–478; SCORPAN 1980, 25; TORBATOV 1999; TORBATOV 2002, 136–138, fig. 15; ZAHARIADE 2003, 26.

#### 48. RACHELU

P. Polonic's field research has led to the discovery of a minor fortification on a rocky promontory 1 km E of the village. At the present moment it is mostly covered by modern houses and gardens. Salvage excavations were conducted in 1991 by M. Zahariade and G. Jugănaru.

*Quadrivurgium*-type fortification of an undetermined surface (according to Polonic approx. 45 m "in diameter", according to Zahariade 45 × 45 m). Only the NE round tower (3 m in diameter) was researched, which was made of medium-sized blocks of stone bound with white mortar. There are no clear dating elements.

**Bibliography:** POLONIC 1935, 24; TIR, L 35, 60; ZAHARIADE 1999 a, 202; ZAHARIADE 1999 b, 14; TORBATOV 2002, 143–144.

#### 49. NUFĂRU

Approx. 10 km W of Aegyssus there is an important Byzantine city dated to the 10th c., inside which were signalled traces of Late Roman and Early Byzantine habitation. A clear proof

of the Roman military presence during the 4<sup>th</sup>–6<sup>th</sup> c. are the two watchtowers excavated on the Danube's bank during several archaeological campaigns (1978–1979, 1983, 1985–1988 and 1997–1999).

**49A. Nufăru – “La Piatră”.** At this site was excavated a rectangular building with three sides preserved and the N side destroyed by the Danube. The S side (approx. 11 m long) was entirely identified and the E and W sides only partially, on lengths of up to 8 m. The ideal restitution contains a square tower (11 × 11 m on the outside and approx. 6.50 × 6.50 m on the inside) whose surface is about 42 m<sup>2</sup>. The walls are made of stone bound with mortar and are 2.30 m thick; the foundations were set directly on the rock or on a layer of yellow sandy earth. The inside was divided into two rooms by a 1.10 m thick wall (see a close analogy on the Raetian limes at Unteres Bürgli, cf. Drack 1993, no. 20). It seems that a possible entrance was also discovered. Two dwelling levels were identified: one largely dated to the 4<sup>th</sup>–6<sup>th</sup> c. and one from the mediaeval period (10<sup>th</sup>–12<sup>th</sup> c). The coins discovered on this site (Constantine, Constantius II, Valens, but also a 5<sup>th</sup> c. coin) could indicate that this small *burgus*-type fortification was built in the 4<sup>th</sup> c.

**49B. Nufăru – “Proprietatea Ioan Butuza”.** Approx. 100 m W of the previous location a tower was partially excavated in 1997 and 1999. It has the semicircular side oriented northwards, with a 4.50 m side and 1.30 m-thick walls. It was superposed by mediaeval dwelling complexes. Apart from two 4<sup>th</sup> c. coins (Maximinus Daza, Valens) there are no clear dating elements.

**Bibliography:** S. Baraschi, N. Moghior, SMMIM-MMC 12, 1979, 186–191; 13, 1980, 123–134; 17–18, 1984–1985, 144–151; DAMIAN et al. 2003, 239, fig. 12, 13; MĂNUCU-ADAMEȘTEANU et al. 2005–2006, 377–378 (with previous bibliography). Cf. ZAHARIADE 1999 a, 202–203; TORBATOV 2002, 155–156.

## 50. DUNAVĂȚU DE SUS (*AD STOMA?*)

Located 2 km E of the fort at *Halmyris* (Murighiol), the fortification at Dunavățu de Sus is close to the old confluence where the Sfântu Gheorghe branch of the Danube used to flow into the sea, a position due to which it was identified with *Ad Stoma*, a toponym mentioned by the Tabula Peutingeriana (I. Barnea, A. Aricescu, M. Zahariade). The identification is rejected by S. Torbatov, who instead identifies it with *Gratiana* and identifies *Ad Stoma* with Dunavățu de Jos. It is a site known since the end of the 19<sup>th</sup> c., but it was only partially researched through small test excavations conducted in 1982 by Silvia Baraschi and M. Zahariade.

It is a small fortification (approx. 49.50 × 46.50 m). The test excavations inside the compound did not reach the virgin soil, so until now only two 6<sup>th</sup> c. levels are confirmed.

**Bibliography:** POLONIC 1935, 25; TIR, L 35, 39–40; ZAHARIADE 1999 a, 204; TORBATOV 2002, 162–163; M. Zahariade, in SUCEVEANU et al. 2003, 15.

## 51. DUNAVĂȚU DE JOS (*GRATIANA?*)

Also known as the “Cetatea Zaporojenilor”, it is a fortification located 5 km W of the village, 5 km SSW of Halmyris and around 7 km SW of Dunavățu de Sus. In ancient times

it was located close to a gulf of the Black Sea (the present day Lake Razelm), but it probably accomplished the task of guarding the entrance to the Danube. It was identified by certain authors (M. Zahariade) with the *Gratiana* mentioned by Notitia Dignitatum (Or. XXXIX, 27, where the *militēs primi Gratianenses* were stationed) and later by Procopius (*De aedif.* IV, 11). S. Torbatov identifies this site with the toponym *Ad Stoma*. It was examined by E. Desjardins in 1868, then by P. Polonic towards the end of the 19<sup>th</sup> c. Archaeological excavations were conducted in between 1987–1993 by Al. Barnea and M. Zahariade.

**Architecture:** Trapezium-shaped, slightly irregular due to the terrain, its dimensions are 46 m (N) × 56 (E) × 28.15 (S) × 66 m (V). The defence wall's elevation is 2.66 m thick. It has a gate on the N side, flanked by two 12 m long U-shaped towers. According to the plan published by M. Ionescu and Gh. Papuc (after Al. Barnea), the fortification had round towers at the NW and NE corners, a rectangular tower at the SW corner and three other rectangular towers on the W and E sides.

No stone walls were discovered inside; it is presumed that there existed wood and adobe buildings. Outside the W side was identified a pavement made of limestone slabs, that ensured the access to a possible landing-place or harbor.

**Stratigraphy:** “three successive Late Roman layers” (Al. Barnea, SCIVA 43, 1992, 4, 435).

**Archaeological material:** small quantity of pottery, bronze military insignia (with heraldic analogies figured in the Notitia Dignitatum).

**Chronology:** according to M. Zahariade, a *terminus post quem* for dating the fortification would be the 4<sup>th</sup> c. inscription used as construction material (seemingly brought from *Halmyris*). Based on this observation dating the complex to the reign of Valens seems the correct choice.

**Bibliography:** C. Moisil, BCMI 2, 1909, 90–92; POLONIC 1935, 25; TIR, L 35, 39; ZAHARIADE 1988, 121–122, 141–142; Al. Barnea, SCIVA 40, 1989, 3, 300; 41, 1990, 3–4, 317–318; 42, 1991, 3–4, 258; 43, 1992, 4, 435; 45, 1994, 4, 379; ZAHARIADE 1999 a, 204; TORBATOV 2002, 164–165; M. Zahariade, in SUCEVEANU et al. 2003, 15, 79–80; IONESCU, PAPUC 2005, 113, fig. XIX.

## B. WEST-PONTIC SHORE

### Scythia

#### 52. ENISALA – “PALANCA”

Site located 600 m NE of the Late Roman fortress at Enisala, at a location called “Peștera” (*Constantiana?*). From the notes of P. Polonic and based on the aerial photographs interpreted by Al. S. Ștefan at this location there used to be a small rectangular fortification, probably a *burgus*. Its dimensions were of approx. 30 × 25 m (Polonic) or approx. 30 × 40 m (Ștefan). At the present moment it has been destroyed by modern interventions.

**Bibliography:** ȘTEFAN 1977 a, 459–460, fig. 7; ȘTEFAN 1977 c, 15 f., fig. 2, 8, 9. TORBATOV 2002, 168–170, fig. 25.

#### 53. BISERICUȚA ISLAND

The island on Lake Razelm is located approx. 4–5 km W of the fortification of *Argamum* (Cape Doloșman). Older (P. Nicorescu) and more recent (2000–2004) archaeological research

has indicated the presence of two (?) facing triangular fortifications (approx.  $95 \times 90 \times 38$  m and approx.  $41 \times 36 \times 64$  m respectively), with round corner-towers. The towers have a diameter of 9.00 m in the smaller fortification and 8.10 m in the larger one. The construction technique is *opus quadratum*.

The NW-SE side of the smaller fortification is 2.35 m thick at the foundation level and 1.90 m thick at the elevation level. *Intra muros* dwelling structures were set against the defence wall. It is supposed that there existed a basilica (hence the name of the island).

The archaeological material dates the structure to the 5<sup>th</sup> – 6<sup>th</sup> c. It was largely dismantled during the mediaeval period and was damaged by erosion.

**Bibliography:** Al. Barnea et al., in *CCA 2000*, 123, pl. 31; IONESCU, GĂMUREAC 2006. Cf. TIR, L 35, 27; Al. Barnea, in SUCEVEANU, BARNEA 1991, 192; SUCEVEANU 1992, 204; IONESCU, PAPUC 2005, 119.

## 54. OVIDIU

The archaeological site at Ovidiu is located about 10 km N of Tomis, on the shore of the present day Lake Siutghiol, in ancient times a gulf of the Black Sea. Systematic excavations were conducted there in between 1979–1985 and from 1993 to the present day.

**Prior elements:** Habitation traces from the Greek Archaic to the Hellenistic period (period A, 6<sup>th</sup> – 2<sup>nd</sup> c. BC), Early Roman dwelling (period B, 2<sup>nd</sup> – 3<sup>rd</sup> c. AD, connected to the stone aqueduct that supplied Tomis), a Late Roman dwelling level (period C, 5<sup>th</sup> c. AD), illustrated first by a mono-nave paleochristian basilica (the so-called building C,  $17 \times 8.5$  m on the outside) and by two other stone buildings (A and B), which together formed a religious complex whose exact purpose will hopefully be cleared by future research.

**Ovidiu I – unfinished fortification**, probably of the *quadriburgium*-type, located closer to the ancient gulf. Only the W side was identified, along with the round SE and NW corner-towers and the beginning of the N and S sides. The defence wall is 2.85 m thick. A gate existed in the middle of the W side, flanked by two rectangular monolith towers. On the inside of the same side, on a length of 25.30 m, there is a 0.90 m-wide thickening for the access stairs. A *terminus post quem* for dating the construction moment is ensured by a 5<sup>th</sup> c. coin hoard discovered on the floor of one of the buildings from period C, whose last pieces are from Zenon (474–491).

The preservation of the structure only at the foundation level, the incomplete plan and the lack of an archaeological level that can be connected with certainty to this fortification shows us that we are dealing with an attempt to build a *quadriburgium* closer to the former gulf, rapidly abandoned and followed by the construction of a fortification of the same type, set to the West and which used as a foundation for its Eastern side the existent foundation of the first fortification.

**Ovidiu II** – fortification located to the W of the previous attempt and which uses the entire West side of the latter as a foundation for its Eastern side.

**Architecture:** rectangular *quadriburgium* of  $53.00 \times 41.30$  m on the inside ( $59.00 \times 47.20$  m on the outside), covering a surface of approx. 0.22 ha. The defence wall is 3.00–3.10 m thick at the foundation level (and 2.70–2.80 m at the elevation level) on the three sides built *a fundamentis* and of 2.85 m on the Eastern side (in fact the Western side of the unfinished fortification). Even if no brick courses from the elevation were preserved, the

construction technique is very probably *opus mixtum*, with a *crepida* made of massive limestone blocks. As an emplecton was used a mix of earth with carved stone sherds and mortar. We must mention the internal thickening on the W side, built with the clear purpose of providing access to the upper level. This thickening, about 16 m long and 1.30 m wide, is set against the defence wall (whose thickness thus reaches 4.30 m at the foundation level).

The two eastern rectangular towers have only two protruding sides, with the eastern one prolonging the defence wall, a rare peculiarity for this type of fortification. Tower A in the SE corner is 8.80 × 6.70 m on the outside (at the foundation level), and on the inside it encloses a surface of 4.10 × 4.60 m. The entrance, as it was preserved, is in the shape of a hallway and is set along the S side (= the tower's N side), larger (1.80 m) on the outside and narrower (1.30 m) towards the tower's interior. The inside pavement was laid directly upon the circular wall of the initial fortification's tower. Tower B, in the NE corner, has an external front of 8.95 × 6.90 m and measures 3.75 × 4.65 m on the inside, where a hardened clay pavement was discovered. Very little is preserved from the fortification, including the entrance (the same type as the one of tower A).

The Western towers are circular and highly protruding. Tower C, in the NW corner, has an outside diameter of 8.70 m and an inside one of 3.90 m. The wall's thickness at the foundation level varies between 2.30–2.50 m. Only the first course from the elevation was preserved (in the NE corner), as well as part of the entrance. This is in fact the same as the entrances of the rectangular towers, shaped as a hallway and of similar dimensions – same width (in two “steps”, 1.80 m and 1.30 m), but slightly longer (3.80 m). We must remember that the entrance is perpendicular on the defence wall's monolith foundation, which does not form a right angle at the fortification's corners, but unites by a diagonal the trajectory of the respective sides. The fourth tower (D), in the SW corner, is slightly smaller than the other round tower (external diameter of 7.80 m and internal diameter of 3.25 m, with a 2.10- 2.20 m-thick wall), but its entrance was not preserved. On the other hand the inside pavement, made of bricks laid on their face, was preserved on a large surface.

The gate was identified on its S side, about 7 m west of tower A. Blocks from the elevation are missing, therefore we cannot provide the dimensions other than based on the traces of the external threshold, which is slightly protruding. The latter is 2.60 m wide and made of two large blocks fashioned in order to support the gate's wooden structure.

***Intra muros buildings:*** a rectangular building (approx. 25 × 3 m) built of stones and bricks bound with earth, set against almost the entire length of the defence wall's northern side. Compared to the treading level inside the fortress, the building is set around 0.60–0.70 m lower and therefore, instead of a foundation, the walls just coat the margins of the foundation pit. Two internal divisions were identified, very probably made at two different moments, each with its own entrance on the South side.

***Extra muros:*** a somewhat more consistent level of dwelling was identified outside the compound to the E, near the ancient gulf. This dwelling level is concentrated around the basilica. A dwelling complex is located immediately south of it, and it extends almost up to an older street. It is a house that rests mostly on the basilica's southern side and it has the same orientation as the new fortification. Two rooms were identified, with walls of stone bound with earth, with shallow foundations. With some changes and additions (a stone socle for a kiln and a new drain), the dwelling was still in use in the second half of the 6<sup>th</sup> c. Following recent research (2007–2008) were discovered the walls of several houses set against the N and E side of the basilica, structures with a different orientation, aligned to the *quadriburgium's* defence wall. A coin from Justin II was found in the layer of debris and proves it was still in use during the second half of the 6<sup>th</sup> c.

**Stratigraphy:** in the site's general stratigraphy two dwelling levels were identified for period D (6<sup>th</sup> c.): N 2 (first half of the 6<sup>th</sup> c.) and N 1 (second half of the 6<sup>th</sup> c.).

**Archaeological material:** pottery, lamps, as well as glass, metal, bone and horn objects.

**Coins:** for the period that concerns us there are only six pieces identified with certainty for the reign of Justinian (three pieces from 527–538 and three post 538, of which the most important is a coin dated to 539/540, discovered in the burn layer on the pavement of tower A, and which ensures a *terminus post quem* for the fortification's destruction) and two pieces from Justin II.

**Chronology:** the dating of the fortification at Ovidiu to the 6<sup>th</sup> c. is supported by the stratigraphic observations, by the pottery and coins discovered on the single dwelling level that corresponds to the period when it served defensive purposes. The initial construction attempt (Ovidiu I) must be connected to a moment when the two buildings from period C stopped being used (they are effectively cut by the defence wall) and before the construction of the fortification visible at the present moment. We cannot make a clear distinction between the two construction moments, because for now there is no archaeological level that can be dated with certainty and that can be connected with the first defence wall. But starting from the certain *terminus post quem* (the coin hoard dated to the reign of Zenon), for dating on stratigraphical bases the initial attempt (Ovidiu I) and the completed fortification (Ovidiu II) there are three variants:

1. The construction attempt was immediately followed by the construction completed during the reign of Anastasius;
2. The same scenario, but during the first years of the reign of Justinian (527–537);
3. The initial attempt is dated to the reign of Anastasius, and the second fortification was completed during the reign of Justinian.

Taking into account the numerous examples of reconstructions during Justinian's reign of fortifications built by Anastasius (see the classic case of Dara – cf. Croke, Crow 1983), it is possible that the third variant is closest to the truth.

The complex' destruction in the middle of the 6<sup>th</sup> c. is confirmed by the Justinian coins discovered on the burnt pavement of tower A and in the debris of the building set against the northern side of the defence wall. We suppose that the fortification was destroyed following the Kutrigur attack in 559, of which we know it affected most of the territory of Dobroudja. In the second half of the 6<sup>th</sup> c. dwellings functioned only aligned to the defence wall, especially outside the E side, in the perimeter of the Christian basilica. The lack of a level from this period inside the towers shows that the fortification's defensive purpose was abandoned.

**Bibliography:** BUCOVALĂ, PAPUC 1980; BUCOVALĂ, PAPUC 1981; BUCOVALĂ, PAPUC 1984; BUCOVALĂ, PAPUC 1986; BUCOVALĂ, PAPUC 1993; BĂJENARU 2002–2003 (the state of the research up to 2002); PAPUC, BĂJENARU 2003. Cf. TORBATOV 2002, 182–187 (who notices the presence of a previous fortification and not just a simple “Severan period tower”); IONESCU, PAPUC 2005, 122–130. For the research in between 2003–2008 see *CCA 2003*, București, 2004, 227–228; *CCA 2005*, București, 2006, 250–251; *CCA 2007*, București, 2008, 214–215; *CCA 2008*, Târgoviște, 2009, 162.

## 55. CONSTANȚA – “PALAZU MARE”

Field research inside the district of “Palazu Mare” has led to the identification of a rectangular structure of 15 × 25 m. Even if we cannot exclude the presence of a *burgus*, the rectangular shape could indicate a fortified *horreum*.

**Bibliography:** BUCOVALĂ, PAPUC 1981, 215; IONESCU 1988, 319, no. 5; SUCEVEANU 1992, 212; TORBATOV 2002, 187; IONESCU, PAPUC 2005, 130.

## 56. CONSTANȚA – “TELPIȘ”

Site located S of Constanța, between district „Km 5” and the Lazu village. Following a field research conducted by V. Boroneanț a rectangular building was identified (a side measures approx. 10 m), partially destroyed by modern interventions. During the field research pottery and roof tile fragments were collected. It probably represented a watchtower on the road that bordered the sea shore.

**Bibliography:** BORONEANȚ 1977, 320; SUCEVEANU 1992, 218; TORBATOV 2002, 193; IONESCU, PAPUC 2005, 132.

## 57. TUZLA

Site positioned 2 km S of Cape Tuzla (*Stratonis Turris?*), at a location called “Mănăstirea”, where field research has identified a rectangular structure, approx. 30 × 15 m, with “small rooms” (= towers?) at the corners. We cannot exclude the possibility of a *quadriburgium*. Another possibility is a fortified basilica, as is attested by the Christian artefacts discovered there. In this case the “smaller rooms” could in fact be annexes.

**Bibliography:** SLOBOZIANU 1959, 736–737; SUCEVEANU 1992, 218–219; IONESCU, PAPUC 2005, 133.

## 58. CAPE ȘABLA (*CARON LIMEN / CARIA / KREAS*)

At Cape Șabla, located 7 km E of the town with the same name, is traditionally placed the toponym *Portus Carial/Caron Limen* (Pomponius Mela, *De chron.* II, 22; Arrian, *Peripl.* 24; Anonymus, *Peripl. Pont. Eux.* 15r, 10–14). According to S. Torbatov it is the same *Kreas* mentioned by Procopius (*De aedif.* IV, 11) among the fortifications built by Justinian in Scythia.

At the end of the 19<sup>th</sup> c. K. Škorpil identified on this location a fortification of around 67 × 40 feet. The archaeological excavations conducted in 1977–1979 and 1994–1996 led to the identification of two fortifications built at different moments. Due to the accentuated erosion of the cliff on which they are located only their W part was preserved.

**Prior elements:** dwelling starting with the 6<sup>th</sup> – 5<sup>th</sup> c. BC down to the Roman period; to the latter corresponds level 1 of the site’s general stratigraphy.

### 58 A. Șabla 1 (*Caria*)

**Architecture:** *Quadriburgium*-type fortification, of which only 60 m oriented N-S are known, along with segments of the N and S sides. The defence wall is 1.90 m thick, built in *opus implectum*. The corner-towers are rectangular, the best known among them being the SW one (7.06 × 6.70 m on the inside and 1.65–1.80 m thick walls). Of the NW tower only the N wall is known, which is 1.65 m thick.

**Stratigraphy:** there is only one dwelling level (level 2 in the site’s general stratigraphy).

**Archaeological material:** the publication mentions a lamp dated to the end of the 4<sup>th</sup> – beginning of the 5<sup>th</sup> c., which dated the destruction of the fortification.

**Coins:** besides the earliest one (Constans, 337–346) and the latest one (Theodosius II, 425–450), no statistical data are mentioned by the publications.

**Chronology:** The lack of certain data prompted S. Torbatov to date largely the construction in the first half of the 4<sup>th</sup> c., without excluding the possibility of its being built during the reign of Constantine. The moment of destruction is better documented – the second quarter of the 5<sup>th</sup> c. (based on the archaeological and numismatic material).

## 58 B. Šabla 2 (*Kreas?*)

Fortification built on roughly the same emplacement, but with a different configuration, which used as foundation part of the old *quadriburgium* walls.

**Architecture:** rectangular fortification 65 m long on a N-S trajectory and preserved on only 25 m on a E-W trajectory. The defence wall is 1.90–2.00 m thick at the elevation level (2.20 m at the foundation level), was built in *opus implectum* at the base and very probably *opus mixtum* or *pseudomixtum* in the upper part. The N side was raised over the foundations of the old *quadriburgium*'s N wall. In the NW corner there is a round tower that was only partially researched but whose internal diameter can be approximated at 8.75 m. The W side was built *a fundamentis*, slightly retreated E of the old *quadriburgium*'s side; on the researched segment was identified a small opening in the wall (poterna?), 1.59 m wide and narrowed on the outside down to 1.00 m. On the emplacement of the former *quadriburgium*'s SW corner-tower was raised a new rectangular tower, with a 3.12 m wide entrance (narrowed down to 2.65 m towards the interior) and a 1.00 m-wide poterna in the southern wall.

**Intra muros buildings:** the remains of five stone buildings from different periods were identified.

**Stratigraphy:** in the site's general stratigraphy three dwelling levels correspond to this period (levels 3–5):

- 1 The first level (= level 3) has a *terminus post quem* provided by a coin from Justinian's reign (543/544), and the destruction moment is marked by a coin hoard (discovered on the floor of building no. 2) made of 36 pieces, whose last coins are dated to 563/564. To this level are connected buildings no. 2, 4 and 5.
- 2 The second level (= level 4) is marked by the construction of new buildings (no. 1, 3, 6) that illustrate, according to S. Torbatov, the moment when the site became a fortified settlement; this level was destroyed by fire, whose *terminus post quem* is provided at the present moment by coins from 558/559.
- 3 The third level (= level 5) contains traces of only sporadic habitation, especially inside the rectangular tower; the last coins are from Mauricius (583/584 and 588/589).

**Archaeological material:** pottery, lamps and metal objects (some of which were illustrated by Vasilčin).

**Coins:** besides the coins presented as proof of the stratigraphic succession, there is no statistic for the numismatic material.

**Chronology:** Fortification built in the 6<sup>th</sup> c., certainly during the reign of Justinian, with a certain *terminus post quem* ensured by the coin from 543/544, discovered in the construction level (the levelling layer). According to S. Torbatov the construction moment should be dated after 551 (according to his hypothesis for dating Justinian's construction program in the Balkans between 551–560/561).

**Bibliography:** VASILČIN 1994; TORBATOV 1994; TORBATOV 2002, 197–215, fig. 36–41.

## 59. BALČIK – “TUZLATA”

A rectangular fortification (*quadriburgium*-type?) of approx. 93 × 60 m was partially excavated 4.5 km E Balčik, in the Tuzlata suburb. Only two round corner-towers and one rectangular intermediary tower in the middle of the N side are preserved. The S side was eroded by the Black Sea. Uncertain dating, according to S. Torbatov to the reign of Justinian.

**Bibliography:** TORBATOV 2002, 258–260, fig. 66, 67.

### Moesia Secunda

## 60. ŠKORPILOVCI

Archaeological complex located on the road along the sea shore, between *Odessos* and *Templum Iovis* (Obzor), at the mouth of the river Škorpilovska.

**Architecture:** Rectangular plan, c. 48 × 73 m (according to Ovčarov), it covers a surface of approx 0.35 ha. The defence wall is 2.20 m thick. Round corner-towers, of which only the NW and NE ones were researched (the external diameter is 8 m, and the internal one 5 m); the entrances to the towers are typical corridors “en entonnoir”, with semicircular entryways. The entrance is about 3 m wide and has on the inside two zwinger-type thickenings, and on the outside it is preceded by a square gate-tower (approx. 5 × 5 m).

In the SE part of the fortification was excavated as early as 1917 (K. Škorpil), then in 1966–1967 (M. Mirčev), a basilica of 26.00 × 17.60 m with three naves, a narthex and an atrium. It has a remarkable mosaic that pertains of the oriental tradition, which can be dated to the end of the 5<sup>th</sup> – beginning of the 6<sup>th</sup> c. A *baptisterium* was also discovered, separated from the church.

A civilian settlement developed south of the fortification.

**Chronology:** Concrete data are missing for a more refined chronology. D. I. Dimitrov, the author of the research, dates it to the 4<sup>th</sup> – 6<sup>th</sup> c. and considers that the fortification was abandoned in the middle of the 6<sup>th</sup> c. The architectural details plead more for a 6<sup>th</sup> c. (even late 5<sup>th</sup> c.) date of the construction moment, when it would have been contemporary to the basilica.

**Bibliography:** MIRČEV 1969; DIMITROV D. I. 1977; DIMITROV D. I. 1983, 36–37; DIMITROV D. I. 1988; MINČEV 1996–1997. Cf. DIMITROV D. I. 1980, 454; RAŠEV 1982, 31, 44–48, Tabl. III/4; OVČAROV 1982, 25; DIMITROV M. 1985, 125; ŠTEREVA et al. 2001, 90–93, fig. 102, 103; DINČEV 2006, 27, 49, 80; DINČEV 2007 a, 511, 532 (proposes a possible monastic function in the 5<sup>th</sup> c. and at the beginning of the 6<sup>th</sup> c.).

### Haemimontus

## 61. VÁLČANOVO KALE (*RANULI?*)

A small fortification, covering a surface of 0.30 ha was identified at the “Lăvskata Glava” site, located 2 km away from the Ropotamo River, on the sea-shore road. It is located on the site of a Thracian settlement.

**Bibliography:** BIERNACKA-LUBANSKA 1982, 259, no. 182.

## 62. REZOVO-KAP KASTRIČ

A rectangular fortification of approx. 30 × 20 m was discovered by field surveys south of Ahtopol-*Agathopolis*, close to the mouth of the river Rezovska. The archaeological materials suggest the complex should be dated to the 4<sup>th</sup> – 5<sup>th</sup> c. It was reused during the Byzantine period (10<sup>th</sup> – 14<sup>th</sup> c.), when the settlement was named *Kanstritzion*.

**Bibliography:** SOUSTAL 1992, 65.

## C. INTRA PROVINCIAM

### Moesia Prima

## 63. MEDVEDJA (*IDIMUM*)

Important roadside station mentioned in the ancient itineraries in the sector between *Viminacium* and *Horreum Margi* on the great Transbalkan military road. F. Kanitz noticed near the Roman road the ruins of a *quadriburgium*-type fortification. The archaeological research conducted there in between 1960–1962 by Branka Jeličić did not manage to identify the walls of the fortification. In the site's monographic study M. Vasić and Gordana Milošević attempt its restitution.

**Prior elements:** in the northern part (at the “Bedem” site) was registered an intense dwelling, with a bath complex and other buildings that pertained to a *mansio*, and in the southern part (“Popov Čair”) were identified the traces of a *vicus*. Even if we cannot rule out as a starting moment for the settlement the 3<sup>rd</sup> c., the numismatic material suggests that the development of this *mansio* started with the reign of Constantine (post-317).

**Architecture:** F. Kanitz uncovered the E and part of the N and S sides, identifying two round corner-towers (NE and SE); based on this data the fortified area should have covered approx. 100 × 100 m. At the present moment the W side is superposed by the village's cemetery, the S one by the modern road and the E one plus the NE corner-tower were completely destroyed by modern interventions.

The information from the aerial photographs, as well as the results of the archaeological research prompted M. Vasić and G. Milošević to reconstitute the fortification in the shape of a rhomboid, with the internal dimensions of approx. 72 × 81 m (0.58 ha). At the corner there must have stood round towers with an internal diameter of approx. 3.60–4.20 m. Taking into account the layout of the internal buildings, the main entrance was hypothetically placed on the W side, near the Roman road (located 20 m away).

**Intra muros buildings:** four buildings were excavated, among which the bath complex (building A) and a structure interpreted as a *praetorium* (building B).

**Stratigraphy:** a single dwelling level dated to the 4<sup>th</sup> c. was identified at both of the sites researched, with small traces of the successive restoration of certain floors.

**Coins:** the discoveries can be grouped as follows:

1 <sup>st</sup> -2 <sup>nd</sup> c.	200-268	268-292	305-312	<b>313-337</b>	337-363	364-375	388-392
2	8	13	3	<b>65</b>	87	22	1

The absence of coins from the first Tetrarchy and scarcity of those from 305–312, a situation common on most sites in Moesia Prima, is explained by M. Vasić by the more intense circulation of the gold coin!

**Chronology:** according to the authors of the monograph we are dealing with a *mansio* from the Constantinian period, fortified during the reign of Valentinian I. An argument in support of this theory is the change in the trajectory of the ancient road, which now crosses the fortified area.

**Bibliography:** VASIĆ, MILOŠEVIĆ 2000.

## Dacia Ripensis

### 64. PUȚINEI

Fortification located 7 km NE of Drobeta, undoubtedly under the control of the units stationed there. It probably ensured the security of the military territory of Drobeta during the 4<sup>th</sup> c., as an outpost that blocked the access through the Vâlcan Pass. It was discovered in a bad state of preservation, as an important part of it was destroyed by the Pleșuva River. Test excavations were conducted in 1968.

**Prior elements:** Early Roman remains, including graves.

**Architecture:** rectangular fortification of approx. 100 × 40 m. The 1.60–1.75 m-thick defence wall was built of river stones and bricks, but also using a series of older Roman monuments. It has rectangular corner-towers of approx. 7 × 7 m and with 1.40 m-thick walls.

**Archaeological material:** pottery, “Zwiebelknopf” brooch.

**Coins:** 3 coins from the Constantinian period and one of Valentinian I.

**Chronology:** it is a 4<sup>th</sup> c. structure, to be probably dated to the reign of Constantine.

**Bibliography:** BENEĂ 1977. Cf. TUDOR 1978, 290–292; DAVIDESCU 1980, 182–184, fig. 183; GUDEA 1982, 110, no. 40; BENEĂ 1996, 106–107; BONDOC 2002, 168; BONDOC 2009, 67–68.

### 65. VIDROVGRAD

Fortification located 8 km SW of *Aquae* (Prahovo), at a crossroads of secondary roads in the above-mentioned city’s territory, one of which led to the imperial palace at Vrelo-Șarkamen. Identified by Dj. Janković with the toponym *Sculcoburgo* mentioned by Procopius (*De aedif.* IV, 4), but on no solid proof. It was only partially excavated.

Slightly irregular fortification that covers a rectangular surface of approx 57 × 40 m. Two corner-towers (E and W) are square, approx. 7 × 7 m, and the other two (N and S) are trapezium-shaped, of approx. 6 × 9 m. The defence wall is 2.75 m thick and is thickened on the inside on two of the sides up to approx. 3.50 m.

The dating to the 6<sup>th</sup> c. (Dj. Janković) remains only a hypothesis, as no ample archaeological excavations were conducted.

**Bibliography:** JANKOVIĆ 1981, 49, 108, 110 and figs. 19, 38.

## 66. KULA

Site located in the central area of the modern town of Kula (32 km SW of *Bononia*–Vidin), on the left bank of the river Čičilska. It occupies a favourable strategic position at the entrance into the Vraška Čuka Pass, on the road connecting *Bononia* to the Timok Valley and further on to the fortified palace of Galerius at *Romuliana* (Gamzigrad). A complex made up of a *quadriburgium* and a *castellum*. It is supposed that the first was built during the Tetrarchy, while the second (surface of 1.6 ha), which is set against the former's W side, was built several decades later. Excavations were conducted by Iordanka Atanasova in between 1964–1972. Traditionally identified with the ancient city *Castra Martis*, but see above the inconsistency of this opinion.

**Architecture:** the *quadriburgium*-type fortification of 34 × 34 m on the inside has circular corner-towers, each 12.50 m in diameter, very well preserved up to about 2.20 m in height (but the SE tower reaches 16.30 m in height and represents today the emblem of the modern city). The walls are 2.20 m thick. There is only one gate (3 m wide) located in the middle of the S side. Also on the S side there is a staircase that leads to the upper part of the defence wall (it is supported by an arcade built on three pillars set against the wall). As can be seen in the case of the SE tower, the corner-towers had three floors, divided by solid wooden beams and arcaded windows. The construction technique was *opus vittatum mixtum* (three courses of bricks and several courses of stones).

On the S side, at a later stage contemporary to the building of the *castellum*, a *proteichisma* was added – a narrower wall that connected the towers in the SW and SE corners and delimited two rooms on both sides of the gate (whose width was reduced to 1.70 m by a mass of masonry and was transformed into a two-door gate).

**Intra muros buildings:** two rows of five rectangular pillars parallel to the W and E sides of the defence wall. They probably supported light wooden buildings, with several floors, that must have served as military barracks. The main building is made up of three parts: a double vestibule, a central yard and the building-proper (with three rooms, among which the middle one was the largest: 9.20 × 7.75 m). In the brick-paved courtyard there is also a fountain. In the second vestibule there was a staircase that led to the upper floor.

**Stratigraphy** – three main levels were identified:

- The lower level (end of the 3<sup>rd</sup> / beginning of the 4<sup>th</sup> c. – beginning of the 5<sup>th</sup> c.) is the richest in archaeological material: many iron objects, agricultural tools, lamps, spindle-whorls, mill stones, brooches and pottery (mostly glazed);
- An intermediary level, interpreted as a cultural hiatus, a filling made up of earth and collapsed masonry;
- The upper level – with few discoveries (only pottery) and harder to determine due to the destruction caused by the modern layers.

In the profiles published in the 2005 monograph can be seen at least three destruction moments corresponding to the so-called “lower level”; therefore it could be possible a first destruction before the beginning of the 5<sup>th</sup> c.

**Archaeological material:** pottery, lamps, metal objects etc. There are a lot of 4<sup>th</sup> c. discoveries, while little 6<sup>th</sup> c. material was discovered and very few pottery types were identified.

**Coins** (K. Dimitrov, in Atanasova et al. 2005, 221–239): 1<sup>st</sup>–3<sup>rd</sup> c. (7 pieces), Maximianus (1 piece, 291), Galerius (1 piece, 301), Maximinus Daza (1 piece, 312–313), Licinius (1 piece, 313–317), Constantine (4 pieces, 313–324), Constantine/Constantius II/Constantinopolis (4 pieces, 330–337), Constans/Constantius II (5 pieces, 337–361), Julian (3 pieces, 361–363),

Valentinian I/Valens (5 pieces, 364–375), Gratian/Valentinian II/Theodosius I (5 pieces, 378–395), Arcadius/Honorius/Theodosius II (7 pieces, 395–422/450).

To these we can add three coin deposits: I (5 pieces, the last dated to 379–383), II (3 pieces, all dated to 383–388), III (6 pieces, the last dated 426–450).

**Chronology** proposed by I. Atanasova: built at the end of the 3<sup>rd</sup> – beginning of the 4<sup>th</sup> c. (Tetrarchy). A first destruction took place in 376–378; the construction of the *proteichisma* and several restorations in the central yard are connected to these events. The excavations have demonstrated that after a massive destruction at the beginning of the 5<sup>th</sup> c. “the fortification was never rebuilt and ceased to function as a defensive installation” (Atanasova et al. 2005, 245). To the first half of the 5<sup>th</sup> c. are dated the walls made of stone bound with earth, the well in the SE tower (which indicates a poor civilian dwelling). Only in the 6<sup>th</sup> c. (Justinian) does the *quadriburgium* return to its military purpose; the narrowing of the gate is connected to this period.

To this generally accepted chronological scheme (strongly influenced by the traditionally identification with *Castra Martis*), I believe some speculation should be added as to the motive for constructing a *quadriburgium* on a secondary road of the province Dacia Ripensis. The importance of this road must have increased with the construction of the fortified palace at Gamzigrad and therefore we cannot exclude the possibility that Emperor Galerius himself (as Caesar during the first Tetrarchy, or as Augustus in between 305–311) was the one to ask for the construction of this *quadriburgium* that served as a fortified road station.

**Bibliography:** ATANASOVA-GEORGIEVA 1974; ATANASOVA 1987; ATANASOVA et al. 2005.

## 67. PODVIS

Fortification built on the *Timacum Minus* (Ravna) – *Naissus* road, 15 km SW of Ravna, at a site named “Kulište”, located on a promontory near the Svrljiški Timok river, on the latter’s left bank. In Antiquity the area was known for its mining industry. Field surveys conducted by the Archaeological Institute in Belgrade in 1981 led to the identification of two minor fortifications on this site, located 20 m apart:

1. A *quadriburgium* (?) of approx. 20 × 20 m, with round corner-towers;
2. A rectangular building of 15 × 10 m with only two round corner-towers.

The absence of archaeological excavations made it impossible to be dated and does not allow a connection to be made between the two fortifications.

**Bibliography:** PETROVIĆ P. 1994–1995, 60, fig. 4.

## 68. OREŠAC

Site located on a promontory on the right bank of the Svrljiški Timok river, immediately near the same ancient road between *Naissus* and *Timacum Minus*, in a mining area. Square fortification of approx. 35 × 35 m (or 35 × 37 m), with round corner-towers. The defence wall is approx. 1.80 m thick and was built in *opus mixtum*. Outside, about 20 m NE there is a small basilica of 15 × 6 m.

**Bibliography:** PETROVIĆ P. 1994–1995, 59–60, fig. 3; PETROVIĆ P. 1995, 200, Abb. 8.

## 69. GORNJA KAMENICA

A square watchtower (approx. 10 × 10 m) built on a site named “Gradski Rt”, located on the upper course of the Timok river, on a secondary road between *Timacum Maius* (Knjaževac) and *Serdica*. The walls, made of stones and bricks, are 2.50 m thick. They were not excavated. It was not dated with certainty, but most likely it was built in the 4<sup>th</sup> c.

**Bibliography:** PETROVIĆ P. 1994–1995, 60, fig. 6.

### Dacia Mediterranea

## 70. KOSTINBROD (*KRATISKARA*)

Site located in the territory of *Serdica*, in a low plain. The first excavations were conducted in 1973–1978 (Violeta Božilova) and were continued by V. Dinčev in 1990–1994. It was identified with the *Kratiskara* mentioned by Procopius (*De aedif.*, IV, 1, 32).

**Prior elements:** The Early Byzantine fortification was built on the emplacement of a Late Roman residential complex (*villa*), most probably Constantine’s imperial residence, which was near a station (*mutatio Scretisca*, according to the *Itinerarium Burdigalense*) of the Transbalkans road, in the *Serdica-Naissus* sector. At the beginning it was considered to be a last phase in the evolution of this residence. V. Dinčev’s more recent research has clarified the situation, as it became obvious that there was no continuity between the old residence and the fortification as far as the character of the dwelling is concerned.

**Architecture:** The plan is that of an irregular quadrangle. Length of the sides: E = 95 m; W = 65.5 m; N and S = approx. 107 m. The structure encloses a surface of approx. 0.85 ha. The walls were built in *opus mixtum* and used massive quantities of *spolia* from the former imperial residence. The wall’s thickness at the elevation level varies between 1.80 and 2.10 m (with the exception of a part of the W sector of the S side, which reaches 2.60 m); the foundation is even wider, as is proven by the 0.15–0.35 m-wide plinths. On the W side there is a small semi circular buttress (2.30 × 0.95 m). Three of the corner-towers are circular; in the NE corner there is no similar tower, but about 7.5 m to the W (therefore on the trajectory of the N side) was used as a semicircular tower the apse of a building that pertained to the former imperial residence.

Dimensions of the towers: -SE: internal diameter 4.70 m, 1.20 m-thick wall; -SV: internal diameter 4.00 – 4.60 m (deviated from the original shape because it reused an older wall); -NV: internal diameter 3.50 m, 1.20 m-thick wall, 1 m-wide entrance; -NE (semicircular): external diameter 14 m, 2.40 m-thick wall.

The gate is on the N side, protected by a rectangular tower (external dimensions of 10 × 3.5 m). The space between the two entrances (*propugnaculum*) measures almost 7.50 × 2.20 m. The external entrance is 3.50 m wide, the internal one (which is in fact an opening of the defence wall) is 2.70 m wide and has a massive threshold.

Three staircases that led to the upper levels of the walls were discovered: one on the western part of the S side (= where the defence wall’s thickness reaches 2.60 m), the second at the semicircular NE tower and the third at the gate-tower.

**Intra muros buildings:** several dwelling complexes were excavated:

- III/1–III/5: laid along the E side; the foundations and lower part are made of stone and reused bricks bound with earth, while the elevation was made of adobe; the roof had a single slope; *dolia* were discovered inside. It was certainly a dwelling complex.

- III/6: built on the E side, towards the SE corner; dimensions: 14.40 × 4.80 m; the mortar was used to build the walls; it could have had an upper floor; the entrance was from the north, after an anteroom paved with bricks (an obvious analogy with the situation at Ovidiu). It very probably had a military use; the ground floor was used as stables.
- III/7: on the S side; the same construction technique was used, of stones and bricks bound with earth; two phases (the initial space of 4.40 × 3.40 m was enlarged at a later stage). Possibly a *horreum*.
- III/8: on the W side; only partially excavated; the length is over 6 m; construction technique similar to III/1–III/5 and III/6; brick pavement; coin from Justinian (16 *nummia*, 527–538).

To these we can add building III/9, which is in fact the old apsed hall of the imperial residence, reused (it seems) in the 6<sup>th</sup> c. and whose exact function cannot be established.

**Chronology:** according to Dinčev the coin from Justinian proves that the fortification existed already in between 527–538 (the argument used is that the coins with a nominal value of 16 *nummia* were not in use anymore at that time!). The same author puts forward the hypothesis that the fortification was destroyed following the Slav's invasion in Thrace and Greece in 577–581.

**Bibliography:** BOŽILOVA 1987; DINČEV 2003. Cf. DINČEV 2006, 19, fig. 36, 50; DINČEV 2007 a, 504, fig. 28.

## 71. TRAJANOVA VRATA-“MARKOVA MEHANA” (*STENES?*)

Fortification located on the Transbalkans military road, in the Suki Pass (*confinia Succorum* in Ammianus Marcellinus, *angustiae, claustris, stemon, kleision* in other Greek and Latin sources). The *Itinerarium Burdigalense* (I, 567, 7, 8, 9) mentions here the border between the provinces Dacia Mediterranea and Thracia, which at the same time is the border between the dioceses Dacia and Thracia (*finis Daciae et Thraciae*). The site is now called Trajanova vrata (The Gates of Trajan), after the monumental triumphal arch that was probably erected here in the second half of the 4<sup>th</sup> c., according to recent epigraphic discoveries (among which a memorial inscription for emperors Valentinian I, Valens, Gratian, Valentinian II, Theodosius I and Arcadius, dated to 382–384). Archaeological excavations conducted in 1978–1987 connected this arch to a network of fortifications (barrage walls, towers and *burgi*) built in the 4<sup>th</sup> c. and restored in the 5<sup>th</sup> – 6<sup>th</sup> c. using a great quantity of *spolia*. 800 m E of the triumphal arch was located and researched systematically a minor fortification identified by D. Mitova-Džonova with the toponym *Stenes* mentioned by Procopius (*De aedif.*, IV, 4, 3) inside the territory of Serdica.

**Architecture:** the structure is almost rectangular, with one of the sides changing its trajectory according to the terrain. The external dimensions of the other three sides are 49 m (N), 36 m (NV) and 25 m (SE), which results in a total surface of approx. 0.18 ha, without the towers (these dimensions are not taken from the plan published by D. Mitova-Džonova, whose scale is incorrect!). If we extract the wall's thickness, we estimate the internal surface at approx. 45 × 32/21 m, that is about 0.12 ha. The defence wall's elevation is well preserved (up to 6 m in some segments) and is 2.10–2.20 m thick. In some parts where the terrain endangered the structure's stability buttresses were used (1.30 × 0.40 m on the SW side) or a massive support pillar in the NE corner, built in two steps (2.00 × 2.00 m at the base, then 1.55 × 1.55 m).

The construction technique is *opus mixtum*, with five courses of bricks. On the inside the wall is thickened near the main gate and on the SE side, left of the entrance to the triangular tower; both thickenings supported staircases that gave access to the defence wall's upper level.

The main gate is located on the NW side and has a maximum length of 2.80 m, as it became narrower towards the outer end. On the inside it has the shape of a 4.80 m long tunnel, formed by the thickenings of the defence wall, united by an arcade. On the outside it is flanked by two pentagonal towers, whose shape becomes rectangular inside, with a circular/apsed side corresponding to the pointed external front (dimensions: 2.85 × 5.80 m, without the apse or 2.85 × 7.65 m with the apse). The pentagonal towers with internal apse are identical to the ones that flank the main gate at Mesembria. A third tower is located in the middle of the smaller SE side and is triangular (with the two external sides 10 m long). We must mention that, apart from the entrances proper (1.20 m wide), all the towers also have a *poterna* (1.45 m wide in the pentagonal towers and 1.60 m wide in the triangular tower). The other two *poternae* are located on the N side (1.26 m wide) and the S side (1.60 m wide) and were preserved almost intact, their height being of around 1.83/1.80 m. All the entrances to the towers and the *poternae* are narrower (the external ends of the *poternae* and the internal ends of the entrances to the towers). From the N part of the E side of the defence wall starts (and continues underneath the defence wall) a tunnel that leads to a water source at the foot of the rocky mountain.

**Intra muros buildings:** along the sides of the defence wall an open portico was built, with brick pillars raised 4.5 m away from the defence wall. The dimension of these pillars varies between 1.10/1.50 × 1.00/1.20 m, and the distance between them is of 1.80–2.30 m. In its second phase the portico was completely restored: it received a new set of pillars (approx. 0.80/1.00 × 0.80 m) set against the defence wall, and the pillars from the initial phase were doubled on the inner side by a set of smaller ones (1.00/1.10 × 1.10/1.20 m). The portico's ground floor was used for storage (as proven by the many *dolia* buried there), and the upper floor must have served as barracks for the soldiers.

**Stratigraphy:** two dwelling levels, delimited by a layer of burn 0.30–0.40 m thick.

**Archaeological material:** on both dwelling levels were discovered an important number of *dolia*, as well as their stone covers. An important quantity of pottery, metal objects etc. was also discovered.

**Coins:** There is no clear statistics. Two gold coins from Anastasius and Tiberius II Constantine are mentioned, as well as two bronze hoards (one contains 107 pieces, with the first pieces from Anastasius and up to Justin II, the second contains 64 coins, ranging from Anastasius to Tiberius II Constantine).

**Chronology:** The construction is dated to the reign of Anastasius, and its second phase to that of Justinian. The final destruction is connected to the Slavs' invasion in 581–582.

**Bibliography:** MITOVA-DŽONOVA 1994. Cf. DINČEV 2006, 37–38, no. 45, fig. 89; DINČEV 2007 a, 524–526, fig. 46.

## 72. PIRDOP

The archaeological complex is located near the town of Pirdop (6.5 km to the NW), on the right bank of the river Elenska. *Quadriburgium*-type fortification that protects a paleochristian basilica. Excavations were conducted by P. Mutafčiev in 1913.

**Architecture:** Rectangular structure that encloses a surface of 48.50 × 33.00 m (approx. 0.16 ha). The defence wall is 1.60–1.70 m thick. The rectangular corner-towers are of 7.30 × 5.90 m with 1.30 m-thick walls. On the inside, on the N, W and E sides there are thickenings of the defence wall that supported staircases that led to the upper level (the stairs start at only one end of the thickening, but see in Vassileva 1973: “escaliers à double rampes opposées”). The 2.50 m-wide gate (narrower on the outside, approx. 2.00 m) is on the S side (closer to the SE tower) and is reinforced on the inside by two small thickenings of the *zwinger*-type. A 1.50 m-wide *poterna* (that narrows down to 1.00 m towards the exterior) is located between the NE tower and the staircase on the E side. The defence wall’s construction technique is similar to that of the basilica: *opus mixtum* with three courses of bricks.

**Intra muros buildings:** the basilica has an odd position, closer to the E side. It has one nave and two aisles, with an apse for each of the divisions. The external dimensions are of 30.50 × 17.00 m. The narthex is divided into three spaces and has two annexes (N and S), the latter in fact a *baptisterium*. The author of the research identified two construction phases (the first in *opus mixtum*, the second one only in bricks).

We have no clear data concerning the stratigraphy and the published archaeological material consists mostly of the marble decorations of the church and several bronze and iron objects, mostly mediaeval.

**Chronology:** P. Mutafčiev identifies two construction phases for the basilica, and proposes a chronology only for the second phase (6<sup>th</sup> c.). The surrounding fortification is connected to the first phase, based on the similarity of the construction technique with the walls of phase I of the basilica (*opus mixtum*). D. Vassileva does not admit the two phases identified by Mutafčiev and considers that the basilica should be dated to the middle of the 5<sup>th</sup> c. and was built at the same time with the fortification. D. Ovčarov dates the fortification at the end of the 5<sup>th</sup> c.

**Bibliography:** MUTAFČIEV 1915. Cf. VASSILEVA 1973; OVČAROV 1982, 25, fig. 6; SOUSTAL 1991, 404–405; POPOVIĆ S. 1998, 143–144, fig. 5A (“late 5<sup>th</sup> – early 6<sup>th</sup> c.”); DINČEV 2006, 50, fig. 95; DINČEV 2007 a, 532–533, fig. 50.

### 73. DRENKOVO

The site is located approx. 11 km W of Blagoevgrad and around 5 km away from the Delcevski Pass (1085 m), close to the border between Bulgaria and Macedonia. Salvage excavations were conducted in 2006–2007 on the trajectory of a major gas pipeline.

Rectangular fortification of 28.90 × 28.40 m on the outside, with slightly protruding semicircular corner-bastions and an approx. 2 m-thick wall. Around the inner courtyard there are four rooms that surely had two floors. Many *dolia* were discovered, storage pits, a wine press and 6<sup>th</sup> c. coins (Justin I, Justinian).

The dating of this small road side fortification (?) remains for now uncertain, until the analysis of the entire material collected is finalized. It surely functioned in the 6<sup>th</sup> c., but we cannot exclude an earlier date for the construction moment (3<sup>rd</sup> – 4<sup>th</sup> c.). This fortified structure was probably guarding a secondary provincial road, but which must have been especially important if we consider that during the second half of the 5<sup>th</sup> and in the 6<sup>th</sup> c. the new border between the provinces of Dacia Mediterranea and Macedonia Secunda (MIKULČIĆ 2002, 22–24, Beil. 3) passed through here.

The fortification at Drenkovo represents for now a unique situation for the Balkan-Danubian area and it represents a mixture of *burgus* and *quadriburgium*. From an architectural point of view it resembles a series of fortifications in the Sassanid area, but also the Egyptian *hydreumata*. Another analogy could be the fortification at Bistrica (No. 76), as well as Kleinbasel and Untersaal on the Raetian border.

**Bibliography:** BOŽINOVA 2008.

#### 74. SOFIJA-“ORLANDOVCI”

Site located in the present-day “Orlandovci” district in Sofija, 4–5 km NE of the walls of *Serdica*. Archaeological excavations between the World Wars have identified a dwelling complex generally interpreted as a fortified *villa rustica* or even a military fort. More recently it was considered as one of the earliest monastic complexes in the Balkans.

**Architecture:** Rectangular fortification of 34 × 31 m on the outside, with 0.65–0.70 m-thick walls which enclose a surface of only 592 m<sup>2</sup>. It has two circular and two rectangular corner-towers. Inside there are three buildings set against the N, S and W sides, as well as a central building with a room with an eastwards-oriented apse, which is considered a Christian basilica.

**The coins** range from Maximinus Daza (305–313), Constantine, Constantius II and up to Theodosius II.

**Chronology:** the construction moment remains unknown. The identification of the complex with a fortified monastery would indicate a post-Constantinian date. According to V. Dinčev it should be dated to the middle or the second half of the 4<sup>th</sup> c. and represents a monastic complex of the *coenobium*-type. Other authors (Sv. Popović) consider that we are dealing with a *villa rustica* transformed in a monastic complex at the end of the 4<sup>th</sup> – beginning of the 5<sup>th</sup> c. The dwelling stops at the middle of the 5<sup>th</sup> c., following the Huns’ invasions.

**Bibliography:** VELKOV I. 1938; DREMSIZOVA-NELČINOVA 1969, 510, fig. 9 (recognizes the type *tetrapyrgia*); NIKOLOV 1976, 68, fig. 118.14 (admits the military character and is tempted to date it, like Bistrica, during the reign of Antoninus Pius, based on the inscriptions concerning the fortification of Thracia); HENNING 1987, 139, no. 371, Taf. 9.1 (type F); POPOVIĆ S. 1998, 143–144, fig. 5B; VÖLLING 2000, 36–40 (identified with a military fort); DINČEV 2006, 47–48, no. 37, fig. 94, DINČEV 2007 a, 530–532, fig. 49.

#### 75. SOFIJA-“LOZENEC”

The site is now in the “Lozenc” district of Sofija, 5 km S of the ancient city. Excavations conducted in 2000–2001 have identified an archaeological complex that developed in two different periods.

During the first phase, dated to the second half of the 4<sup>th</sup> c., a mono-naved paleochristian basilica was built here. In the second phase another basilica was built (this time much larger, with one nave and two aisles, narthex and atrium) and a series of buildings, all incorporated in a *quadriburgium*-type fortification (with rectangular corner-towers) covering a surface of approx. 0.25 ha. The authors of the research date the construction moment for phase II to the first years of Theodosius II (408–423).

The complex is interpreted as a monastery (*coenobium*) with close analogies in the fortifications at Pirdop and Škorpilovci.

Near the fortification there is a mausoleum-martyrium (S. Bojadžiev, AMV 4, 2006, 129).

**Bibliography:** DASKALOV et al. 2001; DASKALOV et al. 2002. Cf. DINČEV 2006, 48; DINČEV 2007 a, 532.

## 76. BISTRICA

Fortification located on the territory of Serdica (SW of the city). The regular plan, with four rectangular corner-towers is named *villa rustica* in some specialized works (L. Mulvin), but the typical *quadriburgium* plan suggests this complex should be considered a minor military road side fortification (Th. Völling).

It is of approx. 29.50 × 26.50 m (including the towers' front) and has an inner surface of 17 × 16.50 m, more precisely 280 m<sup>2</sup>. The rectangular corner-towers (6.50 × 7.50 m on the outside, approx. 4 × 5 m on the inside) are completely protruding. The defence wall is 1.20–1.50 m thick. A 1.50 m entrance (with a granite threshold) opens towards a 2.00 m-wide corridor that divides the *intra muros* area into three compartments.

There are no conclusive informations to date this complex. Some authors date it to the Early Roman Period (Dodov, Nikolov), others to the 4<sup>th</sup> – 5<sup>th</sup> c., the latter a more plausible hypothesis.

**Bibliography:** DODOV 1926–1927. Cf. DREMSIZOVA-NELČINOVA 1969, 510, fig. 10 (recognize the *tetrapyrgia* type); NIKOLOV 1976, 68, fig. 117.8 (military character and datation during the reign of Antoninus Pius!); HENNING 1987, 116, no. 44, Taf. 9.6 (type F); VÖLLING 2000, 33–36, Abb. 1/1; MULVIN 2002, 76, fig. 5.

## 77. PERNIK-“BELA VODA”

In the “Bela Voda” district of Pernik a Late Roman farm was researched, made up of the owner's residence and other buildings, all of them included in a fortification with four rectangular corner-towers. The estimated surface of the complex is approx. 0.16 ha and the walls are only 0.75 m thick. The entrances are also protected by rectangular towers.

The complex is dated to the end of the 3<sup>rd</sup> – beginning of the 4<sup>th</sup> c., was then abandoned during the first half of the 5<sup>th</sup> c. and then reused during the second half of the 5<sup>th</sup> – beginning of the 6<sup>th</sup> c. The dwellings from this last phase were made of adobe.

**Bibliography:** LJUBENOVA 1978; LJUBENOVA 1995; MULVIN 2002, 99–100, fig. 53; LJUBENOVA 2003, 194–196; DINČEV 2006, 50–51; DINČEV 2007 a, 513, 533–534.

## 78. BREGOVINA

Fortification located on the territory of *Iustiniana Prima*, more precisely approx. 15 km NW of Caričin Grad. Archaeological excavations were conducted there in 1957–1962 (Dj. Stričević).

According to V. Popović it could be identified with a fortification mentioned by Procopius (*De aedif.* IV, 1, 18), a *tetrapyrgia* built by Justinian in the area he was born in (the market town *Taurision*, located next to the new imperial foundation, *Iustiniana Prima*). Much more probable for this toponym would be to consider the site at Stulač (see below no. 79).

**Architecture:** regular hexagonal fortification of approx. 70 × 60 m, covering a surface of approx. 0.35 ha. The defence wall's thickness varies between 1.60 and 1.90–1.95 m. There is a simple entrance on the NW side. Five short U-shaped towers were excavated, two of which are located at the NE and SE corners.

**Intra muros buildings:** in the fortification's NE corner there is a basilica with a nave, two aisles, narthex, atrium and an apse incorporated or built inside the E side. Two *poternae* in the defence wall ensure the access to the atrium and the S aisle. Two phases were identified and the two entrances were blocked in the second one. Other stone buildings were identified inside the complex but were only partially excavated.

**Archaeological material:** pottery, tools, weapons and cult objects, typical of the 6<sup>th</sup> c.

**Chronology:** fortification built with certainty during the reign of Justinian and used up to the beginning of the 7<sup>th</sup> c.

**Bibliography:** JEREMIĆ, MILINKOVIĆ 1995 (with previous bibliography); JEREMIĆ M. 1999; MILINKOVIĆ 1999. Cf. POPOVIĆ V. 1989–1990, 279–290.

## 79. ŠTULAC (*TAURISION?*)

Near Caričin Grad there is a *quadriburgium* identified by field surveys and a test excavation conducted in 1976. I believe that *Taurision* and its *tetrapyrgia* (Procopius, *De aedif.* IV, 1, 18) could be in fact identified with this site.

The topographic plan shows a rectangular structure of approx. 60 × 50 m, with protruding corner-towers, of which at least three seem to be circular. Inside was excavated a small, mono-naved basilica.

**Bibliography:** ERCEGOVIĆ-PAVLOVIĆ, KOSTIĆ 1988, 43–44, no. 241.

## 80. BRZA-“MANASTIRIŠTE”

Fortification located around 20 km SE of Caričin Grad, known only by field surveys conducted in 1977. It covers a surface of approx. 55 × 50 m, has a 0.90 m wall made of stone and brick bound with mortar. Even if no other details are known, we cannot exclude the possibility of a *quadriburgium*.

**Bibliography:** ERCEGOVIĆ-PAVLOVIĆ, KOSTIĆ 1988, 39, no. 17.

## 81. KOZJAK-“CVILIG”

Site located 3 km SE of the city *Bargala*, in an area that represented in the 4<sup>th</sup> – 5<sup>th</sup> c. the border between the provinces Dacia Mediterranea and Macedonia. It was also an important mining district. Field surveys were conducted.

Watchtower of 10.00 × 8.60 m on the outside, with dry set masonry, outside face made of large basalt blocks and the embleton made of small stones. The wall is 1.90–2.00 m thick and on the NE side can be seen a thickening (?) of the wall, considered by I. Mikulčić as a repair, but should rather be considered the substruction of a staircase. In the SE part was added a rectangular courtyard of approx. 20/18 × 14/11 m, whose 1 m-thick walls are made of dry set masonry using smaller stones.

Based on the pottery the complex is dated to the Late Roman Period (4<sup>th</sup> c.).

**Bibliography:** MIKULČIĆ 2002, 397–398, no. 335, Abb. 305.

## 82. RADANJA

Site located in the same border area between Dacia Mediterranea and Macedonia, around 3 km S of the tower at Kozjak-“Cvilig”, with which it seemingly formed a pair. The area is known for its ancient mining industry. Field surveys were conducted.

Watchtower of de 5 × 5 m on the outside (approx. 8.60 × 8.60 m on the outside, based on the wall's thickness). In the N part a 28 × 28 m rectangular courtyard was added, with walls made of stone bound with mortar.

The pottery collected was dated to the Late Roman Period (4<sup>th</sup> c.).

**Bibliography:** MIKULČIĆ, 401–402, no. 339, Abb. 310.

## Dardania

### 83. RAS

An anterior watchtower was discovered in the perimeter of the Late Roman-Early Byzantine fortified settlement at Ras, located at the crossing of important roads from northern Dardania. It measures 4.80 × 2.90 m on the outside and has 0.50 m-thick walls. It was largely dismantled and superposed by the walls of the late fortification.

Even if the discoveries inside the tower are very poor, they were dated to the second half of the 3<sup>rd</sup> c. based on dwelling traces that preceded the construction of the fortification in the 4<sup>th</sup> c., as is shown by the archaeological and numismatic material.

**Bibliography:** POPOVIĆ M. 1999, 69–70, 396, fig. 20.

### 84. GORNO SVILARI

Fortification located in southern Dardania, 15 km W of *Scupi*, on the Vardar valley (*Axios*). It controlled a secondary route towards the province Praevalitana. Field surveys were conducted and isolated discoveries were made connected to the site.

Polygonal, almost oval fortification of 80 (N-S) × 60 m (E-V) covering a surface of 0.40 ha. The defence wall is 1.50 m thick, has five quadrangular towers (approx. 5.30 × 5.20 m) on the outside. On the inside there are barracks set along the defence wall, a cistern and possibly a Christian basilica.

The archaeological material was dated to the 4<sup>th</sup> – 6<sup>th</sup> c. (pottery, Zwiebelknopffibel and other metal objects). Coins from Diocletian, Constans, Theodosius I, Anastasius and Justinian were discovered.

**Bibliography:** MIKULČIĆ 2002, 166–168, no. 35, Abb. 58.

## 85. LJUBANCI

Site also located in southern Dardania, about 18 km N of Scupi, near the Crna Gora Massif (ancient mining area).

Triangular fortification of 72 × 84 × 43 m (approx. surface 0.40 ha). The defence wall is 2.60 m thick, has a pentagonal tower at the NE corner (10 × 7 m) and another (whose shape remains unclear) at the NW corner. The 2.60 m-wide entrance was on the N side and on the inside were barracks set against the W side of the defence wall.

The complex was dated to the 6<sup>th</sup> c. based on the archaeological material collected during the field survey, as well as on the construction technique.

**Bibliography:** MIKULČIĆ 2002, 171–172, no. 42, Abb. 62, 63.

## 86. ZELENIKOVO

Located on the Vardar valley (*Axios*), not far from the Roman road between *Scupi* and *Stobi*, around 3 km SE of the fortification at Taor. The area is rich in ancient mines. Field surveys were conducted and isolated discoveries were made in connection to this site.

Polygonal fortification of approx. 110 × 55 m, which covers a surface of c. 0.40 ha. The defence wall is 1.70 m thick and has a pointed front defended by a triangular tower (8 × 8 m), while on the other sides it has six rectangular towers (5.50 × 5.80 m). On the inside were built barracks set against the defence wall and a 22 × 12 m Christian basilica with one nave and two aisles. The archaeological and numismatic (coins from Justinian and Justin II) material, as well as the construction technique indicate that the complex was built in the 6<sup>th</sup> c.

**Bibliography:** MIKULČIĆ 2002, 197, no. 60, Abb. 92.

## 87. PAKOŠEVO

Fortification located in the same mining area, 4 km S of the fortification at Taor, on the Vardar valley. Field surveys were conducted.

Rectangular fortification of 32 × 20 m, with a triangular projection (tower?) in the middle of one of the sides and a 1.50–1.60 m-thick defence wall. On the inside there are barracks set against the defence wall. The complex was dated to the end of the 4<sup>th</sup> – 6<sup>th</sup> c. on the basis of the pottery discovered there.

**Bibliography:** MIKULČIĆ 2002, 178–180, no. 49, Abb. 69, 70.

## Scythia

### 88. SLAVA RUSĂ (IBIDA)

Watchtower located on the Fetea Hill near the Late Roman – Early Byzantine city (approx. 200 m SW of the annex-fortification). The restitution by Al. S. Ștefan based on the aerial photographs proposed a rectangular fortification of approx. 20 × 15 m (on the outside). The complex was dated to the 4<sup>th</sup> c. based on the material discovered there.

**Bibliography:** ȘTEFAN 1977 a, 458; ȘTEFAN 1977 b, 3 f.

### 89. BABADAG-“TOPRAICHIOI”

Site located on an important road inside the province, on the Taița Valley that connected the Black Sea shore to the Danubian limes, especially with the legionary forts at Troesmis and Noviodunum. Salvage excavations were conducted in 1978 (A. Opaïț), then systematic archaeological excavations were conducted in between 1979–1983 (A. Opaïț and M. Zaharide).

**Architecture:** rectangular fortification of 44 × 20.40 m on the outside and 38 × 14 m on the inside, which covers a surface of 532 m<sup>2</sup>. The defence wall is 3.40 m at the elevation level and 3.80 m at the foundation level; it was built in *opus quadratum*. The entrance on the E side was built as a protruding tower-gate (approx. 10.10 × 4.60 m). The external entrance was 3.75 m wide and the internal one 2.50 m wide. The entrance was blocked in phase B and in the same phase was added a mass of masonry on the inside of the tower-gate's N side (I believe it could be interpreted as a substruction for a staircase to the upper level, where one entered the fortification).

**Intra muros buildings:** the superstructure of the entire construction rests on 12 central pillars laid symmetrically in 6 pairs. The first and last pair is each flanked by a pair of lateral pillars (totalling 4) which are set against the defence wall on the E and W sides. Both central and lateral pillars are built in *opus mixtum*, but not at a standard measure. Generally the distance between the pillars is of approx. 3.50 m. In the fortification's second phase the entire *intra muros* area was divided by walls made of stone bound with earth (adobe was probably used for the elevation). We do not know exactly what was initially the configuration of the *intra muros* area. The authors of the research suppose that in phase A they were wooden barracks set against the defence wall and the pillars, on whose foundations will later (in phase B) be built the stone walls.

**Extra muros:** several *dolia* were excavated near the defence wall, along with other dwelling structures that belonged to a civilian settlement. We must mention a rectangular building set against the N wall of the tower-gate in phase B.

**Stratigraphy:** The complete excavation of the fortification revealed a clear stratigraphic succession that, corroborated with the construction changes and the analysis of the numismatic material led to the conclusion that there existed two main phases in complex's evolution, each containing three dwelling levels (A. Opaïț, M. Zahariade, in OPAIȚ et al. 1991, 191–193).

Phase A:

- N I: construction level with a fine layer of mortar at the base; it was destroyed by a fire (“fine layer of burn”); dated to 369/372 – 378 (but in the same final report in 1991,

at p. 339, M. Zahariade dates the destruction to 395–402, more precisely the Hunnic attack in 395, which also destroyed Halmyris);

- N II: restoration level, with a floor and a new layer of less fine mortar; it was destroyed by a powerful fire, dated to 395 or rather to 402–408 based on the numismatic discoveries (Zahariade in the same report, at p. 341);
- N III: a new restoration level, with a new floor, traces of burnt adobe and a large quantity of pottery; it was violently destroyed, which led to the collapse of the arcades and pillars; dated by coins from 408–423 and according to Zahariade the destruction was the result of the Huns' attack in 422, which was mentioned by Marcellinus Comes (“*Hunni Thraciam vastaverunt*”).

Phase B:

- N IV: general restoration, with the division of the *intra muros* area; at the same time outside the walls was identified a layer of intense dwelling; particularly violent destruction by fire, the most powerful in the site's history; massive layer of debris; dated by coins from 425–450 and supposedly destroyed in 433 or 441;
- N V: a new clay floor and a new destruction; the level was dated to 425–450 based on coins; the destruction was dated to 441/447 or 449/450;
- N VI: the layer was badly destroyed by modern intervention; it is represented by a clay floor and internal changes (several walls are dismantled); the level was well delimited outside the walls; dated by coins from Marcianus (450–457) and pottery that dates the complex to 450–475.

**Archaeological material:** pottery, lamps, tools and weapons etc. (typical for the second half of the 4<sup>th</sup> and for the 5<sup>th</sup> c.).

**Coins:** the statistics of the isolated coin discoveries (750 pieces, of which 540 were identified) is the following:

1 <sup>st</sup> – 3 <sup>rd</sup> c.	308– 324	324– 337	337– 341	341– 351	351– 361	361– 364	<b>364– 378</b>	378– 383	383– 395	395– 408	408– 423	425– 450	450– 457
7	2	2	5	17	129	2	<b>222</b>	1	73	50	14	10	2

To these are added five hoards:

- 1 – (C 8, level II, 1982): 380 pieces, the last from Valens (approx. 375);
- 2 – (C 17, level I–II, 1980): 30 pieces, the last from Theodosius I (383–395);
- 3 – (C 18, level I–II, 1980): 142 pieces, the last from Theodosius I (383–395);
- 4 – (C 18, level I–II, 1980): 229 pieces, the last from Arcadius (395–402);
- 5 – (C 19, level IV, 1980): 45 pieces, the last from de la Theodosius II (408–423).

**Chronology:** The coin from Valens (364–375) discovered on the mortar layer of the construction leve (Opaïț 1980, 425) ensures a *terminus post quem* for dating the fortification. Most probably the construction took place in between 369–372, a period characterized by an intense construction effort.

**Bibliography:** OPAIȚ 1980; ZAHARIADE, OPAIȚ 1986; OPAIȚ et al. 1991. Cf. SUCEVEANU 1992, 202, with n. 64 (attempts of identifying the complex with a *horreum* or *mansio*); TORBATOV 2002, 276–278; IONESCU, PAPUC 2005, 114–115.

## 90. MIHAI BRAVU

Site located on the same road on the Taița Valley, around 7 km NW of Topraichioi. In 1987 a *quadriburgium*-type fortification W of the village was discovered in the perimeter of a large rural settlement (identified with *vicus Bad...* based on an inscription discovered there). It was entirely excavated by A. Opaïț. This site also represented an important road side point during the Early Roman Period, as proven by an inscription that mentions a *beneficiarius consularis* for 190–198 AD.

The fortification was first mentioned by K. Škorpil (1917), which proposed a square plan (37 × 37 m) and round corner-towers. Unfortunately the results remained unpublished. From the plan published by A. Opaïț in 2004 the fortification seems to have measured 40 × 34 m on the outside, with an over 3.00 m-thick defence wall and fan-shaped corner-towers.

From the several short mentions we know that the fortification should be dated to the 4<sup>th</sup> c., that it ceased to be used after 375/378 (according to the numismatic discoveries) and that only a small quantity of pottery was discovered there, mostly for common use.

**Bibliography:** OPAIȚ et al. 1991, 192, n. 1; OPAIȚ et al. 1992, 107; TORBATOV 2002, 274–276; OPAIȚ 2004, 109 (with the fortification's plan).

## 91. MIRCEA VODĂ

*Quadriburgium*-type fortification located at a site called “La Talieni”, on the road that connected Tomis to Axiopolis and very probably at the crossroads with the central-Dobroudjan road (the Tropaeum-Ulmetum sector).

According to E. Comșa the fortification was almost trapezium-shaped (approx. 50 × 30 m), but the initial published plan indicates a square plan of aprox. 50 × 50 m, with round corner-towers. The wall's thickness varied around 1.50 m, and the construction technique used was the “Binder-Läufer” system. During a recent field survey I have personally collected 4<sup>th</sup> – 5<sup>th</sup> c. pottery around the SE tower (affected by the soil's erosion) which could provide a clue for dating the complex.

At Mircea Vodă a late Roman coin hoard was discovered (the exact place of discovery remains unknown), with the last pieces from Leon I (R. Ocheșeanu, BSNR 70–74 (124–128), 1976–1980, 231–237).

**Bibliography:** COMȘA 1957, 325–326, fig. 1; TIR, L 35, 51; ȘTEFAN 1974, 107–108; TORBATOV 2002, 297–299, fig. 78.

## 92. CASTELU

Salvage excavations conducted by Tr. Cliante in 1980 have led to the discovery of remains of a fortification with thick walls made of stone bound with mortar, located in the SE extremity of the village. For a long time it was considered to be it was a *quadriburgium*.

The plan kindly provided to us by our colleague Tr. Cliante shows that an approx. 38 m-long segment of the defence wall was excavated, which had a protruding rectangular tower. The defence wall has a foundation made of successive plinths (3.60–3.80 m thick) and an

elevation made of fashioned blocks that have a 2.75–2.80 m-wide *crepida*. The tower measures 11.80 × 9.00 m on the outside and 6.20 × 4.00 m on the inside; the walls are as thick as those of the defence wall, and the entrance was 1.60 m wide. Traces of stone buildings were discovered *intra muros*.

The topographic and constructive characteristics allow us to propose the existence of a fortification larger than a simple *quadriburgium*, with intermediary towers on the sides. Until new excavations are conducted we put forward the hypothesis of a minor *castellum* with an internal surface of under 1 ha. The site is approx. at the middle of the road between Tomis and Axiopolis.

### 93. POIANA

Fortification located most probably on the same road between Tomis and Axiopolis, recently identified on aerial photographs (1994) and satellite images (2007). It is located around 2 km S of the village of Poiana, on a dominant position that controls the area in several directions. Field surveys were conducted by C. Băjenaru and C. Nopcea in 2007.

*Quadriburgium* of approx. 40 × 40 m, probably with round corner-towers. The field survey results indicate that the fortification was surely used during the 6<sup>th</sup> c. (based on the pottery collected on the surface), even if we cannot exclude a construction date during the Tetrarchy by analogy with the fort at Mircea Vodă.

A linear structure visible on approx. 1.4 km on a NW direction ends on the W side of the complex's defence wall. Cristina Crăciun interprets this structure as a *clausura* that connects the fortification at Poiana with that at Castelu. The hypothesis needs to be supported by results of proper investigations though.

**Bibliography:** CRĂCIUN 2008, 357–359.

### 94. TVĂRDICA (*TIMOGITIA*)

Fortification located approx. 12 km W of the Black Sea shore. It was not excavated but on the plan drawn by K. Škorpil we notice that it is a trapezium-shaped structure (maximal dimensions of approx. 70 × 45 m) with corner-towers of different shapes (polygonal at the NE and SE corners, U-shaped? at the NW corner, rectangular at the SW corner). In the middle of the E side here is also a square tower (approx. 12 × 12 m). The precise chronology could not be established. The construction moment was dated by S. Torbatov at the end of the 3<sup>rd</sup> – beginning of the 4<sup>th</sup> c., but everything that we know for certain is that it was surely in use during the 6<sup>th</sup> c. (coins from Justinian in the Museum in Dobrič).

It was identified by K. Škorpil and S. Torbatov with the *Timogitia* mentioned in the *Itinerarium Antonini* (228, 1) at 18 mp from Callatis and 24 mp of Dionysopolis. I believe that if this identification is confirmed we can assume that the above-mentioned itinerary does not mention the road along the sea shore but rather a short variant between Callatis and Dionysopolis (see an identical situation between Odessos and Anchialos).

**Bibliography:** TORBATOV 2002, 337–341, fig. 91, 92.

## 95. OBROČIȘTE

It is located on the Batovska Valley, between Dionysopolis and the fortification at Odârçi, at the southern limit of province Scythia. It was partially excavated in 1958.

**Architecture:** Pentagonal fortification adapted to the terrain that covers a surface of approx. 0.20 ha. The length of the five sides is: 32.00 × 46.00 × 42.70 × 30.00 × 36.40 m. The defence wall is 2.50 m thick. On the NE and SE sides are placed three circular towers: two on the corners with the N and SW sides respectively and a third at the junction between the two. The entrance is on the SE side, practically a simple opening in the defence wall.

**Chronology:** there is no certain information to establish the chronology of the site. Based on isolated numismatic discoveries (among which a coin from Valens), the complex should be dated to the 4<sup>th</sup> – 6<sup>th</sup> c.

**Bibliography:** TORBATOV 2002, 372–375, fig. 107–109.

## 96. DEBRENE

A site located also at the border between the provinces of Scythia and Moesia Secunda, on the Batovska Valley (*Zyrax*), 3.5 km NE of the Debrene village, at a location called “Slamata”. Archaeological excavations were conducted in between 1989–1990 and led to the discovery of two consecutive fortifications dated to the 4<sup>th</sup> and 6<sup>th</sup> c. respectively.

### Debrene I

Small, almost triangular fortification, adapted to the terrain and which covers a surface of 0.23 ha. From this phase we know only a segment from the NE side of the defence wall, which is 2.40 m thick and built in *opus implectum*, of stone bound with earth.

**Chronology:** based on stratigraphical observations and the archaeological material (*fibula*) it is dated by S. Torbatov to the second half of the 4<sup>th</sup> c. and was in use up to the first quarter of the 5<sup>th</sup> c., when it was probably destroyed by the Hunnic attacks.

### Debrene II

After an interruption in the 5<sup>th</sup> c. dwelling level a new fortification was built on the same emplacement, but covering a slightly smaller surface than the initial one (approx. 0.20 ha).

**Architecture:** Pentagonal structure, adapted to the terrain, with a 2.00 m thick wall built in *opus implectum* and no towers. The “Andernach” (tower-gate) gate is on the E side, with an internal space of 2.40 m and an opening of the gate proper of 1.75 m. In the fortification’s NE corner, more exactly at the N gate and set against the E and NE sides, there is the substruction of a staircase that led to the defence wall’s upper level (4.08 × 1.75 m).

**Intra muros buildings:** set against the defence wall’s southern side there is a basilica with a nave, two aisles, narthex and *baptisterium* (23.25 × 7.05 m), seemingly built at a moment following the construction of the fortification.

**Coins:** Zenon – 1 piece, Anastasius – 1 piece, Justinian – 6 pieces, Justin II – 8 pieces, undetermined in the 6<sup>th</sup> c. – 1 piece.

**Chronology:** archaeological observations and the analysis of the numismatic material date the construction of the fortification to the first half of the 6<sup>th</sup> c., most probably during the reign of Justinian. The basilica was built in the second half of the 6<sup>th</sup> c., probably during the reign of Justin II. The destruction is dated to the end of the 6<sup>th</sup> c., following the Avar-Slavic attacks.

**Bibliography:** TORBATOV 2002, 345–352, fig. 96–98.

## Moesia Secunda

### 97. KOTEL-“HAJDUT VĀRBAN”

*Quadriburgium*-type fortification located close to the southern border of province Moesia Secunda, near the Kotel Pass, on a road connecting it to province Haemimontus. The structure is connected to a solid barrage-wall (*clausura*), approx. 1400 m long, which blocked the passage towards the Kotel Pass. It is also known from K. Škorpil's reports, where it is mentioned by the name of “Kale Kalabak”. It was never excavated.

It is a rectangular fortification (38 × 38 × 48 × 42 m, surface of approx. 0.17 ha), probably with round corner-towers. The walls were built in *opus mixtum* and are approx. 2.60 m thick. On the inside were discovered traces of a rectangular construction of 26 × 15 m, which could be a basilica (V. Dinčev believes that they are in fact barracks). On the outside it was protected by a rampart with ditch.

The pottery collected at the site during the field surveys indicates two distinct levels of dwelling: the 4<sup>th</sup> – 6<sup>th</sup> c. and the 13<sup>th</sup> – 14<sup>th</sup> c. St. Lisicov and N. Markov date the complex during the reign of Justinian.

**Bibliography:** LISICOV, MARKOV 1981, 65, 68, fig. 13. Cf. DINČEV 2007 a, 519.

### 98. SVALENIK

Recently excavated fortification near Ruse (*Sexaginta Prista*), on the bank of the Malki Lom river, in the place called “Dolan boaz”. It pertains to the *burgus* category and was located on a provincial *semita*, with connections to the Danubian cities of *Iatrus* and *Sexaginta Prista*, but also to Kovačevac and *Abrittus* inside the province.

The southern wall of the fortification (10.50 m) is 2 m thick and built in *opus vittatum*. Two periods of construction were recorded: 4<sup>th</sup> c.–beginning of the 5<sup>th</sup> c. and late 5<sup>th</sup> –6<sup>th</sup>/early 7<sup>th</sup> c.

**Bibliography:** TORBATOV, DRAGOEV 2008.

## Haemimontus

### 99. PANICOVO-“FIDAN PUNAR”

On the N bank of the river Erkeška, 1 km NW of the fortification at Panicovo-Gradišteto (recently identified with *Scatrae*), located on the military road between Anchialos and Marcianopolis. *Quadriburgium*-type fortification covering a surface of approx. 0.10 ha, probably with round corner-towers, the entrance on the W side and a 2 m-thick defence wall. It has a direct connection to a barrage-wall located between the rivers Erkeska and Kuru Kamčija, which closed the entrance to the Djulino Pass.

**Bibliography:** RAŠEV 1982, 55; PRESHLENOV 2001, 40, fig. 11.

## Thracia

### 100. SOPOT – “HISSARLÂK”

Site located 25 km N of *Diocletianopolis* (Hisar), near the mediaeval fortress *Kopsis* (“Anevsko kale”). In the ancient period the site was near the road that connected *Philippopolis* to *Oescus*, several kilometres away of *Sub Radice* (Hristo Danovo). Excavations were conducted in 1988 (M. Madžarov) and 2001–2002 (I. Džambov).

Quadrangular fortification measuring 93.50 m (N), 100 m (S), 98 m (E) and 32.80 m (V). It is in fact an adaptation of an approx. 90 × 90 rectangular plan to the terrain, with a surface of approx. 0.60–0.70 ha. At the NW and SE corners there are external rectangular towers. On the outside, on all sides a *proteichisma* (or a new fortification?) was built, for which there is no precise information yet. It seems that this defence wall had corner-towers. Coins from Justinian are also mentioned.

**Chronology:** there are no clear elements for a precise date; therefore the fortification is largely dated to the 5<sup>th</sup> – 6<sup>th</sup> c. based on the archaeological material. It was contemporary to a monastic complex located nearby, near the mediaeval city.

**Bibliography:** DŽAMBOV 2005.

### 101. POMOŠTNIK

Recently excavated Roman tower located in the Gălăbovo region, in the territory near the town of Simeonovgrad (*Constantia*). It measures 7.50 × 7.50 m on the outside (4.30 × 4.30 m on the inside) and has a 1.60 m-thick wall.

West of the tower was almost entirely excavated a building (A) that actually started from the tower’s wall, covering a surface of approx. 375 m<sup>2</sup>. It is divided into seven rooms and has yielded a rich archaeological material and coins from the 4<sup>th</sup> c. (the last one was dated to 367–370).

**Chronology:** the construction of tower and building A was dated to the 4<sup>th</sup> c. based on the archaeological material discovered at the site.

**Bibliography:** DINČEV 2007 b; DINČEV 2008 a.

### 102. MINERALNI BANI

Site located approx. 10 km SW of Klokotnica, in the territory of *Constantia* (Simeonovgrad), south of the Marica Valley.

**Architecture:** Polygonal fortification adapted to the terrain, measuring approx. 50 × 50 m on the main axes and covering a surface of approx. 0.15 ha. The defence wall is approx. 2 m thick. Four rectangular towers are placed near the defence wall’s most exposed corners, two of which are half protruding and the other two are internal. The main gate is on the E side, and on the inside, left of the entrance, there is a thickening of the defence wall that supported the staircase that led to the wall’s upper level. Two other small openings in the defence wall are located on the W and N sides, near the two internal towers. On the inside are buildings set against the defence wall. Coins dated to the 6<sup>th</sup>–9<sup>th</sup> c. were discovered.

**Chronology:** the complex is dated to the Early Roman Period (2<sup>nd</sup> – 3<sup>rd</sup> c.), reused in the 6<sup>th</sup> c and in the mediaeval period.

**Bibliography:** ALADŽOV 1969, 249–252; ALADŽOV 1987, 75–76. Cf. RAŠEV 1982, 148, Tabl. LVI/2; BORISOV 2001, 86, fig. 8; DINČEV 2006, 33, no. 99, fig. 78; DINČEV 2007 a, 516, fig. 38.

### 103. LJUBENOVO

Fortification located in the same area south of the Marica river, in the territory of *Constantia* (Simeonovgrad), about 15 km SW of the latter and 15 km SE of Mineralni Bani, very probably on a secondary road in the province Thracia. The fortification at the site called “Kaleto” was excavated in 1968.

**Architecture:** rectangular *quadriburgium*-type fortification measuring approx. 70 × 59 m on the inside and covering a surface of approx 0.41 ha. The defence wall is 2.00 m thick and there are three round corner-towers (internal diameter of approx. 5.20–5.30 m, 1.30 m-thick wall, entrances in the shape of a simple corridor), the northern corner-tower being rectangular (approx. 4.00 × 3.50 on the inside, with an entrance in the shape of a corridor with a rectangular anteroom). Two other rectangular towers are set in the middle of the NE and SW sides. The main gate is on the NW side, closer to the rectangular corner-tower. On the SE side there is a poterna.

**Intra muros buildings:** stone walls bound with earth that form several rooms set against the defence wall; in front of the rectangular corner-tower to the north several *dolia* were discovered.

**Extra muros:** a mono-naved basilica with a *baptisterium* was excavated and is dated to the 5<sup>th</sup> c.

**Archaeological material:** pottery, lamps, different metal, bone and horn objects.

**Coins:** 3<sup>rd</sup> c. – 1 piece; Constantine – 2; Constantius II – 1; 4<sup>th</sup> – 5<sup>th</sup> c., unidentifiable – 2; Justinian – 1; Justin II – 3; Tiberius II Constantine – 1.

**Chronology:** even if the authors of the excavations consider that the fortification was built in the 4<sup>th</sup> c., I believe it should rather be dated to the 6<sup>th</sup> c. based on the construction technique and the archaeological and numismatic material discovered there, typical of that period. We cannot exclude a dating to the Anastasius-Justin I period (see the analogies with the fortifications at Kostinbrod, Balčik-Tuzlata), but it might just as well be a construction from the period of Justinian. It was also used during the mediaeval period (9<sup>th</sup> – 11<sup>th</sup> c.).

**Bibliography:** ALADŽOV, BALABANJAN 1972; ALADŽOV 1987, 76. Cf. RAŠEV 1982, 148, 150, Tabl. LVII/1; OVČAROV 1982, 25; BORISOV 2001, 86, fig. 7.

### 104. ZNAMENOSEC

Fortification located on the site called “Alekov bair”, covering a surface of approx. 0.62 ha. The defence wall is approx. 2 m thick and has round corner-towers (internal diameter of 8 m and 1.40 m-thick walls).

Dated to the 6<sup>th</sup> c. based on the archaeological and numismatic material collected there (Anastasius – 1 piece; Justinian – 27 pieces; Justin II – 4 pieces), as it was probably a creation of the age of Justinian.

**Bibliography:** KARAILIEV 2007; KARAILIEV 2008.

## 105. DJADOVO

Fortification located at an important crossing of important roads (*Augusta Traiana – Kabyle* and *Constantia – Tuida*). Archaeological excavations were conducted in 1977–1984.

**Previous structures:** Neolithic tell of impressive dimensions.

**Architecture:** Rectangular fortification measuring 68.50 × 52.50 m and covering a surface of approx. 0.36 ha. The defence wall is 2 m thick and was built in *opus mixtum*. The gate is located approximately in the middle of the E side and is in fact a tower-gate (10 × 8 m). On the W side there are traces of a thickening of the defence wall that supported the staircase that led to the wall's upper level. The pentagonal corner-towers are protruding more on one of the sides, and have an interior divided in two: a rectangular room of 6.75 × 7.40 m and another triangular one of 2.50 × 5.20 m. The authors of the research suppose that in the first phase the towers were rectangular, while in the second a triangular front was added to them.

**Intra muros buildings:** traces of stone buildings were discovered in the fortification's SE corner. There is also a cistern.

**Archaeological materials:** pottery, *fibula*.

**Coins:** 50 % of the ancient archaeological material is dated to the 527–582 period. The last coins are from Tiberius II Constantine.

**Chronology:** Fortification dated by J. De Boer to the 6<sup>th</sup> c. The last coins can be tied to a destruction caused by the Slavs' invasion in 580/581. On its ruins there developed a rich mediaeval dwelling (12<sup>th</sup> c.).

**Bibliography:** DE BOER 1988–1989. Cf. BORISOV 2001, 83–84, 88, fig. 5; DINČEV 2006, 36, no. 103, fig. 85; DINČEV 2007 a, 521–522, fig. 42.

## Europa

### 106. KUÇUK BEDESTEN

*Quadriburgium*-type fortification which is part of the Long Wall, built as a protective barrier for Constantinopolis most probably during the reign of Anastasius. Within the framework of the “Anastasian Wall” Project of the University of Newcastle, under the supervision of James Crow field surveys were conducted and a topographic plan was drawn.

Rectangular structure, measuring 64 × 32 m, with two square corner-towers of 10.50 × 10 m on the outside and two others on the Long Wall. Pillars that support arcades are set against the inner face of the defence wall. Two entrances are made in the middle of the E and W sides (the latter corresponding to the Long Wall), which indicates that these forts were supposed to control the traffic across the Long Wall.

**Bibliography:** CROW, RICCI 1997, 251, fig. 9; NAPOLI 1997, 383–384, figs. 275, 277.

## 107. BÜYÜK BEDESTEN

Another *quadriburgium* integrated in the Long Wall. Field surveys in 1998 and 2000 conducted as part of the “Anastasian Wall” project.

Rectangular structure with almost identical dimensions with the above-mentioned fort, probably with rectangular corner-towers as well. On parts of the defence wall the elevation is well preserved and the NE tower is preserved on a height of approx. 5 m. It is built of large blocks of limestone, in a similar manner to the technique used in the Long Wall. As is the case at Kuçuk Bedesten there are two entrances (set in the middle of the S and N sides) and arcades set on pillars on the inner face of the defence wall. Outside the fortification and thus of the Long Wall a defence ditch was identified that prevented the access to this area.

**Bibliography:** CROW, RICCI 1997, 251; NAPOLI 1997, 383–384, figs. 275, 277.

## 108. BEDESTEN TEPE

In the same series with previous two fortifications, located at the Northern end of the Long Wall, near the Black Sea coast. Almost invisible in the forest, the plan was drawn by F. Dirimtekin. It has a rectangular structure. Two coins of Justin II were found in vicinity.

**Bibliography:** CROW, RICCI 1997, 251; NAPOLI 1997, 383, fig. 277.

## 2. TYPOLOGY, CHRONOLOGY, ARCHITECTURAL ELEMENTS

A typological and chronological analysis of minor fortifications in the Balkan-Danubian area allows us to draw their main characteristics (planimetry, internal surface, architecture), to discover influences from other areas, regional aspects in the construction method, or even to identify construction programs specific for certain periods.

While keeping the four main categories referred to in the chapter concerning fortifications in the Empire (*turres*, *burgi*, *quadriburgia* and *castella*), the following analysis will follow two main directions: identifying construction programs and drawing a chronological table.

### 1. TOWERS

We divided into three groups – according to the internal dwelling surface – the 13 towers that were researched or simply identified in the territory of the dioceses of Dacia and Thrace (only eight of which have an entirely known plan):

- small surface towers (up to 10 m<sup>2</sup>): Nufăru – “Proprietatea Ioan Butuza” (No. 49B) – around 4 m<sup>2</sup>, Korbovo- “Zbradila” (No. 25) – approx. 6 m<sup>2</sup>, Ras (No. 83) – approx. 7 m<sup>2</sup> and Lepenski Vir (No. 10) with a surface of 9 m<sup>2</sup>;
- medium surface towers (15–30 m<sup>2</sup>): Pomoštnik (No. 101) with 18.5 m<sup>2</sup>, Gornja Kamenica (No. 69), Radanja (No. 82) and Pesača (No. 9) all have around 25 m<sup>2</sup>, and Kozjak-“Cvilig” (No. 81) which has 27 m<sup>2</sup>;

- large surface towers (35–50 m<sup>2</sup>): Malo Golubinje – “Nešin potok” (No. 15) and Nufăru – “La Piatră” (No. 49A) – both of around 42 m<sup>2</sup>.

When considering their plans, we can identify square towers (Lepenski Vir, Pesača, Pomoštnik) and other rectangular-shaped towers (Korbovo and Ras). The round shape, popular during the Hellenistic and Early Roman periods<sup>1</sup>, seems to have been abandoned during the Late Roman Period.

Based on the results offered by the archaeological research and function of the dating of the construction moment we can also differentiate between:

- former Early Roman watchtowers, reused during the 4<sup>th</sup> c. and even later: Nos. 10, 25, 38 and 83 (**Fig. 354**);
- new towers, built during the 4<sup>th</sup> c.: Nos. 9, 15, 49A, 49B, 56(?), 81, 82 and 101 (**Fig. 355**).

Early Roman towers were small sized (up to 5 × 5 m on the outside) and had thin walls, of an average of 0.70 m at the elevation level. A typical example for this type is the completely excavated structure at **Lepenski Vir** (No. 10), whose external dimensions (4.90 × 5.10 m) integrates it into the standard type of watchtower. Even if no clear chronology could be established following the excavations (the archaeological material was very poor), its shape and analogies with other similar towers on the limes of Dacia Porolissensis, in Crimea, North Africa or Palestine (Fig. 48–50)<sup>2</sup> date it surely to the Principate, almost certainly to the 3<sup>rd</sup> c. There is no information concerning the plan and construction characteristics for the tower at **Ruse** – “**Selište**” (No. 38), dated by the authors who discovered it to the 2<sup>nd</sup> – 3<sup>rd</sup> c., the only certain aspect being that it was reused in the 4<sup>th</sup> c. (a Rumoridus stamp was discovered there). Arguments for a datation to the second half of the 3<sup>rd</sup> c. were discovered in the rectangular towers at **Korbovo** – “**Zbradila**” (No. 25) and **Ras** (No. 83), which could indicate a preference for this shape in that specific period.

As far as the towers constructed during the 4<sup>th</sup> c. are concerned, they are characterized by larger dimensions of both the external surface (over 7 × 7 m and up to 10 × 10 m) and the internal one (of an average of 25 m<sup>2</sup> for the medium sized ones), as well as by the thickness of the defense wall (over 1.00 m and reaching up to 1.90–2.00 m or even 2.50 m). Among them one notices a group of three towers that have a sort of external defense wall (more of a precinct, or a yard) made of lower quality masonry (**Fig. 356**). One of these – the tower at **Pesača** (No. 9), on the limes of Moesia Prima, measuring 7.50 × 7.50 m (on the outside) and 5 × 5 m (on the inside) – could have been built at the end of the 3<sup>rd</sup> – beginning of the 4<sup>th</sup> c. It is individualized by a pseudo-precinct built in a careless manner (dry set masonry with no foundation) and is considered by the author of the research (D. Minić) to have been added at a later stage. But it might as well be built during the first stage, if we consider the fact that this “precinct” had no defensive role, but rather that of delimiting a surface. A similar situation is that of the two towers identified in the border-zone between the provinces Dacia Mediterranea and Macedonia (more precisely in the territory of the city of Bargala): **Kozjak** – “**Cvilig**” (No. 81, where the precinct, as well as the tower itself are built in dry set masonry!) and **Radanja** (No. 82), both not excavated, but dated to the 4<sup>th</sup> c. based on the material collected on the surface. A close parallel could be made also with the tower at Zaviet Msus in Cyrenaica, dated probably to the

<sup>1</sup> See above, Chapter IV, pp. 57–58.

<sup>2</sup> For the square towers on the so-called limes of the river Meseş, see GUDEA 1997 c, 35 f, fig. 14 (Poieni 2, Horchiş), fig. 16 (Cetăţea, Rimbuşoi) etc. In Africa, on the *limes Tripolitanus*, Roman towers measure between 4.5 × 4.5 m and 6.5 × 6.5 m (TROUSSET 1990, 254, fig. 6) and in Palestine one of the best examples is the tower at Migdal Tsafit, dated to the reign of Trajan and reused during the 4<sup>th</sup> c. (GICHON 1974 c, 16 f, fig. 2).

1<sup>st</sup> c. AD (Fig. 50)<sup>3</sup>. The situation of **Pomoštnik** (No. 100) is approximately the same, with the difference that we have here an important edifice connected to the tower, instead of a courtyard.

Even if there is no clear data concerning the structure's plan, the information provided by the field survey on the tower at **Gornja Kamenica** (No. 69) – the thickness of the defense wall (2.50 m) and the internal surface of approximately 25 m<sup>2</sup> – places it in the same category as the towers in Dacia Mediterranea mentioned above. Analogies for these towers were found especially on the so-called “Rhein–Iller–Donau limes”, most of them dated with certainty during the reign of Valentinian I: Au-Hard<sup>4</sup> (Fig. 86), Oberes Bürgli<sup>5</sup> (Fig. 87), Hardwald<sup>6</sup> (Fig. 95), Rheinau-Köpferplatz<sup>7</sup> (Fig. 96). A similar construction is the one at Mauthen<sup>8</sup> (on the border between Noricum Mediterraneum and Venetia et Histria, dated to the second half of the 4<sup>th</sup> c.) (Fig. 94).

In a discussion concerning the distinction to be made between towers and *burgi* one must mention the tower at “Kleiner Laufen”-Koblenz (Fig. 85), on the limes of the Upper Rhine, measuring 7.80 × 8.10 m on the outside and c. 4.70 × 5.00 m on the inside, that is a surface of approx. 24 m<sup>2</sup>. This was dated during the reign of Valentinian I based on a foundation inscription dated to 371–374 in which, contrary to the well-known contemporary inscriptions that mention *burgi*, only the toponym *Summa Rapida* is mentioned, with no further information concerning the type of fortification this name refers to<sup>9</sup>. This tower can be considered representative for minor fortifications smaller than a *burgus*, more precisely under the limit of approx. 50 m<sup>2</sup> of dwelling space inside the compound (at most a 7 × 7 m internal space).

The fortification at **Malo Golubinje-“Nešin potok”** (No. 15) can be placed somewhere at the limit between tower and *burgus*, as it measures 8.53 × 8.53 m on the outside, has a defense wall only 1 m thick at the elevation level, which provides an internal surface to approx. 42 m<sup>2</sup>. This surface surely allowed a more developed dwelling inside the compound. Also, based on the thickness of the defense wall we can also determine the height of the tower. If there are no supporting elements on the inside, such as masonry pillars or massive wooden structures, the height of a tower with a large internal surface and thin walls has to be reduced, which can be the case of the tower at Malo Golubinje. The closest analogies are on the limes in Pannonia, where such constructions are frequent: Esztergom-Szentgyörgymező (3)<sup>10</sup>, Esztergom-Búbánatvölgy (2) (Fig. 91)<sup>11</sup>, Pilismarot-“Schiffsstation” (Fig. 98)<sup>12</sup>, “Slankamen-Humka”<sup>13</sup>, and with some structures from the limes Raetiae, as those discovered at Jüppe (Fig. 88)<sup>14</sup>, Tägerbach (Fig. 89)<sup>15</sup> and Ratihard (Fig. 90)<sup>16</sup>, all with an internal surface smaller than 50 m<sup>2</sup>. They are usually dated to

<sup>3</sup> GOODCHILD 1953, 68, fig. 17.

<sup>4</sup> DRACK 1993, 11, no. 2.

<sup>5</sup> DRACK 1993, 26–27, no. 21.

<sup>6</sup> DRACK 1993, 34–35, no. 36.

<sup>7</sup> PETRIKOVITS 1971, 217, no. 75, fig. 28.3; DRACK 1993, 39–41, no. 43 (approx. 10 × 10 m on the outside).

<sup>8</sup> CIGLENEČKI 1987, 47, 112, Abb. 47 (approx. 9.30 × 7.70 m on the outside, 1.40 m-thick wall and an internal surface of approx. 32 m<sup>2</sup>).

<sup>9</sup> CILXIII, 11537 = AE 1908, 142. Cf. GARBSCH 1967, no. 23; SCHÖNBERGER 1969, 186; PETRIKOVITS 1971, no. 73; DRACK 1993, 29, no. 27.

<sup>10</sup> SOPRONI 1978, 24–25, no. 3, Taf. 7.4 (approx. 9 × 9 m and 1.10–1.15 m-thick wall).

<sup>11</sup> SOPRONI 1978, 26, no. 8, Taf. 9.1 (8.14 × 8.14 m on the outside and has a 1.00 m-thick wall).

<sup>12</sup> SOPRONI 1978, 33–36, no. 16, Taf. 13.1 (8.60 × 8.60 m on the outside and has 0.93–0.96 m-thick walls).

<sup>13</sup> PILETIĆ 1964.

<sup>14</sup> DRACK 1993, 28, no. 23.

<sup>15</sup> DRACK 1993, 33–34, no. 31.

<sup>16</sup> DRACK 1993, 43, no. 50.

the reign of Valentinian I, but we cannot exclude the presence of certain structures as early as the reign of Constantine. This type of tower can be considered a transitional stage towards the *burgus*.

## 2. *BURGUS*-type

As we have mentioned above, the structure at “Kleiner Laufen”-Koblenz, which is not mentioned as a *burgus* in the foundation inscription, proves that this term should be applied to fortifications larger than simple towers. The best method to define a structure that can be described as a *burgus* in the Late Roman Period is to consider a fortification excavated on the limes of province Valeria, at Višegrad-Kőbánya (“Steinbruch”). A foundation inscription from 372 explicitly mentions the term *burgus* as the name of the structure built by the soldiers of the *legio I Martia*<sup>17</sup>. It is a square tower of 9.95 × 9.95 m on the outside, 1.05 m-thick walls, an entrance with a 1.30 m-wide door step and access stairs at one of the internal corners. At a later stage a massive internal pillar (with no foundation) was added to better support the roof. It was dated to the reign of Valentinian I based on archaeological and numismatic discoveries<sup>18</sup>. Therefore this *burgus* is nothing else than a larger tower that encloses a surface of approx. 62 m<sup>2</sup>, more than double the regular medium-sized tower. If we apply a margin of 10–15 m<sup>2</sup>, we can define as a *burgus* a rectangular tower or fortification with an internal surface of at least 50 m<sup>2</sup>.

If we consider these calculations and the construction characteristics we can distinguish five main types of *burgi* in the dioceses of Dacia and Thrace:

**Type 1: Simple *burgus* (large tower).** This type of construction is actually a large tower, that probably also had a considerable dwelling area inside (Fig. 357). The only example of such a fortification known up to the present moment is the *burgus* at **Hajdučka Vodenica** (No. 16A), which measured 12.50 × 11.80 m (on the outside) and 9.10 × 8.70 m (on the inside), had 1.50 m-thick walls and enclosed a surface of 79 m<sup>2</sup>. It was dated to the second half of the 4<sup>th</sup> c. (most probably during the Valentinian/Valens period) based on the archaeological and numismatic material. This chronology is also supported by the analogies provided by similar *burgi* on the limes of province Raetia – Finningen-Neu Ulm, at the junction of river Iller and the Danube, dated to the reign of Valentinian I<sup>19</sup> (Fig. 103) and especially those on the Noricum-Pannonian limes, at Passau-Haibach (12 × 12 m)<sup>20</sup> (Fig. 104) and Bacharnsdorf (12.20 × 12.20 m)<sup>21</sup> (Fig. 101), as well as an almost identical *burgus* discovered at Vrhnika-Turnovšče, near *Nauportus*, on the road between *Emona* and *Aquileia* (11.50 × 11.50 m on the outside)<sup>22</sup> (Fig. 110). In the Eastern part of the Empire a similar *burgus* (approx. 10.50 × 10.85 m on the outside) was identified at Qasr abu-Rukba, in the province Arabia<sup>23</sup> (Fig. 160). To the same category pertains a *burgus* located inside province Raetia, at Goldberg-Türkheim (15 × 15 m on the outside), which was dated to the Tetrarchic period based on stratigraphical data and is characterized by the remarkable thickness of the defense wall (3.30–3.50 m)<sup>24</sup> (Fig. 109). A

<sup>17</sup> RIU 804. Cf. SOPRONI 1967; SOPRONI 1989, 108–109, no. 3, Abb.5–6.

<sup>18</sup> SOPRONI 1978, 51–55, no. 22, Taf. 54.1.

<sup>19</sup> MACKENSEN 1999, 231, fig. 7.22 (11.70 × 12.00 m, surrounded by a ditch).

<sup>20</sup> MOOSBAUER 1997, 154–157, Abb. 51–52.

<sup>21</sup> UBL 1997 a, 203–206, Abb. 74–76.

<sup>22</sup> CIGLENEČKI 1987, 90, Abb. 124.

