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THE CONSTRUCTION OF THE ROMAN FORTS IN DACIA

FELIX MARCU*

Abstract: The paper aim is to survey evidence on the construction of Roman auxiliary forts of Dacia and to make a cross-section of the arguments. Finally, to understand the degree of self-sufficiency of the auxiliaries, if they ensure all their needs regarding the building activities or not.

Keywords: Roman army, fort building, Roman archaeology, fort, building inscriptions.

Rezumat: Studiul urmărește analiza dovezilor privind construirea castrilor auxiliare din Dacia, realizând o radiografie a argumentelor. Facem acest lucru pentru a înțelege în final gradul de auto-suficiență al auxiliarelor, dacă au reușit să-și asigure toate necesitățile și în ceea ce privește activitățile de construcție.

Cuvinte cheie : armata romană, castru, arheologie romană, construcția castrilor, inscripții de construcție.

Introduction

The impression regarding the building of the forts of Dacia, as well for other provinces, is that the legionaries have built most of the forts, disregarding that most of the arguments are based on the discovery of legionary tile-stamps inside the auxiliary forts. However, the involvement of the large number of auxiliary troops of Dacia is proven by few inscriptions. In this brief scrutiny I will try to make a sketch of the evidence and bring together the building inscriptions found in the province to discern finally whether auxiliaries were just assistants or not.

The arguments in favour of the last are sketchy, but their relation with the forts of garrison should have been close, otherwise the patterns regarding the internal planning of the forts would have been much more apparent. Or, there are not two identical forts or buildings as it would have been the case if the legionaries have been the builders.

I will try to make here a short grouping of the evidences in Dacia, as it is a particular case in many instances.

The legions

Does archaeology in Dacia show the same patterns? Regarding the connection between legionaries and the forts of Dacia, the clearest relation is suggested by the discovery, in many auxiliary fortifications, of tile-stamps bearing abbreviated names of Dacian legions, sometimes of the same legion in forts geographically far from one another¹. A quick view of the distribution of tile-stamps with the abbreviated name of the legions of Dacia will lead to the deduction that forts were built by legionaries, but they were not decisive in the construction of forts. Often, their knowledge was also used in building activities, especially for the erection of the enclosure, but above all, their construction material was the most important product to be handled by auxiliaries². However, numerous scholars emphasized the role of

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¹ For *leg. IIII Flavia Felix*'s tile-stamps distribution in Dacia see Glodariu 1966; Protase 1967.

² The same for the tile-stamps of *leg. IIII Flavia Felix* or *leg. XIII Gemina* found in civilian contexts, as the case of Ulpia Traiana Sarmizegetusa (IDR III/2, 540, 541), which doesn't necessarily proves the constant presence of the legion or *vexillationes* there, but namely the legion's cooperation in the building program, either with material or with labour. Similar in the case of Dalmatia's towns, see Alföldy 1967, 50.

legionaries as fort builders, based alone on this argument. Nonetheless, this only confirms that the legions sent building material to the auxiliaries and sometimes it was all they did. Tile-stamps of the *XIII Gemina* legion garrisoned at Apulum (Alba-Iulia) were found in the forts along the Mureş River, on the road entering Dacia from Pannonia, at Bulci, Aradu Nou, Sânnicolaul Mare and Cenad³. Also, in some of the most important Dacia's forts there were also tile-stamps discoveries of the mentioned legion. Among them are Porolissum, Boița, Mehadia, Micia or Slăveni⁴. Some of the forts are located quite a distance from the legion's garrison place, but it is probable that the material was produced at the same brickyard as the tiles from Apulum, therefore the load was carried from the main brickwork⁵. There was no problem in doing so, as it would have been much easier than to build a brickyard. Presumably, some of the legion's detachments could have been work in the brickworks of other units.

Besides, the problem of garrisoning military forts in general is disputable. Frequently, in forts of Dacia tile-stamps of more than one unit were discovered or, other times, tile-stamps of one single unit came out individually in more places, usually in the vicinity of one another. Obviously it is about sharing building material or specialisation of one unit or another. The most important problem remains the chronological sequence, often unknown. In Dacia, compared to other provinces, almost every troop known from military diplomas is attested on tile-stamps as well, therefore Romanian scholars identified easily the forts garrison. However, this is far from certain⁶.

Therefore, tile-stamps or brick-stamps do not necessarily imply the presence of the legionaries in garrison, but just the import of the material from legionary brickyards to the forts⁷. However, the inscription found at Hoghiz, on the eastern *limes* of Dacia Inferior, if it is a building inscription, could be a proof that legionaries took part in building activities (CIL III, 953 = IDR III/4, 230)⁸. Some legionaries of the *XIII Gemina* legion could have been garrisoned here together with a cohort and it is assumed that they built something inside the fort as the inscription, discovered in the *porta decumana* area, mentions a *vexillat(io) leg(ionis) XIII Gem(inae)*. Based on such evidence, the unit was considered the fort garrison during the first half of the second century C.E.⁹. Yet, this conclusion is not sufficiently adequate, as, for instance in Britannia, there are several forts where legionary centuries built something inside forts quartering auxiliaries. Nevertheless, a vexillation could have represented more than a building team. This occasionally applies, as a complex building inscription from the Antonine Wall in Britannia records *VEX(illatio) LEG(ionis) XX V(aleriae) V(ictricis) FEC(it)*. On the other hand, legionary *vexillationes* could have been a kind of independent units as in North Africa¹⁰, or for instance, two seemed to have each a headquarters building in the two compounds of Corbridge¹¹.

