LIMES XX

24TH INTERNATIONAL LIMES CONGRESS

PROCEEDINGS

of the 24th International Congress

of Roman Frontier Studies,

Belgrade – Viminacium, Serbia, 2nd September – 9th september 2018

VOLUME II

LIMES XXIIII

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VOLUME II

Belgrade 2023

MONOGRAPHIES VOLUME 81/2

These proceedings are dedicated to the memory of
C. Sebastian Sommer,
dear friend and colleague,
man who dedicated his entire life to the Roman limes.

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Belgrade 2023

Published by
Institute of Archaeology, Belgrade

Translation of papers was provided by the authors themselves.
All the papers were subject to double-blind peer review.

Design
Davor Radulj
Nemanja Mrđić

Printed by
DigitalArt Beograd
Printed in
300 copies

Printed Edition
Monographies Volume 81/2
ISBN 978-86-6439-088-0 Volume II
ISBN 978-86-6439-090-3

Digital Edition
Monographies Volume 82
ISBN 978-86-6439-091-0

CONTENTS: VOLUME I

Session 1 – Fortifications – Fortifying our frontiers

Session 2 – The Purpose of Roman Frontiers: A Debate

Session 3 – Roman Roads – Long Way to Travel...

Session 4 – Hold the Line!!!

Session 5 – A Farewell to Arms

Session 6 – Production, Industry and Trade

Session 7 – What about us? Exploring the lives of women and Children on the Frontiers

Session 10 – Going Wild! The Roles of Wild Animals in Life and Death on the Frontier

CONTENTS: VOLUME II

LIMES XXIIII

Session 16
Stand Your Ground!
Building and Rebuilding of Limes

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Les politiques territoriales byzantines en Byzacène aux VIe-VIIe siècles : une stratigraphie de réseaux[1]

ABSTRACT

In his *Buildings,* Procope enumerates the fortifications Justinian constructed in Byzacena after he had "reconquered" the African territory from the Vandals. In south-western modern-day Tunisia, in the High Steppes, they seem to constitute a double "limit" (ἐσχατία), according to Procope's word. They form a kind of buffer surrounded by fortifications installed just in front of the few passes that enable the crossing of the low mountains.

All the constructions described as fortified that have been mentioned so far in the Tunisian High Steppes were reconsidered. Thematic surveys were organised, associating studies of the structures surviving in elevation and ceramic collections. This field work allows to reinterpret some of these forts and "fortlets". In fact, many do not appear to have had a real defensive function, but some really may have been part of the Justinian network. Indeed, analysis of their forms, of their location choices, and especially of their relationships one with another (examined by means of spatial analysis) show that the Justinian network was probably completed throughout the Byzantine period, perhaps right up until the Muslim conquest. A kind of stratigraphy of fortified networks seems to appear in the Tunisian High Steppes.

A set of about twenty small buildings was highlighted among a corpus of about 300 sites scattered across the region. They may constitute the last network of the Byzantine era. They took the form of towers and are found especially in the centre of the High Steppes, between the cities of *Ammaedara*/Haidra and *Sufetula*/Sbeitla.

[1]Ce travail est en partie issu d'une thèse réalisée sous la direction de F. Baratte et sous la tutelle de F. Bejaoui (Lecat 2014). Celle-ci a été accompagnée de prospections et à plusieurs études d'édifices. Un des objectifs principaux était d'examiner les bâtiments identifiés par nos prédécesseurs comme étant fortifiés et d'y faire la part entre les édifices à finalité défensive ou militaire et les édifices plus probablement civils (qui constituent la grande majorité du corpus). En effet, de très nombreux signalements de « fortins » ou autres « édifices fortifiés » ont été faits depuis les premières explorations scientifiques, notamment au moment de l'installation du Protectorat français. Nombre d'entre eux ont été datés de l'époque byzantine souvent d'après des critères discutables. Somme toute, les sites se classent en diverses catégories, allant de l'enceinte urbaine d'initiative officielle à de petits édifices, qui n'ont, pour certains, pas grand-chose de fortifié ou de défensif, en passant par de grands forts et citadelles, tels ceux de Ksar Lemsa / *Limisa* et Haidra / *Ammaedara*. L'état des connaissances sur ces sites est encore très lacunaire ; les éléments de datation précis sont plus que rares.

Key Words: fortifications, fortins, Byzacène, Tunisie, Hautes-Steppes, réseaux, intervisibilité

L'objectif de cet article est de faire le point sur l'organisation des diverses fortifications qui peuvent être rattachées à l'époque byzantine et qui sont situées sur le territoire de l'ancienne province de Byzacène, une des sept provinces composant la Préfecture d'Afrique[2]. Nous avons recherché les éléments matériels témoignant de tentatives de contrôle du territoire durant la courte période de la domination byzantine. À l'aune de cette analyse régionale, il s'agit de privilégier une approche des politiques territoriales byzantines et de leurs emprises successives. Quelques éléments permettent en effet de mettre en évidence une évolution de la situation au cours du temps, entre le moment de la « reconquête » et celui de la déprise byzantine.

La « limite » de Procope

Dans son passage concernant la Byzacène[3], Procope met en relation, dans son *De Aedificiis*, une série de constructions avec une ἐσχατίαι (6.6.18), qu'on peut traduire par « limite » ou, si on suit D. Roques, par « confins ultimes du territoire »[4].

Comme l'ont souligné J.-P. Arrignon et J.-F. Duneau, ce terme est employé par Procope à plusieurs reprises dans le *De Bellis* et dans le *De Aedificiis*[5]. Le même terme serait également utilisé pour désigner les limites orientales de l'Empire et le Rhin. Il aurait un sens voisin de celui d'ὅρια qui désignerait « une frontière, sinon toujours linéaire, du moins localisée en une bande de terrain comprise entre deux rangées parallèles de bourgades ou de forteresses » (*id.*, nº 10). Toujours selon les mêmes auteurs, ἐσχατίαι indiquerait « « l'extrémité » de l'empire de Constantinople, de la limite au-delà de laquelle on pénètre dans un monde tout différent ». Pour eux, ce mot y désignerait la limite de la *Romania*, soit une sorte de « frontière idéologique » (*id*, nº 23)[6].

Procope met quelques fortifications en relation avec les ἐσχατίαι de l'*Africa* (*Edifices,* 6.6.18).

« Il entoura chacune des cités de murs très solides, car elles se trouvaient sur la limite de ce territoire : ces cités sont : *Mammès*, *Téléptè*, *Kouloulis*. ; et il construisit aussi une citadelle que les indigènes appellent *Aumetra*, et il établit dans chaque place une forte garnison pour monter la garde » (trad. Y. Modéran 2003).

On notera que deux des quatre sites mentionnés ne sont pas localisés avec certitude. Pour *Aumetra*, dont le nom est nettement séparé des autres dans la construction

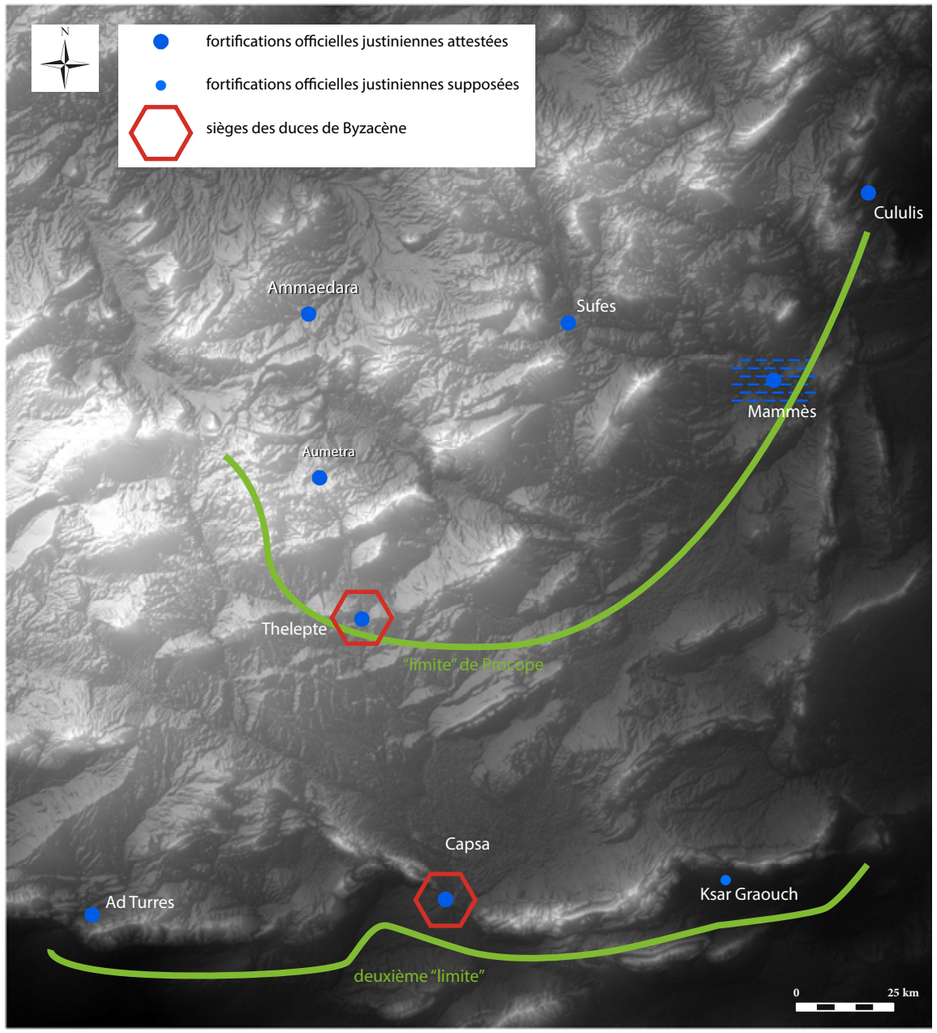


Fig. 1 - La « limite » de Procope et la seconde « limite » justinienne

de la phrase, il existe tout de même une proposition de localisation crédible, généralement admise (Pringle 1981, 1, 305). Quant au site de *Mammes*, il n'est pas définitivement situé, mais toutes les propositions plausibles se distribuent dans le même secteur (à une quarantaine de kilomètres à l'ouest de Kairouan, Desanges *et al*. 2010, 169) ; ce problème n'a donc que peu d'importance à l'échelle régionale de notre réflexion.
On a déjà plusieurs fois souligné que les « listes » de Procope ne sont peut-être pas exhaustives, en fonction de l'état de ses connaissances, d'une sélection (Feissel 2001, 101, par exemple), ou de l'incomplétude de son texte (Cameron 1985, 11). Y. Modéran a montré qu'il fallait peut-être accorder une plus grande confiance à ses propos : il pourrait en effet s'agir de la limite entre territoire pleinement sous domination byzantine et territoires dans lesquels les incursions maures étaient encore fréquentes (1996, 95). Il est aussi envisageable que cette liste date du temps de la présence de l'auteur en Afrique, qu'il aurait quittée vers 535-536 (*De Bellis*, 2.14.41), et reflète un état du projet édilitaire de fortification, programmé ou en cours de construction. Cet état des connaissances de Procope pourrait donc, comme le proposait Y. Modéran, refléter l'avancée byzantine du contrôle du territoire, au moment où l'auteur quitte l'Afrique.

[2]Il ne s'agit pas de réfléchir sur les limites de la « présence » byzantine, comme P. Trousset avait pu le proposer (2002) ou C. Diehl avant lui (1896, 228–267). Ce terme pourrait d'ailleurs être discuté.

[3]La description de la province ne constitue qu'un court passage du livre VI qui présente l'œuvre édilitaire de Justinien en Afrique : 60 l. sur 367 l. (Roques 2011). Elle fait toutefois partie des trois zones géographiques les plus développées dans le Livre VI à égalité avec la Tripolitaine et la Pentapole. Notons encore que, dans ses propos, Procope sépare nettement le « littoral de la Byzacène » de « l'intérieur du pays et de ses confins » (*De Aedificiis*, 6.6.17). La description du littoral (51 l.) est beaucoup plus développée que l'autre partie (9 l.). Toutefois, dans la première, il n'évoque des travaux de fortification que pour deux sites : *Hadrumetum* (actuelle Sousse) et *Caput Vada,* le lieu de débarquement des Byzantins en 533. Ce passage contraste nettement avec le suivant dans lequel il évoque un véritable programme de construction de fortifications. On ajoutera que la datation du texte pose problème (voir, par exemple, Cameron 2005 ou le volume d'*Antiquité tardive* consacré au *De Aedificiis* de Procope (2000), ou encore l'introduction de D. Roques à ce texte (2011)). Pour résumer, selon D. Roques, les *Edifices* seraient la dernière œuvre de Procope qu'il faudrait situer à la fin de sa vie, entre 560 et 570 (2011, 1). Pour d'autres, le texte serait composé de fragments d'informations regroupées qui ne seraient pas nécessairement contemporains et il serait à vieillir de quelques années et à situer autour de 554, l'essentiel ayant été terminé vers 550 (par exemple Cameron 2005, 7). Comme nous le verrons, la lecture du fragment concernant la Byzacène pourrait aller dans ce sens.

[4]Roques 2011, 408. Pour M. Casewitz, ce terme pourrait également désigner un territoire « entre-deux » (cités grecques, par exemple), un « territoire qui n'est à personne », ou un territoire « de l'extrême » (1993, 17).

[5]Arrignon et Duneau 1995, no 12. Il n'est pas d'un usage exclusif à Procope. On le retrouve en effet dans la tradition grecque, dans des productions attribuées à Homère, par exemple (Casevitz 1993, p. 23). Le terme, au singulier ou au pluriel, est utilisé pour nommer « la région excentrée, la plus éloignée du centre, la région souvent floue et obscure des confins d'une cité, de la terre » (*ibid*.).

[6]À ce sujet, on lira avec intérêt la contribution de D. Moreau dans ce volume au sujet du « concept de "*limes*" dans les sources textuelles antiques ».

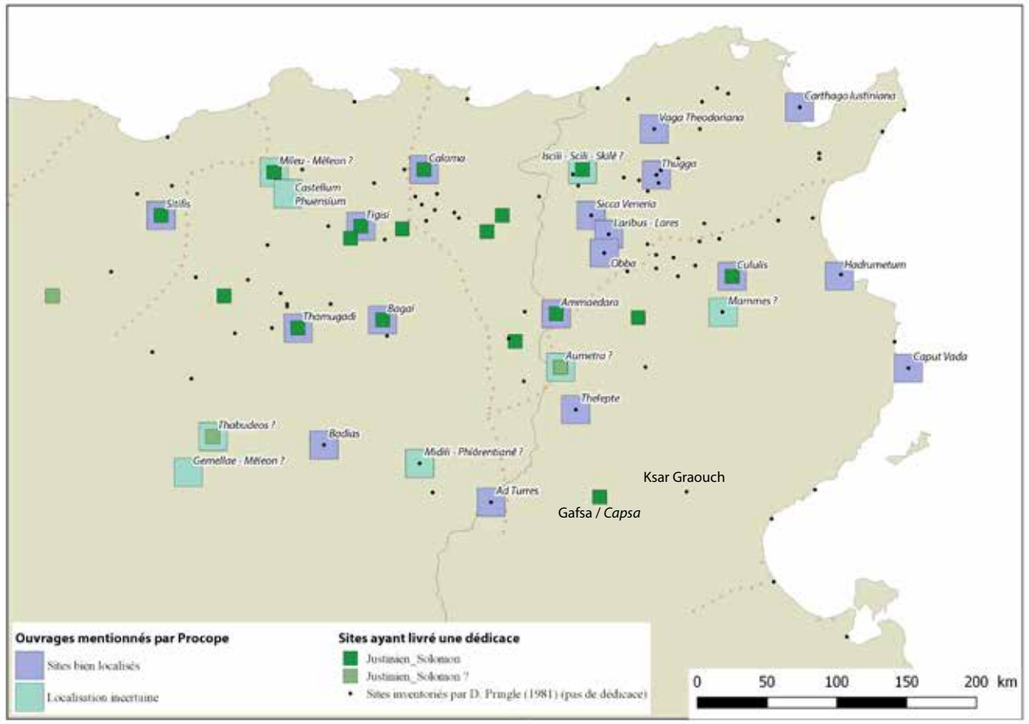


Fig. 2 - Fortifications citées par Procope et répartition des dédicaces justiniennes

La « limite » de Procope peut donc peut-être avoir constitué une première « limite » du territoire de la Byzacène sous contrôle byzantin (Fig. 1).

Une deuxième « limite » ?

La comparaison des sites fortifiés mentionnés par Procope avec ceux ayant livré une dédicace datée de l'époque justinienne[7] apporte de possibles éléments de réflexion. En effet, la « limite » de Procope ne correspond pas à l'ensemble le plus méridional des fortifications pour ce secteur : un site localisé plus au sud a livré deux inscriptions attribuant son initiative à Justinien, sous l'autorité de Solomon : il s'agit de la fortification de Gafsa/*Capsa* (Durliat 1981, nº 12 et 13) (Fig. 2).

Un autre édifice est traditionnellement attribué à la période justinienne d'après des arguments principalement typologiques. Il s'agit du fort de Ksar Graouch (Fig. 2). Les éléments de datation manquent, mais ce bâtiment présente la particularité de posséder des élévations en briques sur des soubassements de pierre. Il s'insère ainsi dans une courte série composée de deux autres édifices aux mêmes caractéristiques[8], qui sont probablement à associer à deux fortifications justiniennes mentionnées par Procope (*Midili* et *Thabudeos, Edifices,* 6.7.8). Si cette attribution à l'initiative justinienne est correcte, une nouvelle « limite » apparaît au sud de la province (Fig. 1). Notons que cette dernière, comme la précédente, s'appuie sur les reliefs bien marqués des Hautes Steppes. Il est également intéressant de mettre ces deux « limites » en relation avec la nomination de deux *duces* en Byzacène : un à *Thelepte*, sur la « limite » nord, et un à *Capsa*, au sud[9]. L'intention d'établir ces réseaux pourrait dater de 534, les deux résidences du *dux* du *Byzacium* étant précisées dans le rescrit adressé à Bélisaire et repris dans le *Codex Justinianus*. Les conditions de la concrétisation se sont peut-être fait attendre.

[7]Le dossier épigraphique a été réuni par J. Durliat (1981) et, plus brièvement étudié, par D. Pringle (1981). Seules quelques découvertes (AE 2010, nº 1795) ou réinterprétations (Dupuis 2010) sont récemment venues compléter l'ensemble.

[8]Cette utilisation des briques peut être due à une adaptation aux matériaux locaux, fréquente dans l'Antiquité, tout comme marquer des états différents. L'étude de ces sites n'est pas assez avancée pour conclure.

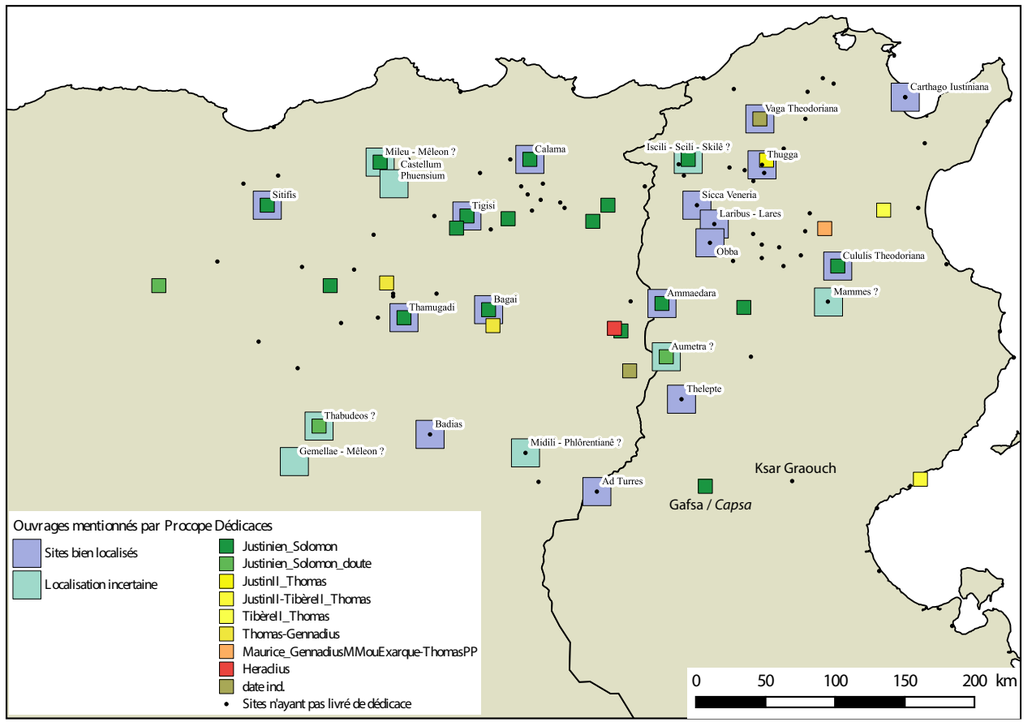


Fig. 3 - Fortifications citées par Procope et répartition des dédicaces byzantines

Évolution sous les successeurs de Justinien

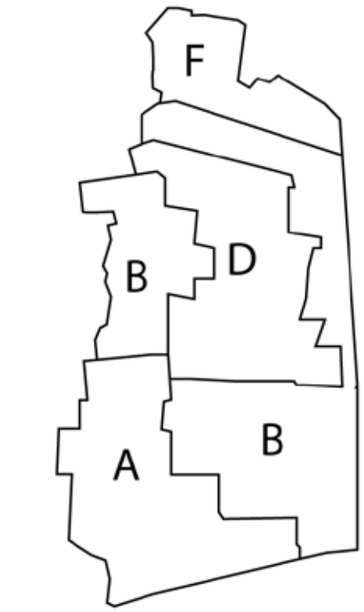
Le dossier épigraphique des dédicaces d'ouvrages défensifs[10] montre l'existence d'au moins deux campagnes officielles de constructions (ou de reconstructions ?[11]) de fortifications en Afrique : la première, vers 539-544 (Durliat 1981, 97, n. 13), et une seconde intervenant sous les règnes de Justin II, Tibère II et Maurice, qui durerait tout au long du dernier quart du VIe siècle : elle aurait en effet été exécutée sous l'autorité du préfet du prétoire Thomas, puis sous celle de Gennadius, d'abord *Magister Militum Africae*, puis exarque. Somme toute, ces dédicaces « tardives » sont plutôt rares (Fig. 3). Il s'agissait donc plutôt de compléter la première.

La recherche à l'échelle régionale sur les monuments fortifiés ou qualifiés comme tels a permis leur examen

[9]Loi 1.27.2.1 du *Codex Justinianus* de 534 organisant le territoire africain. À cette date, on peut supposer qu'elle constitue un objectif de maîtrise du territoire plus qu'une organisation véritablement tangible, les frictions avec les Maures sont nombreuses à cette date (*De Bellis* 2.8.9–22 ; 2.11.54 ; 2.12.1).

[10]Voir *supra* (n. 6).

[11]Pour J. Durliat, certaines pourraient être antérieures à cette date (1981, 97, n. 13). L'auteur n'en cite toutefois pas d'exemple. Il s'agirait de fortifications non démantelées par les Vandales, contrairement à ce que Procope écrivait (*De Bellis*, 1.5.8). Le manque de datations stratigraphiques empêche de conclure.



A : premier mode
B : deuxième mode

Exemple de Hr Lorbeus / *Laribus*

Fig. 4 - Un exemple de stratigraphie complexe du bâti : Hr Lorbeus / Laribus
(cliché de Denys Pringle : Pringle 1978, 3, pl. XVa)

précis, et notamment un travail sur leur bâti[12] et sur leurs éventuelles qualités défensives (Lecat 2014). Nous ne développerons dans cet article qu'une partie de ce travail : celle concernant les modes de construction[13]. Nous nous attarderons sur deux de ces dix modes qui se retrouvent sur les grandes fortifications d'Afrique[14].

[12]32 sites ont été visités. Sur 24 d'entre eux, ont pu être repérés les sites dits « fortins » ou « fortifiés » mentionnés dans la bibliographie consultée au préalable. Sur 20, ont pu être mis en œuvre les relevés planimétriques et sur 15, les relevés orthophotographiques. Enfin, sur 14, le mobilier archéologique a pu être collecté.

[13]Ainsi, 10 modes différents ont été mis en évidence sur les édifices de Byzacène intérieure. Ceci souligne d'abord la très grande hétérogénéité des édifices qualifiés de fortifiés. Certains modes paraissent liés à des phases de reprise de bâti et un grand nombre n'a rien de commun avec les grandes fortifications du secteur. 66 édifices ont pu être classés de manière plus ou moins assurée en fonction de ce critère.

[14]Premier mode : Murs constitués de deux parements et de blocage, blocs de grand appareil dont un bon nombre de remplois, soigneusement choisis ou retaillés, et assez régulièrement équarris et dressés, disposés selon une alternance irrégulière de carreaux et de boutisses. Les joints sont fins. La régularité des assises est recherchée, mais des décrochements sont décelables et peuvent être à mettre en lien avec l'irrégularité du terrain. Les assises peuvent être de hauteurs différentes, mais l'évolution est progressive et les assises les plus épaisses sont dans les parties basses. Les blocs en délit sont rares. La facture générale apparaît assez régulière. Second mode : Murs constitués de double parement ; boutisses rares ou absentes. La facture générale apparaît plus irrégulière que le premier mode, car les assises sont plus irrégulières, leur hauteur plus variable : les plus épaisses ne sont pas nécessairement en bas. Les blocs de remploi mis en œuvre sont de dimensions parfois très variées, dont de très grands éléments. La part des blocs posés en délit est plus importante que dans le mode A. De petits moellons rattrapent fréquemment les différences de niveaux. Les joints de mortier sont parfois très épais, englobant de nombreux éclats de pierres de petites dimensions qui sont utilisés comme calage. Ces derniers peuvent être disposés de manière verticale entre les blocs.

D'après ce que nous avons pu observer, quand les deux se retrouvent sur le même site, le second est postérieur au premier[15]. L'étude de la distribution de ces modes[16] et de celle des dédicaces à l'échelle de l'Afrique du Nord montre d'abord que les édifices construits selon le premier mode sont plus généralement datés de la première campagne de fortification attribuée à Justinien et que ceux utilisant le second mode, bien que moins nombreux, apparaissent plus liés à la deuxième campagne (Fig. 4).

Pour en venir à l'échelle régionale, l'analyse de ces critères a été combinée à d'autres caractéristiques des sites de Byzacène (plans, dimensions, développement des éléments défensifs, etc. Lecat 2014). Ainsi, des établissements jusque-là non datés peuvent être rattachés à l'une ou l'autre de ces campagnes. Les fortifications assurément ou possiblement justiniennes apparaissent installées dans les zones de passage les plus praticables de la région : à l'entrée ou dans les défilés se développant entre les reliefs des Hautes Steppes (Fig. 5). Appuyés sur les reliefs, ces édifices peuvent former de véritables lignes de contrôle[17] pendant les périodes de troubles largement attestées à l'époque byzantine. Ils peuvent avoir tenu un rôle de surveillance du territoire et des activités qui s'y tiennent (marchandes ou pastorales par exemple)[18]. Les fortifications plus probablement post-justiniennes semblent venir renforcer le réseau de contrôle des défilés et couloirs qui avaient été laissés ouverts auparavant (probablement en fonction de l'évolution de la situation sur le terrain) (Fig. 5). Il s'agit surtout de forts (5 d'environ 1000 m² [19], une fortification d'environ 3000 m² [20]) et d'édifices publics qui ont été réaménagés (dont les thermes et l'arc de Makthar). Enfin, on relèvera l'absence d'ouvrage fortifié sur le site de Sbeitla[21] (Fig. 5).

Une dernière évolution de la politique de contrôle du territoire ?

De nombreux petits édifices de Byzacène intérieure ont été qualifiés de « fortins ». Le travail sur leur bâti, mis en relation avec d'autres caractéristiques (telles que la qualité défensive des édifices, définie grâce à l'examen de différents critères[22]) a permis la mise en évidence de plusieurs séries d'édifices[23]. Nous nous attarderons sur l'une d'elles dont les édifices rassemblent quatre des sept caractéristiques suivantes[24] :

- localisation sur un monticule permettant une vue dégagée ;
- des murs épais de 80 cm au moins pour les édifices en remployant un plus ancien, de plus d'1 m pour les autres ;
- parements doubles ;
- murs bâtis en grand appareil ;
- nombre important de blocs de remploi ;
- construction selon le deuxième mode ;

[15]À *Laribus* ou à Ksar Lemsa, par exemple. Tous les sites mentionnés dans cet article sont présentés dans Lecat 2014, vol. 2 sous forme de fiche exposant l'état des connaissances et les références bibliographiques liées.

[16]La représentation du plus ancien état de bâti identifié a été retenue.

[17]Plutôt que la « ligne de défense » évoquée par C. Diehl, qui a en effet proposé d'identifier la ligne de fortifications du sud de l'occupation byzantine comme telle. Cette dernière serait renforcée d'un réseau complémentaire interne (1896, 142). Il expliquait ce choix par la nécessité de contrôler la frontière, mais également l'intérieur du territoire en raison de la présence d'un « ennemi du dedans » (*id*., 144). Ce dernier correspond à ce qu'il nommait le « péril berbère » (*id*., 224). Un des points faibles soulignés par les successeurs de C. Diehl, concernant ce concept de « ligne de défense », est la distance séparant les forts, à une date à laquelle l'artillerie lourde n'existait pas (Pringle 1981 en premier lieu).

[18]On se reportera aux textes des communications concernant le débat sur les fonctions envisageables des fortifications sur les *limites* dans ce volume.

[19]El Achiteb, Kasserine, Sidi Amara, Hr Bou Doukhlan.

[20]La Kesra.

[21]À moins que la consolidation des murs du forum de cette ville ne date de cette époque ?

[22]Différents éléments participent à la capacité défensive d'un édifice : éléments architecturaux (épaisseur des murs, plan massé) ; éléments défensifs (tours, fossés, enceintes, archères, systèmes de sécurité permettant de fermer les accès ou de les protéger) ; accès à l'eau (dans l'emprise de la fortification ou à peu de distance) ; choix de localisation (emplacement stratégique en ce qui concerne le contrôle des axes de circulation, vue dégagée).

[23]Certaines séries ne paraissent pas liées à une initiative militaire et ne présentent pas de qualité défensive. Il faudrait donc ne plus les nommer « fortins », « refuges », et ne plus les qualifier d'édifices fortifiés.

[24]En raison des importantes lacunes documentaires du corpus, il est difficile de délimiter cette série selon la présence ou l'absence d'un seul de ces critères, à l'exception du bâti selon le deuxième mode.

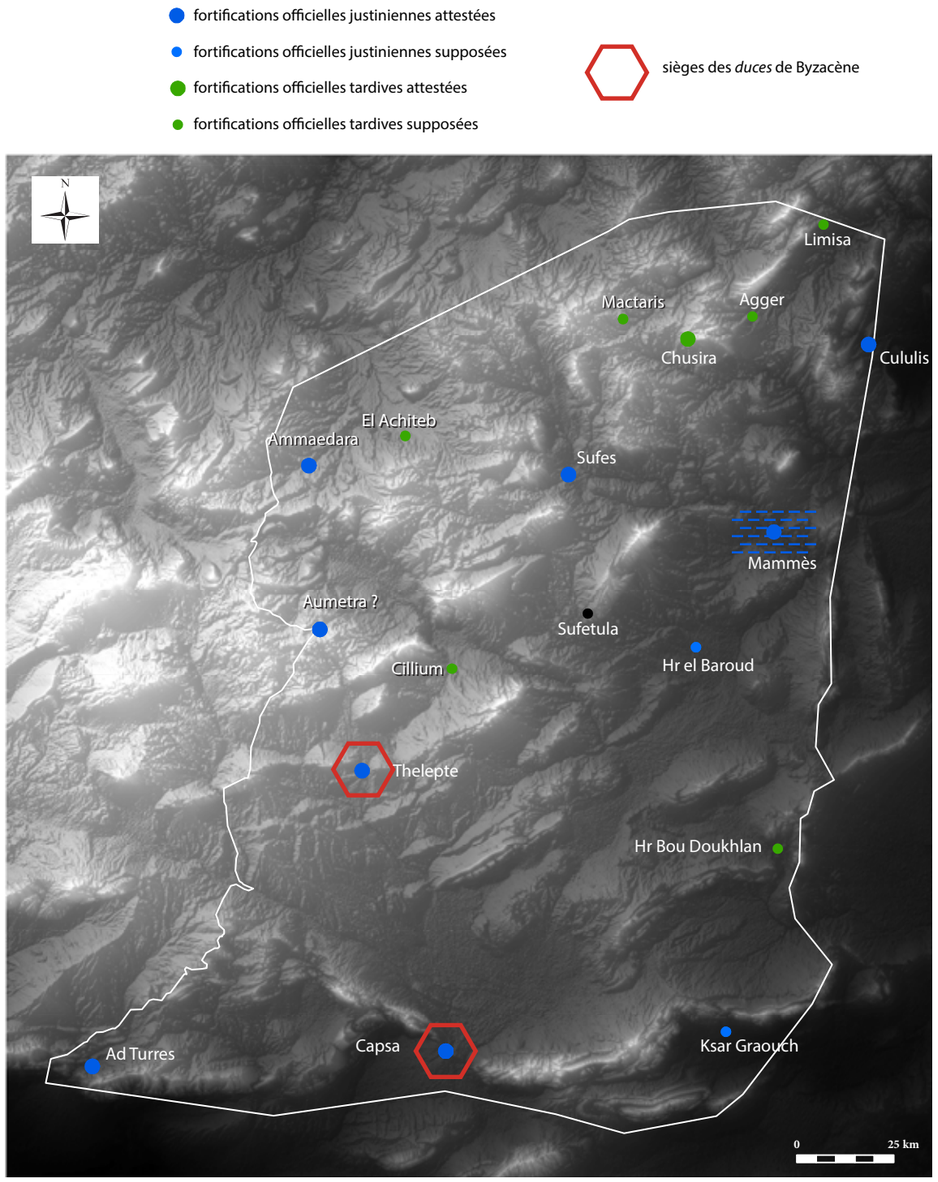


Fig. 5 - Fortifications justiniennes et post-justiniennes des Hautes Steppes

- superficie comprise entre 50 et 500 m².

Ces édifices possèdent également parfois les attributs suivants : plan massé, carré ou rectangulaire ; un édicule hors œuvre (seulement dans les cas de remplois d'édifices anciens ?) ; présence d'archères ; entrée surélevée et/ou surmontée d'un arc de décharge ; remplois constitués de blocs techniques provenant d'huileries.

Au total, 18 édifices sont à prendre en considération (Fig. 6). Seulement deux d'entre eux cumulent tous les critères : il s'agit du « fortin » de Ksar el Khadem, entre Sbeïtla/*Sufetula* et Sbiba/*Sufes*, et d'une des trois « maisons fortifiées » de Sbeitla.

Les édifices composant cette série semblent particulièrement caractériser la région délimitée par le quadrilatère Haïdra / Kasserine / Hajeb el Ayoun / Thala, avec une densité plus forte à l'ouest et au nord-ouest de Sbeitla.

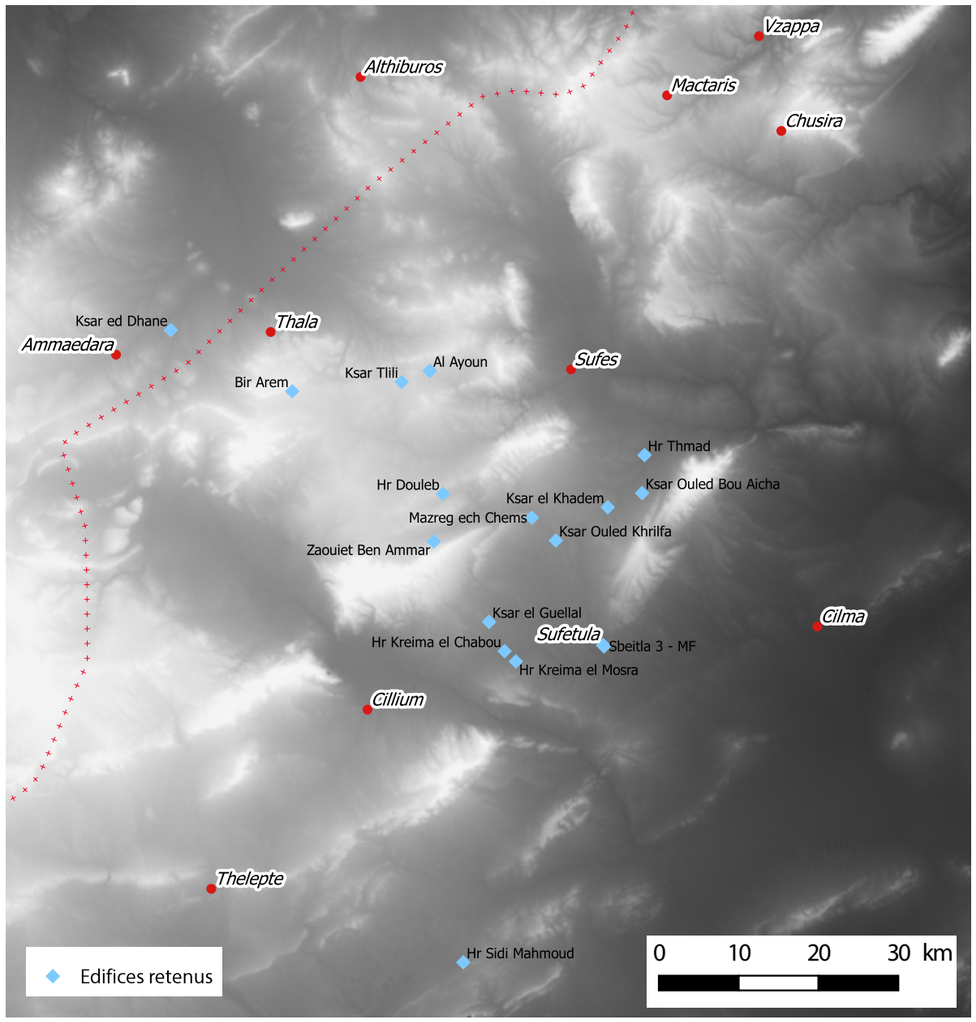


Fig. 6 - Distribution de la série de « fortins »

Ces édifices ont des caractéristiques d'édifices forts, bénéficient d'une situation qui leur offre une vue particulièrement dégagée sur le paysage environnant et sont généralement visibles de loin (Figs. 7 et 8). En les visitant, nous avons aussi constaté qu'ils entretiennent des rapports d'intervisibilité dont nous avons pu compléter l'étude grâce à un système d'informations géographiques[25]. Leur « capacité défensive » est, cependant, moyenne. Enfin, les mobiliers collectés lors de nos prospections et lors d'autres campagnes[26]

[25]Concernant la précision des modèles numériques de terrain (MNT) support de ces analyses, voir Lecat 2014, n. 734. Comme le rappelle L. Aubry, en l'absence de référentiel, il est difficile d'estimer la qualité d'un MNT (dans Robert 2011, 67). L'échelle à laquelle nous travaillons est large, mais les questions traitées ne nécessitent toutefois pas la plus grande des précisions, la zone visible depuis un édifice n'ayant pas besoin d'être estimée au mètre près. Les résultats des analyses d'intervisibilité ne sont pas présentés ici.

[26]Voir Barbery et Delhoume 1982, Hitchner 1988 et 1990, Hermassi 2004, Naddari 2007, Sehili 2009 et Rocca 2012.

Fig. 7 - Exemple de choix de localisation de « fortins »

permettent souvent d'attester une fréquentation au VII[e] siècle (Lecat 2014, 346–349). Rarement ont été apportées des preuves d'une occupation plus tardive (*ibid.*)[27]. Malgré la faiblesse des éléments de datation, le contexte du VIIe siècle paraît fournir un cadre cohérent (*id.*, 85–132). L'utilisation du deuxième mode, comme dans les fortifications plus clairement d'initiative officielle datant probablement de la fin du VIe ou du VIIe siècle, renforce cette analyse. Ces précautions émises, revenons aux interprétations envisageables.

D'abord, les fortes caractéristiques communes présentées par ces édifices invitent à les rattacher à une initiative concertée. La zone dans laquelle ils ont été diffusés incite à les mettre en relation avec le pouvoir militaire bien attesté à Sbeitla au VII[e] siècle (Bejaoui et Lecat à paraître), zone d'ailleurs non dotée de fortification officielle (voir *supra*), mais qui semble avoir acquis une réelle importance au cours du VIIe siècle, notamment à la fin du règne d'Heraclius[28]. Il faut aussi souligner leur rapport, tout aussi fort, avec les domaines agricoles peut-être encore en activité dans la région. En effet, onze de ces constructions sont en lien direct avec des vestiges d'huileries qui pouvaient encore être en service[29]. Nous proposons donc d'interpréter cette série comme rassemblant des constructions d'initiative concertée, peut-être officielle, destinée à assurer un contrôle visuel du cœur des Hautes Steppes. Ces édifices semblent difficilement avoir pu connaître une véritable vocation défensive. Ils ont préférablement pu tenir un rôle dans la surveillance des terres agricoles et des voies de communication du centre de la région, complétant utilement le réseau déjà en place (Fig. 8)[30]. Cependant, on ne peut totalement exclure le fait qu'ils

[27]Nuançons toutefois en rappelant que dans cette région de la Tunisie, les éléments datant clairement du VIIIe siècle font encore globalement défaut.

[28]Lecat 2014, 82. Après la conquête islamique, le centre de la vie politique de Byzacène glisse vers Kairouan (Touihri 2014, 133, par exemple).

[29]Ces édifices sont souvent installés sur d'anciens domaines agricoles, les blocs remployés d'huilerie l'attestent fréquemment. Certaines jumelles de pressoir encore en élévation aujourd'hui autour de ces bâtiments montrent que ces domaines ont pu, pour certains au moins, poursuivre une activité oléicole contemporaine de leur utilisation.

[30]Les voies n'ont pas été ajoutées à la carte présentée en figure 8, car l'état de leur cartographie concernant cette région n'atteint pas une précision suffisante. Les tracés publiés dans Desanges *et al.* 2010 par exemple présentent plusieurs centaines de mètres de décalage par rapport aux tracés observables sur le terrain quand on travaille à l'échelle régionale. Pour l'analyse des zones visibles, une élévation de 7 m a été retenue pour les bâtiments, ce qui constitue probablement une valeur minimale. Enfin, le champ de visibilité à 10 km a été présenté, car depuis une zone élevée, il est possible de distinguer des éléments de dimensions massives à cette distance (camion sur une autoroute pour prendre un exemple actuel). Ainsi, une troupe de cavaliers devait également être visible. Bien sûr, la visibilité dépend aussi des conditions atmosphériques, variables au quotidien.

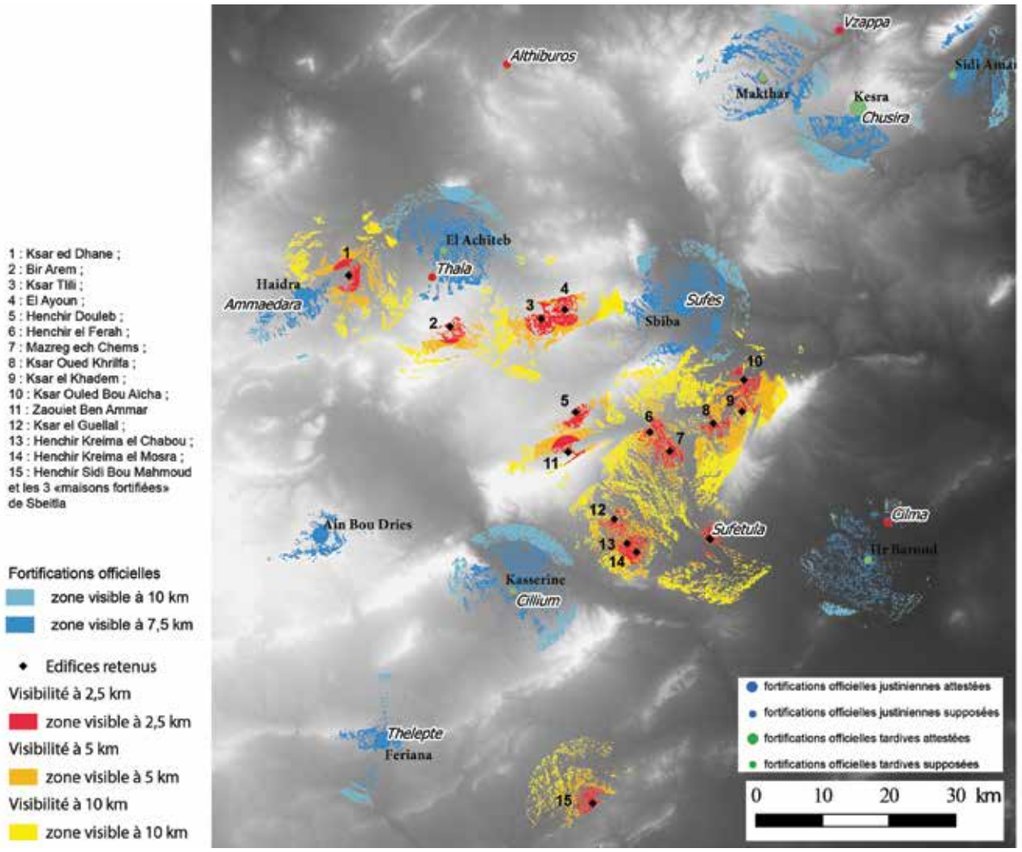


Fig. 8 - Territoire couvert visuellement depuis les divers ouvrages « forts » des Hautes Steppes

ont aussi peut-être connu l'installation de militaires, sans doute pas celle des « paysans-soldats » peinant au travail de la terre, comme l'historiographie ancienne proposait de les voir, mais plutôt comme chefs de domaine conservant une activité militaire[31]. Dans ce cas, le fait que ces constructions possèdent quelques caractéristiques des fortifications pourraient symboliser les fonctions des maîtres des lieux, mais également avoir un rôle dissuasif, somme toute quelque peu symbolique. Seules des fouilles fines de plusieurs de ces constructions permettraient de conclure plus fermement.

Évolution de la politique impériale

Somme toute, les réseaux d'ouvrages fortifiés installés au cours de l'époque byzantine constituent probablement les témoignages matériels les plus tangibles de la politique impériale africaine. En ce qui concerne la période justinienne et celle qui la suit directement, la forme des réseaux révèle notamment une tentative d'installation d'une sorte de frontière au sud du territoire. Celle-ci n'est pas conçue comme une ligne défensive, mais plutôt comme une zone-tampon aménagée en tenant compte des particularités de la région,

[31]Dans les cas qui nous occupent, si notre hypothèse est juste, il est difficile de déterminer si les terres ont été acquises par les soldats au cours de leur présence en Afrique, ou s'ils en ont hérité si ces derniers ont été recrutés sur place, ou encore si elles leur ont été attribuées. Cependant, les choix stratégiques qui semblent guider l'implantation des bâtiments peuvent inciter à favoriser l'hypothèse de l'attribution. L'application d'une telle mesure, qui ne peut être qu'exceptionnelle (Haldon 1993, 40) pourrait se justifier par la volonté de maintenir le contrôle sur des terres encore productives et rentables. Ce type de mesure n'est pas sans évoquer les thèmes byzantins plus tardifs, mais dont certaines prémices ont pu être attribuées au règne d'Héraclius, dont le rapport avec l'Afrique était très étroit (Kaegi 2003).

qu'elles soient topographiques ou humaines, considérant les populations y demeurant et y circulant. Sur le reste du territoire, se pose la question de la fonction des postes installés plus ou moins régulièrement, dans les anciens centres urbains antiques. Peut-être constituent-ils des sortes d'« espaces nodaux » (Conry 2012, p. 35), sièges de la politique impériale[32] (présence des autorités militaires et/ou administratives et/ou économiques ?), « canaux du pouvoir » (*ibid.*), qui fonctionneraient comme des sortes de « frontières internes »[33] ? L'implantation de réseaux de fortifications, manifestations matérielles d'une politique impériale dans le cœur même du territoire, pourrait ainsi constituer l'indice d'une non continuité de ce dernier, d'une non homogénéité politique, à moins qu'il ne s'agisse plutôt de lieux de représentation du pouvoir[34]. Il faut probablement privilégier une vision plus mouvante de la situation en les considérant comme la manifestation du passage de l'un à l'autre de ces états en fonction des périodes de troubles ou de paix qu'a connues le territoire[35].

À la fin de la période byzantine, sans qu'il soit possible de déterminer si le système précédent continue d'être efficient, faute d'éléments de datation de l'abandon des différentes ouvrages fortifiés, il semble que des réseaux d'échelle locale se soient organisés, peut-être à distance des décisions impériales, manifestant une déprise progressive de l'administration centrale.

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[33]Conry 2012, p. 35. L'auteur propose ce concept pour définir un aspect des grandes villes modernes et contemporaines situées au cœur d'un état-nation, accueillant ports et/ou aéroports et constituant, de ce fait, un nouveau type de frontières avec d'autres états-nations non territorialement adjacents. Il le retient toutefois aussi pour désigner les « lignes de démarcations entre groupes sociaux » (*ibid.* p. 37) et l'étend à sa compréhension de la stratégie de défense de l'empire byzantin face aux armées musulmanes (*ibid.* p. 42).

[34]Pour cet auteur, « les frontières internes ont pour rôle d'organiser l'espace de manière à ce que l'économie du pouvoir de souveraineté soit la plus efficace possible » (*id.* p. 41), notamment en ce qui concerne son rôle juridique et fiscal.

[35]Voir Lecat 2014, p. 49–132 concernant l'état des connaissances sur l'évolution des situations politiques, économiques et sociales durant la période.

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Modus Operandi of the Odenwald Limes Implications of the Spatial analyses to the way how could Roman frontiers actually work

ABSTRACT

Ever since the first comprehensive reports about the Odenwald Limes were published, the so-called Strecke 10 have been considered as slightly different from other parts of Roman frontiers. The nature and size of the garrison were frequently put in relationship with local landscape.

Presented paper is an attempt to offer a more complex point of view at the issue. Did the landscape determined the position of towers, Limesweg, Grenzstrasse, individual forts or lastly added palisade? What was the framework that the Romans tried to fit in? Were the individual forts positioned in the way to be easily accessible from neighbouring ones? Were the towers intervisible each with other and together with nearby lying fort(s)?

These broad questions are answerable via detailed Landscape study in artificial environment. Focus is put on graphical resemblance of lines of sight of individual forts, fortlets and towers, convenience of roads on Limes and accessibility of forts from both Barbaricum, Roman hinterland and other Roman sites. Presented study is a result of work with digital terrain model (ATKIS-DGM 1) in programs allowing advanced spatial analyses (ArcGIS). Study area is the section of Limes between forts at Wörth and Schlossau.

This work attempts to shed more light on a question whether (and if so, how much) was Odenwald Limes adapted to a specific local landscape, whether there was a lateral signal communication possible and how can be described individual sites of Roman forts in terms accessibility.

Key Words: Limes, GIS, Spatial analyses, Viewshed, Cost path

I. Introduction

Odenwald Limes, the northern section of so called Strecke 10, is one of the well documented parts of the Limes. The comprehensive research of the Reichs-Limeskommission (RLK) (Fabricius *et al*. 1935) was invaluable fundament for later work of professors Dietwulf Baatz (Baatz 1973) and Egon Schallmayer (Schallmayer 1984) as well as for more recent studies (Wagner 1994, Göldner 2001, Schallmayer 2008, Schallmayer 2009, Schallmayer 2010, Rabold 2011). This paper is trying to move the research yet further by interpreting this frontier via spatial analyses in GIS.

According to the current state of knowledge, first phase of construction of the Odenwald Limes started in late 1st century AD with construction of a road (Postenweg), wooden watchtowers (Holzturmen) and forts in previously scarcely populated area. During the reign of Emperor Hadrian, the old wooden towers were replaced by new ones and there was added palisade to this frontier. Not earlier than 145 AD the forts were reconstructed and wooden watchtowers were replaced by stone ones (Steinturmen). Finally, between 159 – 165 AD, this Limes was abandoned and frontier was moved eastwards (Vorderer Limes).

Main goals of this paper are:

1. A study of the intervisibility between individual sites. Included are 39 watchtower sites (Wachturmstellen), occupied by one, two or three successive watchtowers), 3 fortlets (Kleinkastellen) and 8 forts (Numeruskastellen) (Fig. 1).
2. A theoretical reconstruction of the landscape observation from individual forts, fortlets and towers.
3. An identification of the sites with particularly good/bad view.
4. A study via Cost path analysis the accessibility of individual Roman sites and correlate the optimal path calculated in northern-southern axis with actual remains of Roman road in the studied area.
5. An attempt to uncover the Modus Operandi of the Odenwald Limes.

The paper is mainly focused on the visibility analysis. Due to the high level of forestation of nowadays Geo-Naturpark Bergstrasse-Odenwald is the choice of artificial environment more than logical. The wide accessibility of the LIDAR data makes this approach relatively comfortable. The model chosen for this study is the FDGM1 (ATKIS® DGM), provided by Goethe-Universität Frankfurt am Main - Institut für Physische Geographie via student research license. Since the Odenwald Limes was built on the trijunction of nowadays Hessen, Bayern and Baden-Württemberg (Fig. 1), FDGM1 (ATKIS® DGM) was - for needs of this study - merged with DGM1 provided by Landesamt für Digitalisierung, Breitband und Vermessung, Bayern via Nutzungsvertrag wissenschaftliche Arbeit and with DGM1 provided by Landesamt für Geoinformation und Landentwicklung Baden-Württemberg via student research license.

Main tool was so-called Viewshed analysis (Wheatley 1995, 171–186), calculated in ArcGIS 10.4 programme. The Viewsheds were calculated from position of 9 m above the surface, compensating the elevated position of the observer (OFFSETA, area visible with this applied offset is in all figures highlighted in red) on the tower. A similar compensation (9 m) was sometimes also used for the position of the observed (OFFSETB, area visible with this applied offset is in all figures highlighted in blue) in order to calculate the mutual intervisibility of elevated points. Value of 9m was chosen as a compromise between traditionally stated 10 m and suggested minimal height of 7,60 m (Schallmayer 1984, 41). Just for verification, Viewshed was calculated for several sites with different offsets but the results were in terms of general visibility and intervisibility of sites more or less the same until the respective offsets were decreased bellow the value of 7 m. Precise site locations were deduced from visualization of LIDAR data (mostly in forested areas) or they were based on excavation and non-invasive research reports (Schallmayer 1984, Wagner 1994, Schallmayer 2008, Schallmayer 2009, Schallmayer 2010). If there were more than one watchtower on certain Wachturmstelle, the results are in terms of both intervisibility between sites and visibility to the landscape the same from two or three succssive towers, if not mentioned otherwise.

For the needs of Cost Path analysis, the FDGM1 (ATKIS® DGM) was altered in ArcGIS 10.4. The main goal was to remove the manmade features added to the

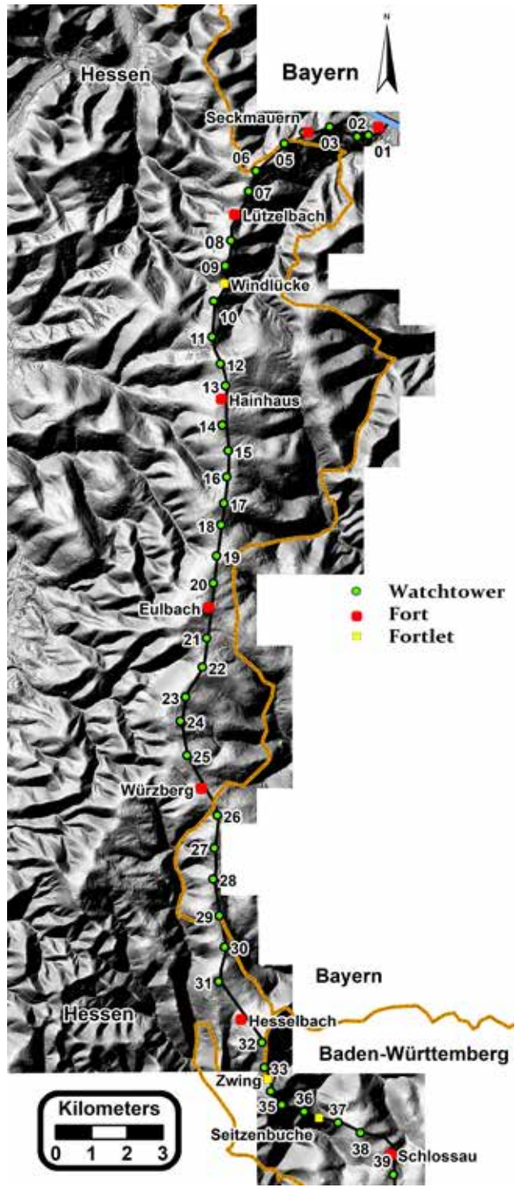

Fig. 1 - Study area: Odenwald limes (source: Author)

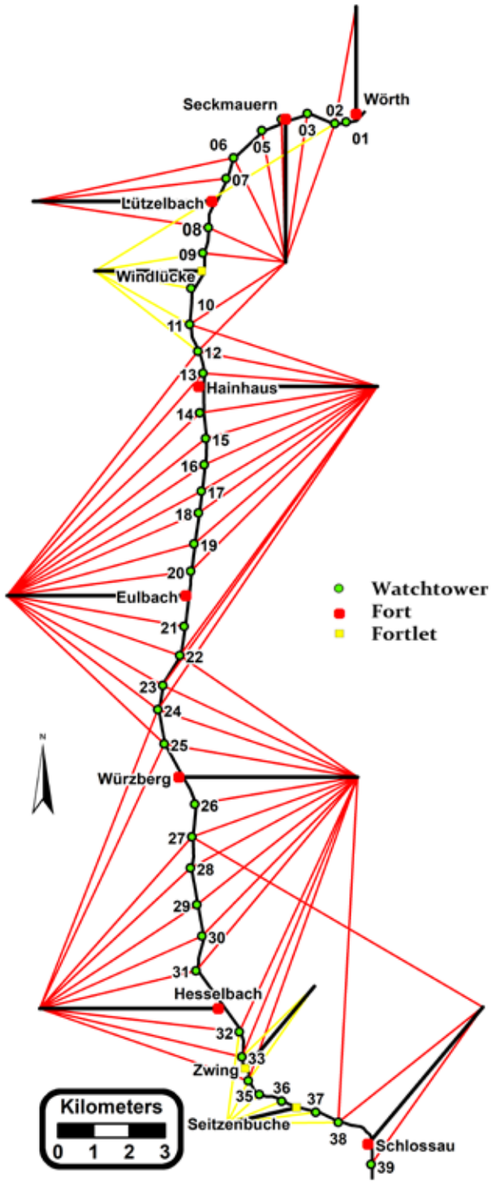

Fig. 2 - Graphical representation of intervisibility between forts and fortlets with watchtowers (source: Author)

landscape in 19th and 20th century and thus simulate how could have the landscape looked like during the Roman period. Major roads, embankments, ramparts, field divisions and houses were deleted from the raster and the blank areas were filled with Natural neighbour interpolation in default setting (Sibson 1981, 21–36). In this artificial landscape the standard Cost path was several times separately calculated with Accumulative Cost Resistance Rate at values 0.001, 0.0013, 0.0014, 0.0015 and 0.0001. The resulting coordinates of the road were then averaged, and the presented Cost Path is thus a mean route through the landscape with different accumulated friction.

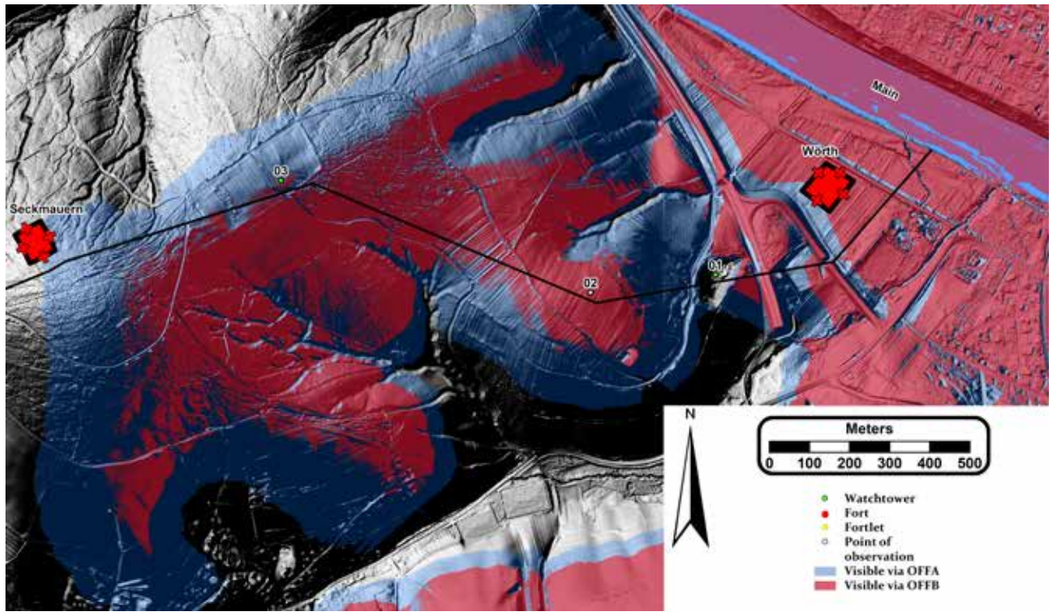

Fig. 3 - Viewshed of Wp 10/02 (source: Author)

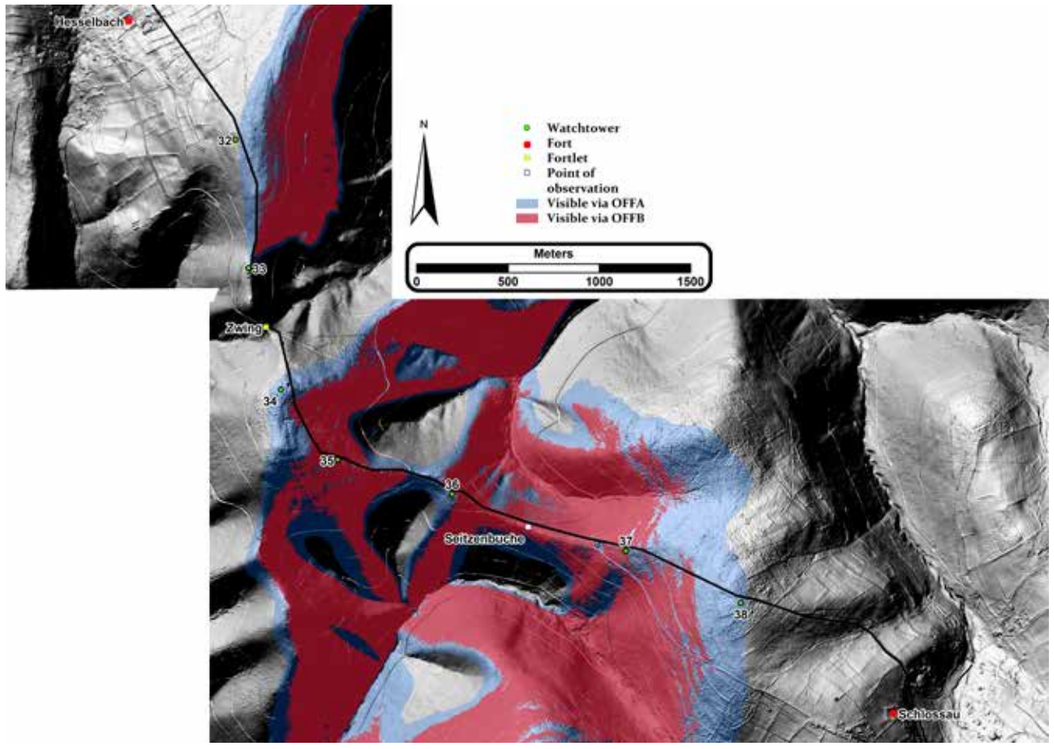

Fig. 4 - Viewshed of Seitzenbuche fortlet (source: Author)

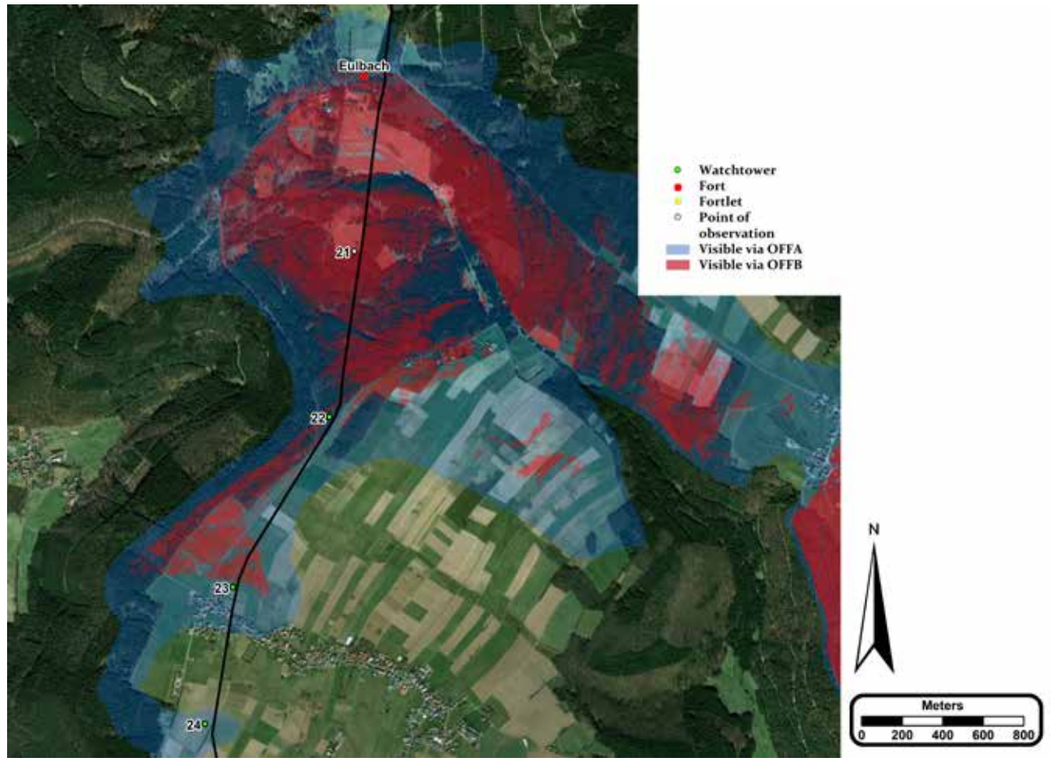

Fig. 5 - Viewshed Wp 10/21 (source: Author + Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN and the GIS User Community)

II. Content

Viewshed Analysis shows interesting results. Forts and fortlets were not intervisible each with another despite they were on an average 4,1 Km apart as the crow flies. Sentries in towers above the fort gates usually had only limited line of sight to the surrounding area and their best field of view lied generally in north and south, where the neighbouring Roman sites were located. A key to understanding of this pattern was the role of the towers. From total number of 39 watchtower sites, 34 of them were intervisible with at least one fort, 26 were intervisible with two of them. Towers in vicinity of 3 known fortlets were comfortably intervisible with these installations (Figs. 2 and 4).

In case of intervisibility between forts/fortlets and towers an interesting pattern of so-called edge connections can be followed. These edge connections are the moments when neighbouring Roman military installation lied on the very edge of line of sight (on the horizon) from the top of the observing tower. As an excellent example can serve the case study of the Wp 10/02. Fort at Wörth lied comfortably in the line of sight of this tower. From Wp 10/02 the river Main was visible, but at the same time also the position of Wp 10/03 (on the horizon) and also the tops of the Seckmauern eastern and southern gatehouses (so called OFFSET B). If ever existing, Wp 10/01 was supposed to be somewhere in the area of nowadays exit from B 469. For both visibility to the landscape and maintaining the intervisibility between Roman sites on this section of frontier, this tower can be considered as redundant. If the Wp 10/02 would be moved from its exact position by few tens of meters in north-western or south-eastern direction, the intervisibility with neighbouring sites would be lost (Fig. 3).

Similar is the case of fortlet at Seitzenbuche. Due to the complex terrain in this section, the pattern is even better visible. If this fortlet (or some of the neighbouring towers - Wp 10/32, 10/33, 10/34 or 10/38) would have been moved from its exact position just few tens of meters, neighbouring sites would be no longer in the

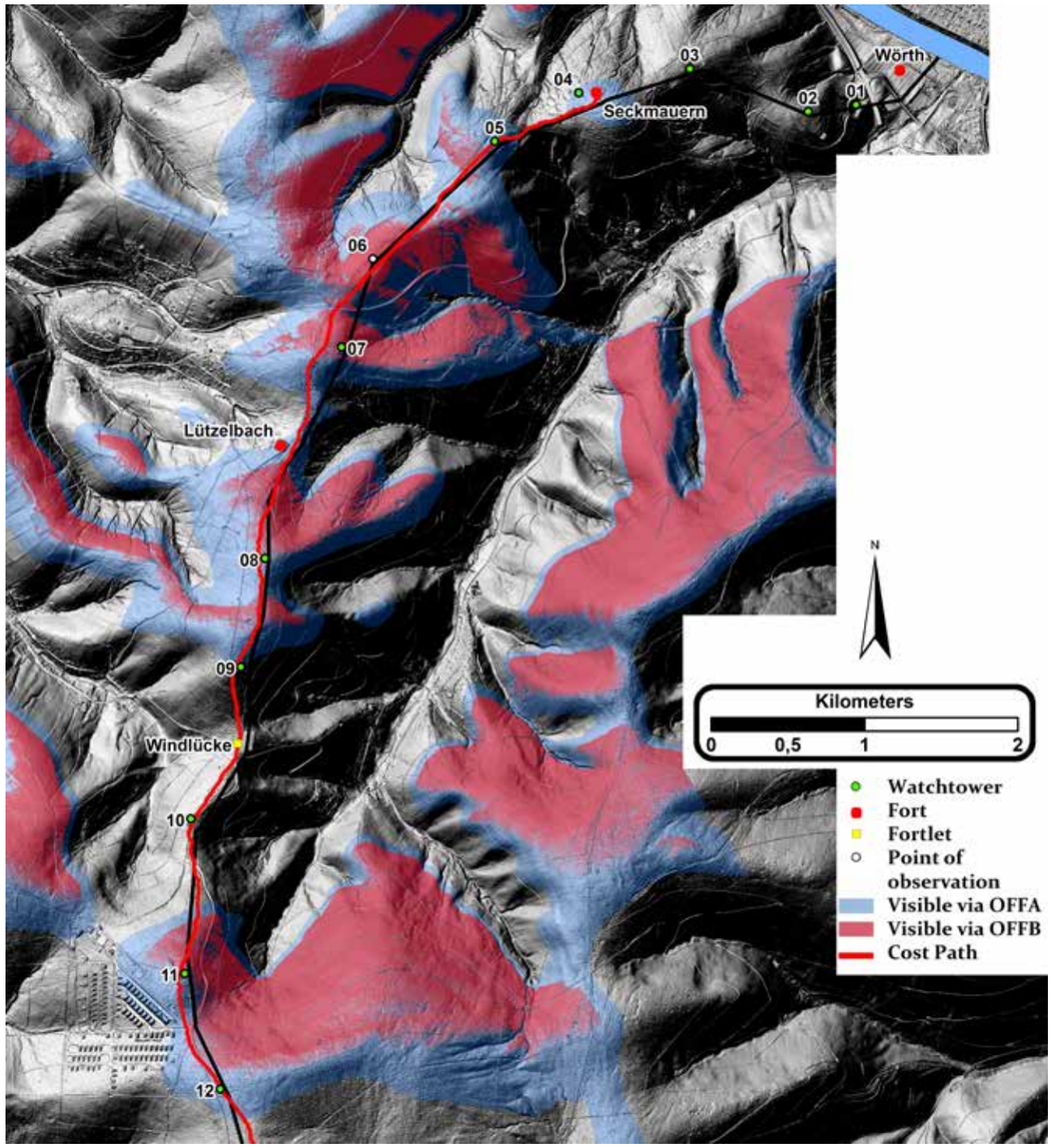

Fig. 6 - Viewshed of Wp 10/06 combined with results of Cost path analysis between Seckmauern and Hainhaus forts (source: Author)

direct line of sight (Fig. 4).

In general, not only neighbouring forts and fortlets were visible from individual watchtowers. Many watchtowers were intervisible each with another. It is, of course, questionable whether all the visual links were intentional. The average distance of 0,717 Km between individual watchtower sites points to a fact, that so many of them were so close each to another, that it would be indeed hard not to make them intervisible. But the inferior ones (in terms of intervisibility with others) can reveal more about the intentions of Roman builders. Excellent example is the Wp 10/21. This tower is positioned precisely on a spot from which Eulbach fort could be seen directly in the north, while the tops of Wp 10/22, Wp 10/23 and Wp 10/24 were visible at the same time in opposite direction (Fig. 5).

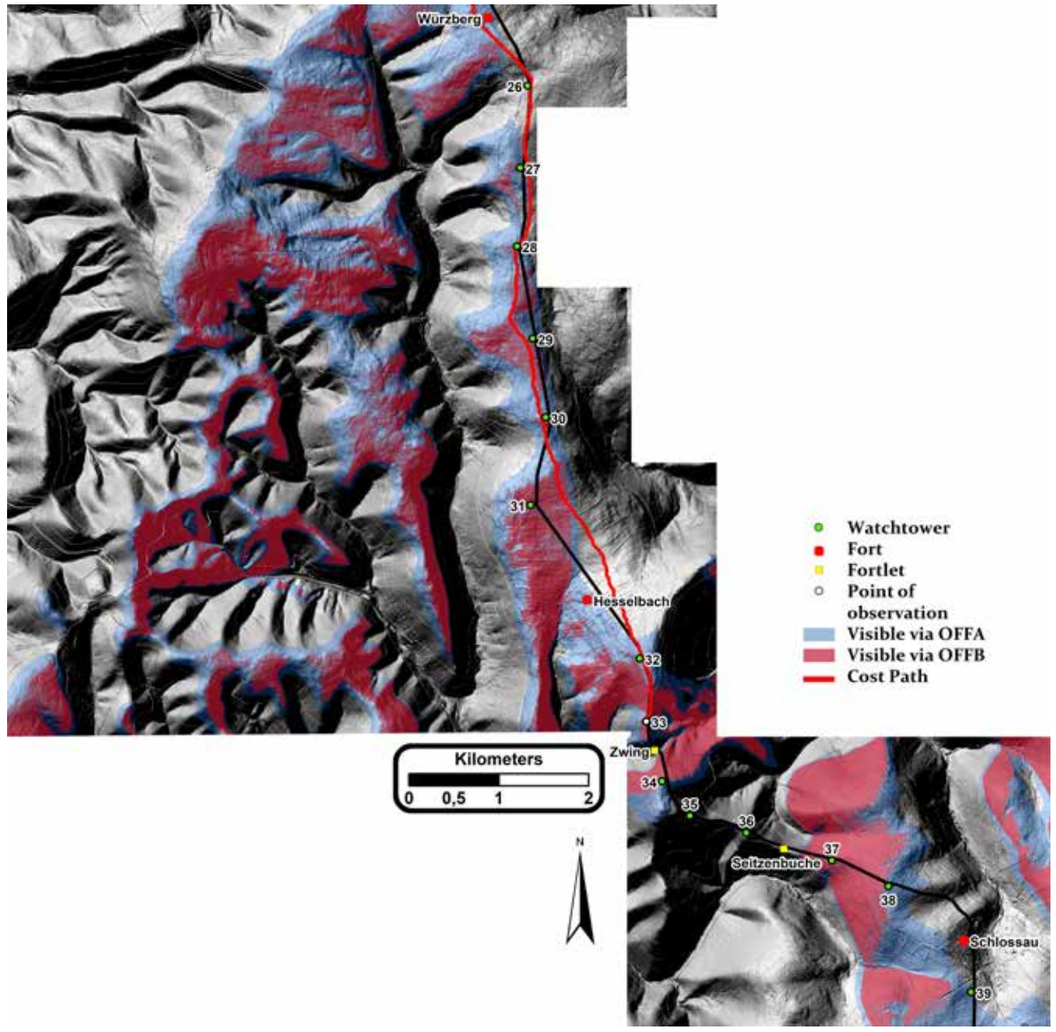

Fig. 7 - Viewshed of Wp 10/33 combined with results of Cost path analysis between Würzberg and Hesselbach forts (source: Author)

So far mentioned evidence about the layout of Odenwald Limes proved the existence of fundamental condition for existence of signal communication on this frontier – sites were intervisible enough to create a continuous signal chain (Fig. 2). All the towers were comfortably in the line of sight of forts or fortlets. There is no direct evidence for visual signalling on this (or any other) frontier but the primary precondition for existence of such system is met. As it was mentioned before, some towers were obviously positioned in the landscape in order to be intervisible with the others and often it was achieved at expense of visibility to a broader stretch of the landscape as it is e.g. in the case of Wp 10/21. Other towers, on contrary, could have served as ideal observation platforms. In fact, usually at least one tower between forts or fort and fortlet was having very good line of sight to its broader surroundings. Excellent example is the Wp 10/06 (Fig. 6) or Wp 10/33 (Fig. 7). Both towers had far better line of sight in general than any of nearby lying towers or forts/fortlets in their vicinity. It is plausible to imagine them as relays of both the potential signal and also as the general observation platforms, true watchtowers. Notable is a fact, that the line of sight from these spots was again usually better to the area of frontier itself than beyond it (to the east in general). In terms of their

Fig. 8 - Results of Cost path analysis between Seckmauern and Hainhaus forts (source: Author)

setting on the frontier no pattern can be followed – Wp 10/06 lies roughly between forts at Seckamuern and Lützelbach while Wp 10/33 is situated roughly 330 m from the fortlet at Zwing.

Despite the Viewshed analysis can point to some promising results, it is the correlation with Cost path, which can truly reveal more about the Modus Operandi of the Odenwald Limes. First presented case study is focused on the section of frontier between southern gate of the fort at Seckmauern and traces of Postenweg near Hainhaus. Results here show that ideal path largely copies or duplicates the presumed position of palisade (Fig. 8). More striking though is a fact that it goes in the very vicinity of attested towers, fort at Lützelbach and fortlet at Windlücke. If the traces of excavated or expected Roman road are taken in consideration as well (mainly based on Fabricius et al. 1935, Schallmayer 2008, Schallmayer 2009, Schallmayer 2010, Wagner 1994 etc.), ideal north - eastern – southern road passes just 22 meters in average distance from them (Table 1). Second case study (Würzberg – Hesselbach) shows similar pattern with certain exceptions (Fig. 9). Despite median values are only slightly higher than in the first case study, the average ones are much bigger because of excessive distance of fort at Hesselbach and especially of Wp 10/31 from the ideal road (compare

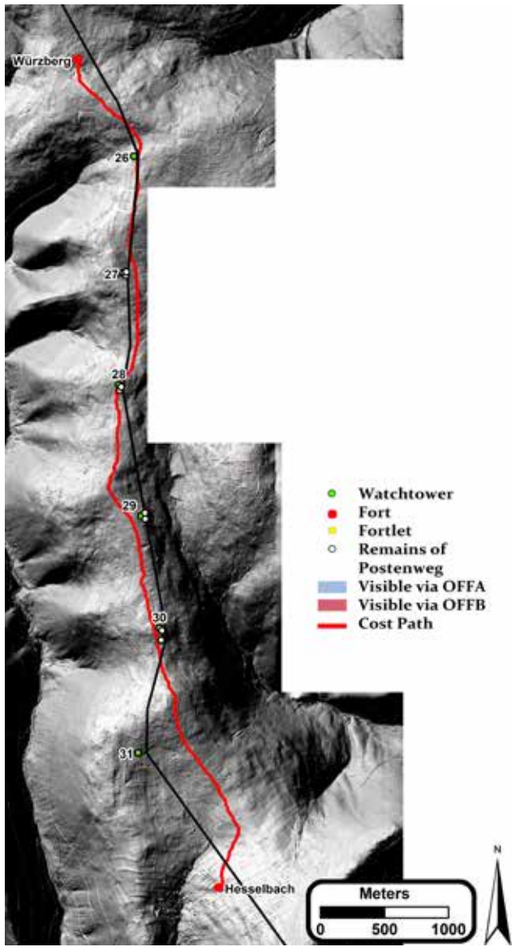

Fig. 9 - Results of Cost path analysis between Würzberg and Hesselbach forts (source: Author)

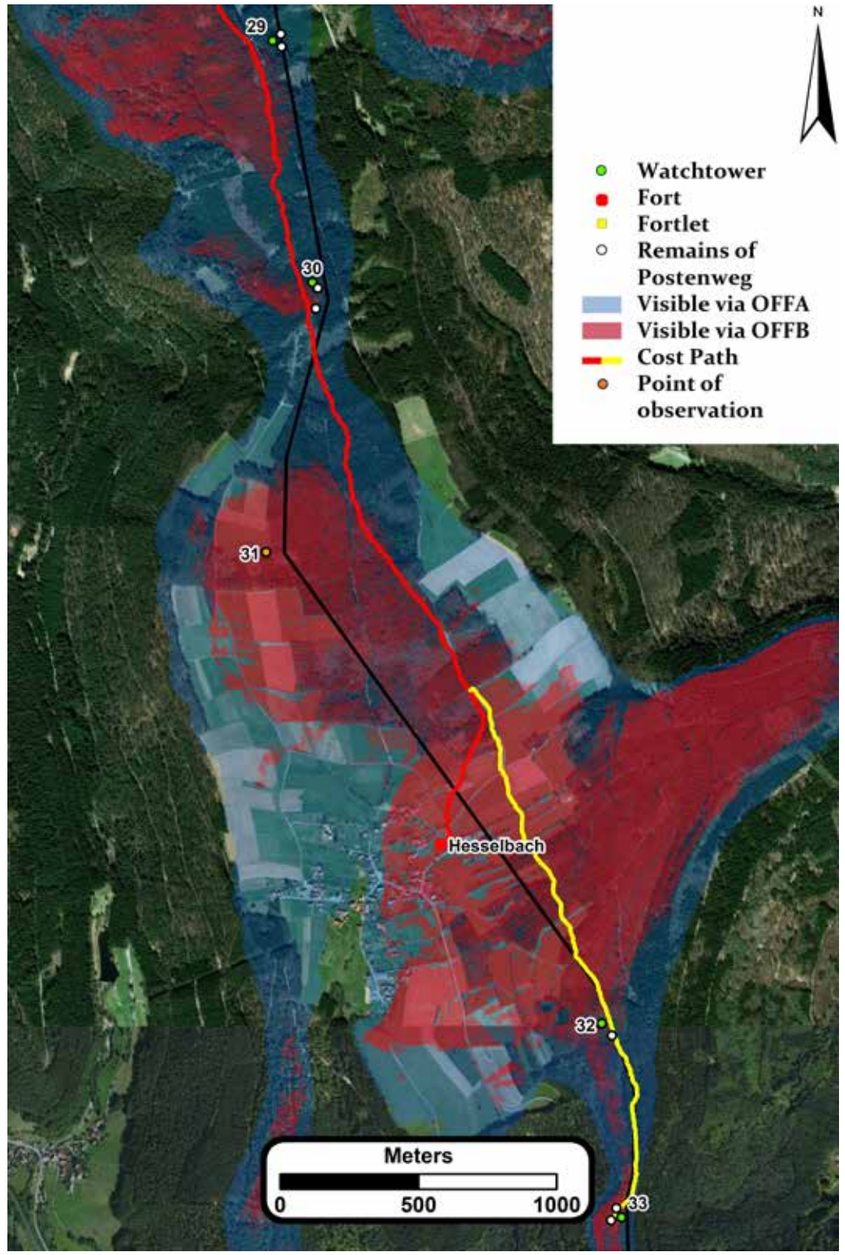

Fig. 10 - Viewshed of Wp 10/31 combined with results of Cost path analysis between Würzberg and Hesselbach forts (source: Author + Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN and the GIS User Community)

Table 1 and Table 2). Hesselbach lies 272 m from the calculated path while the Wp 10/31 is 357 m far from it. As an explanation to this deviation can be taken again the results of Viewshed analysis – if the watchtower would have been moved in proximity of the calculated road, the intervisibility with neighbouring sites would be lost. However, in its actual position on a gentle hillside, the theoretical sentry from this watchtower site could see as far as to 5,4 Km distant fort at Würzberg, despite it is much more logical to calculate with the

connection to closer sites like Wp 10/27, Wp 10/28, Wp 10/29 or Wp 10/30 (Fig. 10).

III. Conclusion

These are the implications to the Modus Operandi of the Odenwald Limes which can be determined from the Spatial analyses in GIS. Sites were intervisible each with another alongside the whole section of the frontier in such manner that the system of continuous signals via beacons or another visual tools could operate there (for details about Roman military signalling see Woolliscroft 2001). That does not necessarily mean that something like this (really) existed here. Only the author would like to declare that the most fundamental condition for the existence of feature like this was present – direct intervisibility between neighbouring (and some more distant) sites (see Figs. 2-7).

Another explanation can be presented for the fact that watchtowers were (located) so often in direct line of sight (or on the very edge of it) from forts, fortlets as well as from other watchtowers. The traceable pattern can be put into coincidence with the construction of the Limes itself – from erected watchtower or from the fort/fortlet gate could have been chosen a spot for next installation (and maybe few further ones). A fact that frequently these positions would not be visible from the ground, but only from the elevated sentry posts on tops of the watchtowers can point to a way the frontier was constructed between the more or less simultaneously built forts.

The forts were not intervisible and they had only slightly better line of sight to the north and to the south, than in the other directions. That leads to a conclusion that they were positioned on their places for the reasons other than visibility to a broader landscape or intervisibility with other forts. Notable is as well the fact how not far they usually were from ideal north-southern path, especially fort at Lützelbach and fortlet at Windlücke in the first case study (Seckmauern - Hainhaus). Towers, on the other hand, were comfortably intervisible with forts, even at expense of general line of sight, like Wp 10/21, or distance to the ideal north-southern path, like Wp 10/31. Most of the sites between principal forts were positioned on the easiest and most accessible route through mountainous landscape of the Odenwald. That only confirms previous suggestions about the nature of this frontier (Thiel 2009, 140). It is a causeway between north and south in scarcely populated region. Lines of sight of sentries on the Limes were strongly oriented within the Limes, not to the Barbaricum, but to the frontier itself – to neighbouring watchtowers, fortlets, forts and of course to the Postenweg itself. This road was also in the line of sight of sentries on the watchtowers, as it is clearly notable on Fig. 6 and Fig. 7.