<sup>23</sup> PARKER 2006, 549, fig. 2.11. Cf. TORBATOV 2004 a, fig. 14 a.

<sup>24</sup> MACKENSEN 1999, 219 f., fig. 7.14. During the Constantinian period (*terminus post quem* 335–337) it was surrounded by an irregular-plan fortification.

similar *burgus*, again with large-thickened wall (2.70 m), is Rheinsulz (15.20 × 14.70 m) on the *limes Raetiae* (Fig. 100).

**Type 2: *Burgus* with an internal corner – “tower”.** This type is illustrated by the fortification at **Zidinac** (No. 6) – **Fig. 358** – that covers an internal surface of 14.50 × 14.50 m (210 m<sup>2</sup>), has a 1.50 m-thick defense wall and a rectangular structure of approx. 3.50 × 3.50 m in its NE corner, interpreted as a watchtower. If this is the case, then this tower must have been significantly taller than the *burgus*' defense wall. But we cannot exclude the possibility that this structure was actually just a small internal construction, maybe a staircase<sup>25</sup> as tall as the defense wall (in this case the structure itself must have been in fact a massive tower). The limited excavations of this site prevent us from finding out exactly how could the roof of a rather large tower (17.50 × 17.50 m on the outside) be supported without a central pillar<sup>26</sup>.

**Type 3: *Burgus* with landing-place. (Fig. 359)** Known also as “Lände-burgi” (O. Höckmann), these fortifications were investigated especially on the Rhine limes and the Pannonian sector of the Danubian limes and in most cases represent bridgeheads on the right bank of the Rhine and the left bank of the Danube. The only construction in the Lower Danube area that can be interpreted as a fortified landing-place with tower is the one at **Batin** (No. 37), which is dated to the second half of the 4<sup>th</sup> c. (but one can refine the chronology to the Valentinian I–Valens period based on the RVMORID stamps discovered there). In comparison to the almost standard series of “Lände-burgi” in the West (Engers, Zullestein, Mannheim-Neckarau, Veröce, Tahitotfalu-Balharvar, Szigetmonostor-Horanyi and Dunafalva, all with a massive rectangular tower and internal support-pillars – see Figs. 125–132)<sup>27</sup>, the complex at Batin is characterized by the reduced size of the tower (10 × 10 m on the outside, near the limit between a tower and a *burgus*) and by the different positioning of the wharf's wall. It has a closer analogy in the fortification at Szentendre-Dera patak (Fig. 133), even if the latter's tower is much larger (approx. 20 × 20 m)<sup>28</sup> and especially in the fortified landing-place discovered in the sector north of the Danube (that belonged to Pannonia Secunda) at Bač (Fig. 134), which had a tower similar to the one at Batin (approx. 10 × 10 m on the outside)<sup>29</sup>.

If we consider certain differences in the construction technique (especially in the size and architecture of the tower), as well as the data provided by the archaeological excavation, we can assume a later construction moment for the landing-places with a simple tower with no pillars, namely the reign of Valentinian I.

**Type 4: *Burgus* with *tetrapylon*.** It is probably the best represented type for this category of minor fortifications. The excavations on the Danubian limes, both in the sector under scrutiny

<sup>25</sup> See the examples at Pilismarót-“Schiffsstation” (SOPRONI 1978, 33–36, no. 16, Taf. 13.1; SOPRONI 1985, 29, Abb. 5), Visegrád-Kőbánya (“Steinbruch”) (SOPRONI 1978, 51–55, no. 22, Taf. 54.1) or Vrhniko-Turnovšče (above, n. 22).

<sup>26</sup> Such a pillar must have existed, but the central area of the *burgus* was not excavated (see the excavations plan in PETROVIĆ P. 1982–1983, 128, fig. 1). On the Pannonian limes *burgi* larger than 12 × 12 m all have a central pillar (see the examples at Pilismarót-Malompatok and Visegrád-Sibrik in SOPRONI 1978, 36–46, no. 17, Taf. 18, 22 and 55–59, Taf. 61.1,2).

<sup>27</sup> The chronology of these constructions is not well-defined yet: SCHLEIERMACHER 1942, p. 191 f. (the reign of Valentinian I); JORNS 1974 (the Diocletian-Constantine period); MÓCSY 1974 a, 191–196, Abb. 46 (Constantine or Constantius II); SOPRONI 1978, 91–92, no. 32, 37, 42 (Constantius II, probably the closest to the truth if we consider the OF ARN stamps). Cf. HÖCKMANN 1986, 399 f., Abb. 14.

<sup>28</sup> SOPRONI 1978, 71–72, no. 32, Taf. 75.2.

<sup>29</sup> MÓCSY 1969; MÓCSY 1974 a, Abb. 46.8.

here (where 10 examples were identified), as well as in the Noricum-Pannonian sector, but also certain discoveries in the western provinces' interior allow us to distinguish two types of construction from the manner the internal pillars were built and the way the *extra muros* space was organized<sup>30</sup>.

**Type 4 a: L-shaped pillars and external defense ditches. (Fig. 360)** To this type pertain the fortifications excavated at **Kladovo-“Donje Butorke”** (No. 22 A), **Ljubičevac** (No. 27 A) and **Mihajlovac-“Mora Vagei”** (No. 31), to which we may add the yet un-excavated fortification at **Seimeni** (No. 41). Apart from the two main characteristics, we can add the walls' thickness, which is greater than 1.90–2.00 m at the elevation level, reaching up to 3.00–3.30 m, as well as the predilection for the use of *opus mixtum* as a construction technique.

As far as the chronology of these fortifications is concerned, there are several arguments for dating them to the Tetrarchic period. First of all, the excavations at Ljubičevac have led to the discovery of two coins – one in the W wall and the other on the treading level – that support this chronology: the first is from Probus (279) and the other from Diocletian, dated to 289–290, which ensures a *terminus post quem* for the construction moment<sup>31</sup>. The second dating element is the similar fortification on the limes of province Noricum Ripense, at Zeiselmauer<sup>32</sup>. Here the context for building the *burgus* is completely different from what we have documented on the Middle and Lower Danube, as it was raised in the NE corner of an old Roman auxiliary fort, rebuilt during the reign of Constantine. The authors that have studied it consider that it was built in the second half of the 4<sup>th</sup> c., either during the reign of Valentinian I (according to H. Ubl), or after 380 (according to S. Soproni), based especially on the presumption that it superposed a fan-shaped corner-tower of the Constantinian fort. But the traces of the supposedly demolished corner-tower have yet to be uncovered and the only other ruins there are dated to the 1<sup>st</sup> c. A.D. This is why we cannot exclude the possibility that the *burgus* was constructed in fact in the corner of the Early Roman fort and there is no argument to deny that this happened during the reign of Diocletian, when the three highly similar analogies on Iron Gates limes were raised. The situation is repeated in the case of two nearby forts, at Wallsee (*Locus Felix?*)<sup>33</sup> and Traismauer (*Augustiana*)<sup>34</sup>, but can be supposed also for other locations<sup>35</sup>. This situation leads us to the conclusion that a local construction

<sup>30</sup> The first indications of the differences between the two variants in TOMOVIĆ 1987, 97 f., where the author incorrectly includes Bordej in the Tetrarchic subtype and Ljubičevac and Rtkovo-Glamija in the Valentinianic subtype.

<sup>31</sup> KORAĆ 1996, 105–109. This first treading level ends with a fire, dated by coins from Constantius II (341–346), which constitutes further proof that the *burgus* could not have been built later than the second half of the 4<sup>th</sup> c. A similar date (end of the 3<sup>rd</sup> – beginning of the 4<sup>th</sup> c.) was proposed for the fortification at Mihajlovac-“Mora Vagei”, the only one to be completely excavated (CERMANOVIĆ-KUZMANOVIĆ, STANKOVIĆ 1986, 453–466).

<sup>32</sup> UBL 1977, 251–262; UBL 1997 b, 231–236, Abb. 84, 86. Cf. SOPRONI 1986, 411, Abb. 6, 7; JOHNSON 1983, 179, fig. 69.

<sup>33</sup> UBL 1997 c, 196–201, Abb. 72.

<sup>34</sup> UBL 1997 d, 221–225, Abb. 80.

<sup>35</sup> Such as the forts at Schlögen (*Ioviacum*), Almásfüzitő (*Odiavum/Azaum*) or Dunabogdány (*Cirpi*). SOPRONI 1986, 409 f., dates them in the post-Valentinianic period. A *burgus* located in the NW corner of the fort at Rusovce (*Gerulata*) seems to fit the same pattern and, even if it has a slightly more complex shape, it also has the typical L-shaped pillars at the corners (SNOPKO et al. 1986, 446–452, fig. 2). A further argument for the way early forts were used during the Tetrarchy is the case of the fortification at Eining (*Abusina*), this time on the limes of province Raetia, where a smaller fortification – similar to a *quadriburgium* – was built in the Roman fort's SW corner. Its construction during the Tetrarchy is now certain (MACKENSEN 1999, 214–216, fig. 7.12) and the hypothesis put forward by S. Soproni (the post-Valentinianic period, cf. SOPRONI 1986, 410) is already out of date.

program was applied in this sector, which supposed the adaptation of Tetrarchic *burgi* to the new Constantinian fan-shaped corner-towered forts.

When discussing the dating elements, we should also mention a recent hypothesis put forward by S. Torbatov, which proposes that the term *praesidium*, which appears in the famous Tetrarchic inscriptions from the Lower Danube, should be connected to *burgus*-type fortifications<sup>36</sup>.

Another element that helps refine the chronology of the Diocletianic type of *burgus* is the manner in which the defensive capacity was improved by digging two concentric ditches around the fortification. Starting from the results of the excavation of these ditches at Mihajlovac-“Mora Vagei” and Ljubičevac, we have identified a similar construction technique at Kladovo-“Donje Butorke”<sup>37</sup> too. This technique is also used in roadside fortifications from northern Gallia, such as those at Morlanwelz II and Liberchies I<sup>38</sup>. Another construction technique typical for this period is the walls’ remarkable thickness and a close analogy is given by the Tetrarchic *burgus* at Goldberg-Türkheim (Raetia)<sup>39</sup>.

**Type 4 b: Rectangular pillars and external stone precinct. (Fig. 361)** To this category pertain the *burgi* discovered on the limes of Dacia Ripensis at **Ušće Slatinske reke** (No. 29 A), **Mihajlovac-“Blato”** (No. 30), **Borđe**j (No. 32) and maybe **Malo Golubinje** (No. 14A), with the mention that there is no sufficient data on the latter. The differences from the previous type are not only the shape of the pillars, but also the walls’ thickness, which varies between 1.60 and 1.80 m, as well as the use of the *opus incertum* (with the exception of No. 32 where a different *opus mixtum* was used, with 5 courses of bricks). Also, one notices that the space in-between the four pillars is larger than that in *burgi* with L-shaped pillars. As far as the external precinct – which substitutes the ditches present in the previous type – is concerned, we must mention that such a structure was only identified at Mihajlovac-“Blato” and Borđe;j<sup>40</sup> and covers a square (approx. 36 × 36 m at Borđe;j) or rectangular area (at Mihajlovac-“Blato”), with a 1.00–1.10 m-thick wall (or 0.70 m at Borđe;j). The quality of its masonry is usually inferior to that of the *burgus*, but it also uses the *opus incertum*. The theory which sees the external wall as a later addition<sup>41</sup> is not based on concrete arguments. If we consider the walls’ thinness, it is more probable that they played the role of a precinct and therefore were probably built at the same moment as the *burgus* itself.

The closest analogies for this variant of *burgus* with *tetrapylon* are found on the Pannonian limes (province Valeria), in four locations: Budakalász,<sup>42</sup> Leányfalu<sup>43</sup>, Visegrád-Lepence<sup>44</sup> and Ócsény<sup>45</sup> (see Figs. 116–119). The first two are known from earlier excavations and were dated

<sup>36</sup> TORBATOV 2002, 78–79; TORBATOV 2004 a, 37, 47. The author bases his theory primarily on the inscription at “Donje Butorke”, which he considers belonged to the initial *burgus*-type fortification, but also on another fragmentary inscription from Seimeni, where a fortification of the same type is supposed to have existed. But only an archaeological excavation on the latter site could confirm this hypothesis. A second possibility is that the inscriptions were brought from the forts nearby (Diana, Capidava or Axiopolis respectively) and reused in the construction of the more recent fortifications, such as the *quadriburgium* at “Donje Butorke”. But there is no conclusive evidence for this case either.

<sup>37</sup> See the comments in the Gazetteer, No. 22 A.

<sup>38</sup> BRULET 1990, 127–129, 302–303, fig. 34, 35 (Morlanwelz II) and 130–133, fig. 37 (Liberchies I).

<sup>39</sup> See above note 24.

<sup>40</sup> The excavations at Ušće Slatinske reke were actually only several test trenches in the *burgus*.

<sup>41</sup> TOMOVIĆ 1986; CERMANOVIĆ-KUZMANOVIĆ, STANKOVIĆ 1984.

<sup>42</sup> NAGY L. 1937, 271. Cf. SOPRONI 1978, 66, Taf. 75.3; SOPRONI 1985, 36, Abb. 26.

<sup>43</sup> SOPRONI 1978, 63–66, no. 30, Taf. 67; SOPRONI 1985, 36, Abb. 19.

<sup>44</sup> GRÓF, GRÓH 1998–1999; GRÓF, GRÓH 2001. See also AÉ 2000, 1223.

<sup>45</sup> PÉTERFI 1999; PÉTERFI 2003.

to the reign of Valentinian I based on the archaeological material; the last two are recent discoveries, with the mention that Visegrád-Lepence is fairly well dated to the reign of Valentinian I (371) by the inscription discovered *in situ* and the heads of imperial statues found there. Another similar construction was discovered at Stelli (Fig. 115), in the Raetian section of the limes<sup>46</sup>, and close analogies must be taken into account with the sites at Moers Asberg/*Asciburgium* (Fig. 114), on the Rhine limes<sup>47</sup>, and Asperden (Fig. 124), this time on a road in the hinterland of the limes (province Germania Secunda), also dated to the reign of Valentinian<sup>48</sup>.

All four Pannonian structures have construction characteristics nearly identical to those in Dacia Ripensis, as they clearly are part of a construction program elaborated during the Valentinian/Valens period. If for the Pannonian limes there are several inscriptions that attest the building activities in this period (especially between 371–372)<sup>49</sup>, for Dacia Ripensis there is only one mention in an edict of Valentinian addressed to dux Tautomedes (in 365), who had to supervise the restoration of old towers and the building of new ones<sup>50</sup>. There is also a possibility that the *burgi* with *tetrapylon* discovered at the three locations on the Danubian limes were the creation of Tautomedes, even if in the above-mentioned document only two towers (*turres*) are mentioned.

**Variants to types 4 a and 4 b. (Fig. 362, 363)** A variant of these two standard types is the fortification at **Rtkovo-“Glamija”** (No. 24 A), which has rectangular internal pillars with one of the edges rounded and a wall thickness similar close to the ones pertaining to type 4 a (1.92 m at the elevation level). Even if there are only dating elements for the second half of the 4<sup>th</sup> c. (Valentinian?), we cannot exclude the possibility of it being a Tetrarchic construction.

Another building that has no perfect analogies in the two types with *tetrapylon* is the so-called “*praetorium*” at **Dinogetia (Garvăn)** (No. 47), rightly interpreted lately as a *burgus*. It is characterized by small dimensions (14 × 12.50 m) and the thinness of its walls (approx. 1.00 m). In the absence of conclusive archaeological data two hypotheses were put forward concerning its chronology. S. Torbatov, the first to have identified it with a *burgus*, dates it after 378 based on a layer of abandon more recently identified in the site’s stratigraphy<sup>51</sup>. This datation is less credible, as still lacks the archaeological arguments to support it. The closest analogies are on the Bavay-Köln road in Northern Gaul, where small fortifications of the *burgus* with *tetrapylon* type were identified at Braives (14 × 11.50 m, with 1.20 m-thick walls) and Hulsberg (8.80 × 12.20 m, with 0.90–1.00 m-thick walls). Their dimensions are close to the construction at *Dinogetia*, the walls’ thickness is similar and inside appear the same four square pillars<sup>52</sup>. Their datation is based on material from the first half of the 4<sup>th</sup> c., more precisely the

<sup>46</sup> DRACK 1993, 19–20, no. 9.

<sup>47</sup> BECHERT 2003. Cf. JOHNSON 1983, 270, fig. 53; BRULET 2006 a, 159, fig. 153.5.

<sup>48</sup> PETRIKOVITS 1971, 188–189, 216, fig. 28.2; FISCHER 2006 a, 203–205, fig. 198–200. Unlike those in Pannonia and Dacia Ripensis, the *burgus* here is surrounded by a precinct with round corner-towers and one in the middle of three of the sides, which reminds us of the structure of a *quadriburgium*, with the difference that its defense wall is rather thin (only 1 m thick) and built in a rudimentary manner. This *burgus* has close analogies in the so-called “signal stations” from the British coast (WILSON 1991).

<sup>49</sup> CIL III, 3653=ILS, 775=RIU, 771 (Esztergom), RIU 804 (Visegrád- Kőbánya), AÉ 2000, 1223 (Visegrád-Lepence). Interesting to note here is that all documents mention *legio I Martia* (a unit of *comitatenses*) as responsible for the erection of these *burgi*. Cf. FELLMANN 2004, 203.

<sup>50</sup> CTh XV, 1, 13. See above, Ch. III, p. 34, note 104.

<sup>51</sup> TORBATOV 1999, 271–274; TORBATOV 2002, 136–138, fig. 15. For the site’s stratigraphy see BARNEA Al. 1984, 339–346; BARNEA Al. 1986, 447–450.

<sup>52</sup> BRULET 1990, 143–149, fig. 47 and BRULET 2006 b (Braives, with the mention that I can not explain why the author published different plans, first with classical tetrapylon, the second with the four central pillars arranged in line); BRULET 1990, 149–151, fig. 50 (Hulsberg).

reign of Constantine. Based on these analogies I suggest – with caution – a dating for the *burgus* at Dinogetia to the Constantinian period, as it probably was a construction that preceded the well-known fort.

**Type 5: *Burgus* with divided internal space.** (Fig. 364) In this category must be included the larger structures (internal surface between 250–500 m<sup>2</sup>) such as the representative example at **Babadag-“Topraichoi”** (No. 89). Even if it was supposed that its initial function was that of a *horreum*, excavations have later shown that the fortification’s internal space was divided in order to allow dwelling inside the compound. The fact that many weapons were found indicates that it was a military post that at the same time supplied the units inside the province with products brought via the Black Sea.

Other fortifications on the territory of the two dioceses that can be included in this category, but for which there is no archaeological data at the present moment, are those at **Constanța-“Palazu Mare”** (No. 55) and **Slava Rusă** (No. 88), both with a rectangular plan and a surface that can be estimated at between 300 and 500 m<sup>2</sup>. Also, maybe the fortification at **Enisala-“Palanca”** (No. 52), now destroyed, had the shape and dimensions that could have placed it somewhere at the limit between a *burgus* and a minor *castellum*.

Analogies for this type of *burgus* are found especially in the Western provinces – Eisenberg and Bad Dürkheim-Ungstein (in the hinterland of the Rhine limes, both dated during the reign of Valentinian I)<sup>53</sup>, Frauenberg-Weltenburg (on the limes of the province Raetia, dated to the same period)<sup>54</sup>.

The construction of these fortifications, especially along the important roads, indicates that they can be considered roadside fortifications that controlled the traffic (some of them even played the role of supply bases).

### 3. QUADRIBURGIUM-type

From a typological point of view we can distinguish a variety of plans for these fortifications. I do not believe that it helps to distinguish between all the types of plans or defensive architecture styles, because these differ from one structure to another, as well as from one period to another. But in order to draw a typological picture to serve as a starting point for dating the monuments, we believe two main types can be distinguished:

- The standard type, with four corner-towers and a simple gate;
- Variants with intermediary or gate towers.

Most fortifications investigated in the area under scrutiny can be included in the standard type. On the Danubian limes there are the fortification at Dobra-“Saldum” (No. 7), Tekija (No. 17), Orșova (No. 18), Sip (No. 20), Hajdučka Vodenica (No. 16B, with the mention that the pentagonal intermediary tower was added at a later date), Ljubičevac (No. 27B) and Ušće Slatinske reke (No. 29B). Even if they were only partially or not at all excavated, the fortifications at Veliko Gradište (No. 4), Peceneaga (No. 44), Traian (No. 45) and Jijila (No. 46) can be included in the same category. On the west shore of the Black Sea there is the representative fort at Ovidiu (No. 54) and maybe in the same category could be included the one at Cape Šabla 1 (No. 58A). Much more standardized appear to be the *quadriburgia* discovered inside the provinces, among which the one at Kula can be considered as a prototype for other fortifications

<sup>53</sup> BERNHARD 1981, 23 f., Abb. 8, 21.

<sup>54</sup> MACKENSEN 1999, 233, fig. 7.23.

of this category not only in the Balkans, but in other parts of the Empire too. The fortifications at Medvedja (No. 63), Puținei (No. 64), Vidrovgrad (No. 65), Orešac (No. 68), Pirdop (No. 72), Sofija-“Orlandovci” (No. 74), Pernik-“Bela Voda” (No. 77), Štulac (No. 79), Mihai Bravu (No. 90), Mircea Vodă (No. 91), Poiana (No. 93), Kotel-“Hajdut Vărban” (No. 97) have the same plan, most use round corner-towers, even if there are some rectangular or fan-shaped.

The same simple plan was also used for the fortifications that are part of barrage-walls (*clausurae*), such as the one at Porečka reka (No. 13), Panicovo-“Fidan Punar” (No. 99) and the three *quadriburgia* identified on the trajectory of the Long Wall (Nos. 106–108).

The fort at **Bistrica** (No. 76) is more difficult to define from a typological point of view, as it was considered for a long time to be a *villa*; its small internal surface (280 m<sup>2</sup>) points towards a *burgus*, but the presence of the four corner-towers plead for its definition as a *quadriburgium*. In the same category should be included also the fort at **Podvis** (No. 67). A close analogy for this mixture of *burgus* and *quadriburgium* characteristics (**Fig. 365**) can be found on the Rhine limes at Kleinbasel (Fig. 146) and Untersaal (Fig. 147), both enclosing approx. 170 m<sup>2</sup> and with round corner-towers<sup>55</sup>. For a definition as a *quadriburgium* plead the small forts discovered in Palestina at En Boqeç (Fig. 178) and Upper Zohar (Fig. 179)<sup>56</sup>, both dated to a late period, most probably the first half of the 6<sup>th</sup> c. The fort at Bistrica was dated to the 5<sup>th</sup> c., but with no certain arguments, and the one at Podvis is not excavated.

A rare occurrence in the Balkan area is the fortification recently discovered at **Drenkovo** (No. 73), which has architectural features (see the corner-bastions) similar to the fortifications in the East, such as the Egyptian *hydreumata*, dated to the Early Roman period<sup>57</sup>, or the Sassanid fortifications<sup>58</sup>.

A variant of the standard type is the *quadriburgium* at Gornea (No. 5) that, apart from the four corner-towers, also has two gate towers. The fortification at Hinova (No. 23) has gate-towers, as well as intermediary towers. The fortification at Ravna (No. 12) also has intermediary towers, as well as a tower-gate (the same at Škorpilovci, No. 60); the same situation can be seen at Kladovo-“Donje Butorke” (No. 22B), which has a rectangular apsed tower in the middle of one of the sides.

I believe that a more useful typology should be based on a scheme that sees a chronological evolution of this category. Even if such a scheme will be modified in the future, as archaeological excavations will progress, I believe that using this scheme we can distinguish two main types of *quadriburgia*, more precisely some specific for the 4<sup>th</sup> c. (“Late Roman”) and others bearing the characteristics specific for the 6<sup>th</sup> c. (“Early Byzantine”).

### Late Roman *quadriburgia* (4<sup>th</sup> c. – early 5<sup>th</sup> c.)

The detailed analysis of the construction technique, the architecture of the defense wall and the towers, the archaeological and numismatic material all allow us to identify a series of constructions that can be certainly dated to the 4<sup>th</sup> c. It is true that in most cases there are no clear chronological elements (inscriptions, literary sources etc.) and no complete and published

<sup>55</sup> Kleinbasel: MOOSBURGGER-LEU 1974, 161 f. 1983, 158–161; DRACK 1993, 8–10; NUBER, REDDÉ 2002, 216, fig. 31; FELLMANN 2006 b, 218, fig. 218. Untersaal: GARBSCH 1967, 62 f.; JOHNSON 1983, 172, fig. 65.

<sup>56</sup> GICHON 1993 (En Boqeç, erroneously dated to the 4<sup>th</sup> c.); HARPER 1995 (Upper Zohar, dated to the end of the 5<sup>th</sup> c.). For both forts see a detailed analysis and clear chronological indications in MAGNESS 1999, 189 f. (who dates them to the middle of the 6<sup>th</sup> c.).

<sup>57</sup> REDDÉ, GOLVIN 1987, 54–55; REDDÉ 1995, 97, fig. 9.

<sup>58</sup> KLEISS 1991, Abb. 3 (Bad Qal’eh), see above Fig. 71.

archaeological excavations. In very few cases there are a minimum lot of archaeological and numismatic artifacts that can constitute a *terminus post quem* for dating the construction moment. There are 13 fortifications that have been archaeologically researched and can be dated with certainty to the 4<sup>th</sup> c. First of all there are the *quadriburgia* on the Danubian limes, located either south of the river, such as those at **Ravna** (No. 12), **Porečka Reka** (No. 13), **Tekija** (No. 17), **Nova Černa** (No. 39A), or north of it at **Gornea** (No. 5), **Orșova** (No. 18) and **Hinova** (No. 23), then there is one on the western Black Sea coast (**Cape Šabla**, No. 58A) and several inside the provinces: **Puținei** (No. 64), **Kula** (No. 66), **Sofija-“Orlandovci”** (No. 74), **Pernik-“Bela Voda”** (No. 77) and **Mihai Bravu** (No. 90). To this we may add other two fortifications inside the provinces – **Medvedja** (No. 63), for which there are only indirect elements that can date it to the second half of the 4<sup>th</sup> c., and **Sofija-“Lozenec”** (No. 75), which is dated at the beginning of the 5<sup>th</sup> c.

When analyzing these fortifications one notices that many were raised on previously uninhabited locations, with the exception of those at Ravna, Tekija, Orșova and Cape Šabla, which were built over the ruins of Early Roman structures (2<sup>nd</sup>–3<sup>rd</sup> c.) and that at Medvedja, which surrounds a Constantinian *mansio*.

The plan is generally quadrangular, usually square (Gornea, Kula) or almost square (Ravna, Orșova, Sofija-“Orlandovci”), but also rectangular (Mihai Bravu, Hinova, Medvedja) or even rhomboidal (Tekija). The internal surface<sup>59</sup> usually varies between 0.06–0.07 ha (Sofija-“Orlandovci”, Tekija) and 0.17 ha (Hinova), with three remarkable exceptions (Porečka Reka, Puținei and Medvedja) where the internal surface is twice as large as the one at Hinova. The latter appear in special contexts: either as an auxiliary fort for a barrage-wall (*clausura*), such as the one at Porečka Reka, as an outpost in the territories controlled by the Empire north of the Danube (Puținei), or as a structure that evolved into a fortified *mansio* (Medvedja). An intermediary surface (0.25 ha) has the fort at Sofija-“Lozenec”, more similar to the standardized plans of the Early Byzantine *quadriburgia*, but this is due probably to its late date at the beginning of the 5<sup>th</sup> c.

The thickness of the defense wall at the elevation level varies between 0.65–0.75 m (Sofija-“Orlandovci”, Pernik-“Bela Voda”), 1.10–1.25 m (Ravna – but only in the case of the four towers), 1.30–1.70 m (Gornea, Hinova, Puținei, Nova Černa), 1.80–2.10 m (Tekija, Orșova, Cape Šabla), 2.20–2.50 m (Kula, Porečka Reka) and a maximum of 3.00 m (Mihai Bravu, even if maybe only at the foundation level).

From an architectural point of view these *quadriburgia* pertain to the standard type 1, with four corner-towers (Kula, Mihai Bravu, Orșova, Tekija, Puținei, Porečka Reka and Sofija-“Orlandovci”, the latter being a variant with the towers added at a later stage), as well as to type 2, with further towers built on the sides, flanking the gate or with gate-towers (Ravna, Nova Černa, Gornea, Hinova). A remarkable characteristic is the large width of the gate (in the cases where it was excavated): 3.00 m at Kula, 3.65 m at Hinova, 4.00 m at Porečka Reka and up to 5.55 m at Gornea. The towers are generally square, with the exception of those at Kula (round), Mihai Bravu (fan-shaped) and Tekija (rhomboidal).

The chronology of the *quadriburgia* in the 4<sup>th</sup> c. presents several problems due to the absence of dating elements and an insufficient interpretation of the archaeological material. Even so, we can distinguish three main construction stages:

<sup>59</sup> Ordered by size (in ha): 0.06 – Sofija-“Orlandovci” / 0.07 – Tekija / 0.09 – Orșova / 0.10 – Mihai Bravu, Nova Černa / 0.12 – Kula, Ravna / 0.15 – Gornea / 0.17 – Hinova / 0.25 – Sofija-“Lozenec” / 0.34 – Porečka Reka / 0.40 – Puținei / 0.58 – Medvedja.

I – **The Tetrarchic period** (293–308/311): (**Fig. 366**) in the present state of the research the only *quadriburgium*-type fortification that can be almost certainly dated to this period is the one at **Kula** (No. 66). The dating elements are offered in general by architectural elements and the structure's position on the terrain (on the road between *Bononia* and *Felix Romuliana*). Archeology has not offered a *terminus post quem*, the only indications for it being several coins from Maximianus, Galerius and Maximinus Daza (to which we can add some of the 3<sup>rd</sup> c. coins that were probably in use during the Tetrarchy). When comparing it to other *quadriburgia* that were excavated or only identified, we notice that the one at Kula does not fit the usual matrix for this type of fortifications. In the Eastern part of the Empire most of the fortifications on the *Strata Diocletiana* have fan-shaped or square corner-towers, with the exception of the one at Al-Basiri that, because it was not excavated, cannot be dated with certainty<sup>60</sup>. The two fortifications with round corner-towers in Africa (Gastal and Bordj Younga) cannot be included in the discussion, as they are dated to the 6<sup>th</sup> c. and bear the characteristics of this period<sup>61</sup>. The closest architectural analogies are found in the provinces Dacia Ripensis and Moesia Prima, but are all larger fortifications. First of all, the large round towers (at Kula they have 12.50 m in diameter) are specific for the fortified palaces at Gamzigrad (*Felix Romuliana*)<sup>62</sup> and Vrelo-Šarkamen<sup>63</sup>, with the mention that the exterior of these are polygonal, but also for the fortification at *Bononia*<sup>64</sup>, more precisely for structures located on the road the *quadriburgium* at Kula was built on or in the nearby area. Round corner-towers (**Fig. 376**) are also present in the Late Roman fortifications at Hârlec (*Augustae*) (Fig. 11)<sup>65</sup> and Čezava (*Novae*) (Fig. 17)<sup>66</sup>. The same manner of building corner-towers can be seen in the Late Roman fort at Dolenci (*Castra Nicaea*)<sup>67</sup>, located on the *Via Egnatia*.

Other fortifications that may be dated to the Tetrarchy are those at **Mircea Vodă** (No. 91) and **Poiana** (No. 93), based on the discoveries made by field surveys and their regular plan with round corner-towers, very similar to the one at Kula.

II – **The period of Constantine and his successors** (308/311–340/350): (**Figs. 367–369**) Even if for now we have no concrete data concerning its stratigraphy and archaeological material, the best example for the Constantinian period is the fortification at **Mihai Bravu** (No. 90), which resembles (from an architectural point of view) a series of fortifications dated to this period. Namely, it resembles the *quadriburgia* on the *Strata Diocletiana*, with their specific fan-shaped corner-towers, such as the ones at Khan el-Qattar<sup>68</sup>, Khan al-Hallabat<sup>69</sup> and especially Qusair as-Saila (*Tetrapyrgium*) – the latter being the only one systematically excavated and dated to the reign of Constantine based on stratigraphical data (the first coins are dated 317/320)<sup>70</sup>. Then there is an almost perfect analogy on the limes of province Valeria, at

<sup>60</sup> KOWALSKI 1998, 34, fig. 3E; GENEQUAND 2003, 52–55, fig. 36. Cf. BAUZOU 1993, 42–43 (proposes an Ummayyad date).

<sup>61</sup> Gastal: PRINGLE 1981 (2001), 258–259, fig. 38; Bordj Younga: PRINGLE 1981 (2001), 202–203, pl. LXXXI a – LXXXII b; TROUSSET 1991, 350–352, fig. 66.6. The dimensions of the towers in the two cases mentioned above are much smaller than the ones at Kula, a characteristic for 6<sup>th</sup> c. constructions.

<sup>62</sup> SREJOVIĆ et al. 1980; SREJOVIĆ 1985; SREJOVIĆ 1993.

<sup>63</sup> TOMOVIĆ et al. 1995; SREJOVIĆ et al. 1996; TOMOVIĆ, JOVANOVIĆ 2000; VASIĆ, TOMOVIĆ 2005.

<sup>64</sup> ATANASOVA-GEORGIEVA 1974, 337–338; IVANOV R. 1997, 538, Abb. 8. In this case we have interval round towers.

<sup>65</sup> MAŠOV 1990; IVANOV R. 1997, 543–548.

<sup>66</sup> VASIĆ 1982–1983; VASIĆ 1990.

<sup>67</sup> MIKULČIĆ 2002, 271–273, Abb. 165.

<sup>68</sup> LANDER 1980, 1054, fig. 72.3/d; KOWALSKI 1998, 34, fig. 3 F; TORBATOV 2004, 36, fig. 6/a (after Poidebard).

<sup>69</sup> REDDÉ 1995, 100, fig. 15; GREGORY 1996, fig. 14.f (left); KOWALSKI 1998, 34, fig. 4 A.

<sup>70</sup> KONRAD 2001 a, 153–154, Abb. 7, 8; KONRAD 2001 b, Beil.

Visegrád-Gizellamajor, where a recently excavated *quadriburgium* was dated largely to the first half of the 4<sup>th</sup> c.<sup>71</sup>. A good dating element can be the fan-shaped corner-towers often used for these constructions (Fig. 377), with a large arched front and a rather large internal surface<sup>72</sup>.

Three other fortifications that were dated by their discoverers to the reign of Constantine, but were not sufficiently excavated in order to have a definitive verdict, are the following: **Cape Šabla 1** (No. 58 A), that could also be dated to a later period, **Puținei** (No. 64), where the datation was based on the emperor's activities north of the Danube and **Nova Černa** (No. 39 A), correctly interpreted by S. Torbatov as a fortification that preceded the 6<sup>th</sup> c. *castellum*, but for which unfortunately there are no clear dating elements. The latter has typical architectural characteristics such as an intermediary rectangular tower and especially the pillars that were built along the defense wall's inner face, an element often encountered in Tetrarchic or Constantinian fortifications (Qasr Bshir<sup>73</sup>, Eining<sup>74</sup>, Sapaja Island – No. 3, Sliven<sup>75</sup>), but also in a series of minor constructions from the reign of Anastasius (Trajanova Vrata – “Markova Mehana” – No. 71, Kuçuk Bedesten – No. 106) or the beginning of Justinian's reign (El-Anderin<sup>76</sup>).

As far as a group of fortifications in the Iron Gates area are concerned – **Gornea** (No. 5), **Ravna I** (No. 12), **Hinova** (No. 23) and the two at **Orșova** (No. 18) – **Tekija** (No. 17) –, which the authors of the excavations dated to the Tetrarchy, at a closer inspection we notice architectural and construction details, as well as archaeological and numismatic material that can date these structures to the end of the reign of Constantine (post 332) or during the reign of his successors (337–350). The absence of Tetrarchic coins at **Gornea**, which prompted the specialists to invoke a “monetary crisis”, is contrary to the one at *Dierna* (where 17 coins from 294–313 were discovered) and the fact that the circulation of coins is frequent only after 337 indicates the period of Constantine or his direct successors as a construction moment. At **Hinova** the coin from Maximianus, found in the wall of one of the barracks, cannot be considered anything but a *terminus post quem* for the construction moment. The analysis of the numismatic material reveals a major discrepancy in the period 294–330 (therefore a period of over 30 years), for which only 6 coins were discovered, and that after 330 (26 coins from 330–337 were discovered, 17 from 337–341, another 26 from 341–346, in total 69 coins for a period of 17 years). The two *quadriburgia* also have a similar plan with towers flanking their gates<sup>77</sup> (at Hinova there is also an intermediary tower) and corner-towers with a lateral

<sup>71</sup> GRÓF 1987–1989, Taf. 1; GRÓF et al. 2001–2002; GRÓF, GRÓH 2003; GRÓF, GRÓH 2004, 53–57.

<sup>72</sup> The prototypes of this shape could be the corner-towers of the legionary fort at El-Lejjun (*Bethorus*), dated to the last years of the first Tetrarchy (PARKER 1995, 258, fig. 14; PARKER 2006, 111 f., fig. 3.3). But fan-shaped corner-towers with a smaller internal surface and an almost triangular shape (due to the smaller arched front) were used in Tetrarchic constructions in the western Empire, such as those at *Boiodurum/Boiotro* (BRANDL 1997, Abb. 48), *Contra Aquincum* (NÉMETH 2003), *Gorsium* (J. Fedök, Alba Regia 25, 1994, 321 f., Abb. 1, 5), the early phase at Alsóhetény (SOPRONI 1978, Taf.89.2), but also in the diocese of Thrace (*Abrittus*, IVANOV T. 1980, fig. 10, 12) or on the eastern Black Sea shore (*Pityus*, LEKVINADZE 1969, fig. 8). See also a useful separation in three categories of the fan-shaped tower type at LANDER 1984, 246 f., fig. 265.

<sup>73</sup> CLARK 1987. Cf. LANDER 1980, 1058, fig. 72.2c; PARKER 1986, 644–645, fig. 10; PARKER 1995, 252, fig. 1; REDDÉ 1995, 101, fig. 17.

<sup>74</sup> MACKENSEN 1999, 214–216, 236, figs. 7.12, 7.25.

<sup>75</sup> ŠTEREVA et al. 2001, general plan.

<sup>76</sup> BUTLER 1969, 207, fig. 209. Cf. LIEBESCHUETZ 1977, 493, n. 60 (dates the basilica to 528 and supposes a possible previous military function).

<sup>77</sup> A close analogy for the towers of the gates at Gornea: Bourada, in North Africa, dated to 324–330 (GUEY 1939, 192 f., fig. 1; LANDER 1984, 193, 208, fig. 189; EUZENNAT 1989, fig. 200.6). To be compared to the situation at Umm el-Jimal, on the *limes Arabicus* (PARKER 1995, 255–256, fig. 10, 13, dated to the beginning of the 4<sup>th</sup> c.). See Fig. 380.

entrance<sup>78</sup>. Considering these details, we can suppose that the two fortifications were built north of the Danube at the same period, most probably after the *foedus* with the Goths in 332, which agreed among other things to the stationing of 40.000 mercenaries in border areas in exchange for subsidies given by the Empire and the right to trade in certain points along the Danubian border<sup>79</sup>.

The fortifications at **Tekija/Transdierna** and **Orșova/Dierna**, located one in front of the other, have similar architectural elements, the only difference being the rhomboidal shape at Tekija, imposed by the terrain. Unlike those at Gornea and Hinova, here the fortifications were built over the ruins of significant Early Roman buildings<sup>80</sup>. They were dated based on coins discovered in stratigraphic contexts at Orșova (high frequency for the period 330–346) and stamped bricks typical for the reign of Constantius II (some of which were found *in situ* in the defense wall at Tekija). As far as the architecture of the two *quadriburgia* is concerned, we notice the two entirely protruding rectangular towers with diagonal entrances<sup>81</sup>.

As far as there are no conclusive data regarding their chronology, the fortified structures at **Sofija-“Orlandovci”** (No. 74) and **Pernik-“Bela Voda”** (No. 77) could be only hypothetically integrated in the same large-scale building activity of the Constantinian period.

III – **The Valentinian I/Valens period** (364–378): unlike in other areas<sup>82</sup>, in the dioceses of Dacia and Thrace there are, for now, no elements to date any construction *a fundamentis* to this period. The only proposal for this period (with no conclusive arguments for now) is the fortification at **Medvedja** (No. 63), that enclosed a Constantinian *mansio*.

A fourth construction period, corresponding to the **Theodosian dynasty** (379–450), could be taken into consideration, as far as the construction moment of the insufficiently known fortification at **Sofija-“Lozenc”** (No. 75) is dated “in the first years of the reign of Theodosius II”.

### **Early Byzantine *quadriburgia* (late 5<sup>th</sup> – 6<sup>th</sup> c.)**

A massive group of 16 Balkan fortifications clearly differ from the 4<sup>th</sup> c. *quadriburgia* by their architectural characteristics and dimensions (**Figs. 370, 371**). Archaeological excavations, among which those in the Iron Gates area are the most significant, have brought conclusive arguments for dating these structures to the 6<sup>th</sup> c. Most of them were identified on the Danubian limes – 9 of them, which prove a remarkable stylistic homogeneity, with only slight architectural variations: **Dobra-“Saldum”** (No. 7), **Malo Golubinje** (No. 14 B), **Hajdučka Vodenica** (No. 16 B), **Kladovo-“Donje Butorke”** (No. 22 B), **Rtkovo-“Glamija”** (No. 24 B), **Milutinovac** (No. 26), **Ljubičevac** (No. 27 B), **Ušće Slatinske reke** (No. 29 B), **Radujevac**

<sup>78</sup> The towers are protruding only  $\frac{3}{4}$ . Identical protruding towers, which also have specific lateral entrances along one of the wall's sides, are encountered in the contemporary *quadriburgia* at Porečka Reka (No. 13) and Ravna (No. 12), but also in certain fortifications in the East: Qasr el-Hallabat (4<sup>th</sup> c., REDDÉ 1995, 94, fig. 1), El-Habbat (6<sup>th</sup> c.?, GREGORY 1996, 194, fig. 16.c), El-Anderin (6<sup>th</sup> c., BUTLER 1969, 207, fig. 209). See **Fig. 378**.

<sup>79</sup> BENEÀ 1996, 59–60; IVANOV R. 1997, 530–531

<sup>80</sup> We cannot exclude the possibility that they also functioned in the second half of the 3<sup>rd</sup> c. and the first decades of the 4<sup>th</sup> c., as indicated by the numismatic material from Orșova (34 coins from 294–324).

<sup>81</sup> Not often encountered in 4<sup>th</sup> c. fortifications. The only clear analogies were found in Africa, at *Uppenna* and *Tubernuc*, both dated to the 6<sup>th</sup> c. PRINGLE 1981 (2001), 276–277, fig. 13 and 249–250, fig. 17. See **Fig. 379**.

<sup>82</sup> The best known case is inside the provinces Sequania and Raetia, where three fortifications with very similar plans were excavated (Irgenhausen, Schaan and Wilten–Innsbruck) and recently re-dated to the reign of Valentinian I. Cf. BORHY 1996, 212 f., Abb. 4; MACKENSEN 1999, 234 f., fig. 7.24, 7.26.

(No. 34). On the western Black Sea shore only two fortifications have been identified until now: **Ovidiu** (No. 54) and **Škorpilovci** (No. 60). Inside the provinces were excavated or just recorded several fortifications of this type, such as those at **Pirdop** (No. 72), **Djadovo** (No. 105), **Ljubenovo** (No. 103), **Kučuk Bedesten** (No. 106), **Büyük Bedesten** (No. 107) and **Bedesten Tepe** (No. 108), some of which were dated at the end of the 5<sup>th</sup> c.

Three other fortifications, which lack certain dating elements, are similar to the ones mentioned above and therefore can be considered contemporary: **Sip** (No. 20), **Ostrovul Mare** (No. 33) and **Vidrovgrad** (No. 65). Also, **Ravna** (No. 12) and **Tekija** (No. 17) are the only *quadriburgium*-type fortifications from the 4<sup>th</sup> c. that were massively restored during the reign of Justinian, the first by the thickening of the defense wall on the inside and building of new corner-towers, the second by doubling the defense wall's thickness and that of the towers on the outside.

These fortifications are differentiated from the 4<sup>th</sup> c. *quadriburgia* by several planimetric, architectural and construction technique details. The most important of them are:

- the predilection for a rectangular plan;
- a larger internal surface;
- the presence of staircases that provided access to the defense wall's upper level, built by thickening one or several of the defense wall's sides;
- towers with entrances in the shape of corridors with entryways;
- gate located on the first third of the length of one side, closer to the corner-tower.

Most (13) of the newly-built fortifications of the 6<sup>th</sup> c. are rectangular. A modular analysis of the fortifications in the Iron Gates limes area proved that the basic measuring unit used in drawing the structures' plans is the Byzantine foot (equal to 31.25 cm) or a module of 5 feet (that is 156.26 cm, which corresponds to two Roman feet). There is a clear proportion between the rectangle's sides, in general an arithmetical one<sup>83</sup>, which suggests that there existed a plan specific for this period, from which there were deviations caused by conditions on the terrain or measuring errors<sup>84</sup>.

The square (or almost square) – Hajdučka Vodenica, “Donje Butorke”, Ljubičevac – plan was used when old 4<sup>th</sup> c. *burgi* were enclosed by *quadriburgium*-type fortifications. One can notice that the plan of the old *burgus* (the type with *tetrapylon*, square, of approx. 20 × 20 m) functioned as a drawing-mark when the trajectory of the new fortification was measured<sup>85</sup>.

The internal surfaces<sup>86</sup> are generally larger than in the case of 4<sup>th</sup> c. structures. The smallest is the fort at Sip (0.09 ha), due to special topographic conditions, then there is a group of structures with surfaces between 0.14–0.18 ha (Dobra-“Saldum”, Pirdop, Hajdučka Vodenica and the two fortifications along the Long Wall). In most cases (9) the internal surface varies between 0.22–0.30 ha and, especially in the Iron Gates limes area, the large structures (between 0.35–0.41 ha) are located outside the limes and have supplementary defensive structures such as gate-towers or intermediary towers.

<sup>83</sup> With the exception of the fortification at Dobra – “Saldum”, where a geometric proportion was used and that at Hajdučka Vodenica, where a harmonic (2:3) proportion was used.

<sup>84</sup> MILOŠEVIĆ G. 1996, 249–252.

<sup>85</sup> The only exception in the series of 4<sup>th</sup> c. *burgi* – 6<sup>th</sup> c. *quadriburgia* that does not fit this pattern is the fortification at Rtkovo-“Glamija”, where the plan of the old *burgus* was not used in the new structure, which led to the use of a rectangular plan (55 × 51 m on the inside). But we must not forget that this fortification may have never been finished and therefore used.

<sup>86</sup> Ordered by size: 0.09 ha – Sip / 0.14 – Dobra- “Saldum” / 0.16 – Pirdop / 0.17 – Hajdučka Vodenica / 0.17 – Büyük Bedesten / 0.18 – Küçük Bedesten / 0.22 – Ovidiu / 0.23 – Vidrovgrad / 0.24 – Kladovo – “Donje Butorke” / 0.25 – Radujevac / 0.27 – Milutinovac / 0.27 – Ljubičevac / 0.28 – Rtkovo – “Glamija” / 0.29 – Ušće Slatinske reke / 0.30 (?) – Malo Golubinja / 0.35 – Škorpilovci / 0.36 – Djadovo / 0.41 – Ljubenovo.

The defense wall's thickness is generally larger than that of 4<sup>th</sup> c. *quadriburgia*. Most have an elevation between 1.90/2.00–2.20/2.30 m, more precisely 6–7 Byzantine feet<sup>87</sup>. In three cases (Ovidiu, Ostrovul Mare and Vidrovgrad) the walls are 2.70–2.80 m thick, but at the socle's level. The foundations' thickness varies between 2–3 m according to the configuration of the terrain and in some cases there are variations in the thickness of the different sides of the same fortification (e.g. Ovidiu, Milutinovac, Kladovo-“Donje Butorke”). If in the case of 4<sup>th</sup> c. *quadriburgia* the elevation is rarely thicker than 2.00 m (Porečka reka, Orșova, Kula and Mihai Bravu), in the 6<sup>th</sup> c. there are very few examples with walls thinner than 1.90 m. One of these exceptions is Pirdop (1.60–1.70 m), where the wall played not only a military role, but also acted as a *peribolos* for a Christian basilica.

The architecture of the defense wall is characterized by an element specific almost exclusively for this period, more precisely the thickening of one or several of the sides on the interior, in order to support staircases that lead to the upper level of the wall, usually at both sides of the thickening, and more rarely at only one end (**Fig. 381**). In most cases, this thickening was made in the middle of the sides and was set against the defense wall. In some cases (“Saldum”, “Donje Butorke” and Ušće Slatinske reke) the elevation of the thickening was marked by pillars. This thickening for the staircases seems to have been a Balkan characteristic and appeared both in new fortifications and in restorations *a fundamentis* of the old ones: *Karasura*, *Iustiniana Prima* (the acropolis), *Pautalia* (acropolis), *Scupi* (“Kale”), Madara, Kamen Brijag, Sveti Nikola, *Dionysopolis* (the late fortification in the “Horizont” district), *Novae-Čezava*<sup>88</sup>, and is seldom encountered in new fortifications in African provinces (*Madauros* – the abandoned phase, *Ammaedara*)<sup>89</sup> or in the Eastern provinces (*Resafa*)<sup>90</sup>.

The corner-towers most frequently used by 6<sup>th</sup> c. Balkan *quadriburgia* are circular (**Fig. 382**) and have a slightly smaller diameter than those of 4<sup>th</sup> c. *quadriburgia* (see the case at Kula). According to G. Milošević<sup>91</sup>, the average internal diameter of the towers of fortifications in the Iron Gates area is 13 Byzantine feet (approx. 4 m). A distinctive characteristic of these towers is the manner the entrance was constructed in. It had a very wide foundation (the diagonal that unites the corners of two of the sides) and was built in the shape of a corridor with two distinct parts: a larger (1.80–2.00 m) rectangular (Ovidiu, Milutinovac) or more frequently semicircular entryway (so-called “en entonnoir”, present in almost all cases on the Danubian limes, as well as at Škorpilovci, on the Black Sea coast), then the much narrower (1.20–1.30 m) entrance proper. Analogies for this type of entrance can be found in urban or military fortifications in the Balkans (*Scupi*-“Kale”, *Iustiniana Prima*, *Karasura*)<sup>92</sup> or in North Africa (here especially in rectangular or square towers: *Thamugadi*, *Anastasiana* and *Thamallula*)<sup>93</sup>. In some cases (“Saldum”, Milutinovac, Ušće Slatinske reke) these corner-towers were built as a masonry monolith due to the instability of the terrain caused by the proximity of the Danube. We can assume that these monolith-towers' upper level was inhabited and was accessed through the upper level of the defense wall.

A rare occurrence in the Balkan area (and exclusively inside the provinces or on the Black Sea shore) are the square (Kuçük Bedesten, Büyük Bedesten and Vidrovgrad) or rectangular (Pirdop, Djadovo?, Ljubenovo and Ovidiu) corner-towers. In some of the rectangular towers

<sup>87</sup> MILOŠEVIĆ G. 1996, 252.

<sup>88</sup> For all of these see the references in Ch. III, pp. 39–48.

<sup>89</sup> PRINGLE 1981 (2001), fig. 11 and 18.

<sup>90</sup> KARNAPP 1966, fig. 1.

<sup>91</sup> MILOŠEVIĆ G. 1996, 252.

<sup>92</sup> See references Ch. III, pp. .

<sup>93</sup> PRINGLE 1981 (2001), fig. 1, 19, 39.

(Ovidiu, Ljubenovo) the entrance is also in the shape of a corridor with anteroom (**Fig. 383**). The two above-mentioned examples are also remarkable by the positioning of their towers: at Ovidiu one of the tower's sides is a prolongation of the defense wall (a similar situation at Kuçuk Bedesten) and at Ljubenovo the only rectangular tower has its main front parallel to the diagonal that unites the corners of the defense wall's sides. Both structures use a combination of round and rectangular corner-towers. The towers at Pirdop have a lateral entrance along one of the sides. The same situation is encountered at Djadovo, with the difference that here the rectangular towers are transformed in a pentagon by adding a triangular masonry element on the main front. The lateral-type entrance is used both in 4<sup>th</sup> c. fortification towers (Yotvata)<sup>94</sup>, as well as in 6<sup>th</sup> c. ones such as the African fortifications at *Madauros*, *Gadiaufala*, Ksar Graouch and *Diana Veteranorum*<sup>95</sup> (**Fig. 384**).

A type of corner-tower rarely used in fortifications is the rectangular one with an apsidal front (**Fig. 385**), such as the NE tower in the fortification at Dobra-“Saldum”. Even if some authors doubt the apse's Christian character (which in this case has an eastward orientation), we should not exclude the possibility of it being used as a chapel. An identical tower, but built in the middle of one of the sides, can be seen at Kladovo-“Donje Butorke”. The same characteristics can be seen in one of the apsed corner-towers at Ravna (6<sup>th</sup> c. phase). The only analogy for this type of tower is the fortification at *Apsarus*, on the Eastern Black Sea coast<sup>96</sup>.

There are not many fortifications that use intermediary towers. In these cases the towers are rectangular or square and were built to reinforce and stabilize a part of the defense wall that was threatened by the terrain's instability. Such examples are the *quadriburgia* at Milutinovac and Ušće Slatinske reke (both with monolith towers), but also at Radujevac. Rectangular intermediary towers also appear in the 6<sup>th</sup> c. phase at Ravna, as well as on two of the sides of the fortification at Ljubenovo.

A tower typical for the 5<sup>th</sup>–6<sup>th</sup> c. is the pentagonal tower (**Fig. 387**) that appears in its classic shape in two *quadriburgium*-type fortifications on the Danubian frontier: Hajdučka Vodenica (probably added after the initial construction moment) and Ostrovul Mare. The corner-towers at Djadovo are also pentagonal, but in this case the specific shape was obtained by adding a triangular mass of masonry to the rectangular towers' front. Pentagonal towers frequently appear in Balkan fortifications during the Anastasius-Justinian period<sup>97</sup>, as well as in the eastern Empire<sup>98</sup>.

The access gate is, in most cases, just an opening in the side of the defense wall. The tower-gates are rarely used in Balkan fortifications. The only examples are the ones at Škorpilovci (rectangular), Djadovo (built in two phases) and Ravna (probably inherited from the 4<sup>th</sup> c. structure). Tower-gates were more frequently used by fortifications in North Africa (*Madauros*, *Anastasiana*, *Tubunae* and *Thamugadi*), Syria (El-Anderin) and Palestine (Avdat)<sup>99</sup> (**Fig. 386**).

<sup>94</sup> MESHEL 1989, fig. 1.

<sup>95</sup> PRINGLE 1981 (2001), fig. 11, 23a, 23b, 38b.

<sup>96</sup> LEKVINADZE 1969, fig. 2. It is probably the result of a Justinianic reconstruction phase of the fort.

<sup>97</sup> See above, Ch. III, for urban (*Mesambria*, *Iustiniana Prima*, *Dionysopolis* – “Horizont”, *Durostorum* and *Dyrrachium*) or military fortifications (Dolna Kabda and Madara). Also see Vodno – “Markovi Kuli” in Dardania (MIKULČIĆ 2002, Abb. 85), Debrešte in Macedonia (MIKULČIĆ 2002, Abb. 248), Onhezmos in Epirus Vetus (LAKO 1984, 153–205, fig. 4, 14). See below the minor *castellum* at Trajanova Vrata – “Markova Mehana”, with pentagonal gate towers. For a study dedicated to this type of towers, as well as to the triangular ones, see BOBČEV 1961.

<sup>98</sup> *Resafa* (KARNAPP 1966, fig. 1), *Ancyra*, *Amida*, *Korykos* (BOBČEV 1961, figs. 25, 28, 29), *Cibillum* (I. N. Voronov, O. H. Bgažba, VV 48, 1987, fig. 3).

<sup>99</sup> PRINGLE 1981 (2001), figs. 2 (*Thamugadi*), 11 (*Madauros*), 19 (*Anastasiana*), 42 (*Tubunae*); BUTLER 1969, fig. 209 (El-Anderin); GREGORY 1996, fig. 9.b (Avdat).

A characteristic of the simple gate of 6<sup>th</sup> c. Balkan *quadriburgium*-type fortifications is its positioning at one third of the length of the defense wall's side, closer to one of the corner-towers. The best examples are at Dobra-“Saldum”, Hajdučka Vodenica, Tekija (6<sup>th</sup> c. phase), Ovidiu, Ljubenovo and Pirdop<sup>100</sup>. These entrances are in average 2.50 m wide (Ovidiu, “Saldum”) or were built in the anteroom style, similar to tower entrances (Hajdučka Vodenica, Ljubenovo and Tekija). A central gate can be seen only at Ravna (but here it was inherited from the 4<sup>th</sup> c. phase, probably with a tower-gate) and in the forts along the Anastasian Wall.

When considering the division of the internal area we may conclude that, unlike the 4<sup>th</sup> c. *quadriburgia*, the Early Byzantine fortifications rarely had structures built inside the compound. On the Danubian limes the excavations of 6<sup>th</sup> c. *quadriburgia* have not yielded any stone buildings inside the fortified area, only traces of light material (wood) structures. The situation is slightly different in fortifications on the coastline or inside the provinces, where constructions set against the defense wall were discovered at Ovidiu and Ljubenovo, not to mention the presence of basilicas at Pirdop and Škorpilovci. The lack of *intra muros* buildings was explained by some specialists by the tactic necessities or the fact that the fortifications were used as a refuge against danger by as many persons as possible.

Based on these detailed observations and the results of archaeological excavations we can confirm the existence of a specific type of Early Byzantine (late 5<sup>th</sup>–6<sup>th</sup> c.) *quadriburgium*, in many ways different from the classic 4<sup>th</sup> c. type. At the present state of the research we can conclude that the first “Byzantine” *quadriburgia* are the work of Anastasius (see the three forts on the Long Wall, Pirdop and maybe Djadovo, both fortifications built in the provinces' interior)<sup>101</sup>. An ample construction program and even an architectural prototype were introduced during the reign of Justinian, especially on the Danubian limes and on the Western Black Sea coast.

An interesting aspect of this evolution is the *burgus* (4<sup>th</sup> c.) – *quadriburgium* (6<sup>th</sup> c.) **succession**, clearly noticeable in the Iron Gates limes area, where the massive effort of reconstructing the limes during the reign of Justinian is highly visible. The situation must have been similar in other segments of the frontier, because Procopius also mentions old towers replaced by strong fortifications<sup>102</sup>. Even if it does not follow exactly the same pattern, a similar situation seems to have existed in Africa, at Loth Bordj, where a *quadriburgium* of 40 × 40 m, with rectangular corner-towers, surrounded a 12 × 15 m building which could be the *burgus speculatorius* built during the reign of Caracalla<sup>103</sup>.

Archaeological research has led to the identification of **abandoned construction attempts**. The most representative example is the fortification at Ovidiu (No. 22), but the same hypothesis was launched for the one at Rtkovo-“Glamija” (No. 24B). Similar construction

<sup>100</sup> This way of “hiding” the entrance seems to be Balkan characteristics, as it is rarely seen in other parts of the Empire. The only analogies can be found at *Uppenna*, in North Africa (PRINGLE 1981 (2001), fig. 13) and at El-Habbat, in Syria (GREGORY 1996, fig. 16.c).

<sup>101</sup> In other areas in the Eastern provinces such constructions could also be dated in the 5<sup>th</sup> c. – see the example of Mount Gerizim, dated to 484 AD (DINČEV 2006, 50, fig. 101).

<sup>102</sup> Procopius, *De aedif.* IV, especially in connection with the toponyms *Iudaeus*, *Mocatiana*, *Tricesa*, *Putedis*, *Onus* and *Lucernariaburgu* (former towers transformed into forts).

<sup>103</sup> PRINGLE 1981 (2001), 280–281: “The fort encloses a smaller enceinte, measuring about 12 × 15 m and with walls about 1.0 m thick, whose sides are not quite parallel to those of the fort”. Even if Pringle dates the *quadriburgium* to the 6<sup>th</sup> c. (PRINGLE 1981 (2001), 78) based on a late inscription written on an earlier one from the reign of Caracalla, one cannot exclude the possibility of an earlier, 4<sup>th</sup> c. date. M. Euzennat thinks that the *burgus speculatorius* in that inscription (CIL VIII, 2494 = ILS, 2636) actually refers to the fortification with four corner-towers (EUZENNAT 1989, 274, fig. 200/3, after the plan by Baradez).

attempts abandoned at the foundation level are also documented in other regions. In Numidia, the fortification at *Madauros* was initially planned as a rectangular *quadriburgium*, as proven by its western corner and the adjoining sides, one of which was thickened in order to fit in one of the staircases. At a certain moment, probably during the construction works, the plan was abandoned in favor for a smaller complex, which incorporated the hemicycle of the old Roman theatre<sup>104</sup>.

#### 4. Small CASTELLUM – type

These fortifications were built in a variety of shapes which enclose between 0.06 ha (Bosman) and 0.85 ha (Kostinbrod). Based on their general shapes we can distinguish two main categories: rectangular and polygonal. For each of these two there are variations determined especially by the shape of the terrain they were built on. A third category is represented by triangular fortifications.

**Rectangular fortifications** are very rare (Fig. 372). Only two of the five cases that were identified, namely **Sapaja** (No. 3) and **Boljetin** (No. 11), have an almost classic *castra* plan (rectangular).

Even if most authors define the fortification on the Sapaja island as a *quadriburgium*, I believe that it is more reasonable to define it as a *castellum* for at least two motives: the large size (0.77 ha) and the presence of intermediary towers on the inside<sup>105</sup>. A fortification larger than the one at Sapaja, again with corner-towers, was identified at Viminacium (at the location called “Mali Grad”)<sup>106</sup>, but it is clear that it could not play the same function as a standard or medium size *quadriburgium*. Some fortifications on the Pannonian limes – Budapesta (*Contra Aquincum*), dated to the Tetrarchy<sup>107</sup> and Čortanovci (probably to be dated to the same period)<sup>108</sup> – or those on the eastern frontier – Khan al-Manqoura<sup>109</sup>, Khirbet el-Fityan<sup>110</sup> and Umm el-Jimal<sup>111</sup> – pertain to the same category. Two other Egyptian forts can be included in the same type – Qasr Qarun (*Dionysias*)<sup>112</sup> and Tell el-Herr (*Magdolum*)<sup>113</sup> –, as well as a series of fortifications in the African provinces (Aïn Schkour<sup>114</sup>, Sidi Moussa bou Fri<sup>115</sup>, *Tabernae*<sup>116</sup>, M’doukal<sup>117</sup> and Bourada<sup>118</sup>). All have in common a surface larger than that of the *quadriburgia*

<sup>104</sup> PRINGLE 1981 (2001), 214–217, fig. 11, 12 (the author dates the initial attempt to 534–536, and the finished fortification to 539–544). Other cases where the structure’s plan was changed were identified in the larger fortifications at *Calama* and *Lepcis Magna*, cf. PRINGLE 1981 (2001), 188–191 and 209. Also see a construction attempt during the reign of Valentinian I at Göd-Bócsaújtelep, in the Transdanubian territory of province Valeria (MRÁV 2005).

<sup>105</sup> We also stress the fact that the salvage excavations undertaken here have led to the discovery of only two corner-towers, while the others are only presumed.

<sup>106</sup> POPOVIĆ, IVANIŠEVIĆ 1988, 125 f., fig. 1, 2. Cf. MIRKOVIĆ 1998, fig. 1; MILOŠEVIĆ 2002, fig. 4. It is presumed that it is a 6<sup>th</sup> c. fort, built probably during the reign of Justinian.

<sup>107</sup> NAGY T. 1974, 33–34.

<sup>108</sup> DAUTOVA-RUŠEVLJAN, PETROVIĆ 1994.

<sup>109</sup> LANDER 1984, 226 f., fig. 237; REDDÉ 1995, 100, fig. 16; KOWALSKI 1998, 34, fig. 3B.

<sup>110</sup> PARKER 1986, 644, fig. 9; PARKER 1995, 254, fig. 7; GREGORY 1996, 194.

<sup>111</sup> PARKER 1995, 255–256, figs. 10, 13; GREGORY 1996, 184, fig. 9.e.

<sup>112</sup> CARRIÉ 1974. Cf. REDDÉ 1995, 117, fig. 40.

<sup>113</sup> VALBELLE, CARREZ-MARATRAY 2000. Cf. REDDÉ 2004, 162, fig. 9.

<sup>114</sup> EUZENNAT 1989, 271–272, fig. 200/1.

<sup>115</sup> EUZENNAT 1989, 272, fig. 200/2.

<sup>116</sup> VILLAVERDE VEGA 2004, 302; EUZENNAT 1986, 374, n. 2 (dates it to the Severan period).

<sup>117</sup> LESCHI 1941; LESCHI 1943. Cf. LANDER 1984, 188, 208, fig. 177; EUZENNAT 1989, 270, fig. 200/5; REDDÉ 1995, 100–101, fig. 19.

<sup>118</sup> GUEY 1939; EUZENNAT 1989, fig. 200/6. REDDÉ 1995, 101 (contests the chronology proposed by Guey).

(over 0.50 ha and up to the limit of 1 ha that separate them from middle-sized fortifications). Most of the fortifications that make the transition from *quadriburgia* to middle-size fortifications can be dated to the Tetrarchy (Khirbet el-Fityan, Umm el-Jimal, M'doukal, Tell el-Herr and very probably Qasr Qarun) or to the reign of Constantine at the latest (*Tabernae*, Bourada and very probably Khan al-Manqoura). M. Euzennat's datation of the the two fortifications in Mauretania Tingitana (Aïn Schkour and Sidi Moussa bou Fri) to the Severan period (205–215) still has to be confirmed by archaeological excavations. The two fortifications built by Justinian in Africa – Timgad (*Thamugadi*)<sup>119</sup> and Tobna (*Tubunae*)<sup>120</sup> – are two late examples that illustrate very well the evolution of *quadriburgium*-type fortifications towards a type of regular-plan minor *castellum* with corner- and intermediary towers.

The fortification at Boljetin is a clear example of evolution from a small Early Roman fort (approx. 60 × 50 m) towards a typical Late Roman fortification (which could even be included in the *quadriburgium* category). This most probably happened during the reign of Constantine, when the structure received the four horse shoe- and fan-shaped corner-towers and two of the gates were blocked by rectangular towers. This happened in many cases, especially with auxiliary forts in different sectors of the Danubian limes<sup>121</sup>.

A second category of rectangular fortifications is represented by the structures discovered at **Nova Černa** (No. 39 B) and **Cape Šabla** (No. 58 B), both dated to the reign of Justinian and the one at **Sopot-“Hissarlâk”** (No. 100), whose chronology covers a larger time span (5<sup>th</sup> – 6<sup>th</sup> c.). For the first two, which are located on the Danubian limes and on the western Black Sea coast, there is proof they were built over 4<sup>th</sup> c. *quadriburgium*-type fortifications, which means that they kept their military role. At Sopot, where the archaeological data is still unclear, it is highly probable that we are dealing with a roadside fortification located on the road that went along the southern slopes of the Haemus Mountains. In these fortifications we notice the continuing use of rectangular or round corner-towers and of intermediary towers, as well as an internal space with no clear divisions.

**Polygonal fortifications** can be divided in two variants according to the number of sides and the way the latter are adapted to the shape of the terrain or previous architectural elements.

First there are structures that try to maintain a regular plan (**Fig. 373**), such as those at **Kostinbrod** (No. 70), **Trajanova Vrata-“Markova Mehana”** (No. 71), **Bregovina** (No. 78), **Debrene II** (No. 96) and probably **Tvârdica** (No. 94). The first four examples are dated with certainty to the 6<sup>th</sup> c., while the last one, even if it was not excavated, could have been built in the 4<sup>th</sup> c.

The fortification at Trajanova Vrata-“Markova Mehana”, located on the border between the dioceses of Thrace and Dacia, is a good example of a militarized road post. It was most probably built during the reign of Anastasius and has analogies at Korešnica-“Kula”, in Macedonia (it is interesting that the toponym *Stenes* is also connected to this site, probably to be related to a barrage-wall located near the border between the provinces Macedonia Prima and Macedonia Secunda)<sup>122</sup>. Kostinbrod (*Kratiskara*) is one of the new fortifications built during the

<sup>119</sup> LASSUS 1981; PRINGLE 1981 (2001), 232–236, fig. 2.

<sup>120</sup> PRINGLE 1981 (2001), 274–276, fig. 42.

<sup>121</sup> For Noricum and Pannonia see the fortifications at Mautern (*Favianis*), Traismauer (*Augustianis*), Zeiselmauer (*Cannabiaca?*), Győr (*Arrabona*), Almásfüzitő (*Odiavum/Azaum*), Szentendre (*Ulcisia Castra/Castra Constantia*), Százhalombatta (*Matrica*), Dunaújváros (*Intercisa*). For the limes between Singidunum and the mouth of the Danube see especially the forts at *Novae* (Čezava), *Taliata*, *Drobeta*, *Dimum*, *Sacidava* and *Capidava*.

<sup>122</sup> MIKULČIĆ 2002, 335–336, no. 266, Abb. 233 (dated to the 6<sup>th</sup> c.).

reign of Justinian over the ruins of an imperial residence from the time of Constantine. There we can see the integration of a previous structure, which lead to a deviation from a regular plan. Such situations are common in Byzantine Africa, where many of the fortifications were built by Justinian over the ruins of the old Roman towns and were adapted to previous buildings<sup>123</sup>. The forts at Bregovina and Debrene II were also built during the reign of Justinian and they are remarkable by the presence of a Christian basilica built against the defense wall.

The fortification at Tvărdica is trapezium-shaped, a common occurrence in other provinces, especially in the 4<sup>th</sup> c., during the Tetrarchy (Passau–Instadt)<sup>124</sup> and the reigns of Valentinian/Valens (Altrip)<sup>125</sup>.

The second variant are the fortifications that completely adapt to the terrain, such as the one at **Dunavățu de Jos** (No. 51) and **Obročiste** (No. 95), both with two or three straight sides and another that follows the shape of the terrain, or the ones at **Gorno Svilar** (No. 84) and **Zelenikovo** (No. 86), which completely adapt to the terrain.

The *castellum* discovered at Dunavățu de Jos (No. 51) is representative for military structures during the reign of Valens. We notice that fact that one of the sides was adapted to the terrain's configuration, as well as the presence of massive U-shaped gate-towers as a reminiscence of the military architecture in the Diocletian-Constantine period. The fortification at Obročiste, located at province Scythia's southern border and which cannot be dated with certainty for now, has two round corner-towers and a further intermediary round tower. The fortification at Gorno Svilar is a regular polygon (almost oval) with five rectangular towers and was dated by I. Mikulčić to the 4<sup>th</sup> c., while the one at Zelenikovo (with six rectangular towers and a Christian basilica inside) was dated to the 6<sup>th</sup> c.

A rare type is the **triangular fortification**, considered by some specialists as typical for the Early Byzantine period (6<sup>th</sup> c.). The best known example, which is also dated with certainty to the 6<sup>th</sup> c., is the *castellum* at **Bosman** (No. 8), whose constructive details (especially the shape of the towers and the thickening of the defense wall on the inside) make it highly similar to the *quadriburgia* built during the same period on the limes of Moesia Prima and that of Dacia Ripensis. In the same category can be included the less researched fortifications at **Insula Banului** (No. 21), **Brza Palanka-“Castellum III”** (No. 28B), **Bisericuța Island** (No. 53) and **Ljubanci** (No. 85). The plan is adapted to the terrain in most of the cases.

For now we do not know any analogy for triangular fortifications in other areas of the Empire<sup>126</sup>, which we believe constitutes an argument for a late datation and at the same time a Balkan characteristic. What we do now about this type of fortification is that it was recommended by an anonymous 6<sup>th</sup> c. writer (*Anonimus Byzantinus*) as one of the most efficient in case of siege<sup>127</sup>.

<sup>123</sup> The rule also works for minor fortifications such as the ones at *Madauros*, *Thugga* and *Tubernuc*, but also for larger ones, such as the one at *Ammaedara*. Cf. PRINGLE 1981 (2001), *passim*, figs. 11, 13, 17, 18.

<sup>124</sup> BRANDL 1997, 145–150, Abb. 47–49.

<sup>125</sup> SCHNURBEIN, KOHLER 1989, 517 f., Abb. 6.

<sup>126</sup> An older restitution of the fortification at Mamaj-Kala (on the east coast of the Black Sea) proposed a triangular plan, but was rejected by other specialists (LEKVINADZE 1969, 88–89, fig. 10).

<sup>127</sup> Most probably written during the reign of Justinian, it represents one of the most important sources on Byzantine military tactics. VELKOV 1961, 149–151; VELKOV 1977, 204–205; MILOŠEVIĆ G. 1996, 251. A recently published study date this compendium in a later period (RANCE 2007).



## CONCLUSIONS

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The analysis of minor fortifications in the Balkan-Danubian area, more precisely in the dioceses of Dacia and Thrace, is absolutely necessary for understanding Late Roman and Early Byzantine military architecture. The present study tried to organize the data available at the present moment and compare it to that in other parts of the Late Empire, with the aim of establishing the chronology and architectural characteristics of fortifications with a surface of below 1 ha.

These small fortifications represent a special category among the varied civilian and military constructions built during the Late Empire. A large number of them were discovered and can be divided into four main categories: *turres*, *burgi*, *quadriburgia* and *castella*. As far as the ancient terminology is concerned, during the Late Roman period fortifications with similar plans were referred to using different terms; the best known case is the *quadriburgium* at Qasr Bshir, which is mentioned as a *castra* in an inscription.

The Hellenistic and Early Roman origins of the four main types are illustrated by many examples in the eastern and western Empire and in some cases they created without doubt a constructive tradition.

The watchtowers or signal stations were frequent both during the Hellenistic period, as well as during the Principate. If for those on the limes the military role is clear, no common opinion was reached by specialists for the towers built in the Hellenistic tradition. They might have played a military role, or could have just as well been used for the surveillance of a civilian agricultural exploitation. The inventory of Late Roman towers in the Balkan provinces is relatively poor (13 structures) up to the present moment, as archaeological excavations rarely concentrate on this type of fortification. Apart from Early Roman constructions reused in the late period (the case at Lepenski Vir is the most eloquent), which were generally square and small, new towers were constructed during the Late Roman period, usually with a larger internal surface and surrounded by an external yard (the Pesača model).

The term *burgus* appeared for the first time in Thracian inscriptions during the reign of Antoninus Pius and archaeological excavations lead to the identification of different methods used for their construction, both in wood and in stone. The African inscriptions mentioning the *burgus speculatorius* attest the connection between this type of fortification and the security of the road system. Regarding the distinction to be made between the simple watchtower and the *burgus*, we consider the tower at “Kleiner Laufen”-Koblenz – which is not mentioned as a *burgus* in its foundation inscription – a model for minor fortifications under the limit of approx. 50 m<sup>2</sup> of internal dwelling space, while everything above this limit can be referred to

as a *burgus*. As a further argument in support of our theory we mention the fortification at Višegrad-Kőbánya, explicitly named *burgus* by the foundation inscription dated to 372 and which has a surface of over 50 m<sup>2</sup>.

Balkan *burgi* (20 structures were discovered) can be divided into five types according to the constructive methods used: simple (the type of large tower at Hajdučka Vodenica), with the corner – “tower” on the inside (type Zidinac), with landing-place (type Batin), with *tetrapylon* and with the internal space divided by other structures (type Babadag-“Topraichioi”). The most important are the fortifications with four internal pillars (*tetrapylon*), which can be divided into two construction styles: the first is characterized by L-shaped pillars, the presence of external defense ditches (type Mihajlovac-“Mora Vagei”) and can be dated to the Tetrarchic period; the second has rectangular pillars, is surrounded by a stone precinct (type Mihajlovac-“Blato”) and is dated to the Valentinian I / Valens period. To these two main types we can add variants such as the *burgus* at Rtkovo-Glamija or the one at *Dinogetia*, the latter being most likely dated to the reign of Constantine. The analogies for these types of *burgi* are concentrated in the western part of the Empire, on the limes, as well as along the most important roads inside the provinces. They played an essential role in ensuring traffic control, to which one can add the economic role for those located in border areas. The identification of several constructions in the Iron Gates area with Germanic toponyms (*Halicaniburgu*, *Stiliburgu*) indicates that at a certain moment (maybe starting with the reign of Theodosius I) these structures were used by populations with *foederati* status.

As far as the *quadriburgium* type is concerned, the Hellenistic origin is obvious (*tetrapyrigia*). As there are almost no such structures attested in the Early Roman period and the first ones after the Hellenistic period appear during the reign of Diocletian, a series of specialists consider them as a Parthian and Sassanid influence. This would explain this type of fortification’s popularity in the Eastern part of the Empire, where a well-organized defensive and road system was developed (see the *Strata Diocletiana* or *Via Nova*). The *quadriburgium* is much more rare in the Western Empire (maybe also due to the lack of more extensive research), where it appeared on the limes and inside the provinces and evolved in time, from the reign of Diocletian to that of Valentinian I. North Africa is an area well known for the *quadriburgia* built during the Byzantine comeback in the time of Justinian, but our information on those constructions comes only from their foundation inscriptions and the plans drawn up over one hundred years ago and not following systematic archaeological excavations.

The *quadriburgium*-type is the most frequent fortification (57 structures) in the two Balkan dioceses under scrutiny. Two variants can be distinguished strictly from a typological point of view: the standard type with four corner-towers and a simple gate and the one with intermediary and gate-towers. Because this typology does not help in better dating each structure separately, we used a chronological frame based on the results of archaeological excavations, on the analysis of construction methods, architectural details and on other analogies in the Empire. Thus two main chronological types of *quadriburgia* were distinguished: those specific for the 4<sup>th</sup> c. (Late Roman) and those built in the 6<sup>th</sup> c. (Early Byzantine)

The Late Roman *quadriburgia* are individualized by the following construction characteristics: the preference for the rectangular plan (most often square), smaller internal surfaces (of an average between 0.07 and 0.17 ha) and wide gates (over 3.00 m).

Archaeological and numismatic discoveries allowed us to identify three stages in the construction of 4<sup>th</sup> c. *quadriburgia*. For now only the fortification at Kula can be included with certainty in the first stage and dated to the Tetrarchic period (293–308/311); it can be connected to the construction effort undertaken by Galerius in Dacia Ripensis. Three groups

of structures belong to the second stage, dated to the reigns of Constantine and his successors (308/311–340/350). First there is the fortification at Mihai Bravu, with fan-shaped corner-towers, that has almost identical analogies dated to the reign of Constantine. Then there are the two bridgeheads north of the Danube, at Gornea and Hinova, whose initial datation to the Tetrarchic period is less credible (especially due to the feeble coin circulation during the first three decades of the 4<sup>th</sup> c.) and which must have been built after 332. Both could be connected to Constantine's policy for the territories north of the Danube. Finally, there are the highly similar fortifications at Tekija and Orșova, located on both sides of the River Danube, which were dated to a later period – probably the reign of Constantius II. The third chronological stage is the period of Valentinianus I and Valens, for which there are no clear fortifications constructed *a fundamentis*, only restorations.

The Early Byzantine *quadriburgia* have several general architectural characteristics, most important of which are the preference for a rectangular plan, a larger internal surface (of an average of between 0.15–0.30 ha), the thickening of one or several of the sides on the inside (in order to built staircases leading to the upper level of the defense wall), the towers with entrances in the shape of corridors with rectangular or semicircular entryways and the gates “hidden” in the first third of the length of one of the sides, closer to one of the corner-towers. These characteristics also appear in larger contemporary fortifications, which suggest an architectural model specific for this period. We also notice that inside these *quadriburgia* there are virtually no stone structures, sometimes none at all. In terms of absolute chronology some of them can be dated to the reign of Anastasius (the best examples are the fortifications along the Long Wall), but most were built during the reign of Justinian, both in border areas and inside the provinces, along the main communication routes.

In the fourth category of fortifications (small *castella*) we included all those under 1 ha and whose plan is different from that of a *burgus* or *quadriburgium*. Two main groups can be distinguished in this type. First, there are the rectangular fortifications that evolved either from small Early Roman forts (Boljetin), or were newly-built (Sapaja in the 4<sup>th</sup> c., Nova Černa in the 6<sup>th</sup> c.). The latter are characterized by a large surface (over 0.75 ha) and the compulsory presence of intermediary towers. A second group is that of polygonal fortifications of a large variety of shapes, adapted more or less to the terrain's configuration. Among these one notices several 6<sup>th</sup> c. fortifications that integrate previous residential buildings (Kostinbrod) and *castella* containing Christian basilicas built against the defense wall (Bregovina, Debrene II). A type of fortification specific for the 6<sup>th</sup> c. is the triangular one, recommended even by ancient authors for its defensive capabilities. The best example for this type is the fort at Bosman, which has architectural elements almost identical to those of 6<sup>th</sup> c. *quadriburgia* built on the Iron Gates limes.

If we integrate the results of the research on minor fortifications in the chronological frame of Late Roman – Early Byzantine defensive constructions, the conclusion is that the first *quadriburgia* in the Balkan area were built during the Tetrarchy, along with *burgi* with *tetrapylon* (with L-shaped pillars) and external defensive ditches. Many minor fortifications were built during the period of Constantine and his successors, especially *quadriburgia* located north of the Danube, as well as roadside fortifications inside the provinces. Small *castella* were built at the same time, either rectangular or polygonal. During the Valentinianus I – Valens period there was a return to the construction of *burgi* with *tetrapylon* (now with square-section pillars and an external precinct), but polygonal fortifications adapted to the shape of the terrain were also constructed. Few minor fortifications dated with certainty between the last quarter of the 4<sup>th</sup> c. and that of the 5<sup>th</sup> c. have been discovered up to the present moment. One exception is probably the structure from Sofija-“Lozenec”. The construction effort started in the first half

of the 6<sup>th</sup> c. by Anastasius and continued by Justinian focused on small fortifications, the most frequently used type being the *quadriburgium* that sometimes surrounded an old 4<sup>th</sup> c. *burgus* or was built over the ruins of previous buildings. A special category is that of fortifications that defended Christian basilicas or monastic communities. It is a well-known fact that, during this period, one of the greatest construction programs in the Balkan area was under way and the inscription of Viktorinos demonstrates its unitary character in all provinces of the dioceses Illyricum and Thrace.

## LIST OF ABBREVIATIONS

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### Volumes

- AÉ – *L'Année Épigraphique*, Paris  
AOR – *Arheologičeski Otkrātija i Razkopki*  
CCA – *Cronica Cercetărilor Arheologice*, București  
CIL – *Corpus Inscriptionum Latinarum*, I–XVI, Berlin  
DID II – R. Vulpe, I. Barnea, *Din istoria Dobrogei. II. Romanii la Dunărea de Jos*, București, 1968  
Djerdapske Sveske – *Djerdapske Sveske / Cahiers de Portes de Fer*, I–IV, Beograd  
IGB – *Inscriptiones Graecae in Bulgaria repertae*, I–V, Sofia  
IGLR – Em. Popescu, *Inscripțiile grecești și latine din secolele IV–XIII descoperite în România*, București, 1976  
IGLSyr – *Inscriptiones graecae et latinae de la Syrie*, I–VII, Paris 1929–1960  
ILB – B. Gerov, *Inscriptiones latinae in Bulgaria repertae*, Sofia, 1989  
ILS – H. Dessau, *Inscriptiones latinae selectae*, I–IV, Berlin, 1908–1916  
*Limes 6 Basel* – *Studien zu den Militärgrenzen Roms. Vorträge des 6. Internationalen Limeskongress in Süddeutschland, Basel, 1964*, [Beihefte BJ 19], Köln-Graz, 1967  
*Limes 8 Durham* – *Roman Frontier Studies 1969. Eighth International Congress of "Limesforschung"*, Cardiff, 1974  
*Limes 9 Mamaia* – *Actes du IX<sup>e</sup> Congrès International d'Études sur les Frontières Romaines, Mamaia, 6–13 septembre 1972*, București-Köln-Wien, 1974  
*Limes 10 Xanten* – *Studien zu den Militärgrenzen Roms II. Vorträge des 10. Internationalen Limeskongresses in der Germania Inferior 1974*, [Beihefte BJ 38], Köln-Bonn, 1977  
*Limes 11 Székesfőhervár* – *Limes. Akten des XI. Limeskongresses (Székesfőhervár, 30. 8 – 6. 9. 1976)*, Budapest, 1977  
*Limes 12 Stirling* – *Roman Frontier Studies XII, Stirling 1979* [BAR Int. Ser. 71], Oxford, 1980  
*Limes 13 Aalen* – *Studien zu den Militärgrenzen Roms III. 13. Internationaler Limeskongress, Aalen, 1983. Vorträge*, Stuttgart, 1986  
*Limes 14 Carnuntum* – *Akten des 14. Internationalen Limeskongresses 1986 in Carnuntum*, Wien, 1990  
*Limes 15 Exeter* – *Roman Frontier Studies 1989. Proceedings of the XV<sup>th</sup> International Congress of Roman Frontier Studies*, Exeter, 1991  
*Limes 16 Kerkrade* – *Roman Frontier Studies 1995. Proceedings of the XVI<sup>th</sup> International Congress of Roman Frontier Studies (Kerkrade, 25.8 – 31.8. 95)*, Oxford, 1997  
*Limes 17 Zalău* – *Roman Frontier Studies 1997. Proceedings of the XVII<sup>th</sup> International Congress of Roman Frontier Studies*, Zalău, 1999  
*Limes 18 Amman* – *Limes XVIII. Proceedings of the XVIII<sup>th</sup> International Congress of Roman Frontier Studies held in Amman, Jordan (September 2000)*, [BAR Int.Ser. 1084], Oxford, 2002

- Limes 19 Pécs* – *Limes XIX. Proceedings of the XIX<sup>th</sup> International Congress of Roman Frontier Studies held in Pécs, Hungary, September, 2003*, Pécs, 2005
- MCA – *Materiale și Cercetări Arheologice*, București
- Ratiariensia – *Ratiariensia*, I – III/IV, Bologna
- RE – *Realencyclopädie der klassischen Altertumswissenschaft*, Pauly-Wissowa – Kroll, Stuttgart
- RIU – *Die Römischen Inschriften Ungarns*, Budapest
- SSIB – V. Beševliev, *Spätgriechische und Spätlateinische Inschriften aus Bulgarien*, Berlin, 1964
- Stare kulture...* – *Stare kulture u Djerdapu / Anciennes cultures du Djerdap*, Beograd, 1969
- TIR – *Tabula Imperii Romani*
- Trésors...* – C. Morrisson, V. Popović, V. Ivanišević, *Les Trésors monétaires byzantins des Balkans et d'Asie Mineure (491–713)*, [Réalités Byzantines 13], Paris, 2006

### Periodicals

- ABSA – Annual of the British School at Athens, London
- ActaAntHung – Acta Antiqua Academiae Scientiarum Hungaricae, Budapest
- ActaArchHung – Acta Archaeologica Academiae Scientiarum Hungaricae, Budapest
- ADAJ – Annual of the Department of Antiquities of Jordan, Amman
- AISC – Anuarul Institutului de Studii Clasice, Cluj
- AJA – American Journal of Archaeology, Cambridge-Massachusetts
- Alba Regia – Alba Regia. Annales Musei Stephani Regis, Székesfehérvár
- AMI – Archaeologische Mitteilungen aus Iran, Berlin
- AMN – Acta Musei Napocensis, Cluj-Napoca
- Anali – Anali, Sofia
- AnatArch – Anatolian Archaeology. British Institute at Ankara Research Reports, London
- Anatolia Antiqua – Anatolia Antiqua / Eski Anadolu, Travaux et recherches de l'Institut Français d'Études Anatoliennes, Paris
- AnnArchSyr – Les Annales Archéologiques Arabes Syriennes, Damas
- AnTard – Antiquité Tardive, Paris
- AntJournal – The Antiquaries Journal, London
- AP – Arheološki Pregled, Beograd
- ArchBulg – Archaeologia Bulgarica, Sofia
- ArchÉrt – Archeológiai Értesítő, Budapest
- ArchIug – Archaeologia Iugoslavica, Beograd
- ArchJournal – The Archaeological Journal, London
- ArchKorr – Archäologisches Korrespondenzblatt, Mainz am Rhein
- ArchRoz – Archeologické Rozhledy, Praha
- ArchWarszawa – Archeologia. Rocznik Instytutu Archeologii i Etnologii PAN, Warszawa
- AfO – Archiv für Orientforschung, Berlin/Graz/Wien
- Arctos – Arctos. Acta Philologica Fennica, Helsinki
- ArhSofia – Arheologija. Organ na Arheologičeskija Institut i Muzej pri BAN, Sofia
- ARMSI – Academia Română. Memoriile Secției Istorice, București
- AV – Arheološki Vestnik, Ljubljana
- BalcPosn – Balcanica Posnaniensia, Poznań
- Banatica – Banatica. Muzeul Județean de Istorie Caraș-Severin, Reșița
- BASOR – Bulletin of the American Schools of Oriental Research, South Hadley/New Haven
- BCH – Bulletin de Correspondence Hellenique, Paris
- BCMI – Buletinul Comisiunii Monumentelor Istorice, București
- BJ – Bonner Jahrbücher des Rheinischen Landesmuseums in Bonn und des Vereins von Altertumskunde im Rheinlande, Bonn

BMI	– Buletinul Monumentelor Istorice, București
BulMMN	– Buletinul Muzeului Militar Național, București
BRGK	– Bericht der Römisch-Germanischen Kommission des Deutschen Archäologischen Institut, Frankfurt am Main
Britannia	– Britannia. Society for the Promotion of Roman Studies, London
BSNAF	– Bulletin de la Société Nationale des Antiquaires de France, Paris
BSNR	– Buletinul Societății Numismatice Române, București
BudRég	– Budapest Régiségei. A Budapesti Történeti Múzeum Évkönyve, Budapest
BVgbl	– Bayerische Vorgeschichtsblätter, München
Byzantinobulgarica	– Byzantinobulgarica. Institut za istorija, BAN, Sofija
Byzantina	– Byzantina. Aristoteleio Panepistemio Thessalonikes. Kentro Vizantinon Ereunon, Thessaloniki
Byzantion	– Byzantion. Revue internationale des études byzantines, Paris-Liège-Bruxelles
ByzForsch	– Byzantinische Forschungen, Amsterdam
ByzZ	– Byzantinische Zeitschrift, München
CCARB	– Corso di Cultura sull'Arte Ravennate e Bizantina, Ravenna
CRAI	– Comptes Rendus de l'Académie des Inscriptions et Belles-Lettres, Paris
Creta Antica	– Creta Antica. Centro di Archeologia Cretese, Università di Catania
Dacia (NS)	– Dacia. Recherches et découvertes archéologiques en Roumanie (Nouvelle Série), București
DHA	– Dialogues d'Histoire Ancienne
Dobrudža	– Dobrudža. Sbornik
DOP	– Dumbarton Oaks Papers, Washington
Drobeta	– Drobeta. Muzeul Regiunii Porților de Fier, Drobeta Turnu-Severin
ÉBPPB	– Études Byzantines et Post-Byzantines, Bucharest
ÉtBalk	– Études Balkaniques, Sofija
Expedition	– Expedition. The Bulletin of the University Museum of the University of Pennsylvania, Philadelphia
FoliaArch	– Folia Archaeologica, Magyar Nemzeti Múzeum Budapest
FreibUniv	– Freiburger Universitätsblätter, Freiburg
FundberBaden-Württ	– Fundberichte aus Baden-Württemberg, Stuttgart
GDA	– Godišnik na Departament Arheologija – Nov Bălgarski Universitet/ Arheologički Institut s muzej, BAN, Sofija
Germania	– Germania. Korrespondenzblatt der RGK des DAI, Frankfurt am Main
GlasnikSAD	– Glasnik Srpskog Arheološkog Društva, Beograd
GNPM	– Godišnik na Nacionalnija Politehnički Muzej, Sofija
GRBS	– Greek, Roman and Byzantine Studies,
GSU-IF	– Godišnik na Sofijskija Universitet. Istoričeski Fakultet, Sofija
GSU-FIF	– Godišnik na Sofijskija Universitet. Filozofsko-Istoričeski Fakultet, Sofija
HA-ESI	– Hadashot Arkheologiyot. Excavations and Surveys in Israel [ <a href="http://www.hadashot-esi.org.il">http://www.hadashot-esi.org.il</a> ]
HelvArch	– Helvetia Archaeologica
IBAD	– Izvestija na Bălgarskoto Arheologičko Družestvo, Sofija
IBID	– Izvestija na Bălgarskoto Istoričesko Družestvo, Sofija
IEJ	– Israel Exploration Journal, Tel Aviv
Iliria	– Iliria. Revistë Arkeologjike, Tiranë
IMJužB	– Izvestija na Muzeite v Južna Bălgarija, Plovdiv
IMJugB	– Izvestija na Muzeite v Jugoiztočna Bălgarija, Jambol
IMSevZapB	– Izvestija na Muzeite v Severo-Zapadna Bălgarija, Sofija/Vraca
Istros	– Istros, Muzeul Brăilei, Brăila
Izvestija-Sofia	– Izvestija na Arheologičeskija Institut, Sofija
Izvestija-Stara Zagora	– Izvestija na Starozagorskija Istoričeski Muzej, Stara Zagora
Izvestija-Šumen	– Izvestija na Narodnija Muzej, Šumen

Izvestija-Varna	– Izvestija na Narodnija Muzej, Varna
Izvestija-Veliko Tărnovo	– Izvestija na Okrăžnija Muzej Veliko Tărnovo
JÖAI	– Jahreshefte des Österreichischen Archäologischen Institutes, Wien
JRA	– Journal of Roman Archaeology, Ann Arbor
JRGZM	– Jahrbuch des Römisch-Germanischen Zentralmuseums, Mainz
JRS	– Journal of Roman Studies, London
Karthago	– Karthago. Revue d'archéologie méditerranéenne, Paris
Klio	– Klio. Beiträge zur Alten Geschichte, Leipzig-Berlin
KölnerJahrb	– Kölner Jahrbuch für Vor- und Frühgeschichte, Köln
Latomus	– Latomus. Revue d'études latins, Bruxelles
MAA	– Macedoniae Acta Archaeologica, Skopje
MÉFRA	– Mélanges de l'École Française de Rome. Antiquité, Rome
Mesopotamia	– Mesopotamia. Rivista di archeologia, Torino
MittArchInst	– Mitteilungen des archäologischen Instituts der Ungarischen Akademie der Wissenschaften, Budapest
NyírÉvk	– A Nyíregyházi Jóna András Múzeum Évkönyve, Nyíregyháza
NPZ	– Novopazarski Zbornik, Novi Pazar
Peuce	– Peuce. Studii și comunicări de istorie, etnografie și muzeologie, Tulcea
Pontica	– Pontica. Studii și materiale de istorie, arheologie și muzeografie, Constanța
RadMV	– Rad Muzeja Vojvodine, Novi Sad
RB	– Revue Biblique, Jerusalem/Paris
RÉA	– Revue des Études Anciennes, Paris
RÉSEE	– Revue des Études Sud-Est Européennes, București
RevAfr	– Revue Africaine. Journal des Travaux de la Société Historique Algérienne, Algiers
RMM-MIA	– Revista Muzeelor și Monumentelor. Monumente Istorice și de Artă, București
Rodopski Zbornik	– Rodopski Zbornik, BAN, Sofia
RRH	– Revue Roumaine d'Histoire, București
SaalbJahrb	– Saalburg Jahrbuch. Bericht des Saalburg Museums, Bad Homburg
SCIV(A)	– Studii și cercetări de istorie veche (și arheologie), București
SLSAFA	– Schweizerisch-Liechtensteinische Stiftung für archäologische Forschungen im Ausland
SMMIM-MMC	– Studii și materiale de muzeografie și istorie militară. Muzeul Militar Central, București
SpecNova	– Specimina Nova. Dissertatio ex instituto historico Universitatis Quinqueecclesiensis de Iano Pannonico nominatae, Pécs
Starinar	– Starinar. Organ Srpskog Arheološkog Društva, Beograd
StBalc	– Studia Balcanica, Sofia
StCl	– Studii Clasice, București
Światowit	– Światowit. Rocznik Instytutu Archeologii Uniwersytetu Warszawskiego – Warszawa
Syria	– Syria. Revue d'art oriental et d'archéologie, Paris-Beyrouth
TravMém	– Travaux et Mémoires du Centre de Recherches d'Histoire et Civilisation Byzantines, Paris
VDI	– Vestnik Drevnei Istorij, Moskva
VizVrem	– Vizantijskij Vremmenik, Moskva
VVM	– Vjesnik Vojnog Muzeja, Beograd
ZfA	– Zeitschrift für Archäologie, Berlin
ZNM	– Zbornik Narodnog Muzeija, Beograd
ZPE	– Zeitschrift für Papyrologie und Epigraphik, Bonn
Živa Antika	– Živa Antika. Antiquité Vivante, Skopje

## BIBLIOGRAPHY

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- ADAMS 1986 – J. P. Adams, *Topeiros Thraciae, the Via Egnatia and the Boundaries of Macedonia*, in *Ancient Macedonia IV. Papers read at the Fourth International Symposium held in Thessaloniki, September, 21–25, 1983*, Thessaloniki, 1986, 17–42.
- ALADŽOV 1969 – D. Aladžov, *Arheologiĉeski danni za rannoto srednovekovie v Iztoĉnorodopskata oblast*, Rodopski Zbornik 2, 1969, 243–258.
- ALADŽOV 1987 – D. Aladžov, *Die archäologischen Denkmäler im Bezirk Haskovo (4.–11. Jahrhundert)*, in *Das Christentum in Bulgarien und auf der Übrigen Balkanhalbinsel in der spätantike und im frühen mittelalter. II. Internationales Symposium Haskovo (Bulgarien), 10.–13. Juni 1986*, [Miscellanea Bulgarica 5], Wien, 1987, 71–82.
- ALADŽOV, BALABANJAN 1972 – D. Aladžov, D. Balabanjan, *Razkopki v selo Ljubenovo prez 1968 godina*, Rodopski Zbornik 3, 1972, 106–116.
- ALADŽOV et al. 2006 – Ž. Aladžov, C. Draževa, D. Momĉilov, *The Martyrium of “Markeli” Fortress by Karnobat*, in *Early Christian Martyrs and Relics and Their Veneration in East and West. International Conference, Varna, November 20<sup>th</sup>–23<sup>rd</sup>, 2003*, [Acta Musei Varnensis 4], Varna, 2006, 273–280.
- ALEKSANDROV 1987 – G. Aleksandrov, *Rezultati ot razkopkite na krepostta Montana (1971–1982)*, in *Montana I*, Sofija, 1987, 54–85.
- ANTONOVA 1973 – V. Antonova, *Arheologiĉeski prouĉvanija na Ŗumenskata krepost (predvaritelno sãobŖtenie za trakijskoto, rimskoto I rannovizantijskoto seliŖte)*, Izvestija-Ŗumen 6, 1973, 127–158.
- ANTONOVA 1978 – V. Antonova, *Ŗumenskata krepost prez rimskata epoha (II–IV v.)*, ArhSofija 20, 1978, 4, 13–24.
- ARCE 2006 – I. Arce, *Qasr Hallabat (Jordan) Revisited: Reassessment of the Material Evidence*, in *Muslim Military Architecture in Greater Syria. From the Coming of Islam to the Ottoman Period*, Leiden, 2006, 26–44.
- ARICESCU 1972 – A. Aricescu, *Încercare nouã de întelegere a Ŗtirilor date de Procopius din Caesarea despre teritoriul Dobrogei în vremea împãratului Justinian*, Pontica 5, 1972, 329–347.
- ARICESCU 1977 – A. Aricescu, *Armata în Dobrogea romanã*, BucureŖti, 1977.
- ATANASOVA-GEORGIEVA 1974 – J. Atanasova-Georgieva, *Le quadriburgium de la forteresse Castra Martis en Dacia Ripensis*, in *Limes 9 Mamaia*, 167–172.
- ATANASOVA 1987 – J. Atanasova, *Il Castellum Castra Martis a Kula*, Ratiariensia 3–4, 1987, 119–125.
- ATANASOVA et al. 2005 – J. Atanasova et al., *Kastra Martis. Kvadriburgij i kastel*, [Razkopki i prouĉvanija XXXIII], Sofija, 2005.
- AVNER et al. 2004 – U. Avner, G. Davies, J. Magness, *The Roman Fort at Yotvata: Interim Report (2003)*, JRA 17, 2004, 1, 405–412.
- AVNER et al. 2005 – U. Avner, G. Davies, J. Magness, *Yotvata 2003*, HA-ESI 117, 2005.
- AVRAMOV 1914 – V. Avramov, *Trojanovijat pãt ot Karpatite za Plovdiv*, IBAD 1914, 224–240.