The discovery of construction material produced by legionaries inside urban settlements does not necessary imply legionaries in garrison, as well. They built or assisted mainly the official buildings, even within provinces without legions¹². However, legionaries could have obviously worked beside auxiliaries in forts or buildings construction. Indeed, in Dacia even legions that were not garrisoned in the province took part in the building program of the fort at Porolissum¹³. But, the role they played in the forts construction is hard to describe. The question is again if they or the auxiliaries were the real builders of the forts.

³ There are only signs for the existence of these forts, as there setting is still unclear, see Gudea 1997, 23-24, pl. 3-5.

⁴ Gudea 1997, no. 15; 19; 25; 46; 69.

⁵ Marcu 2004, 586-587. The mineralogical analyses confirmed this for the tiles of *leg. XIII* found 70 km westward from Apulum at Alburnus Maior, see Ionescu et alii 2006, 430.

⁶ See Marcu 2004, *passim*.

⁷ The tile-stamp found at Inlăceni, east of Dacia, with an abbreviation unidentified yet at Apulum, the fortress of garrison for the legion, as LE XIII GEN with a retrograde N (IDR III/4, 298) could indicate a small brickyard of the legion in the area.

⁸ See Piso 2000, 235-6.

⁹ Garrisoned here together with *coh. I Cannanefatium*, Macrea, Protase, Rusu 1960, Fig. 24, 386.

¹⁰ LeBohec 1992.

¹¹ Hodgson 2008, *passim*.

¹² See Marcu 2004, *passim*. Also the governor's staff consisted of many legionaries.

¹³ Piso 2000, 206-8. About *leg. III Gallica* and *leg. VII Gemina* see also, AÉ 1979, 501a and AÉ 1979, 501b – cf. CIL III, 8071a.

Unfortunately, we know little on legionaries' capacity to build the fortifications of Dacia. The only fortress partially excavated is the one at Turda (Potaissa), garrisoning *leg. V Macedonica*¹⁴. The lack of much archaeological information from the fortresses of Dacia might be due to small scale excavations¹⁵. The other two fortresses of Dacia, Berzovia and Alba Iulia (Apulum), where *leg. IIII Flavia Felix* and *leg. XIII Gemina* were in garrison, yield little evidence¹⁶. Instead, there is some indication regarding the building of the enclosure and the *forum* of *Ulpia Traiana Sarmizegetusa* by legionaries of *leg. IIII Flavia Felix*. The apparent uniformity and the surveying of a rectilinear street plan or the design of the buildings erected within, indicate theoretically the army involvement. However, similarities of building techniques and buildings design in a civil settlement with those in a fortress are expectable¹⁷. Tile-stamps inscribed with legion names should neither determine such identification¹⁸. In those fortresses of Britannia converted subsequently to civil settlements, later forums were evidently built over previous *principia*, following same layout, therefore it would be very hard to distinguish between them¹⁹. Additionally, some of the former barracks survived in civilian context at Gloucester, Exeter and Colchester²⁰. Structures with masonry foundation are found at Gloucester early in the second century, probably reproducing former barrack-blocks, that is, it was 'perfectly natural that the earliest colonists, most of them presumably veteran legionaries, should continue to live in modified versions of their previous quarters'²¹. However, it is true that this does not necessarily imply only the accommodation of a former soldier, and a civil population could have lived inside as well²². It would not have been necessary to build their houses similarly to the barrack-blocks even without any previous existence of a fortress, as it was the case at Sarmizegetusa. Extrapolating, at Sarmizegetusa, also a colony of veterans, the civil buildings' similar layout with that of barracks should not come as a surprise. On the other hand, it was argued that the basic plan of a courtyard integrated with a basilican hall can be traced back to late republican and early architecture in north Italy²³. Consequently, the correspondence between the design of a *principia* and the *forum* at Sarmizegetusa is normal and the latter could have been originally built here²⁴.

Parallel is the case at Salonae, where *leg. II* and *III Italica* built the enclosure under the charge of a centurion of *leg. II Traiana* (CIL III 1980 = ILS 2287)²⁵. The legions were in the army of Noricum and Raetia. However, the centurion in charge was enrolled in a legion garrisoned at Alexandria in Egypt. It is hard to believe that Salonae would have been in the 'range of action' of one or another legion. In conclusion, if available, troops and soldiers would be present where needed.

In Britannia, the building of Hadrian's Wall and the mile castles was apportioned between the legions present in the province and there are plenty inscriptions to prove this²⁶. As for Dacia, some argued the division of the territory between the two legions, that is, *leg. IIII Flavia Felix* and *XIII Gemina*, which

¹⁴ *Principia*, partially the fortress' enclosure, *porta decumana* and recently, the baths were archaeologically researched, see Bărbulescu 1987, and the last reports in The Archaeological Reports Chronicle (CCA), <http://www.cimec.ro/Arheologie/arheologie-cercetari.htm>.

¹⁵ The exception might be Turda (Potaissa), see Bărbulescu 1987.

¹⁶ For the legions of Dacia see Piso 2000.

¹⁷ Arguments consisted especially in the design of the *forum* and the discovered tile-stamps see Étienne, Piso, Diaconescu 2004, no. 33 and at one point, the enclosure characteristics, Lobüscher 2001.

¹⁸ Here, arguments were again the central building layout, the lack of tile-stamps in a temporary camp, as *Ulpia Traiana Sarmizegetusa* might have been, and the fact that the legion was the garrison of the fortresses at Berzobis and Zăvoi, Étienne, Piso, Diaconescu 2004, 86-94 and further Piso 2006, 37-40.

¹⁹ At Silchester, what seems to be a *principia* it is most likely a previous *forum*, while at Colchester the old *principia* is demolished, *via praetoria* being joined with *via decumana*, however previous barracks are preserved like in the case of Gloucester and Wroxeter, see Creighton 2006, 73 sqq.