Seckmauern - Hainhaus	distance of the course of cost path to palisade
Wp 10/5	18 m
Near Wp 10/5_1	0 m
Near Wp 10/5_2	0 m
Near Wp 10/5_3	34 m
Wp 10/6	8 m
Near Wp 10/6_1	11 m
Wp 10/7	100 m
Lutzelbach	29 m
Wp 10/8	37 m
Near Wp 10/8_1	42 m
Near Wp 10/8_2	44 m
Near Wp 10/8_3	45 m
Wp 10/9	30 m
Windlucke	2 m
Wp 10/10	20 m
Near Wp 10/10_1	1 m
Near Wp 10/10_2	5 m
Wp 10/11	25 m
Near Wp 10/11_1	44 m
Near Wp 10/11_2	58 m
Wp 10/12	20 m
Wp 10/13	44 m
Hainhaus	30 m
Near Hainhaus_1	7 m
Near Hainhaus_2	0 m
AVERAGE	**26 m**
AVERAGE TOWERS	**30 m**
AVERAGE ROADS	**22 m**
MEDIAN	**25 m**
MEDIAN TOWERS	**27 m**
MEDIAN ROADS	**11 m**
LENGTH	**8531 m**

Wp 10/25 - Wp 10/33	distance of the course of cost path to palisade
Wp 10/25	28 m
Near Wp 10/25_1	0 m
Near Wp 10/25_2	15 m
Near Wp 10/25_3	46 m
Würzberg	59 m
Wp 10/26	34 m
Wp 10/27	97 m
Near Wp 10/27_1	73 m
Near Wp 10/27_2	75 m
Wp 10/28	8 m
Near Wp 10/28_1	36 m
Near Wp 10/28_2	25 m
Wp 10/29	79 m
Near Wp 10/29_1	115 m
Near Wp 10/29_2	103 m
Wp 10/30	41 m
Near Wp 10/30_1	52 m
Near Wp 10/30_2	29 m
Wp 10/31	357 m
Hesselbach	272 m
Wp 10/32	30 m
Near Wp 10/32_1	7 m
Wp 10/33	24 m
Near Wp 10/33_1	8 m
Near Wp 10/33_2	0 m
AVERAGE	**65 m**
AVERAGE TOWERS	**94 m**
AVERAGE ROADS	**42 m**
MEDIAN	**36 m**
MEDIAN TOWERS	**41 m**
MEDIAN ROADS	**33 m**
LENGTH	**10331 m**

Table 1

Sites:	Wörth	Wp 10/01	Wp 10/02	Wp 10/03	Seckmauern	Wp 10/04	Wp 10/05	Wp 10/06	Wp 10/07	Lützelbach	Wp 10/08	Wp 10/09	Windlucke	Wp 10/10	Wp 10/11	Wp 10/12	Wp 10/13	Hainhaus	Wp 10/14	Wp 10/15	Wp 10/16	Wp 10/17	Wp 10/18	Wp 10/19	Wp 10/20	Eulbach	Wp 10/21	Wp 10/22	Wp 10/23	Wp 10/24
Wörth	X	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Wp 10/01	0	X	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Wp 10/02	1	0	X	1	2	0	0	0	0	0	2	2	2	2	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Wp 10/03	0	0	1	X	2	0	0	0	0	0	0	0	0	0	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Seckmauern	0	0	2	1	X	1	1	2	0	0	1	2	0	0	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Wp 10/04	0	0	0	1	1	X	1	2	0	0	0	0	0	0	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Wp 10/05	0	0	0	0	1	1	X	2	0	0	0	0	0	0	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Wp 10/06	0	0	0	0	2	2	2	X	1	2	1	2	0	0	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Wp 10/07	0	0	0	0	0	0	0	2	X	1	1	2	0	0	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Lützelbach	0	0	0	0	0	0	0	2	2	X	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Wp 10/08	0	0	2	0	2	0	0	1	1	1	X	2	0	0	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Wp 10/09	0	0	0	0	0	0	0	0	0	0	2	X	1	1	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Windlücke	0	0	2	0	0	0	0	0	0	0	0	1	X	1	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Wp 10/10	0	0	2	0	0	0	0	0	0	0	0	1	1	X	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Wp 10/11	0	0	2	0	2	2	2	1	1	0	1	1	1	1	X	2	2	2	2	0	0	0	0	0	0	0	0	0	0	0
Wp 10/12	0	0	1	1	2	2	2	1	1	0	1	1	1	2	1	X	1	2	2	2	0	2	2	0	2	2	0	2	2	2
Wp 10/13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	1	X	1	2	2	2	1	2	0	2	2	0	2	2	2
Hainhaus	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	X	2	1	2	1	2	2	1	2	0	2	2	2
Wp 10/14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	1	2	2	X	1	1	1	2	2	1	2	0	2	2	2
Wp 10/15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	2	1	X	1	1	2	2	1	2	0	2	2	0
Wp 10/16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	1	2	X	1	2	0	2	2	0	2	0	0
Wp 10/17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	2	1	1	1	X	1	1	1	1	0	2	2	0
Wp 10/18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	2	1	2	2	1	X	1	1	2	0	2	0	0
Wp 10/19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	0	2	2	X	1	2	0	0	0	0
Wp 10/20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	2	1	1	2	1	1	2	X	2	0	2	0	0
Eulbach	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	2	1	1	2	1	2	2	1	X	1	1	2	2
Wp 10/21	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	X	1	2	2
Wp 10/22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	2	1	1	2	2	2	0	0	1	1	X	1	1
Wp 10/23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	2	2	2	0	2	0	0	0	2	2	1	X	1
Wp 10/24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	2	2	0	0	0	0	0	0	1	2	1	1	X
Wp 10/25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	2	1	1
Würzberg	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	2
Wp 10/26	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	2
Wp 10/27	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	2
Wp 10/28	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
Wp 10/29	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
Wp 10/30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
Wp 10/31	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
Hesselbach	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
Wp 10/32	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	1	1
Wp 10/33	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2
Zwing	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Wp 10/34	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	1
Wp 10/35	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Wp 10/36	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Seitzenbuche	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Wp 10/37	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Wp 10/38	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Shlossau	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Wp 10/39	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Wp 10/25	Würzberg	Wp 10/26	Wp 10/27	Wp 10/28	Wp 10/29	Wp 10/30	Wp 10/31	Hesselbach	Wp 10/32	Wp 10/33	Zwing	Wp 10/34	Wp 10/35	Wp 10/36	Seitzenbuche	Wp 10/37	Wp 10/38	Shlossau	Wp 10/39	N. of connections	OFFA	OFFB	Intervisible North	Intervisible South	Nearest North	Nearest South	Area observable in 5 Km radius	Distance to the next in Km	Distance to the next in Roman miles
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	1	NO	NO	7.09	0.32	0.21
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	NO	NO	0.01	0.32	0.21
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9	6	3	1	8	NO	YES	19.72	0.82	0.55
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	2	2	1	3	YES	YES	20.25	0.58	0.39
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9	4	5	2	7	YES	YES	16.76	0.12	0.08
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	2	4	4	2	YES	YES	11.35	0.63	0.43
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	3	2	2	3	YES	YES	10.14	1.1	0.74
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9	6	3	3	6	YES	YES	11.71	0.61	0.41
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	3	3	1	6	YES	YES	12.56	0.72	0.49
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	3	0	2	1	YES	YES	8.94	0.7	0.47
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8	4	4	5	3	YES	YES	18.8	0.72	0.49
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	2	3	1	4	YES	YES	14.6	0.48	0.32
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	2	3	2	3	YES	YES	10.35	0.55	0.37
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	3	2	3	2	YES	YES	9.34	1.01	0.68
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	14	8	6	10	4	YES	YES	14.27	0.79	0.53
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	23	14	9	12	11	YES	YES	9.68	0.63	0.43
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	13	10	3	2	11	YES	YES	8.05	0.35	0.24
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	14	8	6	3	11	YES	YES	10.62	0.71	0.47
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	14	8	6	4	10	YES	YES	8.81	0.74	0.5
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	12	8	4	4	8	YES	YES	8.56	0.74	0.5
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9	7	2	4	5	YES	YES	4.64	0.74	0.5
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	12	5	7	6	6	YES	YES	12.05	0.62	0.42
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	11	7	4	7	4	YES	YES	9.22	0.87	0.59
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	5	1	4	2	YES	YES	4.25	0.77	0.52
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	11	7	4	9	2	YES	YES	4.4	0.69	0.46
2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	15	9	6	10	5	YES	YES	8.14	0.86	0.58
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	2	2	1	3	YES	YES	2.61	0.83	0.56
1	2	2	2	0	0	0	0	0	0	2	0	0	1	0	0	0	0	0	0	18	11	7	10	8	YES	YES	5.83	0.97	0.66
1	2	2	2	0	0	0	0	0	0	1	2	0	2	0	0	0	0	0	0	17	12	5	9	8	YES	YES	5.33	0.69	0.46
1	2	2	2	2	2	1	2	1	1	2	0	1	0	0	0	0	2	0	0	21	13	8	8	13	YES	YES	7.61	0.98	0.66
X	1	1	2	2	1	1	2	1	1	2	0	2	0	0	0	0	2	0	0	16	5	11	4	12	YES	YES	10.85	1.01	0.68
1	X	2	2	2	2	2	2	2	1	2	0	1	0	0	0	0	2	0	0	15	12	3	4	11	YES	YES	7.26	0.88	0.59
1	2	X	1	2	1	2	2	0	1	0	0	1	0	0	0	0	0	0	0	12	7	5	5	7	YES	YES	6.25	0.92	0.62
1	2	1	X	1	1	1	2	0	1	2	0	2	0	0	0	0	0	0	0	13	7	6	6	7	YES	YES	7.95	0.87	0.59
1	2	2	1	X	1	1	2	1	1	2	0	2	0	0	0	0	0	0	0	12	6	6	5	7	YES	YES	7.96	1.04	0.7
1	2	2	1	1	X	1	2	1	1	2	0	2	0	0	0	0	0	0	0	12	6	6	6	6	YES	YES	10.99	0.89	0.6
1	2	2	1	1	1	X	2	1	1	2	0	2	0	0	0	0	0	0	0	12	6	6	7	5	YES	YES	10.92	1	0.68
1	2	2	1	1	2	1	X	1	1	1	0	2	0	0	0	0	0	0	0	12	5	7	8	4	YES	YES	9.64	1.23	0.83
1	2	0	2	2	2	2	1	X	2	2	0	1	0	0	0	0	0	0	0	11	8	3	8	3	YES	YES	5.51	0.87	0.59
1	2	2	1	1	1	1	1	1	X	1	0	2	0	0	0	1	2	0	2	17	6	11	12	5	YES	YES	15.27	0.71	0.48
1	2	0	2	1	1	1	1	2	1	X	1	2	0	0	0	1	2	0	0	15	7	8	11	4	YES	YES	12.25	0.33	0.23
0	0	0	0	0	0	0	0	0	0	1	X	2	0	0	0	0	0	0	0	2	1	1	1	1	YES	YES	5.95	0.35	0.24
2	1	1	2	2	2	2	2	1	2	2	2	X	2	2	2	2	2	0	1	21	15	6	15	6	YES	YES	19.15	0.49	0.33
0	0	0	0	0	0	0	0	0	0	0	0	2	X	1	1	1	2	0	2	6	3	3	1	5	YES	YES	10.4	0.65	0.44
0	0	0	0	0	0	0	0	0	0	0	0	2	1	X	1	1	2	0	0	5	2	3	2	3	YES	YES	8.54	0.45	0.3
0	0	0	0	0	0	0	0	0	2	0	0	2	1	1	X	1	2	0	0	6	3	3	4	2	YES	YES	5.67	0.55	0.37
0	0	0	0	0	0	0	0	0	2	1	0	2	1	1	1	X	2	0	0	7	3	4	6	1	YES	YES	5.77	0.69	0.47
1	2	0	0	0	0	0	0	0	2	1	0	2	1	1	2	2	X	2	2	12	7	5	10	2	YES	YES	9.11	1.03	0.7
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	X	2	2	1	1	1	1	YES	YES	3.19	0.58	0.39
0	0	0	0	0	0	0	2	0	0	0	0	1	1	0	0	0	1	2	X	5	2	3	5	0	YES	NO	3.2		
																											Average distance	0.72	0.49
																											Median distance	0.71	0.48

Table 2

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Zusammenfassung

Dieser Artikel befasst sich mit dem nördlichen Abschnitt des Odenwald Limes zwischen den Kastellen Wörth und Schlossau. Folgende Fragen entstehen in der Betrachtung: Hat die Landschaft und lokal Geografie die Position der Wachtürme, der Begleitwege, der Kastellen und Kleinkastellen und der Palisade definiert? Welchen Modus Operandi haben die Römer für diese Grenze geplant? Waren den Kastellen und Kleinkastellen auf dem Gelände so positioniert, dass sie von dem naheliegenden römischen Militäreinrichtungen leichter zu erreichen waren? Waren die Wachtürme untereinander und zusammen mit den nahegelegenen Kastellen sichtbar?

Diese Studie beruft auf den Ergebnissen des digitalen Geländemodells. Das Ziel dieser Arbeit ist mehr Licht auf die Frage zu werfen, ob der Odenwald Limes an eine bestimmte lokale Landschaft angepasst wurde, ob eine Signalkommunikation hier möglich war und wie einzelne Standorte der römischen Kastellen in Bezug auf die Zugänglichkeit betrachtet werden können.

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Facts and fiction about reconstructions of watchtowers

ABSTRACT

When Häufig werden die Neubauten von Wachttürmen als 1:1-Nachbau, maßstabsgetreu oder originalgetreu angepriesen. Doch was ist wirklich über das Aussehen und die Gestaltung von Wachttürmen entlang der römischen Grenze bekannt?

Konkrete Aussagen lassen sich nur zu den durch Ausgrabungen sicher festgestellten Befunden treffen. Besonders die Ausgrabungen der Reichs-Limeskommission zwischen 1892 und 1902 haben den heutigen Kenntnisstand geprägt. Mittels moderner Forschungsmethoden, wie geophysikalische Prospektionen und Airborne-Laserscans (ALS), lassen sich noch weitere Aussagen treffen, die jedoch nur die Grabungsbefunde ergänzen können und weiter reichende Überlegungen zulassen. Durch die Grabungen vom Ende des 19. Jahrhunderts und einige wenige moderne archäologische Eingriffe lassen sich gesicherte Aussagen nur zu den Maßen, zu Mauerstärken, zu teilweise ebenerdigen Eingängen und zu erhaltenen Mauerhöhen treffen. Dies bedeutet nun aber, dass der Großteil der modernen Neubauten sowie auch zeichnerische, 91 digital-virtuelle und modellbauhafte Darstellungen reine Vermutungen sind. Die dargestellten, nicht durch Grabung belegten Teile solcher Visualisierungen gehen auf unterschiedliche Überlegungen zurück. Für viele Gebäudeteile, wie die umlaufenden Galerien und die Dachform, dienten die Trajans- und Marcussäulen als Vorlagen.

Gerade die 113 n. Chr. geweihte Trajanssäule, die zum Beginn des die Dakerkriege schildernden Bildfrieses drei Wachttürme mit Quaderoberfläche, Zeltdach und umlaufender Galerie an einem Fluss darstellt, wird als bildliche Quelle zur Rekonstruktion von Wachttürmen entlang des Limes herangezogen. Jedoch ist die Übertragbarkeit auf die Verhältnisse am Obergermanisch-Raetischen Limes hinsichtlich der chronologischen und topographischen Einordnung kaum möglich. Die zwischen 176 und 180 n. Chr. errichtete, chronologisch immerhin passende Marcussäule ist als bildliche Vorlage kaum zu nutzen, da sie gerade an der entsprechenden Stelle stark zerstört ist. Auch ist beiden ein propagandistischer Hintergrund zuzuschreiben, der dafür spricht, dass nur bedingt die reale Situation wiedergegeben werden sollte.

Die häufig rekonstruierte Dreigeschossigkeit der Türme geht auf Dietwulf Baatz‘s Überlegungen bezüglich der Sichtverbindung zweier Wachttürme am Odenwaldlimes zurück und wurde in den meisten Fällen übernommen. Doch können mittels Analyse der aus den ALS ermittelten Digitalen Geländemodellen (DGM) schnell unzählige Sichtverbindungsmessungen durchgeführt werden, die neue Schlüsse hinsichtlich der benötigten Sichthöhe und damit der Turmhöhe zulassen.

Zur Ausgestaltung der aufgehenden Bausubstanz der insgesamt 32 Neubauten von Wachttürmen entlang des Obergermanisch-Raetischen Limes sowie den unzähligen Rekonstruktionen in zeichnerischer, digitaler und modellbauhafte Form lassen sich aus archäologischen Befunden und Funden kaum Aussagen treffen.

Key words: watchtower, reconstruction, architecture, Raetian Limes, representation, new construction

Introduction

Without any doubt, everybody – archaeologist, historian or layman – has seen a reconstruction of a roman watchtower in his life, maybe in a schoolbook, in a comic or even reconstructed at full scale in an archaeological park.

In the following, the various types of such reconstruction will be critically examined[1]. This paper mainly focuses on the watchtowers of the Raetian Limes.

Since the beginning of the study of the Raetian Limes, one tried to visualized the different parts of the Limes, may it be with pictures or sketches, followed by physical reconstructions. The advancement in computer technology has allowed to create three dimensional models.

A brief history of the reconstruction of watchtowers

The interest in the roman frontier has been unbroken since the 16th century, the time of Humanism. However, research activities were then limited to observations in travelogues. Even in these times one wanted to visualize the roman life. Justus Lipsius[2] was the first in publishing a graphic reconstruction of a watchtower[3]. In the fifth chapter of his book *De Militia Romana*, published in 1598, a picture of a stone tower is to be found[4] [Fig. 1]. This tower shows a clear reference to Trajan's Column in Rome. Apparently without much reflection details of Trajan's Column were used and added by some details (roof design, torch holder, obviously historicized equipment of the soldier, landscape). Following reconstructions used the Column of Trajan as a reference as well, for example the drawing of Ernst Schulze (1912)[5] [Fig. 2]. The parts known from Trajan's column, such as a palisade around the tower and a surrounding gallery, are also depicted here. A wall and a moat were also added to the picture, both elements, that could still be found at many sections of the actual Limes. This was definitely based on local circumstances along the Odenwaldlimes. Thus Schulze incorporated the current state of research in his reconstruction.
Our modern idea of the watchtowers was mainly formed by the reconstruction drawings by Dietwulf Baatz (1976)[6]. His illustrations [Fig. 3] were and are still quoted repeatedly and they are still used for various other reconstructions, e.g. in model making.

Without doubt, the architectural "reconstructions" are the most memorable and impressive representations of watchtowers for the layman. Often referred as "rebuilt", they are often advertised with the additions "1:1" or "true to the original". The terms "reconstruction" and "rebuilding" or "re-creation" (Nachbau), which are always used for modern watchtower buildings, are particularly problematic. The possibility of using these termini as synonyms, especially by laymen, although they refer to different concepts, is a problem. The Managmentplan of the Upper Germanic-Raetian

[1]On the problem of reconstructing archaeological world heritage sites, see among others Young 2013.
[2]Lipsius 1598, 281.
[3]Many thanks for the clue to Prof. Dr. Thomas Fischer (Mainburg).
[4]He also describes this clearly (Lipsius 1598, 280).
[6]Schulze 1912, 40.
[7]Baatz 1976, 38–39 und 41.

Fig. 1 - One of the first reconstructions of a watchtower by Justus Lipsius from 1598 (Lipsius 1598, 281)

Fig. 2 - Reconstruction of a watchtower at theOdenwald Limes with rampart and moat (Schulze 1912, 40)

Limes 2010-2015 of the "Deutsche Limeskommission" offers the following clear distinction:

„Rekonstruktion: (…) Hinführen vorhandener Strukturen zu einem zu erschließenden früheren Zustand, bei dem im Unterschied zur Restaurierung vergleichbare Materialien in entsprechender Handwerkstechnik dem Original zugeführt werden."[7]

„Nachbau: (…) Neubau auf Basis erhaltener Belege sowie Schlussfolgerungen, die daraus gezogen wurden."[8]

The "English Heritage statement of 2001" offers clear definitions for these termini as well. A comparison shows that the definitions for the german „Rekonstruktion" and the english „reconstruction" are consistent with each other, whereas the re-creation (Nachbau) is a bit more specific[9]:

„Re-creation means speculative creation of a presumed earlier state on the basis of surviving evidence from the place and other sites and on deduction drawn from that evidence, using new materials"[10].

Aside the possibly wrong conception of these termini, there is another problem: All these definitions do not correspond in any way to the modern watchtower buildings. Comparable materials were neither used with appropriate craftmanship, nor are they add to the original archaeological remains. Also, historicized building surfaces are applied and nothing is ever added to the original, as this would damage or in most cases destroy the monument substance. Basically 95% of the tower's parts were added to the known substance of the tower.[11] The definition of re-creation implies sources, no matter if physical remains or antique visual or written. But these sources are rare, as shown below.

Consequentially Thomas Becker and Jürgen Obmann use the terminus "Neubau"[12] (new construction) in their compilation of such buildings along the Upper Germanic-Raetian Limes and point out that termini like "copy" (exact re-build), "replica" (re-build of an

[8]Henrich 2010, 30.
[9]Henrich 2010, 30.
[9]See also Flügel 2016, 62.
[10]English Heritage 2001, paragraph 5.
[11]Becker, Obmann 2015, 409.
[12]Becker, Obmann 2015, 411.

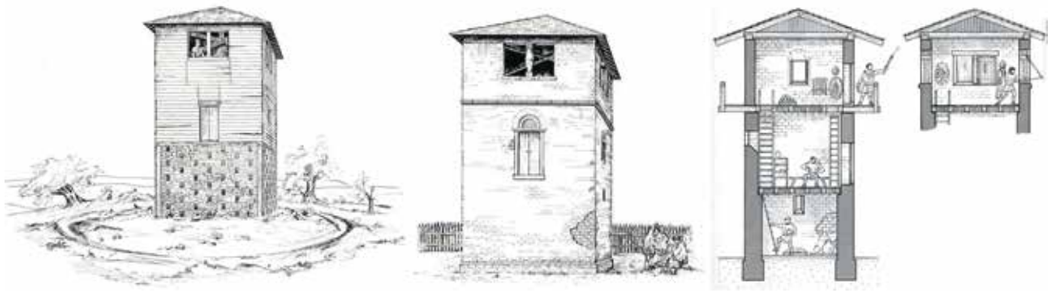

Fig. 3 - Standard reconstructions of a stone and a wooden tower according to Baatz (Baatz 1976, 38, 39 und 41)

original)[13] and "true to original" should be used under no circumstances.

Overall there are 32 new constructions (Neubauten) at 30 different locations along the Upper Germanic-Raetian Limes[14]. The first new construction (Neubau) of a watchtower on the Upper Germanic-Raetian Limes was built as early as 1874 on the Bad Emser Wintersberg at Wp[15]. 2/1. The second new building (Neubau) was built in 1912 on the Pulverberg at Bendorf-Sayn away from the excavated Wp. 1/54. This tower was (re-)built on account of the citizens of Sayn. Many postcards with the watchtower [Fig. 4] make it obvious, that the new construction (Neubau) was a broadly accepted object of identification for the citizens of Sayn[16].

In the following decades more and more new constructions (Neubauten) were built. They each visualize the respective state of research at the time of construction. The latest form of presentation of watchtowers is a virtual 3-D model. This kind of presentation not only allows the structural and the outside appearance to be shown.Whole living environments around the towers can be brought to live [Fig. 5] and different external influences (like weather) can be simulated. Theoretically such a digital version provides the opportunity to adjust the models as research evolves. But this advantage gets lost the moment the model is printed on a permanent medium such as information boards. However, for the above-mentioned reasons, they are a very worthwhile method of presenting the roman living environments in museums and other places of public information.

Similarities between the different reconstructions

All these different kinds of visualizations have some things in common:

- the ground plan is rectangular respectively quadratic;

- they have three floors, whereas all three floors are walkable or the lowest is build in so called Blockbauweise and therefore not walkable;

- they all have a circular gallery, especially stone watchtowers – only four new constructions (Neubauten) don't have them!

- most towers have a tent roof;

- the roof covering is made of roof tiles, wooden shingles or boards;
- many are plastered, often with red-coloured incised lines in the plaster to give the appearance of regular bricks or stones (Fugenstrich);

- in those cases where the limes wall is shown, it is plastered too;

- often the entrance is on the middle floor;

[13]Becker, Obmann 2015, 411 Anm. 9.
[14]The towers at Rainau-Schwabsberg Wp. 12/77 and Hienheim Wp. 15/46 have already been renewed in a different way (Becker, Obmann 2015, 409 Anm. 2 and 430).
[15]Wp. stays for Wachposten, which means watchtower.
[16]Dolata 2011, 28.

Fig. 4 - Postcard with the new constructed watchtower 1/54 reconstructed in 1912 on the Pulverberg near Bendorf-Sayn. (Dolata 2010, 15)

Fig. 5 - Virtual 3D reconstruction of a Raetian watchtower with enlivened environment (Copyright Landesstelle für die nichtstaatlichen Museen in Bayern, München; Graphik: ArcTron3D, Altenthann bei Regensburg)

- often the ground floor has only small windows or none at all, the first floor has small one and the third floor has bigger windows, mostly with central support;

- in the case of new constructions (Neubauten), the interior is not designed to show the use of the room;

- in those cases where the interior (in pictures etc.) is shown, the ground floor is used as storage room, the first floor contains the living room and the second floor the guardroom;

Interestingly, in the latest visualisations of watchtowers their environment is pictured "alive" and no longer as inanimate as previously assumed.

All visualizations of watchtowers are very similar and only differ in detail.

Facts

Only things based on archaeological sources can be counted as facts. Today this information is only provided by the archaeological excavations of the Reichs-Limeskommission from 1892 to 1902 and the very few insights provided by more recent excavations. They constitute the only source of secure information about the Limes.

On their basis, reliable statements can be made on the layout of the ground plan, dimensions, wall thicknesses, the presence or absence of entrances at ground level, on the material of the preserved building part and occasionally located fireplaces.

Ground plan and dimension:

They can vary strongly. But in most cases the ground plan of stone watchtowers is rectangular with an average side length of 5.4x5.0 m. The wall thickness varies from 0.4 (front wall of Wp. 15/25) to 1.3 m (back wall of (Wp. 14/5). The wall thickness was around 0,9 m (about 3 roman feet) in average. However, there are divergent ground plans, such as at Wp. 14/8.

The wooden towers on the Raetian Limes had a rectangular ground plan, established by four poles (4.5x4.5 m, about 15 roman feet). The towers were surrounded by moats.

Entrances:

On the Raetian Limes 123 of the 272 stone watchtowers assumed by the Reichs-Limeskommission were excavated. In 20 cases an entrance at ground level was found. This contrasts with the wooden towers, where no entrance could be found at all.

Building materials:

With regard to the wooden towers with a four-post construction, there is only one location where wooden remains have survived (astonishingly spruce, which

Fig. 6 - The representation of watchtowers on the Trajan column (Krieger 2019, 37-38)

did not grow in the local area[17]). It was customary to build the stone towers with local stone material. On the western part of the Raetian Limes Stubensandstein and Liaskalk (Lias limestone) were mostly used, in the middle part Keuper- and Liassandstein (Keuper- and Lias sandstone) and in the eastern part Dolomite and Plattenkalk (finely grained limestone)[18]. Only a few remains of plaster have survived proving that at least some of the towers were plastered on the outside.

Fireplaces:

A small but interesting detail is that fireplaces on the ground floor, detected at eleven stone towers on the Raetian Limes, are rarely not used in reconstructions, although this details shows the use of the ground floor not only as storage room, like it is often shown in visualizations, but also as a part of the living space.

Trajan's Column as a fact?

The depictions on Trajan's Column are also often given as a fact - and due to the poor preservation, the depictions on the Marc-Aurel Column are rarely used. The Column of Trajan shows three watchtowers, all surrounded by a palisade [Fig. 6]. The stone Towers, characterized by ashlars, have an entrance on the ground floor respectively one slightly raised, a high ground floor and a seemingly lower level. The circular gallery, an element of many reconstructions, is attached to the upper floor. Overall, these three towers on Trajan's Column seem to be a good base for the reconstruction of watchtowers. However, there is a big "but". What is depicted on Trajan's Column, is in direct connection to the following events on the column, which shows a ship bridge in the north-east of the province Moesia superior, from where Trajan's campaign started[19], a part of the *Imperium Romanum* which is 1000 km away. Furthermore, we need to consider the chronological difference, that makes a transfer difficult: the column's narrative took place 30 years before the stone towers at the Upper Germanic Limes were built and even 80 years before those on the Raetian Limes were constructed. At last both Trajan's Column and the Marc-Aurel-Column served as instruments of propaganda. The presentation of the emperor's virtues, such as *auctoritas, dignitas, firmitas, pietas, prudentia* and the care for his people (*providentia*) was the important part. The pictures on Trajan's Column are schematic, for example the differentiation of Auxiliar and legionnaire by equipment[20]. The emphasis was put on the understanding of the column's narrative. The authentic representation of aspects was secondary.

Due to the bad conservation in Raetia there is no archaeological evidence e.g. for a circular gallery. Therefore, a direct transfer of the pictures on Trajan's Column towards the Raetian Limes is hardly possible. On the one hand, it is legitimate to draw the conclusion that circular galleries were a functional element in border buildings, on the other hand there is no evidence

[17]Wp. 14/12, ORL Strecke 14, 65.
[18]Krieger 2019, 177.
[19]Krieger 2019, 38.
[20]See for example Richter 2004.

Fig. 7 - Compilation of various reconstructions in graphic, structural, model and digital form (Compilation by E. Krieger)

for such galleries along the Raetian Limes and we don't know whether or not they were a regular feature[21].

Fiction

The amount of facts is very restricted, so where do the additional details, which characterize watchtower reconstructions and re-builds come from? [Fig. 7]

Height of the towers:

Interestingly almost all towers are shown with three levels, whereas the tower's height varies. Right from the beginning the new constructions (Neubauten) and the early pictures show a ground floor – walkable or not – a middle floor and an upper floor. Dietwulf Baatz argued in his book about the watchtowers 1976 that a minimal viewing height of 7.6 m between two towers at the Odenwaldlimes would have been necessary for a direct view between them[22]. He recognizes correctly, that this doesn't have to be that way at every tower[23], but his reconstruction drawings are so present, that they will still be cited, sometimes a bit changed, very often. However, the detailed examination of analysis of surveillance capabilities alongside the Raetian Limes via Airborne Laserscans showed that in only very few cases a viewing height of 7.6 m was necessary. Mostly a viewing height of 5.5 m and consequently a building with a ground floor and one upper floor, would have been enought[24]. The columns of Trajan and

[21]Krieger 2019, 38.
[22]Baatz 1976, 37–39.
[23]Baatz 1976, 37.
[24]Kerscher, Krieger 2015, 390–391 and Krieger 2019, 92–94.

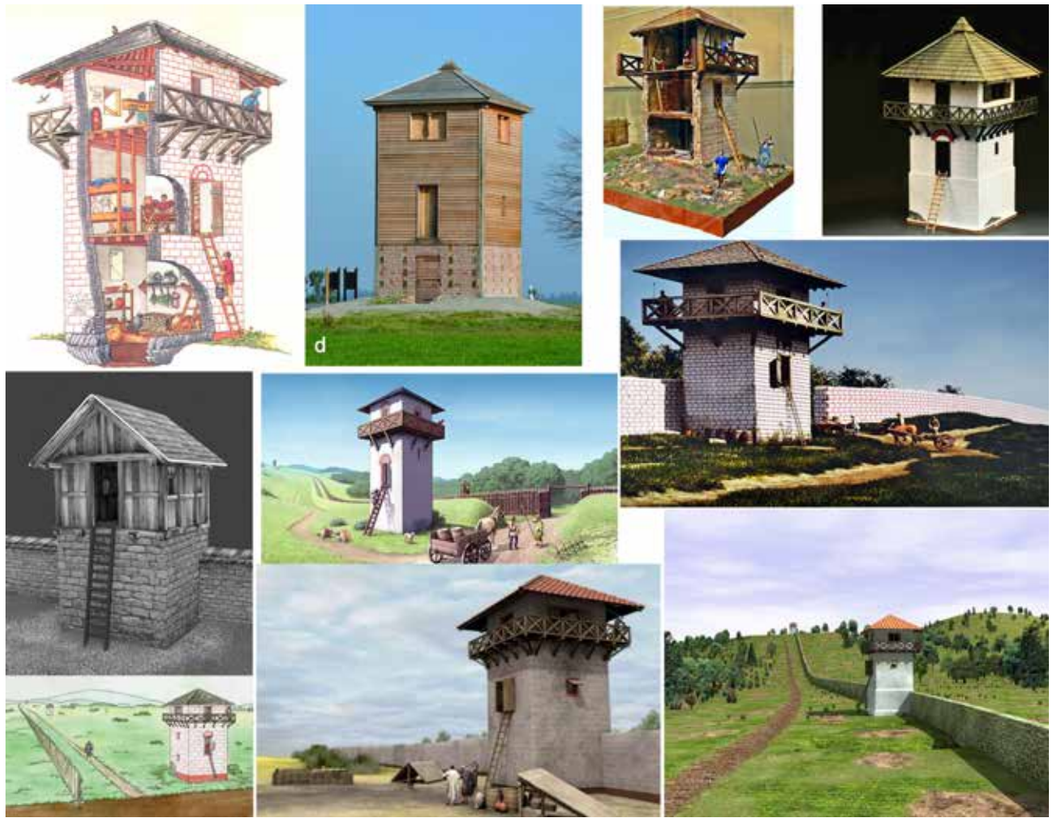

Fig. 8 - Compilation of various reconstructions ith the representation of the entrance in the first floor (Compilation by E. Krieger)

Marc-Aurel in Rome show similar structures. Trajan's Column, which is often used as model for reconstructions, shows clearly a building with two floors with different heights and not, as reconstructed, three-storey buildings! The results of the analysis of the digital land model may lead to the conclusion, that the tower could be reconstructed with a lower height. Two conclusions seem possible: either there were three floors with lower heights or there were two floors with higher heights. Both possibilities would lie within the framework of archaeologically documented ceiling heights. Heights of 3.00 m to 3.50 m could be found in the *villae rusticae* of Ahrweiler (late antique) and Köln-Müngersdorf[25]. Furthermore, Wolfgang Czysz could prove heights of 2.50 to 3.50 m for Streifenhäuser in *vici*[26].

Position of the entrance: [Fig. 8]

The often-shown entrances on the first floor can mainly be traced back to supposedly missing entrances on the ground floor. However, as mentioned before, entrances on the ground floor were detected on excavations at 20 stone towers. Even if such entrances could not be found at the other sites, this doesn't mean, that the entrance was on the next floor. Furthermore, it can be assumed, that the entrances were situated at a slightly higher level on the groundfloor, like shown at the third tower of Trajan`s Column[27]. The position of the entrance on the first floor is often explained with fortifiable advantage, whereas the disadvantages for daily life and working of the guards aren't mentioned. The need for

[25]Fehr 1988, 21 and Klinkenberg 1933, 57.
[26]Czysz 2016, 62.
[27]Krieger 2019, 180.

a fortifiable advantage is to be questioned, at least for Raetia, because the threat from the outside hardly existed.[28]. Altogether it seems incomprehensible, that a slightly raised entrance is only rarely reconstructed – especially in regard to Trajan's Column.

Windows:

The basis for the reconstruction of most windows in watchtowers are on the one hand the depictions on Trajan's Column and on the other hand architectural parts detected on the Odenwaldlimes. The relevance of Trajans's Column as a source was already mentioned and put into perspective. The architectural components of the Odenwaldlimes are lunettes and pillars from Wp. 10/33, a cornice fragment of Wp. 10/29 and remains of door and window walls[29]. However, the transferability of these remains from the Odenwaldlimes to the Raetian Limes is hardly possible. On the one hand, the Odenwaldlimes was built earlier and abandoned earlier than the Raetian Limes. Above all, however, it is distinguished by the much more elaborate design of the towers compared to the rest of the Upper Germanic-Raetian Limes. This is not only shown by singular findings of architectural parts, but by the much bigger number of inscription fragments from the Odenwald, too. This cannot only be explained by the conservation status, especially because there are larger parts of the Raetian Limes were no stone theft took place[30].

There is no archaeological evidence for the size of the windows on the ground- and first floor. Mainly they are based on logical consideration.

Circular gallery: [Fig. 9]

The size of the windows, especially those on the upper floor, was probably connected to the circular gallery reconstructed there. Perhaps the galleries are the formative element of watchtowers, which were found at almost every new constructions (Neubauten) – with four exceptions[31] – and most visualizations of watchtowers. These galleries are based on Trajan's Column and Marc-Aurel-Column alone. They show a wooden, circumferential construction consisting of a wooden frame with vertical poles. In the wooden frames are bracing crossbeams. The transfer from Trajan's Column was mentioned and evaluated before – a direct transfer seems hardly appropriate, but some aspects cannot be dismissed. However, the consequent reconstruction of such galleries is based on both columns and not supported by archaeological excavations from the Upper Germanic-Raetian Limes!

Limes wall:

Finally, the limes wall attached to the watchtowers shall be considered: in some reconstructions the limes wall is shown plastered, with red-coloured incised lines in the plaster. But at least for the Raetian Limes there is no sure evidence for this. One can assume that the stone towers were plastered, but the limes walls were not.

Conclusion

Looking at a reconstructed watchtower from a structural point of view, there is more fiction than secure facts to be named. The creation of such reconstructions is basically a highly speculative business. However great the efforts are to substantiate or prove individual reconstruction attempts, we often lack clear archaeological evidence. And even if documented: scientific findings for one place and time cannot be transferred uncritically to other regions and periods. Therefore, it is necessary to present, as detailed as possible, the way to a reconstruction and to give professional reasons for every decision, like stipulated in the London Charta (Principle 4 Transparency Requirements, Principle 5 Documentation) and in the Seville Charta (4-7 Principle, especially 7 Scientific Transparency)[32].

Therefore, reconstructions are a responsible undertaking, especially because they can become a kind of "truth". If one looks at the frequency with which

[28]Krieger 2019, 207 and 214.
[29]Baatz 1973, 120.
[30]Krieger 2019, 169.
[31]Wp. 1/9, Wp. 4/16, Wp. 10/15, 12/77.
[32]See also Dobat 2015, 361-362.

Fig. 9 - Compilation of different reconstructions with the representation of circulare galleries (Compilation by E. Krieger)

Baatz's reconstructions[33] are encountered in connection with watchtowers, it can be seen that they can shape the image of the past for generations to come, whereby this includes not only laymen but also the scientific world.[34] The many reconstructions that are so similar to each other prove this very well.

One always has to be aware of the set of problems of reconstructions. Especially the new constructions (Neubauten) that impress the viewer strongly, should therefore follow a more minimalistic approach, like the new steel construction at the roadhouse Taunusblick at Bad Homburg [Fig. 10], even if more fantasy is needed from the observer.

Of course, reconstructions in different contexts can be less minimalistic in order to show living environments, which present to the visitor/viewer the difference between the roman past and present-day life.

Especially in museums reconstructions constitute a very good opportunity not only to visualize the past for the visitor but to explain the work of an archaeologist and discuss its problematic aspects with the visitors in an appropriate way.

In the end the presentation of the roman world, both its civil and military sphere, is hardly possible without reconstructions. But these should not be presented to the public unfiltered and without scientific comment.

[33]These reconstructions are of course made according to the current state of research at the time and follow all archaeological standards. This should in no case be doubted or criticized! They brought the watchtowers closer to generations of interested people.

[34]Not even the author, being very critical about watchtower reconstructions and yet in her doctoral thesis on the same she also presented some reconstructions and used sources such as the Trajan's and Marc-Aurel-Columns for them, even if she questions them critically.

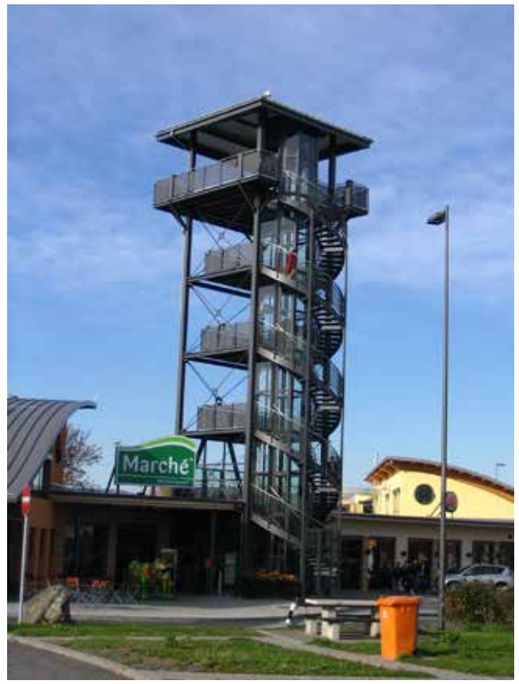

Fig. 10 - Observation tower in the style of Roman watchtowers at the roadhouse Taunusblick near Bad Homburg (Becker, Obmann 2015, 440)

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Résumé[35]

Si l'on considère une tour de guet reconstituée, nous avons du point de vue architectural affaire à plus de fiction que de faits avérés. La réalisation de telles reconstitutions est en fait une affaire hautement spéculative. Si grands que soient les efforts pour justifier ou pour prouver les tentatives de reconstitution, des preuves archéologiques explicites nous manquent souvent. De plus il n'est pas possible de transposer sans réflexion critique des résultats scientifiques documentés pour un lieu et une période à d'autres régions et périodes.

Il est alors indispensable d'expliquer en détails le processus de reconstitution et de fonder chaque décision de façon scientifique, comme le revendiquent les chartes de Londres (Principle 4 Transparency Requirements, Principle 5 Documentation) et de Séville (4-7 Principle, notamment 7 Scientific Transparency). Les reconstitutions sont donc un devoir sérieux, car elles peuvent devenir une sorte de „réalité".

Si l'on considère uniquement la fréquence avec laquelle nous rencontrons les reconstitutions de Baatz concernant les tours de guet, il apparaît que celles-ci peuvent marquer l'image du passé pour les générations futures, non seulement dans le monde profane mais aussi scientifique. Le grand nombre de reconstitutions qui se ressemblent en est une preuve évidente. Il faut toujours être conscient du caractère problématique de ces reconstitutions.

Ce sont avant tout les nouvelles constructions de tours de guet qui font forte impression sur le spectateur et qui devraient donc suivre une ligne minimaliste, comme c'est déjà le cas de certaines nouvelles constructions en acier, telle par exemple celle du restoroute Taunusblick près de Bad Homburg [Fig. 10], même si cela exige plus de fantaisie du spectateur.

Dans d'autres contextes les reconstitutions peuvent évidemment être moins minimalistes, puisqu'elles permettent au spectateur de se faire un idée des différences entre le monde romain et le monde actuel.

Dans le contexte des musées en particulier, les reconstitutions nous offrent une possibilité unique, non seulement d'illustrer le passé pour le visiteur mais aussi de lui expliquer les méthodes de travail des archéologues et d´élaborer avec lui de manière appropriée les problèmes qui en découlent.

En fin de compte la présentation de la vie quotidienne romaine, qu'elle soit civile ou militaire, n'est guère possible sans reconstitutions. Or, celles-ci, ne doivent pas être exposées au public de manière non filtrée ou sans commentaire.

[35]Great thanks for the translation to Alice Willmitzer (Xanten).

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The Location of 6th-Century *Βιμινάκιον*. Status *quaestionis* and Hypotheses*

ABSTRACT

During the 6th century, the city of *Viminacium* was restored thanks to the return of the imperial authority in the province of *Moesia Prima*, after the great crisis of the 5th century. The settlement had been already mentioned as a πόλις by Procopius, Hierocles and Theophylact Simocatta, but none of these sources provide detailed descriptions nor its precise location. Theophylact also defined the city as a νῆσος, when recalling the military events that took place some years after after the Avar attack of 584. The current knowledge of the topography of the site allows the word νῆσος to raise even more questions about the possible location of the settlement during the 6th century. It has been proposed that the settlement was not reconstructed over the old Roman town, since the original settlement was not established on a river island or peninsula after all. By providing a careful analysis of the literary and archaeological data gathered on the site, and by comparing them to historical references to similar settlements, we will explore the possibility tthat the 6th century *Viminacium* developped in the vicinity of the Roman colonia.

Key Words: Late antiquity, Viminacium, Justinian, Illyricum, Avars, Topography, Theophylact Simocatta, Localisation.

Historical overview and topographical issue

Viminacium, the capital of *Moesia Prima*, had experienced a significant period of economic development from the end of the 3rd century and during the 4th in particular. In that period several emperors resided in the city[1], as the settlement was considered an important military center that garrisoned the majority of troops in

*DANUBIUS Project (ANR / I-SITE ULNE) – Université de Lille / HALMA-UMR 8164, and Pontificio Istituto di Archeologia Cristiana

[1]Diocletian between August and September 293 and between September and October of 294 (*Codex Iustinianus,* II, 19, 8 – V, 16, 20 – VI, 2, 11 – VIII, 35, 5 – 44, 22–50 16 – IX, 22, 12). Constantine in May of 321 (*Codex Iustinianus*, VIII, 10, 6) and in August of 334 (*Codex Thedosianus* XII, 1, 21). Here in 337, Constantius II met Athanasius (Athanasius *Apologia ad Constantium Imperatorem* V, 21, ed. Szymusiak 1958 LXI, 93; *Codex Theodosianus* X, 10, 4). Gratian visited the city in 382 (*Codex Theodosianus* XII, 1, 89).

the province[2]. During the 4th and 5th centuries *Viminacium* was also a episcopal see[3], as well as an important commercial hub for Roman and Hun traders[4]. According to Priscus, the city was conquered by the Huns in 441. After the agreements made by the raiders and the Empire regarding the control of conquered territories, *Viminacium* was included in a buffer zone established in the area that stretched from Pannonia to the cities of *Naissus* and *Novae*[5], cutting off the city from the Empire's authority.

The city was reconquered later on under Justinian, following the ambitious imperial program to take back the lost Balkan territories described in Procopius' *De Aedificiis*[6]. Following the successful recovery of the settlement, the emperor re-established the province of *Moesia Prima* and once again bestowed upon it the status of episcopal see[7], which had a double authority: administrative and religious, like the other episcopal sees restored by the Emperor in the Balkans[8]. It seems reasonable that these measures could also have been associated with a reorganization of the site's defensive system.

The city was attacked and sacked again in 584 by Avar and Slav raiders[9]. Although the site was soon recovered by imperial forces, at the beginning of the 7th century the area was definitively lost. The last mention of *Viminacium* is provided in Theophylact Symocatta's *History*, in a section dedicated to the events of the *biennium* 599–600. The author reports that after the reoccupation of the site, the imperial forces organized an attack from *Viminacium* towards the *Barbaricum,* which resulted in the victory of the Romans over the Avars in three different battles. As for the years 601-602, however, the author doesn't provide further indications, due to the definitive loss of the settlement following the collapse of the imperial authority over central *Illyricum.*

Regarding these last events, we ought to bear in mind the historical-literary evidence provided by Theophylact Simocatta and Theophanes. When Theophylact describes the events that took place in 599-600[10], in fact, the historian identifies Βιμινάκιον no longer as a πόλις but as an island on the Danube. In his *History,* the author mentions the site twice using the term πόλις in relation to the events of 584, whereas he uses the word νῆσος when referring to the military operations that followed[11]. Hence we could suspect that during the last years of the 6th century the settlement may have undergone depopulation and a change in its institutional status, possibly as a result of the crisis caused by Avar attacks.

On the other hand, archaeological research has not yet provided any evidence of the infrastructure, religious buildings and houses that would commonly define a civitas or a πόλις, and neither has it traced its exact location. Furthermore, it remains fairly uncertain whether the πόλις was rebuilt *ex-novo* on the left bank of the Mlava river[12], or whether the Justinianic settlement was built upon the Roman colonia, originally located on the right bank[13].

An Interpretation of Archaeological and Historical Data

Traces of the occupation of the area during the 6th century have been brought to light on the left bank of the old Mlava River where the remains of some defensive structures have been partially investigated.[14]. Count Marsigli was the first to notice the remains of a quadrangular fortress with circular towers known then as Castolatz[15]. Traces of this fortress (in the area of Todićeva Crkva)[16] were briefly surveyed by Vasić[17] and Popović[18], and further excavations took place in 2016/2017, but the results are yet to be published.

The first excavations outlined the perimeter of the fortress[19] along with traces of four corner towers and a 3 m. wide rampart[20], although the chronology of these remains is still largely debated and the lack of monographic publications hinders the development of informed hypotheses. Nevertheless, through articles published on the topic we can infer that this area had been used for defensive purposes until the 12th century, as the two linked fortifications of Mali Grad and Veliki Grad were still garrisoned up to that time. In these fortifications, archaeologists have made finds dated to the 10th and 12th centuries[21].

Through the similarity to other forts built along the Danubian *limes in* the 6th century[22], Vasić and Popović have recognized the features of Justinianic military architecture[23] in the remains attested at Todićeva Crkva / Mali Grad[24]. On this basis Popović has surmised that the Byzantine city of Βιμινάκιον may have been established on the left bank of the Mlava, after the older Roman city structures on the right bank of the river were abandoned. Even though this hypothesis reiterates previous interpretations based on Vasić's research[25], it is important to consider a recent article where is clearly stated that during the latest excavations by Ivanišević, which took place in the same site, archaeologists have not attested any layers[26] from the 6th century. The results of these excavations are still unpublished, but they seem to suggest the total absence of creditable evidence dating to that century, hence disproving the hypothesis that identified Mali Grad with a Justinianic fortress. More reliable evidence is provided by a site unearthed during the 80's in Svetinja[27], roughly a kilometer and half away from Mali Grad, where a defensive structure dating back to the 6th century has

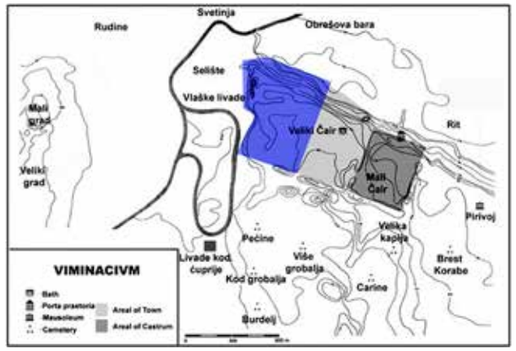

Fig. 1 - Špehar 2010. The area and its toponyms. Βιμινάκιον's hypothetic location in the ancient city area (blue).

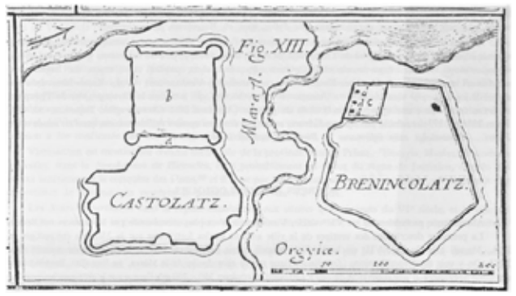

Fig. 2 - Marsigli 1726.

[2]*Notitia Dignitatum partibus orientis* XLI (ed. Seeck O. 1876, 92–94).
[3]Athanasius, *Epistola* XLVI (transl. Schaff 1892), *Ep. ad Episcopos Aegypti et Lybiae* I, 8 (P. G. XXV, 537); *Epistolae et Decreta Celistini,* III (P. L., L, 427).
[4]Priscus, *Fragmenta* VIII (ed. Carolla 2008).
[5]Liebeschuetz 2007, 105. See also Ivanišević, Kazanski 2014, 137.
[6]Procopius, *De Aedificiis* IV, 5 (ed. Dell'Osso 2018, 319).
[7]Under the control of the archbishop of *Iustiniana Prima,* see *Iustiniani Novellae XI* (ed. Schöll, Kroll 1928).
[8]For example, we can mention the case of the religious and civil prerogatives of which the bishop of the city of *Aquae*, in *Dacia Ripensis*, was invested. On the topic see Curta 2001, Madgearu 2010.
[9]Teophylact Simocatta *Historiae* I, 3, 4. (ed. De Boor 1972)
[10]Bury 1889, 140.
[11]Teophylact Simocatta, *Historiae* VIII, 1, 2 (ed. De Boor 1972)
[12]Mali Grad area.
[13]Fig. 1.
[14]See Popović 1967, Popović 1988, Milošević 1988, Popović, Ivanišević 1989.
[15]Marsigli 1726*, Danubius II, tav. XII*. The settlement of Castolaz, today Kostolac. Fig. 2.
[16]Fig. 3, Fig. 4.
[17]Vasić 1906.
[18]Popović 1967, 34.
[19]Vujović 2005, 588.
[20]Popović 1967, 32. Popović 1988, 32. Fig. 5.
[21]Fig. 4.
[22]Popović 1988, 32.
[23]Vasić 1906, 66–70. Popović 1988. Popović, Ivanišević 1989.
[24]Fig. 1, 3, 4.
[25]Vasić 1906, 56–70. The same interpretation was already proposed by Jireček, see Jireček 1887. This identification is still accepted by several scholars, see Vujović 2005, Komatina 2016.
[26]Ivanišević 2017.
[27]Fig. 4, 5.

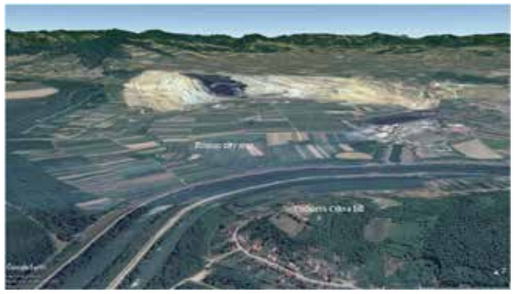

Fig. 3 - The hill of Todićeva Crkva. 44°44'21.72"N and 21°11'13.61". Google Earth. May 10, 2018. February 25, 2019.

been found. The site holds the remains of a fortress that had been erected on the ruins of a previous building[28] when the Imperial authorities built the 100 m. long fortified wall to seal off the strip of land between the Mlava and a secondary branch of the Danube, from north to south. This wall was strengthened with two towers raised on its western side[29].

To this first phase belongs also a house built on the eastern side of the wall, along with another 18 m. long wall perpendicular to the main one near the north tower that continues towards the east. Its purpose was probably to watch over a river dock nearby, and control the roads towards the surrounding areas[30] and the hinterland. The construction of other houses along the eastern side of the main fortification wall is also dated to the 6th century[31]. On the basis of the presence of Germanic weapons within these buildings and of a Germanic burial ground in the vicinity, it has been suggested that these structures form the barracks for a garrison of *foederati*[32] who served under the Empire. The deployment of such troops at the borders dates back to the 30s of the 6th century: from the amphoras LR1 and LR2 discovered within these buildings we can infer that the Roman authorities provided the garrison with food supplies.[33]The signs of destruction and restorations carried out in the last years of the century are due however to the effects of the Avaro-Slavic offensive in 584, which was followed fifteen years later by the reorganization of the imperial forces under Priscus and Comentiolus. In fact, the most recent archaeological traces of the Byzantine site do not go beyond the first years of the 7th century, when the site was abandoned for good after the definitive breakthrough of the *limes* by Slavic populations, consistent with Theophylact's silence after AD 600.

As we have seen, although the "Byzantine" structures show prominent defensive-military features, the site lacks evidence of civil and religious structures. Although the exact location of Βιμινάκιον remains unsure, the absence of developed civilian facilities along the left bank of the Mlava and further considerations on the Roman *Viminacium* may provide significant clues. All we know about the ancient Roman city, originally located on the right bank of the Mlava River, comes from a site unearthed by the north-eastern district of the *castra.* The latest publications on the topic point out the absence of chronological accounts beyond the middle of the 5th century. Although the excavations have covered only a small part of the urban perimeter, it can't be excluded that the absence of chronological accounts may be due both to the gradual abandonment of this area during the 6th century and to the recovery program pursued by the Empire. It is possible, in fact, that the restoration may have affected only certain areas of the Roman city, by reshaping and refurbishing older buildings on the basis of *praxis* also attested in other settlements. In fact, between the end of the 4th and the 6th century the consolidation of the urban centers into segments of the original city is commonly found[34] among different cities in *Illyricum*[35]. In *Sirmium*, for example, the contraction of urban spaces around the southern

[28]Popović 1988, 5.

[29]Milošević 1988. The towers were built with the same technique as the main wall, with bricks, stones, reused material and *spolia* from the necropolis of the Roman city, Mirković 1999, 19. Fig. 5.

[30]On this topic Mirković 1999, 20–23.

[31]Miloševič 1988, 57–58. Fig. 5.

[32]Ivanišević 2016, 91.

[33]On the historical value of the imperial supplies along the Danube *limes* see Karagiorgou 2001. About the other the ceramic finds see Popović 1988, 19–23**.**

[34]About the changes in city life in Late Antique *Illyricum* see Poulter 2007, Dintchev 1999 and Snyvelyn 2008.

[35]At *Oescus* and *Serdica*, a contraction of the urban area is documented from the 5th century. Dintchev 1999, 42–43, 47.

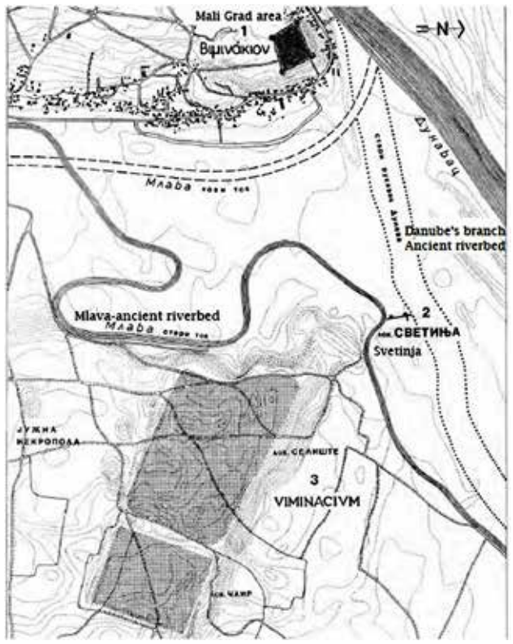

Fig. 4 - After Popović, Ivanišević 1989. The situation on the Mlava's left bank.

area of the site, toward the Sava River is attested as early as the 5th century.[36] Indeed in *Singidunum*[37], the progressive abandonment of several neighborhoods in the city[38] can be traced back to the end of the 4th century, along with the concentration of the suburbs around the *castra*[39] by the Sava.

Based on the evidence gathered so far, it seems realistic to suppose that *Viminacium* might have undergone the same process during the 6th or even the 5th century, when most of the population presumably left the eastern quarters of the settlement for the western ones, closer to the Mlava. This movement would be justified by the need to control the river docks and the bridge, while gaining direct access to water resources closer to the Svetinja fortress. The fort had in fact an important logistical role in protecting the connections between the Danube area and the provincial hinterland, all the while ensuring a safe loading hub for food supplies[40].

Today, the western portion of the town is known only from a drawing made by Kanitz[41] and through a few surveys. The geomagnetic surveys[42] carried out in this area have in fact revealed the existence of a fortified annex of 8 hectares[43] added to the city perimeter[44]. From the survey it can be seen how this annex is equipped with at least eight circular towers protruding from the rampart[45], in accordance with the features of a defensive architecture style in use from the 4thcentury[46] through the 6th. Furthermore, artifacts dating from between the 1st and the 6th century have been brought to light in this area as well. This set of evidence provides a significant chronological horizon that accounts for the longer-lasting inhabitation of this area, unlike the eastern sector of the ancient city.

The architecture of the city rampart is of primary importance, as it points out the fundamental problematic of this article in regards to the exact location of Βιμινάκιον. The remains of this annex, the chronology suggested by the findings and the style of the defensive system could represent solid evidence for the possibility that Βιμινάκιον is to be located in the western sector of the older Roman city[47]. Considering that the area over the annex may have been settled as early as the 4th century, we could surmise that the Byzantine

[36]Bavant 1984, 263, and Jeremić 2002. About the reduction of urban areas in the central *Illyricum*, see Popović 1982, Ciglenečki 2014. Fig. 6.

[37]Popović 1997, 16–18

[38]See Ivanišević, Kazanski 2002.

[39]Popović 1997, 17. The author assumes that during the 6th century the population may have moved into the demilitarized areas of the *castra*. See also Popović 1982.

[40]On the topic see Mirković 1999.

[41]Kanitz 1868, 413. Fig. 7.

[42]Mrđić, Milovanović 2005, 396.

[43]Mrđić, Milovanović 2005, 396. The annex is clearly visible even from satellite images. Fig. 9.

[44]Mrđić, Milovanović 2005, 397.

[45]Mrđić, Milovanović 2005, 396.

[46]*Augustae*, *Oescus,* and *Novae*.

[47]It has been already pointed out how the eastern sector of the city does not present traces of occupation beyond the middle of the 5th century.

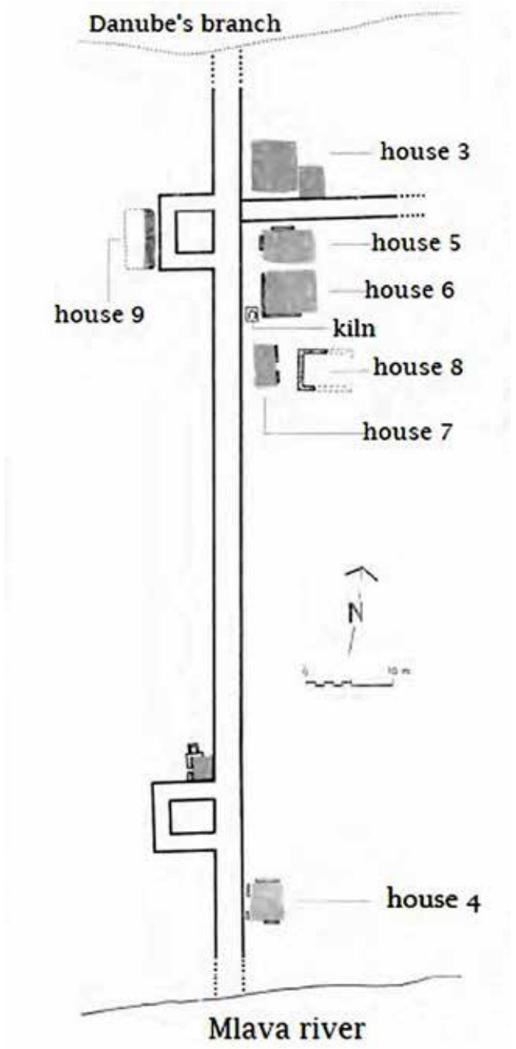

Fig. 5 - After Popović 1988, The Svetinja fortification.

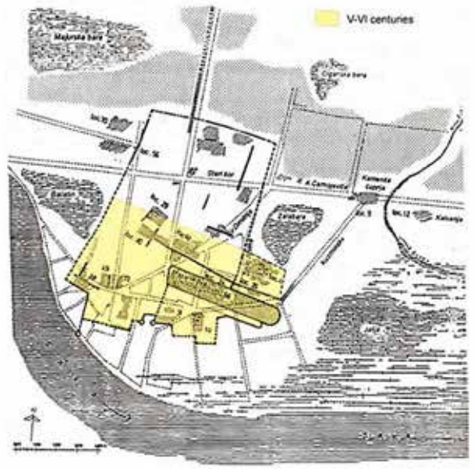

Fig. 6 - Ivanišević 2017, Sirmium, 5-6th century inhabited area.

Fig. 7 - Kanitz 1868. Roman's city western sector (right) and the Mali Grad fortification (left).

settlement rebuilt by Justinian was indeed concentrated in this area.

Such urban development finds a close parallel in the city of *Nicopolis ad Istrum*[48], where the construction of a fortified annex[49] within which dwellers had settled during the 6th century, after the abandonment of the other neighborhoods, is documented from the second half of the 5th century.[50] In order to strengthen this hypothesis, we should reevaluate Theophylact's accounts regarding the years 599-600, according to which Βιμινάκιον was regarded as a great island in the Danube. Following this description and the morphology of the territory, in fact, one could argue that locating Βιμινάκιον on the left bank of the Mlava River, rather than over the ancient Roman City, would better

[48]Poulter 2007, 51–82.
[49]Attached to the ancient Antonine walls.
[50]Poulter 2007, 51–82.

Fig. 8 - Viminacium and Ostrovo, satellite view, 44°44'28.70"N and 21°12'18.55"E. Google Earth, November 30, 2018. February 25, 2019. 1. Roman city area, 2. Mali Grad-Todićeva Crkva, 3. Ostrovo, 4. Svetinja.

fit the indications provided by Theophylact. The sites of Todićeva Crkva and Svetinja lie on a strip of land wedged between the ancient bed of the Mlava and a secondary branch of the Danube[51]. The peculiar shape of this spit of land enclosed by the Svetinja fortress on its north-eastern side does indeed match the description of an "island", as mentioned by Theophylact. Equally, however, it would seem possible to assume that he might have had in mind a great river island in the middle of the Danube just north of the site. As shown by satellite images, the Danube's secondary branch, east of Todićeva Crkva, did indeed delimit the contours of a large river island in front of the Byzantine wall of Svetinja[52].

The mention of an island poses therefore a unresolved topographic problem, as on the basis of this indication and on the presence of the remains attested in Svetinja and Mali Grad it was assumed that Viminacium must have been located on the peninsula washed by the Mlava River, rather than on the remains of the ancient Roman city[53].

However it should be considered that the scarcity of 6th century remains along the left bank of the river Mlava, where there is no evidence of houses, religious buildings or other infrastructures except for the wall of Svetinja[54], does not match with the status of πόλις held by the city.

Regarding this ambiguity, it might be worth considering the historical context in which Theophylact places his description of the river island. The account, in fact, recalls the events that took place between 599 and 600, when the Imperial army led a victorious campaign against the Avars settled near the site of *Costantiola*[55], about fifteen years after the destruction of the city Βιμινάκιον.

Theophylact describes with precision that the Romans had reached the "*island Viminacium"*. Here they based

[51]Fig. 4.
[52]Fig. 8, n. 3– 4.
[53]Popović 1988, Popović, Ivanišević 1989. Fig. 4.
[54]Following the destruction of the city in 584, Byzantine authority still managed to keep at least one outpost on the middle course of the Danube, safeguarding the fortified port of Svetinja.
[55]Modern Kovin.

Fig. 9 - Viminacium, the annex area, satelite view, 44°44'15.71"N and 21°12'53.98"E. Google Earth, March 28, 2012. July 10, 2023.

a military camp and a landing for their fleet, which supported the operations carried out in the *Barbaricum*[56]. So, actually, he seems to be simply indicating that on the "island" there were structures related only to military logistics rather than a civil settlement. In fact, he makes no mention about the presence of civilians, in contrast to his accurate account of civilians when reporting all the events about the neighboring city the neighboring city of *Singidunum* in the same years. Today's Belgrade was conquered by the Avars in 583[57], just before *Viminacium*, but it was not abandoned by the civilians, whose presence is still clearly documented until the last years of the century through the accounts of Theophylact, as he describes in three distinct passages of his *History*[58] the loss and subsequent recovery of the city by the Romans.

The mention of *Viminacium* as an island in 599-600, therefore, may highlight how the city was no longer inhabited in the last years of the century, possibly excluding the excluding the existence of an urban settlement after 584[59]. Because of this, the mention of an island should not be considered as an appropriate topographical indication to surmise the exact location of the Byzantine city.

Conclusion

Following the archaeological, topographical and historical-literary evidence discussed in this paper, it seems unlikely that the site of Βιμινάκιον could be located on the left bank of the Mlava River, whereas the hypothesis that the Justinianic settlement ought to be found in the area occupied by the western quarter (annex) of the

[56]During this operation the fort in Svetinja could have still maintained connections with the rural hinterland and a safe base for some of the imperial ships. About the control of the rivers held by the imperial fleet see Mirković 1999.

[57]Theophylact Simocatta, *Historiae* I, 3, 4 (ed. De Boor 1972, 40).

[58]Theophylact Simocatta, *Historiae* VII (ed. De Boor 1972)

[59]This statement does not exclude the presence of a small rural population scattered in the hinterland, which may have contributed to the sustenance of the Germanic garrison of Svetinja. In fact, locally produced ceramics (Mirković 1999) have been found near the discovered dwellings, which could testify to this collaboration.

old Roman city, on the opposite bank is more feasible[60]. It is also important to underline how in Theophylacts' historical work, the adoption of two different terms to identify the site, in relation to diverse chronological horizons, is actually a reflection of the changes that occurred on the site between 584 and 599-600. We could conclude that the two mentions made by the historian thus refer to two different historical-topographical realities that should not be confused while trying to locate the Justinianic settlement.

It is obvious, however, that all the topographical and demographic aspects of the discussion can be properly clarified only through systematic archaeological investigations and surveys of the western district of the old Roman settlement. Further studies would help shed light on the location of the city during the 6th century, its organization on the territory, the exact entity of the recovery program promoted by Justinian and its defensive arrangements. Additionally, we ought to bear in mind that an investigation of all aspects regarding the demographic oscillations related to the events of the 5th century – such as the Hun raids, the Germanic occupation[61] and the renewed imperial phase – would undoubtedly present important new information beyond what we can already retrieve from the chronicles of the "classical" period. Ultimately, with more accurate data we will be able to contextualize the case of *Viminacium* in the broader context of the social and urban adjustments that took place in *Illyricum* during Late Antiquity.

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[60]Fig 1, in blue. In the western sector, survey finds have suggested a continuous occupation of the area from the 1st to the 6th centuries, see Mrđić 2005, 396.

[61]See Ivanišević, Kazanski, Mastykova 2006 and Ivanišević, Kazanski 2014.

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Résumé

Détruit par les Huns en 441, le camp romain de Viminacium n'a été restauré qu'au VIe siècle. Les sources littéraires nous relatent cette restauration, sans toutefois nous fournir de description détaillée de la « nouvelle » agglomération. Le témoignage le plus explicite est celui de Théophylacte Simocatta qui, à la fin du VIe siècle, utilise deux termes différents pour la qualifier, l'un renvoyant à son statut, l'autre à sa localisation géographique : πόλις et νῆσος. Compte tenu du second de ces deux termes, il a été proposé que l'agglomération ait été relocalisée sur un site différent de celui de la ville romaine, qui se situe sur la rive droite du fleuve Mlava et qui n'a aucunement l'aspect ni d'une île ni d'une péninsule fluviale.

Les restes d'une forteresse ayant été découverts sur la rive gauche dudit fleuve, on a déjà supposé qu'ils pouvaient correspondre à la Viminacium tardive, même si le qualificatif de νῆσος est aussi ici difficilement applicable. C'est que ces structures ont été datées du VIe siècle. En outre, des fouilles récentes ont démontré qu'il ne faille pas non plus exclure d'autres localisations. L'application à Viminacium du qualificatif de νῆσος remontant à une époque à une époque où l'agglomération du VIe siècle avait elle-même été abandonnée, il serait même parfaitement légitime de s'interroger sur la valeur de cette référence pour sa localisation.

En l'absence de détail plus précis, il n'apparaît cependant pas prudent de rejeter trop rapidement le témoignage de Théophylacte Simocatta. Aucun élément proto-byzantin n'a été relevé sur la Viminacium romaine jusqu'à maintenant et dont seule la partie orientale, la plus éloignée du fleuve, a été fouillée. En l'occurrence, il semble que, à ce stade de l'exploration archéologique de la Viminacium romaine, il ne faille pas exclure la possibilité que, entre Ve et VIe siècle, le centre de l'agglomération a été déplacé vers l'ouest en bordure du fleuve Mlava, selon des modalités attestées à Sirmium, mais aussi dans d'autres agglomérations militaires du nord des Balkans romains.

LIMES XXIIII

Session 17

Limes in fine?

Continuity and Discontinuity of Life in the Forts of the Roman Frontiers

INTRODUCTION

Session organisers / Chairpersons:
Rob Collins, Newcastle University, UK

Historiographic tradition insists that the frontiers of the Roman Empire either collapsed in the face of barbarian invaders, or were abandoned in the wake of civil wars. For the Western Empire, this occurred in the 5th century AD, while abandonment or collapse of the Eastern frontiers was a far more drawn out process starting in some places in the later 6th century. As the Empire declined and fell, so too did the frontiers.

Yet, archaeological excavation has contested this narrative. Some forts have confirmed the narrative of abandonment or destruction, but other sites have revealed continued occupation beyond the traditional 'end date' given for a particular province or diocese.

This session will explore the traditional narrative of the collapse and/or abandonment of the Roman frontiers in late antiquity. Papers will explore the diverse data – occupation, mortuary, artefactual, and scientific – to contest or support collapse narratives. Papers will specifically address the following questions:

- What is the evidence for abandonment or destruction at individual sites?
- Does mortuary data support different conclusions than building/site-occupation data?
- To what extent can evidence of abandonment or continued / transformed occupation indicate the history of an entire frontier sector?
- Despite varying chronologies, it is possible to identify common patterns and trends across different frontier sectors?

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The *Limitanei* of the *dux Britanniarum*

ABSTRACT

The *limitanei* from northern *Britannia* are attested in both the *Notitia Dignitatum* and through archaeological investigation of a number of military sites, not least of which is Hadrian's Wall. The *Notitia*, in conjunction with 2nd and 3rd century inscriptions, affirms the presence of units in long-standing occupation at many forts and indicates the presence of new units in others under the command of the *dux Britanniarum*. The archaeology, in contrast with Late Roman forts from other frontiers, initially appears to suggest a relict organisation of the Wall and wider frontier, with old-fashioned Hadrianic forts retained despite Tetrarchic and Constantinian reorganisation of the Roman army. Yet, this archaeology presents us with an opportunity to assess the changes to the Late Roman army through examination of buildings such as barracks and *horrea* that are not always so easily recognised in 'new' 4th-century military installations. When considered alongside other data, from faunal remains, palaeoenvironmental samples, and even broader landscape surveys, a remarkably robust picture of the *limitanei* can be built up. This paper will summarise the broad range of evidence for the *limitanei* from north Britain, offering a comparative body of material for the *limitanei* from other frontiers.

Key Words: *limitanei*; *dux Britanniarum*; Britain; landscape; supply; logistics; society.

Introduction

The Roman army remained a powerful institution in the later Roman Empire, and the maintenance of soldiers and frontiers was crucial to the success (or failure) of any emperor.[1] The reorganisation of the Late Roman military forces by the Tetrarchic emperors and Constantine into the mobile palatine and field armies (*comitatenses*) and fixed frontier armies (*limitanei*) was a tacit acknowledgement of the realpolitik of the 4th century and after: frontiers could not be depleted of soldiers to deal with invasions or usurpers elsewhere, as was common in the easy decades of imperial rule in the 1st and 2nd centuries AD; frontier armies needed to be sustained concurrent with the need for each emperor to retain an army that travelled with him as well as a small number of field armies spread throughout the praefectures of the empire.

[1]Graham 2006; Hebblewhite 2017, 33–70.

By the start of the 4th century AD, most of the frontiers of the Roman Empire had been geographically fixed for approximately two centuries, with the exceptions of Dacia and the Raetian *limes*.[2] Acknowledging the antiquity or, in the minority of cases, the 'newness', of the frontiers or *limites* is crucial in understanding the distinct landscapes at the peripheries of the imperial state. In addition to the diverse physical geographies and climates encompassed by the *limites*, these landscapes were fundamentally created by and sustained for the Roman army. Thus, the Roman army dominated and, in some cases, dictated the cultural geography of the frontiers, from the positioning of military installations to the disposition of the road network; even non-military settlement in the border provinces and in *barbaricum* was influenced by these factors.

However, the *limitanei* are not as well known or understood in comparison to their precursors of the Principate, the legions and auxilia. This is due to a combination of the structural changes made to the army in the Dominate, combined with cultural changes in Late Roman society, such as a general decline in the use of inscription and the prevalence of textual sources to focus on the commanders and units of the *comitatenses*. Fortunately, the archaeological record for the *limitanei* is accessible and relatively well preserved. The data from military installations in the Late Roman frontiers allows us to reconstruct local and regional conditions, and build up a picture of how this branch of the military functioned in the 4th and 5th centuries.

The northern frontier of the diocese of *Britannia* offers an intriguing case study for the *limitanei*, for many reasons. First, it is relatively well explored in archaeological terms; not only has Hadrian's Wall benefitted from two centuries of focused research, but so too have the forts and other installations that make up the broader frontier region (Fig. 1).[3] Second, the northern frontier of *Britannia* was under the command of the *dux Britanniarum* according to the *Notitia Dignitatum*, which records a combination of long-standing units in that frontier – particularly along the Wall – alongside changes in garrison that can be attributed to the 3rd and 4th centuries in association with largely identifiable bases.[4] Third, northern *Britannia* did not face the same pressures as the other European frontiers in terms of barbarian invasion or settlement. This allows for a consideration of changes in the army distinct from issues that are often over-emphasised when dealing with Late Roman frontiers and armies, such as barbarisation or the declining standard of soldiers. The *limitanei* of the *dux Britanniarum* will be approached, loosely, following current understanding of the roles and responsibilities of a *dux* in the Late Roman army, as this allows for a basic framework of organising a vast body of data. This has the benefit of highlighting both the strengths and weaknesses in our data.

The *dux Britanniarum*

The *dux Britanniarum* is named in the *Notitia Dignitatum Occidentis* in both the list of dignities under the command of the *magister peditum praesentalis* and with a separate chapter that indicates the offices under his command.[5] The command carried with it the rank of *vir spectabilis*, and in addition to his command staff, the *Notitia* attributes 38 units to his command.[6] The *Notitia* is a complex document that is not fully understood, and the extent to which the list of units under individual commands can be accepted as accurate relative to the date of compilation for the Western half, *c.* 425-430, is disputed.[7] However, the fact that the office of the *dux Britanniarum* existed is not a matter of dispute; the main difficulty is understanding what date the list of units can be attributed to, as the Western half of the *Notitia* was composed after Britain had been lost to the Roman Empire and it is assumed to have been redundant or inaccurate. That said, comparison of the *dux*'s command with other sources, such as itineraries from the *Ravenna Cosmography*, inscribed 'souvenir' vessels like the Rudge Cup, and inscriptions from individual sites allows for a prospective reconstruction of the *dux*'s command in a geographic fashion via place-

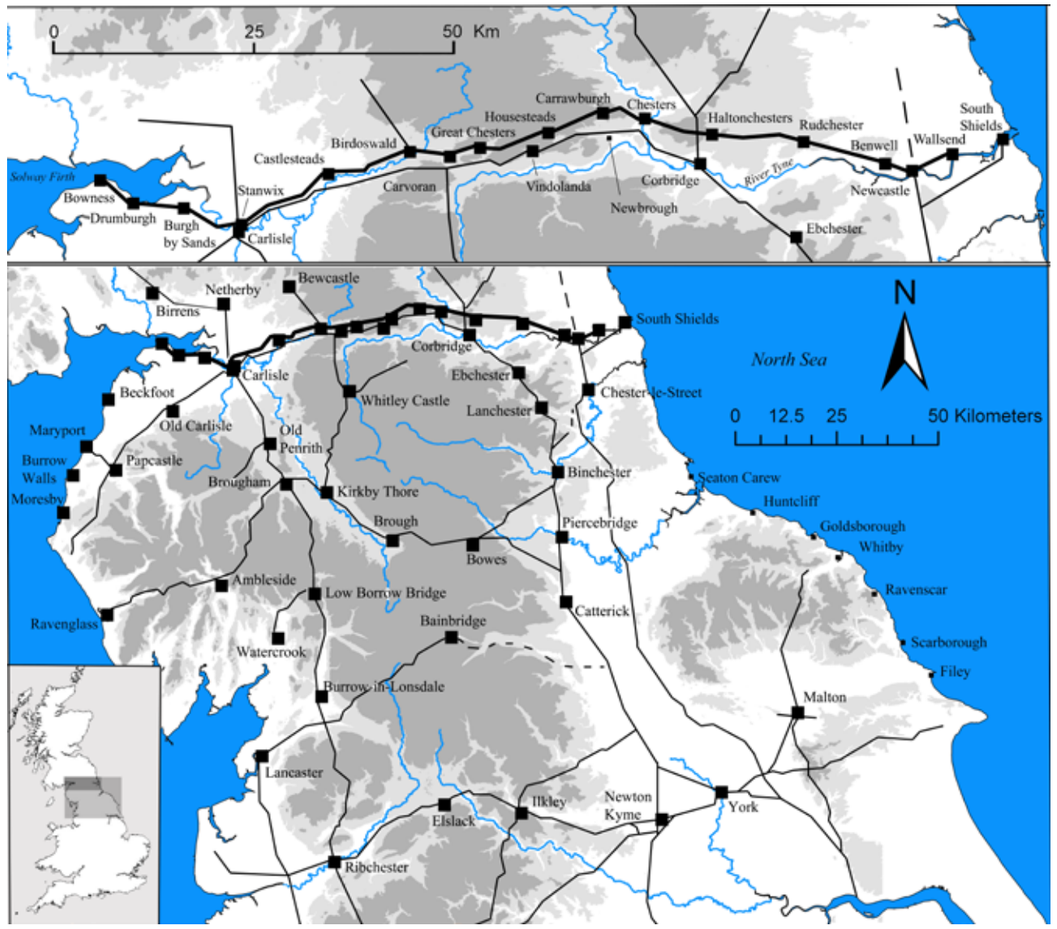

Fig. 1 - Map of the northern frontier of *Britannia*, with the upper panel detailing the sites along Hadrian's Wall. (Source: R. Collins)

names.[8] Comparison of the *Notitia* to the archaeological record shows 38 sites with units based at them, while there are approximately 50 military sites with archaeological evidence for late 4th-early 5th century occupation. Some locations from the *dux*'s list are unconfirmed, but the majority can be confidently located. It is important in this regard to reiterate that the date of the Western half of the *Notitia* or its source material are disputed, and that archaeological evidence for occupation of a site need not necessarily contradict the *Notitia*. Some entries under the command of the *dux* may have been omitted or the source information may simply be inaccurate; some units may have been split across two or more sites, in terms of occupation, though only one site would act as its headquarters (*pace Notitia*); and archaeological evidence may not provide the tight dating resolution that can be found in some documentary sources. Regardless of the exact reason for the basic mismatch in unit and site numbers, the broad agreement between the archaeology and the *Notitia* provides a confident basis for this paper in proceeding to better understand the *limitanei*.

[2]Breeze 2011.

[3]Breeze 2006; 2014; Hodgson 2009; 2017; Collins, Symonds 2019; Bidwell, Hodgson 2009.

[4]Hodgson 1991.

[5]*NDOc*. V and XL.

[6]Hassall 1976 notes *lacunae* in the surviving manuscripts that account, for example, the conflation of a unit attested at Castlesteads (Camboglanna) with adjacent Birdoswald (Banna).

[7]Kulikoswki 2000.

[8]Breeze, Dobson 2000, 291–299.

The duties of a *dux*

There is no single surviving source, such as a military manual, that entirely spells out the responsibilities and duties of a *dux* of the *limitanei*, but these can be surmised through entries preserved in the *Codex Theodosianus*. Recent scholarship has emphasised that the individual entries of this document need to be contextualised to provide a more nuanced understanding of any given law or proclamation,[9] but the repetition of some of these roles in multiple entries of different date and geographical contexts underscores the broad application of such expectations for all the *duces* of the Late Roman army. These duties were:

- the maintenance of fortifications;[10]
- troop recruitment;[11]
- management of land and the collection and distribution of provisions;[12]
- fulfillment of judicial duties.[13]

The *dux* would be expected to execute such duties with autonomy, in keeping with his rank and the formal separation of military and civilian powers. But the *dux* must have maintained communications with civilian offices of governors and their tax collectors, particularly in reference to supplies and provisions. Commanding officers of each unit, probably also executed similar duties at a more localised scale, and coordinated with the *dux* as necessary. In this regard, a consideration of the responsibilities of the *dux* and commanders in his command alongside the data from *Britannia* provides an approach by which the better understand the *limitanei*. Each of these duties will be considered in turn.

The maintenance of fortifications

The forts of northern *Britannia* generally retain the traditional playing-card shape of their 1st-and 2nd-century foundations, without having undergone the modifications seen in similar installations along the Rhine and Danube frontiers. That is to say, there is no shrinkage of the defensive circuit of installations, nor is there an upgrade in the defensive architecture of the gates and towers. There are also very few *de novo* installations, with a prime exception found along the eastern coast of Yorkshire, where there is a linear series of burgi comparable to those built along the Rhine and Danube *c.* 370, and possibly along the western coasts of Cumbria and Lancashire.[14] Defensive circuits of installations, however, are maintained, as demonstrated by excavations at numerous forts, and the traditional interior organisations of forts with specialist buildings are also maintained into the later 4th century. The use of these buildings, however, becomes more mixed in the final decades of the 4th century, with a range of activities found in *principia* including smithing and the demolition and/or conversion of granaries for other functions. Details of the structural histories of buildings are detailed in excavation reports, with more discursive synthesis and referencing found elsewhere.[15]

The forts of *Britannia*, from the perspective of a soldier serving in the Rhine or Danube frontiers of the later 4th century, would appear to be old fashioned or archaic in terms of its architecture and layout. However, while the relict appearance of these installations cannot be denied, it is significant that they were sustained, and evidence further supports that the physical curtain of Hadrian's Wall was maintained until at least the late 4th/early 5th century along with its garrison.

Troop recruitment

At present, there is very little evidence that directly indicates the geographic origins of soldiers serving in northern *Britannia* due to the generally low numbers of mortuary remains dating to the 4th century and after from the frontier, and the cessation of inscribed funerary monuments from the later-3rd century. Local recruitment is often assumed,[16] in which the sons of serving soldiers enlist in their father's unit. 'Local' is a relative term, but comparison with other parts of the empire is instructive. Legionary recruits in 3rd-century Egypt and Spain were predominantly (75%+) from Egypt and Spain, respectively,[17] while static units of *limitanei* and *comitatenses* in the Eastern Empire in the 6th-century were recruited locally to the region in which the unit was posted.[18] This suggests that most recruits to the northern frontier of *Britannia* were probably from within the province of *Britannia secunda* or the diocese of *Britannia* itself. Officers may have been posted from further afield, though again there is very little evidence to verify this assumption. Furnished inhumations from a small cemetery outside the fort and town at Catterick indicated that all the men buried with military metalwork appear to have reached adulthood on the European mainland, according to stable isotope analysis.[19] However, it should be noted that the burial ground at Norton is exceptional relative to the small sample of late-4th and 5th century burials from other military sites in the frontier, and it may be that many of the officers in northern Britain were drawn from local elites as they were in North Africa.[20]

Land management and distribution of provisions

The regional and local devolution of logistical aspects to a *dux* and subordinate commanders forces consideration of the importance of the military estate. However, at present there is no way of knowing how much land, or where, the *dux Britanniarum* had direct access to in terms of a military estate. It is known that each fort had a *territorium* attached to it, acting as an estate from which to draw materials,[21] but the extent of these land-holdings have yet to be traced on the ground. In addition to the landed estate under the management of the *dux Britanniarum* and local commanders, the *limitanei* were supported by the *annona militaris*.[22] Data from forts and other military installations in the frontier can be used to identify the goods and items consumed, and their possible origins. While this approach does not recreate the full logistical understanding of army supply, it does at least provide a generalised picture for the entire frontier region.

By the 4th century, the predominant sources of ceramics for the entire northern frontier of *Britannia* were the Yorkshire potteries; fine wares were produced at kilns outside of Crambeck in North Yorkshire, while the calcite-gritted coarse ware kilns have yet to be identified.[23] Other fabrics and ceramics are attested in the frontier, but the Crambeck and calcite-gritted products dominate the assemblages. Also striking is the dearth of vessels and fabric that originate outside of Britain by the 4th century; by then ceramic supplies were being almost completely met by Romano-British potteries. The Yorkshire fabrics and their latest forms are found distributed across a range of sites in the greater Yorkshire region, but outside of this core area of their production they occur predominantly on military sites, including the western coast of Cumbria. This distribution suggests that the Yorkshire ceramics were strongly tied to military supply in the 4th and early 5th centuries. There is no evidence to show that manufacture was directly tied to the army, and so the nature of this supply is uncertain; one claim is that private or commercial manufacturers supplied the wares (or perhaps their contents, in the case of the coarse wares) to the requisitions staff of the *dux Britanniarum* under a contract.[24] Significantly, there are no know tile manufacturers for the *limitanei* of the *dux Britanniarum*.

Foodstuffs present a greater challenge, given the issues surrounding preservation. Animal bone regularly survives, and it is noticeable that skulls and foot bones are more often encountered in the late Roman faunal assemblages at forts. This indicates animals arriving on the hoof and being butchered locally, rather than arriving as prepared and preserved cuts of meat. Evi-

[9]Matthews 2000.
[10]*CT* 15.1.13.
[11]*CT* 7.1.5; 7.2; 7.13; 7.22.1–12.
[12]*CT* 7.1.9; 7.4; 7.15.
[13]*CT* 1.21.1; 2.1.2.
[14]Symonds 2015.
[15]Collins 2012; 2017; 2018.
[16]Nicasie 1998, 20.
[17]Bohec 2000, 85–87.
[18]Jones 1964, 669–670.
[19]Eckardt *et al*. 2015.
[20]Collins 2017a; 2012, 109.
[21]Bohec 2000, 219–220.
[22]Jones 1964, 458–460.
[23]Bidwell, Croom 2010; Wilson 1989.
[24]Evans 1988.

dence for this derives also from cattle teeth found at the forts of Carlisle and Birdoswald which share the same congenital trait, indicating that cattle at each fort were drawn from the same population, whether the same herd or from animals with a shared condition found in a breed common to the western sector of Hadrian's Wall.[25] A widespread programme of stable-isotope analysis has yet to be applied to faunal assemblages from Roman forts, but a small project at the fort of South Shields has produced interesting results. Stable isotope analysis of cattle teeth from six individuals taken from 3rd-century deposits here demonstrated two or three potential geographical sources for the cattle: two individuals appear to have been sourced locally, i.e. from lands stretching north and/or south from the lowest reaches of the River Tyne, while four individuals matched a geochemical signature present in south-west Scotland (Dumfries-Galloway) and northern Cumbria.[26] While the sample-size of the project is limited, the results are tantalising and reinforce a hypothesis proposed by Stallibrass,[27] in which lands in southern Scotland and northern England served as a predominantly pastoral zone during the Roman era that produced a surplus of meats, dairy, hides and related products in contrast to the arable surplus of lowland parts of Britain (including Yorkshire). Perhaps it is in this capacity, as a processing centre or even a *fabrica*, that we should understand the evidence emerging from the fort of Binchester in County Durham, which has generated very large quantities of cattle bone.[28]

Cereals, even when there is evidence in the form of macrofossils, are not as easily sourced. Archaeological remains have been recovered from granaries at a number of fort sites, such as South Shields, Newcastle, Vindolanda and Birdoswald;[29] as such, the samples come from a storage context rather than food preparation areas and contribute more to our understanding of the use of granaries than of diet, but these do permit some tentative patterns to be drawn.[30] Firstly, it is significant that it is the cereal grains that are preserved, which means that grinding of grain into flour must have been occurring at each fort rather than milled centrally and distributed. Secondly, in addition to wheat, barley and oats are also present, and these latter grains are found in higher numbers in the 4th-century deposits. Thirdly, while it is not possible to directly identify the source of these grains, there is no reason to view them as imported: the upland ecology of much of the frontier zone favours local production of barley and oats, and the eastern lowlands of the region supported arable agriculture where such crops have been found and which were presumably grown at local rural settlements. This is not to argue that cereals were not imported to Hadrian's Wall; indeed, the re-organisation of South Shields as a supply depot with at least 17 granaries from the later 2nd to later 3rd century provides clear testament to the bulk importation of foods and goods. However, we should not presume that all foodstuffs were imported from long distances.

Evidence for arable agriculture local to forts can be found at Housesteads, situated on the Whin Sill in the central sector of Hadrian's Wall. Following the abandonment of the extra-mural settlement or *vicus* outside the southern, eastern and western walls of the fort, the land was redeveloped to include agricultural terraces (Fig. 2). Excavation has revealed that the *vicus* was abandoned *c*. 270, and ceramics found in the terrace banking confirm the terracing can be dated to the Roman period, with a *terminus post-quem* of *c*. 160.[31] This provides some of the least ambiguous evidence for localised arable production related to a fort in the 4th century; field boundaries and agricultural plots simply do not survive at other locations. Agricultural implements, such as sickles, forks or hoes, will sometimes survive, though these are more commonly found in strata dated to the 2nd and 3rd centuries.[32]

Local production was not limited to agricultural activities. There is abundant evidence for metalworking at military sites. For example, in the later 4th century,

[25]Evans *et al.* 2009, 907; Izard 1997, 366.
[26]Waterworth 2014.
[27]Stallibrass 2008.
[28]Petts 2015; Ferris 2010.
[29]van der Veen 1994; Huntley, Daniell 2002; Huntley 2013; and Huntley 1997.
[30]Huntley, Stallibrass 2010.
[31]Crow 2009, 255, 256; Welfare 2009.
[32]see Allason-Jones, Miket 1984 for examples.

Fig. 2 - The fort of Housesteads, as seen from the south. Note the numerous agricultural terraces that were built up over the demolition and ruins of the second- and third-century extramural settlement. (Source: R. Collins)

Room 12 of the *principia* at Housesteads furnished 800 iron arrowheads along with other iron objects and an anvil, suggestive of a smith's workshop,[33] while a room in the back range of the *praetorium* at Binchester was converted into a smithy.[34] A furnace thought to relate to metalworking inserted into the re-purposed *praetorium* bath-suite at South Shields yielded an archaeomagnetic date of post-AD 403,[35] and nearly 40 kg of smithing slag were recovered from a sequence of industrial hearths built in a converted area of the legionary *principia* at York, along with residues of bronze and lead-working.[36] Clay moulds for the casting of late Roman spurs and a sandstone mould for ingots came from late fourth-century deposits at the fort of Bainbridge, which also yielded evidence for an iron-working forge.[37] A lead mould of an amphora-shaped strap-end, presumably used to create clay moulds for casting, has been found at Stanwix, and a miscast and unfinished copper-alloy strap end from South Shields (Fig. 3) signifies on-site production.[38] This metal-working evidence provides strong evidence that the *limitanei* were engaged in production and repair of material necessary for their profession and that they were not reliant on supply of goods from the large arms-factories located on the European mainland. Furthermore, such production of spurs and belt components indicates that, while production was local, the *limitanei* of northern *Britannia* were still participating in the display of military metalwork that was fashionable across the entire empire.

Judicial powers

There is no explicit evidence for the judicial roles fulfilled by the *dux Britanniarum* or the commanding officers of individual garrisons in the frontier. However, the Abinnaeus archive of the mid-4th-century provides a tantalising parallel for the roles and relationships that

[33]Crow 2004, 96.
[34]Ferris 2010.
[35]Hodgson 1994, 44.
[36]Carver 1995, 188.
[37]Bidwell 2012.
[38]Collingwood 1931, no. 75; Allason-Jones, Miket 1984, no. 3.610.