- BAATZ 2000 – D. Baatz, *Der römische Limes. Archäologische Ausflüge zwischen Rhein und Donau*, Berlin, 2000.
- BAATZ 2006 – D. Baatz, *Biblis / Zullestein*, in *L'architecture de la Gaule romaine. Les fortifications militaires*, Paris-Bordeaux, 2006, 227–228.
- BABOVIĆ 1990 – L. Babović, *Kasnorimska kula na lokalitetu "Zbradila" kod sela Korbovo*, Glasnik SAD 6, 1990, 115–118.
- BAÇE 1981 – A. Baçe, *Kështjella e Paleokastrës (La forteresse de Paleokastr)*, Iliria 11, 1981, 2, 165–235.
- BĂJENARU 2002–2003 – C. Băjenaru, *Observații recente cu privire la fortificația de tip quadriburgium de la Ovidiu*, Pontica 35–36, 2002–2003, 293–314.
- BARBU 1973 – V. Barbu, *Fortăreața romano-bizantină de la Sucidava în lumina cercetărilor din sectorul de sud-est*, SCIV 24, 1973, 1, 27–55.
- BĂRBULESCU, CÂTEIA 1997 – M. Bărbulescu, A. Câteia, *Stâlpi miliari descoperiți în Dobrogea*, Pontica 30, 1997, 183–198.
- BĂRBULESCU, CÂTEIA 1998 – M. Bărbulescu, A. Câteia, *Drumurile din Dobrogea romană, pe baza stâlpilor miliari din sec. II–III p. Chr.*, Pontica 31, 1998, 119–129.
- BĂRBULESCU et al. 2009 – M. Bărbulescu, A. Câteia, W. Wisošenschi, *Piese epigrafice și sculpturale din teritoriul rural*, Pontica 42, 2009, 409–427.
- BARKÓCZI, SALAMON 1984 – L. Barkóczi, A. Salamon, *Tendenzen der strukturellen und organisatorischen Änderungen pannonischer Siedlungen im 5. Jahrhundert*, Alba Regia 21, 1984, 147–187.
- BARKÓCZI 1994 – L. Barkóczi, *Beiträge zur Geschichte der Provinz Valeria im IV.–VI. Jh.*, SpecNova 10, 1994, 1, 57–135.
- BARNEA, Al. 1984 – Al. Barnea, *Dinogetia III. Precizări cronologice*, Peuce 9, 1984, 339–346, 697–700.
- BARNEA, Al. 1986 – Al. Barnea, *La forteresse de Dinogetia à la lumière de dernières fouilles archéologiques*, in *Limes 13 Aalen*, 447–450.
- BARNEA, Al. 1997 – Al. Barnea, *Voies de communication au Bas-Danube aux IV<sup>e</sup>-VI<sup>e</sup> siècles après Jesus Christ*, ÉBPB 3, 1997, 29–42.
- BARNEA, I. 1960 – I. Barnea, *Contributions to Dobrudja History under Anastasius I*, Dacia N.S. 4, 1960, 363–374.
- BARNEA, I. 1967a – I. Barnea, *Nouvelles contribution à l'histoire de la Dobrudja sous Anastase I<sup>er</sup>*, Dacia N.S. 11, 1967, 355–356.
- BARNEA, I. 1967b – I. Barnea, *Themistios despre Scythia Minor*, SCIV 18, 1967, 4, 563–574.
- BARNEA et al. 1979 – I. Barnea, Al. Barnea, I. Bogdan-Cătănicu, M. Mărgineanu-Cârstoiu, Gh. Papuc, *Tropaeum Traiani I. Cetatea*, București, 1979.
- BARNES 1982 – T.D. Barnes, *The New Empire of Diocletian and Constantine*, Cambridge (Mass.), 1982.
- BAUZOU 1993 – T. Bauzou, *Épigraphie et toponimie: le cas de la Palmyrène du Sud-Ouest*, Syria 70, 1993, 27–50.
- BAVANT 2007 – B. Bavant, *Caričin Grad and the Changes in the Nature of Urbanism in the Central Balkans in the Sixth Century*, in *The Transition to Late Antiquity on the Danube and Beyond* [Proceedings of the British Academy, 141], Oxford, 2007, 337–374.
- BAVANT et al. 1990 – B. Bavant, V. Kondić, J.-M. Spieser, *Caričin Grad II : Le Quartier sud-ouest de la Ville Haute*, Belgrade-Rome, 1990.
- BAVANT, IVANIŠEVIĆ 2007 – B. Bavant, V. Ivanišević, *Iustiniana Prima (Caričin Grad) – eine spätantike Stadt vom Reissbrett*, in *Roms Erbe auf dem Balkan. Spätantike Kaiservillen und Stadtanlagen in Serbien*, Mainz am Rhein, 2007, 108–129.
- BECHERT 1978 – T. Bechert, *Wachturm oder Kornspeicher. Zur Bauweise spätrömischer Burgi im Rheinland*, ArchKorr 8, 1978, 127–132.
- BECHERT 2003 – T. Bechert, *Asciburgium und Dispargum. Das Ruhrmündungsgebiet zwischen Spätantike und Frühmittelalter*, in *Kontinuität und Diskontinuität. Germania Inferior am Beginn*

- und am Ende der römischen Herrschaft. Beiträge des deutsch-niederländischen Kolloquiums in der Katholieke Universiteit Nijmegen (27. bis 30.06. 2001), [RGA-E Band 35], Berlin-New York, 2003, 1–11.
- BENDER 1983 – H. Bender, *Der spätrömische Wachturm von Passau-Haibach und seine Rekonstruktion*, Germania 61, 1983, 597–602.
- BENEA 1977 – D. Benea, *Cetatea romană târzie de la Puținei*, SMMIM-MMC 10, 1977, 37–46.
- BENEA 1996 – D. Benea, *Dacia sud-vestică în secolele III–IV*, Timișoara, 1996.
- BERCHEM 1952 – D. van Berchem, *L'armée de Dioclétien et la réforme constantinienne*, Paris, 1952.
- BERGAMINI 1987 – G. Bergamini, *Parthian Fortifications in Mesopotamia*, Mesopotamia 22, 1987, 195–214.
- BERNHARD 1981 – H. Bernhard, *Die spätrömischen Burgi von Bad Dürkheim-Ungstein und Eisenberg. Eine Untersuchung zum spätantiken Siedlungswesen in ausgewählten Teilgebieten der Pfalz*, SaalJahrb 37, 1981, 23–85.
- BERSU 1964 – G. Bersu, *Die spätrömische Befestigung "Bürgle" bei Gundremmingen*, [MBV 10], München, 1964.
- BERTÓK 1997 – G. Bertók, *Ripa Sarmatica: Late Roman Counterfortifications on the Left Bank of the Danube*, in *Limes 16 Kerkrade*, 165–172.
- BEŠEVILIEV 1969 – V. Beševliev, *Bemerkungen über die antiken Heerstrassen im Ostteil der Balkanhalbinsel*, Klio 51, 1969, 483–495.
- BEŠEVILIEV 1970 – V. Beševliev, *Zur Deutung Kastellnamen im Prokops Werk "De Aedificiis"*, Amsterdam, 1970.
- BIDWELL 1998 – P. Bidwell, *Some Aspects of the Development of Later Roman Forts Plans*, in *The Roman Frontier at the Lower Danube, 4<sup>th</sup>–6<sup>th</sup> Centuries. The Second International Symposium (Murighiol/Halmyris, 18–24 August 1996)*, Bucharest, 1998, 59–75.
- BIERNACKA-LUBAŃSKA 1982 – M. Biernacka-Lubańska, *The Roman and Early-Byzantine Fortifications of Lower Moesia and Northern Thrace*, Wrocław, 1982.
- BIERNACKI 1984 – A. B. Biernacki, *Struktura funkcjonalno-architektonuczna aglomeracji mjeskiej Diocletianopolis (Hisar) w okresie 2 pol. III – pol. V wieku*, BalcPosn 3, 1984, 329–363.
- BIONDI et al. 2005 – G. Biondi, R. Gigli, D. Palermo, A. Pautasso, *Lo scavo del 2003 sulla Patella di Priniàs. Relazione preliminare*, Creta Antica 5, 2004, 249–278.
- BISHEH 1986 – G. Bisheh, *Qasr el-Hallabat: a Summary of 1984 and 1985 Excavations*, AfO 38, 1986, 158–162.
- BOBČEV 1961 a – S. N. Bobčev, *Krepostnite kuli s izdaden ostär rãb i značenieto im za ukrepjavaneto na antičnite gradove*, Izvestija-Sofija 24, 1961, 103–145.
- BOBČEV 1961 b – S. N. Bobčev, *Smesanata zidarija v rimskite i rannovizantijskite stroeži*, Izvestija-Sofija 24, 1961, 153–202.
- BOBČEV 1989 – S. N. Bobčev, *Pregled na ostankite ot Serdika. Otkriti v tečenie na petdeset godini*, in *Serdika 2. Arheologičeski material i proučvanija*, Sofija, 1989, 37–58.
- BONDOC 2002 – D. Bondoc, *"Bridge Heads" on the Northern Border of the Dacia Ripensis Province between the 4<sup>th</sup> and the 5<sup>th</sup> Centuries*, in *The Roman and Late Roman City. The International Conference (Veliko Turnovo 26–30 July 2000)*, Sofija, 2002, 167–172.
- BONDOC 2007 – D. Bondoc, *Old and New Data about the Late Roman Fortification from the Island Ostrovul mare, Gogoșu Commune, Mehedinți County, Romania*, in *Dacia Felix. Studia Michaeli Bărbulescu oblata*, Cluj-Napoca, 2007, 490–499.
- BONDOC 2009 – D. Bondoc, *The Roman Rule to the North of the Lower Danube during the Late Roman and Early Byzantine Period*, Cluj-Napoca, 2009.
- BORHY 1996 – L. Borhy, *Non castra sed horrea... Zur Bestimmung einer der Funktionen spätrömischer Binnenfestungen*, BVgbl 61, 1996, 207–224.
- BORHY 1999 – L. Borhy, *"Praepositus legionis hunc burgum a fundamentis in diebus XXXXVIII fecit pervenire". Überlegungen zu CIL III, 3653 aus Esztergom hinsichtlich der Dauer der Errichtung spätrömischer Militäranlagen*, Arctos 33, 1999, 7–13.

- BORISOV 2001 – B. Borisov, *Settlements of Northeast Thrace: 11–12 centuries*, ArchBulg 5, 2001, 2, 77–92.
- BORONEANȚ 1977 – V. Boroneanț, *Cercetări perieghetice pe malul Mării Negre între Constanța și Vama Veche*, Pontica 10, 1977, 319–324.
- BOŠKOVIĆ 1978 – D. Bošković, *Aperçu sommaire sur les recherches archéologiques du limes romain et paléobyzantin des Portes de Fer*, MÉFRA 90, 1978, 1, 425–463.
- BÖTTGER 1992 – B. Böttger, *Zu den Ergebnissen der Untersuchungen an den spätantiken Schichten im Nordwestsektor des Kaletohügels von Karasura*, ZfA 26, 1992, 2, 233–249.
- BOTUȘAROVA, KESJAKOVA 1983 – L. Botușarova, E. Kesjakova, *Sur la topographie de la ville de Philippopolis à l'époque de la Basse Antiquité*, Pulpudeva 4, 1983, 264–273.
- BOUNEGRU, ZAHARIADE 1996 – O. Bounegru, M. Zahariade, *Les forces navales du Bas Danube et de la Mer Noire aux I<sup>er</sup> – VI<sup>e</sup> siècles*, Oxford, 1996.
- BOŽILOVA 1987 – V. Božilova, *Fouille d'un ensemble architectural à Kostinbrod*, in *Recherches sur la culture en Mésie et en Thrace, Bulgarie, I<sup>er</sup>–IV<sup>e</sup> siècle*, Izvestija-Sofija 37, 1987, 75–81.
- BOŽINOVA 2008 – I. Božinova, *Kasnoantična sgrada v m. Gradište pri s. Drenkovo, občina Blagoevgrad*, in *AOR prez 2007 g.*, Sofija, 2008, 447–448.
- BRANDL 1997 – U. Brandl, *Passau-Boiotro. Kleinkastell*, in *Der römische Limes in Österreich. Führer zu den archäologischen Denkmälern* (ed. H. Friesinger/F. Krinzinger), Wien, 1997, 145–150.
- BRANDL et al. 1997 – U. Brandl, E. Herzog, G. Moosbauer, *Schlögen–Ioviacum. Kleinkastell–Vicus*, in *Der römische Limes in Österreich. Führer zu den archäologischen Denkmälern* (ed. H. Friesinger/F. Krinzinger), Wien, 1997, 160–164.
- BRMBOLIĆ 1986 – M. Brmbolić, *Ranovizantijsko utvrđenje na Juhoru*, ZNM 12, 1986, 1, 199–216.
- BRULET 1977 – R. Brulet, *La tour de garde du Bas-Empire romain de Morlanwelz (Belgique)*, in *Studien zu den Militärgrenzen Roms II. Vorträge des 10. Internationalen Limeskongresses in der Germania Inferior*, Köln-Bonn, 1977, 109–114.
- BRULET 1990 – R. Brulet, *La Gaule septentrionale au Bas-Empire. Occupation du sol et défense du territoire dans l'arrière pays du limes aux IV<sup>e</sup> et V<sup>e</sup> siècles*, Trier, 1990.
- BRULET 2006 a – R. Brulet, *L'architecture militaire romaine en Gaule pendant l'Antiquité tardive*, in *L'architecture de la Gaule romaine. Les fortifications militaires*, Paris-Bordeaux, 2006, 155–179.
- BRULET 2006 b – R. Brulet, *Braives / Le Châtillon (Perniciacum ?)*, in *L'architecture de la Gaule romaine. Les fortifications militaires*, Paris-Bordeaux, 2006, 241–242.
- BUCOVALĂ, PAPUC 1980 – M. Bucovală, Gh. Papuc, *Cercetările arheologice de la Ovidiu, municipiul Constanța*, Pontica 13, 1980, 275–283.
- BUCOVALĂ, PAPUC 1981 – M. Bucovală, Gh. Papuc, *Date noi despre fortificația de la Ovidiu – municipiul Constanța*, Pontica 14, 1981, 211–216.
- BUCOVALĂ, PAPUC 1984 – M. Bucovală, Gh. Papuc, *Date noi privind cercetările arheologice de la Ovidiu*, Pontica 17, 1984, 153–156.
- BUCOVALĂ, PAPUC 1986 – M. Bucovală, Gh. Papuc, *Cercetările arheologice în fortificația romano-bizantină de la Ovidiu (municipiul Constanța)*, MCA 16 (Vaslui, 1982), București, 1986, 169–171.
- BUCOVALĂ, PAPUC 1993 – M. Bucovală, Gh. Papuc, *Fortificația romano-bizantină de la Ovidiu, municipiul Constanța*, MCA 17 (Ploiești, 1983), București, 1993, II, 273–277.
- BUJOR 1974 – E. Bujor, *Probleme ridicate de cercetările arheologice de la Orșova-Dierna*, in *In memoriam Constantini Daicovici*, Cluj-Napoca, 1974, 59–63.
- BUJUKLIEV 2002 – H. Bujukliev, *Les portes de l'Est de la forteresse de Basse Antiquité Karassoura près du village Roupkité, dépt. de Tchirpan*, in *Proceedings of the 8<sup>th</sup> International Congress of Thracology. Thrace and the Aegean, Sofija-Yambol, 25–29 September 2000*, I, Sofija, 2002, 411–420.
- BÜLOW 1992 – G. von Bülow, *Die Befestigungsanlagen am Südwesthang des Kaletohügels und das Westtor der mutatio Karasura (Die Objekte S 65 / W 25 und S 115 / W 35)*, ZfA 26, 1992, 2, 199–219.
- BURY 1923 – J. B. Bury, *The Provincial List of Verona*, JRS 13, 1923, 127–151.

- BUTLER 1969 – H. C. Butler, *Early Churches in Syria. Fourth to Seventh Century*<sup>2</sup>, Princeton, 1969.
- CALLOT – O. Callot, *Failaka à l'époque hellénistique*, in *L'Arabie préislamique et son environnement historique et culturel. Actes du colloque de Strasbourg, 24–27 juin 1987*, Leiden, 1989, 127–143.
- CARRIÉ 1974 – J.-M. Carrié, *Les Castra Dionysiados et l'évolution de l'architecture militaire tardive*, MÉFRA 86, 1974, 819–850.
- CARROLL-SPILLECKE 1993 – M. Carroll-Spillecke, *Das römische Militärlager Divitia in Köln-Deutz*, KölnerJahrb 26, 1993, 321–444.
- CARROLL-SPILLECKE 1997 – M. Carroll-Spillecke, *The Late Roman Frontier Fort Divitia in Köln-Deutz and its Garrisons*, in *Limes 16 Kerkrade*, 1997, 143–149.
- CERMANOVIĆ-KUZMANOVIĆ 1977–1978 – A. Cermanović-Kuzmanović, *Rimsko utvrđenje kod Kladova*, Starinar 28–29, 1977–1978, 127–134.
- CERMANOVIĆ-KUZMANOVIĆ 1982–1983 – A. Cermanović-Kuzmanović, *Tekija (Transdierna), neka razmatranja*, Starinar 33–34, 1982–1983, 337–343.
- CERMANOVIĆ-KUZMANOVIĆ, STANKOVIĆ 1984 – A. Cermanović-Kuzmanović, S. Stanković, *Bordej. Forteresse de la basse Antiquité. Fouilles de 1980*, Djerdapske Sveske 2, 1984, 219–220.
- CERMANOVIĆ-KUZMANOVIĆ, STANKOVIĆ 1986 – A. Cermanović-Kuzmanović, S. Stanković, *La forteresse antique Mora Vagei près de Mihajlovac. Fouilles de 1981*, Djerdapske Sveske 3, 1986, 453–466.
- CERMANOVIĆ-KUZMANOVIĆ, JOVANOVIĆ 2004 – A. Cermanović-Kuzmanović, Al. Jovanović, *Tekija*, [CPF Monographs 4], Beograd, 2004.
- CHIȚESCU, POENARU-BORDEA 1981–1982 – M. Chițescu, Gh. Poenaru-Bordea, *Contribuții la istoria Diernei în lumina descoperirilor monetare din săpăturile arheologice din anul 1967*, BSNR 75–76 1981–1982, 169–209.
- CHRISTOL, LENOIR 2001 – M. Christol, M. Lenoir, *Qasr el-Azraq et la reconquête de l'Orient par Aurélien*, Syria 78, 2001, 163–178.
- CIGLENEČKI 1987 – S. Ciglencečki, *Höhenbefestigungen aus der Zeit von 3. bis 6. Jh. Im Ostalpenraum*, Ljubljana, 1987.
- CINTAS 1954 – J. Cintas, *Édifce fortifié à occupation chrétienne dans le Bled et Thala*, Karthago 5, 1954, 201–206.
- CLARK 1987 – V. A. Clark, *The Roman Castellum at Qasr Bshir*, in *The Roman Frontier in Central Jordan: Interim Report of the Limes Arabicus Project, 1980–1985*, [BAR Int. Ser. 340], Oxford, 1987, II, 457–495.
- COJA 1971 – M. Coja, *Cercetări pe malul lacului Razelm, epocă romană și romano-bizantină*, Peuce 2, 1971, 179–190.
- COJA 1972 – M. Coja, *Cercetări noi în așezarea greco-romană de la capul Doloșman – Argamum?*, BMI 41, 1972, 3, 33–42.
- COLLART 1976 – P. Collart, *Les milliaires de la Via Egnatia*, BCH 100, 1976, 1, 177–200.
- COMȘA 1957 – E. Comșa, *Câteva descoperiri arheologice din raionul Medgidia (regiunea Constanța)*, MCA 4, 1957, 325–360.
- COMȘA 1959 – E. Comșa, *Limesul dobrogean. Cercetări de suprafață de-a lungul Dunării între Ostrov și Hârșova*, MCA 5, 1959, 761–768.
- ÇONDI 1984 – D. Çondi, *Fortesa-vile ne Malathre*, Iliria 14, 1984, 2, 131–152.
- CRĂCIUN 2008 – Cr. Crăciun, *Structuri antice descoperite prin fotointerpretarea imaginilor aeriene*, Pontica 41, 2008, 357–392.
- CROKE 1982 – B. Croke, *The Date of the "Anastasian Long Wall" in Thrace*, GRBS 20, 1982, 59–78.
- CROKE, CROW 1983 – B. Croke, J. Crow, *Procopius and Dara*, JRS 73, 1983, 143–159.
- CROW 1995 – J. Crow, *The Long Walls of Thrace*, in *Constantinople and its hinterland*, Aldershot, 1995, 109–124.
- CROW 2002 – J. Crow, *Recent Research on the Late Antique Cities of Eastern Thrace (Provincia Europa)*, in *The Roman and Late Roman City. The International Conference (Veliko Tărnovo, 26–30 July 2000)*, Sofija, 2002, 342–351.

- CROW 2007 – J. Crow, *The Anastasian Wall and the Lower Danube Frontier before Justinian*, in *The Lower Danube in Antiquity (VI c. BC – VI c. AD). International Archaeological Conference, Bulgaria-Tutrakan, 6.–7.10.2005*, Sofija, 2007, 397–410.
- CROW, RICCI 1997 – J. Crow, A. Ricci, *Investigating the hinterland of Constantinople: interim report on the Anastasian Long Wall*, JRA 10, 1997, 235–262.
- CURTA 1990 – F. Curta, *Zu den Chronologischen Problemen der römischen Goldbarrenschätze aus Crasna (Kr. Covasna) und Feldioara (Kr. Braşov)*, Dacia NS, 34, 1990, 269–284.
- CURTA 2001 – F. Curta, *Limes and Cross: the Religious Dimension of the Sixth-Century Danube Frontier of the Early Byzantine Empire*, Starinar 51, 2001, 45–70.
- CURTA 2006 – F. Curta, *Apariția slavilor. Istorie și arheologie la Dunărea de Jos în veacurile VI–VII*, Târgoviște, 2006.
- DAMIAN et al. 2003 – O. Damian, C. Andonie, M. Vasile, *Cetatea bizantină de la Nufăru. Despre problemele unui sit suprapus de o așezare contemporană*, Peuce, s.n., 1 (14), 2003, 237–266.
- DASKALOV et al. 2001 – M. Daskalov, S. Gorjanova, M. Ivanov, *Spasitelno arheologičesko proučvane na rannovizantijski crkoven kompleks v gr. Sofija, kv. Lozenec – Iužen park, prez 2000 g.*, in *AOR prez 1999–2000 g.*, Sofija, 2001, 131–133.
- DASKALOV et al. 2002 – M. Daskalov, S. Gorjanova, K. Trendafilova, *Arheologičesko proučvane na rannovizantijski crkoven kompleks v gr. Sofija, kv. Lozenec – Iužen park, prez 2000 g.*, in *AOR prez 2001 g.*, Sofija, 2002, 123–126.
- DAUTOVA-RUŠEVLJAN, PETROVIĆ 1994 – V. Dautova-Ruševljan, P. Petrović, *Rimsko utvrđenje kod Čortanovaca*, RadMV 36, 1994, 13–34.
- DAVIDESCU 1977 – M. Davidescu, *Cercetările arheologice din Ostrovul Banului [Gura Văii, județul Mehedinți]*, RMM.MIA 46, 1977, 1, 37–42.
- DAVIDESCU 1978 – M. Davidescu, *Raport asupra săpăturilor arheologice din castrul roman de la Hinova – Mehedinți*, Drobeta 3, 1978, 76–86.
- DAVIDESCU 1980a – M. Davidescu, *Săpăturile arheologice din castrul roman de la Hinova*, Drobeta 4, 1980, 77–86.
- DAVIDESCU 1980b – M. Davidescu, *Drobeta în secolele I–VII e.n.*, Craiova, 1980.
- DAVIDESCU 1989 – M. Davidescu, *Cetatea romană de la Hinova*, București, 1989.
- DAVIDESCU, STÂNGĂ 1986 – M. Davidescu, I. Stângă, *Monedele din castrul roman târziu de la Hinova*, Drobeta 6, 1986, 75–102.
- DAVIES, MAGNESS 2005 – G. Davies, J. Magness, *Yotvata 2004*, HA-ESI 117, 2005.
- DAVIES, MAGNESS 2006 – G. Davies, J. Magness, *Yotvata 2005*, HA-ESI 118, 2006.
- DAVIES, MAGNESS 2007 – G. Davies, J. Magness, *Yotvata 2006*, HA-ESI 119, 2007.
- DEBORD 1994 – P. Debord, *Le vocabulaire des ouvrages de défense. Occurrences littéraires et épigraphiques confrontées aux Realia archéologiques*, RÉA 96, 1994, 1–2, 53–61.
- DECKER 2006 – M. Decker, *Towers, Refuges, and Fortified Farms in the Late Roman East*, LA 56, 2006, 499–520.
- DEMOUGEOT 1981 – E. Demougeot, *Le partage des provinces de l'Illyricum entre la pars Occidentis et la pars Orientis de la Tétrarchie au règne de Théodoric*, in *La géographie administrative et politique d'Alexandre à Mahomet. Actes du colloque du Strasbourg, 14–16 juin 1976*, Leiden, 1981, 229–254.
- DEROKO 1950 – A. Deroko, *Kulić i Ram, kastrumi na dunavskom limesu*, Starinar 1, 1950, 169–173.
- DE VRIES 1981 – B. de Vries, *The Umm el-Jimal Project, 1972–1977*, BASOR 244, 1981, 53–72 (= ADAJ 26, 1982, 97–116).
- DE VRIES 1993 – B. de Vries, *The Umm el-Jimal Project, 1981–1992*, ADAJ 37, 1993, 433–460.
- DE VRIES 1998 – B. de Vries, *Umm el-Jimal: A Frontier Town and its Landscape in Northern Jordan, I. Fieldwork, 1972–1981*, [JRA Suppl. 26], Portsmouth-Rhode Island, 1998.
- DIMITRIJEVIĆ 1982–1983 – D. Dimitrijević, *Sapaja, rimsko i srednjovekovno utvrđenje na ostrvu kod Stare Palanke*, Starinar 33–34, 1982–1983, 29–62.
- DIMITROV D. I. 1977 – D. I. Dimitrov, *Razkopkite na kásnoantičnata krepost pri Škorpilovci*, in *AOR prez 1976 g.*, Ruse, 1977, 93.

- DIMITROV D. I. 1980 – D. I. Dimitrov, *Nekotarie voprosui etno-kulturnoi istorii naselenija po beregu Nižneva Dunaja v V–VI v.*, in *Actes du II<sup>e</sup> Congrès International de Thracologie*, Bucharest, 1980, II, 451–455.
- DIMITROV D. I. 1983 – D. I. Dimitrov, *Arheološki proučvanija v Varnensko za perioda VI–X v.*, *Izvestija–Varna* 19(34), 1983, 35–52.
- DIMITROV D. I. 1988 – D. I. Dimitrov, *Razkopki na kāsnoantičnata krepost pri s. Škorpilovci, Varnenski okrāg*, in *AOR prez 1987 g.*, Blagoevgrad, 1988, 94–95.
- DIMITROV M. 1985 – M. Dimitrov, *Rannovizantijski ukreplenija po Zapadna brjag na Černo More (V–VII v.)*, *Dobrudža* 2, 1985, 120–128.
- DIMITROVA-MILČEVA 1992 – A. Dimitrova-Milčeva, *Das Festungssystem der spätantiken und frühbyzantinischen Stadt Nicopolis ad Nestum*, in *Studia Aegea et Balcanica*, Warszawa, 1992, 257–269.
- DIMITROVA-MILČEVA 2002 – A. Dimitrova-Milčeva, *Nicopolis ad Nestum während der spätantiken und der frühbyzantinischen Epoche*, in *The Roman and Late Roman City. The International Conference (Veliko Turnovo 26–30 July 2000)*, Sofija, 2002, 311–317.
- DINČEV 1997 – V. Dintchev, *Household Substructure of the Early-Byzantine Fortified Settlements on the Present Bulgarian Territory*, *ArchBulg* 1, 1997, 1, 47–63.
- DINČEV 1997 b – V. Dinčev, *Zikideva – An Example of Early Byzantine Urbanism in the Balkans*, *ArchBulg* 1, 1997, 3, 54–77.
- DINČEV 1998 – V. Dintchev, *Über die Veränderungen in der Militärdoktrin des Imperiums an der Unteren Donau während des 5.–6. Jhs.*, in *The Roman Frontier at the Lower Danube, 4<sup>th</sup>–6<sup>th</sup> Centuries. The Second International Symposium (Murighiol/Halmyris, 18–24 August 1996)*, Bucharest, 1998, 95–113.
- DINČEV 1999 – V. Dintchev, *Classification of the Late Antiques Cities on the Dioceses of Thracia and Dacia*, *ArchBulg* 3, 1999, 3, 39–73.
- DINČEV 2000 – V. Dintchev, *The Limit of Urban Life in the Late Antique Dioceses of Thracia and Dacia: the Overestimated Centers*, *ArchBulg* 4, 2000, 2, 65–84.
- DINČEV 2003 – V. Dinčev, *Kāsnorimskata rezidencija Scretisca i rannovizantijskoto selište Kratiskara (Arheološki proučvanija v m. Gradišteto kraj gr. Kostinbrod prez 1990–1994 g.)*, [Razkopki i proučvanija XXX], Sofija, 2003.
- DINČEV 2006 – V. Dinčev, *Rannovizantijskite kreposti v B'lgaria i s'ednite zemi (v diokezite Thracia i Dacia)*, [Razkopki i proučvanija XXXV], Sofija, 2006.
- DINČEV 2007 a – V. Dinčev, *The Fortresses of Thrace and Dacia in the Early Byzantine Period*, in *The Transition to Late Antiquity on the Danube and Beyond* [Proceedings of the British Academy, 141], Oxford, 2007, 479–546.
- DINČEV 2007 b – V. Dinčev, *Spasitelno proučvane na kāsnorimski obekt v m. Garagaškin čair (m. Mogilite) pri s. Pomoštnik, občina Gālābovo, prez 2006 g.*, in *AOR prez 2006 g.*, Sofija, 2007, 286–290.
- DINČEV 2008 – V. Dinčev, *Spasitelni razkopki na kāsnorimski obekt v m. Garagaškin čair (m. Mogilite) pri s. Pomoštnik, občina Gālābovo, prez 2007 g.*, in *AOR prez 2007 g.*, Sofija, 2008, 467–471.
- DODOV 1926–1927 – N. S. Dodov, *Razvalini v mestnostta „Kioško” nad s. Bistrica*, *Izvestija-Sofija* 4, 1926–1927, 300.
- DÖHLE 1992 – B. Döhle, *Zu den spätantik-mittelalterlichen Befestigungsanlagen auf dem Kale bei Carassura*, *ZfA* 26, 1992, 2, 181–197.
- DOMĂNEANȚU, SION 1982 – C. Domăneanțu, A. Sion, *Incinta romană târzie de la Histria. Încercare de cronologie*, *SCIVA*, 33, 1982, 4, 377–394.
- DONČEVA 2002 – Iv. Dončeva, *Antičnata krepost „Kovačevsko kale”*, in *The Roman and Late Roman City*, Sofija, 2002, 220–227.
- ĐORĐEVIĆ 1996 – M. Đorđević, *Contributions to the Study of the Roman Limes in South Banat*, in *Roman Limes on the Middle and Lower Danube*, Belgrade, 1996, 125–134.
- DORUȚIU-BOILĂ 1975 – E. Doruțiu-Boilă, *Pyrgoi-Turres*, *SCIVA* 26, 1975, 2, 219–224.

- DRACK 1980 – W. Drack, *Die spätrömische Grenzwehr am Hochrhein*, [Archäologische Führer der Schweiz 13], Zürich, 1980.
- DREMSIZOVA-NELČINOVA 1969 – Cv. Dremsizova-Nelčinova, *La villa romaine en Bulgarie*, in *Actes du I<sup>er</sup> Congrès International des Études Balkaniques et Sud-Est Européennes*, Sofija, 1969, II, 503–512.
- DUŠANIĆ M. 1976 – M. Dušanić, *Praepositi ripae legionis u natpisima opeka Prve Mezije*, AV 25, 1976, 275–283.
- DUŠANIĆ M. 1978 – M. Dušanić, *Ripa legionis: pars superior*, AV 29, 1978, 343–345.
- DUŠANIĆ S. 1995 – S. Dušanić, *Late Roman Mining in Illyricum: Historical Observations*, in *Ancient Mining and Metallurgy in Southeast Europe. International Symposium, Donji Milanovac, May 20–25, 1990*, Bor-Belgrade, 1995, 219–225.
- DUŠANIĆ S. 2004 – S. Dušanić, *Roman Mining in Illyricum: Historical Aspects*, in *Dall'Adriatico al Danubio. L'Illyrico nell'età greca e romana. Atti dell convegno internazionale, Cividale del Friuli, 25–27 settembre 2003*, Pisa, 2004, 247–270.
- DUVAL 1983 – N. Duval, *L'état actuel des recherches sur les fortifications de Justinien en Afrique*, CCARB 30, 1983, 149–204.
- DUVAL 1989–1990 – N. Duval, *Mogorjelo : camp ou palais ?*, *Starinar* 40–41, 1989–1990, 253–259.
- DŽAMBOV 2005 – I. Džambov, *Novi proučavanja v podnožieto na Anevs-koto kale – krepostta « Hissarlâka » (predvaritelno šobštenie)*, in *Bălgarskite zemi prez srednovekoviet (VII–XVIII v.). Meždunarodna konferencija, Varna, 12–14 septemvri 2002*, [Acta Musei Varnaensis III, 2], Sofija 2005, 205–208.
- DŽINGOV et al. 1990 – G. Džingov, A. Balkanska, M. Josifova, *Kaliakra I. Krepostno stroitelstvo*, Sofija, 1990.
- ECK 1992 – W. Eck, *Alam Costia constituerunt : zum Verständnis einer Militärinschrift aus dem südlichen Negev*, *Klio* 74, 1992, 395–400.
- EL SUSI 1993 – G. El Susi, *Analiza resturilor de faună din castrul roman de la Hinova (jud. Mehedintți)*, *Analele Banatului* SN, 2, 1993, 215–221.
- ERCEGOVIĆ-PAVLOVIĆ 1982–1983 – S. Ercegović-Pavlović, *Ravna – srednovekovno naselje i nekropola*, *Starinar* 33–34, 1982–1983, 253–257.
- ERCEGOVIĆ-PAVLOVIĆ 1986 – S. Ercegović-Pavlović, *Srednjovjekovna naselja i nekropole u Boljetinu i Hajdučkoj Vodenici*, Beograd, 1986.
- ERCEGOVIĆ-PAVLOVIĆ, KOSTIĆ 1988 – S. Ercegović-Pavlović, D. Kostić, *Arheološki spomenici i nalazišta Leskovačkog kraja*, Beograd, 1988.
- ERCEGOVIĆ-PAVLOVIĆ, MINIĆ 1984 – S. Ercegović-Pavlović, D. Minić, *Brza Palanka. Secteurs II–III. Fouilles de 1980 (Moyen Age)*, *Djerdapske Sveske* 2, 1984, 167–174.
- ÉTIENNE 1990 – R. Étienne, *Ténos II. Ténos et ls Cyclades du milieu du IV<sup>e</sup> siècle av. J.-C. au milieu du III<sup>e</sup> siècle ap. J.-C.*, Paris, 1990.
- EUZENNAT 1986 – M. Euzennat, *Les camps marocaines d'Aïn Schkour et de Sidi Moussa bou Fri et l'introduction du « quadriburgium » en Afrique du Nord*, in *III<sup>e</sup> Colloque sur l'histoire et l'archéologie d'Afrique du Nord (Montpellier 1–5 avril 1985)*, Paris, 1986, 373–376.
- EUZENNAT 1989 – M. Euzennat, *Les limes de Tingitana, la frontière méridionale*, Paris, 1989.
- FEISSEL 1988 – D. Feissel, *L'architecte Viktôrinus et les fortifications de Justinien dans les provinces balkaniques*, BSNAF 1988, 136–146.
- FEISSEL 2000 – D. Feissel, *Les édifices de Justinien au témoignage de Procope et de l'épigraphie*, *AnTard* 8, 2000, 81–104.
- FELLMANN 1976 – R. Fellmann, *Le « Camp de Dioclétien » à Palmyre et l'architecture militaire du Bas-Empire*, in *Mélanges d'histoire ancienne et d'archéologie offerts à Paul Collart*, Lausanne, 1976, 173–191.
- FELLMANN 2004 – R. Fellmann, *La légion I<sup>er</sup> Martia, une légion du Bas-Empire*, in *L'armée romaine de Dioclétien à Valentinien I<sup>er</sup>. Actes du Congrès de Lyon (12–14 septembre 2002)*, Lyon, 2004, 201–209.
- FELLMANN 2006 a – R. Fellmann, *Aegerten*, in *L'architecture de la Gaule romaine. Les fortifications militaires*, Paris-Bordeaux, 2006, 183.

- FELLMANN 2006 b – R. Fellmann, *Bâle / Petit-Bâle (Kleinbasel)*, in *L'architecture de la Gaule romaine. Les fortifications militaires*, Paris-Bordeaux, 2006, 218.
- FELLMANN 2006 c – R. Fellmann, *Zürich / Turicum*, in *L'architecture de la Gaule romaine. Les fortifications militaires*, Paris-Bordeaux, 2006, 435–436.
- FELLMANN 2006 d – R. Fellmann, *Zurzach / Tenedo*, in *L'architecture de la Gaule romaine. Les fortifications militaires*, Paris-Bordeaux, 2006, 436–437.
- FIEMA 1995 – Z. Fiema, *Military Architecture and the Defense "System" of Roman-Byzantine Southern Jordan – A Critical Appraisal of Current Interpretations*, in *Studies in the History and Archaeology of Jordan V*, Amman, 1995, 261–270.
- FISCHER 1980 – T. H. Fischer, *Neue Untersuchungen im Kastell und Vicus von Eining/Abusina, Ldkr. Kelheim, Niederbayern*, BVgl 45, 1980, 125–153.
- FISCHER 1999 – Th. Fischer, *Neue Forschungen im spätrömischen Kastell "Haus Bürgel", Stadt Monheim, Kreis Mettmann*, in *Limes 17 Zaláu*, 337–347.
- FISCHER 2006 a – Th. Fischer, *Asperden*, in *L'architecture de la Gaule romaine. Les fortifications militaires*, Paris-Bordeaux, 2006, 203–205.
- FISCHER 2006 b – Th. Fischer, *Monheim / Haus Bürgel*, in *L'architecture de la Gaule romaine. Les fortifications militaires*, Paris-Bordeaux, 2006, 335–336.
- FITZ 1955 – J. Fitz, *Örtornyok Intercisa és Annamatia között*, ArchÉrt 82, 1955, 69–79.
- FITZ 1980 – J. Fitz, *Die Innenbefestigungen der Provinz Valeria, Alba Regia* 18, 1980, 53–60.
- FITZ 1989 – J. Fitz, *Recherches sur la Pannonie 1980–1986*, ActaArchHung 41, 1989, 1–4, 533–558.
- FLORESCU 1927–1932 – Gr. Florescu, *Fouilles et recherches archéologiques à Calachioi (Capidava?) en 1924 et 1926*, Dacia 3–4, 1927–1932, 483–515.
- FLORESCU et al. 1958 – Gr. Florescu, R. Florescu, P. Diaconu, *Capidava. Monografie arheologică*, I, București, 1958.
- FORNI 1959–1962 – G. Forni, s.v. *Limes*, in *Dizionario Epigrafico di Antichità Romane* (ed. E. de Ruggiero), IV, 34–40, Roma, 1959–1962, 1074–1280.
- GABRICEVIĆ 1972 – M. Gabricević, *Strassenbau in der Donja Klissura der Eisernen Tores im Licht der neuentdeckten Inschrift*, AV 18, 1972, 408–416.
- GABRICEVIĆ 1986 – M. Gabricević, *Rtkovo-Glamija – une forteresse de la Basse Epoque. Fouilles de 1980–1982*, Djerdapske Sveske 3, 1986, 71–91.
- GARBSCHE 1967 – J. Garbsch, *Die Burgi von Meckatz und Untersaal und die valentinianische Grenzbefestigung zwischen Basel und Passau*, BVgl 32, 1967, 51–82.
- GARLAN 1974 – Y. Garlan, *Recherches de poliorcétique grecque*, Paris, 1974.
- GECHTER 2006 – M. Gechter, *Dormagen*, in *L'architecture de la Gaule romaine. Les fortifications militaires*, Paris-Bordeaux, 2006, 265–267.
- GENEQUAND 2003 – D. Genequand, *Projet "Implantations umayyades de Syrie et de Jordanie". Rapport de la mission de prospection (Juin/Juillet 2002)*, SLSAFA – Jahresbericht 2002 (Zürich, 2003), 31–68.
- GENEQUAND 2006 – D. Genequand, *Umayyad Castles : The Shift from Late Antiquity Military Architecture to Early Islamic Palatial Building*, in *Muslim Military Architecture in Greater Syria. From the Coming of Islam to the Ottoman Period*, Leiden, 2006, 3–25.
- GEORGIEV, ANGELOV 1957 – G. Georgiev, N. Angelov, *Razkopki na selistnata mogila do Ruse prez 1950–1953 godina*, Izvestija-Sofija 21, 1957, 42–45.
- GEORGIEVSKI 1990–1991 – B. Georgievski, *Antickiot pät Scupi-Stobi spored podalocite sodrajani vo Tabula Peutingeriana*, MAA 12, 1990–1991, 211–219.
- GICHON 1971 – M. Gichon, *Das Kastell En Boqeq. Die Ergebnisse der ersten Kampagne 1968 (Vorbericht)*, BJ 171, 1971, 386–406.
- GICHON 1974 a – M. Gichon, *Excavations at En Boqeq – the First Season*, in *Limes 8 Durham*, 256–262.
- GICHON 1974 b – M. Gichon, *Towers on the Limes Palaestinae. Forms, Purpose, Terminology and Comparisons*, in *Actes du IX<sup>e</sup> Congrès International d'Études sur les Frontières Romaines, Mamaia 6–13 septembre 1972*, București-Köln-Wien, 1974, 517–545.

- GICHON 1974 c – M. Gichon, *Migdal Tsafit, a Burgus in the Negev (Israel)*, Saalbjahrb 31, 1974, 16–40.
- GICHON 1976 – M. Gichon, *Excavations at Mezad Tamar-Tamara*, Saalbjahrb 33, 1976, 80–94.
- GICHON 1977 – M. Gichon, *Mezad Tamar / 'Tamara'. Vorbericht der Grabungen 1973–1974*, in *Studien zu den Militärgrenzen Roms II. Vorträge des 10. Internationalen Limeskongresses in der Germania Inferior*, Köln-Bonn, 1977, 445–452.
- GICHON 1989 – M. Gichon, *Estimating the Strength of Quadriburgia Garrisons*, in *The Eastern Frontier of the Roman Empire*, [BAR Int. Ser. 553], Oxford, 1989, 221–242.
- GICHON 1990 – M. Gichon, *The Courtyard Pattern Castellum on the Limes Palaestinae. Strategic and Tactical Features*, in *Akten des 14. Internationalen Limeskongresses 1986 in Carnuntum*, Wien, 1990, 193–215.
- GICHON 1993 – M. Gichon, *En Boqeq. Ausgrabungen in einer Oase am Toten Meer. 1. Geographie und Geschichte der Oase. Das spätrömische-Byzantinische Kastell*, Mainz, 1993.
- GICHON 1999a – M. Gichon, *Developments in the Research on the Limes Palaestinae during the Last Two Decades*, in *Limes 17 Zaláu*, 241–250.
- GICHON 1999b – M. Gichon, *The Hinterland of the Limes Palaestinae – Remains and Written Evidence*, in *Limes 17 Zaláu*, 667–686.
- GOODCHILD 1950 – R. G. Goodchild, *The Limes Tripolitanus II*, JRS 40, 1950, 30–38.
- GOODCHILD 1953 – R. G. Goodchild, *The Roman and Byzantine Limes in Cyrenaica*, JRS 43, 1953, 65–76.
- GOODCHILD 1966 – R. G. Goodchild, *Fortificazioni e palazzi bizantini in Tripolitania e Cirenaica*, CCARB 13, 1966, 225–250.
- GOODCHILD, WARD-PERKINS 1949 – R. G. Goodchild, J. B. Ward-Perkins, *The Limes Tripolitanus in the Light of Recent Discoveries*, JRS 39, 1949, 81–95.
- GRAF 1995 – D. F. Graf, *The Via Nova Traiana in Arabia Petraea*, in *The Roman and Byzantine Near East: Some Recent Archaeological Research*, [JRA Suppl. Ser. 14], Ann Arbor, 1995, 241–267.
- GRAF 1997 – D. F. Graf, *The Via Militaris in Arabia*, DOP 51, 1997, 271–281.
- GREGORY 1996 – S. Gregory, *Was there an Eastern origin for the design of Late Roman fortifications? Some problems for research on forts of Rome's Eastern frontier*, in *The Roman Army in the East*, Ann Arbor, 1996, 169–209.
- GRIMAL 1939 – P. Grimal, *Les maisons à tour hellénistiques et romaines*, MEFR 56, 1939, 1, 28–59.
- GRÓF 1987–1989 – P. Gróf, *Népvándorláskori vonatkozások egy későrómai erőd és temető kapcsán*, NyírÉvk 30–32, 1987–1989, 129–144.
- GRÓF, GRÓH 1998–1999 – P. Gróf, D. Gróh, *Spätrömischer Wachturm und Statuenfund zu Visegrád-Lepence*, FoliaArch 47, 1998–1999, 103–116.
- GRÓF, GRÓH 2001 – P. Gróf, D. Gróh, *The Watchtower of Visegrád-Lepence*, BudRég 34, 2001, 117–121.
- GRÓF, GRÓH 2003 – P. Gróf, D. Gróh, *Visegrád Gizellatelep fortlet*, in *The Roman Army in Pannonia. An Archaeological Guide of the Ripa Pannonica*, Pécs, 2003, 90–93.
- GRÓF, GRÓH 2004 – P. Gróf, D. Gróh, *Visegrád-gizellamajori római erőd és temető*, Okor 3, 2004, 4, 53–57.
- GRÓF et al. 2001–2002 – P. Gróf, D. Gróh, Zs. Mráv, *Siréptményelemből átalakított küszöbök a Visegrád-Gizellamajori későrómai erődből*, FoliaArch 49, 2001–2002, 247–261.
- GUDEA 1970 – N. Gudea, *Un castellum din epoca romană târzie la Gornea*, AMN 7, 1970, 569–592.
- GUDEA 1974 – N. Gudea, *Befestigungen am Banater Donau-Limes aus der Zeit der Tetrarchie*, in *Limes 9 Mamaia*, 173–180.
- GUDEA 1977 – N. Gudea, *Gornea. Așezări din epoca romană și romană târzie*, [Banatica], Reșița, 1977.
- GUDEA 1982 – N. Gudea, *Despre granița de Nord a provinciei Moesia I și sectorul vestic al frontierei de Nord a provinciei Dacia Ripensis de la 275 la 378 e.n.*, Drobeta 5, 1982, 93–113.
- GUDEA 1997b – N. Gudea, *Der dakische Limes – Materialien zu seiner Geschichte*, JRGZM 44, 1997, 2, 497–609 (\*1-\*113).

- GUDEA 1997c – N. Gudea, *Der Meseş Limes. Die vorgeschobene Kleinfestungen auf dem westlichen Abschnitt des Limes der Provinz Dacia Porolissensis*, Zalău, 1997.
- GUDEA 2001 – N. Gudea, *Die Nordgrenze der römischen Provinz Obermoesien. Materialien zu ihrer Geschichte (86–275 n. Chr.)*, JRGZM 48, 2001, 2, 337–453 (\*1-118).
- GUEY 1939 – J. Guey, *Note sur le limes romain de Numidie et le Sahara au IV<sup>e</sup> s.*, MEFR 56, 1939, 1, 178–248.
- HARPER 1995 – R.P. Harper, *Upper Zohar. An Early Byzantine Fort in Palaestina Tertia, Final Report of Excavations in 1985–1986*, Oxford, 1995.
- HARRISON 1974 – R. M. Harrison, <To Makron Teichos>, *The Long Wall in Thrace*, in *Limes 8 Durham*, 244–248, pl. 25–26.
- HENNING 1987 – J. Henning, *Südosteuropa zwischen Antike und Mittelalter. Archäologische Beiträge zur Landwirtschaft des 1. Jahrtausends u.Z.*, Berlin, 1987.
- HERRMANN 1992 – J. Herrmann, *Karasura 1981–1991. Zu den bisherigen Ergebnissen von Ausgrabungen und Forschungsarbeiten in Südthracien zwischen Stara Zagora und Plovdiv*, ZfA 26, 1992, 2, 153–180.
- HEUKEMES 1981 – B. Heukemes, *Der spätrömische Burgus von Lopodunum-Ladenburg am Neckar. Vorbericht der Untersuchung von 1979*, FundberBaden-Württ 6, 1981, 433–473.
- HILD 1991 – F. Hild, *Die Route der Tabula Peutingeriana von Iconium über Ad Fines und Tetrapyrgia nach Pompeiopolis in Kilikien*, *Anatolia Antiqua* 1, 1991, 310–330.
- HÖCKMANN 1986 – O. Höckmann, *Römische Schiffsverbände auf dem Ober- und Mittelrhein und die Verteidigung der Rheingrenze in der Spätantike*, JRGZM 33, 1986, 369–416.
- HOFFMANN 1974 – D. Hoffmann, *Der Oberbefehl des spätrömischen Heeres im 4. Jahrhundert n. Chr.*, in *Limes 9 Mamaia*, 381–397.
- HODGSON 1999 – N. Hodgson, *The Late-Roman Plan at South Shields and the Size and Status of Units in the Late-Roman Army*, in *Limes 17 Zalău*, 547–554.
- HOLLENSTEIN 1975 – L. Hollenstein, *Zu den Meilensteinen der römischen Provinzen Thracia und Moesia Inferior*, StBalc 10, 1975, 23–44.
- HORNSBY, LAVERICK 1932 – W. Hornsby, J.D. Laverick, *The Roman Signal Station at Goldsborough, near Whitby*, ArchJournal 89, 1932, 203–219.
- HORNSBY, STANTON 1912 – W. Hornsby, R. Stanton, *The Roman Fort at Huntcliff, near Saltburn*, JRS 2, 1912, 215–232.
- HRISTOV et al. 2003 – I. Hristov, G. Kitov, M. Ivanova, M. Binev, *Sostra I. Proučvane na rimskata krajpätna stancija i kastel na päťja Eskus-Filipopolis*, Veliko Tärnovo, 2003.
- HRISTOV et al. 2004 – I. Hristov et al., *Rimski krajpätni stancii na päťja Eskus-Filipopolis: Ad Radices – Montemno – Sub Radices*, Veliko Tärnovo, 2004.
- HRISTOV 2006 – I. Hristov, *Sostra II. Proučvane na rimskata krajpätna stancija i kastel na päťja Eskus-Filipopolis*, Veliko Tärnovo, 2006.
- HUMBERT, DESREUMAUX 1990 – J.-B. Humbert, A. Desreumaux, *Huit campagnes de fouilles au Khirbet es-Samra (1981–1989)*, RB 97, 1990, 252–269.
- IONESCU 1988 – M. Ionescu, *Cercetări perieghetice pe malul lacului Siutghiol*, SCIVA 39, 1988, 3, 315–322.
- IONESCU, GĂMUREAC 2006 – M. S. Ionescu, Em. Gămureac, *The Bisericuța Island: Aerial and Terrestrial Researches*, in *Orgamel/Argamum, Supplementa 1. A la recherche d'une colonie. Actes du colloque International „40 ans de recherche arceologique a Orgamel/Argamum”*, Bucarest-Tulcea-Jurilovca, 3–5 octobre 2005, Bucarest, 2006, 375–395.
- IONESCU, GEORGESCU 1998 – M. Ionescu, V. Georgescu, *Le système défensif callatien*, in *The Roman Frontier at the Lower Danube, 4th – 6th centuries. The Second International Symposium (Murughiol/Halmyris, 18–24 August 1996)*, Bucharest, 1998, 205–219.
- IONESCU, PAPUC 2005 – M. Ionescu, Gh. Papuc, *Sistemul de apărare a litoralului Dobrogei romane (sec. I–VII p. Chr.)*, Constanța, 2005.
- IRMSCHER 1977 – J. Irmischer, *Justinian als Bauherr in der Sicht der Literatur seiner Epoche*, Klio 59, 1977, 225–229.

- IVANOV, R. 1997 – R. Ivanov, *Das römische Verteidigungssystem an der unteren Donau zwischen Durticum und Durostorum (Bulgarien) von Augustus bis Maurikios*, BRGK 78, 1997, 469–640.
- IVANOV, R. 1999 – R. Ivanov, *The Fortification System along the Lower Danube in Moesia Secunda*, in *Limes 17 Zalău*, 507–522.
- IVANOV, S. 1983 – S. A. Ivanov, *Oborona Vizantii i geografija "varvarskih" vtorženij čerez Dunaj v pervoj polovine VI v.*, *VizVrem* 44, 1983, 27–47.
- IVANOV T. 1957 – T. Ivanov, *Arheološki proučvanija pri Separeva Banja*, *Izvestija-Sofija* 21, 1957, 211–232.
- IVANOV, T. 1974 – T. Ivanov, *Die letzten Ausgrabungen des römischen und frühbyzantinischen Donau-Limes in der VR Bulgarien*, in *Limes 9 Mamaia*, 55–69.
- IVANOV, T. 1980 – T. Ivanov, *Abritus. Rimski kastel i rannovizantijski grad v Dolna Mizija. I. Topografija i ukrepatelna sistema na Abritus*, Sofija, 1980.
- IVANOV, T. 1990 – T. Ivanov, *Das Befestigungssystem der Colonia Ulpia Oescensium*, in *Akten des 14. Internationalen Limeskongresses 1986 in Carnuntum*, Wien, 1990, 913–924.
- JANKOVIĆ 1973–1974 – Dj. Janković, *Pokretni nalazi sa nekropole i uturdenja kod Kladova*, *Starinar* 24–25, 1973–1974, 201–226.
- JANKOVIĆ 1981 – Dj. Janković, *Podunavski deo oblasti Akvisa u VI i početkom VII veka*, Beograd, 1981.
- JEREMIĆ G. 2003 – G. Jeremić, *Spätantikes Saldum*, in *Die Archäologie und Geschichte der Region des Eisernen Tores zwischen 275–602 n. Chr. Kolloquium in Drobeta-Turnu Severin (2.–5. November 2001)*, Bucureşti, 2003, 35–43.
- JEREMIĆ G. 2007 – G. Jeremić, *Watchtowers and Signal Towers on the Middle Danube*, in *The Lower Danube in Antiquity (VI c. BC – VI c. AD). International Archaeological Conference, Bulgaria-Tutrakan, 6.–7.10.2005*, Sofija, 2007, 305–314.
- JEREMIĆ M. 1999 – M. Jeremić, *Ranovizantijska bazilika na lokalitetu „Bregovinsko kale” kod Prokuplje*, in *Prokuplje u praistoriji, antici i srednjem veku*, Beograd-Prokuplje, 1999, 119–157.
- JEREMIĆ, MILINKOVIĆ 1995 – M. Jeremić, M. Milinković, *Die byzantinische Festung von Bregovina (Südserbien)*, *AnTard* 3, 1995, 209–225.
- JOHNSON 1979 – S. Johnson, *The Roman Forts of the Saxon Shore*<sup>2</sup>, London, 1979.
- JOHNSON 1983 – St. Johnson, *Late Roman Fortifications*, London, 1983.
- JOHNSTON 1977 – D.E. Johnston, *The Channel Islands*, in *The Saxon Shore*, [CBA Research Report, no. 18], London, 1977, 31–34.
- JONES 1964 – A. H. M. Jones, *The Later Roman Empire 284–602. A Social, Economic and Administrative Survey*, I–IV, Oxford, 1964.
- JORNS 1974 – W. Jorns, *Der spätrömische Burgus "Zullestein" mit Schiffslände, nördlich von Worms*, in *Limes 9 Mamaia*, 427–432.
- JOUFFROY 1997 – H. Jouffroy, *Les constructions du limes d'après les inscriptions : étude du vocabulaire latin de l'architecture militaire*, in *Limes 16 Kerkrade*, 383–385.
- JOVANOVIĆ 1982–1983 – Al. Jovanović, *Hajdučka Vodenica, kasnoantičko i ranovizantijsko uturđenje*, *Starinar* 33–34, 1982–1983, 319–331.
- JOVANOVIĆ 1996 – Al. Jovanović, *The Problem of the Location of Lederata*, in *Roman Limes on the Middle and Lower Danube*, Belgrade, 1996, 69–72.
- JOVANOVIĆ 2001 – Al. Jovanović, *Pokušaj lokalizacije meridijanske episkopije*, *ZNM* 17, 2001, 1, 167–174.
- JOVANOVIĆ 2003 – Al. Jovanović, *Arheološke beleške iz kasnoantičkog Naisa i okoline*, in *Niš i Vizantija. I. Symposium, Niš 3–5. jun 2002*, Beograd, 2003, 23–38.
- JOVANOVIĆ, KORAĆ 1984 – Al. Jovanović, M. Korać, *Ušće Slatinske reke. Une castellum de la haute époque byzantine. Fouilles de 1980*, *Djerdapske Sveske* 2, 1984, 194–196.
- JOVANOVIĆ, KORAĆ, JANKOVIĆ 1986 – Al. Jovanović, M. Korać, Đ. Janković, *L'embouchure de la rivière Slatinska reka*, *Djerdapske Sveske* 3, 1986, 378–400.
- KACAROVA 2005 – V. Kacarova, *Pautalija i nejnata teritorija prez I–VI vek*, Veliko Tärново, 2005.

- KALTCHEV 1998 – K. Kaltchev, *Das Befestigungssystem von Augusta Traiana-Beroe in 2.–6. Jhs. N. Chr.*, ArchBulg 2, 1998, 3, 88–107.
- KARAILIEV 2007 – P. Karailiev, *Rannovizantijska krepost v m. "Alekov bair", kraj s. Znamenosec, občina Radnevo*, Izvestija-StaraZagora 2, 2007, 355–358.
- KARAILIEV 2008 – P. Karailiev, *Arheologiĉeski prouĉvanija na rannovizantijska krepost v m. "Alekov bair", kraj s. Znamenosec, občina Radnevo*, in AOR prez 2007 g., Sofija, 2008, 528.
- KARAIKAIJ 1971 – Gj. Karaiskaj, *Kalaja e Elbasanit*, Monumentet 1, 1971, 61–67.
- KARNAPP 1966 – W. Karnapp, *Die Stadtmauer von Resafa, Syrien*, BJ 166, 1966, 146–151.
- KASTLER 1997 – R. Kastler, *Höflein (Gem. Höflein) bh Bruck a.d. Leitha. Kleinkastell–Vicus–Villa*, in *Der römische Limes in Österreich. Führer zu den archäologischen Denkmälern* (ed. H. Friesinger/ F. Rinzinger), Wien, 1997, 253–258.
- KELLNER 1978 – H.-J. Kellner, *Das Kastell Schaan und die Spätzeit der römischen Herrschaft*, HelvArch 9, 1978, 187–201.
- KENNEDY, FALAHAT 2008 – D. Kennedy, H. Falahat, *Castra Legionis VI Ferratae: a Building Inscription for the Legionary Fortress at Udruh near Petra*, JRA 21, 2008, 150–169.
- KINDLER 1989 – A. Kindler, *The Numismatic Finds from the Roman Fort at Yotvata*, IEJ 39, 1989, 261–266.
- KIRILOV 2006 – Ch. Kirilov, *Die Reduktion der ummauerten Stadtfläche und die Frage nach dem Verfall der antiken Stadt*, ArchBulg 10, 2006, 2, 55–104.
- KIRILOV 2007 – Ch. Kirilov, *Der rissig gewordene Limes. Höhsiedlungen im östlichen Balkan als Zeugnis für die Schwäche des oströmischen Reichs in der Spätantike*, in *The Lower Danube in Antiquity (VI c. BC – VI c. AD). International Archaeological Conference, Bulgaria-Tutrakan, 6.–7.10.2005*, Sofija, 2007, 329–352.
- KLEISS 1991 – W. Kleiss, *Rechteckige und Quadratische Befestigungen in Nordiran*, AMI 24, 1991, 155–218.
- KLEISS 1992 – W. Kleiss, *Rechteckige Befestigungen und befestigte Plätze in Iran – II*, AMI 25, 1992, 177–206.
- KOJĀEVA 2002 – K. Kojĉeva, *Āerkva i nekropol pri ukrepenoto selište na m. Gradišteto kraj Gabrovo*, in *The Roman and Late Roman City*, Sofija, 2002, 178–183.
- KONDIĆ 1974 – V. Kondić, *Ergebnisse der neuen Forschungen auf dem Obermoesischen Donaulimes*, in *Limes 9 Mamaia*, 39–54.
- KONDIĆ 1982–1983 a – V. Kondić, *Bosman, ranovizantijsko utvrdenje*, Starinar 33–34, 1982–1983, 137–145.
- KONDIĆ 1982–1983 b – V. Kondić, *Ravna (Campsa), rimsko i ranovizantijsko utvrdenje*, Starinar 33–34, 1982–1983, 233–251.
- KONDIĆ 1984 – V. Kondić, *Les formes des fortifications protobyzantines dans la région des Portes de Fer*, in *Villes et peuplement dans l'Illyricum protobyzantin. Actes du colloque organisé par l'École française de Rome. Rome, 12–14 mai 1982*, Rome, 1984, 131–161.
- KONRAD 1999 – M. Konrad, *Research on the Roman and Early Byzantine frontier in North Syria*, JRA 12, 1999, 392–410.
- KONRAD 2001 a – M. Konrad, *Römische Grenzpolitik und die Besiedlung in der Provinz Syria Euphratensis*, in *Conquête de la steppe et appropriation des terres sur les marges arides du Croissant fertile*, [TMO 36], Lyon, 2001, 145–158.
- KONRAD 2001 b – M. Konrad, *Resafa V. Der spätrömische Limes in Syrien. Archäologische Untersuchungen an den Grenzkastellen von Sura, Tetrapyrgium, Cholle und in Resafa*, Mainz, 2001.
- KORAĆ 1996 – M. Korać, *Late Roman and Early Byzantine Fort of Ljubiĉevac*, in *Roman Limes on the Middle and Lower Danube*, Belgrade, 1996, 105–109.
- KOVAĀEVA 1977 – T. Kovaĉeva, *Ostanki ot rimskata epoha kraj c. Somovit i mestonahoŹdenieto na « Lucernariaburgus »*, IMSevZapB 1, 1977, 249–266.
- KOWALSKI 1998 – S.P. Kowalski, *The Defenses of the Syrian Frontier of the Roman Empire in the 4<sup>th</sup>–6<sup>th</sup> cent. A.D.*, in *The Roman Frontier at the Lower Danube, 4<sup>th</sup>–6<sup>th</sup> centuries. The Second International Symposium (Murighiol/Halmyris, 18–24 August 1996)*, Bucharest, 1998, 33–48.

- KREKOVIC 1997 – E. Krekovic, *Rusouce-Gerulata. Kastell–Vicus*, in *Der römische Limes in Österreich. Führer zu den archäologischen Denkmälern* (ed. H.Friesinger/F.Krinzinger), Wien, 1997, 277–280.
- KUTZBACH 1935 – F. Kutzbach, *Das ältere Hochschloss in Pfälzel bei Trier*, *Germania* 19, 1935, 1, 40–53.
- LAKO 1984 – K. Lako, *Këshijella e Onhezmit*, *Iliria* 14, 1984, 2, 153–205.
- LANDER 1980 – J. Lander, *Typology and Late Roman Fortifications: The Case of Diocletianic Type*, in *Limes 12 Stirling*, III, 1051–1060.
- LANDER 1984 – J. Lander, *Roman Stone Fortifications. Variation and Change from the First Century A.D. to the Fourth*, [BAR Int. Ser. 206], Oxford, 1984.
- LASSUS 1981 – J. Lassus, *Fouilles à Timgad, 1938–1956. I. La forteresse byzantine de Thamugadi*, Paris, 1981.
- LAWRENCE 1983 – A. W. Lawrence, *A Skeletal History of Byzantine Fortifications*, *ABSA* 78, 1983, 171–227.
- LEADBETTER 2002 – B. Leadbetter, *Galerius and the eastern frontier*, in *Limes 18 Amman*, I, 85–89.
- LE BOHEC 2004 – Y. Le Bohec, *L'armée romaine d'Afrique de Dioclétien à Valentinien I*, in *L'armée romaine de Dioclétien à Valentinien I<sup>er</sup>. Actes du Congrès de Lyon (12–14 septembre 2002)*, Lyon, 2004, 251–265.
- LEKVINADZE 1969 – V. A. Lekvinadze, *Pontijskij limes*, *VDI* 108, 1969, 2, 75–93.
- LEKVINADZE 1973 – V. A. Lekvinadze, *O postrojkah Iustiniana v zapadnoj Gruzii*, *VizVrem* 34, 1973, 169–186.
- LESCHI 1941 – L. Leschi, *Centenarium quod Aqua Viva appellatur...*, *CRAI* 85, 1941, 2, 163–176.
- LESCHI 1943 – L. Leschi, *Le "Centenarium" d'Aqua Viva près de M'doukal (Commune mixte de Barika)*, *RevAfr* 87, 1943, 5–22 (= L. Leschi, *Études d'Épigraphie, d'Archéologie et d'Histoire africaines*, Paris, 1957, 47–57).
- LEWIN 2004 – A. Lewin, *Limitanei and comitatenses in the Near East from Diocletian to Valens*, in *L'armée romaine romaine de Dioclétien à Valentinien I<sup>er</sup>. Actes du Congrès de Lyon (12–14 septembre 2002)*, Lyon, 2004, 227–236.
- LEWIN 2007 – A. Lewin, *The Impact of the Late Roman Army in Palaestina and Arabia*, in *The Impact of the Roman Army (200 BC – AD 476). Economic, Social, Political, Religious and Cultural Aspects. Proceedings of the Sixth Workshop of the International Network « Impact of Empire », Capri, March 29 – April 2, 2005*, Leiden-Boston, 2007, 463–480.
- LIEBESCHUETZ 1977 – W. Liebeschuetz, *The Defences of Syria in the Sixth Century*, in *Limes 10 Xanten*, 487–499.
- LISICOV 1975 – S. Lisicov, *Sajganskoto Kale – kāsnoantična krepost v Iztočnija Hemus (v rajona na s. Kipilovo, Slivenski okrąg)*, *GNPM* 5, 1975, 21–33.
- LISICOV, MARKOV 1981 – S. Lisicov, N. Markov, *Drevnata fortifikacija v rajona na Hrebeta Uruškite steni – iztočna Stara Planina*, *GNPM* 11, 1981, 59–77.
- LJUBENOVA 1978 – V. Ljubenova, *Razkopki na rimska vila v kv. Bela voda, Pernik*, in *AOR prez 1977 g.*, Sofija, 1978, 86–87.
- LJUBENOVA 1995 – V. Ljubenova, *Bronzovi predmeti ot kāsnoantičnata vila pri rudnik "Bela voda", Pernik*, *Arheologija-Sofija* 37, 1995, 3, 6–17.
- LJUBENOVA 2003 – V. Ljubenova, *Antični i rannovizantijski selišti strukturi ot rajona na Gorna Struma*, in *Rimski i rannovizantijski selišta v Bālgarija*, II, Sofija, 2003, 183–201.
- LOZANOV 2005 – I. Lozanov, *Diospolis v Trakija*, in *Studia Archaeologica Universitatis Serdicensis, Suppl. IV. Stephanos Archaeologicos in honorem Professoris Ludmili Getov*, Sofija, 2005, 455–467.
- MACKENSEN 1990 – M. Mackensen, *Frühkaiserzeitliche Kleinkastelle bei Nersingen und Burlafingen an der oberen Donau*, in *Limes 14 Carnuntum*, 485–497.
- MACKENSEN 1994 a – M. Mackensen, *Das Kastell Caelius Mons (Kellmünz an der Iller) – eine tetrarchische Festungsbaumassnahme in der Provinz Raetien*, *AV* 45, 1994, 145–163.
- MACKENSEN 1994 b – M. Mackensen, *Die Innenbebauung und der Nordvorbau des spätrömischen Kastells Abusina/Eining*, *Germania* 72, 1994, 2, 479–513.

- MACKENSEN 1995 – M. Mackensen, *Das spätrömische Grenzkastell Caelius Mons-Kellmünz*, Stuttgart, 1995.
- MACKENSEN 1999 – M. Mackensen, *Late Roman Fortifications and Building Programmes in the Province of Raetia: the Evidence of Recent Excavations and Some New Reflections*, in *Roman Germany. Studies in Cultural Interaction*, [JRA suppl. ser. 32], 1999, 201–244.
- MADŽAROV, K. 1967 – K. Madžarov, *Novi razkopki i proučvanija na Hisarskata krepost*, *Izvestija-Sofija* 30, 1967, 113–142.
- MADŽAROV, K. 1982 – K. Madžarov, *Kazarmenite postrojki na Dioklecianopolis*, *IMJužB* 8, 1982, 77–96.
- MADŽAROV K. 1993 – K. Madžarov, *Dioklecianopolis I*, Sofija, 1993.
- MADŽAROV, M. 1986 – M. Madžarov, *Kazarmata na Pärva Avrelianova kohorta v Sub Radice*, *ArhSofija* 1986, 1, 45–55.
- MADŽAROV, M. 1988 – M. Madžarov, *Rimski päť ot Filipopol prez Rodopite za Egeisko More*, *IMlužB* 14, 1988, 97–104.
- MADŽAROV, M. 1990 – M. Madžarov, *Pätjat Eskus-Filipopol I–IV vek*, *ArhSofija* 32, 1990, 1, 18–29.
- MADŽAROV, M. 2004 – M. Madžarov, *Rimskijat päť Eskus-Filipopol. Päťni stancii i selišta*, Plovdiv, 2004.
- MAGNESS 1998 – J. Magness, *IEJ* 48, 1998, 289–292 (review of R.P. Harper: *Upper Zohar. An Early Byzantine Fort in Palaestina Tertia, Final Report of Excavations in 1985–1986*, Oxford, 1995).
- MAGNESS 1999 – J. Magness, *Redating the Forts at Ein Boqeq, Upper Zohar, and Other Sites in SE Judaea, and the Implications for the Nature of the Limes Palestinae*, in *The Roman and Byzantine Near East, 2. Some Recent Archaeological Research*, [JRA suppl.ser. 31], 1999, 189–206.
- MANN 1977 – J. C. Mann, *Duces and comites in the 4<sup>th</sup> century*, in *The Saxon Shore*, [CBA Research Report, no. 18], London, 1977, 11–15.
- MANN 1979 – J. C. Mann, *Power, Force and the Frontiers of the Empire*, *JRS* 69, 1979, 175–183.
- MÄNUCU-ADAMEȘTEANU et al. 2005–2006 – Gh Mănuclu-Adameșteanu, O. Damian, D. Moisil, M. Iacob, E. Petac, *Descoperiri romane și romano-bizantine la Nufăru*, *Peuce SN*, 3–4, 2005–2006, 375–398.
- MAŠOV 1990 – Sp. Mašov, *Käsnoantičnijat kastel i rannovizantijskijat grad Avgusta pri s. Härlec, občina Kozloduj*, *IMSevZapB* 16, 1990, 21–45, pl. 1–15.
- MATTINGLY, HITCHNER 1995 – D. J. Mattingly, R. B.Hitchner, *Roman North Africa: An Archaeological Review*, *JRS* 85, 1995, 165–213.
- MAYER 1969 – E. Mayer, *Das römisches Kastell Ingerhausen*, [Archäologische Führer der Schweiz 2], Zürich, 1969.
- MERTENS, BRULET 1974 – J. Mertens, R. Brulet, *Le castellum du Bas-Empire romain de Brunehaut-Liberchies*, I–II, [ArchBelg 163], Bruxelles, 1974.
- MESHEL 1989 – Z. Meshel, *A Fort at Yotvata from the Time of Diocletian*, *IEJ* 39, 1989, 228–238.
- MIHAILOV 1961 – G. Mihailov, *La fortification de la Thrace par Antonin le Pieux et Marc Aurèle*, *Studi Urbinati* 35, 1961, 1–2, 5–19.
- MIJOVIĆ, KOVAČEVIĆ 1975 – P. Mijović, M. Kovačević, *Gradovi i utvrdenija u Crnoj Gori*, Beograd – Ulcinj, 1975.
- MIKULČIĆ 2002 – I. Mikulčić, *Spätantike und frühbyzantinische Befestigungen in Nordmakedonien: Städte–Vici–Refugien–Kastelle*, [MBVF 54], München, 2002.
- MILČEV 1977 – A. Milčev, *Eine Festung am Unterdonauländischen Limes bei Nova Černa (Bezirk Silistra)*, in *Limes 10 Xanten*, 351–357, Taf. 32–35.
- MILČEV 1983 – A. Milčev, *Arheologičeski razkopki i proučvanija v selo Batoševo i negovata okolnost, Gabrovski okräg*, *GSU–IF* 76, 1983, 68–123.
- MILČEV, ANGELOVA 1969 – A. Milčev, S. Angelova, *Razkopki i proučvanija v m. “Kaletu” kraj s. Nova Černa, Silistrenski okräg, prez 1967 g.*, *ArhSofija* 11, 1969, 3, 31–48.
- MILČEV, ANGELOVA 1970 – A. Milčev, S. Angelova, *Razkopki i proučvanija v m. “Kaletu” kraj s. Nova Černa, Silistrenski okräg, prez 1968 g.*, *ArhSofija* 12, 1970, 1, 26–37.

- MILČEV, ANGELOVA 1971 – A. Milčev, S. Angelova, *Arheološki razkopki i proučavanja u mestnosti "Kaleta" pri s. Nova Černa, Silistrenski okrąg, prez 1967–1969 g.*, Sofija 1971 [= GSU-FIF 63, 1970, 3, 1–212].
- MILČEV, DAMIANOV 1972 – A. Milčev, S. Damianov, *Arheološki razkopki na kásnoantičnata krepost pri s. Vojvoda, Šumenski okrąg*, Izvestija-Sofija 33, 1972, 263–277.
- MILČEV, DAMIANOV 1984 – A. Milčev, S. Damianov, *Arheološki razkopki na kásnoantičnata krepost pri s. Vojvoda, Šumenski okrąg, prez 1970 g.*, Razkopki i Proučavanja X, 1984, 43–84.
- MILINKOVIĆ 1999 – M. Milinković, *Ranovizantijsko utvrđenje kod Bregovine*, in *Prokuplje u praistoriji, antici i srednjem veku*, Beograd-Prokuplje, 1999, 87–116.
- MILOŠEVIĆ, G. 1996 – G. Milošević, *Modular Analysis of Late Roman and Early Byzantine Fortifications in the Iron Gate Area*, in *Roman Limes o the Middle and Lower Danube*, Belgrade, 1996, 249–252.
- MILOŠEVIĆ, G. 2002 – G. Milošević, *New Data on the Topography of Viminacium*, in *The Roman and Late Roman City. The International Conference (Veliko Turnovo 26–30 July 2000)*, Sofija, 2002, 151–158.
- MILOŠEVIĆ, P. 1982–1983 – P. Milošević, *Sip, kasnoantičko utvrđenje*, *Starinar* 33–34, 1982–1983, 357–362.
- MILOŠEVIĆ, JEREMIĆ 1986 – P. Milošević, M. Jeremić, *Le castellum à Milutinovac*, *Djerdapske Sveske* 3, 1986, 245–263.
- MINČEV 1996–1997 – Al. Minčev, *Novi danna za rannohristijanskata bazilika s mozajki pri s. Škorpilovci, Varnensko*, *Izvestija–Varna* 32–33 (47–48), 1996–1997, 130–150.
- MINIĆ 1982–1983 – D. Minić, *Pesača, antičko utvrđenje i srednjovekovna nekropola*, *Starinar* 33–34, 1982–1983, 171–175.
- MIRČEV 1969 – M. Mirčev, *Sondažni proučvanii pri s. Škorpilovci*, *MPK* 9, 1969, 1, 10–15.
- MIRKOVIĆ 1960 – M. Mirković, *Rimski put Naissus-Scupi i stanice Ad Fines*, *Živa Antika* 10, 1960, 1–2, 249–257.
- MIRKOVIĆ 1968 – M. Mirković, *Rimski gradovi na Dunavu u Gornjoj Mezji*, Beograd, 1968.
- MIRKOVIĆ 1980 – M. Mirković, *Von obermoesischen Limes nach dem Süden: via nova von Viminacium nach Dardanien*, in *Limes 12 Stirling*, 745–755.
- MITOVA-DŽONOVA 1977 – D. Mitova-Džonova, *Rannohristijanskata bazilika B ot Kaleta v Berkovica*, *ArhSofija* 19, 1977, 4, 47–54.
- MITOVA-DŽONOVA 1994 – D. Mitova-Džonova, *Confinium Succi i mutatio Soneium prez antičnostta i rannovizantijskata epoha*, *Anali* 1, 1994, 2–3, 77–99.
- MÓCSY 1958 – A. Mócsy, *Die spätromische Schiffslände in Contra Florentiam*, *FoliaArch* 10, 1958, 89–104.
- MÓCSY 1969 – A. Mócsy, *Eine spätromische Uferfestung in der Batschka?*, *Osijecki Zbornik* 12, 1969, 71–79.
- MÓCSY 1974 a – A. Mócsy, *Ein spätantiker Festungstyp am linken Donauufer*, in *Limes 8 Durham*, 191–196.
- MÓCSY 1974 b – A. Mócsy, *Pannonia and Upper Moesia. A History of the Middle Danube Provinces of the Roman Empire*, London-Boston, 1974.
- MÓCSY 1981 – A. Mócsy, *Die spätromische Festung und das Gräberfeld von Tokod*, Budapest, 1981.
- MOOSBAUER 1997 – G. Moosbauer, *Passau-Haibach. Wachturm/Burgus*, in *Der römische Limes in Österreich. Führer zu den archäologischen Denkmälern* (ed. H.Friesinger/F.Krinzinger), Wien, 1997, 154–157.
- MOOSBRUGGER-LEU 1974 – R. Moosbrugger-Leu, *Munimentum prope Basiliam*, *ArchKorr* 4, 1974, 2, 161–164.
- MOOSDORF-OTTINGER 1981 – I. Moosdorf-Ottinger, *Der Goldberg bei Türkheim. Bericht über die Grabungen in den Jahren 1942–1944 und 1958–1961*, [MBV 24], München, 1981.
- MORRIS, PAPADOPOULOS 2005 – S. P. Morris, J. K. Papadopoulos, *Greek Towers and Slaves: An Archaeology of Exploitation*, *AJA* 109, 2005, 2, 155–225.

- MOUTSOPOULOS 1979 – N. K. Moutsopoulos, *De via militari Romanorum. Mutatio, mansio e castra nella parte trcese della Via Egnatia*, in *Studi castellani in onore di Piero Gazzola*, Roma, 1979, I, 193–222.
- MRÁV 2005 – Zs. Mráv, *Quadian Policy of Valentinian I and the Never-Finished Late Roman Fortress at Göd- Bócsaújtelep*, in *Limes 19 Pécs*, 773–784.
- MULVIN 2002 – L. Mulvin, *Late Roman Villas in the Danube-Balkan Region*, [BAR Int. Ser. 1064], Oxford, 2002.
- MUNDELL-MANGO 2000 – M. Mundell-Mango, *The Commercial Map of Constantinople*, DOP 54, 2000, 189–227.
- MUNDELL-MANGO 2002 – M. Mundell-Mango, *Excavations and Survey at Androna, Syria: The Oxford Team 1999*, DOP 56, 2002, 307–315.
- MUTAFČIEV 1915 – P. Mutafčiev, *Elenskata cърkva pri Pirdopja*, IBAD 5, 1915, 20–84.
- NAGY L. 1937 – L. Nagy, *Az Aquincumi Múzeum kutatásai és gyarapodása az 1923–1935 években*, BudRég 12, 1937, 261–275.
- NAGY M. 1999 – M. Nagy, *A pannoniai IV. századi burgus-típusok méretei (Dimensions of IVth century AD burgus-types in Pannonia)*, in *Pannoniai kutatások. A Soproni Sándor emlékkonferencia előadásai (Bölcske, 1998. október 7.)*, Szekszárd 1999, 133–140.
- NAGY T. 1974 – T. Nagy, *Drei Jahre Limesforschungen in Ungarn*, in *Limes 9 Mamaia*, 27–37.
- NÉMETH 2003 – M. Németh, *Contra Aquincum fortress*, in *The Roman Army in Pannonia. An Archaeological Guide of the Ripa Pannonica*, Pécs, 2003, 201–203.
- NUBER 2005 – H. U. Nuber, *Die spätrömische Festung Oedenburg (Biesheim/Kunheim, Haut-Rhin, France) und ihre Funktion im Grenzgebiet zwischen Germania I und Sequania*, in *Limes 19 Pécs*, 763–771.
- NUBER, REDDÉ 2002 – H. U. Nuber, M. Reddé, *Das römische Oedenburg (Biesheim/Kunheim, Haut-Rhin, France). Frühe Militärlager, Strassensiedlung und valentinianische Festung*, Germania 80, 2002, 1, 169–242.
- OHLENROTH 1939 – L. Ohlenroth, *Römische Burgi an der Strasse Augsburg-Kempten-Bregenz*, BRGK 29, 1939, 122–156.
- OLDENSTEIN 1986a – J. Oldenstein, *Das spätrömische Kastell von Alzey*, in *Limes 13 Aalen*, 235–243.
- OLDENSTEIN 1986b – J. Oldenstein, *Neue Forschungen im spätrömischen Kastell von Alzey. Vorbericht über die Ausgrabungen 1981–1985*, BRGK 67, 1986, 289–356.
- OLTEANU 2007 – S. Olteanu, *Toponime procopiene*, SCIVA 58, 2007, 1–2, 67–116.
- OPAIȚ 1980 – A. Opaïț, *O nouă fortificație romano-bizantină în nordul Dobrogei – Topraichioi. Raport preliminar*, Peuce 8, 1980, 415–436.
- OPAIȚ 2004 – A. Opaïț, *Local and Imported Ceramics in the Roman Province of Scythia (4<sup>th</sup> – 6<sup>th</sup> centuries AD). Aspects of Economic Life in the Province of Scythia*, [BAR Int. Ser. 1274], Oxford, 2004.
- OPAIȚ et al. 1991 – A. Opaïț, M. Zahariade, Gh. Poenaru-Bordea, Cr. Opaïț, *Fortificația și așezarea romană târzie de la Babadag-Topraichioi*, Peuce 10, 1991, 1, 183–353 (text); 2, 217–310 (illustration).
- OPAIȚ et al. 1992 – A. Opaïț, Cr. Opaïț, T. Bănică, *Das ländliche Territorium der Stadt Ibida (2.–7. Jh.) und einige Betrachtungen zum Leben auf dem Land an der Unteren Donau*, in *Die Schwarzmeerküste in der Spätantike und im frühen Mittelalter*, Wien, 1992, 103–116.
- OSBORNE 1986 – R. Osborne, *Island Towers: the Case of Thasos*, ABSA 81, 1986, 166–178.
- OVČAROV 1971 – D. Ovčarov, *Dve rannovizantijski kreposti ot severoiztočna Bălgarija*, ArhSofija 13, 1971, 4, 18–31.
- OVČAROV 1982 – D. Ovčarov, *Vizantinskij i Balgarskij kreposti V–X vek*, Sofija, 1982.
- OVČAROV T. 1978 – T. Ovčarov, *Krepostta “Kaletu” pri s. Krän, Starozagorski okrăg*, ArhSofija 20, 1978, 3, 40–47.
- PANTOS 1983 – P. A. Pantos, *The Present Situation of the Studies in Archaeological Topography of Western Thrace*, Pulpudeva 4, 1983, 164–178.

- PAPAZOGLU 1988 – F. Papazoglu, *Les villes de Macédoine à l'époque romaine*, [BCH Suppl. 16], Paris, 1988.
- PAPUC, BĂJENARU 2003 – Gh. Papuc, C. Băjenaru, *Fortificația romano-bizantină de tip quadriburgium de la Ovidiu*, BulMMN, sn, 1, 2003, II, 57–64.
- PARKER 1986 – S. T. Parker, *Research on the Central Limes Arabicus, 1980–1982*, in *Limes 13 Aalen*, 641–648.
- PARKER 1995 – S. T. Parker, *The Typology of Roman and Byzantine Forts and Fortresses in Jordan*, in *Studies in the History and Archaeology of Jordan V*, Amman, 1995, 251–260.
- PARKER 1997 – S. T. Parker, *En Bogeq and Upper Zohar: Two Late-Roman Fortlets near the Dead Sea*, JRA 10, 1997, 580–586.
- PARKER 1999 – S. T. Parker, *The Roman Frontier in Arabia in light of New Research*, in *Limes 17 Zalău*, 231–240.
- PARKER 2006 – S. T. Parker, *The Roman Frontier in Central Jordan: Final Report on the Limes Arabicus Project, 1980–1989*, Dumbarton Oaks, 2006.
- PARKER, LANDER 1982 – S.T. Parker, J. Lander, *Legio IV Martia and the Legionary Camp at el-Lejjun*, ByzForsch 8, 1982, 185–210.
- PAROVIČ-PEŠIKAN 1981 – M. Parović-Pešikan, *Antička Ulpijana prema dosadašnjim istraživanjima*, Starinar 32, 1981, 57–74.
- PAROVIČ-PEŠIKAN 1984 – M. Parović-Pešikan, *Ljubičevac-Glamija. Fouilles de 1980*, Djerdapske Sveske 2, 1984, 137–144.
- PÂRVAN 1912 – V. Pârvan, *Cetatea Ulmetum (I)*, AARMSI 34, 1912, 497–607.
- PÂRVAN 1913–1914 – V. Pârvan, *Cetatea Ulmetum (II)*, AARMSI 36, 1913–1914, 245–420.
- PÂRVAN 1915 – V. Pârvan, *Cetatea Ulmetum (III)*, AARMSI 37, 1915, 265–304.
- PATOURA-HATZOPOULOS 1980 – S. Patoura-Hatzopoulos, *L'œuvre de reconstitution du limes danubien à l'époque de l'empereur Justinien I<sup>er</sup>*, RÉSEE 18, 1980, 1, 95–109.
- PĚRZHITA 1986 – L. Pěrzhita, *Kěshjtjella e Bushatit*, Iliria 16, 1986, 2, 187–213.
- PESCHLOW 1994 – A. Peschlow, *Die Befestigungen von Latmos*, RÉA 96, 1994, 1–2, 155–172.
- PETOLESCU 1997 – C. C. Petolescu, *Din istoria Daciei romane (III). 1. Fortăreața Theodora*, Lumea Veche 1, 1997, 19–22.
- PÉTERFI 1999 – Zs. Péterfi, *Az Őcsény-souánytelki későrómai őrtorony feltárása*, in *Pannoniai kutatások. A Soproni Sándor emlékkonferencia előadásai (Bölcske, 1998. október 7.)*, Szekszárd 1999, 161–200.
- PÉTERFI 2003 – Zs. Péterfi, *Őcsény tower*, in *The Roman Army in Pannonia. An Archaeological Guide of the Ripa Pannonica*, Pécs, 2003, 177–178.
- PETRIKOVITS 1971 – H. von Petrikovits, *Fortifications in the North-Western Roman Empire from the Third to the Fifth Centuries A.D.*, JRS 61, 1971, 178–218.
- PETROVIĆ, M. 1996 – M. Petrović, *Rapports proportionnels des forteresses antiques du Limes*, in *Roman Limes on the Middle and Lower Danube*, Belgrade, 1996, 253–256.
- PETROVIĆ, P. 1975 – P. Petrović, *stanice Timacum na putu Naissus-Ratiaria i antičko naselje kod sela Ravna*, Starinar 26, 1975, 43–56.
- PETROVIĆ, P. 1977 – P. Petrović, *Forteresse romaine à l'embouchure de la rivière Porečka dans les Portes de Fer*, in *Limes 11 Székesfehérvár*, 259–275.
- PETROVIĆ, P. 1980 – P. Petrović, *Les forteresses du Bas-Empire sur le limes danubien en Serbie*, in *Limes 12 Stirling*, 757–773.
- PETROVIĆ, P. 1982–1983 a – P. Petrović, *Zidinac, kasnoantički speculum*, Starinar 33–34, 1982–1983, 127–128.
- PETROVIĆ, P. 1982–1983 b – P. Petrović, *Saldum, rimsko i ranovizantijsko utvrđenje na ušću potoka Kožica*, Starinar 33–34, 1982–1983, 129–134.
- PETROVIĆ, P. 1982–1983 c – P. Petrović, *Porečka reka, sabirni centar za slavdevanje rimskih trupa u Djerdapu*, Starinar 33–34, 1982–1983, 285–291.
- PETROVIĆ, P. 1984 – P. Petrović, *Brza Palanka – Egeta. Rapport sur les recherches archéologiques en 1980 (Antiquité)*, Djerdapske Sveske 2, 1984, 160–166.

- PETROVIĆ, P. 1986 – P. Petrović, *Timacum Minus und die Kastelle in Timok-Tal*, in *Limes 13 Aalen*, 514–518.
- PETROVIĆ, P. 1990 – P. Petrović, *Die römische Strasse in Djerdap: ein Rekonstruktionsversuch*, in *Limes 14 Carnuntum*, 883–895 (= *Rimski put u Djerdapu*, *Starinar* 37, 1986, 41–52).
- PETROVIĆ, P. 1994–1995 – P. Petrović, *Les forteresses de la basse antiquité dans la région du Haut Timok*, *Starinar* 45–46, 1994–1995, 55–66.
- PETROVIĆ P. 1995 – P. Petrović, *Der römische Bergbau in Ravna: archäologische Notizien*, in *Ancient Mining and Metallurgy in Southeast Europe. International Symposium. Donji Milanovac, May 20–25, 1990*, Bor-Belgrade, 1995, 195–202.
- PETROVIĆ V. 2008 – V. Petrović, *The Roman Road Naissus-Lissus: the Shortest Connection between Rome and the Danubian Limes*, *ArchBulg* 12, 2008, 1, 31–40.
- PETROVIĆ, FILIPOVIĆ 2007 – V. P. Petrović, V. Filipović, *Newly-Discovered Traces of the Roman Naissus-Ratiaria Road and the Problem of Locating the Two Timacum Stations*, *Balkanica* 38, 2007, 29–43.
- PETROVIĆ, VASIĆ 1996 – P. Petrović, M. Vasić, *The Roman Frontier in Upper Moesia : Archaeological Investigations in the Iron Gates Area – Main Results*, in *Roman Limes on the Middle and Lower Danube*, Belgrade, 1996, 15–26.
- POENARU-BORDEA, VLĂDESCU 1981 – Gh. Poenaru-Bordea, Cr. M. Vlădescu, *Castrul de la Tițești, com. Perișani, jud. Vâlcea*, *SCIVA* 32, 1981, 4, 581–591.
- POLONIC 1935 – P. Polonic, *Cetățile antice de pe malul drept al Dunării (Dobrogea) până la gurile ei*, *Natura* 24, 1935, 7, 18–26.
- POPESCU 1969 – Em. Popescu, *Contributions à la géographie historique de la péninsule Balkanique aux V<sup>e</sup>–VIII<sup>e</sup> siècles de notre ère*, *Dacia NS*, 13, 1969, 403–415.
- POPOVIĆ L. 1982–1983 – L. Popović, *Malo i Veliko Golubinje, rimsko-vizantijsko nalazište*, *Starinar* 33–34, 1982–1983, 297–299.
- POPOVIĆ M. 1999 – M. Popović, *Tvrđava Ras / The Fortress of Ras*, Beograd, 1999.
- POPOVIĆ S. 1998 – Sv. Popović, *Prolegomena to early Monasticism in the Balkans as documented in Architecture*, *Starinar* 49, 1998, 131–144.
- POPOVIĆ V. 1974 – V. Popović, *Trasa puta Naissus-Ratiaria*, *VVM* 19–20, 1974, 15–25.
- POPOVIĆ V. 1982–1983 – V. Popović, *Donji Milanovac–Veliki Gradac (Taliata), rimsko i ranovizantijsko uvrdenje*, *Starinar* 33–34, 1982–1983, 265–282.
- POPOVIĆ V. 1989–1990 – V. Popović, *Trois inscriptions protobyzantines de Bregovina*, *Starinar* 40–41, 1989–1990, 279–290.
- POPOVIĆ, IVANIŠEVIĆ 1988 – M. Popović, V. Ivanišević, *Grad Braničevo u srednjem veku*, *Starinar* 39, 1988, 125–179.
- POULTER 1995 – A. Poulter, *Nicopolis ad Istrum: A Roman, Late Roman and Early Byzantine City (Excavations 1985–1992)*, London, 1995.
- POULTER 1998 – A. Poulter, *Field Survey at Louloudies: A New Late Roman Fortification in Pieria*, *ABSA* 93, 1998, 463–511.
- POULTER 1999a – A. Poulter, *The Transition to Late Antiquity on the Lower Danube: an Interim Report (1996–8)*, *AntJournal* 79, 1999, 145–185.
- POULTER 1999b – A. Poulter, „Gradishte” near Dichin: a New Late Roman Fortress on the Lower Danube, in *Der Limes an der Unteren Donau von Diokletian bis Heraklios (Vorträge der Internationalen Konferenz Svištov, Bulgarien, 1.–5. September 1998)*, Sofija, 1999, 207–227.
- POULTER 1999c – A. Poulter, *The Roman to Byzantine Transition in the Balkans: Preliminary Results on Nicopolis and its Hinterland*, *JRA* 13, 1999, 347–358.
- POULTER 2007a – A. Poulter, *The Bulgarian-British Research Programme in the Countryside and on the Site of an Early Byzantine Fortress: The Implications for the Lower Danube in the 5<sup>th</sup> to 6<sup>th</sup> Centuries AD*, in *The Lower Danube in Antiquity (VI c. BC – VI c. AD). International Archaeological Conference, Bulgaria-Tutrakan, 6.–7.10.2005*, Sofija, 2007, 361–384.

- POULTER 2007b – A. Poulter, *The Transition to Late Antiquity on the Lower Danube: the City, the Fort and the Countryside*, in *The Transition to Late Antiquity on the Danube and Beyond* [Proceedings of the British Academy, 141], Oxford, 2007, 51–97.
- POUTIERS 1975 – J.-C. Poutiers, *À propos des forteresses antiques et médiévales de la Plaine danubienne. Essai de reconstitution du réseau routier entre Iskär et Ogosta*, *ÉtBalk* 2, 1975, 60–73.
- PRESHLENOV 2001 – H. Preshlenov, *A Late Antique Pattern of Fortification in the Eastern Stara Planina Mountain (The Pass of Djulino)*, *ArchBulg* 5, 2001, 3, 33–43.
- PRINGLE 1981 (2001) – D. Pringle, *The Defence of Byzantine Africa from Justinian to the Arab Conquest: An Account of the Military History and Archaeology of the African Provinces in the 6<sup>th</sup> and 7<sup>th</sup> Centuries*, I–II, BAR Int. Ser. 99, Oxford, 1981 (reprinted with additions 2001).
- RADOSAVLJEVIĆ-KRUNIĆ 1987 – S. Radosavljević-Krunić, *Une necropole medievale à Ljubičevac*, *Djerdapske Sveske* 3, 1987, 329–341.
- RĂDULESCU 1995–1996 – A. Rădulescu, *Zidul de apărare al Tomisului, de epocă târzie, în reconstituirea sa actuală*, *Pontica* 28–29, 1995–1996, 83–93.
- RANCE 2007 – Ph. Rance, *The Date of the Military Compendium of Syrianus Magister (formerly the Sixth Century Anonymus Byzantinus)*, *ByzZeit* 100, 2007, 701–737.
- RAŠEV 1982 – R. Rašev, *Starobalgarski ukreplenija na Dolnija Dunav (VII – XI v.)*, Varna, 1982.
- REDDÉ 1991 – M. Reddé, *A l'ouest du Nil: une frontière sans soldats, des soldats sans frontière*, in *Limes 15 Exeter*, 485–493.
- REDDÉ 1995 – M. Reddé, *Dioclétien et les fortifications militaires de l'Antiquité tardive. Quelques considérations de méthode*, *AnTard* 3, 1995, 91–124.
- REDDÉ 2004 – M. Reddé, *L'armée et ses fortifications pendant l'Antiquité tardive: La difficile interprétation des sources archéologiques*, in *L'armée romaine de Dioclétien à Valentinien I<sup>er</sup>. Actes du Congrès de Lyon (12–14 septembre 2002)*, Lyon, 2004, 157–167.
- REDDÉ 2007 – M. Reddé, *L'occupation militaire tardive dans les oasis d'Égypte : L'exemple de Douch*, in *The Late Roman Army in the Near East from Diocletian to the Arab Conquest. Proceedings of a Colloquium held at Potenza, Acerenza and Matera, Italy (May 2005)*, [BAR Int. Ser., 1717], Oxford, 2007, 421–429.
- REDDÉ, GOLVIN 1987 – M. Reddé, J.-C. Golvin, *Du Nil à la Mer Rouge: documents anciens et nouveaux sur les routes du désert oriental d'Égypte*, *Karthago* 21, 1987, 5–64.
- RÖDER 1952 – J. Röder, *Burgus Engers*, *Germania* 30, 1952, 115–116.
- ROLL 1989 – I. Roll, *A Latin Imperial Inscription from the Time of Diocletian found at Yotvata*, *IEJ* 39, 1989, 239–260.
- RUSEV 2007 – N. Rusev, *The Late Roman Fortress Kovachevsko kale*, *Istros* 14, 2007, 131–154.
- RUSEVA-SLOKOSKA 1989 – L. Ruseva-Slokoska, *Pautalia, I. Topografija, gradoustrojstvo i ukrepitelna sistema*, Sofija, 1989.
- SARNOWSKI 1985 – T. Sarnowski, *Die Legio I Italica und der untere Donauabschnitt der Notitia Dignitatum*, *Germania* 63, 1985, 1, 107–127.
- SARNOWSKI 1990 – T. Sarnowski, *Die Anfänge der spätrömischen Militärorganisation des unteren Donaupraumes*, in *Limes 14 Carnuntum*, 855–861.
- SARNOWSKI 2005 – T. Sarnowski, *Die Römer bei den Griechen auf der südlichen Krim. Neue Entdeckungen und Forschungen*, in *Limes 19 Pécs*, 741–748.
- SARNOWSKI et al. 2002 – T. Sarnowski, O. Savelja, R. Karasiewicz-Szczypiorski, *Extra fines Imperii. Rzymski posterunek wojskowi w okolicach Sewastopola na Krymie*, *Światowit* 45A, 2002, 167–171.
- SARNOWSKI et al. 2007 – T. Sarnowski, O. Savelja, R. Karasiewicz-Szczypiorski, *Roman Military Sentry Posts in the Border Zone of Crimean Chersonesos*, *ArchWarszawa* 58, 2007, 57–67.
- SARTRE 2007 – M. Sartre, *L'armée romaine et la défense de la Syrie du Sud. Questions de méthode et nouveau document*, in *The Late Roman Army in the Near East from Diocletian to the Arab Conquest. Proceedings of a Colloquium held at Potenza, Acerenza and Matera, Italy (May 2005)*, [BAR Int. Ser., 1717], Oxford, 2007, 263–273.
- ŠAŠEL 1977 – J. Šašel, *Viae militares*, in *Limes 10 Xanten*, 235–244 (= *Opera Selecta*, Ljubljana, 1992, 459–468).

- ŠČEGLOV 1987 – A. N. Šceglov, *Un établissement rural en Crimée: Panskoje I (feuilles de 1969–1985)*, DHA 13, 1987, 239–273.
- ŠČEGLOV 1992 – A. N. Šceglov, *Polis et chora. Cité et territoire dans le Pont Euxin*, Paris, 1992.
- SCHNURBEIN, KÖHLER 1989 – S. von Schnurbein, H.-J. Köhler, *Der neue Plan des valentinianischen Kastells Alta Ripa (Altrip)*, BRGK 70, 1989, 507–526.
- SCHÖNBERGER 1969 – H. Schönberger, *The Roman Frontier in Germany: An Archaeological Survey*, JRS 59, 1969, 1–2, 144–197.
- SCHÖNBERGER 1985 – H. Schönberger, *Die römischen Truppenlager der frühen und mittleren Kaiserzeit zwischen Nordsee und Inn*, BRGK 66, 1985, 321–497.
- SCHLEIERMACHER 1942 – W. Schleiermacher, *Befestigte Schiffsländer Valentinians*, Germania 26, 1942, 4, 191–195.
- SCHLEIERMACHER 1943–1950 – W. Schleiermacher, *Der obergermanische Limes und spätrömische Wehranlagen am Rhein*, BRGK 33, 1943–1950, 133–184.
- SCHWANZAR 1997 – Ch. Schwanzar, *Hirschleitengraben. Wachturm/Burgus*, in *Der römische Limes in Österreich. Führer zu den archäologischen Denkmälern* (ed. H.Friesinger/F.Krinzinger), Wien, 1997, 171–174.
- SCORPAN 1980 – C. Scorpan, *Limes Scythiae. Topographical and Stratigraphical Research on the Late Roman Fortifications on the Lower Danube*, [BAR Int. Ser. 88], Oxford, 1980.
- SEILHEILMER 2006 – H. Seilheilmer, *Die Palastareale von Seuthopolis und Demetrias. Zur Organisationsstruktur befestigter hellenistischer Residenzen*, in *Pontos Euxeinos. Beiträge zur Archäologie und Geschichte des Antiken Schwarzmeer- und Balkanraumes*, Langenweissbach, 2006, 295–316.
- SESTON 1946 – W. W. Seston, *Dioclétien et la tétrarchie*, Paris, 1946.
- SIDEBOTHAM 1991 – S. E. Sidebotham, *A Limes in the Eastern Desert of Egypt: Myth or Reality?*, in *Limes 15 Exeter*, 494–497.
- SIDEBOTHAM, ZITTERKOPF 1995 – S.E. Sidebotham, R.E. Zitterkopf, *Routes through the Eastern Desert of Egypt*, Expedition 37.2, 1995, 39–52.
- SIRAKOV 2007 – N. Sirakov, *Antični pätišta po srednoto tečenie na r. Tundža na baza terenni obhoždanija*, Izvestija-Stara Zagora 2, 2007, 297–312.
- SLOBOZIANU 1959 – H. Slobozianu, *Considerații asupra așezărilor antice din jurul lacurilor Techirghiol și Agigea*, MCA 5, 1959, 735–752.
- SMITH 2005 – A. M. Smith, *Bir Madhkur Project: A Preliminary Report on Recent Fieldwork*, BASOR 340, 2005, 57–75.
- SNOPKO et al. 1986 – L. Snopko, J. Geržová, V. Ferus, *Some Remarks on the Development of the Roman Settlement in Rusovce-Bergl*, ArchRoz 38, 1986, 4, 446–452.
- SOMMER 2006 – C. S. Sommer, *Ladenburg (Lopodunum)*, in *L'architecture de la Gaule romaine. Les fortifications militaires*, Paris-Bordeaux, 2006, 308–310.
- SOPRONI 1967 – S. Soproni, *Burgus-Bauinschrift vom Jahre 372 am pannonischen Limes*, in *Limes 6 Basel*, 138–143.
- SOPRONI 1978 – S. Soproni, *Der spätrömische Limes zwischen Esztergom und Szentendre. Das Verteidigungssystem der Provinz Valeria im 4. Jahrhundert*, Budapest, 1978.
- SOPRONI 1985 – S. Soproni, *Die letzten Jahrzehnte des Pannonischen Limes*, [MBV 38], München, 1985.
- SOPRONI 1986 – S. Soproni, *Nachvalentinianische Festungen am Donaulimes*, in *Limes 13 Aalen*, 409–415.
- SOPRONI 1989 – S. Soproni, *Militärinschriften aus dem 4. Jh. Im Donauknie*, ActaArchHung 41, 1989, 1–4, 103–118.
- SOUSTAL 1991 – P. Soustal, *Tabula Imperii Byzantini, 6. Thrakien (Thrake, Rhodope und Haimimontos)*, Wien, 1991.
- SOUSTAL 1992 – P. Soustal, *Die Südliche bulgarische Schwarzmeerküste in Spätantike und Mittelalter*, in *Die Schwarzmeerküste in Spätantike und im frühen Mittelalter*, Wien, 1992, 59–67.

- SOUTHERN 1989 – P. Southern, *The numeri of the Roman Imperial Army*, *Britannia* 20, 1989, 81–140.
- SPEIDEL 1984 – M. P. Speidel, *The Road to Viminacium*, *AV* 35, 1984, 339–341.
- SPRAFKE 1992 – R. Sprafke, *Der Nordwest-Eckurm der spätantiken Befestigung auf dem Siedlungshügel Kaleto*, *ZfA* 26, 1992, 2, 221–232.
- SREJOVIĆ 1982–1983 – D. Srejović, *Lepenski Vir, rimska kula*, *Starinar* 33–34, 1982–1983, 197–199.
- SREJOVIĆ 1985 – D. Srejović, *Felix Romuliana. Galerieva palata u Gamzigradu*, *Starinar* 36, 1985, 51–67.
- SREJOVIĆ 1993 – D. Srejović, *Felix Romuliana – Galerius' Ideological Testament*, in *Roman Imperial Towns and Palaces in Serbia*, Belgrade, 1993, 29–53.
- SREJOVIĆ et al. 1980 – D. Srejović, A. Lalović, Đ. Janković, *Gamzigrad*, *Starinar* 31, 1980, 65–80.
- SREJOVIĆ et al. 1996 – D. Srejović, M. Tomović, Č. Vasić, *Šarkamen, Tetrarchial Imperial Palace*, *Starinar* 47, 1996, 231–243.
- STANČEV 1999 – D. Stančev, *Eine Befestigung beim Dorf Batin (Gebiet Ruse)*, in *Der Limes an der Unteren Donau von Diokletian bis Heraklios (Vorträge der Internationalen Konferenz Svištov, Bulgarien, 1.–5. September 1998)*, Sofija, 1999, 201–205.
- STANČEVA 1987 – M. Stančeva, *Serdica au I<sup>er</sup> – IV<sup>e</sup> s. de n. ère à la lumière des dernières recherches archéologiques*, in *Recherches sur la culture en Mesie et en Thrace (Bulgarie) (=Izvestija-Sofija, 37)*, Sofija, 1987, 61–74.
- STANČEVA 1989 – M. Stančeva, *Arheologičeskoto nasledstvo na Sofija. Formirane, sastojanje, problemi, in Serdika, t. 2, Arheologičeski material i proučvanija*, Sofija, 1989, 6–36.
- STÂNGĂ 2003 – I. Stângă, *Sur les estampilles tegulaires découvertes dans la fortification romaine tardive de Hinova (dép. de Mehedinți)*, in *Die Archäologie und Geschichte der Region des Eisernen Tores zwischen 275–602 n. Chr. Kolloquium in Drobeta-Turnu Severin (2.–5. November 2001)*, București, 2003, 81–86.
- ȘTEFAN 1971 – Al. S. Ștefan, *Troesmis. Considerații topografice*, *BMI* 40, 1971, 4, 43–52.
- ȘTEFAN 1974 – Al. S. Ștefan, *Recherches de photo-interprétation archéologique sur le limes de la Scythie Mineure à l'époque du Bas-Empire*, in *Limes 9 Mamaia*, 95–108.
- ȘTEFAN 1977a – Al. S. Ștefan, *Nouvelles recherches de photo-interprétation archéologique concernant la défense de la Scythie Mineure*, in *Limes 11 Székesszék*, 451–465.
- ȘTEFAN 1977b – Al. S. Ștefan, *Cetatea romană de la Slava Rusă (Libida?). Cercetările aerofotografice și apărarea patrimoniului arheologic*, *RMM-MIA* 46, 1977, 1, 3–22.
- ȘTEFAN 1977c – Al. S. Ștefan, *Cetățile romane de la Enisala. Studiu aerofotografic*, *RMM-MIA* 46, 1977, 2, 15–25.
- STEIN 1959 – E. Stein, *Histoire du Bas-Empire. I. De l'État romain à l'État byzantin (284–476)*, Paris-Bruxelles, 1959.
- ŠTEREVA et al. 2001 – I. Štereva, K. Vačeva, D. Vladimirova-Aladžova, *Tuida – Sliven 1*, [Razkopki i proučvanija XXVIII], Sofija, 2001.
- ŠTEREVA, ALADŽOV 2000 – I. Štereva, Ž. Aladžov, *Razkopkite v Sliven i Karnobat i problemăt za prehod ot antičnostta kăm srednovekovieto*, *GDA* 4–5, 2000, 290–299.
- STOIČKOV 1994 – V. Stoičkov, *Spasitelni razkopki na antičnata krepost Pomodiana*, in *AOR prez 1992–1993 g.*, Veliko Tărnovo, 1994, 53.
- STOIČKOV 1995 – V. Stoičkov, *Nouvelles données sur le développement du castel Almus et son territoire*, *BalcPosn* 7, 1995, 251–258.
- STRIBRNY 1989 – K. Stribrny, *Römer rechts des Rheins nach 260 n. Chr. Kartierung, Strukturanalyse und Synopse spätrömischer Münzreichen zwischen Koblenz und Regensburg*, *BRGK* 70, 1989, 351–505.
- STRUBE 2006–2007 – Ch. Strube, *Fouilles à al Andarin / Androna*, *AnnArchSyr* 49–50, 2006–2007, 127–137.
- SUCEVEANU 1974 – Al. Suceveanu, *La défense du littoral de la Dobroudja à l'époque romaine (I<sup>er</sup>–III<sup>e</sup> siècles de n.è.)*, *RRH* 13, 1974, 2, 217–238.
- SUCEVEANU 1981 – Al. Suceveanu, *Encore sur la question de la défense du littoral en Dobroudja à l'époque romaine*, *RRH* 20, 1981, 4, 605–614.