²⁰ Blagg 1984, 253.

²¹ The author reminds us the continuing military role of the *coloniae* in Britannia, Walthew 1975, 192.

²² I agree for this with C.S. Sommer.

²³ Ward-Perkins 1970, 9-10.

²⁴ For all arguments see Étienne, Piso, Diaconescu 2004, 59-91.

²⁵ Campbell 1994, 89.

²⁶ Birley 1961, 251 ff.; Breeze, Dobson 2000, *passim*.

were thus assigned a clear 'range of action'²⁷. I. Bogdan-Cătănciu discusses the diffusion range of legionary tile-stamps in Dacia, which is not necessarily the same territory where legions were responsible for the construction works. This could be true and obvious as the material was sent from the closest brickyard on the main rivers the easiest and fastest communication routes. Consequently, I do not agree either with the appropriateness of the legions 'range of action' concept in a province²⁸.

Nevertheless, the authority of one or other legion did not impede the auxilia to build. Records show that auxiliary troops were at least from this point of view, independent²⁹. To my knowledge, the single brickyard of an auxiliary troop is the one discovered in the northeast area of the fort at Gross-Krotzenburg, where three kilns with tiles of *coh. IIII Vindellicorum* were identified³⁰. However, the large number of auxiliary stamps clearly proves that several auxiliary brickyards existed.

The auxilia

In Dacia, the epigraphic basis regarding the auxiliaries' connection to the forts construction works is relatively poor, but in the other provinces the situation is not better. Few of the inscriptions have early date, therefore it is hard to recognize the first builders. It means that we do not have enough data to establish a precise chronology at all, working only with the item 2nd-3rd C CE.

The first inscription from the area, prior the creation of the province probably, between the two Dacian wars (102-105 C.E.) is set up at Drobeta on the Danube where 'the emperor' built the fort itself or a building inside *per coh. I Antiochensium* (AÉ 1959, 309 = IDR II 14)³¹.

One of the earliest inscriptions recording the erection of the enclosure of a fort in AD 140 (CIL III 13796) is from Racovița. The emperor is building through his governor and the *numerus* doubled the size of their fort and provide it with towers.

Another dated inscription was found at Gherla recording that in 143 C.E. a structure, probably the headquarters (AÉ1906, 112)³², was built here. Again the emperor is the builder *per alam II Pannoniorum*.

The baths from Micia were rebuilt by *coh. II Flavia Commagenorum* with the prefect as *curator* (CIL III, 1374 = IDR III/3, 45 = AÉ 2004, 1208), than rebuilt again 30 years later (IDR III/3, 46). The formula is for this time classic as the emperor and the governor are recorded, but the building is rebuilt *sub cura* of the commandant.

One of the most important evidence that auxiliaries had the ability to erect buildings is the inscription from Micia (CIL III 1343 = IDR III/3, 77 = AÉ 1977, 705), a proof for a joint action of more than one auxiliary troop³³. It was dated under Septimius Severus and it seems to record the building or repairing of a *basilica* for *ala (I Hispanorum) Campagonum*³⁴. It would be hard to believe that such a large

²⁷ After Bogdan-Cătănciu 1981, 11-18, when referring to *coh. I Antiochensium* and *coh. II Flavia Commagenorum* garrisoned at Drobeta and Micia as responsible for the forts construction. Consequently, the theory is used in Piso 2000, 206, 210, as argument proving that *vexillationes* of *leg. I Adiutrix* replaced at Apulum *vexillationes* of *leg. XIII Gemina* engaged in building forts and roads.

²⁸ The spread of the legionary tile-stamps does not necessarily indicate influence zones even for the 1st C as the discoveries of the tile-stamps of 14th legion demonstrate and, moreover, if this would have been true for the legions than should have been true for the spreading of tiles with the stamp of a auxiliary unit, see Baatz 1989, 171.

²⁹ A. Radnóti suggesting that auxiliary troops were not tactically independent and that they depended on a legion, after Radnóti 1974, 138. Similarly at Oldenstein-Pferdehirt 1984, 417. *Contra* Baatz 1989, 170.

³⁰ From here, the tiles reached several forts on Main, from Taunus to Wetterau, at Niederbieber, as northern limit to the south at Miltenberg am Main, ORL B, II, 2, no. 23, 14-16.

³¹ The majority of Romanian scholars considered that the inscription mentioned the foundation of the fort here, in spite it is incomplete.

³² On the shape of towers base, some supposed the enclosure was erected by the end of Hadrian's reign, after Lander 1984, 48-66. The theory is accepted also in the last monographic study of the fort, Protase, Gudea, Ardevan 2008, 29, 41, with bibliography. However, establishing the chronology of a fort based only on such argument is far from certain.

³³ For the troop's name reconstruction see CIL III 1343 (p. 1402) = IDR III/3, 77 = AÉ 1972, 487 = AÉ 1978, 705. Simultaneously with the units garrisoned at Micia, *ala Hispanorum Campagonum* and *coh. II Flavia Commagenorum*, other troops cooperated, like *coh. I Alpinorum*, *ala I Bosporanorum*, *coh. I Vindellicorum*, *coh. I Sagittariorum* and *numerus Maurorum Tibiscensium*.