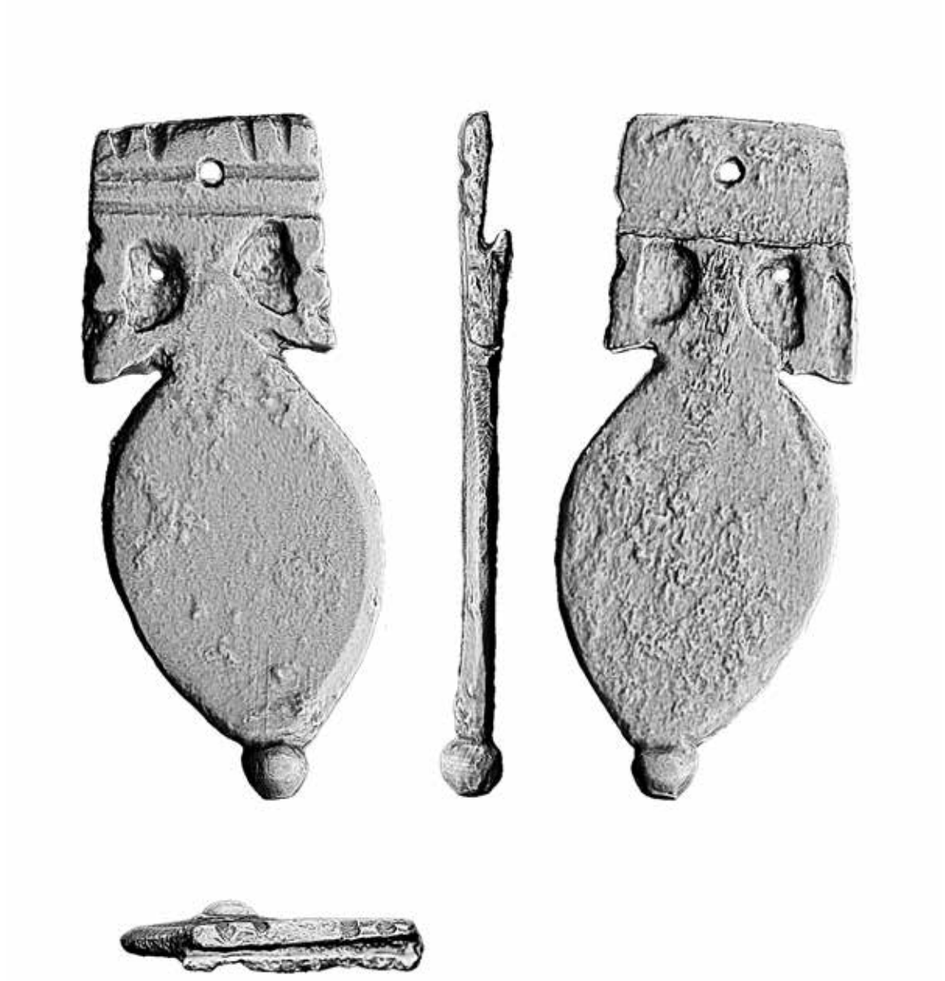

Fig. 3 - A 3D scan of a locally-made, miscast amphora-shaped strap-end from South Shields. Note the uncleared metal between the 'handles' and the 'neck' of the amphora, and the missing back plate of the split end that would help fix the strap-end to a leather strap. (Source: NU Digital Heritage, Newcastle University)

a frontier commander would be involved with.[39] Given the extent and distribution of military units and their commanders throughout northern *Britannia*, and the office of the *dux Britanniarum*, relative to the far more limited number of *civitates*, army officers may have been more common judges and patrons than civilian elites in the frontier, though this remains speculative.

Discussion

The brief survey above provides an summary of evidence for the *limitanei* of the *dux Britannarium*, relative to the duties expected of a *dux*. The evidence from northern *Britannia* presents a regionally coherent picture, supportive of the notion of a unified frontier command. The cost of maintaining multiple armies

[39]For Abinnaeus, see Bell *et al*. 1962.

across the entire empire has been estimated as at least 75% of the total annual tax income,[40] and the economic organisation required to meet such costs must have been more visible in the frontier provinces. The relatively extensive and even distribution of forts and other installations across northern *Britannia* and the denser distribution along Hadrian's Wall meant that soldiers were a relatively common presence in the province. Lands adjacent to each fort, as well as land some distance away, were probably directly or indirectly producing resources going to the local fort, whether that consisted of crops, livestock, other foodstuffs, or craft and building materials. What is unknown is the extent to which essential supplies and provisions could be acquired locally, and how much had to be imported into the region by the staff of the *dux*.

Regardless of such unknowns, it is certain that the *limitanei* would have required considerable amounts of resource to be sustained to remain effective professional soldiers. This in turn suggests that a considerable amount of the land will have been directly or indirectly managed to support the frontier garrison. Furthermore, the *limitanei* were not a transient population, but a broad network of military communities that had been embedded in the landscape, for centuries in the case of *Britannia secunda*. This includes the soldiers themselves; it seems likely on the basis of evidence from elsewhere in the Roman Empire that the majority of the *limitanei* were drawn from within the frontier zone itself, or more widely from the provinces of *Britannia*. The *limitanei* must therefore be understood as a major, perhaps even the primary factor in the shaping of frontier landscapes.

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[40]Erdkamp 2002, 7; Elton 1997, 118–125.

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Zusammenfassung

Die *limitanei* des nördlichen Britannien sind sowohl schriftlich in der *Notitia Dignitatum* als auch archäologisch durch Ausgrabungen an einigen Fundstätten mit militärischem Kontext belegt, nicht zuletzt am Hadrianswall. Die *Notitia* bestätigt in Verbindung mit Inschriften des 2. und 3. Jahrhunderts die langjährige Besatzung einiger Kastelle durch die gleichen Einheiten. Gleichzeitig werden in anderen Kastellen neue Einheiten unter dem Kommando *des dux Britanniarum* aufgeführt. Die archäologischen Untersuchungen wiesen ursprünglich auf eine altmodische Organisation des Walls und der zugehörigen Grenzregion hin, in der an den veralteten hadrianischen Kastellen festgehalten wurde, statt der Reorganisation der römischen Armee durch die Tetrachie und Konstantin zu folgen. Damit stehen sie aber im Kontrast zu den Kastellen anderer Grenzregionen. Neuere archäologische Forschungen ermöglichen nun, anhand von Änderungen in der Gebäudestruktur von militärischen Bauten wie Barrakken und *horrea* die Veränderungen in der spätantiken römischen Armee nachzuvollziehen. Die entsprechenden Gebäude sind leider nur schwer in den «neuen» militärischen Anlagen des 4. Jahrhunderts zu identifizieren. Aber ergänzt man die archäologischen Daten durch Ergebnisse aus der Archäozoologie, Paläoökologie und übergreifenden landschaftsarchäologischen Untersuchungen, zeichnet sich ein auffallend stabiles Bild der *limitanei*. Im vorliegenden Artikel werden die umfassenden Belege für die *limitanei* von Nordbritannien zusammengefasst und damit eine vergleichende Materialbasis für *limitanei* anderer Grenzregionen geschaffen.

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Who lies there? Late antique inhumation graves at *Augusta Raurica*.

ABSTRACT

In the 3rd century AD, the Roman colony of *Augusta Raurica* was suddenly part of the Rhine *limes* again. In the background of the various struggles in the Roman Empire from the 3rd century onwards, the population of *Augusta Raurica* was reduced and moved from the old city centre on the hill to the newly founded *Castrum Rauracense* at the Rhine bank. With few archaeological traces of the settlement during Late Antiquity, the graveyards of *Augusta Raurica* and the *Castrum Rauracense* hold information about the history of the local people. Was the settlement continually in use? Did new political structures, cultures and presumed migration, especially from Germanic peoples, during Late Antiquity lead to a break with Roman traditions, the original settlement and rupture with the local population? The dating and mapping of cemeteries from the 1st to 8th century AD and their burial customs reveals insights about the continuous occupancy of the site, with evidence indicating the incorporation of new people and cultural influences.

Key Words: Late antiquity, early medieval, grave, burial, inhumation, continuity, discontinuity, *castrum*

Introduction

Traditional models argued that the Upper Germanic *limes* collapsed in the late 3rd century AD, and the Roman settlements were overrun by Germanic barbarians who slaughtered every Roman that crossed their path. Although this approach has been criticized and disputed, archaeological research has, in fact, indicated a certain abandonment and decline of large Roman settlements, thus proving a declining residential population. Such is the case in the former Roman colony of *Augusta Raurica*, situated directly on the banks of the Rhine, close to the present-day city of Basel in northwestern Switzerland.

Founded at the end of the 1st century BC, as typical with sites in the region, the colony of *Augusta Raurica* declined from the 3rd century onwards when it suddenly found itself – again – at the border of the Roman Empire and part of the Upper Germanic *limes*. The development led to the construction of the *Castrum Rauracense* around AD 300 on the plain adjacent to the south bank of the Rhine (in the lower town or *suburbium*). The population seems to have left the old centre of

the colony and settled in and around the *castrum*. This late antique settlement, however, is largely unknown[1]. *Augusta Raurica* slowly lost its importance during the early medieval period, as Basel emerged and grew to become the new regional centre[2].

The burial landscape of *Augusta Raurica* holds graves from 1st to 8th century AD, and this provides an unrealised source for further information about the town in Late Antiquity. The present paper will discuss the late antique and early medieval cemeteries surrounding the *castrum*, examining the fluctuation of the population and the possible continuity of the site as a settlement area until the 8th century AD.

But who was actually buried in the cemeteries? Romans, who followed their traditional customs and conventions? Barbarians, who had taken over existing structures? Is it even possible or reasonable to differentiate between ethnicities through archaeological finds, notably grave goods? This article will give a short overview of the different cemeteries in the area of the former colony of *Augusta Raurica*, their chronology, indications of the buried populations' cultural background and their potential for further research on the subject of continuity or discontinuity at the *limes*.

The cemeteries of *Augusta Raurica*

The background of my research on the topic of discontinuity or continuity as seen from the perspective of the late antique and early medieval graves surrounding the *Castrum Rauracense* is my ongoing PhD project at the University of Basel[3]. The research utilises excavation archives of the 19th and early 20th century[4] that unearthed significant material but remain unpublished or are only incompletely reported on in preliminary reports.

Ultimately, the research will result in full publication of the data from these old excavations of the late antique and early medieval cemeteries at the *Castrum Rauracense*, but the current emphasis of the research is the development of the burial custom and the potential distinction between Roman, Alaman and Frankish individuals.

I will approach the question of continuity and discontinuity by outlining the burial landscape of *Augusta Raurica*. To be able to refer to the different cemeteries, smaller groups of graves, necropolises and different excavations, they have been summarised in the four large cemeteries, suitably called the Northwestern, Northeastern, Southeastern and Southwestern cemetery (Fig. 1). A first hint of the development of the settlement can be gained by dating the burials and mapping them in *Augusta Raurica*.

The first graves were cremation burials in the early 1st century AD (Fig. 2, triangles). The custom was practiced continuously until the second half of the 2nd century AD. During this time, the two main areas of activity were the Northwestern[5] and the Southeastern[6] cemeteries. They document the important routes to *Vindonissa* / Windisch and Basel from the growing colony and during its bloom in the 2nd century.

Again, as is a typical problem in the larger region, the third century is largely unknown in terms of burial practice. From around AD200, we only know of about

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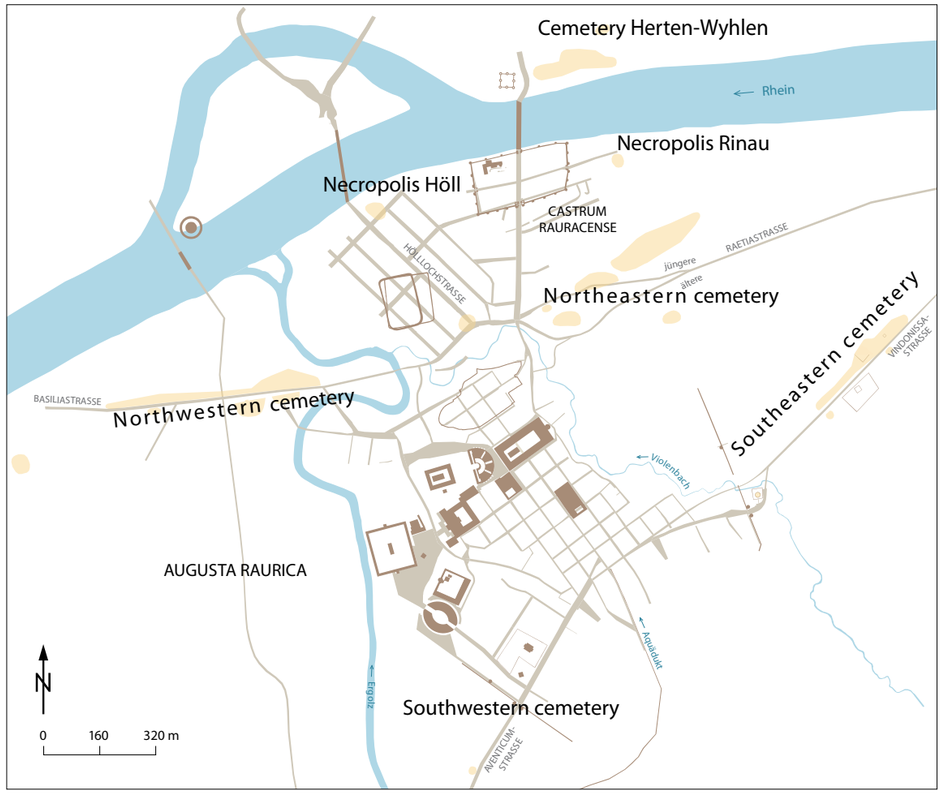

Fig. 1 - The colony of *Augusta Raurica* with its cemeteries: Northwestern, Southeastern and Southwestern cemetery, the Northeastern cemetery with the necropolises Höll and Rinau surrounding the *Castrum Rauracense* and the cemetery of Herten-Whylen in today Germany. Map 1:16000, Römerstadt Augusta Raurica, edited S. Mayer.

30 cremation graves[7] (Fig. 2, star).

Inhumation emerges as the dominant burials form from the late 3rd to first half of the 4th century (Fig. 2, squares). The burials are either simple earth graves or different forms of tile cists, primarily in the Southeastern[8], the Northwestern[9] cemetery, and in the Stalden[10] necropolis (part of the Northeastern cemetery). Only one grave is known in the Southwestern cemetery. Found in 1879, it remains unclear if it is a single burial

[1]For more information about the recent research results about the late antique settlement see Anna Flückiger's article in this volume about the results of her PhD "The *Castrum Rauracense* and its "*suburbium*" from the late 4th to the 6th century AD" at the University of Basel. See also Flückiger 2021.

[2]The history of *Augusta Raurica* is excellently summarised in Berger *et al.* 2012.

[3]S. Mayer "Untersuchungen zu den spätantiken und frühmittelalterlichen Gräberfeldern von Kaiseraugst AG" (working title). PhD project with Prof. Dr. P.-A. Schwarz, Vindonissa Professur, Departement Altertumswissenschaften, University of Basel.

[4]I will not describe those excavations further here, information on the topic can be found in a separate article about the old excavations in *Augusta Rauricas* cemeteries in this volume.

[5]Latest excavations and research summary in Fankhauser 2022a / 2022b.

[6]The Southeastern cemetery is subject of two completed but as yet unpublished PhD projects at the University of Basel: S. Ammann, C. Alder, S. Deschler-Erb, Ö. Akeret, mit Beiträgen von S. Fünfschilling, M. Peter, Ph. Rentzel, A. Schlumbaum, R. Känel "Das Südostgräberfeld „Im Sager". Eine gallo-römische Nekropole in Augusta Raurica - eine archäologische und naturwissenschaftliche Auswertung (Grabungen 1991-1992)" (working title); C. Alder "Anthropologische Untersuchungen zu den Bestattungen aus der römischen Nekropole Kaiseraugst-Im Sager" (working title). – The latest excavations are published as a report in Grezet, Grolimund 2017.

[7]Mayer 2013.

[8]Preliminary report naming the inhumation burials: Lassau 1995.

[9]An overview over the different excavations and discovered graves in Pfäffli 2004, esp. 114–115 tab. 1. See also Fankhauser 2022a / 2022b.

[10]Partly published as a preliminary report by Laur-Belart 1947.

or if we are lacking other graves in the area due to either earlier destruction by man or nature; burials may have been buried even deeper under sand and clay after later floods from the surrounding rivers[11].

From the 4th century onwards, several smaller and larger necropolises begin to surface around the *Castrum Rauracense* in the Northeastern cemetery[12] (Fig. 2, circles). Corresponding to the shift in the settlement with the assumption that the population deserted the old colony centre in order to live in or near the *castrum*, we see the abandonment of the "traditional" cemeteries in the Southeast and Northwest. A new cemetery is also founded on the northern bank of the Rhine, directly across the *castrum* at Herten-Whylen[13] – at this time outside of the Roman Empire. After the beginning of the 6th century, the only cemeteries still in use were parts of the Northeastern cemetery and the cemetery at Herten-Whylen on the Germanic side of the river. Does that mean that there is a discontinuity with new people living in the *castrum*, who abandon the old cemeteries and found new ones? Let us take a closer look at the burial customs.

The burial customs in Late Antiquity

We must understand the Northwestern and Southeastern cemeteries as the traditional burial grounds, as they were founded in the early days of the settlement of *Augusta Raurica*. It seems that burial practice either continued unbroken or was resumed in the Southeastern and Northwestern cemeteries until the middle of the 4th century. Since we are lacking the burials from the mid-3rd century and different signs of crisis during the 3rd century are discussed[14], it is highly possible that we have a shift in the population of *Augusta Raurica* with intensive migration.

But the people burying their dead in those traditional cemeteries at least remembered the graveyards AND wished to continue the rites there – either because they were descendants of people buried there or because they associated themselves with the buried society from the colony. Tile cists are clearly a burial custom that originated from earlier Roman rites mainly for cremation burials, as they are occasionally recorded in the 1st and 2nd century AD[15].

As mentioned above, the inhumation burials of the late 3rd and early 4th century in the Northwestern and Southeastern cemeteries consist of earth graves, tile cists and a single lead sarcophagus from the late 3rd century AD that was discovered in 2016 in the Northwestern cemetery[16]. These customs were continued in the newly founded early necropolis of Stalden with tile cists. Single parts of lead sarcophagi are known from the Northeastern cemetery and date to the first half of the 4th century[17]. Stone cists seem to appear slightly later than tile cists but preserve the general idea of a cist to contain and protect the mortal remains of the deceased. The lone inhumation burial from the Southwestern cemetery lay in a stone cist and held rather rich grave goods: a bracelet of gold foil beads, an iron ring with an engraved carnelian gem, a silver pyxis and three glass bottles. The grave goods date the burial to the late 3rd or first half of the 4th century[18]. Thus, the two traditional cemeteries are complemented by two new foundations: the Southwestern cemetery and the Northeastern cemetery with the Stalden necropolis, adopting the same custom of tile cists and possibly lead sarcophagi as in the two cemeteries founded in colonial times.

The abandonment of the two old cemeteries in the second half of the 4th century might be explained simply by the shift of the settlement to the *Castrum Rauracense*. The Northeastern cemetery, especially the large necropolises south of the *castrum*, became the main graveyard due to its vicinity to the *castrum*. This only indicates discontinuity in the burial community if we leave aside the continuation of the burial customs.

[11]Rychener 2010, 120–122.
[12]Most important literature: Brunner 2014; Martin 1991; Müller 1989.
[13]Garscha 1970.
[14]Last Schatzmann 2013.
[15]In the Southeastern cemetery (Tomasevic-Buck 1982); different forms of tile cists for different kinds of burials see for example Hintermann 2000, 35.
[16]Hodel 2017, 28–47. For the lead sarcophagus see Baumann 2021.
[17]Rütti 1994.
[18]Schwarz 1997.

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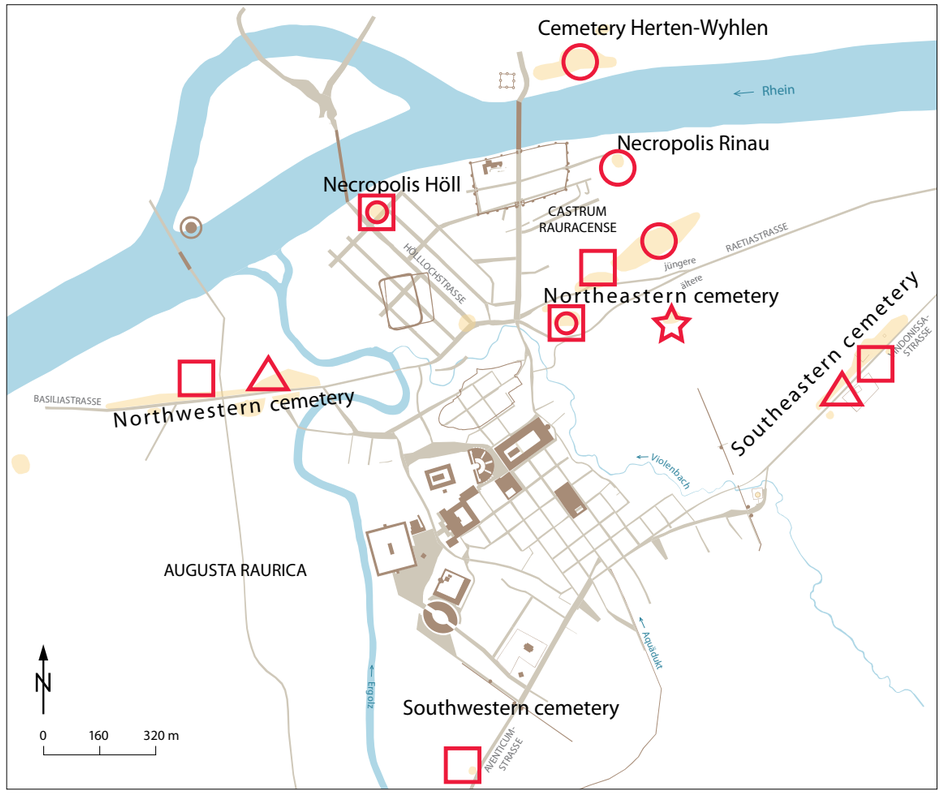

Fig. 2 - The cemeteries of Augusta Raurica. The symbols represent the dating of the different burials: triangle = 1st/2nd c.; star = 3rd c.; square = 1st half 4th c.; circle = 2nd half 4th c. onwards; circle in square = unclear, 1st or 2nd half 4th c. Map 1:16000, Römerstadt Augusta Raurica, edited S. Mayer.

The Northeastern cemetery was already in use when the Northwestern and Southeastern cemeteries were abandoned. Its burial rites seem to continue directly from the tile cists to stone cists into the 5th century.

The problem of dating any finds or structures to the 5th century[19] is partly the reason why it is commonly seen as a time of breaking with old customs and traditions. The grave goods date to the 4th century and then again to 6th to 8th century. But this does not mean that no graves were dug in the 5th century. Firstly, it was à la mode to bury people without grave goods, and secondly, the dating material from earlier centuries, such as pottery, is no longer the predominant accessory and

[19]See also Anna Flückiger's paper in this volume, where she presents methods for dating the 5th century in future research.

thus new forms develop more slowly. Also, archaeological research of the 5th century material is still in its beginnings.

So, we just do not "see" the 5th century graves because we cannot date them. It has been argued that one reason for the decline in grave goods is the rise of Christianity. Although this still requires further research, it remains a fact that there are many burials with no grave goods. For the Northeastern cemetery, Max Martin already proposed to regard burials without grave goods as the missing 5th century burials and that one might be able to trace them by distribution mapping in a cemetery and possibly by the development of grave structures[20]. The occupation of the Northeastern cemetery continues in the 6th century. If there were no graves in the 5th century, why should a community keep the connection to the (former) population and its customs? The question remains: who lies there?

In addition, there are two smaller cemeteries in front of the eastern and western gates of the *castrum*. The western one, the necropolis of Höll/Ziegelhofweg, has been researched and published by Stefanie Brunner: the archaeological and anthropological analyses showed that an unusually large part of the dead were men between 20 and 45 with very few grave goods, but among those crossbow brooches that might indicate a possible connection to the military and other objects indicating a connection to the *Barbaricum*[21]. It seems possible that Höll was a special necropolis for Germanic soldiers (and their families?) in Roman service maybe living in the *castrum* – although new excavations in 2018 unearthed more data and indicate a different composition of the buried population as well as earlier graves from the 1st half of the 4th century[22]. A similar necropolis however has been found in front of the eastern gate of the *castrum*. The small group of skeletons without grave goods unfortunately have not been scrutinised more closely[23].

The necropolis on the right (north) bank of the Rhine of Herten-Whylen (in modern Germany) is traditionally seen as the graveyard of the Alamans that was completely separated from the Roman settlement[24]. A newer article on the brooches from Herten by Andreas Grosskopf proposes that most of the brooches are Germanic types of Roman inspired military brooches[25]. The necropolis' closeness to the *Castrum Rauracense* and a structure on the right bank of the Rhine that is a possible fortlet or - more likely - a bridgehead, in addition to the brooches related to the military, indicate that the buried could originally have been auxiliary troops or *foederati*. So rather than evil barbarians storming the border we might see allies that were willingly settled at the site by an official authority.

Conclusion

Arguably, there are no clear signs of discontinuity during the late antique period. Even while situated at the *limes* and during heavy political, cultural and religious changes, there are always burials that follow certain traditions and remain close to the settlement. This certainly indicates that the 5th century burials remain undetected due to the inability of researchers to confidently identify remains of that period.

Apart from the military presence, there are no signs of fighting (mass graves, heavy injuries on bones etc.) in Late Antiquity - though there is a pressing need for new anthropological data and further re-examination of the scarce skeletal material from the old excavations.

If there was discontinuity in the settlement and thus possibly a change in population, then it most likely took place in the early 4th century with the abandonment of the colony and its cemeteries and the founding of the *castrum* and its surrounding necropolises[26]. Even so, there were always people living at the site. Instead of a forced completely new culture, the customs indicate a more peaceful scenario: immigrants brought new cultural influences, which seem to have turned into a peaceful creation of a new culture (romano-germanic?).

Further research results can only be reached by us trying to examine and publish all the burials from the old excavations in order to provide the data for new research projects, where, for example, sites in larger regions are compared. Modern GIS and databases facilitate international research and the same database might be used for different analyses, such as mapping of certain grave types, chronological markers or special grave goods.

New knowledge and research possibilities also include possible isotope analyses. I propose that this might be helpful to test burials with foreign grave goods to further identify "foreigners" relative to foreign grave goods, further comparing data with "local's" graves with grave goods typical of the region. Either the isotope markers will be similar, in which case both test subjects grew up locally, or they will differ thus indicating first generation immigrants. Such methods could result in interesting new details to further our understanding of Late Antiquity and its societies.

[20]Martin 1991, 238–254; 311–312.

[21]Brunner 2014.

[22]Baerlocher 2019; Baerlocher 2022.

[23]Müller 1989.

[24]I will not discuss the possible division of late antique and early medieval population in different ethnicities, as this is still a vast discussion in archaeological research. An important article on the subject for the region of *Augusta Raurica* is Fehr 2013.

[25]Grosskopf 2002.

[26]Any correspondences between this possible breach in the local traditions and the political transformations in Rome during the same time span remain to be analysed further.

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Zusammenfassung

Im späteren 3. Jahrhundert n.Chr. findet sich die römische Koloniestadt *Augusta Raurica* plötzlich wieder direkt am Rhein Limes. In der krisenreichen Folgezeit reduziert sich die Bevölkerung der Stadt und zieht schliesslich vom alten Stadtzentrum auf dem Hügel ins neu gegründete *Castrum Rauracense* in der Rheinebene. Siedlungsspuren sind in der Spätantike archäologisch kaum nachgewiesen. Deswegen können die Gräberfelder mit einer Belegung vom 1. bis ins 8. Jahrhundert vielleicht mehr Aufschluss über die Geschichte des Ortes geben. Durch die Datierung und Kartierung der Gräber und einen Blick auf die Bestattungssitten, kann zu der Frage nach Unterbrüchen in der Besiedlung und im Brauchtum beigetragen werden. Auf dieser Basis zeichnet sich eher das Bild einer Kontinuität vor Ort ab, die Gemeinschaft scheint neue kulturelle Einflüsse aufgenommen und mit alten Traditionen verbunden zu haben.

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Coins, Chronology, Continuity, and the *Castrum Rauracense*: New research on the *Castrum* and its '*suburbium*' during Late Antiquity

ABSTRACT

When assessing settlement continuity along the Late Roman Northwestern frontier, several factors challenge archaeologists: Transformations within the finds assemblage, changes in coin circulation, differing construction methods, and the formation of "Dark Earth".

The project "*The Castrum Rauracense and its 'suburbium' between the late fourth and the sixth century AD*"* aimed to refine the settlement history for the period and site in question, whilst addressing the above-mentioned problems. A recent excavation outside the Castrum, where an imperial-period quarry had been abandoned, filled up and superimposed with several Late Roman settlement layers, provides a starting point for:

- methodological studies on the distribution of coins and their value for Dark Earth research,

- narrowing the gap in chronology, especially concerning the fifth century AD,

- and a case study on the local settlement activities after ca. 300 AD.

The paper summarizes the results and shows how they help substantiate the shift from a narrative of decline toward a more nuanced interpretation of life along the Late Roman Limes.

Key Words: Augusta Raurica, Castrum Rauracense, Chronology, Continuity, Late Antiquity, Early Middle Ages, Methodology, Dark Earth, Coins, GIS

*The project has received funding by the Doctoral Program of Ancient Civilisations of the University of Basel and the Swiss National Science Foundation (project no. 148851; http://p3.snf.ch/project-148851). The project has resulted in my PhD thesis, "Kaiseraugst zwischen Spätantike und Frühmittelalter. Eine siedlungsarchäologische Studie"/"Kaiseraugst between Late Antiquity and the Early Middle Ages" (Flückiger 2018), which is currently being prepared for publication. For advice during the writing of this paper (and/or for critical proofreading/editing) I would like to thank Andrew Lawrence and Rob Collins.

Introduction

When confronting the question of settlement continuity in the Northwestern Roman provinces in the 4th and 5th centuries AD, archaeologists face a number of challenges that affect our knowledge of chronology. The use of wood and other organic materials for building structures[1] may be one, though not the only factor leading to the occurrence of Dark Earth layers. Dark Earth appears in various forms but is usually defined as "all kinds of thick, dark, humus-rich, non-peaty, poorly stratified homogeneous units observed in (pre-) urban contexts"[2]. Another problem is the lack of new coins. North of the Alps base metal coin minting ceased by ca AD 400, after high inflation through the 4th century. This means that it is unlikely to find a coin minted in the 5th century to identify contemporary remains[3]. An added factor obscuring chronology lies in the settlement finds themselves – especially the pottery. The changes in pottery fashion seem to have slowed down in the 4th and 5th centuries, and the same forms seem to have been in use for longer periods than in earlier centuries[4]. All these factors make it harder to understand chronology and settlement continuity in the late 4th and 5th century AD.

For the Late Roman settlement structures in Augusta Raurica in modern-day Switzerland, the project "*The Castrum Rauracense and its 'suburbium' between the late fourth and the sixth century AD*" faces these problems with a few different methodological approaches. South and west of the late Roman frontier fortification, the *Castrum Rauracense,* built around AD 300[5], recent excavations have revealed late antique settlement structures – dubbed the fortress's "*suburbium*"[6]. In the course of the project, one excavation south of the reconstructed ditch of the *castrum* (Fig. 1), the excavation "Implenia"[7], was analysed in detail in the course of the project. Here, the ancient quarry *"Im Rebgarten"* had filled up by about AD 300. The quarry itself had provided building material for the upper city of Augusta Raurica in the 1st and 2nd centuries[8]. Dark layers of earth covering the quarry backfill mainly date from the 4th to the first half of the 5th century. In between these deposits, some of which have turned into Dark Earth, many settlement features were preserved. Amongst many other finds, the excavation yielded about 800 coins. The dense, Late Antique settlement stratigraphy, the numerous finds, and the excellent documentation provided an ideal starting point for the following considerations: first, the distribution of coins within Dark Earth and complicated stratigraphies; and second, establishing a 5th-century settlement chronology. This allows for an overview of the occupation history and some further interpretations of the site, which enables a reflection of the question: Does the evidence match the «traditional narrative of the collapse and/or abandonment»[9] in Late Antiquity – or not?

Coins and Dark Earth

The large coin assemblage supported a methodological approach to deciphering Dark Earth strata by mapping the distribution of coins via GIS. The three-dimensional documentation of the coin findspots enabled testing how 3D-analysis might provide insight into the deposition processes of visually indiscernible layers. Building upon work from a site with stratified deposits[10], a model was constructed for use with the Implenia excavations (Fig. 3).[11]. Younger coins are, (unsurprisingly) found in higher deposits. The lowest depth at which these younger coins are found indicates the *terminus post quem* of these lowest deposits that corresponds with the mint-date of the youngest coin. A clear picture like this of course will only reveal itself in cases of distinct stratigraphy. For Dark Earth research, this implies that if the exact positions of all coins and small finds are located during excavation, the coin dates may help reconstructing the sedimentation process. In the case of the 'Implenia' excavation, the single layers were well-preserved and documented precisely, allowing for visualisation of the coins from a single stratigraphic layer to help reconstruct the deposition process. Figs. 4 and. 5 show how a combination of coin visualisation and geoarchaeology has even more potential. Fig. 4 depicts a section of a part of one of the Late Roman layers (layer 14[12]) which contains so-called Dark Earth[13]. With the naked eye, three layers are discernible, one of them indicating a walking horizon where the gravel

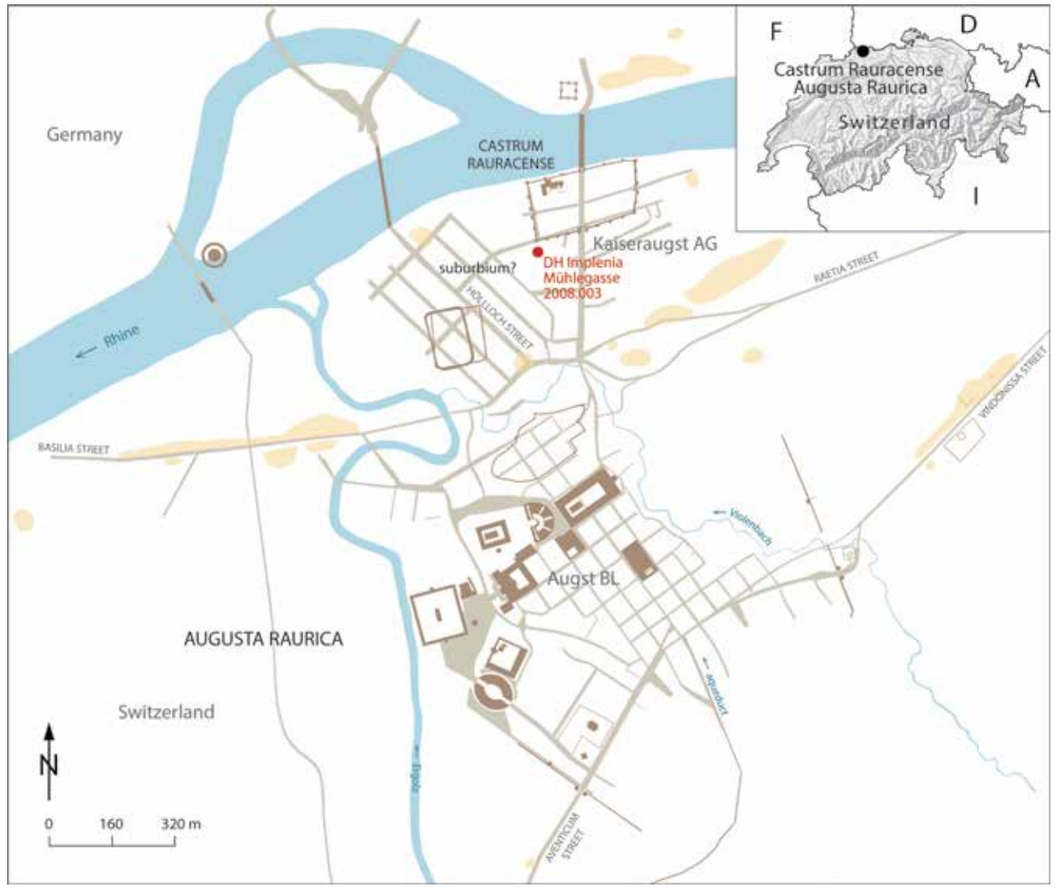

Fig. 1 - Augusta Raurica and the Castrum Rauracense

[1]Esmonde Cleary 2013, 396

[2]Devos, Vrydaghs, Degraeve, Modrie 2011, 52. For a more recent, detailed overview, see Nicosia, Devos, Macphail 2017.

[3]Cleary 2013, 348–352; 397

[4]Cleary 2013, 397; Schwarz 2002, 203

[5]Schwarz 2011, 310; Peter 2000, 155–161

[6]After a similar situation in today's Paris: Schwarz 2011, 317 footnote 73

[7]The excavation *"Kaiseraugst AG, 2008.003 DH Implenia Mühlegasse"*, in short: *"Implenia",* took place before the planned construction of two pairs of semi-detached houses in 2008. See: Müller 2009; Ammann, Fünfschilling, Waddington, Peter 2009; Flückiger 2018.

[8]Müller 1983, 57; L. Berger in: Berger *et al*. 2012, 23

[9]Rob Collins, Call for Papers for the session "Limes in fine?"; LIMES congress 2018.

[10]Allemann 2014, 199; for earlier attempts see also Tomasevic-Buck 1986.

[11]A first test was carried out with the Excavation 1993.001 Damann-Natterer (Flückiger 2019). The visualizations have been produced in cooperation with Urs Rosemann (formerly Urs Brombach, GIS office, Augusta Raurica). For advice and help with the GIS visualizations I am grateful to him. The coins were determined by Markus Peter (excavation Implenia, excavation Damann-Natterer) and Anna Flückiger (excavation Damann-Natterer).

[12]See Flückiger 2018

[13]See Pümpin 2009

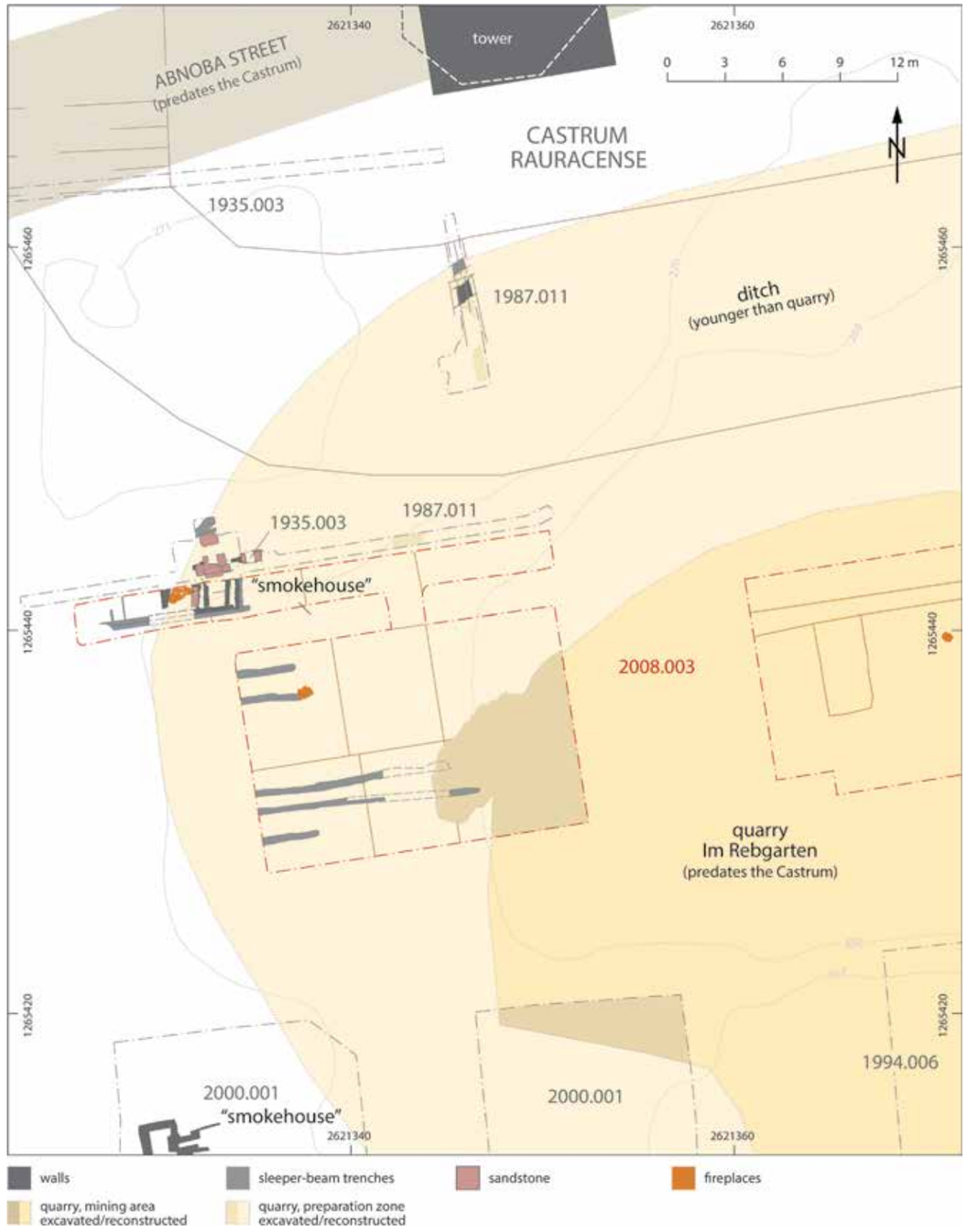

Fig. 2 - Kaiseraugst, ct. Aargau. Location of the excavation 2008.003 DH Implenia Mühlegasse. Only selected features are shown

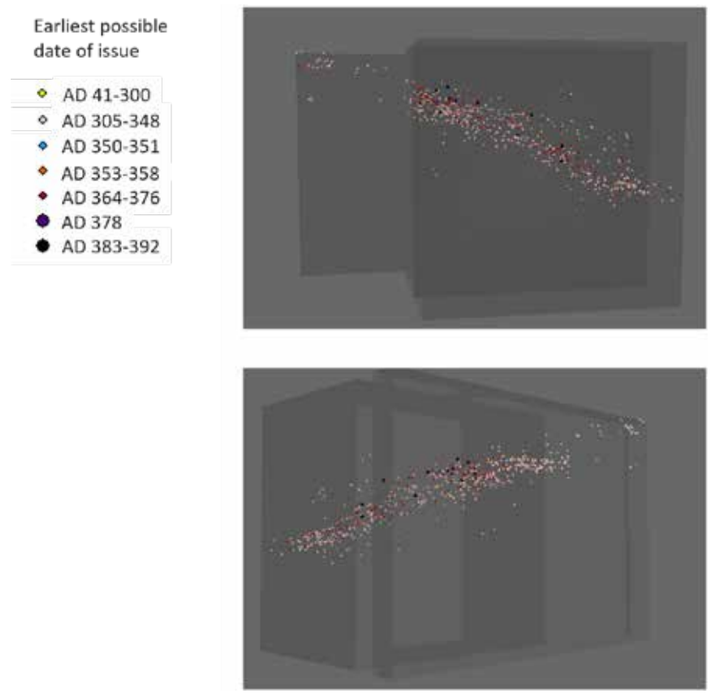

Fig. 3 - Kaiseraugst, ct. Aargau. Excavation 2008.003 DH Implenia Mühlegasse. 3D model of the coins documented in the western excavation pit. (White dots are other small finds and undated coins). Superelevation by five. Top: view from south, bottom: view from northeast. Not to scale (see Fig. 2 for scale)

is denser (Fig. 4). Combining this evidence with the location of 66 coins which are attributed to this layer – or even to the one beneath it – makes a compelling case for a drawn out and complex accumulation of sediment rather than a single levelled layer. The majority of coins date primarily to the 330s and 340s, but some of them date to the 380s, providing the latest date that this layer may have last been walked upon (fig. 5). Towards the end of the century, it was covered with the further layers.

Approaching a 5th century chronology

The Implenia excavation and its stratigraphy also provided an excellent insight into the chronology of the finds assemblage in detail. The numismatic evidence showed that the occupation above the quarry backfill stretches from the 4th century AD to an unknown point at least in the early 5th century. This provided a starting point for exploring the partly unknown chronology of the artefacts (or materiality) in the 5th century. Comparison of the Implenia assemblage with a few find complexes from inside the castrum added further information, where an early medieval kiln provides the *terminus ante quem* for the later Roman stratigraphy[14]. This entailed a reconstruction of the deposition activities, which resulted in a model of the stratigraphic sequence. All the finds which could be securely attributed to any of the late Roman structures were then analysed. The small finds were analysed individually, and pottery was classified using a system, which promised to be useful for chronological studies. The result is a relative succession of various local and imported pottery types that allows for more confident attribution of a few of the forms of differing categories to the later 4th and early 5th century. Although it was not possible to actually close the 5th century gap

[14]The excavation 2007.006 EFH Schmid Meyer (preliminary report: Müller *et al*. 2008); not discussed in this paper. The best results were gained from the detailed stratigraphy of the Implenia excavation.

Fig. 4 - Kaiseraugst, ct. Aargau. Excavation 2008.003 DH Implenia Mühlegasse. Geoarchaeological sample, section of a part of layer 14

in chronology for Augusta Raurica, seeing as this thorough examination of one (and part of a second) excavation already yielded results for the period in question, it is quite safe to assume that more of the same work will help close this gap even further.

Results on 4th – 6th century occupation

The detailed analysis of both the stratigraphy and the finds of the Implenia excavation has unlocked the potential to determine the actual settlement history. After the quarry "Im Rebgarten" (see above) was out of use, the whole area was levelled up with a dense layer of silt where, soon after, rows of small postholes indicate fences for animal husbandry in the early 4th century. During the first and second half of the 4th century, the area was used and built upon extensively. A swift succession of several mostly wooden buildings and several features such as pits or gravelled areas indicate settlement activities. The *castrum* shows traces of destruction and abandonment associated with the time of Magnentius around AD 350, after which there might have been a short hiatus. The coin spectrum of the Implenia area does suggest this too, but certain buildings seem to at least stand beyond this date.

The finds analyses and geoarchaeological indicators point to intense and multiple uses of the area during the 4th century, such as crafts, probably metalworking or recycling, and animal husbandry. A few luxury items and import goods suggest a partially high standard of living and education whereas the geoarchaeological record rather points us in the direction of not-so-high standards (with waste lying around) in the immediate vicinity[15].

The buildings themselves were badly preserved, excepting a building of stone construction. The latter was most probably built just before the middle of the 4th century AD and left open or demolished in the late 4th century. Because of the fireplace and the channel system it could be interpreted as a smokehouse which may have been used to preserve meat. The fact that just a little over 20 meters to the south of this excavation, another such feature had been excavated in 2001, suggests that maybe this whole area of the castrum's *suburbium* was used as a place for food processing among other things, though we cannot determine whether this was for the army, for civilians, or both (see Fig. 2). Given the vicinity to the *castrum* and the late Roman military equipment of its occupants, a military use of the area is indeed probable. The finds assemblage contains military equipment as well as female adornments, especially hair pins, and there is – albeit minor – evidence for the presence of children. The military finds do point to the presence of soldiers, certainly in the second half of the 4th century and maybe the early 5th century, although it is not safe to say when and how long they were present. And where did the soldiers live? Recent research has led us to think that the soldiers were not housed within the castrum, as most of its space was used for public and administrative buildings, but outside, in the western or southern *suburbium*[16]. The "Implenia" area itself doesn't show any features that could coincide with structured military housing, but the western *suburbium*, the actual lower city of Augusta Raurica, cannot be ruled out for this yet and does, in fact, feature a certain concentration of military equipment – and the types correspond with those found in Implenia excavation. Certain object types make it seem possible that a very specific unit was deployed here: Specifically, a *type Leuna C/D* spur and the earflap of a helmet which probably belongs to the type Deurne/Berkasovo. Both these types also appear in *Submuntorium*, Burghöfe in modern-day Bavaria. Because of a mention in the *Notitia Dignitatum*, these finds were recently attributed to the *equites stablesiani iuniores* who were stationed there in Late Antiquity[17]. For Augusta Raurica or the *Castrum Rauracense*, no such mention is known, but both these find types – fragments of type Leuna spurs and crest helmets – do reappear in the lower city of Augusta Raurica[18]. In the second half of the 4th and maybe even the early 5th century, a garrison of *equites*[19] may therefore have been stationed here as well. For the first half of the 4th century we are fairly certain that the *Legio I Martia* was stationed here and produced tiles in the nearby area Liebrüti[20]. In the later 4th century the *equites* may have belonged to the *Legio VIII Augusta* which was stationed in modern-day Strasbourg[21], but we cannot be certain of this.

Combining the evidence from the already published graveyards[22], previous research on the Castrum[23] and the new evidence from the 'Implenia' area, we can now at least assume that there were soldiers present for some of the time during the second half of the 4th and into the 5th century.

[15]The geoarchaeological samples from Kaiseraugst, excavation 2008.003 DH Implenia Mühlegasse, were analysed by Christine Pümpin (IPAS Basel). For all geoarchaeology on the excavation 'Implenia' in this paper, I am citing her report (Pümpin 2009) and referring to various discussions for which I sincerely thank her.

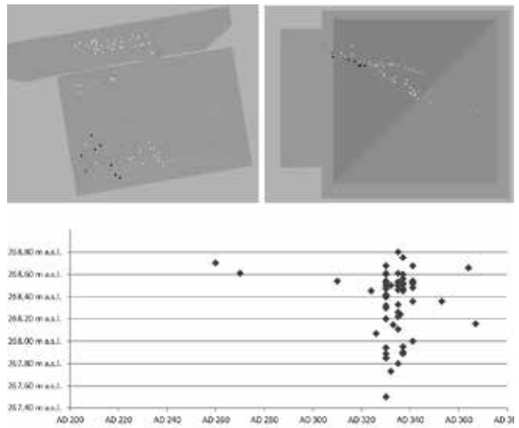

Fig. 5 - Kaiseraugst, ct. Aargau. Excavation 2008.003 DH Implenia Mühlegasse. Top: 3D model of the coins documented in the western excavation pit in and possibly below layer 14 (Coins from layer 14, red: AD 364/375; yellow: AD 367/378; white: older coins. Coins from possibly below or within layer 14: turquoise: AD 383 and younger; black: older coins. Superelevation by five. Top left: view from ca above, top right: view from ca south/southeast. Not to scale (see Fig. 2 for scale). Bottom: Coins from layer 14, x = earliest possible date of issue, y = recorded height. Two Coins from layer 14 are missing in all three figures because their height is not recorded.

[16]Berger 2012, 292; Schwarz 2011, 318
[17]Mackensen 2017
[18]Berger 2005, 54–56; Schwarz 2011, 318
[19]Flückiger 2018, 258–261; 319–320; Schwarz 2011, 316–318; Berger 2005, 48
[20]Allemann 2014
[21]Schwarz 2011, 316–317
[22]Brunner 2014 (hypothesizing that the buried population at the small graveyard 'Kaiseraugst-Höll' may have consisted predominantly of late Roman soldiers); Martin 1976; Martin 1991; Simone Mayer is currently working on a reassessment of the late Roman and early medieval burials in Kaiseraugst (see her paper in this volume). For the burials opposite the castrum in Herten see Grosskopf 2002.
[23]See Marti 2000

The Implenia area was inhabited or used at least a few decades into the first half of the 5th century on the basis of stratigraphic accumulations post-dating the latest 4th-century evidence, after which the evidence peters out. Still, it is possible to assume that there was intramural continuity with relocation of extramural settlement activities to the inside of the castrum[24]. The strongest argument for continuity lies in the late Roman and early medieval graveyards[25], whereas for settlement archaeology, the gap in chronology is yet to be narrowed. Only from the mid third of the 6th century[26] onward do we again have proof of settlement remains, such as the pottery kiln mentioned above.

Collapse or continuity? Archaeological reality and the narrative trap

The session "Limes in fine?" specifically asks about the «traditional narrative of the collapse and/or abandonment»[27] of certain sites and of the Roman frontiers in general, be it due to invasion or civil war. Archaeology is prone to fall into the trap of matching its evidence with historical narratives, especially when there are written sources[28]. An interesting example to illustrate this trap is 'Dark Earth' (see above): On first glance, Dark Earth seems to be a perfect jigsaw piece to fit the historical narrative of decline[29] – and with this, the even grander narrative of the so-called Dark Ages[30]. Dark Earth has often been explained as the result of a change in living circumstances – and to have originated for example from agricultural practices or abandonment[31]. With time, though, this has come to be understood in an even more nuanced way. In Viking-period emporia for instance, Dark Earth may even be treated as a sign of increased urban activity[32] – so, not as a sign for decline at all. As shown above, the geoarchaeological analysis of parts of the Implenia excavation rendered a detailed account on various activities such as walking horizons or production and consumption activities; despite Dark Earth being involved. And this is just one example for Dark Earth, to demonstrate how it can originate under numerous and diverse circumstances[33]. The above-mentioned problems concerning chronology, coin circulation and ceramics could have furthered the "Dark Age" narrative surrounding Late Roman archaeology in Gaul (but also Britain, for example[34]), perhaps even acerbating its connection to decline and collapse. The combined approach treating features, finds, numismatics, and geoarchaeology, as detailed above, challenges this narrative. Furthermore, it contributes to understanding local and super-regional tendencies and developments concerning 5th-century activities in the Northwestern Roman frontier regions.

Of course, all this does not mean that decline or collapse is impossible, be it at the small or a grand scale. But still, archaeological phenomena on the late Roman Limes do not a priori equal the narratives surrounding the so-called Dark Ages. This should not come as a surprise, as the 'Dark Ages' are in fact a much younger creation. The term, '*aetas obscura*', started emerging only in the 14th century and manifested itself as a designation for an era in the 17th century. The 'Dark Ages', together with the 'Middle Ages', should be viewed as a socio-politically motivated construction of the Enlightenment

[24]See Marti 2000, 266–271; Schwarz 2011; Siegmund 2009; see Flückiger 2018, 101–102 and especially Berger 2012, 332–333 for a collection of evidence inside the *castrum* walls which points to an early medieval settlement core inside the fortification.

[25]See note 20 above.

[26]Siegmund 2009.

[27]Rob Collins, Call for Papers, Session „Limes in fine", (see introductory note in this volume).

[28]See Fehr, unpublished; Prien 2014; Jung 2017; Karl 2010, 86–97. – As an example, see above in this very paper where attempts are made to match evidence from the Implenia excavation with certain historically attested military units or events.

[29]Galinié 2004.

[30]See Meier 2011, esp. 39–40; Dagenais, Rich Greer 2000; citing amongst others the creation of metaphors on the emptiness, darkness (shadows), and the in-between-ness of the Middle Ages in early modern European historical discourse.

[31]Galinié 2004, 5–6

[32]Galinié 2004, 7. Guy Hallsall (2014, esp. 97–99) also summarizes this thread of discussion.

[33]Nicosia, Devos, Macphail 2017, 332–339

[34]See Halsall 2014 (cf. footnote 31 in this paper)

era[35] – having been "invented to be a foreign country"[36]. Or, as J. Dagenais and M. Rich Greer put it: "It is the peculiar emptiness of The Middle Ages, as Petrarch and others simultaneously invented it and evacuated it of historical agency, which creates the opportunity for Europe's colonial exploitation of The Middle Ages over the next six or seven centuries. Its meaning, its very being can only derive from that gaze which is fixed on it by Modernity"[37].

To conclude, neither late Roman archaeology nor later historiography of this period are protected from unilinear interpretations. Concerning the entanglement between interpretations of the archaeological record and the underlying meanings of the notion of 'Dark Ages', research on Late Antiquity and the Early Middle Ages – time and again – deserves a critical rereading. This paper makes the case for looking at archaeology through eyes as unfiltered by existing narratives as possible, for not shying away from developing new methodological approaches, and for combining as many strands of evidence as are available. Kaiseraugst provides an excellent resource for this, and the combination of the mortuary evidence (see Simone Mayer's paper in this volume) and settlement archaeology as shown in this paper provides a complex story of both continuity and change.

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Zusammenfassung

Auf die Erkennbarkeit von spätantik-frühmittelalterlicher Siedlungskontinuität im archäologischen Befund wirken sich mehrere Faktoren aus: Veränderungen im Fundspektrum, im Münzumlauf, in der Bautechnik – sowie die Entstehung von «Dark Earth». Im Rahmen des Projekts «Das *Castrum Rauracense* und sein '*suburbium*' vom späten 4. bis zum 6. Jahrhundert n. Chr." widmet sich mit verschiedenen methodischen Ansätzen diesen Problemen, deren Ergebnisse hier im Licht der Narrative zum Ende des Römischen Reiches (Niedergang, Kollaps) vorgestellt werden. Konkret geht es um eine Studie zur dreidimensionalen Verteilung von Fundmünzen und den Wert ihrer Analyse für die Dark-Earth-Forschung, um die Verfeinerung der Chronologie besonders des 5. Jahrhunderts sowie eine Betrachtung der lokalen Siedlungsaktivitäten nach ca. 300 n. Chr.

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The Late Roman *limes* in the Low Countries: (dis)continuity in a frontier zone

ABSTRACT

This paper provides a summary of the available archaeological evidence for Late Roman military and defensive activity in the Dutch Lower Rhine area. A general discussion of the type of data we have from excavations and other sources will be followed by a more in-depth discussion of two key sites to show the continuity of military activity in the region from the late 3rd to the early 5th century. Specifically, the lack of evidence for sudden collapses of the frontier or the presence of a defence-in-depth strategy will be illustrated by looking at coin evidence from fortifications as well as building phases and the distribution of crossbow brooches.

Key Words: Late Roman frontiers; military strategy; defence-in-depth; Limesfall.

The main aim of this paper is to provide an overview of the available archaeological evidence for Late Roman military and defensive activity in the Dutch Lower Rhine area. Additionally, the paper discusses the potential of this evidence in answering questions on strategy and logistics. To this end, first the main site complexes will be discussed, addressing inherent biases in the archaeological record and the general research history of the Late Roman period. After that, a comparison will be drawn between the available archaeological evidence and the most prevalent theories about Late Roman military defence, particularly Luttwak's defence-in-depth.[1]

Inherent biases in the archaeological record (and interpretations)

The problems surrounding the study of Late Roman archaeology in the Netherlands are far from unique to this period or region, but as will be made clear below, they do affect the Late Roman period disproportionally. First, there are natural post-depositional processes such as erosion, which, judging by the large number of known stray finds and dredge complexes from the Dutch coastal and river area, have likely destroyed a fair number of sites.[2] This erosion has led to a noted lack of sites along the coast, severely limiting our

[1]Luttwak 1976.
[2]Trimpe Burger 1960/1961, 195.

understanding of the continental Litus Saxonicum. A number of "sightings" of Roman buildings have been recorded in the 17th and 18th century during low tides, with the drawings of the Katwijk-Brittenburg the best-known and only reliable example.[3] Likewise, the stripping of upper layers in the western river area in the medieval period has damaged Late Roman archaeological layers far more than older, stratigraphically deeper levels, as attested on the *castella* at Woerden and Vleuten-De Meern.[4] As the upper strata of a site will be more vulnerable to erosion and interference, we need to keep in mind that a lower level of preservation of Late Roman material in comparison to earlier Roman phases does not necessarily mean that the archaeology of the Late Roman period was any poorer to begin with.

In practical terms, the dataset behind this paper is composed of stray finds, dredge complexes, excavations pre-dating the Treaty of Valetta (1992), trial and partial excavations and some unpublished finds. The inherent variety within this dataset means that we need to be careful in our interpretations of the data.

The danger of generalised arguments can be highlighted in terms of how historical narrative has influenced interpretation of the archaeological evidence, for examples with the model of Limesfall and the perceived collapse of the frontier in the early 5th century. However, it is still a useful exercise to describe the nature of the Dutch Lower Rhine area and judge it in the light of these prevalent theories on the Late Roman army (such as Luttwak's defence-in-depth).[5] It will be argued below that Late Roman military practices showed great continuity with earlier centuries, and that they were much more focused on regulation of movement rather than on defence.

Methodology

To make sense of data of such wide-ranging nature, this paper looks only at find complexes where a combination of different types of evidence have been found. These types of evidence (see also table 1) are building activity (in stone or wood), a key marker of military identity (the crossbow brooch) and a certain amount of closely datable material culture (coins and to a lesser extent pottery). To make allowances for both the poor preservation of many complexes and their varying states of publication, only two out of the three criteria needed to be met in order for a site to be included in this study. In total, 20 sites or site complexes in the Netherlands yielded enough evidence to be considered Late Roman military installations or suggest the presence of the army. Below, a general overview of the available evidence will be given.[6] Two key case studies (the *castella* at Aardenburg and Cuijk-St. Martinuskerk) will be discussed in more detail, as these respectively illustrate some of the methodological considerations and military developments rather well.

The *Limesfall* of AD 260/270 is often touted as the start of the Late Roman Empire and the end of Roman civilisation.[7] As discussed in great detail by Heeren in his paper on late 3rd century material culture[8], the term *Limesfall*, denoting a complete collapse of the border at the hands of invading barbarians, was first coined to describe the historical and archaeological evidence for barbarian (Germanic) attacks on the Upper Germanic and Raetian frontier in AD 260. Since the 1980's, the idea that the same happened to the Dutch part of the Lower Rhine has gained traction among scholars, who date this event to AD 270/275 in order to coincide with historically documented Frankish invasions and a general lack of coins from this area minted after said date.[9] This has led to a general understanding that all fortifications along the Dutch *limes* must have ceased to exists, however temporary, around this date. As Heeren has also already pointed out, however, there is a distinct lack of objective evidence (such as burned deposits) for such a sudden and destructive collapse.[10]

Looking at the list of fortifications with Late Roman material (see table 1), we can safely say that the events of the late 3rd century, however disruptive they might have been to other aspects of Roman society, did not notably influence the activities of the Roman army along the Lower Rhine. The advent of the Limesfall is generally assumed to have triggered a lasting development of weakening borders in the northwest, signalling the end of a linear defence in favour of what Luttwak

Table 1.

Site names	Site type	Means of Late Roman phase identification	Types of evidence
Aardenburg	*castellum*	small-scale excavation (partially published)	ABCE?
Bunnik-Vechten	*castellum*	field survey	CE
Cuijk-St. Martinuskerk	*castellum*; bridge; port	partial excavation (largely unpublished); partially eroded by river	ABCDE
Ewijk-Grote Aalst	unknown	partial excavation	ACDE
Goudsberg-Hulsberg	watchtower	complete excavation (unpublished manuscript)	BE
Heerlen	*castellum*	partial excavation (largely unpublished)	AC
Heumen-Heumensoord	watchtower	complete excavation (unpublished manuscript)	BCD
Katwijk-Brittenburg	*castellum*	none	B
Kessel-Lith	*castellum*; bridge?	dredge complex	BCDE
Leiden-Roomburg	*castellum*	stray finds from complex grounds	A?CD
Maastricht	*castellum*	partial excavation (unpublished)	AB
Maurik	*castellum*	dredge complex	CD
Nijmegen-Valkhof	*castellum*; bridge?	partial excavation (unpublished); partially eroded by river	AB
Rossum-Alem	*castellum*	dredge complex	CD
Utrecht-Traiectum	*castellum*	partial excavation, 5-10% (unpublished)	BE
Vleuten-de Meern	*castellum*; port?	partial excavation; site heavily damaged	BCD
Wijchen-Tienakker	watchtower	partial excavation	ABCD
Wijk bij Duurstede	*castellum*?	dredge complex	CDE?
Woerden	*castellum*?	partial excavation; site heavily damaged	AC
Zwammerdam	*castellum*	stray finds from complex grounds	C

Tab. 1 - Sites discussed in this paper with summarised archaeological evidence.
A: building in stone; B: building in wood/dug features; C: coins; D: brooches; E: pottery.

[3] Dijkstra, Ketelaar 1965.
[4] Willems 1986, 294–5. At Vleuten-De Meern, an estimated 1-1.5 meter of the archaeological layer was lost.
[5] Luttwak 1976.
[6] This paper is based in large part (with some additions) on my MRes thesis written at the Vrije Universiteit Amsterdam in 2017; a detailed site catalogue can be found in Van der Meulen 2017.
[7] E.g. Van Es 1981, 47; Schallmayer 1987, 488.
[8] Heeren 2016.
[9] Heeren 2016, 193.
[10] Heeren 2016, 193.

termed “defence-in-depth”. This system relied on the separation of the army in stationary and mobile troops, the fortification of cities and most importantly the construction of fortifications in the hinterland in order to deal more successfully with barbarian incursions.[11] According to Luttwak, this system of border defence consisted of self-contained strongholds along the frontier backed-up by mobile forces.[12] As a result, defence shifted behind the original perimeter, providing flexibility after the overland frontier collapsed around AD 260. In his vision, fewer garrisons were stationed along the frontiers (*limitanei*), and a peripheral combat zone was established to intercept incursions. The mobile forces (*comitatenses*) were employed there, supported by fortified places in the hinterland, such as defended passageways, supply depots, road forts and fortified towns.[13] Repeated invasions lead to a downward spiral of defence retreating further back until the death of Theodosius in AD 395, when the borders were finally overrun and elastic defence (complete abandonment of the frontier, completely relying on mobile forces) took over.[14]

In archaeological terms, this would have meant a more or less gradual abandonment of fortifications along the border and a simultaneous increase in fortification of the immediate hinterland or frontier zone. In the Dutch Lower Rhine area, the appearance of fortifications along the Meuse in the Late Roman period (in addition to the already fortified Rhine) has been seen by some as an indication for defence-in-depth. The next section of this paper will be devoted to outlining the archaeological evidence for such a development in the Dutch Lower Rhine area.

Much of Luttwak’s ideas rely on our ability to identify continuity and discontinuity in the archaeological record. Given the lack of high-quality excavation data for the Late Roman period in general (see above) and the difficulties in closely dating Late Roman pottery, we have to turn to coins to investigate these issues. To illustrate how studying coin mints and circulation can help us in this, the numismatic data of the *castellum* at Aardenburg will be discussed. The very limited nature of the excavations in the 1970’s make it far from an ideal case study (little is known about the site’s lay-out or phasing, and no Late Roman material was recognised during excavation[15]), but it’s coin series is particularly insightful when it comes to the late 3rd century.

Coins and continuity

The latest analysis of the samian ware and colour-coated pottery from Aardenburg places the end date of the site at 260-285/290 at the latest.[16] The coins, however, seemingly tell a different story. These have been collected from a number of publications[17]. The graph below (Fig. 1) shows all coins from these publications minted after AD 193 with the dates of the coins having been divided into 5-year periods based on their mint dates.[18] It is clear that of the total 157 coins found at Aardenburg minted after AD 193, 96 (almost two thirds) were struck in the years AD 260-270 and that the vast majority of these were barbarous radiates.[19] This pattern of a overrepresentation of late 3rd century radiates can be seen all over the Dutch river area[20] (although it is especially extreme in Aardenburg). This suggests to me a case for continuity of activity rather than discontinuity in this period. After all, the dates used in Fig. 1 are mint dates, rather than deposition dates. It seems out of place that Aardenburg, up until AD 260, only lost 3-5 new mints every 5 years, after which this number jumped up to several dozen in period of only 10-15-years. The

[11]Luttwak 1976.
[12]Luttwak 1976, 130–131.
[13]Luttwak 1976, 132–133; 169–170.
[14]Luttwak 1976, 136, 144.
[15]Van Dierendonck *et al*. 2013, 331; the same authors note that some 4th century Germanic pottery may have been found at Aardenburg, however (De Clerq 2009, 382) and interpret this as reuse of the site by a small Germanic unit.
[16]Van Dierendonck *et al*. 2013, 330.
[17]Boersma 1967 (the excavation data) and the national numismatical database NUMIS (stray finds)..
[18]This method was chosen over the more common 21 numismatical periods favoured by numismatists (e.g. Reece 1995), as its results are easier to interpret for non-specialists and are easier to compare to other types of data (such as samian ware stamps or brooches; cf. Van der Veen in press.).
[19]Chameroy 2013.
[20]Kropff, Van der Vin 2003, 55.

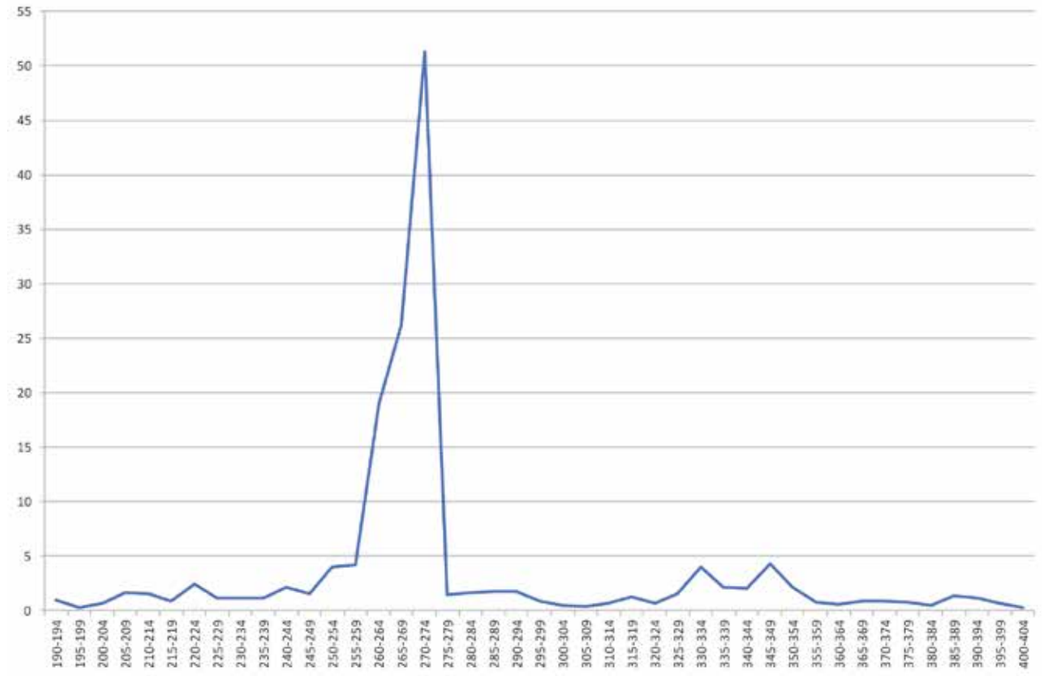

Fig 1 - Average coin loss per 5 years (after AD 193) at the *castellum* at Aardenburg

solution to this curious pattern must lie in the length of circulation of these radiates.

As previously identified in a major review of coins from the entire Dutch river area, most military sites display a complete caesura of coin mints directly following AD 260/270, with new mints only appearing under Constantine I.[21] Coins struck during the years AD 259-273 by both the Central and Gallic Empire, however, dominate such assemblages. This same pattern has also been observed in other north-western provinces including Britain,[22] suggesting that under the Gallic Empire coin circulation in the northwest started to deviate from the rest of the Roman world. Local copies and coins struck by usurpers began to replace official mints in sheer volume, and coins from Gallienus and Claudius II only entered the circulation pool in small numbers and with considerable delay.[23] For the southern Netherlands more specifically, it has also been noted that even before the Gallic Empire, official mints were scarce, as the emissions in AD 235-260 were limited.[24] Afterwards, it took a long time to restart the circulation of official mints in the Netherlands, and those from AD 275-296 do not seem to have been distributed in our area at all. It was not until Constantine I that the official mint was restored completely in the west.[25]

Were we to divide the number of coins from Aardenburg struck between 260 and 270 by the number of years up to Constantine I for which there are no new issues, we arrive at an annual loss that is very similar to the preceding period (i.e. 3-5 coins per 5 year-period). With this broader understanding of the coin data, the perceived gap in activity between the late 3rd and the 4th century is eliminated. I would therefore like to propose

[21]Kropff, Van der Vin 2003, 55–57.
[22]Kropff, Van der Vin 2003, 83–84;.
[23]Kropff, Van der Vin 2003, 83.
[24]Heeren 2015, 274ff.; Heeren 2016, 193–196.
[25]Heeren 2015, 275.

a longer chronology for not only Aardenburg, but the Lower Rhine *limes* in general, with almost complete continuity of sites between the late 3rd and 4th century. Unfortunately, not all sites have yielded enough coins from publications, but this problem is alleviated by a consistent distribution of late 3rd-early 4th-century crossbow brooches (type Keller 1/Pröttel 1 or Heeren and Van der Feijst 68ab) across the area.[26]

The 4th century and the end of the Roman frontier

Taking the above argument further, this means that in the 4th century the situation of the Early and Middle Roman period remains largely unchanged. Famously, *limes* fortifications in the Netherlands were located dangerously close to the riverbank at strategic locations near confluences and bifurcations, but at risk of frequent flooding (see Fig. 2).[27] These fortifications served a double function. Their location meant that they were ideally positioned to control movement by outsiders and civilians, while also turning the Rhine into a fortified transport corridor for the army.[28] None of this appears to have changed with the turn of the 4th century, as many of these sites were still in use. The main development in this transition period seems to be the addition of a number of new forts: Rossum-Alem along the Rhine, Cuijk-St. Martinuskerk along the river Meuse and Heerlen on the road between Cologne and Bavay. The former two fit in neatly with the already existing infrastructure and they are located again near river bifurcations and access roads for optimal control of movement much like in the previous periods. Heerlen seems somewhat of an outlier in this period but its fortification along a major traffic route seems to be in line with centuries of strategy. In his work on the frontier in the Roman East, Isaac realised that the security of roads and other means of communication (such as rivers) were vital for the success of the Roman army, not in the least because of their importance in moving and distributing supplies.[29]

In the first half of the 4th century, the image of the Lower Rhine frontier changes more significantly. First of all, a number of sites in the western river area seem to have been abandoned, notably Valkenburg-castellum and Leiden-Roomburg. The chronological evidence is rather scarce. Leiden-Roomburg has hardly been investigated archaeologically, but as of yet there is no evidence of Late Roman activity. At Valkenburg, a stratigraphic phase of multiple horrea and fortifications were initially post-dated after the AD 260/270 deposits, but this has since been revisited, although there are some finds.[30]

It is likely that the military sites in the western river area were abandoned in this period, as the same pattern can be discerned in the rural settlements in this area.[31] Increased flooding[32] rendered the area uninhabitable to the point where habitation of the area dipped below the point of archaeological visibility.[33] As a possible reaction to the withdrawal of forces from the western Rhine and coast, the Dutch eastern river area (especially the Meuse) shows a concurrent increase in fortification. A cluster of watchtowers also appeared around the city and castellum of Nijmegen (the Valkhof), namely Wijchen-Tienakker, Ewijk-Grote Aalst and Heumensoord. This shows that even in the early 4th century, Nijmegen was still an important military and civil centre. The use of watchtowers may also signal a change in how the landscape was occupied generally, with an increased use of smaller fortifications alongside more traditional garrisons, possibly to accommodate the Late Roman army's smaller unit sizes.

Around the Cologne-Bavay route, a similar increase in military activity was developing, with the erection of a watchtower along this road (Goudsberg-Hulsberg) and

[26]Cf. Heeren and Van der Feijst 2017, Fig. 4.136 for a distribution map of crossbow brooches in the Netherlands, showing a clear bias towards the (eastern) river area.
[27]Van Dinter 2013.
[28]Van Dinter 2013, 26; Polak 2009. A similar explanation has been given for the strategic location of many of the Danube forts; Sommer 2009.
[29]Isaac 1990, 102–103.
[30]Hessing *et al*. 2021, 62, 104.
[31]Dijkstra 2011, 70–71
[32]Bazelmans *et al*. 2012, 66.
[33]Dijkstra 2011, 70.

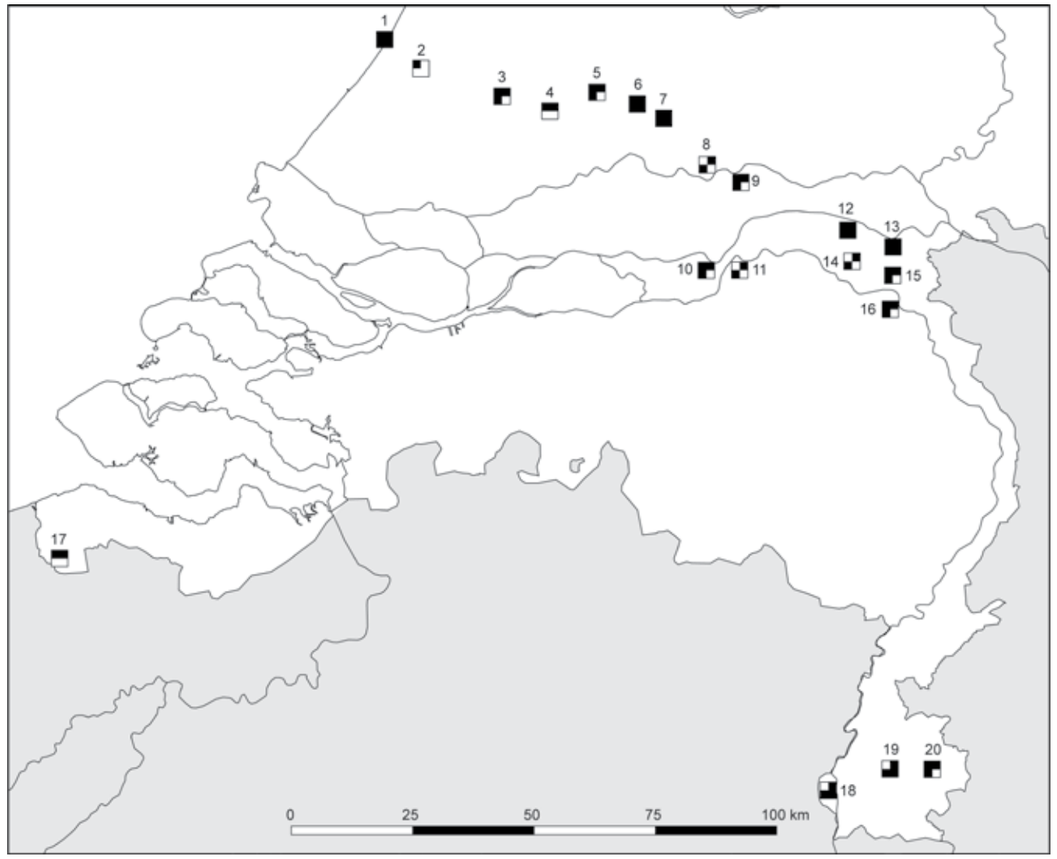

Fig. 2 - Distribution map of all sites discussed with chronological data. 1: Katwijk-Brittenburg; 2: Leiden-Roomburg; 3: Zwammerdam; 4: Woerden; 5: Vleuten-De Meern; 6: Utecht-Traiectum; 7: Bunnik-Vechten; 8: Wijk bij Duurstede; 9: Maurik; 10: Rossum-Alem; 11: Kessel-Lith; 12: Ewijk-Grote Aalst; 13: Nijmegen-Valkhof; 14: Wijchen-Tienakker; 15: Heumen-Heumensoord; 16: Cuijk-St. Martinuskerk; 17: Aardenburg; 18: Maastricht; 19: Hulsberg-Goudsberg; 20: Heerlen

the transition of city to *castellum* in Maastricht. In the case of Maastricht, the decision to fortify the city boundaries in this period is in all likelihood linked to the construction of a bridge across the Meuse. The oldest dendrochronological dates for both sites do correspond to some extent, with the fort's first construction phase dated to AD 320-348[34] and the bridge showing at least three construction phases (AD 334-357, 368-369, 387-398).[35]

In effect, the second half of the 4th century showed no great changes or upheavals to the status quo. All fortifications still in use in this period show a consistent amount of mid-late 4th-century material culture in their find assemblages, including ceramics, coins and brooches. Some, like Utrecht-Traiectum, Vechten and Ewijk-Grote Aalst have even produced a smattering of 5th-century material[36], but this is overall a rare occurrence. Generally, it seems that the Roman army departed the Lower Rhine sometime in the early 5th

[34]Panhuysen 2006.
[35]Panhuysen 2006.
[36]Montfort 1996, 6; Van den Berg *et al*. 2012, 88 and Van der Linden, Besuijen 2012, 146 respectively. From Kessel-Lith, three unpublished fragments of rouletted Argonne samian ware are known dating to IVd-Va (Van der Meulen 2017, 132).

century, and that the majority of military fortifications were abandoned for good. A cursory glance at the distribution of late 4th and early 5th- century markers of military identity (belt sets and supporting arm brooches type *Stützarmfibel mit stabformigem Bügel*[37] or Heeren and Van der Feijst type 78c)[38] shows that while some forts may have enjoyed a period of re-use as a military camp in the mid-5th century (Nijmegen, Wijchen, Rossum and possibly Elst-Grote Aalst), some military activity by assumedly Germanic *foederati*[39] concentrated on "new" sites (such as Rhenen[40]).

Infrastructure and military logistics

An important development in the 4th century, however, is to see that the *castella* are increasingly equipped with more elaborate features. As was already common in earlier periods, many of the river forts are equipped with one or more *horrea*: the *castellum* of Katwijk in the river delta and Cuijk and Maastricht along the Meuse for example. This is a clear indication that fortifications not only functioned as garrisons, but also served a broader logistical role. Further evidence of this is provided by a number of other infrastructural works found in connection to military fortifications. Possible Late Roman bridges are presumed at the fortifications of both Kessel-Lith and Nijmegen-Valkhof[41] and the *castellum* at Maastricht featured a bridge as well as a stone *horreum*. The *castellum* at Cuijk finally, is a prime example of this development, as it features a stone *horreum*, bridge, and an extensive wooden port complex.

The site complex that exemplifies this move towards nucleated logistic military sites is Cuijk-St. Martinuskerk. Limited excavations in the 1940's and 1960's yielded evidence for a Late Roman *castellum* with at least two phases, the first built in wood in the late 3rd century[42] and the latter in stone around the reign of Valentinian I.[43] Several diving campaigns executed between the 1960's and early 2000's recovered the remains of a stone bridge with wooden foundation posts, consisting of six piers.[44] Dendrochronological dating showed three different construction phases of the bridge: AD 347-349, winter or early spring of AD 368/369 and finally AD 388-398.[45] Along the river bank, remains of a wooden revetment and pier were found (probably part of an elaborate open quay structure)[46], providing even more insight in the chronology of the occupation at Cuijk-St. Martinuskerk. The earliest dates from the pier show a possible first construction date between AD 320 and 343 with construction of the quay starting in AD 325/326.[47] Other samples show continuous additions and repairs to the structure until at least as late as AD 373.[48] Combined with the chronology of the bridge and the coin series from the camp itself (which stretches to the end of Roman minting practices with a barbarous imitation aes IV dated AD 388-402), this tells us that the military complex at Cuijk was in active use into the early 5th century. Coincidentally, the last two construction phases of the bridges at Cuijk-St. Martinuskerk and Maastricht are closely contemporary, suggesting that the rest of the eastern river area was similarly well maintained as Cuijk in this very late period of the Empire.

Cuijk-St. Martinuskerk is the easternmost example of a Late Roman quay in the Netherlands. In any case, it is a clear indication that the military in the Late Roman period increasingly tried to secure its supply linesFor such a poorly preserved period as the Late Roman period, it has yielded a surprising amount of evidence

[37]Böhme 1974, 51–52.
[38]Heeren, Van der Feijst 2017, 203.
[39]Roymans 2017; Heeren 2017.
[40]Wagner, Ypey 2012.
[41]Meffert 2014, 76; Van Enckevort, Thijssen 1996, 70. Although solid dating evidence to place either in the Late Roman period is so far lacking.
[42]Thijssen 2011, 174.
[43]Haalebos 2006, 256; although some have argued for a date around AD 358, based on Ammianus Marcellinus's claim that Julian rebuilt three forts along the Meuse in that year (Haalebos 1976).
[44]Goudswaard *et al* 2001.
[45]Goudswaard *et al*. 2001, 483.
[46]Seinen, Van den Besselaar 2014, 333.
[47]Seinen, Van den Besselaar 2014, 339.
[48]Mioulet, Bartens 1994, 47–48.

for semi-military infrastructure: numerous *horrea*, at least two firmly attested bridges (and a possible two more) and one fairly large quay. Bridges and ports are rare finds in any period of the Roman Empire, so to find many dated to the Late Roman period heavily suggests that they at least represent an increased effort by the Roman army to move its storage facilities closer to home and to increase their control over movement across the river.

Concluding remarks

The theme of continuity and discontinuity can be found in several aspects of the Lower Rhine military sites. First of all, there is strong evidence for chronological continuity. There is no evidence for the total abandonment of the Lower Rhine frontier by the Roman army in the late 3rd century. There are also no direct indications for a large-scale increase in army investments in this area as a supposed reaction to "barbarian" attacks. The overall number of sites remained largely the same across the 3rd and 4th centuries, as sites were added and abandoned in equal measure. The emphasis of the fortifications, however, shifts from west to east, although there is no visible change in the overall number of fortifications needed for the Roman army to operate successfully. Furthermore, the abandonment of the fortifications in the western river area was mainly informed by changes in the natural landscape, not geopolitical developments.

More importantly, the configuration of the Late Roman *limes* was not that different from before. Apart from continuity in many already existing places, new sites were planned according to many of the same guiding principles: directly on the river Rhine, preferably near confluences or bifurcations with access to the hinterland by means of roads. This suggests that the Late Roman Rhine forts fulfilled the same roles as before, with the only change that the Meuse was now also increasingly fortified. On the Meuse, we do not see the same emphasis in site location choices on bifurcations and other nodal points in the streams, but rather the occurrence of both installations and bridges together. However, the main guiding principle remained the same: army units were stationed at locations of movement, river crossings and other places of activity that needed to remain under Roman control. For a large part, the function of fortifications was not strictly defensive. The fortifications also served to regulate and police movement and mobility in the river area. The presence of a large-scale port at Cuijk-St. Martinuskerk also suggests that the Meuse in the Late Roman period became a well-fortified transport corridor.

No evidence was found to suggest that the frontier moved partially to a system of mobile forces in the hinterland. Several fortifications were constructed in the hinterland of the *limes* proper (along the Meuse), but not in sufficient quantity or distribution to constitute an extra line of defence. Such a second line would also not have been located to deeply in the landscape, somewhere between 20 and 40 kilometres behind the original *limes*. This paper therefore argues that the fortification of the Meuse is instead symptomatic of a wider development in the Late Roman period towards a more informal, looser and to some extent wider frontier. Instead of the political frontier zone with a linear militarised border, we see the emergence of a broader military zone within the landscape. In other words, far from being a region in decline, the Late Roman Lower Rhine was still an actively engaged area, which was capable of adapting to new challenges. There are no obvious signs that suggest that the Late Roman frontier was more focussed on defence than before. One often referenced aspect of Late Roman fortifications is their supposed move towards more defensive architecture (reduction of number of gates, projecting towers etc.).[49] Apart from questioning whether this was due to practical necessity (some have argued that the threat of barbarians to the West was largely a Roman construct[50]), consistent evidence for such a development is largely absent from the Dutch Lower Rhine area. This will have been partially caused by the overall lack of excavation evidence for the Late Roman period (as discussed above), and the general propensity to build in wood in this area.[51] The overall emphasis on transport routes, both over land and water, and the control

[49]E.g. Southern, Dixon 2009, 129; Collins, Weber 2015, 2; Von Petrikovits 1971, 193–196.
[50]Halsall 2014, – 150.
[51]It is generally understood that the Dutch limes only began to be partially rebuilt in stone from AD 180-220 onward; Polak *et al*. 2005, 66–67.

of movement was exactly the same as had been the case in earlier centuries.[52] It was the importance of the rivers as connective entities, not barriers[53] that drew the Roman army to build there[54] and the fortification of the Meuse in the Late Roman period shows the increased importance of this river for its activities.

Finally, it should be noted that at the very end of the Late Roman frontier, evidence for a sudden collapse or abandonment of troops is largely lacking. There are no archaeological indicators for widespread violence or distruction and the small of amount of 5th-century material find at some 4th-century forts (see above) suggests a fairly gradual withdrawal of troops and activity from the Lower Rhine frontier.

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[52]Cf. Whittaker 1994, 158; Isaac 1990, 102–103.
[53]Isaac 1990, 103; Bloemers 1983.
[54]See Isaac 1990, 102; cf. Richmond 1982, 33, 38; Wells 1972, 24ff; Driessen 2007, 190; Gechter 1979, 113–4; Van Dinter 2013, 25 for a similarly formulated argument.

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Zusammenfassung

Das Hauptziel dieses Beitrags ist es, einen Überblick über die verfügbaren archäologischen Beweise für die spätrömische Militär- und Verteidigungsaktivität im niederländischen Niederrheinraum zu geben. Ausserdem wird das Potenzial dieser Evidenz bei der Beantwortung von Fragen zu Strategie und Logistik erörtert. Zu diesem Zweck werden zunächst die Hauptstandortkomplexe erörtert, wobei inhärente Verzerrungen in der archäologischen Aufzeichnung und die allgemeinen Forschungsgeschichte der spätrömischen Zeit behandelt werden. Anschließend wird ein Vergleich zwischen den verfügbaren archäologischen Beweisen und weit verbreiteten Theorien über der spätrömische Militärverteidigung, insbesondere Luttwak's Tiefenverteidigung, gezogen.[55]

[55]Luttwak 1976.

LIMES XXIIII

Session 18

Transformation of Limes in Late Antiquity

INTRODUCTION

Session organisers / Chairpersons:
Sylvain Janniard
Vujadin Ivanišević, Institute of Archaeology, Belgrade, Serbia

Evolution of the frontiers in concept and architecture. Evolution of the army, reorganisation.

The Later Empire (3th – 7th c. A. D.) saw an increased military pressure on the Roman frontiers. One of the constant concerns of the emperors was to guarantee the best conditions for the protection of the imperial territory and the reaffirmation of the Roman power on the Empire's neighbors. This concern led the Roman power to transform in depth its army and its war techniques. But these concerns also entailed the experiment of new principles of disposition and functioning of the troops quartered in the frontier territories, as well as various forms of installations of foreign populations on imperial lands. Both measure are well attested in the narrative sources and thanks to the archaeological documentation furnished by the various military installations on the Roman frontier zones. But, the exact meaning to be found for these transformations of the imperial policy, as well as their chronology and their precise methods of functioning, are the matter of some important historiographical debates.

Another domain discussed for the Late Antique frontiers, quite particularly for the provinces on the Danube, is the place that the civilian population held in the transformations of the imperial military and foreign policies: the State had to mobilize all the economic and demographic resources at its disposal to insure its survival in the 3th century, then the preservation of its power in the next centuries, but can we speak of a militarization of the civil society on the border lands or can we imagine that the public authorities organized the complete transfer of the tasks of defense to these same civil society?