- SUCEVEANU 1982 – Al. Suceveanu, *Histria VI. Les thermes romaines*, Bucarest-Paris, 1982.
- SUCEVEANU 1992 – Al. Suceveanu, *Die römischen Verteidigungsanlagen an der Küste der Dobrudscha*, BJ 192, 1992, 195–223.
- SUCEVEANU et al. 2003 – Al. Suceveanu, M. Zahariade, Fl. Topoleanu, Gh. Poenaru-Bordea, *Halmyris I. Monografie arheologică*, Cluj-Napoca, 2003.
- SUCEVEANU, BARNEA 1991 – Al. Suceveanu, Al. Barnea, *La Dobroudja romaine*, București, 1991.
- SULTOV 1966 – B. Sultov, *Arheologiĉeski prouĉvanija v Diskoduratera ot 1958 do 1961 godina*, Izvestija–Veliko Tärnovo 3, 1966, 25–42.
- THIELEMANS 1999 – S. Thielemans, *Les mines et les tours : un mariage entre la technologie et l'architecture?*, in *Thasos. Matières premières et technologie de la préhistoire à nos jours. Actes du colloque international, Thasos, Liménaria, 26–29.09.1995*, Paris, 1999, 145–159.
- TOMOVIĆ 1986 – M. Tomović, *Mihajlovac-„Blato” – une forteresse de la basse Antiquité*, Djerdapske Sveske 3, 1986, 401–431.
- TOMOVIĆ 1987 – M. Tomović, *Les tours fortifiées de la Basse Antiquité sur le limes des Portes de Fer*, ArchIug 24, 1987, 91–100.
- TOMOVIĆ 1996 – M. Tomović, *Ravna – The Roman and Early Byzantine Fortification*, in *Roman Limes on the Middle and Lower Danube*, Belgrade, 1996, 73–80.
- TOMOVIĆ 2000 – M. Tomović, *Kraku lu Jordan and Gold Mining Metallurgy in Antiquity*, Starinar 50, 2000, 155–183.
- TOMOVIĆ, JOVANOVIĆ 2000 – M. Tomović, Đ. Jovanović, *Vrelo, Šarkamen. Tetrarhijski carski kompleks*, Starinar 50, 2000, 261–268.
- TOMOVIĆ et al. 1995 – M. Tomović, Dj. Jovanović, G. Janić, *Vrelo-Šarkamen. Kasnoantiĉki kompleks*, in *Archaeology of Eastern Serbia (Symposium Belgrade-Donji Milanovac, December 1995)*, Belgrade, 1995, 277–291.
- TOPTANOV et al. 1994 – D. Toptanov, A. Melamed, G. Abgulov, *Arheologiĉeskie prouĉvanija na krepostta „Krasen” kraj grad Panagjurište, Plovdivska oblast (1976–1988). Predvaritelno saobštenie*, IMJužB 20, 1994, 85–107.
- TORBATOV 1994 – S. Torbatov, *Portus Caria – Caron limen – Caria – Carea – Creas*, in *Thracia Pontica VI. 1 (Proceedings of the International Symposium Thracia Pontica VI, 18–24 September 1994)*, Sozopol, 1994, 325–336.
- TORBATOV 1997 – S. Torbatov, *Quaestura Exercitus: Moesia Secunda and Scythia under Justinian*, ArchBulg 1, 1997, 3, 78–87.
- TORBATOV 1998 – S. Torbatov, *The Stone Fortifications near Nova Černa (Bulgaria)*, in *The Roman Frontier at the Lower Danube, 4<sup>th</sup>–6<sup>th</sup> Centuries. The Second International Symposium (Murighiol/Halmyris, 18–24 August 1996)*, Bucharest, 1998, 157–167.
- TORBATOV 1999 – S. Torbatov, *A Note on Dinogetia*, in *Der Limes an der Unteren Donau von Diokletian bis Heraklios (Vorträge der Internationalen Konferenz Svištov, Bulgarien, 1.–5. September 1998)*, Sofija, 1999, 271–274.
- TORBATOV 2000 a – S. Torbatov, *The Roman Road Durostorum – Marcianopolis*, ArchBulg 4, 2000, 1, 59–72.
- TORBATOV 2000 b – S. Torbatov, *Procop. De Aedif. IV, 7, 12–14 and the Historical Geography of Moesia Secunda*, ArchBulg 4, 2000, 3, 58–77.
- TORBATOV 2002 – S. Torbatov, *Ukrepitelnata sistema na provincija Skitija (kraja na III–VII v.)*, Veliko Tärnovo, 2002.
- TORBATOV 2004 a – S. Torbatov, *Terminologija za fortifikacionnite saoräženija prez rimskata i rannovizantijskata epoha*, in *Arheologija na bälgarskite zemi / Archaeology of the Bulgarian Lands*, I, Sofija, 2004, 31–48.
- TORBATOV 2004 b – S. Torbatov, *Pätna mreža v Trakija i Mizija (I–III v.)*, in *Arheologija na bälgarskite zemi / Archaeology of the Bulgarian Lands*, I, Sofija, 2004, 76–95.
- TORBATOV, DRAGOEV 2008 – S. Torbatov, D. Dragoev, *Sondažni arheologiĉeski prouĉvanija na käsnoantiĉen ukrepen obekt v m. “Dolan boaz”, s. Svalenik, Rusenska oblast*, in *AOR prez 2007 g.*, Sofija, 2008, 438–439.

- TOROPU, TĂTULEA 1982 – O. Toropu, C. Tătulea, *Noi date despre locuirea romană târzie la Sucidava-Celei*, Drobeta 5, 1982, 115–124.
- TÓTH 1985 – E. Tóth, *Zur Chronologie der militärischen Bautätigkeiten des 4. Jh. in Pannonien*, MittArchInst 14, 1985, 121–136.
- TROUSSET 1990 – P. Troussel, *Tours de guet (Watch-Towers) et le système de liaison optique sur le Limes Tripolitanus*, in *Limes 14 Carnuntum*, 249–277.
- TROUSSET 1991 – P. Troussel, *Les défenses côtières byzantines de Byzacène*, in *Limes 15 Exeter*, 347–353.
- TSONTCHEV 1959 – D. Tsontchev, *La voie romaine Philippopolis – Sub Radice*, Latomus 18, 1959, 1, 154–170.
- TUDOR 1978 – D. Tudor, *Oltenia romană*<sup>4</sup>, București, 1978.
- UBL 1977 – H. Ubl, *Der spätrömischen Burgus von Zeiselmauer. Grabung und Restaurierung*, in *Limes 10 Xanten*, 251–262.
- UBL 1997 a – H. Ubl, *Bacharnsdorf. Wachturm/Burgus*, in *Der römische Limes in Österreich. Führer zu den archäologischen Denkmälern* (ed. H.Friesinger/F.Krinzinger), Wien, 1997, 203–206.
- UBL 1997 b – H. Ubl, *Zeiselmauer-Cannabiaca? Kastell–Vicus*, in *Der römische Limes in Österreich. Führer zu den archäologischen Denkmälern* (ed. H.Friesinger/F.Krinzinger), Wien, 1997, 231–236.
- UBL 1997 c – H. Ubl, *Wallsee-Locus Felix (Locofelicis)? Kastell–Vicus*, in *Der römische Limes in Österreich. Führer zu den archäologischen Denkmälern* (ed. H.Friesinger/F.Krinzinger), Wien, 1997, 196–201.
- UBL 1997 d – H. Ubl, *Traismauer-Augustiana. Kastell–Vicus*, in *Der römische Limes in Österreich. Führer zu den archäologischen Denkmälern* (ed. H.Friesinger/F.Krinzinger), Wien, 1997, 221–225.
- UENZE 1992 – S. Uenze, *Die spätantiken Befestigungen von Sadovec (Bulgarien). Ergebnisse der deutsch-bulgarisch-österreichischen Ausgrabungen 1934–1937*, [MBV 43], Munich, 1992.
- VAGALINSKI 1999 – L. Vagalinski, *Die spätrömische nördliche Festungsmauer von Transmarisca*, in *Der Limes an der unteren Donau von Diokletian bis Heraklios. Vorträge der Internationalen Konferenz Svištov (1.–5. September 1998)*, Sofija, 1999, 229–236.
- VAGALINSKI 2003 – L. Vagalinski, *Ne varietatem timeamus – über die Chronologie des spätantiken Kastells Iatrus an der unteren Donau (Objekt XLIV)*, ArchBulg 7, 2003, 2, 43–82.
- VAGALINSKI, PETKOV 2006 – L. Vagalinski, E. Petkov, *New Data on the Fortifications of Late Antiquity Transmarisca*, in *Felix Romuliana. 50 Years of Archaeological Excavations. Papers from the International Conference, Zaječar, 27th–29th October 2003*, Belgrade, 2006, 105–109.
- VALBELLE, CARREZ-MARATRAY 2000 – D. Valbelle, J.-Y. Carrez-Maratray, *Le camp romain du Bas-Empire à Tell el-Herr*, Paris, 2000.
- VARSİK 1997 – V. Varsik, *Das Auxiliarlager Rusovce-Gerulata, seine Geschichte und seine Stellung am nordpannonischen Limes*, in *Limes 16 Kerkrade*, 75–82.
- VASIĆ 1982–1983 – M. Vasić, *Čezava – Castrum Novae*, Starinar 33–34, 1982–1983, 91–122.
- VASIĆ 1990 – M. Vasić, *Čezava – Castrum Novae. La stratigraphie, la chronologie et les phases architectoniques*, in *Limes 14 Carnuntum*, 897–911.
- VASIĆ 1994–1995 – M. Vasić, *Le limes protobyzantin dans la province de Mésie Première*, Starinar 45–46, 1994–1995, 41–53.
- VASIĆ 2003 – M. Vasić, *Le limes et l'intérieur des provinces de Moesia Prima et de Dacia à l'époque de la Tétrarchie*, in *Die Archäologie und Geschichte der Region des Eisernen Tores zwischen 275–602 n. Chr. Kolloquium in Drobeta-Turnu Severin, 2.–5. November 2001*, București, 2003, 17–23.
- VASIĆ, KONDIĆ 1986 – M. Vasić, V. Kondić, *Le limes romain et paléobyzantin des Portes de Fer*, in *Limes 13 Aalen*, 542–560.
- VASIĆ, MILOŠEVIĆ 2000 – M. Vasić, G. Milošević, *Mansio Idimum. Rimska poštanska i putna stanica kod Medvedje*, Beograd, 2000.
- VASIĆ, TOMOVIĆ 2005 – M. Vasić, M. Tomović, *Šarkamen (East Serbia). An Imperial Residence and Memorial Complex of the Tetrarchic Period*, Germania 83, 2005, 257–307.
- VASILČIN 1994 – Iv. Vasilčin, *Arheologički razkopki na nos Šabla prez 1978 i 1979 g.*, Dobrudža 11, 1994, 10–24.

- VASSILEVA 1973 – D. Vassileva, *La basilique du Cerf*, *Byzantinobulgarica* 4, 1973, 253–273.
- VELKOV I. 1938 – Iv. Velkov, *Käsnorimska villa pri Orlandovci*, *Izvestija-Sofija* 12, 1938, 409–414.
- VELKOV 1961 – V. Velkov, *Istoričeski izvori za krepostnite kuli s izdaden räb*, *Izvestija-Sofija* 24, 1961, 147–151.
- VELKOV 1977 – V. Velkov, *Cities in Thrace and Dacia in Late Antiquity (Studies and Materials)*, Amsterdam, 1977.
- VELKOV, LISICOV 1994 – V. Velkov, S. Lisicov, *An Early Byzantine and Mediaeval Fort in the Haemus with an Inscription and Grafitti of Emperor Anastasius*, in *Sbornik v čest na akad. Dimit'r Angelov*, Sofija, 1994, 257–265.
- VENEDIKOV 1948 – I. Venedikov, *Bargala. Razkopki i proučvanija I*, Sofija, 1948.
- VENEDIKOV 1969 – I. Venedikov, *La datation de remparts romano-byzantins de Nessèbre; Histoire des remparts romano-byzantins*, in *Nessèbre*, I, Sofija, 1969, 125–154; 155–163.
- VENEDIKOV et al. 1969 – I. Venedikov, L. Ognenova-Marinova, T. Petrov, *Disposition, fouilles et remparts de Nessèbre du côté occidental*, in *Nessèbre*, I, Sofija 1969, 29–94.
- VETTERS 1950 – H. Veters, *Dacia Ripensis*, Wien, 1950.
- VICKERS 1974 – M. Vickers, *The Late Roman Walls of Thessalonica*, in *Limes 8 Durham*, 249–255.
- VILLAVERDE VEGA 2004 – N. Villaverde Vega, *El ejército romano de Mauretania Tingitana de Diocleciano a Valentiniano I*, in *L'armée romaine de Dioclétien à Valentinien I<sup>er</sup>. Actes du Congrès de Lyon (12–14 septembre 2002)*, Lyon, 2004, 299–305.
- VILLENEUVE 1986 – F. Villeneuve, *Ad-Diyateh : Village et castellum romains et byzantins a l'est du Jebel Druze (Syrie)*, in *The Defence of the Roman and Byzantine East*, [BAR Int. Ser. 297], Oxford, 1986, II, 697–715.
- VILLENEUVE, SADLER 2001 – F. Villeneuve, S. Sadler, *Occupation du sol et vestiges architecturaux sur les marges arides de Syrie du sud. L'exemple de Diyatheb*, in *Conquête de la steppe et appropriation des terres sur les marges arides du Croissant fertile*, [TMO 36], Lyon, 2001, 159–187.
- VISY 1980 – Zs. Visy, *Római jelzötornyok és a limes-út Intercisa térségében*, *ArchÉrt* 107, 1980, 166–175.
- VISY 1995 – Zs. Visy, *Wachttürme an der ripa Pannonica*, *ActaAntHung* 36, 1995, 265–274.
- VÖLLING 2000 – Th. Völling, *Befestigte Villae Rusticae oder militärische Kleinkastelle? Anmerkungen zu drei Fundplätzen im bulgarischen Binnenland*, *ArchBulg* 4, 2000, 2, 33–48.
- VORONOV 1980 – I. N. Voronov, *Dioskuriada-Sebastopolis-Chum*, Moskva, 1980.
- VULPE 1972 – R. Vulpe, *Limita meridională a provinciei romane Scythia*, *Pontica* 5, 1972, 205–221.
- WACHTEL 1999 – K. Wachtel, *Fragment einer Bauinschrift aus den Jahren 340/350, gefunden im spätantiken Kastell Iatrus*, in *Der Limes an der Unteren Donau von Diokletian bis Heraklios. Vorträge der Internationalen Konferenz Svištov (1.–5. September 1998)*, Sofija, 1999, 195–199.
- WALBANK 1986 – F. W. Walbank, *The Via Egnatia: Some Outstanding Problems*, in *Ancient Macedonia IV. Papers read at the Fourth International Symposium held in Thessaloniki, September, 21–25, 1983*, Thessaloniki, 1986, 673–680.
- WEILER 1996 – I. Weiler, *Zur Frage der Grenzziehung zwischen Ost- und Westteil des Römischen Reiches in der Spätantike*, in *Westillyricum und Nordostitalien in der spätrömischen Zeit*, Ljubljana, 1996, 123–143.
- WHITBY 1985 – L. M. Whitby, *The Long Walls of Constantinople*, *Byzantion* 65, 1985, 560–583.
- WILKES 1993 – J. J. Wilkes, *Diocletian's Palace, Split: Residence of a Retired Roman Emperor<sup>2</sup>*, Sheffield, 1993.
- WILKES 2005 – J. J. Wilkes, *The Roman Danube: An Archaeological Survey*, *JRS* 95, 2005, 124–225.
- WILSON 1991 – P. Wilson, *Aspects of the Yorkshire Signal Stations*, in *Limes 15 Exeter*, 142–147.
- WOTSCHITZKY 1959 – A. Wotschitzky, *Veldidena. Zweiter vorläufiger Bericht über die Ausgrabungen, 1954 – 1957*, *JÖAI* 44, 1959, Beibl., 5–70.
- YOUNG 1956 – J. H. Young, *Ancient Towers on the Island of Siphnos*, *AJA* 60, 1956, 51–55.
- ZAHARIADE 1988 – M. Zahariade, *Moesia Secunda, Scythia și Notitia Dignitatum*, București, 1988.
- ZAHARIADE 1996 – M. Zahariade, *A Note on Translucus (NDO. XLII, 27)*, *Starinar* 47, 1996, 249–251.

- ZAHARIADE 1997 a – M. Zahariade, *The Late Roman Drobeta I. The Cruciform Building and the Fort Garrison in the 4<sup>th</sup> Century AD*, AMN 34, 1997, 1, 167–182.
- ZAHARIADE 1997 b – M. Zahariade, *The Halmyris Tetrarchic Inscription*, ZPE 119, 1997, 228–236.
- ZAHARIADE 1999 a – M. Zahariade, *The Roman Frontier in Scythia Minor (1980–1995)*, in *Limes 17 Zaláu*, 199–213.
- ZAHARIADE 1999 b – M. Zahariade, *The Tetrarchic Building Activity at the Lower Danube: I. Quadriburgia*, in *Der Limes an der Unteren Donau von Diokletian bis Heraklios (Vorträge der Internationalen Konferenz Svištov, Bulgarien, 1.–5. September 1998)*, Sofija, 1999, 3–16.
- ZAHARIADE 2003 – M. Zahariade, *Burgi and turrets on the Lower Danubian Limes in the 4<sup>th</sup> – 5<sup>th</sup> centuries*, in *Die Archäologie und Geschichte der Region des Eisernen Tores zwischen 275–602 n. Chr. Kolloquium in Drobeta-Turnu Severin, 2.–5. November 2001*, București, 2003, 25–34.
- ZAHARIADE 2006 – M. Zahariade, *Scythia Minor. A History of a Later Roman Province (284–681)*, Amsterdam, 2006.
- ZAHARIADE 2007 – M. Zahariade, *The Tetrarchic Reorganization of the Limes Scythicus*, in *The Lower Danube in Antiquity (VI c. BC – VI c. AD). International Archaeological Conference, Bulgaria-Tutrakan, 6.–7.10.2005*, Sofija, 2007, 293–304.
- ZAHARIADE, GUDEA 1997 – M. Zahariade, N. Gudea, *The Fortifications of Lower Moesia (AD 86–275)*, Amsterdam, 1997.
- ZAHARIADE, OPAIȚ 1986 – M. Zahariade, A. Opaïț, *A New Late Roman Fortification on the Territory of Romania: the Burgus at Topraichioi, Tulcea County*, in *Limes 13 Aalen*, 565–572.
- ZANINOVIĆ – M. Zaninović, *The Frontier between Dalmatia and Moesia Superior*, Pulpudeva 4, 1983, 88–94.
- ZOTOVIĆ 1982–1983 – L. Zotović, *Boljetin (Smorna), rimski i ranovizantijski logor*, Starinar 33–34, 1982–1983, 211–225.
- ZUCKERMAN 2002 – C. Zuckerman, *Sur la liste de Vérone et la province de grande Arménie, la division de l'empire et la date de création des diocèses*, in *Mélanges Gilbert Dagron (= TravMém 14, 2002)*, 617–637.

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 162 – **Kerratin** (DECKER 2006, fig. 4).
29. Eastern provinces – *quadriburgia*:  
 163 – **Qusair as-Saila/Tetrapyrgium** (KONRAD 2001, Beil.).

- 164 – **Khan el-Hallabat/Veriaraca** (REDDÉ 1995, fig. 15, after Poidebard).  
 165 – **Khan el-Abyad** (TORBATOV 2004, fig. 3, after Poidebard).  
 166 – **Khan el-Qattar/Monte Jovis** (TORBATOV 2004, fig. 6a, after Poidebard).  
 167 – **Mleke** (LANDER 1984, fig. 201).  
 168 – **Khan Aneybeh/Onevatha** (LANDER 1984, fig. 202).  
 169 – **Khan at-Trab/Valle Diocletiana** (LANDER 1984, fig. 181).  
 170 – **Khan Abu Shamat/Thama** (LANDER 1984, fig. 200).
30. Eastern provinces – *quadriburgia*:  
 171 – **Qasr el-Hallabat** – phases (ARCE 2006, fig. 1bis).  
 172 – **Khirbet es-Zona** (LANDER 1984, fig. 199).  
 173 – **Muhattet el-Hajj** (LANDER 1984, fig. 136).  
 174 – **Qasr ath-Thuraiya** (LANDER 1984, fig. 198).  
 175 – **Khirbet el-Khaldi/Praesidium** (GRAF 1995, fig. 15).  
 176 – **Yotvata/Ad Dianam** (DAVIES, MAGNESS 2006, fig. 1).  
 177 – **Mezad Tamar/Tamara** (GICHON 1977, fig. 2).  
 178 – **En Boqeq** (GICHON 1993, pl. III).  
 179 – **Upper Zohar** (HARPER 1995, fig. 2).
31. Eastern provinces – *quadriburgia* and small *castella*:  
 180 – **Mount Gerizim** (DINČEV 2006, fig. 101).  
 181 – **El-Habbat** (GREGORY 1996, fig. 16c).  
 182 – **El-Anderin/Androna-“South Church”** (BUTLER 1969, fig. 209).  
 183 – **Umm el-Hallahil** (MUNDELL-MANGO 2000, fig. 34).  
 184 – **Qasr Bshir/Castra Praetorii Mobeni** (PARKER 1995, fig. 1).  
 185 – **Deir el-Kahf** (REDDÉ 1995, fig. 18).  
 186 – **Qasr al-Azraq** (REDDÉ 1995, fig. 2).
32. Eastern provinces – small *castella*:  
 187 – **Khan al-Manqoura/Valle Alba** (POIDEBARD 1934, apud REDDÉ 1995, fig. 16).  
 188 – **Ad-Diyateh** (LANDER 1984, fig. 137).  
 189 – **Khirbet es-Samra** (GENEQUAND 2006, fig. 6.1).  
 190 – **El-Anderin/Androna-“Kastron”** (DECKER 2006, fig. 6).  
 191 – **Stabl al-Antar** (DECKER 2006, fig. 7).
33. Eastern provinces: Caucasus and Egypt – *quadriburgia* and small *castella*:  
 192 – **Suhumi/Sebastopolis** (VORONOV 1980, fig. 2).  
 193 – **Tamaris Tziche/Losorion** (LEKVINADZE 1973, fig. 2).  
 194 – **Mamaj-Kala** (LEKVINADZE 1969, fig. 10).  
 195 – **Qasr Qarun/Dionysias** (CARRIÉ 1974, fig. 1).  
 196 – **Tell el-Herr/Magdolum** (REDDÉ 2004, fig. 9).  
 197 – **Abu Sha’ar/Myos Hormos** (REDDÉ, GOLVIN 1987, fig. 30).  
 198 – **Ed Deir** (REDDÉ 2007, fig. 6).
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34. Africa – *burgi* and *quadriburgia*:  
 199 – **Ksar Tarcine/Centenarium Tibubuci** (LANDER 1984, fig. 176).  
 200 – **Henchir el-Guechiret** (PRINGLE 1981[2001], fig. 47a).  
 201 – **Sbeitla/Sufetula – North** (PRINGLE 1981[2001], fig. 48a).  
 202 – **Sbeitla/Sufetula – South** (PRINGLE 1981[2001], fig. 48b).  
 203 – **Mselletin** (GOODCHILD 1950, fig. 4).  
 204 – **Ksar Sidi el-Hadj/Aquae Herculis** (LANDER 1984, fig. 182).
35. Africa – *quadriburgia*:  
 205 – **Zraïa/Zarai** (PRINGLE 1981[2001], fig. 43).  
 206 – **Aïn Zana/Diana Veteranorum** (PRINGLE 1981[2001], fig. 38b).  
 207 – **Chigarnia/Uppenna** (PRINGLE 1981[2001], fig. 13).  
 208 – **Ksar Graouch** (PRINGLE 1981[2001], fig. 23b).  
 209 – **Ksar Sbahi/Gadiaufala** (PRINGLE 1981[2001], fig. 23a).  
 210 – **Sguidan/Anastasiana** (PRINGLE 1981[2001], fig. 19).

36. Africa – *quadriburgia*:  
 211 – **Bordj Ibrahim/Agbia** (PRINGLE 1981[2001], fig. 16.1).  
 212 – **Ksar Lemsal/Limisa** (PRINGLE 1981[2001], fig. 16).  
 213 – **Ain Tebournok/Tubernuc** (PRINGLE 1981[2001], fig. 17).  
 214 – **M'daourouch/Madauros** (PRINGLE 1981[2001], fig. 11).  
 215 – **Gastal** (PRINGLE 1981[2001], fig. 38a).  
 216 – **Bordj Younga** (TROUSSET 1991, fig. 66.6).
37. Africa – small *castella*:  
 217 – **M'doukal/Centenarium Aqua Viva** (LANDER 1984, fig. 177).  
 218 – **Bourada** (GUEY 1939, fig. 1).  
 219 – **Seba Mgata** (LANDER 1984, fig. 212).  
 220 – **Timgad/Thamugadi** (PRINGLE 1981[2001], fig. 2).  
 221 – **Tobna/Tubunae** (PRINGLE 1981[2001], fig. 42).
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38. Gazetteer  
 222 – (1) **Pančevo** – the *quadriburgium* on 18<sup>th</sup> c. maps (BONDOC 2009, fig. 1-4).
39. Gazetteer  
 223 – (2) **Ram/Lederata** and (3) **Sapaja Island** – evolution of the fortification system (JOVANOVIĆ 1996, fig. 1-3).  
 224 – (2) **Ram/Lederata** – plan (DIMITRIEVIĆ 1982–1983, fig. 11).
40. Gazetteer  
 225 – (3) **Sapaja Island** – plan (DIMITRIEVIĆ 1982–1983, fig. 3).  
 226 – (3) **Sapaja Island** – NE corner-tower (DIMITRIEVIĆ 1982–1983, fig. 4).
41. Gazetteer  
 227 – (3) **Sapaja Island** – section of the western portico (DIMITRIEVIĆ 1982–1983, fig. 6).  
 228 – (4) **Veliko Gradište/Pincum** – plan according to Marsigli (apud GUDEA 2001, p. \*59).
42. Gazetteer  
 229 – (5) **Gornea** – plan (GUDEA 1977, fig. 2).  
 230 – (5) **Gornea** – graphic restitution (GUDEA 1977, fig. 2a).
43. Gazetteer  
 231 – (5) **Gornea** – towers and gate: a) NW tower; b) SW tower; c) SE tower; d) gate (GUDEA 1977, fig. 7–10).
44. Gazetteer  
 232 – (6) **Zidinac** – situation plan according to V. Kondić (apud GUDEA 2001, p. \*65).  
 233 – (6) **Zidinac** (PETROVIĆ P. 1982–1983 a, fig. 1).
45. Gazetteer  
 234 – (7) **Dobra-“Saldum”/Cantabaza?** – situation plan (PETROVIĆ P. 1982–1983 b, fig. 3).  
 235 – (7) **Dobra-“Saldum”/Cantabaza?** – plan (PETROVIĆ P. 1982–1983 b, fig. 2).  
 236 – (7) **Dobra-“Saldum”/Cantabaza?** – NE corner-tower (PETROVIĆ P. 1982–1983 b, fig. 4).
46. Gazetteer  
 237 – (8) **Bosman** – plan (KONDIĆ 1982–1983, fig. 1).  
 238 – (8) **Bosman** – fountain (KONDIĆ 1982–1983, fig. 8).
47. Gazetteer  
 239 – (9) **Pesača** – plan (MINIĆ 1982–1983, fig. 1).  
 240 – (10) **Lepenski Vir** – plan (SREJOVIĆ 1982–1983, fig. 1).
48. Gazetteer  
 241 – (11) **Boljetin/Smorna** – situation plan (ZOTOVIĆ 1982–1983, fig. 1).  
 242 – (11) **Boljetin/Smorna** – plan of the fortification (ZOTOVIĆ 1982–1983, fig. 2).

49. Gazetteer  
 243 – (12) **Ravna/Campsă** – situation plan (ERCEGOVIĆ-PAVLOVIĆ 1982–1983, fig. 1).  
 244 – (12) **Ravna/Campsă** – plan (KONDIĆ 1982–1983, fig. 2).
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 245 – (12) **Ravna/Campsă** – phases according to V. Kondić: a) 3<sup>rd</sup> c. AD; b) 4<sup>th</sup> c. AD; c) 6<sup>th</sup> c. AD (VASIĆ, KONDIĆ 1986, fig. 24, 14, 32).  
 246 – (12) **Ravna/Campsă** – phases according to M. Tomović: a – Roman building; b – Late Roman and Early Byzantine fortification (TOMOVIĆ 1996, maps IV & I).
51. Gazetteer  
 247 – (13) **Porečka Reka** – situation (PETROVIĆ P. 1977, fig. 2).  
 248 – (13) **Porečka Reka** – plan of the *quadriburgium* (PETROVIĆ P. 1977, fig. 3/1).  
 249 – (13) **Porečka Reka** – baths built over SE tower (PETROVIĆ P. 1982–1983, fig. 6).
52. Gazetteer  
 250 – (14) **Malo Golubinje** – situation plan after L. Popović (apud GUDEA 1982, no. 30).  
 251 – (14) **Malo Golubinje** – plan of excavated remains (POPOVIĆ L. 1982–1983, fig. 1).  
 252 – (15) **Malo Golubinje-“Nešin potok”** – plan (JEREMIĆ G. 2007, fig. 2.3).
53. Gazetteer  
 253 – (16) **Hajdučka Vodenica/Translucus?** – situation plan (ERCEGOVIĆ-PAVLOVIĆ 1986, fig. 1).  
 254 – (16) **Hajdučka Vodenica** – plan (JOVANOVIĆ 1982–1983, fig. 1).
54. Gazetteer  
 255 – (17) **Tekija/Transdierna** – situation plan (CERMANOVIĆ-KUZMANOVIĆ 1982–1983, fig. 3).  
 256 – (17) **Tekija/Transdierna** – plan (CERMANOVIĆ-KUZMANOVIĆ, JOVANOVIĆ 2004, fig. 4)
55. Gazetteer  
 257 – (18) **Orșova/Dierna** – plan (GUDEA 1974, Abb. 2.3, scale absent).  
 258 – (18) **Orșova/Dierna** – another plan (GUDEA 1982, no. 32).
56. Gazetteer  
 259 – (19) **Ada-Kaleh Island** – a) situation plan (military map, 1962); b) map by Joseph Deharo; c) map by Avon von Bellavich (BONDOC 2009, fig. 99–101).
57. Gazetteer  
 260 – (20) **Sip** – plan according to Dj. Janković (JANKOVIĆ 1981, fig. 39).  
 261 – (20) **Sip** – plan according to P. Milošević (MILOŠEVIĆ P. 1982–1983, fig. 1).
58. Gazetteer  
 262 – (21) **Insula Banului** – plan according to Al. Bărcăcilă (DAVIDESCU 1977, fig. 4).  
 263 – (21) **Insula Banului** – plan according to M. Davidescu (DAVIDESCU 1977, fig. 6).
59. Gazetteer  
 264 – (22) **Kladovo-“Donje Butorke”** – plan according to Al. Cermanović-Kuzmanović (CERMANOVIĆ-KUZMANOVIĆ 1977–1978, fig. 1).  
 265 – (22) **Kladovo-“Donje Butorke”** – plan according to Dj. Janković (JANKOVIĆ 1981, fig. 28).
60. Gazetteer  
 266 – (23) **Hinova** – plan (DAVIDESCU 1989, fig. 1).  
 267 – (23) **Hinova** – ditches on the N side (DAVIDESCU 1980, pl. II).  
 268 – (23) **Hinova** – graphic restitution (DAVIDESCU 1989).
61. Gazetteer  
 269 – (24) **Rtkovo-“Glamija”** – plan (GABRIČEVIĆ 1986, plan I, scale absent).  
 270 – (25) **Korbovo** – plan (BABOVIĆ 1990, fig. 2, scale absent).
62. Gazetteer  
 271 – (26) **Milutinovac** – plan (MILOŠEVIĆ, JEREMIĆ 1986, fig. 1).

63. Gazetteer  
 272 – (26) **Milutinovac** – Western tower (MILOŠEVIĆ, JEREMIĆ 1986, fig. 3).  
 273 – (26) **Milutinovac** – Southern tower (MILOŠEVIĆ, JEREMIĆ 1986, fig. 5).  
 274 – (26) **Milutinovac** – plan and graphic restitution of the central part of the SE wall (MILOŠEVIĆ, JEREMIĆ 1986, fig. 8).
64. Gazetteer  
 275 – (27) **Ljubičevac** – plan of the excavations (RADOSAVLJEVIĆ-KRUNIĆ 1987, pl. 1).  
 276 – (27) **Ljubičevac** – plan (KORAC 1996, fig. 3).
65. Gazetteer  
 277 – (28) **Brza Palanka/Egeta** – situation plan (PETROVIĆ P. 1984, fig. 141, scale absent).  
 278 – (28) **Brza Palanka/Egeta** – “Castellum II” (PETROVIĆ P. 1984, fig. 142, scale absent).
66. Gazetteer  
 279 – (29) **Ušće Slatinske Reke** – situation plan (JOVANOVIĆ et al. 1986, fig. 1).  
 280 – (29A) **Ušće Slatinske Reke** – *burgus* (JOVANOVIĆ et al. 1986, fig. 7).  
 281 – (29B) **Ušće Slatinske Reke** – *quadriburgium* (JOVANOVIĆ et al. 1986, fig. 12).
67. Gazetteer  
 282 – (30) **Mihajlovac-“Blato”** – plan (TOMOVIĆ 1986, fig. 1, scale absent).  
 283 – (30) **Mihajlovac-“Blato”** – plan and section of the NW inner-pillar (TOMOVIĆ 1986, fig. 14, scale absent).
68. Gazetteer  
 284 – (31) **Mihajlovac-“Mora Vagei”** – excavation plan with the position of the Early and Late Roman *burgi* (CERMANOVIĆ-KUZMANOVIĆ, STANKOVIĆ 1986, fig. 1).  
 285 – (31) **Mihajlovac-“Mora Vagei”** – plan of the Late Roman *burgus* (CERMANOVIĆ-KUZMANOVIĆ, STANKOVIĆ 1986, plan I).
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 286 – (31) **Mihajlovac-“Mora Vagei”** – walls in section (CERMANOVIĆ-KUZMANOVIĆ, STANKOVIĆ 1986, plan III).  
 287 – (31) **Mihajlovac-“Mora Vagei”** – underground structure along the Northern wall (CERMANOVIĆ-KUZMANOVIĆ, STANKOVIĆ 1986, plan II).
70. Gazetteer  
 288 – (32) **Borđej** – plan (CERMANOVIĆ-KUZMANOVIĆ, STANKOVIĆ, fig. 208).  
 289 – (32) **Borđej** – Eastern wall detail (CERMANOVIĆ-KUZMANOVIĆ, STANKOVIĆ 1984, fig. 209).
71. Gazetteer  
 290 – (33) **Ostrovul Mare** – plan (DAVIDESCU 1989, fig. 36, scale absent).  
 291 – (34) **Radujevac** – plan (JANKOVIĆ 1981, fig. 17).
72. Gazetteer  
 292 – (37) **Batin** – plan (STANČEV 1999, Abb. 1).  
 293 – (39) **Nova Černal/Kynton?** – plan (MILČEV 1977, Abb. 1).
73. Gazetteer  
 294 – (42) **Gârliciu/Cius** – plan according to Gr. Tocilescu (ZAHARIADE, GUDEA 1997, fig. 58).  
 295 – (44) **Peceneaga** – plan according to P. Polonic (ZAHARIADE 1999, fig. 4.26, scale absent).
74. Gazetteer  
 296 – (45) **Traian** – plan according to P. Polonic (ZAHARIADE 1999, fig. 4.27, scale absent).  
 297 – (46) **Jijila** – plan according to P. Polonic (ZAHARIADE 1999, fig. 4.28).
75. Gazetteer  
 298 – (47) **Garvăn/Dinogetia** – fort plan with the position of the *burgus* (BARNEA AL. 1986, fig. 3).  
 299 – (47) **Garvăn/Dinogetia** – *burgus*, detailed plan (TORBATOV 2002, fig. 15).
76. Gazetteer  
 300 – (51) **Dunavățu de Jos** – plan according to Al. Barnea (IONESCU, PAPUC 2005, fig. XIX).

- 301 – (52) **Enisala-“Palanca”** – plan according to P. Polonic (ŞTEFAN 1977c, fig. 2).  
 302 – (52) **Enisala-“Palanca”** – restitution from aerial photograph (ŞTEFAN 1977c, fig. 9).
77. Gazetteer  
 303 – (53) **Bisericuța Island** – plan according to S. Ionescu (CCA 2000, pl. 31).
78. Gazetteer  
 304 – (54) **Ovidiu** – site plan (2008)
79. Gazetteer  
 305 – (58A) **Cape Șabla 1/Caria** – plan (TORBATOV 2002, fig. 39).  
 306 – (58B) **Cape Șabla 2/Kreas** – plan (TORBATOV 2002, fig. 40).  
 307 – (59) **Balčik-“Tuzlata”** – plan (TORBATOV 2002, fig. 66).
80. Gazetteer  
 308 – (60) **Șkorpilovci** – situation plan according to M. Mirčev (apud RAŠEV 1982, Tabl. III/4).  
 309 – (60) **Șkorpilovci** – a) corner-towers and b) gate, according to architect D. Săselov (apud ȘTEREVA et al. 2001, fig. 102–103).
81. Gazetteer  
 310 – (63) **Medvedjal/Idimum** – situation plan (VASIĆ, MILOŠEVIĆ 2000, fig. 46).  
 311 – (63) **Medvedjal/Idimum** – graphic restitution (VASIĆ, MILOŠEVIĆ 2000, fig. 47).
82. Gazetteer  
 312 – (64) **Puținei** – plan (DAVIDESCU 1989, fig. 33, scale absent).  
 313 – (65) **Vidrovgrad** – plan (JANKOVIĆ 1981, fig. 19).
83. Gazetteer  
 314 – (66) **Kula** – *quadriburgium* and *castellum* (ATANASOVA 2005, fig. 1).  
 315 – (66) **Kula** – *quadriburgium* (ATANASOVA 2005, fig. 2).
84. Gazetteer  
 316 – (67) **Podvis** – situation plan (PETROVIĆ P. 1994–1995, fig. 4).  
 317 – (68) **Orešac** – situation plan (PETROVIĆ P. 1994–1995, fig. 3).
85. Gazetteer  
 318 – (70) **Kostinbrod/Kratiskara** – Constantinian residence (DINČEV 2003, fig. 6).  
 319 – (70) **Kostinbrod/Kratiskara** – the 6<sup>th</sup> c. *castellum* (DINČEV 2003, fig. 8).
86. Gazetteer  
 320 – (71) **Trajanova Vrata-“Markova Mehana”** – plan, redrawn after D. Mitova-Džonova (DINČEV 2006, fig. 89 = DINČEV 2007 a, fig. 46).  
 321 – (72) **Pirdop** – plan, redrawn after P. Mutafčief (DINČEV 2006, fig. 95 = DINČEV 2007 a, fig. 50).
87. Gazetteer  
 322 – (73) **Drenkovo** – plan (BOŽINOVA 2008, fig. 1).  
 323 – (74) **Sofia-“Orlandovci”** – plan, redrawn after Iv. Velkov (DINČEV 2006, fig. 94 = DINČEV 2007 a, fig. 49).
88. Gazetteer  
 324 – (76) **Bistrica** – plan (DODOV 1926–1927, fig. 119).  
 325 – (77) **Pernik-“Bela Voda”** – plan (MULVIN 2002, fig. 53).
89. Gazetteer  
 326 – (78) **Bregovina** – plan (MILINKOVIĆ 1999, fig. 2).  
 327 – (79) **Štulac/Taurision?** – situation plan (ERCEGOVIĆ-PAVLOVIĆ, KOSTIĆ 1988, p. 44).
90. Gazetteer  
 328 – (81) **Kozjak-“Cvilig”** – plan (MIKULČIĆ 2002, Abb. 305).  
 329 – (82) **Radanja** – plan (MIKULČIĆ 2002, Abb. 310).  
 330 – (83) **Ras** – plan (POPOVIĆ M. 1999, fig. 20).

91. Gazetteer  
 331 – (84) **Gorno Svilari** – plan (MIKULČIĆ 2002, Abb. 58).  
 332 – (85) **Ljubanci** – plan (MIKULČIĆ 2002, Abb. 62).
92. Gazetteer  
 333 – (86) **Zelenikovo** – plan (MIKULČIĆ 2002, Abb. 92).  
 334 – (87) **Pakoševo** – plan (MIKULČIĆ 2002, Abb. 70).
93. Gazetteer  
 335 – (88) **Slava Rusă/Ibida** – restitution after aerial photography (ȘTEFAN 1977 b, fig. 2).
94. Gazetteer  
 336 – (89) **Babadag-“Topraichioi”** – plans (ZAHARIADE, OPAIȚ 1986, fig. 5-6).
95. Gazetteer  
 337 – (90) **Mihai Bravu** – plan (OPAIȚ 2004, 109).  
 338 – (91) **Mircea Vodă** – plan (COMȘA 1957, fig. 1).
96. Gazetteer  
 339 – (92) **Castelu** – plan of excavated area (T. Cliante).  
 340 – (93) **Poiana** – aerial photography (CRĂCIUN 2008, fig. 2b).
97. Gazetteer  
 341 – (94) **Tvărdica/Țimogitia** – plan according to K. Škorpil (TORBATOV 2002, fig. 92).  
 342 – (95) **Obročiste** – plan (TORBATOV 2002, fig. 109).  
 343 – (96) **Debrené II** – plan (TORBATOV 2002, fig. 97).
98. Gazetteer  
 344 – (97) **Kotel-“Hajdut Vărbăniș”** – situation plan (LISICOV, MARKOV 1981, fig. 13).  
 345 – (99) **Panicovo-“Fidan Punar”** – situation plan according to K. Škorpil (PRESHLENOV 2001, fig. 11).
99. Gazetteer  
 346 – (100) **Sopot-“Hissarlâk”** – plan (DŽAMBOV 2005, fig. 2, scale absent).  
 347 – (101) **Pomoštnik** – plan (DINČEV 2008, fig. 1).  
 348 – (102) **Mineralni Bani** – plan, redrawn after D. Aladžov (DINČEV 2006, fig. 78 = DINČEV 2007 a, fig. 38).
100. Gazetteer  
 349 – (103) **Ljubenovo** – plan (BORISOV 2001, fig. 7).  
 350 – (105) **Djadovo** – plan, redrawn after B. Borisov (DINČEV 2006, fig. 85 = DINČEV 2007 a, fig. 42).
101. Gazetteer  
 351 – (106) **Küçük Bedesten**, (107) **Büyük Bedesten** – plans according to C. Schuchhardt (NAPOLI 1997, fig. 275).  
 352 – (106) **Küçük Bedesten**, (107) **Büyük Bedesten**, (108) **Bedesten Tepe** – plans according to F. Dirimtekin (NAPOLI 1997, fig. 277).  
 353 – (106) **Küçük Bedesten** – plan according to J. Crow and A. Ricci (redrawn by DINČEV 2006, fig. 83).
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102. Typology, chronology, architectural elements  
 354 – **Early Roman towers, reused in the 4<sup>th</sup> c.:** Lepenski Vir, Korbovo, Ras (after SREJOVIĆ 1982–1983, fig. 1; BABOVIĆ 1990, fig. 2; POPOVIĆ M. 1999, fig. 20).  
 355 – **Late Roman towers (4<sup>th</sup> c.) – a) medium-sized:** Pesača, Kozjak-Cvilig, Radanja, Pomoštnik (after MINIĆ 1982–1983, fig. 1; MIKULČIĆ 2002, Abb. 305, 310; DINČEV 2008, fig. 1) – compared with Koblenz-“Kleiner Laufen”, Au-Hard, Oberes Bürgli (DRACK 1993, nos. 27, 2, 21), Mauthen (CIGLENECKI 1987, Abb. 47);  
**b) large-sized:** Malo Golubinje-“Nešin potok” (JEREMIĆ G. 2007, fig. 2.3) – compared with Jüppe, Tägerbach, Ratihard (DRACK 1993, nos. 23, 31, 50).
103. Typology, chronology, architectural elements  
 356 – **Towers with exterior courtyard:** Pesača (MINIĆ 1982–1983, fig. 1) – compared with Zaviet Msus (GOODCHILD 1953, fig. 17), Kozjak-Cvilig and Radanja (MIKULČIĆ 2002, Abb. 305, 310) **or connected building:** Pomoštnik (DINČEV 2008, fig. 1).

104. Typology, chronology, architectural elements  
 357 – **Burgi type 1 – simple (large tower)**: Hajdučka Vodenica (after JOVANOVIĆ 1982–1983, fig. 1) – compared with Finningen-NeuUlm (MACKENSEN 1999, fig. 7.22), Passau-Haibach (after MOOSBAUER 1997, Abb. 51), Rheinsulz (DRACK 1993, no. 16A), Bacharnsdorf (UBL 1997 a, Abb. 74), Vrhnika-Turnovšče (CIGLENECKI 1987, Abb. 124), Qasr Abu Rukba (source indicated at fig. 160).
105. Typology, chronology, architectural elements  
 358 – **Burgi type 2**: Zidinac (after PETROVIĆ P. 1982–1983 a, fig. 1).  
 359 – **Burgi type 3**: Batin (STANČEV 1999, Abb. 1) – compared with Szentendre-Dera patak and Bač (MÓCSY 1974, Abb. 46.5, 46.9).
106. Typology, chronology, architectural elements  
 360 – **Burgi type 4 a – with tetrapylon (Tetrarchic)**: Kladovo-“Donje Butorke” (after JANKOVIĆ 1981, fig. 28), Ljubičevac (after KORAC 1996, fig. 3), Mihajlovac-“Mora Vagei” (CERMANOVIĆ-KUZMANOVIĆ, STANKOVIĆ 1986, plan I) – compared with Zeiselmauer (UBL 1977, Abb.2).
107. Typology, chronology, architectural elements  
 361 – **Burgi type 4 b – with tetrapylon (Valentinian I/Valens)**: Ušće Slatinske Reke (JOVANOVIĆ et al. 1986, fig. 7), Mihajlovac-“Blato” and Bordej (VASIĆ, KONDIĆ 1986, figs. 17, 19)– compared with Stelli (DRACK 1993, no. 9), Visegrád-Lepence (GRÓF, GRÓH 1998–1999, Abb. 2), Leányfalu, Budakalász (SOPRONI 1985, Abb. 19, 26), Öcsény (PÉTERFI 2003, 178), Moers-Asberg (BRULET 2006 a, fig. 153.5), Asperden (PETRIKOVITS 1971, fig. 28.2).
108. Typology, chronology, architectural elements  
 362 – **Burgi – variants to type 4 a and 4 b**: Rtkovo-“Glamija” (after GABRIČEVIĆ 1986, plan II).  
 363 – **Burgi – variants to type 4 a and 4 b**: Garvăn/*Dinogetia* (TORBATOV 2002, fig. 15) – compared with Hulsberg (BRULET 1990, fig. 50).
109. Typology, chronology, architectural elements  
 364 – **Burgi type 5 – with divided internal space**: Babadag-“Topraichoi” (ZAHARIADE, OPAIȚ 1986, fig. 6), Pakoševo (after MIKULČIĆ 2002, Abb. 70) – compared with Eisenberg (BERNHARD 1981, Abb. 8) and Frauenberg-Weltenburg (MACKENSEN 1999, fig. 7.23).
110. Typology, chronology, architectural elements  
 365 – **Mixture Burgus/Quadrburgium** : Bistrica (DODOV 1926–1927, fig. 119), Podvis (after PETROVIĆ P. 1994–1995, fig. 4), Drenkovo (BOŽINOVA 2008, fig. 1) – compared with Kleinbasel (FELLMANN 2006 b, fig. 218), Untersaal (after JOHNSON 1983, fig. 65 and GARBSCH 1967, Abb. 6), En Boqeq (GICHON 1993, pl. III), Upper Zohar (HARPER 1995, fig. 2).
111. Typology, chronology, architectural elements  
 366 – **Quadrburgia – 4<sup>th</sup> c. – Tetrarchic period**: Kula (ATANASOVA 2005, fig. 2) – compared with fortified palaces at Vrelo-Šarkamen (after SREJOVIĆ et al. 1996, fig. 3) and Gamzigrad (SREJOVIĆ 1993, fig. 8).
112. Typology, chronology, architectural elements  
 367 – **Quadrburgia – 4<sup>th</sup> c. – Constantine and successors**: Mihai Bravu (OPIȚ 2004, 109) – compared with Visegrád-Gizellamajor (GRÓH, GRÓF 2003, 91), Qusair as-Saila/*Tetrapyrgium* (KONRAD 2001, Beil.), Khan el-Hallabat (after Poidebard, apud REDDÉ 1995, fig. 15) and Khan el-Abyad (after Poidebard, apud TORBATOV 2004, fig. 3).
113. Typology, chronology, architectural elements  
 368 – **Quadrburgia – 4<sup>th</sup> c. – Constantine and successors**: Gornea (GUDEA 1977, fig. 2), Hinova (DAVIDESCU 1989, fig. 1), Tekija (redrawn after CERMANOVIĆ-KUZMANOVIĆ, JOVANOVIĆ 2004, fig. 4), Orșova (after GUDEA 1974, Abb. 2.3).
114. Typology, chronology, architectural elements  
 369 – **Quadrburgia – 4<sup>th</sup> c. – Constantine and successors**: Ravna (redrawn after VASIĆ, KONDIĆ 1986, fig. 24), Porečka Reka (PETROVIĆ P. 1977, fig. 3/1), Nova Černa A (redrawn after MILČEV 1977, Abb. 1), Cape Šabla 1 (TORBATOV 2002, fig. 39), Sofija-“Orlandovci” (DINČEV 2006, fig. 94), Pernik-“Bela Voda” (MULVIN 2002, fig. 53).

115. Typology, chronology, architectural elements  
 370 – **Quadrburgia** – 6<sup>th</sup> c. – **Iron Gates fortifications**: Dobra-“Saldum”, Malo Golubinje, Hajdučka Vodenica, Kladovo-“Donje Butorke”, Ušće Slatinske Reke, Milutinovac, Rtkovo-“Glamija”, Ljubicevac (after VASIĆ, KONDIĆ 1986, figs. 15, 16, 25a, 25b, 27, 28; CERMANOVIĆ-KUZMANOVIĆ 1977–1978, fig. 1; KORAČ 1996, fig. 3).
116. Typology, chronology, architectural elements  
 371 – **Quadrburgia** – late 5<sup>th</sup>-6<sup>th</sup> c. : Ravna (TOMOVIĆ 1996, map I), Sip (JANKOVIĆ 1981, fig. 39), Radujevac (JANKOVIĆ 1981, fig. 17), Vidrovgrad (JANKOVIĆ 1981, fig. 19), Ovidiu, Pirdop (DINČEV 2006, fig. 95), Ljubenov (BORISOV 2001, fig. 7), Djadovo (DINČEV 2006, fig. 85).
117. Typology, chronology, architectural elements  
 372 – **Small castella** – **rectangular plan**: Sapaja Island (VASIĆ, KONDIĆ 1986, fig. 20), Boljetin (ZOTOVIĆ 1982–1983, fig. 2), Nova Černa B (MILČEV 1977, Abb. 1), Cape Šabla B (TORBATOV 2002, fig. 40), Sopot-“Hissarlâk” (after DŽAMBOV 2005, fig. 2).
118. Typology, chronology, architectural elements  
 373 – **Small castella** – **polygonal plan, with regular tendency**: Kostinbrod/*Kratiskara* (DINČEV 2003, fig. 8), Bregovina (MILINKOVIĆ 1999, fig. 2), Trajanova Vrata-“Markova Mehana” (DINČEV 2006, fig. 89), Debrene II (TORBATOV 2002, fig. 97), Tvârdica/*Timogitia* (TORBATOV 2002, fig. 92).
119. Typology, chronology, architectural elements  
 374 – **Small castella** – **polygonal plan, totally adapted to the terrain**: Dunavâtu de Jos (IONESCU, PAPUC 2005, fig. XIX), Obročište (TORBATOV 2002, fig. 109), Gorno Svilari (MIKULČIĆ 2002, Abb. 58), Zelenikovo (MIKULČIĆ 2002, Abb. 92).
120. Typology, chronology, architectural elements  
 375 – **Small castella** – **triangular plan**: Bosman (KONDIĆ 1982–1983, fig. 1), Brza Palanka-“Castellum III” (capture from PETROVIĆ P. 1984, fig. 141), Bisericuța Island (CCA 2000, pl. 31), Ljubanci (MIKULČIĆ 2002, Abb. 62).
121. Typology, chronology, architectural elements  
 376 – **Round corner-towers** (4<sup>th</sup> c.): Kula, Gamzigrad, Čezava/*Novae*, Dolenci (bibliographical references at p. 159–160).  
 377 – **Fan-shaped corner-towers** (4<sup>th</sup> c.): Mihai Bravu, Visegrád-Gizellamajor, Qusair as-Saila, Khan el-Hallabat, Khan el-Abyad, El-Lejjun, Passau-Innstadt/*Boiotro*, *Contra Aquincum*, *Gorsium*, Alsóhetény, *Abrittus* (bibliographical references at p. 160, n. 72).
122. Typology, chronology, architectural elements  
 378 – **Corner-towers with lateral-type entrance**: 4<sup>th</sup> c. (Gornea, Hinova, Ravna, Porečka Reka, Qasr el-Hallabat) and 6<sup>th</sup> c. (El-Habbat, El-Anderin-“South Church”) – bibliographical references at p. 161, n. 78.  
 379 – **Corner-towers with diagonal-type entrance**: 4<sup>th</sup> c. (Tekija, Orșova) and 6<sup>th</sup> c. (*Uppenna*, *Tubernuc*) – bibliographical references at p. 162, n. 81.  
 380 – **Gates – comparative 4<sup>th</sup> c. plans**: Gornea, Bourada, Umm el-Jimal (bibliographical references at p. 161, n. 77).
123. Typology, chronology, architectural elements  
 381 – **Wall thickening for access staircase** (late 5<sup>th</sup> – 6<sup>th</sup> c.): *Karasura*, *Iustiniana Prima* (acropolis), *Pautalia*-“Hissarlâk”, Madara, *Dionysopolis* (Balčik-“Horizont”), Kamen Brijag – Jajlata, *Madauros*, *Ammaedara* (bibliographical references at p. 163–164).
124. Typology, chronology, architectural elements  
 382 – **Circular corner-towers with corridor-type entrance** (6<sup>th</sup> c.): Dobra-“Saldum”, Hajdučka Vodenica, Kladovo-“Donje Butorke”, Rtkovo-“Glamija”, Ušće Slatinske Reke, Škorpilovci, Milutinovac, Ovidiu, *Iustiniana Prima*, Skopje-“Kale” (bibliographical references at p. 164).
125. Typology, chronology, architectural elements  
 383 – **Rectangular corner-towers with corridor-type entrance** (6<sup>th</sup> c.): Ovidiu, Ljubeno, *Thamugadi*, *Thamallula*, *Anastasiana* (bibliographical references at p. 164).  
 384 – **Rectangular corner-towers with lateral-type entrance** (late 5<sup>th</sup>-6<sup>th</sup> c.): Pirdop, *Madauros*, *Gadiaufala*, Ksar Graouch, *Diana Veteranorum* (bibliographical references at p. 164).

126. Typology, chronology, architectural elements

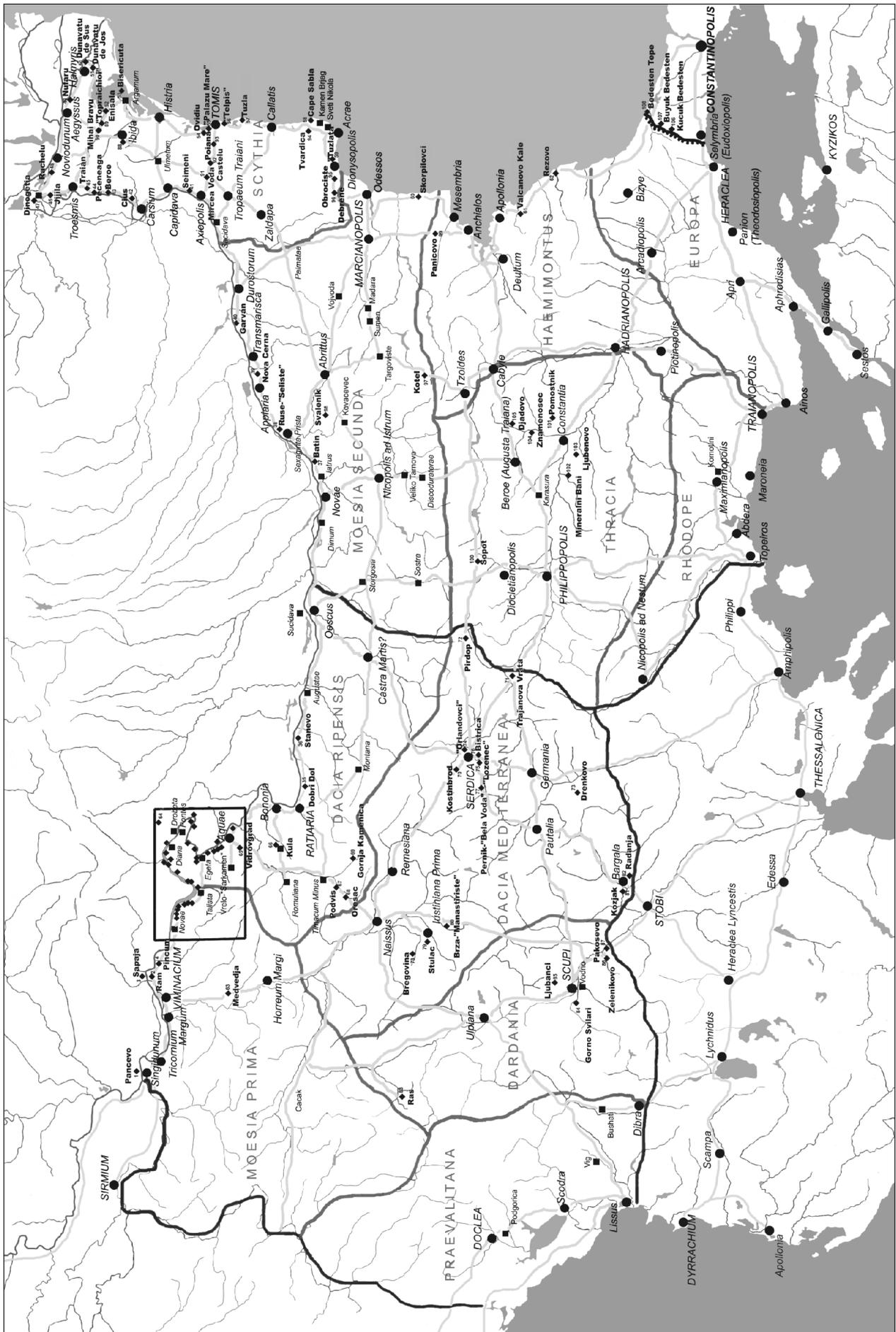
385 – **Rectangular towers with apsidal front (6<sup>th</sup> c.)**: Dobra-“Saldum”, Kadovo-“Donje Butorke”, Ravna, *Apsarus* (bibliographical references at p. 164).

386 – **Tower-gates (5<sup>th</sup> – 6<sup>th</sup> c.)**: Škorpilovci, Djadovo, *Madauros*, *Tubunae*, *Thamugadi*, El-Anderin-“South Church” (bibliographical references at p. 165, n. 99).

127. Typology, chronology, architectural elements

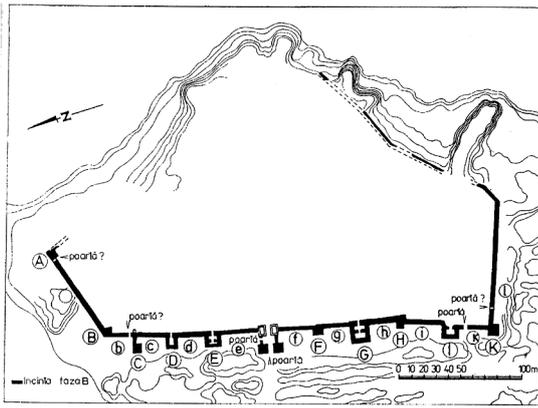
387 – **Pentagonal towers (5<sup>th</sup> – 6<sup>th</sup> c.)**: Hajdučka Vodenica, Ostrovul Mare, Djadovo, Trajanova Vrata-“Markova Mehana, *Mesembria*, *Iustiniana Prima*, Madara, Onhezmos, Resafa (bibliographical references at p. 165, n. 97).



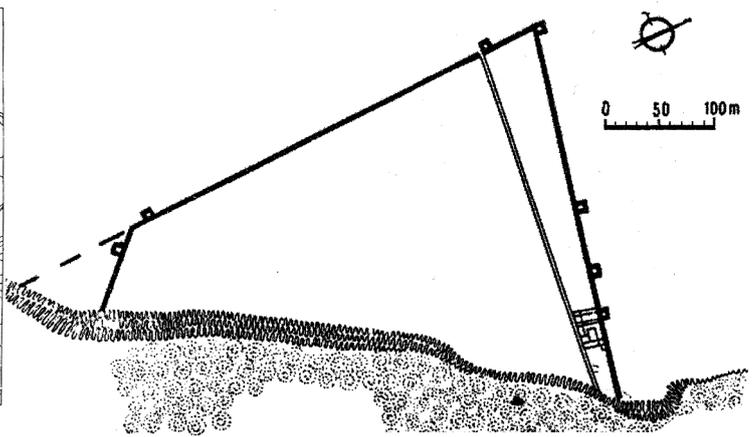


Pl. 1

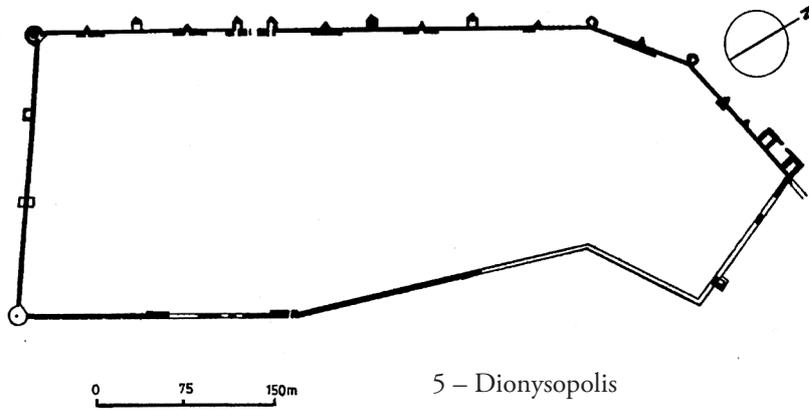




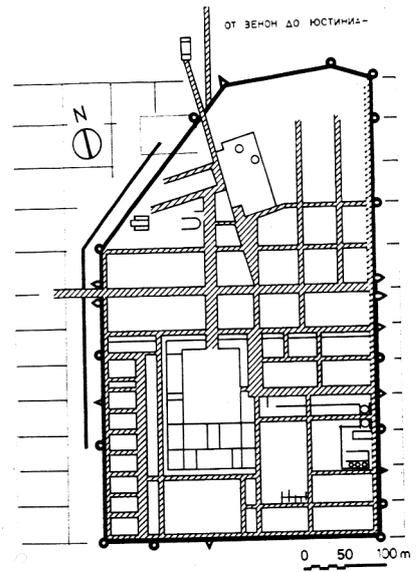
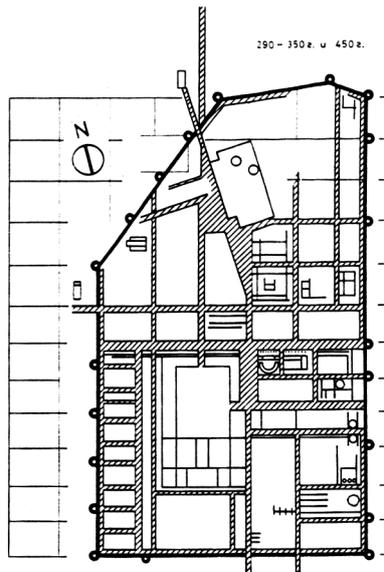
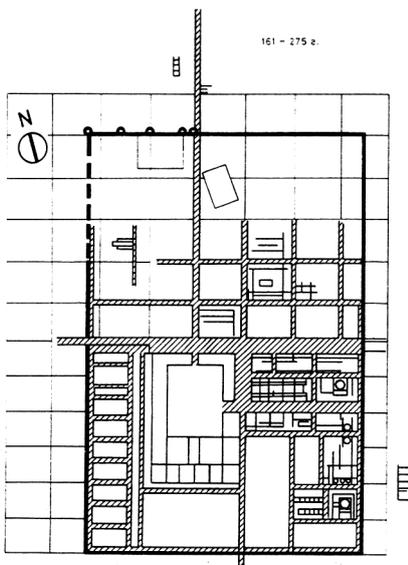
3 – Histria – phase B



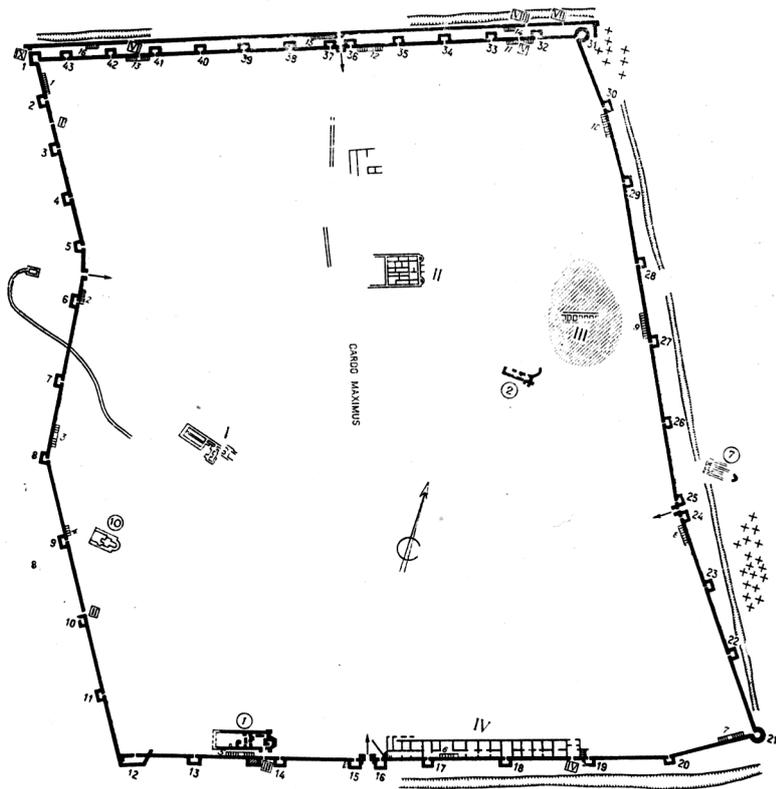
4 – Callatis



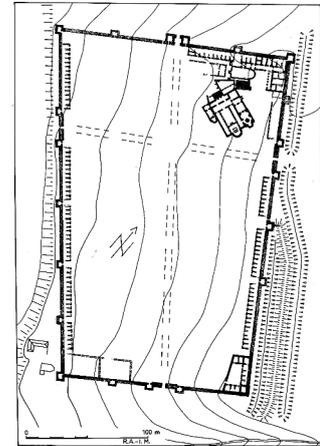
5 – Dionysopolis



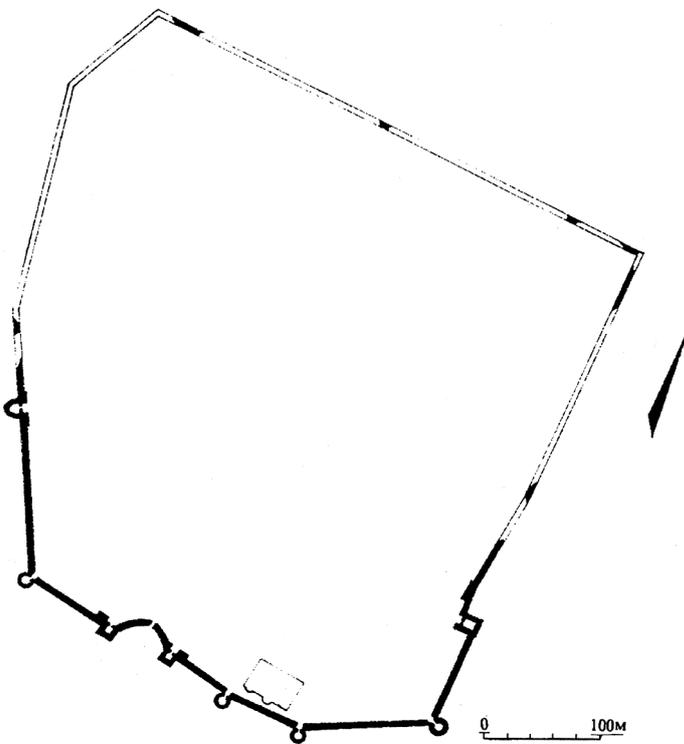
6 – Serdica – phases of the city-wall



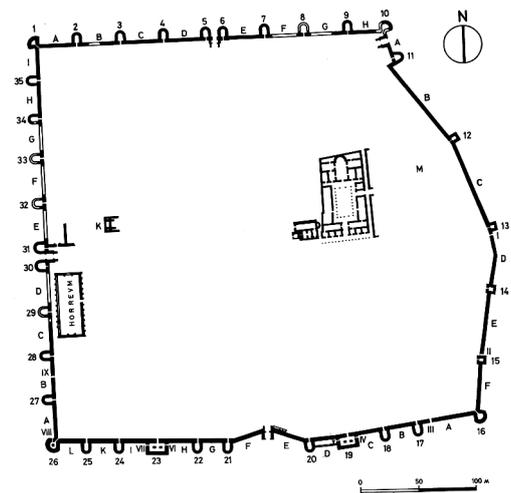
7 – Diocletianopolis



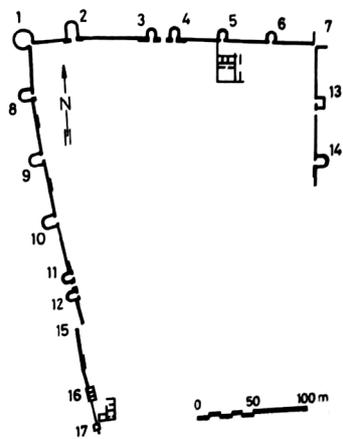
8 – Bargala



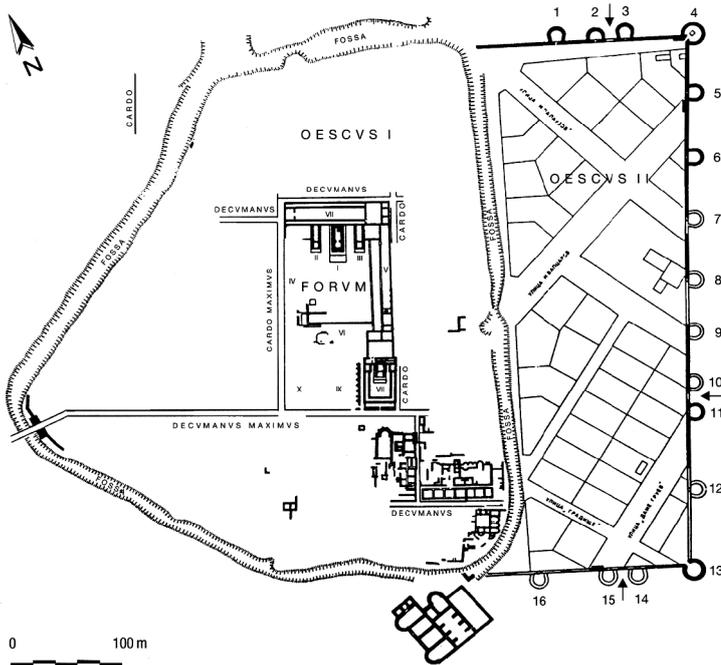
9 – Nicopolis ad Nestum



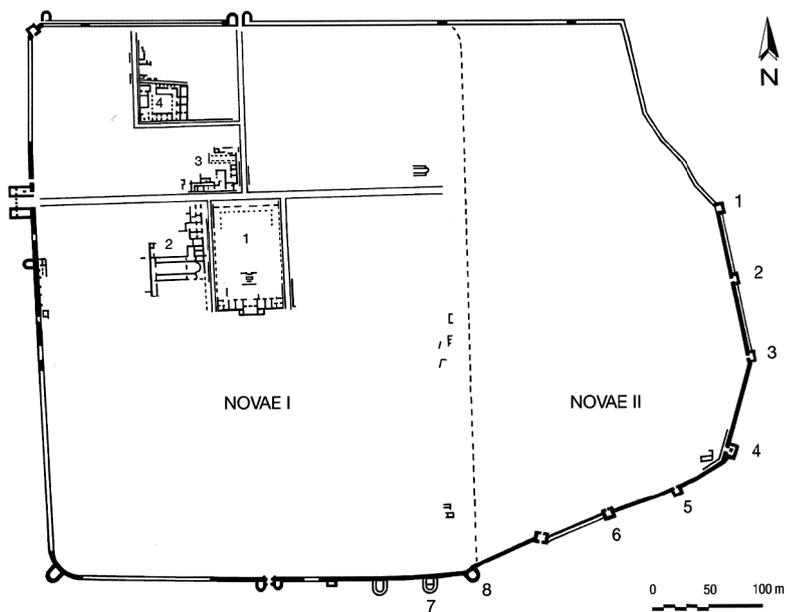
10 – Abrittus



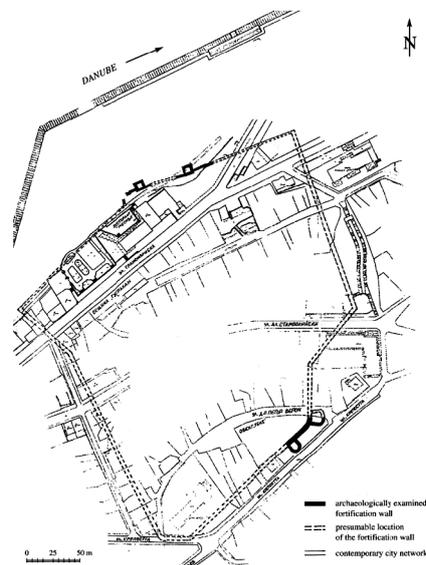
11 – Augustae



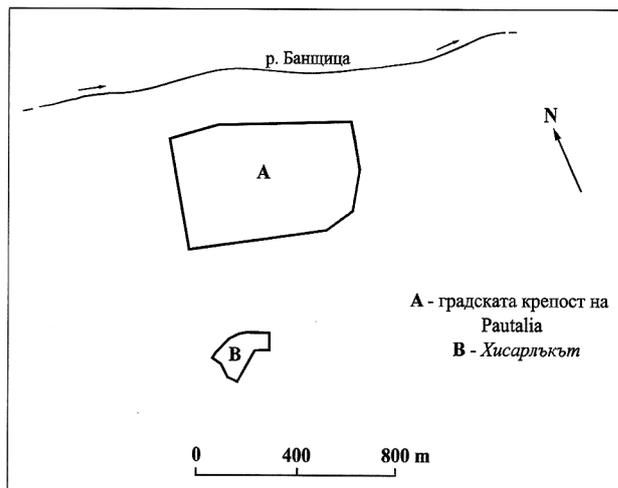
12 – Oescus



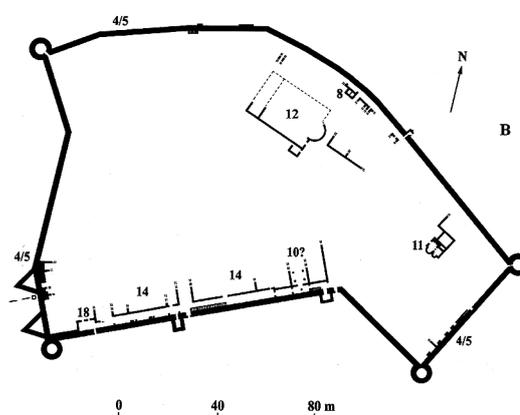
13 – Novae



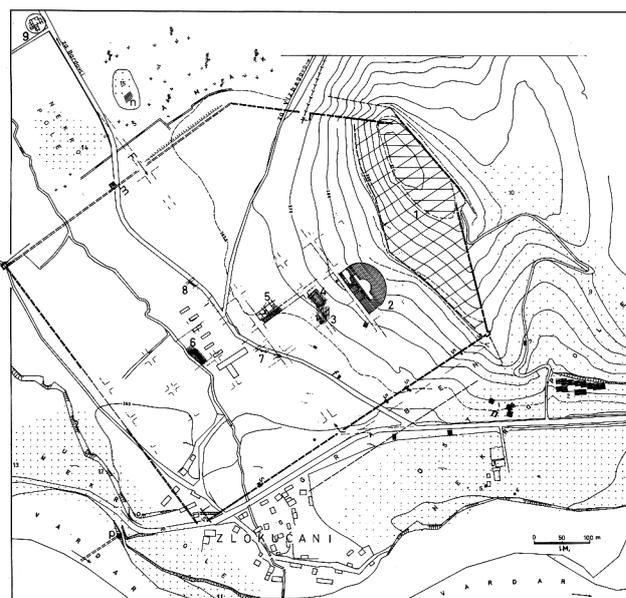
14 – Transmarisca



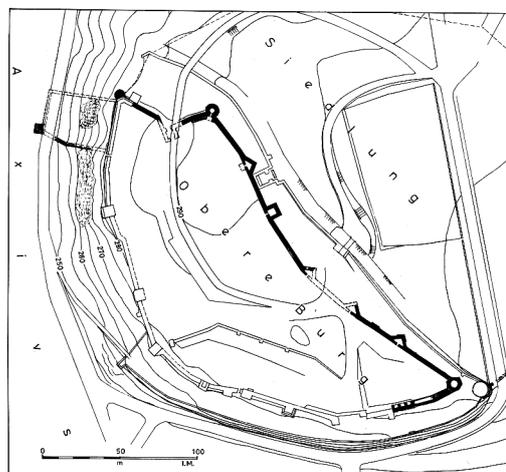
15a – Pautalia – situation plan



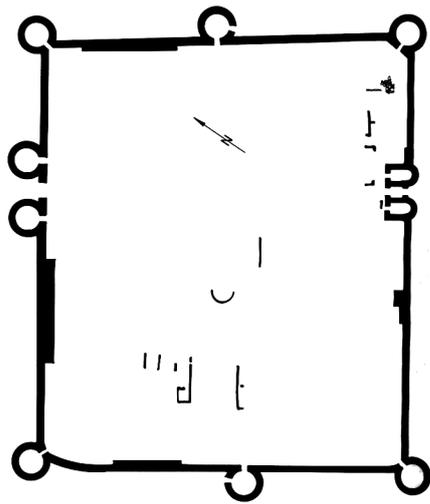
15b – Pautalia – "Hisarlâk"



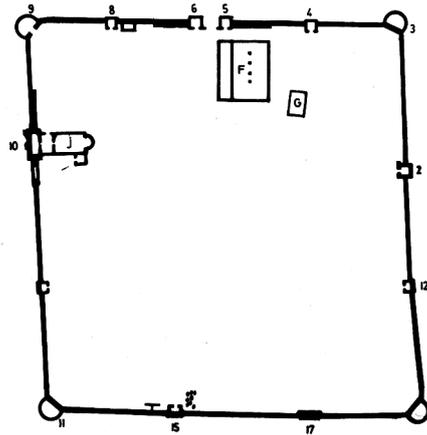
16a – Scupi – Colonia Flavia



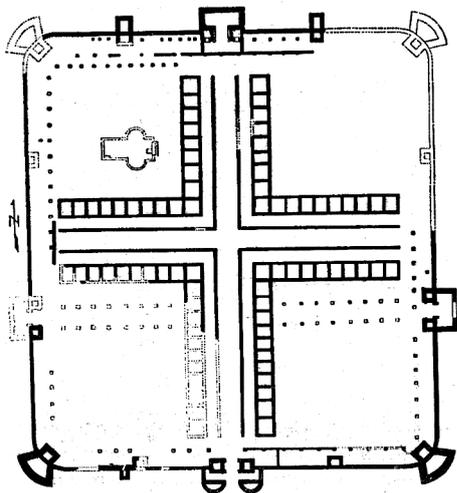
16b – Scupi – "Kale"



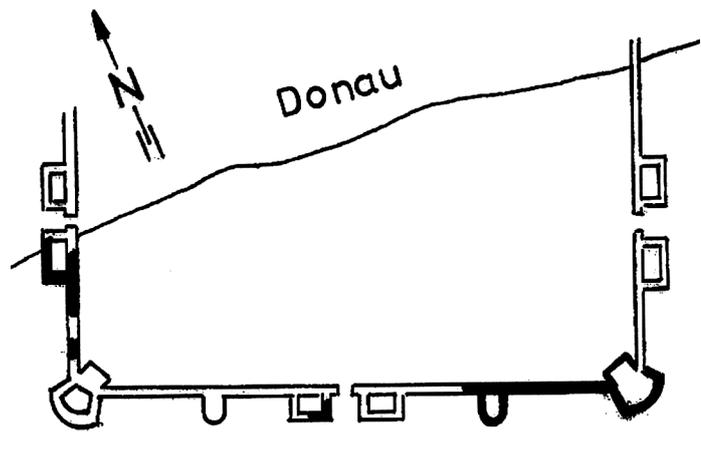
17 – Novae-Čezava



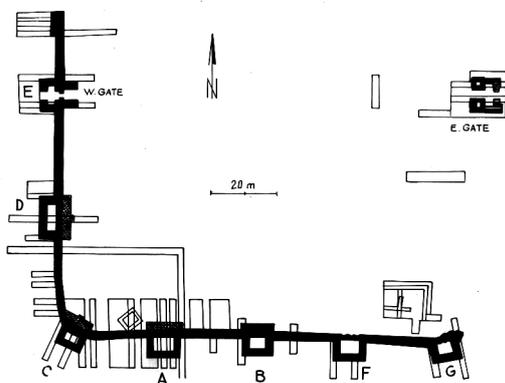
18 – Taliata



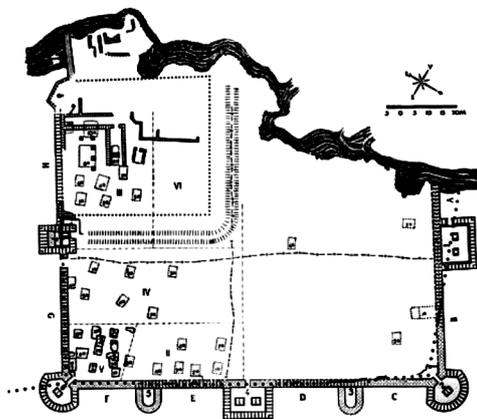
19 – Drobeta



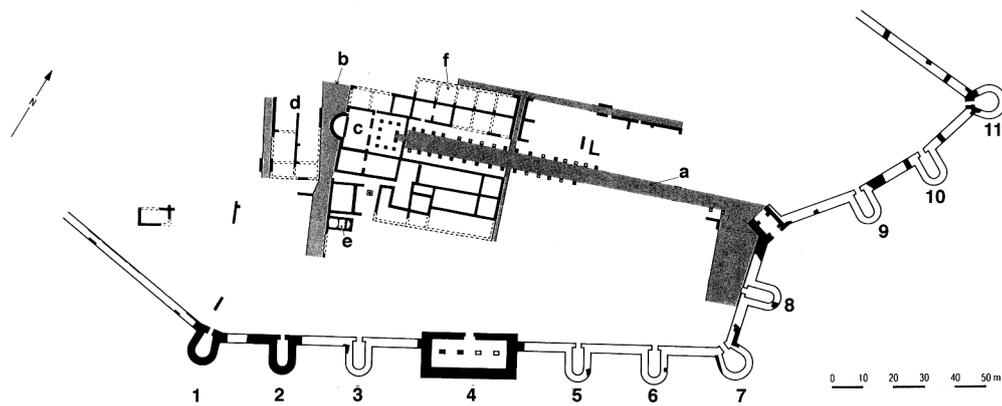
20 – Dimum



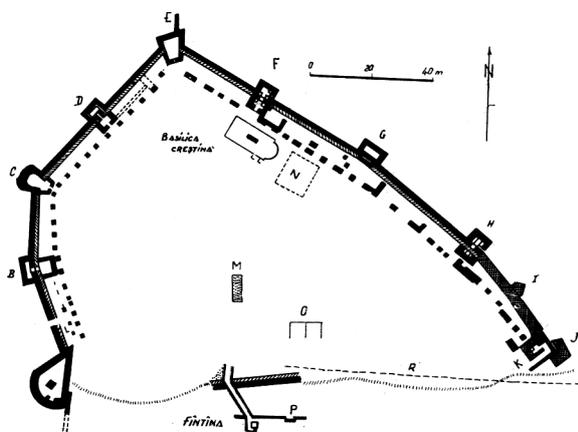
21 – Sacidava



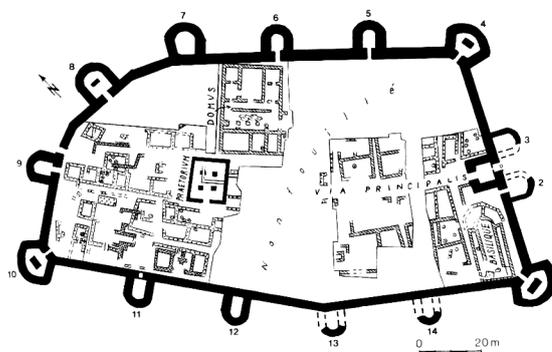
22 – Capidava



23 – Iatrus



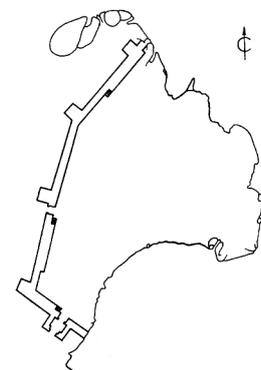
24 – Sucidava-Celei



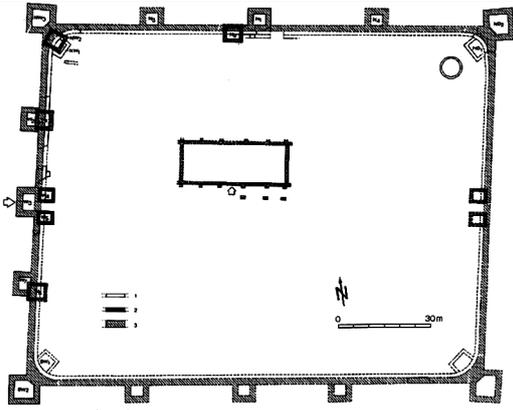
25 – Dinogetia



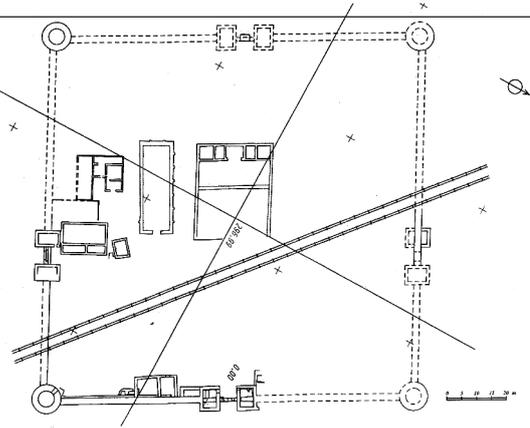
26 – Argamum



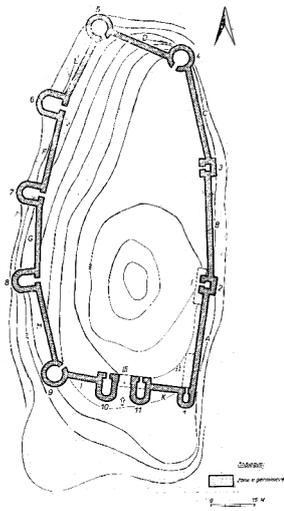
27 – Kamen Brjag-"Jajlata"



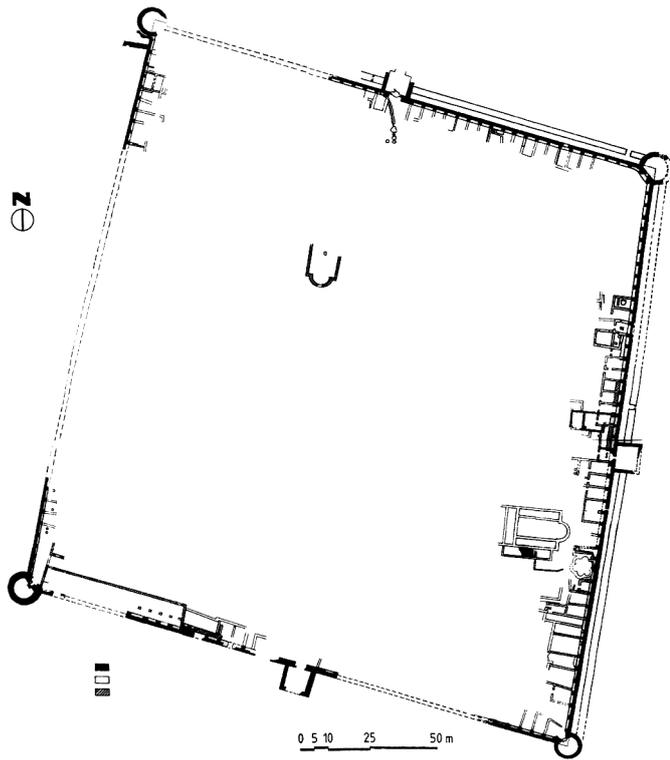
28 – Ravna/Timacum Minus



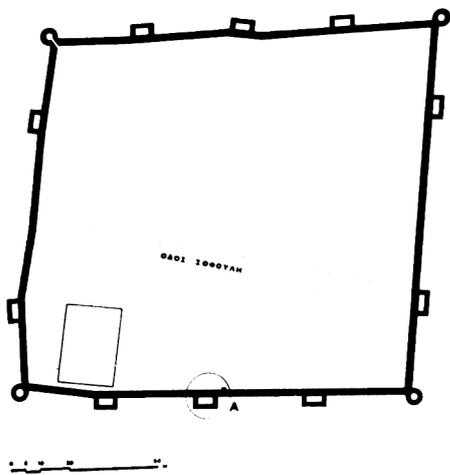
29 – Lomec/Sostra



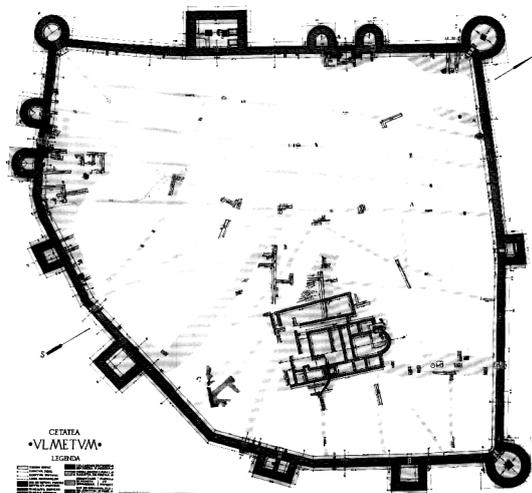
30 – Bushati



31 – Sliven



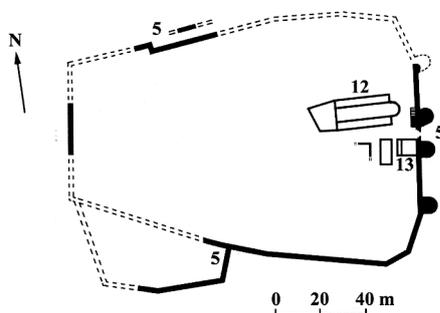
32 – Komotini



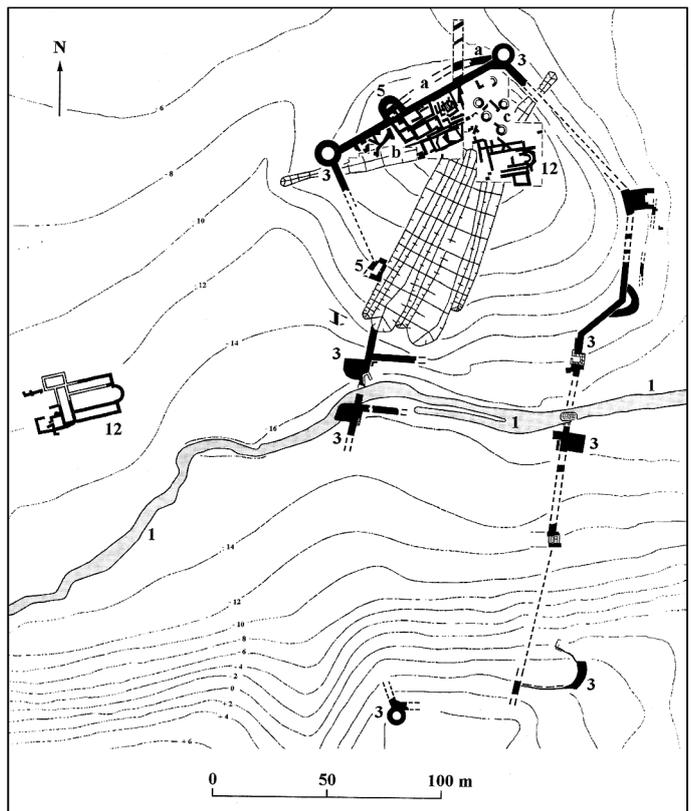
33 – Ulmetum



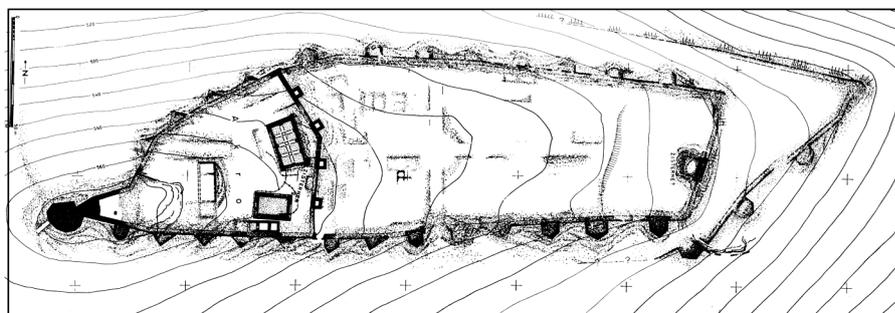
34 – Šumen



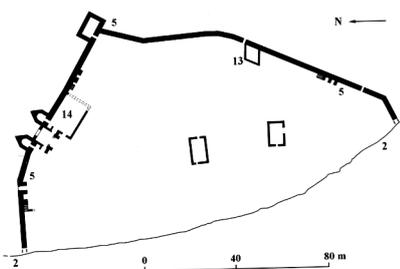
36 – Tărgoviște-’Krumovo Kale’



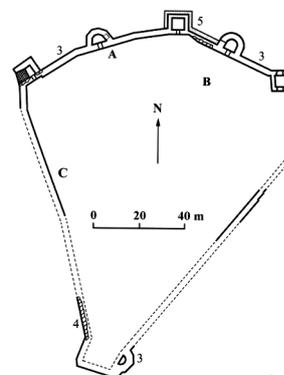
35 – Rupkite-Carassura



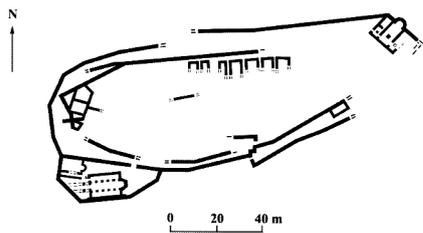
37 – Vodno-’Markovi Kuli’



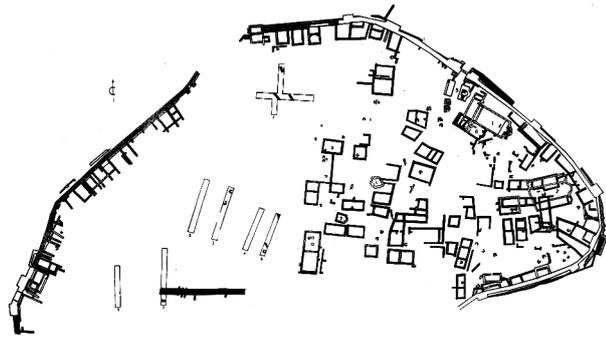
38 – Madara



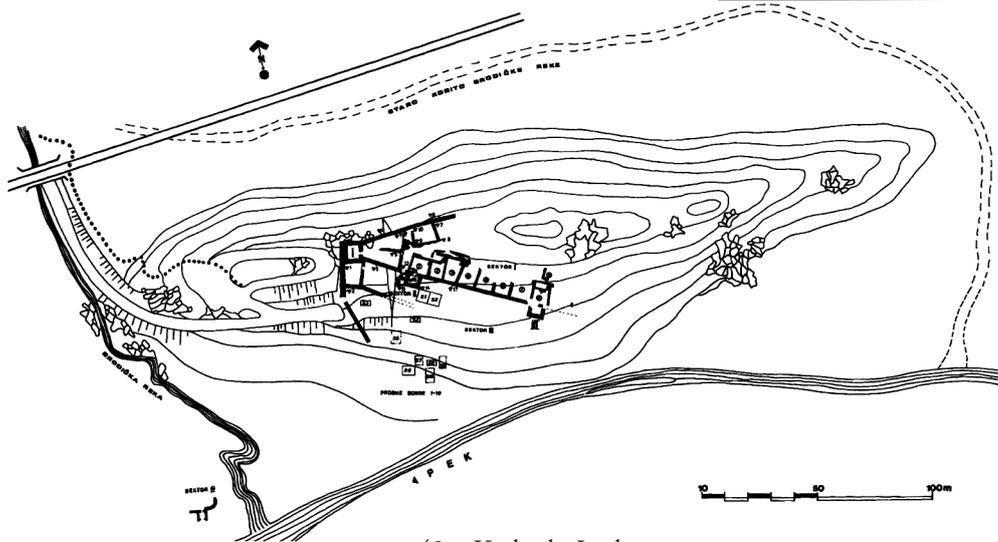
39 – Odărci



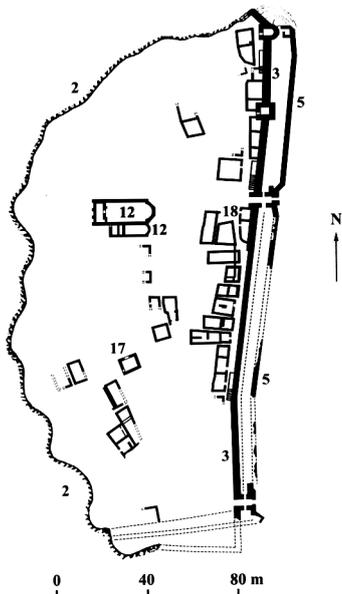
40 – Berkovica



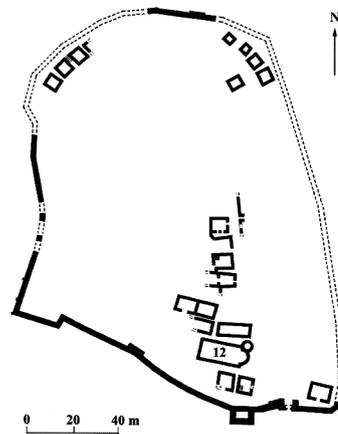
41 – Pernik



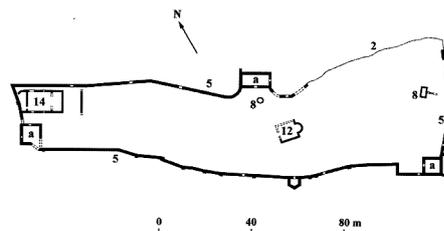
42 – Krakulu Jordan



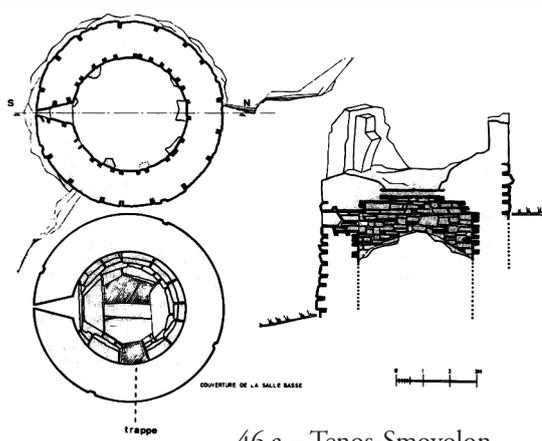
43 – Gabrovo



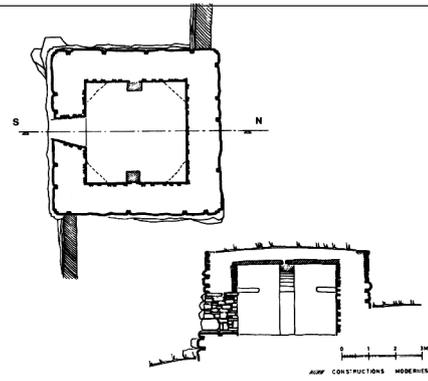
44 – Batoševo



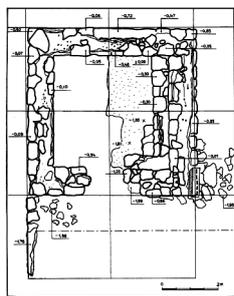
45 – Kipilovo-“Sajgansko Kale”



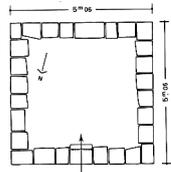
46 a - Tenos-Smovolon



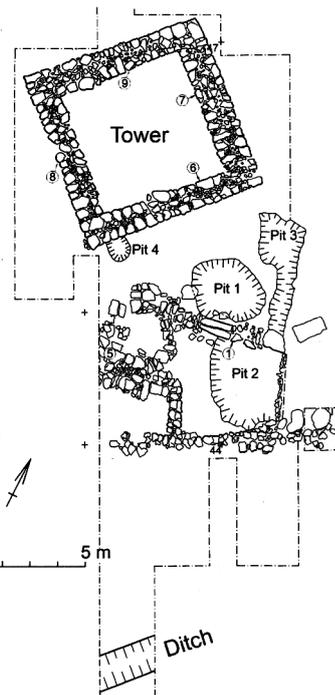
46 b - Tenos-Avdo



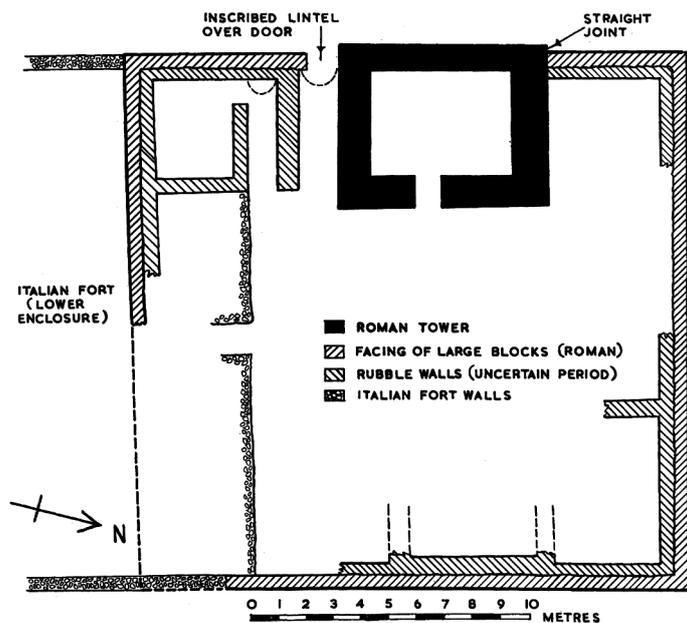
47 - Migdal Tsafit



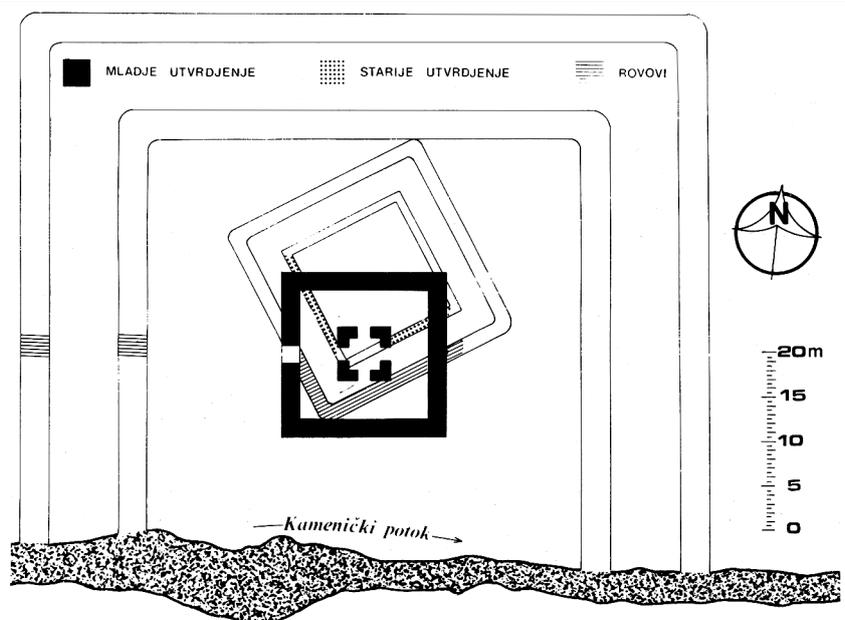
48 - Guebba



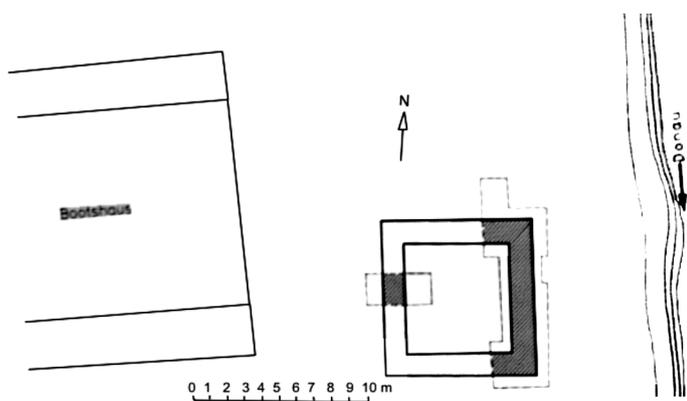
49 - Kavkaz Bair



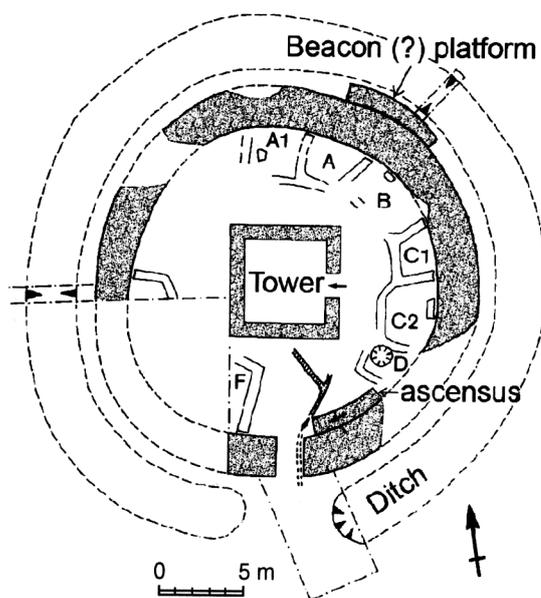
50 - Zaviet Msus



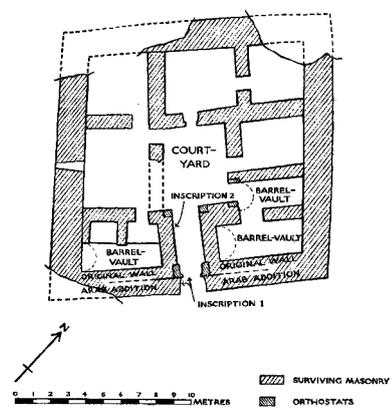
51 – Mihajlovac-“Mora Vagei”