³⁴ The CIL editors read in r. 7 O BAS AL CM, but they do not define the BAS abbreviation, CIL III 1343. On the other hand, IDR III/3, 77 identifies it *a[l]ae Ba[t(avorum mil.) Al(ae) Cam(pagonum)]*, the editors concluding that there was a critical military situation for such a great number of troops to be combined, IDR III/3, p. 93-94. Unfortunately, the inscription is now lost, being therefore impossible to analyse it in detail.

number of troops were quartered for a short while at Micia only to build something, especially since one of them was garrisoned at some distance³⁵. Regardless the reason, it is imaginable that the moment was important. Taking into account the formula *sub cur(a) Iul(ii) Tere(n)tiani*, the inscription points to the building or rebuilding of an edifice, probably a *basilica*, of the baths, a *basilica exercitatoria* or the cross-hall in the *principia* of *ala I Hispanorum Campagonum*, if the abbreviation *BAS* stand for *bas(ilica)*³⁶.

Such a large number of units, including certain irregular troops, gathered for the construction of a building, would hint to its importance. The mentioned units are more or less specialized in building works, as quite a number of tile-stamps were found in various forts³⁷. Even if the reason for such a concentration of units is a situation of crisis³⁸, the joint effort to build a structure is peculiar. Therefore, a structure of this kind would have been useful for all and it might have been a drill-hall or a *basilica exercitatoria*, appropriate if it really was a military operation³⁹. However, as the inscription is actually an altar to Jupiter, therefore not a proper building inscription with all the necessary formula (at least it should have appeared in the first lines the emperor's name) the phrase *sub cura* could have meant actually just that Iulius Terentianus was the *praepositus* of the detachments gathered there⁴⁰. If it still means that the troops have built a *basilica* this must have been outside the fort, otherwise the inscription would have been official and dedicated to the emperor.

The most impressive is the inscription discovered at Bumbești-Jiu set up early in the third century by *coh. I Aurelia Brittonum* mentioning that the *cespites* enclosure was built of stone, by the emperor through their governor⁴¹.

Besides, the inscription discovered at Slăveni (CIL III, 13800 = IDR II 496) proves that *ala I Hispanorum* built something in the fort, either the enclosure⁴² or a building [*a funda*]*m[entis]*. The same *ala* had a *basilica*, probably *exercitatoria*, however we cannot recognize the builders⁴³. In both of the inscriptions the only person involved is again the emperor. The formula in the latter inscription is even more strange as the emperors in person [*basil*]*icam dederu[nt]* to the *ala I Hispanorum* (IDR II, 499 = ILD 130), so they are described as donors rather than builders.

The small number of inscriptions confirms the capacity of auxiliaries to build, a sign that they had the right and the skill to set up buildings from the very beginning of the province. Moreover, even irregular troops can take part to building works. Besides, *Mauri Micienses* built a *templum deorum patriorum* at Micia, evidently outside the fort (AÉ1944, 74 = IDR III/3, 47) and the *numerus Syrorum* was probably part of the joint military workforce which built the walls of the colony of Romula in

³⁵ Among the troops mentioned by the inscription are named all the troops in garrison at Micia: *coh. II Flavia Commagenorum*, *numerus Maurorum Tibiscensium* and *ala I Hispanorum Campagonum*, and others garrisoned in the neighbouring fortification at Tibiscum: *coh. I Vindellicorum* and *numerus Maurorum Tibiscensium*. But, a *coh. I Alpinorum* arrived here from eastern part of Dacia Superior. Nevertheless, the Vindolanda writing-tablets, Hunt papyrus or the rosters of *coh. XX Palmyrenorum* provide indisputable proof that teams or part of the units could be sent on active duty, even for longer periods.

³⁶ The seventh line of the inscription was read *bas(ilica) al(ae) C(a)m(pagonum)*, see Torma 1865, 133; Petolescu 1974, 370-371; Petolescu 2002, 73.

³⁷ See Marcu 2004, 585.

³⁸ After IDR III/3, p. 93-4.

³⁹ Vegetius refers to a *basilica exercitatoria* but gives no indication on its position inside the fort (Vegetius, *Epit.*, II, 23). Epigraphically, a *basilica equestris exercitatoria* was attested at Netherby, built by *coh. I Aelia Hispanorum milliaria equitata*, but the structure was not yet identified, see Johnson 1987, 145. The structure position outside the fort should not be ruled out as yet. The most well known basilicas are inside the forts of *alae* or *coh. equitatae*. Usually, these constructions were placed on *via principalis* in front of the headquarters building, named 'The Forehalls' or 'Die Vorhalle', however basilica inside the fort at Birdoswald as we can see in Wilmot 1997, *passim*, stands proof for locations in other parts of the fort, for instance in *praetentura*.

⁴⁰ For this meaning of the phrase *sub cura* see Saxer 1967, 130. For different kind of meanings see Speidel 1992, 137.

⁴¹ For an analysis of the unit see Petolescu 2002, 91-92, nr. 27; Marcu 2004a, 224-277.

⁴² The gates are with rounded projecting towers a feature that is common only late in 2nd century (see Bechert 1971, 272 ff.), therefore the inscription might date the rebuilding of the gates and probably of the enclosure walls, similar with RIB 1234 from Risingham.

⁴³ IDR II 499 = ILD 130: [*basil*]*icam dederu[nt alae I Hispanorum]* / [*Ant*]*onian[ae piaae fidelis?]*.

AD 248⁴⁴. So, among the troops specialised in building material we should count this irregular one unit, garrisoned at Slăveni, in the south of Dacia⁴⁵.