Finally, for a major part of our modern historiography, the failures of the Late Roman frontier policy would have been responsible for the disappearance of the Roman Empire in the West. If the Late imperial frontiers offer a good point of observation to study the fragmentation of the western provinces, their history, seized on a purely military plan, cannot by itself account for the internal and structural motives responsible for the end of the imperial experience in the West. These are, so exposed, the main themes which the organizers of the session dedicated to the Late Antiquity would like to see considered, with due respect to the regional variations and the necessary articulation between documentations of varied – archaeological, epigraphic or narrative – natures.

Limes XXIIII. Proceedings of the 24th International Congress
of Roman Frontier Studies, Serbia 2018

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The Roman auxiliary Fort at Arelape/Pöchlarn (Lower Austria) and its Development in Late Antiquity

ABSTRACT

From 2002–2012 extensive excavations were conducted at *Arelape*/Pöchlarn (Lower Austria) that unearthed large parts of the southern fortifications and adjacent northern interior structures of an auxiliary fort. The research focussed on the interpretation of the uncovered structures and an analysis of the chronological development of the fort. Initially, the site was fortified with an earth-and-timber rampart in the Flavian period, which was replaced by a stone wall in the early 2nd century AD. The interior revealed the architectural remains of several possible barrack blocks that were divided by one of the fort's main roads. Those barrack blocks in the western part of the fort were later demolished and replaced with functional buildings. In the last quarter of the 2nd century, the buildings were set on stone bases. In the late Roman period, the fortifications were strengthened by the addition of fan-shaped, rectangular and U-shaped towers protruding far beyond the walls. Initially the interior buildings remained largely unchanged. It was only during the second half of the 4th century that modifications occurred, including the demolition of buildings, reuse of road space for new structures and the construction of timber buildings in a former courtyard. These changes can probably be correlated with the civilian population retreating behind the fortifications. The end of the occupation of the late Roman fort at Pöchlarn is still rather unclear. The most recent finds and remains can be dated to the late 5th and early 6th centuries AD, although it is unclear whether the fort was continuously occupied until that time.

Key Words: Noricum – Late Antiquity – auxiliary Fort – Roman army

Pöchlarn/*Arelape* is located c. 90 km west of Vienna and 70 km east of Linz on the southern bank of the Danube which is in the modern state of Lower Austria. In antiquity, this area was part of the province of *Noricum*.

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Until more recently, the Roman history of *Arelape* was largely unknown[1]. In 1927, E. Nowotny discovered two east-west oriented ditches (Fig. 1,a) during channel construction works. When seen in conjunction with another possible ditch to the south, he reconstructed a plan for an earth-and-timber fort. He also suggested that a later stone fort may have been located to the east of the timber fort, although archaeological evidence for this was lacking[2]. It took another 50 years until G. Melzer discovered several more ditches, also during the construction of channels, to the south of the medieval and modern city centre. To the north of the area, he documented a corner of a fort with stone fortifications (Fig. 1,b)[3]. Large-scale excavations prior to construction works were conducted in 2002/03, 2008/09 and 2012, which unearthed the majority of the southern fortifications of a fort and the adjacent interior structures (Fig. 1,c). The analysis of these remains throws light not only on the history and development of the fort at *Arelape*/Pöchlarn in the mid imperial period, but also on the radical changes to its interior during the 4th and 5th century AD[4].

My research resulted in the differentiation of six construction periods, which were partially subdivided into further building phases. The oldest known structures are two east-west oriented V-shaped ditches (period 1) (Fig. 1,d), discovered by sondages. A row of large postholes or pits, c. 1 m in diameter, were found just to the south of the ditches. The ditches and pits can be interpreted as the remains of an earth-and-timber fort running southwards (Fig. 1,e). It is unclear if or to what extent the structures Melzer documented were also part of this camp. Based on the earliest finds (late Padana and South Gaulish sigillata, brooches, military equipment) the construction of the first fort can be dated to the Flavian period, most likely sometime between 70 and 80 AD. This period also saw the construction of other auxiliary forts in *Noricum*[5]. Due to a lack of research covering the interior of the fort it remains unclear which unit may have been stationed at *Arelape* at this time.

The earth-and-timber fort was demolished a short time later, leaving space for the construction of a fort with stone fortifications (period 2) (Fig. 2). The latter was positioned slightly further north right on the bank of the Danube river. The relocation may be explained by the new site having an improved topographical position which was above the flood line and hence elevated above the former location to the south. The fortifications consisted – at least in the excavated areas – of two parallel walls, more or less constructed at the same time, with almost square intermediate towers, trapezoidal corner towers, protruding rectangular gate towers, and two ditches off the walls.

The interior of the fort revealed the remains of four buildings. Those in the south-east can be interpreted as the centurion's quarters of some south-north oriented barrack blocks. However, the function of the buildings to the south-west is more difficult to discern. They were probably also barracks, but aligned west to east this time. Stratified finds suggest that the construction of the stone fort took place in the early 2nd century AD. At the same time, the fortifications of the fort at Tulln were probably rebuilt in stone. However, the very same procedure at Mautern, Zwentendorf and Traismauer happened at a later stage, probably during the first half or third quarter of the 2nd century AD[6].

It is unclear which unit may have been stationed in the fort at Pöchlarn during period 2. The discovery of numerous parts of horse gear and an owner's tag naming a *duplicarius* detected in structures belonging to this and the following construction period – dating to the Flavian-Trajanic period – suggest the presence of cavalry during this phase. As these finds were mainly found

[1]On the research history up until 1986 see Genser 1986, 233–235.

[2]Nowotny 1928.

[3]Melzer 1982; Melzer 1996.

[4]The excavations conducted in 2002/2003, 2008/2009 and 2012 were analysed as part of a Doctorate, supported by the Gerda Henkel Stiftung (Dusseldorf), at the Ludwig-Maximilians-Universität Munich. As my research had not been published at the time when the manuscript for this article was finished I could not include any links to it. See Schmid 2020. – My gratitude goes to M. Weber for providing the English translation of this article.

[5]See the contributions in Gassner, Pülz 2015.

[6]Tulln: Ubl 1985/1986, 296; Ubl 2003. – Mautern: Groh, Sedlmayer 2002, 557 (Period 2 or 3, 110/110–170/180). – Zwentendorf: Groh, Sedlmayer 2010, 123 (Period 2, 120/130–170/180). – Traismauer: Steigberger 2015, 221.

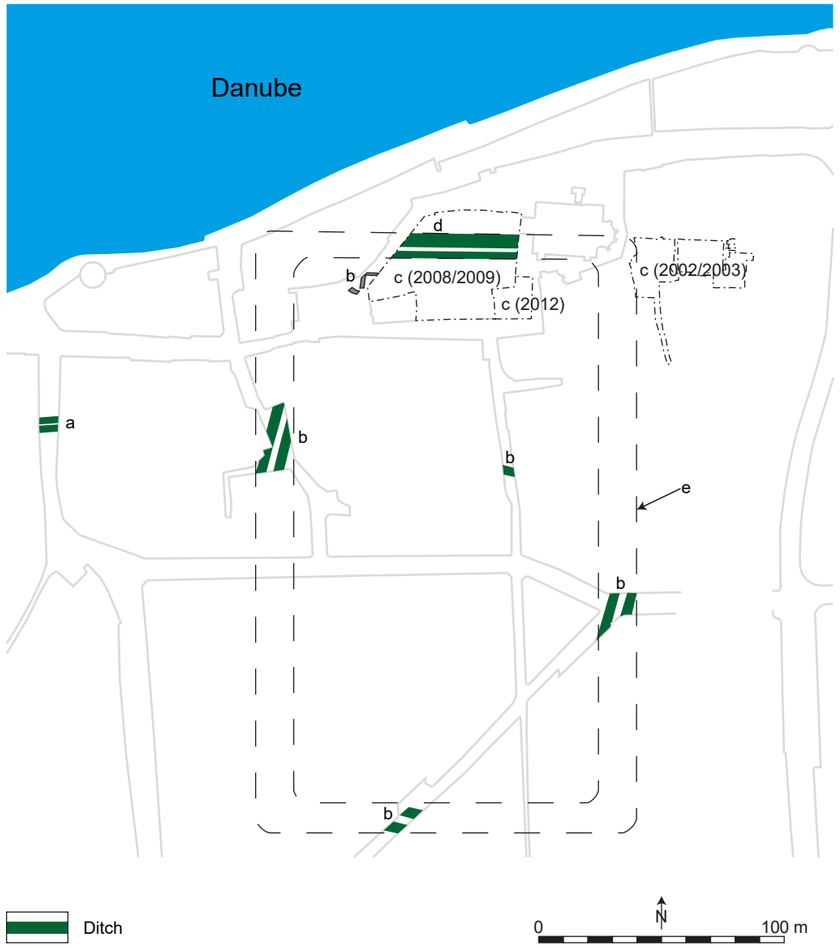

Fig. 1 - Pöchlarn. Research history and reconstruction of period 1: a) Observations by E. Nowotny; b) Observations by G. Melzer; c) Excavations 2002–2012; d) Defensive ditches of the earth-and-timber fort of period 1; e) Reconstruction of the earth-and-timber-fort of period 1. Scale 1 : 2500.

in the south-western part of the fort, it seems obvious that the two possible barracks in this area could have housed riders and their horses, which is supported by a structure that may be interpreted as a urine-pit.

The fort at Pöchlarn covered an area of c. 159 m in length, east-west, which is the equivalent of 540 Roman feet. It is unknown how far it extended to the north due to a lack of research, but also due to erosion by the Danube. In building period 3, a *cohors milliaria peditata* was stationed in the fort (see below). As these units were usually housed in forts covering at least 1.8 ha[7], it seems probable that the fort at Pöchlarn was of similar size. With regard to the orientation of the fort, it seems that the different alignment of the barracks in the south-west and south-east indicate that these areas were not divided by the *via praetoria* or *via decumana*, but the *via principalis*[8]. The area in the south-east may

[7]Cf. Davison 1989, 205; 643–682.

[8]Generally, barrack blocks in forts that are divided by the *viae praetoria* or *decumana* are oriented the same way, either *per scamna* or *per strigas* (cf. Davison 1989, 274 fig. E). Varying alignments of barrack blocks were found in the forts at Echzell (Baatz 2006), Slăveni (Tudor *et al*. 2011, 33; 113 fig. 33) and Eining (Gschwind 2004, 273 fig. 52).

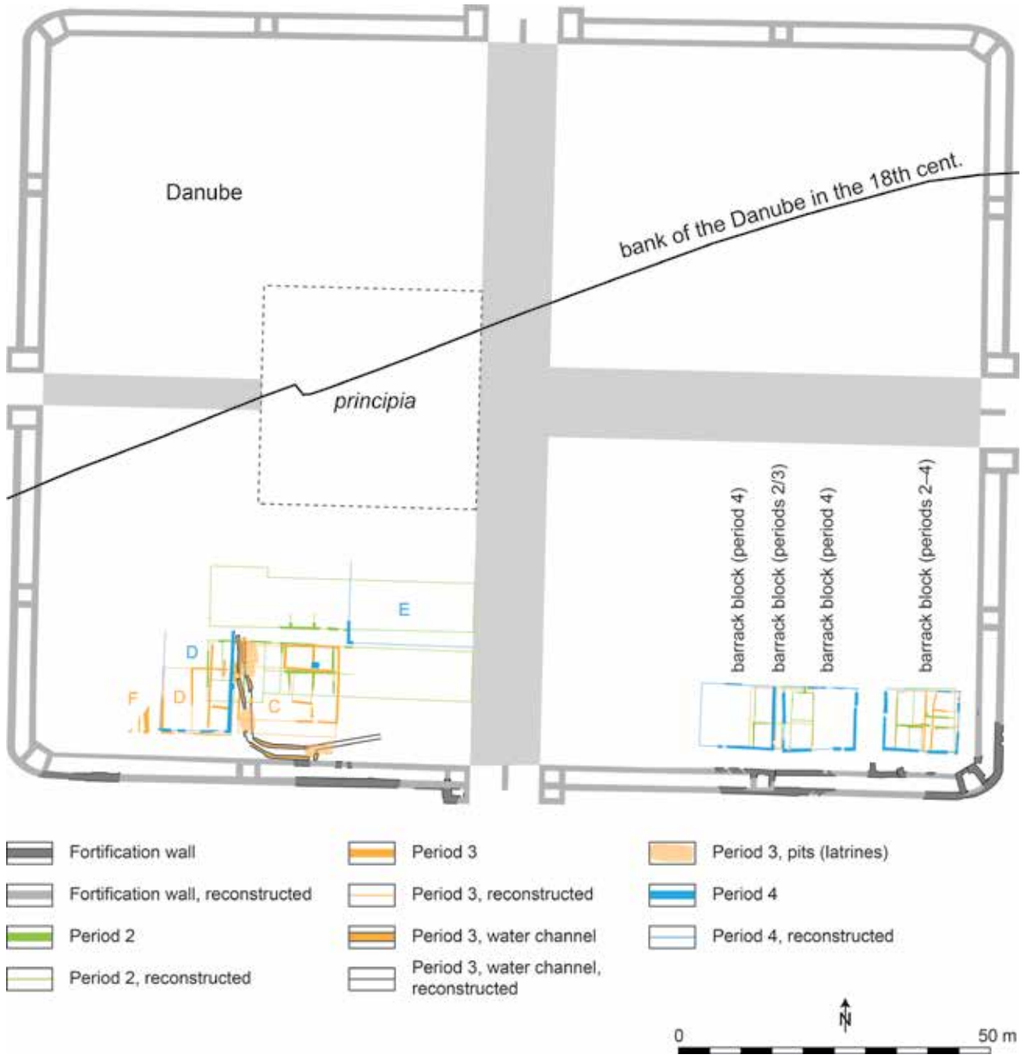

Fig. 2 - Pöchlarn. Periods 2–4 and reconstruction of the mid imperial fort. Scale 1 : 1000.

have thus been the *praetentura* – a theory also supported by later structural changes in the south-west. Consequently the fort was oriented with the *porta praetoria* facing eastwards, similar to the neighbouring fort to the west, Wallsee[9]. The aforementioned 159 m/540 Roman feet would hence be the total length of the fort at Pöchlarn. Considering a minimum size of the fort at 1.8 ha, the width may be suggested at 420 Roman feet or c. 124 m, resulting in a total size of 1.98 ha (Fig. 2).

After what may have only been a short period of use, the two buildings in the south-west were demolished probably around 110/120 AD, only to be replaced by at least three buildings on a south-north alignment (construction period 3) (Fig. 2). Their function and use is unclear. One may have been a *horreum* (building F), the others, living quarters (building D) and a workshop (building C). During the course of period 3, this area saw several structural changes, resulting in the possible abandonment of two of the three buildings: building C

[9]Ployer 2015.

was only used for a short period of time (period 3.1); replacing it a large undeveloped open area came into use, which may be interpreted as a court-like workshop area due to the discovery of numerous ovens, pits and a well. Around the middle of the 2nd century (construction period 3.4) a water channel was built at the edges of the yard that widened as it headed towards the fortifications. This was used for sewage disposal, whilst the broader section may have been a latrine. It had an overflow to the south, which drained into the external ditches through a gap in the fortifications[10]. The water channel also saw only a short period of use. It was then filled in; the fill had at some stage, but not at the same time, three pits cut into it, which were probably used as latrines. Evidence of the possible *horreum* (building F) was visible until the middle of the 2nd century AD. After that, there is no longer any sign of a building in this area. Building D on the other hand, which may have been used as accommodation for an unknown group of people (soldiers, working in the nearby workshop?), was used throughout the whole of period 3, albeit with several structural changes.

The two barrack blocks in the south-east were demolished, slightly relocated and reconstructed with several changes to the interior. Their function remained unchanged.

The large amount of stratified finds from construction period 3 allows the dating of this phase from c. 110/120 to 170/180 AD. It seems highly likely that the demolition of the two barrack blocks of period 2 in the south-west, which were possibly used by cavalry units, and the construction of functional buildings in the same area in period 3 can be linked to a change in garrison that also saw the withdrawal of the riders previously stationed in the fort. The new unit stationed in the fort was *cohors I Flavia Brittonum milliaria*, although it is possible that this unit had been detached to *Arelape* at an earlier point, and strengthened by a cavalry vexillation that was accommodated in the southwestern parts of the fort. The cohort is documented in Pöchlarn on a grave stone of a soldier who died on duty and can be dated to the first half of the 2nd century AD[11].

Construction period 4 saw the rebuilding of the interior structures of the fort in stone (Fig. 2). However, it may have only been the lower layers that were reconstructed as mortared stone walls, the upper walls were probably still made of wattle and daub. In the south-western part of the fort, the remains of two buildings can be seen to have been constructed during this period: the newly reconstructed stone building D, and the south-western corner of building E. Building D may have still been used as living quarters, although definite evidence for this is lacking; due to its location on the right hand side of the *latera praetorii*, building E could well be the *praetorium*[12]. However, the rather humble surviving remains make a clear interpretation impossible. In the suggested workshop area, a pedestal made of masonry, c. 1 × 1 m in size, was found. It was made of dry stones and bricks. Its function – quite possibly the corner of a timber building – and date – due to its construction technique, it was built after the other stone buildings – are unknown. The barracks to the south-east were also reconstructed in stone during period 4. During this building activity the, as yet, rather wide alleys between the buildings were reduced substantially, which led to the discovery of three instead of the, previously seen, two buildings in the excavations. All three of them were equally used as centurion's quarters of barrack blocks.

The stratified finds material suggests a date for the reconstruction of the interior structures in stone of around 170/180 AD. This measure was consequently undertaken later than at the fort at Mautern, but earlier than for example at Carnuntum and *Intercisa*[13]. The end of period 4 is highlighted in the south-eastern parts of the fort by widespread burnt layers on the roads, burnt remains of the inner divisions of buildings and large pits filled with burnt debris. These are evidence of a fire in this area that destroyed almost all of the buildings in the south-eastern part of the fort. Finds discovered within the remains date the fire to the mid third of the 3rd century AD, although a coin, whose affiliation with one of the burnt layers is not entirely certain, may offer a t. p. q. of 260/275 AD. In contrast to the south-eastern part of the fort, there are no signs for a large fire having

[10]A similar structure was documented in the auxiliary fort at Carnuntum (Philipp 1997, 52–56).
[11]A summary of the history of this unit in Marcu 2002/2003, 223–224. On the gravestone see Ubl 1979, 41–42 pl. 16.
[12]On the location of the *praetorium* cf. Johnson 1987, 159–160.
[13]Cf. summarised in Mosser 2010, 977–978.

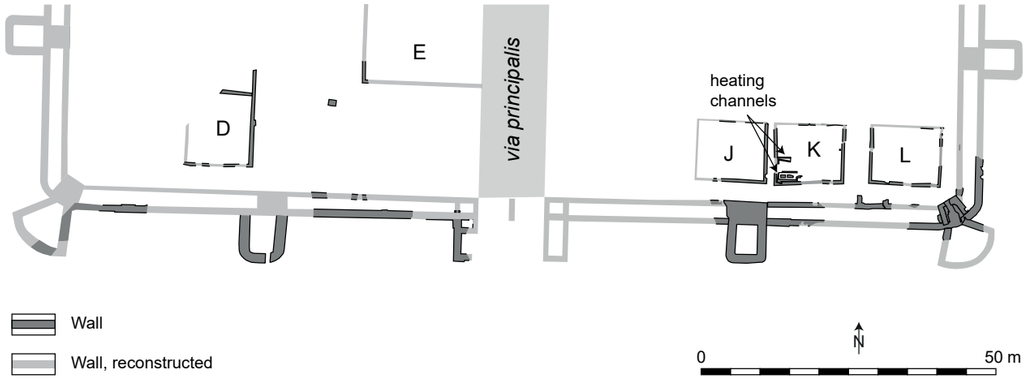

Fig. 3 - Pöchlarn. Period 5.1.

spread throughout the south-western parts. As only a limited area of the fort had been affected by the fire, it seems rather unlikely that it may have been the result of a battle or war. This interpretation has been used to explain various destruction layers in *Noricum* dating to the 3rd century AD, but unfortunately they are only published in short preliminary reports[14]. One exception is the destruction of the fort at Mautern, which dates after 251 AD[15].

After the fire, the south-eastern part of the fort saw widespread levelling in period 5.1, quite possibly to cover the traces of the fire. Similar, thick levelling layers were found in the south-west, although here they were only found outside the still existing buildings. Vast amounts of finds material date this activity to after 270/280 AD. After that, the reconstruction of the buildings in the south-east took place, apparently reusing the older foundation walls (Fig. 3). Inside the buildings there are only a few remains that can be dated to this period. One of them is a large mortar floor in building L in the east. There were also two hypocaust heating channels added to the central building K, with the southern one surviving fairly intact (Fig. 4). Its walls were mortared and it had two masonry pillars as the base of a vault made of bricks which covered the channel. A stoking channel led off eastwards to a large pit that was possibly used to operate and fire the heating system. The second heating channel, slightly further north, was in a much worse state. Its sides were paved with stones and it was fired from the east. In the eastern part of the building and separated from the two channels by an unexamined, 1–1.5 m wide area, were the remains of an oven, which was obviously used for working non-ferrous metal. There is not enough evidence to say whether the two areas of building K were separated into living and working quarters by a wattle and daub wall.

The south-western part of the fort shows no signs of immediate new constructions after the widespread levelling. Only slightly later, after 313 AD, is there evidence for the erection of a new wall in building D. Leerzeile/Absatz

The fortifications were also expanded after 270/280 AD. Initially, the two mid imperial ditches were refilled, and a wide V-shaped ditch was dug instead. The refilled ditches were overbuilt with U-shaped intermediate towers, fan-shaped corner towers and rectangular gate towers, all of which protruded far beyond the walls. To connect the newly built towers with their mid imperial counterparts, the walls were torn down in the respective areas, and the older towers were enlarged. Several pits and postholes along the *via sagularis* bear evidence to these activities. They cut through the aforementioned levelling layers and prove that the towers were added after the widespread levelling and hence after 270/280 AD.

A more exact chronological assessment is impossible though. It remains unclear whether this adaption of the

[14]Cf. summarised in Fischer 2002, 27–30.
[15]Groh, Sedlmayer 2002, 558.

Fig. 4 - Pöchlarn. Heating channel in building K (photo: BDA).

fortifications was undertaken as early as the Tetrarchic period, similar to events taking place in the neighbouring province *Raetia* to the west, or as late as under Constantine I., as has been suggested for *Pannonia*[16]. Generally it appears that this specific part of the Danubian frontier in *Noricum* was more aligned with *Pannonia* in late Roman times, which is emphasised by the centralisation of command over the frontier troops of both *Noricum ripensis* and *Pannonia prima* under one *dux limitis*[17]. On the other hand, none of the forts in eastern *Noricum* (Wallsee, Pöchlarn, Mautern, Traismauer, Tulln, Zwentendorf, Zeiselmauer) were abandoned in the late 3rd or early 4th century AD or reconstructed with changed layout plans and reduced size, as is documented in *Raetia*, but also at two forts in western *Noricum*, Passau-*Boiotro* and Linz[18]. Instead, the old structures stayed in use and were – as in *Pannonia* – remodelled and refortified to fit any new fortification necessities[19].

Architectural changes were documented on all the towers examined in the fort at Pöchlarn. Adding the largely permanent development of the interior, a continuous military use of the fort may be suggested – at least for the areas examined for this research. It is uncertain, which unit(s) was/were stationed in *Arelape* during period 5.1. The Notitia Dignitatum mentions both the *equites Dalmatae* and a *classis Arlapensis et Maginensis*. Both units were probably established in the later 3rd century AD[20], however, if they were already deployed in the fort in the first half of the 4th century is unclear.

Remains belonging to the later construction periods 5.2–5.5 were not evident in all excavated areas (Fig. 5). The interior of the fort underwent major modifications during this time, whilst the fortifications remained largely unchanged. Building L, located in the south-eastern corner of the fort, was demolished and a timber building erected instead. Within this building, two heating channels were found, made of stone held together by mud-mortar. The southern wall of the eastern channel used the southern outer wall of the demolished building L as a foundation. It was stoked from the west. The western channel, however, was located in the area of the older *via sagularis*, suggesting it was no longer used as a road at this time. The channel was possibly Y-shaped, although its remains were in a bad condition, and could have been stoked from the east. The remains of the walls of the timber building with the two channels were not recognisable.

To the west of it, building K remained intact throughout the periods 5.2–5.5. However, the heating channels added to the interior of the building in period 5.1 fell out of use, as can be seen from the blocking of the stoke channel of the southern heating system. Its respective

[16]Cf. generally Pietsch 2000; more recently on *Raetia* see Mackensen 2013, on *Pannonia* see Tóth 2009.
[17]Not. dign. occ. 34,34.42.
[18]*Raetia*: Mackensen 2013. – Passau/*Boiotro*: Altjohann 2012. – Linz: Ruprechtsberger 2015, 158–159.
[19]Groh 2017, 89–90 argued that the increased danger of raiding Germanic tribes invading from the west was a reason for the construction of new forts in the western parts of *Noricum*.
[20]On flotillas linked to certain places cf. Himmler 2011, 43–54; on the *equites Dalmatae* cf. Scharf 2001.

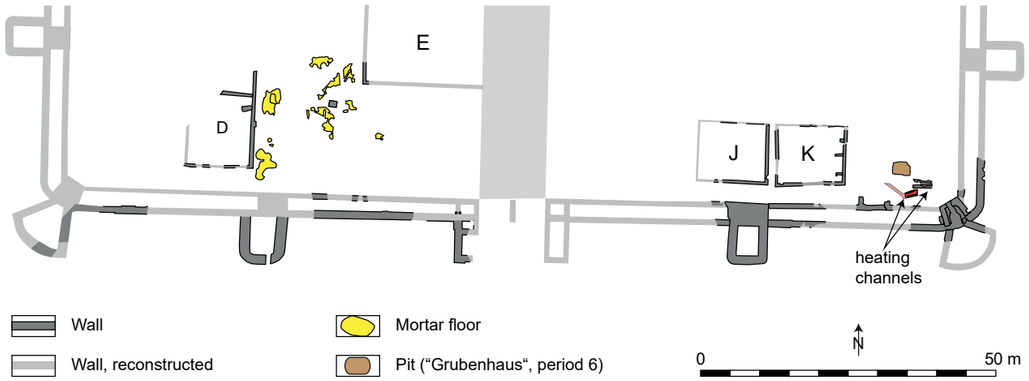

Fig. 5 - Pöchlarn. Periods 5.2–5.5 and 6.

operating pit stayed in use though. Moreover, several dry stone walls were documented in building K. These walls partitioned off several small rooms or alcoves, with the remains of an oven still visible in the southern alcove. Building J also remained in use. With the exception of a large compressed clay floor, no other structures were found.

In the south-west of the fort, the buildings D and possibly E were also still intact. Only a few remains survived in the interiors that can be dated to the periods 5.2–5.5. Amongst them are several walls attached to the older outer wall in building D, and an oven.

East of building D, period 5.2 saw the addition of mortar floors in an area that was used as a courtyard-like workshop area before (Fig. 6). These were most likely laid out in the interior of timber buildings, whose walls or any signs of them have not survived. Sometime later, these floors were cut by pits, but also overlaid by later mortar floors. Furthermore, the remains of two heating channels in the form of set stones were visible.

The large amount of stratified finds, such as burnished pottery[21] and coins of the Constantinian and Valentinianic dynasties, allows these structures from periods 5.2–5.5 to be dated to or after the last third of the 4th century AD. Only the changes to the interior of building D may be dated to the first half of the 4th century and there is no evidence for any younger material from this structure.

It is far more difficult to define the end of period 5. Structural remains east of building D prove that some mortar floors and pits dating from after the last third of the 4th century, based on small finds, were superimposed by newer structures. With the lack of distinctive chronologically relevant finds, primarily coins and Mediterranean fine wares (mainly North African Red Slip Ware)[22] hinders a more accurate chronological assessment of these building measures; as such, stratified artefacts from periods 5.3–5.5 as well as the later period 6 are in no way different from finds of period 5.2. Consequently, the exact end of the occupation of the fort at *Arelape* in the 5th century is unknown. The Vita Sancti Severini, our main literary source on the history of the upper Danubian region in the 5th century, does not (or no longer?) mention the site.

The obvious structural changes happening in periods 5.2–5.5, and especially the destruction of the older building L, the use of the area of the *via sagularis* for residential purposes, and the construction of buildings in an area which remained undeveloped for a long time, suggest a change in use of the examined areas of the fort which consequently led to the abandonment of the mid imperial structures. It stands to reason to put this into the context of the repeatedly postulated withdraw-

[21]On the chronology of burnished pottery see Groh, Sedlmayer 2002, 313–321; Spors-Gröger 2018.

[22]On gold and silver coinage of the 5th century in *Noricum* cf. Dembski 1982; Hahn 1990. – North African Red Slip Ware of the second half of the 5th century is as yet only known from Mautern in *Noricum* (Groh, Sedlmayer 2002, 173 pl. 54,1062). More recently, some fragments from Passau-Niedernburg in *Raetia* have been published (Mackensen 2018, 336; 338–339 fig. 1,11.12; 2,2.3).

Fig. 6 - Pöchlarn. Mortar floors in the south-western part of the fort (photo: BDA).

al of the civilian population from the *vici* behind the protective fortifications of the forts[23]. Similar developments have been documented at other auxiliary forts, and also legionary fortresses. For example, buildings were erected in Mautern during the last third of the 4th century AD that show no correlation to any of the older structural remains[24]. Moreover, the *vici* at Mautern and Zwentendorf were abandoned at that time[25].

The presence of civilians, especially women and children, may also explain a series of late Roman, but only partially stratified finds found inside the fort (Fig. 7). These include hair pins, mirror fragments, jewellery, and artefacts for the production of textiles such as spindle whorls. However, similar objects of mid imperial date were also found in earlier structures belonging to periods 3 and 4. Such small finds are thus not necessarily useful as proof of a changed composition of the occupants of the fort. If anything these older finds could be evidence of the earlier presence of women and children inside the fortifications during the mid imperial period. Alternatively, we may also consider a use of these artefacts – more typically associated with women and children – by men[26].

During periods 5.2–5.5, the fort at Pöchlarn was most likely garrisoned by the *equites Dalmatae* and *classis Arlapensis et Maginensis*, as mentioned in the Notitia Dignitatum. As parts of the fort were occupied by civilians during that time, both units were reduced in size in direct comparison to their strength in the first half of the 4th century. It is unclear where exactly they were accommodated. It is also not known whether the fort

[23]Cf. generally Mosser 2010, 961–980; Ubl 2011, 436–438.

[24]Groh, Sedlmayer 2002, 560–561.

[25]Groh, Sedlmayer 2006, 742; Groh, Sedlmayer 2010, 128. As the *vicus* at Pöchlarn has not seen any significant research or analysis it is impossible to make any statement on it.

[26]On genderspecific interpretations of small finds see Allason-Jones 1994; Allison 2013, 65–108.

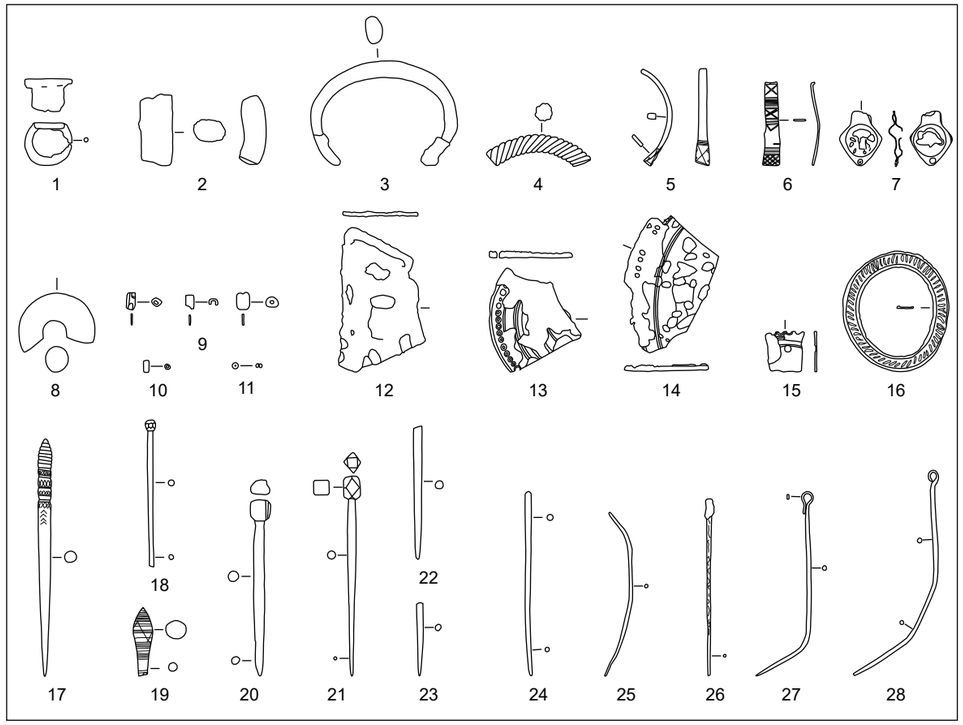

Fig. 7 - Pöchlarn. Collection of finds probably linked to women or children. 1–7: Jewellery. 8: Spindle whorl. 9–11: Glass beads. 12–16: Mirrors. 17–28: Hair pins. 1–3.9.12–15.17.25–27: Periods 3 and 4. 4.18.22: Period 5.1. 6–8.10.11: Period 6. 5.16.19–21.23.24.28: Not stratified. Scale 1 : 3.

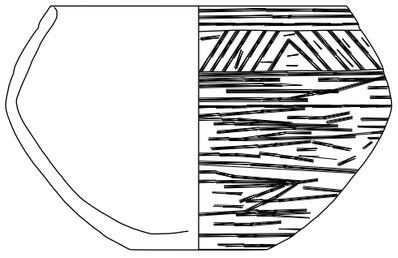

Fig. 8 - Pöchlarn. Biconical cup from the "Grubenhaus" (pit-house). Scale 1 : 3.

was reduced in size too, as is documented at the forts at Zeiselmauer, Traismauer and Wallsee[27].

Period 6 defines the end of antique Pöchlarn. It mainly consists of various dark-brownish to black, humous and largely widespread layers that are commonly known as dark earth. Finds from these layers predominantly include late Roman pottery fragments. There were also several small finds and later medieval and modern artefacts, that can be seen as intrusive. A more exact chronological assessment of these layers is impossible. The dark earth suggests a change of use of the fort in period 6. In contrast to periods 5.2–5.5, when occupation was still ongoing inside the fort, the later period mainly showed it being used for agricultural gardening uses, or quite possibly some animal husbandry[28].

Apart from the widespread dark brown-humic layers, there is a single structure that can be assigned to period 6. It is a 2.6 × 1.8 m in size and 1.4 m deep rectangular pit in the south-eastern corner of the fort inside

[27]Cf. respective contributions in Gassner, Pülz 2015.

[28]On interpretations of dark earth see Gaisbauer 2006; Groh, Sedlmayer 2015, 491–492; 505–507.

building L, which was demolished in period 5.2 (Fig. 5). The structure can be interpreted as Grubenhaus. As the pit is located right underneath the top soil, which was removed by large machinery, it is rather unclear if it was younger or older than the layers of dark earth. However, an antique origin is guaranteed based on the finds within its fill. Amongst them, a biconical cup with burnished decoration (Fig. 8) finds its nearest parallels in vessels dating to the late 5th and early 6th century, that are more commonly found in the eastern parts of Lower Austria and the Burgenland, where they are associated with Lombard settlers[29]. On the one hand, this cup proves that the fort at Pöchlarn was used during the late 5th and early 6th century, although it is unclear if it was continuously occupied up until then. On the other hand it shows that whoever lived in *Arelape* at this time was somehow connected or had connections to the east.

After this probably rather short episode of occupation there are no signs of settlement activity in *Arelape* or Pöchlarn until the naming of the area of Pöchlarn in a document from 832, concerning the donation of the region to the bishopric of Regensburg, describing it as the location of an antique castrum (*locum ubi antiquitus castrum fuit)*.

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[29]Friesinger, Kerchler 1981, 261–263.

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Résumé

Entre 2002 et 2012, des fouilles de sauvetage ont été effectuées à Pöchlarn (Autriche). Au cours de ces travaux, des parties du fort auxiliaire d'Arelape, plus ou moins inconnu jusqu'à ce moment, furent dégagées. L'analyse des structures et du mobilier permet de distinguer six périodes de construction, datant des temps flaviens jusqu'à la fin du Vème/début du VIème siècle. Les bâtiments fouillés à l'intérieur peuvent être interprétés soit comme baraques soit comme bâtiments à vocations spéciale (p. ex. fabrica). Or, dans la deuxième moitié du IVème siècle, le fort a connue de transformations majeures. Celles-ci se traduisent par exemple par la construction de structures en bois superposées aux rues anciennes. Ces changements peuvent probablement être liés au retrait de la population civile à l'intérieur des fortifications pendant l'Antiquité tardive. La fin d'Arelape ne peut pas être datée avec certitude. Quelques fragments de céramique indiquent cependant une (re-)utilisation à la fin du Vème/début du VIème s.

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The Concept of "*limes*" in the Textual Sources. A Short Preliminary Study

ABSTRACT

The administrative, military and political definitions of the Latin term *"limes"* have been at the centre of many debates for several decades. Over time, it has sometimes been assimilated to the notion of "border" – fortified or not –, sometimes to that of "passage". It has also been associated with a military strategy – global or not – when it was not simply considered as an abstract, indefinable and untranslatable term. Many of the suggested definitions are still valid, at least in a specific context; none, however, is definitive. Can we close the debate some day? Certainly never. Without making any such claim, the present paper will review the case, focusing, in the light of historiography, on the textual sources, in order to highlight the evolution in the use of this term by the Romans, and to pave the way for a new comprehensive study on this topic.

Key Words: *Limes*, Frontier, Border, Roads, Historiography, Statistics, Semantics, Roman Army, Gromatic Literature

The administrative, military and political definitions of the Latin term *"limes"* have been at the centre of many debates for several decades.[1] Over time, it has sometimes been assimilated to the notion of "border" – fortified or not –, sometimes to that of "passage". It has also been associated with a military strategy – global or not – when it was not simply considered as an abstract, indefinable and untranslatable term. In truth, there is currently no consensus, neither among historians nor among archaeologists, and in this sense none of the definitions proposed up to now can be considered as definitive. We are even entitled to wonder if we can achieve such a result. Without making any such claim, this paper will quickly review this thorny issue. To do so, a short and not necessarily exhaustive, but targeted reminder of the modern and contemporary historio-

[1]There are several articles that deal with this issue. To name only a most important one, which largely inspired this paper, see Carrié 1995. From the same author, see also, *inter alia*, Carrié, Rousselle 1999, 616–621. The author takes the opportunity of this first note to give a special thanks to the École française de Rome, where he was a visiting scholar for a period of 10 months (09/01/2022-06/30/2023) when this paper was finished and submitted.

graphical use of *"limes"* seems necessary, before we tackle the question of ancient texts from a statistical point of view.

From the Birth of the Nation-State to the *Limes-Kongress*

In his seminal and well-known paper of 1988 on the concepts of *"limes"* and *"limitanei"*, Benjamin Isaac supports the suggestion that it was Theodor Mommsen who truly disseminated the idea that the *limes* refers to a defence system in use along the border of the Roman Empire from the 1st century AD.[2] However, Isaac's study does not really go further on the origin of this definition, which he simply traced back to the 19th century. For sure, he had in mind here the *Commission zur Erforschung des Limes Imperii Romani*, founded in 1852 in the context of German unification and with which Mommsen was associated from the 1870s to the 1890s. However, the concept of *"Limes Imperii Romani"* was not a pure invention of the *Reichs-Limeskommission*.[3]

A name that often appears when we read about the origin of this imperial commission is that of the archivist Christian Ernst Hanßelmann (1699-1776), who offered, respectively in 1768 and in 1773, the first two modern studies on the occupation by the Romans of Upper Germany and Rhetia. If Hanßelmann was indeed the first to give a truly comprehensive definition of what he was already calling the *Limes Romanus*, an overview of previous literature on the topic allows us to discover that it was then customary to interpret, at least until the late 17th century, the term *"limes"* as a simple synonym for a march/mark, in the jurisdictional meaning of the term, following the mediaeval tradition. For example, we can observe that situation in the title of the posthumous work of Parisian archbishop Pierre de Marca (1594-1662), edited by Étienne Baluze (1630-1719) in 1688: *Marca Hispanica sive Limes Hispanicus*.

Although this book is of very little importance for the problem that concerns us, it is interesting to note that it is a report on the conditions of the establishment of the border between Spain and France in 1660. It is precisely in the context of the invention of the modern linear frontier, natural or not, between the end of the 17th and the beginning of the 18th century, thus well before Hanßelmann, that the notion of *"limes"* was associated with it. To draw only examples from the French literature, as France was among the first countries to theorise and use the concept of "nation-state", we can read in Gabriel Daniel's first volume of his *Histoire de France*, published in 1713, while he is talking about the first Frankish incursions in Gaul:

> *Ces paroles assurément ne supposent pas que Clovis fut déjà dans les Gaules: & d'ailleurs on sçait que du temps des Empereurs que je viens de nommer, & même de tout temps les Epithétes ordinaires du Rhin, par rapport aux Peuples de la Germanie,* étoient Limes Gallicus*,* terminus Romanorum*,* Rheni limes*, etc.*[4]

In the same spirit, we find in the supplement to Henri Abraham (or Zacharias) Chatelain's *Atlas historique*, published 1720, about the first raid of the Saxons on the coasts of Britain:

> *Tout ce qu'il y a de certain, c'est qu'aiant commencé vers l'an 280. à courir les côtes de la Grande Bretagne & de la Gaule, les Romains firent contre eux un rempart, qui fut appellé* Limes Saxonicus.[5]

If the "military" definition of *"limes"* was popularised by German historiography of the 19th century as stated by Isaac, after having been precisely defined by the same literature in the second half of the 18th century, we can see that it was already fully conceptualised as soon as the beginning of the 18th century. Theoretically, we are thus still today largely dependent, with a few nuances, on the understanding of the word *"limes"* at a time when people were seeking in Roman Antiquity

[2]Isaac 1988, 125, referring only to Mommsen 1894 = Id. 1908, 456–464. Other studies could have been mentioned, such as: Id. 1885 = Id. 1908, 444–455.

[3]The *Commission zur Erforschung des Limes Imperii Romani* officially became the *Reichs-Limeskommission* in 1892, before being dissolved in 1937 by the Nazi regime. Cf. Braun 1992; Böhner 1992–93.

[4]Daniel 1713, vij.

[5]Chatelain, de Limiers 1720, 15. On the problems of authorship of the *Altas historique*, see van Waning 2010.

the justification for the creation of a true border system in emerging nation-states. We say "with a few nuances", because there were still major evolutions in the understanding of the concept over time. We think here not only of the important Isaac calling into question of the *limes* as a global defensive strategy, but also the less recent, but no less fundamental works of Giovanni Forni, which remain today for most scholars the most satisfying in the field, notably because they are taking extensive epigraphic material into consideration.[6] Unfortunately, Forni does not, however, really take into consideration Late Antiquity, whereas, as we will see, it is necessary.

To end this too short historiographical section with an interesting anecdote: it was not until the third edition of the proceedings of our congress, held in Basel in 1957, that it took the name of *Limes-Kongress*, while the British editions of the event are still always called *Roman Frontier Studies*, even if the last published one adds *Limes Congress* between brackets in its subtitle.[7] The gradual generalisation of this name, which was not that of the original congress, is, moreover, an interesting phenomenon which would deserve to be studied for itself, since it implies a historiographical position on the definition of *"limes"*.

Benjamin Isaac's Position

Why all these historiographical considerations before entering into the thick of things? Without going as far as Benjamin Isaac, who would like to see our scientific event named strictly *Congress of Roman Frontier Studies*,[8] we must recognize that the vision of a *limes* as a great imperial defence strategy developed by the central authorities (presented in its most extreme form by Edward Luttwak),[9] has no historical foundation. It corresponds, in fact, to a transposition onto Antiquity of ideas that appeared at the time of the creation of the nation-state. So, what do the sources say according to Isaac if there has never been a great imperial policy of the *limes*?

Isaac's hypotheses are developed in two studies, *viz.* the 1988 paper already mentioned, which can be read in *The Journal of Roman Studies*, and a subpart of the ninth chapter (*Frontier Policy – Grand Strategy?*) of his *The Limits of Empire*, which was first published in 1990, and in a revised edition in 1992.[10] Relying on a selection of ancient texts, he establishes the following schema: (1) initially, the term *"limes"* was used to designate a military road, built in the context of the Germanic campaigns of the 1st century; (2) between the end of the 1st century and the 3rd century, the same word then came to mean a demarcated land border of the Empire, without, however, referring to any military structure, border organisation or border water course; (3) from the 4th century onwards, *"limes"* was finally associated with a frontier district, under the command of a *dux* as well as the military bureaucracy[11] of that district, but never referred to the physical military structures of this district. In the postscript he added in 1998 to his 1988 paper, Isaac argued, after citing complementary African inscriptions, that the latter evolution probably began before the middle of the 3rd century, as "a few isolated areas of provincial land organized in a manner not attested before" were already called a *limes* and placed under the responsibility of a local commander with the title of *praepositus*.[12]

In any case, Isaac considers that the most important element that must be remembered from his demonstration is that the substantive *"limes"* never corresponded, in ancient sources, to what we now consider as a border defence system, so there is no justification whatsoever, in his view, for calling a line of forts in a border area a *limes*. Moreover, there would be no legitimacy to claim the existence of a great imperial policy of defence which would be called the *limes*. This last position of Isaac appears, at least to the author of these lines, to be crystal clear. There have never been any *limes* as a grand and global strategy of the Roman Empire!

[6]His three main papers are: Forni 1959; Id. 1974; Id. 1987 (= Id. 1992, 213–262).

[7]FAG Basel 1957; Hodgson – Bidwell – Schachtmann 2017.

[8]Isaac 1988, 130 (= Id. 1998, 353).

[9]For the last edition, see Luttwak 2016.

[10]Isaac 1988 (= Id. 1998, 345–379, with some revisions in a postscript: 380–387); Id. 1992, 408–416.

[11]Isaac 1998, 382.

[12]Isaac 1998, 386.

Concerning the other points he defended in both his studies, however, the situation is less definitive, especially because his analysis is sometimes based on translations which can be reviewed. Just to give a simple example, Tacitus' *Agricola* XLI,2 is cited as a testimony of the definition of *"limes"* as "boundary":

> *nec iam de limite imperii et ripa, sed de hibernii legionum et possessione dubitatum.*
>
> and it is translated as:
>
> "It was no longer the land- and river-boundaries of the empire, but the winter quarters of the legion and the ownership of territories which were in danger."[13]

However, *"limite imperii et ripa"* does not mean "the land- and river-boundaries", but "the limit/boundary *[so in the singular]* of the *imperium*/Empire and the bank/shore of the river *[*viz. *here, the Danube]*".

Still as a testimony of the "boundary" meaning, a well known and extensively analysed 3rd-century inscription about the fort of Gasr Duib (*Année* épigraphique 1950, 128, etc.), is also cited – but not in full:

> "[The Emperor Philip and his son] *regionem limit[is Ten]theitani partitam et [eius] viam incursib(us) barb[ro]rum constituto novo centenario [–] prae[cl]useru[nt] …*"[14]

Isaac translates *"regionem limitis Tentheitani partitam et eius viam"* (which corresponds to the classical reading of the inscription, but which is now questioned)[15] as "the border region of Tentheos and the road through it(?)", while we should better read literally, if the text is correct, "the *regio*/region divided *[*= regio partita*, in the meaning of "regional division"*, viz. *in Tripolitania]*[16] of the *Limes Tentheitanus*[17] and its road", and what must be understood as "the part of the *regio*/region linked to/depending on the *Limes Tentheitanus* and its road".

Since it is a question here of a *via* linked to a *limes* (with perhaps some word game, as the main function of the North African *limites* was to protect the roads and oasis through desert areas)[18], it should be noted that Isaac's position according to which the meaning of "military road" would be relevant only for the 1st and, to a lesser extent, the 2nd century – as he is only evoking sources from the beginning of the High Empire – is not completely convincing.[19] Why would this meaning not have continued to be used, at least in the 3rd century? As he demonstrates that the formation of the frontier districts of the Later Empire is the result of evolution, would there not be a link between the military roads in the same districts and their name, especially since they were supervised by military commanders?

Furthermore, Isaac's publications do not offer a completely comprehensive survey of the term *"limes"*. This has already been pointed out by Jan Willem Drijvers, in his paper on the limits of the Empire, in Ammianus Marcellinus' *Res gestae*.[20] This study makes it perfectly clear that Isaac did not consider this ancient author fully – he refers only to 4 of the 34 mentions of *"limes"* in the *Res gestae* –, whereas Drijvers's in-depth analysis of Ammianus Marcellinus shows that the latter is using *"limes"* not only as a district or a frontier zone, but also as a boundary line (including the rivers) and, eventually, a militarily defended border[21], all the while considering the frontier regions as real contact zones.

[13]Isaac 1988, 128 (= Id. 1998, 350).

[14]Isaac 1988, 129 (= Id. 1998, 352).

[15]For an alternate reading, according to which *"eius"* must be replaced by *"finitam"*, see Di Vita-Évrard 1991, 428.

[16]Di Vita-Évrard 1985, 151–153.

[17]Mentioned in *Notitia dignitatum*, *Pars Occidentis*, XXXI,19.

[18]Cf. for example Alan Rushworth's *The Purpose of Roman Frontiers: To Protect Communications and Travel in the Frontier Zone* in this volume. See also Guédon 2018.

[19]Isaac 1988, 126–128 (= Id. 1998, 347–350).

[20]Drijvers 2011.

[21]For this interpretation, Jan Willem Drijvers is namely relying on Arce 2000, even if he admits that Javier Arce "does not think that frontiers with military installations were ever installed" (Drijvers 2011, 24, n. 32).

In fact, Drijvers' observations are only the tip of the iceberg. Isaac's analysis is impressively conducted and more than important, because it gives the great lines of the evolution of the term *"limes"* within the border military context of the Roman world. However, it is more convincing for the High than the Later Empire, given that Isaac, like Forni, does not take sufficiently into consideration the sources of the second period, which are, as we will see, the most numerous ones by far.[22]

The Textual Sources: Some Approximate Statistics

In the current absence of a global study that considers all the textual sources evoking the term *"limes"* – literary, legal, epigraphic as well as papyrological sources, in Latin and Greek, in all the meanings attested, so not only in the military context – it is unfortunately impossible to consider as definitive what has been proposed by the different scholars until now. Some readers will have already understood that the author of these lines plans to produce study on this topic, and that is why this paper is presented as "preliminary".

Such a study would be impossible in the present framework, considering the large number of texts to be analysed. The addition of the results of a very imperfect simple search[23] in Brepols' *Cross Database Searchtool*, for literary texts,[24] and in the *Amanuensis* application, for legal texts,[25] gave 1220 Latin occurrences of *"limes"*, for the period up to the end of the 6th century AD. If we separate these results century by century[26], we can quickly see that the great majority of attestations of *"limes"* in Latin literary sources are from Late Antiquity, *viz.* 811 for the 4th, 5th and 6th centuries, which makes a ratio of about 66% of the 1220 occurrences found according to the methodology applied here. It is interesting to note that the 5th century alone offers 471 of them.

Because the epigraphic and papyrological documentations are even more likely to refer to the reality here sought – *i.e.* the *limes* in its administrative, military and political use – a study on it cannot ignore these types of sources. Yann Le Bohec has listed 14 inscriptions and papyrus referring to the *limes* in a military context in one of his important studies on the "military *limes*".[27] It is quite possible that new documents have been discovered since the publication of his paper in 1991. In any case, a simple search in the *Epigraphik-Datenbank Clauss/Slaby*[28] and the *Papyri.info* navigator[29] reveals that about 67 Latin epigraphic documents and about 9 Latin papyri (about 10 occurrences) mention the term *"limes"*, all meanings included, until the end of the 6th century. It is interesting to note that no papyrus is older than the 4th century, even if not all are clearly datable (perhaps some are from the 7th century).

For reasons of exhaustiveness, the study should also be necessarily extended to Greek texts (which has not really been done by the scholars who have been interested in the issue until now), especially since the ety-

[22]Some studies are dealing specifically with the theoretical notion of "frontier" in Late Antiquity, first of all Arce 2000, but also, for example, Graham 2006. Nevertheless, none is focusing strictly on the definition of *"limes"*.

[23]Methodology: additions of all results of *"limes"*, in each form of its declension, by paying attention, however, (1) to the duplication between the two databases of the references to the *Theodosian Code*, the *Digest/Pandects*, the *Institutes* of Justinian, and some of the texts from the *Monumenta Germaniae historica*, (2) as well as to the reuse of texts of the *Theodosian Code* and the *Theodosian Novels* in the *Justinian Code*, while taking into consideration the date of the proclamation or, when applicable, of the rewriting (for the sole *Justinian Code*) of the imperial constitutions. Moreover, the epigraphic texts given by the *Amanuensis* application were not considered, since epigraphy will be analysed with another tool (see *infra*). Yet, we did not go here so far as to verify the presence of the few duplicates that can be given by the *Cross Database Searchtool*. As a result, the statistics given are imperfect. Their only purpose is to give an order of magnitude. Moreover, it was decided to keep here the numbers obtained during the preparation of the first version of the article in 2019, in order to respect what was presented at the 2018 Limes Congress, despite the fact that several years have passed since then. If ever the search tools today give slightly different results, these cannot change the conclusions drawn from the statistics.

[24]On the 31st of May 2019, an individual search of all the declined forms of *"limes"* gave 1172 occurrences until the end of the 6th century. Regarding the *Cross Database Searchtool*, see https://about.brepolis.net/cross-database-searchtool/.

[25]On the 31st of May 2019, an individual search of all the declined forms of *"limes"* gave 48 occurrences, according to the methodology described *supra*, n. 23. Regarding the *Amanuensis* application, see http://www.riedlberger.de/amanuensis.

[26]2nd c. BC: 2 occurrences / 1st c. BC: 24 occurrences / 1st c. AD: 186 occurrences / 2nd c. AD: 149 occurrences / 3rd c. AD: 48 occurrences / 4th c. AD: 211 occurrences / 5th c. AD: 471 occurrences / 6th c. AD: 129 occurrences.

[27]Le Bohec 1991, 327.

[28]For the *Epigraphik-Datenbank Clauss/Slaby*, see http://db.edcs.eu/epigr/epi.php?s_sprache=en (consulted on the 31st of May 2019).

[29]For the *Papyri.info* navigator, see https://papyri.info/search (consulted on the 31st of May 2019).

mology of all the possible translations of *"limes"* could inform us a lot about the Latin reality itself. This part of the research must necessarily start with some readings on the notion of "border" within the Greek world, for example Michel Casevitz's papers on the words used to designate the frontier in Greek language.[30] Although the concept studied here is not central in them, it is immediately apparent that *"limes"*, which is a polysemic word, may have had several Greek translations. Benjamin Isaac identifies two of them: ἐσχατιά, which has a strong territorial meaning, and the direct transliteration λιμιτόν.[31] To give some statistics for this last term, because this is the only one which refers necessarily and strictly to the actual *limes*, we know of only 48 occurrences of it until the end of the 6th century, according to the on-line *Thesaurus Linguae Graecae*[32], the *Searchable Greek Inscriptions*[33] and *Papyri.info*[34] tools:

- 21 from 4 literary and legal sources[35] – only one is from the 5th century (*Vita Alexandri Acemeti [BHG³ 47]*, 33), the others being from the 6th century;
- 12 from 12 inscriptions – again, only one is clearly from the 5th century (Bertrand 1969, n° 194$_5$) and the others are from the 6th century;
- 15 from 12 papyrological texts[36] – unequally distributed between the 4th, 5th and 6th centuries, with, however, a clear preponderance of the 5th century (9 occurrences).

Given the small number of references to λιμιτόν in ancient Greek literature and the late dating of all these testimonies, it will be really important not to limit it to any global study on the notion of *"limes"*. Furthermore, the concern for completeness would require that we look closely at the occurrences of all Latin nouns, adjectives and verbs formed on *"limes"*, as well as their respective Greek translations, *viz.* (in alphabetical order) *limitaneus*, *limitanus*, *limitaris*, *limitatio*, *limitator*, *limitatus*, *limito* and *limitrophus*.

All this seems so endless that one might ask why not just focus on the occurrences of *"limes"* that have a military meaning? The answer is quite simple: because the origin of the term is not military at all, as Isaac and other scholars imply, even if they begin their analysis with the Germanic campaigns of the 1st century. This original meaning, if we look at the most explicit of both oldest testimonies, is without any doubt gromatic:

> *Eius nunc regiones, limites, confinia determinabo: ei rei ego finitor factus sum* (Plautus, *Poenulus*, 48–49).[37]

Moreover, the word *"limes"* is more common in the works of *agrimensores* than in any other types of literature. We just have to look at the indexes of the main editions to become aware of that situation. Thus, *"limes"* would have been first a word for passages and paths between the fields, which can well explain the later association with the roads created by the Roman army. Moreover, these rural pathways were considered, *de facto*, as actual separation between the cultivated or fallow lands. The traditional way to create them being to dig a large furrow[38], it is thus interesting to note that Cassevitz shows in one of his aforementioned studies that the established Greek term for boundary, ὅρος, also had, in its archaic form, the meaning of a furrow.[39] The term *"limes"* has therefore, from the beginning, the double meaning of demarcation and linear passage. That is why it is metaphorically synonymous both of

[30]For example, see Casevitz 1993; Id. 1995.

[31]Isaac 1988, 135–138 (= Id. 1998, 361–366).

[32]For the *Thesaurus Linguae Graecae*, see http://stephanus.tlg.uci.edu (consulted on the 31st of May 2019).

[33]For the *Searchable Greek Inscriptions* tool, see https://inscriptions.packhum.org (consulted on the 31st of May 2019).

[34]See *supra*, n. 29 (consulted on the 31st of May 2019).

[35]More or less in chronological order: *Vita Alexandri Acemeti*; Leontius of Jerusalem's *Testimonia Sanctorum*; Justinian's *Novellae*; John Malalas's *Chronographia*.

[36]About λιμιτόν in the papyri, see Mayerson 1989.

[37]The other oldest instance, taken from the same work of Plautus, is less clearly gromatic. See verses 630–631: *Si bene dicetis, uostra ripa uos sequar: si male dicetis, uostro gradiar limite.* Nevertheless, we recognize here a common play of words between *"ripa"* and *"limes"*, the first one referring to a path traced by nature, the other one made by men. On gromatic metaphors in Plautus, especially in the *Poenulus*, see Crampon 2006.

[38]There is a very old French verb for this action: *dérayer*. See https://www.cnrtl.fr/definition/dérayer.

[39]Casevitz 1993, 19.

limit, for example in a discussion[40], and line, for instance to mean, in a very unusual way, a vein in a gemstone[41] or a trickle of water[42]. A lot of other metaphorical applications can be found.

To return, however, to our main topic, the association of *"limes"* with a military road network could only have been natural, especially since these trails were, without doubt, opened with tools largely similar to those of farmers. It is also easy to understand that as the Empire extended, the army began to monitor more closely the paths it had created, together with the related areas it had deforested, by setting up towers, forts, and camps, by striving to connect all these military structures, and thus creating possibilities of movement on the edges of the territory subject to the emperors. These roads, with the lands whose control they permit, formed a network of militarised *limites* to varying degrees, which, theoretically, ensured a safe circulation and were useful for customs supervision, as well as for the defence of Roman interests, against internal as well as external enemies, in areas of relative romanisation.

Conclusion

According to most of the scholars who have put to the proof Edward Luttwak's theory about the so-called "grand strategy" of the Roman Empire, including not only Benjamin Isaac but also others like Yann Le Bohec[43], it is pretty clear that the system of military roads and the related deforested areas described above was the fruit of a very long evolution, not as part of a global military policy, but rather the result of several provincial, even local strategies, not necessarily even decided directly by the central imperial authority. The idea of an overall imperial defence strategy on the frontiers, against the enemies from the outside is in fact a transposition of border concerns of the modern states – the German Empire for *Reichs-Limeskommission*, the United States of America for Luttwak, etc. – onto the Roman Empire. Despite an almost unanimous acceptance of this situation among scholars, a complete and comprehensive study of the term at the centre of all these controversies, *"limes"*, is still missing.

It is true that, if we consider all the possible meanings of this word of gromatic origin, the number of occurrences in the Latin texts is really very significant, up to the end of the 6th century, and also that we cannot tackle this question without considering all possible Greek translations. Furthermore, such a study will require attention not only to history and archaeology, but also to historiography and semantics, to finally be able to define an exhaustive schema of its evolution and meanings in the military field.

The fable of the "grand strategy" has been swept aside, but several questions which may have been at the origin of the establishment of this theory still remain legitimate. In particular, if we can think of all that surrounds the exact functioning of the military or militarised border districts known as *limites* at the end of Antiquity, as described by Isaac, we can ask ourselves: in which exact conditions did the Romans begin to qualify in the singular all the *limites* of one province, as in *Limes Raeticus*, *Limes Scythicus*, etc.? Did such a provincial appellation in the singular necessarily imply that the entire territory of the province was considered as a *limes*, or did it refer to a single part of that province, comprising a road network, together with the related territories delineated by it?[44] What distinguished, administratively, but also from the civic and legal points of view, the part of the Empire that did not belong to the network of *limites* and that which was part of it? That last question is about the real jurisdiction of *duces* in Late Antiquity. There is no doubt that they were at the head of a *limes*. Nevertheless, what was the exact status of this category of district with regard to the province

[40]Tertullian, *Adversus Valentinianos*, 5: *Mihi autem cum archetypis erat limes principalium magistrorum, non cum affectatis ducibus passivorum discipulorum*.

[41]Pliny the Elder, *Naturalis Historia*, LXXXIV,69: *Veneris crines nigerrimi nitoris continent in se speciem rufi crinis. Veientana italica gemma est, veis reperta, nigram materiam distinguente limite albo.*

[42]Paulinus of Nola, *Carmina*, XXVII,463–466: *Forsitan haec inter cupidus spectacula quaeras, unde replenda sit haec tot fontibus area dives, cum procul urbs et ductus aquae prope nullus ab urbe exiguam huc tenui dimittat limite guttam.*

[43]In addition to Le Bohec 1991, we can mention, for example, Id. 2014.

[44]Jean-Michel Carrié does not agree with the idea of a *limes* which would strictly refer to a road network (*limes routier*). See Carrié 1995, 35; Carrié, Rousselle 1999, 619.

to which it was linked? Moreover, how can we explain that we also find *comites* at the head of some *limites*?[45] What is clear is that all these questions cannot find a suitable answer without a thorough analysis of legal literature. Unfortunately, no scholars have really been interested in this approach, since the historians and archaeologists who have tried to define the term *"limes"* have generally used very few passages, usually from the *Theodosian Code*, simply to support their hypotheses. Isaac himself can also be included in this observation, even though there is much more to draw from these texts than the only reference he gives, which does not rely .on the original text and which is even erroneous, because neither of the references he gives matches with his commentary:

> "*CTh* VII, 13, 15 and *CJ* I, 27, 13: administrative term denoting frontier district. *[without any further explanation]*"[46]

It is unfortunate not to have lingered more attentively on the legal literature, because it can really give very precise indications, as we can see in the introduction of the *Institutiones* of Justinian (I,xii,5):

> *Si ab hostibus captus fuerit parens, quamvis servus hostium fiat, tamen pendet, ius liberorum propter ius postliminii: quia hi qui ab hostibus capti sunt si reversi fuerint, omnia pristina iura recipiunt. Idcirco reversus et liberos habebit in potestate, quia postliminium fingit eum qui captus est semper in civitate fuisse: si vero ibi decesserit, exinde, ex quo captus est pater, filius sui iuris fuisse videtur. Ipse quoque filius neposve si ab hostibus captus fuerit, similiter dicimus propter ius postliminii ius quoque potestatis parentis in suspenso esse. Dictum est autem postliminium a limine et post, et eum qui ab hostibus captus in fines nostros postea pervenit postliminio reversum recte dicimus. Nam limina sicut in domibus finem quendam faciunt, sic et imperii finem limen esse veteres voluerunt.* ***Hinc et limes dictus est quasi finis quidam et terminus.*** *Ab eo postliminium dictum quia eodem limine revertebatur quo amissus erat. Sed et qui victis hostibus recuperatur, postliminio rediisse existimatur.*

In the 6th century, *"limes"* thus clearly corresponds, in the legal language to a limit, but what kind of limit, since the author of that work is relying on the gromatic tradition[47] to give this definition, which etymologically links the term to *"limen"*, *viz.* a threshold of a door, so a passage in a wall? Indeed, is it not one of the functions of a border checkpoint to serve as a place of entry and a place of exit?

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[45] For example, the *comes Limitis Aegypti.* See *Notitia dignitatum*, *Pars Orientis*, XXVIII,1.

[46] Isaac 1988, 137 (= Id. 1998, 364). On the one hand, there is no sign of *"limes"* in *Codex Theodosianus*, VII,xiii,15: *IDEM AA. DECIO P(RAEFECTO) U(RBI). Ad conlationem iuniorem eos tantum oportet adtineri, quos constat dignitates legitimas beneficiis consecutos, non tamen si iusta privilegia suffragantur. DAT. VIII ID. DEC. RAV(ENNA) ARCADIO A. V ET HONORIO A. V CONSS.*; and, on the other hand, *Codex Justinianus*, I,xxvii,13 does not exist. Trying to find the origin of these errors, it seemed to me that the first came from a misreading or misunderstanding of the page header in the standard edition. In Mommsen's edition of the *Theodosian Code*, we can indeed read "VII 13 20 – 15 1" (for VII,xiii,20 to VII,xv,1) at the top of the page where begins the constitution VII,xv,1 = *De terris limitaneis*. See Mommsen – Krüger 1904, p. 341. As for the second error, *Codex Justinianus*, I,xxvii is divided in two parts. If *Codex Justinianus*, I,xxvii,1,13 does not deal at all with the concept of *"limes"*, it is quite different for I,xxvii,2,13: *Cum autem deo adiuvante Africanae nostrae provinciae per tuam magnitudinem secundum nostram dispositionem ordinatae et limites in antiquum statum reducti et omnis Africa sic detenta fuerit, sicut erat, cum ergo haec omnia deo iuvante, praesente tua magnitudine, disposita et perfecta fuerint et per labores tuos antiquos fines omnis Africa receperit, et docuerit nos de omni ordinatione totius Africanae dioeceseos, id est quanti et qui milites in quibus locis vel civitatibus constituti sunt et quanti limitanei in quibus locis vel limitibus constituti sunt, tunc iubemus tuam magnitudinem ad nostram clementiam remeare.*

[47] For example, Hyginus Gromaticus, *Constitutio limitum*, I,10–11: *Limites autem appellati a limo, id est antiquo verbo transversi: nam et limum cinctum ideo quod purpuram transversam habeat; item limina ostiorum. Postea et prorsos et transversos limites appallaverunt a liminibus, quod per eos agrorum itinera serventur.* // Frontinus, *Liber gromaticus*, III,7: *Limites autem appellati transversi sunt a limo [id est] antiquo verbo; a quo dicunt poetae « limis occulis »; item limum cinctum, quod purpuram transversam habeat, et limina ostiorum. Alii et prorsos et transversos dicunt limites a liminibus, quod per eos in agro intro et foras eatur.* // or Siculus Flaccus, *De conditionibus agrorum*, III,3: *Limites autem ab liminubus vocabula acceperunt, quoniam limina introitus exitusque locis praestant, limites agris similiter introitus exitusque. Qui in agris divisis et adsignatis semper pervii esse debebunt tam itineribus quam et mensuris agendis.*

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Résumé

Les définitions administrative, militaire et politique du terme latin « *limes* » ont été au centre de nombreux débats depuis plusieurs décennies. Au fil du temps, il fut tantôt assimilé de la notion de « frontière » – fortifiée ou non – tantôt plutôt à celle de « passage ». Il fut aussi associé à une stratégie militaire – globale ou non – quand il ne fut pas simplement considéré comme un terme abstrait, indéfinissable et intraduisible. Beaucoup des définitions proposées jusqu'à aujourd'hui sont valables, du moins dans un contexte précis; aucune n'est toutefois définitive. Pourra-t-on un jour clore le débat ? Certainement jamais. Sans aucunement avoir une telle prétention, le présent article propose de revoir le dossier, en se concentrant, à la lumière de l'historiographie, sur les sources textuelles, de manière à faire ressortir les évolutions dans l'utilisation dudit terme par les Romains et à préparer le terrain à une nouvelle enquête exhaustive sur le sujet.

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Militärisch und/oder zivil? Zur spätantiken Nutzung des mittelkaiserzeitlichen Kastells von Dormagen (Rheinkreis Neuss/D)

ABSTRACT

Im mittelkaiserzeitlichen Alenlager *Durnomagus*/Dormagen, gelegen an der niedergermanischen Ripa zwischen Köln und Neuss, fanden in den 1990er und am Beginn des 21. Jahrhunderts umfangreiche Ausgrabungen statt. Die Auswertung der spätantiken Nutzungsphase (2. Hälfte 3. bis Mitte 5. Jahrhundert) ergab sowohl eine Neunutzung der mittelkaiserzeitlichen Umwehrung und den Einbau eines Burgus in die Nordostecke des Kastells. Auf dem Kastellareal entstand in der Spätphase eine unregelmäßige Bebauung, die kaum Rücksicht auf die Gliederung des mittelkaiserzeitlichen Lagers nahm. Befunde und vor allem das Fundmaterial deuten sowohl auf eine militärische wie eine zivile Nutzung in differenzierter Ausprägung, die ein verändertes Konzept in der Nutzung dieses Platzes im Rahmen der Grenzsicherung der Germania Secunda erkennen lässt.

Key Words: Dormagen, late antiquity, fortification, civilian use, border

Lage und Forschungsgeschichte

Die Zuweisung des heutigen Ortes Dormagen (Abb. 1) mit dem im Itinerarium Antonini genannten *Durnomagus* (254, 4–5) erfolgte bereits im 19. Jahrhundert. Aus dieser Zeit stammen Grabfunde und der Nachweis eines Mithraeums, jedoch erfolgte der Beleg eines Auxiliarlagers, dessen Existenz der Namenszusatz *ala* im Itinerarium nahelegt, erst im Rahmen von Ausgrabungen in den 1960er Jahren[1]. In diesem Rahmen konnte das 3,3 ha große Lage auf der Niederterrasse rund 60 m westlich vom Abbruch zur Aue nachgewiesen werden. Das Lager liegt ca. 170 m von der Kirche St. Michael und damit vom mittelalterlich-neuzeitlichen Ortskern Dormagens entfernt. Die Ursache für das Lageverhältnis von Kastell zum mittelalterlichen Siedlungskern ist sicherlich in der frühen Kirchengründung im Bereich des merowingischen Gräberfeldes zu suchen, dass sicherlich auf einen spätrömischen Vorgänger zurückgeht, wobei der Beleg

[1]Zur Forschungsgeschichte bis 1979 vgl. ausführlich Müller 1979, 3–4; 17–18.

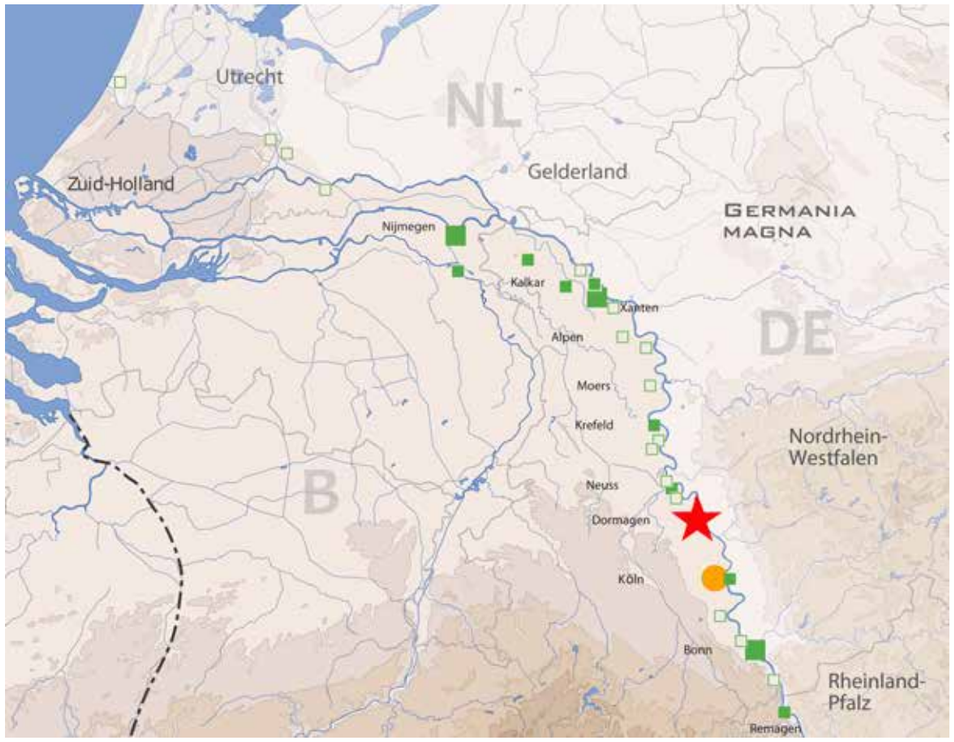

Abb. 1 - Lage des Kastellplatzes *Durnomagus*/Dormagen (roter Stern) am Niedergermanischen Limes mit den im 4. Jahrhundert genutzten (grüne gefüllte Quadrate) und vermuteten (grüne offene Quadrate) Militäranlagen und der Provinzhauptstadt der Germania Secunda (Kartengrundlage: GLOBE Task Team and others, St. Bödecker LVR-ABR, M. Pütz, LVR-LMB. Graphische Bearbeitung: Th. Becker, Landesamt für Denkmalpflege Hessen/hessenArchäologie, Außenstelle Darmstadt)

einer kontinuierlichen Belegung bisher noch aussteht. Das römische Lager liegt westlich der Kölner Straße, die die Flucht der römischen Limesstraße und damit die Fernverbindung zwischen Köln und Xanten aufnimmt.

Der Nachweis der spätrömischen Phase des Platzes gelang erst sehr spät im Rahmen der umfangreichen Untersuchung in den 1990er Jahren und am Beginn des 21. Jahrhundert. Zwar konnte bereits Müller eine Reihe von Funden des 4. Jahrhunderts vorlegen, doch gelangte erst im Rahmen der Grabungskampagnen 1993, 1994, 1996, 1997 und 1998 der Nachweis eines spätrömischen Einbaus (Abb. 2) in der Nordostecke des mittelkaiserzeitlichen Kastells[2]. Die spätrömischen Befunde und Funde der Kampagnen bis 2006 wurden einer Gesamtbetrachtung unterzogen, auch deren Ergebnissen die hier dargestellten Erkenntnisse beruhen[3].

Wiedernutzung in der Spätantike

Sowohl Gustav Müller als auch Michael Gechter haben Überlegungen zum Ende des mittelkaiserzeitlichen Kastells in der zweiten Hälfte des 2. Jahrhunderts geäußert[4]. Auch wenn die Aufarbeitung der mittelkaiserzeitlichen Befunde des Kastells aussteht, liegen verschiedene Hinweise vor, dass die vor Ort stationierte *ala Noricorum* in dieser Zeit, möglicherweise im Zu-

[2]Gechter 1995. Gechter 1998. Gechter 2001a, 37–40. Becker 2007, 111–112.

[3]Becker 2018. Keine Berücksichtigung fanden die jüngeren Grabungskampagnen im Kastell, die aber keinen Einfluss auf das Gesamtergebnis haben: Grohmann 2009.

[4]Müller 1979, 21. Gechter 2001a, 37.

Abb. 2 - Pfahlrost und Gefachfüllung des Holzrostes der spätantiken Burgusmauer des Einbaus während der Freilegung 1998 (Foto: Ch. Schwabroh, LVR-Amt für Bodendenkmalpflege im Rheinland, Außenstelle Overath)

sammenhang mit dem Bürgerkrieg 193-197 n. Chr., das Kastell verliess. Hierfür könnte eine Grabinschrift eines aktiven Soldaten aus Lyon sprechen[5]. Danach scheint das Lager ein gutes halbes Jahrhundert ungenutzt zu sein, wenn man nicht zwei Fragmente von Beneficiarier-Weihungen als Hinweis für eine militärische Belegung in geringem Umfang werten möchte[6].

Im Zusammenhang der unsicheren Situation nach der Ausrufung des Gallischen Sonderreichs kommt es zur erneuten Nutzung des Kastells. Um die Anlage wird ein neuer Graben ausgehoben, der teilweise in die verfüllten älteren Gräben gegraben wird, eine mit 12,5 m größere Breite als seine Vorgänger aufweist und der in seinen Wandungen und auf der Berme zur Kastellmauer mit einem dichten Raster an angespitzten Pfählen zusätzlich gesichert wird (Abb. 3). Ausbesserungen an der Kastellmauer in diesem Zusammenhang sind zwar denkbar, können aufgrund des starken mittelalterlichen Steinraubs aber nicht belegt werden.

Im Kastellinneren finden sich neben einem entsprechenden Fundbestand dieses Zeithorizonts keine Baubefunde, die dieser Periode zugewiesen werden können. Diese deutet zusammen mit mindestens drei Abfallgruben mit Verfüllung dieser Zeit auf die Nutzung des noch bestehenden Baubestands ohne Neuanlangen. Hinzu kommt, dass nach derzeitigem Forschungsstand die Besiedlung des Vicus nördlich und südlich des Kastells in der zweiten Hälfte des 3. Jahrhunderts endet[7]. Anhand vor allem des Münzbestandes deutet sich ein Beginn dieser Wiedernutzung um das Jahr 265 n. Chr. an.

Um den Wechsel vom 3. zum 4. Jahrhundert lassen sich erste Bauaktivitäten nachweisen, die im Verlauf der ersten Jahrhunderthälfte zunehmen. Dabei handelt es sich um einfache Holz(fachwerk)architektur, die sich aufgrund von Postenlöchern oder Unterlegsteinen belegen lässt. Zum Teil wird diese an bestehende Mauern der Kastellarchitektur angelehnt. Am Beispiel der Nutzung des Innenhofes innerhalb der Principia soll dies exemplarisch dargestellt werden.

Auffälliger Befund ist hierzu ein 14 mal ca. 5 m großer Holzbau am Nordrand des Hofes angelehnt an die dort

[5]Becker 2018, 16. Zur Inschrift aus Lyon EDCS-10501278 = CIL XIII, 2319.

[6]EDCS-11202078 = Müller 1979, 120:]PER / [3] CO(n)S(ulibus) / [V(otum) S(olvit) L(ibens)] L(aetus) M(erito). Bechert, Willems 1995, 37–40 Abb. 31.

[7]Müller 1979, 112–119.

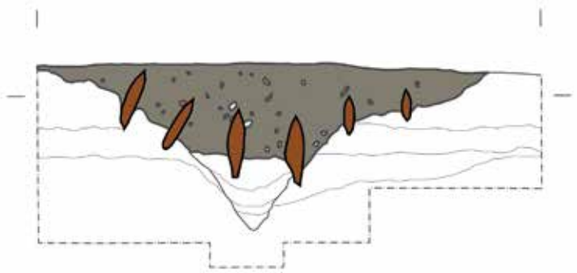

Abb. 3 - Profil durch des Kastellgraben der 2. Hälfte des 3. Jahrhunderts mit eingesetzten Pfosten (rekonstruiert) (Grafik: Th. Becker, Landesamt für Denkmalpflege Hessen/hessenArchäologie, Außenstelle Darmstadt)

vorhandene Porticuspfeilerreihe (Abb. 4). Es handelt sich um ein mindestens zweischiffiges, wenn man die Porticus integriert dreischiffiges Gebäude, an dessen östlichem Ende ein 4,5 mal 3,9 m großer Holzkeller ohne Treppenzugang liegt. Gebäude und Keller weisen mindestens zwei Bauphasen auf und scheinen nach Ausweis der wenigen Funde aus der Baugrube der ersten Phase um den Beginn des 4. Jahrhunderts entstanden zu sein. Weitere Befunde in der nördlichen und südlichen Porticus lassen vermuten, dass diese Bereiche ebenfalls in dieser Zeit genutzt wurden. Da neben den Baubefunden auch Öfen nachgewiesen wurden, liegt die Ausführung eines Handwerkes in den Bereichen nahe, ohne dass Beifunde einen konkreten Hinweis zur Art geliefert haben.

Auch für andere Bereiche des Lagers lassen sich entsprechende Bebauungsspuren nachweisen, wobei in keinem Fall ein Gebäude vollständig erfasst werden konnte (Abb. 5). Sie können grundsätzlich in zwei Gruppen unterteilt werden. Dabei findet sich zum einen die Wiedernutzung mittelkaiserzeitlichen Bauten, wie die Umbauten im steinernen Kopfbau der Mannschaftsbaracke nördlich der Praetentura belegt. Hierzu ist sicherlich auch das dargestellte Beispiel aus den Principia in Teilen zu rechnen. Dazu kommt der Neubau von Gebäuden auf Freiflächen innerhalb des mittelkaiserzeitlichen Kastells als weitere Gruppe. Hierzu gehören ein Gebäude mittig auf der Via Praetoria, Bauspuren im Innenhof des Praetoriums und Teile der Bebauung im Innenhof von den Principia. Während die erste Gruppe die Erhaltung eines Teils der Kastellbebauung impliziert, die im Bestand oder in einer ausgebesserten Form weitergenutzt wurde, deutet sich bei den neu errichteten Gebäuden das Ende der Funktion verschiedener Bereiche des ehemaligen Kastells an. So scheinen die Höfe von Principia und Praetorium ebenso funktionslos geworden zu sein wie die Via Praetoria, deren Nutzung als Verkehrsweg durch die Bebauung unmöglich wurde. Dagegen scheint die Via Principalis weitergenutzt worden zu sein, da sich weder nördlich noch südlich von der Querhalle der Principia noch darin Spuren einer Bebauung auf dem Straßenkörper fanden.

Die Bebauung kann allgemein als locker über das Kastellareal verteilt charakterisiert werden, soweit bei ca. 30 % untersuchter Kastellfläche eine solche Aussage tatsächlich für alle Kastellbereich getroffen werden kann. Möglicherweise wurden bewusst Freiflächen um die einzelnen bebauten Bereiche gelassen, da diese zur Nutzung der Gebäude gehörte. Die Orientierung erfolgte dabei generell am vorhandenen Baubestand und nicht an der verkehrstechnischen Erschließung der jeweiligen Bereiche. Es zeigen sich in Ansätzen funktionale Unterschiede in den einzelnen genutzten Bereichen des Kastellareals. So konzentrieren sich die nachgewiesenen Öfen auf die Principia und sind in den anderen Gebäuden nicht belegt. Möglicherweise gelten für die anderen Bereiche ähnliche Spezialisierungen, ohne dass diese im Befund aber bislang fassbar sind.

Militärbau valentinianischer Zeit

Um die Mitte des 4. Jahrhunderts endet die beschriebene Besiedlung innerhalb des Kastellareals weitgehend. Aufgrund der historischen Überlieferung und des Schicksals anderer Plätze[8] ist man versucht, auch hier ein Ende während der Magnentius-Usurpation bzw. der damit in Verbindung stehenden Frankeneinfällen 351-356 n. Chr. zu sehen. Archäologisch lässt sich die Veränderung nur grob auf den Zeitraum zwischen 348 und den 360er Jahren eingrenzen. Im Bereich des Kastellareals finden sich keine Spuren einer Zerstörung oder kriegerischen Auseinandersetzung aus dieser Zeit. Einzig eine Konzentration von 58 Münzen in der Verfüllung des Hypocaustums im Kopfbau nördlich der Principia mit Schlussmünzen der Kaiser Constans und Constantius II aus der Prägeperiode 347/348 n. Chr., bei denen es sich wohl um einen verstreuten Münzschatz handelt, zeugen von einer Krisensituation um die Mitte des 4. Jahrhunderts.

Nach der Jahrhundertmitte entsteht ein Einbau in der Nordostecke des Kastells (Abb. 7), der auf seiner Nordwest- und Nordostseite den Verlauf der mittelkaiserzeitlichen Kastellmauer nutzt. Daran wurden Zwischen- und Ecktürme neu angesetzt. Lediglich die Südwest- und die Südostmauer der Anlage entstanden neu. Die Anlage hat an allen Ecken und in der Mitte der Langseiten Türme. Vorgelagert kann auf der Südwest- und der Südostseite ein Graben nachgewiesen werden, der in seinem Verlauf von Südosten nach Südwesten an der südlichen Ecke der Anlage herumführend an

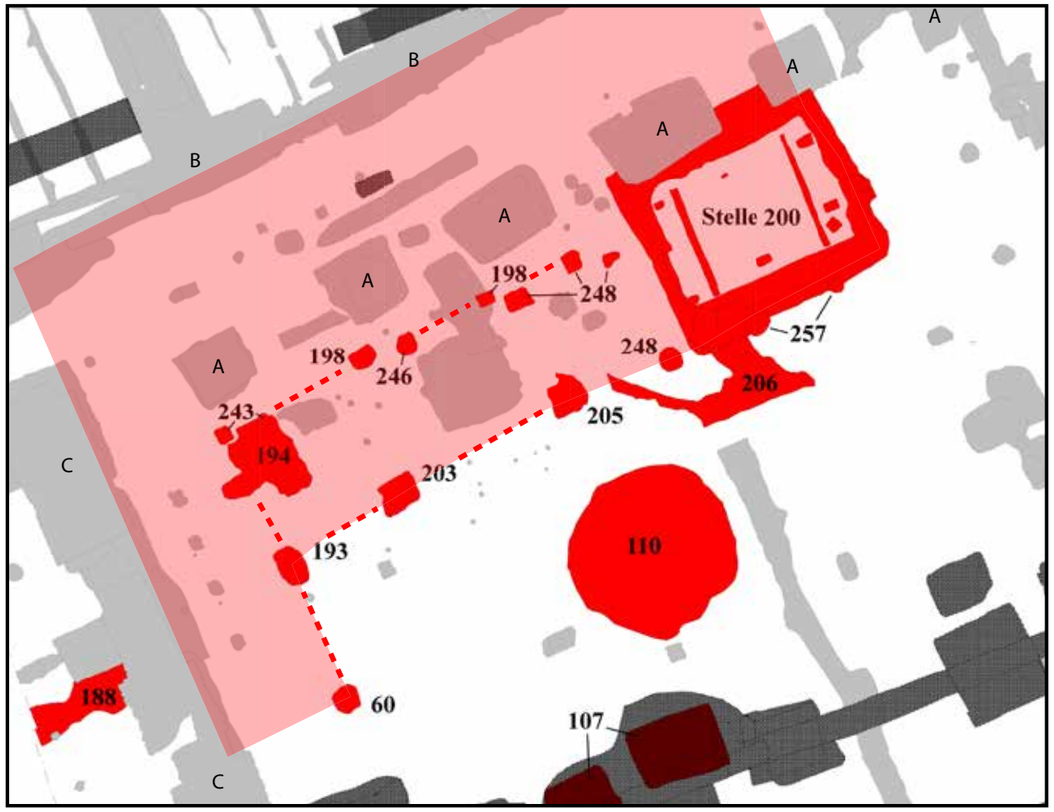

Abb. 4 - Ausschnitt des Grabungsplans aus dem Bereich von den Principia (A: Pfeiler der Peristyls; B: Innenwand der nördlichen Armamentaria; C: Ostwand der Basilika) des mittelkaiserzeitlichen Kastells (graue Befunde) mit einem spätantiken Holzbau (rot: zugehörige Befunde mit Befundnummern; rosa: rekonstruierte Ausdehnung des Gebäudes) und neuzeitlichen Störungen (schwarz) (Plan: Th. Becker, Landesamt für Denkmalpflege Hessen/hessenArchäologie, Außenstelle Darmstadt)

[8] An dieser Stelle sei beispielhaft auf die Brunnenfüllung aus dem Legionslager Bonn verwiesen: Prien 2005, 190–192 (mit weiteren vergleichbaren Befunden S. 194–195 Anm. 62–69).

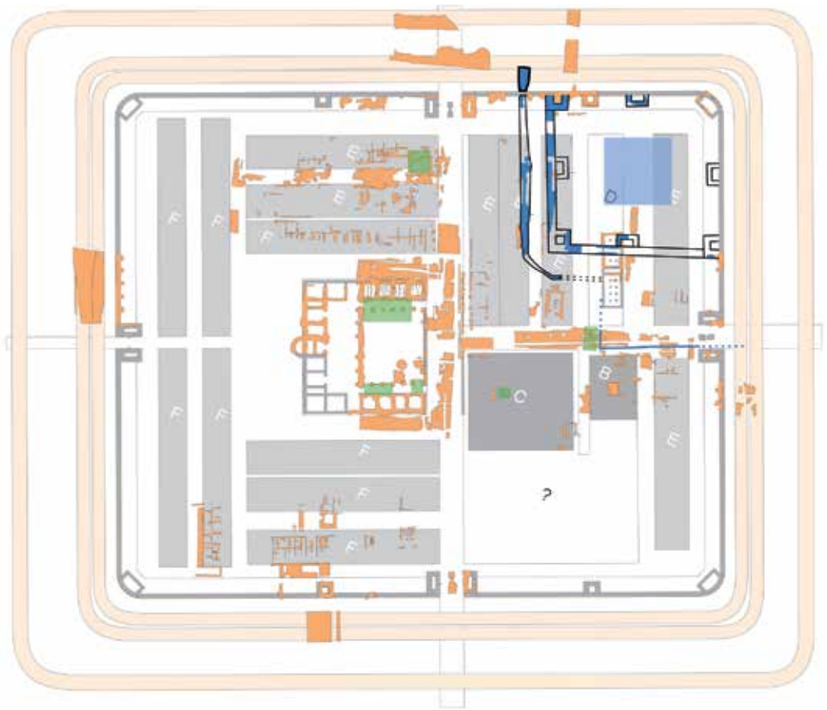

Abb. 5 - Plan des mittelkaiserzeitlichen Kastells mit Eintragung der späten Holzbauten (grün), dem späten Burgus und der zugehörigen Deuchelleitung (blau: nachgewiesene Befunde; hellblau: rekonstruierter Zentralbau; gestrichelte Linie). (Plangrundlage: Th. Becker u. St. Bödecker, LVR-Amt für Bodendenkmalpflege im Rheinland; Graphische Bearbeitung: Th. Becker, Landesamt für Denkmalpflege Hessen/hessenArchäologie, Außenstelle Darmstadt)

Breite und Tiefe zunimmt. Bauspuren an der mittelkaiserzeitlichen Kastellmauer in dem Bereich, wo der Graben den Mauerverlauf quert, legen die Errichtung eines Durchlasses für den Graben nahe. Die Anlage nimmt eine Grundfläche von 51,50 x 55,60 x 56,87 x 52,75 m ein.