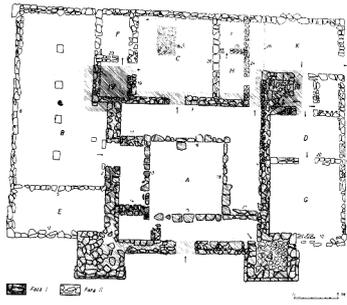
52 – Budapest-Csillaghegy (Kossuth Lajos 59)



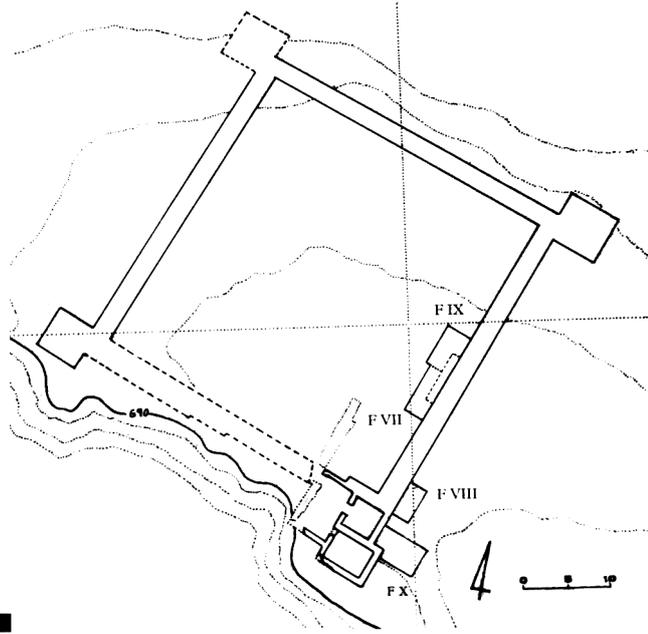
53 – Kazackaja



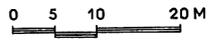
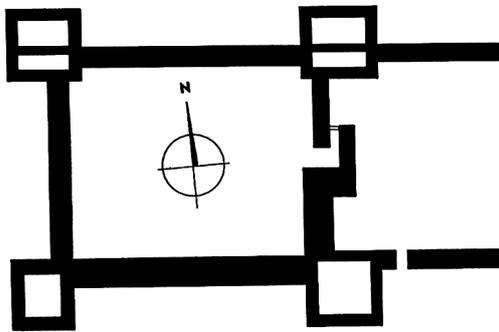
54 – Gasr Duib



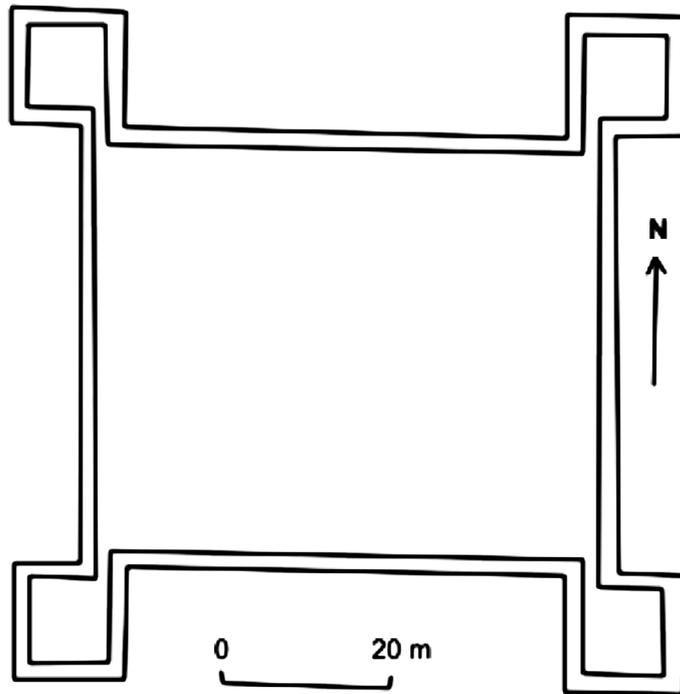
55 – Malathre



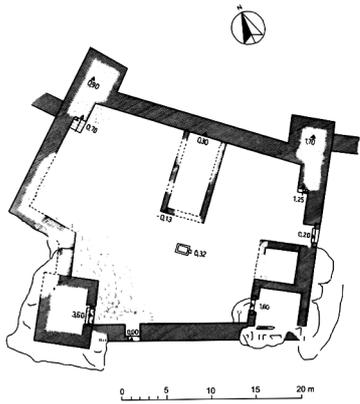
56 – Prusias



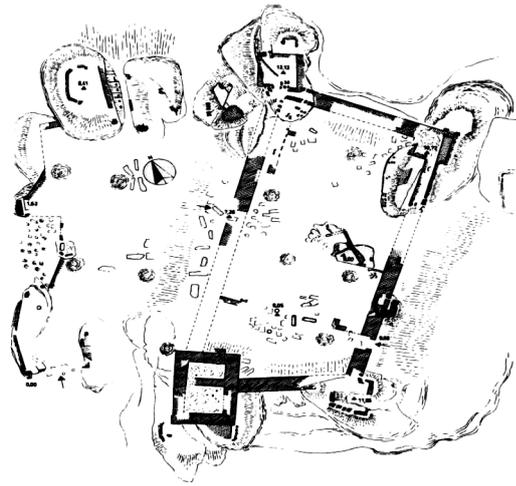
57 – Theangela



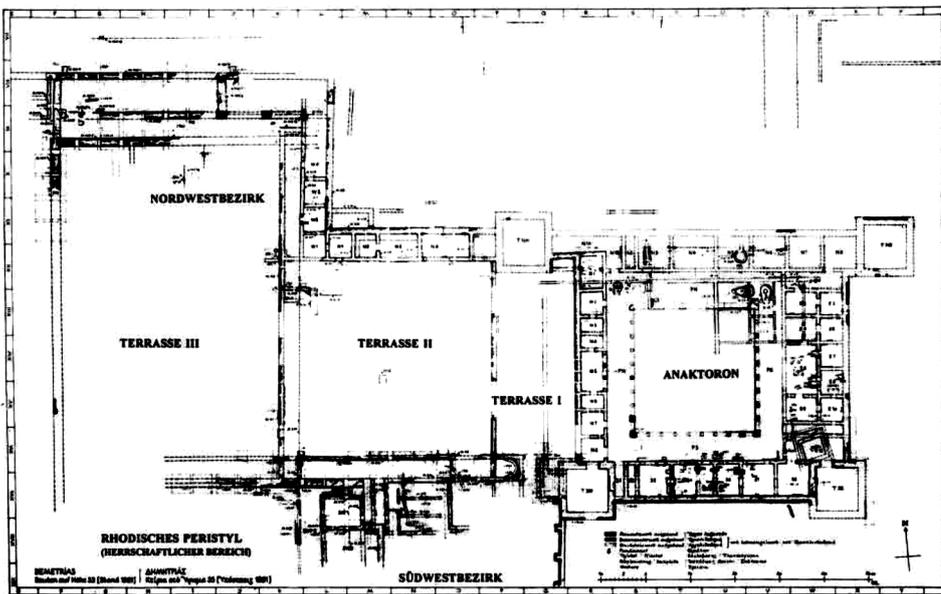
58 – Yeniköy



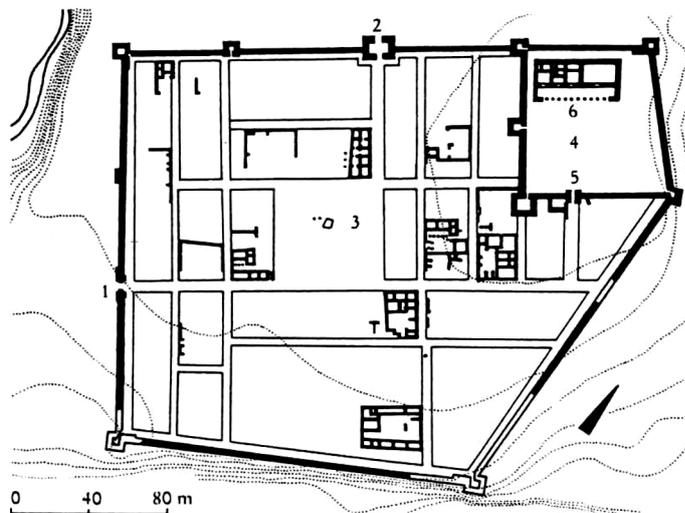
59 – Latmos-“Nordfort”



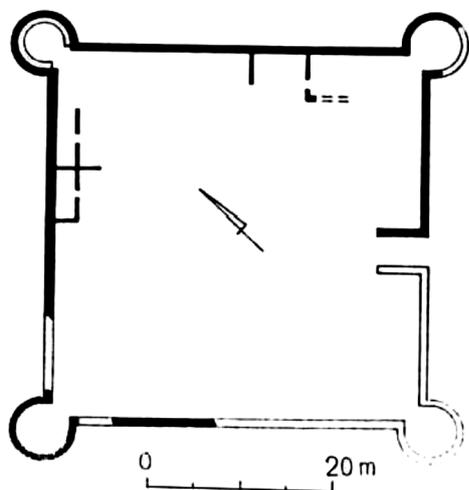
60 – Latmos-“innere Zitadelle”



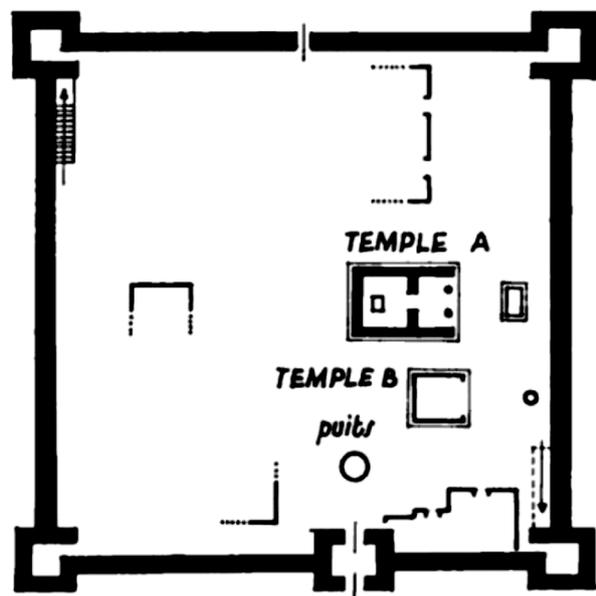
61 – Demetrias



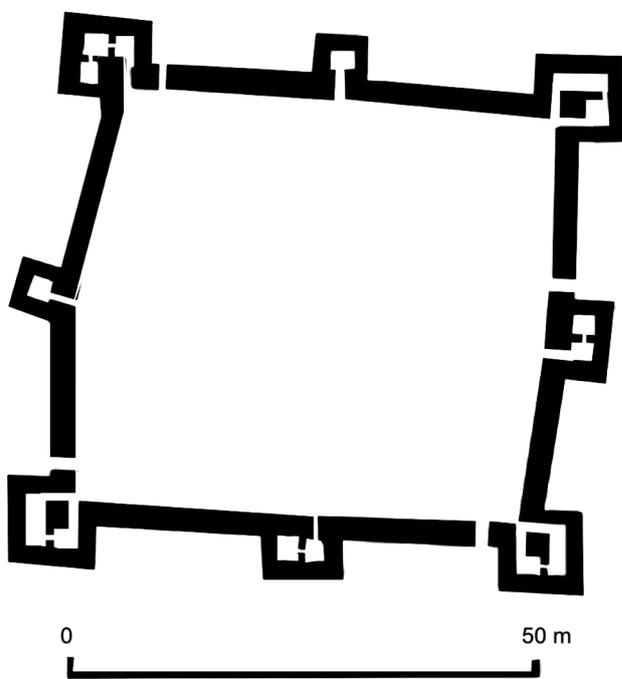
62 – Seuthopolis



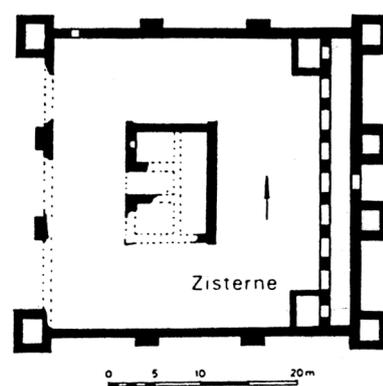
63 – Panskoye



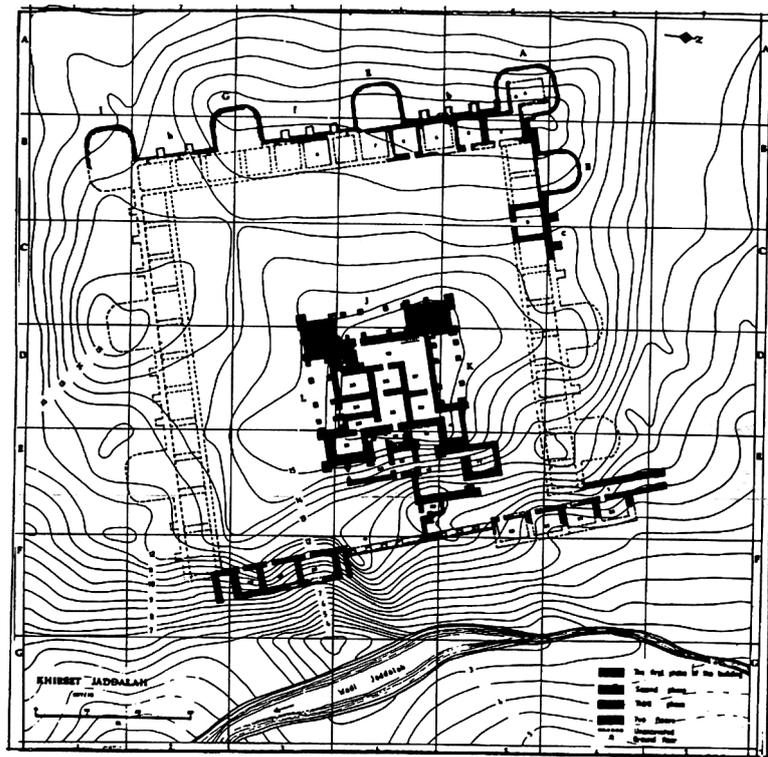
64 – Failaka



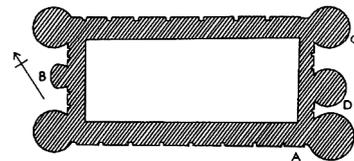
65 – Pella



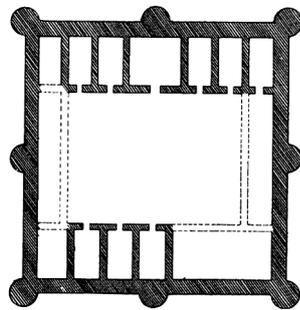
66 – Eski Hisar



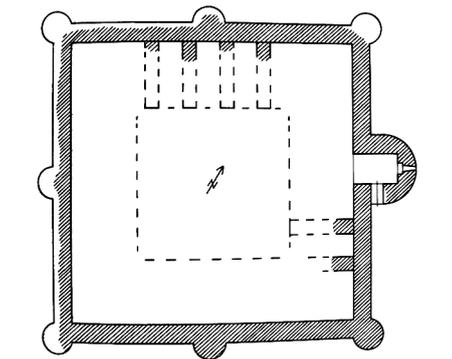
67 – Khirbet Jaddalah



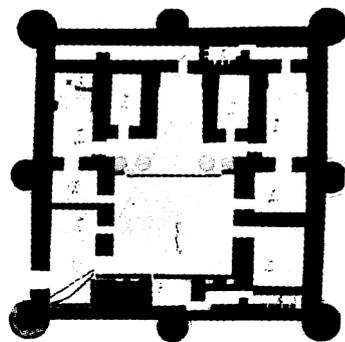
68 – Kish – Tell Bandar



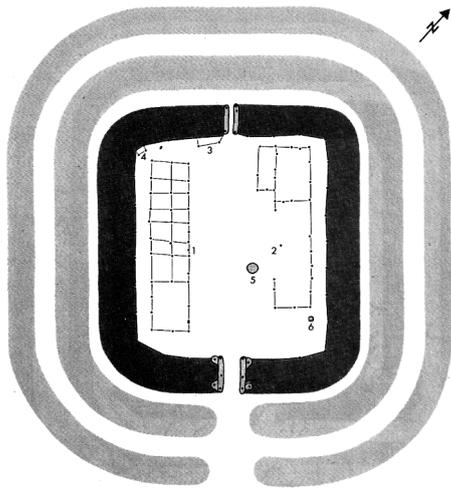
69 – Farrashband



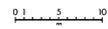
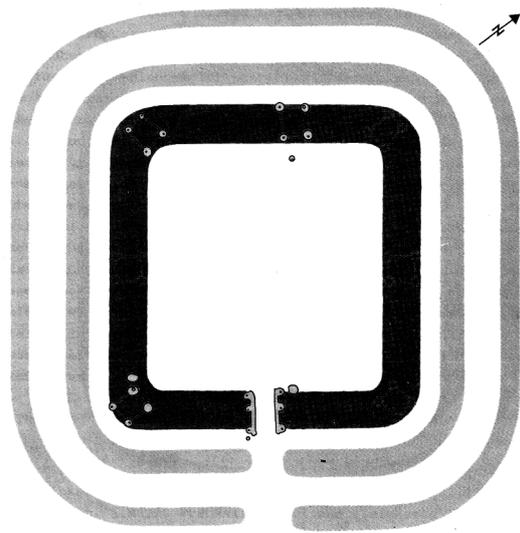
71 – Bad-Qal'eh



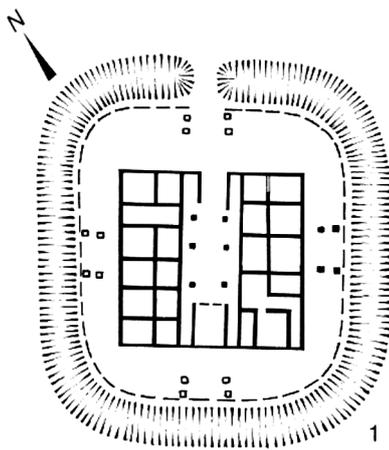
70 – Abu Sh'af



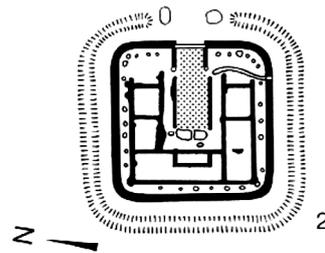
72 – Nersingen



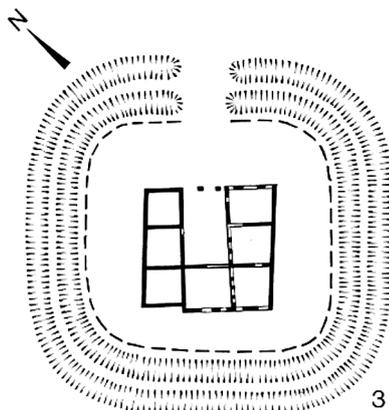
73 – Burlafingen



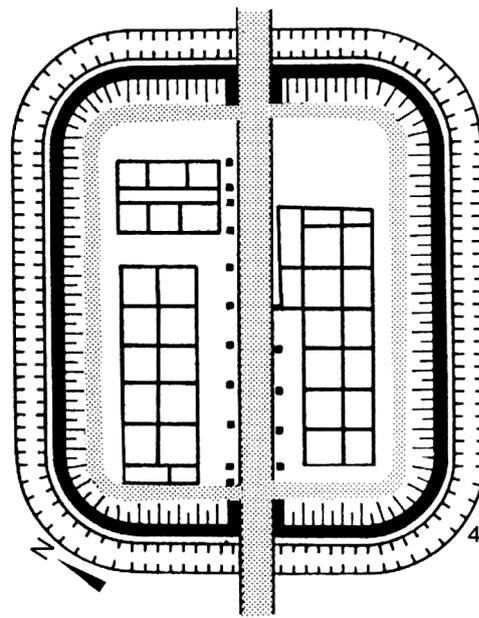
Degerfeld



Rötelsee

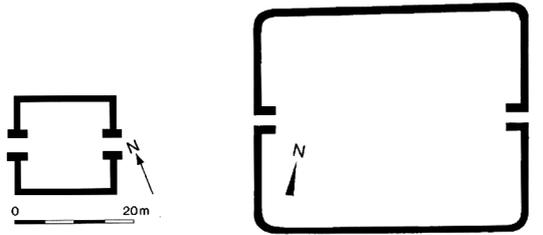


Pohl bei Kemel



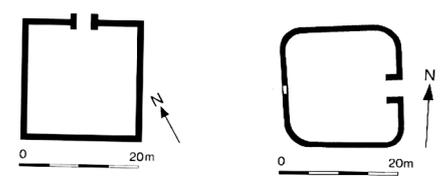
Haselburg

74



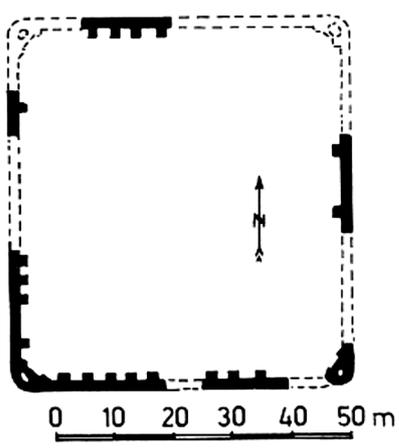
75 – Hinteren See-Berg

76 – Hönehaus

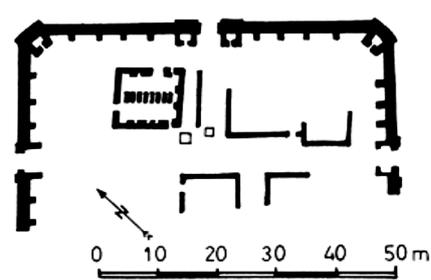


77 – Petersbuch

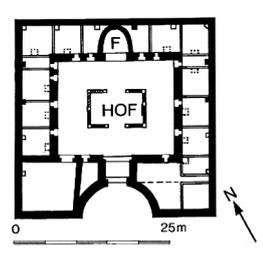
78 – Robern



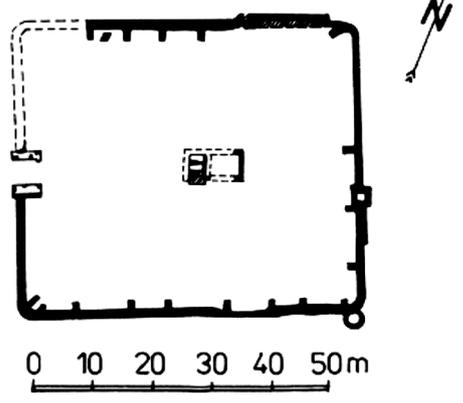
79 – Rădăcinești



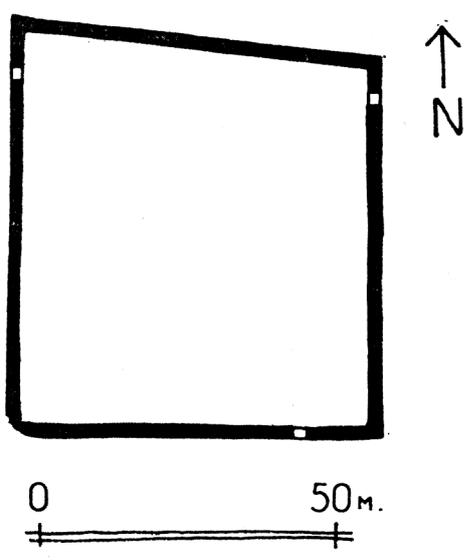
80 – Bivolari



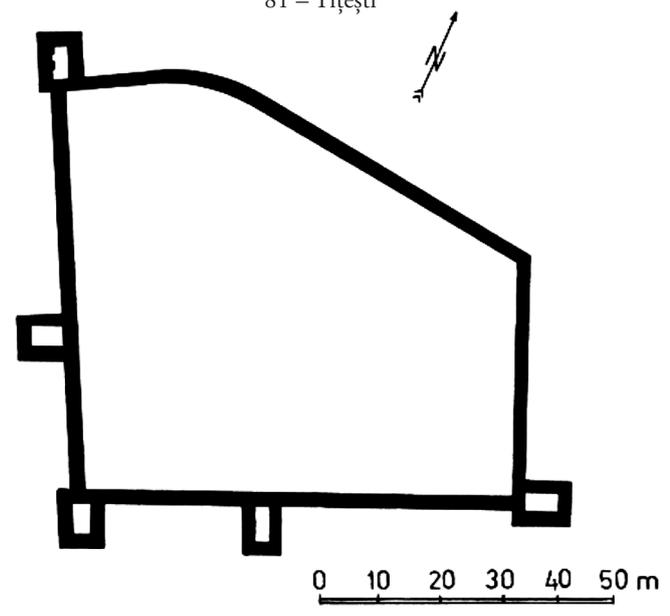
82 – Harlach



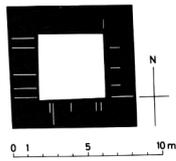
81 – Tițești



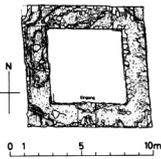
83 – Riječani



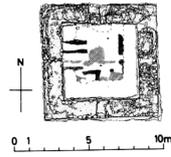
84 – Comalău



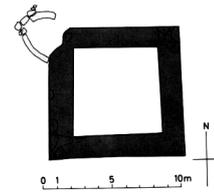
85 – Koblenz-‘Kleiner Laufen’



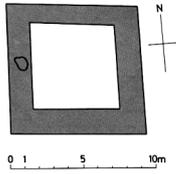
86 – Au-Hard



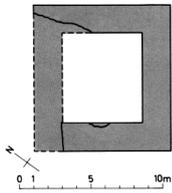
87 – Oberes Bürgli



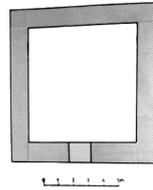
88 – Jüppe



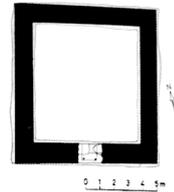
89 – Trägerbach



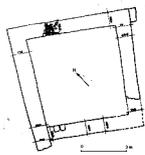
90 – Ratihard



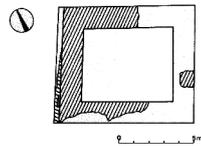
91 – Esztergom-Búbánatvölgy 2



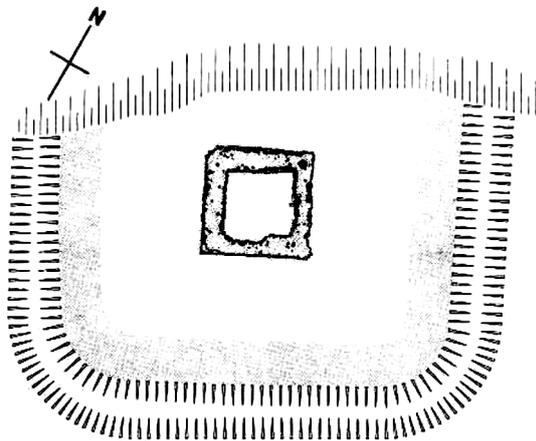
92 – Budapest-Csillaghegy-Kossuth Lajos 11



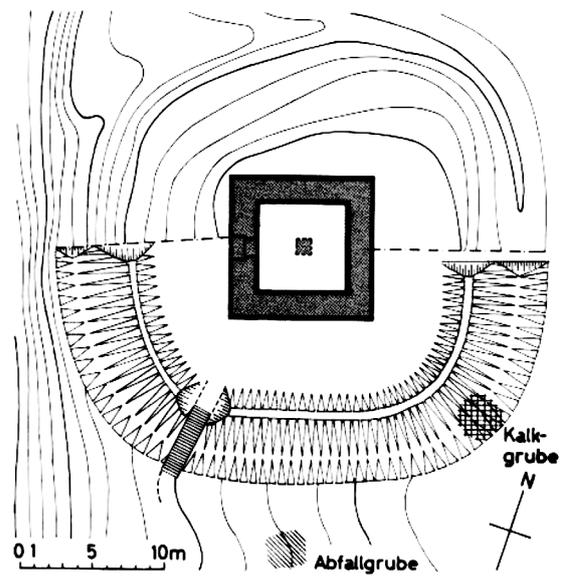
93 – Slankamen-‘Humka’



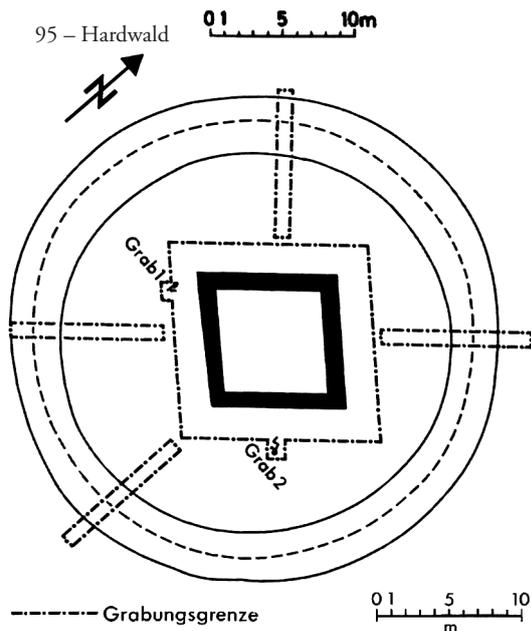
94 – Mauthen



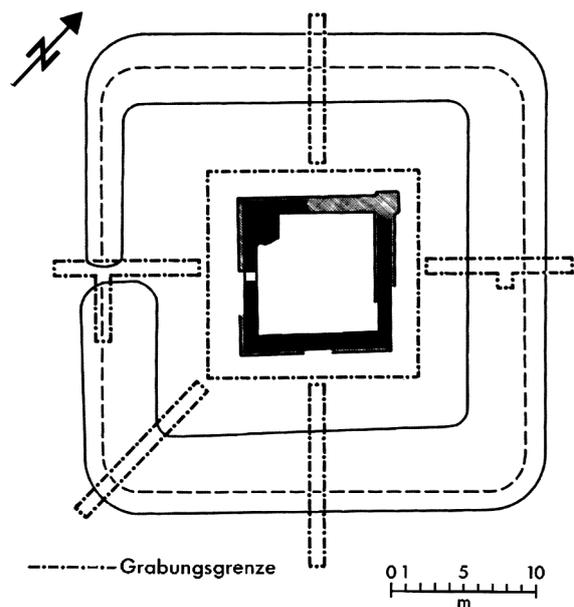
95 – Hardwald



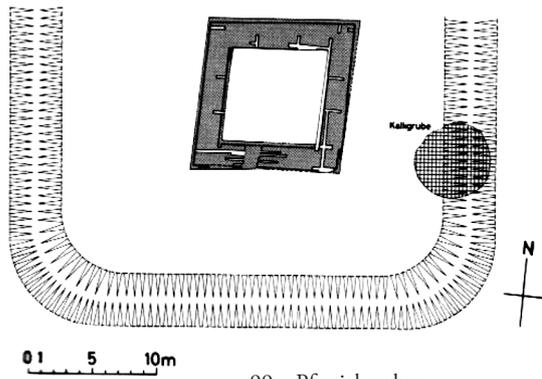
96 – Rheinau-Köpferplatz



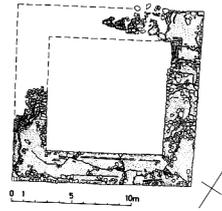
97 – Esztergom-Szentgyörgymező 1



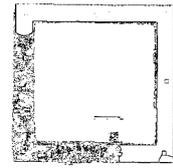
98 – Pilismarót-‘Schiffsstation’



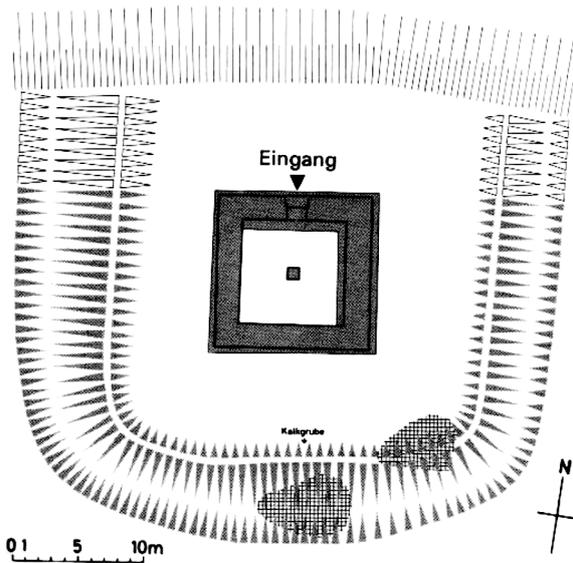
99 – Pferrichgraben



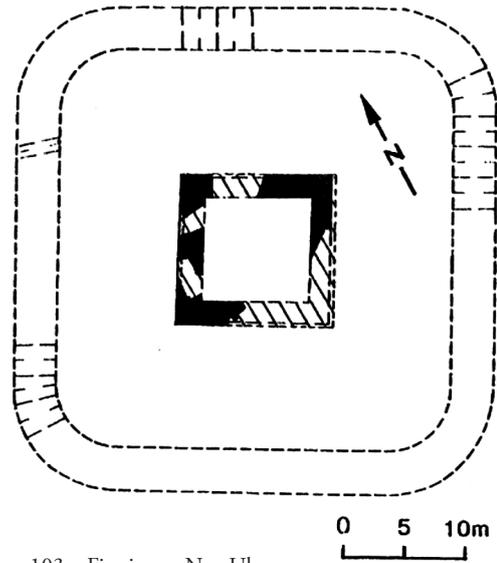
100 – Rheinsulz



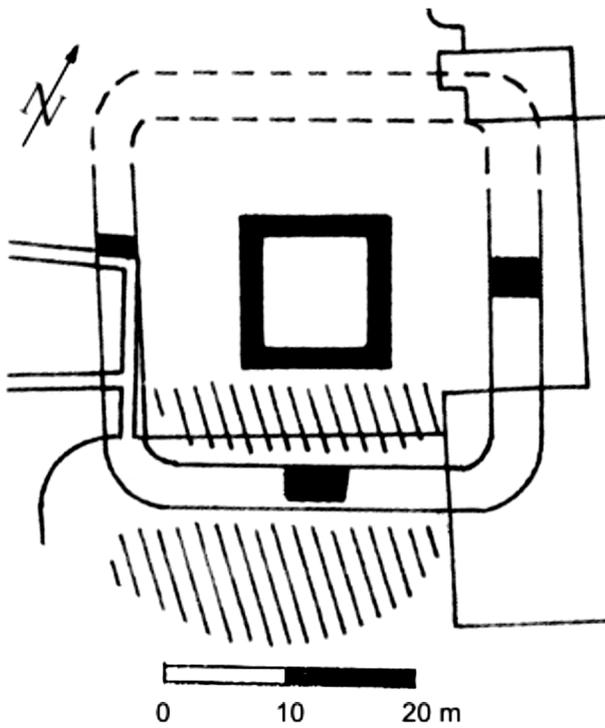
101 – Bacharnsdorf



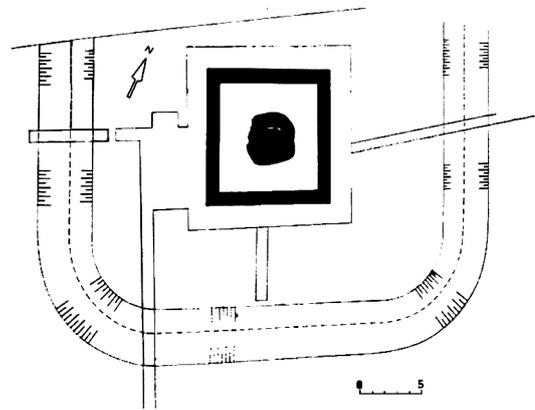
102 – Tössegg



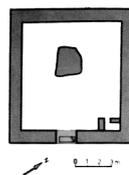
103 – Finningen-Neu Ulm



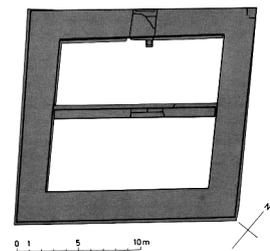
104 – Passau-Haibach



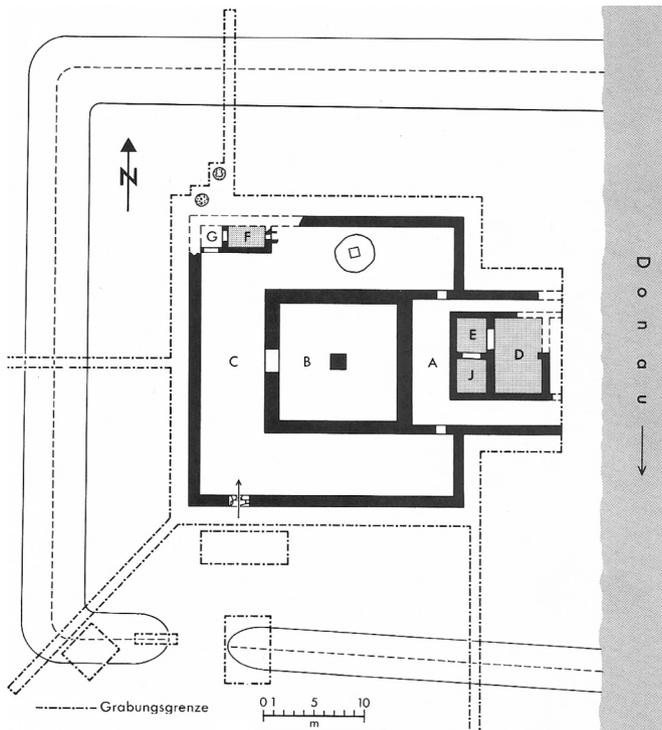
105 – Dömös-Kövespatak



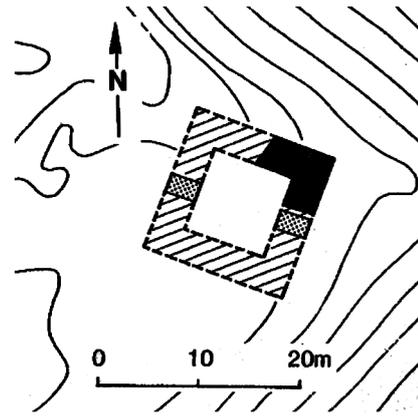
106 – Visegrád-Steinbruch



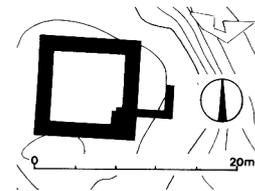
107 – Unteres Bürgli



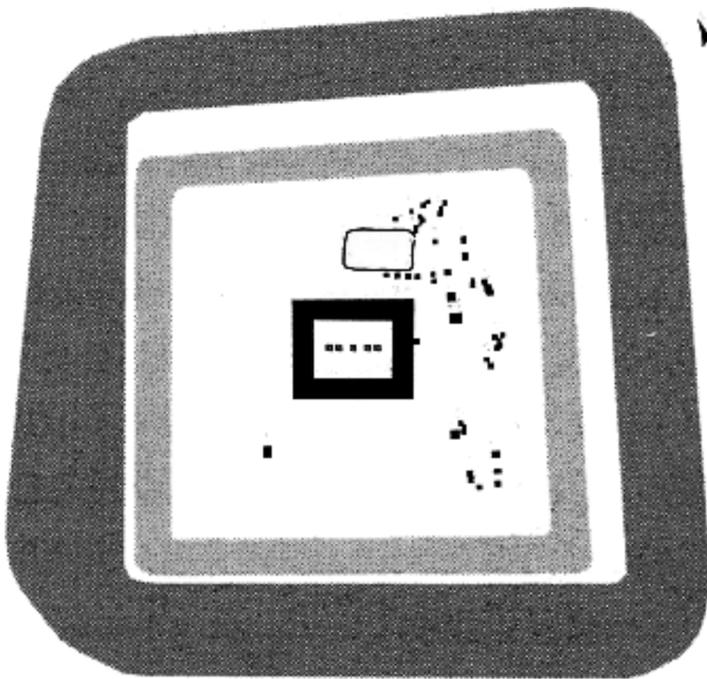
108 – Pilismarót-Malompatak



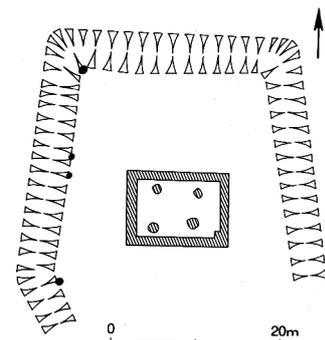
109 – Goldberg-Türkheim



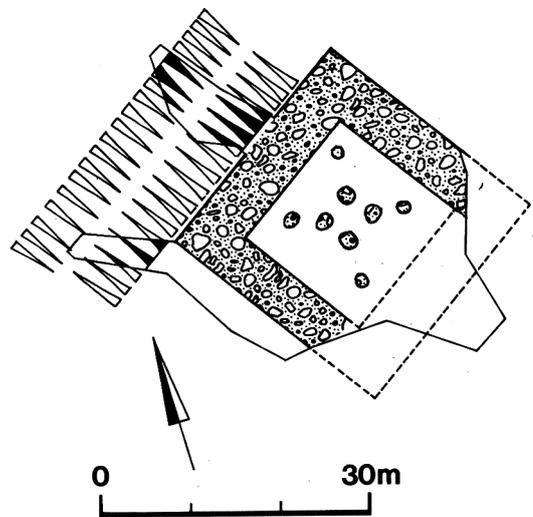
110 – Vrhnika-Turnovšče



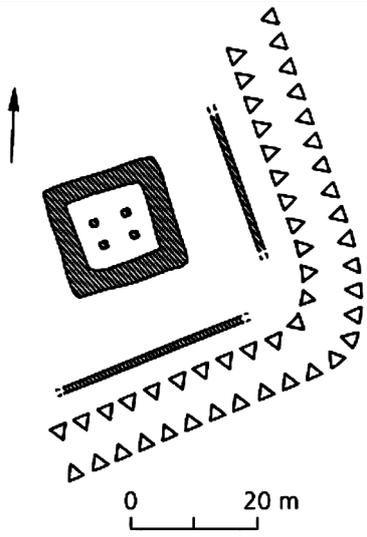
111 – Braives



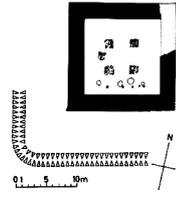
112 – Hulsberg



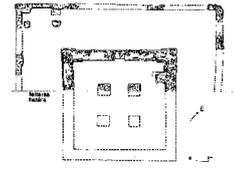
113 – Morlanwelz II



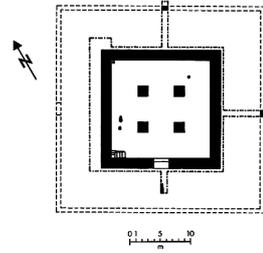
114. Moers-Asberg/Asciburgium



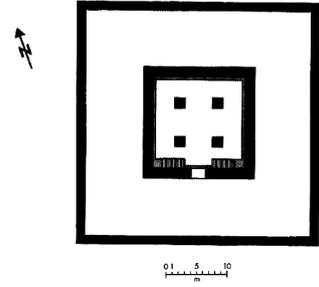
115. Stelli



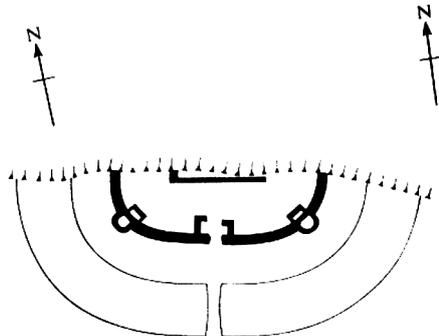
116. Visegrád-Lepence



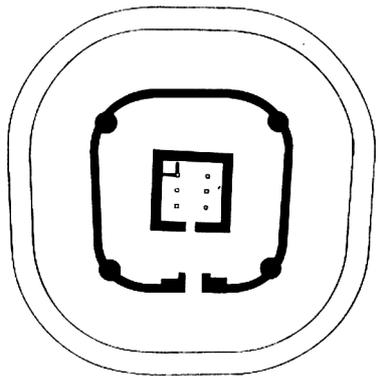
117. Leányfalu



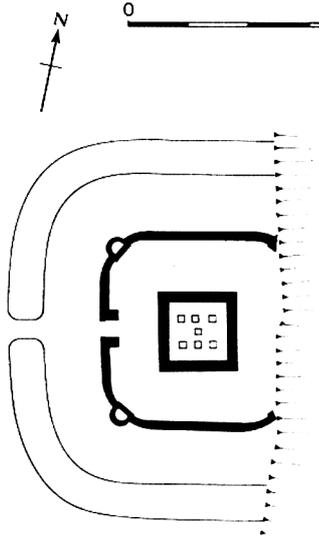
118. Budakalász



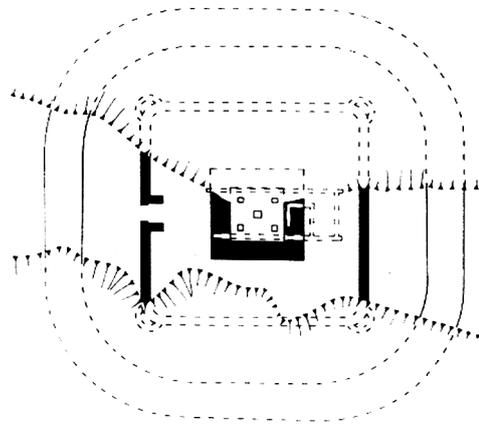
120. HUNTCLIFF



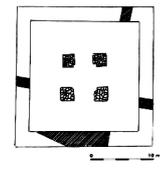
121. GOLDSBOROUGH



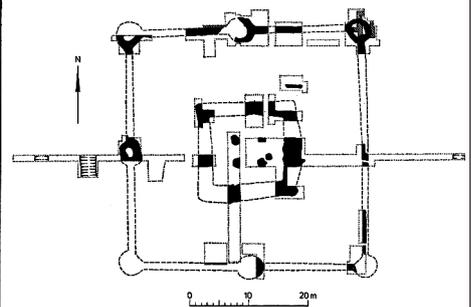
122. SCARBOROUGH



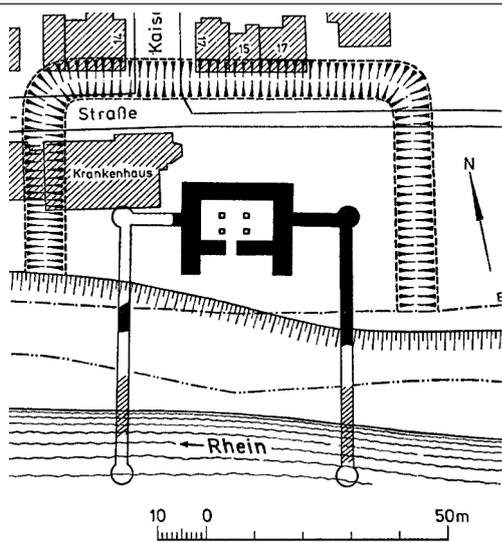
123. FILEY — = — = Cortis' building



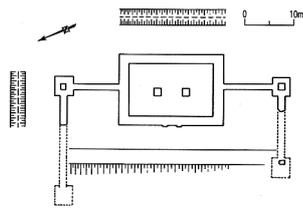
119. Öcsény



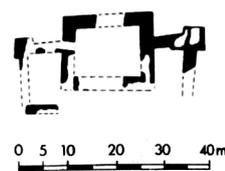
124. ASPERDEN



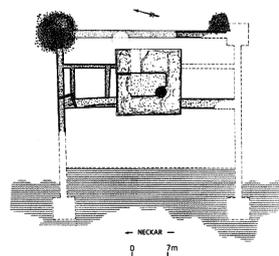
125. Engers



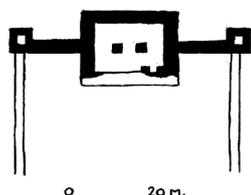
126. Zullestein



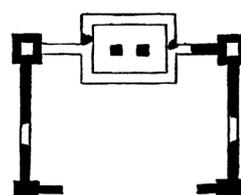
127. Mannheim-Neckarau



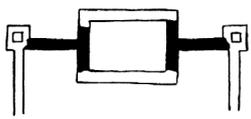
128. Ladenburg



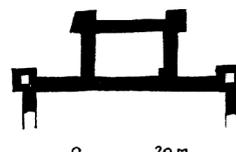
129. Veröce



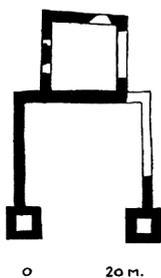
130. Dunafalva



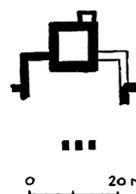
131. Tahitótfalu-Balhavár



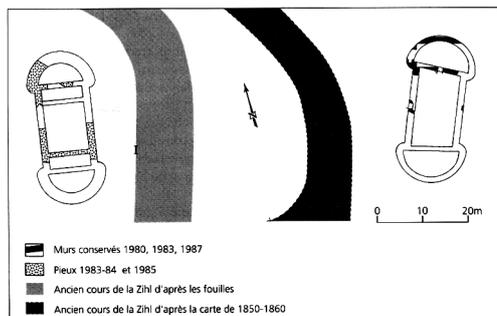
132. Szigetmonostor-Horány



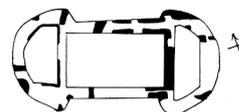
133. Szentendre-Dera Patak



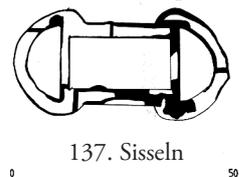
134. Bač



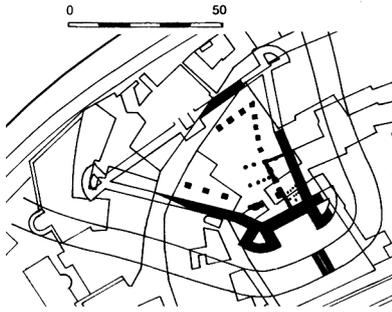
135. Aegerten



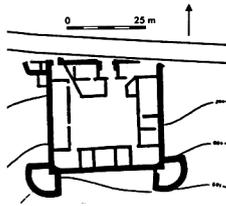
136. Mumpf



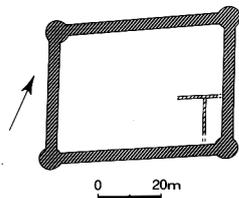
137. Sisseln



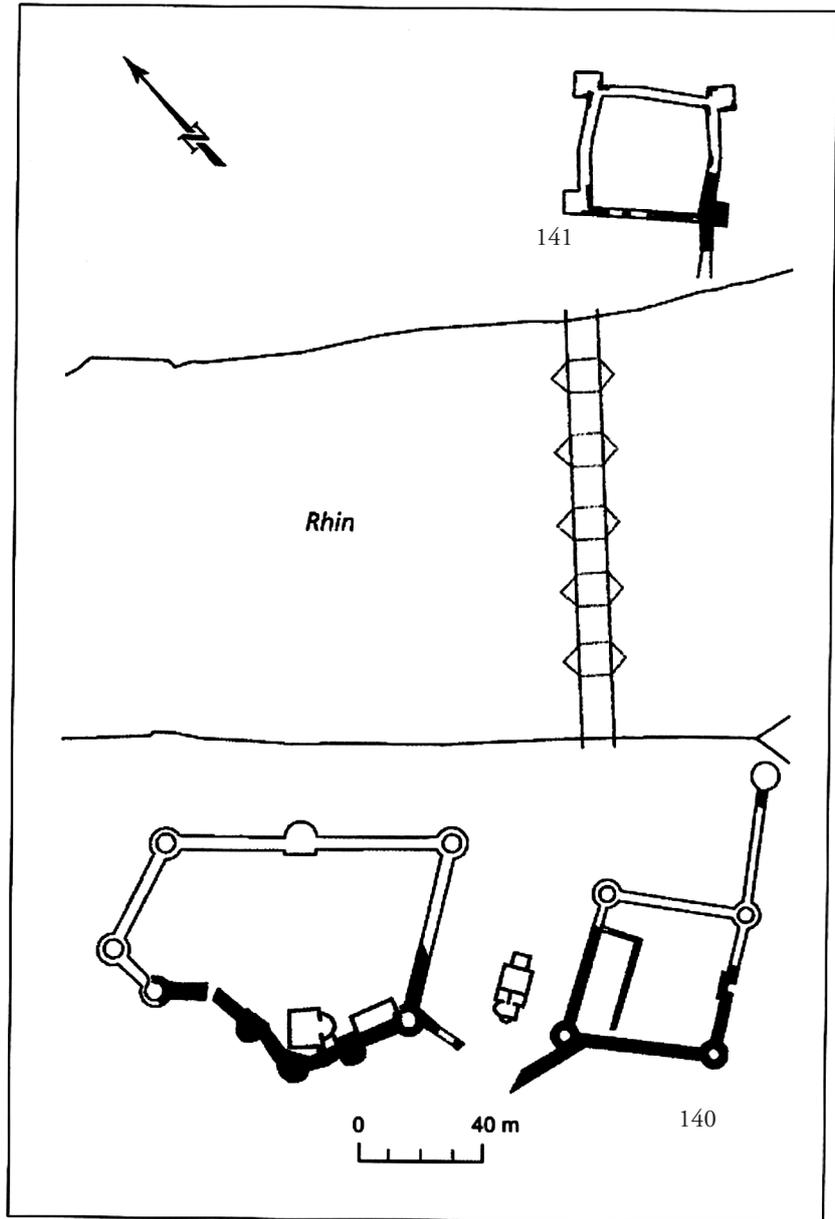
138. Passau-Instadt



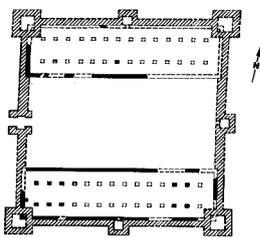
139. Visegrád-Gizellamajor



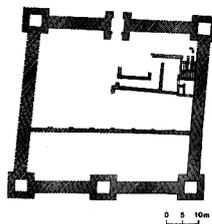
142. Liberchies II



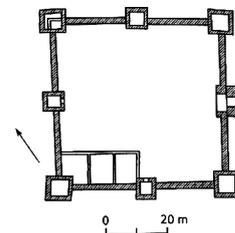
140-141. Zurzach-Sidelen and Rheinheim



143. Wilten-Innsbruck



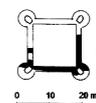
144. Schaan



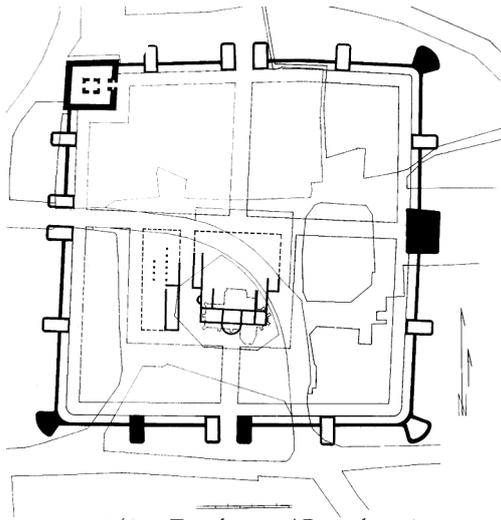
145. Irgenhausen



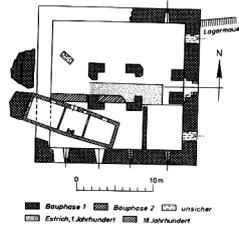
146. Kleinbasel



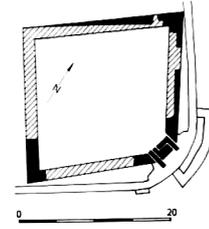
147. Untersaal



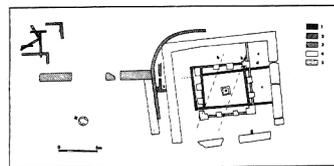
148 a. Zeiselmauer/Cannabiaca?



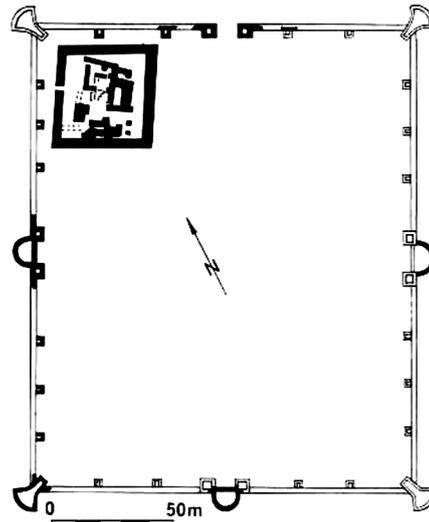
148 b. Zeiselmauer/Cannabiaca?



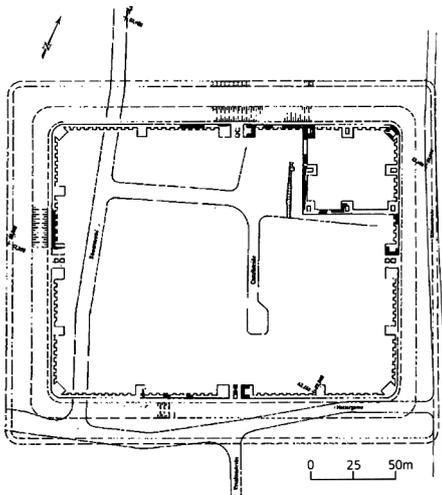
150. Dunabogdány/Cirpi



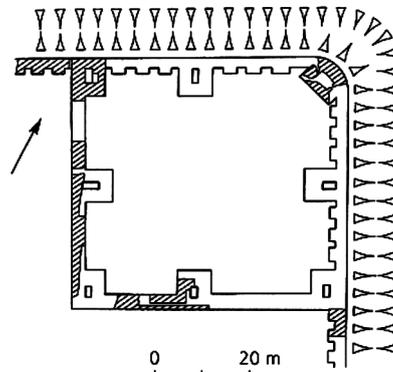
149. Rusovce/Gerulata



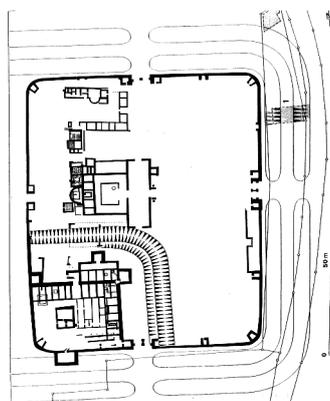
151. Almásfüzitő/Odiavum



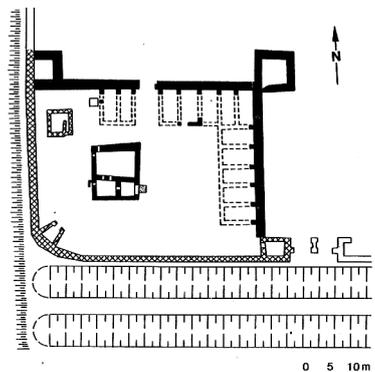
152 a. Dormagen/Durnomagus



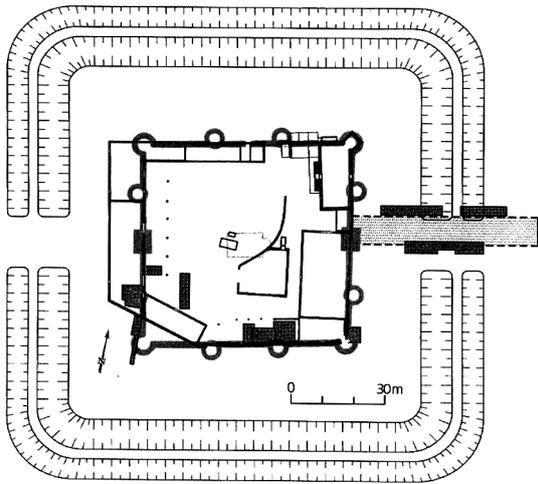
152 b. Dormagen/Durnomagus



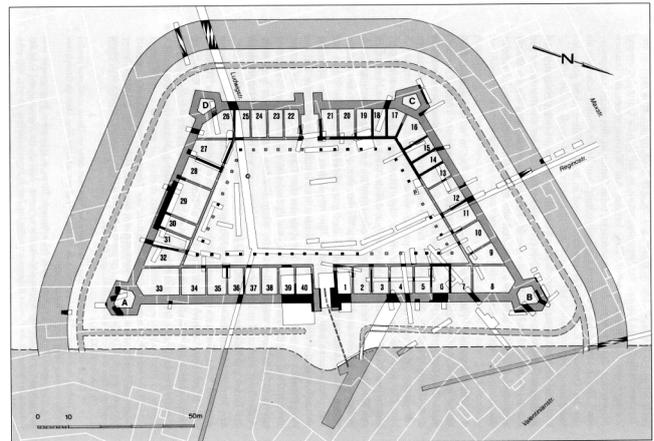
153 a. Eining/Abusina



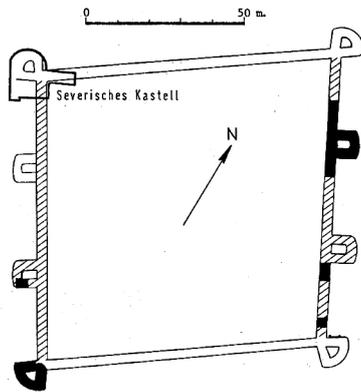
153 b. Eining/Abusina



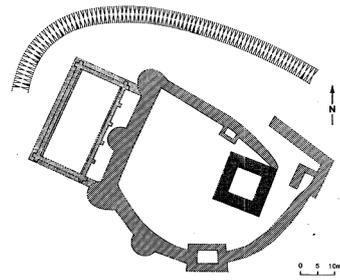
154. Haus Bürgel-Monheim



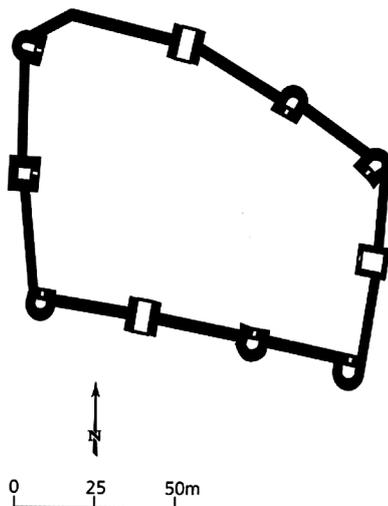
155. Altrip



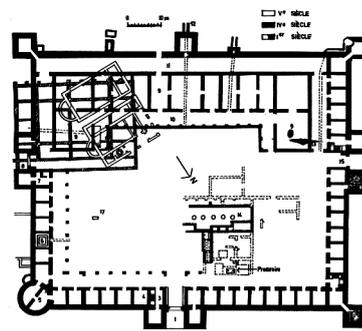
156. Budapest-Contra Aquincum



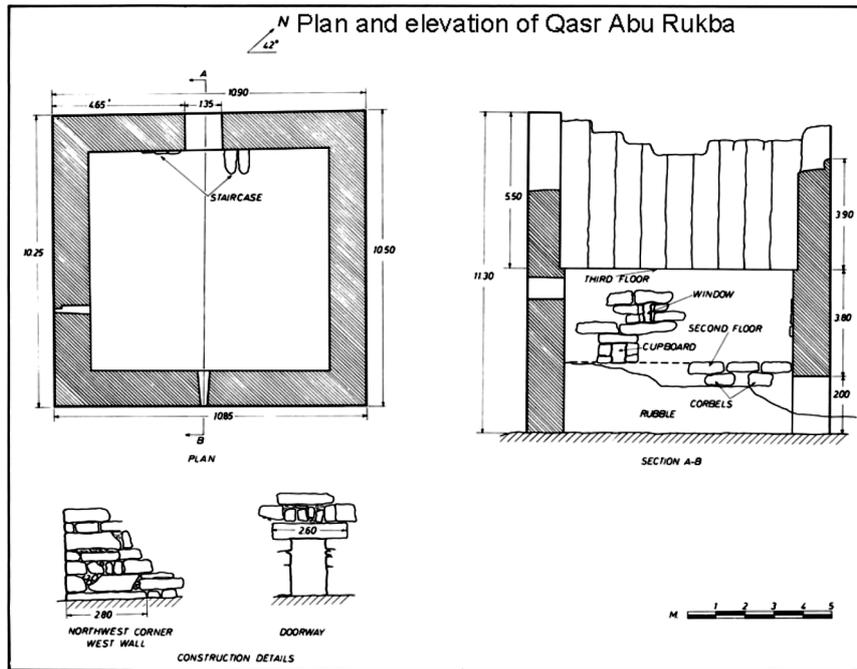
157. Goldberg-Türkheim



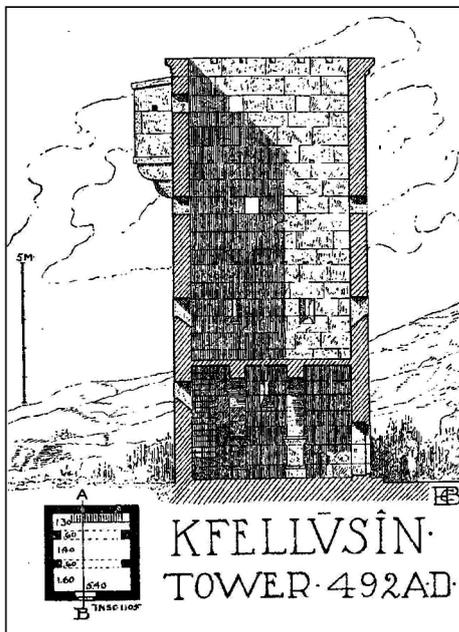
158. Zürich-Lindenhof



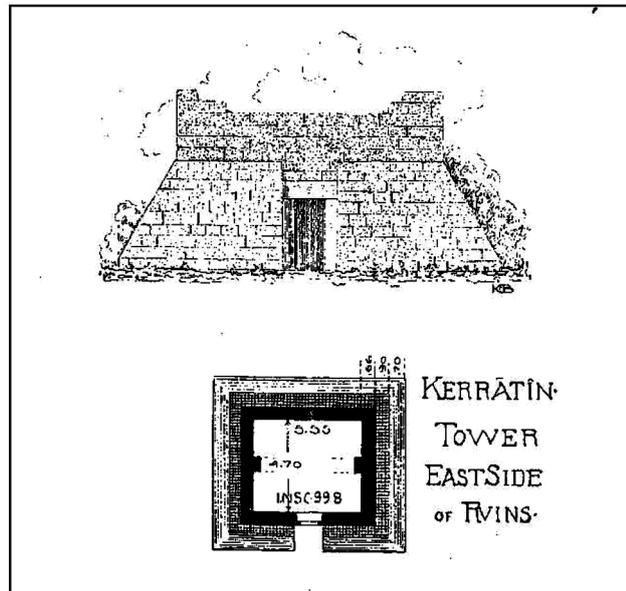
159. Mogorjelo



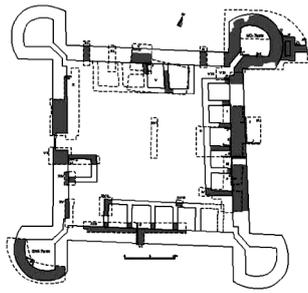
160 – Qasr Abu Rukba



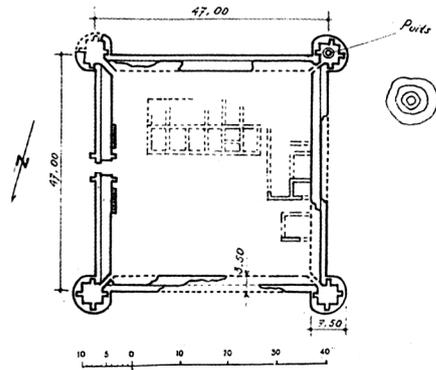
161 – Kfellusin



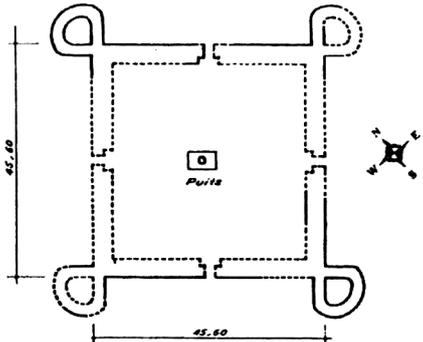
162 – Kerratin



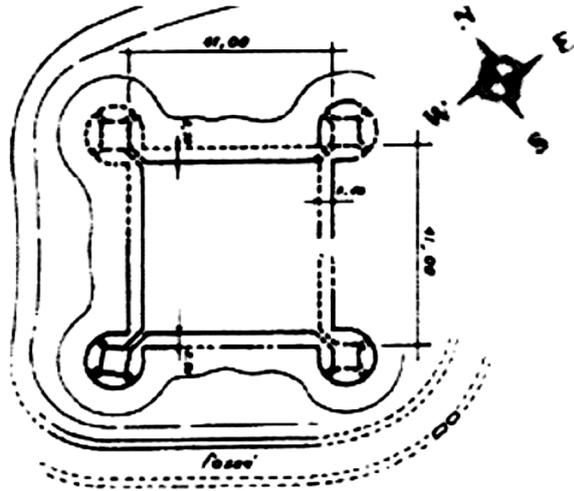
163 – Qusair as-Saila



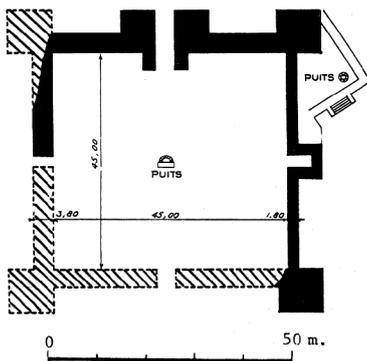
164 – Khan el-Hallabat



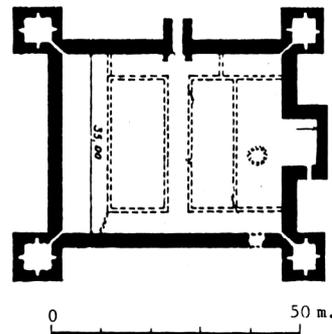
165 – Khan el-Abyad



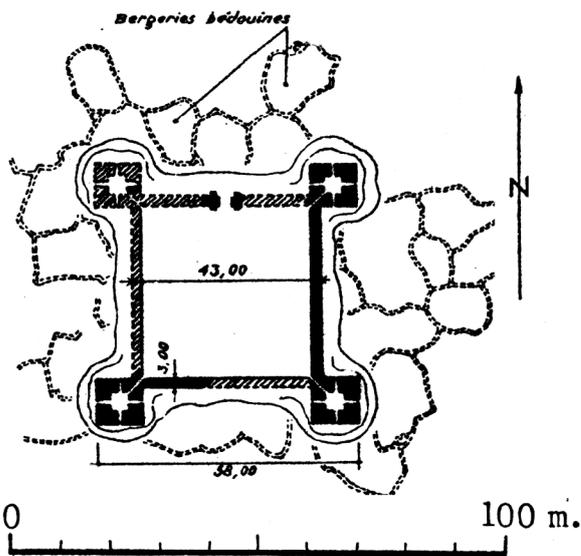
166 – Khan el-Qattar



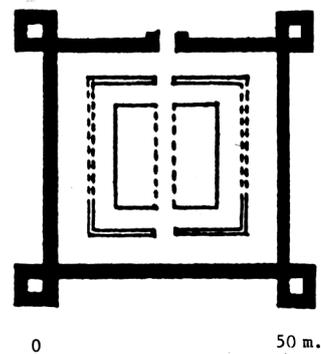
167 – Mleke



168 – Khan Aneybeh



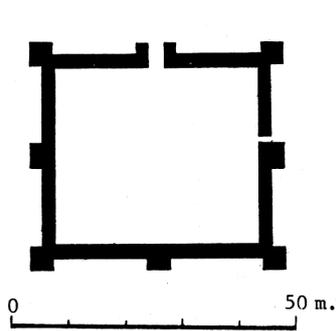
169 – Khan at-Trab



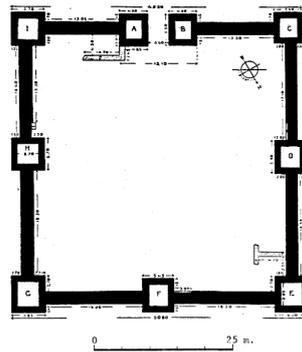
170 – Khan Abu Shammat



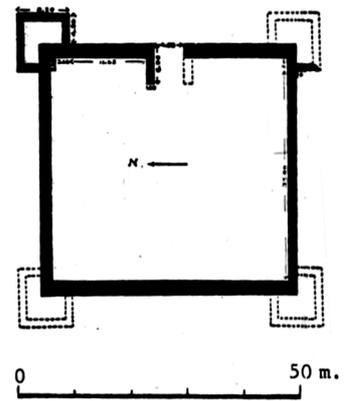
171 – Qasr el-Hallabat



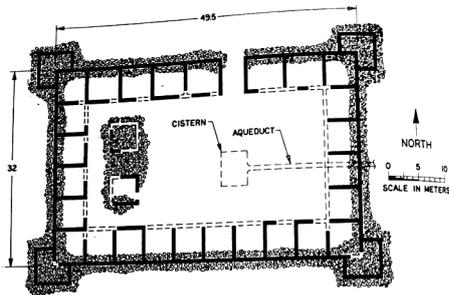
172 – Khirbet es-Zona



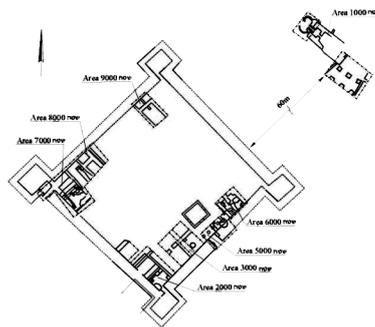
173 – Muhattet el-Hajj



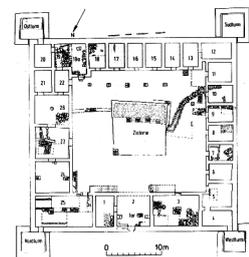
174 – Qasr ath-Thuraiya



175 – Khirbet el-Khaldi



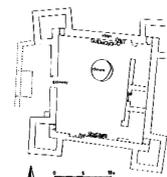
176 – Yotvata



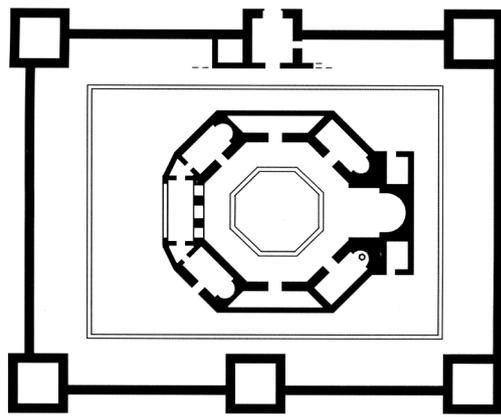
177 – Mezad Tamar



178 – En Boqeq

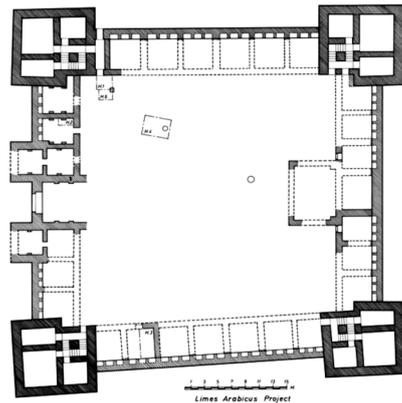


179 – Upper Zohar



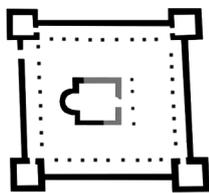
0 20 40 m

180 – Mount Gerizim



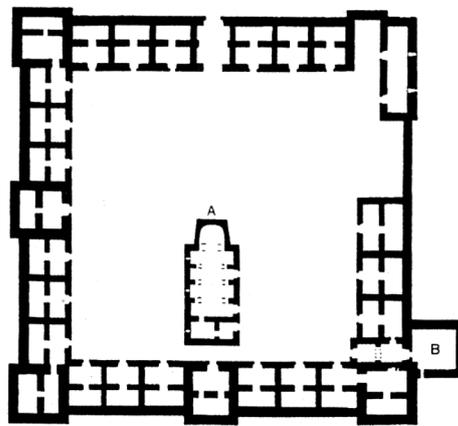
Limes Arabicus Project

184 – Qasr Bshir



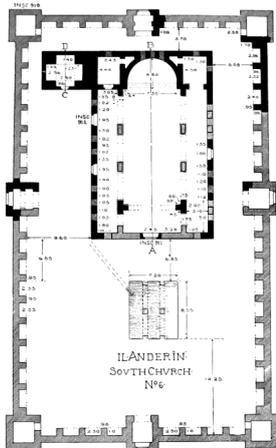
0 50 m

181 – El-Habbat

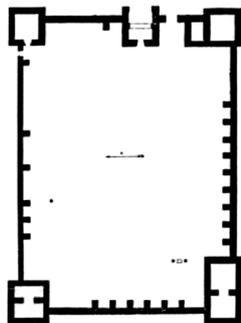


0 10 30M

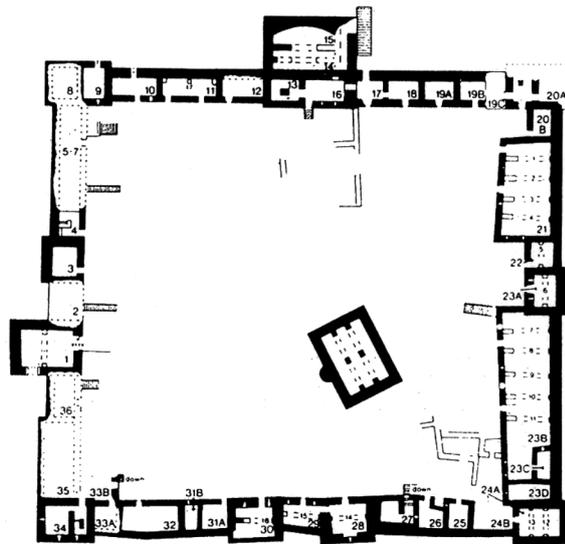
185 – Deir el-Kahf



182 – El-Anderin - "South Church"



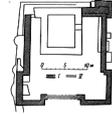
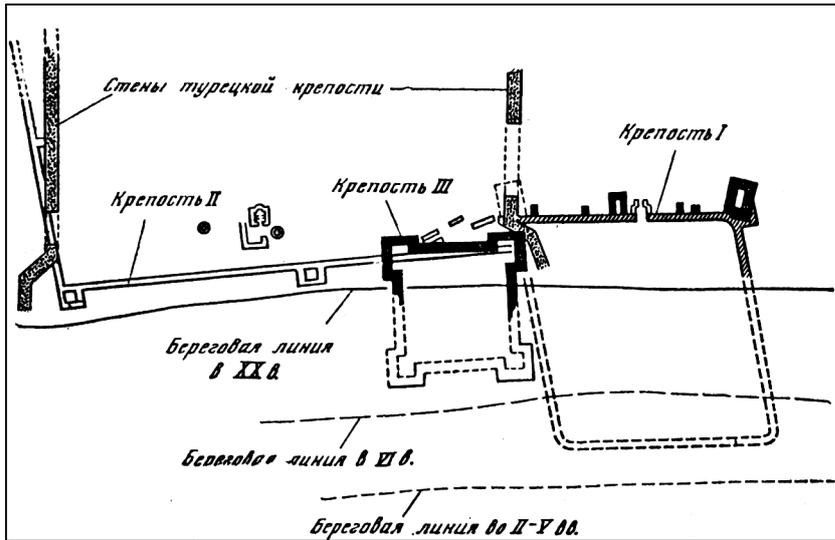
183 – Umm el-Hallahil



0 20 40M

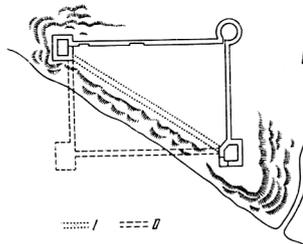
186 – Qasr al-Azraq



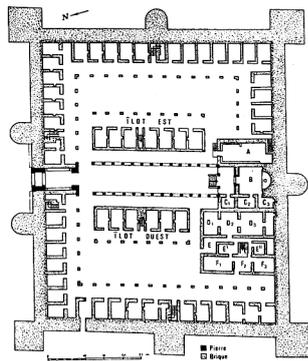


193 – Tamaris Tziche/Losorion

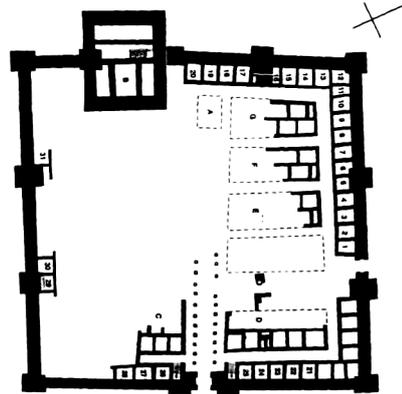
192 – Suhumi/Sebastopolis



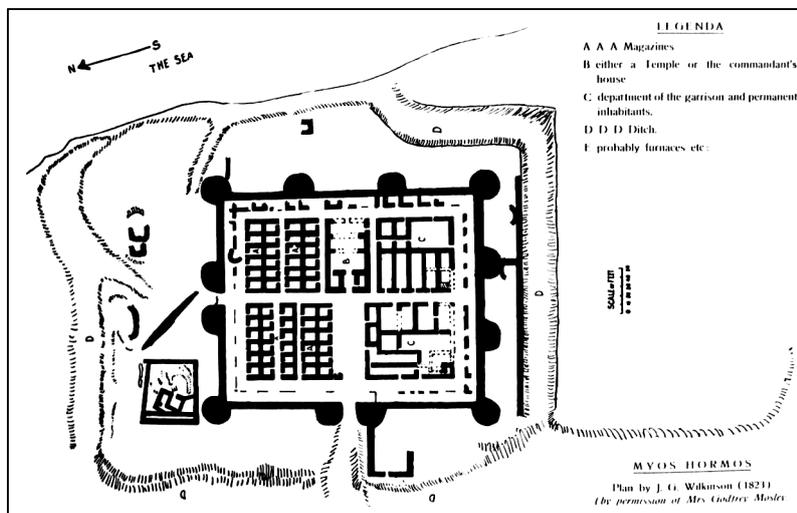
194 – Mamaj-Kala



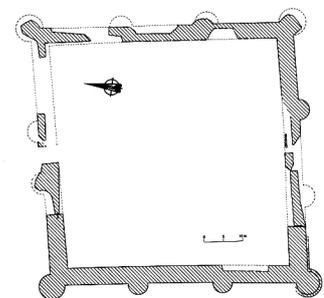
195 – Qasr Qarun/Dionysias



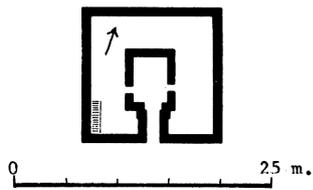
196 – Tell el-Herr/Magdolum



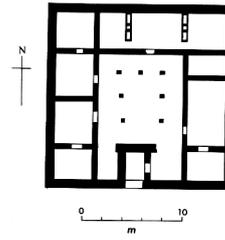
197 – Abu Sha'ar/Myos Hormos



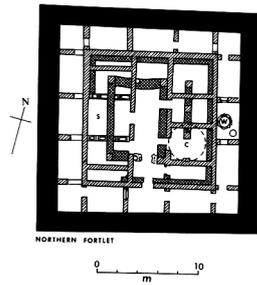
198 – Ed Deir



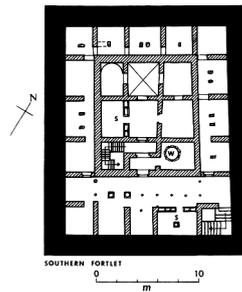
199 – Ksar Tarcine/Centenarium Tibubuci



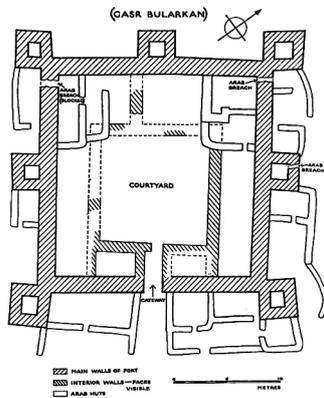
200 – Henchir el-Guechiret



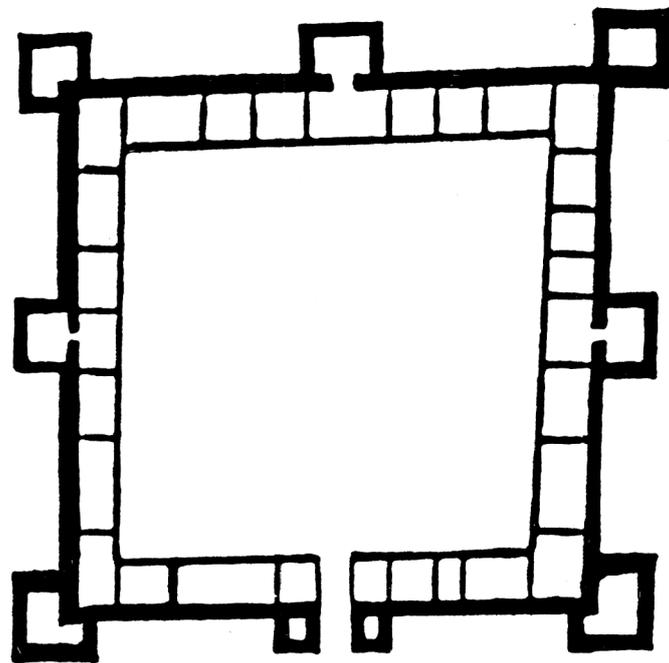
201 – Sbeitla/Sufetula – North



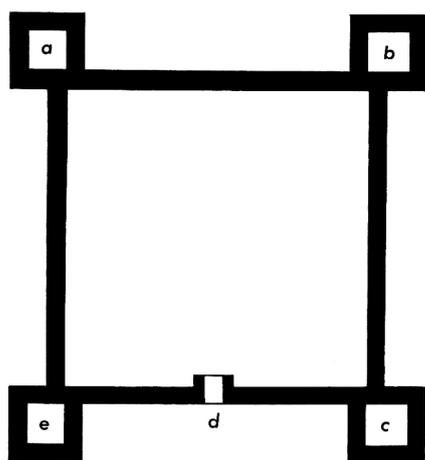
202 – Sbeitla/Sufetula – South



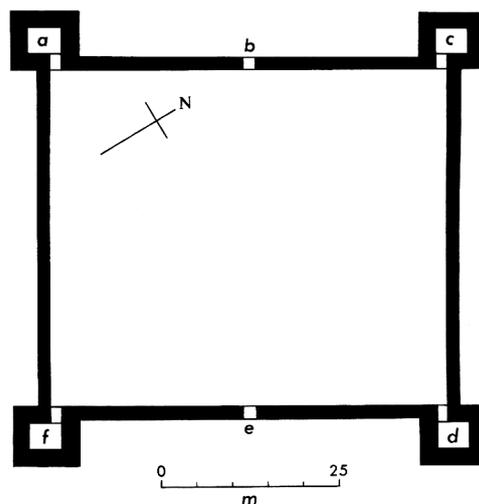
203 – Mselletin



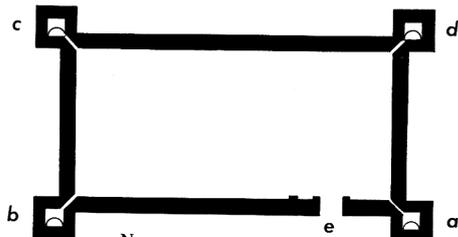
204 – Ksar Sidi el-Hadj/Aquae Herculis



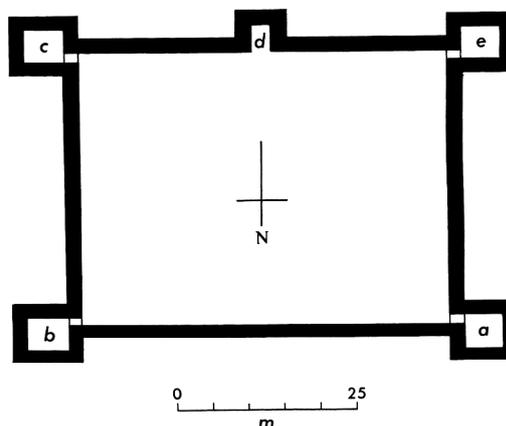
205 – Zraia/Zarai



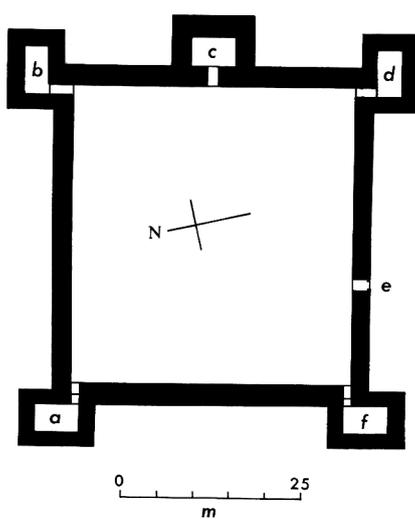
206 – Ain Zana/Diana Veteranorum



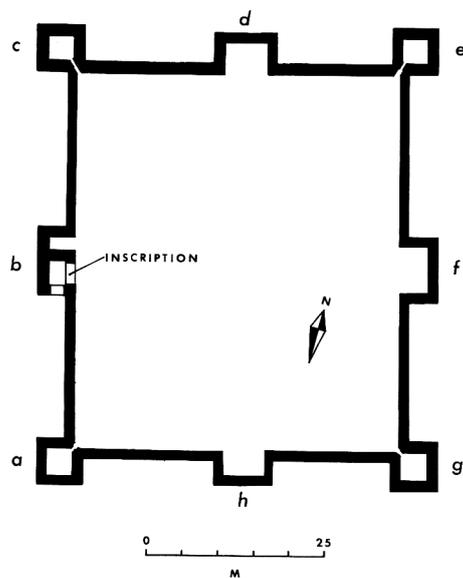
207 – Chigarnia/Uppenna



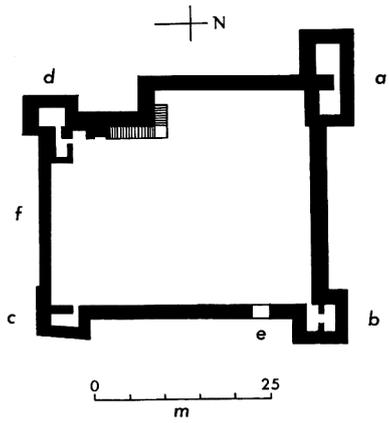
208 – Ksar Graouch



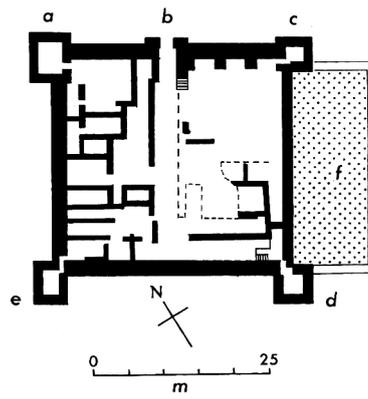
209 – Ksar Sbahi/Gadiaufala



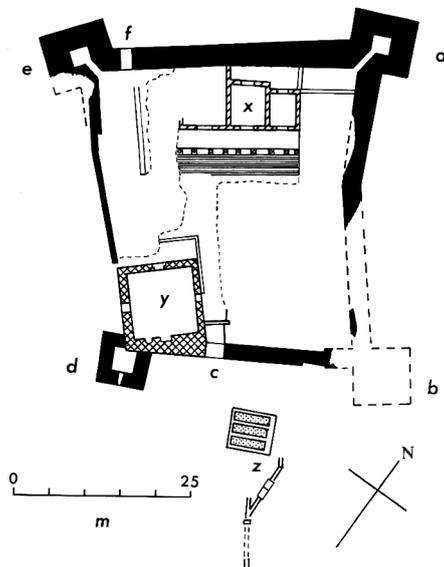
210 – Sguidan/Anastasiana



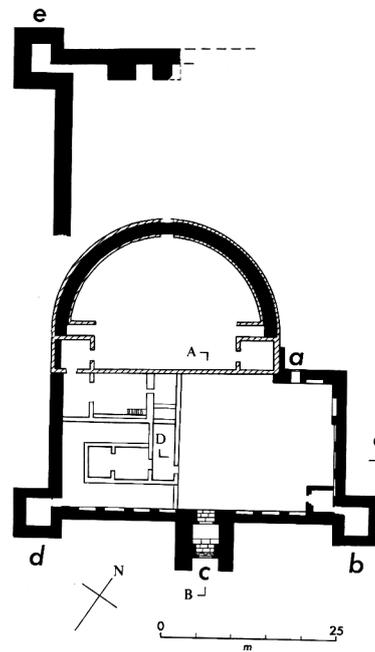
211 – Bordj Ibrahim/Agbia



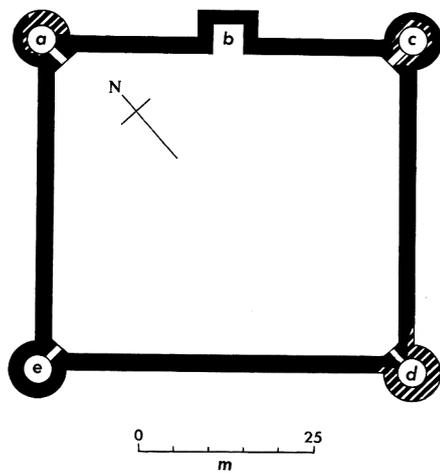
212 – Ksar Lemsa/Limisa



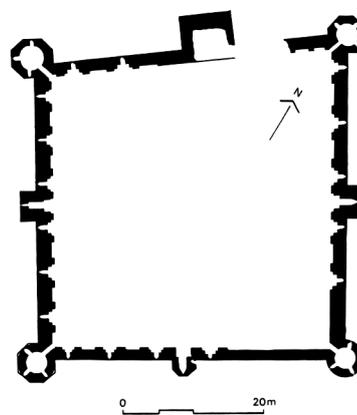
213 – Ain Tebournok/Tubernuc



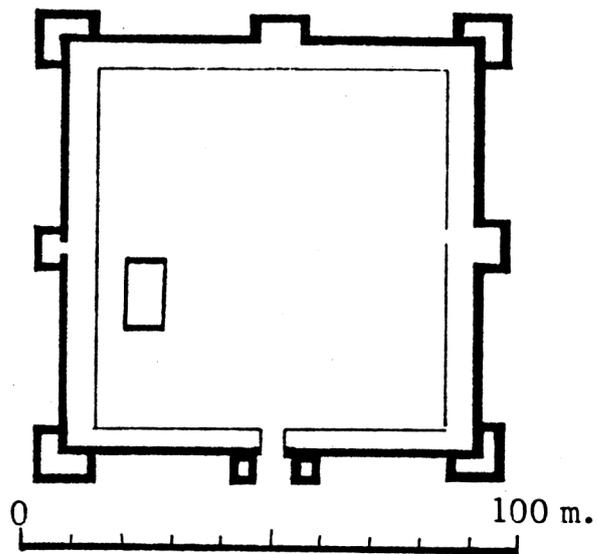
214 – M'daourouch/Madauros



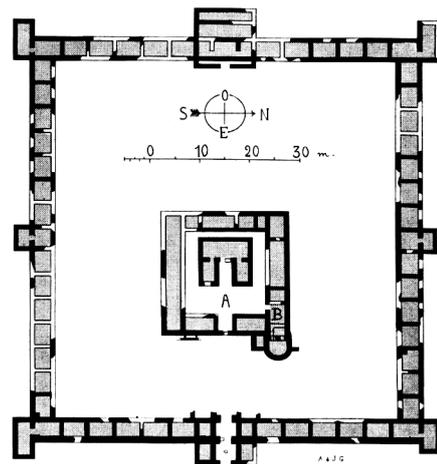
215 – Gastal



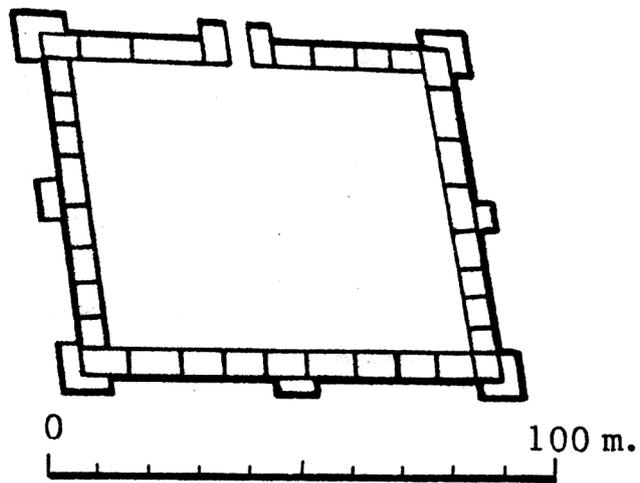
216 – Bordj Younga



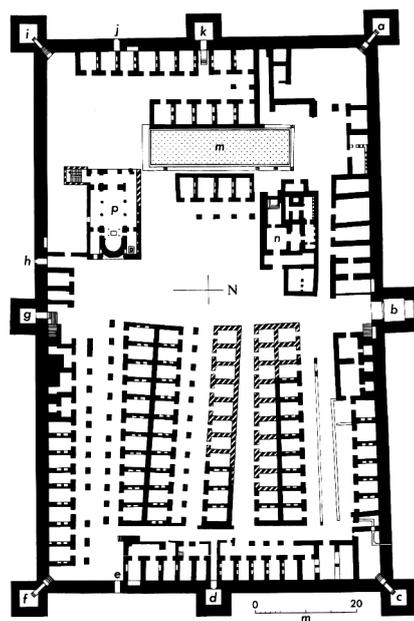
217 – M'doukal/Centenarium Aqua Viva



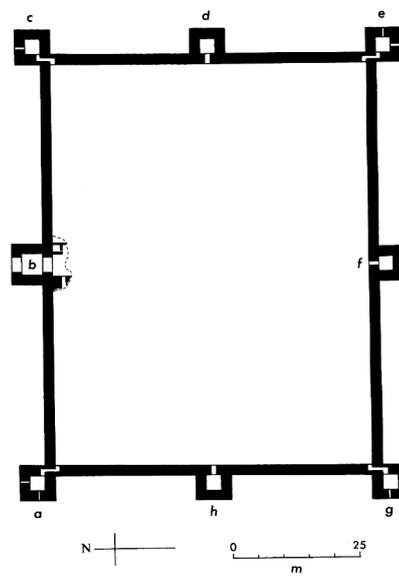
218 – Bourada



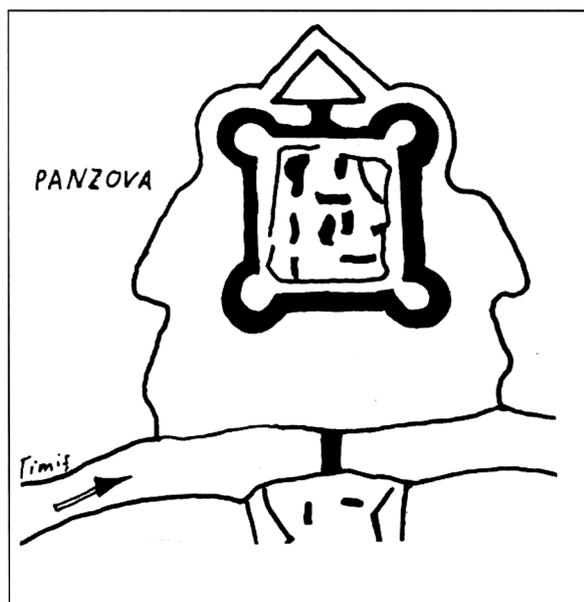
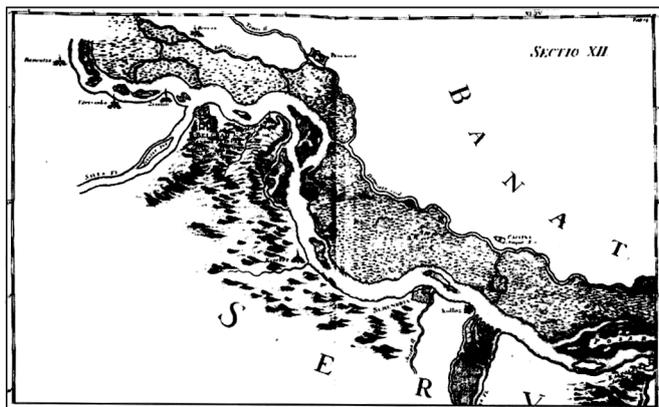
219 – Seba Mgata