There is a series of other inscriptions that may be related to the construction activities of the auxiliaries. The most spectacular are those from where we learn that Caracalla built something, possibly precisely the fort at Porolissum (AÉ 1958, 230; ILD 660)⁴⁶. The three inscriptions were discovered in the gates area, thus it is possible they hinted to their construction⁴⁷. They are characterised as *tituli operum publicorum*⁴⁸, being to my knowledge, unique within a fort, with a single exception, the fact that the emperor is described as being the single responsible for the construction of a structure⁴⁹. Hence, a few accounts on Caracalla are in place. Antoninus is said to, according to Cassius Dio 78.13.1, ‘...march with his soldiers and run with them, neither bathing nor changing his clothing but helping them in every task’ or ‘...built two very large engines for the Armenian and Parthian wars’⁵⁰. But Herodian is even more specific. The story told by Herodian happened to be exactly in relation with the visit of Antoninus in the Danube area, immediately afterwards he ‘...marched south to Thrace’⁵¹, therefore he might be describing the situation in Dacia. Exactly at that time maybe (end of 213-214), the inscriptions of Porolissum are dated. Concluding, it would not be fanciful to imagine that Caracalla actually took part in the gates (or whatever it was) erection of Porolissum and the word *fecit* is *per se*⁵².

Within the same fort, but also in other forts on the Dacian territory, other *tituli* were set up for Caracalla, also connected to building activities and the emperor’s visit in Dacia⁵³.

Tile-stamps or brick-stamps discovered inside forts are numerous and they only testify to the generally the existence of brickyards where the auxiliaries worked. We can date only some of the samples in the first phases. The earliest are the most elaborate, like those of *coh. II Britannorum milliaria* discovered in the neighbouring forts of Cășeiu and Ilișua. They only prove that tiles or bricks the unit made were used for buildings inside the mentioned forts⁵⁴.

The same applies to the tile-stamps unearthed at Buciumi, Bologa, Romita or Porolissum. The garrisons of the first three forts are attested by tile-stamps at Porolissum, the most important strategic point of Dacia’s northern frontier. Obviously, the troops either had common brickyards or they simply sent building material there⁵⁵.

The most interesting inscribed brick is one found in the portico of a building inside the fort at Tibiscum. We find out that *port[i]cum d/eum stra(uit) by Mar(?ius) Aurel(?ianus) / princeps n(umeri)*⁵⁶.

The archaeology of the forts in Dacia

Another important question is if there are archaeological clues for the identification of auxiliaries’ involvement in construction works of structures inside the forts of Dacia.

In order to answer such issue, an analysis of the construction method in every fort would be required. However, it is hampered and hard to estimate. There is scant information regarding earliest

⁴⁴ There were found tile-stamps with the name of the unit in the foundation of the wall which was built *manu militari* (CIL III, 8031=ILS 510=IDR II, 324), see Tudor 1941, 240.

⁴⁵ Marcu 2004, 582-3.

⁴⁶ Daicoviciu 1937, 326; Macrea 1957, 222. Other building inscriptions were discovered, yet not published, by Radnóti at *porta praetoria* and *porta principalis sinistra*, Barkóczi 1957, 518-9, n. 188.

⁴⁷ The find spot is not certain in all cases, the most complete (AÉ 1958, 230), being discovered in the mansion of Maniu from Badacin, Daicoviciu 1937, 326. M. Macrea argues that the largest must have been located on *porta praetoria*, while the other two on *portae principales*, Macrea 1957, 225-226.

⁴⁸ Macrea 1957, 222.

⁴⁹ Being discovered within the fort, they are most likely referring to a construction there.

⁵⁰ Cassius Dio, 78, 13, 1; 78, 18, 1.

⁵¹ Herodian, 4, 7, 8.

⁵² However, there are similar inscriptions, especially on the gates of towns, see Horster 2001, 57, Tab. II.b.

⁵³ Many must have been related to the enclosure system of the forts, gates being stone-built, the typical layout being horseshoe-shaped, Macrea 1957, *passim*; Barkóczi 1957, 519.

⁵⁴ See Isac 1987, *passim*.

⁵⁵ After Marcu 2004, *passim*.

⁵⁶ The *numerus* mentioned is the Palmyrene one, garrisoned at Tibiscum, see for the building itself Marcu 2007, *passim*.

designs of the buildings and even less known are the construction details. Forts where there is certainty on first occupation are very few. The rest of the chronology in referring to the forts of Dacia is generally acknowledged as 2nd-3rd C. Most of the archaeological excavations of the forts in Dacia meant trial trenches of 1 – 1.50 m wide. It would have been almost impossible for archaeologists to identify what would have been the timber buildings. We have some data from the forts at Buciumi, Cășeu, Gilău, Ilișua, Porolissum and Teregova, but in all of them just on reduced scale⁵⁷.

The design of main buildings inside the forts from Dacia seems relatively clear. The planimetry is somewhat typical at the first sight, occasionally with little variation of centimetres. The construction technique is usually of good quality, however, the majority of structures are originally built of timber, hence hard to unearth by previous archaeological excavations.

Taking a closer look at the buildings of the Trajanic fort at Buciumi, it is most interesting they differ upon the position of the structures⁵⁸. That is, the barracks in *praetentura dextra* have as main feature the central corridor of 1 m wide, compared to those in *praetentura sinistra*, without a space between *papiliones* and *arma*. The design differences between the barracks from Buciumi and Britannia at Birrens⁵⁹ consist especially in the projection of the officer's quarters and the curious plan of a double barrack with the adjoining barracks different plan, a special case without analogy to my knowledge. Besides, the construction technique is different depending again on buildings' position. The barracks on the left side of *via praetoria* had a structure with post-pits, while with the rest of the blocks, posts were placed in continuous trenches⁶⁰. Regardless the function of the buildings, the different construction technique in each part of *praetentura* clearly provides for separate construction teams, maybe part of different troops. The specificity of the constructions at Buciumi suggests their building by the first garrison here which seemed to have more than one unit of auxiliaries⁶¹.