Die Mauerstärke für die neu angelegten Mauern konnte im Bereich des Fundamentes mit 2,5 m ermittelt werden. In diesem wurden in den ausgehobenen Fundamentgraben Pfähle in Abständen von 10 bis 40 cm eingeschlagen. Darauf entstand ein Holzrost aus bis zu 25 cm starken Balken, dessen Zwischenräumen mit Bruchsteinen, vor allem sekundär verwendetes Baumaterial aus dem Kastell, trocken verfüllt wurden (Abb. 2). Auf der so errichteten Ebene wurde eine Mörtelschicht als Niveauausgleich gegossen, auf der dann das aufgehende Mauerwerk entstand. Von diesem konnte lediglich an einer Stelle noch ein Stein in situ liegend nachgewiesen werden, während die übrigen Mauersteine durch den mittelalterlichen Steinraub ausgebaut waren.

Von der Innenbebauung der Anlage haben sich bedingt durch massive Störungen in diesem Bereich durch das historische Rathaus aus den 1920er Jahren und einen Lazarettbunker aus dem Zweiten Weltkrieg fast keine Reste erhalten. Lediglich an der Innenseite der Südwestwand bzw. dem südlichen Eckturm fanden sich die Reste einer wohl überdachten Feuerstelle und eines Pflasters, die darauf hindeuten, dass der an die Mauer angrenzende Bereich als Hoffläche genutzt war. In Analogie zu anderen ähnlich umwehrten Anlagen wie den Burgi von Goch-Asperden, Moers-Asberg und den Signalburgi an der englischen Ostküste, deren Typ mit einer turmgesicherten Umwehrung und einem massiven Zentralbau versehen ist[9], muss folglich ein Zentralbau auch in der Dormagener Anlage

[9]Goch-Asperden: Brüggler 2015, 74–80. Moers-Asberg: Krause 1974, 115–124. Signalburgi: Ottaway 1997.

Perioden der Nutzung	Art der Nutzung
2. Hälfte 2. Jahrhundert (192 ?)	*ala I Noricorum* verläßt das Kastell
bis 260 / 270 n. Chr.	Kastell weitgehend leer (Beneficiarierstation ?)
260 / 270 n. Chr.	neuer Graben ausgehoben und durch Pfostenraster gesichert kleine Anzahl von Soldaten zivile Vicus wird ins Kastell in noch existierende Steinbauten verlagert
Anfang des 4. Jahrhunderts n. Chr.	Errichtung neuer Holzgebäude, zum Teil über militärischen Fachwerkbauten der Kaiserzeit, errichtet zum Teil unter Nutzung bestehender Mauern Funde mit mititärischem und zivilen Charakter Ende der Kastellinfrastruktur (Straßen)
2. Hälfte 4. Jahrhundert n. Chr. (valantianische Regentschaft)	Bau eines Burgus in der Nordostecke des Kastells Renovierungsmaßnahmen an der mittelkaiserzeitlichen Kastellmauer Einebnung der zivilen Gebäude Reduzierung / Ende des Friedhofs
1. Hälfte 5. Jahrhundert n. Chr.	Ende der (römischen ?) Besetzung

Abb. 6 - Übersicht über die unterschiedlichen Perioden der Nachnutzung des mittelkaiserzeitlichen Kastellareals und die Art der Nutzung (Tabelle: Graphische Bearbeitung: Th. Becker, Landesamt für Denkmalpflege Hessen/hessenArchäologie, Außenstelle Darmstadt)

existiert haben, der aber durch die modernen Störungen beseitigt wurde.

Die beschriebene Anlage scheint eine valentinianische Gründung zu sein, wofür sich verschiedene Anhaltspunkte finden lassen. Aus der Grabung heraus sind zwei Münzen vorhanden, die aufgrund der Fundumstände bzw. anhaftender Mörtelreste termini post quos von 352 und 367/375 n. Chr. ergeben. Für die Fundamentkonstruktion finden sich in der spätrömischen Wehrarchitektur bislang nur gesicherte Entstehungsdatierungen im Zusammenhang mit dem valentinianischen Bauprogramm der Zeit zwischen 368 und 371 n. Chr. Dazu gehören die dendrochronologisch datierten Anlagen von Aegerten-Isel (369 n. Chr.), Aegerten-Bürglen (368 n. Chr.) und Bregenz (372 n. Chr.) in der Schweiz, die epigraphisch datierten Anlagen von Koblenz-Kleiner Laufen/CH (371 n.Chr.) und Mettauertal-Etzgen/CH (371 n. Chr.) ebenfalls in der Schweiz und die aus dem archäologischen Befunde heraus datierten Anlagen wie Altrip (nach 366)[10]. Im städtischen Wehrkontext lassen sich vereinzelt auch frühere Befunde der Anlage von Pfahlgründungen belegen, die dann aber als Reaktion auf lokale Gegebenheiten im Untergrund und nicht unter chronologischen Aspekten zu interpretieren sind[11]. Ältere Belege aus militärischem Kontext weisen dieses Kontruktionsmerkmal nicht auf oder müssen in ihrer Datierung überdacht werden. Als Beispiele für Wehrmauern der ersten Hälfte des 4. Jahrhunderts können das Kastell Köln-Deutz (spätestens 315) und die Verstärkungsmauer von Remagen (constantinisch) ebenso angeführt werden. Hinzu kommt die als diocletianische Bauphase angesprochene erste späte Bauphase des Kastells Krefeld-Gellep, die allerdings bisher nur in einem Vorbericht vorgelegt wurde und daher noch einer abschließenden Überprüfung am publizierten Befund bedarf[12]. Das bisher als constantinischer Neubau datierte Kastell Monheim-Haus Bürgel ist aufgrund der Funde sicherlich in valentinianischer Zeit entstanden, während man die Auswertung der Untersuchungen in Kalkar-Alt-Kalkar abwarten darf, da hier für die letzte Bauphase die Gründung mit einem entsprechenden Rost ausgeführt wurde. Für die unterschiedlichen spätantiken Bauphasen des Kastells

[10]Aegerten: Bacher *et al*. 1990, 59–61. Bregenz: Grabherr 2005, 69. Koblenz: CIL XIII, 11537. Etzgen: CIL XIII, 11538. Altrip: von Schnurbein, Köhler 1989, 521.
[11]Geyer 1999, 121–122.
[12]Deutz: Caroll-Spilleke 1993, 384–385. Remagen: Friedrich 2010, 79–98. Gellep: Reichmann 1987, 509–513. Ders. 1998, 24–26.

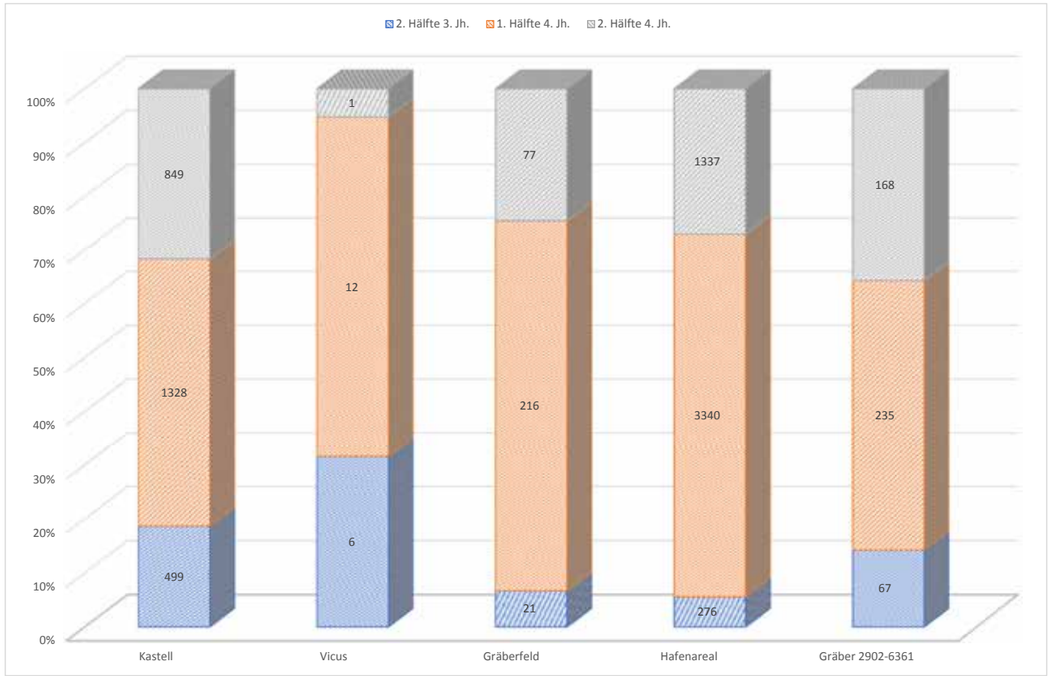

Abb. 7 - Verteilung der Münzfunde vom Kastellplatz Krefeld-Gellep im Bereich der verschiedenen Nutzungsareale (zur Datengrundlage vgl. Anm. 21; Graphische Bearbeitung: Th. Becker, Landesamt für Denkmalpflege Hessen/hessenArchäologie, Außenstelle Darmstadt)

Krefeld-Gellep wird die Konstruktionsart in den Vorberichten nicht beschrieben[13]. Außerdem scheint das Sicherungskonzept der Rheingrenze im ausgehenden 3. und in der ersten Hälfte des 4. Jahrhunderts vor allem in der Nutzung von Bestandsanlagen – Ausnahmen sind hier Köln-Deutz und möglicherweise auch Krefeld-Gellep – zu bestehen, so dass in Dormagen auch vor valentinianischer Zeit kein Neubau zu erwarten wäre. Schließlich reiht sich der Dormagener Burgus gut in die Reihe andere valentinianischer Anlagen wie Goch-Asperden, Moers-Asberg und Filey ein[14].

Für das übrige Areal des mittelkaiserzeitlichen Kastells finden sich lediglich geringe Hinweise auf eine Bebauung. Die Verfüllung und Überdeckung mit einem Estrich des bereits genannten Hypocaustum im Kopfbau der Mannschaftsbaracke nördlich von den Principia scheint eine Maßnahme der zweiten Jahrhunderthälfte zu sein. Für andere Bereich wie beispielsweise die Praetentura südlich der Via Praetoria kann eine durchgehende Planierung des Geländes nachgewiesen werden. Offenbar war in diesem Bereich eine Nutzung als Freifläche vorgesehen. Auch verfüllte man in diesem Zusammenhang die noch im Kastellareal offenstehenden Brunnen und den oben beschriebenen Keller im Innenhof der Principia hat man eingeebnet. In die Via Praetoria wurde eine Holzwasserleitung verlegt, die wohl durch die Porta Praetoria in das Kastellareal hineinlief und zum Burgus abknickte, ohne dass durch Ausgrabungen der Übergang der Leitung in die Befestigung nachgewiesen werden konnte. Für die Nutzung behielt die Kastellmauer aber die Funktion, wie die bereits beschriebene Ausbesserung im Bereich der Grabenquerung andeutet.

Das Ende der Nutzung dieser Anlage durch das römische Militär liegt in der ersten Hälfte des 5. Jahrhunderts. Zu diesem Zeitpunkt setzt zumindest die Belieferung mit spätrömischen Rädchensigillata aus den Argonnen aus. Einzelne Funde deuten eine Begehung des Kastellareals darüber hinaus an, ohne dass Befunde dieser Zeit tatsächlich zuzuweisen wären.

[13]Haus Bürgel: Fischer 1998, 45–46 (constantinisch); Gechter, Hohmeier 2010, 21; Becker 2018, 232–235. (valentinianisch). Kalkar: Bödecker *et al*. 2014, 113–114. Gellep: Reichmann 1987, 513–514. Ders. 1998, 26–31.

[14]Goch-Asperden: Brüggler 2015, 74–80. Moers-Asberg: Krause 1974, 115–124. Signalburgi: Ottaway 1997.

militärisch oder zivil – Funktion der spätantiken Wiedernutzung

Die beschriebenen unterschiedlichen Bauphasen (Abb. 6) innerhalb des Kastellareals werfen die Frage nach den Nutzern und dem Charakter der Nutzung der mittelkaiserzeitlichen Befestigung ab der zweiten Hälfte des 3. Jahrhunderts auf.

Für die Wiedernutzung des Kastells während der Periode des Gallischen Sonderreiches scheint der ältere Gebäudebestand ausreichend gewesen zu sein. Dies deuteten in jedem Fall die fehlenden Baubefunde im Kastellinneren an. Gegen eine rein militärische Wiederbesetzung des Kastells sprechen zum einen die in den zivilen Kontext zu rechnenden Funde (z.B. Bernsteinperle, Gagatperle, Scheibenfibel) und der mit zusätzlichen Annäherungshindernissen gesicherte Graben. Letzteres deutet auf eine stark reduzierte militärische Präsenz im wiederbesetzten Kastell, die nicht mehr die Stärke zur Sicherung des Kastells aufwies. Daher wurde als zusätzlicher Schutz ein weiteres Annäherungshindernis geschaffen, um anstürmende Feinde von der Kastellmauer fernzuhalten. Ein indirekter Hinweis auf die Präsenz von ziviler Bevölkerung innerhalb des Kastells kann auch das Abbrechen der Besiedlung im Vicus um diese Zeit sein. Allerdings finden sich auch drei (Armbrust-)Scharnierfibeln, die als Soldatenfibeln ebenso Hinweis auf die Anwesenheit von Militärangehörigen geben wie vereinzelte Bestandteile militärischer Ausrüstung (z.B. das Fragment einer durchbrochenen Zierscheibe).

In der ersten Hälfte des 4. Jahrhunderts können bei der neu entstehenden Bebauung innerhalb des Kastells keine Hinweise auf klassisch militärische Bauelemente wie beispielsweise Unterkunftsbereiche für Soldaten gefunden werden. Die Architektur weist Elemente wie eine individuelle Vorratshaltung (Keller im Gebäude im Innenhof der Principia), dezentrale Wirtschaftsbereiche (Öfen in den Principia) und eine Teilaufgabe der Infrastruktur im Lager (Überbauung der *Via praetoria*) auf. Diese laufen einer klassisch-funktionalen Gliederung eines Militärlagers entgegen. Auch finden sich für diesen Zeitabschnitt sowohl Funde aus zivilem (Gagatperle, Bronzearmring, Haarnadeln) wie aus militärischem Nutzungskontext (Zwiebelknopffibel). Bei einigen Militaria ist eine Zuordnung in diesen oder den nachfolgenden Nutzungsabschnitt des Kastellareals nicht möglich, da sie um die Mitte des 4. Jahrhunderts datieren (Zwiebelknopffibel, Gürtelbeschlag).

In valentinianischer Zeit kommt es mit dem Bau des Burgus in der Nordostecke des mittelkaiserzeitlichen Kastells zu einer klaren Verstärkung der militärischen Komponente vor Ort. Dies gilt auch für das restliche Kastellareal, da hier mit den Umbauarbeiten an der Kastellmauer und den Planierungen im Kastellinneren militärischen Nutzungsaspekten Rechnung getragen wird. Da eine Bebauung im Kastellareal weitgehend ausbleibt und fast kein Kleinfundmaterial dieser Nutzungsperiode zugewiesen werden kann, ist zwar eine zivile Nutzung nicht erkennbar, aufgrund des Ausbleibens zeitgleicher Funde aus militärischem Kontext aber auch keine statistisch belegbare Aussage. Der Fund eines Kammes, der aufgrund stilistischer Erwägungen in die zweite Hälfte des 4. oder das frühe 5. Jahrhundert datiert wird, kann sowohl im militärischen wie im zivilen Kontext gesehen werden.

Daraus folgt, dass in der Neunutzung des Dormagener Kastells ab der zweiten Hälfte des 3. Jahrhundert eine bislang unterschätzte zivile Komponente vorhanden ist. Sowohl für den Beginn während des Gallischen Sonderreiches wie die Nutzung in der ersten Hälfte des 4. Jahrhunderts scheint erheblicher Anteil ziviler Nutzung im Kastell vorhanden. Die Art des Militärs, die in dieser Zeit hier präsent war, lässt sich aufgrund des archäologischen Befundes nicht fassen, so dass sowohl eine reguläre Teileinheit wie auch eine Miliz oder militärisch erfahrene Veteranen denkbar sind. Erst mit dem Bau des valentinianischen Burgus kann wieder eine deutliche Verstärkung des militärischen Faktors gefasst werden.

Sucht man nach Parallelen zum Dormagener Befund der parallelen Nutzung, so muss zunächst festgehalten werden, dass der Forschungsstand für den Betrachtungszeitraum nur partiell für die Beantwortung der aufgeworfenen Fragestellung ausreichend ist. Für mache Plätze sind es lediglich Indizien, die Hinweise zur militärischen oder zivilen Nutzung geben. Gut aufgearbeitet ist hier das Kastell von Remagen, von dem die Bauphase IV der Nutzung im 4. Jahrhundert

zugerechnet wird[15]. In constantinischer Zeit wird dort die Wehrmauer um 2 m auf 3 m verbreitert, wobei die bestehende mittelkaiserzeitliche Mauer mit integriert wurde. Im Innenbereich entsteht soweit untersucht eine komplett neue Steinbebauung, worunter sich ein Badegebäude und Wohn- bzw. Gewerbebauung befindet. Klassische Militärarchitektur wie beispielsweise Mannschaftsbaracken lassen sich nicht nachweisen. Im Fundmaterial fällt beispielsweise das ausschließliche Vorkommen von Haarnadeln in Kontexten des 4. Jahrhunderts auf.

Für das Legionslager Bonn wird mit der Reduktion der Legion im Laufe des 3. Jahrhunderts durch Abzug von Vexillationen für Feldzüge und Bürgerkriege von einer Nutzung eines Teils des Lagerareals durch Zivilisten ausgegangen. Der Zeitpunkt des Zuzugs ist allerdings nicht abschließend untersucht, doch wird auf ein Ende der Nutzung größerer Bereiche der *canabae legionis* bzw. des *vicus* in der zweiten Hälfte des 3. Jahrhunderts verwiesen. Klassischerweise wird dies mit den Frankeneinfällen 274 n. Chr. in Verbindung gebracht, ohne dass hierzu die Befunde abschließend ausgewertet wurden[16]. Michael Gechter sieht für die erste Hälfte des 4. Jahrhunderts in der Praetentura des Lagers Planierungen, die er mit einer zivilen Nutzung des Lagerbereichs in dieser Zeit in Verbindung bringt. Auch findet in diesem Zusammenhang der Bau mehrere Brunnen statt, der die Ende des 3. Jahrhunderts aufgegebene Wasserleitung ersetzte und zu einer dezentralen Wasserversorgung innerhalb des Lagers führte. Für die zivile Nutzung des Lagerareals in dieser Zeit scheinen auch die Skelettfunde aus einem Brunnen innerhalb des Lagerareals zu sprechen, worunter sich neben vier männlichen erwachsenen Individuen auch sechs Frauen und fünf Kinder befinden[17].
Aus dem Kastell Köln-Deutz, dem constantinischen Neubau, sind im Kleinfundbestand Stücke vorhanden, die in einem zivilen Nutzungszusammenhang gesehen werden können. Soweit sie typologisch einzuordnen sind, finden sich darunter vereinzelt auch Kleinfunde aus der ersten Hälfte des 4. Jahrhunderts[18].

Für den Kastellplatz Krefeld-Gellep ist die Phase der Nutzung des ausgehenden 3. und 4. Jahrhundert nur unzureichend aufgearbeitet und wenn nur im Rahmen von Vorberichten vorgelegt[19]. Ausgrabungen im Bereich des Vicus um das mittelkaiserzeitliche Kastell haben zwar stattgefunden, jedoch finden sich keine Aussagen im Hinblick auf die Nutzung dieser Bereiche im untersuchten Zeitraum, was vor dem Hintergrund der vorliegenden Berichte als im Publikationsrahmen nicht berichtenswert oder als nicht vorhanden zu werten ist[20]. Jedoch lässt sich anhand des Münzspektrums der unterschiedlichen Untersuchungsbereiche (Kastell, Vicus, Gräberfelder) ein deutlicher Rückgang der Nominale im Bereich des Vicus ab der zweiten Hälfte des 3. Jahrhunderts im Verhältnis zu den anderen Bereichen nachweisen (Abb. 7). Daran lässt sich in der realen Anzahl ein deutlicher Rückgang in der Nutzung des Vicusbereiches ablesen, wobei dann vor dem Hintergrund der kontinuierlichen Bestattungsintensität im Gräberfeld die Frage zu stellen ist, wo die zivilen Bewohner gelebt haben, die offensichtlich im Gräberfeld bestattet wurden[21].

Auch für den Bereich der Colonia Ulpia Traiana lässt sich eine deutliche Veränderung für die Spätantike beobachten. Nach derzeitigem Kenntnisstand wird während der ersten Hälfte des 4. Jahrhunderts das Stadtareal verkleinert und mit einer neuen Umwehrung versehen. Diese Maßnahme impliziert verschiedene Veränderungen, die zu dieser Neuanlage geführt haben. Zum einen scheint die Bevölkerungsanzahl deutlich reduziert zu sein, da weite Teile außerhalb der neuen Umwehrung nicht mehr genutzt wurden. Außerdem kann von einer verstärkten Präsenz von Militär zur Sicherung der neuen Umwehrung ausgegangen werden, zumal die Forschung den durch Ammianus Marcellinus überlieferten Namen „Tricesima“ für die Anlage mit der auf dem Fürstenberg stationierten 30. Legion in Verbindung bringt, die hierhin verlegt worden sein soll. Im Fundmaterial ist zudem ein Bestand an Militärfibeln und Militaria aus dieser Zeit nachweisbar, der dieses unterstützt[22].

Der Vergleich mit anderen zeitgleichen Militärplätzen während des Zeitraums der zweiten Hälfte des 3. bis an das Ende des 4. Jahrhunderts am Niederrhein lässt vergleichbare Endwicklungen wie in Dormagen beobachten. Zwar ist eine Revitalisierung militärischer Anlagen an anderen Orten nicht zu beobachten, was aber durch ihre kontinuierliche militärische Besetzung erklärbar ist. Definitiv finden sich aber Spuren des Zuzugs von Zivilisten in die Lagerareale bei allen besprochenen Beispielen. Daher scheint es naheliegend, im untersuchten Bereich ausgehend von den Dormagener Befunden einen Nutzungswechsel innerhalb der militärischen Anlagen hin zu einer Aufnahme der zivilen Bevölkerung aus den Vicusbereichen in die Anlagen zu sehen. Dabei ist die militärische Komponente weiterhin vorhanden, aber im Vergleich zur mittleren Kaiserzeit in deutlich reduzierter Form. Das Ende in der nachgewiesenen Intensität scheint mit der valentinianischen Reorganisation der Grenzsicherung einherzugehen, ohne dass die Anwesenheit von zivilen Personen im Bereich der militärischen Anlagen vollständig auszuschließen ist.

[15]Friedrich 2010, 79–98; 173. Zum angesprochenen Kleinfundmaterial vgl. Ebd. 120 (Haarnadeln).
[16]Gechter 2001b, 106–109.
[17]Prien 2005, 192–193. Wahl *et al*. 2005, 210.
[18]Caroll-Spilleke 1993, 375.
[19]Reichmann 1987. Ders. 1998.
[20]Paar, Rüger 1971, 318–319. Schletter 2018, 80.
[21]FMRD VI 3/1, 3001,1–4. Für die Abb. 7 fanden die Münzen 3001,1.253–2927, 3001,2.54–72, 3001,3,1.290–5240 und 3001,4,2.38–330 Verwendung.

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[22]Otten, Ristow 2008. Bridger 2008.

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The afterlife of the Dutch part of the *limes ad Germaniam inferiorem*

ABSTRACT

Between 165 and 198 the province of Germania inferior was hit by a range of crises (Antonine Plague, raids of the Germanic tribe of the Chauci, the revolt of Maternus, battle for the throne between Clodius Albinus and Septimius Severus). In these turbulent years, the castella on the southern bank of the Rhine and numerous settlements in the hinterland of the limes were abandoned, causing an end to the Pax Romana.

Around the year 200, the Romans managed to restore the limes along the Rhine, according to the rebuilding of the previously mentioned castella. Possibly military units were also stationed in the two municipiae (Ulpia Noviomagus, Municipium Aelium Cananefatium). Despite the foundation of a few new settlements in the civitates south of the Rhine, it is clear from settlement research that the depopulation that started in the late 2nd century could not be stopped anymore. Politically, it remained turbulent in the 3rd century, which allowed Germanic colonists to settle south of the limes.

Around 270-280 A.D. again the limescastella and many settlements in the hinterland had been abandoned. After Constantius Chlorus had regained control of the area in 293, some new castella (Nijmegen, Cuijk, Rossum) were built in the Batavian area. Presumably the castellum Brittenburg was founded near the mouth of Rhine at the same time. There are no indications that the limescastella between the Brittenburg and Nijmegen, that had been lost a few decades before, were taken into use again. The limes defense system along the Rhine has lost its function. Settlement investigation also shows that the direct hinterland of the limes, with the exception of the civitas Batavorum, became more and more depopulated during the course of the 4th century.

Finds from the abandoned castellum sites along the Rhine show that they were still visited in the 4th century, presumably for the extraction of raw materials, mainly metal, glass and building material.

In summary, it can be said that the fragmentation of both the limes and the settlement structure in the immediate hinterland in the northwestern part of Germania inferior started in the late 2nd century, and was completed in the second half of the 4th century. Only the Batavian area around Nijmegen was actually part of the Western Roman Empire at the beginning of the 5th century. A narrow corridor along the Maas formed the most important connection with the more southern parts of the Roman empire.

Key Words: limes, Late Antiquity, Netherlands, coins

During the reign of the emperors Caligula and Claudius, 60 years after the arrival of the first Roman troops in the Lower Rhine Area, Roman soldiers began with the construction of a coherent linear system of border surveillance on the southern bank of the Rhine, the *limes ad Germaniam inferiorem*. They built castella for auxiliary troops on locations mainly determined by the landscape. Most of them had an infantry occupation, only cavalry was stationed at the Kops Plateau in Nijmegen. Between them lay watchtowers for observations and the rapid transmission of signals. Patrols by road and ships on the Rhine ensured good control of all movements of persons. The aim of this was not only purely military, police control of the trade and the imposition of taxes were equally important.

During the Batavian Revolt in AD 69, the castella were abandoned or set on fire. A Roman army under the leadership of Cerialis succeeded in defeating the uprising in AD 70. The next year the Tenth Legion started with the construction of a new fortress in Nijmegen. In the decades that followed, this legion restored the lost castella along the Lower Rhine and also built some new reinforcements. The involvement of this legion is clearly evident from the distribution of stamps on roof tiles on the southern bank of the Rhine.[1] Under the emperors Trajan and Hadrian the limes infrastructure was renewed on a large scale. This is particularly evident from dendrochronological dating of oak which was used to reinforce quays along the river and the limes road.[2] In the same period, changes were made in the hinterland of the limes, where the legion helped with the construction of villas and temples in the *civitas Batavorum*, which also can be seen in the relatively vast amount of stamps on roof tiles in the hinterland of Nijmegen.[3] In the same period Trajan gave the Batavian capital a new status and a new name *Ulpia Noviomagus*, and Hadrian elevated the capital of the *Cananefates* in Voorburg in the western part of the Netherlands to the *Municipium Aelium Cananefatium*, also known as *Forum Hadriani*.[4]

In the following decades, the Dutch part of the Roman empire experienced a lot of prosperity. This *pax romana*, however, ended between AD 160 and 170 by a smallpox pandemic, the Antonine Plague.[5] The Lower Rhine limes and its hinterland became partly depopulated and the existing economic structures collapsed. This caused a lot of unrest on both sides of the Rhine. In response, the castella and the capitals of the *Batavi* and the *Cananefates* were walled and moated. These fortifications probably were a reaction to impending trouble, but they turned out to be insufficient since several castella and large parts of *Ulpia Noviomagus* were torched shortly afterwards. Burnt layers from this period were found also in other places in het hinterland of the limes, for example on the temple premises at Empel and in parts of the municipium in Tongres. The cause for these catastrophic events should perhaps be sought in the threats that affected the entire Lower Rhine area in the late 2nd century. It is unlikely that the Germanic tribe of the *Chauci* – which conducted attacks on the coastal areas in the west of the Netherlands and Belgium in the years from AD 172 to 174 – can be held liable for the town fires at Nijmegen and Tongres. Internal problems in the north west of the Empire may well have inspired those. There may be a relation with the revolt of Maternus in AD 185-186 or the battle for the throne between Clodius Albinus and Septimius Severus, which also had great consequences for *Germania inferior* and would not end in Severus' favor until AD 196, in a great battle at Lyon. Earlier that year, Albinus' attempt to reconquer the Rhineland failed in spite of the fact that he had beaten Virius Lupus, the governor of *Germania inferior* and an ally of Severus.[6]

[1]Van Enckevort 2012, 273–277
[2]Hessing 1999; Haalebos, Willems 1999
[3]Van Enckevort 2012, 277–279
[4]Van Enckevort 2012, 269–273
[5]Harper 2017, 164–218
[6]Van Enckevort 2012, 31–32

After the catastrophic events at the end of the 2nd century the castella along the Lower Rhine were taken into use once again, and restored according to some building inscriptions. The capitals of the Batavians and the Cananefates were also inhabited again, although we have the impression from excavations that the number of inhabitants in Nijmegen was much lower than half a century earlier. Furthermore, the settlement areas that were abandoned in the 2nd century AD to the south of the limes were not re-used in the 3rd century AD. In addition, only a few new settlements were established after 200 AD Under Septimius Severus, the walled surface of both *Ulpia Noviomagus* and the *Forum Hadriani* was considerably increased. The intention of this is still unclear, but it is not unlikely that this new part of both towns was used for the housing of troops.

The activities in the castella along the Lower Rhine and in the Batavian and Cananefatian capitals ended shortly after the middle of the 3rd century. This meant the end of the Dutch part of the limes in Lower Germany. Although there is no direct archaeological evidence, part of the cause lies possibly in the outbreak of the Plague of Cyprian in 249-262 AD; millions of people lost their lives.[7] On the southern Dutch sandy soils, the depopulation as a result of this catastrophic event was partly absorbed by the influx of Germanic settlers. They settled in existing native settlements in the second half of the 3rd century.[8] Despite this population growth, the majority of the settlements were abandoned shortly afterwards, before the end of the 3rd century. Maybe also attacks by Germanic tribes contributed to this depopulation.

Like other regions in the adjoining civitates of Xanten and Cologne the southern part of the Netherlands was largely abandoned. In AD 293, the Roman general Constantius Chlorus rejoined the previously lost area south of the Rhine to the Roman empire with the help of a major military effort.[9] Undoubtedly, this was motivated by the fact to gain strategic control again over the lower branches of the Rhine, both because of the border defense and the securing of the supply of grain from *Britannia*. At the same time, the building of new castella in the Batavian area started. However, this meant no restoration of the limes from the 3rd century because most of the castella along the Lower Rhine west of Nijmegen were not rebuild. The son of Constantius Chlorus, Emperor Constantine I, reorganized the border defense further and finally restored the central authority in the Low Countries, building on the work of his predecessor Diocletian.

The number of castella in the Netherlands has been much smaller in the 4th century than in the previous century. In the Batavian area three new castella were built in Nijmegen, Cuijk and Kessel-Lith around 300 AD, and at the mouth of the river Rhine a fourth castellum near Katwijk, the Brittenburg, rose. In the south of the Netherlands, on the bank of the river Meuse, a castellum was built in Maastricht. These castella remained in use until the end of the Roman period. Between Nijmegen and the coast was a wide gap, because none of castella of the 3rd century limes was rebuilt in the late Roman period. Excavations prove that the ruins of these castella were visited regularly by residents of rural settlements on both sides of the Rhine for the extraction of raw materials during the 4th and 5th centuries. They mainly looked for metal and glass for reuse, but they also took building material like roof tiles, lime mortar, limestone and tuffa home with them. Presumably, the lime mortar and limestone was used as a flux in metal melting furnaces.[10]

In the hinterland of the Dutch part of the limes the number of settlements decreased during the 4th century. This can be deduced from distribution of coins found [11] in the southern part of the Netherlands (Fig. 1). These coins and other artefacts, like settlement traces, pottery, glass and building materials, were the object of a major investigation into archaeological remains from the 4th-6th centuries AD.[12] The decline in the southwestern part of the Netherlands is mainly due to the increasing waterlogging of the peat and clay areas, making it almost

[7]Harper 2017, 136–145
[8]Van Enckevort, Hendriks, Nicasie 2017, 194–197
[9]Willems 1984, 433–434
[10]Van Enckevort, Hendriks, Nicasie 2017, 226–228
[11]Heeren 2017
[12]Van Enckevort, Hendriks, Nicasie 2017, 168–228

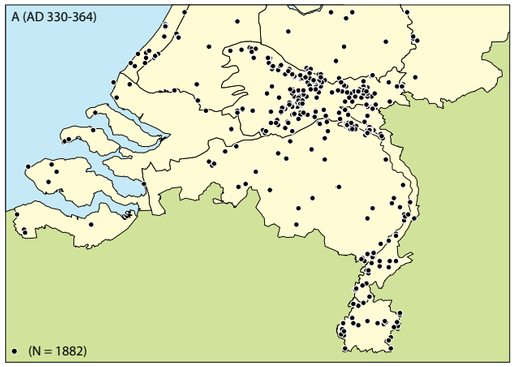

Fig. 1(a) - Distribution maps of coins from the periods 330-364 (Joep Hendriks, Bureau Archeologie en Bodemkwaliteit, gemeente Nijmegen).

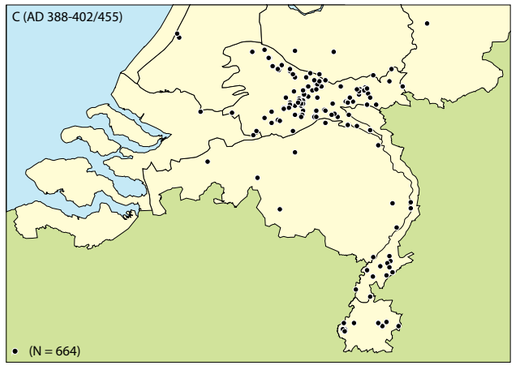

Fig. 1(c) - Distribution maps of coins from the periods 388-402/455 (Joep Hendriks, Bureau Archeologie en Bodemkwaliteit, gemeente Nijmegen).

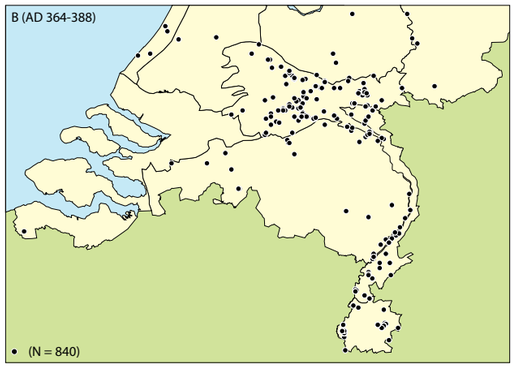

Fig. 1(b) - Distribution maps of coins from the periods 364-388 (Joep Hendriks, Bureau Archeologie en Bodemkwaliteit, gemeente Nijmegen).

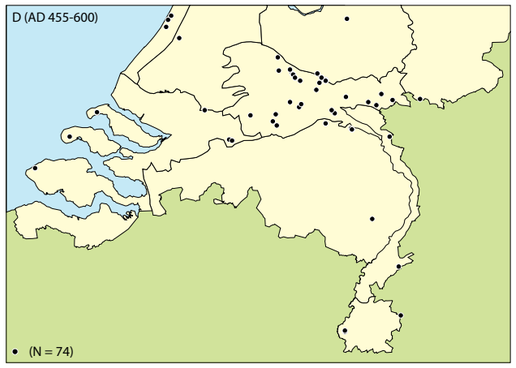

Fig. 1(d)- Distribution maps of coins from the periods 455-600 (Joep Hendriks, Bureau Archeologie en Bodemkwaliteit, gemeente Nijmegen).

impossible to live there. The south of the Netherlands suffered from the deteriorating climate from the end of the 2nd century, so that an agricultural existence on the marginal sandy soils was virtually impossible in the 4th century. Only the fertile clay soils in the eastern part of the Dutch River Area in the neighbourhood of the castellum in Nijmegen offered good possibilities for farming. Nevertheless, the number of settlements declined also steadily in the former *civitas Batavorum*.

The usurpation by Magnentius AD 350 resulted again in a period of great unrest, as a result of which all stability that had been built up from Constantius Chlorus seems to have been nullified again. The Franks benefitted from this opportunity directly, and massively attacked the Roman regions south and west of the river Rhine. This resulted in the disappearance of the Roman coastal defence system along the North Sea and settlements along the former limes road in the central part of the Netherlands (Fig. 1c). Under general Julian Cologne was reconquered on the Franks in AD 356. Moreover, in AD 358 he also restored at least three forts on the banks of the river Meuse and set them up as depots for his further actions. One of these fortifications is probably the castellum in Cuijk. He also assured the troops in the southern part of *Germania secunda* and in *Germania prima* of a good supply of grain by securing the route from *Britannia* along the river Rhine. This was done by re-using various castella allong the river, including *Castra Herculis* in Nijmegen.[13] In AD 360,

[13]Van Enckevort, Hendriks, Nicasie 2017, 154 – 155; Verhagen, Heeren 2016

when Julian (360-363) himself is emperor, the Lower Rhine area again appears to be under Roman control. At that moment, for the first time since the fall of the limes at the end of the 3rd century, the border defense in depth seems to be fully functioning.

Julian left shortly thereafter for the eastern part of the Empire and after a period of relative peace the Frankish activities increased again. Valentinian I tried to curb this danger by further strengthening the existing defense system on the Rhine. In that context he had a lot of new castella built in AD 368-369 at the border and in the immediate hinterland and rebuilt in stone, including the castella in Cuijk, Nijmegen and Kessel-Lith. At the same time, several small fortifications such as the burgus in Asperden were built. This was on the road that ran from Cuijk through the valley of the river Niers in the direction of Alt-Kalkar on bank of the Rhine. With more troops and quick counter-actions, the defense line in the eastern part of the Dutch river area and along the river Meuse functioned properly again for a number of years.

Because the Romans were again and again forced to use Frankish tribes in the defense of the border, it is no coincidence that in the last part of the 4th century a number of Franks could penetrate to the highest level in the Roman army. In fact, it meant that the power in our regions at the end of this century was in the hands of a small group of generals of Frankish descent. For a longer period of time – until the year 388 – it remained relatively quiet in the Low Countries. Then, according to the historical sources, there is again a Frankish threat, but Arbogast, a Frankish general in Roman service, shortly after that defeated the enemies. From that moment on, Arbogast and his successor Stilicho practiced an active foederates policy. Frankish *foederati* founded various settlements south of the Rhine at that time, as the accompanying example from Gennep, 15 kilometers south of Nijmegen.[14] Because of this policy, the Romans were reasonably successful in deterring potential intruders. Frankish leaders in the Lower Rhine Area were rewarded for this by the Romans. This is reflected by several gold hoards from the late

Fig. 2 - Remains of coin production from the Wijchen-Tienakker site, with a bronze bar (8 centimeters high) with a sprue remnant (left), chunks chopped from bars (top right), two coin blanks (bottom left) and five coins, partially cracked by corrosion (Rob Mols, Bureau Archeologie en Bodemkwaliteit, gemeente Nijmegen).

fourth and fifth centuries,[15] and this hoard from Pey-Echt, with hacksilver and gold coins.[16]

The great breakthrough of the Rhine border at Mainz by the *Alamanni* in AD 406 hardly affected the events in the Low Countries. Near the ruins of an abandoned villa in Wijchen, a few kilometers south of Nijmegen, imitations of coins from the late 4th century where found, together with semi-finished products of coins (Fig. 2). These were made locally at the beginning of the 5th century. This makes clear that at that time there was a monetary economy, partly based on Roman roots, in the Nijmegen area.[17]

It was only after *Britannia* chose its own way that the Dutch river area lost its strategic position as a grain route from *Britannia* for the troops stationed further south on the Rhine border. Probably the Roman authority then retreated more and more from the eastern part of the Dutch part of the Lower Rhine Area. After AD 420, Frankish warriors succeeded in taking possession of several civitates located between the rivers Meuse and Rhine. Around AD 430 they were subjected by the Roman general Aetius, but they were allowed to keep the area as foederati. At the same time, the

[14]Heidinga, Offenberg 1992
[15]Roymans 2017
[16]Heeren, Roymans 2014
[17]Reijnen 2011; Heirbaut, Van Enckevort 2015; Van Enckevort, Hendriks, Nicasie 2017, 212 – 214; 224 – 225

Salian Franks moved further south. They succeeded their king Chlogio (394-448) in establishing his own empire north of the river Somme in France. Around the year 459, Cologne was conquered and transformed into the seat of a Frankish king.

Yet this did not mean the end of Roman influence in the Dutch river area, as the gold hoard from Lienden shows. The closing coin is from Emperor Majorian, who ruled from AD 457 to 461.[18] This meant that the formal end of the Roman influence on the events in the delta of the rivers Meuse and Rhine likely ceased with the fall of the Western Roman Empire in AD 476. Probably the last castella were also then given up. Thus the last Roman obstacles for the formation of Frankish kingdoms in North Gaul was removed.

A group of several tens of graves from the second half of the 5th and the beginning of the 6th century proves that the castellum in Nijmegen seems to have been taken back into use by the Merovingian groups.[19] Coin finds show also that in the second half of the 5th and in the 6th centuries almost only the eastern part of the Dutch river area was relatively busy (fig. 1d). Other parts of the former Roman Empire in the southern part of the Netherlands were only colonized again around AD 575.[20]

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Summary

At the end of the 2nd century AD Rome loses temporarily control of the Lower Rhine Area. In AD 293, the Roman general Constantius Chlorus rejoined the previously lost area south of the Rhine to the Roman empire with the help of a major military effort. However, this meant no restoration of the limes from the 3rd century because most of the castella along the Lower Rhine west of Nijmegen were not rebuild. In the Batavian area three new castella (Nijmegen, Cuijk and Kessel-Lith) were built, and at the mouth of the river Rhine a fourth castellum near Katwijk, the Brittenburg, rose. The distribution of the late Roman coins shows a selection over time, making it clear that at the end of the 4th century only the region around Nijmegen was still under Roman control. The fall of the Western Roman Empire also marked the end of Roman influence in the Lower Rhine Area.

[18] Heeren, De Kort, Roymans 2017
[19] Hendriks, Den Braven 2015
[20] Van Enckevort, Hendriks, Nicasie 2017, 236 – 240

LIMES XXIIII

Session 19

Who Were the Limitanei?

INTRODUCTION

Session organisers / Chairpersons:
S. Thomas Parker, North Carolina State University, Raleigh, USA

Scholars have long debated the identity of these enigmatic frontier forces in the late Roman period. Who were these so-called "second-class troops" (viz. the comitatenses)? When, if ever, did these limitanei evolve into a kind of "peasant militia"? What was their military mission and how effectively did they perform this role? To what if any degree were they logistically self-supporting from their own lands versus externally supplied? The rather scanty documentary sources on these frontier soldiers are often seemingly contradictory but there is a growing amount of archaeological evidence (especially botanical and faunal) from various frontiers that significantly supplements and may well challenge traditional portraits drawn from the documentary evidence. It also seems likely that the nature of the limitanei varied among the farflung frontiers of the Roman empire. This session invites papers from all imperial frontiers that may shed light on this question.

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Who Were the *Limitanei*?

This session at the XXIII Roman Frontier Congress consisted of three case studies devoted to the long-standing scholarly debate about the identity of these enigmatic frontier forces in the late Roman period. Who exactly were these so-called "second-class troops" (viz. the *comitatenses*)? When, if ever, did these *limitanei* evolve into a kind of "peasant militia"? What was their military mission and how effectively did they perform this role? To what if any degree were they logistically self-supporting from their own lands versus externally supplied? The rather scanty documentary sources on these frontier soldiers are often seemingly contradictory but a growing amount of archaeological evidence (especially botanical and faunal) from various frontiers significantly supplements and in some cases challenges traditional portraits drawn from the documentary evidence. It also seems clear that the nature of the *limitanei* varied among the far-flung frontiers of the Roman empire. This session included papers focused on the *limitanei* based on imperial frontiers from all three continents (Europe, Africa, and Asia) that shed light on these questions.

Rob Collins considers the nature of the *limitanei* in northern Britain. Alan Rushworth presents an analysis of these frontier troops in North Africa and S. Thomas Parker turns the focus to the empire's southeastern frontier in provincial Arabia and Palestine. All three papers consider the fundamental nature of the natural environment in shaping the military presence along these frontiers in terms of both climate and the natural landscape. These crucial factors played an outsized role in determining potential sources of logistical support.

Collins focuses on the multiple roles of the regional commander (*dux Britanniarum*) as presumed from documentary sources. He notes that recent research, especially drawn from paleobotanical and faunal analyses, has greatly enhanced our understanding of the logistical system that supplied the garrisons along the Wall. It is surely notable that on this frontier the *limitanei* made no systematic attempt to strengthen or to "harden" their fortifications as seen on so many other frontiers by the 4th century. On the other hand, significant changes to internal buildings, such as the *horrea* and barracks, are suggestive of the changed nature of these late Roman units.

Rushworth considers evidence for the North African frontier in the 4th and 5th centuries. Here troops specifically named as *limitanei* in the *Notitia Dignitatum* serve under a number of *praepositi limitum*, commanders of named frontier districts rather than individual units, a unique situation viz. other imperial frontiers. Close analysis suggests little practical difference when comparing the nature of some units of *comitanenses* with higher grade units of *limitanei*. This calls into question the traditional sharp distinction drawn between these two classes of troops in both some ancient documentary sources and in modern scholarship. He also considers the nature of interactions between these forces and the tribal society of this frontier.

Parker also begins his paper on the Arabian frontier by reviewing the environmental constraints imposed by this desert frontier and Roman strategic interests in the region. He especially considers the long debated question of when, if ever, these *limitanei* became

a "peasant militia" who both protected the frontier but also cultivated land and raised livestock around their forts to reduce their cost to the imperial government. He notes that the sparse documentary evidence merely provides a *terminus ante quem* of the early 5th century for such activity. However, recent archaeological evidence from a group of excavated forts east of the Dead Sea suggests local farming of crops and breeding livestock as early as their foundation under the Tetrarchy. It remains unclear whether or not the soldiers themselves were farming these lands but it does question earlier scholars who suggested that these *limitanei* only began farming in the early 5th century. These forces were based in newly constructed "hardened" fortifications (mostly *quadriburgia*), dispersed in small units, with both legions and auxiliary units sharply reduced in strength from Principate norms.

What seems clear from this small sample from three far-flung frontiers is the sheer diversity among the late Roman frontier forces in terms of command structure, types of units, nature of their military installations, and the sources of logistical support. This suggests that, unlike the much more standardized army of the Principate, the late Roman frontier forces were far more diverse and likely the result of *ad hoc* arrangements developed as specific responses over time by various emperors based on highly variable local and regional demands.

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New Light on the *Limitanei* of the Arabian Frontier

ABSTRACT

Who were the *limitanei*? The true nature of these troops, who likely comprised about half the imperial Roman army in the 4th and 5th centuries, remains largely enigmatic. Particularly problematic is when these soldiers became a kind of "peasant militia" who farmed land adjacent to their forts as well as protecting the frontiers, presumably to reduce their cost to the imperial government. The relatively sparse documentary evidence is in some ways suggestive but essentially inconclusive, merely providing a *terminus ante quem* of the early 5th century. Archaeological evidence from the Arabian frontier suggests cultivation of crops and breeding of livestock in the immediate vicinity of some forts as early as the Tetrarchy, when many were established. Although this new evidence does not prove that the soldiers themselves were farming these lands (which was otherwise perhaps leased to civilians or worked by soldiers' families), it does raise questions about earlier scholarship which argued that the *limitanei* only began farming a century or so later, i.e., with the first explicit references in documentary sources.

Key Words: *limitanei*, Roman army, Arabian frontier, Roman frontiers, Roman fortifications, peasant militia, military logistics

Scholars have long debated the identity of these enigmatic frontier forces in the late Roman period. Who were these so-called "second-class troops" (viz. the *comitatenses*)? When, if ever, did these *limitanei* evolve into a kind of "peasant militia"? What was their military mission and how effectively did they perform this role? To what degree were they logistically self-supporting versus externally supplied? The scanty documentary sources are problematic but growing archaeological evidence from various frontiers may challenge traditional portraits drawn from the documentary evidence. The nature of the *limitanei* likely varied among the far-flung frontiers of the empire.

This paper focuses on the *limitanei* of the Arabian frontier, where much new evidence provides new insights but inevitably raises new questions. The paper will focus on the late Roman provinces of *Arabia* and *Palaestina* (later *Palaestina Salutaris*, then *Palaestina Tertia*). We will review the regional environment, summarize prior scholarship, consider recent archaeological evidence that challenges some earlier scholarship, and conclude with some remarks about outstanding questions that remain.

Environmental context is fundamental to understanding all frontiers and the Arabian frontier is no excep-

tion. The southern Levant served as the crucial land bridge between Egypt and Syria and was dotted with many small cities surrounded by productive agricultural hinterlands on both sides of the Great Rift Valley. But this relatively well-watered landscape changes dramatically just east of the Rift Valley and south of the Dead Sea to the North Arabian Desert. Apart from a few scattered oases, this desert offered limited seasonal pasturage to pastoral nomads. Lucrative caravan traffic importing luxury goods from distant sources well beyond the imperial borders also regularly traversed this arid region. For centuries before the Romans, successive empires pursued two primary strategic goals: securing the lucrative caravan traffic and protecting the sedentary agricultural and urban population from the potential security threat posed by the nomadic desert tribes. These goals could be pursued by diplomacy, economic subsidies, and/or the threat or direct use of force. The success of such policies might result in mutually symbiotic relations between the nomadic and sedentary populations of the frontier. But failure could lead to widespread if usually low intensity nomadic raiding. The presence or absence of adequate security in large part explains the cycles of intensification and abatement of frontier settlement that continued up to the modern era.

The Romans initially pursued a successful policy of diplomacy exercised through client kings of the Nabataean Arabs.[1] Regional surveys suggest that intensive settlement pushed to the very margins of the desert from the late 1st century B.C. through the 1st century A.D. In 106 Trajan annexed the Nabataean kingdom as the new province of Arabia.[2] A provincial army of about 10,000 men was clearly able to maintain security through the 2nd and well into the 3rd centuries. All this changed in the late 3rd century. Episodes of civil war and the Palmyrene revolt apparently weakened the provincial security forces and the strength of the nomadic Arabs seems to have increased, fueled by several disparate factors.[3]

The reign of Diocletian (284-305) was clearly a crucial turning point on this frontier as elsewhere. His reign witnessed abandonment of the outlying region of the northern Hijaz, systematic repair of the regional road system, construction of many new fortifications, and the arrival of new military forces.[4] The old province of Arabia was partitioned: the southern portion now fell within an enlarged province of *Palaestina* with the northern region remaining as a truncated province of Arabia.[5] The reorganized military forces in the two provinces, each commanded by a *dux*, look remarkably similar when compared to the other duchies along the eastern frontier from Mesopotamia to the Red Sea. Each *dux* originally commanded a pair of legions, some eight to ten elite cavalry vexillations, and a number of *alae* and cohorts (Fig. 1).[6] These forces were ultimately classified as *limitanei*, although the term did not originate with Diocletian himself.

How were these frontier forces deployed? There is broad agreement that the dispositions listed in the *Notitia Dignitatum* essentially reflect the situation of the Tetrarchy with some minor changes by the end of the 4th century (Fig. 2). The crucial point is that most units were deployed along the fringe of the desert, leaving the agricultural and urban heartland of both provinces largely demilitarized. This implies that the Romans perceived the main security threat to the region to be the nomadic Arab tribes from the desert. Many auxiliary units were based in newly constructed small forts (*quadriburgia*) either on the edge of the agricultural zone or in some cases even in the desert itself, where arid regions lay well within the provincial boundaries. *Legio III Cyrenaica* remained at its Principate base at Bostra in the north. But this redeployment towards the desert included three other legions, with two (*legio IV Martia* at el-Lejjun and *legio VI Ferrata* at Udhruh) based on the edge of the agricultural zone and a third (*legio X Fretensis*) at the port of Aila in a hyper-arid region anchoring the southern end of the frontier.[7]

[1]Still useful for the political relationship between the Nabataeans and Romans is Bowersock 1983, 28–75.
[2]Parker 2009a, for the argument that the annexation may have faced more resistance than previously supposed.
[3]Parker 2006a, 535–541.
[4]Parker 2006a, 541–552, for the central sector of the frontier east of the Dead Sea, and Parker 2009b for the southern sector.
[5]Sipilä 2004; Ward 2012, for discussion of these territorial and administrative changes.
[6]*Notitia Dignitatum, Oriens* 34, 37.
[7]Parker 2009b.

Fourth Century Garrison of Arabia and Palaestina				
(based on *Notitia Dignitatum, Oriens* 34, 37				
Dux	Legions	Vexillationes	Alae	Cohorts
Arabia	2	8	6	5
Palestina	2	10	6	11
Total	4	18	12	16

Fig. 1 - Table of units of *limitanei* listed under the *dux Arabiae* and the *dux Palaestinae* (*Notitia Dignitatum Oriens* 34, 37. One additional legion (*VI Ferrata*) listed here in Palestine is absent from the *Notitia* but is attested by a Tetrarchic building inscription from the fortress at Udhruh, just east of Petra. It disappeared sometime later in the 4th century, thus its absence from the *Notitia*. Some of the eleven cohorts listed for Palestine may be later creations intended to replace the legion (by S. Thomas Parker).

Before we examine these forces, we must briefly summarize the relevant scholarly literature about the nature of the *limitanei*. All agree that these frontier troops, sometimes called *riparienses* or *ripenses* but styled *limitanei* by the late 4th century, comprised roughly half the imperial Roman army and were secondary in status to the *comitatenses* or field armies. The term *limitanei* first appears in 363 but naturally this is only a *terminus ante quem*.[8]

Van Berchem argued that Constantine initiated the formal distinction between the *limitanei* and the *comitatenses*.[9] About a decade later, A. H. M. Jones advanced interpretations about the *limitanei* that were widely accepted by many scholars. In short, Jones accepted that the *limitanei* were inferior to the *comitatenses* in quality but argued that they remained professional soldiers and a generally effective military force. Based on evidence from the *Codex Theodosianus*, Jones also doubted that the *limitanei* in the East became part-time farmers until the early 5th century, citing a law of 423 from the *Codex Thedosianus* and a *Novella* dated 443.[10] The law of 423 prohibits the occupation of the territory of the *castella.* These lands could only be held by *castellani milites*, to whom they were allotted in the past. Benjamin Isaac, in a now classic article published thirty years ago, reviewed the documentary evidence but went even farther than Jones, concluding that the *limitanei* "were not peasant farmers" but merely troops "under the command of a *dux limitis*".[11] Isaac accepted only the explicit evidence of the *Novella* of 443, addressed to the *magister officiorum* of the East, that by then the *limitanei* were farming lands assigned to them by the government. However, it must be stressed that this *Novella* is merely a *terminus ante quem* for such soldiers as farmers. Further, the law states that this institution was "as established long ago" (*sicut antiquitus statutum est*), implying a date well before 443. Given this, what does recent archaeological evidence from the southeastern frontier suggest about the *limitanei*?

Such evidence has grown significantly in the last few decades, including regional surveys, excavation of key military sites, and new inscriptions. Tetrarchic building inscriptions discovered over the last few years permit us to link several forts with specific types of units, including *legio VI Ferrata* at the fortress of Udhruh, *cohors II Galatarum* at Ayn Gharandal, and an *ala* at Yotvata, the latter two both *quadriburgia* in Wadi Araba.[12] The recently published final excavation report from Yotvata

[8]*Codex Theodosianus* XII, 1, 56.
[9] Van Berchem 1952.
[10]Jones 1964, 649–654; *CTh* 7.15.2 for the law of 423 and *CTh Novella* 24.1.4 for the law of 443.
[11]Isaac 1988: 146.
[12]Kennedy, Falahat 2008 (Udhruh), Darby 2015 (Ayn Gharandal), Roll 1989 (Yotvata).

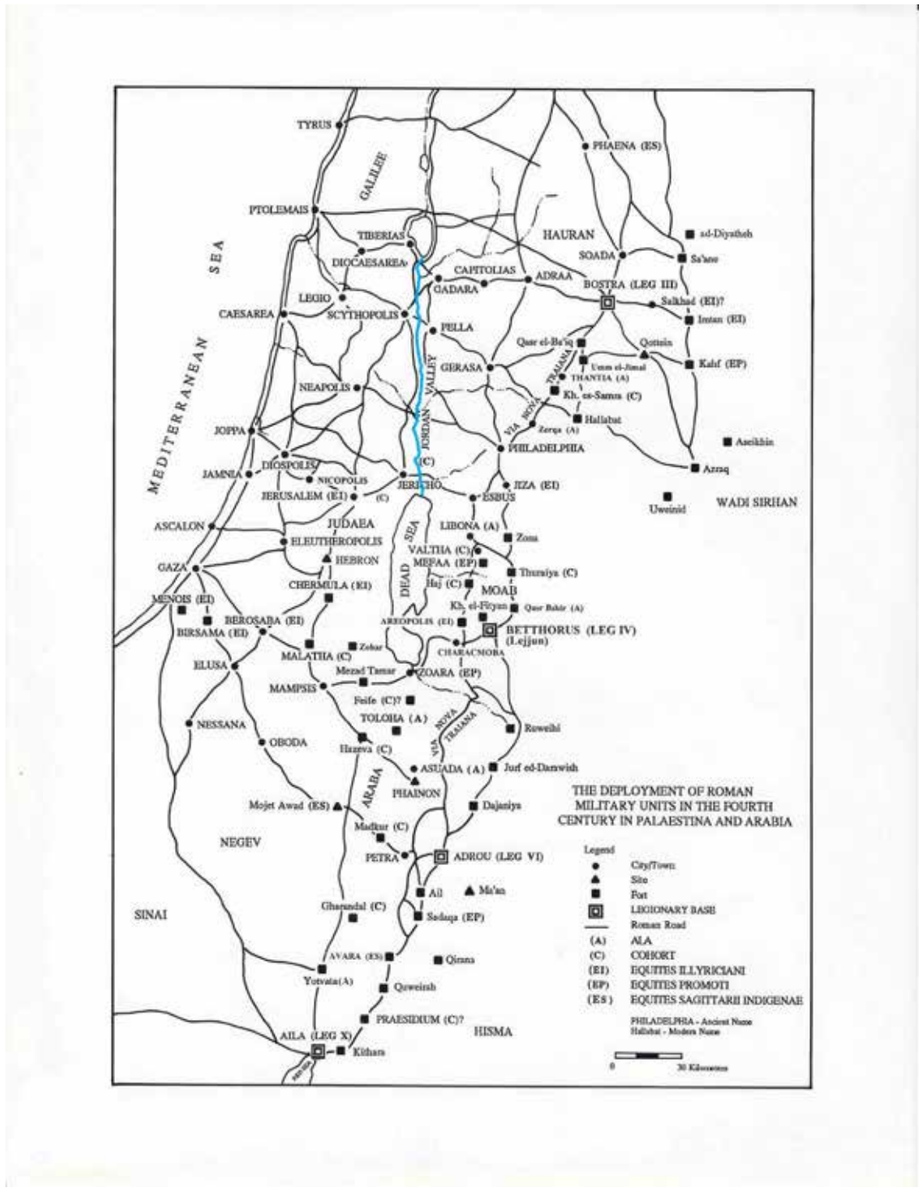

Fig. 2 - Map of deployment of *limitanei* in the provinces of *Arabia* and *Palestina* in the 4th century. Location of some units is conjectural. Note that nearly all units are deployed along the fringe of the desert, either on the northern edge of the Negev Desert or east of the Jordan Rift Valley on the edge of the North Arabian Desert (copyright S. Thomas Parker).

includes a wide range of cultural material and organic evidence.[13] Northeast of Aila on the *via nova Traiana*, is Humayma (ancient Avara), a large village. The fort on the northern edge of the village dates to the early 2nd century but the *Notitia* lists its 4th century garrison as the *equites indigenae sagittarii*.[14] In provincial Arabia, the main corpus of evidence on the *limitanei* remains the interim and final reports of the *Limes Arabicus* Project, which included a regional survey and excavation of the Tetrarchic legionary fortress of el-Lejjun and four other smaller fortifications east of the Dead Sea.[15] What does all this new evidence reveal about the *limitanei* of the southeastern frontier?

The first if rather obvious conclusion is the sharply reduced strength of individual units, both legionary and auxiliary. This of course has long been observed elsewhere, particularly for newly raised units of the late empire, but there has been some debate about the strength of Principate units that survived into the 4th century. Fortunately, we now have evidence for *legio VI Ferrata* from both periods. Estimates of the size of its 2nd century fortress in Galilee, currently under excavation, range from at least 12.25 up to ca. 20 ha.[16] Yet its new Tetrarchic fortress at Udhruh is less than one third this size (ca. 4.7 ha).[17] The new fortress is in fact nearly identical in size to that of the newly raised *legio IV Martia* (ca. 4.6 ha.) at el-Lejjun.[18] These Tetrarchic fortresses suggest late Roman legions of ca. 1,000-2,000 men. One wonders what happened to the remainder of the legionaries from their old units during the 3rd century. We do know that the legionary cavalry were detached from their parent legions as units "promoted" to independent status as *equites promoti*. As expected, two such units appear in each of the eastern duchies, corresponding to the norm of two legions in each frontier province.[19]

The evidence of auxiliary units is equally dramatic. The fort at Humayma (ca. 3 ha.), if not simply constructed for a legionary *vexillatio*, suggests that provincial Arabia's auxiliary units in the Principate were likely the standard strength of 500 men. In contrast, the *quadriburgia* of the 4th century averaged less than a quarter of a hectare.[20] This and other evidence, such as military payrolls from Egypt, suggest auxiliary units of ca. 100 men.[21] Even this may be a high estimate unless we assume that the *quadriburgia* consisted of two stories surrounding the central courtyard, as was clearly the case for Qasr Bshir but less certain for other less well-preserved forts. The evidence suggests that the *alae* and cohorts, which seemingly survived from the Principate and where one of each can now be confidently assigned to the *quadriburgia* at Yotvata and Ain Gharandal, were such small units of ca. 100 troops. But the possibility remains that the cavalry vexillations were somewhat, perhaps even significantly, larger. A key site here is the Tetrarchic *castellum* of Da`janiya, about 1 ha in area. Unfortunately, the identity of its original garrison remains unknown but circumstantial evidence suggests a cavalry unit.[22]

We still know too little about how these *limitanei* were armed. The corpus of military equipment from recent excavations is disappointingly sparse. Even the most extensively excavated site, the el-Lejjun legionary fortress, yielded only a few fragmentary weapons: iron spears and arrowheads, several iron ballista bolt heads, and sling-stones.[23] There was little evidence of armor although a complete iron helmet has appeared from a 4th century grave near the Dead Sea.[24] Published weaponry from other excavated sites is even more limited. However, the fort at Da'jāniya has yielded a possible washer for the spring tightening unit of a catapult.[25] If so, this would be the first evidence of artillery associated with an auxiliary unit of *limitanei* on this frontier.

There is more evidence about the diet and supply of these *limitanei*. In terms of diet, my analysis presented at the last congress concluded that, with one major exception, there was little difference between military

[13]Davies and Magness 2015.
[14]Oleson and Schick 2013; *Notitia Dignitatum*, *Oriens* 34.26.
[15]Parker 1987; Parker 2006.
[16]Pincus, DeSmet, Tepper, Adams 2013; Tepper, David, Adams 2016, 98–99.
[17]Kennedy 2004, 178; Kuhnen 2018, 124–125
[18]Parker 2006, 115.
[19]*Notitia Dignitatum, Oriens* 34.23–24; 37.18–19.
[20]Kuhnen 2018, 78–81.
[21]Duncan-Jones 1978.
[22]Godwin 2006, 285–286.
[23]McDaniel 2006.
[24]Parker 1994.
[25]McDaniel 2006, Fig. 15.25, #332. I am grateful to John P. Oleson for this suggested identification.

and civilian diets. The major difference is a military preference for pork, shared to some degree by the more Hellenized urban civilians but not in the rural villages.[26] Most significant is evidence for local agricultural production, both breeding livestock and crop cultivation, in the immediate vicinity of many forts, in some cases even in arid environments lacking a local civilian population.[27] In case of el-Lejjun, for example, both botanical and faunal remains suggest local agricultural production from the foundation of the fortress under the Tetrarchy, or more than a century earlier than the earliest explicit evidence from documentary sources.[28] However, as noted earlier, these laws merely provide a *terminus ante quem* for such agricultural activities by the *limitanei*.

There is also evidence of agricultural field systems around several late Roman forts. However, closely dating these features and directly connecting them with the *limitanei* themselves remains problematic. Most ambiguous in this regard are sites that hosted both military and civilian populations. More promising are sites that appear to be primarily or exclusively military in nature but even these present difficulties in interpretation. A few examples must suffice. Qasr et-Tlah, a *quadriburgium* in the northern Wadi Araba usually identified as ancient Toloha and the 4th century base of *ala Constantiana*,[29] is directly adjacent to a huge (ca. 60 ha.) field system subdivided into a grid of regularly sized rectangular plots.[30] However, recent research has focused on the seismology of the site and has not conclusively dated the field system to the late Roman period.[31] Recent research on several other late Roman forts in Wadi Araba, such as Bir Madhkhur, have also elucidated clear evidence of nearby agricultural field systems but pose the same problems of chronology.[32] On the other hand, even units of *limitanei* based in hyper-arid environments, such as *legio X Fretensis* at Aila, may have engaged in some kind of irrigation-based agriculture.[33]

On the other hand, evidence for local cultivation around these forts does not prove that the *limitanei* themselves were farmers. It is possible that their state-assigned land was cultivated by other family members or was leased to civilians. Nevertheless, the early 5th century date proposed by Jones and Isaac for the origins of *limitanei* as part-time farmers must now be seriously questioned.

A major unanswered question remains the relative balance between locally raised supplies vs. external supply, i.e. the *annona militaris*. Textual evidence suggests that this included grain, wine, oil, and meat (veal or pork).[34] The main archaeologically visible evidence for the *annona militaris* is imported amphorae carrying oil and wine. Dramatic evidence for such importation on the southeastern frontier derives from Aila, which witnessed an explosion of imported Egyptian wine *amphorae* ca. 300 when *legio X Fretensis* arrived.[35] Other sites along the frontier, lacking direct access to the sea, have understandably yielded fewer imported amphorae.[36] Otherwise, the supply of wine and oil likely derived from local sources carried in the ubiquitous Palestinian bag jars.

Finally, I do agree with Jones, Isaac and some other scholars that the mere fact of *limitanei* employed as part-time farmers does not necessarily imply a negative assessment of their military capability. In fact, it appears that such forces provided effective security for the frontier through the 4th and 5th centuries. It is only in the early 6th century, perhaps in part through government neglect and the emergence of more power-

[26]Parker 2018.
[27]Ramsay 2015.
[28]Parker 2006a, 553–556.
[29]*Notitia Dignitatum, Oriens* 34.34.
[30]Kennedy 2004, 214–215, with earlier references and site plan.
[31]Haynes, Niemi, Atallah 2006.
[32]Ramsay 2013.
[33]Ramsay, Parker 2016.
[34]Jones 1964, 649.
[35]Parker 2009c.
[36]Parker 2006b, 356–358 for a discussion of imported amphorae from Lejjūn and other military sites east of the Dead Sea. There is otherwise little quantified evidence in this regard from other excavated sites, e.g., at Yotvata (Davies and Magness 2015, 74) and Gharandal (Key 2017, 34–39).

ful nomadic Arab forces (i.e. the Lakhmids allied with Persia) that their effectiveness seems to have declined. This in turn led to their partial demobilization by Justinian and his reorganization of the eastern frontier defenses in favor of renewed Arab allied forces led by the Ghassanids.[37]

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Zusammenfassung

New Light on the *Limitanei* of the Arabian Frontier

Wer waren die *Limitanei*? Die Essenz dieser Truppen, die wohl eine Hälfte des kaiserlichen Heers in der 4. und 5. Jahrhunderte umfassten, bleibt zum größten Teil rätselhaft. Es ist besonders problematisch, wenn diese Soldaten zu eine „Bauermiliz" wurden, die das Land in der Nähe der Festungen bebauten und die Grenzen beschützten, um vermutlich die Kosten der kaiserlichen Regierung zu reduzieren. Der spärliche dokumentarische Beweis ist suggestiv aber im Grunde unschlüssig. Er liefert nur ein *terminus ante quem* im frühen 5. Jahrhundert. Das archäologische Zeugnis aus der arabischen Grenze suggeriert Anbau der Gerte und Viehzucht in der Nähe einiger Festungen bereites während der Tetrarchie, wenn viele von diesen gegründet wurden. Obwohl diese neue Evidenz beweist nicht, dass diese Soldaten selbst das Land bebauten (das Land konnte vielleicht an Zivilisten verpachtet werden oder von der Familien der Soldaten bearbeitet werden), die frühere Gelehrsamkeit wird in Frage gestellt, die schlug vor, dass die *Limitanei* ein Jahrhundert später fingen an, das Land zu bebauen; anders gesagt mit der ersten deutlichen Erwähnungen in der dokumentarischen Quellen.

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Recent Research on the Arabian Frontier

ABSTRACT

Research on Rome's Arabian frontier continues to accelerate with major discoveries throughout the province in recent years. Publication of the first auxiliary diplomas from the province of Arabia now permit a complete reconstruction of the provincial garrison in the early to mid-2nd century. Several intensive regional surveys, especially from the southern portion of the province, greatly enhance understanding of settlement patterns in both the development of the Nabataean client kingdom and the broader context of the Roman military presence. New or ongoing excavations of Roman military sites scattered over the province continue to yield much new evidence, including new insights into the Roman army deployment in the extreme southeastern periphery during the 2nd and early 3rd centuries. The late 3rd century witnessed dramatic changes, including abandoning the southeastern periphery of the province. However, most of the newly excavated military sites date to late Roman period, especially *quadriburgia* of the Tetrarchic era. These excavations add more detail to the well-attested Diocletianic buildup along the frontier, in response to increased pressure from nomadic Arab raids. As seen on other frontiers, the Tetrarchs employed a strategy of dispersal of forces reflected by many more units, but sharply reduced in strength and based in much smaller fortifications compared to Principate norms.

Key Words: Roman Arabia, Roman Palestine, Roman army, Roman frontiers, Roman Jordan, Roman fortifications, Tetrarchy, *limitanei*, *quadriburgium*

It is an exciting era for research on the Arabian frontier, until recently the most neglected frontier of the empire. Obviously, limited space permits only a selection of the most significant highlights of research over the last few years. These include evidence from epigraphy, regional surveys, and excavations throughout much of the province (Fig. 1).

First, recent publication of two new auxiliary diplomas, the first from provincial Arabia, now permit the complete reconstruction of the provincial army in the early

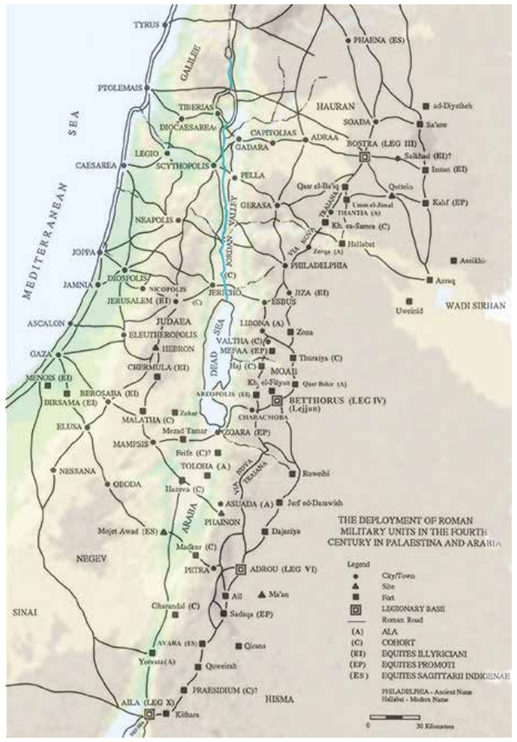

Fig. 1 - Map of the Roman frontier in the province of Arabia. The sector south of the Dead Sea was transferred from the province of *Arabia* to the province of Palestine (later *Palaestina Tertia*) under the Tetrarchy (map by Anusha Khansaheb).

to mid-2nd century.[1] Only a portion of the provincial *auxilia* was previously known. The newly discovered diplomas now reveal that the *exercitus Arabicus* in this period consisted of eight auxiliary units, including two *alae* (one *milliaria*) and six cohorts (one *milliaria*, at least one possibly *equitata*), along with Arabia's single legion (*legio III Cyrenaica*), suggesting an army with a nominal strength of ca. 10,000 men.

In terms of new discoveries on the ground, we begin in the extreme southeastern sector of the province of Arabia, created by Trajan's annexation of the Nabataean kingdom in 106. There was once debate about whether the entire kingdom, particularly northern Hijaz (in modern Saudi Arabia), had in fact been incorporated into the new province by the Romans. Now there is simply no doubt. The most important recent work in this region has been the Franco-Saudi excavations at Madâ'in Sâlih (ancient Hegra) on the southeastern border of the Roman province and a major station for the incense caravans moving north through the Arabian Peninsula. Hegra was an urban center constructed by the Nabataeans in the 1st century, defended by a curtain wall nearly 3 km in length and enclosing 52.5 ha. After the annexation of 106, the Roman army built a fort within the southern edge of the Nabataean fortifications, incorporating a southern segment of the curtain wall (Fig. 2). The fort enclosed just over a half hectare. The excavators tentatively suggest that some internal structures were possibly designed to accommodate a cavalry unit.[2] It now provides a rare example of an extensively excavated fort of the Principate from Roman Arabia. Military occupation apparently ended in the mid- to late 3rd century. This fits well with documentary sources that suggest the Roman military frontier reached no further south than Aila/Aqaba by the turn of the 4th century. In short, it now seems reasonable to view the Roman military withdrawal from northern Hijaz in the context of imperial withdrawals elsewhere in the late 3rd century, such as Dacia, the *Agri Decumates* in Germany, and Mauretania.

Moving north into modern Jordan and southern Israel, there is new evidence from both regional surveys and excavations. The nuanced chronological typology of Nabataean fine ware ceramics by Stephan Schmid from excavations at ez-Zantur in Petra now permits much closer dating of survey sites and stratified excavations.[3] Perhaps most remarkably, it seems that intensive Nabataean sedentary occupation of the rural landscape in central and southern Jordan and the Negev was a relatively late phenomenon, developing only in the late 1st century B.C.[4] This was after the subjection of the Nabataean kings to the status of Roman clients. In the Negev, for example, Gini-Erickson suggests that initial Nabataean settlement was largely confined to

[1]Weiß and Speidel 2004; Eck and Pangerl 2016. The auxiliary garrison of the early to mid-2nd century included the following units: *ala veterana Gaetulorum, ala I Ulpia dromadariorum, cohors I Augusta Thracum (equitata?), cohors I Thracum (milliaria?), cohors I Hispanorum Cyrenaica, cohors I Aurelia, cohors I Classica, cohors VI Hispanorum*.

[2]Fiema 2016.

[3]Schmid 2000.

[4]Wenner 2015; Gentry 2017.

sites directly associated with the Incense Road between Petra and Gaza. These early sites presumably served to protect and service the caravan traffic. It was only in the late 1st century B.C., she argues, that Nabataean agricultural settlement began to spread more widely throughout the northern Negev.[5] But perhaps the most surprising and compelling evidence derives from recent intensive surveys of the Petra hinterland. Here above all, in the well-watered region around the Nabataean capital itself, one would expect to find early evidence of sedentary settlement. Yet such projects as the Finnish and the Brown University surveys suggest that settlement even in the immediate environs of Petra itself also began only in the late 1st century B.C.[6] This same date corresponds with the foundation of the Nabataean port of Aila[7] and the village of Humayma, the largest site between Petra and Aila, where excavations also suggest origins in the late 1st century B.C.[8] What might explain this phenomenon?

I have argued elsewhere that the Roman conquest of Egypt in 30 B.C. led to their attempt to wrest control of the frankincense trade. When the attempted Roman conquest of its sources in the southern Arabian Peninsula in 25 B.C failed, Augustus turned to the next best alternative, the revitalization of Egyptian Red Sea ports to divert traffic from the overland route through the Arabian Peninsula controlled by the Nabataeans. The Nabataean response was multi-faceted but included founding a new port of their own, Aila, on the Arabian side of the Red Sea as well as diversifying their economy through a dramatic expansion of rural settlement. The success of the Nabataean response is also illustrated by the explosion of monumental construction in Petra itself beginning about this period and continuing through the 1st century A.D.[9]

The late Roman period, beginning with the Tetrarchy, is another major period illuminated by recent field research. The most important new documentary source is undoubtedly the building inscription from the fortress of Udhruh.[10] This confirms both the identity of its original garrison (*legio VI Ferrata*, as suggested forty years ago by Michael Speidel) and its date of construction to the Tetrarchy (based on its plan), contrary to the Trajanic date originally proposed by the excavator (Fig. 3).[11] This now provides a logical explanation for the transfer of the southern portion of provincial Arabia to an enlarged *Palaestina*. Diocletian chose to transfer both Palestinian legions from their bases west of the Jordan Rift to new bases east of the Rift (*VI Ferrata* to Udhruh just east of Petra and *legio X Fretensis* to Aila/Aqaba) to strengthen the southeastern desert frontier. This ensured that the *duces* of both Arabia and *Palaestina* would each command two legions like all other *duces* along the eastern desert frontier. The later transfer of *VI Ferrata* (to Egypt?) and thus its absence from the relevant chapter of the *Notitia* reflecting conditions a century later, probably explains why the *dux Palaestinae* commands about twice the usual number of cohorts (n=11) than the other eastern *duces*.[12] These cohorts likely replaced the loss of *VI Ferrata*.

Recent excavations of Udhruh yielded much evidence of substantial Islamic period occupation.[13] A regional survey of its environs by a Dutch-Jordanian team promises more evidence to place the fortress in its wider context.[14]

Moving west into Wadi Araba, the Roman Aqaba Project has published an intensive surface survey of the region north of Aila. The survey recorded over 300 sites, most new additions to the emerging archaeological map of Jordan, with sites of the Nabataean period

[5]Erickson-Gini 2006; 2012.

[6]Alcock and Knodell 2012; Kouki 2012.

[7]Parker 2009a.

[8]Oleson and Schick 2013.

[9]The foundational work is Mackenzie 1990. More recently, excavations have dated most of Petra's monumental structures to this period, such as the so-called "Great Temple" (Joukowsky 2016), the "Pool and Garden" complex (Bedal 2013), and Qasr al-Bint (Shenwan Al-Bashaireh and Hodgins, 2014).

[10]Kennedy and Falahat 2008.

[11]Speidel 1979, 171-172. Killick originally proposed a Trajanic date of construction for the fortress (Killick 1983: 125).

[12]*Notitia Dignitatum*, *Oriens* 34.

[13]Abudanah, Shqiarat, and Falahat 2010.

[14]Driessen and Abudanah 2015.

Fig. 2 - Plan of the Roman fort at Madâ'in Sâlih (ancient Hegra). The Roman garrison in the early 2nd century incorporated a segment of the earlier Nabataean city wall as the south wall of their new fortification (courtesy of Madâ'in Sâlih Archaeological Project).

Fig. 3 - Aerial photo of the legionary fortress at Udhruh, erected by *legio VI Ferrata* during the Tetrarchy (APAAME_20000914_RHB-0177.jpg)

predominating. However, as seen elsewhere, Nabataean settlement in this region began only in the late 1st century B.C.[15]

Another recent key discovery is a complete building inscription from Ayn Gharandal, a *quadriburgium* in the southeastern Wadi Araba north of Aila/Aqaba.[16] It also dates late in the reign of Diocletian and includes the name of the original garrison unit, *cohors II Galatarum*, listed in the *Notitia*. Excavations revealed portions of the internal plan, including a central courtyard and an internal room plausibly identified as the *principia* (Fig. 4). An apparent small church was inserted into the fort, presumably in the later 4th century. Unfortunately, much evidence, above all a fragmentary but lengthy Greek dipinto reported by the excavators, remains unpublished.[17]

Only a few kilometers southwest of Ayn Gharandal is the *quadriburgium* of Yotvata (Fig. 5). Already dated to the Tetrarchy by an inscription accidentally discovered some years ago,[18] the fort was extensively excavated and a final report published with admirable speed. The excavators have confirmed the Tetrarchic date and presented a wide range of material cultural evidence, including organic remains. The original garrison, according to the building inscription, was an *ala*.[19]

Farther north in Wadi Araba is the *quadriburgium* of Bir Madhkhur, guarding a caravan route leading from Petra towards the Negev and the Mediterranean. Adjacent to the fort are a small village and an apparent bathhouse (Fig. 6). On typological grounds, the fort appears to be late Roman but dating evidence and much else remains unpublished.[20] Note that all three of these *quadriburgia* in Wadi Araba controlled crucial springs and each included an extramural bathhouse.

Northeast of Aila on the *via nova Traiana*, excavations have concluded at Humayma, ancient Avara, a village with a substantial Roman military presence. The fort on the edge of the village dates to the beginning of direct

[15]Parker, Smith 2014.
[16]Darby 2015; *Notitia Dignitatum Oriens* 34.34.
[17]Darby, Darby 2015.
[18]Roll 1989.
[19]Davies, Magness 2015.
[20]Smith 2010a. For a historical synthesis of the Roman military presence in Wadi Araba, see Smith 2010b.

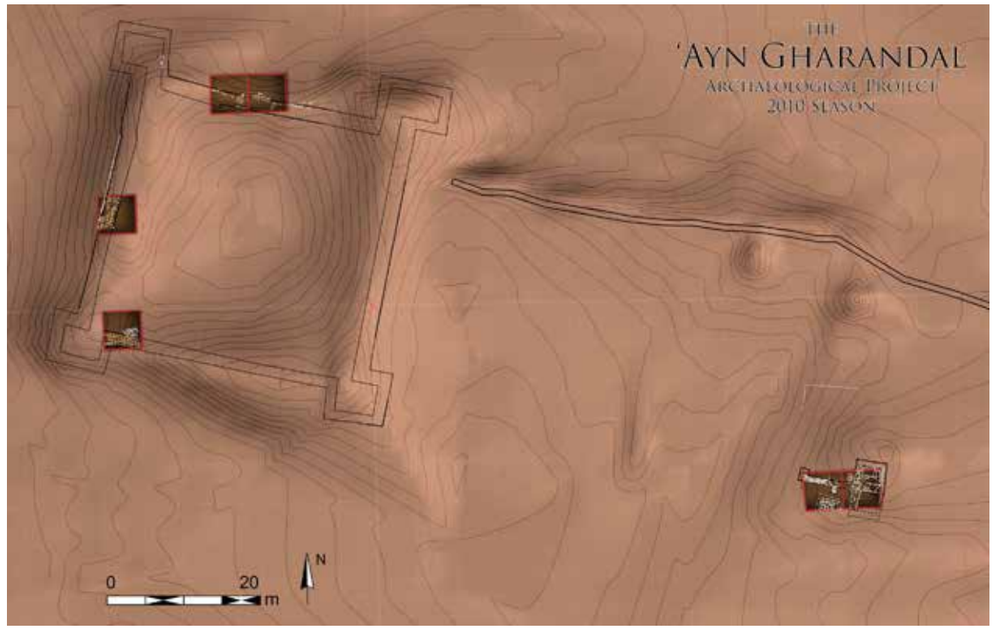

Fig. 4 - Plan of Ayn Gharandal (ancient Arieldela), a Tetrarchic *quadriburgium* in Wadi Araba,erected and garrisoned by *cohors II Galatarum*. Visible to the east are the bathouse and aqueduct that fed by a spring to the east of the fort (courtesy of R. Darby).

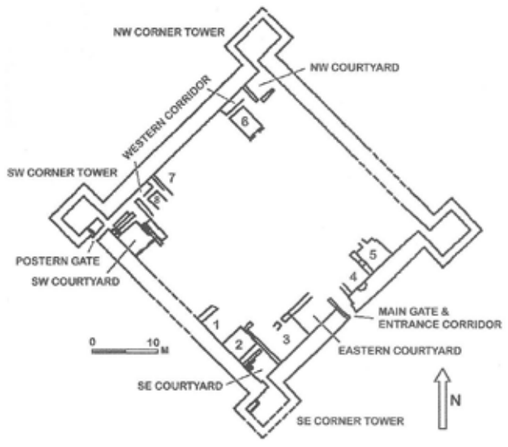

Fig. 5 - Plan of Yotvata, a Tetrarchic *quadriburgium* in Wadi Araba, likely erected and garrisoned by an *ala* (from Davies and Magness 2015, 7, Fig. 6, courtesy of Pennsylvania State University Press).

Roman rule in the early 2nd century (fig. 7).[21] Epigraphic evidence suggests the presence of legionary *vexillationes*[22] and the *Notitia* lists the 4th century garrison as the *equites indigenae sagittarii*.[23] This fort, when fully published, may offer the rare opportunity to compare the Roman garrison of the 2nd/3rd centuries with a unit of *limitanei* in the 4th century at the same site.

Finally, farther north on the Arabian frontier one must acknowledge the important work of Ignacio Arce at Qasr Hallabat and other forts near the crucial northwestern outlet of Wadi Sirhan. In an intriguing attempt at synthesis, Arce has argued for original construction of Hallabat and five other forts in the same region in the Severan period. These small "forts" (actually fortlets) were expanded into *quadriburgia* under the Tetrarchy. They then witnessed another change in form and function into monastic and/or palatial venues by the Ghassanid phylarchs in the 5th and 6th centuries.[24] Arce

[21]Oleson, Schick 2013. The forthcoming third volume in the final report will focus on the Roman fort.
[22]Oleson, Reeves, and Fisher 2002. Inscriptions mention *legio VI Ferrata* and *legio III Cyrenaica*.
[23]*Notitia Dignitatum*, *Oriens* 34.26.
[24]Arce 2015.

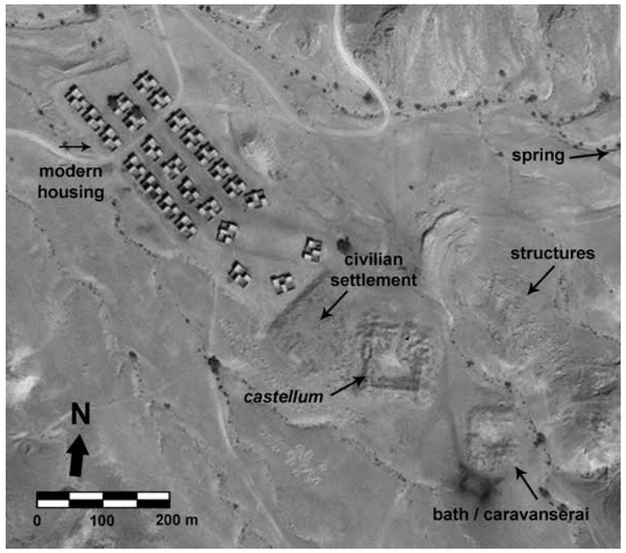

Fig. 6 - Aerial photo of the *quadriburgium* of Bir Madhkhur, guarding a route leading from Petra through Wadi Araba towards the Negev and the Mediterranean. Adjacent to the fort are a small village and an apparent bathhouse (courtesy of Andrew M. Smith II).

clearly stresses that few of these sites are extensively excavated so that his conclusions "should be viewed as a hypothesis and a guide for future research."[25] I concluded in a published critique of this hypothesis that, although this model works well for Qasr Hallabat, it seems less convincing for most of the other five forts suggested for this model.[26]

How does all this new evidence affect the history of the Arabian frontier? The Nabataean kings clearly maintained a sizeable army although the details of its deployment remain obscure. Contrary to an earlier scholarly consensus, there is increasing evidence for serious Nabataean resistance to the Trajanic conquest and annexation of 106.[27] Despite widespread destruction and abandonment of many rural sites, likely exacerbated by a major contemporary seismic event, the region witnessed renewed prosperity and regional security under direct Roman rule in the 2nd through mid-3rd centuries. The province suffered from the Palmyrene invasion and other problems in the late 3rd century, which also witnessed increased threat of raids by nomadic Arabs ("Saracens"). Recent research adds more details to Diocletian's restoration of the Arabian frontier. His program included systematic repair of the regional road system, deployment of military reinforcements, and construction of many new fortifications. The latter included two legionary fortresses and many *castella*, especially *quadriburgia*, for many more units but each sharply reduced in strength below Principate norms.[28] The success of Diocletian's policies in restoring security is underscored by a wide variety of documentary and archaeological evidence throughout the region.[29] The late Roman frontier system functioned effectively through the 4th and 5th centuries but began showing signs of decay in the early 6th century. Justinian appa-

[25]Arce 2015, 99.

[26]Parker 2017.

[27]Parker 2009b, for detailed discussion of this issue.

[28]The early 2nd century garrison consisted of one legion and eight auxiliary units, as noted above. The 4th century combined garrisons of provincial *Arabia* and *Palaestina* (reflecting Diocletian's provincial reorganization) consisted of four legions (each ca. 1,000-2000 men) and 48 auxiliary units (each perhaps ca. 100 men). *Notitia Dignitatum*, *Oriens* 34, 37 (plus *legio VI Ferrata* in *Palaestina* and perhaps minus ca. five cohorts, if in fact, as noted above, intended to partially replace *VI Ferrata*). For Diocletian's program in the central sector, see Parker 2006, 538–552; for the southern sector, see Parker 2009c.

[29]For a convenient summary, see Parker 1999.

Fig. 7 - Plan of the Roman fort at Humayma (ancient Avara), on the *via nova Traiana*. The fort was erected in the early 2nd century and remained garrisoned through the 4th century (courtesy of John P. Oleson and C. Mundigler).

rently demobilized many of these *limitanei* in favor of a Ghassanid super phylarchy. We still know far too little about the security arrangements of these Christian Arab *foederati*.[30]

Although awaiting more detailed publications, we can also begin to assess the material cultural evidence, including organic remains from a number of sites that provide insight into the nature of the Roman military on this frontier.[31] The regional surveys and excavation of non-military sites, far too many even to list here, offer the opportunity to place the Roman military into a broader regional context. The Arabian frontier continues to emerge from the shadows although the extant evidence remains heavily biased towards the late Roman period.

[30]Shahîd 1995.