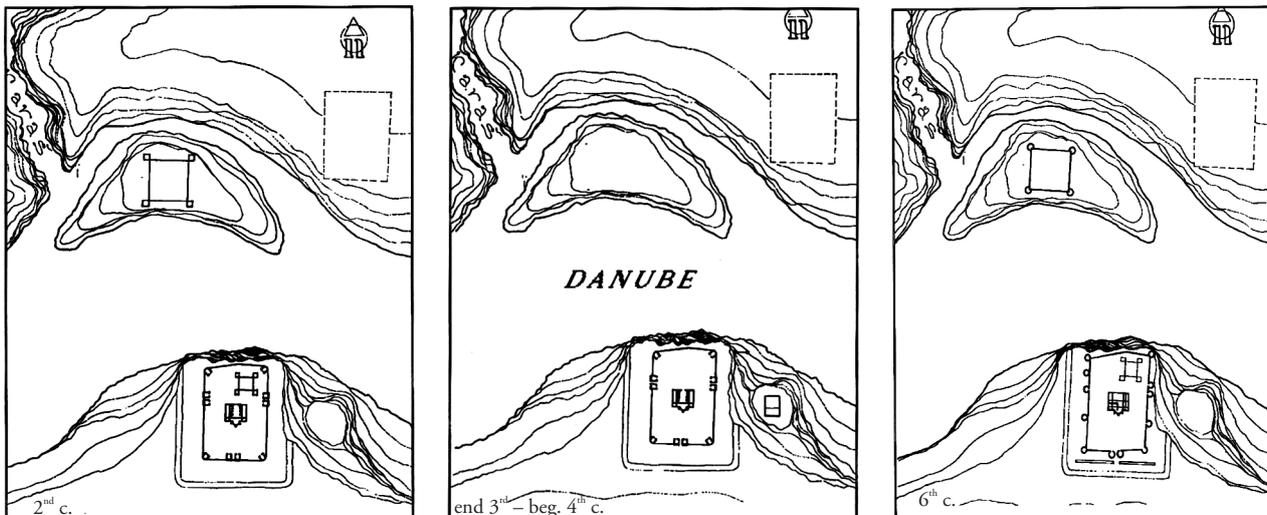
220 – Timgad/Thamugadi



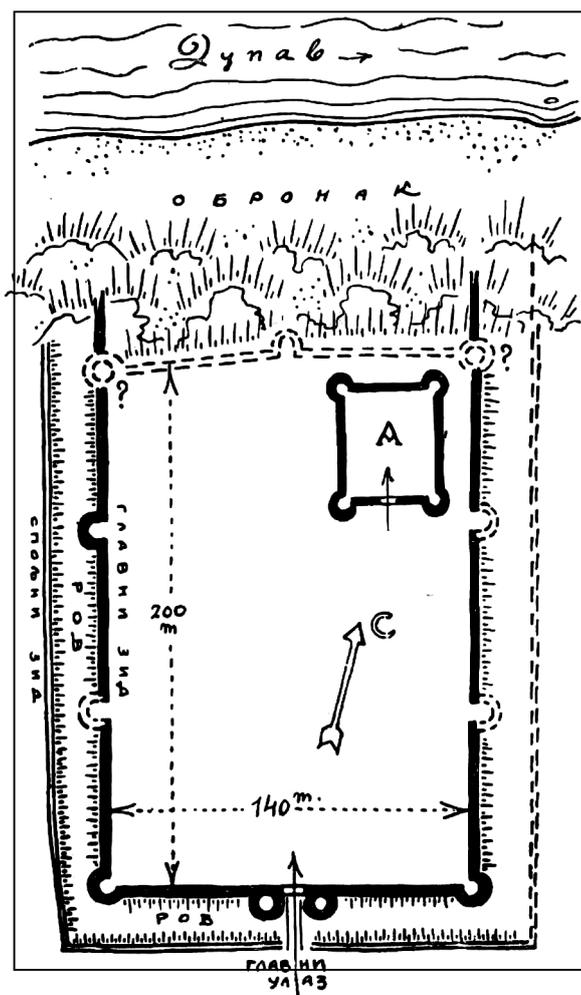
221 – Tobna/Tubunae



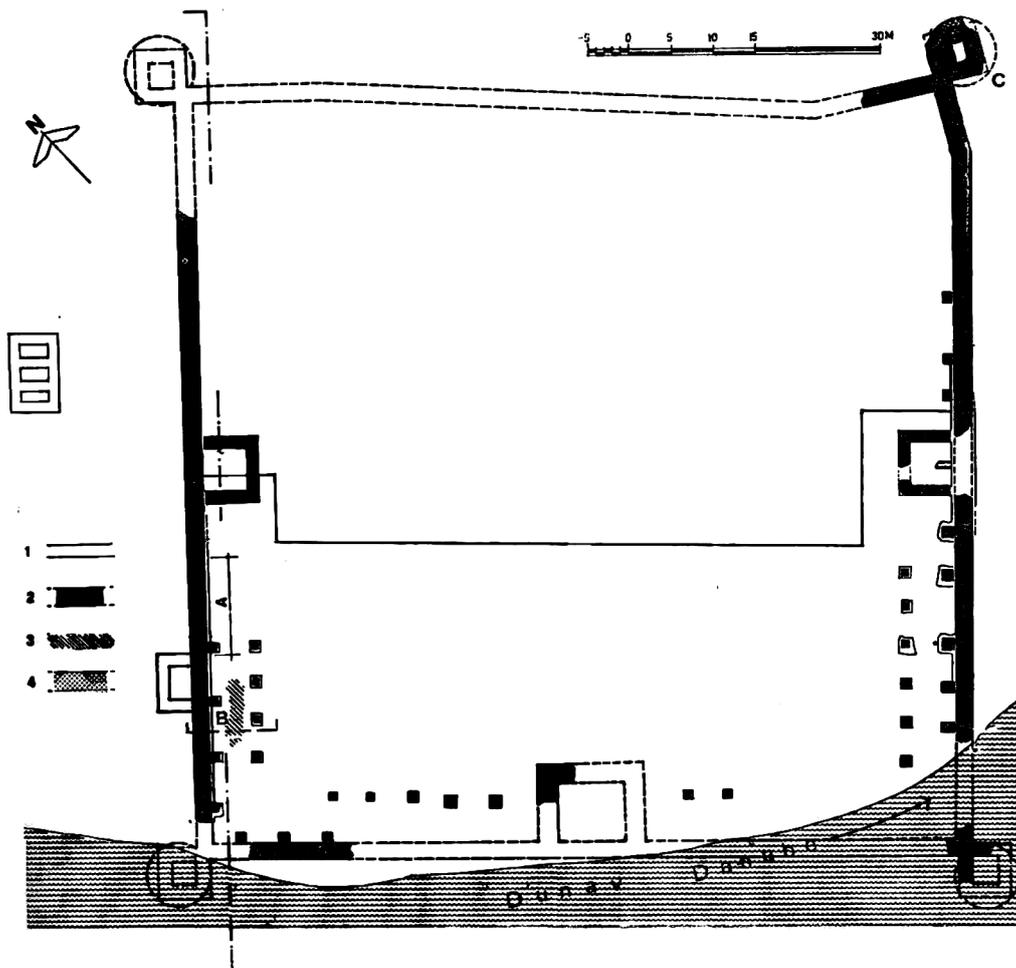
222. [1] Pančevo



223. [2] Ram/Lederata and [3] Sapaja Island

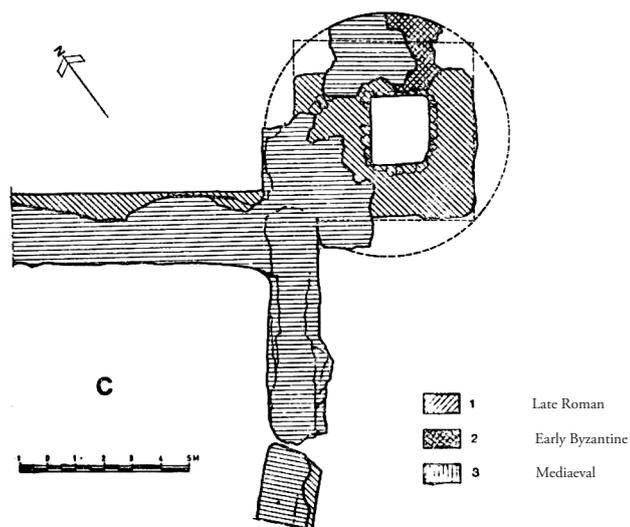


224. [2] Ram/Lederata

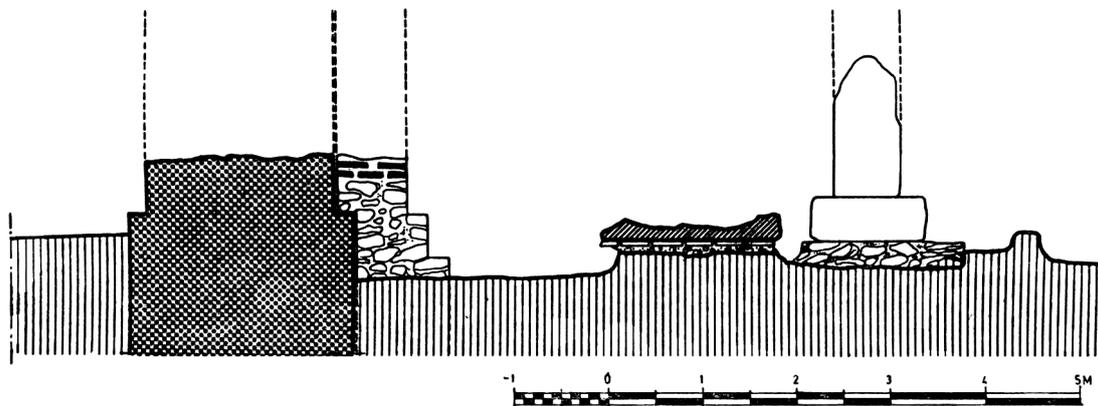


1 - Early Roman; 2 - Late Roman; 3 - Migration period dwelling; 4 - Early Byzantine

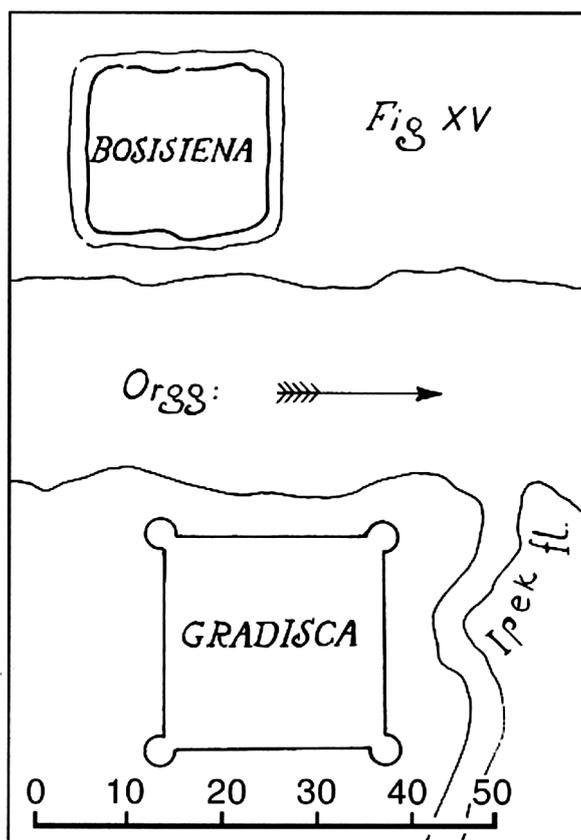
225. [3] Sapaja Island



226. [3] Sapaja Island - N-E corner-tower

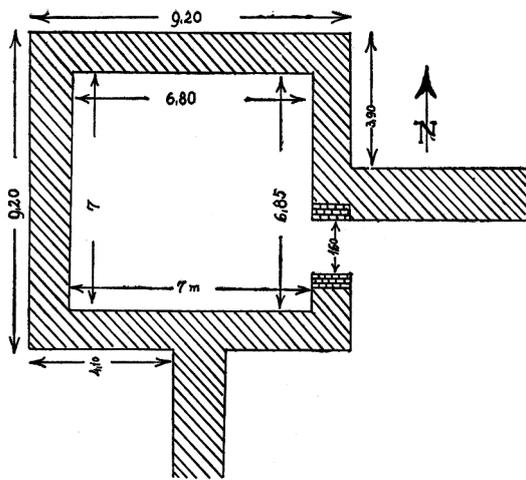


227. [3] Sapaja Island – section of the western portico

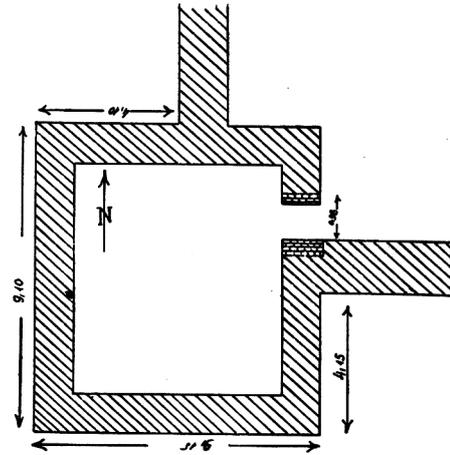


228. [4] Veliko Gradište/Pincum

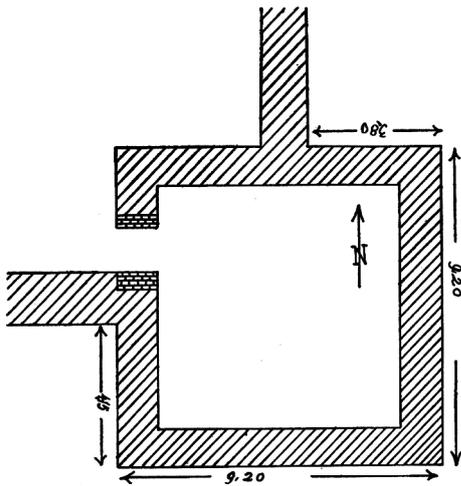




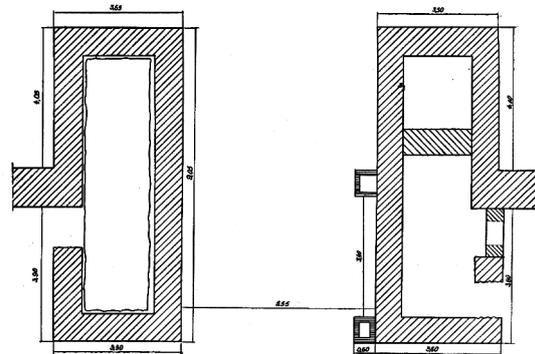
a. N-W tower



b. S-W tower

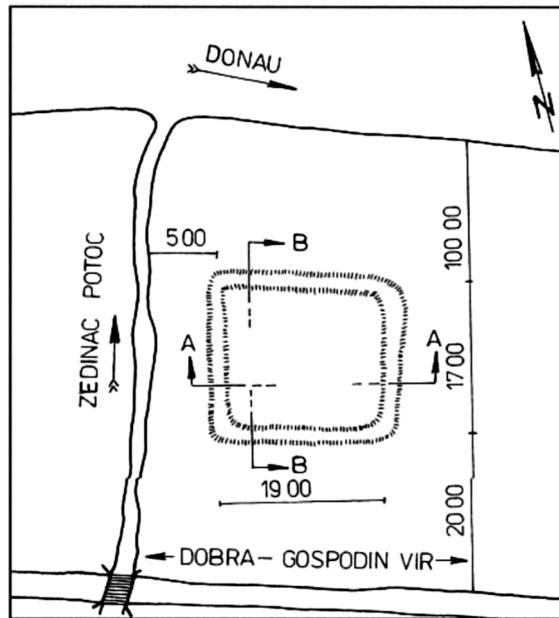


c. S-E tower

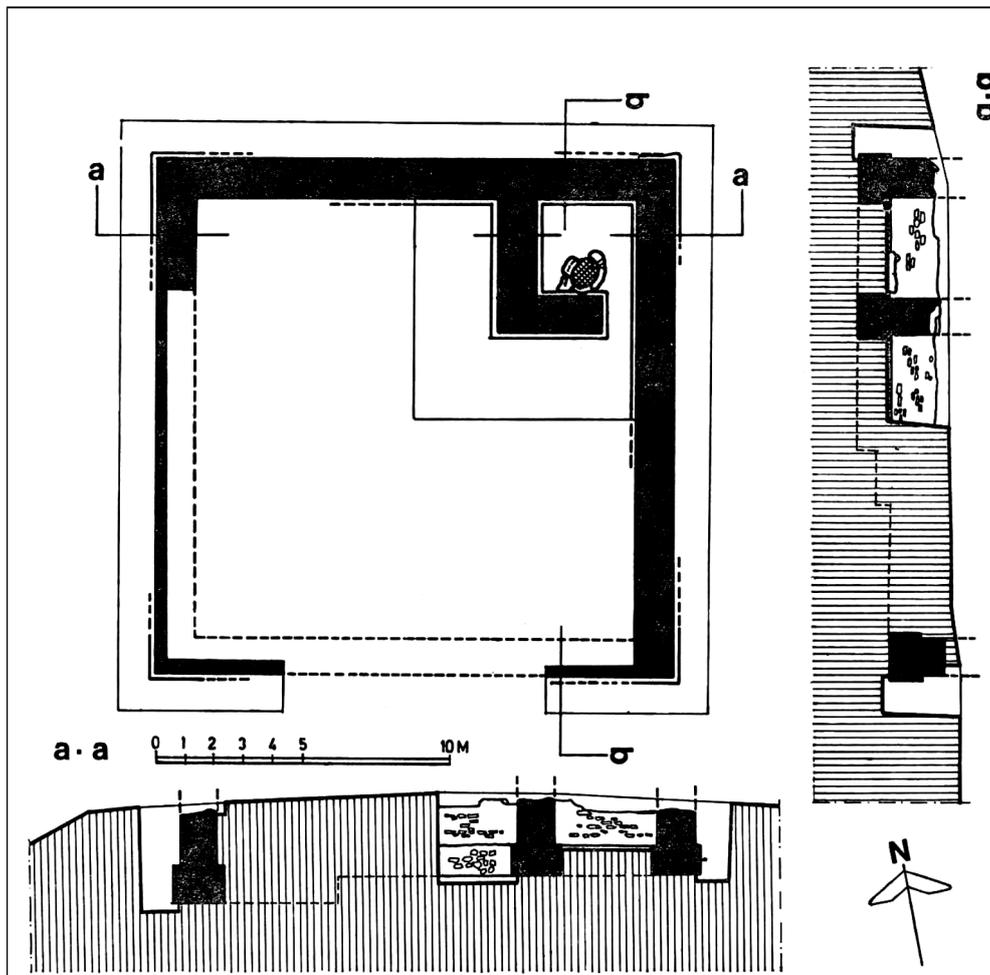


d. gate

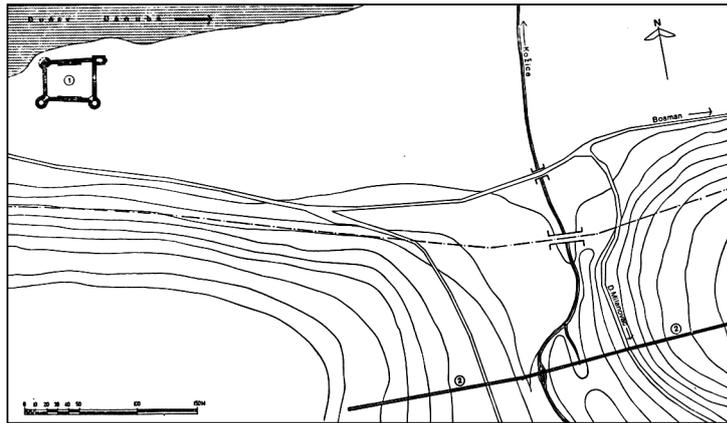
231. [5] Gornea



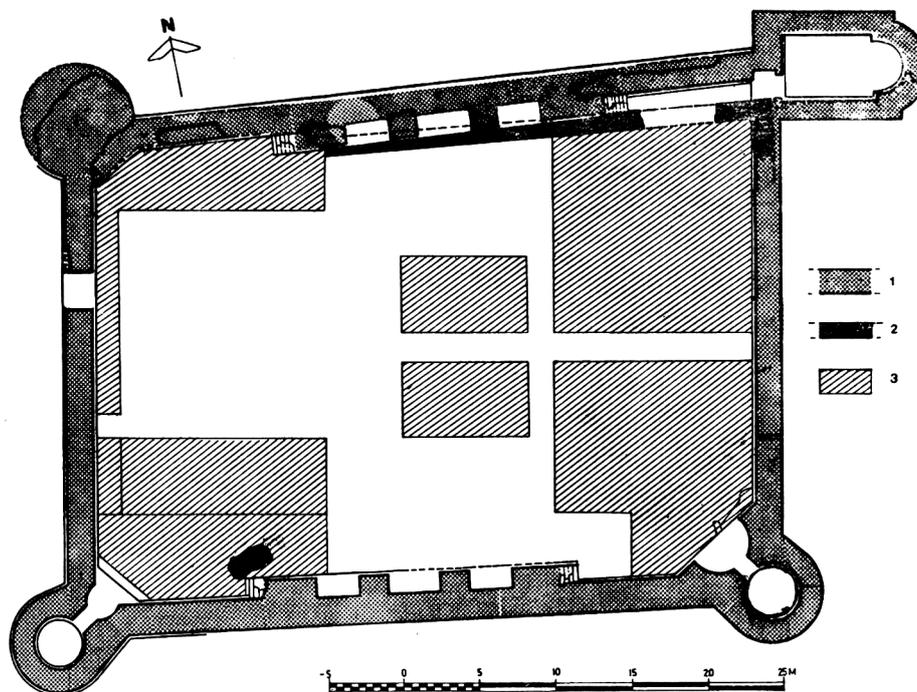
232. [6] Zidinac



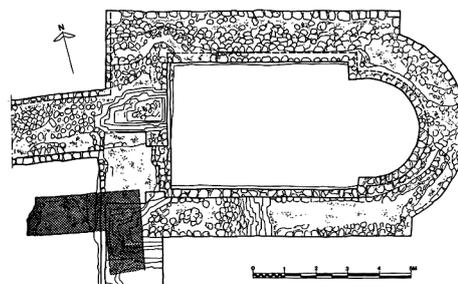
233. [6] Zidinac



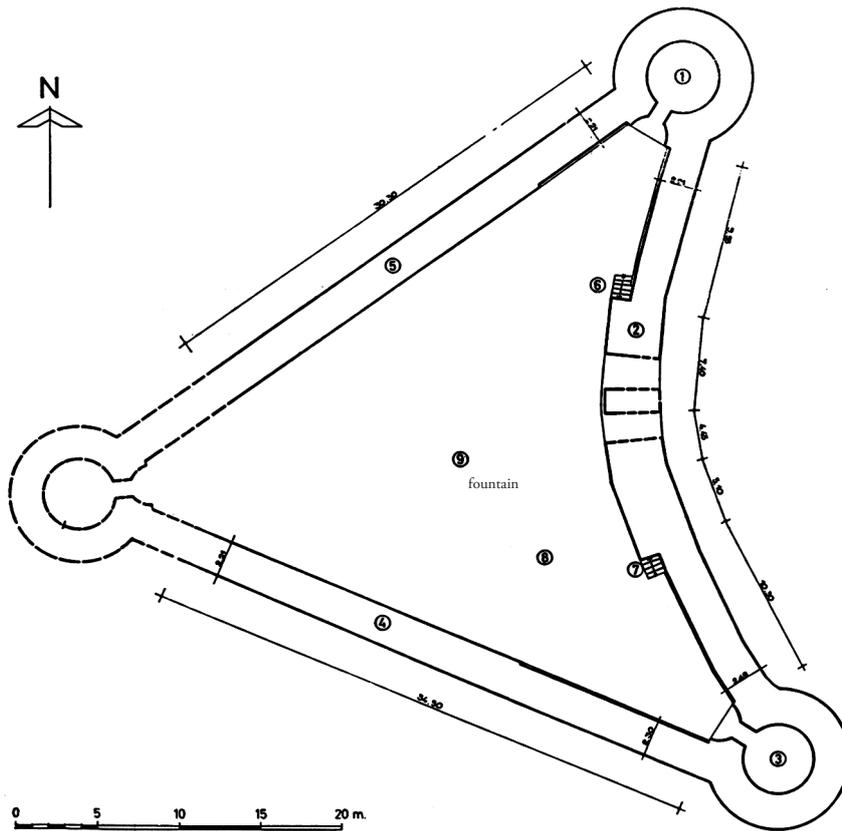
234. [7] Dobra-“Saldum“



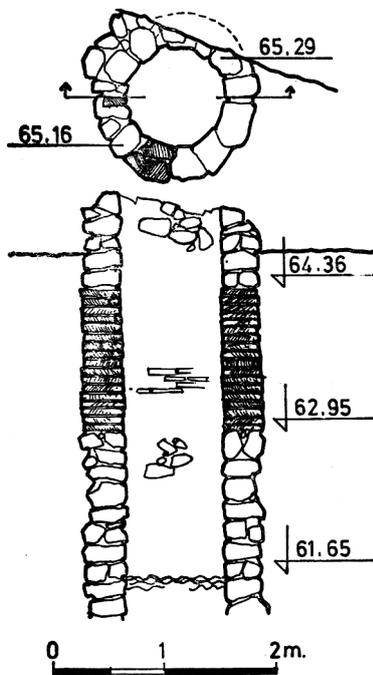
235. [7] Dobra-“Saldum“



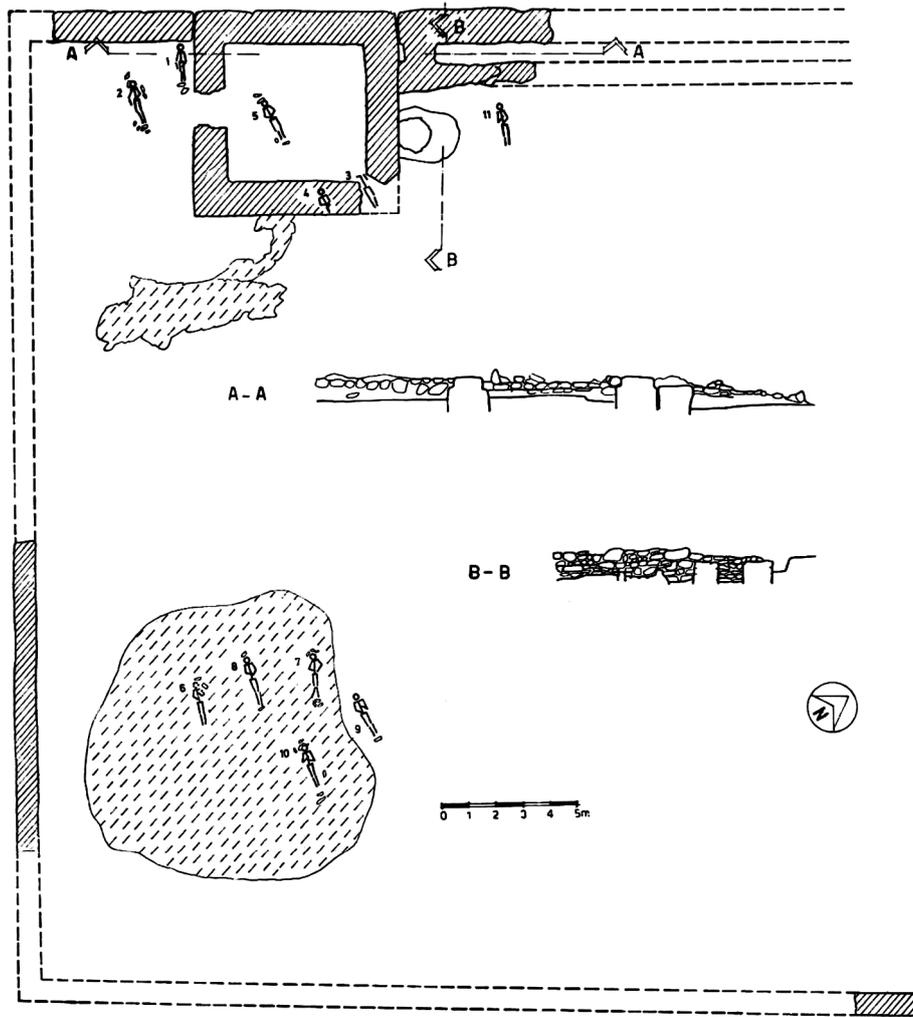
236. [7] Dobra-“Saldum“



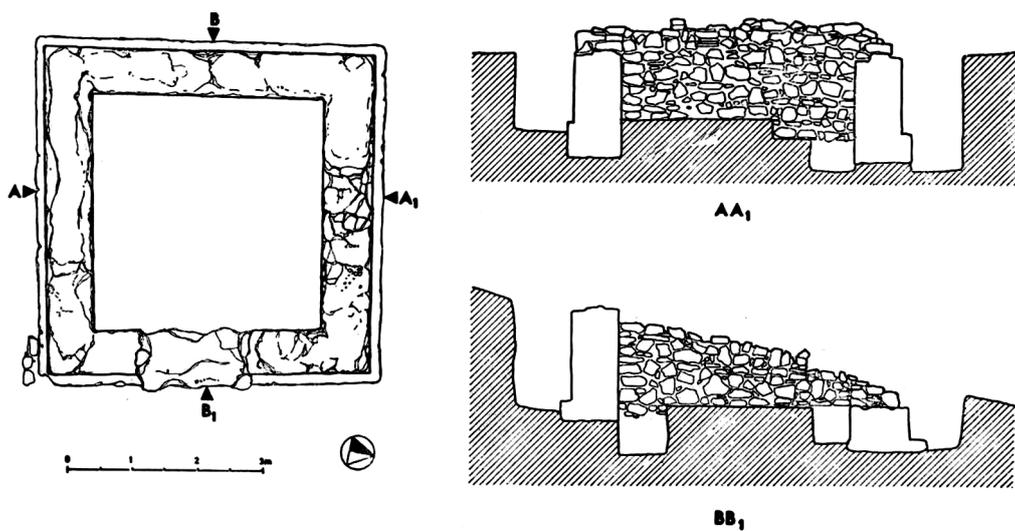
237. [8] Bosman



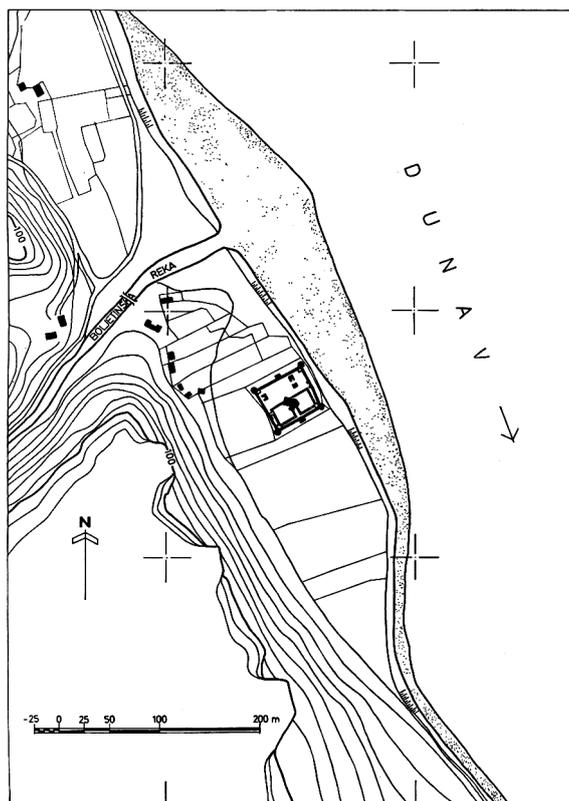
238. [8] Bosman



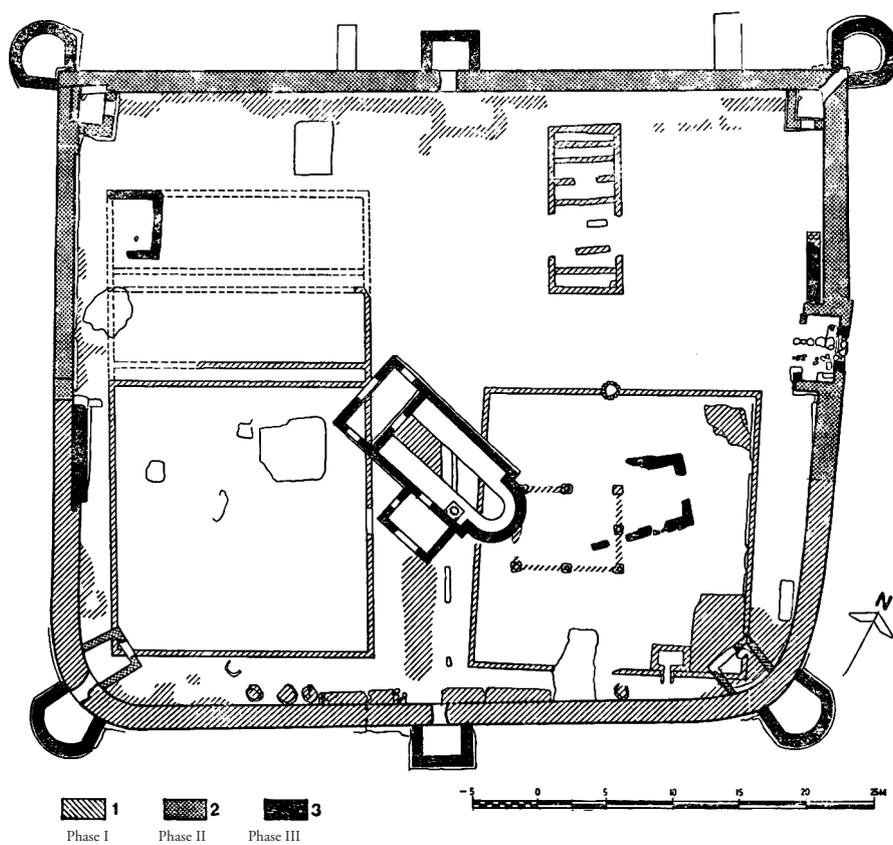
239. [9] Pesača



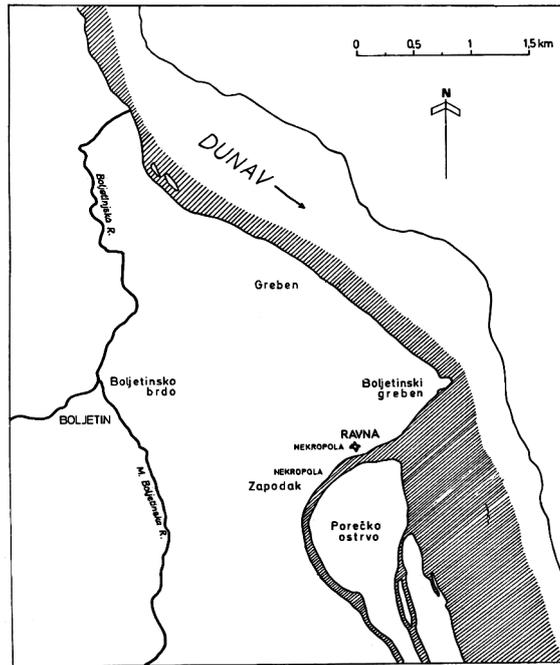
240. [10] Lepenski Vir



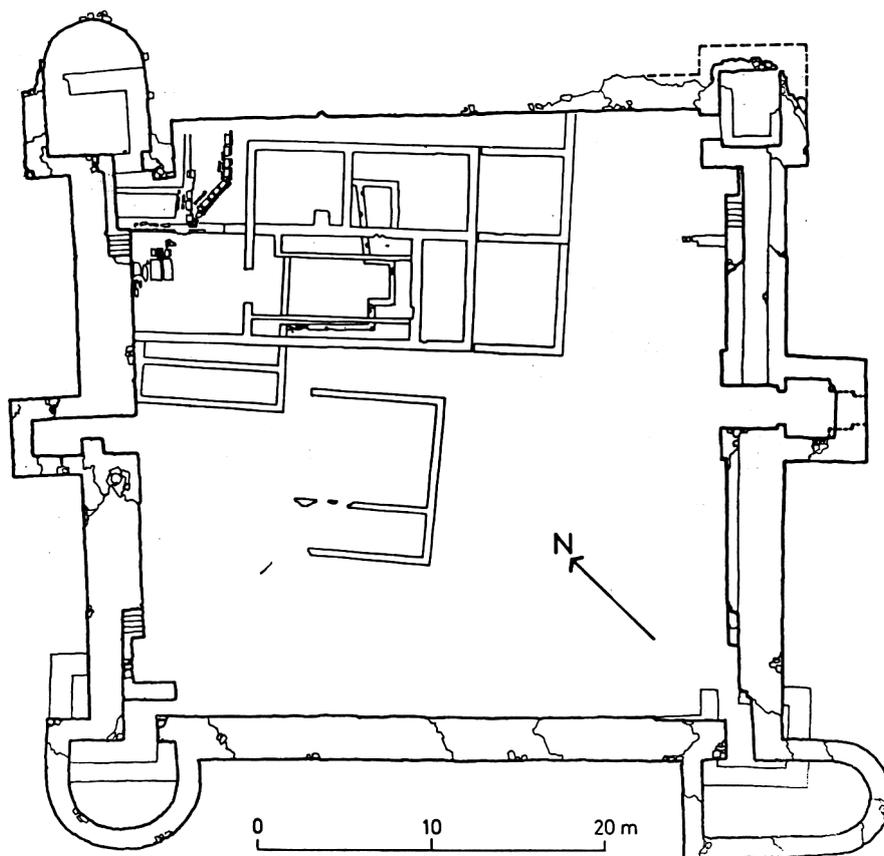
241. [11] Boljetin/Smorna



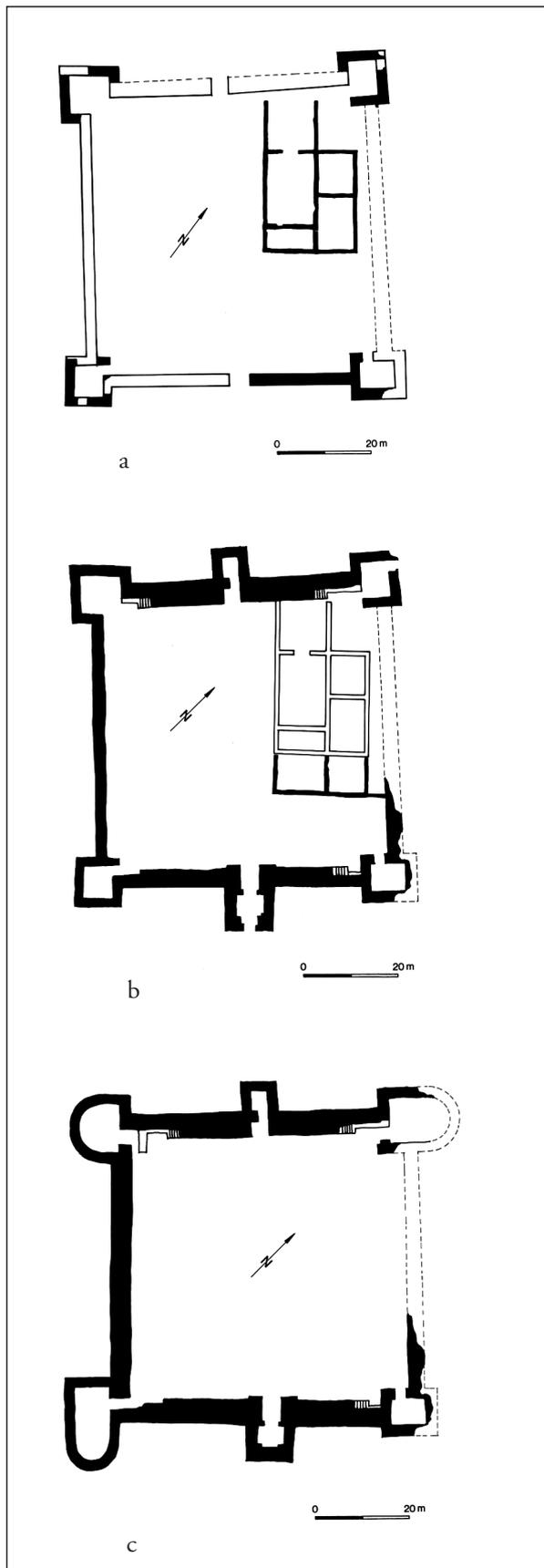
242. [11] Boljetin/Smorna



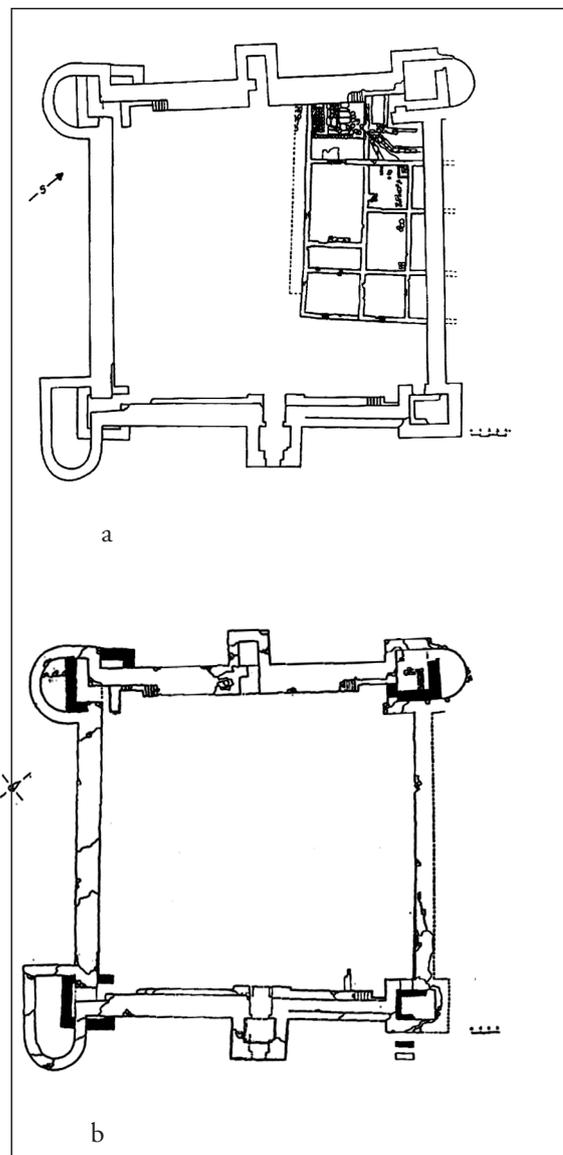
243. [12] Ravnal/Campsa



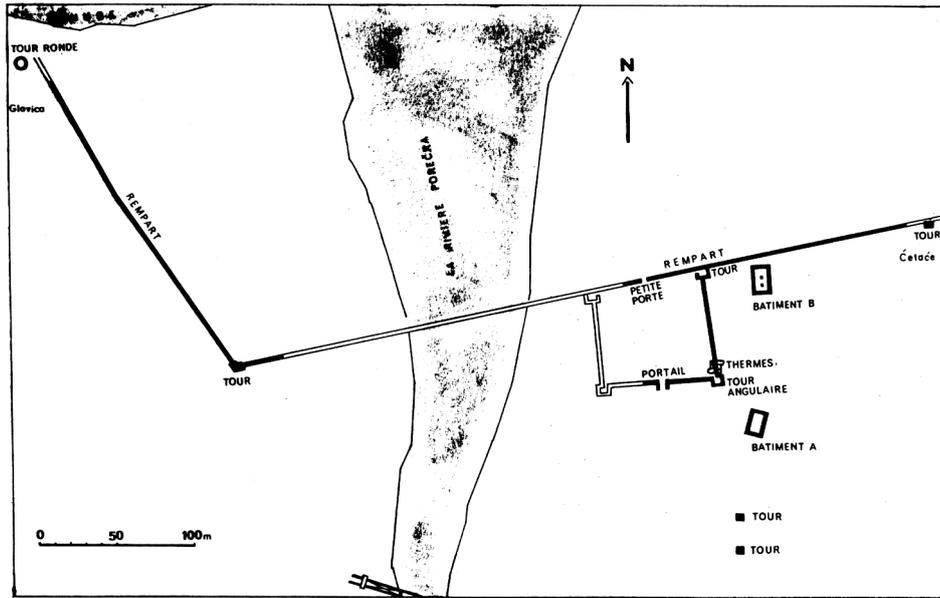
244. [12] Ravnal/Campsa



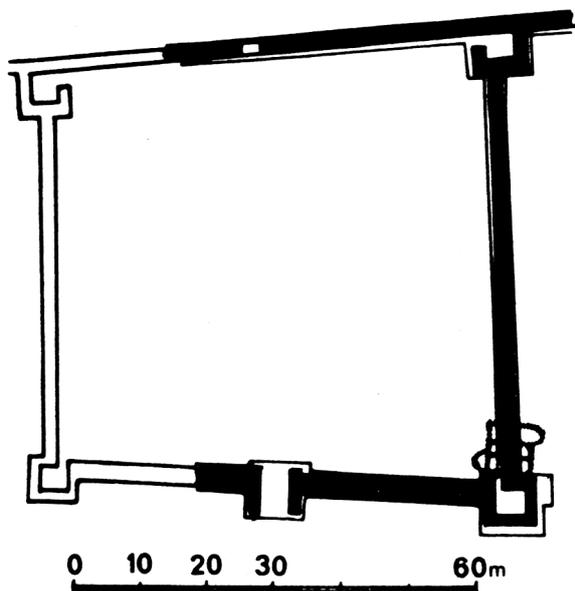
245. [12] Ravna/Campsă



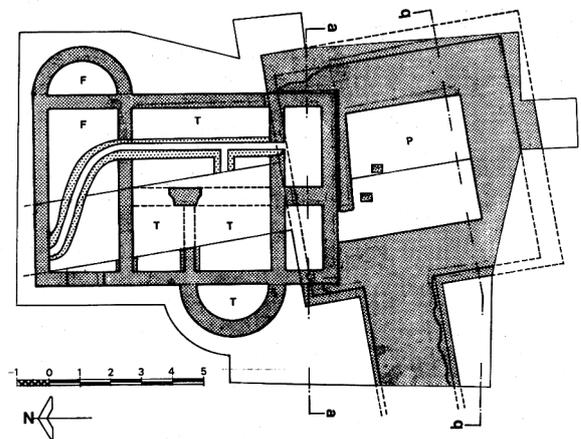
246. [12] Ravna/Campsă



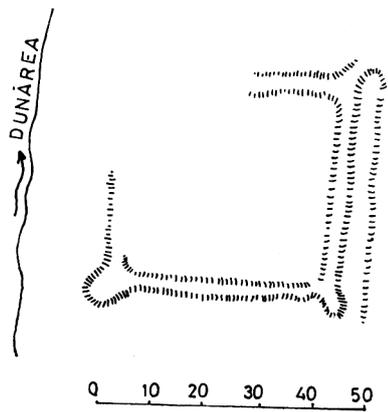
247. [13] Porečka Reka



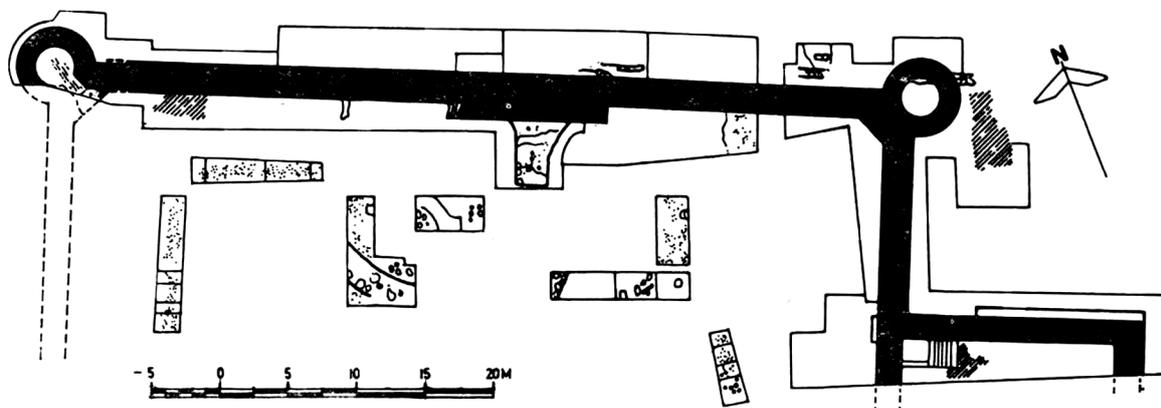
248. [13] Porečka Reka



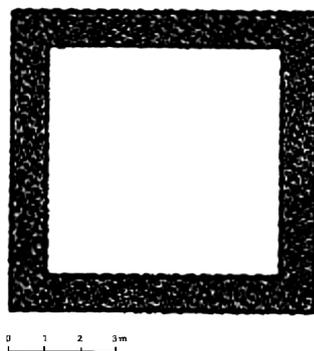
249. [13] Porečka Reka



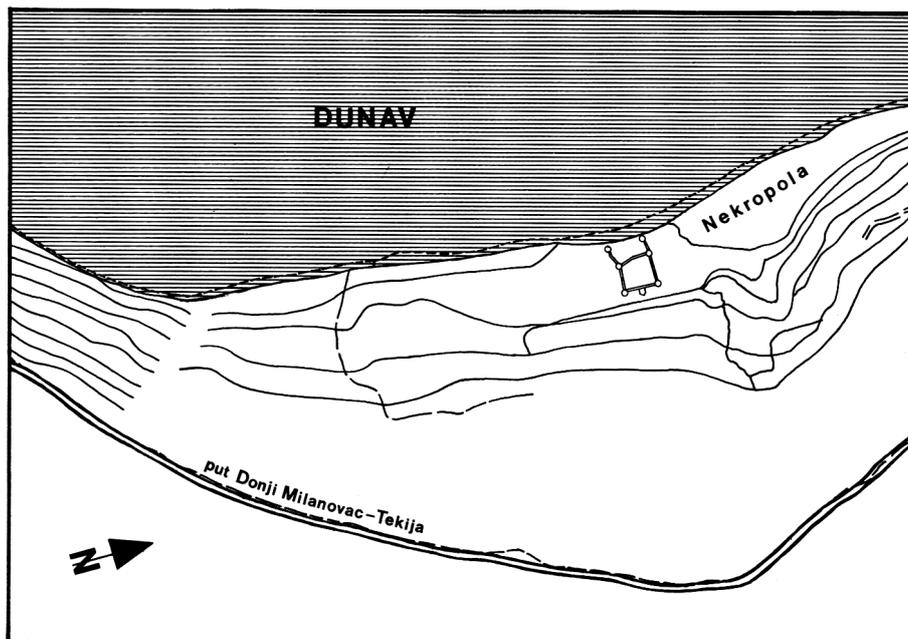
250. [14] Malo Golubinje



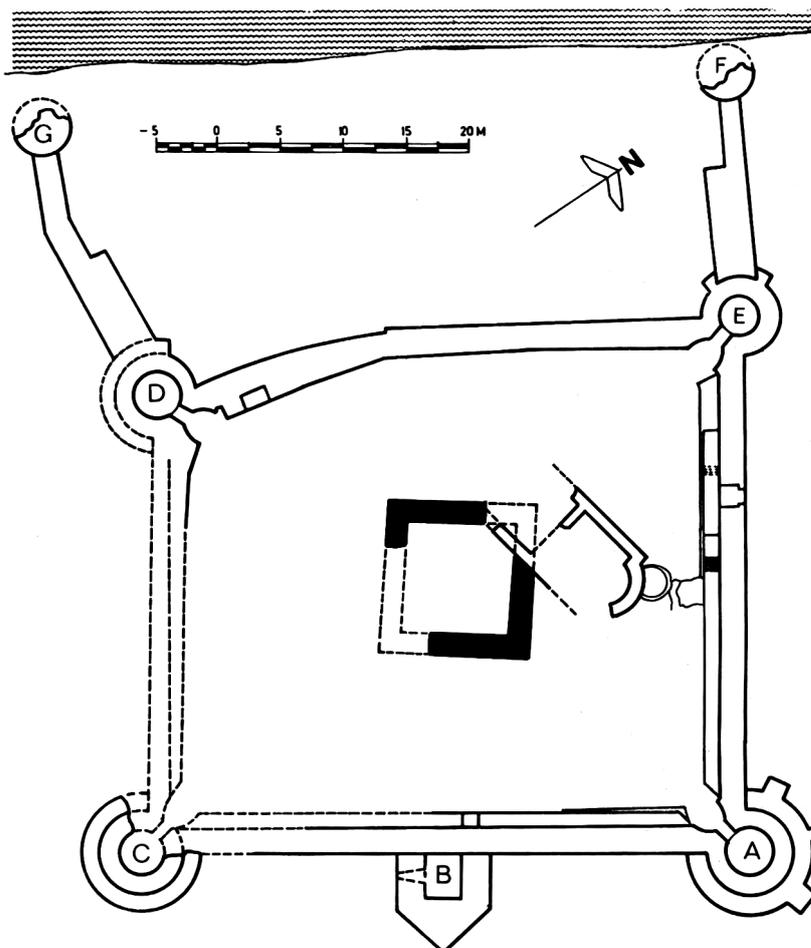
251. [14] Malo Golubinje



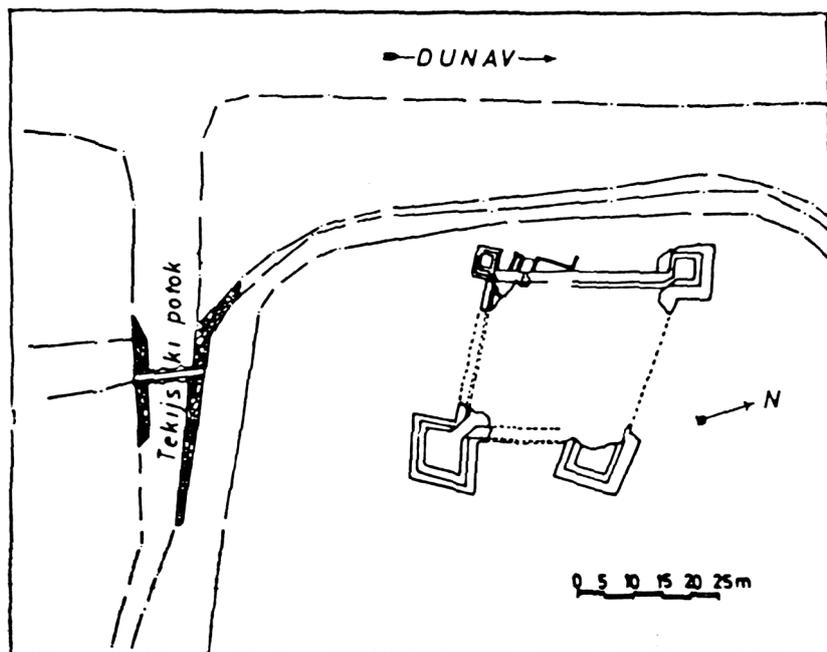
252. [15] Malo Golubinje-“Nešin potok“



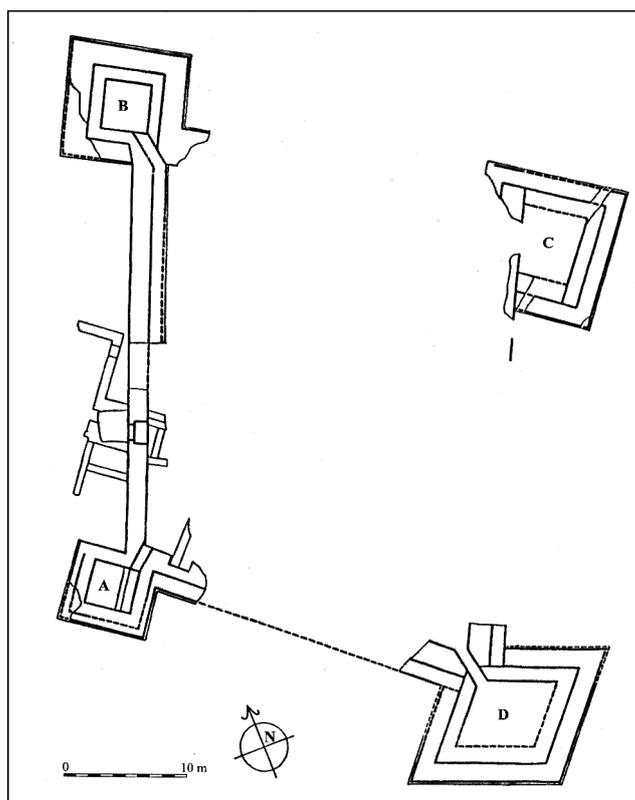
253. [16] Hajdučka Vodenica



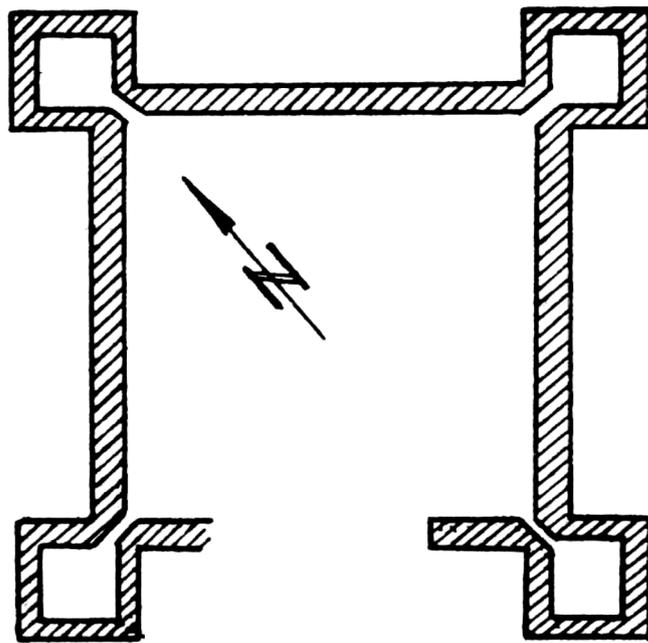
254. [16] Hajdučka Vodenica



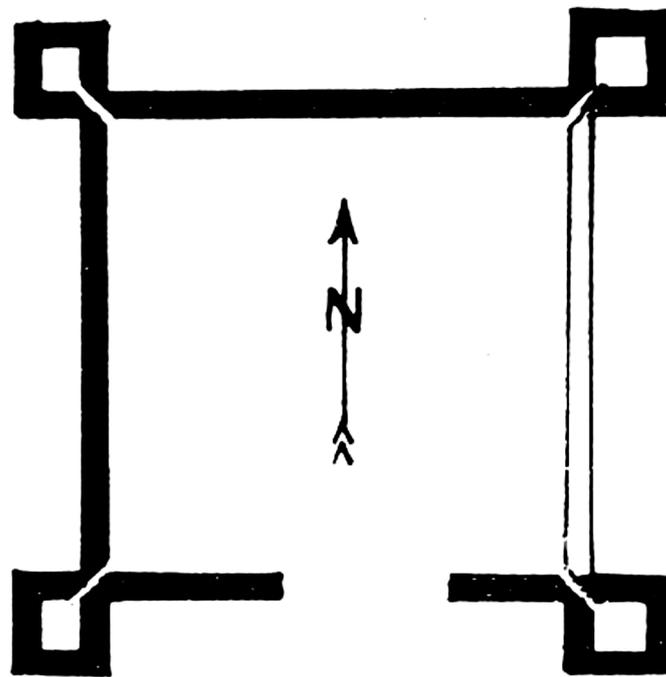
255. [17] Tekija/Transdierna



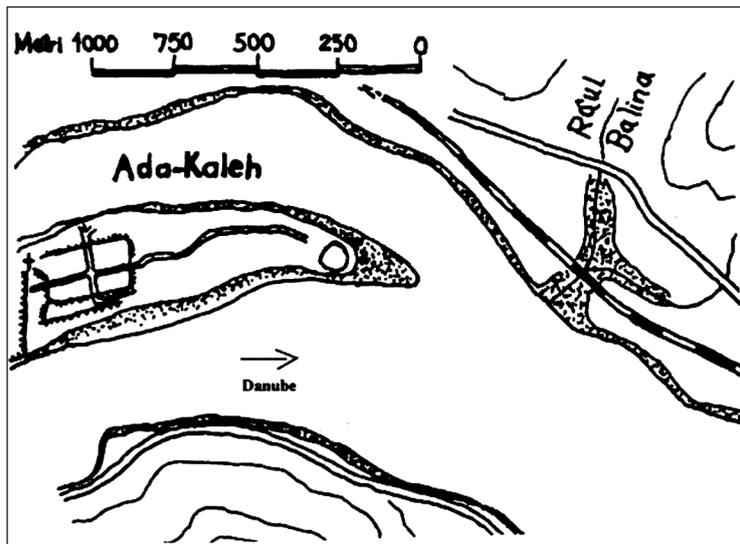
256. [17] Tekija/Transdierna



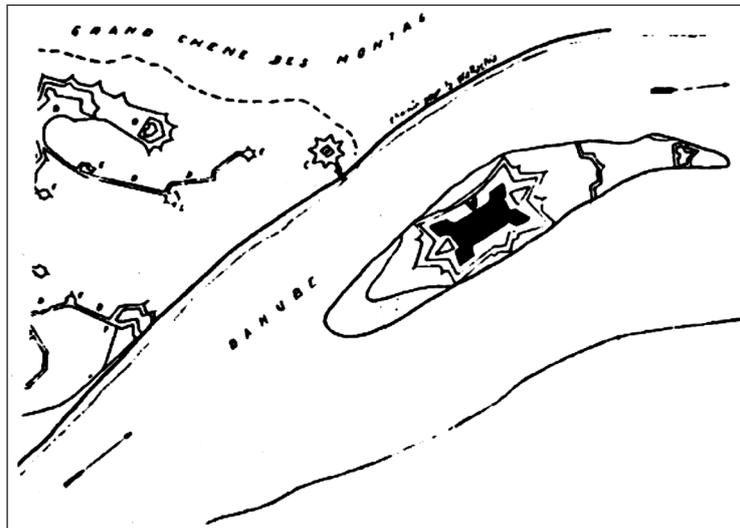
257. [18] Orșova/Dierna



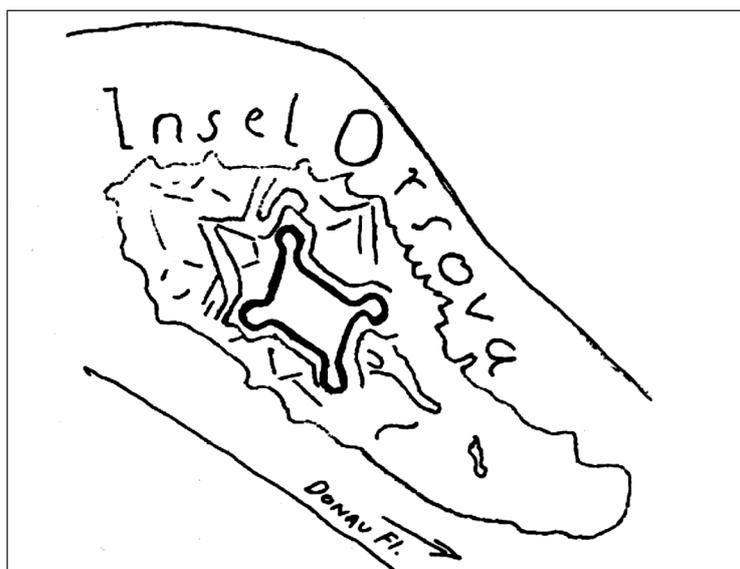
258. [18] Orșova/Dierna



a

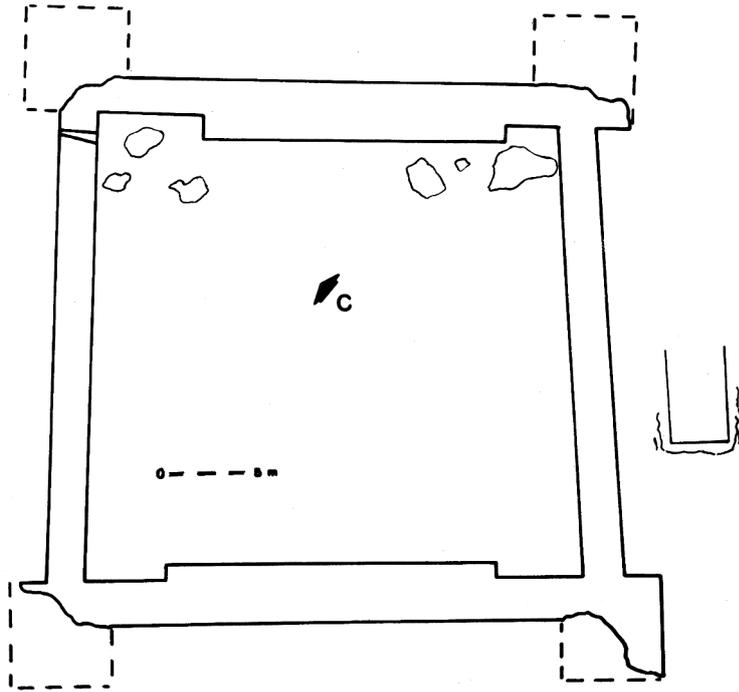


b

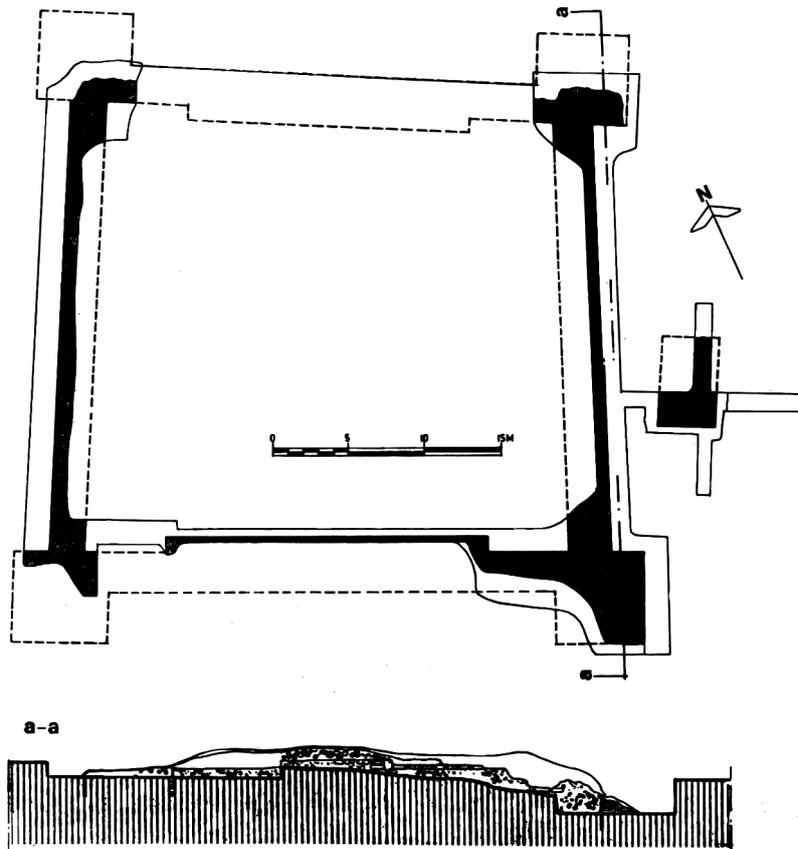


c

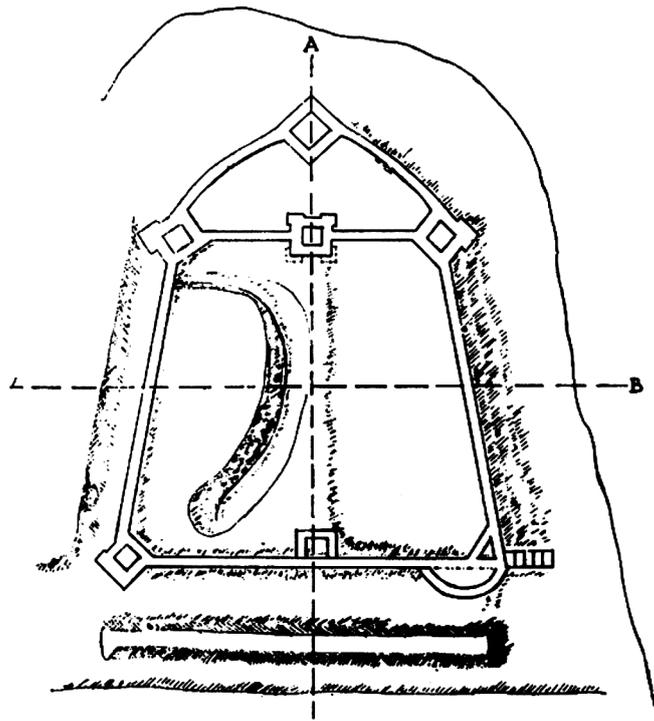
259. [19] Ada-Kaleh Island



260. [20] Sip



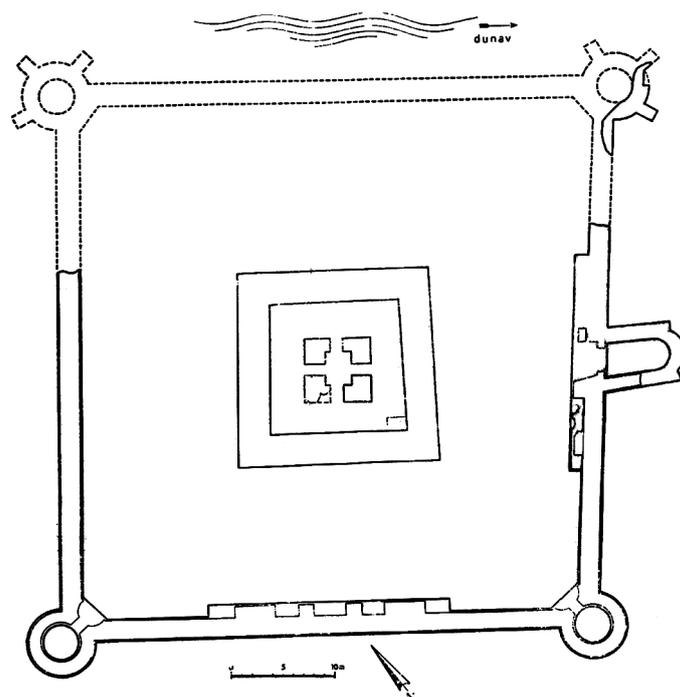
261. [20] Sip



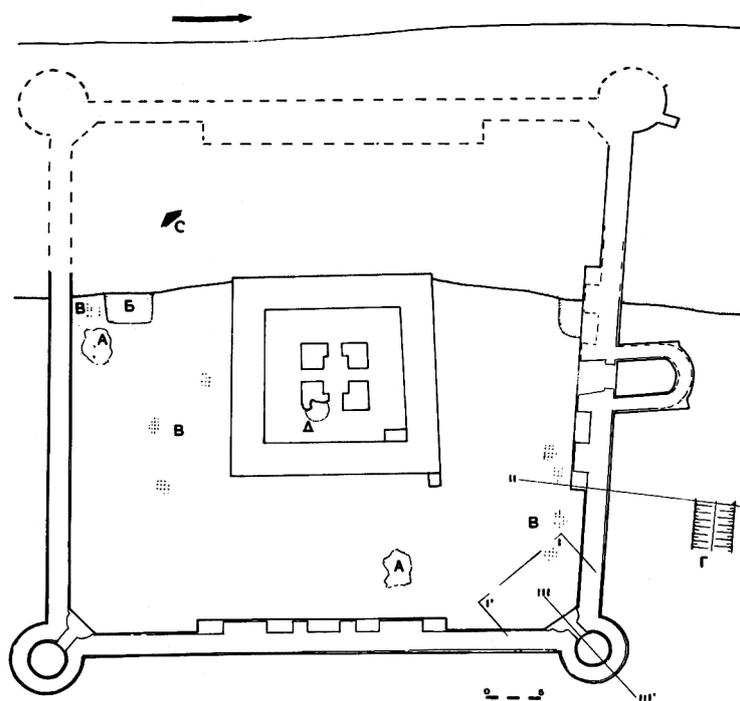
262. [21] Insula Banului



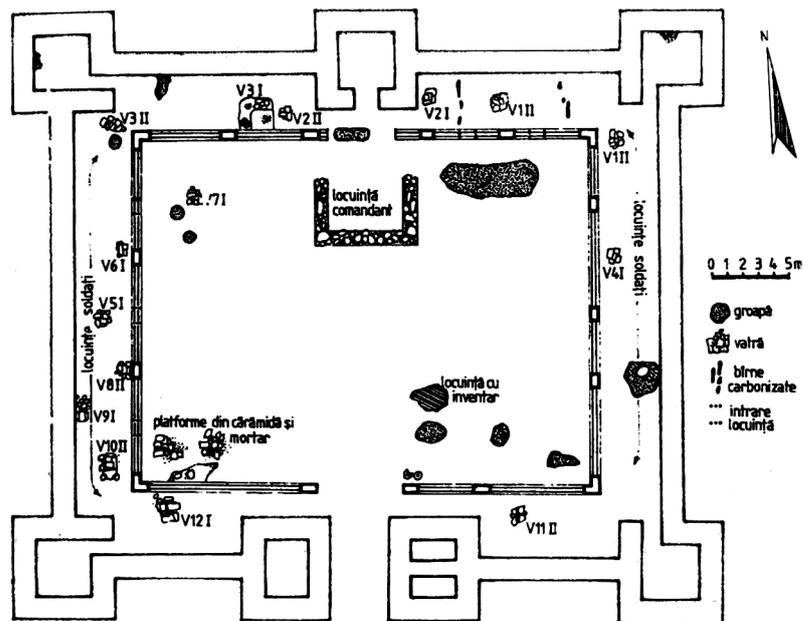
263. [21] Insula Banului



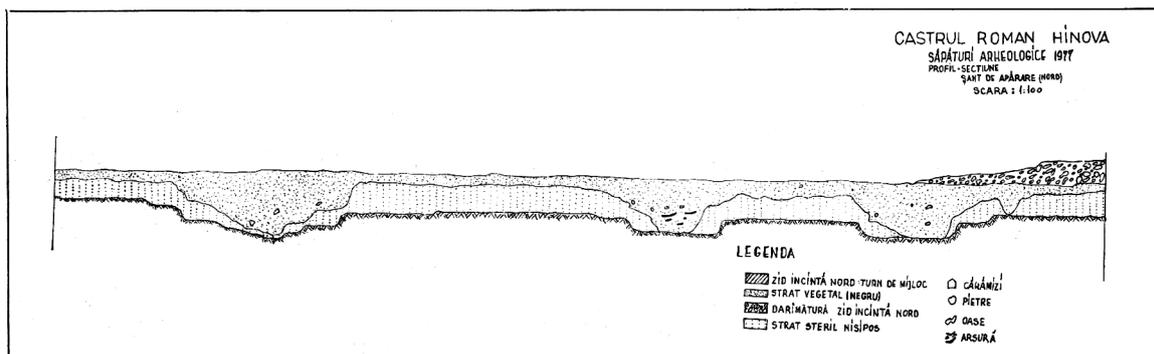
264. [22] Kladovo-“Donje Butorke“



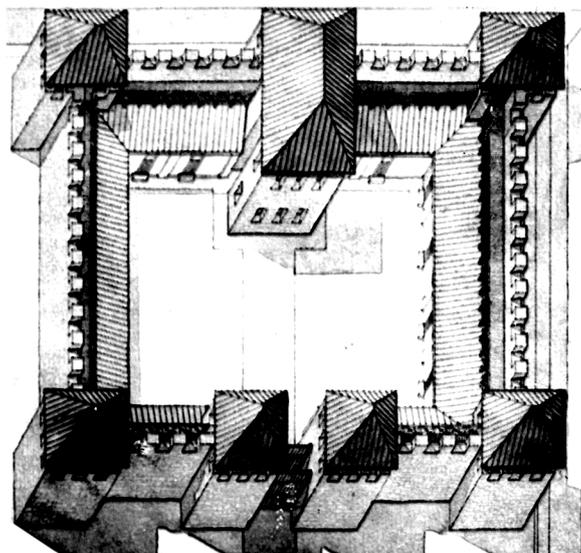
265. [22] Kladovo-“Donje Butorke“



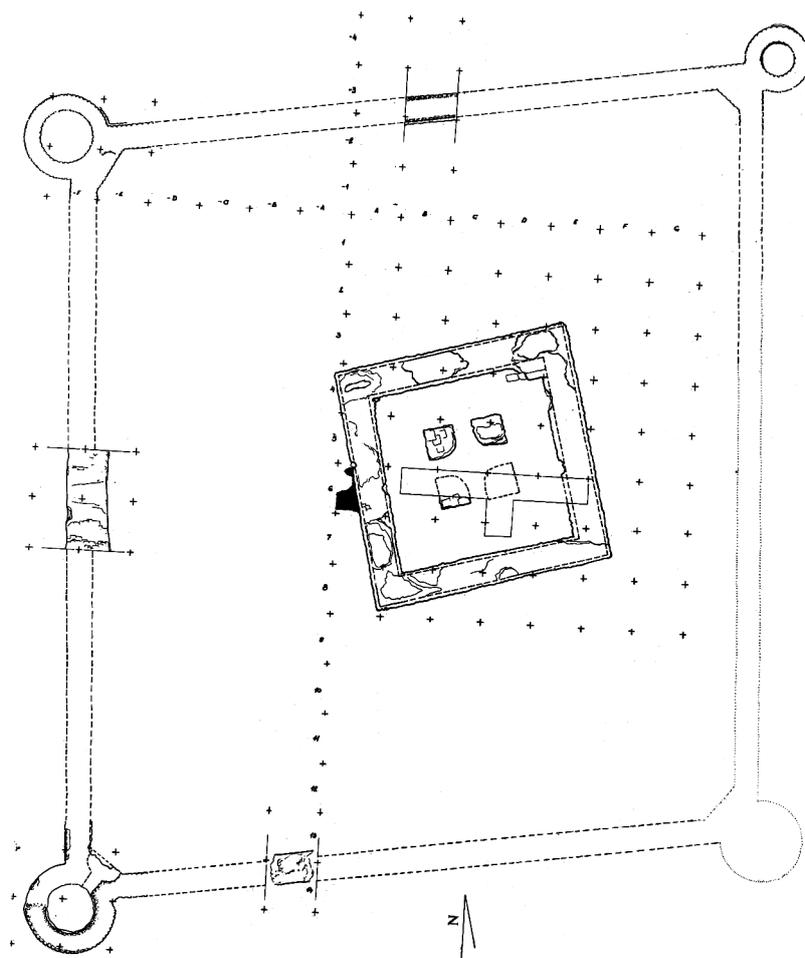
266. [23] Hinova



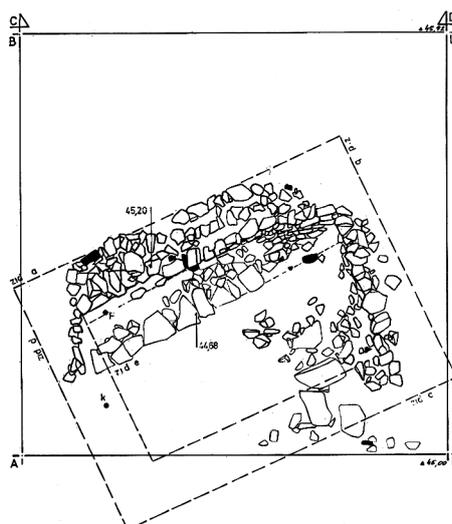
267. [23] Hinova



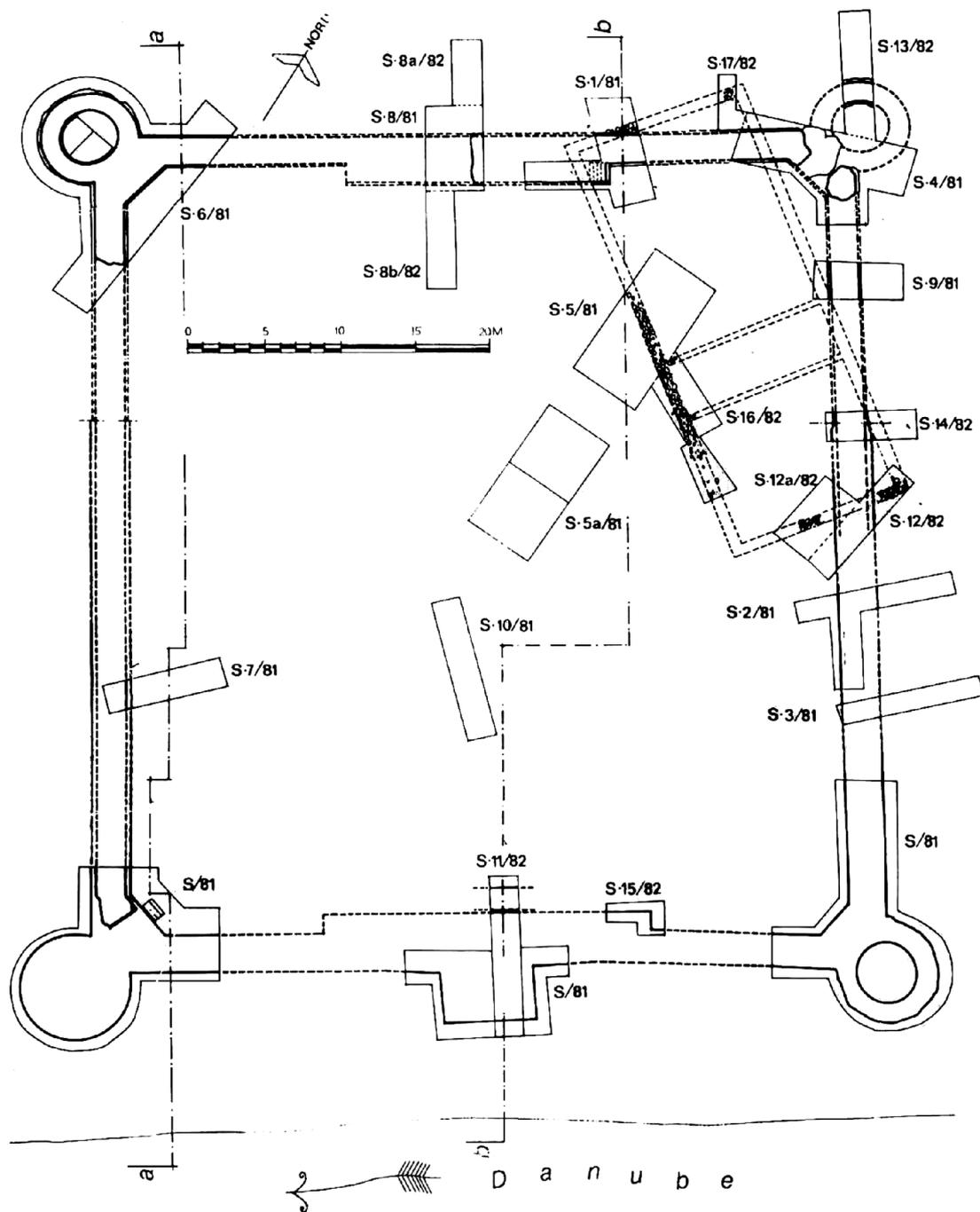
268. [23] Hinova



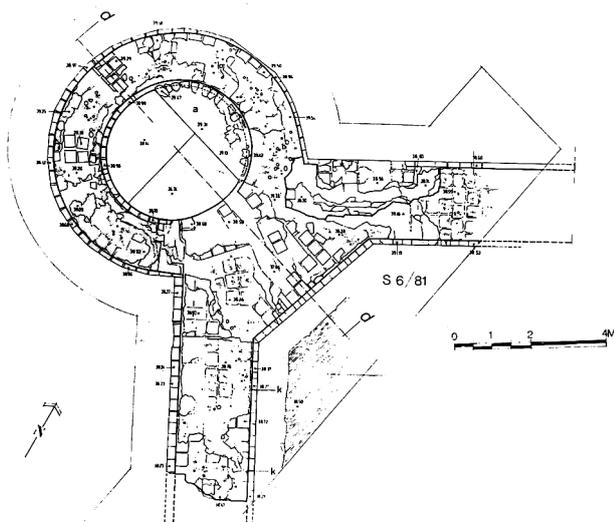
269. [24] Rtkovo-‘Glamija’



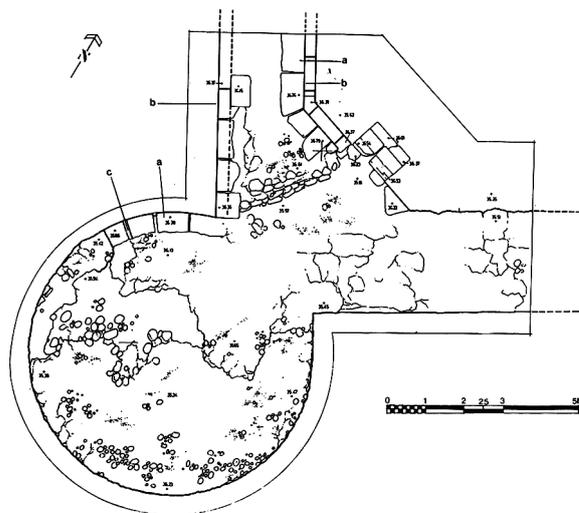
270. [25] Korbovo



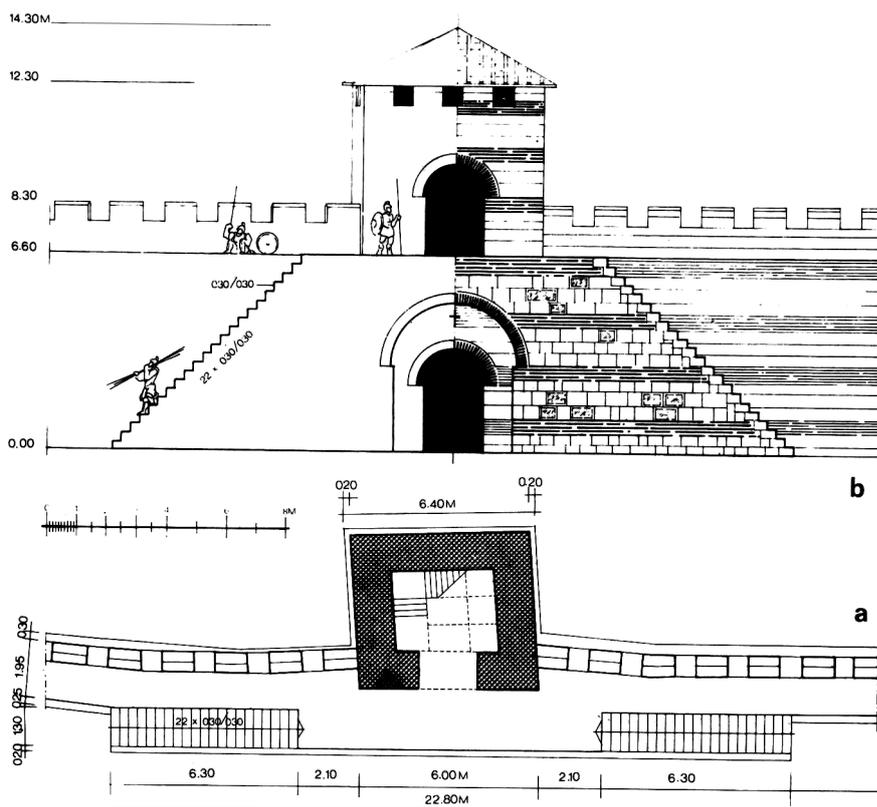
271. [26] Milutinovac



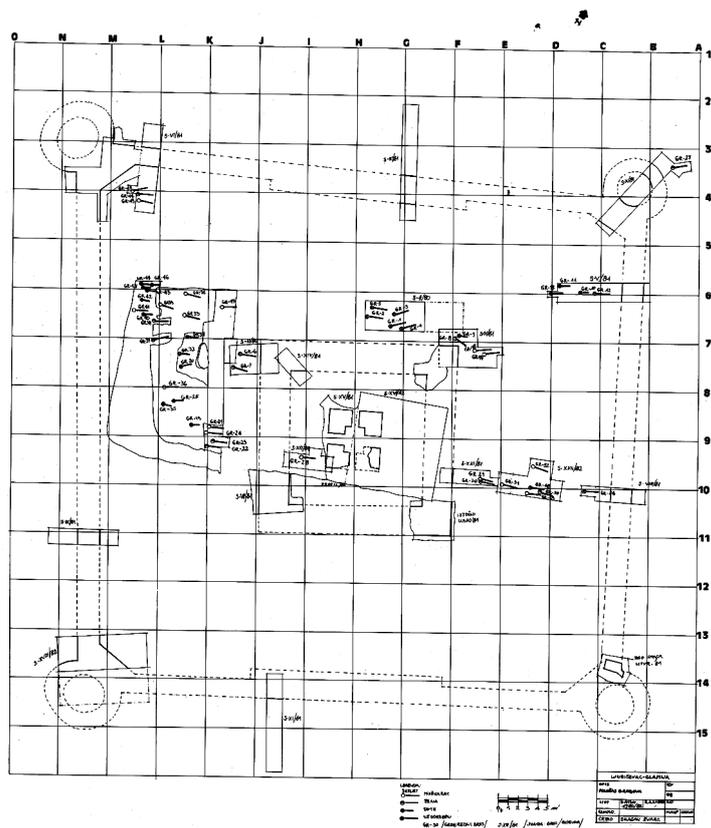
272. [26] Milutinovac



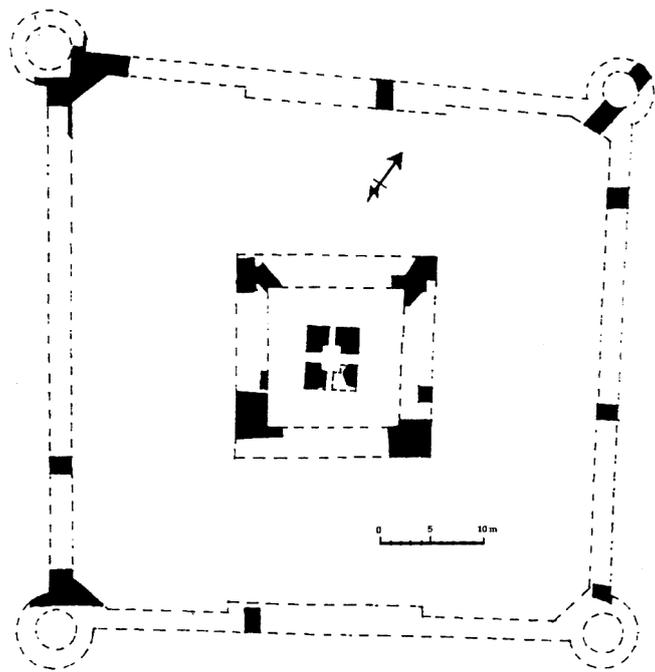
273. [26] Milutinovac



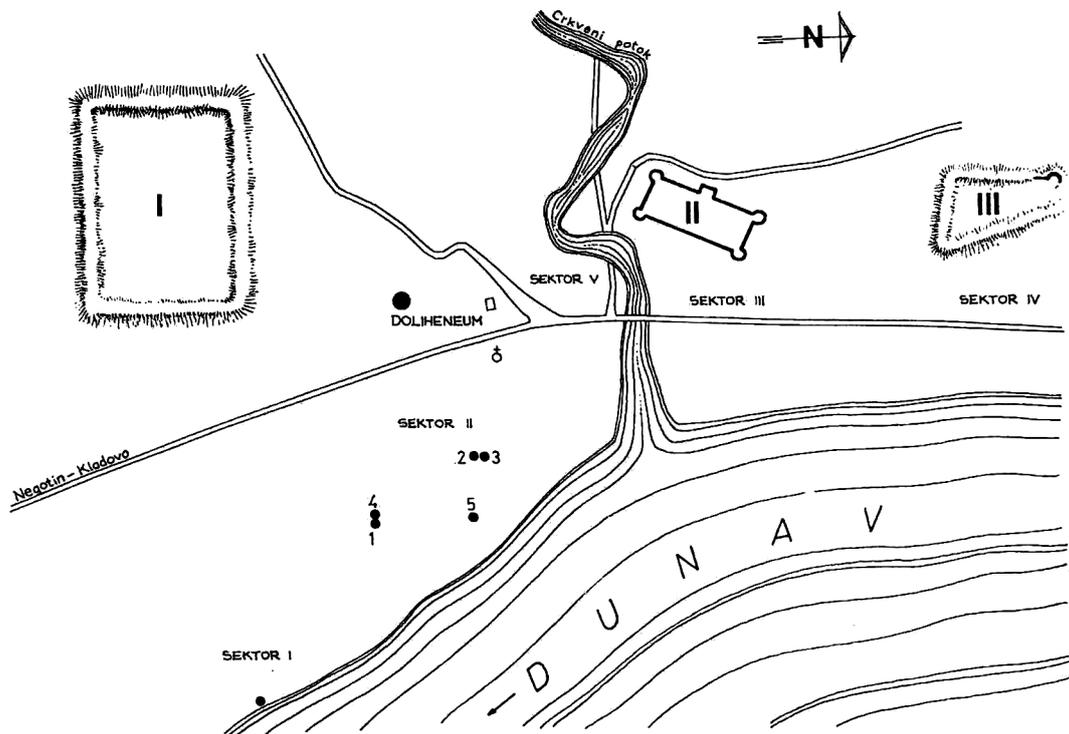
274. [26] Milutinovac



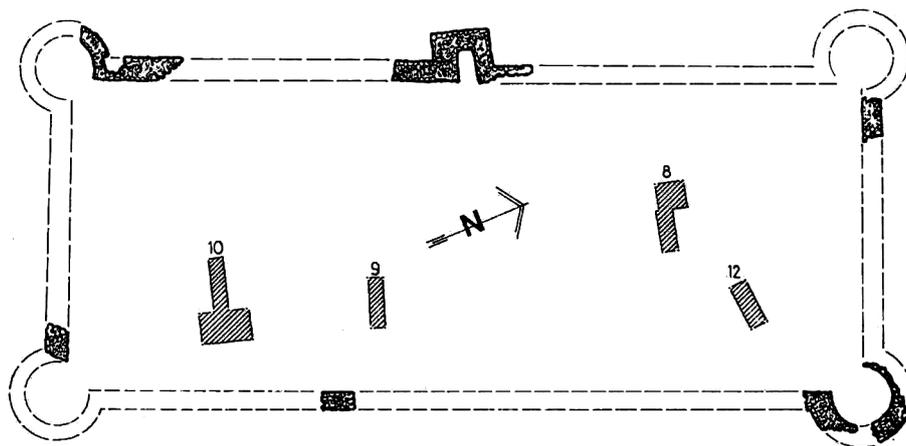
275. [27] Ljubičevac



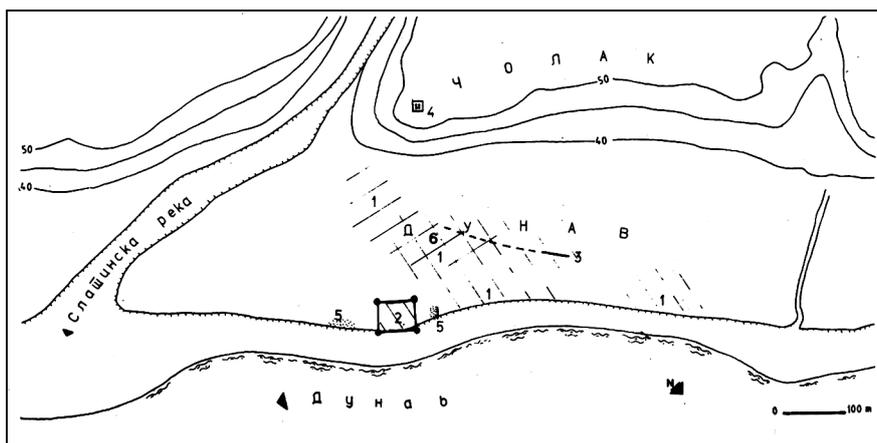
276. [27] Ljubičevac



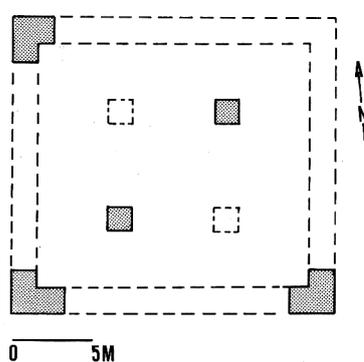
277. [28] Brza Palanka/Egeta



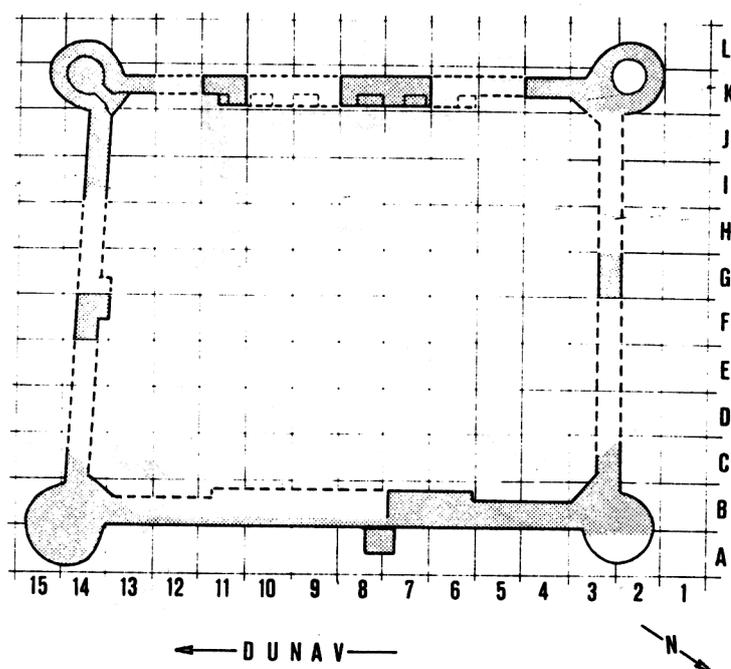
278. [28] Brza Palanka/Egeta – Castellum II



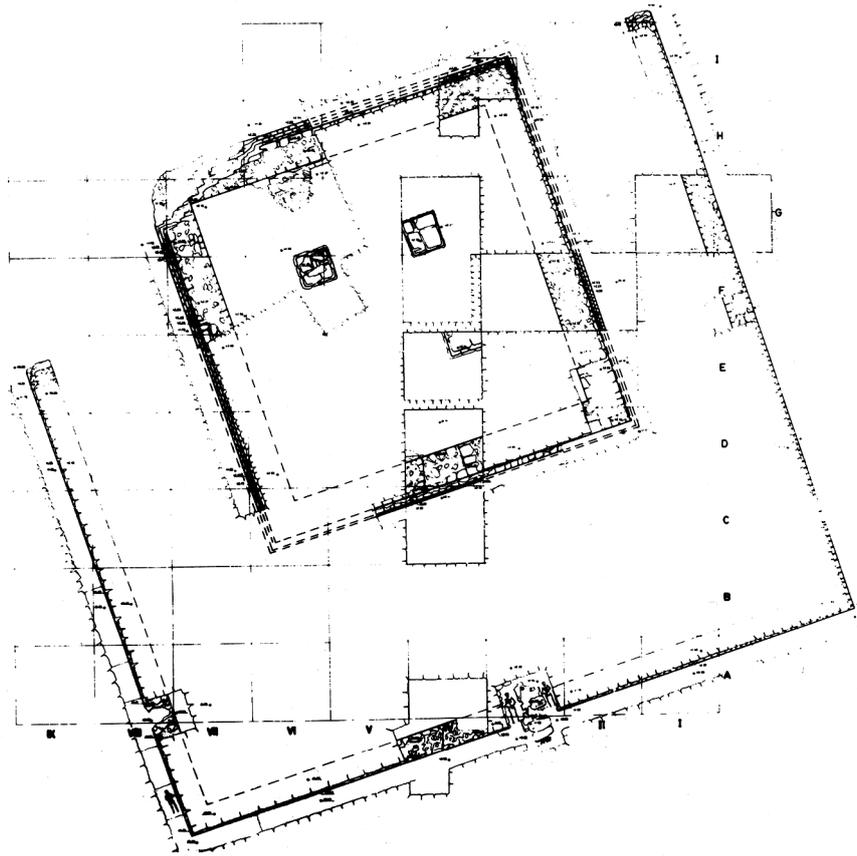
279. [29] Ušće Slatinske Reke



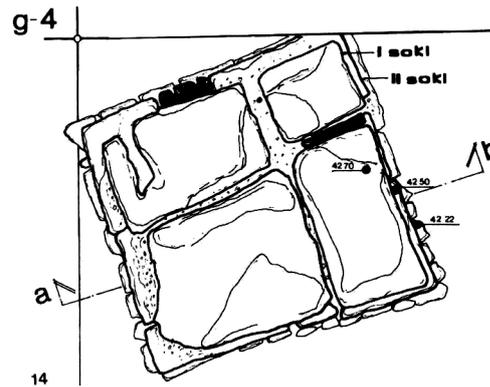
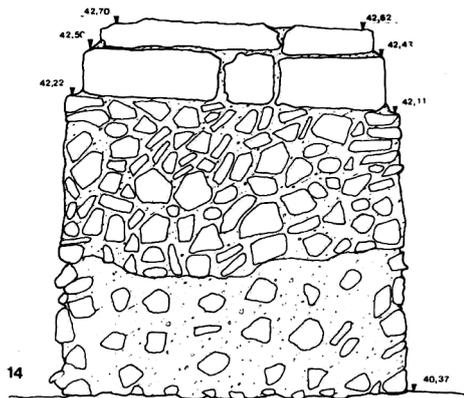
280. [29A] Ušće Slatinske Reke – *burgus*



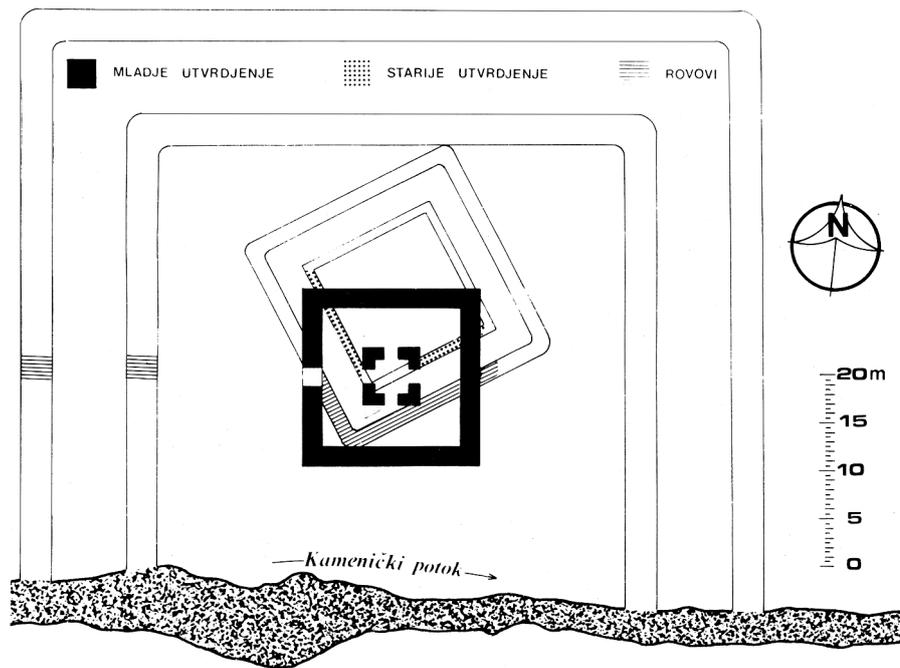
281. [29B] Ušće Slatinske Reke – *quadriburgium*



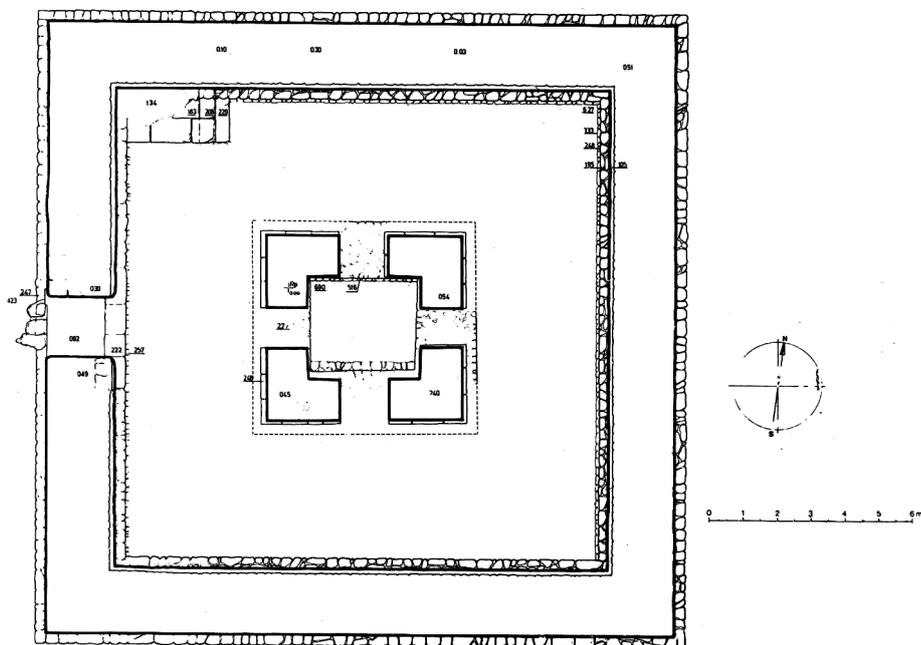
282. [30] Mihajlovac-“Blato”



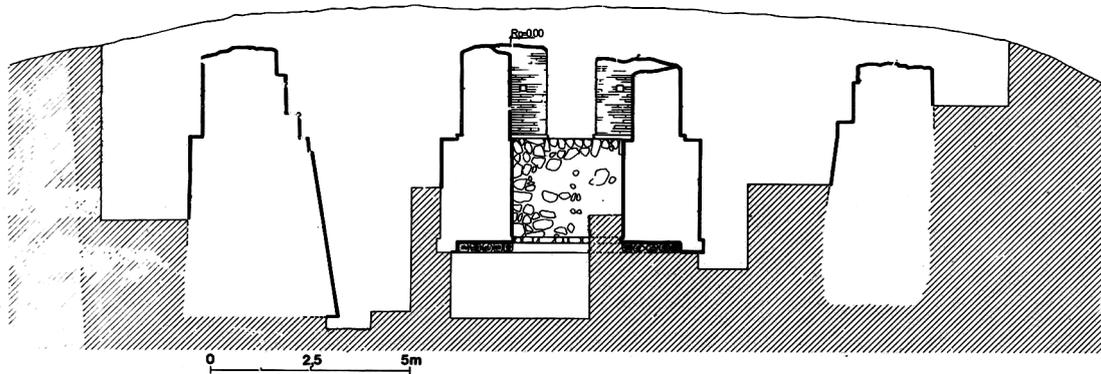
283. [30] Mihajlovac-“Blato”