In Dacia, construction differences from one fort to another, or inside the same fort even between buildings of the same type and period, suggest separate construction teams, most probably auxiliaries⁶². If the builders were legionaries, architectural patterns would have been much easier to identify. Maybe the only pattern related to the auxiliaries, or the *equites* in auxiliary troops, are the so called 'Stallbaracken', identified with probability as 'eine Standardbauform der römischen Armee'⁶³. They have been found inside forts from Britannia to Dacia and they should be related to the auxiliaries, because the similar buildings inside the fortresses are scarce⁶⁴.

Another peculiarity favouring the identification of the auxiliaries with the builders is represented by the buildings deemed *scholae* in auxiliary forts, however similar design could have been existed also in a fortress. In Dacia, there are some forts where the curious layout of the buildings implies the existence of an uncommon planning inside⁶⁵.

The accuracy of setting out the buildings inside the forts is generally acceptable, however there are many instances when the headquarters building, or its central axis, are off-centred or slightly outside the central axis of *via praetoria* or even when *aedes* is not on axis with the entrance in *principia*. In Dacia, this is the case at Bologa, Buciumi, Cășeu, Tibiscum, Cigmău, Inlăceni, Râșnov, Racovița and Slăveni⁶⁶. Within the majority of mentioned forts, *porta praetoria* and *decumana* are not on the same axis. The most

⁵⁷ Marcu 2009, no. 2, 3, 5, 6, 10 and 33.

⁵⁸ See for details Marcu 2009, 44-50.

⁵⁹ See Davison 1989, 73.

⁶⁰ For Roman military building techniques in timber, see Hanson 1982.

⁶¹ Marcu 2009, 52-53 with the bibliographical references.

⁶² On the contrary, on Hadrian's Wall, the architectonic parallels in different forts suggests the forts construction by legions, see for instance Taylor 2000, 73.

⁶³ Sommer 1995; Sommer 1998, 84; Hodgson 2003; Hodgson, Bidwell 2004.

⁶⁴ It was supposed at Lauriacum, but it is not sure, see Sommer 1998, 84, n. 9.

⁶⁵ Marcu 2006, *passim*.

⁶⁶ However, the position of *principia* could have been the result of different construction sequence of the fort's enclosure, gates and streets and of the main buildings itself, see Marcu 2009, *passim*. At Slăveni the *aedes* is not exactly in the middle of the rear range of rooms, but probably a latter addition. In general the apse of the *aedes* indicate in Dacia, the last phase of the headquarters building.

interesting case is the central part of the fort at Arutela⁶⁷. Here the entrance into the *principia* is more or less on the axis of *via praetoria*, but not in the middle of the building front. Additionally, there is a platform at the intersection of *via principalis* with *via praetoria*, partially over the latter, opposite to the entrance of *principia*, slightly offset the exact centre of the fort, identified as *locus gromae*⁶⁸. It is obvious that deficiencies in setting out the most important constructions were due to not the most experienced builders, signs of provincial blundering. The fort was probably built until 138 AD by *Suri sagittarii*, when they dedicate an inscription (CIL XIII, 12601, 13793, 13794).

Another fort with the oddest internal planning is that at Cigmău⁶⁹. The known buildings are *principia* and two *horrea* in *latera praetorii*. The quality of the constructions is one of the finest in Dacia, with the unique known *aerarium* underneath the *aedes*. Regarding the close proximity with the legionary fortress at Apulum, at about 50 km distance, we can expect the involvement of legionary teams in the construction of the fortification. However, the fort is irregular in shape and had no *praetentura*, quite strange for a fort built in second century. This particularity would point to other builders than the legionaries, i.e. the *pedites Britannici*, who were quartered there, as the similar unit from Ellingen who have built in 182 the wall and the gates (AÉ 1983, 730).

There are of course other examples from outside Dacia showing technical problems to mention here only that at Red House, Corbridge where a building was realigned after they have dug the foundations, or the modifications made to the *principia* at Hod Hill⁷⁰.

However, another fort with a very strange plan is Bu Njem (Gholaia). The internal planning is normal but there are visible errors of orientation in the arrangements of the buildings, that is of survey. The quality of constructions is fine, but somehow at same point the surveyor was mistaken or it might have gone⁷¹. In spite of this the fort was built and garrisoned from 201 by detachments of *leg. III*, and only after decades, when the legion was disbanded, the garrison was a *numerus*⁷². An auxiliary fort with a similar arrangement is Pfünz, however here finally the buildings in *latus* are parallel with *via principalis* but not parallel on the fort axle⁷³.

Rather strange enough is the fortlet at Titești of only 56 x 48 m, where a ‘mini’ *principia* of 7.90 x 4 m was built⁷⁴. We don’t know the garrison of the fort, but as it comprised a headquarters building, it must have been a more or less independent unit.

Conclusion

The lack of well documented archaeological excavations hampered comparative studies of early buildings layouts and their construction technique. The evidence does not amount to proof.

Many archaeologists spent great deal of energy in their endeavour to calculate buildings proportions and to identify standard units of measurements in Roman military planning. The use of *pes Drusianus* in military contexts seems to be a pattern⁷⁵. Nevertheless, the subject is still highly debated.

Another big issue related to the construction of fortifications regards the lack of evidence on first garrison. Building inscriptions are scarce, as already mentioned. However, not always the team of the first builders are not the same with the tenants of the forts⁷⁶.

⁶⁷ See the plan in Marcu 2009, pl. 34.

⁶⁸ Marcu 2007.

⁶⁹ For the plan see Marcu 2009, pl. 22.