[31]For example, see Parker 2015 and Parker 2018, for military diet on the Arabian frontier.

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Zusammenfassung

Die Forschung an der römischen arabischen Grenze setzt sich in den letzten Jahren mit neuen bedeutenden Entdeckungen durch die ganze Provinz fort. Die Veröffentlichung der Hilfsdiplomas aus der arabischen Provinz erlaubt jetzt eine vollständige Rekonstruktion der Provinzgarnisonen im frühen bis mittleres zweites Jahrhundert. Mehrere intensive regionale Untersuchungen verbessern unser Verständnis des Siedlungsmusters sowohl von dem nabatäischen Klient Reich als auch von dem allgemeinen Kontext des römischen militärischen Präsenz, vor allem im südlichen Teil der Provinz. Neue oder andauernde Ausgrabungen der römischen militärischen Standorte ergeben neue Beweise, und auch neue Hinweise über die Stationierung des römischen Heers im süd-östlichen Peripherie während der zweiten und frühen dritten Jahrhunderte. Das späte dritte Jahrhundert erlebte dramatische Veränderungen, wie zum Beispiel das Verlassen der süd-östlichen Peripherie der Provinz. Jedoch datieren die ausgegrabenen militärischen Standorte zu der spät-römischen Zeit, vor allem die *quadriburgia* der Tetrarchie. Diese Ausgrabungen tragen mehr Details über den gut bestätigen diokletianischen Aufbau entlang der Grenze als Antwort zu dem zunehmenden Druck den nomadischen arabischen Angriffen bei. Wie schon gesehen an andere

römische Grenze verwendeten die Tetrarchen eine Strategie der Verbreitung der militärischen Kräfte. Diese Tendenz spiegelt sich in viel mehr militärischen Einheiten, die aber eine scharfe Reduzierung der Anzahl der Soldaten ansässig in kleineren Befestigungen, wie diejenige aus dem Principate, erleben.

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Limitanei: the African perspective

ABSTRACT

This paper looks at the evidence for *limitanei* in Roman North Africa in the 4th and 5th centuries AD. Uniquely, troops in this region, serving under the *comes Africae* and the *comes Tingitaniae*, are specifically labelled *limitanei* in the Notitia Dignitatum. The *comes Africae*, like the Mauretanian and Tripolitanian *duces*, had authority over numerous *praepositi limitum*, commanders of named frontier districts rather than individual regiments. Using the record of the Notitia Dignitatum and epigraphic evidence, the *comitatenses* are examined first and contrasted with the *limitanei*. It is evident that the African/Tingitanian *comitatenses* were very similar in composition the higher ranking regiments of *limitanei* in other frontier commands, which were sometimes termed *ripenses* during the 4th century onwards. This emphasises that the ranking of troops could involve a significant element of chance or contingent circumstance, with almost identical units eventually falling into different grades. The paper further examines what the documentary and archaeological evidence can tell us about the role of the African *limitanei*, showing how their distribution related to the unique requirements of the North African frontiers, and how these troops interacted with the wider tribal society of the frontier zone.

Key Words: *limitanei*, *comitatenses*, *comes Africae*, North Africa, *praepositus limitis*, late Roman army, Notitia Dignitatum

This paper looks at the evidence for *limitanei* in Roman North Africa, that is to say the provinces of the African diocese and Mauretania Tingitana, in the 4th and 5th centuries AD. Much of the evidence derives from the relevant chapters of the Notitia Dignitatum, specifically those relating to the two principal North African commands, the *comitivae* of Africa (*ND Occ* XXV) and Mauretania Tingitana (*ND Occ* XXVI), plus the two ducates of Mauretania Caesariensis and Tripolitana (*ND Occ* XXX and XXXI). Reference is also made to other documentary sources, archaeological evidence and epigraphy where relevant.

Chapters XXV and XXVI, in fact, contain the only explicit references to *limitanei* in the Notitia Dignitatum, the term appearing as a heading at the top of the list of troops under the authority of each *comes*. This may seem surprising. The same rubric does not figure in the chapters of the two regional *duces*, the *dux et praeses Mauritaniae Caesariensis* and the *dux Tripolitanae*, for instance, despite the fact that these two commanded multiple district *limes* officers – *praepositi limitum* – very similar to those under the disposition of the *comes Africae*, who doubtless oversaw regular *limi-*

tanei, just like their African counterparts. Nor indeed does the rubric appear in any of the other ducal or comitaval chapters, relating to either half of the empire. The explanation for this omission is straightforward, but significant. Whereas other regional and provincial commanders had direct authority over either one or the other troop category, these two counts, uniquely, commanded both *limitanei* and *comitatenses*, and both categories were originally listed in these chapters, with the local field army units doubtless being listed first under the rubric *comitatenses* as set out below:

sub dispositione viri spectabili comite Africae

comitatenses
180 | equites stablesiani Italiciani = VI 82 vex. com.
181 | equites scutarii seniores
182 | equites stablesiani seniores
etc.

limitanei
21| praepositus limitis Thamallensis
22| praepositus limitis Montensis in castris [N] eptitanis
23| praepositus limitis Bazensis
etc.

Later in the life of the document the lists of North African *comitatenses* were extracted from Chapters XXV and XXVI and shifted to Chapter VII (formerly the chapter of the *magister equitum per Gallias*), which then became the *Distributio Numerorum*. The tag *comitatenses* which is appended to some of the African and Tingitanian cavalry units in this chapter is a clue to this process, the clerks having mistakenly considered it formed part of the title of the regiments at the very top of the list (cavalry typically being listed first regardless of whether it was a magisterial or comital/ducal command).

We should take a moment to examine these regional *comitatenses* before moving on to look at the *limitanei* proper:

The 'stratigraphy' of the African field armies

Analysis of the African field army – based on the work of Dietrich Hoffmann (1968; 1969–70), AHM Jones (1973) and others – suggests it was built up in a series of stages with successive batches of reinforcements from outside the region (Rushworth1992, 60–80). Something similar is probably true of the Tingitanian force, on a much smaller scale. Thus, there is evidence that one group of units was transferred from Egypt, including the *equites Parthi sagittarii*, probably identical to the *vexillatio Parthusagittariorum* stationed at Diospolis, in which Flavius Abinnaeus served during the early 4th century, before his promotion to protector and then *praefectus alae* (Bell *et al*. 1962, 6–11, 34–37, text 1), and the *equites Marcomanni*, recorded at or near Hermopolis on a papyrus of 286 (Speidel 1975, 223–224; cf. Hoffmann 1969). This most likely occurred either during the reign of Constantius II, perhaps in the form of an expedition to recover the region from Magnentius, or in 387–88, when it is suggested that a force under the command of Gildo was despatched from Egypt by Theodosius I, to prevent the seizure of Africa by Magnus Maximus (Oost 1962). Hoffmann has also argued that the three Flavian legions arrived from Gaul in the expeditionary force of the *magister militum*, Theodosius, in the 370s (Hoffmann 1968; 1969, 190–192, 345–346). Other units, such as the *equites promoti iuniores*, *comites iuniores*, *armigeri propugnatores seniores* and *iuniores*, the *Celtae iuniores* and the *Cimbriani* have the characteristics of palatine or Illyrian regional field army regiments and appear to relatively recent arrivals, probably representing transfers made during the early 5th century (Rushworth 1992, 74–78).

The original core units

Nevertheless, it has long been recognised that the core of this field army must have been established in the region from an early stage, probably from the early 4th century, but certainly by the middle of that century. This early core comprised cavalry vexillations, new legions and legionary detachments established from the late 3rd century onwards to serve alongside the old African legion, *III Augusta*, which had also promoted to comitatensian status by the time of the Notitia and probably much earlier.

Vexillationes equitum

181 | equites scutarii seniores = VI 63 vex.com. (equites scutarii)
182 | equites stablesiani seniores = VI 64 vex. com. (equites stablesiani Africani)
184 | equites armigeri seniores = VI 66 vex.com.
187 | equites cetrati seniores = VI 74 vex.com.
188 | equites primo sagittarii = VI 69 vex.com.
189 | equites secundo sagittarii = VI 70 vex.com.
190 | equites tertio sagittarii = VI 71 vex.com.
191 | equites quarto sagittarii = VI 72 vex.com.
193 | equites cetrati iuniores = VI 78 vex.com.
195 | equites scutarii iuniores <comitatenses> - VI omitted.
---- | [[equites] sagitarii iuniores] - VI 77 vex. com.?
197 | equites scutarii iuniores, scolae secundae = VI 81 vex.com. (equites secundi scutarii iuniores)
198 | equites armigeri iuniores = VI 80 vex.com. (armigeri iuniores)

Legiones

149 | Constantiniani = V 253 leg.com. (secunda Flavia Constantiniana)
150 | Constantiaci = V 252 leg.com. (Flavia victrix Constantina <id est Constantici>)
151 | Tertio Augustani = V 254 leg.com.
152 | Fortenses = V 255 leg.com.

Some of the cavalry regiments appear to have been split in two to form paired units of *seniores* and *iuniores* at some stage, perhaps as a way of enlarging the overall force. Bearing this in mind, the units originally at the disposal of the *comes Africae* would perhaps have comprised four vexillations of horse archers, plus four vexillations armed with spear, javellins and shield etc., the *equites scutarii*, *stablesiani*, *armigeri* and *cetrati* (Hoffmann 1968; 1969, 198–199; Rushworth 1992, 67–68). This combined cavalry force was not too dissimilar in composition to that of one of the eastern frontier ducates, which typically comprised four units of *sagittarii indigenae*, two of *promoti indigenae* and four of '*Illyriciani*'.

Alongside the cavalry were the troops of the old North African legion, *III Augusta* (*Tertio Augustani*), plus a legion labelled the *Fortenses*, which was paired with and given a similar level of seniority to the *Tertio Augustani*. This was perhaps a derived from a combination of all the various legionary detachments assigned to Maximian's African expeditionary force of 297-99, or at least a proportionate draft from that force (see Rushworth 1992, 64–66). In addition there were two legions, *<I> Flavia victrix Constantiana* and *II Flavia Constantiniana*, which may be assigned to the reign of Constantine or his sons.

These African/Mauretanian *comitatenses* were, thus, very similar in composition to the higher ranking regiments of *limitanei* in other frontier commands recorded in the Notitia, where the earlier late 3rd/early 4th century arrangements still persisted, relatively intact, at the end of the 4th century, such as the eastern frontier ducates noted above. Such higher ranking units of *limitanei* were accorded higher status than the cohorts and *alae* and were sometimes termed *ripenses* in laws of the early to mid-4th century preserved in the Theodosian Code (Jones 1973, 99–100, 608; Mann 1977, 11; Isaac 1988 141–142), though strictly speaking this label probably only applied to those troops and units stationed along the Rhine-Danube riverine frontiers. However, the manner in which the two principal North African commands evolved had resulted in the promotion of their equivalent regiments to the rank of *comitatenses* at some stage, perhaps even prior to the formal definition of *limitanei* as a military grade from the mid-4th century onwards (Rushworth 1992, 80–85).

This emphasises that the process whereby the *limitanei* were formed or categorised was an evolutionary one and, hence, somewhat *ad hoc*, not one pre-planned by central officials according to rigid criteria. Consequently the ranking of units could involve a significant element of chance, or contingent circumstance, with regiments, which were very similar in type or origins, eventually falling into different grades in different regions.

The *limitanei* of the North African commands

The appearance of the two comitival lists of *limitanei* is radically different. Whereas the *comes Tingitaniae* had a series of old-style cohorts and *anala* at his disposition, his counterpart in Africa had authority over numerous *praepositi limitum*, commanders of named frontier districts rather than individual regiments.

However, the differences between the two *comitiva* lists are to some degree more apparent than real. Analysis of the fragmentary evidence relating to their history and composition of the troops commanded by the African *praepositi limitum* indicates that they too

largely derived from the auxiliary units of the 1st- to 3rd-century provincial armies.

The example of the Tripolitanian *praepositus limitis Tillibarensis* presumably based in the fort of Tillibari (mod. Remada) is instructive. This is given more fully in chapter of the *comes Africae* as *praepositis limitis secundaeforum in castris Tillibarensibus* (*ND Occ*. XXV 33; cf. XXXI 21), which should be interpreted *praepositus limitis secundae Afrorum in castris Tillibarenis*, taking its name from the *cohors II Afrorum equitata*, the regiment known to have garrisoned Remada in the 2nd and 3rd centuries (Euzennat, Trousset 1978; Le Bohec 1989, 67–70; Mattingly 1995, 87, 90–92). In addition there are a number of inscriptions from Mauretania Caesariensis mentioning auxiliary units, mostly epitaphs of individual soldiers, which appear to date to the period of the late empire (*CIL* VIII 9964, 9967, 21629; cf. Rushworth 2017, 153–154). This would suggest that despite the impression conveyed by the Notitia, the regimental identity of the old auxiliary garrison units persisted through the 4th century, at least in Caesariensis (Rushworth 1992, 8–26). It also refutes Jones' suggestion (1973, 651–653) that garrisoning of the district *limites* was entirely given over to tribal levies (*gentiles*), as does the rubric *limitanei*, heading the list of African *praepositi limitum*, since it is now generally accepted that *limitanei* were regular soldiers, albeit less privileged that the *comitatenses* (Jones 1973, 649–654; Isaac 1988, 139–147).

Instead of reflecting a wholesale change in the nature of the frontier garrison, the introduction or evolution of the district *limites* was probably a response to the exceptionally dispersed nature of the North African regimental commands with their many, widely scattered outpost deployments. The region's armies had always been relatively small. During the Principate, the African command included only one legion, with none at all in the two Mauretanias, where the provincial forces were composed solely of auxiliaries. In all, these forces probably amounted to no more than 30,000-35,000 men. Yet the frontier they together guarded, extending from the Atlantic Ocean to the Gulf of Syrte, was almost equivalent to the length of the Rhine-Danube frontiers in the north. Hence the troops were inevitably spread very thinly, with widely separated units, each typically supporting a network of smaller outposts.

The small district *limites* begin to emerge in the mid-3rd century. In the Tripolitanian frontier zone a *regio limitis Tentheitanus*, under the control of the tribune of an unnamed cohort, is mentioned in a building inscription of 246/7 from the fortlet (*centenarium*) of Gasr Duib (*IRT* 880 = *AE* 1950, 128; Mattingly 1991). However, the *praepositus limitus* also mentioned on the inscription was the *procurator Augusti, praepositus limitis Tripolitanae*, an equestrian regional commander with the rank of *vir egregius* (Rebuffat 1985). Similar deputy frontier commanders probably existed in Mauretania Caesariensis (*CIL* VIII 9790, 9791). The creation of new, smaller provinces under the Tetrarchy rendered these *praepositi limitum* redundant and enabled their title to be transferred to the regimental officers in charge of the local district *limites*. This transformation had probably been fully implemented, by 303, when it features on the dedicatory inscription of a new fort, Centenarium Aqua Viva (*AE* 1942–1943, 81) in the Numidian *limes Tubuniensis*. The measure completed a hierarchical system of command – *vicarius* (diocesan supremo), *praeses* (provincial governor), *praepositus limitis* (district officer) – clearly set out in the dedication, forming a perfect expression of Tetrarchic order.

Finally, it should be noted that when they were established these *limites* were not manned by *limitanei* in the strict legal sense. The first recorded reference to *limitanei* is in a law of 363 preserved in the Theodosian Code (*CTh* XII, i, 56) so it is anachronistic to refer to that grade in an early 4th-century context.

What can the documentary and archaeological evidence can tell us about the dispositions of the African frontier troops and the roles they performed?

Limes commands

The lists of *praepositi limitum* in Chapters XXV, XXX and XXXI of the Notitia provide a general indication of the distribution of *limitanei* troops within the African diocese around the end of the 4th century. Numerous studies have attempted to locate the *limites* listed (e.g. Cagnat 1913, 755–759; Courtois 1955, 65–91; Warmington 1954, 21–22; Matthews 1976, 167–169, Rushworth 1992, 100–117; Mattingly 1995, 187–193), with the digested conclusions of this process displayed on the maps shown here (Figs. 4 and 5). They form a set pattern falling into two main categories. The larger group form an outer shell, guarding the frontier zone

of Byzacena, Numidia and Mauretania Sitifiensis in an unbroken sequence, then continuing westward into Mauretania Caesariesis, with headquarters with situated along the Severan *nova praetentura* military highway, and eastward along the Tripolitanian Jebel range with a string of district *limites* centred on old forts and posts on the so-called Limes Tripolitanus road. The second group were situated in the rugged, mountainous interior of Mauretania Sitifensis and Caesariensis, their headquarters occupying key nodal points where they could protect communications and maintain internal security.

Although not all the *limites* can be located it is likely that these conformed to the same pattern. The fact that none of the identifiable *limites* in Mauretania Caesariensis fall in the western part of the province cannot be taken as evidence for the abandonment of that part of the province during the late Roman era, given that half the *limites* listed there remain unlocated. The theory of abandonment was in any case comprehensively demolished by Salama (1966).

Some of the commands listed in the Mauretanian and Tripolitanian ducal chapters are duplicated in Chapter XXV, a reflection of the overarching authority that the *comes Africae* appears to have had over military affairs in the entire African diocese, through greater seniority and command of the regional field army.

The Tripolitanian chapter lists a further seven *limites* (*ND Occ*. XXXI, 23–28, 31). With one exception (the *limes Maccomadensis*), these cannot be firmly identified, however the limited evidence suggests they lay in the pre-desert wadis south of Lepcis Magna and the Jebel range and in the Syrtic hinterland to the southeast. There is little indication that troops were stationed in this area during the Principate and only a couple of late Roman fortlets are known, though more may remain undiscovered. Hence, there may have been relatively few regular *limitanei* actually stationed in the area at the disposition of these *praepositi limitum*, who most likely represent members of the local tribal elite, like the *tribuni* named on funerary stele from the cemetery of Bir ed-Dreder in the Wadi Sofeggin (Goodchild 1976, 59–71; cf. Buck *et al*. 1983). The award of this official *dignitas* probably conferred control over their local area, each *praepositus* or *tribunus* effectively functioning as a district officer, perhaps supported by a handful of soldiers detached from one of the older *limites* to the west or north and stationed in what were, in effect, small rural police stations, to act as a bodyguard and provide a tangible symbol of imperial authority, backed up where necessary by the chief's fellow *gentiles*.

In addition to twelve *limites*, two units of *milites* are also listed under the command of the *dux provinciae Tripolitanae* (*ND Occ*. XXXI, 29–30). These *milites* represent the only reference to distinct regiments of *limitanei* stationed in specified forts (*castra*) in the three chapters relating to the African diocese. Units with the title of *milites* are generally thought to represent a relatively late strand in the composition of the western Notitia's frontier chapters. The two Tripolitanian units may reflect efforts under Valentinian I to reinforce the province following the raids of the Austuriani during the 360s-370s, documented by Ammianus. They would have formed a small provincial force which wasn't tied down by very localised policing duties, like the troops of the various *limites*, but was able respond more rapidly than the distant *comitatenses* commanded by the *comes Africae*. One of these units, the *milites Fortenses*, was effectively held in reserve, being stationed in the provincial capital, Lepcis Magna. Conversely, the other, the *milites Munifices in castris Madensuibus*, may have been deployed well forward, reoccupying the former Severan fort of Gheriat el-Garbia (identified by a recently discovered inscription as Myd…; Makkensen 2012, 57–58).

In contrast to the predominantly peripheral frontier district locations of the *limitanei*, the units of *comitatenses*, appear to have been stationed along the principal highways and key communications hubs in the interior, to judge from the epigraphic evidence. Thus the epitaphs of individual soldiers derive from cities such as Sitifis, Timgad and Thelepte, with some evidence also for the stationing of units in cities in the interior of the Mauretanian provinces (e.g. *CIL* VIII 8490 = *ILS* 2794; *AE* 1916, 7–8; *AE* 1946, 42; *AE* 1937, 35; see Rushworth 1992, 93–99 for full discussion).

Forts and fortlets

The distribution of the district *limites* documented by the Notitia Dignitatum provides an overall impression of the pattern of *limitanei* deployment in the frontier zone. On the basis of the names listed, the individual *limes* headquarters were typically sited at old forts,

such as Gemellae, Tillibari, Talalati/Tabalati and Bezereos, which had been founded in previous centuries and had served as the bases of auxiliary regiments and legionary detachments, or in towns and cities, such as Tubunae, Zabi and Turris Tamalleni. In many cases there may have been an overlap between these two categories, as suggested by the case of Gemellae, where the fort – the regimental base of the *ala I Pannoniorum* during the 2nd and 3rd centuries – was enveloped by a walled town that ultimately achieved the status of a *municipium*. It is possible that similar developments occurred in the case of other apparently urban *limes* headquarters, such as Tubunae, where our evidence is not as full.

However, to understand the detailed placement of the garrison troops within individual *limites* or broader sectors we need to examine the archaeological evidence represented by the remains of forts and fortlets, in particular those newly built during the late Roman period. Our knowledge is very patchy, reflecting the uneven incidence of fieldwork, which in any case has been far less intensive than on other Roman frontiers. Rather than offering a comprehensive survey, here, this study will focus on the best understood areas of western Numidia and Tripolitania to draw some wider conclusions (for more extensive treatment see Daniels 1987, 260, 262–3, fig.10.19; Fentress 1979, 105–8; Mattingly 1995, 192–94; Rushworth 2015, 127–31).

They share many characteristics in terms of layout and features. The majority are square or more commonly nearly square in plan. The defences were furnished with projecting towers at the corners and midway along each side, plus a single gateway, flanked by projecting towers and centrally placed along one side. The towers were usually rectangular in form, although circular/semicircular examples are sometimes also found. Ranges of rooms providing barrack accommodation and storage space were set against the inner face of the curtain wall and a central building, presumably for administration, can often be traced. In some cases – Bourada, Zebaret et-Tir, and probably Doucen – a large courtyard building can be traced in the centre of the fort interior, presumably combining the functions of a headquarters and commanding officer's residence. A small bath house or suite occupies the north-east corner of the central building at Bourada, whilst a three-room horseshoe-shaped structure sits within courtyard aligned on the entrance and the fort's gateway. It may represent the garrison's shrine and treasury.

With one exception, these newly built forts were typically much smaller than the old regimental bases now functioning as limes headquarters. The exception is Zebaret et Tir which measures 154m by 142m and covers 2.19ha. This makes it unique amongst the late Roman fortifications of the region and it is tempting to interpret the site as a forward base designed to accommodate the *praepositus limitis Tubuniensis* during seasonal operations. Much more typical is a group of forts, all situated in the *limites Gemellensis* or *Tubuniensis*, enclosing areas of roughly 0.65-0.75ha. These include Centenarium Aqua Viva (Ain Namia), Bourada, Doucen and perhaps Seba Mgata ('Fort Parallelogramme'). Smaller forts or fortlets are also found in this area, such as Hammam Sidi el Hadj (*Aquae Herculis*), which covers *c*. 0.27ha. The late Roman fortifications identified in Tripolitania were all fortlets at this smaller end of the scale, ranging in area from 0.36 ha right down to diminutive Gasr Bularkan (Mselletin) and Henchir Rjijila at 0.05 ha and 0.04 ha respectively. Typical are the almost identically sized Benia bel Recheb and Henchir el Hadjar at c. 0.15 ha. These contrasting sizes point to possible differences in the way the frontier troops were deployed in Numidia and Tripolitania. Those in the former area could clearly hold much larger numbers of men – the common label *centenarium* might suggest that detachments of 80-100 men were typical – and, accordingly, would imply that much of the garrison in the Numidia frontier districts was deployed out from the *limes* headquarters into the new forts, beside or beyond the linear *fossata* barriers. By contrast, the sites in Tripolitania are mostly small outposts, little more than rural police stations, implying that a higher proportion of that province's troops remained stationed at the various *limes* headquarters.

Dating evidence is limited as so few have been excavated. However, the chronological range of dated building inscriptions from the region's late Roman forts and fortlets provides an indication of when this building activity was most intense. Almost all fall within in the Diocletianic or Constantinianic periods (see Rushworth 2015, 131), with only one later example being known (*CIL* VIII 10937 = 20566), recording the construction of a *castra* in 375-78 at El Bahira, on the north side of the Hodna Mountains, though little is known regarding the form of this site (Gsell *AAA* 20:30). Hence, like the *limes* commands they protected, the creation of these fortifications for the most part predated that of the *limitanei*, as a troop category. That is to say, the new forts were built to accommodate the troops that would, eventually, become *limitanei*.

The best known of these forts is Bourada on the Gemellae sector of the *fossatum*, which was fairly extensively excavated by Guey (1939). This fort appears to have been erected in the early 4th century to judge from the fragmentary Constantinian dedicatory inscription of 317-324 (which broadly tallies with the evidence of the coin series – ibid., 214–218, 245–247). The latest legible coin belonged to the reign of Gratian, showing occupation continued into the later 4th century. The fort was built of mud brick on footings of fired brick (mud brick was also used at Aqua Viva but there walls rested on a stone base).

The function of the African *limitanei*

What roles did these troops perform in the frontier zone? One source, the letter of a certain Publicola to St Augustine concerning problems of ritual pollution, vividly illuminates life in the frontier zone at the end of the 4th century. Publicola was an absentee Christian landowner (*possessor*) with estates in the Tripolitanian frontier zone (Arzugitana). Though he did not reside there he clearly had a number of first hand sources regarding circumstances in a specific *limes* district, probably the leaseholders (the *conductores*) who managed the estates on his behalf.

> *In Arzugibus, ut audivi, decurioni, qui limiti praeest, vel tribuno solent iurare barbari iurantes per daemones suos …*
>
> Amongst the Arzuges (the inhabitants of the Tripolitanian frontier zone), I have heard, the barbarians are accustomed to swear to the decurion, who is in charge of the *limes*, or the tribune, swearing by their own demons. Those barbarians who have agreed to conduct transport (*bastagas*) or in some cases to protect the crops themselves (in situ), these are accustomed to be taken on to look after their crops by individual landowners (*possessores*) or leasehold tenants (*conductores*) or individual travellers who must pass through their territory, if the decurion merely sends a letter as if they are already trustworthy … (Aug. *Epist*. 46, *CSEL* 34; trans Adams 2016, 383, no. 31).

The phrase *decurioni vel tribuno qui limiti praeest*, is clearly a reference to the *praepositi limitum* of the frontier zone, who typically held the additional rank of *tribunus cohortis* or *decurio alarius*. Indeed, Publicola is probably referring to specific officers, referred to by his local informants. So here we see the troops in the African frontier zone continuing to perform the same duties that they had during earlier centuries. In particular they were focussed on monitoring transhumant groups, the *barbari* of the text, moving from the oases and arid steppes beyond the *limites*, into and through the frontier zone, issuing passports to transhumant pastoralists, doubtless written on ostraca, like the communications issued by the mid-3rd-century garrison at Bu-Njem (cf. Marichal 1992), and generally ensuring that all the different groups in this dynamic zone of interaction rubbed along without undue incident.

If we look at a typical stretch of the *limes Tripolitanus*, the *limes Talalatensis* around the fort of Ras el-Ain Tlalet, we can envisage how this might have operated in practice on the ground. Groups of transhumant '*barbari*' would have arrived at the gateways through the *clausurae* walls which blocked the defiles through the Jebel range. There, their progress would have been halted by the soldiers on duty until the leaders of the pastoralists had been despatched to swear oaths before the *praepositus limitis*, perhaps at his headquarters in the fort of Ras el-Ain. In return they would receive documents, in effect passports, perhaps written on ostraca or wooden tablets, which guaranteed they could continue their progress into the farmlands of the limes Tripolitanus without molestation. The passports would in turn give local farmers confidence that these groups were trustworthy, so they could be hired for crop-watching, as harvest labour and to transport goods using their camels and other stock. Moreover, from the military point of view, possession of the passport would prove to any soldiers or officials they encountered deeper in the province that the pastoralists had not infiltrated the province illicitly with aim of planning or undertaking a raid. And so disputes were prevented which might otherwise disrupt the different communities' symbiotic rhythms of subsistence and the peace of the frontier zone was thereby maintained.

Conclusion

This survey has emphasised the need for precision when referring to *limitanei*, respecting the chronology provided by the legal sources, which imply that *limitanei* was a category only formalised in the mid-4th century. Moreover, even after its introduction, it is not clear how commonly used this term was amongst the frontier troops themselves, as opposed to the senior officials and bureaucrats who administered the military units and policed the pay and privilege differentials between the various troop categories.

Nevertheless, if any troops may have thought of themselves as *limitanei* it is surely these African frontier soldiers, commanded as they were by *praepositi limitum* and manning district *limites*. It is not difficult to imagine that the territorial *limites* may have increasingly defined the troops' identity rather than the old regiments from which they were ultimately derived. We do not have the epigraphic or documentary evidence to confirm this unless, perhaps, we accept Guey's interpretation of a graffito on the base of an African Red Slip ware plate from Bourada (1939, 206). Reading [*M*]*aurosi* [*I*]*emitani*, Guey suggested the plate's owner, Maurusius (?), was referring to himself as a *limitaneus*. Sadly, however, we must surely accept that alternative, more mundane interpretations are possible, so for the moment our African *limitanei* must remain anonymous.

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LIMES XXIIII

Session 21

Life and Health on the Roman Limes

INTRODUCTION

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This session includes anthropological research of osteological material from old and new archaeological excavations along Limes. This will implies the impact of historical circumstances on the social and health status of the rural, urban and military populations, their paleodemographic structure, the reconstruction of economic relations and the diet, the level of medical care and protection, intentional and accidental traumas, everyday occupations and habits, relations towards children, as well as the reconstruction of funeral practice.

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The appearance of ulcer on one skeleton from Viminacium and the possibility of its' treatment in antiquity

ABSTRACT

Viminacium (Stari Kostolac) was the largest and the most important city in *Moesia Superior* (Upper Moesia). It was the provincial capital, administrative, religious, military and trade centre. It was built on a strategic location at the confluence of the river Mlava and the Danube, on the crossroad of both land and river routes with large military and trade potential. In one of the necropoles of Viminacium, Pirivoj, in grave no. 325, skeletal remains of a juvenile female individual were discovered. The burial is dated into the first half of the 3rd century. The deceased juvenile was laid on the back with hands clasped on her stomach. The orientation of the grave was North–South. Anthropological analyses revealed traces of osteomyelitis or cancer with proliferative periostitis on the left tibia and left fibula. The source of infection was related to a large ulcer on the left tibia. The current appearance of the bone shows poor health treatment of the ulcer and active inflammation at the time of death. In this text, we will also focus on the ulcer aetiology and possibility of its' treatment in Antiquity. Treatments will also be briefly discussed, with preparations based on silver and lead, vinegar, honey, etc.[1]

Key Words: Roman necropolis, 3rd century, Ulcer, Osteomyelitis, Cancer, Medical treatment

[1]This text is a result of the projects *Viminacium, Roman city and military legion camp – research of the material and non material culture of inhabitants by using the modern technologies of remote detection, geophysics, GIS, digitalisation and 3D visualisation* (No 47018), *Romanization, urbanization and transformation of urban centres of civil, military and residential character in Roman provinces on the territory of Serbia* (No. 177007) and *Urbanization and development processes in the medieval society* (No. 177021), funded by the Ministry of Education, Science and Technological Development of the Republic of Serbia. We express our gratitude to Mr M. Radmilović for the map of the site (Map 1.) and for post-production of all illustrations (Plates I–IV).

Viminacium (Stari Kostolac) was the largest and the most important city in *Moesia Superior* (Upper Moesia) (Map 1). It was the provincial capital, administrative, religious, military and trade centre. It was built on a strategic location at the confluence of the river Mlava and the Danube, on the crossroad of both land and river routes with large military and trade potential.

In one of the necropoles of *Viminacium*, Pirivoj, in grave no. 325, skeletal remains of a juvenile female individual were discovered. The burial is dated into the first half of the 3rd century. The deceased juvenile was laid on the back with hands clasped on her stomach. The orientation of the grave was North–South (Figs. 1 and 2).

The anthropological analysis was conducted at the Institute of Archaeology in Belgrade, and included the estimation of sex and age at the moment of death, paleopathological and dental analyses, and macroscopic examination of entheses.

Methodology framework

For sex determination on the skeletal material of this individual we adopted a combination of morphological and metrical methods. Specific attention was paid to morphological elements of the skull (*glabella, planum nuchale, processus mastoideus, arcus supercilialis, protuberantia occipitalis externa, os zygomaticum, tubera frontale et parietale,* inclination of *os frontale* and *margo supraorbitalis*) and pelvis (*sulcus praeauricularis, incisura ischiadica s. ischialis major, arc compose,* the appearance of *os coxae, crista iliaca, fossa iliaca*), and the method of operation was adopted from a group of European anthropologists,[2] and Buikstra and Ubelaker.[3] Morphological elements of the mandible were also analysed (general aspect of the mandible – *corpus mandibulae, ramus mandibulae* and *angulus mandibulae, mentum, angulus mandibulae* and *margo inferior*), on the basis of criteria established by Ferembach and his co-workers,[4] as well as the metrical

Map 1 - Location of Viminacium on the map, with the position of the Republic of Serbia in Europe (drawing by Miro Radmilović)

elements relevant for the gender determination of the skeleton.[5] Metrical elements obtained, as well as indexes calculated on that basis are shown in Table 3. Mesiodistal and vestibulolingual diameters were measured on teeth in the manner recommended by Hillson (Table 4).[6] Morphological and metric elements were observed during the analysis of other postcranial bones as well. The morphological elements that caught our attention most were the degrees of development of: *tuberositas deltoideae, tuberositas radii* and *margo interosseus* (of the radius), *tuberositas ulnae* and *margo interosseus* (of the ulna), *linea aspera* and *tuberositas tibiae.* Bone appearance, body curvature and *facies auricularis* were morphological elements observed in the sacrum.[7] Metric elements played a more significant role in sex determination based on the postcranial skeleton, and were given additional attention. Metrical elements obtained, as well as indexes calculated on that basis, given separately for the right and the left side of the body, are shown Table 5.

[2]Ferembach *et al.* 1980, 519–527.
[3]Buikstra, Ubelaker 1994, 15–21.
[4]Ferembach *et al.* 1980, 523–525.
[5]*Ibid.*; Bass 1995, 84–85.
[6]Hillson 1990, 240–242; *idem.* 1996, 80–82.
[7]Mikić 1978, 18, 19; Bass 1995, 114.

Fig. 1 - Viminacium, site of Pirivoj, Grave No. 325 (photo taken from Documentation Centre, Viminacium)

Fig. 2 - Viminacium, site of Pirivoj, Grave No. 325 (photo taken from Documentation Centre, Viminacium), detail

Individual age was established based on: obliteration degree of cranial sutures;[8] changes on the maxillary and mandibular teeth (we compared the changes on the occlusal surface of the dental material with the numeric classification of the wear-out level of the upper (occlusal) surface of the molars according to the life age defined by Brothwell,[9] and changes on the occlusal surface of the dental material with the numeric classification of the wear-out level of the upper surface of all teeth according to the life age defined by Lovejoy);[10] degree of ossification of the epiphysis-diaphysis connections (table with time scales (in years) during which epiphysis-diaphysis connections ossificate);[11] morphological changes in sternal ends of ribs (metamorphoses of depth, joint cavities, shape, edges and ridge configuration were examined, together with overall state of bone, based on ten (0–8) phases of progression covering the period from 18 to over 70 years);[12] morphological changes on the medial end of the clavicle (in five progression phases, noted by Black and Sheueur, which comprehend the period from the age of 14 to the age of 29),[13] and phases (1–4) and age categories based on morphological changes on vertebral bodies.[14]

Stature was calculated using Trotter and Gleser's formulas (Table 2).[15]

Dental and paleopathological analyses were also conducted; epigenetic characteristics were noted as well (26 epigenetic variations were observed on the cranial and eleven on the postcranial part of the skeleton),[16] and also a macroscopic examination of entheses on muscle and ligament insertions was performed.

Results of the anthropological analysis

The anthropological analysis revealed that a female, aged about 20 (medium stature: 156 ± 4 cm) was buried in grave No. 325 (Plates I–IV; Tables 1–5).

The following paleopathological changes were noted: ulcer (size: 9.5 x 3.5 cm) followed by osteomyelitis (or cancer?) on the left tibia and osteomyelitis (or cancer?) that spread from the left tibia onto the left fibula (Figs.

[8]Vallois 1937; Meindl, Lovejoy 1985.
[9]Brothwell 1981, 72.
[10]Lovejoy 1985.
[11]From Ferembach *et al.* 1980, 531, Figure 6; after Haret, Dariaux, Quenu 1927; Rauber, Kopsch 1952; Wolff-Heidegger 1954; Brothwell 1965 and Gray's Anatomy 1967.
[12]Işcan *et al.* 1984a; *idem*. 1984b; *idem*. 1985.
[13]Black, Scheuer 1996: 428, 429, Figure 1.
[14]From Burns 2013: 83, Figure 5.10; after Albert, Maples 1995.
[15]Trotter, Gleser 1952.
[16]Hauser, De Stefano 1989; Ђурић-Срејић 1995, 238–260.

GRAVE 325					
CRANIAL SKELETON					
frontal bone	75–100%	sphenoid bone	25–50%		
right parietal b.	75–100%	mandible	100%		
left parietal b.	100%	right and left maxillae	75–100%		
occipital bone	100%	r. and l. zygomatic b.	100%		
right temporal b.	50–75%	8 fragments of skull	1.5–4.5 cm in length		
left temporal b.	75–100%	19 frag. of skull base	0.5–5.5 cm in length		
POSTCRANIAL SKELETON					
right humerus	P.E.	P1/3	M1/3	D1/3	D.E.
left humerus	P.E.	P1/3	M1/3	D1/3	D.E.
right radius	P.E.	P1/3	M1/3	D1/3	D.E.
left radius	P.E.	P1/3	M1/3	D1/3	D.E.
right ulna	P.E.	P1/3	M1/3	D1/3	D.E.
left ulna	P.E.	P1/3	M1/3	D1/3	D.E.
right femur	P.E.	P1/3	M1/3	D1/3	D.E.
left femur	P.E.	P1/3	M1/3	D1/3	D.E.
right tibia	P.E.	P1/3	M1/3	D1/3	D.E.
left tibia	P.E.	P1/3	M1/3	D1/3	-
right fibula	-	½ P1/3	M1/3	D1/3	D.E.
left fibula	-	P1/3	M1/3	D1/3	-
32 bone fragm. of postcr. skeleton	0.8–4 cm in length				
right and left clavicle	both 75–100%				
manubrium	25–50%				
corpus sterni	75–100%				
right and left scapula	25–50%				
sacrum	100%				
right iliac bone	100% dec.				
right pubic bone	75%				
left iliac bone	100% dec.				
left ischium bone	50%				
left pubic bone	<25%				
right patella	75%				
C1–C6; L1–L5; eight thoracic vertebrae, 4 body fragments and 12 fragment of processes of thoracic vertebrae					
56 ribs fragments	1.4–19.9 cm in length				
right os capitatum	100%				
I right and left os metacarpale	P.E.	P1/3	M1/3	D1/3	D.E.
II right and left os metacarpale	P.E.	P1/3	M1/3	D1/3	D.E.
III right and left os metacarpale	P.E.	P1/3	M1/3	D1/3	D.E.
IV left os metacarpale	P.E.	P1/3	M1/3	D1/3	D.E.
a phalanx of hand	8				
right and left talus	100% dec.				
right and left calcaneus	100% dec.				
right os naviculare	100%				
right *os cuneiforme mediale*	100%				
left *os cuneiforme mediale*	50–75%				
right *os cuneiforme intermedium*	75–100%				
left *os cuneiforme intermedium*	100%				
right *os cuneiforme laterale*	100%				
left *os cuneiforme laterale*	75–100%				
right *os cuboideum*	100%				
I right *os metatarsale*	P.E.	P1/3	M1/3	D1/3	D.E.
I left *os metatarsale*	P.E.	P1/3	-	-	-
II right *os metatarsale*	P.E.	P1/3	M1/3	D1/3	D.E.
II left *os metatarsale*	P.E.	P1/3	M1/3	D1/3	-
III right *os metatarsale*	P.E.	P1/3	M1/3	D1/3	-
III left *os metatarsale*	P.E.	P1/3	M1/3	D1/3	-
IV right *os metatarsale*	P.E.	P1/3	M1/3	D1/3	-
IV left *os metatarsale*	P.E.	P1/3	M1/3	D1/3	D.E.
V right *os metatarsale*	P.E.	P1/3	M1/3	D1/3	D.E.
a phalanx of foot	12				

Table 1 - List of preserved bones

Stature (cm) – calculation based on the length of	GRAVE 325
Radius	156±4
Ulna	157±4
Femur	153±4
Tibia	156±4
Medium stature	156±4

Table 2 - Stature

1 and 2; Plate IV); injuries in the form of two shallow depressions (size: 1.5 cm), above and to the right of lambda (Plate I, 1); joint dislocation (shoulder, knee and ankle joints); bone deformation (curvatures of the ulnar body, especially of the left ulna) (Plate II, 3); *cribra humera* (on both humeri) (Plate II, 1); *cribra femora* (on both femurs (size on the right one: 2.3 x 2.7 cm; size on the left one: 2.6 x 1.7 cm; porous lesions can also be seen on the posterior side, above the lower ends of both femori) (Plate III). On the right and the left scapula, dislocations of glenoid cavities can be seen, beneath the very cavities, above *m. triceps brachii – Caput longum* (Plate II, 4). *Facies articularis talaris media* and *facies articularis talaris anterior* are separated at both calcanei.

Dental analysis has shown the presence of: enamel hypoplasia (considerable), parodontopathy (considerable), calculus (slight), abrasion of the 1st degree (on enamel), and caries on five teeth (in the form of spots) (Plate I, 2–6). When it comes to teeth and dental arch anomalies, only rotation (30°) was noted of teeth 12 and 22 (Plate I, 2). Occlusion: edge-to-edge.

Very prominent muscular, ligamentous and tendinous entheses were noted on the right and left clavicle (*m. deltoideus* (more prominent on the right one), *lig. trapezoideum, lig. conoideum*), on the right and left scapula, on ribs (*Mm. levatores costarum*), on the right and left humerus (*m. deltoideus* is in the shape of a crest), on the right and left radius (*m. biceps brachii* (it is less prominent on the left one)). Entheses were less prominent on the *femori*.

When it comes to epigenetic characteristics on the cranial part of the skeleton, we may note *sulci frontales* (two on the right, one on the left), *foramen zygomaticofaciale* (two on the left zygomatic bone), and on the postcranial skeleton – *foramen processus transversi bipartitum* (C5, on the right side; C6, on the right side) and *trochanter tertius* (both femurs).

Discussion

Ulcer

In the anthropological literature there are very few published cases of leg ulcer from the archaeological context.[17]

[17]Ortner 1979; Aufderheide, Rodríguez-Martín 1998; Ortner 2003; Boel, Ortner 2013; Миладиновић-Радмиловић, Капуран, Булатовић 2014, etc.

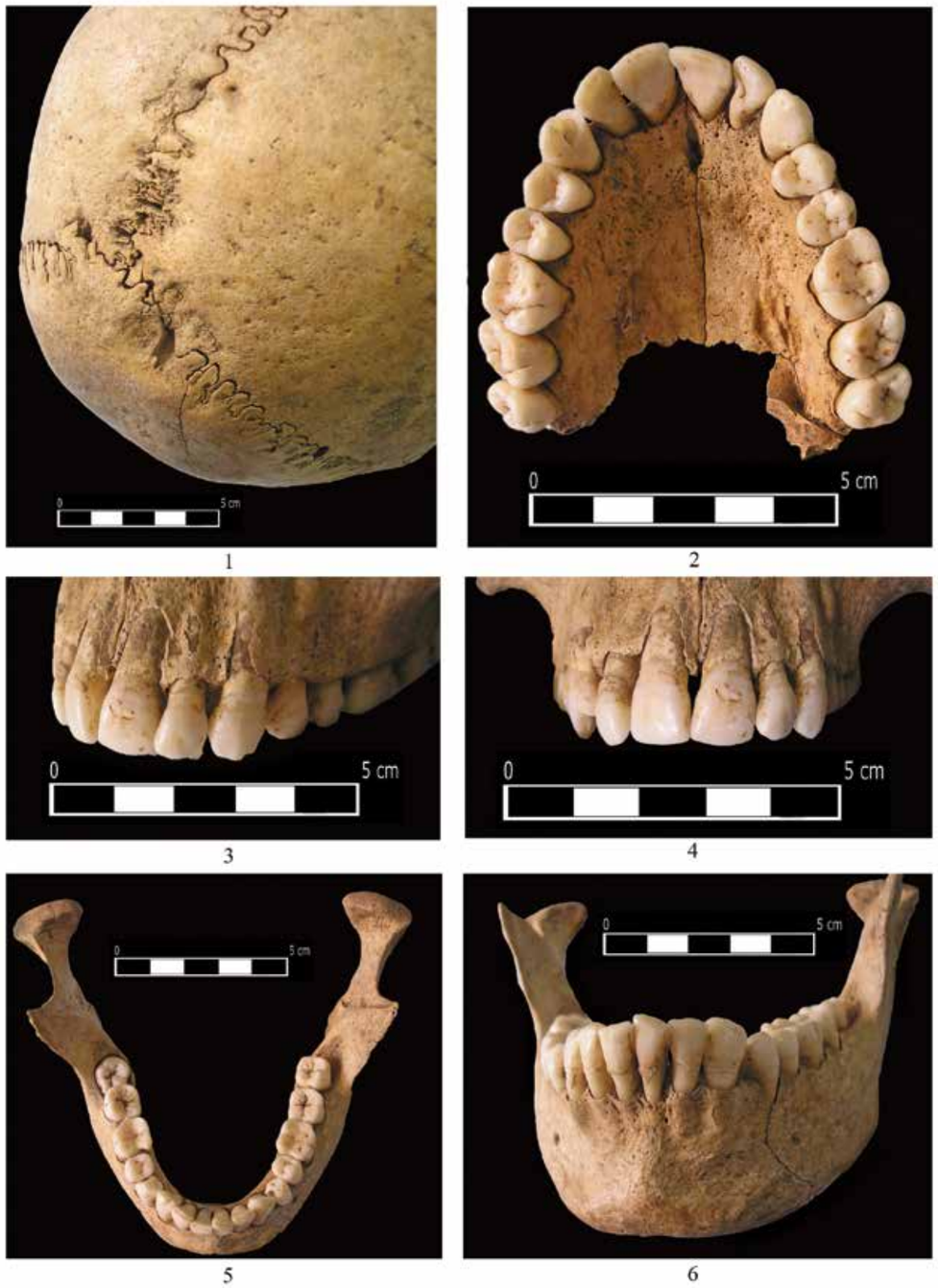

Plate I – 1) injuries in the form of two shallow depressions, above and to the right of lambda 2–4) enamel hypoplasia, parodontopathy, calculus, abrasion, caries and rotation of maxillary teeth; 5–6) enamel hypoplasia, parodontopathy, calculus, abrasion and caries of mandibular teeth (photo by Nataša Miladinović-Radmilović)

GRAVE 325			
CRANIAL SKELETON (CM)			
PRIMAL CRANIAL MEASURMENTS		PALATE	
Maximum cranial length (g-op)	17.00	Palatal length	3.60
Maximum cranial breadth (eu-eu)	13.60	MANDIBLE	
Basion/bregma height (ba-b)	12.30	Mandibular length	9.60
Cranial Index	80.00 hyperbrachycrany	Bicondylar breadth (cdl-cdl)	1.05
Cranial Length-Height Index	72.35 orthocrany	Bigonial breadth (go-go)	8.30
Cranial Breadth-Height Index	90.44 tapeinocrany	Height of ascending ramus	6.20
Mean Height Index	80.39 medium	Minimum breadth of ascending ramus	3.15
Approximate Cranial Size	14.30	Height mandibular symphysis (gn-idi)	2.75
Porion-bregma height	11.30	Thickness of mandibular body	1.00
Basion-porion height	1.50	Height of mandibular body	2.65
Mean Porion-Height Index	73.85 high	Mandibular Index	86.88
Index of Flatness of the Cranial Base	12.19 low	Mandibular Body Robusticity Index	37.73
Minimum frontal breadth (ft-ft)	9.40	Mandibular Ramus Index	50.80
Fronto-Parietal Index	69.12 metriometopic	Frontomandibular Index	85.07 leptomandibular
MAXILLA			
Maxilloalveolar breadth (palatal breadth) (ecm-ecm)	5.85		

Table 3 - Cranial measurements and indices

There are numerous disorders, i.e. variety of diseases and conditions that can lead to chronic ulcers: vascular disorders (venous insufficiency, arterial insufficiency);[18] neuropathy (diabetes, tabes, syringomyelia);[19] metabolic disturbances (diabetes, gout, prolidase deficiency);[20] haematological diseases

[18]Vascular insufficiency plays an important role among the elderly (Shami *et al*. 1992; Sarkar and Ballantyne 2000; Cunha *et al*. 2009; Boel and Ortner 2013: 303, 308; Agale 2013). It is interesting to say that Hippocrates was the first to note the association between varicose veins and ulceration (Hippocrates. De ulceribus and De carnibus (Adams (ed.) 1849)). Also, during Roman times, a number of physicians, including Galen, Celsus, Aetiusof Amida and Paulus Aegineta advised avulsion and cauterization for the treatment of varicose veins, and the use of bandages for the treatment of leg ulcers (Anning 1954).

[19]Sarkar, Ballantyne 2000.

[20]*Ibid.*

GRAVE 325					
ODONTOMETRIC DATA (CM)					
MAXILLARY TEETH			MANDIBULAR TEETH		
DIAMETER	M/L	VB/L	DIAMETER	M/L	VB/L
11	0.85	0.75	31	0.60	0.60
12	0.70	0.70	32	0.65	0.75
13	0.80	0.85	33	0.75	0.80
14	0.60	0.90	34	0.60	0.75
15	0.60	0.95	35	0.65	0.85
16	1.10	1.05	36	1.05	1.05
17	0.85	1.20	37	0.95	1.00
18	0.80	1.05	38	1.00	1.00
21	0.90	0.70	41	0.60	0.65
22	0.65	0.70	42	0.60	0.70
23	0.75	0.80	43	0.75	0.80
24	0.60	0.90	44	0.70	0.70
25	0.60	0.90	45	0.65	0.80
26	1.10	1.15	46	1.00	1.05
27	0.80	1.20	47	1.00	1.00
28	0.80	1.10	48	1.15	0.95

Table 4 - Odontometric data

Plate II – 1) cribra humera; 2) prominent muscular entheses on both humeri; 3) lateral curvatures of the body on both ulnae; 4) dislocation of the glenoid cavities on the both scapulas and prominent sulcuses beneath the very cavities (photo by Nataša Miladinović-Radmilović)

Plate III – 1–2) cribra femora (on both femurs); 3–4) porous lesions on the posterior side, above the lower ends of both femori) (photo by Nataša Miladinović-Radmilović)

GRAVE 325			
POSTCRANIAL SKELETON (CM)			
HUMERUS*		FEMUR*	
Maximum diameter midshaft (a/m pr.)	1.75 1.75	Maximum length	39.90 40.75
Minimum diameter midshaft	1.60 1.50	Bicondylar (physiological) length	39.60 40.00
Maximum diameter of the head	- 3.50	Subtrochanteric a-p diameter	2.20 2.30
Least circumference of the shaft	5.20 5.30	Subtrochanteric m-l diameter	2.70 2.90
Biepicondylar width	- 5.05	A-p mid-shaft diameter	2.80 2.75
Articular width	- 4.00	M-l mid-shaft diameter	2.10 2.30
Cross-Section Index	- 85.71	Maximum diameter of the head	3.65 3.65
RADIUS*		Circumference of the midshaft	7.80 7.80
Maximum length	21.50 21.00	Bicondylar width	6.80 6.75
Physiological length	20.40 20.10	Collo-diaphyseal angle (♂:130-144°; ♀:110°)	135° 130°
A-p mid-shaft diameter	1.00 1.00	Condylo-diaphyseal angle	80° 75°
M-l mid-shaft diameter	1.25 1.30	Robusticity Index	12.37 13.00
Least circumference of the shaft	3.70 3.50	Pilastric Index	81.48 79.31
Maximum distal breadth	2.80 2.70	Platymeric Index	133.33 stenomeric 119.57 stenomeric
The Length-Thickness Index	18.14 17.41	TIBIA*	
Cross-Section Index	4.90 4.97	Maximum length	32.40 -
The Length-Breadth Index	13.72 13.50	Physiological length	30.40 -
ULNA*		A-p diameter (nut. foramen)	2.95 3.00
Maximum length	23.30 22.40	M-l diameter (nut. foramen)	2.10 2.05
Physiological length	20.35 20.00	Circumference at the nutrient foramen	8.30 8.20
Least circumference of the shaft	3.00 2.80	Proximal breadth	6.45 5.75
Caliber Index	14.74 14.00	Distal breadth	4.15 -
CLAVICLE*		Least circumference of the shaft	6.60 -
Maximum length	- 12.70	The Length-Breadth Index	20.37 -

GRAVE 325			
Circumference at middle of bone	3.40 3.70	Platycnemic Index	71.19 eurycnemic 68.33 mesocnemic
Robustness Index	- 343.24	FIBULA*	
SCAPULA*		Least circumference of the shaft	- 2.60
Glenoid cavity length	3.20 3.15	SACRUM	
STERNUM		Maximum anterior breadth	10.90
Corpus sterni lenght	7.60	Maximum anterior high	10.50
Corpus sterni breadth	3.65	Sacral index	103.81
Width of III sternebra	2.65	Bones marked with * have two measurements, upper is for the right, and lower is for the left side of the body.	
Width of IV sternebra	3.30		

Table 5 - Measurments and indices of postcranial skeleton

(sickle cell disease, cryoglobulinemia);[21] trauma (pressure, injury, burns);[22] malignancy (basal cell carcinoma, squamous cell carcinoma);[23] insect bites;[24] infections (bacterial, fungal, protozoal;[25] the most common infectious pathogens: fusiform bacilli, spirochetes, streptococci, staphylococci and mycobacteria);[26] panniculitis (necrobiosis lipoidica, fat necrosis);[27] pyoderma (gangrenosum),[28] iatrogenic conditions, etc.[29] Unfortunately, anthropological analyzes are limited to bone observation only, so in many cases determination of the specific aetiology of a chronic ulcer is probably rarely possible in archaeological burials.[30]

Bone changes resulting from a skin ulcer, according to Boel and Ortner, "tend to have the following features: 1. the lesion usually occurs on the anterior and medial surface of the tibial diaphysis; 2. the margins of the lesion are usually sharply demarcated; 3. although the most typical bone response is the formation of an elevated, well-demarcated lesion, skin ulcers can stimulate a destructive response in which the margins may be less distinct, may never form or may be destroyed and 4. the bone lesion underlying the skin ulcer usually has a very porous surface, indicative of a chronic condition that was active at the time of death."[31]

It is also important to note that mistreatment and neglect of ulcer treatment can create additional complications that can cause osteomyelitis and even cancer.[32]

Skin ulcers most commonly affect the lower legs, especially the tibia. The localisation of skin ulcers at the anterior and medial surface of the tibia is usually explained by the fact that the skin is in very close contact with the periosteum, hence, skin trauma can easily transmit pathogens to the interior bone tissue.[33]

In our case from Viminacium, there is a large, circumscribed lesion of periosteal reactive bone on left tibia, as a reaction to an overlying skin ulcer. In addition, the left fibula show evidence of reactive bone suggestive of a disseminated osteomyelitis or cancer (Plate IV).[34]

Plate IV – 1–6) ulcer followed by osteomyelitis on the left tibia and osteomyelitis that spread from the left tibia onto the left fibula (viewed from different angles) (photo by Nataša Miladinović-Radmilović)

Ulcer treatment in Antiquity

In this text, we will also focus on the possibility of ulcer treatment in Antiquity. Treatments will also be briefly discussed, with preparations based on: lentils, beets, vinegar, barley, lead and granulated sugar.

Lentils

Hippocrates recommends lentils as a cure for ulcers and haemorrhoids. Pliny recommends that the lentils, in combination with other ingredients such as beets, vinegar and barley, should be used to treat: abscesses, ulcers, gangrene, gout, and sore throat. He also warns that they should not be used for: ailments of the lungs, headaches, joints and insomnia.[35]

Lead

Although the poisonous effects of lead were known even in the ancient times, it was actually prescribed for different medical purposes. For example, Pliny describes several remedies which use lead: "for the removal of scars... and as an ingredient in plasters, for ulcers, and for the eyes etc."[36]

Granulated sugar

Sugar was used as a wound-dressing product in Ancient Egypt and Mesopotamia,[37] and in Ancient Greece and Rome. Galen reportedly used sugar as a wound care product and noted its' anti-putrefactive properties.[38] People used sugar as a wound care product also in the 17th[39] and 18th centuries.[40] Today, it is used as a wound dressing in many parts of the world.[41] Sugar has been observed to have antibacterial properties and that draws water from a wound into the dressing, probably through an osmotic effect that reduces the available

[21] *Ibid.*
[22] *Ibid.*
[23] *Ibid*.
[24] Brown, Middlemiss 1956, 213.
[25] Sarkar, Ballantyne 2000.
[26] The most common cause of this type of ulcer is caused by staphylococci (Boel, Ortner 2013: 303).
[27] Sarkar, Ballantyne 2000.
[28] *Ibid*.
[29] Boel, Ortner 2013: 303.
[30] *Ibid.,* 308.
[31] Boel, Ortner 2013, 304.
[32] *Ibid.,* 303.
[33] *Ibid.,* 306.

[34] In this chronic case, maybe long-standing case, we can assume that malignant changes may have developed on left tibia. If that's the case here, the change was epitheliomatous, and it became locally invasive, destroying the underlying bone. The bone gap thus produced is usually deeper and more irregular than the gap resulting from cortical sequestration. Pathological fracture may occur as well (Brown, Middlemiss 1956, 216, 217).
[35] Plinius HN 12.145–146, taken from Flint-Hamilton 1999.
[36] Pliny, *Natural History*, book XXXIV chapter 1 (cited Pulsifer 1888).
[37] Majno 1975, Selwyn, Durodie 1985.
[38] Petrosillo 2008.
[39] Pieper, Caliri 2003.
[40] Fischer 1885.
[41] Mphande, Kilowe, Phalira 2007; Chiwenga, Dowlen, Mannion 2009.

water on the wound surface.[42] Bacteria cannot survive without water, so applying sugar to a wound allows for the acceleration of the healing process.[43]

When it comes to sugar, there are records of knowledge of sugar among the ancient Greeks and Romans, but only as an imported medicine, and not as a food. For example, the Greek physician Dioscorides in the 1st century AD wrote: "There is a kind of coalesced honey called sakcharon (i.e. sugar) found in reeds in India and Eudaimon Arabia (i.e. Yemen) similar in consistency to salt and brittle enough to be broken between the teeth like salt. It is good dissolved in water for the intestines and stomach, and (can be) taken as a drink to help (relieve) a painful bladder and kidneys."[44] There is no evidence from Yemen itself that sugarcane was cultivated in Yemen before the start of the Islamic era, but there is plentiful evidence that Yemen imported goods from India in the pre-Islamic era. Therefore, historians today tend to believe that when Dioscorides was writing in the 1st century AD, Yemen imported sugar from India and exported in Greece.[45] Pliny the Elder, also described sugar as medicinal: "Sugar is made in Arabia as well, but Indian sugar is better. It is a kind of honey found in cane, white as gum, and it crunches between the teeth. It comes in lumps the size of a hazelnut. Sugar is used only for medical purposes."[46]

Conclusion

The anthropological analysis revealed a large, circumscribed lesion of periosteal reactive bone on left tibia, as a reaction to an overlying skin ulcer. In addition, the left fibula show evidence of reactive bone suggestive of a disseminated osteomyelitis or cancer. The current appearance of the bone shows poor health treatment of the ulcer and active inflammation at the time of death. We could see how doctors dealt with these bone lesions in the Late Roman period from the preserved ancient medical records. We can also see from these skeletal remains, based on very pronounced muscular, ligamentous and tendinous entheses noted on the right and left clavicle, on the right and left scapula, on ribs and bones of the upper extremities, as well as dislocation of the shoulder, knee and ankle joints, and curvature of both ulnae, that this person probably had difficulty in walking and relied on medical aid for a long time, that is, on crutches.

[42]Knutson *et al.* 1981; Chirife, Herszage, Joseph 1993.
[43]Murandu 2016, 28.
[44]Galloway 1989, 24.
[45]*Ibid.*
[46]Faas 2003, 149.

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Settlement size, site history, and mortality at Roman Viminacium: Testing the urban graveyard hypothesis

ABSTRACT

It is a widely held view that ancient cities were unhealthy environments. Some scholars have gone so far as to suggest that larger pre-Industrial cities were so lethal as to be unable to sustain their population levels without constant immigration from rural hinterlands. The present study therefore examines mortality at the ancient city of Viminacium on the Danube frontier in an attempt to test the Urban Graveyard Hypothesis using skeletal remains from a provincial Late Roman context. Given the known trajectory of urban development at Viminacium, which began as a small military outpost on the Roman Limes during the 1st Century and evolved into a large, regionally important political and economic center persisting into the 5th century, it was possible to study changes in health as settlement size and density increased through examination of skeletons from the graveyards surrounding the city. The results suggest that local, historically-specific conditions – namely the Third Century Crisis known from ancient documentary sources – were far more influential upon general public health than increasing population size at Viminacium.

Key Words: provincial roman urbanism, urban graveyard effect, third century crisis, paleodemography, event history analysis, survival analysis, transition analysis

It is a long and widely held view that ancient cities were decidedly unhealthy environments for humans relative to open rural settings. This has often been attributed to a purported intensified infectious disease environment brought on by increased population density and the associated sanitation issues[1]. Some demographers have, in fact, gone so far as to proclaim an 'iron law' in which pre-Industrial cities with larger populations were fundamentally unable to sustain their numbers without constant immigration from the rural hin-

[1]See Cohen 1989; Larsen 1997; Steckel, Rose 2002; Storey 2006 for numerous case studies supporting this position.

terlands due to excessive levels of mortality[2], though it has also been pointed out that this excess mortality was experienced primarily by the immigrants themselves[3]. Similar views have been advanced for cities of the ancient Mediterranean world, particularly Rome itself [4]. Still, the question remains as to whether this 'Urban Graveyard Effect' is an intrinsic universal of human settlement ecology, or instead a variable characteristic of cities under some conditions – but not others[5]. In the present work, we empirically investigate the question of whether the Urban Graveyard principle is appropriately applied to smaller provincial Roman cities of the Danube *limes*.

Death and the city

Since as early as the 17th century, demographers have noted that deaths recorded in vital records exceeded births in many early modern European cities[6]. Migration to cities from rural hinterlands was intense during this period and it was perceived that many, if not most, European cities would not have been able to maintain their population size and economic viability if not for this constant influx of persons. E.A. Wrigley perhaps most clearly articulated this notion of an 'Urban Graveyard Effect' in 1967 in his analysis of early modern London. In his view, excess mortality created a constant need of inward migration from a city's hinterlands in order to maintain the urban population and, in turn, its economic stability. Subsequent researchers following Allan Sharlin – while recognizing that this Urban Graveyard phenomenon is reflected in vital records from across Europe – pointed out that it was in fact the immigrants themselves who were contributing disproportionately to the excess mortality. Yet other critics have further argued against the Urban Graveyard Effect as any sort of universal principle, pointing out that some pre-industrial northern Dutch cities did not experience any such excess of deaths over births[7]. In most current research, discussions of Urban Graveyard Theory focus on what subset of the population is primarily responsible for excess numbers of urban deaths[8].

The present paper, however, is specifically focused upon the excess mortality phenomenon itself and its relationship to population size – as opposed to whether the deaths are coming predominantly from natives or migrants. An estimated population threshold of some 10,000 persons has been advanced as the point at which urban environments tend to become exceedingly lethal[9]. This 'Urban Graveyard' principle has also worked its way into models of the ancient Roman World, where some exceeding grim pictures of urban living conditions have been painted, particularly for the city of Rome itself[10]. Ancient documentary evidence details the many plagues and other endemic health risks facing the occupants of Rome and the residents themselves –especially the educated wealthy elites – clearly recognized the health benefits to escaping the confines of the Eternal City during the malarial summers[11]. It is therefore our intention to scientifically test for the existence of the Urban Graveyard Effect in a provincial Roman context.

As far as previous empirical investigations of ancient Roman urban conditions and its effect on general public health, data have been scarce and equivocal in their implications. Epigraphic evidence from tombstones has suggested a significant seasonal impact of endemic malaria and occasional episodes of epidemic mortality in Roman Italy[12], but the fickleness of the 'epigraphic habit' has limited the effectiveness of applying information obtained from mortuary monuments

[2]Wrigley 1967; De Vries 1974; Finlay 1981; Flinn 1981.
[3]Sharlin 1978; Van der Woude 1982.
[4]Morley 1996, 2005; Sallares 2002; Jongman 2003; Scheidel 2003; Paine, Storey 2006; *but see* Lo Cascio 2006, 2015 for a different opinion.
[5]Woods 2003, Shaw 2006.
[6]Graunt 1662; Sussmilch 1775; Malthus 1798.
[7]Van der Woude 1982.
[8]Puschmann *et al* 2013; Hin 2016.
[9]de Vries 1974; Sharlin 1978.
[10]Yavitz 1958; Brunt 1966; Champlin 1982; Ramage 1983; Scobie 1986; Syme 1986; Pleket 1993.
[11]Cicero, *De re Publicum* 2.11; Hippocrates, *On Epidemics*; Celsus, *De Medicina*; Galen, *De Morborum Temporibus.*
[12]Sallares 2002; Shaw 2006.

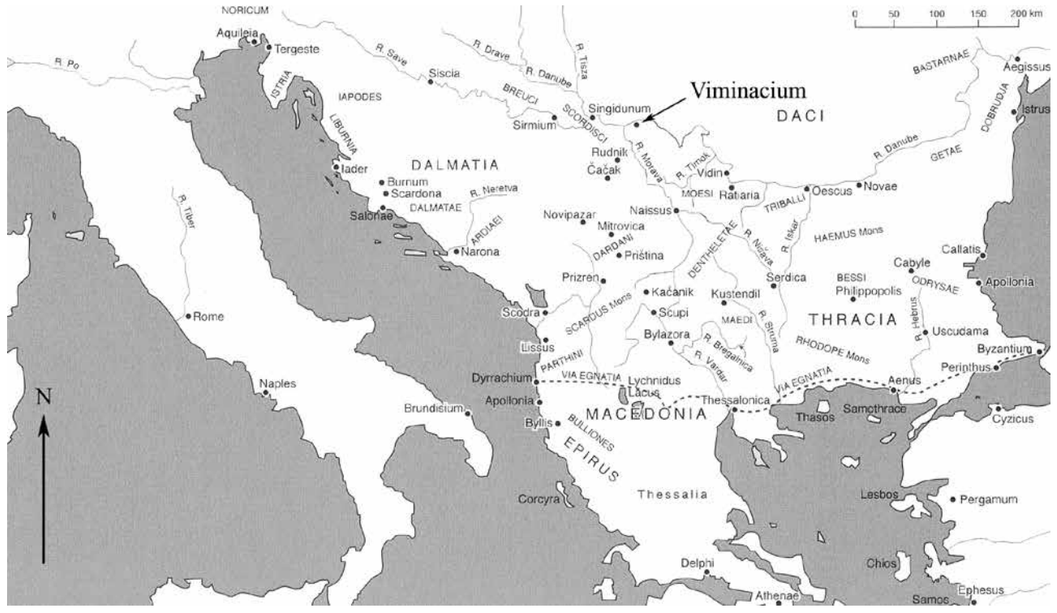

Fig. 1 - Location of Viminacium within the Roman Balkans

to detailed demographic problems[13]. Skeletal evidence from the city of Rome itself has likewise been difficult to come by and lacking in consistency of documentation[14]. A few previous attempts have been made to investigate urban and rural health distinctions in other parts of the Roman Empire – mostly Roman Britain – on the basis of skeletal remains[15], but local circumstances and sample constitution have rarely been conducive to investigating the Urban Graveyard Effect in a systematic manner. This has not, however, prevented some scholars from advancing generalized life tables purported to be representative of the ancient Empire as a whole – thereby implying a homogeneity in the mortality experience between city and countryside[16]. A direct test of the Urban Graveyard principle in the context of a Roman urban center from which abundant, quality skeletal data are available therefore seems long overdue.

Sample description and framing the hypothesis

Consider then if you will the Late Roman provincial city of Viminacium (Fig. 1). Situated on the middle Danube in modern Serbia, this frontier legionary outpost was founded during the 1st Century and became a provincial capital on the Danube Frontier at least by the 2nd Century. The settlement accrued a civilian element and increased in political stature when it became a *municipium* under Hadrian in AD 117[17]. During this period, Viminacium is thought to have consisted of perhaps 5000 soldiers in the military encampment surrounded by several thousand locals in the supporting town. Viminacium rose to political and economic prominence during the late 2nd and early 3rd Century, especially during the Severan dynasty with Septimus Severus visiting on multiple occasions and proclaiming Caracalla his successor here in AD 196[18]. By then the settlement itself was surrounded by defensive walls,

[13]Hopkins 1966–67; Parkin 1992; Schiedel 2001.
[14]Killgrove 2018.
[15]Waldron 1989; Redfern *et al.* 2015; Rohnbogner and Lewis 2017; but see also Šlaus 2004 for treatment of the Danube *limes* and cities of the hinterland to some degree.
[16]*e.g.* Frier 1982, 1983.
[17]Mirković 1968, 63.
[18]Mirković 1968, 64.

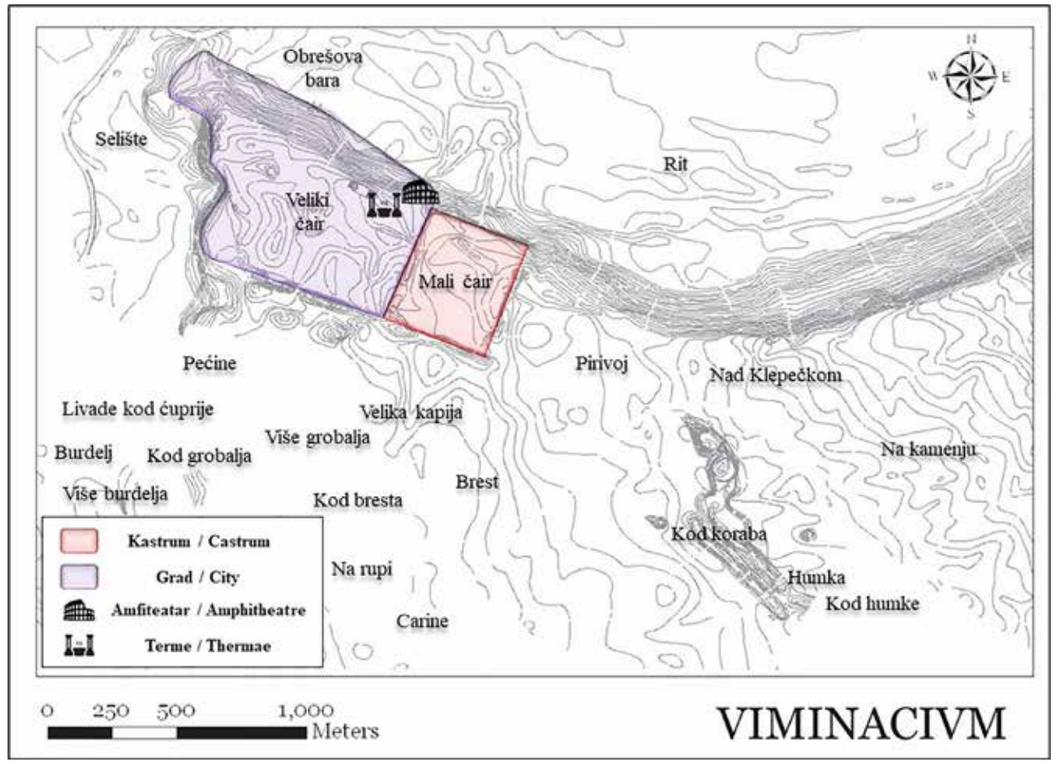

Fig. 2 - Map of Viminacium with Location of Key Contributing Cemeteries

contained an amphitheater, multiple public baths, and a system of aquaducts bringing a public water supply[19]. Viminacium reached the highest possible level of municipal standing under the Empire during the 3rd Century when proclaimed *colonia* in the reign of Gordian III. The city eventually reached a maximum extent of some 220 hectares, and is thought to have attained a population peak of some 30 to 40,000 persons. Viminacium remained a large, heavily populated settlement into the 4th Century, and became an Epsicopal seat of the newly legitimized Christian church[20]. The city was sacked by the Huns in AD 441, with most of the inhabitants reportedly enslaved[21], and the site was rapidly depopulated soon thereafter.

The present study is based upon a sample of 297 skeletal individuals analyzed from 254 graves recovered from 4 spatially distinct cemeteries surrounding the ancient city (Fig. 2)[22]. Chronologically sensitive grave inclusions – predominantly coins and metal fibulae – allowed the date of interment to be estimated for many of the individuals in this sample. It was thereby possible to group individuals by time period in order to examine changes in mortality and other indicators of general health, such as pathological skeletal lesions, through time. Sufficient chronological information was received to attribute time frame of burial to a total of 93 individuals from the overall sample[23]. Individuals were thereby assigned to one of three sequential periods: Period 1 (1st and 2nd Centuries CE), Period 2 (3rd Century CE), or Period 3 (4th Century CE).

[19]See Spasić-Djurić 2002 for general overview of the history and known features of the ancient city.
[20]Mirković 1968, 72.
[21]Priscus, *Historia Byzantium.*
[22]Speal 2015.
[23]See *ibid:* Table 3 for more detailed treatment of sample consistency.

Assuming a typical pre-industrial human population growth pattern – in which demographic increase is rather slow initially but eventually approaches exponential as a settlement becomes more nucleated and fertile – Viminacium should have crossed the "urban" demographic threshold of around 10,000 persons sometime during the 3rd Century or so and theoretically become subject to the Urban Graveyard Effect. Using this premise, we can call Period 1 "pre-urban", Period 2 "proto-urban", and Period 3 "fully urban" Viminacium. The operational hypothesis here then is: if the Urban Graveyard Model applies to middle-sized provincial Roman cities of Late Antiquity, then evidence of elevated mortality – and morbidity – should be most apparent among the fully urban 4th Century (Period 3) skeletons at Viminacium relative to those dating to the earlier pre- and proto-urban 1st through 3rd Centuries (Periods 1 and 2).

Methodology

Assessment of age-at-death for the skeletons used in this study was accomplished using Transition Analysis – a recently developed technique that examines individualized aspects of change in the pubic symphysis, auricular surface, and cranial sutures of each individual[24]. This aging method employs Bayes' theorem and posterior probabilities to compute both a confidence interval and a maximum likelihood point estimate for each individual's age-at-death, thereby facilitating broader demographic analysis. A supplemental system of obtaining point estimates from sternal rib ends – personally devised by the first author based upon Iscan and Loth's widely-known scoring technique[25] – was used to complement the Transition Analysis in order to increase sensitivity and precision for each individual age estimate[26]. For sub-adults, age-at-death was estimated using standard methods of dental development, epiphyseal closure, and long bone metrics[27]. These methods were combined to obtain the narrowest age range possible, from which a midpoint was calculated in order to obtain an age point-estimate. A single, specific age-at-death point estimate was thereby created for each skeletal individual in the study.

The resulting age point estimates were then subject to event-history survival analysis using the STATA Version 8 statistical package[28]. The individual age-at-death point estimates were first processed using STATA's non-parametric Cox logistic regression function to compute a composite life table and produce mortality hazard and survivorship curves for the overall assemblage[29]. Differences in survivorship between specific variables of research interest were then calculated, graphed, and tested for statistical significance using the Kaplan-Meier product limit estimator technique[30]. As we are most interested here in the variable of chronology of interment for purposes of evaluating the Urban Graveyard Hypothesis, those are the only results presented in this paper.

Results

For those who may be unfamiliar, survivorship graphs depict the surviving proportion of a population or subset of the population at each age relative to the population as a whole implied by a set of observed mortality data. The more gradual the decline of the curve becomes as one proceeds to the right along the x-axis, the greater the 'survivorship'. The steeper the decline as one moves to the right, and the earlier the point at which it meets the x-axis, the more severe the mortality experience. As one can see from Fig. 3, the most severe mortality regime at Viminacium – reflected in the sharpest dropping survivorship curve and earliest point of reaching the x-axis – is observed NOT for the Period 3, 4th Century maximum urban cohort (shown in green here) as expected if the Urban Graveyard Effect was in operation, but instead that representing Period 2, the 3rd Century sample (shown in red). The Period 1 (1st and 2nd Century) survivorship curve, shown in blue, is found to generally follow a more intermediate course.

[24]Boldsen *et al.* 2002; Milner *et al.* 2008.
[25]Iscan, Loth 1986.
[26]Speal 2008.
[27] Buikstra, Ubelaker 1994, Bass 2005.
[28]Cleves *et al.* 2008.
[29]*ibid.* pp. 129–145.
[30]*ibid.* pp. 93–96.

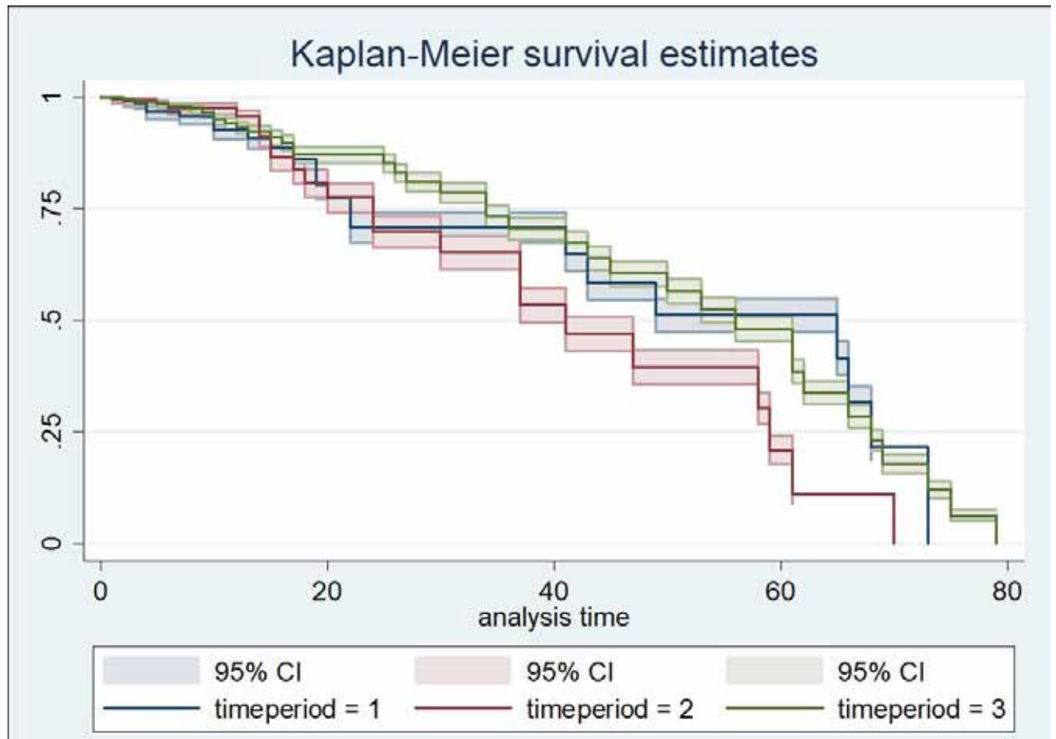

Fig. 3 - Survivorship by Time Period at Viminacium

A mortality hazard curve represents the estimated age-specific risk of death in the population from which the sample was collected. It is essentially a graph of the probability that death will occur at any given age – conditional upon having survived up until that age. In the following hazard graph produced from the Viminacium skeletal data (Fig. 4), the curves do not extend all the way to birth, nor beyond 70 or so years of age, because of the graph smoothing process and because there are too few representatives from these age groups in the skeletal sample to produce a coherent estimate. Nonetheless, it is apparent from the graph that risk of death is substantially greater at almost all adult ages in the Period 2, 3rd Century sample as opposed to either of the other two chronological periods.

Such findings are decidedly not in accord with the Urban Graveyard model, which predicts that mortality should be at its highest during the latest period of occupation – when the city's population was presumably at its greatest. In fact, the Viminacium survival analysis data instead suggest that mortality was instead at its *lowest* during the peak 4th Century population, which directly contradicts the notion that larger provincial Roman cities were inherently more unhealthy than the smaller communities from which they arose.

Furthermore, a survey of pathological lesions from the same skeletal sample tells a similar story. Four of the ten lesion categories examined at Viminacium – including active periostitis, multiple linear enamel hypoplasia, active cribra orbitalia, and lytic erosive lesions – were found to occur with a steadily declining relative frequency through time with the lowest crude prevalence during the urban 4th Century (Fig. 5). Four other classes of pathology – linear enamel hypoplasia, cribra orbitalia, porotic hyperostosis, and long bone curvature – were found to peak during Period 2 – the 3rd Century. Only one type of lesion, undifferentiated periostitis, was found to reach maximum prevalence during the 4th Century urban height of Viminacium, and there are reasons to believe that this lesion class was in fact behaving in a 'paradoxical' manner at the site – meaning that its elevated prevalence may be an indication that greater numbers of people were surviving

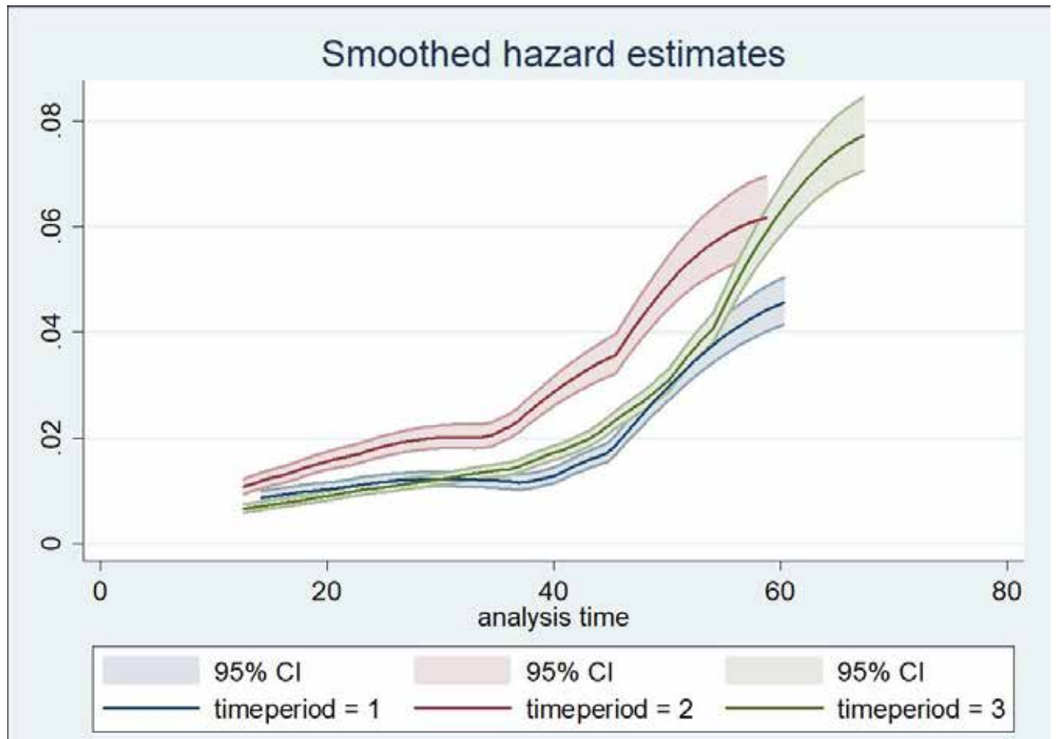

Fig. 4 - Mortality Hazard by Time Period at Viminacium

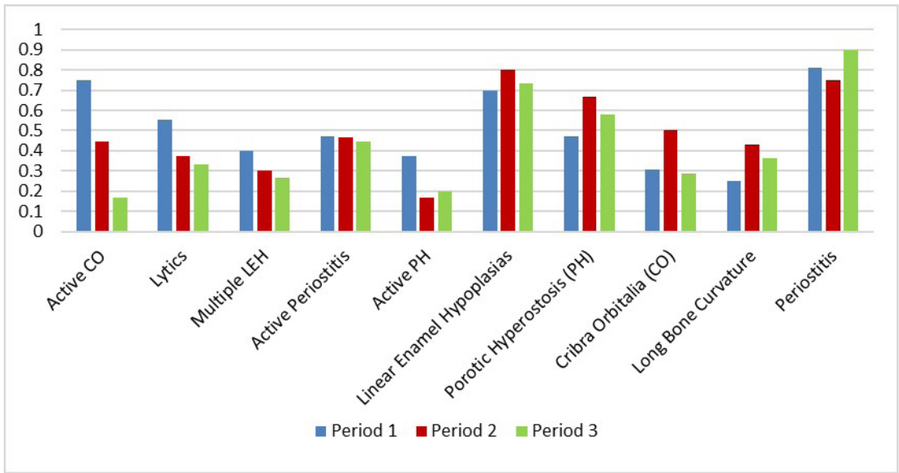

Fig. 5 - Crude Prevalence of Various Classes of Skeletal Lesions by Time Period

the conditions that caused the lesion, making it more a marker of biological resilience than of systemic stress.

Discussion

The present study has yielded fairly strong evidence to reject any notion of an Urban Graveyard Effect at Viminacium. If anything, the skeletal data suggest that mortality and most indicators of morbidity decreased at the site as the city surpassed the demographic 'urban' threshold and reached its population peak in the 4th Century. The elevated mortality and morbidity observed in Period 2 – the 3rd Century – was unexpected, however, and does merit further discussion. Ancient textual sources are, in fact, replete with descriptions of the 3rd Century CE as a time of great disruption and crisis across the Roman Empire[31]. This period is generally recognized as a time of social upheaval characterized by incursions by Germanic populations from northern Europe and Eurasia, increased internal political strife with contested imperial successions, and widespread economic malaise especially in the northern border regions of the western Empire[32].

While ancient primary sources noted the onset of a general decline after the reign of Marcus Aurelius between 161 and 180 CE, the crisis truly arose around the time of Severus Alexander and Maximinus Thrax between 222 and 238 with an onslaught of Germanic peoples across the Danube and Rhine frontiers. With the defeat of Decius at the hands of the Goths and the capture of Valerian by the Persians in 260, the Empire was in complete disarray. In the year 272 the province of Dacia was completely abandoned by the Roman state, which only increased the pressure on the northern frontier communities through resettlement and increased proximity to hostile populations. Some stability was reportedly achieved by Claudius II, Aurelian, and Probus, but it was only under the intense reforms of Diocletian between 284 and 305 CE that the Empire regained any kind of political and economic normalcy.

This partial collapse of the Roman state is thought to have manifested itself in different ways across the Empire, but the Danubian provinces seem to have experienced the sharpest economic decline – as well as the brunt of much of the conflict brought on by outside military incursions[33]. Trade was repeatedly interrupted, particularly in the frontier provinces, and inflation ran rampant. A shortage of peasants was reported in the countryside, leading to a consequent decline in agrarian food production as well. The results of the present study tend to confirm that this "Third Century Crisis" was very real, and it very much affected public health at Viminacium in a manner that overwhelmed any kind of general Urban Graveyard Effect.

This is not to say that the 4th Century was without difficulties. The beginning of this era has generally been characterized as a period of stabilization across the Empire, and a series of political, military, and economic reforms allowed the Roman state to survive for another century or so[34]. Nevertheless, new incursions of foreign peoples, religious conflicts, and wars between pretenders to the Imperial throne would again shake the Empire in the middle to late 4th Century CE – culminating in the defeat of a Roman army by insurgent Goths at Adrianople in 378. Though the crux of these events took place in relative geographic proximity to Viminacium, the present study suggests that they were nowhere near as immediately consequential for general public health as were the crises of the 3rd Century.

There are, of course, a number of other possible explanations for the failure of the Urban Graveyard hypothesis in the present study. Perhaps Viminacium never actually reached the population threshold that would incur an Urban Graveyard Effect. This seems unlikely given the magnitude of architectural development and economic complexity observed archaeologically at the site, as well as the description of its importance in ancient documents, but should be entertained as a possibility. It is also possible that the purported Urban Graveyard threshold of 10,000 persons is simply set too low for significant levels of excess mortality to be incurred. That explanation would, of course, also imply that a number of 30,000 is too low as well – since that is what most archaeological estimates suggest for Viminacium at its peak.

[31]Marcus Aurelius, HA, 17.2; *Epit. de Caes.* 16.2; Dio 71.36.4, 80.7.2; Cyprian, *Ad Demetr.;* Tertullian*, Apol 20.2*
[32]Mócsy 1974; Alföldy 1975.
[33]Alfoldy 1975 (1988 trans. ed.) pp. 157–159).
[34]Mirković 2006, 73.

Or perhaps Viminacium reached the demographic threshold at an earlier, 3rd Century date, and the results therefore do actually reflect the early onset of an Urban Graveyard Effect. In that case, it would become necessary to explain the subsequent rebound in survivorship and apparent increased skeletal health during the 4th Century. No such explanations are immediately forthcoming. Short of a major depopulation of the site during the 4th Century, which is not generally supported by the archaeology – nor the ancient literary sources – such an argument would be difficult to make.

It is also possible that the study sample sizes were simply not adequate to resolve the true ancient demographic patterns. Unfortunately, the final sample size of 93 total individuals was smaller than originally intended. Still, the collection is substantial and both mortality and morbidity outcomes are in general agreement, which suggests that the results are robust. Nonetheless, one would hope that future research will at some point further test these findings at Viminacium and elsewhere. By far the most plausible present conclusion then, seems to be that smaller provincial Roman cities really were organized and managed well enough to avoid the major public health failings evident at the larger urban centers across the ancient Mediterranean world and later pre-Industrial Europe.

Conclusions

The widely recognized, historically specific 'Third Century Crisis' then seems to have had the greatest influence on the diachronic pattern in mortality and morbidity stress observed at Viminacium. The general implication is that culturally and historically particular developments had much more influence on overall public health than any broader Urban Graveyard Effect in the provincial Roman case. In fact, urban life – at least on the Danube Frontier – appears to have brought more health benefits than risks to the local populace. As population reached its peak levels, indicators of public health seem to have improved, not declined. Perhaps this is a reflection of the economic vitality of upstart urban centers and/or the hygienic efficiency of late Roman planning and design engineering.