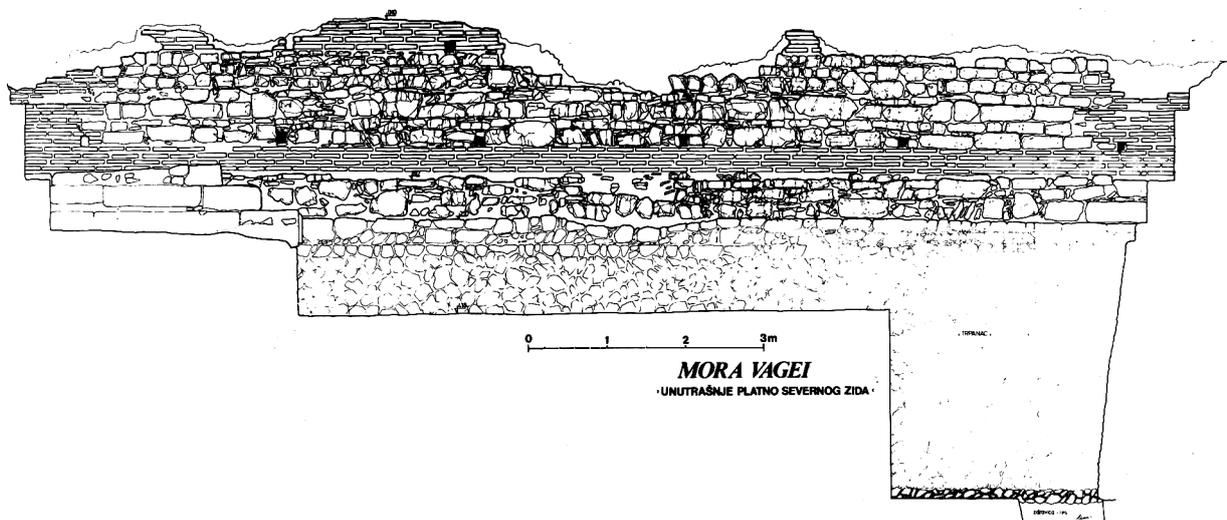
284. [31] Mihajlovac-“Mora Vagei”



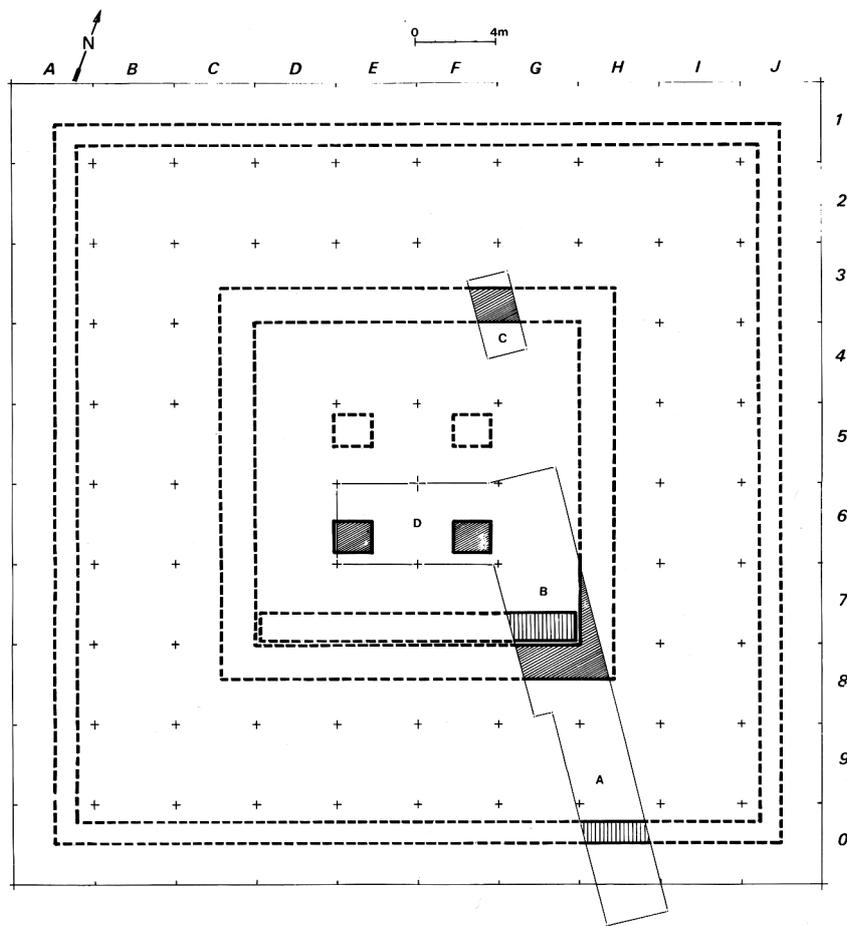
285. [31] Mihajlovac-“Mora Vagei”



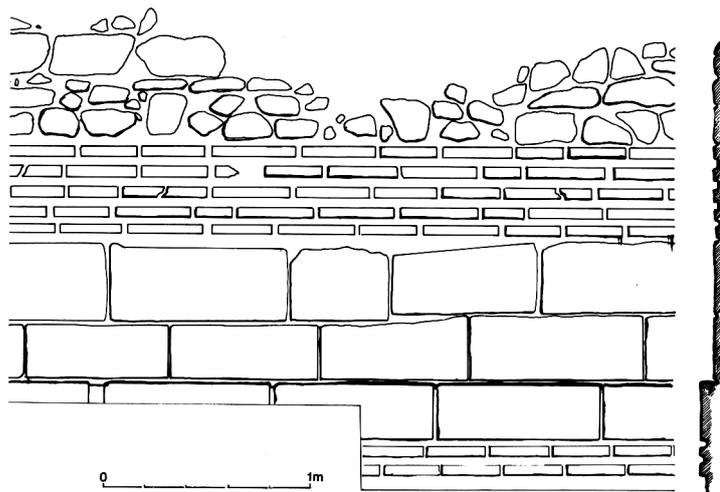
286. [31] Mihajlovac-“Mora Vagei”



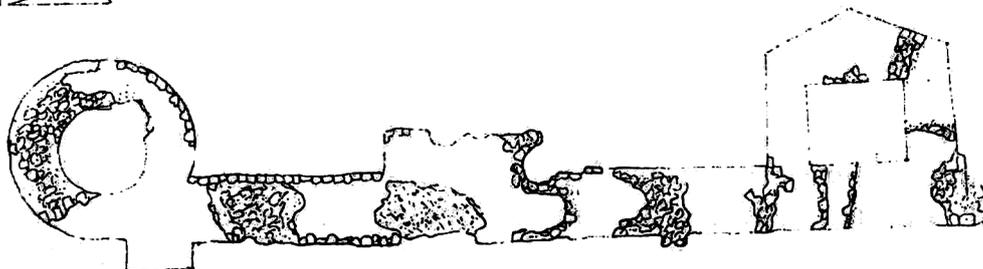
287. [31] Mihajlovac-“Mora Vagei”



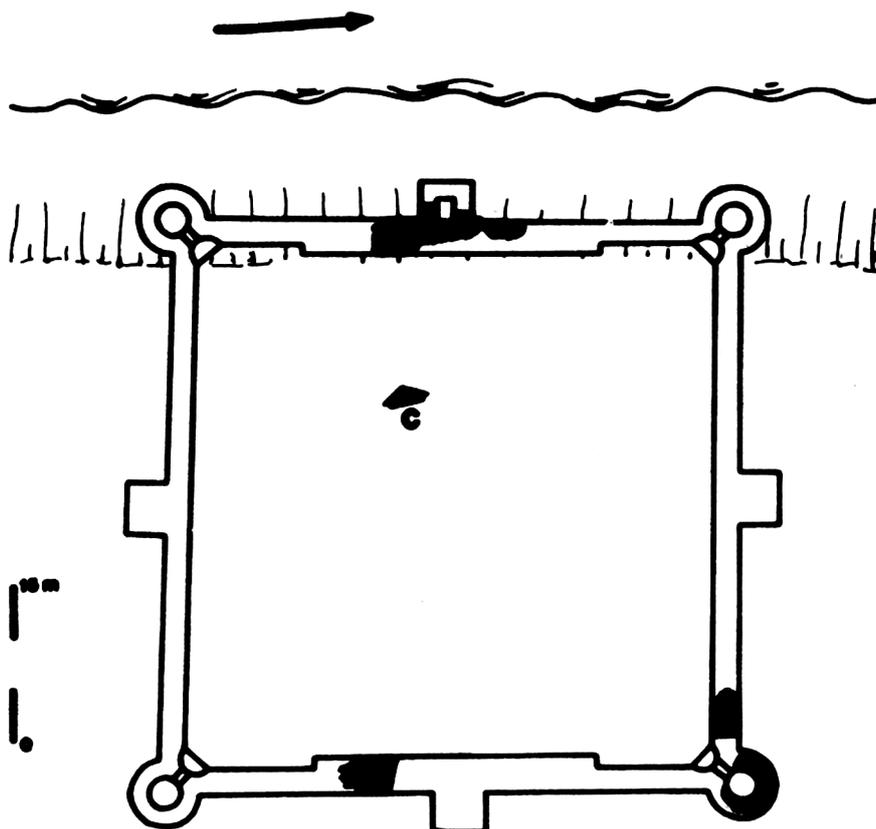
288. [32] Bordej



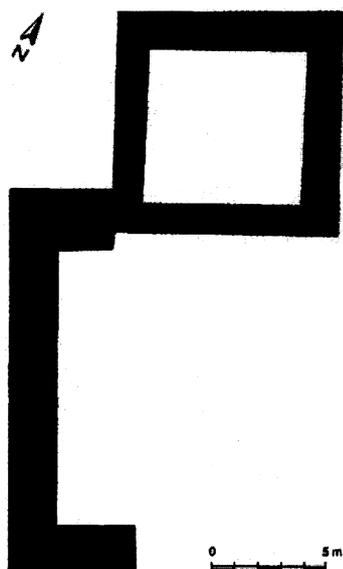
289. [32] Bordej



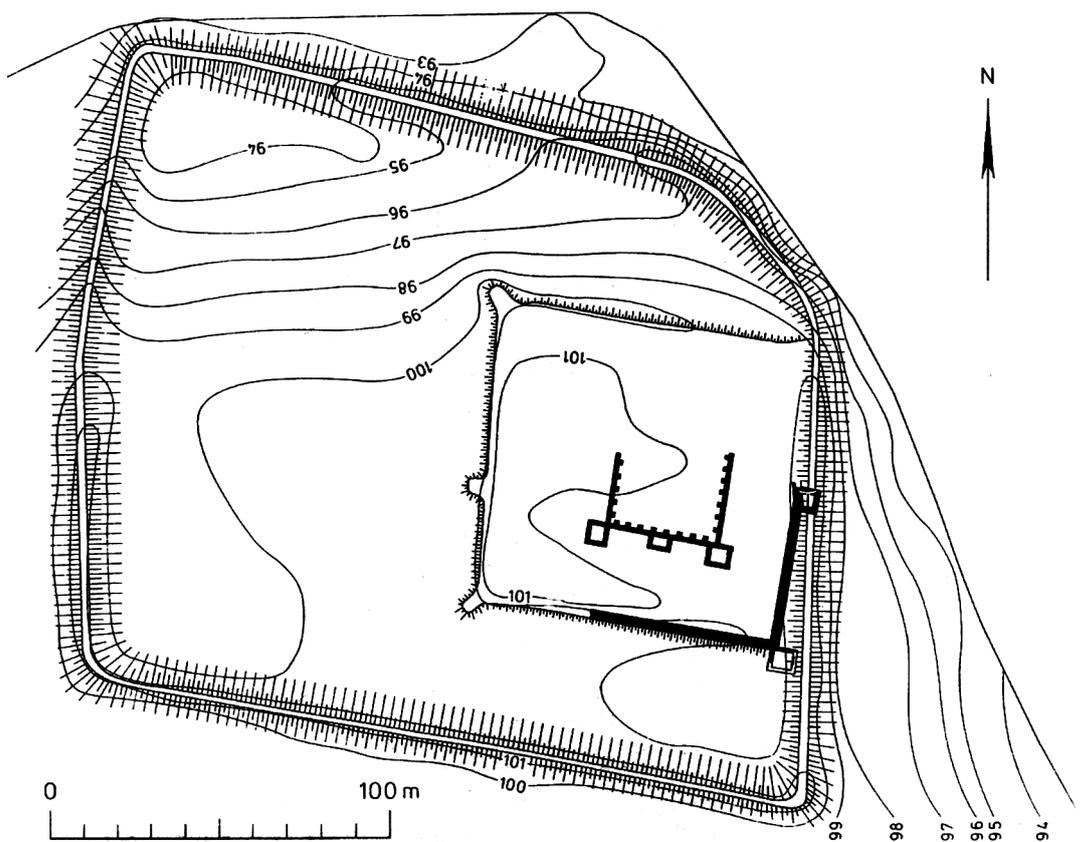
290. [33] Ostrovul Mare



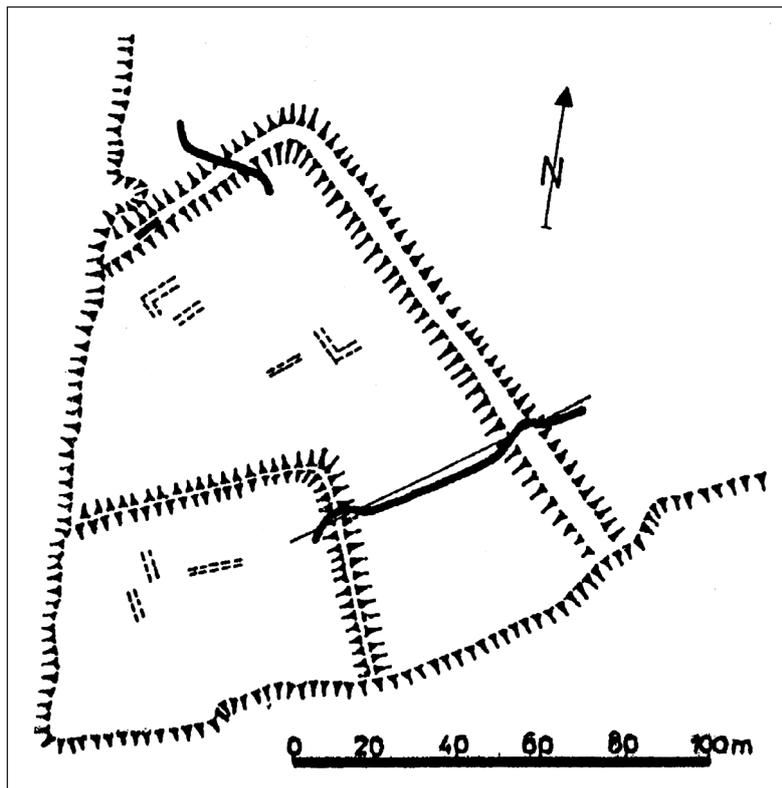
291. [34] Radujevac



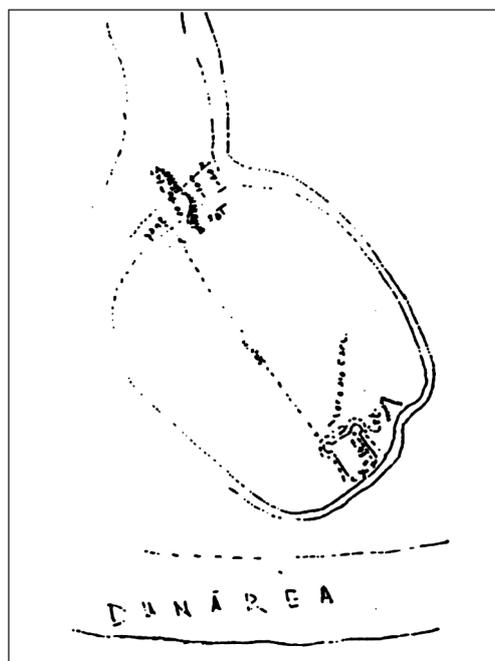
292. [37] Batin



293. [39] Nova Černa

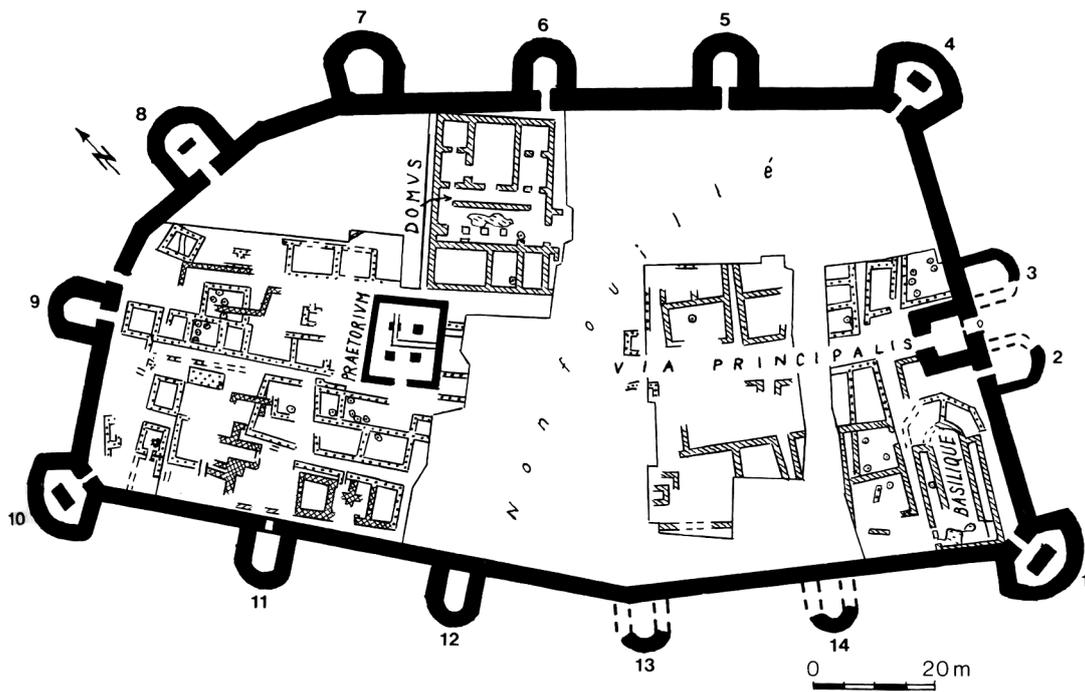


294. [42] Gârliciu/Cius

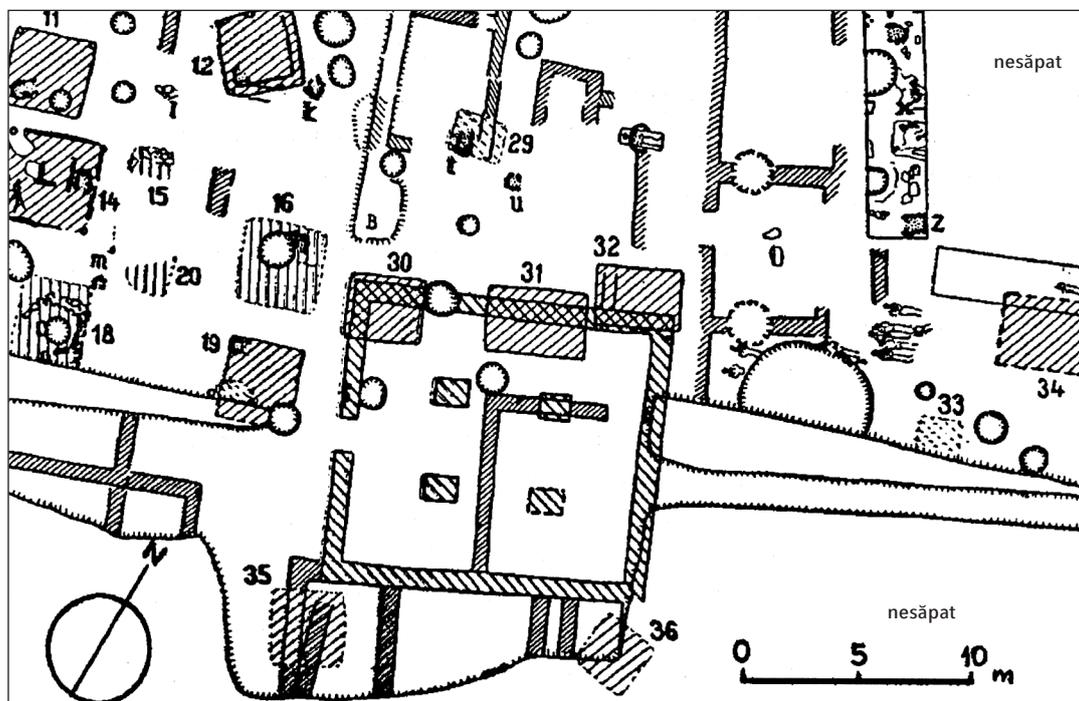


295. [44] Peceneaga

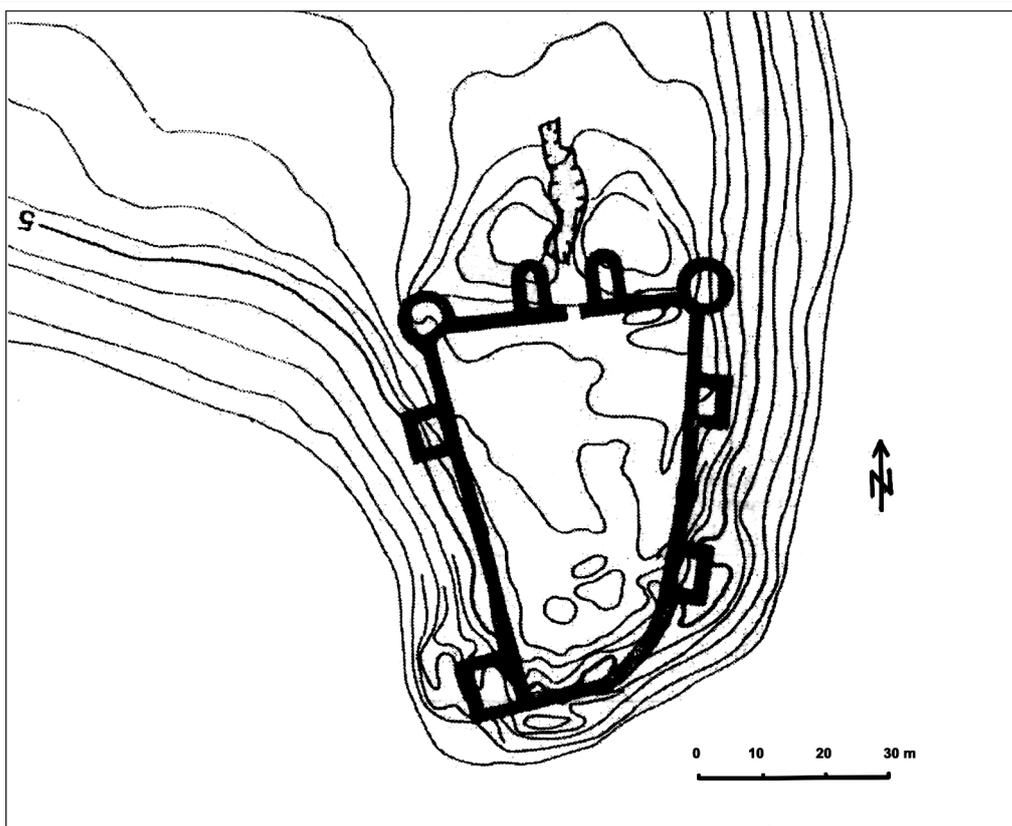




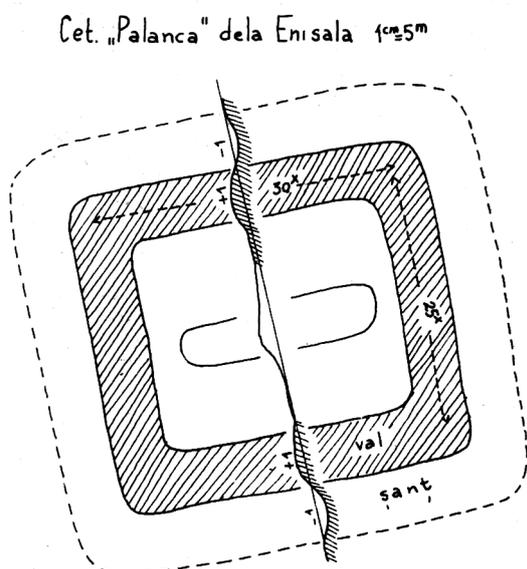
298. [47] Garvăn/*Dinogetia*



299. [47] Garvăn/*Dinogetia*



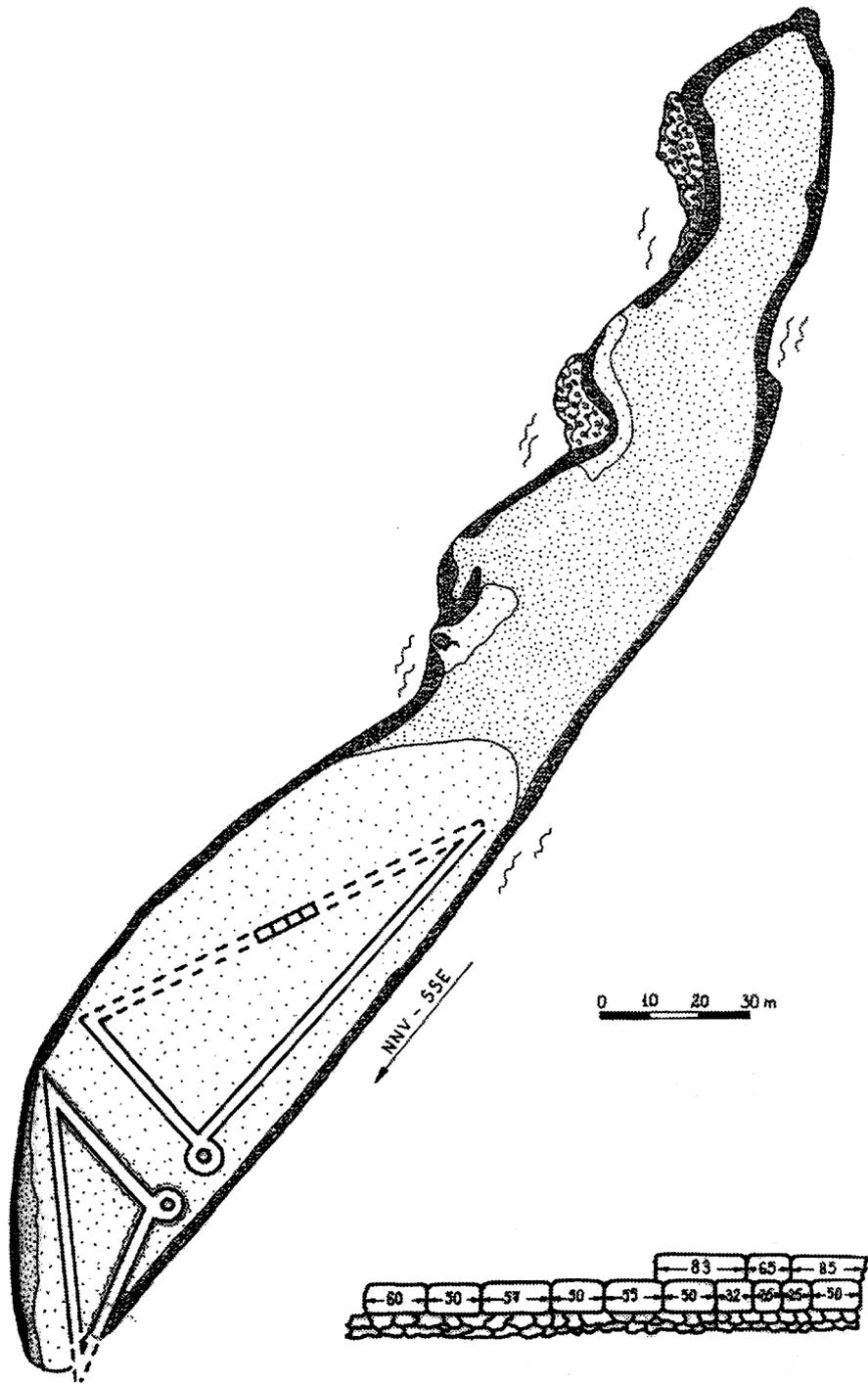
300. [51] Dunavățu de Jos



301. [52] Enisala-“Palanca”



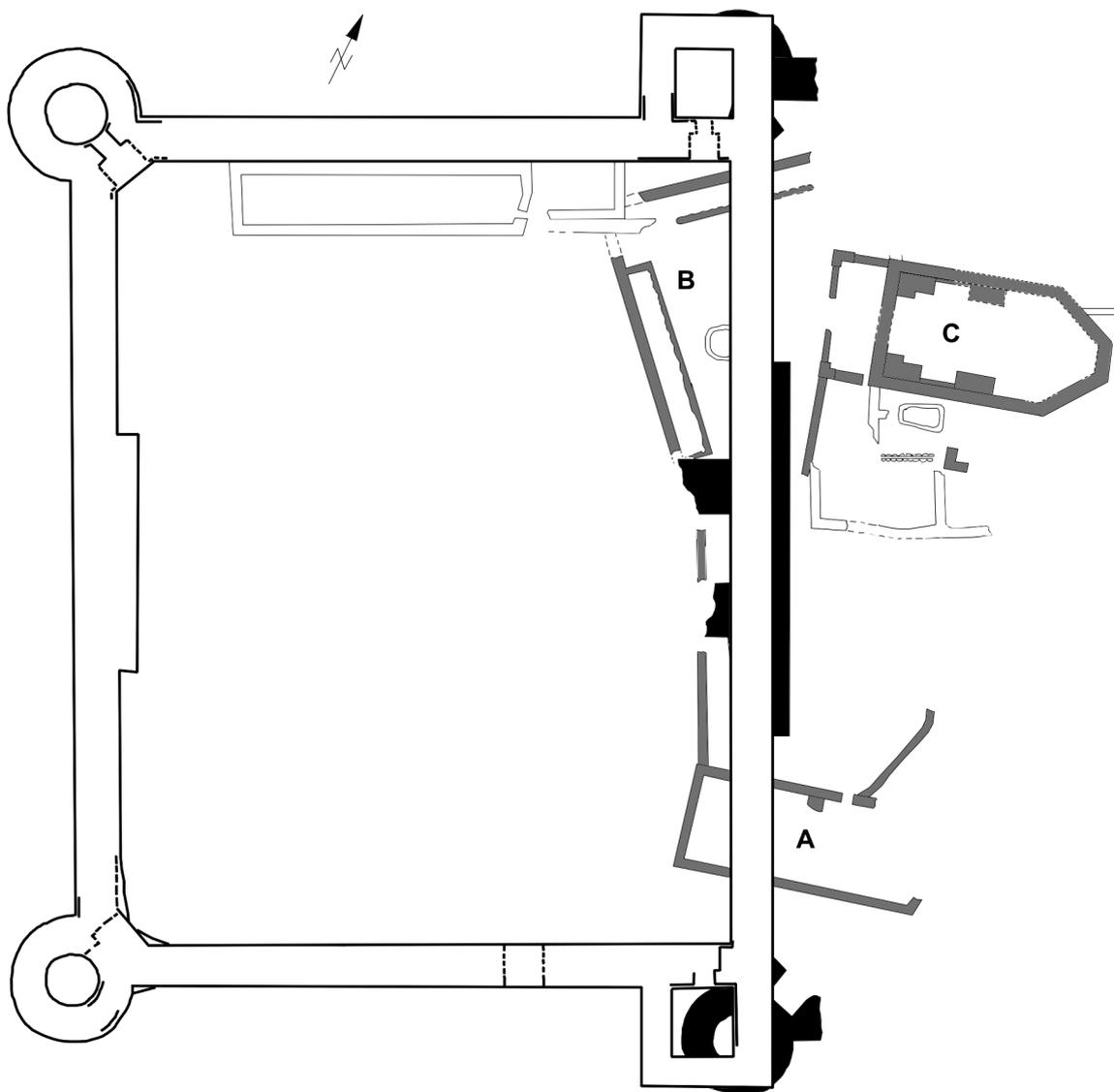
302. [52] Enisala-“Palanca”



303. [53] Bisericuța Island

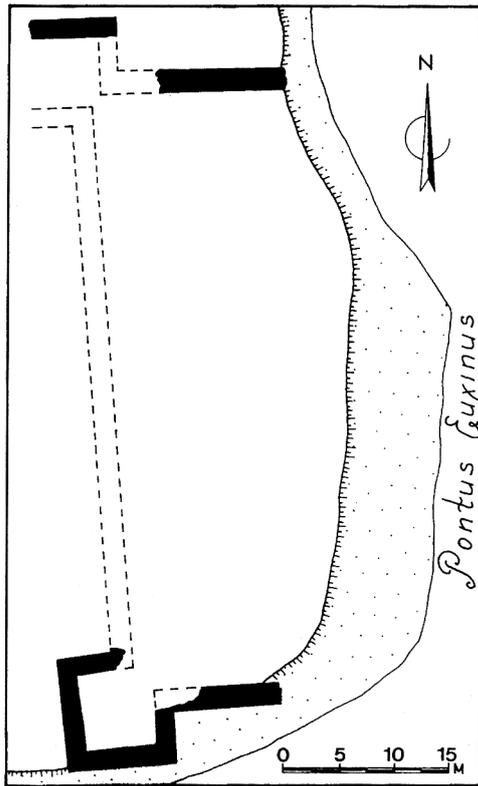
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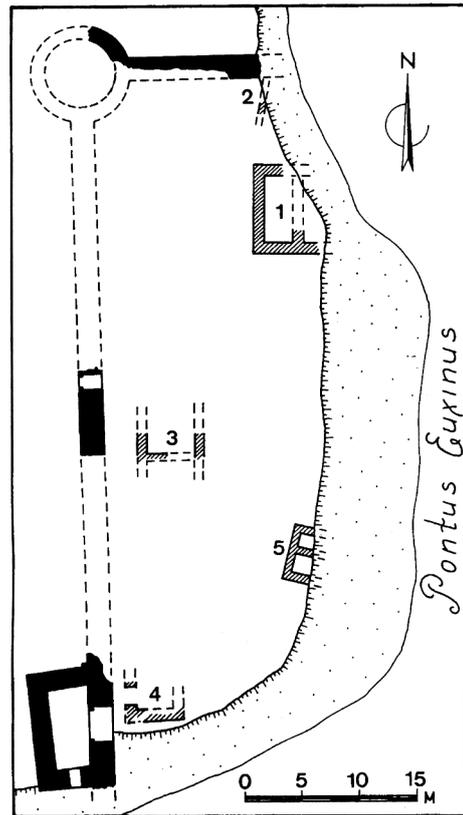


- 5<sup>th</sup> c. buildings
- 6<sup>th</sup> c.
  - Abandoned fortification
  - Quadriburgium

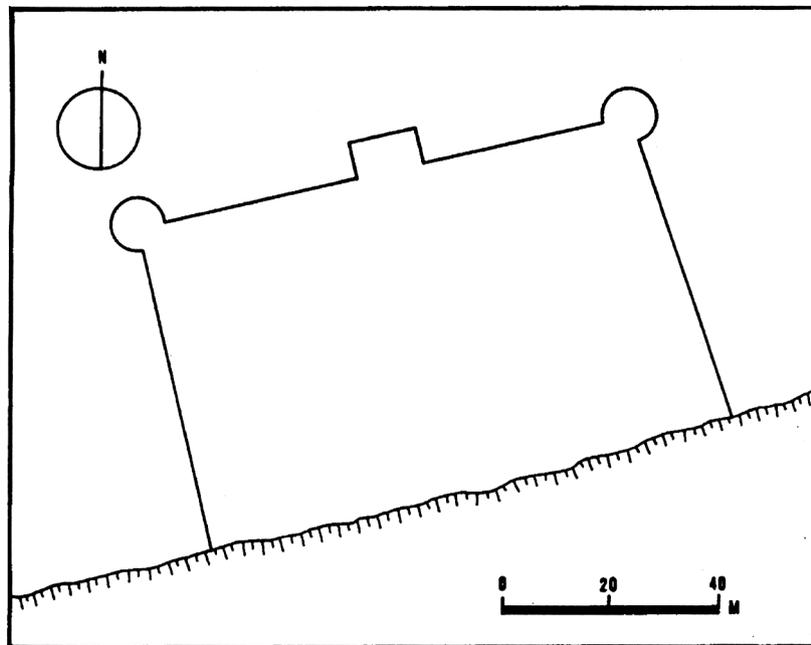
304. [54] Ovidiu



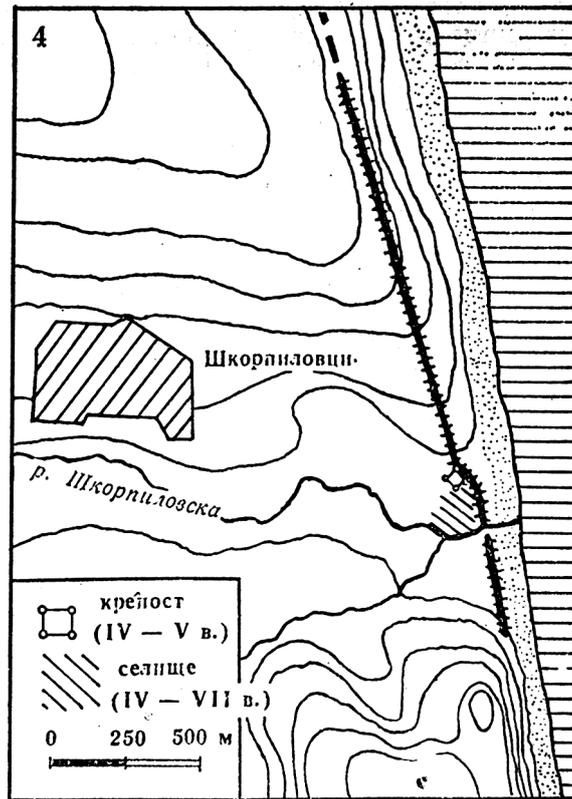
305. [58A] Cape Šabla 1/*Caria*



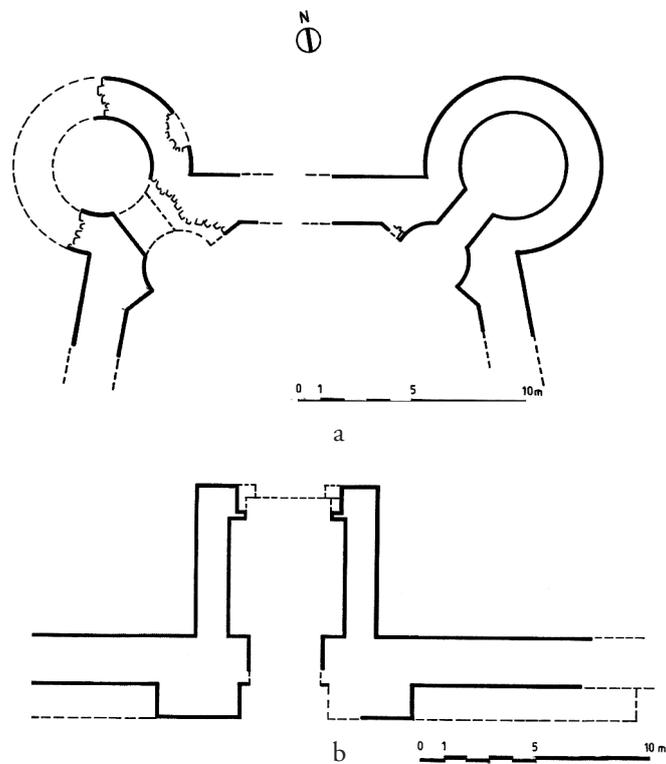
306. [58B] Cape Šabla 2/*Kreas*



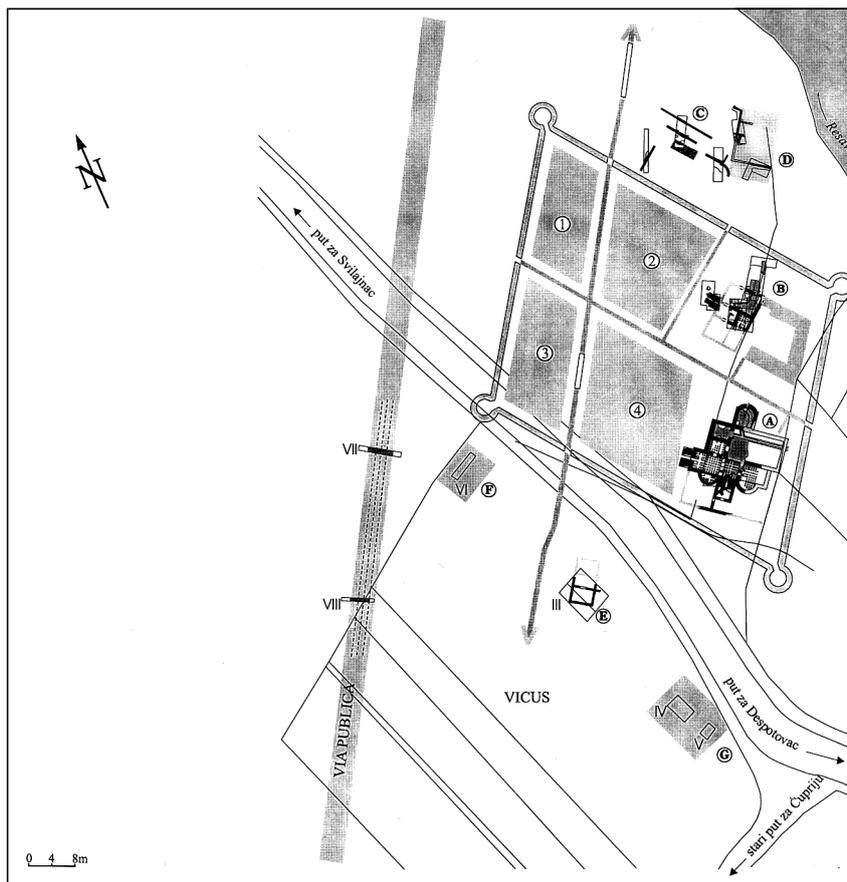
307. [59] Balčik-‘Tuzlata’



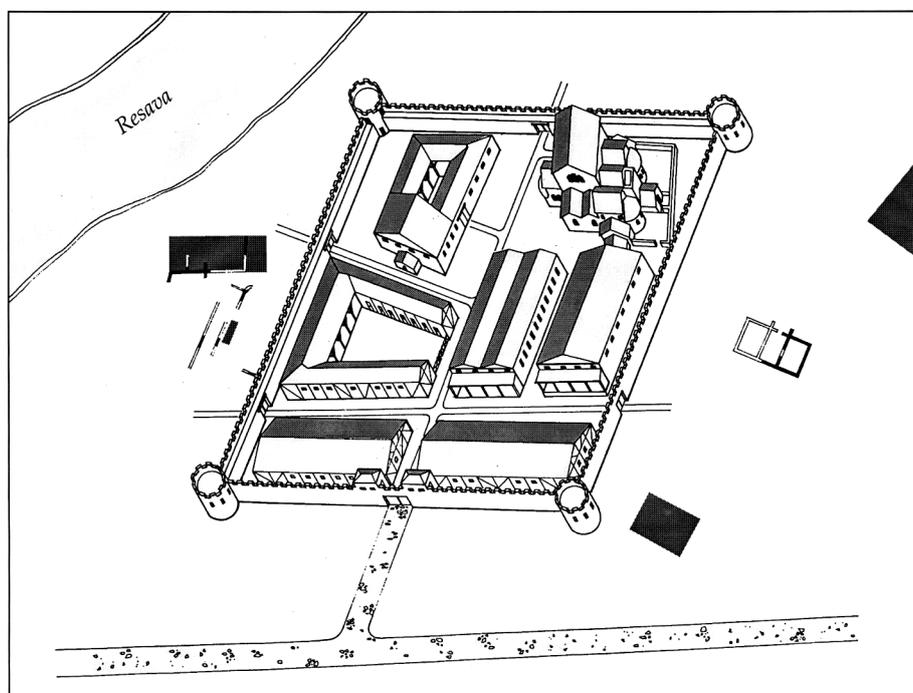
308. [60] Škorpilovci



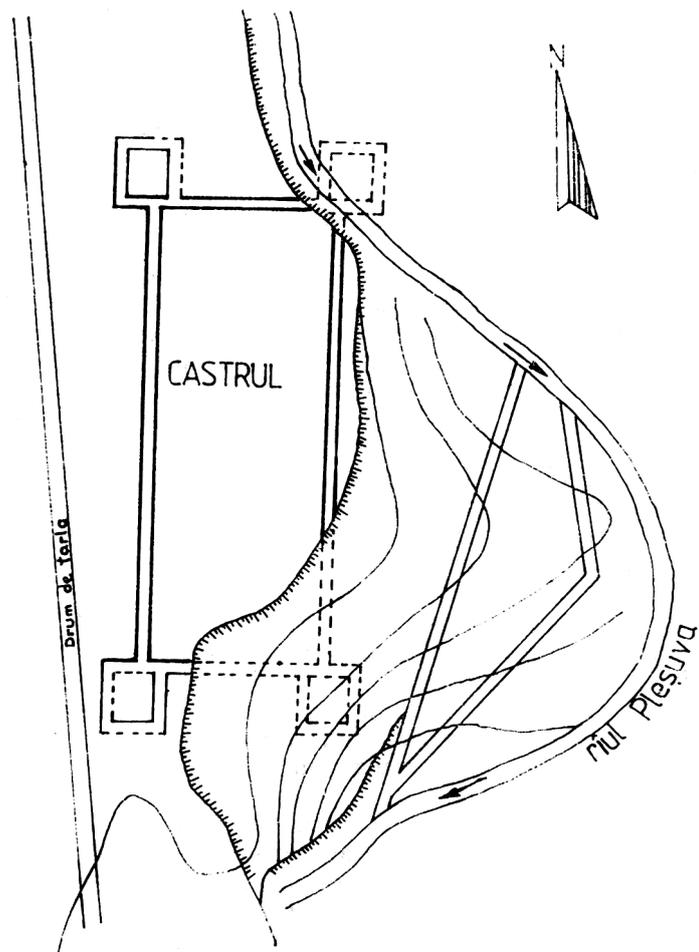
309. [60] Škorpilovci



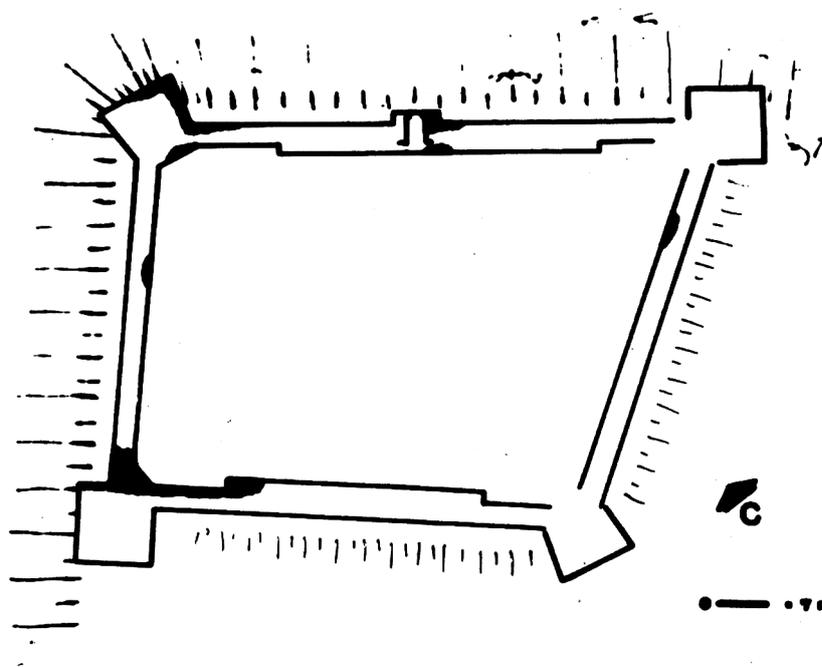
310. [63] Medvedja *Idimum*



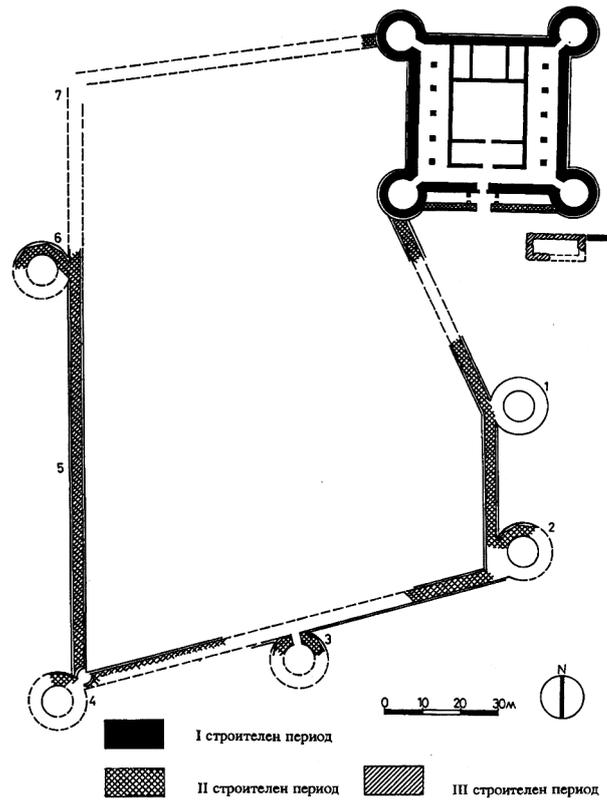
311. [63] Medvedja *Idimum*



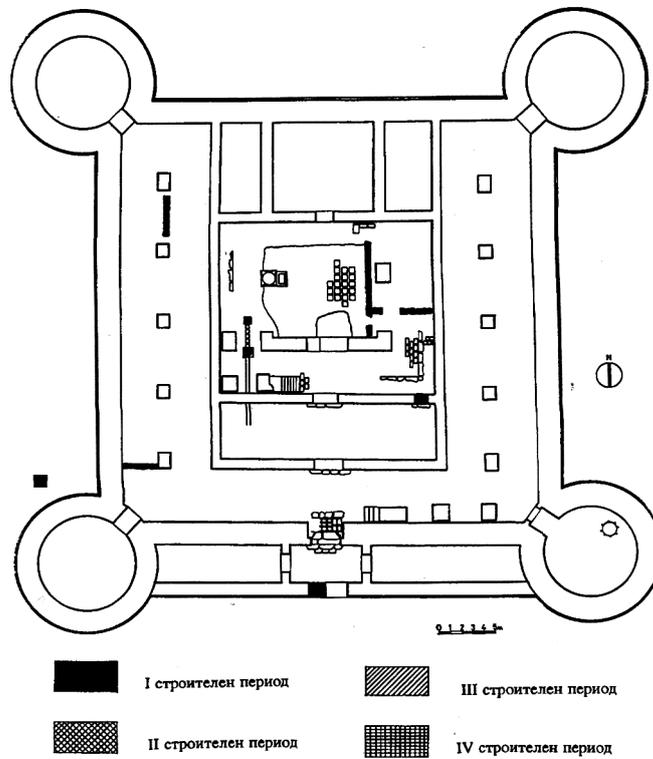
312. [64] Puținei



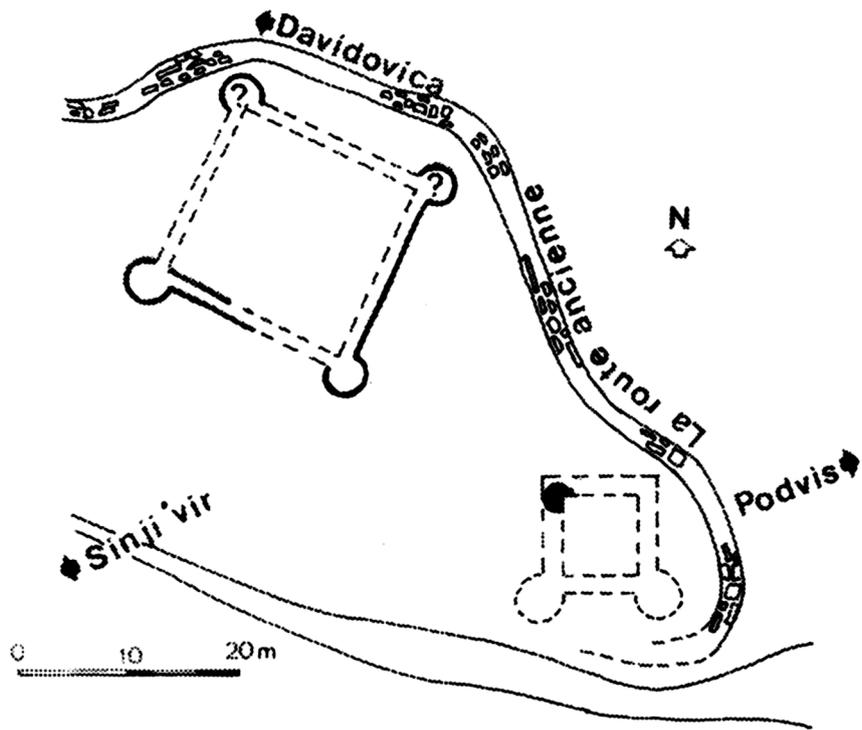
313. [65] Vidrovgrad



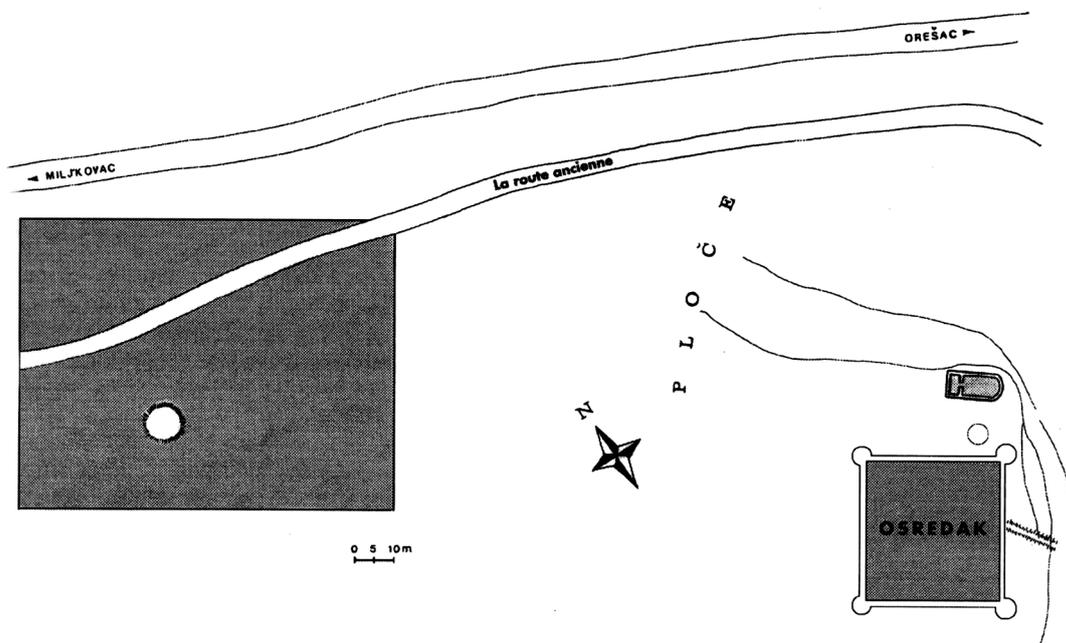
314. [66] Kula



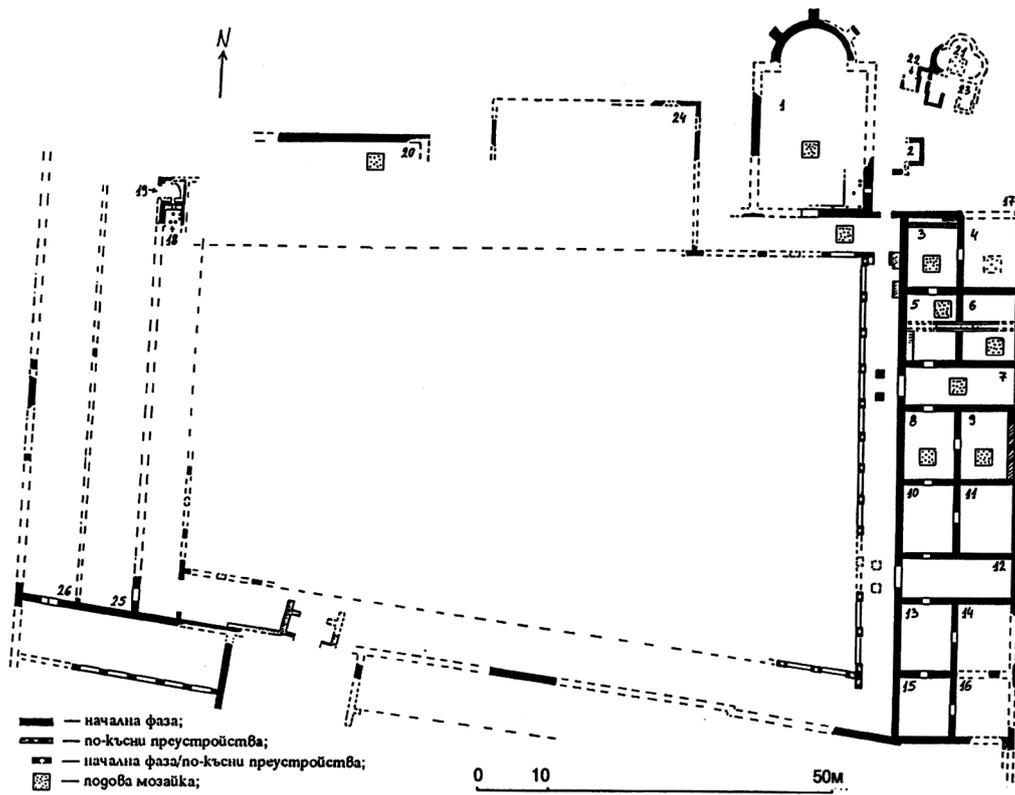
315. [66] Kula



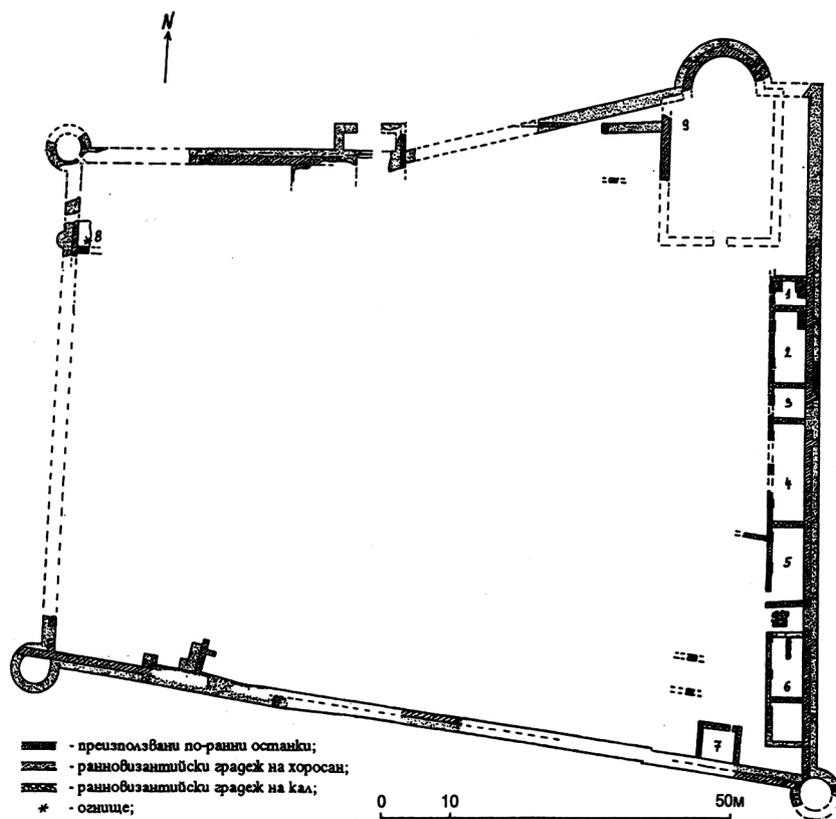
316. [67] Podvis



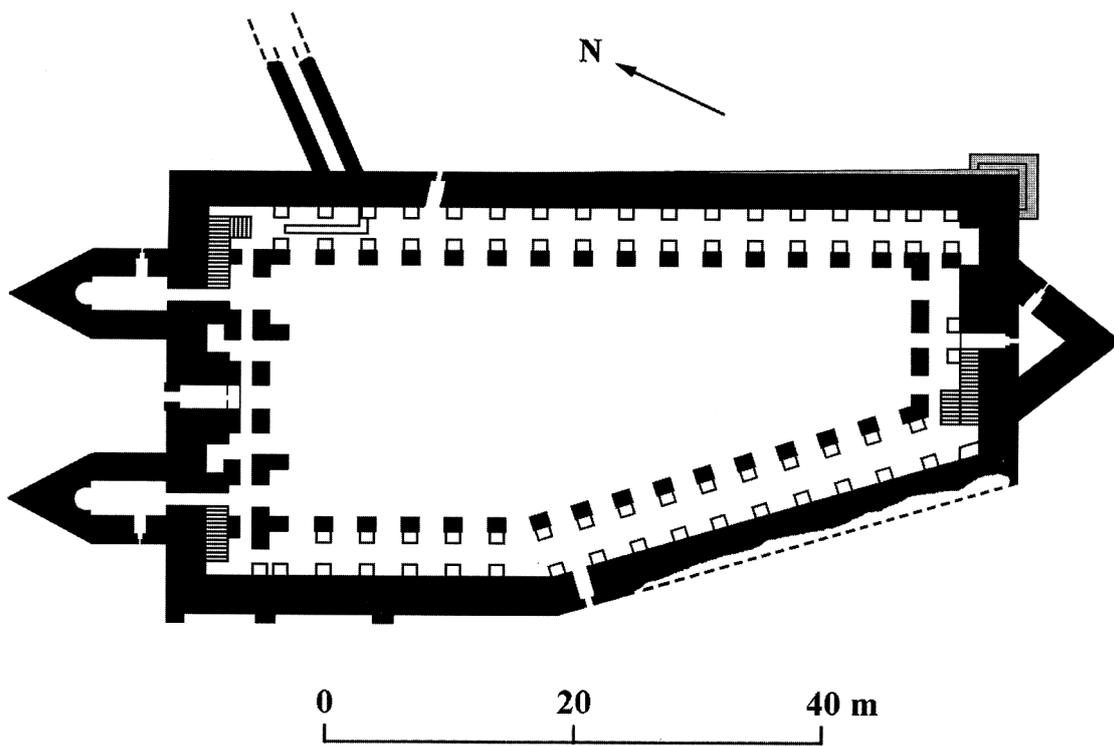
317. [68] Orešac



318. [70] Kostinbrod



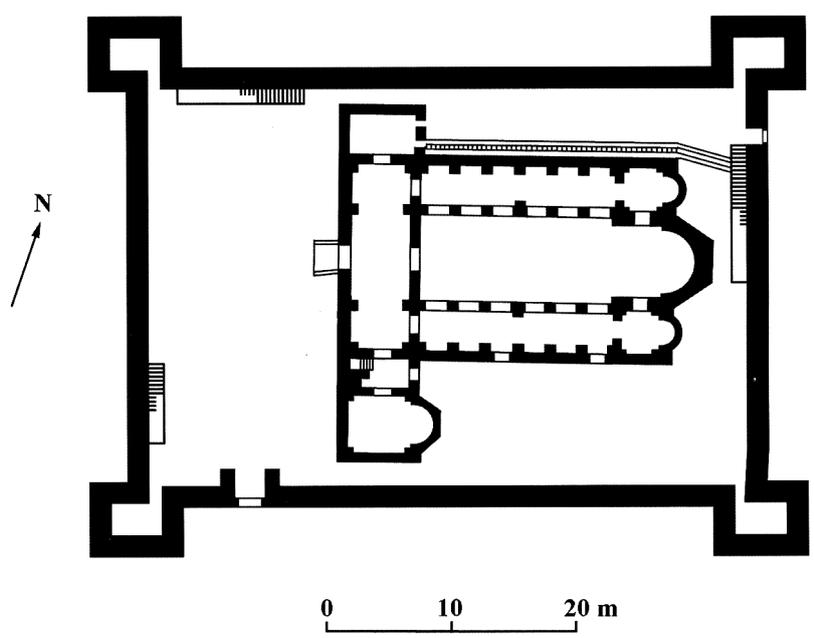
319. [70] Kostinbrod



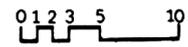
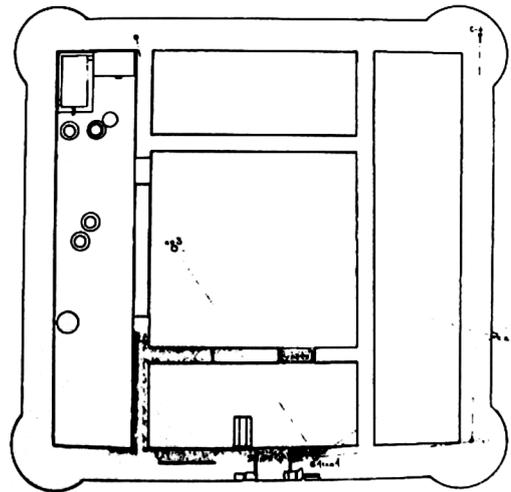
-primary phase (superstructure)
  primary phase (substructure)

- later rebuilding

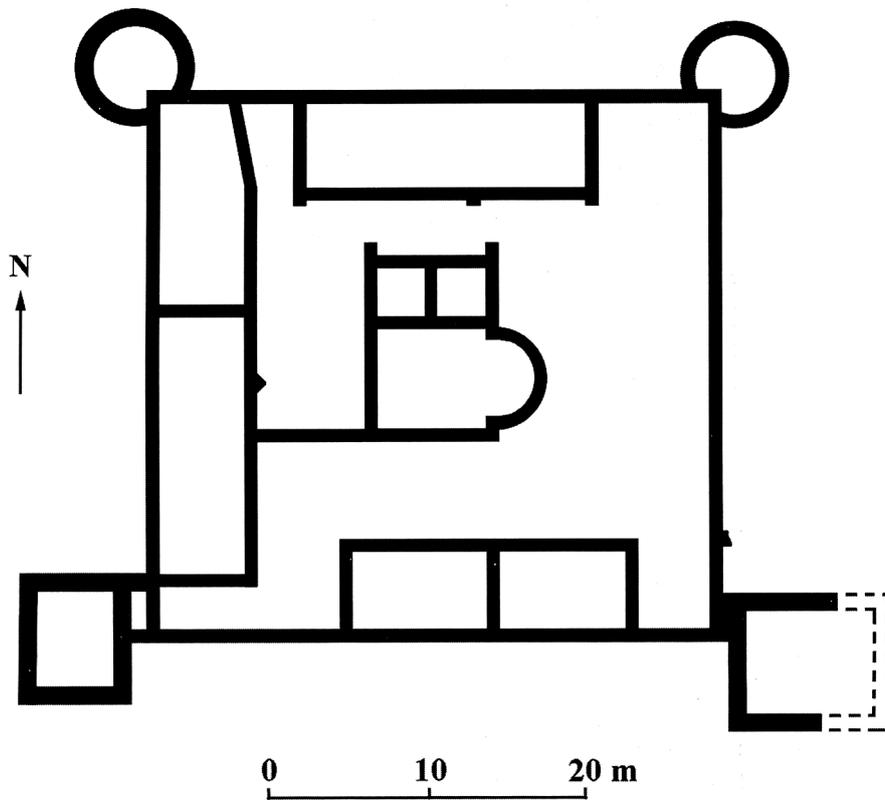
320. [71] Trajanova Vrata-“Markova Mehana”



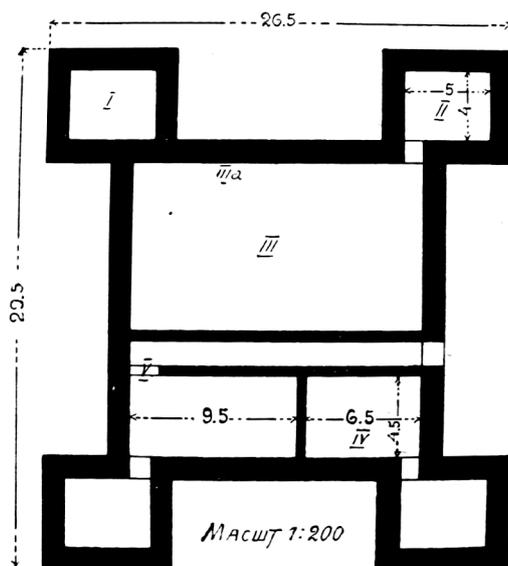
321. [72] Pirdop



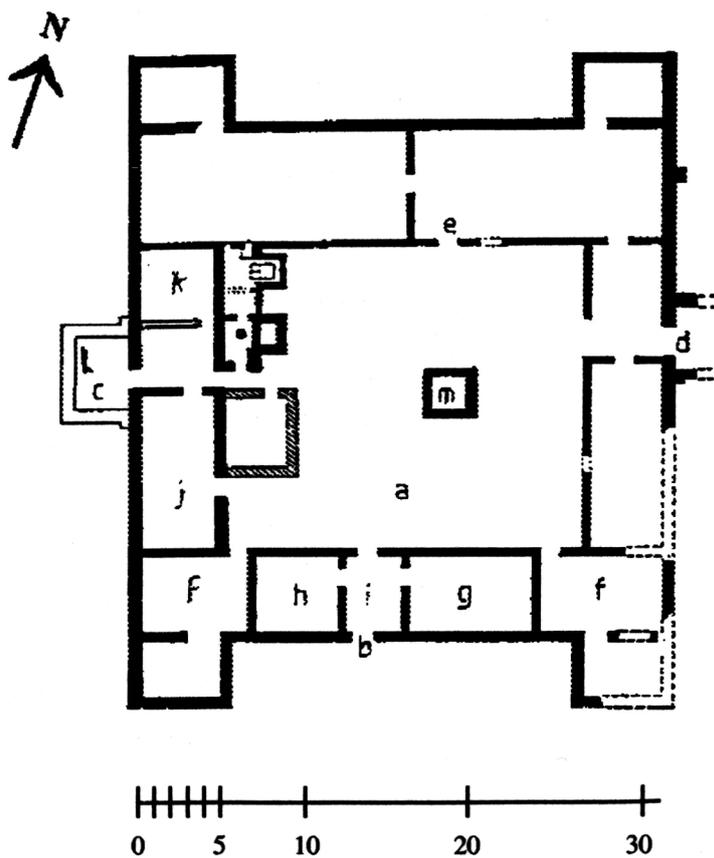
322. [73] Drenkovo



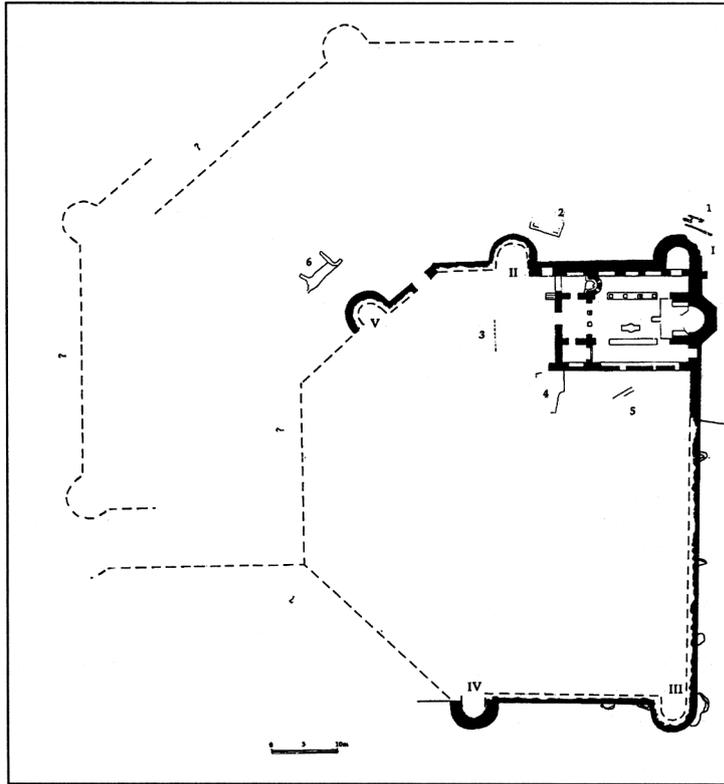
323. [75] Sofija-“Orlandovci”



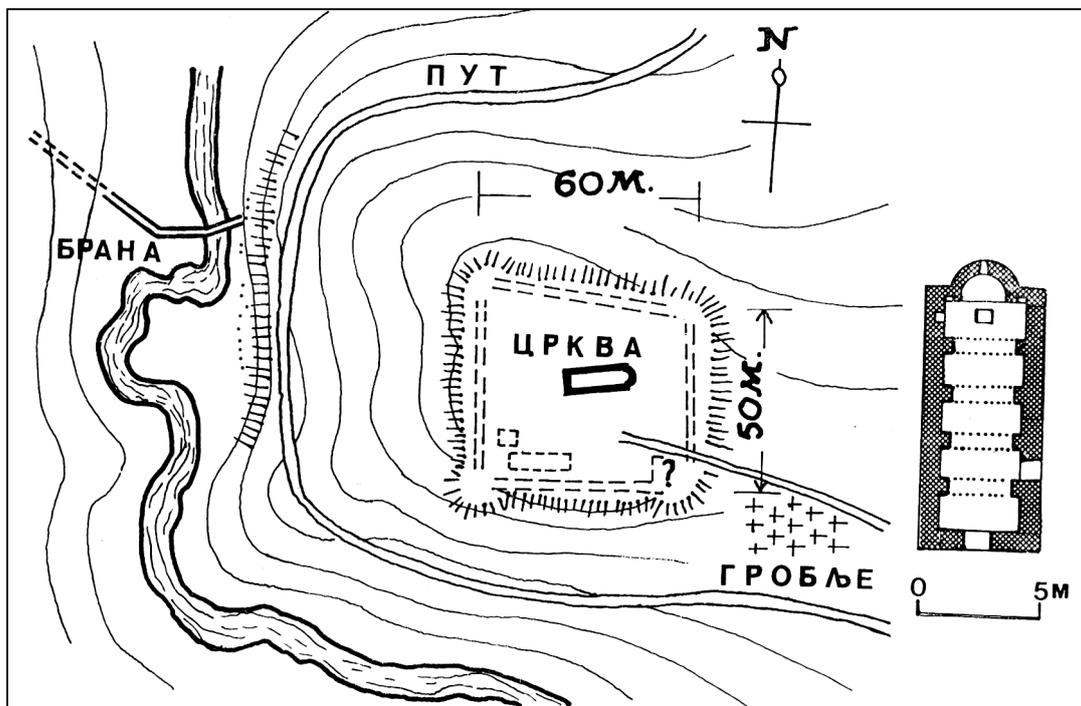
324. [76] Bistrica



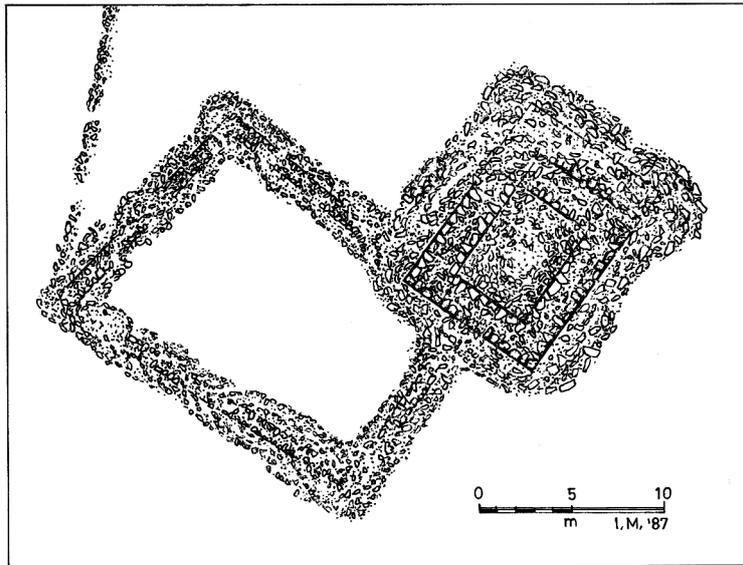
325. [77] Pernik-“Bela Voda”



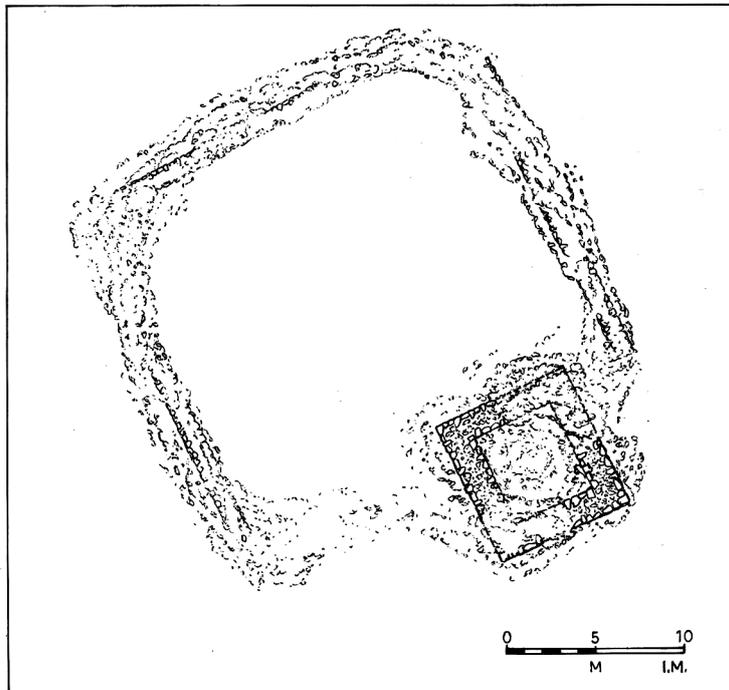
326. [78] Bregovina



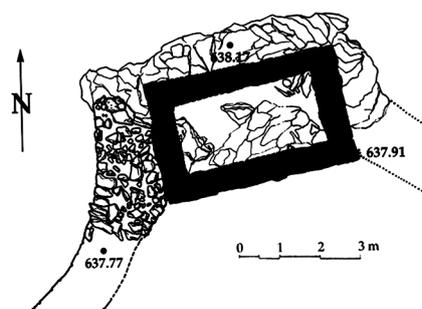
327. [79] Štulac/ *Taurision*?



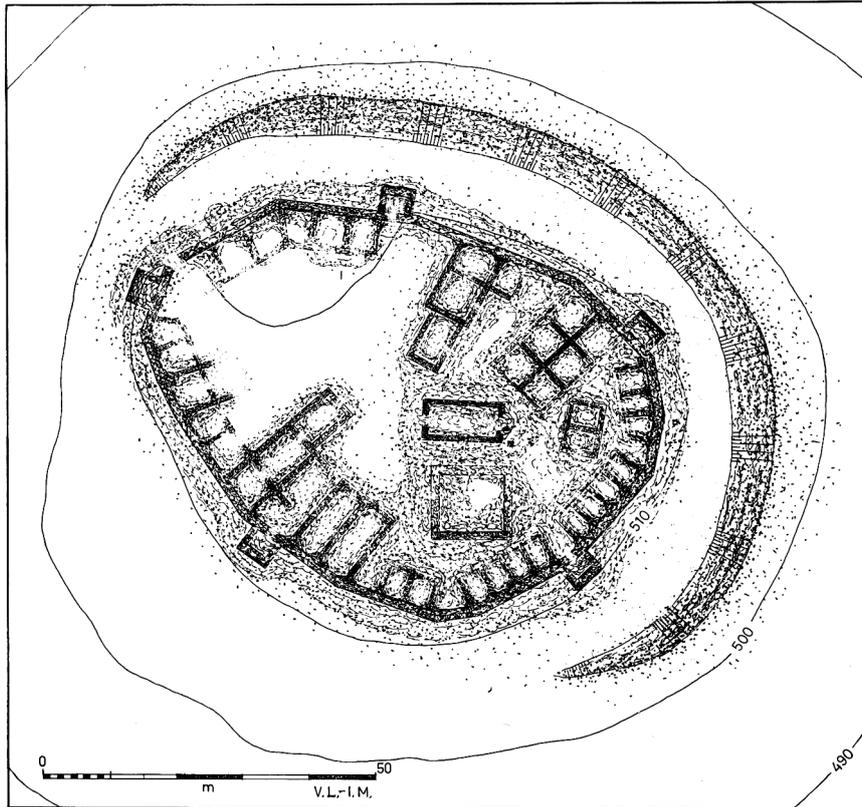
328. [81] Kozjak-‘Cvilig’



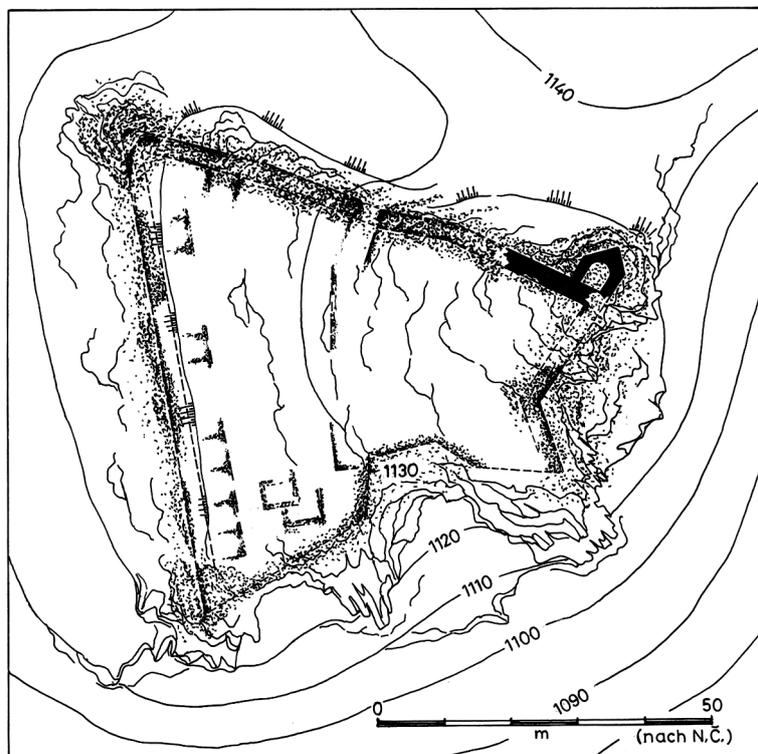
329. [82] Radanja



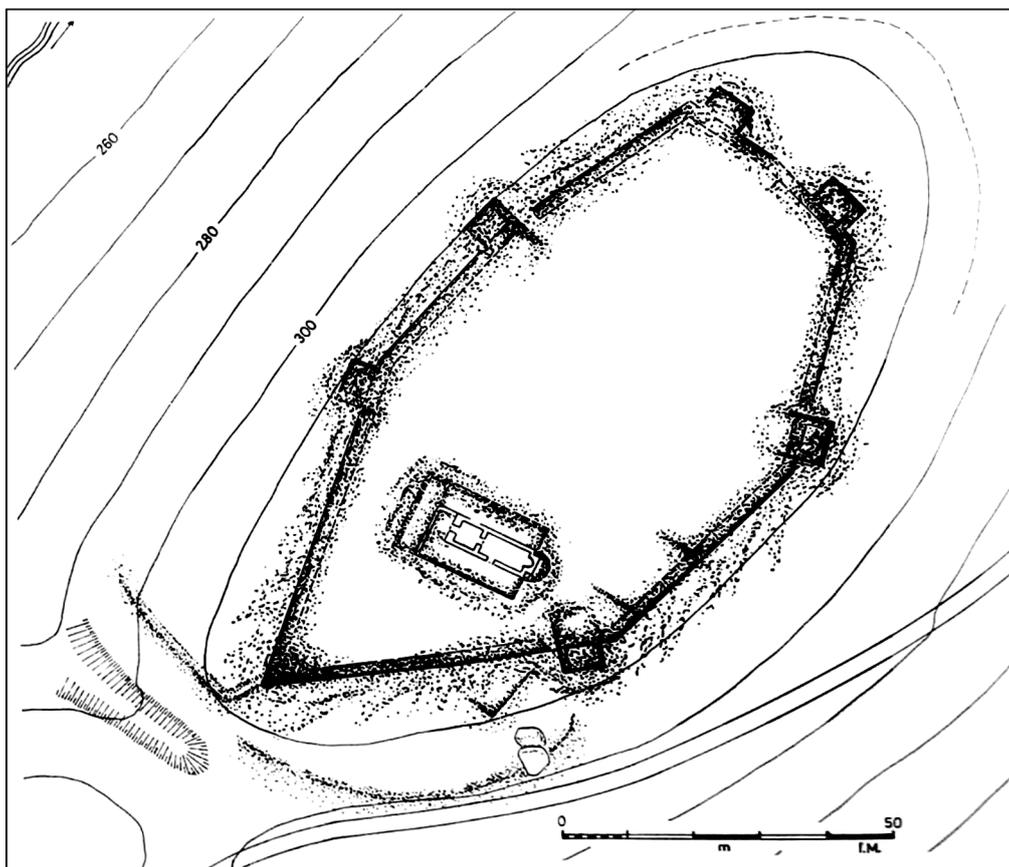
330. [83] Ras



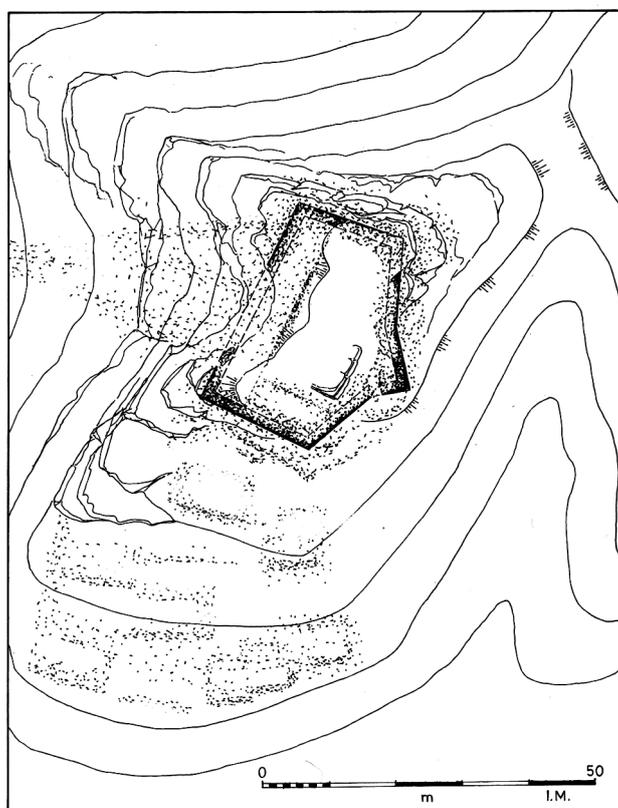
331. [84] Gorno Svilari



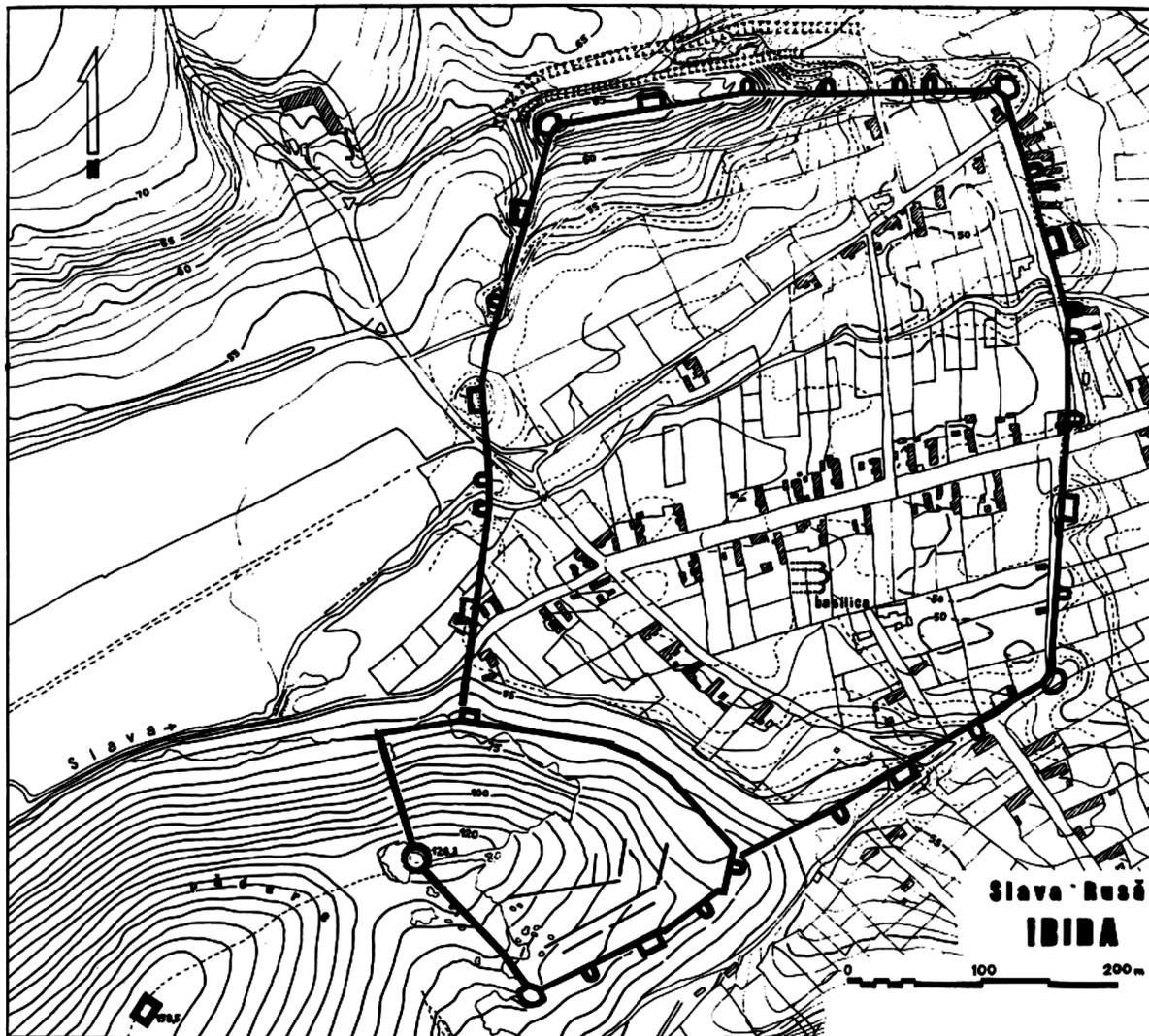
332. [85] Ljubanci



333. [86] Zelenikovo

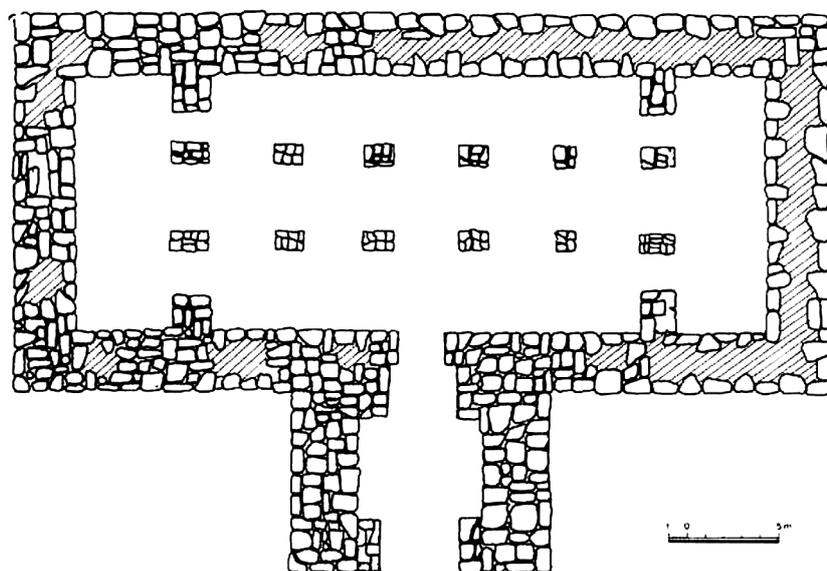


334. [87] Pakoševo

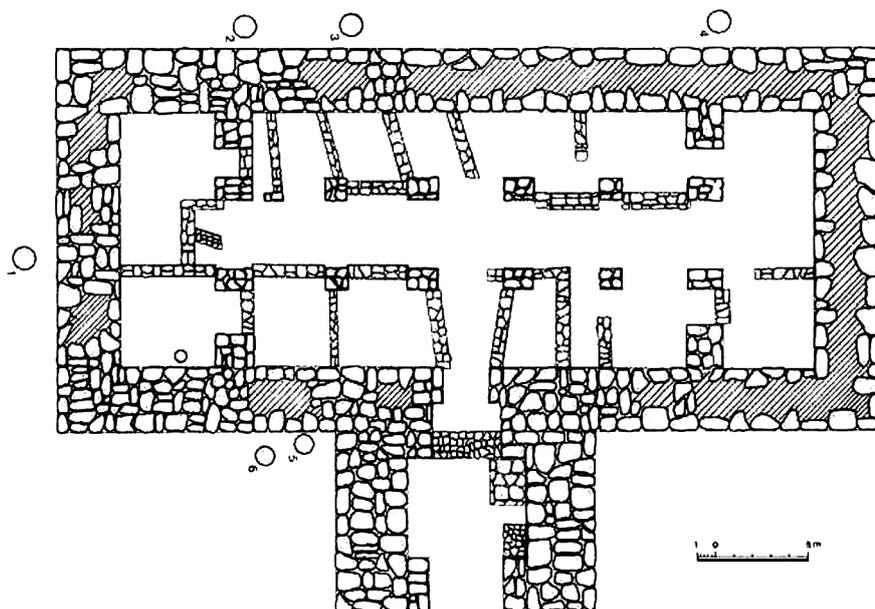


335. [88] Slava Rusă/ *Ibida*

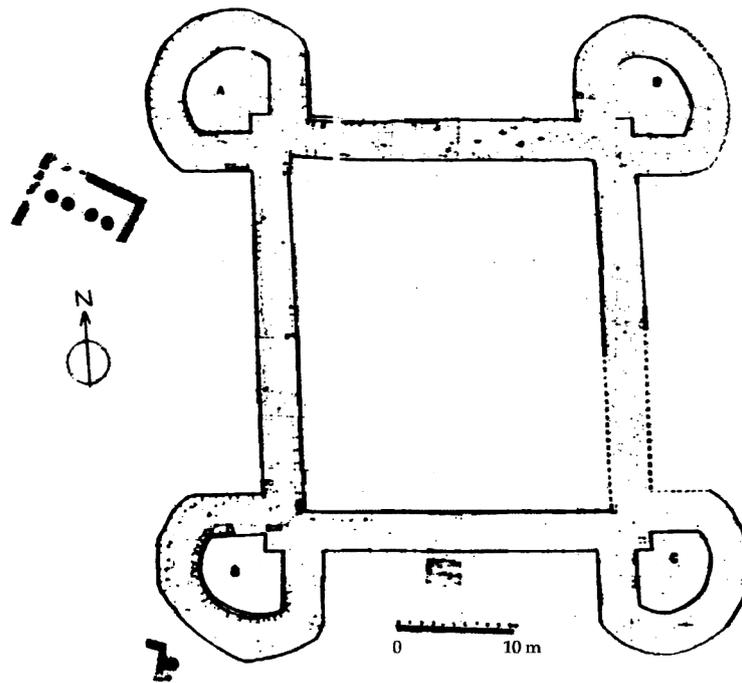
Level I, phases a, b and c.



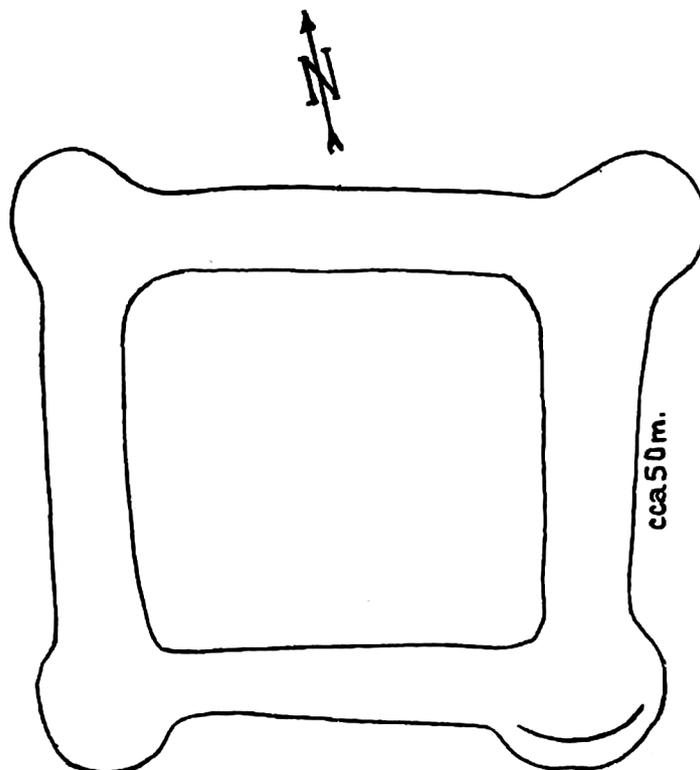
Level II, phases a and b.