⁷⁰ For the corrections in the design of the buildings, regarded as a consequence of bad instruments, see Evans 1994, 149-152 or Humphrey, Oleson, Sherwood 1998, 254 ff. There were quite a number of imperfections in civil buildings as well, as ‘the importance of the building did not guarantee high standards’ with the given example of the basilica in Trajan’s forum half meter larger in one half than the other, cf. Taylor 2003, 66.

⁷¹ Rebuffat 1989, 161.

⁷² See also Rebuffat 1995.

⁷³ But the main reason could have been the terrain, for the last plan see Fassbinder 2008, 164 f., Abb. 6, 7.

⁷⁴ See the plan in Marcu 2009, pl. 33, 2.

⁷⁵ Concluding, the identification of a pattern is almost impossible because, presumably, *pes Monetis* and *pes Drusianus* were equally used, Blagg 1984, 250. However, *pes Drusianus* seems to be more often used by soldiers, identifying sometimes even a modular measurement of 15 p.D., the discussion in Walthew 1981, 15, n. 1.

⁷⁶ As seems to be the case at Osterburken annexe where *leg. VIII Augusta* have built something, but the garrison will be the *Brittones Elantienses*.

It is unlikely that legal rules on the forts' planimetry were clearly established. Naturally, public or private edicts on surveying were familiar to military technicians as well and they used them accordingly. Because of great differences from one fort to another, technicians and surveyors among in auxiliary troops' staff are obvious. Frontinus, Hyginus I, Hyginus 2 and Siculus Flaccus stress the role of the surveyors, with special emphasis on civilians. Those differentiations between forts' design show surveyors' and commandants' adaptation to Dacia's identity. Thus, Hyginus I claims the importance of the awareness of laws, necessarily adjusted to every circumstance⁷⁷.

The space allocation in a fort, more than in a town, was influenced by the good taste of the commandant firstly, of the centurions/decurions or of the military surveyors. Sometimes, even of the taste of the emperor. As I will show in a future study the authority depends on the type of the built structure. For the enclosure the supreme authority was the emperor or the governor. The last also for the main or for the more complex buildings, *principia* or the baths. For the latter often *curator* is the commandant of the troop in garrison, as well for the other buildings inside the fort.

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⁷⁷ Hyginus I, T 95.34-36.

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Catalogue of the inscriptions in chronological order

Part 1: the emperor as a builder

1. AÉ 1958, 230. **AD 213.**

Province: Dacia **Location:** Moigrad / Porolisum

Imp(erator) Caes(ar) M(arcus) Aur(elius) Antoninus / Pius Aug(ustus) Felix Part(h)i/cus maximus pontifex maximus Brit(annicus) / maximus trib(unicia) pot(estate) / XVI imp(erator) II co(n)s(ul) IIII / p(ater) p(atriciae) proco(n)s(ul) fecit

2. ILD 660 = AÉ 1944, 51. **AD 213.**

Province: Dacia **Location:** Moigrad / Porolisum

Imp(erator) Caes(ar) M(arcus) Aur(elius) Antoni/nus Pius Aug(ustus) Felix / Part(h)i/cus maximus pontifex / max(imus) Brit(tannicus) max(imus) trib(unicia) potes(tate) / XVI imp(erator) II co(n)s(ul) IIII p(ater) p(atriciae) proco(n)s(ul) fecit

Part 2: datable inscriptions. Legions

1. CIL III 953 = IDR III/4, 230 = ILD 431 = AÉ 1944, 42 = AÉ 2000, 1258. **AD 128-138.**

Province: Dacia **Location:** Hoghiz

[Imp(eratori) Caes(ari) divi Traian(i) Pa]rthici(i) f(ilio) divi / [Nerv(ae) nep(oti) Traia(no) Hadria]no Aug(usto) pontif(ici) m(aximo) / [trib(unicia) pot(estate) ---p(ater) p(atriciae) vexil(latio) leg(ionis)] XIII G(eminae) sub Tib(erio) Cl(audio) / [?Constante ?proc(uratore) Aug(usti) pro leg(ato) ?c(uram) a]g(ente) Antonin[i]an[o ?c(enturione)]

Part 3: datable inscriptions. Auxilia

1. IDR II 14 = ILD 51 = AÉ 1959, 309. **AD 103-105.**

Province: Dacia **Location:** Drobeta Turnu Severin / Drobeta

[Imp(erator)] Caes(ar) di[vi Ner]/[vae f(ilius)] Nerva Tra[ianus] / [Aug(ustus) Ger]m(anicus) Dacic(us) p[ontifex] / [max(imus) trib(unicia)] potest(ate) co(n)s(ul) [p(ater) p(atriciae)] / [3 per co]h(ortem) I Antio[ch(ensium)]

2. AÉ 1906, 112. **AD 143.**

Province: Dacia **Location:** Gherla

[Imp(erator) Caes(ar) di]vi Hadriani fil(ius) [divi] / [Traiani P]arthici nepo[s divi] / [Nervae p]ronepos T(itus) Ae[lius] / [Hadrianus A]ntoninus Aug(ustus) [Pius] / [trib(unicia)] potest(ate) VI co(n)s(ul) IIII p(ater) p(atriciae)] / [fecit per ala]m II Pannoni[orum]

3. CIL III 1374 (p. 1402) = IDR III/3, 45 = AÉ 2004, 1208. **AD 193.**

Province: Dacia **Location:** Vetel / Micia

Imp(erator) Caes(ar) L(ucius) Septimius Severus / Pertinax Aug(ustus) co(n)s(ul) balne/as coh(ortis) II Fl(aviae) Commag(enorum) vetustate dilabsas resti/tuit sub Polo Terentia/no co(n)s(ulari) III Daciar(um) curante Sex(to) Boebio Scribonio Casto / praef(ecto) coh(ortis)