To conclude, the present study yields fairly strong evidence that we should reject any notion of an Urban Graveyard Effect at Viminacium. If anything, the skeletal data indicate that overall mortality – and most indicators of morbidity – decreased at the site as the population peaked in the 4th Century. The results of this study suggest that universal characterizations of ancient cities as putrid death traps or perpetual population sinks are not defensible. Apparently, there are limits to the Urban Graveyard principle even within the confines of pre-modern Europe itself. The realities of urban life and health were evidently much more historically specific and variable than has been generally accounted for. Moreover, if local demographics were anywhere near as generally dynamic at individual Roman provincial cities as the present study suggests, the notion that there ever was any single coherent, unitary Roman mortality program is also an untenable assumption.

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LIMES XXIIII

Session 24

Arts and Crafts along Limes

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Roman Cameos with Female Bust from the Limes Region*

ABSTRACT

In the Limes region about 40 cameos with the representation of the female bust in profile were founded. In contrast to the summarily treated faces, the female hairstyle on the cameos is represented in detail, authentically reflecting the fashion dictated by the empresses. Judging the depicted hairstyle the datation of the cameos were possible: 1) Late Antoninian Period, between 160 and 180; 2) Severan Period, between 200 and 230; 3) Late Severan – Period of Military Emperors, between 230 and 250; 4) second half of the 3rd – beginning of the 4th century. From Viminacium come 10 cameos of this type, but the specimens from Intercisa, Ratiaria, Novae and Durostorum are also known. The stylistic analysis of cameos with the representation of the female bust in profile, observed together with the place where they were found, shows that they were produced in the workshops located in the civilian settlements next to the military camps on Danube Limes which, mostly, originate from the late Antoninian and Severan Period. The representations on the cameos are probably the models of these empresses, whose characteristic feature was the specific hairstyle. As the features of the face of the represented women mainly lack any individual characteristics, we believe that they were made on the basis of the models-cardboards with the representations of the empresses, which were in circulation in the workshops along the Danube-Rhine Limes. In the time of Marcus Aurelius the provinces on Danube became very important for the defence of the Empire, and because of their strategic position they came into the focus of the imperial propaganda politics.

Key Words: Roman period, cameo, female bust, Danube Limes, glyptics workshop, political propaganda

In the Limes region about 40 cameos with the representation of the female bust in profile were founded. There are, probably, even more, because the certain number of similar pieces in different museum collections are registered as objects of unknown provenance, most of them originate from the bigger urban centres, formed next to the military camps on Danube. Only the specimens nos. 8, 9, 35, 39-40 were found somewhat

*This article is the result of the project *Romanisation, urbanisation and transformation of urban centres of civil, military and residential character in Roman provinces in the territory of Serbia* (no 177007) founded by Ministry of Education, Science and Technological Development of the Republic of Serbia

more to the south: three of them in Thrace, in the thermal object Aquae Calidae, in the District of Jambol and in in the important city-centre Augusta Traiana, while two gold medallions with cameos were found in a tomb near Remesiana in Dacia Ripensis. Two cameos were found in the vicinity of the big city-centres in the south part of the valley of river Sava, in Jarak near Sirmium (no. 14) and in Cibalae (no. 36). Most of them, probably even 10 and maybe more cameos, were discovered in Viminacium, three were found in Novae, three, two of them inserted into the sockets of a pair of gold earrings, in Durostorum, one in Pleven, one in Ratiaria, one in Almus, one in Romula, two in Brigetio, and one in Intercisa, in the vicinity of Tolna, Szigetvár, Sirmium and Cibalae (Fig. 1), while for the other specimens the place of find is not determined with certainity. On the cameos in question is depicted a female bust in profile to the left or to the right, with the summarily treated face and the hairstyle represented considerably in detail. An iconographic exception is the cameo in the gold medallion of ellipsoidal shape, on which are depicted a male and a female bust in profile (no. 18). In the earlier literature it is treated as an object from the unknown site,[1] while later it is stated that it, most probably, originates from Viminacium.[2] All cameos are made of semi-precious stones, the variations of two-layer or multi-layer opal, agate and onyx, and their size varies between 11 x 7 mm and 32 x 20 mm. Most of these cameos (23) were kept as an amulet or preciousness, and not as a part of jewelry, while 10 of them were inserted into the cassettes made of gold tin (nos. 1, 5, 12, 15, 18, 19, 22, 23, 25, 28), to be weared as medallions on the necklaces. Three specimens were inserted into the sockets of the rings (nos. 7, 8, 29), and two into the gold earrings (no. 21). On the lateral edge of the back side of the gold medallion from Durostorum (no. 20) two hooks are preserved.[3] This could point that it belonged to a belt, or some other part of clothes, while the lateral edges of the back side of two gold medallions with cameos from Remesiana (nos. 39, 40), one of them hanged on a short chain, are perforated, so they were used as applications on a dress, creating an original decorative set. Although about the finds of the cameos with female busts it has already been written in the scientific literature,[4] our opinion is that they should be researched in more detail, that the possible workshops in which the cameos were produced should be determined, and that their function should be observed looking at them in the context of the historical circumstances at the time when they were made. We will try, on the basis of the way of combing the hair of represented women, to determine the time of production of these cameos and to represent them in their chronological sequence.

Chronological clasification and provenance

The classification made through the stylistic analysis of cameos, above all, observing the hairstyle of depicted women,[5] show that, generally speaking, there are four groups of these objects.

I Late Antoninian Period, between 160 and 180, pl. I, 1-12; II, 13-14

Variante a: Hair is combed back along the head, covering the ears and low at the back of the head it is gathered into a knot, wrapped into a net – the hairstyle characteristic for the wives of Marcus Aurelius and Lucius Verus (Faustina Minor, 130-176 and Lucilla, 149-182), pl. I, 1-3

Provenance: 1-3. Viminacium[6]

Variante b: Hair is covering the ears, lifted above the forehead and then fixed in front of the top of the head, forming a thick plait. At the back of the head it is gathered into a big nest-like knot, around which the plait is coiled (Nestfrisur) – the hairstyle characteristic for the empresses from the Antoninian dynasty (Faustina Minor, Crispina, 164-188), as also for the wife and daughter of Didius Iulianus, who died in 193 (Manilla Scantilla and Didia Clara), pl. I, 4-11

[1]Eichler - Kris 1927, 81
[2]Bernhard-Walcher *et al*. 1994, cat. 165
[3]Ruseva-Slokoska 1991, cat. 130
[4]Dimitrova-Milcheva 1981,19–20; Popović 1989, 9–12; 51–54; Popović 2010, 203–224
[5]For hairstyle of Roman empress, cf. Wegner 1939; Wessel 1947, 62–76
[6]Popović 1989, cat. 36–38; Popović 2010, nos. 1–3

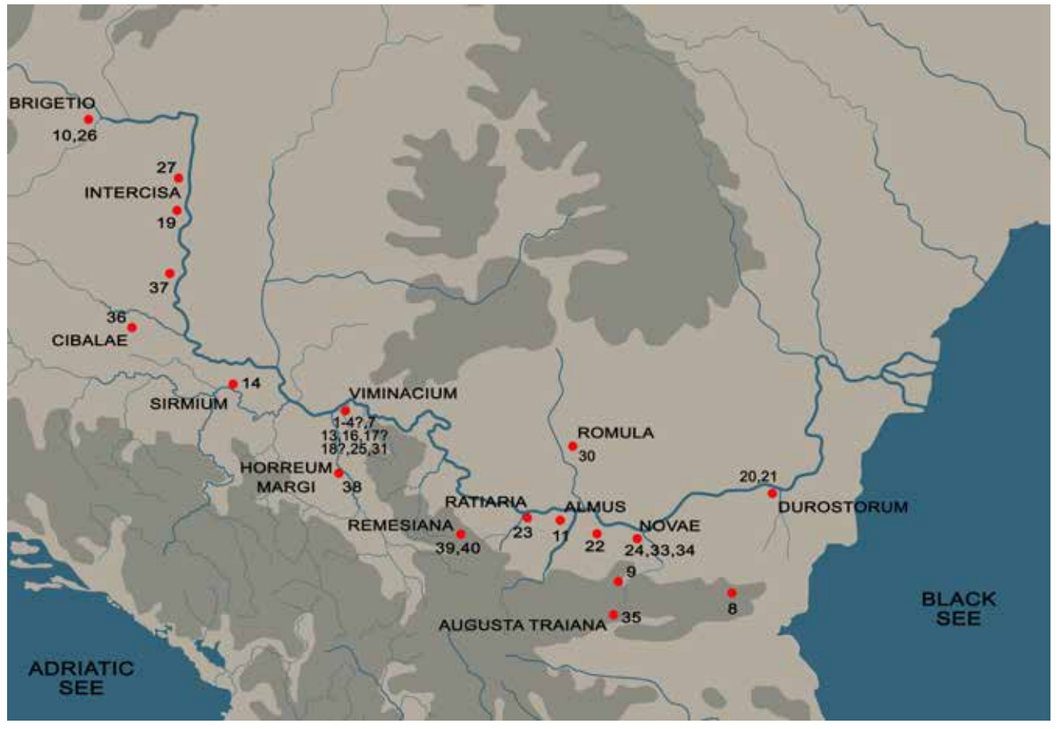


Fig. 1 - Finds of cameos with female bust in the Danube Limes region

Provenance: 4,7. Viminacium,[7] 5, 6. South Pannonia or North Balkans[8] and Serbian part of Danube Valley[9], 8. Aquae Calidae,[10] 9. Ljulin,[11] 10. Brigetio,[12] 11. Almus[13]

Variante c: Hair is falling in waves down along the cheek, to be gathered high at the back of the head into a big knot, around which the plate is coiled, wrapped into a ribbon which can go also over the top of the head – hairstyle characteristic for the wife of Lucius Verus (Crispina), pl. I, 12; II, 13-14

Provenance: Serbian part of Danube Valley[14], Viminacium,[15] Jarak[16]

II Severan Period, between 200 and 230, pl. II, 15-18; III, 19-24; IV, 25-30

Variante a: Hair is following the line of the forehead and cheek, covering the ears and falling down to the end of the neck, where it is braided in a plait in the shape of a roll (Helmfrisur) – hairstyle which was wearing the wife of Septimius Severus, Iulia Domna (?-217), pl. II, 15

[7]Popović 1989, cat. 35, 41, Popović 2010, nos. 4, 7
[8]Gesztelyi 2000, no. 279; Popović 2010, no. 5
[9]Popović 1989, cat. 40; Popović 2010, no. 6
[10]Dimitrova-Milčeva 1981, cat. 301; Ruseva-Slokosaka 1991, cat. 205, Popović 2010, no. 8
[11]Гетов, Попов 1972, 43–44, no. 3
[12]Gesztelyi 2001, cat. 68
[13]Dimitrova-Milcheva 1981, cat. 296, fig. 295
[14]Popović 1989, cat. 39, Popović 2010, no. 12
[15]Popović 1989, cat. 42; Popović 2010, no. 13
[16]Nemeth-Ehrlich 1996, 121, no. 164

Pl. 1 1-2 Viminacium; 3-4 Viminacium (?); 5 south Pannonia, north Balkans (?); 6 Serbian part of Danube Valley (?); 7 Viminacium; 8 Aquae Calidae; 9 Ljulin; 10 Brigetio; 11 Almus; 12 Serbian side of Danube (?)

Provenance: 15. South Pannonia ?[17]

Variante b: Hair is braidid into plaits, lifted up from the forehead to the back side of the head, so it looks like a row of melon slices (Melonenstähenenfrisur). The plait which is falling behind the ear is bended few times on the neck, so it is forming a wide, loose knot in the shape of a roll – hairstyle characteristic for Caracala's wife (Plautilla, ?-211), mother of Alexander Severus (Iulia Mammaea, ?-235) and wives of Elagabalus (218-222) (Iulia Paula and Annia Faustina), pl. II 16-18

[17]Megow 1987, 19, F 24; Gesztely 2000, no. 280; Popović 2010, no. 15

Pl. 2 13 Viminacium; 14 Jarak; 15 south Pannonia (?); 16 Viminacium; 17 Serbian part of Danube Valley (?); 18 Viminacium (?)

Provenance: 16,[18] 18.[19] Viminacium, 17. Serbian part of Danubian Valley[20]

Variante c: Hair is following the line of the forehead, falling down behind the ear to the end of the neck, where in the shape of bended plaits it is forming a knot in the shape of a roll – hairstyle characteristic for the empresses from the Severan dynasty (Iulia Mammaea, Iulia Soamias, Annia Faustina), pl. III, 19-23

[18]Popović 1989, cat. 44; Popović 2010, no. 16
[19]Eichler-Kris 1927, 81, taf. 16. 77; Megow 1987, 309, taf. 51. 11; Bernhard-Walcher *et al*. 1994, cat. 165; Popović 2010, no. 18
[20]Popović 1989, cat. 43; Popović 2010, no. 17

Pl. 3 19 Intercisa; 20-21 Durostorum; 22 Pleven; 23 Ratiaria; 24 Novae

Provenance: 19. Intercisa, grave find,[21] 20, 21. Durostorum,[22] 22. Pleven, grave find,[23] 23. Ratiaria, grave find[24]

Variante d: Hair is following the line of the forehead, falling down behind the ear to the end of the neck, where it is bended into a knot in the shape of a roll. The plait forming a knot is going up from the back of the head and it is fixed low on the top of the head – hairstyle characteristic for some empresses from the Severan dynasty, for example for the wife of Alexander Severus (Orbiana, 226-?), pl. III, 24; IV, 25-27

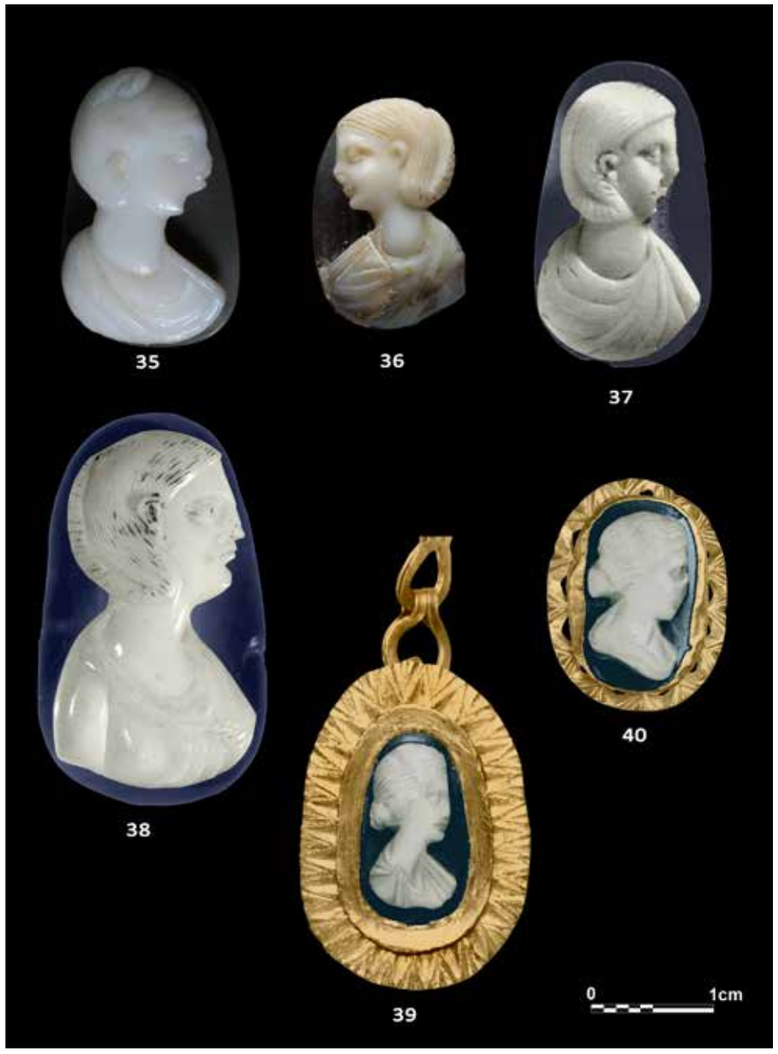
[21]Vágó, Bóna 1975, 27–28, taf. 23, 24. 1; Popović 2010, no. 19
[22]Dimitrova-Milcheva 1981, cat. 298, 303; Ruseva-Slokoska 1991, cat. 130, 50, Popović 2010, nos. 20–21
[23]Kovačeva 1973, 51–52, Fig. 2; Popović 2010, no. 22
[24]Атанасова 1971, 94–95, obr. 4; Popović 2010, no. 23

Pl. 4 - 25 Viminacium; 26 Brigetio; 27 Szigetvár; 28 Serbian part of Danube Valley (?); 29 unknown site; 30 Romula; 31 Viminacium; 32 Serbian part of Danube Valley (?); 33-34 Novae

Provenance: 24. Novae,[25] 25. Viminacium, grave find,[26] 26. Brigetio,[27] 27. Szigetvár[28]

Variante e: Hair is following the line of the forehead, falling down behind the ear down to the end of the neck, where it is bended into a plait which is lifted up and fixed on the top of the head (Scheitelzopf-Frisur) - hairstyle characteristic for the wife of Alexander Severus (Orbiana) and Elagabalus' wives (Iulia Paula, Annia Faustina, Iulia Aquileia Severa), pl. IV, 28-30

[25]Dimitrova-Milcheva 1981, cat. 299; Popović 2010, no. 24
[26]Popović 2010, no. 25
[27]Gesztelyi 2001, cat. 69; Popović 2010, no. 26
[28]Demo 1981, 321, t. III, 8; Popović 2010, no. 27



Pl. 5 - 35 Augusta Traiana; 36 Cibalae; 37 region of Tolna; 38 Horreum Margi; 39-40 Remesiana

Provenance: 28. Serbian part of Danube Valley,[29] 29. provenance unknown,[30] 30. Romula[31]

III Late Severan – Period of Military Emperors, between 230 and 250

Hair is combed in the same way as at the type e of Severan hairstyles, but these hairstyles are represented very linearly and schematically, so they can be interpreted as a bad work from the previous decades or they can be connected to the way of combing of wives of Gordianus III, Philippus the Arabian and Traianus Decius: Tranquillina (238-244), Otacilia Severa (244-249) and Herennia Etruscilla (249-251), pl. V, 31-33

[29]Popović 1989, cat. 45; Popović 2010, no. 28
[30]Popović 1989, cat. 46; Popović 2010, no. 29
[31]Tudor 1958, 100, fig. 30; Tudor 1967, 207; Popović 2010, no. 30

Provenance: 31. Viminacium,[32] 32. Serbian part of Danube Valley,[33] 33. Novae[34]

IV Second Half of the 3rd – Beginning of the 4th Century

Hair is smoothly combed, following the shape of the head and falling behind the ears down to the beginning of the neck, where the plait starts, fixed high on the top of the head – hairstyle characteristic for Galeria Valeria (308-311), as also for Fausta (307-326) and Helena (327-330) in their early period, pl. V, 34-38

Provenance: 34. Novae,[35] 35. Augusta Traiana,[36] 36. Cibalae,[37] 37. Hödgyés (region Tolna),grave find,[38] 38. Horreum Margi[39]

V The Age of Constantine, between 317 and 325

Hair is falling in light waves down along the cheek and, covering the ears, at the back of the head it is gathered into a knot (Knotenfrisur) – hairstyle characteristic for Fausta in the period before and around 320, pl. V, 39-40

Provenance: 39-40. Remesiana, grave find[40]

Stylistic analysis and workshops

According to the number of discovered specimens, the workshops for production of these cameos could be located in Viminacium, Novae and Durostorum. Although, certainly, there also existed other, smaller glyptic centres. Although, according to the represented motifs they create an integral group, among certain specimens is noticeable closeness in style, while some cameos differ in style from the others. This enables us to try to determine the characteristics of certain workshops and, maybe, to locate the place of production of specimens for which the place where they were found is unknown.

The cameos nos. 1 and 2, on which the woman has a hairstyle like Faustina Minor, are of small dimensions, with a schematic and linear representation of the female face. In the entirely same style was made also the cameo no. 3, for which in the documentation there is no precise evidence, but with great probability we assume that it was also produced in Viminacium, especially because such style of representing the face and hair does not appear on the other specimens. The cameos on which the hairstyle that were wearing Faustina Minor and Crispina, graphically modeled, are very numerous in the whole Danube Limes region and also in many museum collections,[41] but without any data about the place where they were found, so it is very hard to identify them according to the production centres. One cameo of this type was inserted into the socket on the gold ring from somewhat later period, possibly from the second half of the 3rd century, discovered in Bonn.[42] For the quality of their production stand out the cameo on the gold ring from Viminacium (no. 7), the cameo in the gold medallion from the unknown site (no. 5), the cameo from Almus (no. 11) and that one in the gold medallion from the unknown site in the Serbian part of Danube Valley. The cameos nos. 5, 6 and 10 show some stylistic kinship in treating the female face and hairstyle, so it can be assumed that they were produced in some centre on Danube, probably in Viminacium. But, we can state that by the stylistic treatment of the female persons from the specimens mentioned above are different the cameos from Aquae Calidae (no. 8) and Ljulin (no. 9), made, possibly, in some glyptic centre in Thrace. In Dacia one

[32]Popović 1989, cat. 48; Popović 2010, no. 31
[33]Popović 1989, cat. 47; Popović 2010, no. 32
[34]Dimitrova Milcheva 1981, cat. 297; Popović 2010, no. 33
[35]Dimitrova-Milcheva 1981, cat. 300; Popović 2010, no. 34
[36]Dimitrova-Milcheva 1990, no. 26; Popović 2010, no. 35
[37]Demo 1981, 221, t. 3. 7; Popović 2010, no. 36
[38]Gesztelyi 2000, no. 281, Popović 2010, cat. 37
[39]Popović 1989, cat. 49; Popović 2010, no. 38; Anđelković Grašar337, Fig. 1a
[40]Popović 2001, cat. 80; Popović 2010, no. 39–40; Anđelković Grašar 2018, 337–338, Figs. 2a-2b
[41]Walters 1926, 211, pl. 25. 2016; Gramatopol 1974, 88, pl. 31. 660; Megow 1987, 311, taf. 46. F 9
[42]Megow 1986, no. 7

glyptic workshop is registrated in Micia in the civilian settlement near to auxiliary camp.[43]

Most of the registered cameos (16) originate from the period of rule of the Severan dynasty and were made in the first half of the 3rd century. On the cameo in the gold medallion from the unknown site in Hungary, probably from south Pannonia (no. 15) the woman has a hairstyle in the shape of a helmet (Helmfrisur), characteristic for the wife of Septimius Severus, Iulia Domna. The analogous specimens at the other sites on Danube are not registered, although from Viminacium originates one monetary pendant with the inserted denarius of Iulia Domna, on which the empress is wearing the same hairstyle.[44] But, this is not a strong proof that in the glyptic workshop of this town were produced the cameos with the female busts which have the hairstyle of Iulia Domna. On the other hand, the woman represented on the cameo from south Pannonia is wearing the tunica gathered into folds and thrown over the shoulder, which leaves the upper part of the arm uncovered. This form of clothes is analogous to that one which is wearing the woman on the cameo in the gold medallion from the unknown site in the Serbian part of Danube Valley (no. 28), for which we assume that it was made in Viminacium. This can, but not necessarily, point to the place of production also of the Pannonian specimen. From Viminacium comes also one cameo on which the woman is wearing the hairstyle with the knot in the shape of a roll (no. 16), like the empress Iulia Mammaea. That specimen represents a more rustical and bad copy of the cameo from the unknown site in the Serbian part of Danube Valley (no. 17), so we assume that this specimen, well modeled, was also made in Viminacium. The woman depicted on that cameo is wearing a transparent tunica, under which the breasts are discernible, and a cloak gathered into folds, going under the chest over to the muscle of the arm, around which it is wrapped. In the same way is dressed also the woman represented on the cameo from the recently discovered gold medallion from Viminacium (no. 25). This points to the conclusion that both objects are the products of the same workshop, maybe even of the same artisan, although the cameo from the unknown site was, according to the hairstyle, made few years earlier. It is interesting to mention that into the transparent tunica and cloak gathered into folds is also dressed the woman represented on the cameo from Horrreum Margi (no. 38), which could show that it was also made in the geographically close Viminacium, although somewhat later, at the very end of the 3rd or in the first years of the 4th century. This would mean that in the Viminacium workshop for more decades the style of treating the woman's clothes remained the same. It led to the unproportionality in representing the naked shoulder and upper part of the arm, which are more narrow than it would be expected. The women represented on the cameos no. 16 and 17, besides that they have at the back of the head a knot in the shape of a roll, have also the hair combed from the forehead, braided into more plaits, which gives to the hairstyle the look of the melon slices (Melonenstähenenfrisur). In the same way is also combed the woman whose bust, together with the male one, appears on the cameo in the gold medallion, probably from Viminacium (no. 18). But, by the style of execution and the iconographic solution, this cameo differs from the previous specimens. By certain details in the stylistic treatment it is close to the representation of the woman on the cameo from the grave in Intercisa (no. 19), whose hair, combed smoothly from the forehead, is gathered above the neck into a knot in the shape of a roll. The firm features of the face, the marked profile and the strong chin separate the representation on this cameo from the female faces depicted on the cameos from Moesia. Because of that we think that it was made in some Pannonian centre, whose activity defined itself in the first years of the 3rd century, because the cameos from the late Antoninian Period in this region (nos. 5, 10, 14) do not show the stylistic aberrations from the treatment of cameos from the region of Upper and Lower Moesia.

The cameos nos. 31-33, made around or after the middle of the 3rd century, are of lower quality of production, with rather schematic representation. Better modeled are the specimens nos. 34-37 from the second half or from the end of the 3rd century. Specimen no. 38, about which we have already spoken, represents the glyptic product of good quality, possibly from the workshop in Viminacium.

[43]Simon *et al*. 2018, 112–113
[44]Поповић 1993, 52, no. 8, pl. 4. 8

The gold medallions with cameos from Remesiana (nos. 39,40) are the parts of some decoration on the clothes. The cameos are made in the style of the art of late Antoninian Period, and the represented women have the same hairstyle as Faustina Minor. In the period around 320 and somewhat before that, the same did also the Constantine's wife Fausta, on the basis of which we dated these parts of jewelry into the end of the 2nd – beginning of the 3rd decade of the 4th century. The place of production of medallions with cameos from Remesiana stays unknown to us.

The stylistic analysis of cameos with the representation of the female bust in profile, observed together with the place where they were found, shows that they were produced in the workshops located in the civilian settlements next to the military camps on Danube Limes. We can follow the activity of the workshop in Viminacium in the period from 160-180 until the first years of the 4th century. The works of the workshop in Novae are confirmed with certainty from the 2nd-3rd decade until the end of the 3rd century, while that one in Durostorum is best confirmed by the products from the period around 220-230, when, maybe, was also active the workshop in Ratiaria. The activity of some Pannonian workshops is still uncertain, although stylistic kinship in treating the female face with full cheeks and stressed eyes on cameos from Viminacium (no. 25), Brigetio (no. 26), Szigetvár (no. 27), Cibalae (no. 36) and from the site Hőgyész near Tolna in Pannonia (no. 37), can point that these products are the work of different artisans from the Viminacium workshop, and not of the particular centre in south Pannonia. On the other hand, the finds of cameos from the sites in the vicinity of the Rhine Limes point that in the local workshops in the settlements next to the military camps were produced, in the smaller measure indeed, the cameos iconographically analogous to those from the workshops on Danube, although linear and of lower quality of production.

Meaning and role in the political propaganda

The list of cameos with the representation of the female bust shows the great concentration of these finds in the civilian settlements next to the military camps on Danube, which, mostly, originate from the late Antoninian and Severan Period. These conclusions bring us to the problem which was already treated in the scientific literature, to which type of portraits belong these representations, i.e. do these portraits represent the empresses or the private persons. In the modern literature prevails the opinion that the represented women are the private persons, because they do not wear any imperial attributes or insignia.[45] But, the problem of the identification of the represented female figures on the mentioned cameos, in our opinion, is in close connection with the historical circumstances in certain periods and with the imperial political-propagandistic programs. We have already noticed that the mass-production of the cameos of this type begins at the time of rule of late Antonini and Severi. The answer to the question why this happened at this time could be found in the fact that at first Marcus Aurelius and after him Septimius Severus have transgressed the earlier established rule that the emperors through the principle of adoption do not appoint their successor from the group of their descendants. These two emperors by proclaiming their sons their successors tried to establish their dynasties based on consanguinity. Because of that the wives, the mothers of the future emperors, had a special role. The representations on the cameos are probably the models of these empresses, whose characteristic feature was the specific hairstyle. As the features of the face of the represented women mainly lack any individual characteristics, we believe that they were made on the basis of the models-cardboards with the representations of the empresses, which were in circulation in the workshops along the Danube-Rhine Limes. Evidence of this is a rather unskillfully produced cameo from the castellum Niederbieber,[46] on which is represented a woman in the clothes represented in the similar way as on the specimens of higher quality from Viminacium (nos. 17, 25) and Ratiaria (no. 23), produced few decades earlier. Of course, this does not mean that the distinguished women from the urban centres on Danube did not comb their hair according to the fashion dictated by the empresses, but we do not believe that the figures on the cameos represent individual portraits, but a sort of the prototype of the figure of the empress.

[45]Megow 1986, 475, nr. 9; Gesztelyi 2001, 23–24
[46]Megow 1986, 475, no.

The next question, in close connection with the previous one, is why the cameos with the representation of the female bust were mass-produced during the mentioned period in the workshops in the civilian settlements next to the military camps on Danube. We have to keep in mind that Marcus Aurelius, during whose time started the production of these cameos, used to stay very often in Sirmium, while he was personally waging the hard wars on the Danube border with Quadi, Marcomanni and Sarmatians. The provinces on Danube became very important for the defence of the Empire, and because of their strategic position they came into the focus of the imperial propaganda politics. After the death of Commodus and a short civil war, the military troops from the Danube regions proclaimed Septimius Severus the emperor. He had, as also did his son and heir Caracalla, visited the cities on Danube, appropriating large sums of money for their reconstruction, and, as it show the written sources and epigraphic monuments, the rich citizens from these centres were giving to the public treasury the great amounts of money on the occasion of their elections for the civil, military or sacerdotal functions. For the cities in Lower Dacia, on the left bank of Danube, this was also the period of peace and prosperity.[47] In any case, the cities on Danube during the rule of the emperors from the dynasty of Severi have experienced strong economic rising, and the part of population became rich. These phenomena were, surely, followed by the strong propaganda of the emperors who enabled prosperity to these centres. Because of this it is not surprising that precisely here took place the mass-production of cameos with the representation of the female bust, the prototype of empress, mother of the future emperor, or the prototype of his wife.[48]

The number and quality of cameos of this type is declining rapidly at the end and after the rule of the emperors from the dynasty of Severi. After raising of Constantine the Great to power, the production of cameos experienced its new flourishing. The cities Serdica and Naissus, between which lies Remesiana in which were discovered two cameos in gold medalllions (nos. 39, 40), are becoming the places strategically important for Constantine`s final countdown with Licinius. So, it is not surprising that in this region the activity in the field of his dynastic propaganda is very intensive, which can explain the production of cameos with the prototype of the figure of his wife Fausta, combed like Faustina Minor, the wife of Marcus Aurelius, who was in his opinion one of "good emperors" and as whose legitimate successor he wanted to represent himself.[49] The political circumstntions from Antoninian to Constantinian period where changed, but the role of cameos with female busts in the sphere of propaganda was remaining the same.

[47]Tudor 1958, 456
[48]Popović 2010, 213–218
[49]*Ibid*., 220–221

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Résumé

Camées avec représentations de buste féminin provenant de la région du Limes danubien

L`auteur a traité un groupe de 40 camées semblables provenant de plusieurs sites dans la région du Limes danubien, tous réalisés à partir de pierres semi-précieuses (opale, onyx ou agate) et ornés de bustes féminins tournés de profil, tantôt vers la droite ou vers la gauche. Cette ornementation offre le plus souvent des visages aux traits schématisés, alors que les coiffures font en revanche l'objet d'une réalisation plus soignée où l'on reconnaît les différentes modes dictées par les impératrices de la dynastie des Antonins et des Sévères. Ce détail permet une répartition chronologique de ce matériel qui laisse apparaître une production plus intensive de ce type de camée entre 160 et 180, puis entre 200 et 230 ; les plus nombreux étant ceux au visage féminin coiffé comme les impératrices de la dynastie des Sévères groupe auquel appartient le camée dernièrement découvert à Viminacium (no. 25). C'est d'ailleurs de ce même site que provient le plus grand nombre de ces parures (10), ce qui, si l'on y ajoute les trouvailles semblables provenant de Mésie Inférieure, pourrait suggérer que les principaux ateliers ayant assuré leur réalisation se trouvaient à Viminacium, Novae et Durostorum, alors que quelques centres glyptiques moins importants devaient aussi fonctionner en Thrace et en Pannonie.

La répartition géographique des camées avec représentation de buste féminin (pl. 1-5) laisse apparaître une forte concentration de ces trouvailles dans les agglomérations urbaines associées à des camps militaires situés sur le Danube (fig. 1) et, pour la plupart, érigés vers la fin de la dynastie des Antonins ou sous celle des Sévères. Ceci nous amène à revenir sur la question, déjà traitée à plusieurs reprises, de savoir s'il convient de reconnaître dans leur ornementation des représentations d'impératrices ou de personnages féminins privés. De ces deux possibilités, c'est la seconde qui est le plus souvent retenue par les auteurs contemporains qui en concluent ainsi au vu de l'absence de tout attribut ou insigne impériale associé à ces figurations. Or, il nous semble que la réponse à cette question pourrait aussi être étroitement liée à certaines périodes marquées par des circonstances spécifiques et notamment s'agissant des programmes de propagande politique impériaux. Nous avons déjà constaté que la production massive de ces camées coïncide avec la fin du règne des Antonins et celui des Sévères. La réponse à la question de savoir pourquoi il en est donc pourrait tenir au fait que, tout d'abord Marc-Aurèle, puis Septime Sévère, ont enfreint la règle voulant qu'à travers le principe de l'adoption les empereurs renoncent à choisir leurs successeurs parmi leurs proches descendants. Or, en nommant leurs propres fils comme successeurs, ces deux empereurs ont précisément tenté d'instaurer une dynastie reposant sur une parenté de sang. Dans ces circonstances, leurs épouses et impératrices, en tant que mères des futurs empereurs, se sont vu conférer un rôle spécifique. Les représentations ornant ces camées pourraient donc figurer des prototypes de ces impératrices, dont un des traits distinctifs était la coiffure, alors qu'au vu des visages, le plus souvent privés de toute caractéristique individuelle, il serait permis de penser que cette ornementation en relief a été réalisée à partir de modèles représentant les impératrices, alors en circulation dans les ateliers situés le long du limes danubo-rhénan.

La seconde question, étroitement liée à la précédente, est de savoir pourquoi les camées avec représentation de buste féminin connaissent une production massive aux périodes indiquées, et ce précisément dans des ateliers situés dans des agglomérations urbaines associées à des camps légionnaires situés le long du Danube. Nous rappellerons ici que Marc-Aurèle, sous le règne duquel commence leur production, a mené en personne de durs combats sur les frontières danubiennes contre les Quades, les Marcomans et les Sarmates. Le cours des événements le voit alors séjourner à plusieurs reprises à Sirmium, tandis que les provinces danubiennes, désormais investies de par leur position stratégique d'un rôle essentiel dans la protection de l'Empire, font l'objet d'une attention plus particulière de la propagande impériale. Quelque temps plus tard, au lendemain de la mort de Commode et après une brève guerre civile, cette région joue à nouveau un rôle de premier plan lors de la proclamation du nouvel empereur, Septime Sévère, par les troupes militaires qui s'y trouvent cantonnées. En retour, ce dernier, tout comme, après lui, son fils et successeur Caracalla, ne manqueront pas de se rendre dans les villes de la vallée du Danube, en accordant d'importants subsides pour leur rénovation, tandis que, comme nous l'apprennent les sources narratives et les monuments épigraphiques, les riches citoyens de ces même centres urbains versaient d'importantes sommes dans les caisses de l'Etat lors de leur réélection à des fonctions civiles, militaires ou sacerdotales. Il apparaît donc que les villes de la vallée du Danube connaissent sous le règne des empereurs de la dynastie des Sévères un réel essor économique dont bénéficie largement une partie de la population, situation à laquelle s'ajoutent les effets d'une forte propagande impériale. Il n'est donc pas étonnant que ce soit précisément dans ces derniers qu'apparaît la production massive des camées avec buste féminin figurant un prototype de l'impératrice, mère du futur empereur.

La production de camées avec buste féminin décline après la fin de la dynastie des Sévères. Les exemplaires nos. 39 et 40, trouvés dans une tombe de la nécropole de la ville de Remesiana en Dacie Méditerranéenne, appartiennent à l'époque du règne de Constantin le Grand et offrent tous deux une représentation de femme coiffée à l'image de l'impératrice Fausta, laquelle portait assurément vers 320 une coiffure semblable à celle de Faustine, épouse de Marc-Aurèle. Or on sait justement que, tenant ce dernier pour une « empereur brave », Constantin entendait se présenter comme son successeur légitime. Il pourrait donc s'agir là d'un argument supplémentaire plus en faveur de l'hypothèse selon laquelle les camées avec représentation de buste féminin aurait pu jouer un rôle significatif en matière de propagande impériale.

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Entertaining the Empire – Rome´s frontier forces in Germania and their role in the arena industry

ABSTRACT

The people of the Roman Empire craved entertainment, both in the heart of the Empire as on its frontiers. To visit gladiator fights, or - rarer - chariot races or theatre performances was an integral and frequent part of the life of a Roman soldier. Accordingly, wherever the troops went, an arena was soon built resulting in the fact that there is hardly a single legionary gar-rison without an amphitheatre or something comparable. The agency of the Roman army in building these is clear – but what about the running of the arena? How did the army purchase the necessary wild animals for a chase in the arena, how were they involved in the training of gladiators? What was the role played by the production and trade of memorabilia in the context of gladiator fights for the legions and auxiliaries? These and other questions will be addressed in the paper proposed here, which seeks to shed more light on the connection between the Roman state and the entertainment industry on the borders of the Empire.

Key Words:

The research presented in this article is part of the results developed in a project based at the Goethe University in Frankfurt am Main dealing with the production and distribution of Roman fan merchandise as well as with its social perception and usage. The two-year project was part of the Research Training Group "Value and Equivalence" funded by the German Research Foundation (DFG). Working on Roman fan merchandise in the context of gladiator fights and chariot races, I dealt extensively with the entertainment industry of Roman Imperial times, especially on the periphery of the Empire. Significantly, it were the legions that brought gladiator fights and other games to the newly conquered territories. Within a very short time, amphitheatres were built at most of the various garrisons, the first constructions being from wood and earth, later often converted to solid stone installations. Gladiator fights appeared to be an excellent means for the integration of the provincial population into the community of the Roman Empire. Apparently, the need for entertainment was so big, that the locals quickly adopted this style of games, which had been indigenous to Rome. Within a short space of time, many civil settlements also had arenas, theatres and in a few cases even hippodromes. The fact that it were the Roman legions which built such facilities is evident not only in the way they are constructed, but also in the surviving building inscriptions. An example is the building in-

Fig. 1 - Building inscription of the Roman amphitheatre of Aquincum (H), modern day Budapest, middle of the 2nd century AD.

scription of the Roman amphitheatre of *Aquincum* (H), modern day Budapest, which was built in stone around the middle of the 2nd century AD by *legio II adiutrix* (Fig. 1).[1] Similar inscriptions are known from *Brigetio* (H), modern day Komárom-Szőny, where at the beginning of the 3rd century the rows of seats were restored by *legio I adiutrix*.[2] Even when there is no epigraphic proof of the army as the builders, it can be assumed as very likely that the Roman army constructed the arenas built in the immediate vicinity of garrisons. An example of this are the remaining earthworks of the ephemeral amphitheatre of Xanten-Birten (D), created in the first half of the 1st century AD for the directly adjacent legionary camp of *Castra Vetera*. A second exemplary case can be found in *Carnuntum* (AT), modern day Petronell, where an arena for the civilian colony as well as a stone-built amphitheatre for the legion are preserved in direct vicinity to the legionary fortress.

But the Roman frontier troops played an important role not only as spectators and builders of the necessary infrastructure for the games. The need for wild animals and gladiators for the arenas must have been immense. From the written sources we know that at the opening festivities of the a*mphitheatrum flavium* in Rome, better known as the Colosseum, about 5 000 wild animals were presented, hunted and killed.[3] Under the Emperor Trajan, the animal hunts attained a sad climax, as there were over 11 000 animals killed in the capital's largest arena during the celebrations on the occasion of the Roman triumph over the Dacians.[4] As we can see, for the big events in Rome alone the demand of animals was numberless. But even in the provincial cities the audience wanted to see exotic or at least wild animals fighting each other. Numerous representations on mosaics and reliefs show this, as well as the bone of a camel from the amphitheatre of the legionary fortress of *Vindonissa* in modern Brugg (CH)

[1]Németh 1999, 18 Nr. 30
[2]Borhy 2006, Kat.-Nr. 192
[3]Sueton, Titus 8,3; Cassius Dio LXVI 25, 2–4
[4]Cassius Dio LXVIII, 15; Eck 1997, 120

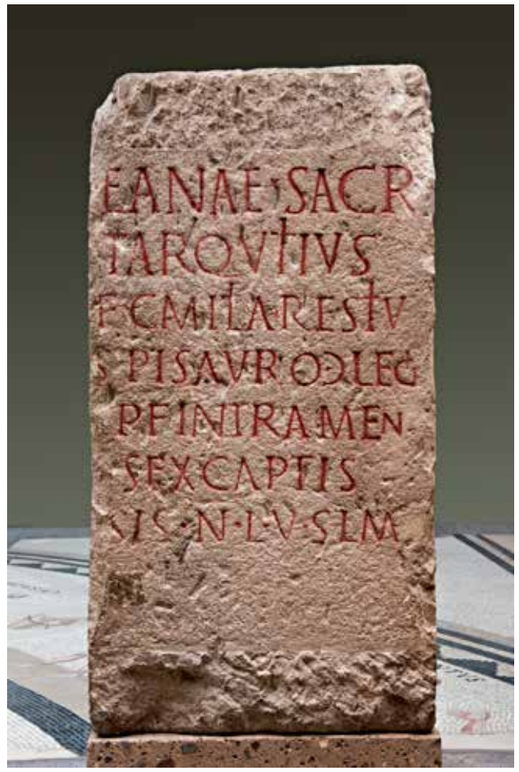

Fig. 2 - Votive altar to Diana dedicated by Quintus Tarquitius, centurion of legio I minervia, mentioning that the centurion, was able to catch 50 bears within six months. Cologne (D), 2nd century AD.

Fig. 3 - Votive altar to Diana dedicated by Aulus Titius Severus, centurion of legio VI victrix, who has had a vivarium fenced. Cologne (D), End of the 1st century AD.

or parts of the skeleton of a leopard from *Viminacium*, modern day Kostolac (SRB).[5] Of course, the animals were caught for the *venationes* throughout the Empire, but the frontier regions must have been particularly attractive areas to get them in larger numbers. On one hand the perfect natural environment with a corresponding abundance of wild animals was present here, on the other hand there also was experienced and already armed personnel available in form of the soldiers of the frontier forces. That the Roman army was not in a kind of permanent state of war, but took over many other tasks is well known and needs no discussion here. However, the fact that legionaries were actually involved in catching wild animals for the arenas of the Empire is also well documented by epigraphy. From the Roman city of Cologne (D) we know at least two inscriptions on small altars referring to the purchase of wild animals through Roman soldiers. One is a small altar to Diana, the goddess of hunting, dedicated by a centurion of *legio I minervia*, which was stationed in Bonn (Fig. 2).[6] The dedicant, centurion *Quintus Tarquitius,* was able to catch 50 bears within six months and erected the stone to accomplish his vow. The second stone was also dedicated to Diana and erected by *Aulus Titius Severus*, centurion of *legio VI victrix* (Fig. 3).[7] In the last two lines of the inscription, he says that he has had a *vivarium* fenced. Apparently *Severus* was thus charged with the construction of a facility that was to serve the holding of wild animals until they were transported to the arena. From Xanten (D) we know a dedication

[5]Brugg: Schmid 1952/53, 23–27; Kostolac: Bogdanović, Gavrilović, Vuković-Bogdanović 2018, 47, 233, Cat. 1.
[6]Thomas 1984, 161; Caldelli 2000, 48; Galsterer 2010, 19
[7]Caldelli 2000, 49; Galsterer 2010, 20

to the god Silvanus, which was set up by *Cessorinius Amousius.*[8] He was *ursarius*, a bear catcher, of *legio XXX ulpia* and thus also responsible for the purchase of wild animals for the arenas. The inscription even mentions his superior officer *Severianus Alexandrianus*, which suggests that there were several soldiers who were charged with this task.

Two *vivaria* may have been preserved at the Roman fort of Zugmantel in the Taunus.[9] Here, two circular earthworks were found. There have been various speculations as to whether these could have been small versions of amphitheatres for the garrison. But the size of the constructions themselves and the distance to both the fort and the civil settlement seems to indicate that we have to interpret them as enclosures for animals. In addition, the two circular earthworks seem to have been created at the same time, which also speaks against them being arenas and makes it more likely that they were animal enclosures. In the Taunus, bears, wolves, aurochs, elks and boars were very common during the Iron Age and Roman Imperial period. All of these are animals that were shown frequently in games and thus represented an interesting potential - also economically!

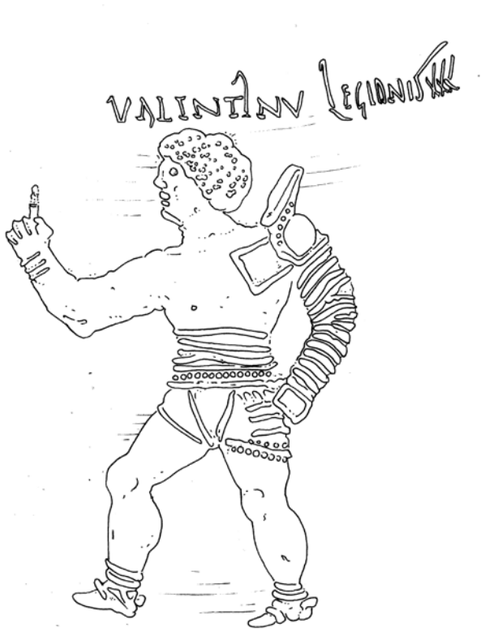

Fig. 4 - Beaker decorated with Barbotine showing fighting gladiators. A retiarius of the name Valentinus, is labelled with the inscription "legionis XXX". Colchester (UK), second half of the 2nd century AD.

The question remains whether the Roman army also participated in the training of gladiators. It seems logical that in the frontier regions, the military was entrusted with the training of gladiators, because the legionaries and auxiliaries were trained in man to man combat, had appropriate drill masters and were able to ensure the safe keeping of the gladiators. The discovery of a wooden sword from the Augustan legionary camp of Oberaden at the banks of the river Lippe in Germany suggests that gladiators were actually owned and trained by the army.[10] The weapon is not the wooden version of a gladius, as it was used in the training of legionnaires and as it is known from other sites like *Vindolanda* in the UK. It is a *sica*, the curved sword used by the gladiator class of t*hraex.* A beaker decorated with Barbotine showing fighting gladiators from the second half of the 2nd century AD was found in Colchester in Britain.[11] One of the fighters, a man called *Valentinus*, is labelled with the inscription "*legionis XXX*" (Fig. 4). The fact that the inscription is in the genitive can only mean that the *retiarius Valentinus* was in the possession of said legion. Thus the Colchester beaker may be taken as a strong indicator for the involvement of the frontier legions in the training and keep of gladiators for the arena games in the provinces. The fact that the beaker comes from Colchester in the UK, but the 30th legion was stationed at Xanten in Germany also suggests that the trade with or the renting of gladiators by the army was of quite supraregional importance.

Thanks some finds from the Roman double legionary camp on the Fürstenberg near Xanten, it is also clear

[8]CIL XIII 8639; Horn n.y. 18; Reuter 2012, 99, Cat.-No. 51

[9]Jacobi 1895, 170, Taf. XII, Fig. II; Fabricius 1900, 85; Fabricius 1936, 71, Tab. 5, 4; Wahl 1977, 126, suppl. 1, Fig. 8, 1; Sommer 2009, 53, Fig. 5, 6.

[10]v. Schnurbein 1979, 117–134.

[11]Hull 1963, 96; Toynbee 1964, 190, Tab. 176 and 177; Wahl 1977, 131, Tab. 25; Hönle, Henze 1981, 54, Fig. 29; Junkelmann 2000, 21, Fig. 22; Wilmott 2008, 168–170, Fig. 97.

Figs. 5a-b - Left cheek guard of a gladiator's helmet from the legionary fortress on the Fürstenberg near Xanten (D), made of copper alloy, partially coated with white metal and embossed with a big cat attacking a deer. 1st century AD.

that the manufacture of weapons for gladiators was part of the production lines of the *fabricae* of the Roman army. The cheek guard of a gladiator's helmet was excavated at the Xanten garrison (Figs. 5a-b).[12] The object is made of copper alloy, partially coated with white metal and embossed with a big cat. The cheek guard can be identified as one half of the visor for the helmet of a *murmillo* or a *thrax*, as they are well documented by the finds from Pompeii.[13] The outer edge of the object, which is curved to the chin of the potential wearer, as well as the general design and the style of the decoration, correlates significantly with the finds from the Vesuvian cities. This confirms the first century AD date already expected from the find location on the Fürstenberg. Apparently, the *fabricae* of the two legions stationed at Xanten were not fully occupied with the production and repair of the soldier's armament, and took advantage of the spare capacity and the available know-how for the production of gladiator equipment, which needed identical craftsmanship and the same materials as the military equipment. The training and possession of gladiators by the legion mentioned above thus seems all the more likely, although the weapons may of course also have been sold to privatly run gladiator schools.

Finally, I would like to touch on the main topic of my current research: gladiator fan merchandise. This class of objects is found in the entire Roman Empire and consists of oil lamps, beakers, knife handles and terracotta figurines, but also copper-alloy statuettes or ivory carvings. The production and sale of these goods must have represented a lucrative market. The legions are known to have run various industries and crafts. Examples include the production of bricks or the operation of quarries.[14] We also know pottery kilns from several garrisons, such as Nijmegen, where the production of tableware by the tenth legion is proven for the late 1st century both by pottery finds and the correlating production site. [15]The question arises in how far the troops were involved in the production of fan merchandise for the Roman Games, too?

A small group of oil lamps from the legionary fortress of Haltern at the Lippe river (D), which dates to the last decade of Augustus's rule, is proof for such a pro-

[12]Klumbach 1974, 67, Tab. 52 and 53, No. 56

[13]Bettinali-Graeber 1988; Junkelmann 2000; Jacobelli 2003; Melillo, Sampaolo 2013

[14]Bricks: Brandl 1997, 300–304; Le Bohec 1992, 43–62; Schmitz 2002, 339–374. Stone: Dallmeier 2000, 150–161; Röder 1974, 509–544

[15]Weiss-König 2014, 137–17

duction of fan merchandise by the Roman frontier troops. At Haltern, the pottery kilns operated by the legionnaires have been excavated and a larger number of lamp fragments with gladiator scenes and gladiator equipment comes from the kilns themselves.[16] They are production waste and thus it can be taken as proven that these gladiator oil lamps were produced locally by the soldiers themselves. In addition it is quite likely that they were not only used in the camp, but also traded to Cologne or Mainz or other Roman cities on the Rhine. To summarize: the Roman forces were intensively involved in the Roman entertainment industry of the provinces, not only as spectators, but above all as service providers and profiteers. They built the arenas, caught wild animals for the games, trained and armed gladiators, who then either were resold or rented even far beyond the region in which their legion was garrisoned. In addition, the legions may have been involved in the production of fan merchandise. At least in the context of pottery, which was already produced by the troops for their own use, as well as for a larger market. The production of lamps and cups with gladiator representations is likely to have represented a profitable addition to the usual repertoire.

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LIMES XXIIII

Session 25

First Contacts between the Roman Military and the local people

INTRODUCTION

Session organisers / Chairpersons:
Szilvia Bíró (Győr)
Thomas Grane (Copenhagen)
Fraser Hunter (Edinburgh)
Thomas Schierl (Mannheim)

This session seeks to explore the changing nature of relationships between the Roman world and indigenous populations at the time of first contact. As an introduction we will consider the different models – based upon case studies inside and outside the Empire –; how the Roman world dealt with the groups it was meeting in a comparative perspective, and the varied nature of local responses. Main aspects shall be the followings:

- Comparative perspectives on how the Roman military reacted on arrival in a non-Roman area
- Changes in Late Iron Age settlement / settlement structure and what caused these
- Rationale for the positioning of the first Roman military sites
- The nature of early imports / exports
- The role of political or diplomatic contacts

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Roman frontiers create new societies in the lands beyond: a shift to pastoral farming and social re-structuring caused by the building of Hadrian's Wall

ABSTRACT

Recent archaeological discoveries have shown that the Roman conquest of what is now northern England and southern Scotland encountered a densely settled agrarian landscape in lowland areas. When Hadrian's Wall was built, in the early-second century, many of the settlements north of the Wall were abandoned. This paper considers the problem of what kinds of settlements and social structures emerged to replace former societies in the area north of the Wall.

Several sites can now be recognised in Northumberland and south-west Scotland which may be characteristic of the centuries following the establishment of a permanent imperial border in northern Britain. They are fewer and very different to the rectilinear earthwork enclosures that preceded them. Instead, less substantial enclosure types are associated with ditch systems or droveways for managing and collecting animals, indicating a shift to a more pastoral economy, one where the wealth and power was based on the control of cattle as a commodity traded to, or requisitioned as a tax by, the Roman imperial authorities. This economic relationship with the Roman world was not accompanied by the adoption of much Roman material culture, a characteristic shared by Germanic settlements close to the Limes of Germania Superior.

Key Words: Roman, Iron Age, Hadrian's Wall, Scotland, settlements, social structure, tax, supply, agriculture, cattle

Recent research has suggested that the Roman conquest of what is now northern England and southern Scotland encountered, in lowland areas, a densely settled agrarian landscape, but that this was

largely abandoned around the time of the construction of Hadrian's Wall in the early second century AD.[1] This paper considers the problem of what kinds of settlements and social structures emerged to replace former societies in the area north of the Wall.

There are very few sites in the 50km or so immediately north of Hadrian's Wall with evidence, in the form of Roman finds or radiocarbon dates, for occupation for long after the building of Hadrian's Wall. It is interesting that sites which do have this evidence take a strikingly different form from those of the late-pre Roman Iron Age and the first and second centuries AD. See Fig 1 for the locations of the sites discussed.

Excavations by Pre-Construct Archaeology have shown that at Pegswood Moor (near Morpeth, Northumberland) a complex of Iron Age enclosures and houses was completely abandoned. Stratified finds show that it was superseded after the late-first or earlier-second century by a stock enclosure and a fenced droveway (track) apparently for the movement and selection of animals (Fig. 2).[2] At nearby St George's Hospital a small-ditched enclosure incorporated droveways indicating its use for stock collection (Fig. 3) has been discovered and excavated by Archaeological Research Services. A series of four radiocarbon dates indicates its use in the second to fourth centuries AD. It does not resemble the heavily enclosed rectilinear enclosures that characterised the region in the pre-Roman and early-Roman periods (Fig. 4). At Castle O'er in Dumfriesshire, an Iron Age hillfort was supplemented in turn by an annexe and an attached network of ditched and banked boundaries laid out over much of the surrounding landscape (Fig. 5). Structural sequence and radiocarbon dating shows that this system of land organisation, almost certainly to do with the management of livestock, was developed in the Roman period.[3]
It remains to mention the settlement at Huckhoe, 16km north of the Wall in south-east Northumberland, excavated as long ago as 1957.[4] This was an Iron Age site surrounded by successive palisades and stone walls in the earlier Iron Age, in something like the hillfort tradition, but apparently occupied or reoccupied in the Roman period. It contained stone roundhouses and produced Roman pottery later in date than that from any other excavated native site in Northumberland – down to at least the third century – and in greater quantity than the local indigenous wares.

These sites and finds show that after the building of Hadrian's Wall societies still existed and undertook activities in the formerly densely settled agrarian area of south-east Northumberland and immediately north of the Wall in the valleys of south-west Scotland, where a pastoral economy had always prevailed.

Of the sites and finds discussed, all are within 50 km (30 miles) of Hadrian's Wall. Whether a cleared zone on the north side of the Wall was enforced and maintained by the Romans is unclear; several enclosures closer to the Wall were abandoned when it was built, others have a few sherds of post-Hadrianic pottery.[5] The post-Hadrianic sites with evidence for cattle management are all more than 10 miles north of the Wall. The characteristics of the area in the second and third centuries are as follows:

1. There is evident concern with the movement and collection of livestock, the new arrangements completely superseding and not quite resembling pre-Roman Iron Age farms (St George's Hospital; Pegswood; Castle O'er).

2. There is a very low level of Roman material culture at the livestock collection sites despite post-Hadrianic dating evidence – there are no Roman finds from the post-Hadrianic phases at St George's Hospital; Pegswood; Castle O'er – and no finds from these sites in the local Iron Age tradition, either. To date there are no finds assemblages anywhere in the area immediately north of Hadrian's Wall which are characterised by the acquisition of high status pottery, glass, drinking equipment and personal adornment that occurs further

[1]Hodgson 2012; Hodgson 2015
[2]Proctor 2009, 5, Fig. 4; 36–41 with Figs. 27–28
[3]Mercer 2018
[4]Jobey 1959
[5]See discussion in Hodgson *et al*. 2012, 214–218

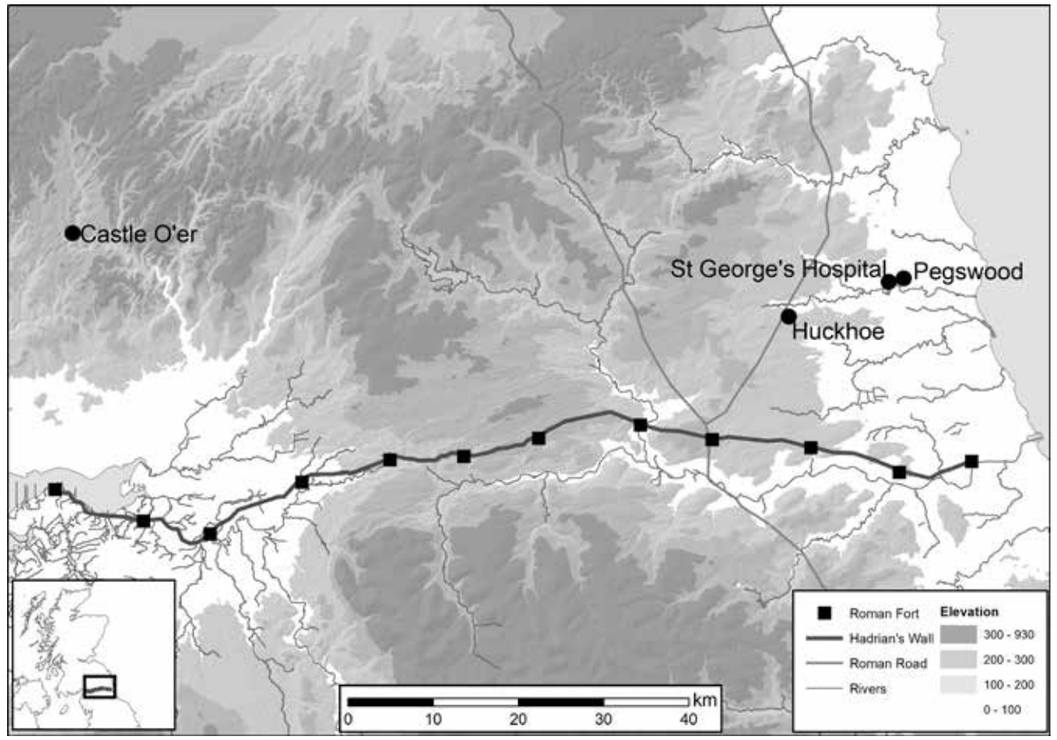

Fig. 1 - Location of sites north of Hadrian's Wall discussed in the text. Copyright: authors.

north, at Traprain Law and north-east Scotland, where it has been seen as indicating selection by a social elite.[6]

3. The one clearly recognised third-century settlement with houses, Huckhoe, may be a centre of social authority. The pottery here is of the coarse everyday type for everyday use in the Roman military sites and outnumbers the pottery in local Iron Age tradition but in general the site displays a very low level of Roman material culture.

4. Querns (including imported Roman types) at Huckhoe indicate that there was still an agrarian economy, although G. Jobey speculated that their absence from later contexts indicated a move towards pastoralism.[7]

5. There are no silver denarius hoards as further north, in Scotland. A hoard of 70 bronze coins of the later second century (Longhorsley) had no significance as currency and was undergoing recycling for its metal.[8]

6. There is some indication from pottery finds of trade up the coast, for example third century Roman pottery found at Hauxley, on the seaboard 37km north of the Wall,[9] and across Hadrian's Wall at Newcastle, where (in a fourth-century context) a market is suggested by the occurrence of native vessels that presumably contained some traded commodity.[10]

The general picture then is of a re-structuring of society: the social network that supported a widespread nobility occupying conspicuous, large-scale rectilinear enclosures in the lowlands during the pre-Roman

[6]Scotland: Hunter 2005; Hunter 2007; Hunter 2009
[7]Jobey 1959, 252–253
[8]Allason-Jones 2016, 773
[9]Bidwell 2016.
[10]Snape, Bidwell 2002, 168–70; 279–80

Fig. 2 - The Roman period enclosure and droveway at Pegswood Moor. Phase 5 (purple) represents the Roman period site; the more extensive underlying Phase 4 (green) was abandoned early in the Roman period. Reproduced by kind permission of Pre-Construct Archaeology.

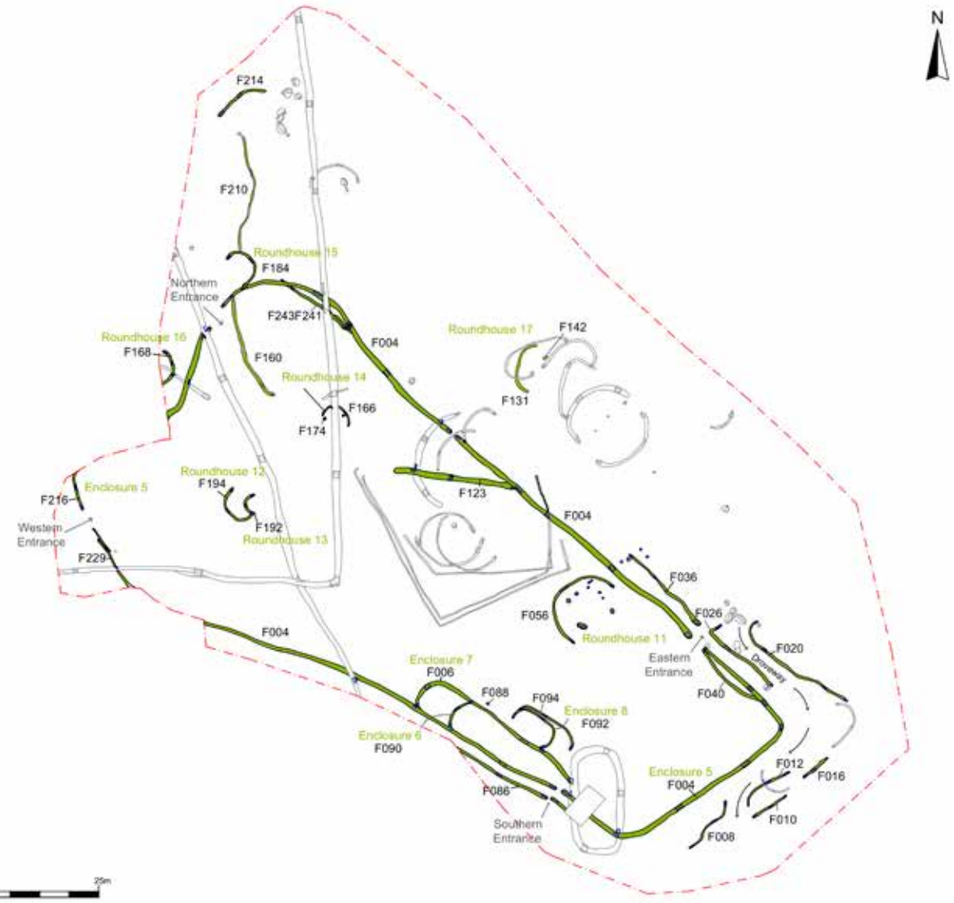

Fig. 3 - The Roman period enclosure and droveway arrangements north of Hadrian's Wall at St George's Hospital, Morpeth. Reproduced by kind permission of Archaeological Research Services Ltd.

Iron Age, and indeed the pre-Hadrianic Roman period, has collapsed. Remaining settlement takes less-visible forms and is perhaps governed from new centres of social authority. There is possibly a shift of economic emphasis from agriculture to cattle (and horse?) raising and collection. This would have a less devastating effect on the traditional hierarchy of settlement in south-west Scotland than on the more intensively populated and agrarian coastal plain of Northumberland. Mercer, in his recent publication of the excavations at Castle O'er site argued convincingly that the hillfort was collecting livestock from subsidiary settlements in the surrounding area, which was destined to be traded to, or requisitioned as a tax by, the Roman imperial authorities to supply the army of Hadrian's Wall and the northern frontier.[11] We suggest that the newly imposed landscapes at Pegswood and the new site type at St George's Hospital could have served similar purposes, with the collection of animals being controlled from new centres of social authority such as Huckhoe.

Sue Stallibrass has explained the mechanism by which in more recent centuries cattle were driven over distances of hundreds of miles from the thinly populated areas best for raising them to markets in agrarian lowland areas with concentrations of population and elo-

[11]Mercer 2018, especially 204–18.

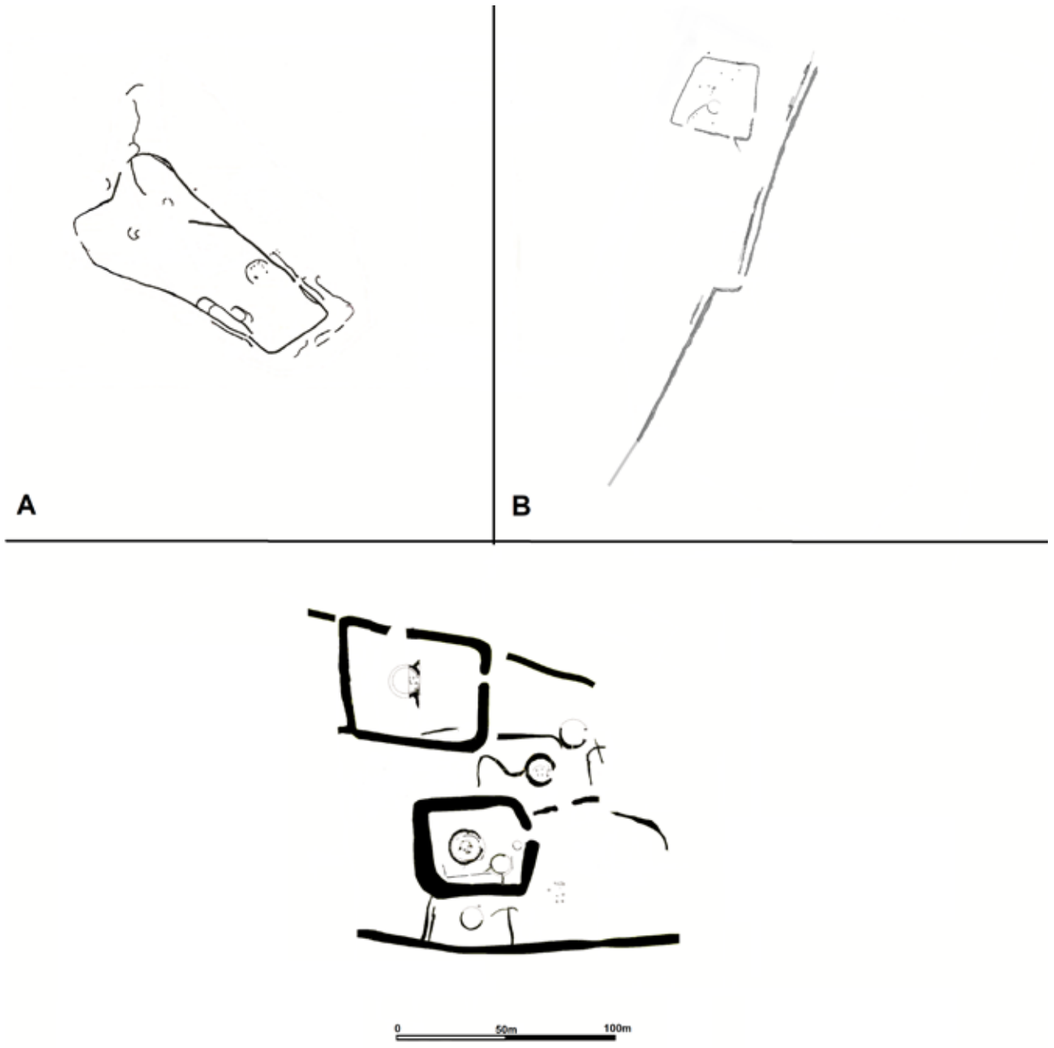

Fig. 4 - The Roman period enclosures and droveway arrangements north of Hadrian's Wall at St George's Hospital, Morpeth (top left) and Pegswood Moor (top right). Note the slight nature of the ditches when compared to a typical pre-Roman Iron Age enclosure complex such as West Brunton (bottom), abandoned when Hadrian's Wall was built. Copyright: authors.

quently argued that areas north of the Wall could have been the source of animals driven on the hoof to the newly imposed concentrations of military and civilian personnel which made up the Hadrian's Wall military zone.[12] Her argument has received a remarkable corroboration from isotope analysis of cattle bones from third-century contexts at South Shields, at the eastern end of the Wall, which suggests that the animals had originated in Cumbria or even south-west Scotland.[13]

[12]Stallibrass 2009
[13]Waterworth 2014

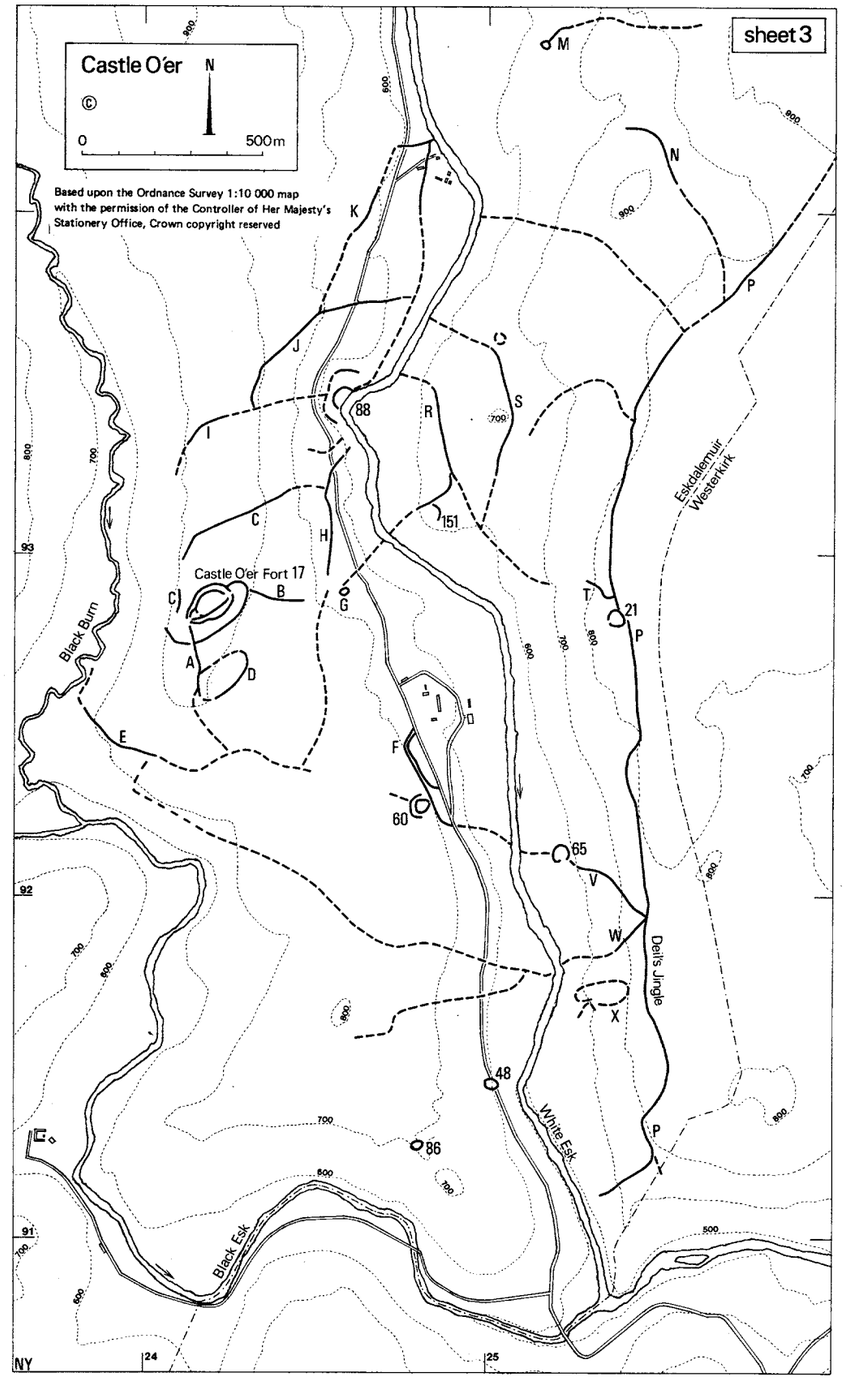

Fig. 5 - Livestock management earthworks associated with Castle O'er, Dumfriesshire. From Mercer 2018, Illustration 2.3, page 15. Reproduced by kind permission of Historic Environment Scotland and the Society of Antiquaries of Scotland.

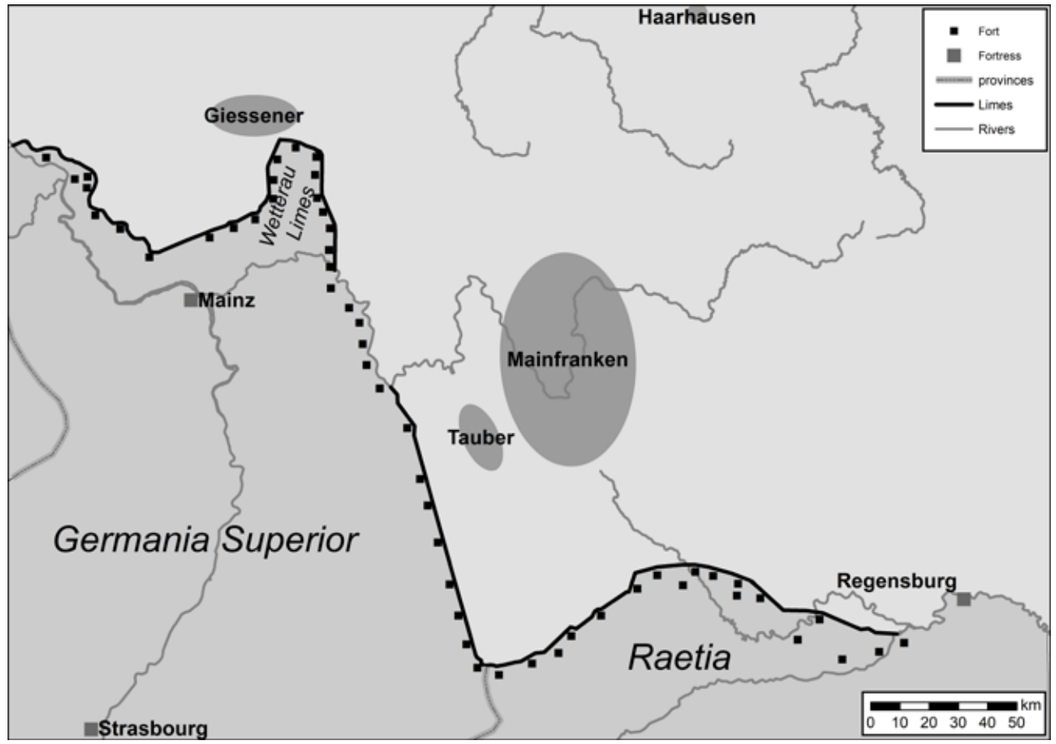

Fig. 6 - Areas of Germanic settlement beyond the Upper German-Raetian limes discussed in the text. Copyright: authors.

Stallibrass and Mercer agree that the empire might also have obtained horses from areas north of the Wall.

In the 50km (30 mile) zone north of Hadrian's Wall, there seems to be strikingly limited uptake of Roman material or customs on the very few sites of the post-Hadrian's Wall period that we can confidently recognise. Iron Age traditions are much more prevalent, with some adaptation to increased cattle management – there are no new settlement types on the model of Sedgefield or Faverdale, sites with Roman finds and building traditions, which developed during the second century in fertile lowlands south of the Wall on the east side of the country.[14] However, neither is there any selection and adaption of Roman prestige goods to Iron Age lifestyle, as we see further north in Scotland. It does not look as if the people with 50km of the Wall were prospering from cross border trade. There is no sign to date of the Roman goods or wealth that would indicate this, other than the distinctly everyday pottery found at Huckhoe. Presumably cattle-drovers and trading delegations from further north (Stallibrass has pointed to the likelihood of these) would have to be given something in exchange, hence the occurrence of greater range of Roman objects further north at the elite centre at Traprain Law. The arrival of such long-distance trading parties might be reflected in possible camping sites or assembly areas such as that indicated by finds from immediately north of the Wall at Great Whittington where two Roman roads, Dere Street and the Devil's Causeway, converged on a special gate (the Portgate) through the barrier.[15]

[14]Proctor 2012
[15]Great Whittington: Collins, Biggins 2013; cf. Hodgson 2017, 100

The peculiar character of the zone within 50km of the Wall, with a close relationship to Rome but apparently impoverished of Roman cultural influence and finds, brings to mind certain areas beyond the Continental Limes (Fig. 6). In general it has long been recognised that closer to the Limes the greater is the quantity of everyday Roman provincial goods that got into Germanic society in various ways; further away the Roman finds become more exotic and selected, as in the weapons and drinking gear in princely graves and other special deposits.[16] That is reminiscent of the subtle difference between the handfuls of Roman finds that occur in our immediately trans-Wall zone and the still tiny, but more carefully selected, objects from certain sites in Scotland further to the north. The people at Huckhoe, only a few miles north of Hadrian's Wall, did not select Roman pottery or glass for its prestige value or impressiveness for feasting and drinking, they simply acquired everyday vessels of the type being used by soldiers on the Wall. Presumably some of these vessels contained food and drink and other staples obtained directly from the Roman empire, perhaps in exchange for the animals and animal products that a centre like Huckhoe was able to procure.

In a to date unique situation, Germanic settlements were in contemporaneous occupation in the Giessen basin area immediately beyond the Upper German Wetterau limes (as close as 800m in one case) and associated cemeteries contain burials furnished with Roman samian ware and bronze vessels. If we set aside the cemetery evidence (in northern Britain disposal of the dead on non-Roman sites was by means that have left no archaeological trace, as in the pre-Roman Iron Age), there are some analogies to note with the situation immediately beyond Hadrian's Wall. Recent research and excavation (especially at Naunheim, 15km beyond the limes) has shown how despite this closeness there was strikingly low uptake of Roman material (only 7% of the pottery is Roman) and lifestyle. Building traditions remain wholly unchanged. Finds of native pottery from the *vici* of the Limes forts seem to show that some of these people traded and moved across the limes, and there is evidence that larger cattle, characteristic of the Roman empire, were raised. But despite all the contact, and import of some new things like amphorae containing beer from the empire, essentially life was unchanged – as S. von Schnurbein has put it, the limes 'acted like an iron curtain'.[17] Nevertheless, the heavy dependence of these settlements on the Roman empire is shown by the fact that when the limes was abandoned in the 250s, they were apparently abandoned with it.

On no other part of the Upper German-Raetian limes is settlement so close to the barrier known. Beyond the outer limes of Upper Germany was a 25km broad strip of land, which despite being fertile was not settled by Germanic people.[18] Beyond this in the Tauber and Main valleys (Würzburg area) was an area of intensive Germanic settlement. Excavation of a settlement 45km beyond the Limes near Gaukönigshofen shows adoption of some Roman techniques in building of still traditional Germanic houses, and of wheel-made pottery, while the cattle are of a large size like the Roman breeds, and a number of Roman denarii were found.[19] A recently published site at the Reisswag, by Lauda-Königshofen, in the Tauber Valley 25km beyound the outer limes, an Iron Age settlement site seems to have been re-occupied by 'Rhine-Weser' Germans about the same time that the Roman border line was pushed forward. Roman finds are mainly pottery, both terra sigillata and coarse wares, vessel glass, a bonze item of horse harness and possibly shoes. No finds date to after the middle of the third century, and this settlement seems to have been abandoned when the Limes was abandoned. As with nearby sites in the Tauber valley, this is 'everyday', not specially selected or particularly exotic, Roman material culture, being used on a site which no trace of Roman influence on building style, and whose existence seems intimately tied up with the nearby Limes.[20]

Here at a greater distance from the limes, there is still an economic interaction with the empire, and still a certain dependency on the empire – this site and others end with the fall of the limes and the movement of Elbe

[16]Hedeager 1978; Meyer 2013
[17]Abegg-Wigg *et al.* 2000; quotation from von Schnurbein 2006, 31
[18]von Schnurbein 2006, 32
[19]Steidl 2000; von Schnurbein 2006, 32
[20]Keller 2015, esp. 237; 291

Germans into the area, but there is also a greater element of independence and adoption of new techniques than we see in the case of the Giessener Gruppe.
Could it simply be that the Giessener Gruppe people, so close to the empire, were so completely subject to Rome that they paid tribute and got very little in return in the way of Roman goods? The Mainfranken traders (slightly further away) were getting a bit more in return; but their Roman objects are still of the everyday sort; they are the transition to the zone beyond 100km where long distance trade is in prestige articles and new social structures – chieftainships – emerge in the later principate, based on control of selected exotic Roman imports and borrowed Roman technologies (for example the wheel-thrown pottery made at Haarhausen, 150km beyond the Limes).[21] These new warrior-elites were out of reach of immediate Roman interference, as were people in the Perth and Angus area of north-east Scotland.

The usual expectation is that the closer to the limes people are, the more trade and interaction they will have with the empire, and the more likely they will be to adopt Roman lifestyles. For this reason von Schnurbein and Steidl have concluded that the Giessener and Mainfranken Germans respectively made an active choice to continue to live in traditional Germanic fashion.[22] But could it be that the closer to the limes that people are, the less economic return they get for their goods, services and products, and the more they are simply exploited or taxed as if they were peasants within the province? Could this also be an alternative explanation to cleared security zone for the lack of settlement within 25km of most of the limes? Direct Roman interference to gather tax or tribute in the form of livestock from a recently abandoned area, close to the military front line, is also seen at an earlier period at Flavian Elginhaugh in Scotland, where a Roman fort was abandoned around AD 86 but remodelled as a stock enclosure, argued by Hanson to have been for the holding and selection of livestock being collected as a form of taxation on a population that was still subject to Rome but no longer under direct military occupation.[23] To the question posed by Stallibrass, then ('Were the cattle moved as tax/tribute or as traded goods?'),[24] the answer might be that it was more likely to be as tax/tribute the closer to the military installations you were. If so, this might explain the poverty of Roman finds from the sites we have identified as livestock collection centres for the Romans in the zone 10-50km beyond Hadrian's Wall.

'For further discussion, see now J. D. Bruhn and N. Hodgson, The Social and Economic Impact of Hadrian's Wall on the Frontier Zone in Britain, *Britannia* 53 (2022), 125–157'

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[21]Meyer 2013.
[22]von Schnurbein 2006, 36; Steidl 2007, 41.
[23]Hanson 2007.
[24]Stallibrass 2009, 104.

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Zusammenfassung

Neueste archäologische Entdeckungen zeigen, dass die Römer bei ihrer Eroberung der Flachlandgebiete im heutigen Nordengland und Südschottland auf eine dicht besiedelte Agrarlandschaft stiessen. Etwa 50 Jahre später, zur Zeit des Baus des Hadrianswalls, im frühen zweiten Jahrhundert, wurden viele Siedlungen nördlich des Walls aufgelassen. Der folgende Beitrag möchte sich daher etwas näher mit der Frage beschäftigen, welche Arten von Siedlungen und sozialen Strukturen auf die vorangegangenen Gesellschaften im Gebiet nördlich des Walls folgten.

Mehrere Fundplätze in Northumberland und Südwestschottland können heute als Siedlungsplätze angesprochen werden, die nach dem Bau der römischen Grenze im Norden Britanniens datieren. Wenngleich ihre Anzahl gering ist, unterscheiden sie sich deutlich im Aufbau zu den vorangegangenen viereckigen Erdwerken. Bei ihnen handelt es sich um schlank gebaute Erdwerkstypen, die mit Grabensystemen oder Viehwegsanlagen (zum Händeln oder Einfangen von Tieren) ausgestattet waren. Das wiederum deutet auf einen Wechsel zur Weidewirtschaft hin, in welcher Macht und Reichtum auf der Kontrolle von Vieh, Vieh als Rohstoff für den Handel beziehungsweise als Steuerzahlungsmittel gegenüber der Römischen Herrschaft basierte. Diese ökonomische Beziehung war kaum von einer Adaption römisch materieller Kultur geprägt, ähnlich wie es sich bei germanischen Siedlern in der Nähe des Limes zur Germania superior feststellen lässt.

Limes XXIIII. Proceedings of the 24th International Congress
of Roman Frontier Studies, Serbia 2018

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Allies, Enemies, Partners or Protagonists? Rome and the Brigantes in the First Century AD

ABSTRACT

The history of Northern England in the AD 50s and 60s has long been accepted as being as well understood as the limited literary and archaeological evidence would allow. For much of the twentieth century Tacitus's words and Sir Mortimer Wheeler's work at Stanwick, North Yorkshire, established an essentially binary narrative of a 'Quisling Queen' (Cartimandua) in thrall to Rome and 'noble (if doomed) resistance' led by Venutius, her wronged consort. The size of Brigantia and its strategic location dominating northern England, strategically having the potential to either protect or threaten the northern border of Rome's new province ensured that its status, as an ally or an enemy, would be crucial to the Roman imperial project in Britain. This paper will review that relationship, its physical manifestations and changes that are visible in the material record using the well-known evidence from Tacitus and Wheeler in combination with the more recently published data from Stanwick (Haselgrove 2016) along with the emerging results from the important work undertaken by Northern Archaeological Associates at Scotch Corner as part of the A1(M) Motorway project. Questions relating to settlement form, military supply and trade contacts will be explored.

Key Words:

This paper revisits a theme that I addressed in León in 2006 and in a subsequent paper – the expansion of Roman influence and power north of the River Humber (Wilson 2009a; 2009b). The focus for the current study moves from the Parisi of East Yorkshire to the area occupied by the Brigantes to the north and west. Whereas the previous paper looked at East Yorkshire, this talk is primarily concerned with North Yorkshire and the areas to the north and west (Fig. 1).

The area ascribed by the second-century Geographer Ptolemy to the Brigantes is described as stretching 'from sea to sea' (*Geography* II, 3). While the information available is somewhat sketchy it is generally accepted that the Brigantes were not a single entity, but rather a confederation of smaller groups, sub-tribes or 'septs'. These groupings included the Gabrantovices who probably occupied the North York Moors and the Carvetii who occupied the Eden Valley and who, by the later Roman period, were detached from Brigantia as a separate *civitas*.

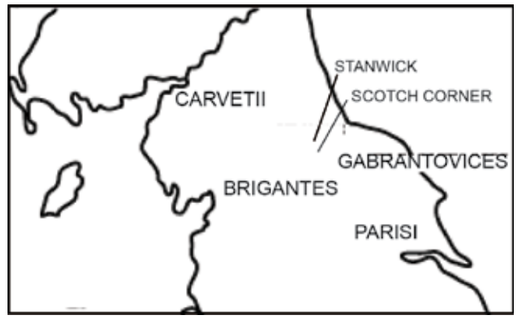

Fig. 1 - Plimes map

It is perhaps timely to offer a reconsideration of the Brigantes in the contact and conquest periods as two major events in archaeological research on the topic have recently occurred. The publication of the long-term research project led by Prof Colin Haselgrove on the key site of Stanwick (Haselgrove 2016) and the discovery of a previously unknown major site of the period that extends for over a kilometre at Scotch Corner excavated as part of the A1(M) Motorway project by Northern Archaeological Associates (Fell 2017).

While we will have to wait for the full publication of the Scotch Corner site, along with the other sites excavated as part of the A1 project, some things about the site are already clear:

- As a node in the route networks in the area it predates the creation of the Roman road network
- High status material was common throughout the occupation of the site
- Occupation overlaps with, but runs later than that at Stanwick
- Native tradition roundhouses exist alongside rectilinear buildings, albeit seemingly with a degree of zoning

Looking at the Scotch Corner site alongside the evidence from Stanwick and the previously known 'satellite' sites at Rock Castle and, in particular Melsonby (Haselgrove 2016, 328–350) is potentially instructive.

Melsonby has long been known as the findspot of the well-known hoard of Iron Age horse and vehicle equipment generally, but inaccurately, known as the Stanwick hoard (MacGregor 1962; Haselgrove 2016, 343–347). In recent years the area has more recently produced other high status material (McIntosh 2016) comparable to that from excavations at Stanwick and Scotch Corner.

While accepting that there can be no absolute certainty Haselgrove (2016, 482–483) concludes that Stanwick was Cartimandua's main base and suggests that the relationship of the Stanwick-based elite with Rome could predate her. He suggests this may be evidenced by, in particular, 'the precocious presence of a small amount of Roman finewares and amphorae, earlier than at all but a few centres in southern Britain'. In considering the modes of transmission Haselgrove favours the idea that this material came as a result of direct contact with the Roman world, rather than being passed on from groups further south in Britain, a view he suggests is supported by the presence of 3 Augustan denarii, perhaps part of an Imperial subsidy and also by the presence of South Gaulish samian dating to before the Claudian invasion.

This evidence for early first century AD direct contacts between the elite of Stanwick and the Roman world provides a context for the expansion of the Stanwick earthworks in the mid-first century to take in some 270 hectares. This scale of resource investment is unique in the north of Britain and the overall complex is of a similar size to some of the territorial oppida, or 'royal sites' of southern England, and comparable to continental sites such as Manching in terms of the extent of the outer enclosure earthworks, albeit with significantly less evidence of occupation within them (Haselgrove 2016, 450–456).

Haselgrove (2016, 482) ponders the potential for the expansion of the earthworks to reflect Roman patronage, patronage that is well-attested on the site by imports that he sees as diplomatic gifts that 'do not appear to have arrived through military supply networks, or from civilian centres ….., and include pottery and glass vessel forms hardly known in Britain'.