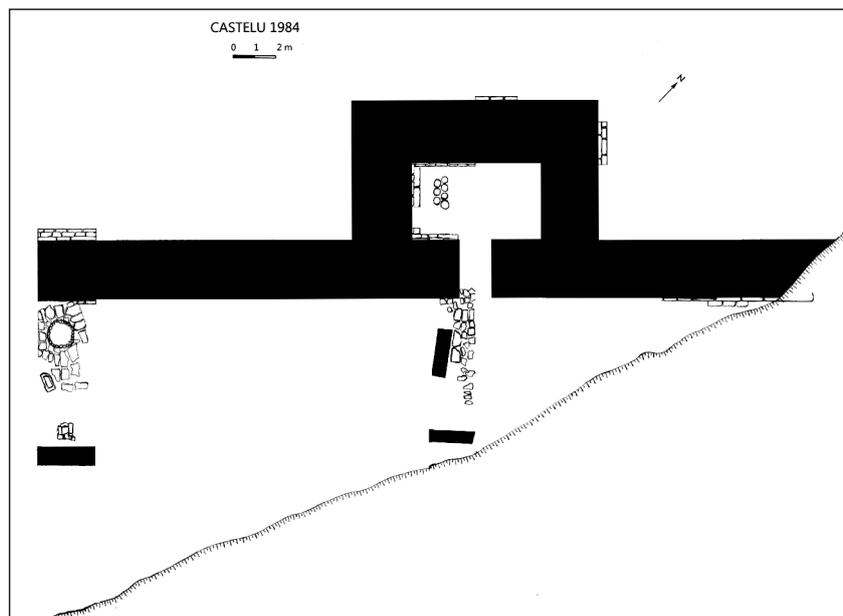
336. [89] Babadag-“Topraichioi”



337. [90] Mihai Bravu



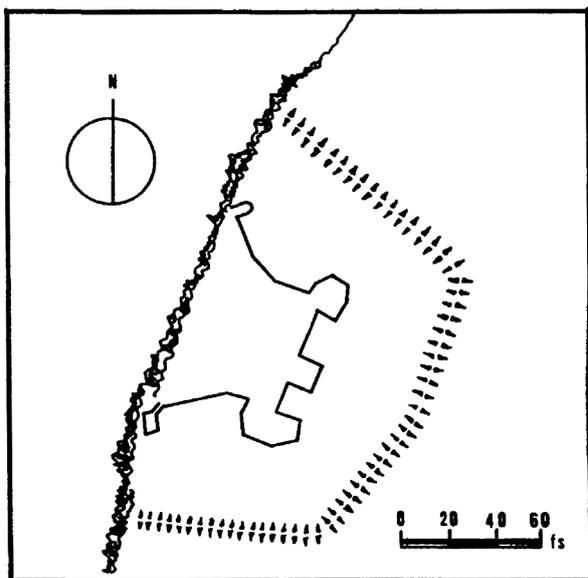
338. [91] Mircea Vodă



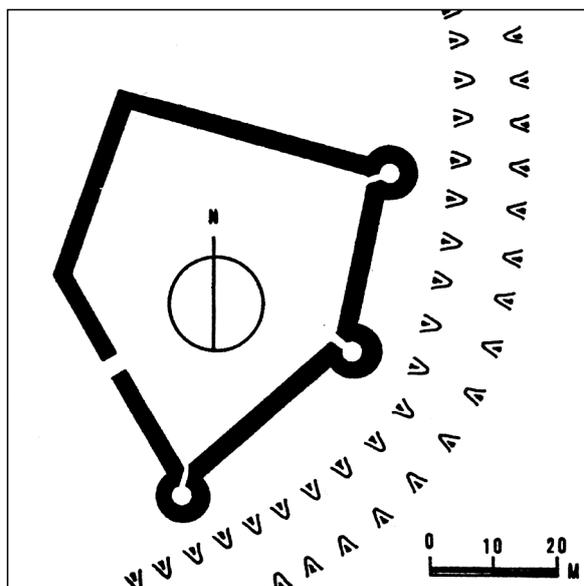
339. [92] Castelu



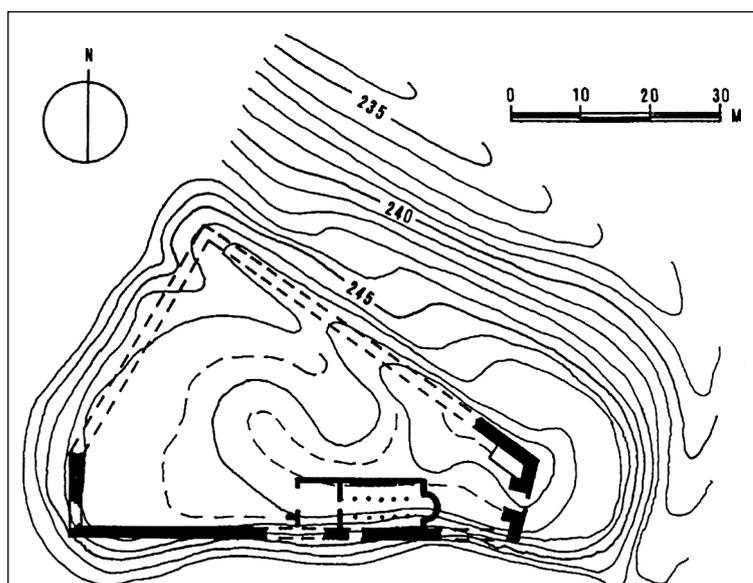
340. [93] Poiana



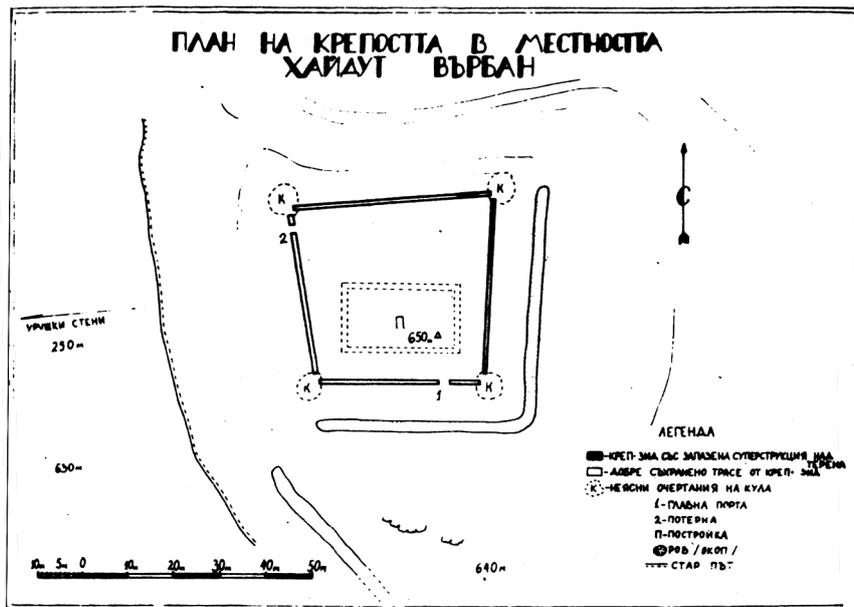
341. [94] Tvărdica



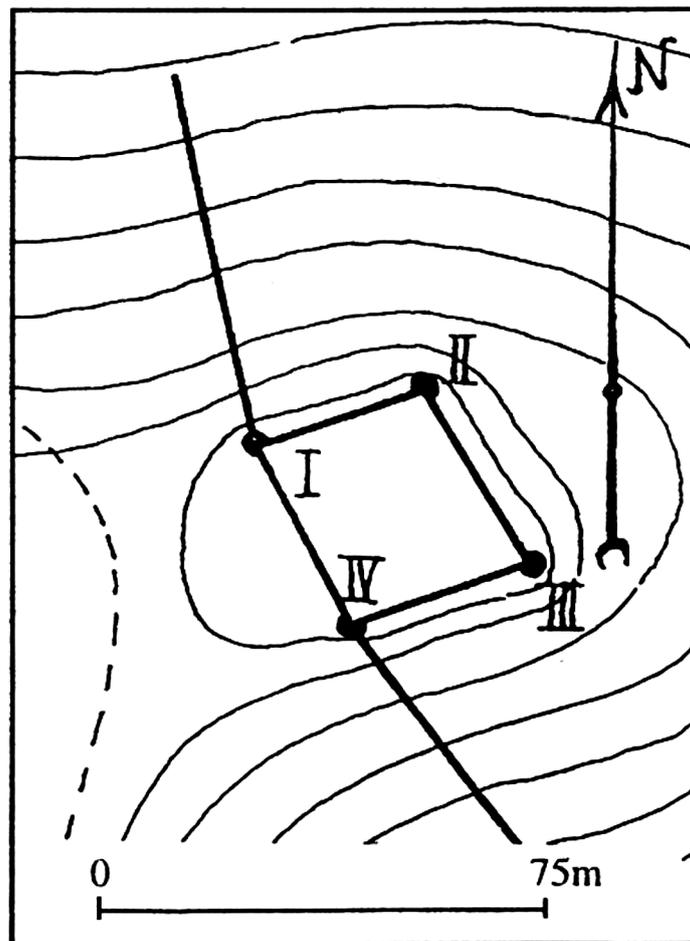
342. [95] Obročiște



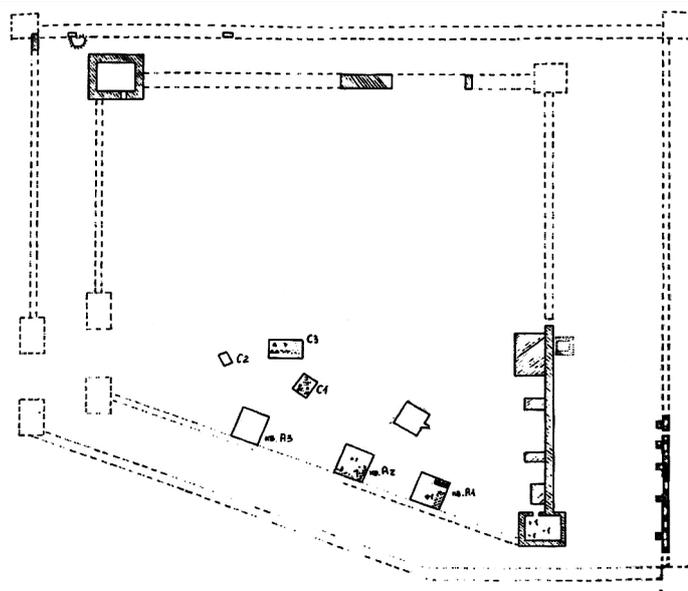
343. [96] Debrene



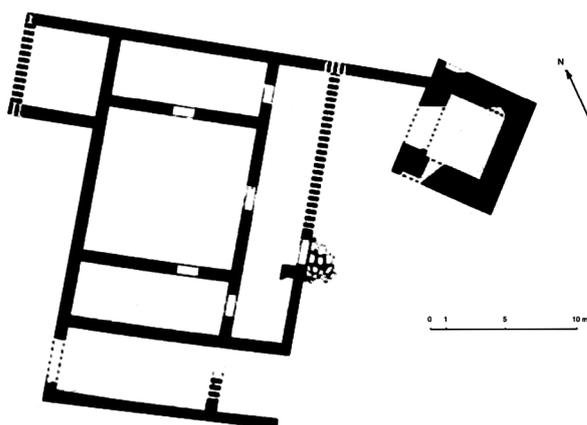
344. [97] Kotel-“Hajdut Värban”



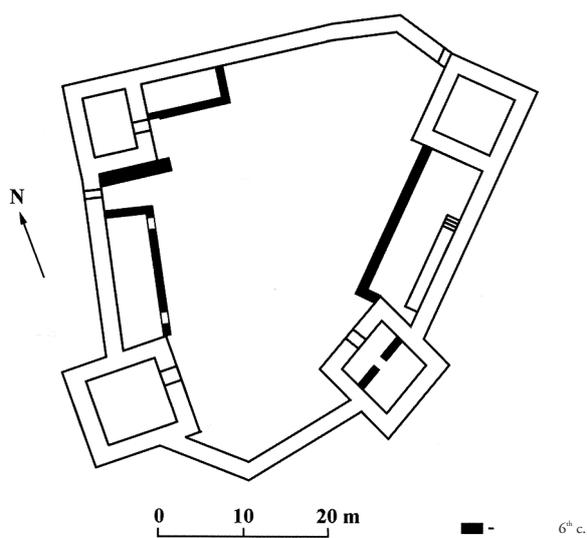
345. [99] Panicovo-“Fidan Punar”



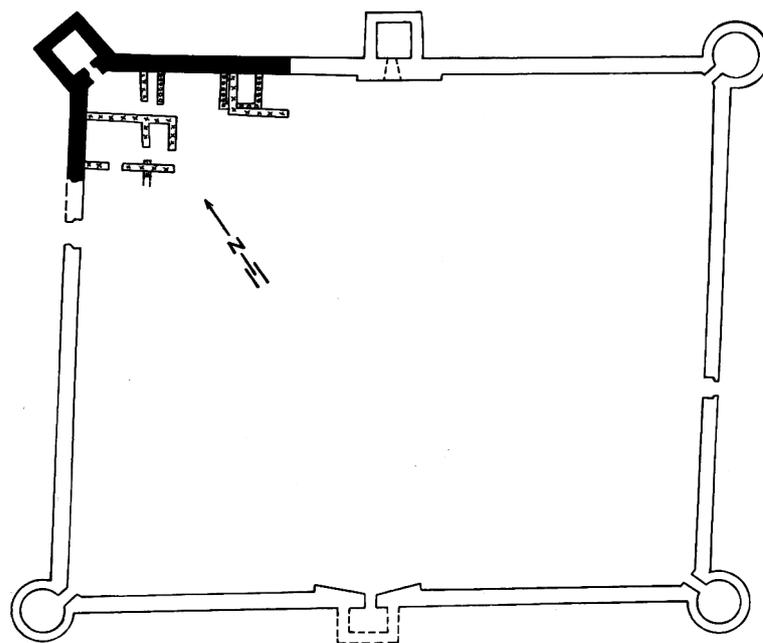
346. [100] Sopot-“Hissarlák”



347. [101] Pomoštnik

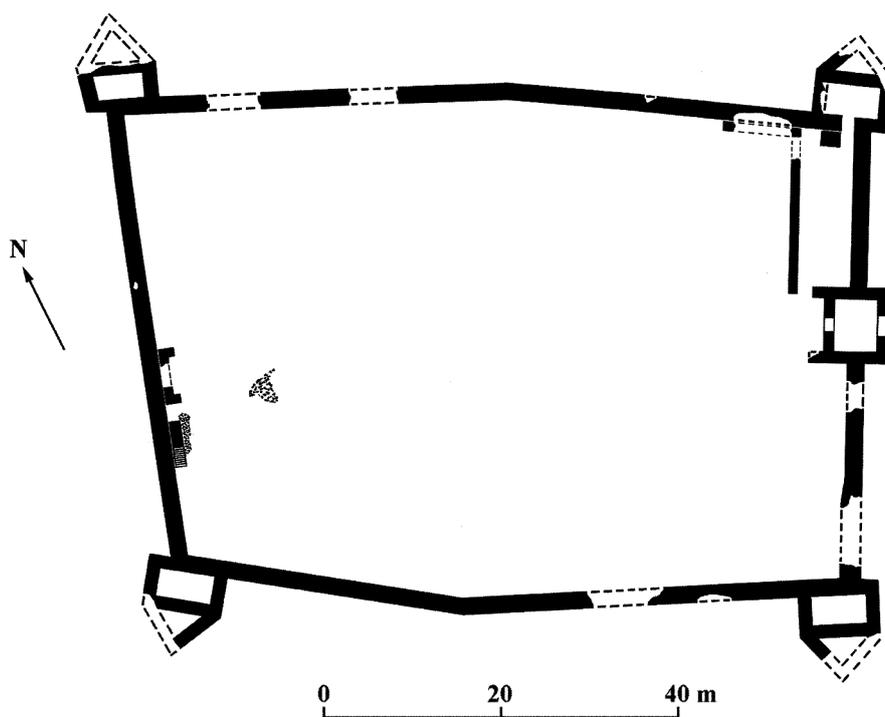


348. [102] Mineralni Bani



0 15m

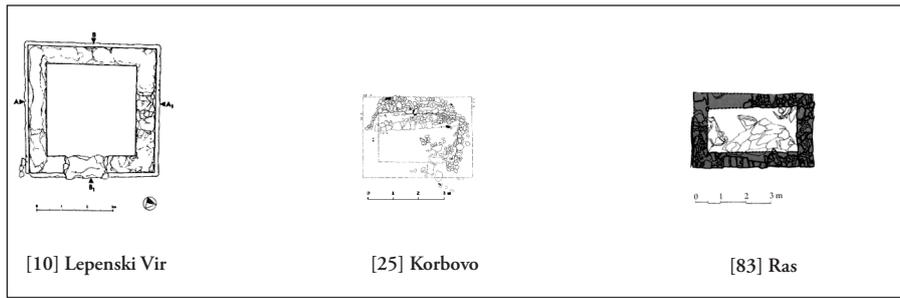
349. [103] Ljubenovo



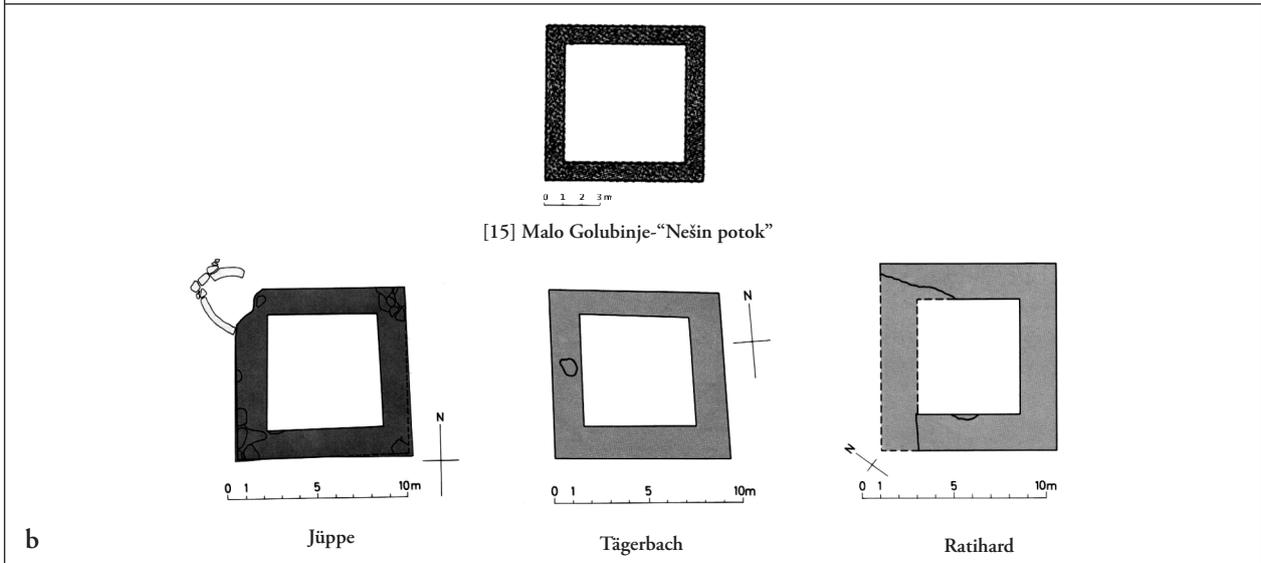
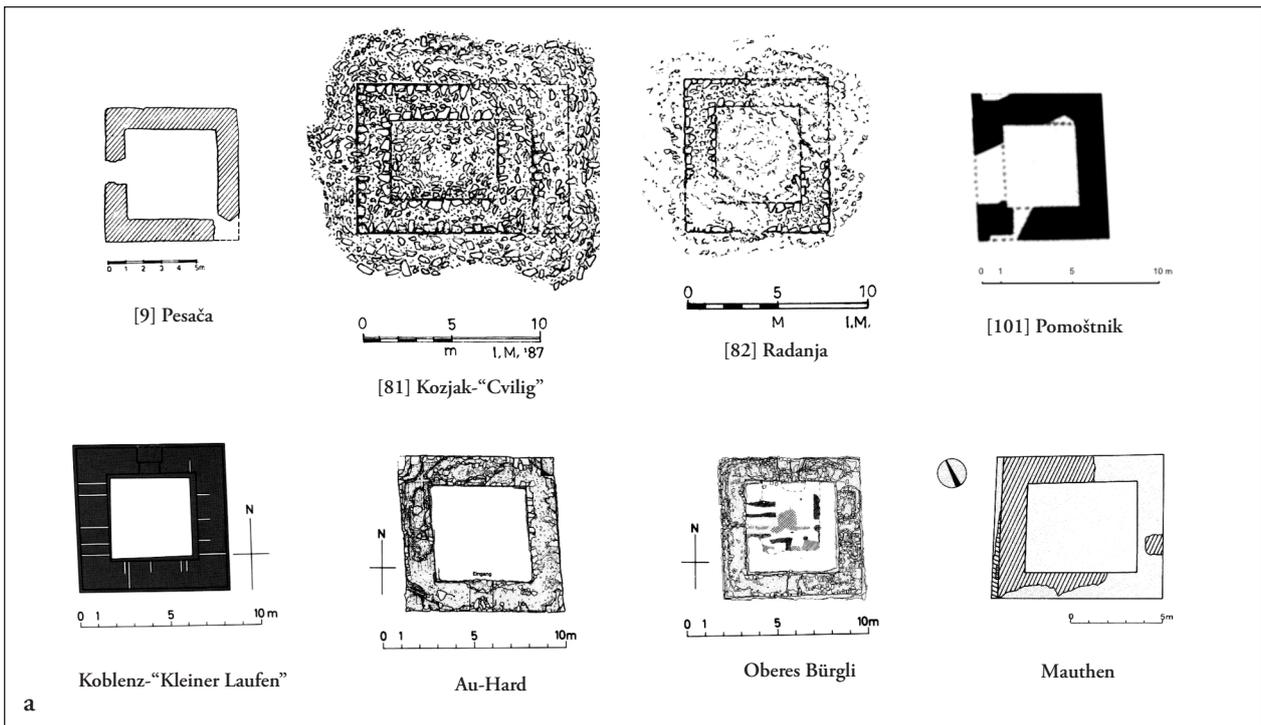
0 20 40 m

350. [105] Djadovo

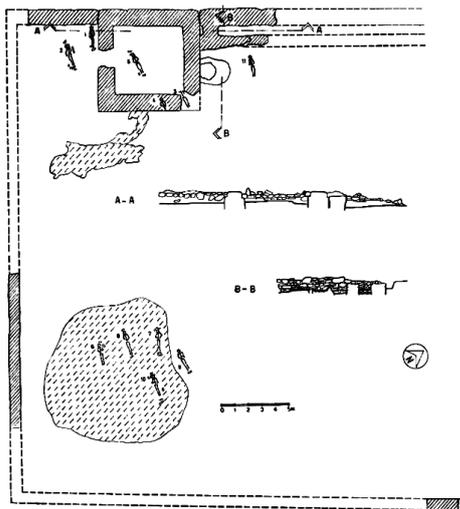




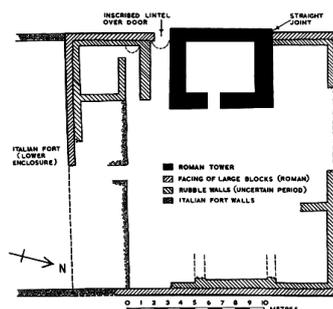
354. Early Roman towers, reused in the 4<sup>th</sup> c.



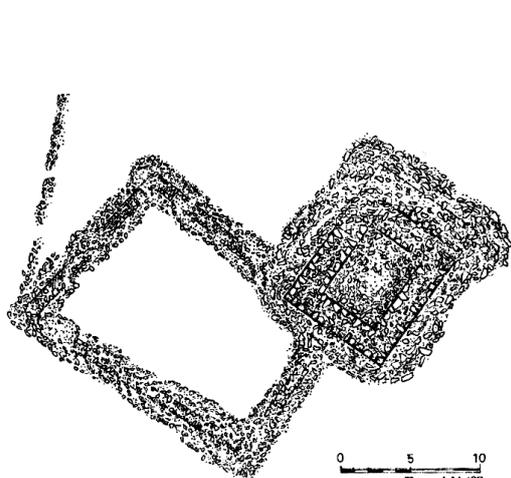
355 – Late Roman towers (4<sup>th</sup> c.): a) medium-sized; b) large-sized



[9] Pesača



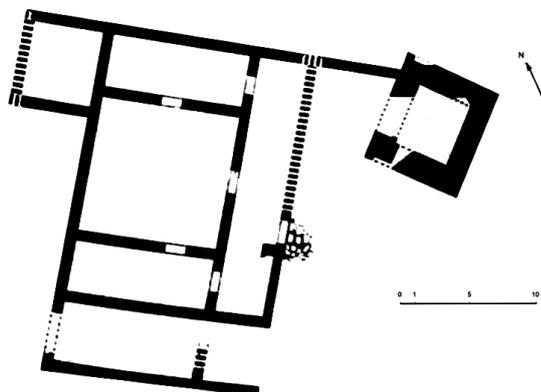
Zaviet Msus



[81] Kozjak-“Cvilig”

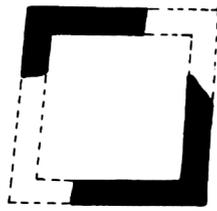


[82] Radanja



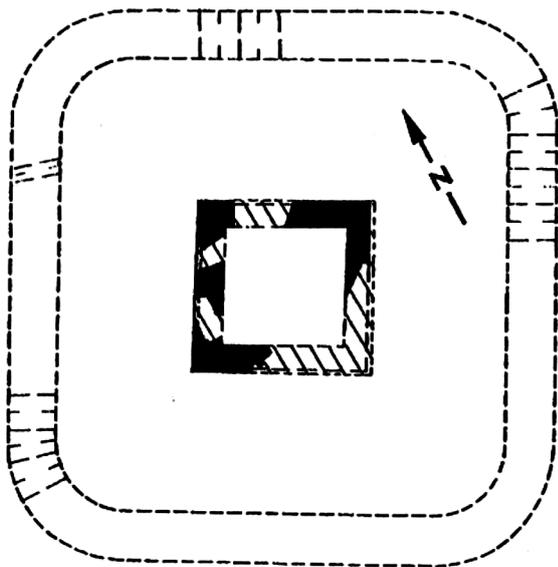
[101] Pomoštnik

356. Towers with exterior courtyard or connected building



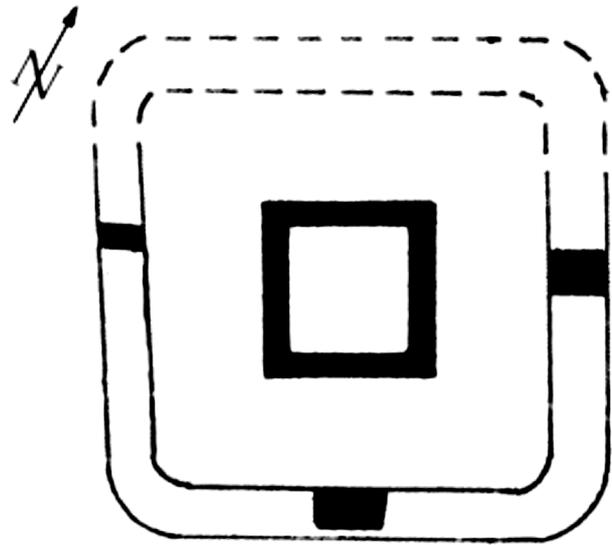
0 20 m

[16 A] Hajdučka Vodenica



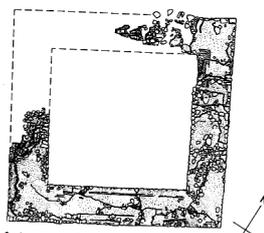
0 5 10m

Finningen-Neu Ulm

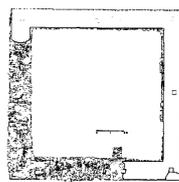


0 10 20 m

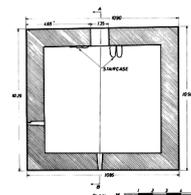
Passau-Haibach



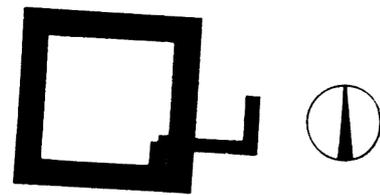
Rheinsulz



Bacharnsdorf



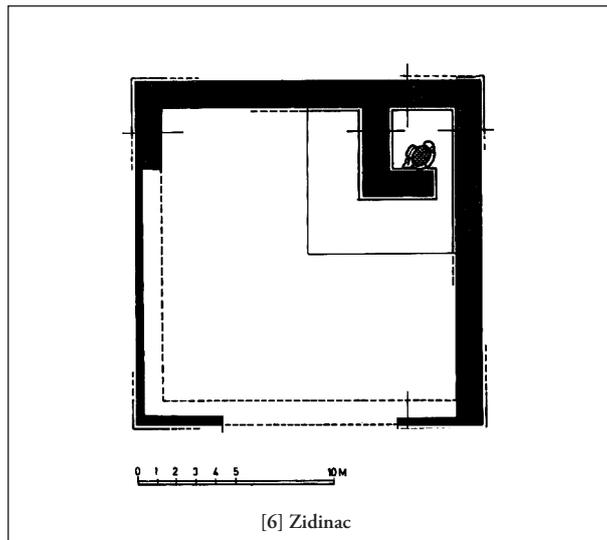
Qasr Abu Rukba



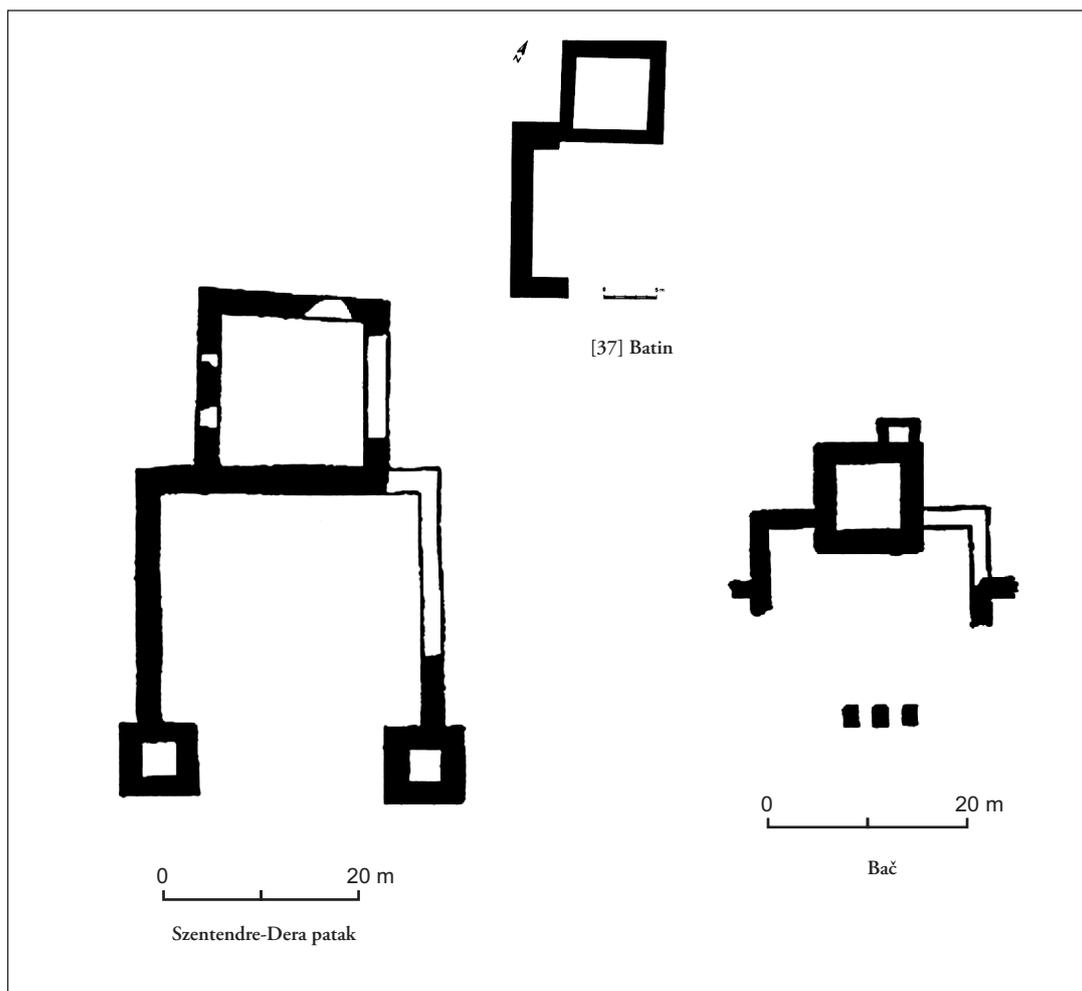
0 20m

Vrhnika-Turnovšće

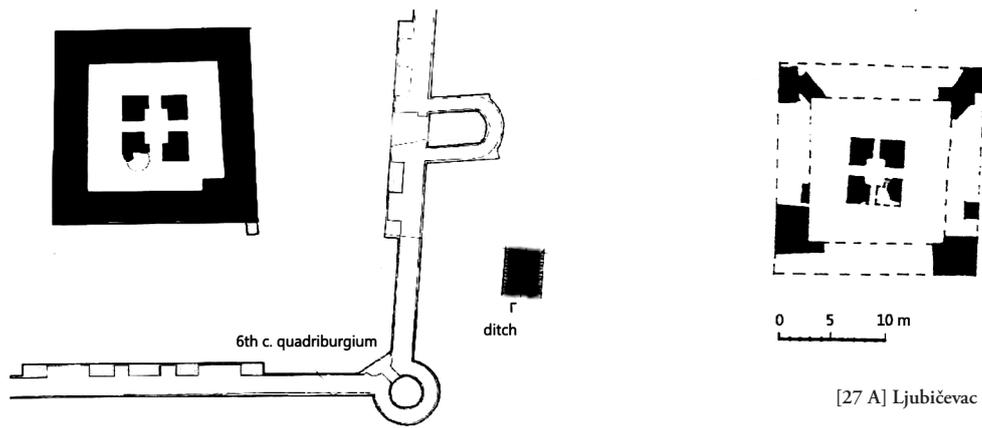
357. Burgi type 1 – simple (large tower)



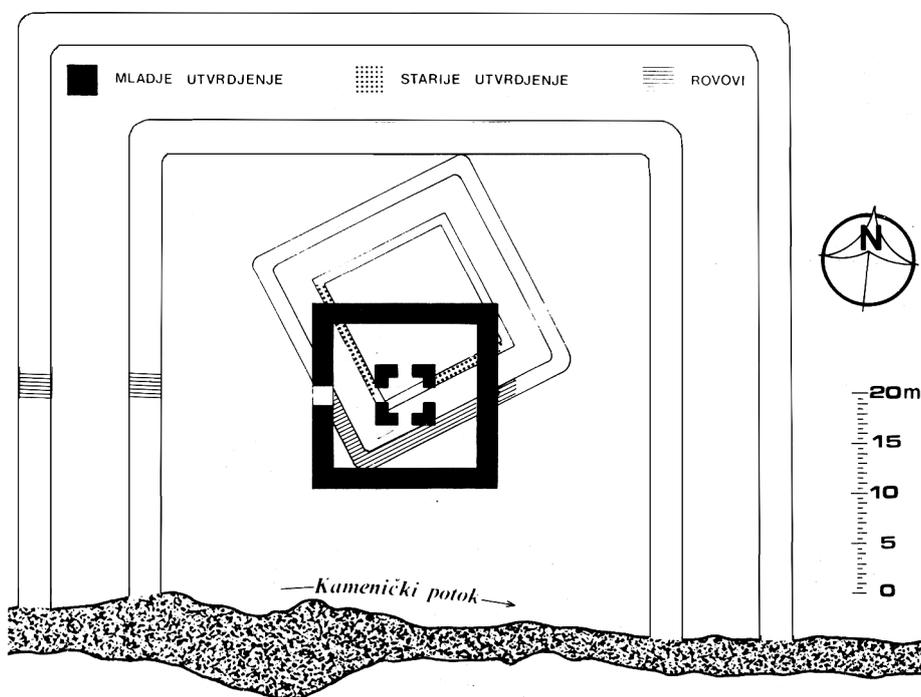
358. Burgi type 2



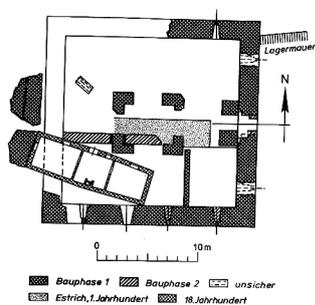
359. Burgi type 3



[22 A] Kladovo-„Donje Butorke“

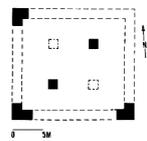


[31] Mihajlovac-„Mora Vagei“

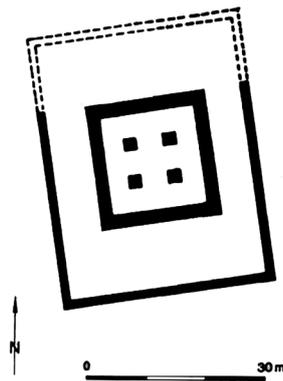


Zeiselmauer

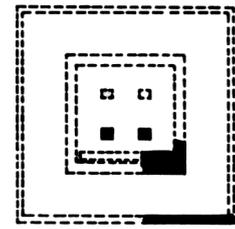
360. Burgi type 4 a – with tetrapylon (Tetrarchic)



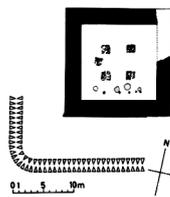
[29 A] Ušće Slatinske Reke



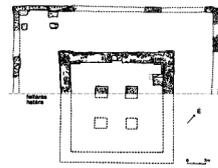
[30] Mihajlovac-"Blato"



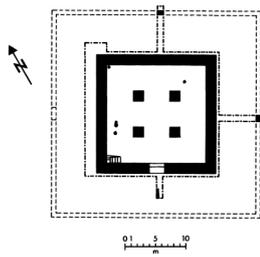
[32] Bordej



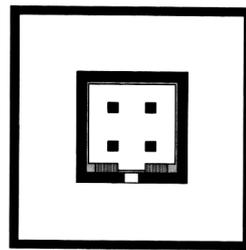
Stelli



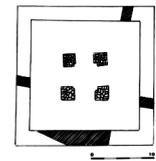
Visegrád-Lepence



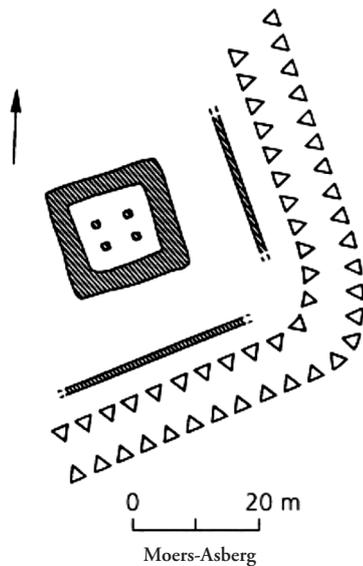
Leányfalu



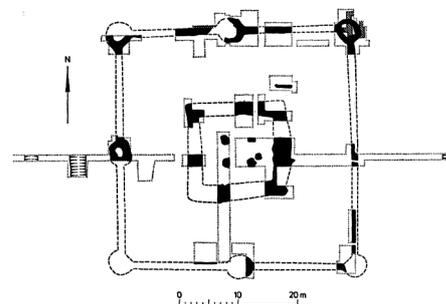
Budakalász



Öcsény

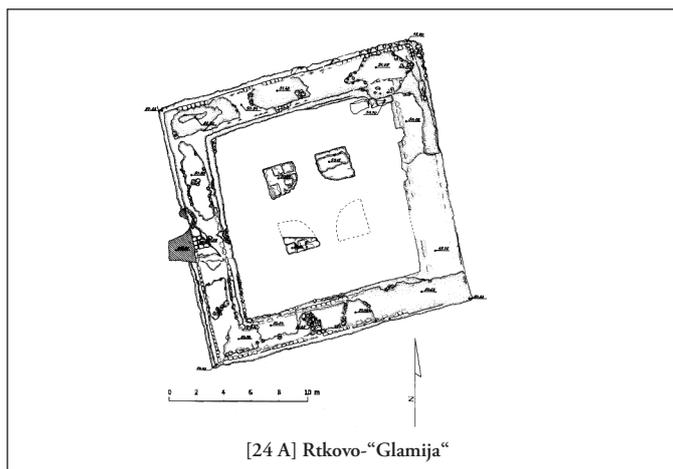


Moers-Asberg

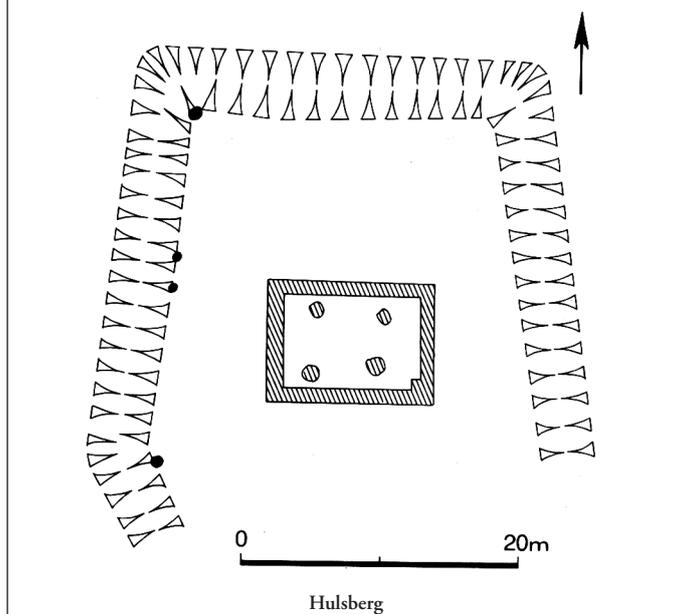
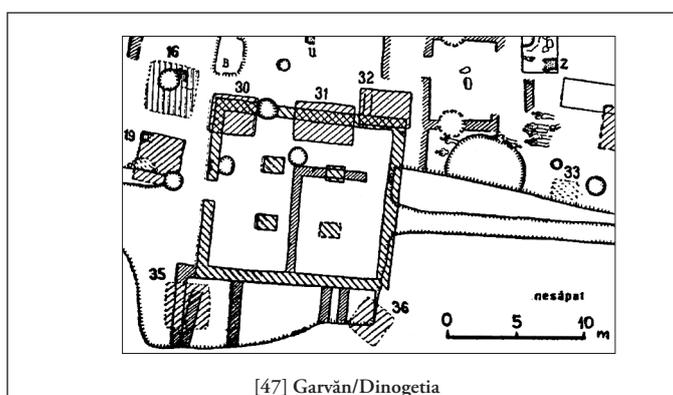


Asperden

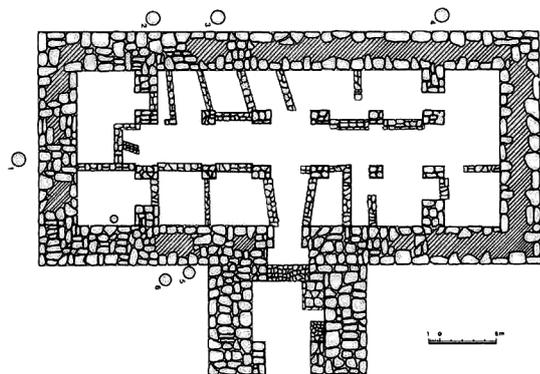
361. Burgi type 4 b – with tetrapylon (Valentinian I/Valens)



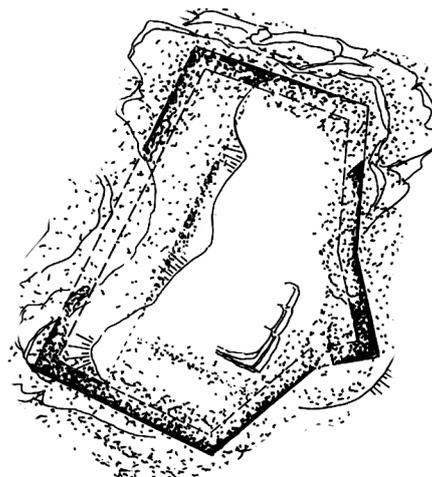
362. Burgi – variants to type 4 a and 4 b  
(Rtkovo-“Glamija”)



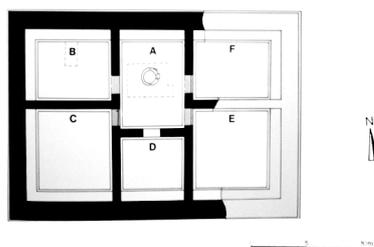
363. Burgi – variants to type 4 a and 4 b  
(Garvân/Dinogetia)



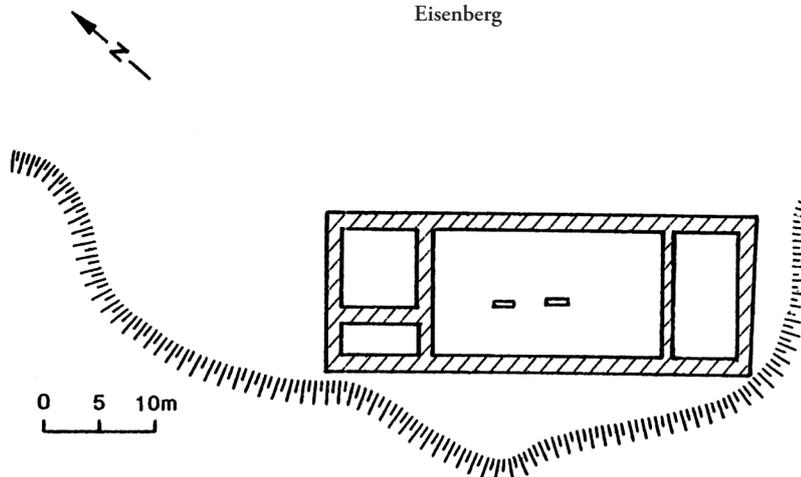
[89] Babadag-“Topraichioi”



[87] Pakoševo

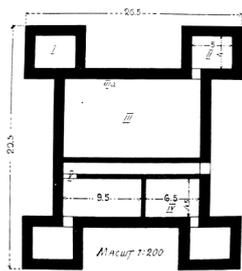


Eisenberg

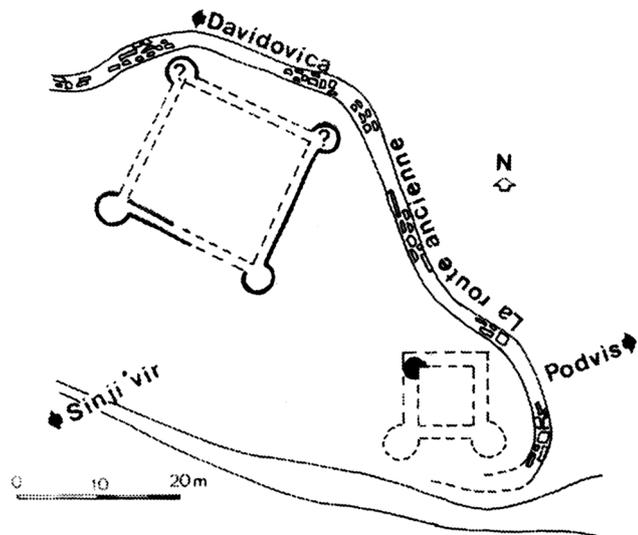


Frauenberg-Weltenburg

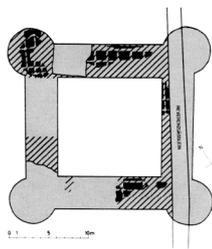
364. Burgi type 5 – with divided internal space



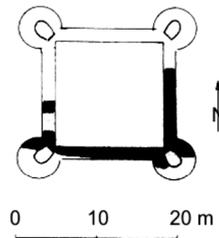
[76] Bistrica



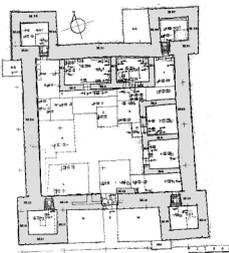
[67] Podvis



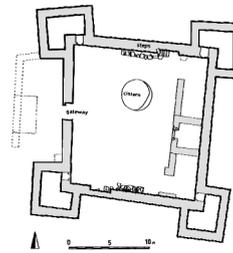
Kleinbasel



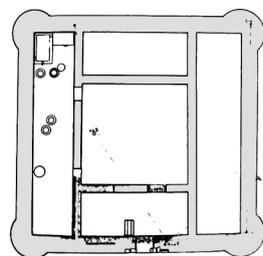
Untersaal



En Boqeq

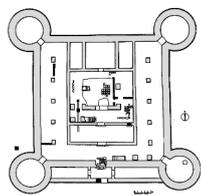


Upper Zohar

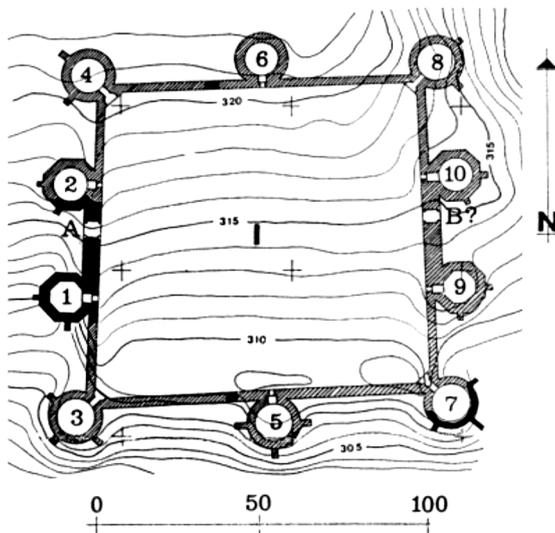


[73] Drenkovo

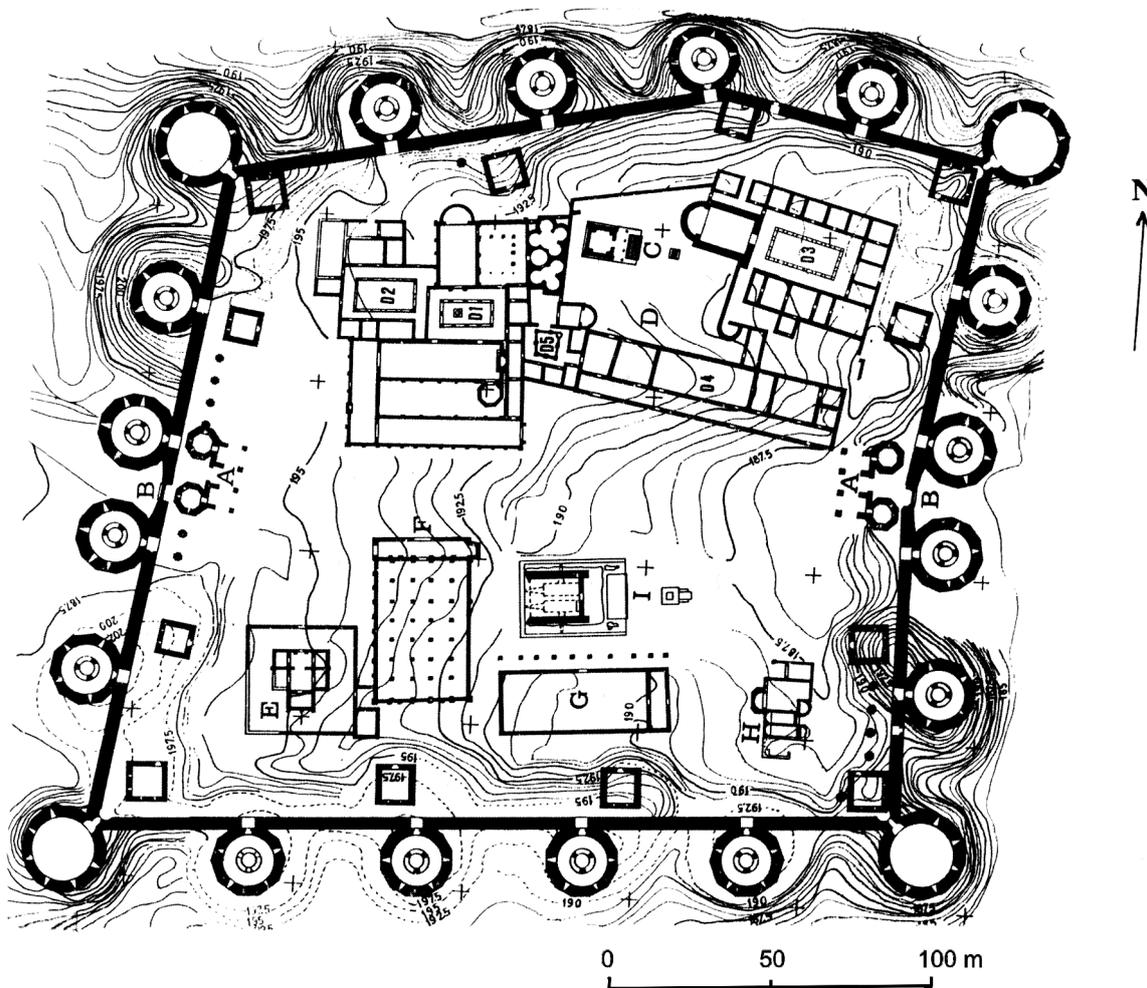
365. Mixture Burgus/Quadriburgium



[66] Kula

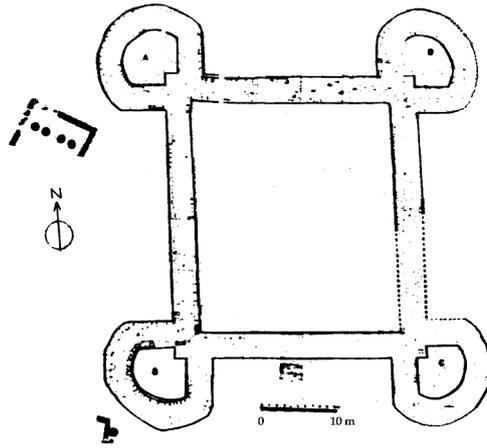


Vrelo-Šarkamen

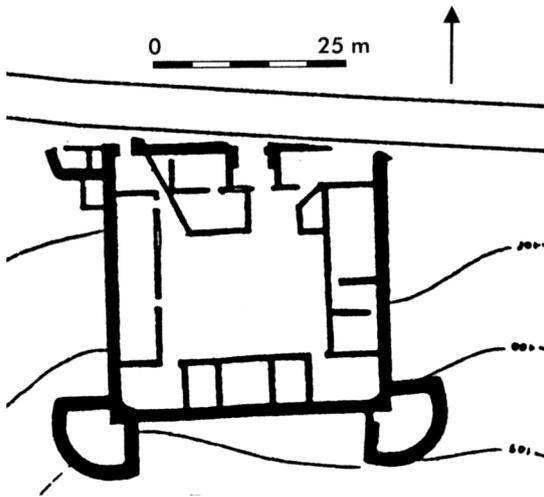


Gamzigrad

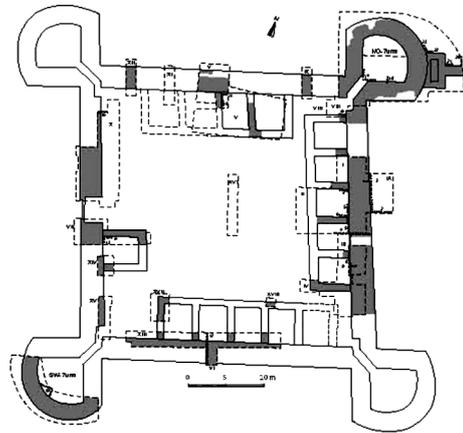
366. Quadriburgia – 4<sup>th</sup> c. – Tetrarchic period  
(Kula – compared with fortified imperial residences in Dacia Ripensis)



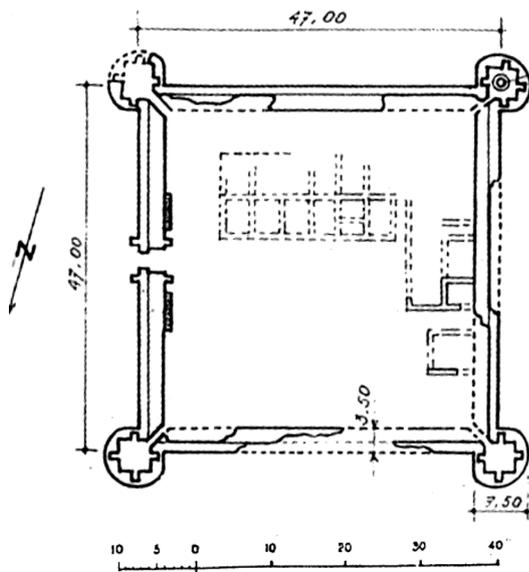
[90] Mihai Bravu



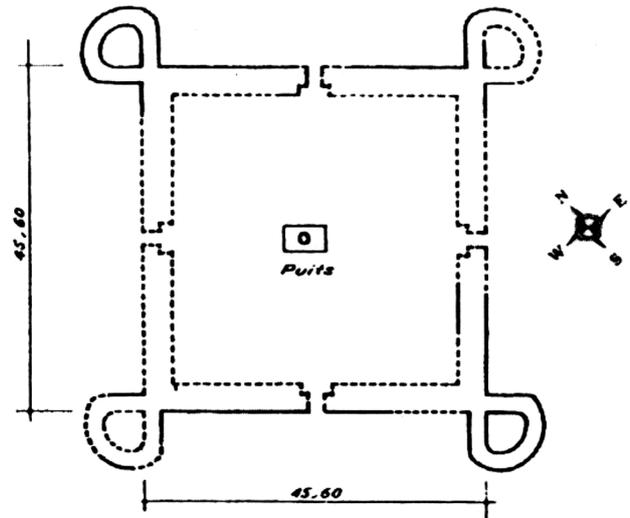
Visegrád-Gizellamajor



Qusair as-Sailal *Tetrapyrgium*

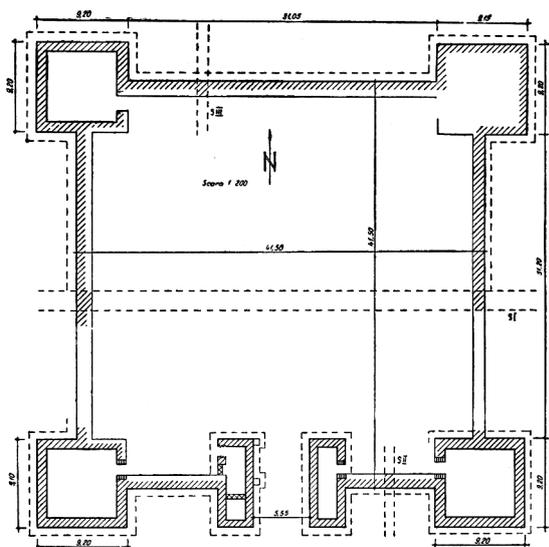


Khan el-Hallabat

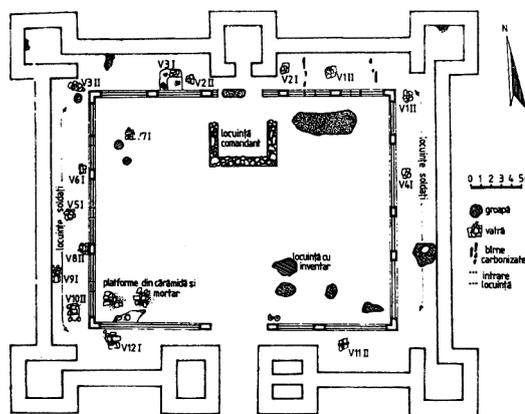


Khan el-Abyad

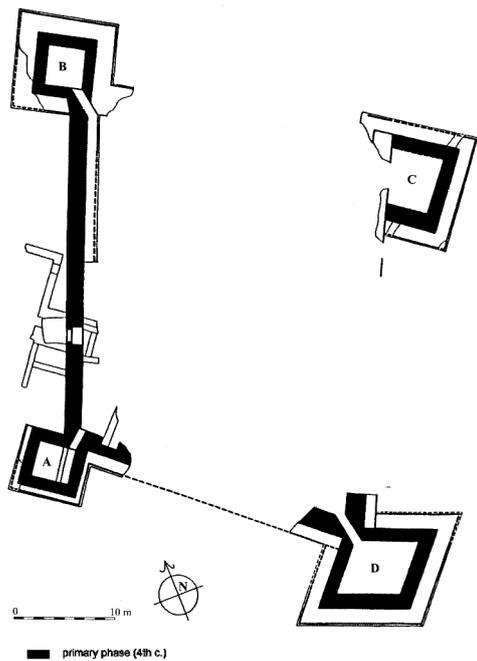
367. Quadriburgia – 4<sup>th</sup> c. – Constantine and successors



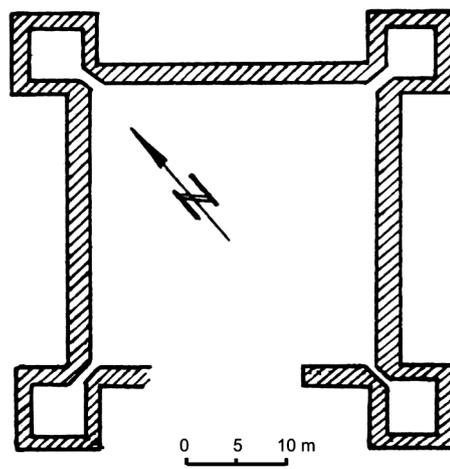
[5] Gornea



[23] Hinova

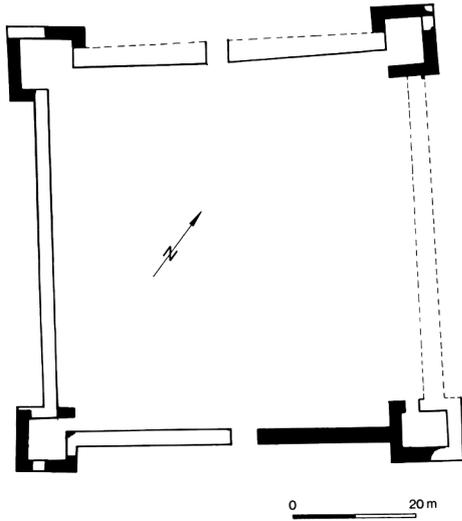


[17] Tekija/Transdierna

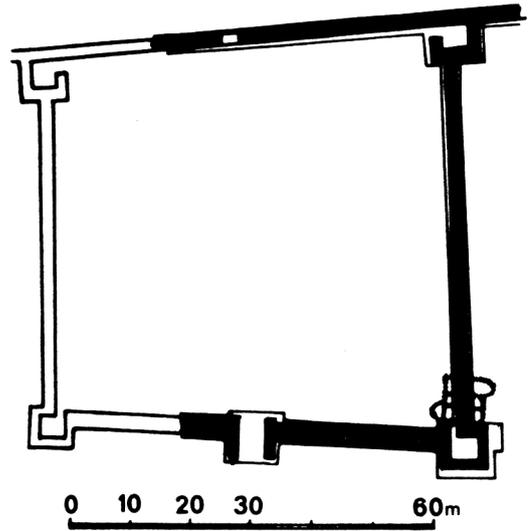


[18] Orșova/Dierna

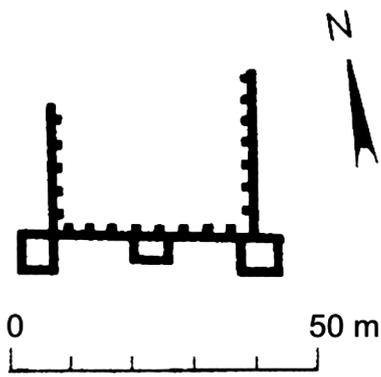
368. Quadrburgia – 4<sup>th</sup> c. – Constantine and successors



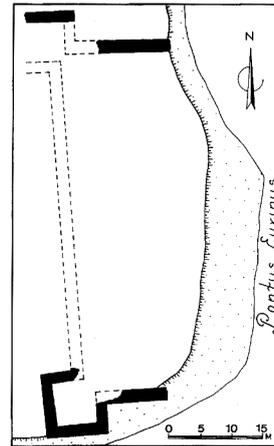
[12] Ravna



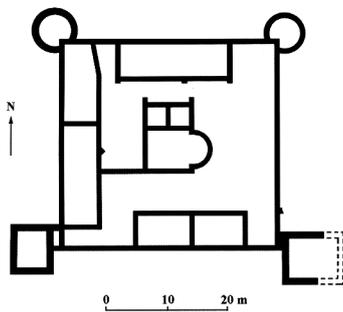
[13] Porečka Reka



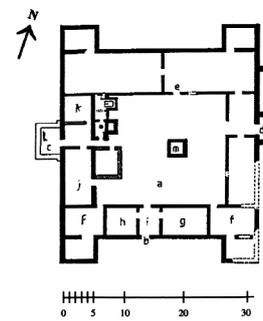
[39 A] Nova Černa A



[58 A] Cape Šabla 1

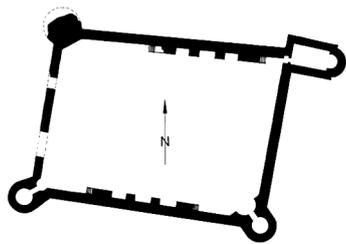


[74] Sofija-“Orlandovci”

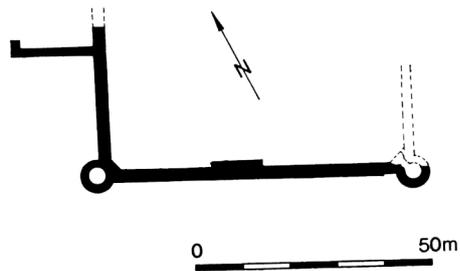


[77] Pernik-“Bela Voda”

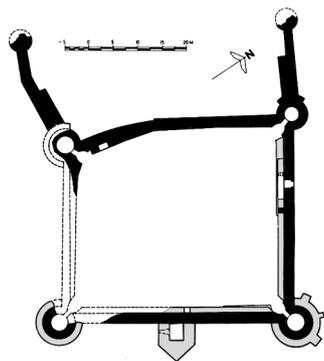
369. Quadriburgia – 4<sup>th</sup> c. – Constantine and successors



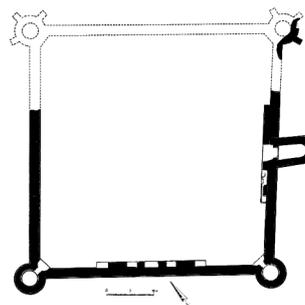
[7] Dobra-‘Saldum’



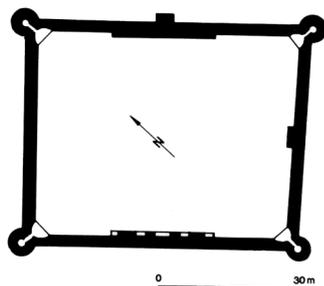
[14 B] Malo Golubnje



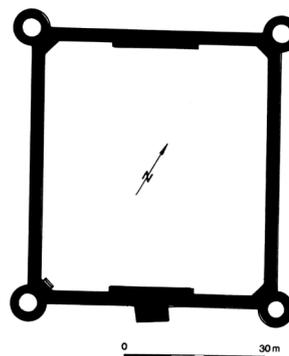
[16 B] Hajdučka Vodenica



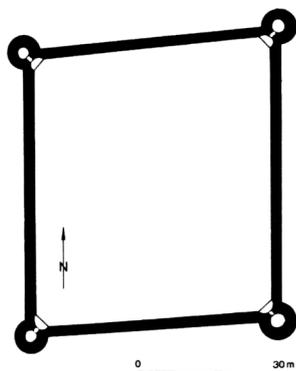
[22 B] Kladovo-‘Donje Butorke’



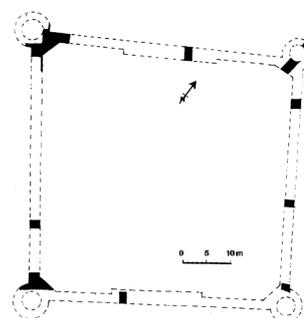
[29 B] Ušće Slatinske Reke



[26] Milutinovac

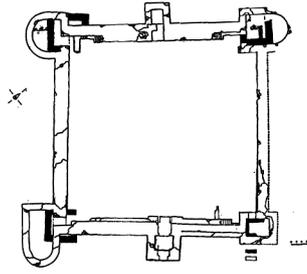


[24 B] Rtkovo-‘Glamija’

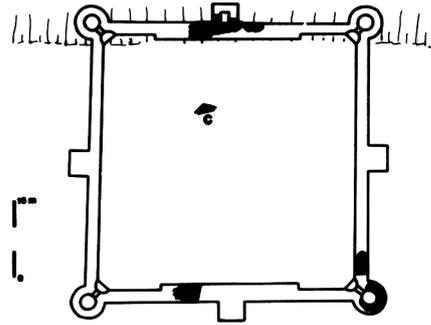


[27 B] Ljubičevac

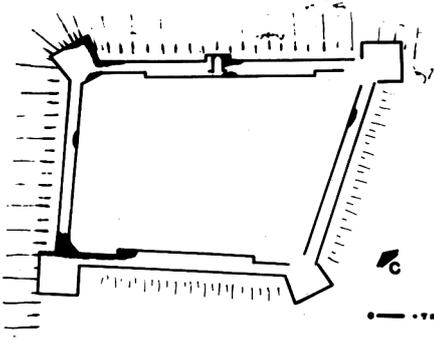
370. Quadriburgia – 6<sup>th</sup> c. – Iron Gates fortifications



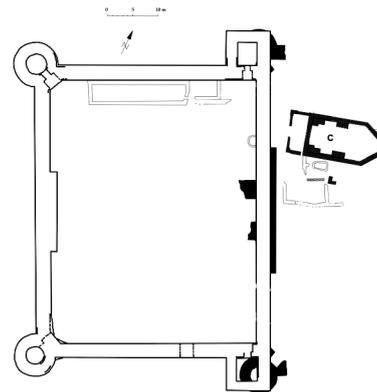
[12] Ravna



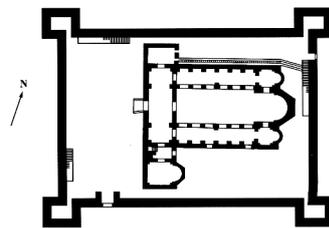
[34] Radujevac



[[65] Vidrovgrad

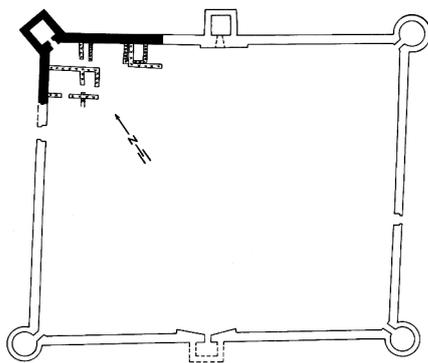


[54] Ovidiu



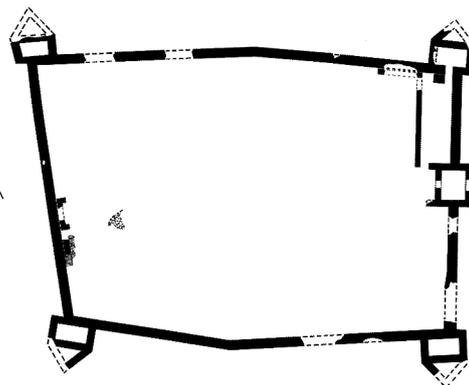
0 10 20 m

[72] Pirdop



0 15m

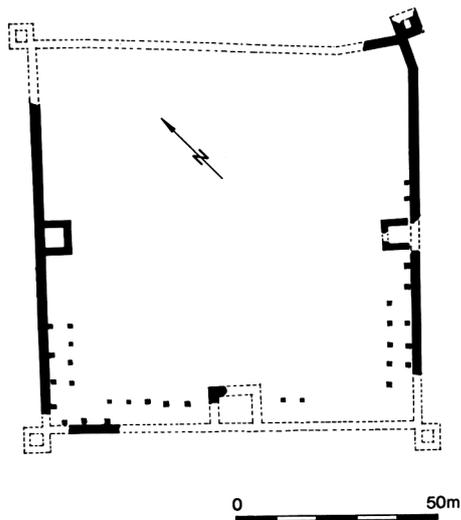
[103] Ljubenovo



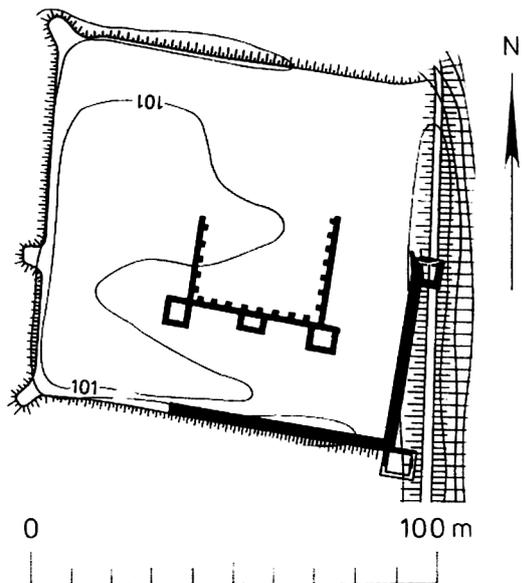
0 20 40 m

[105] Djadovo

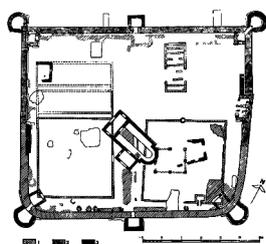
371. Quadriburgia – late 5<sup>th</sup> – 6<sup>th</sup> c.



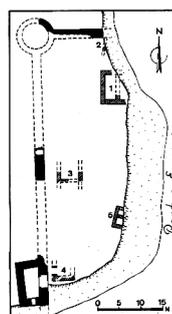
[3] Sapaja Island



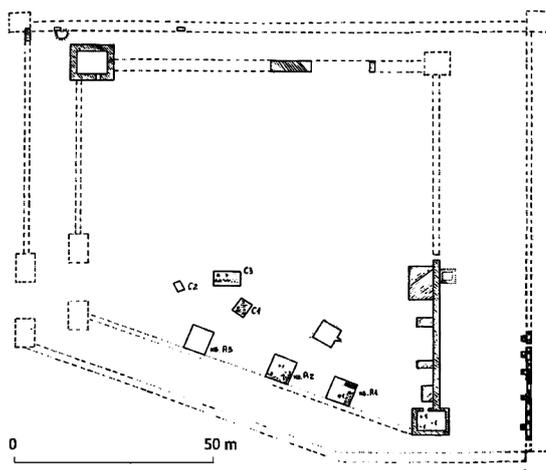
[39 B] Nova Černa B



[11] Boljetin

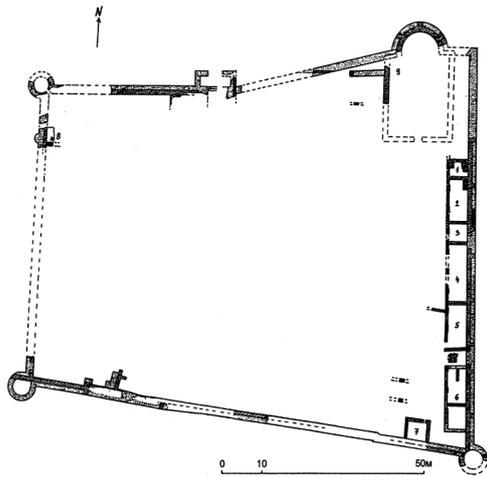


[58 B] Cape Šabla B

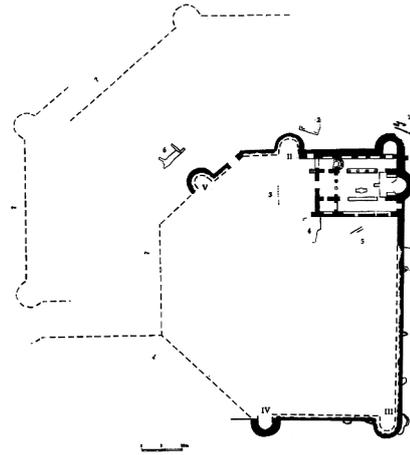


[100] Sopot-‘Hissarlák’

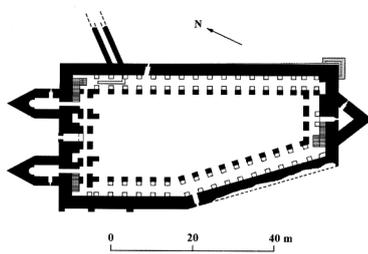
372. Small *castella* – rectangular plan



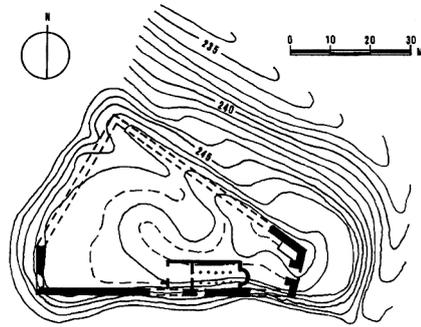
[70] Kostinbrod



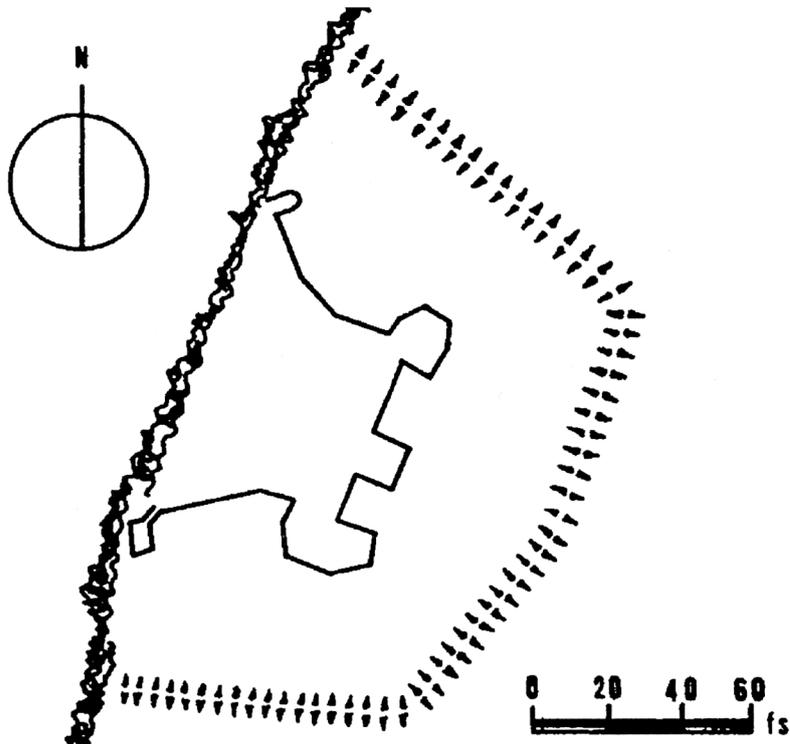
[78] Bregovina



[71] Trajanova Vrata-“Markova Mehana”

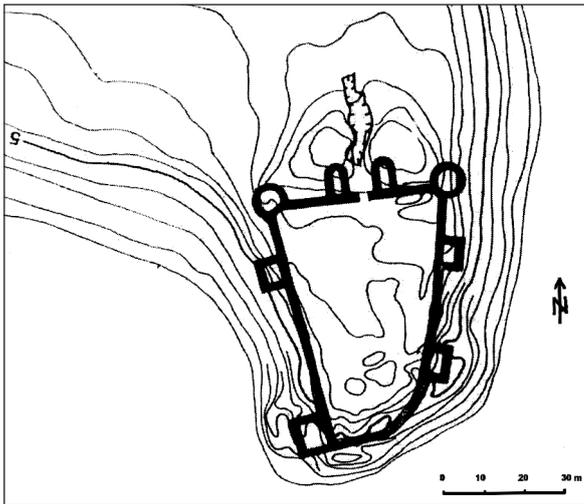


[96] Debrene II

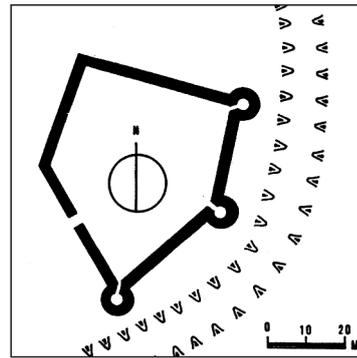


[94] Tvărdica

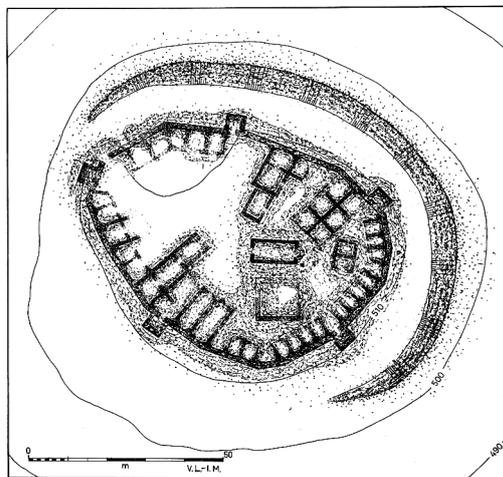
373. Small castella – polygonal plan, with regular tendency



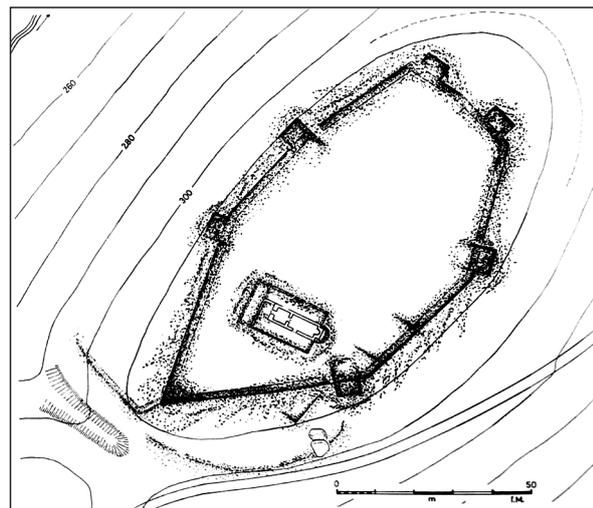
[51] Dunavățu de Jos



[95] Obročiște

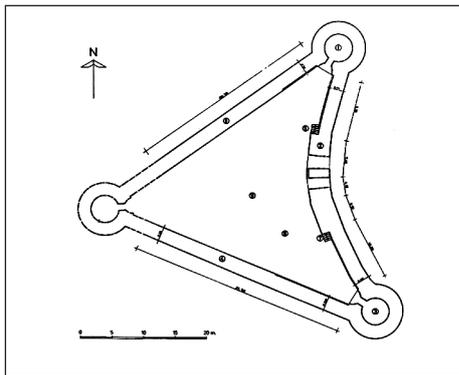


[84] Gorno Svilari

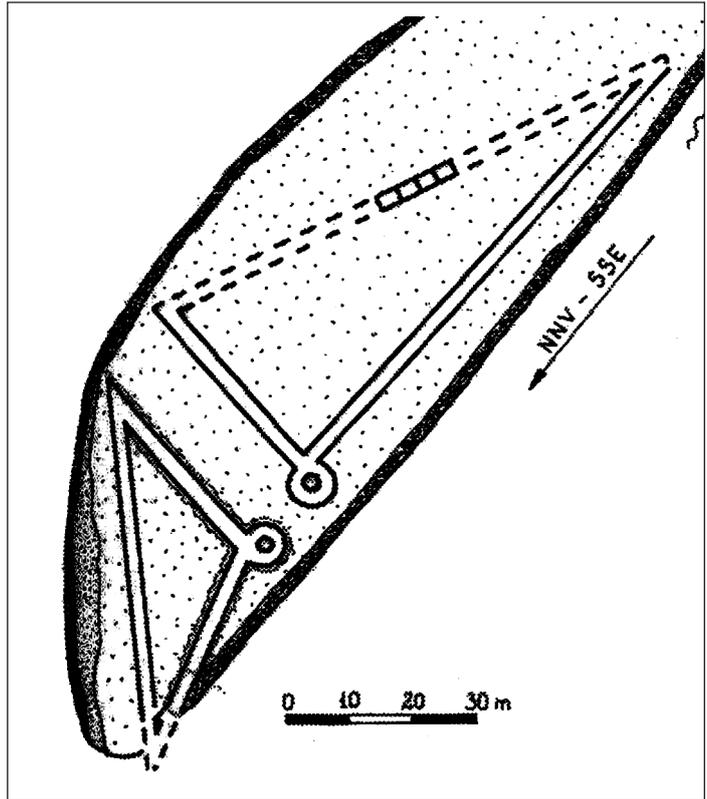


[86] Zelenikovo

374. Small castella – polygonal plan, totally adapted to the terrain



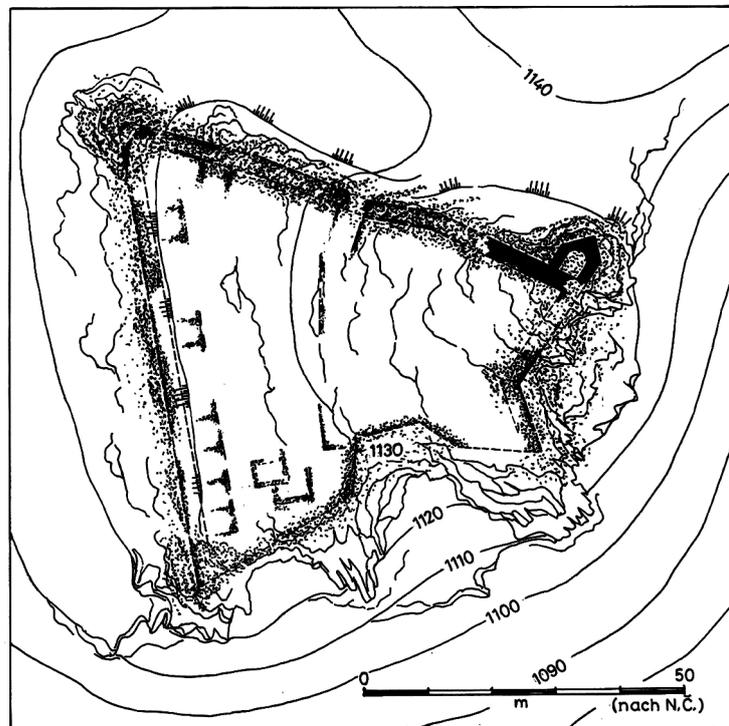
[8] Bosman



[53] Biseriçuța Island

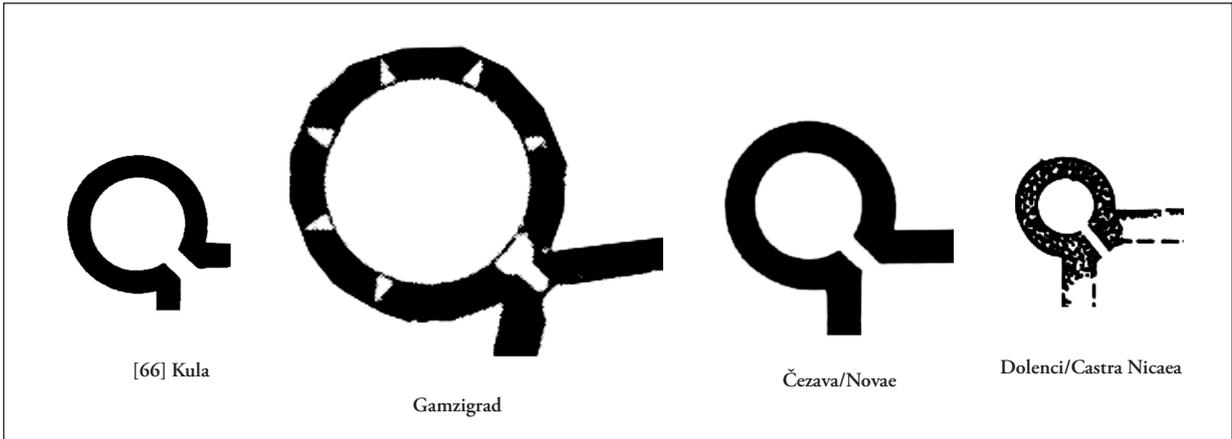


[28 B] Brza Palanka-‘Castellum III’

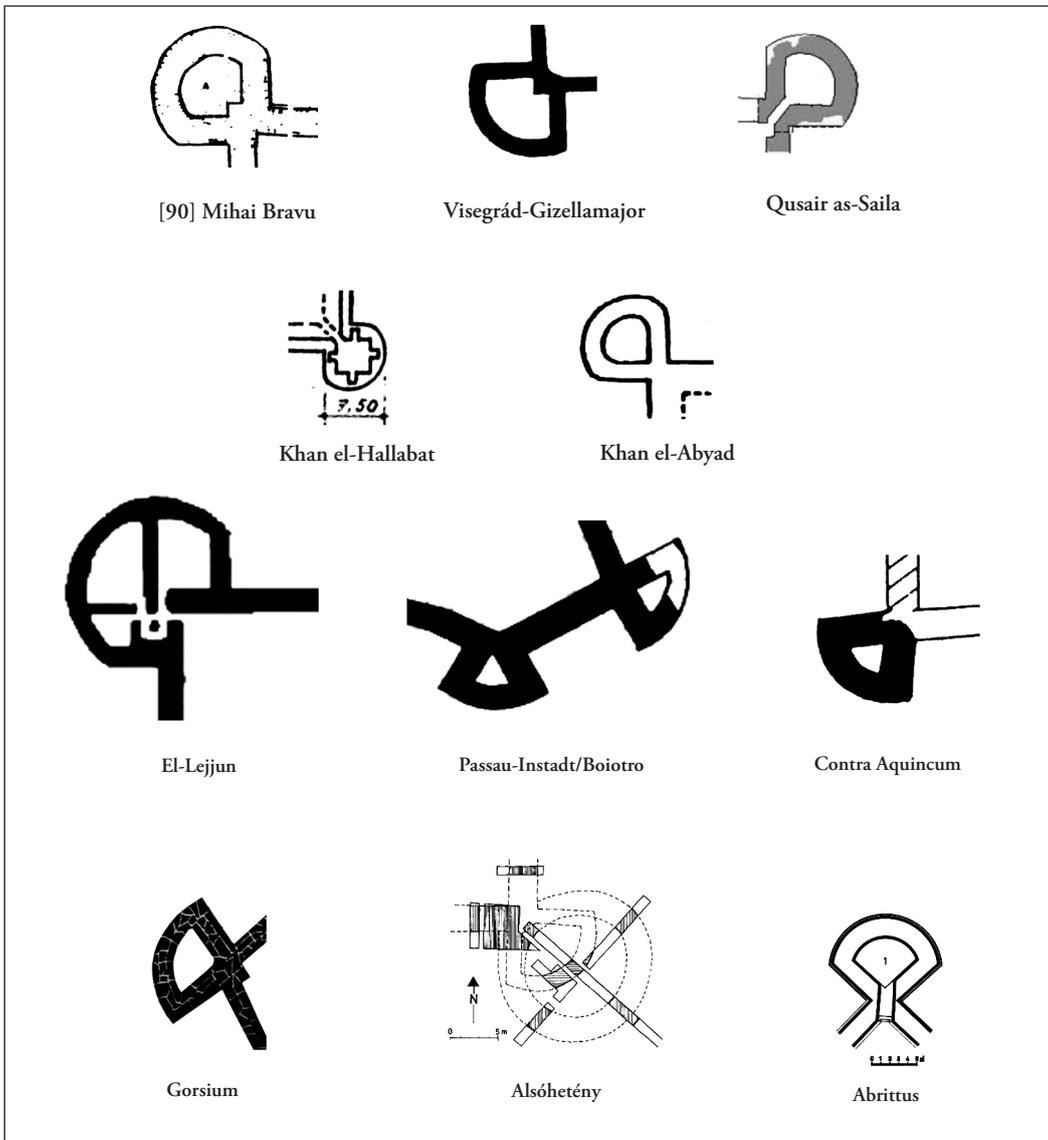


[85] Ljubanci

375. Small castella – triangular plan

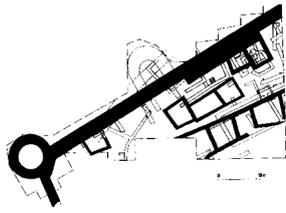


376. Round corner-towers (4<sup>th</sup> c.)

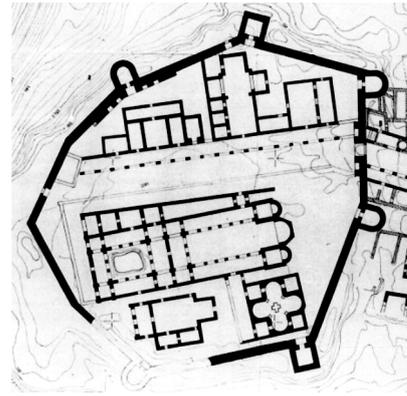


377. Fan-shaped corner-towers (4<sup>th</sup> c.)

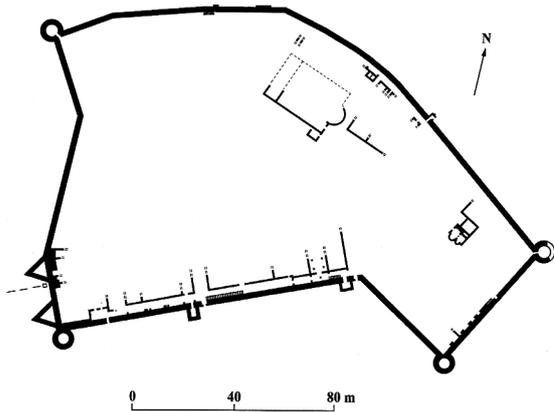




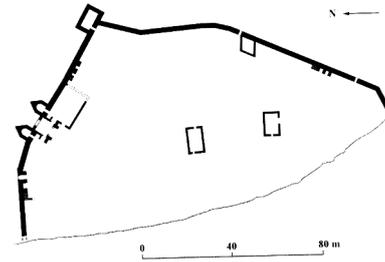
Karasura - period C



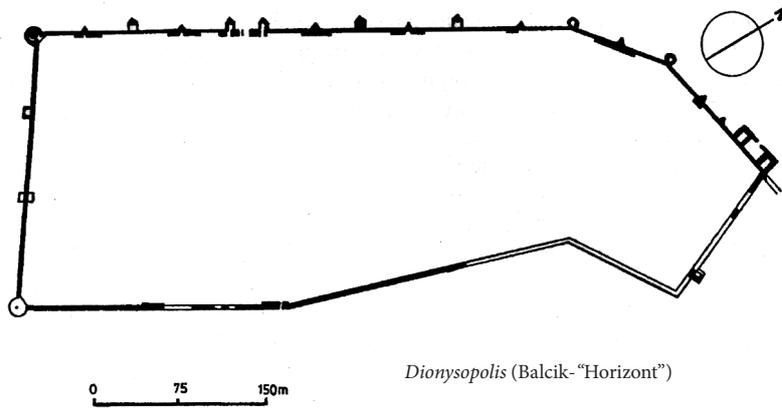
Iustiniana Prima - acropolis



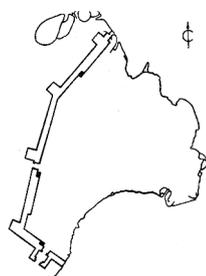
Pautalia - "Hissarlak"



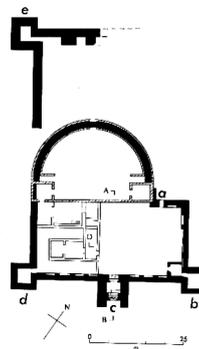
Madara



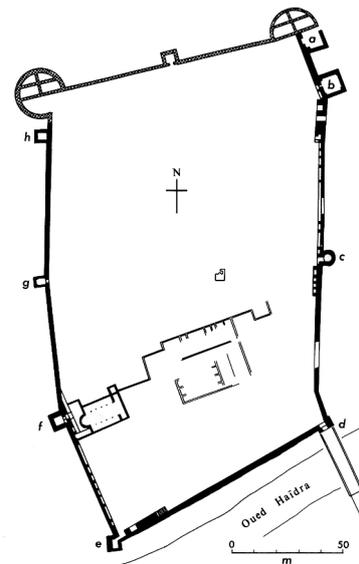
Dionysopolis (Balcik - "Horizont")



Kamen Brjag-Jajlata

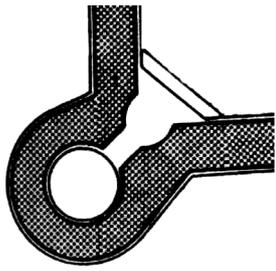


Madauros

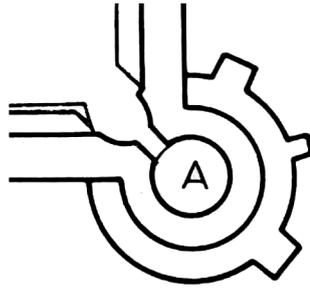


Ammaedara

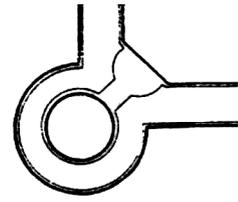
381. Wall thickening for access staircase (late 5<sup>th</sup> - 6<sup>th</sup> c.)



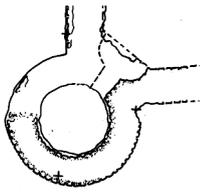
[7] Dobra-“Saldum”



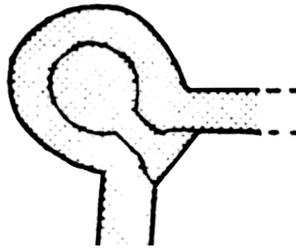
[16 B] Hajdučka Vodenica



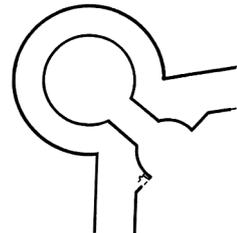
[22 B] Kladovo-“Donje Butorke”



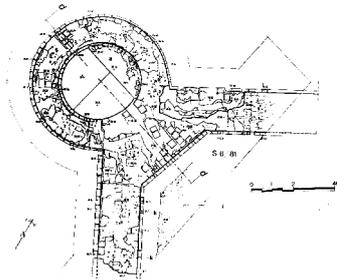
[24 B] Rtkovo-“Glamija”



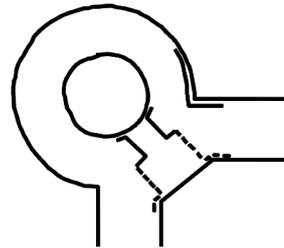
[29 B] Ušće Slatinske reke



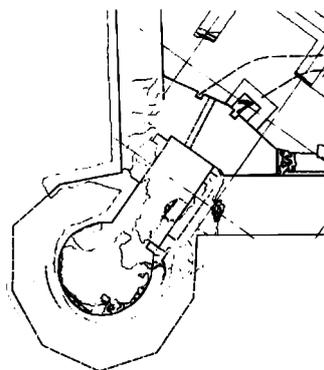
[60] Škorpilovci



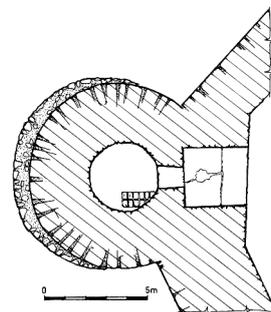
[26] Milutinovac



[54] Ovidiu

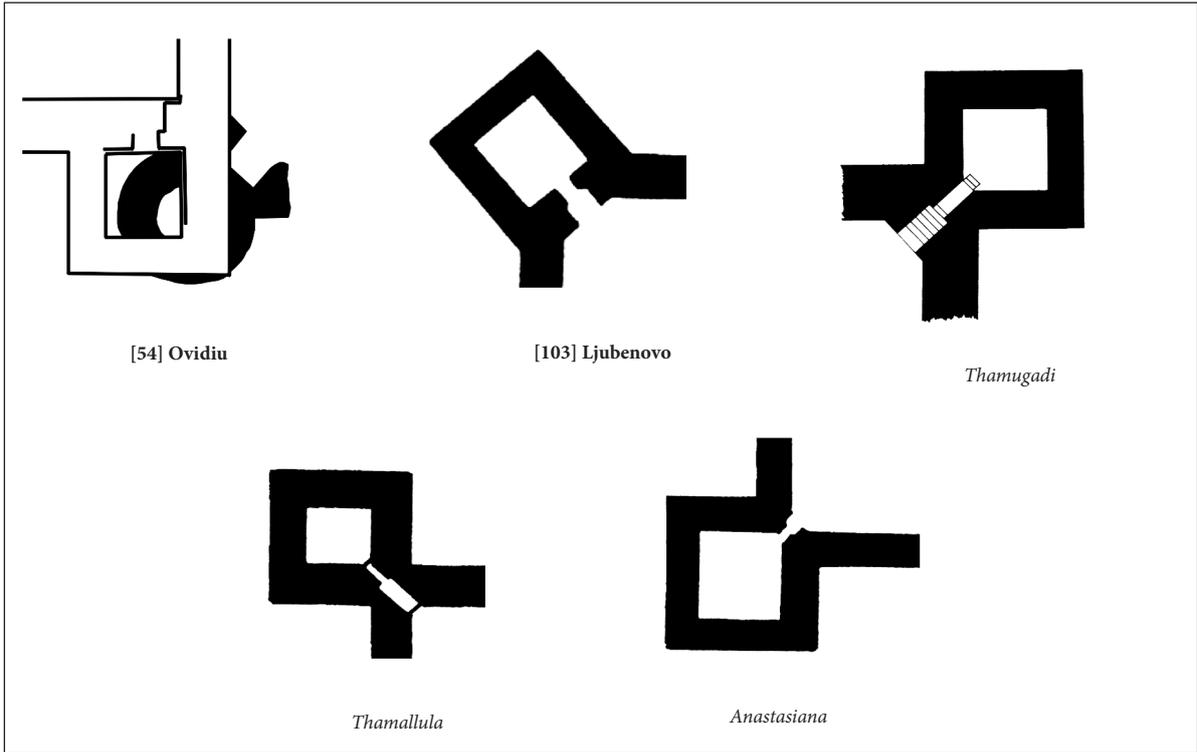


Iustiniana Prima

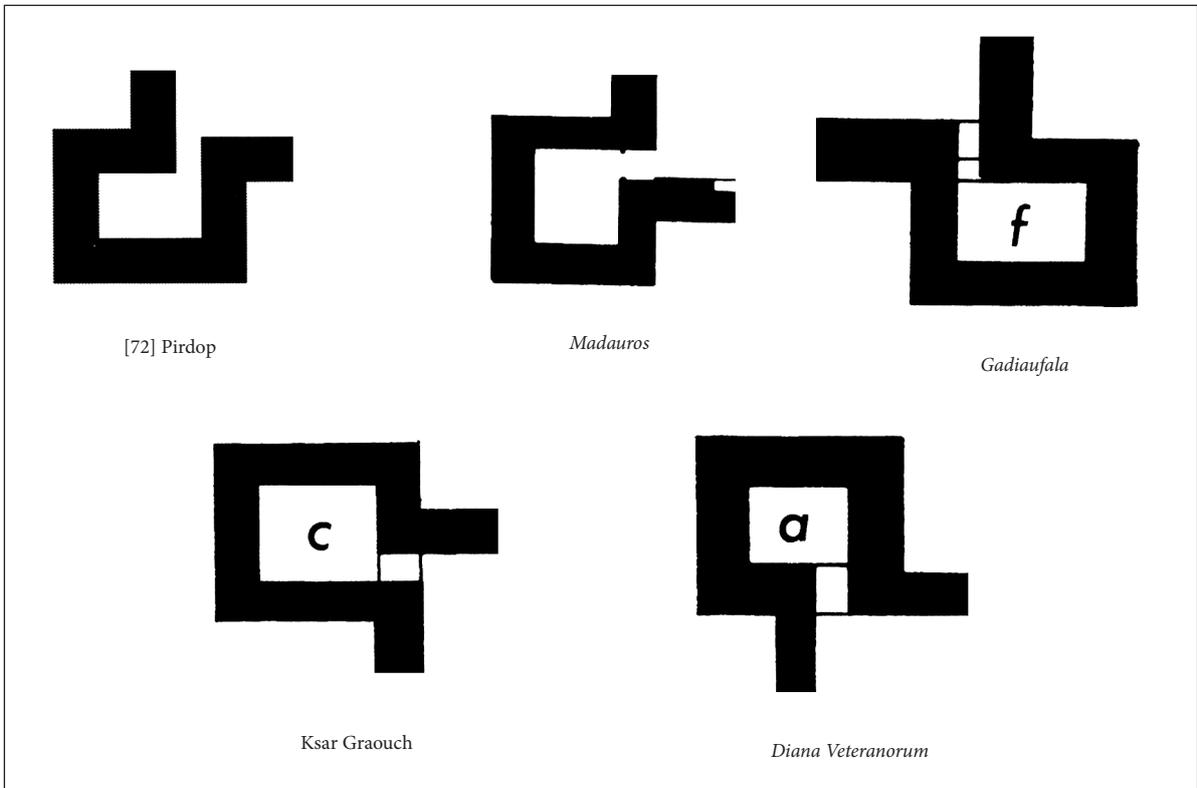


Skopje-“Kale”

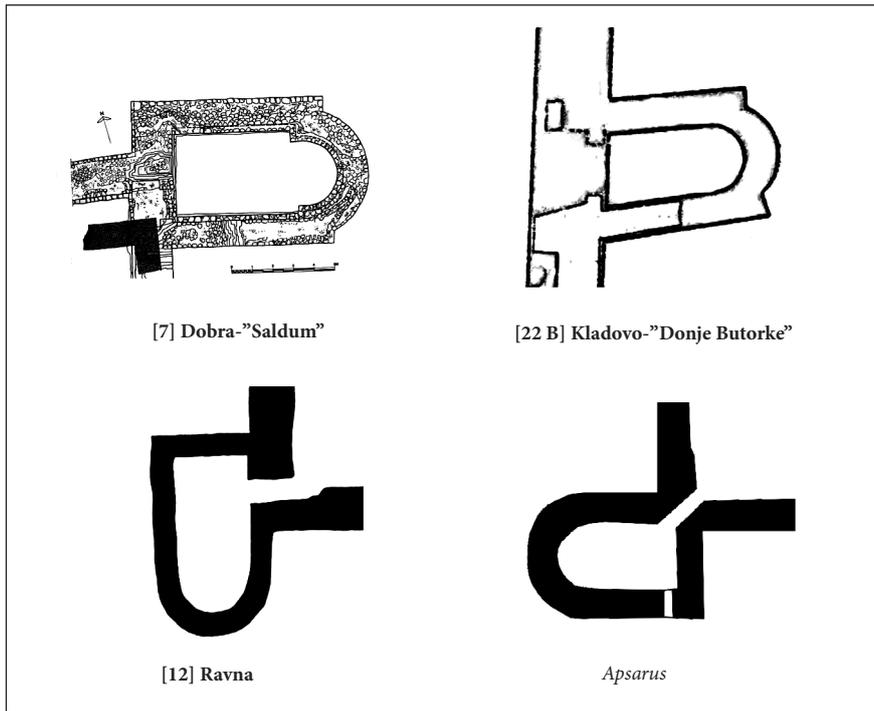
382. Circular corner-towers with corridor-type entrance (6<sup>th</sup> c.)



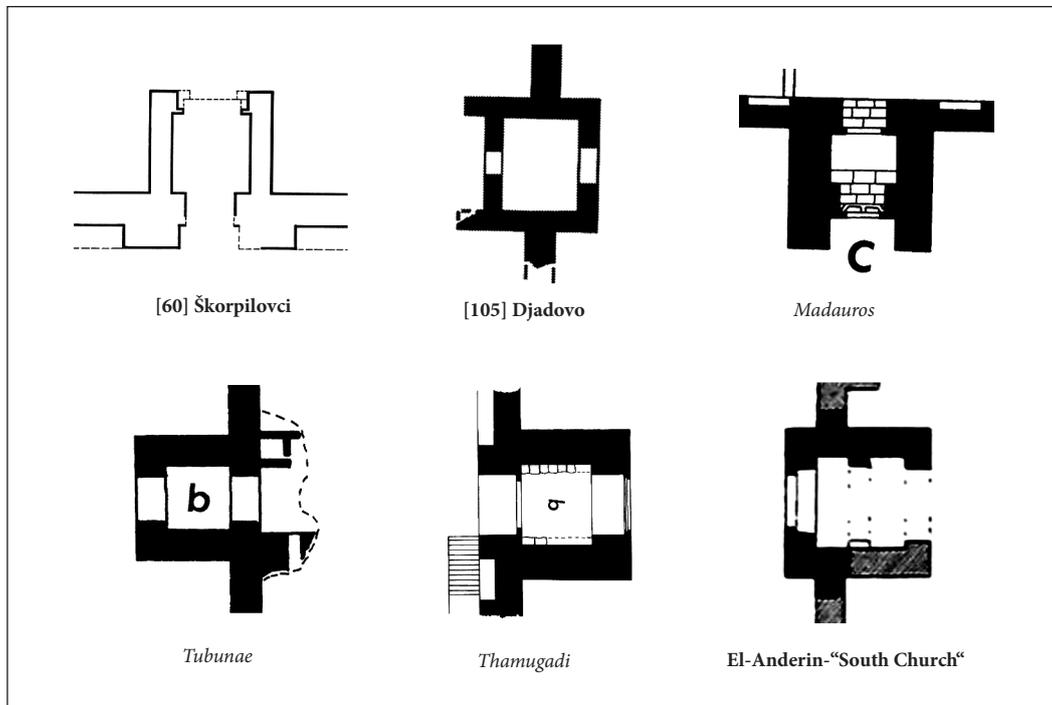
383. Rectangular corner-towers with corridor-type entrance (6<sup>th</sup> c.)



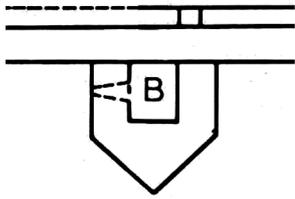
384. Rectangular corner-towers with lateral-type entrance (late 5<sup>th</sup> – 6<sup>th</sup> c.)



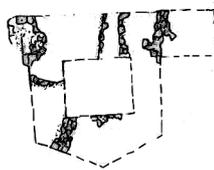
385. Rectangular towers with apsidal front (6<sup>th</sup> c.)



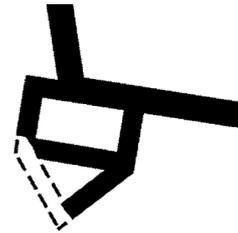
386. Tower-gates (5<sup>th</sup> – 6<sup>th</sup> c.)



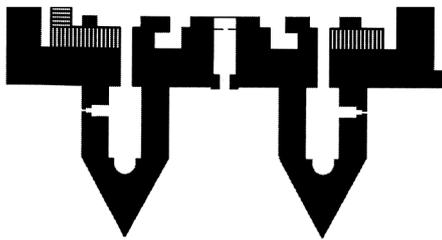
[16 B] Hajdučka Vodenica



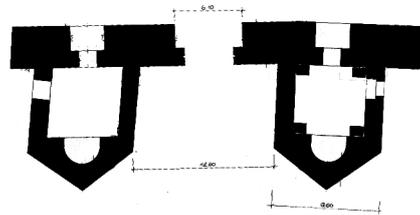
[33] Ostrovul Mare



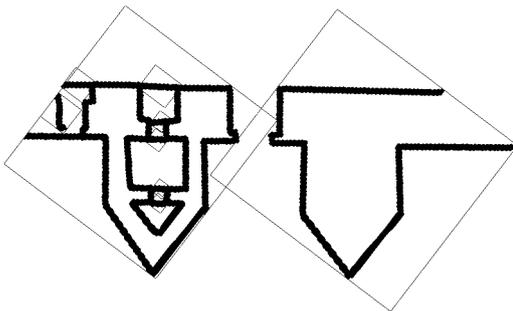
[105] Djadovo



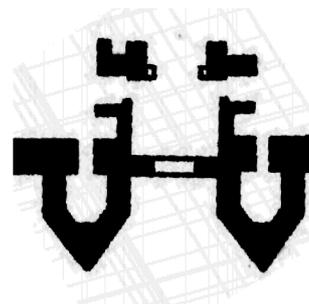
Trajanova Vrata-“Markova Mehana



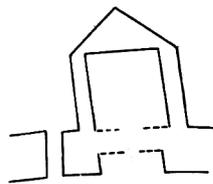
Mesembria



Iustiniana Prima



Madara



Onhezmos



Resafa

387. Pentagonal towers (5<sup>th</sup> – 6<sup>th</sup> c.)



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