4. CIL III, 1343 (p. 1402) = IDR III/3, 77 = AÉ 1972, +487 = AÉ 1978, +705 **AD 200?**

Province: Dacia **Location:** Vetel / Micia

sal(ute) dd(ominorum) nn(ostrorum) / [Severi] et Anton(ini) / [[et Getae Caes(aris?)]] / [I]CVIL[3]DEP / a[l]ae Ba[t(avorum)] al(ae) Cam(pagonum) / sub cur(a) Iul(i) / Tere(n)tiani pr(a)ef(ecti) / coh(ortis) s(a)g(ittariorum) coh(ortis) I Alp(inorum) / n(umeri) M(aurorum) Tib(iscensium) n(umeri) / [G]erm(anicianorum) [n(umeri) Cam]/[p]estr(orum) [3] / [3]S[3] / [3]MO[3]I[3] / [praefect]us coh(ortis) I I Fl(aviae)] / [Comma]g(enorum) [

5. CIL III 14485a = ILS 9179 = IDR II 174 = ILD 92 = AÉ 1987, 839. **AD 201.**

Province: Dacia **Location:** Bumbești-Jiu

Imp(erator) Caes(ar) L(ucius) Septimius Severus Pius Pertinax Augustus Arabic[us] / Adiab(enicus) Part(hicus) maximus pontifex maximus trib(unicia) pot(estate) VIIII imp(erator) XI e[t] / Imp(erator) Caes(ar) M(arcus) Aur(elius) Antoninus Pius Felix Aug(ustus) trib(unicia) pot(estate) IIII muros cesp[it(icius)] / castro[rum] coh(ortis) I A[u]reliae Brittonum |(milliariae) Antoniniana(e) vetust(ate) dil[apsos] / lapide eos restitue[r]unt per Octavium Iulianum leg(atum) ipso[rum] / pr(o) pr(aetore)

6. CIL III, 13800 = AÉ 1896, 62 = IDR II 496 = AÉ 1998, 40. **AD 205.**

Province: Dacia **Location:** Slăveni

[I]m[p(erator) Caes(ar)] L(ucius) Sep[t(imius)] Sever[us Pius] Pe[rt(inax)] Aug(ustus) / [Ar]ab(icus) Ad[iab(enicus)] Parth(icus) max(imus) trib(unicia) pot(estate) XIII / [imp]erat[or XI] co(n)s(ul) III p(ater)

p(atriae) et / [Imp(erator)] Caes(ar) M(arcus) [Aur(elius) A]nt[o]ni[n]us Pius Aug(ustus) co(n)s(ul) II / [p]ontif(ex) max(imus) [tr(ibunicia) pot(estate) V]III alae I Hispanor(um) / [a funda]m[enti]s(?) feceru[n]t

7. IDR II 499 = ILD 130. **AD 205.**

Province: Dacia **Location:** Slăveni

[Imp(erator) Caes(ar) L(ucius) Septi]m(ius) Severus Pius [Pert(inax) Aug(ustus) Arab(icus) Adiab(enicus)] / [Parth(icus) max(imus) pont(ifex) m]ax(imus) trib(unicia) pot(estate) XIII [imp(erator) XI co(n)s(ul) III p(ater) p(atriae)] / [pr(o)co(n)s(ul) Imp(erator) Caes(ar) M(arcus) Aur]el(ius) Antoninu[s] Pius Felix Aug(ustus) trib(unicia)] / [pot(estate) IX co(n)s(ul) II p(ater) p(atriae) p]r(o)co(n)s(ul) L(ucius) Septimi[us] Geta nobil(issimus) Caes(ar) co(n)s(ul)] / [... basil]icam dederu[n]t alae I Hisp(anorum)] / [Ant]oninian[ae] Pia[e] Fidelis]

8. IDR III/3, 46 = AE 1903, 66. **AD 222-235.**

Province: Dacia **Location:** Vețel / Micia

Imp(erator) Caes[ar] M(arcus) Aurel(ius) Severus] / [[Alex(ander) Pius Felix Augustus]] / balnea[s] coh(ortis) II Fl(aviae) Commagenor(um)] / Severia[nae] vetust(ate) dilapsas res]/tituit s[ub] 3 co(n)s(ulari)] / Dac(iarum) III c[ur]ante 3]/diano p[raef]ecto coh(ortis) II Fl(aviae) Com(magenorum) Severi]/anae [Alexandrianae]

Part 4: datable inscriptions. *Numeri*

1. CIL III 13796 = ILS 9180 = IDR II 588 = ILD 152 = AE 1895, 65. **AD 140.**

Province: Dacia **Location:** Racovița

Imp(eratore) Caes(are) Tito Aelio Hadriano / Antonino Aug(usto) Pio trib(unicia) potes(tate) III co(n)s(ule) III / castra n(umerus) burg(ariorum) et vered(ariorum) quod anguste / tenderet duplicato valli pede et in/positis turribus ampliavit / per Aquilam Fidum proc(uratorem) Aug(usti)

Part 5: *architectus et lapidarius*

1. IDR III/4, 133 = AE 1967, 401

Province: Dacia **Location:** Cristești

[Hermeros Lap]idarius f(ecit)

2. CIL III 7895 = IDR III/3, 6

Province: Dacia **Location:** Călan / Aquae

Diogenes / [l]apidarius

3. CIL III 1365 = IDR III/3, 141

Province: Dacia **Location:** Vețel / Micia

Victoriae / Aug(ustae) et Geni/o collegi(i) / ei(us) (!) M(arcus) Coc/ceius Luci/us lapi(darius) d(onum) d(edit)