That Cartimandua had been an ally or client of Rome is widely accepted, even without the evidence of potential diplomatic gifts, her handing over of Caratacus, the leader of native British resistance to the Empire in A.D. 51, is generally seen as proof enough (Howarth 2008, 57). That said Haselgrove (2016, 470) does quite

reasonably question why Caratacus would seek refuge with a known Roman ally or client?

Whether the apparent hegemony of Cartimandua over the various septs or sub-tribes that made up the Brigantes represented her personal success, inherited status from her predecessors, or the product of Roman influence, all of which discussed by Haselgrove, doesn't matter over much for the following discussion. Which is perhaps as well as it is impossible on the available evidence to choose with any certainty between them.

What Cartimandua did have, at least while she was married to Venutius who was said to be 'skilled in war' (*Annals* 12.40), was military control over the peoples making up the Brigantes, albeit according to Tacitus they were 'long faithful [to Rome] and protected by Roman arms' (*Annals* 12.40). The fact that Venutius was able to take control of Brigantia in AD 69, admittedly at a time when Rome was heavily engaged in finding a military solution to the question of who would wear the purple, suggests he was personally able to command significant military resources, rather than only controlling them by virtue of his association with Cartimandua.

The nature of those resources is unclear, in the Histories Tacitus records him as summoning 'auxilia' to his cause, these could conceivably have come from outside Brigantia and perhaps from his home area. The use of the word 'auxilia', could be taken to suggest soldiers equipped and trained on the Roman model, perhaps cavalry. Haselgrove (2016, 471) suggests Venutius himself may have served in the Roman army – after his split with Cartimandua did he become a Brigantian Gaius Julius Civilis, or could he have seen himself as taking up the mantle of Caratacus' anti-Roman cause?

That Tacitus is our main, indeed only, source for the use of the term 'auxilia' in connection with Venutius's forces is a problem. As Saddington (1970, 112) pointed out in considering auxiliary troops in the Roman army: 'In making an assessment of Tacitus' terminology for the auxiliaries it is important to remember his highly individual style cannot easily be made to fit rigid categories. In addition, Tacitus would be reporting the abnormal or unusual: the regular and normal would be taken as read.' Therefore, what he may have meant by Venutius' 'auxilia' is perhaps, at best, uncertain – did he merely mean troops 'similar to' those recruited as auxiliaries by the Empire?

However, in terms of the Brigantian relationship with Rome, if Venutius was not Brigantian, or drawn from one of the sub-tribes of Brigantia, what may the possible 'auxilia', if they had served in the Roman army, tell us? The recruiting of troops from a neighbouring client kingdom would not have been unusual, particularly if members of that kingdom's elite had been educated in Rome or elsewhere within the Empire as *obsides*. A period of service in the army would have been quite normal for such 'honoured guests'.

If Venutius's *auxilia* were drawn from amongst the people of southern Brigantia again this could be seen as to be expected. However, if they were personal followers of Venutius, who had served with him in the Roman army, and Venutius came from the northern fringes of Brigantia, perhaps from amongst the Carvetii, a possibility suggested by, amongst others, Higham and Jones (1985, 8) and Howarth (2008, 48), that might be thought to be less likely. However, if Venutius's home region lay beyond Brigantia, the recruitment of auxiliaries from perhaps over 120 miles, or 200 km, north of the Humber, early enough in the Roman occupation of southern England for them to have returned home by AD 69, would be surprising.

Whether Venutius's troops came from Brigantia, or further north, if they were one-time Roman auxiliaries, that suggests that the Brigantes or whatever grouping they originated from, were military allies of Rome, at least until they became protagonists after the break between Cartimandua and Venutius. Interestingly, in contrast with the usual disparaging Roman view of native military ability, other than their willingness to die for their cause, in the *Annals* (12, 40) Tacitus describes Venutius as 'the best strategist' since Caratacus. This could be a reflection of his natural abilities, or perhaps reflect his experience in the Roman military if had he served the Empire.

Less certain, given the paucity of the written sources, limited to the *Histories* (3, 45) and *Annals (*12, 40), is the much-discussed question of whether there were one or two 'marital breakdowns' between the ultimately unhappy couple? In terms of the surviving historical references, the expedition ordered by Didius Gallus in the AD 50s to extricate Cartimandua is poorly under-

stood, with no certain physical evidence and no absolute certainty as to whether at that time Venutius had broken with his wife and was leading anti-Roman resistance, or whether their break-up came later in the 50s or as late as AD 69 when Bolanus had to send auxiliary infantry and cavalry to rescue Cartimandua and leave Venutius in control of Brigantia (Tacitus, *Histories* 3, 45). However, Hanson and Campbell (1986, 77–80) persuasively argue for the two 'rescues' to represent different tellings of one set of events dating to around AD 69, crucially recognising that the failure of the Brigantes to take advantage of the turmoil of Boudica's revolt in AD 61 suggests that they were firmly under pro-Roman control at that time.

Developing an idea proposed by David Shotter I have previously argued that garrisons were established on the edge of Parisian territory to protect them as a Roman ally from their bigger neighbour to the north (Wilson 2009a; 2009b). Thinking about this from a Brigantian perspective has led me to question whether the Parisi were always allies of Rome who benefited from Roman Imperial protection against the Brigantes. This thought flows from the fact that, at least under Cartimandua's rule, the Brigantes appear to have played the role of a client state or loyal allies, not least in the handing over of Caratacus.

Might in fact the proposed pre-Flavian garrisoning of the periphery of the Parisian civitas in the AD 60's been a response to the Parisi perhaps having taken advantage of the difficulties that the Romans found themselves facing in the light of Boudica's revolt? That said there is no evidence of occupation dating to the early 60s from forts within the heartland of the Parisian *civitas*, such as those at Hayton and Brough on Humber and equally the foundation dates of the forts at Staxton and Stamford Bridge are unknown, although assumed to be Flavian. Similar uncertainty applies to the fort at Roall Manor, curiously sited on a low-lying site within the Humberhead Levels, wetlands which may have delimited the south-western side of Parisian territory.

What this short paper cannot do is provide a neatly tailored story with respect to the relationship between Rome and the Brigantes, not least because we remain woefully ignorant of the political and social intricacies of that people whose lands stretched from shore to shore. What is clear is that we have within the elite, a pro- or philo-Roman faction that, while Cartimandua was in power, proved loyal allies, or at least politically pragmatic, perhaps a result of understanding all too well what offending Rome might mean militarily.

That some among the Brigantes offended Rome militarily is well-attested in AD 47-8 when Scapula's war in Wales was interrupted by a revolt amongst the Brigantes. This has been taken by various commentators, such as Hartley and Fitts (1988, 16) and Turnbull and Fitts (1988, 378), to suggest that elements in the south-west of Brigantia were responsible. As Hanson and Campbell (1986, 73) have suggested that there were different attitudes to Rome within a confederation, such as the Brigantes appear to have been, is hardly surprising. It is perhaps not too great a leap to suggest that those amongst the Brigantes who sympathised with Caratacus may have been responsible. The existence of such elements within Brigantia might serve to explain why Caratacus fled to northern England when faced with defeat in Wales, knowing Cartimandua to be pro-Roman but hoping that the anti-Roman factions might be strong enough to give him safe haven.

That Cartimandua's hegemony was weak, or at least struggling to control elements within her territory has already been referred to with respect to the need for her to be rescued in the AD 50s. Catherine Ross (2011), using a combination of criteria including topography, settlement morphology and assemblage composition has suggested the possibility of at least 15 potential territories in Brigantia. While it would be a stretch to regard each of Ross's territories as equating to a sept or sub-tribe of the Brigantes, the observed differences do suggest diversity across their immense territory. In our present state of knowledge, the fact that differences can be observed suggests that the relationships between individual sub-tribes, and the relationships of the sub-tribes to the centre were fluid and potentially subject to change. Whatever the political stance of Cartimandua and her court, it is probable that at any one time, Rome will have encountered allies, enemies, partners and protagonists amongst the Brigantes.

Acknowledgements

Various colleagues kindly commented on the version of this paper given in Viminacium, notably on the status of Venutius's forces. Hopefully I have gone someway to addressing the concerns raised, but feel that the ideas offered remain worthy of an airing. Any errors are the authors' sole responsibility.

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At the back of beyond? Actual perspectives on the lower Alpine Rhine valley regarding the first Roman contacts

ABSTRACT

During the last decade important fieldwork results allowed new insights in to the Early Imperial settlement structure of the lower Alpine Rhine Valley. Although excavations have been carried out in this area for 150 years, the state of knowledge on the transition from the late Latène period to the Augustan-Tiberian period has remained sketchy. At the beginning of the 1st century BC the area was populated sparsely but well frequented. The consolidation of Roman power after the Alpine campaign was manifested in the construction of a military fort in today's Bregenz. The geographic and strategically favorable location can't hide the fact that the lower Alpine Rhine valley occupied a difficult to access, hardly usable agricultural area, which could only be opened up better after the construction of a Tiberian military fort as initial point of an infrastructure offensive. The contribution summarises the most important research of the last years.

Key Words: Alpine Rhine valley, transition period, military, Brigantium, settlement development, infrastructure

The geographic environment

In terms of geography, the Alpine Rhine valley marks the boundary between the West and the East Alps. Due to today´s border between Switzerland and Austria, the northern section is, among others, called the St. Gallen Rhine Valley or the Vorarlberg Rhine Valley (Fig. 1). Each according to the season, the high-Alpine passes in what is Switzerland today made the region accessible from Upper Italy. Orographically to the right of the Alpine Rhine, old roads may be supposed to have been used as highways in the Roman period, thus connecting the Alpine foreland and the Schweizerisches Mittelland (central region of Switzerland). Not far from the assumed crossroads the early and middle Imperial settlement of Brigantium was established on the 50 ha wide and mostly flat plateau of the Ölrain. Being ca. 430 m above sea level, the place is on average 34 m above the eastern shore of Lake Constance. To the West and the North it runs along the primary edge of the Rhine Glacier and, due to the shifted gravel of crystalline rock, it is different from the limestone and sandstone of the Bregenzer Wald to the East which was deposited

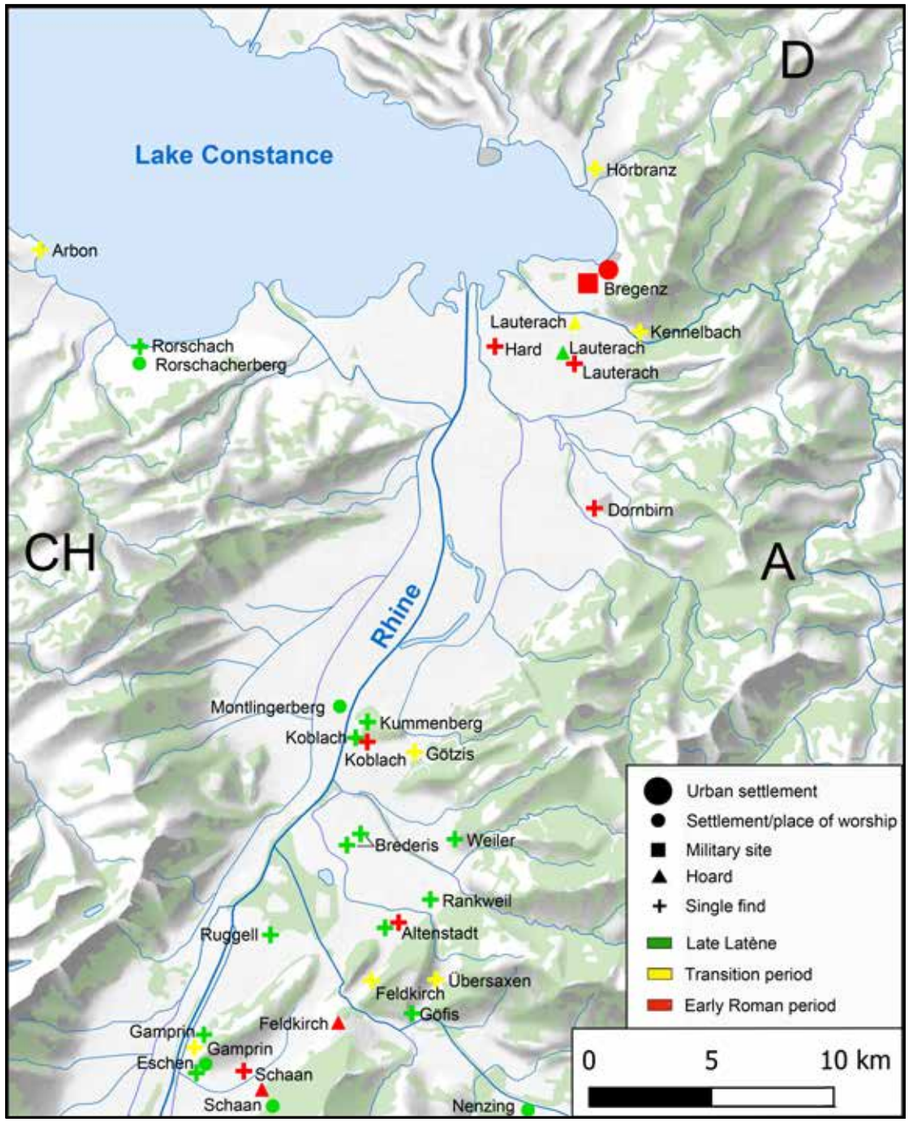

Fig. 1 - Findspots from the late La Téne period to the early Roman Imperial period in the lower Alpine Rhine valley. S = 1:250,000. (DEM: swiss topo, K. Oberhofer 2019).

by the Bregenzer Ach in the bed of the end of the Alpine Rhine[1].

A settlement from the end of the La Téne period?

In the context of a topographic reassessment of the Roman building structures on and around the Ölrain plateau, the theory of an early Iron Age predecessor settlement attracted comparably much attention. The "end of the La Téne period" characterises a controversial debate on appropriate settlement activities in the earliest prehistorical periods and the genesis of the first settlement from the Roman period[2]. As an indication for settlement activities in the earlier Iron Age there served mainly a selection of fibulae from the transition period by P. Gleirscher[3] which was extendedly reviewed by W. Zanier in 2006 and of which only one could be safely dated to the time before 15 BC[4]. Additionally there is one (!) mentioning by A. Hild who was able to pick up graphite ware in the context of construction works in today´s Kaspar-Schoch-Str. 2 (Fig. 2, Inventory No. 30.22)[5]. Meanwhile, however, there has been several evidence of pottery which is dated similarly and shows, among others, typical decorations such as band-painting etc. from sites from the early Roman Imperial period in the regional environment, and also from the settlement area of Brigantium itself we now know appropriate comparisons from stratified Roman contexts[6]. In the 1980s M. Konrad got herself an overview of the situation concerning this issue and came to the conclusion that there are no destruction deposits from any pre-Roman settlement on the Ölrain[7]. If we try to delimit those excavation areas where the geological layers have been reached, there results a differentiated picture: until 1898, S. Jenny almost completely uncovered the remnants of the coping and recorded the majority of the architectural structures from the end of 1st and the 2nd centuries AD. C. v. Schwerzenbach was the first to document all anthropogenous layers along the Roman-period main street, at least by way of profile surveys. This approach was taken up by A. Hild and continued in the context of the major excavations of the 1970s and 1980s under E. Vonbank, in the course of which no pre-Roman findings at all could be identified. If these archaeologically cleared areas are completed by areas which have recently been investigated according to stratigraphic documentation principles, in the course of which the natural ground was reached, it becomes obvious that there is no reason to expect any settlement from the final La Téne period in those sections of the Ölrain that look towards Lake Constance (Fig. 3). The decontexualised finds referred to in the debate, their chronology sometimes being considerably unclear, can at best provide evidence for the place having been frequented, but not for any undoubted settlement in pre-Roman times[8].

In the close environment of Roman Bregenz we do not find any investigated settlements from this time. The settlement on Mount Montlingen (Canton of St. Gallen, CH) might be of some significance, however as yet we do not know any significant finds from there[9]. Also the so called Lauterach treasure find[10], from the lower Alpine Rhine valley, and the iron bars from the bed of the Bregenzer Ach[11], which must be considered transport losses, at best provide evidence for the area having been frequented – based on the known finds it is not possible to provide evidence for any settlement activity.

A harbour castle from the early Imperial period?

In 1884 S. Jenny was able to document the remnants of a building at the north-western foot of the Ölrain plateau which up to now is addressed as the co called Steinbühel Villa. In the context of the construction of the Bregenz city tunnel in 1980/81, major investigations were carried out. W. Sydow and E. Vonbank believed to be able to complete the insights gained by S. Jenny. A number of test pits were supposed to provide information about the environment, and the so called Villa itself was

[1]Friebe 2010; cf. Konrad 1997, 17–20.

[2]Overbeck 1982, 21; Konrad 1989b; Grabher 1994, 59; Schimmer 2005a, 8; Zanier 2006, 76–80; Kopf, Oberhofer 2022
[3]Gleirscher 1985; Grabher 1994, 59 note 2; Heeb 2012, 140.
[4]Zanier 2006, 76–80.
[5]Hild, Menghin 1937, 37 Fig. 16. Hild 1948, 150; Langer 2017, 341 Fig. 101.
[6]Oberhofer 2018a.
[7]Konrad 1989a, 25.
[8]Grabher 1994, 59 note 2.
[9]Seifert 2004, 24; Zanier 2006, 134 Fig. 22.
[10]Dembski 1992.
[11]Menghin 1937, 71; Overbeck 1982, 180 note 139.

Fig. 2 - Pottery fragments from the end of the 1st century BC or the beginning of the 1st century AD from the settlement area of *Brigantium.* (Foto: vorarlberg museum).

supposed to be uncovered and then preserved (Fig. 4). Ch. Ertel re-examined the documentations and placed major attention on those structures as running into the in situ gravel[12]. In several cases she points out to the considerable problem that these measures have only been photographically recorded and that some sections have only been documented by way of drawing profiles, so that the referred to test pits cannot be exactly localised[13]. The assumption of a harbour castle from the early Imperial period is solely based on the alleged evidence for a ditch with a V-shaped profile, whose course cannot be traced back either from the published documents or from those documents as having been examined until 2016 for the purpose of the topographic reassessment[14]. As it has not been possible to provide several pieces of evidence for this ditch profile and as its actual course cannot be verified, we may suppose that it was just some remaining, adversely cut negatives which were talked up as a key finding connected to a fortification. Although we know some early Imperial militaria from this area[15], it is still an open question to which context any initial, probably Augustan, building structures belong. Given the distribution of chronologically sensitive finds and given the spatial closeness of the military site on the Ölrain plateau, it seems to be likely that we may assume a pier from the early Imperial period including the appropriate infrastructure[16].

[12]Ertel *et al.* 2011, 181–208.

[13]Ertel *et al.* 2011, 181, 184–185.

[14]For the course: Ertel *et al.* 2011, 202 Fig. 73; for the profiles: Ertel *et al.* 2011, 200 fig. 71 (Schnitt I Ostprofil), 203 Fig. 74 (Schnitt X Ostprofil); cf. Kopf 2016, 11; Fischer 2012, 284–285 Fig. 427–429.

[15]Kopf 2016, pl. 4, A 43 und A 44. Pl. 5, A 65.pl. 10, C 10.pl. 13, D 01.

[16]Schimmer 2005a, 11 Fig. 3.pl. 6,106 (Consp. 14.1).107 (Consp. 18, 19, 22?); Langer 2017, 335–348.

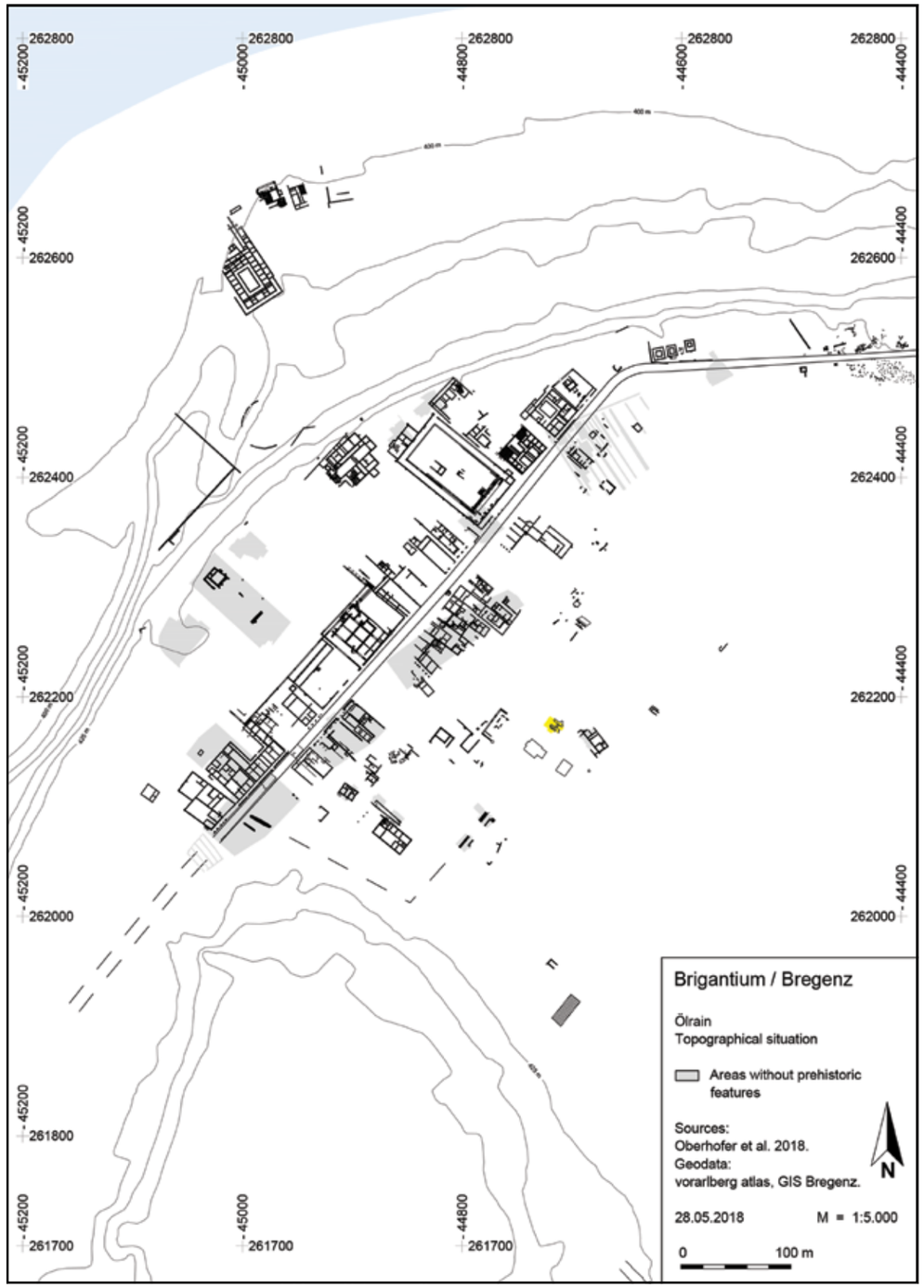

Fig. 3 - Excavation areas in the settlement area of *Brigantium* without prehistoric finds and findings (grey), the findspot of the pottery initially believed to be from the La Téne period is marked in yellow. (K. Oberhofer 2019).

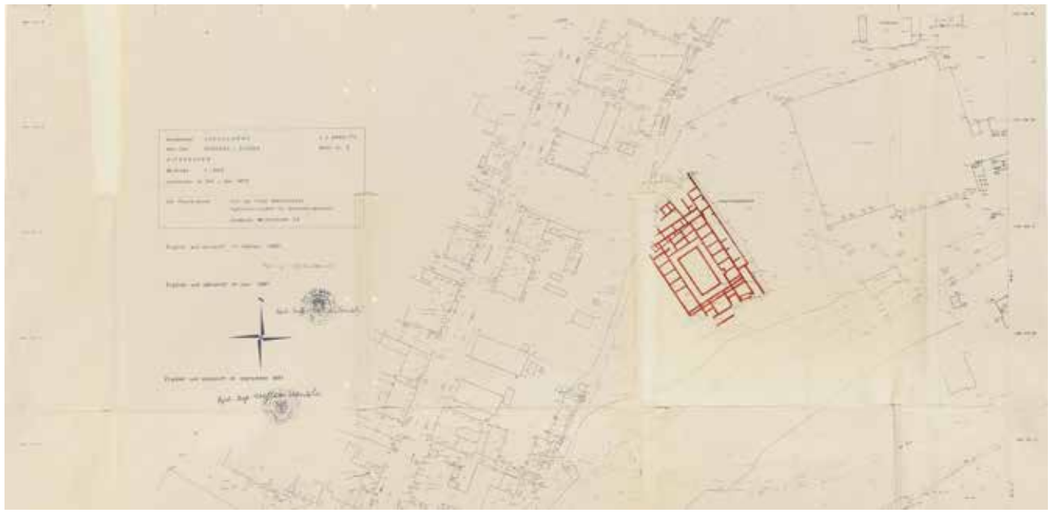

Fig. 4 - Excavation map by Graduate Engineer F. Markowski, giving the measurement of the so called *Villa am Steinbühel* (red); no scale given. The localisation of the test pits mentioned by Ch. Ertel remains unclear. (Site plan: vorarlberg museum).

The military sites on the Ölrain

First remnants of building structures of military sites from the early Imperial period were uncovered on the Bregenz Ölrain as early as in the second half of the 20th century. As clear evidence from a military context we may refer to a broad ditch which was discovered in 1927, on two parallel sections of land[17]. These were two sections of a V-shaped ditch whose bottom was not reached. A. Hild put these as well as other evidence into a military context, although the latter has been controversially debated by research[18]. Military equipment from the early and mid-1st century AD from Bregenz is known since the end of the 19th century[19].

In the course of the excavations of 2009-2012 on the southwestern Ölrain it was possible to uncover more evidence for breastworks of three subsequent military camps from the early Imperial period[20]. Of the two oldest sites which, due to the scarce finds and most of all due to stratigraphic considerations, may be supposed to date from the Augustan period, only small parts of the breastworks were recorded[21]. They may be supposed to for the first time provide actual indications of an Augustan military camp which for quite some time has been postulated in the literature, if we consider the strategic key position of Brigantium on the border in the early Imperial period[22].

The archaeological feature situation concerning the two-phased camp from the (early) Tiberian to the early Claudian period looks more comprehensive: among others, it was possible to attribute two parallel defensive ditch to these camps, as well as remnants of a wall made of wood and earth. These two defensive ditch form the southwestern boundary of the military camp. In the past there were

[17]Hild 1948, 140–142 Fig. 34.

[18]Hild 1953; Zanier 2006, 82–86.

[19]Kopf 2016, 24–98. Initially: von Schwerzenbach / Jacobs 1910/1911, 47 Fig. 10 (B.G. 669, 673).69 Fig. 19 (B.G. 856); Hild 1930, 139–142; Hild 1948, 134–135. 137–138.140.143.146; Mackensen 1987, 159–161; Ubl 1999, 246–250.254–261; Mackensen 2001, 333–335; Schimmer 2005b, 611–612.620–621; Kopf 2016b, 245–248.

[20]Bader 2011; Kopf, Oberhofer 2013b; Kopf 2016.

[21]Kopf 2015, 115.

[22]Konrad 1989a, 24–25.

Fig. 5 - Partially proven or assumed extension of the military camp from the early Imperial period on the south-western part of the *Ölrain.* (K. Oberhofer 2019).

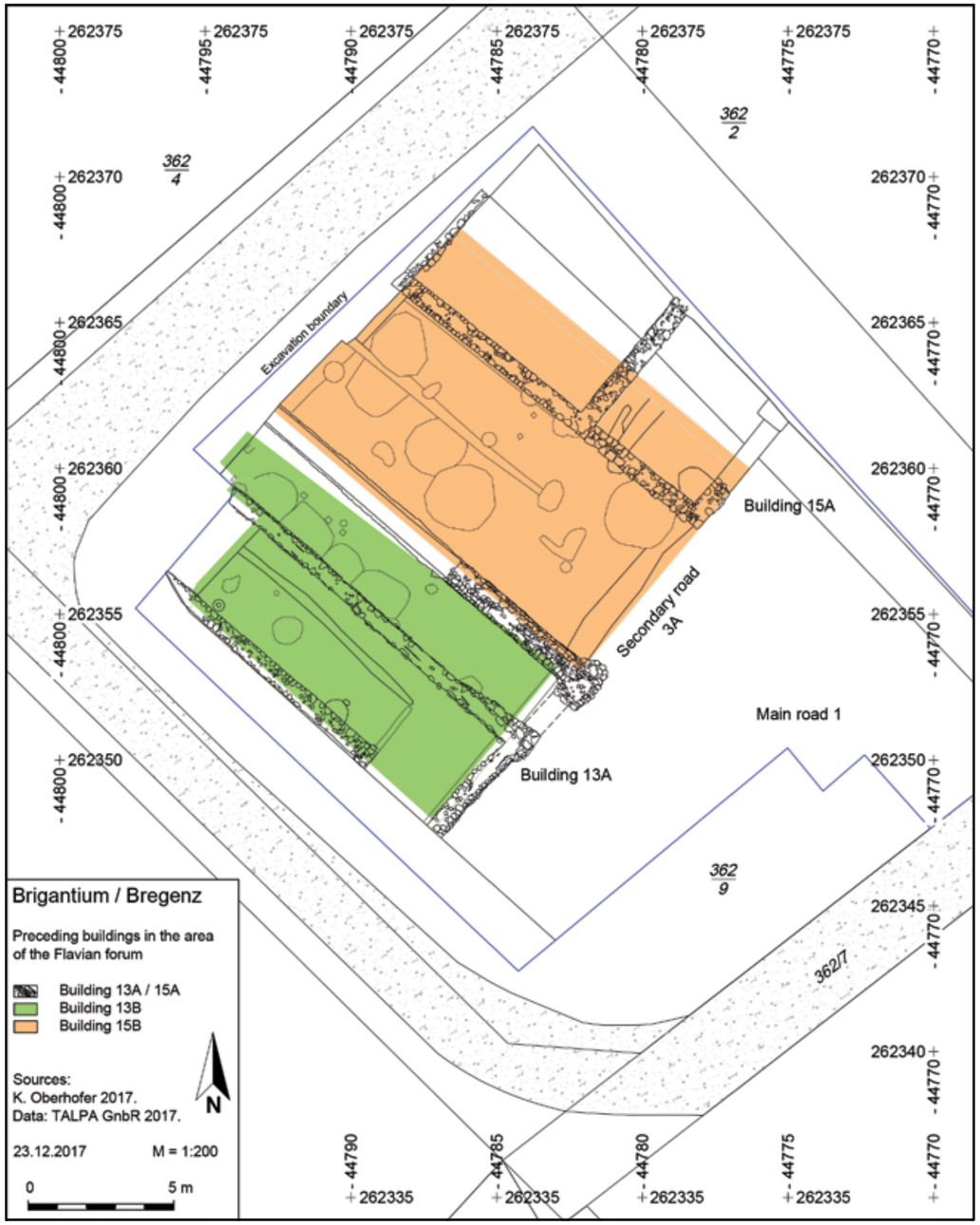

Fig. 6 - The predecessor structure of several phases around the Flavian forum, stated in 2017. (K. Oberhofer 2019).

several assumptions concerning its size[23]. Where- as its south-eastern part may be localised at the

[23]Zanier 2006, 77.83 Fig. 6 [ca. 1,9 ha]; Ertel *et al*. 2011, 26–27; 187 [ca. 2,7 ha]; Kopf 2016, 383–390 assumes an area of about 5 ha or more.

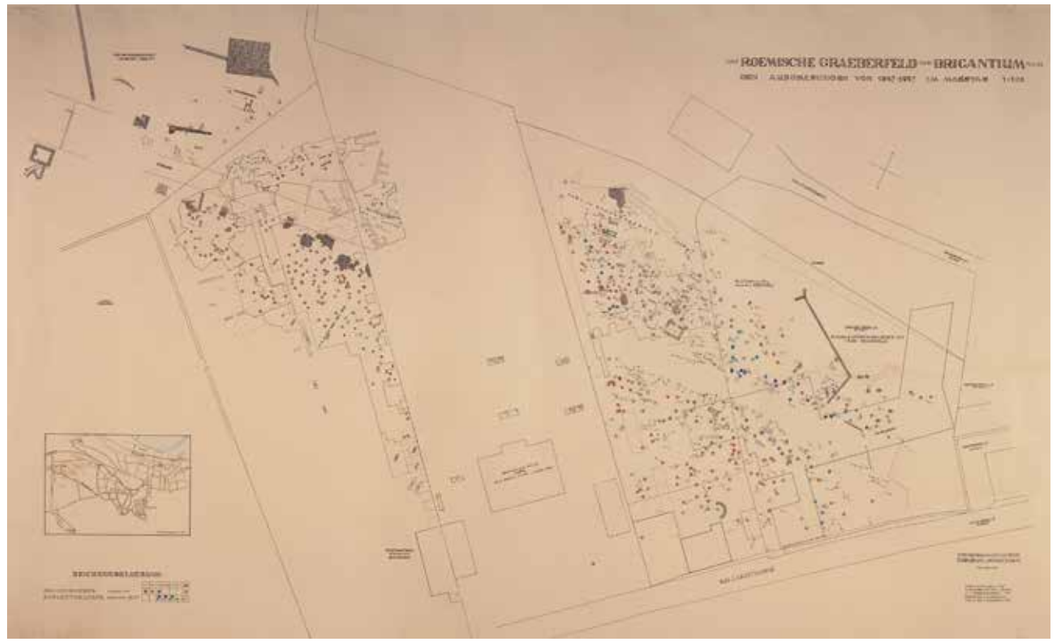

Fig. 7 - Unpublished map of the Roman burial field by A. Hild from the year 1929. Remarkable is the chronological classification of the burials by way of different colours – in red: the burials from the 1st century AD. (Site plan: vorarlberg museum).

ditch structures uncovered by A. Hild in 1927, the north-eastern and south-western boundaries of the camp area are as yet unknown. As inside the excavation area of 2009-2012 no defensive ditch closing off the Tiberian camp to the Northwest could be identified[24], and as about 150 m northwest of the main street there exists a suitable slope side, the north-western boundary of the camp may be supposed to be found there (Fig. 5). To be able to exactly localise the north-eastern area of the camp we will have to wait for future research. A changed military-strategic situation was the reason for abandoning the more recent camp. However, in the case of Brigantium neither archaeology nor ancient history are as yet able to give details of the reasons[25]. An analysis of the chronologically younger, civilian building structures makes obvious that the former camp area was divided: south-east to the via principalis, which still exists as the main street, the area was open to private use. To the Northwest the area was overbuilt with publicly accessible buildings for common use. From this we might indirectly conclude on the extension of the former camp area incl. the V-shaped ditches and the originally cleared glacis[26].

The via principalis and later main street

The main street in the Roman period which, when crossing the Ölrain plateau, seems to divide Brigantium into a north-western and a south-eastern half, was constructed as a via principalis only when the Tiberian military camp was built[27]. This is the result of the excavations finished in 2012, thus raising the question – which cannot be answered here – of how the there identified remnants of Augustan(?) struc-

[24]Kopf, Oberhofer 2013c, 68–70 Fig. 2.
[25]Grabherr *et al*. 2016; for Brigantium: Kopf, Oberhofer 2016.
[26]Oberhofer 2016; cf. Czysz 2013, 345.
[27]Kopf 2016, 124–152; cf. Kopf, Oberhofer 2013a.

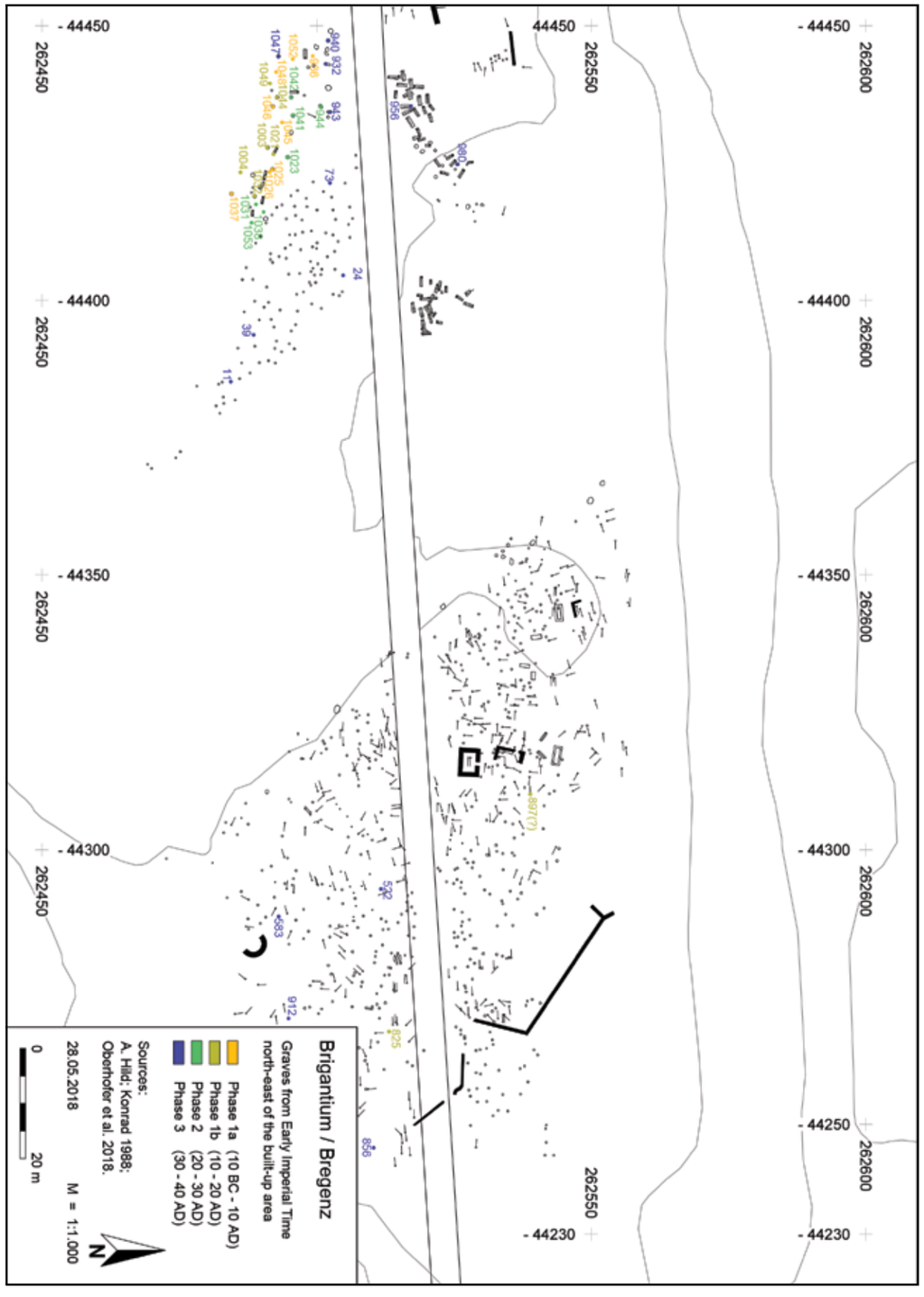

Fig. 8 - Georeferenced depiction of the north-eastern burial field of Brigantium. The burials from the early Imperial period are marked in colour. (K. Oberhofer 2019).

tures were connected to the main traffic lines of the lower Alpine Rhine valley[28]. In this context, also the "older Roman military road" mentioned by S. Jenny must be taken into consideration, which he believed to recognize from the evidence in 1888, among others, at the forum. As could be pointed out to just recently, this is a fortified transition area made of up to five centimetres thick sandstone plates between the actual dam and the entrance of the forum as such, which was made in the 2nd half of the 1st century AD[29]. Beneath the plates there are further layers of almost sterile gravel, providing evidence for the main highway having been frequently maintained in short intervals and for a clearing horizon above the geologic layers.

The vicus on the Ölrain

Undoubtedly connected to the military presence is the development and probably subsequent growth of the appropriate vicus. Synoptic considerations by C. S. Sommer suggest a distinction of three location-related types[30] which – mainly due to the local topography – cannot be undoubtedly connected to the evidence from Bregenz. A vicus of the so called road type would have easily fit into the space between the military area in the Southwest and the large burial field in the Northeast. Another vicus-like building structure of the so called tangential type, however, might also be concluded from the evidence found along today´s Josef-Huter-Straße in the Southeast. The Roman building structures from the late 1st and 2nd centuries overlap the earliest settlement phases. On the excavation areas of the 19th century, in the context of smaller building projects, A. Hild was able to identify indications for older Roman building structures in wood[31]. Only in 2016/17 the excavations on the forum area allowed for a first comprehensive insight into the settlement pattern outside the military areas in the Southwest of the plateau. The forum, for the first time uncovered by S. Jenny in 1888, was erected above an older strip-house structure with plinth walls which again replaced purely wooden structures (Fig. 6)[32]. Typical sill beam constructions, a stringent orientation at the Roman main street and stratified evidence allow for ca. 400 m² of insight into the camp vicus from the early Imperial period. The current state of the assessment allows for identifying two several-phased buildings erected in the early Tiberian period at the latest (Buildings 13B and 15B). If among these findings (late) Augustan structures in the form of one or the other pit will be identified must be left open here. In the course of comparing the various mappings of chronologically sensitive finds, meanwhile there are increasing indications for a kind of camp vicus which is called the street type: to the Northeast of the castle and as a continuation of the via principalis there seems to have developed a two-lined building pattern[33]. On the opposite side of the street the situation is still basically dissatisfying, despite all efforts of assessing older excavations which produced quite a number of finds. Outside the castle area, in the Southwest of the plateau, the excavations in the archaeological zone of the so called "merchants´ quarter" must be mentioned. A dense strip-house structure was uncovered already by S. Jenny, and these excavations were mostly completed by E. Vonbank in the 1970s, in the context of building a home for old aged people. It must be left open if the strip-house quarter was built on the undeveloped glacis of the Tiberian/early Claudian camp or if older half-timbered buildings, which would have to be attributed to the camp, were demolished[34]. By the so called Golden Hand, a neighbouring quarter provided the art-historically most important find from Brigantium, however the building structure of this quarter was only partly uncovered by S. Jenny. The excavations on the so called Gmeinerwiese might make obvious that the north-eastern end of the settlement area was reached. A strip-house structure in stone or at least in plinth ma-

[28]Kopf 2016, 101–123.
[29]Oberhofer – Bader 2017, 182–183 Fig. 3.
[30]Lastly: Sommer 2016; alternatively described as „Axialtyp": Czysz 2013, 303 Fig. 23.304.
[31]Hild 1948, 157.
[32]Oberhofer 2017; Oberhofer 2018b.
[33]Schimmer 2005a, 11 Fig. 3; Kopf 2016, 93, Fig. 41; Langer 2017, 335–348 Fig. 96–99.
[34]Its width was at least 30 m, cf. Johnson 1987, 62 Fig. 27, 65.

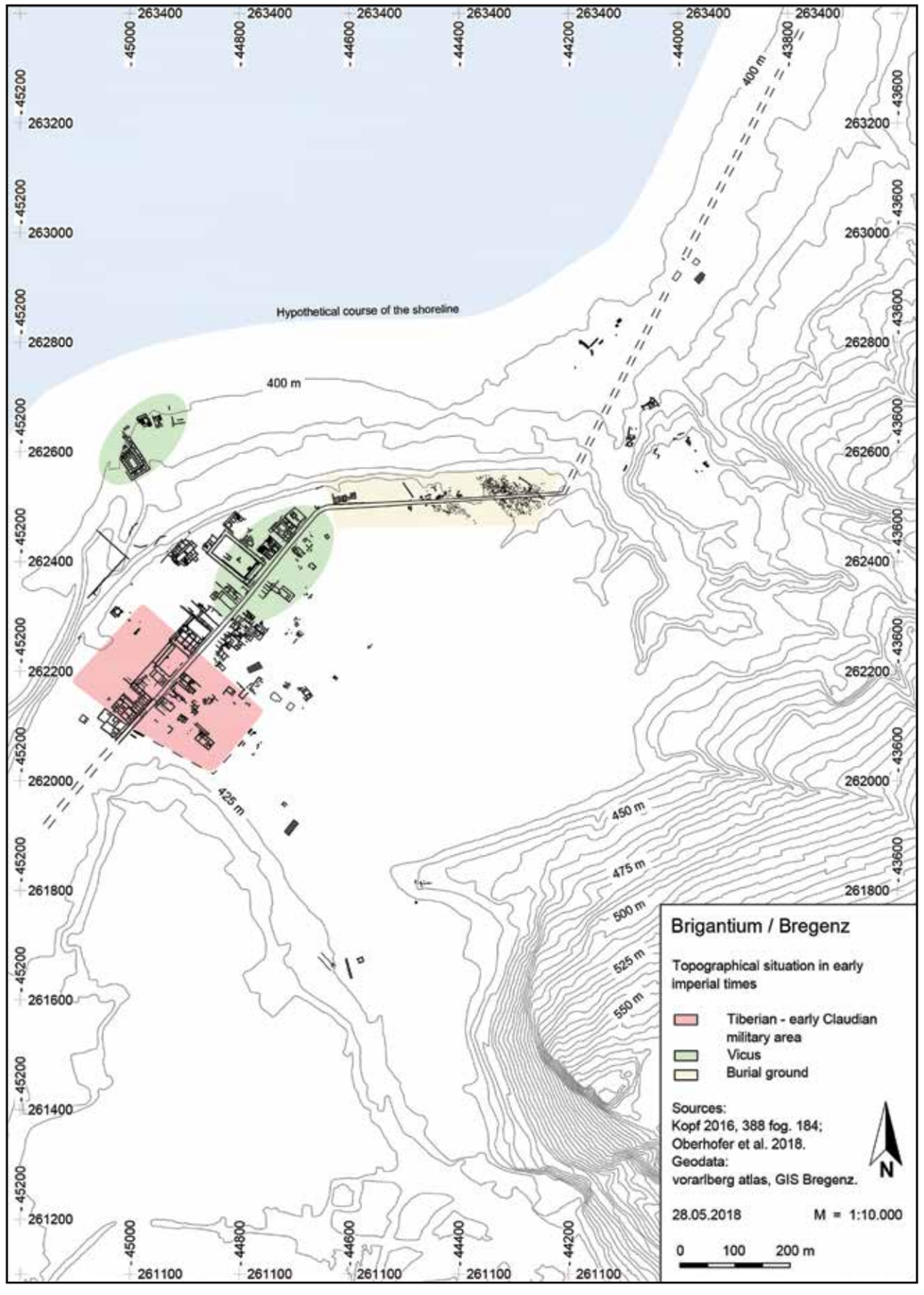

Fig. 9 - The settlement area of Brigantium in the early Imperial period. (K. Oberhofer 2019).

sonry, erected in the course of several phases, is known since the 1970s[35]. Some decontextualized finds can undoubtedly be attributed to the already mentioned Tiberian camp vicus, so that in case of further projects in this area we may expect further finds[36].

Burial ground

Burials from Roman times in and around Brigantium are known since 1841, and most of them were documented in the second half of the 19th century and the first half of the 20th century, in the course of sometimes large-scale excavations[37]. Recently completed field works did not only uncover new burials on the Ölrain plateau along the Roman main street[38] but also make another necropolis at the south-eastern slope ever more probable[39]. As yet, these cremation burials from the (early) Imperial period could not be presented in their entirety, so that basically the preliminary reports by the excavators are relevant[40]. Among these, the mostly unpublished synoptic map (Fig. 7) must be emphasized. M. Konrad was able to work out four phases of the sequence of burials in the early Imperial period, the majority of which could be localised in the West of the vast burial field (Fig. 8)[41].

Conclusion

The synopsis presents a revised picture of the lower Alpine Rhine valley in the decades around the birth of Christ which reveals only a few connections. We may suppose that the Ölrain in Bregenz was hardly settled in the late La Téne period. From the Tiberian period on there existed a military area of at least 5 ha in the south-western part of the plateau and sealed off the road connections to the South and West. To the Northeast there was the appropriate, constantly growing camp vicus on a slightly lower area, whose extension can only be vaguely delimited according to the increasing density of finds. Along the road to Cambodunum, M. Konrad was able to attribute 30 burials out of a total of ca. 1,100 to the early Imperial period. Another density of finds from the early Imperial period at the north-western slope of the Ölrain indicates a pier on the eastern shore of Lake Constance (Fig. 9).

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[35] Vonbank 1974.
[36] Rabitsch 2016, 113, 115 Fig. 3.
[37] Konrad 1997, 21–27; cf. Konrad 2015.
[38] Bader 2012; Picker 2015.
[39] Bader 2015.
[40] At this point, M. Konrad is to be thanked for the insight into her MA thesis; cf. Konrad 1997, 22–25; Truschnegg 2001, 190–319.
[41] Konrad 1988, 104–105.

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Zusammenfassung

Im vergangenen Jahrzehnt konnten im unteren Alpenrheintal wesentliche neue Erkenntnisse zur frühkaiserzeitlichen Siedlungsstruktur gewonnen werden. Wenngleich seit 150 Jahren Grabungen in diesem Gebiet durchgeführt werden, ist der tatsächliche Kenntnisstand zum Übergang von der Spätlatènezeit in die augusteisch-tiberische Zeit lückenhaft geblieben. Zu Beginn des 1. Jh. v. Chr. war das Gebiet kaum besiedelt, wurde aber nach Ausweis bemerkenswerter Funde intensiv begangen. Die Konsolidierung der römischen Herrschaft nach dem Alpenfeldzug manifestierte sich in der Anlage eines Militärpostens im heutigen Bregenz. Die an sich verkehrsgeografisch und strategisch günstige Lage kann nicht darüber hinwegtäuschen, dass der Unterlauf des Alpenrheins ein schwer zugängliches, landwirtschaftlich kaum nutzbares Gebiet vereinnahmte, welches erst nach der Errichtung eines tiberischen Holz-Erde-Lagers im Zuge einer Infrastrukturoffensive besser erschlossen werden konnte.

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The Latest Discoveries and Research Results of the Roman Military Presence in Middle Danube Barbaricum[1].

ABSTRACT

At the previous Limes Congress in Ingolstadt has been presented the latest state of research concerning the Roman temporary camps of the Middle Danube region, conducted within the international project framework. Since then, the available information basis has broadened significantly in several aspects (not mentioning the latest state of research presented at the Limes Congress in Nijmegen). Above all, two new temporary camps in Jevíčko and Brno (South Moravia, Czech Republic) have been discovered, while one of them presently constitutes the northernmost direct evidence of the Roman military presence within the region. Besides the number of other, mainly circumstantial evidence in the form of components of the Roman military equipment and weaponry has enriched so far registered indirect evidence on the Roman military presence.

Keywords: Roman military, Roman camps, Temporary camps, Middle Danube region, Roman-barbarian conflicts, Marcomannic wars, Germanic tribes, Jevíčko, Brno - Vojta's street

[1]The paper originated within the frame of the Program of internal support of international cooperation projects of the Czech Academy of Sciences (# M300011201) and as a part of realization of the GA CZ grant project No. 15-20700S and Slovak GA VEGA No 2/0358/18.

Introduction

In the period since the last outline of the state of research, our joint research activities focused on the exploration of the evidence of Roman military intervention in the Germanic territory north of the frontiers of Pannonia Superior at the Limes congress in Ingolstadt (Komoróczy *et al*. 2018a; 2018b) we have mainly paid attention to a detailed evaluation of all collected data and the preparation of their publication. A minor part of our activities was represented by additional field research. Nevertheless, during this period, we also made some new interesting discoveries, which significantly completed our existing knowledge about Roman-Germanic interactions, and they will be summarized in this paper. In the first part, the focus lies on the territory to the west of the Lesser Carpathians, which is referred to as the settlement territory of the Marcomanni. Subsequently, there will be introduced several novelties from the Quadian territory to the east of this geographic barrier. (Fig. 1).

The latest discoveries of the temporary camps to the West of the Lesser Carpathians (Brno-Centre and Jevíčko)

In the currently terminating three-year period, two new military camps were discovered on the Marcomannic settlement territory. In the fall of 2017, employees of the Institute of Archaeological Heritage in Brno carried out a large-scale archaeological rescue excavation in the southern part of the urban district **Brno-Centre** (Vojta's street)[2], which involved the only still-undeveloped plot between house blocks. On the western side of the excavation area, immediately at its border, a linear feature was examined at a length of 70 metres. Its formal parameters fully correspond to a typical V-shaped ditch, also called *Spitzgraben* (e.g. Bálek *et al*. 1994, 62ff.; Komoróczy *et al*. 2014, 343). The ditch, about 3 m wide, with a depth of 1.6 m below the subsoil level, ran straight in approximately the north-southern direction at the total recorded length of 70 m (Fig. 2[3]). Our colleagues who made the excavation informed us that the lowermost part of the ditch yielded as good as no artefacts. An exception, however, is represented by an almost completely preserved Roman provincial ceramic vessel found at the bottom of the ditch. It is a bowl with a horizontal rim belonging to Pannonian grey ware, whose parallels at the Pannonian Limes fall within the 2nd century AD (Grünewald 1979, 58; Kuzmová 1997, Figs. 2 and 3). In one of the sectors of the ditch rested a completely preserved human skeleton deposited in the stretched supine position without any accompanying artefacts. The tip of the ditch was already partly filled with runoff sediments when the skeleton was placed inside the ditch. It means that the ditch still must have been clearly visible at that time. The relation between the skeleton and the activities at a time when the fortification has already lost its original function is still being explored. The whole area of the rescue excavation contained numerous archaeological components from various periods of prehistoric as well as historical settlement, whose stratigraphic position definitely excludes early medieval or more recent dating of the ditch. According to all available information, including the above-mentioned ceramics, and according to formal criteria of the ditch itself, its dating to the Roman Period, more precisely to the period of the Marcomannic Wars, is well possible (cp. Komoróczy *et al*. 2019). Although we do not yet know much detailed data on the character of the camp, we can get some idea based on its location. The available sections indicate that the inner side of the camp was most probably situated to the east of the uncovered sector of the ditch, that is, towards the area where is now an arm of the river Svratka. The flat ground in this area soon changes into a moderate and later relatively steep hillside in the western direction. The camp is laid out on loess sediments in a bend of the river Svratka, in a location where a ford in the north-southern direction is already documented since the Early Middle Ages at the latest.

The detection of the further course of the fortification is, unfortunately, considerably limited by dense development. Other possible building activities in undeveloped areas, however, might bring new evidence of the course of the fortification. The continuation of the ditch in the north-western direction intersects the area of a football stadium. The application of geophysical survey is unfortunately hindered by the existing irrigation system in this area. Regarding the character of the local geomorphological context, which is delimited from the north and northeast by the river Svratka and from the west by a distinct hill, it probably was a small-scale fortification falling within the category of smaller than 10 hectares of land. Within the scope of interpretation of individual camps, we have already earlier mentioned a theory that these smaller camps may have served some purposes different than the accommodation of large military contingents. In the case of the camp in Brno, we also can suppose that its garrison probably guarded the strategically significant ford and fulfilled some other logistic functions in the communication corridor. This theory is also supported by the fact that the camp is situated only about 6 km as the crow flies to the north of the nearest camp in the southern direction, in the cadastral district of Modřice near Brno, which is 7 km away on a modelled road (Komoróczy *et al*. 2018a, 310–312). The camp in Modřice, with its calculated area of about 21 hectares, on the other hand, counts among the size category of 20 to 26 hectares, which is identified at several places in the Marcomannic settlement territory, and represented a camp intended to accommodate large military troops.

The other recently discovered camp is located at the periphery of the Marcomannic settlement area in what is now Moravia. In the fall of 2016, on the territory of the town of **Jevíčko**, archaeologists from the East Bohemian Regional Museum in Litomyšl carried out an archaeological rescue excavation preceding the development of infrastructure for a residential quarter and uncovered a relic of a ditch which undoubtedly represents the fortification remnant of a Roman military camp. The findspot itself is situated in the flat western part of the built-up area in Jevíčko, on one of the still undeveloped plots. Jevíčko is a natural centre of the region, where recent archaeological excavations yielded, among other finds, the evidence of relatively significant Germanic settlement from the Early Roman Period, inclusive of numerous displays of contacts with

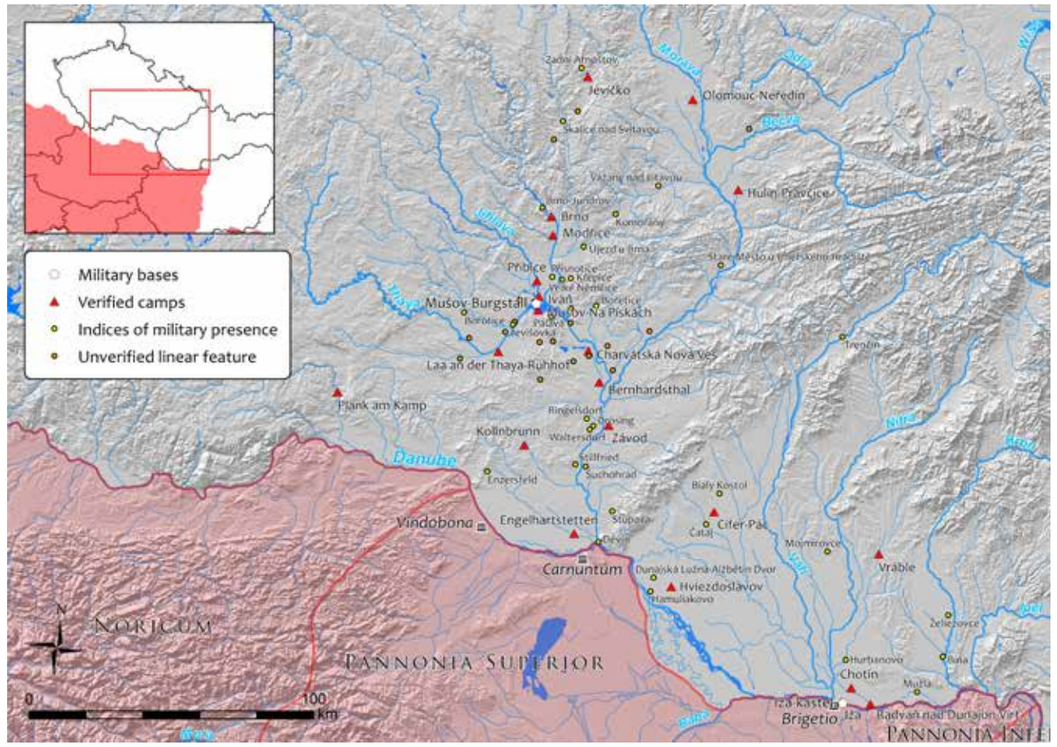

Fig. 1 - Distribution of verified temporary camps and indirect indications of the Roman military presence on both sides of the Lesser Carpathians.

[2]The authors of the paper would like to express the gratitude to colleagues from the institution Archaia, r. i. (foremost to V. Kolařík) for possibility to provide the preliminary overview of the principal findings from the latest Roman temporary camp in the Middle Danube region.

[3]Kindly provided by the colleagues of the institution Archaia, r. i.

Fig. 2 - Brno-Centre. Example of the field situation with a cross -section of the ditch.

Fig. 3 - Jevíčko. Cross section of the ditch.

the north-eastern Germanic regions of the Przeworsk and Wielbark cultures (cp. Droberjar 2014). During excavations, the course of the ditch was identified at two places, which enabled a primary reconstruction of the ditch at a length of about 80 m. In the explored sectors, the width of the ditch on the subsoil surface varied around 3 m, and the depth was 1.5 m or 2 m below the present ground surface (Figure 3). In one place at the bottom of the ditch, fragments of terra sigillata occurred[4]. Other dating materials are not yet known. On the inner side of the fortification, traces of two fireplaces for food preparation were found, and their relation to Roman military presence is being examined. With the aim to apply natural scientific analyses, which we used in the past years to explore military camps within the scope of our project, a trench was laid out perpendicular to the course of the ditch and continued to the north of the area of rescue excavation. The identification and interpretation of characteristic deposits in the backfill of the ditch, which resulted from the redeposition of the aboveground part of the fortification, enabled to identify the internal area of the camp in the eastern direction towards the built-up area of the present-day town. Another trench has proved that the ditch ran further straight to the north, where it probably was completely destroyed by later development (Fig. 4).

The course of the western part of the fortification of the camp was identified with the help of a geophysical magnetometric survey carried out further to the south on a moderate slope outside the built-up area. The ditch runs here straight towards an indistinct terrace edge at the northern border of the floodplain of a brook. However, in several sectors, the course of the anomaly interpreted as a ditch is quite faint. In places where a distinct anomaly of the aboveground power line is present, the ditch fades out. Moreover, on a map of measured anomalies, it is entirely absent on the northern side of the original discovery, beyond the line of family houses. Regarding the fact that we only know the course of the western fortification line of the camp at a length of at least 405 metres, the extent of the whole fortified area can be estimated only indirectly based on of the local geomorphological context and the most frequently recorded values of side proportions in temporary camps. On the northern and southern sides, it is possible to suppose the fortification limits in the course of small local inundations. However, particularly in the northern part, determining a possible course of the fortification is limited by distinct terrain modifications and intrusions into geomorphology, which in this area were already significant since the medieval times. For the “minimal” estimation of the fortified area, we can only use the reliably identified sector of the ditch.

[4]According to determination by K. Kuzmová it was a bowl type Draggendorf 37 from the production circle of master Butrio in Lezoux.

Fig. 4 - Jevíčko. The location of the evidenced course of fortification (geophysical prospection) and estimated extent at the area of the present town Jevíčko.

Based on the most frequent 2:3 side ratio module of temporary camps (Davies, Jones 2006, 20–21; Vlach 2016, 116–119; Welfare, Swan 1995, 10), we thus get two variants of reconstructed areas sized 11 and 25 ha (Fig. 4). The possibilities of further identification of the course of fortification, both by geophysical survey and by excavations, are limited due to the current extent of the built-up area and the way of land use. In places where the excavations in Jevíčko were carried out, no dating superpositions were detected. Nevertheless, we can suppose that the camp counts among Roman military installations from the period of the Marcomannic Wars, even though this assumption is based so far only on characteristic displays of terrain contexts, the presence of terra sigillata and the overall parameters of chronological and historical determination of military installations on the territory of Moravia. This interpretation of the camp is also supported by the spatial logic of its location. With regard to the distribution of similar components, the temporary camp in Jevíčko currently represents the northernmost camp of this type within the whole barbarian territory on the Middle Danube. Its discovery at the same time deepens, extends and completes the volume of indications for the study of movements and operation strategies of the Roman forces on the barbarian territory (cp. Komoróczy, Vlach 2019), inclusive of their logistic aspects, as it is explored further on in the following text.

Geostrategy implications from the latest discoveries

Based on of geomorphological characteristics in the broader region, we can rightly anticipate the potential directions[5] in which the contingent of the Roman army came from the area of the Dyje-Svratka Valley, probably from the central positions represented by the concentrations of large camps in the neighbourhood

[5]For detailed study of path GIS modelling and evaluation see Komoróczy, Vlach 2019.

of Mušov, at the locations of Mušov Na Pískách or Přibice. The route of advance further to the north from this occupation core is documented by the camp in Modřice, and an important role in securing the passability of the road for these contingents was probably also played by a small camp near a ford through the river Svratka in Brno. Other communication corridors towards the periphery of Germanic settlement territory are supposed to be along the middle reaches of the river Morava or through the so-called Vyškov Gate. These corridors, according to the hypotheses formulated earlier, led to the already longer-known camps at Olomouc-Neředín and Hulín-Pravčice. Both of them fall with their extent within the category of 20 to 26 hectares (e.g. Komoróczy, Vlach 2017, 38; Vlach 2016, 119ff., Graf 12). On the modelled road between them, they are located at a distance of a two-day walk from each other, and the same also is the distance between the camp at Olomouc-Neředín and the recently discovered fort in Jevíčko. Concerning these spatial relations, we suppose that the modelled area of the last mentioned camp should be more than 20 hectares. The above-mentioned three camps thus relatively clearly delimit a sort of external defensive structure or line, which protected the main corridors of access to the occupied settlement zone of the Marcomanni.

This strategic role is most evident in the landscape configuration around the camp in Jevíčko. The camp is situated in a region called Malá Haná. It is a relatively narrow flatland corridor, oriented in approximately the north-southern direction. The camp is situated in its western periphery, and the viewshed analyses show that it may have effectively overlooked the entire width of this corridor. The corridor is bordered on both sides by rugged hilly landscape, which opens towards the east into the Upper Morava Valley in the region of the camp at Olomouc-Neředín. The location of the camp at Jevíčko is accessible both from this camp at Olomouc-Neředín and from the southerly situated camp at Modřice. This route leads through the so-called Boskovice Furrow (Komoróczy, Vlach 2019, 18ff.). The modelling and calculation of possible connecting lines from this southern direction are also correlated with the finds of Roman militaria from the cadastral district of Skalice nad Svitavou and Zadní Arnoštov (Droberjar 2014). This modelled direction of passage is distinctly structured by the vertical variability of the region, characterized by deep valleys along watercourses between the flat Brno Basin and the region of Malá Haná, which at the same time reduces the extent of lateral variability of the modelled route in the form of a modelled travelling corridor. The resulting increased demands for the passability of the landscape allow us to suppose at a length of about 50 km as much as four one-day march distances (Komoróczy, Vlach 2019, 24ff.). Similar demands for the passage were also identified with the modelled route from another potential starting point – the camp at Olomouc-Neředín.

In an effort to create an independent framework for the chronological position of individual temporary camps, in the preceding conference in Ingolstadt, we already presented a series of radiocarbon dates, which was completed during subsequent excavations. The dates, of course, were not collected to differentiate the camps in the course of the Marcomannic Wars, but above all to identify the camps associated with more distant chronological intervals and events which, according to literary sources, sometimes may have left traces of Roman army on the territory of our interest. Representative archaeobotanical data, with regard to depositional processes, were mainly acquired from suitable samples taken from the lower parts of backfills of ditches in temporary camps and from field ovens. The summarizing statistical analysis of the acquired ^{14}C dates (Komoróczy *et al*. 2019), in accordance with other indications and with relative-chronological dating of individual phenomena, allows us to conclude that in most of the Roman temporary camps west of the Lesser Carpathians, we currently can confirm that they fall within the chronological range of the Marcomannic Wars (Fig. 5)[6]. The existing data, including of small finds, do not enable us to associate the camps with other possible period of Roman military presence, above all with the frequently discussed military campaign against Maroboduus shortly after the turn of the eras. Also, in the case of these two new camps, we do not yet see any space for unequivocal chronological differentiation within the period of the Marcomannic Wars. Three years ago, we already presented the repeating reductions of several camp areas as well as some

[6]With several situations with the time frames clearly unrelated with the Roman military presence, such as Mesolithic (Komoróczy *et al*. 2014, 358f., Tab. 2).

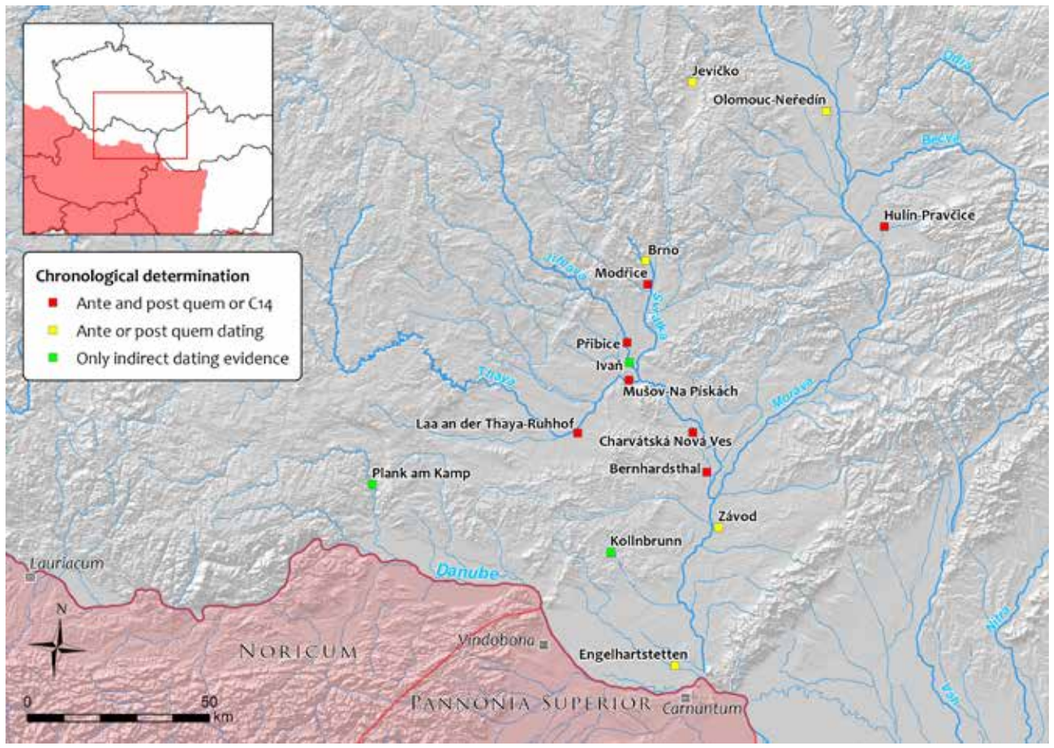

Fig. 5 - The state of the present possibilities of dating of individual verified temporary camps (after Komoróczy *et al*. 2019, Figure 6)

sporadic mutual superpositions. However, based on the available data, we cannot yet clearly associate these features with particular phases of Roman offensives in the case of geographical context to the east of the Lesser Carpathians.

The research development on the Quadian territory

Small-scale excavations directed by Ján Rajtár also continued on the Quadian territory east of the Lesser Carpathians (cp. Rajtár 2002; 2008; 2014; Rajtár *et al*. 2018). Here we currently register verified temporary Roman camps at five localities (Hviezdoslavov, Cífer-Pác, Iža, Radvaň nad Dunajom-Virt and Vráble); the existence of camps at the localities of Chotín and Mužla cannot yet be confirmed. The most significant accumulation of temporary Roman camps is known directly opposite Brigetio, in its bridgehead in the immediate neighbourhood of the fort in Iža. An aerial survey in 1990 discovered here five camps situated to the west of the fortress. The cooperation with Hungarian colleagues in 2016 helped to identify in a 1969 archival aerial photograph another five camps, which were located to the east of this fortress. Their extent can be estimated as 1.2 to 1.5 hectares (Fig. 6). Test trenches were subsequently laid out at accessible areas of four of these camps. These excavations revealed an identically sized fortification with V-shaped ditches like those detected earlier with camps to the west of the fortress. From the backfill of the ditch in camp 6, a carbonised wheat grain was acquired, which yielded an uncalibrated radiocarbon date 1800 BP with dispersion 2σ within the interval of 131 to 326 AD and with 1σ within the interval of 140 to 252 AD. J. Rajtár rules out the possibility that these military installations could represent training or building camps.

Subsequently, all camps and their surroundings were examined by a large-scale metal detector survey. The total surveyed area was around 75 hectares, and the collection of finds from the area of recently identified camps 6 to 10 comprises a total of 16 coins minted within the time span from Trajan to Marcus Aurelius,

Fig. 6 - Iža. Location of the permanent fort and the total of ten temporary camps from the period of Marcomannic wars.

seven knee brooches, an iron arrowhead, fragments of fittings from military equipment, and a silver finger ring with engraved gem portraying Jupiter. The area of camps 1 to 5 yielded a total of 19 coins minted within the interval from Vespasian to Marcus Aurelius, where the most recent coin is a 176-177 AD Sestertius of Marcus Aurelius. The collection of finds also included several knee brooches and components of military equipment. The concentration of these finds in the area of camps and in their immediate neighbourhood proves that the camps are associated with the presence of military forces, which can be reliably dated to the period of the Marcomannic Wars. The 176-177 AD coin of Marcus Aurelius together with an earlier found 178-180 AD coin of Commodus for Crispina, indicate that the camps probably were not built until the second phase of the Wars. They also support the hypothesis that the camps are associated with the Roman counter-attack and punitive expedition following the destruction of the timber-and-earth fortress in Iža during a Germanic attack in 179 AD (Rajtár 2014, 114).

The results of this prospecting also became an impulse to the realisation of similar large-scale surveys on the other campsites. The metal detector survey in the area of the camp at Hviezdoslavov yielded five coins, among them a 175-176 AD As of Commodus, which indicates that this camp was not in operation until the campaigns in the second phase of the Marcomannic Wars, either. An unusually high number of finds were documented in the area of camps at the locality of Cífer-Pác, and the camps are thereby reliably dated to the period of the Marcomannic Wars. The collection comprises 8 Roman coins (from Titus and Domitianus till Antoninus Pius for Faustina), eight knee brooches and numerous armour scales and fasteners, crest knobs from the Niederbieber-type helmets (cp. e.g. Fischer 2012, 153, Abb. 182: 9; 183; 184:1), and other components of military equipment. A Roman golden finger ring also was found, but its inlay was unfortunately fallen out of the bezel. Very sparse finds, on the other hand, resulted from the survey in camps at the locality of

Radvaň nad Dunajom-Virt. Apart from known finds (e.g. Rajtár 2014, 114–117, Abb. 8) there were found a bronze S-shape brooch, a fragment of bronze openwork fitting, a silver gilded fitting in the shape of a lion head (Fig. 7:1). Comparable objects were frequent

Fig. 7 - Stray finds from the temporary camps. 1 - Radvaň nad Dunajom; 2 - Vráble.

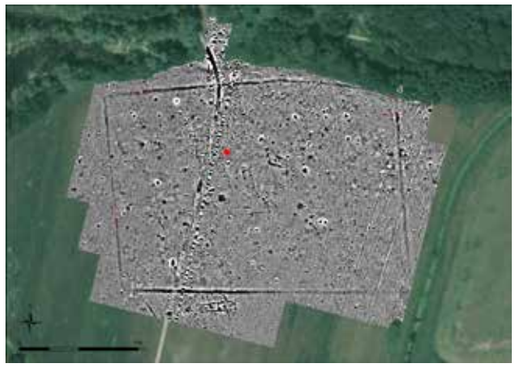

Fig. 8a - Závod. The results of magnetometry prospection with the location of the place of deposition of the iron folding chair.

within the Roman environment. Some of them with the shape of phalera could have been part of horse harnesses or furniture fittings. Similar fittings could also be found on some of the official busts of emperors with muscle-cuirass, e.g. Traianus, Antoninus Pius, Lucius Verus and also Marcus Aurelius (Ertel 2011, 12, Figure above). Thus, it may not be ruled out that the fitting could have been part of the decorative armour of some higher-ranked military officers. A systematic detector survey in the area of camps at the locality of Vráble yielded 4 Roman coins (Denarii of Traianus and Hadrianus and two Denarii of Marcus Aurelius from which one of them was minted in 174 AD), several Roman brooches and components of military equipment. Furthermore, for example, an enamelled seal box (Fig. 7:2).

A systematic prospecting was also conducted in two camps within the Marcomannic settlement zone west of the Lesser Carpathians, at the localities of Suchohrad and Závod (cp. Komoróczy *et al*. 2018, 296–299; Elschek, Rajtár 2008). The survey in Suchohrad yielded two Denarii minted for Faustina and a knee brooch, but all of these artefacts were found outside the ditched area. Interpretation of this structure as a temporary camp thus remains uncertain. The area of the camp at Závod, on the other hand, yielded a coin of Faustina, two knee brooches and several fragments of military equipment. Quite unique is a find of an iron folding chair of type Weißenburg, variant A, after the classification by Ch. Miks (2009, 433, Abb. 26).

Fig. 8b - Závod. Iron folding chair.

The differentiation of temporary camps discovered to this day on the Quadian territory, concerning their dimensions and fortification design, is certainly influenced by their different function and duration period. The size of individual camps is quite varied, ranging from 1 to as much as 50 hectares. Among them, we can distinguish two categories: small camps intended for auxiliary troops and extensive installations for large military units or even for an entire army, sized more than 20 to as much as 50 hectares (Fig. 9). Judging from the dimensions of individual camps, the troops who operated on the Quadian territory were of various sizes, ranging from small units to powerful military forces. Archaeological finds and contexts indicate that the camps in Iža, the camp in Hviezdoslavov, camp 1 in Virt and the camps in Vráble belonged to the second, i.e. last, phase of the Marcomannic Wars when the Quadian territory was occupied by Rome. The time of origin of the other installations still remains unknown (e.g. Rajtár 2018, 293–294).

The location of individual camps reveals much of the strategy, tactics and dynamics of military movements during campaigns, as well as their direction and targets. The camps located at the Danube, in Radvaň nad Dunajom-Virt and Iža, represented starting positions

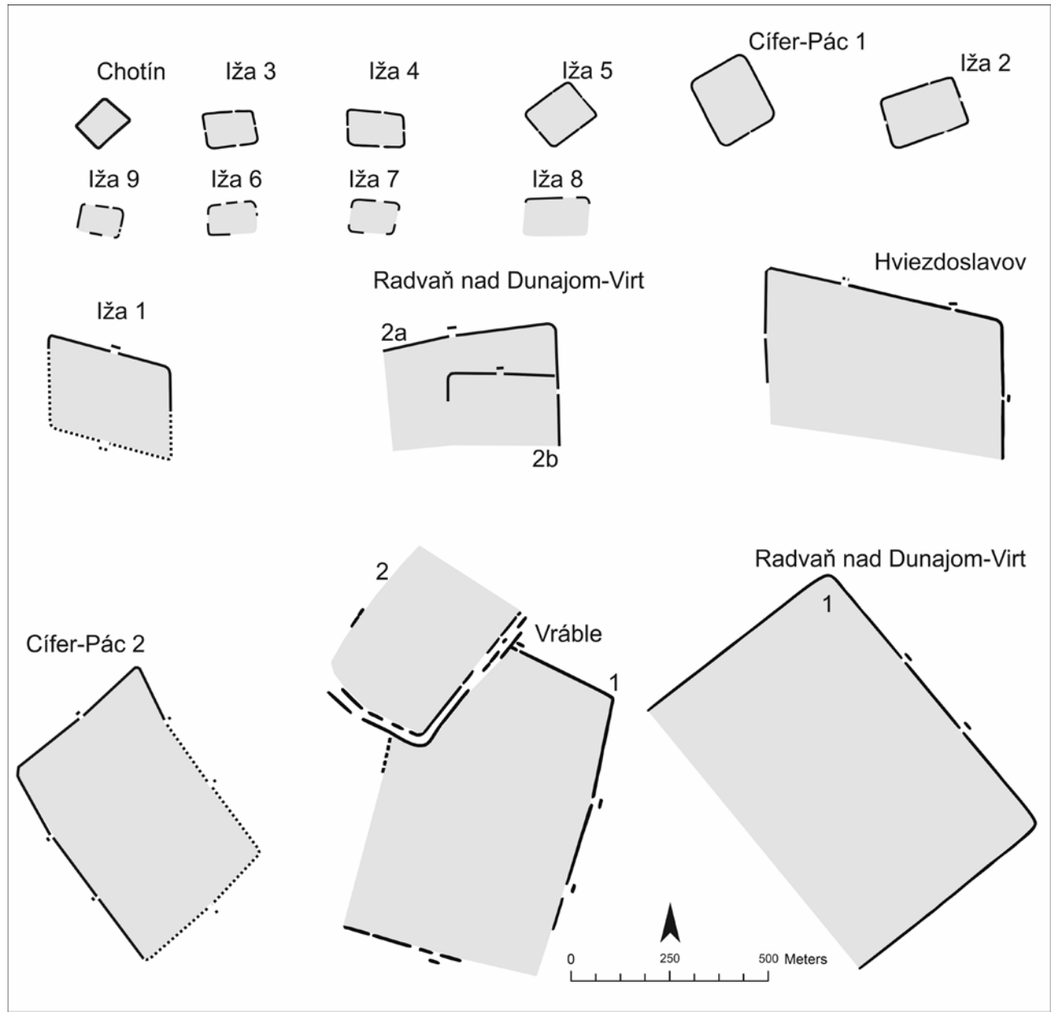

Fig. 9 - Comparison of size and structure of the temporary camps from the Quadian territory.

for further advance to the north. It was probably in the second phase of the Marcomannic Wars that the Romans used the route and the river Žitava to transport supplies and established a winter camp at the southern border of what is now the town of Vráble. After the arrival of a larger military contingent, this place served as an important military base intended for control and operations in the vast Quadian hinterland. The large camps in Hviezdoslavov and Cífer-Pác are situated on a marching route which runs from Carnuntum through the region east of the Carpathians towards the Váh River valley (Fig. 10). There, in the town of Trenčín, an inscription carved into the castle rock gives evidence of a winter camp named Laugaricio, established in 179/180 AD (Rajtár 2008, 169, 179–181). From this area, it was possible to oversee the mountainous region in the north, cross the Lesser and White Carpathians through the mountain passes, and establish contacts with the troops encamped in the Morava River basin.

Conclusions

The presented brief outline of the most significant discoveries and finds of the archaeological traces of the Roman military presence on the barbarian territories of the Middle Danube region clearly shows that potential sources of information in the broader sense are far from exploited, either in case of completely unknown

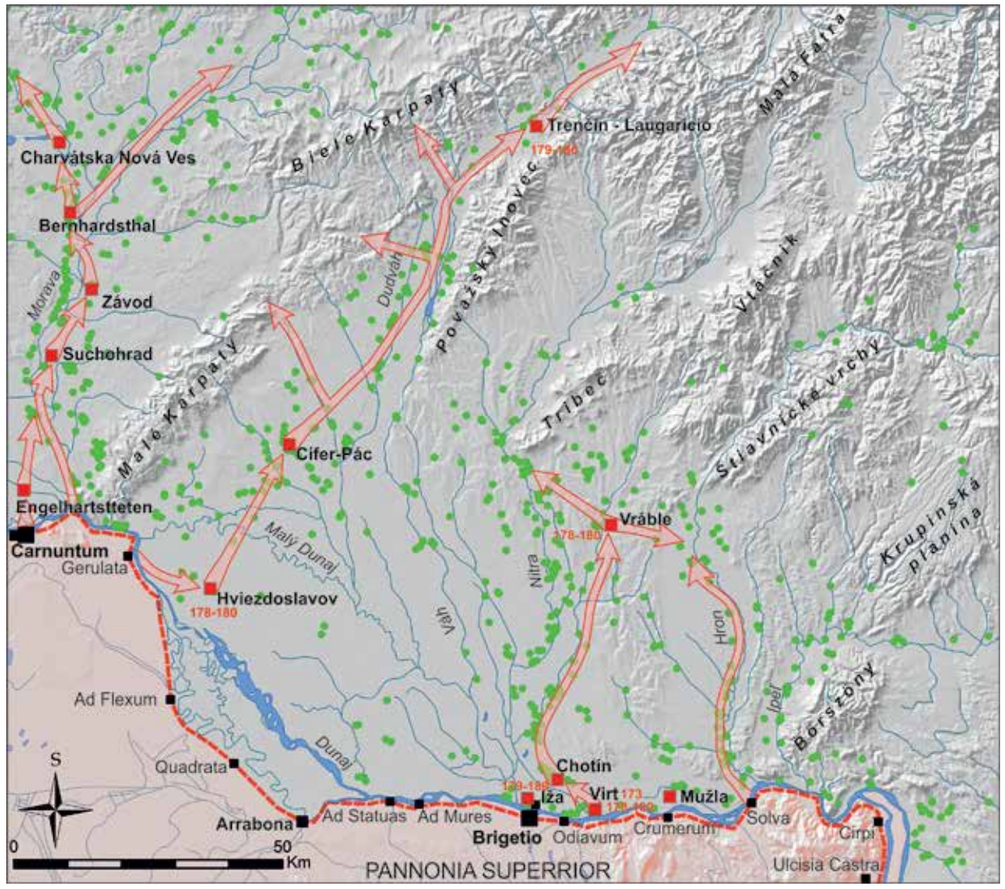

Fig. 10 - The Middle Danube region to the east of the Lesser Carpathians and the north of the Danube with the marking of Roman borderline garrisons (black squares), Germanic settlements (green circles), temporary camps (red squares) and directions of the advance of the Roman armies during the intervention phases of Marcomannic wars.

temporary camps (Jevíčko and Brno-Centre)[7], either in amounts of characteristic finds of the Roman military equipment and weaponry from multiple sites, predominantly ascertained through the metal detector prospection. Increasing volume and presently documented variability of available information sources enable provide more comprehensive basis for analyses of structures within the archaeological data as well as other involved disciplines of multidisciplinary approach (e.g. Groh *et al*. 2015; Groh, Sedlmayer 2015; Komoróczy *et al*. 2014; Komoróczy *et al*. 2018a; 2018b; 2019; Komoróczy, Vlach 2019; Lisá *et al*. 2015) and more coherent historical interpretation.

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First contacts in Scotland: a review of old and new evidence

ABSTRACT

Although the Roman army invaded Britain in AD 43, there is limited evidence of contact with what is now Scotland before the Flavian invasion. Only thirteen findspots of pre-Flavian material are known, including some impressive gemstones, along with fragments of wine amphorae, glass vessels and brooches. They are found up to the northernmost islands, suggesting Roman contacts targeted at exploring the whole island in advance of conquest. In contrast, Flavian material is strongly concentrated on Iron Age sites within the conquered territory. It clustered in certain areas, and was targeted to powerful sites. Many of these were marked out by spectacular architecture – the stone towers known as brochs, an exotic architectural form in these southern Scottish areas. It seems that most of these sites were demolished after the Flavian withdrawal, suggesting that local groups who had grown rich on Rome did not long survive the withdrawal of Rome's favour.

Key Words: Scotland, Roman-barbarian contacts, brochs

Visible Roman impact took a long time to reach what is today Scotland. Although southern England saw extensive Roman influence from the later second century BC, intensifying after Caesar's expeditionary forces of 55 and 54 BC, following the Claudian invasion of AD 43 it still took over thirty years for Roman forces to reach modern Scotland, although they were in Yorkshire during the 60s AD and in Carlisle by AD 72/3 (Wilson, this volume; Zant 2009, 7). This paper will review the sparse Scottish evidence for pre-Flavian contact and the more extensive Roman finds from Iron Age sites during the Flavian occupation of c. AD 77–87, extending into the Trajanic period in southern Scotland. In doing this it tramps over territory discussed inter alia by Anne Robertson (1970), Lesley Macinnes (1984, 1989) and Andrew Fitzpatrick (1989), but thirty years of discussion and discoveries allow the topic to be reopened. The later line of Hadrian's Wall is taken as the southern boundary of the study.

Contact before conquest

In Gaul and southern Britain, Roman contacts before conquest are marked by rich burials full of imports, connected especially with the consumption of wine (e.g. Stead 1967; Metzler *et al*. 1991), and by sites rich in amphora fragments. The wealth of grave goods in some burials, such as the Lexden tumulus in Essex,

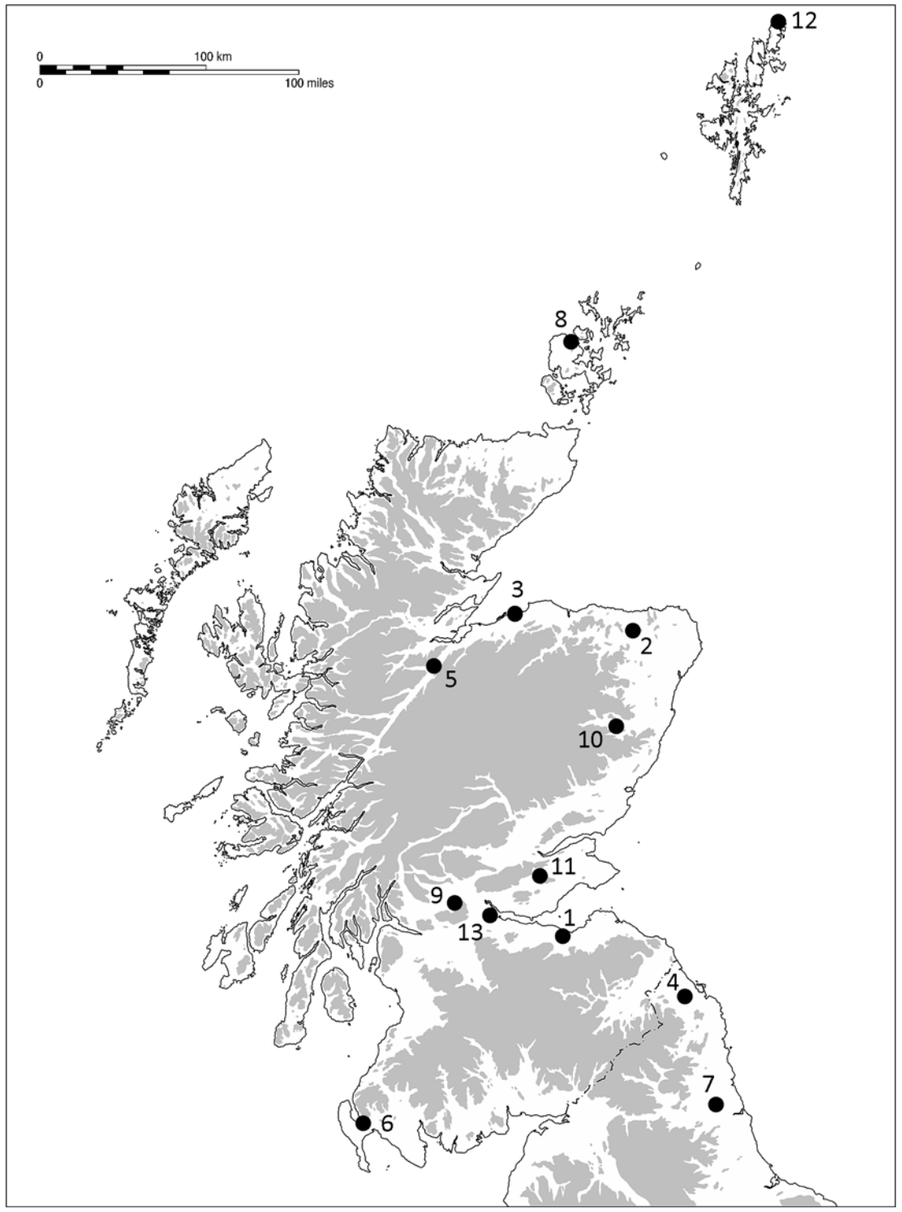

Fig. 1 - Distribution of pre-Flavian finds in northern Britain (north of the later line of Hadrian's Wall). (Image: author)

suggests these may be people who were clients of Rome (Foster 1986; Creighton 2000). We have no such discoveries to deal with here; there is a general lack of burials in the Scottish Iron Age, but the evidence from site and stray finds shows no substantial Roman contact (measurable in artefacts) before the Flavian invasion. Fig. 1 maps finds which can be dated typologically to the pre-Flavian period; they are listed in Tab. 1. Many are strays, though some come from settlements, one from a burial, and two are certain or likely votive deposits.

The material is diverse (Fig. 2): two sites with wine amphorae fragments, six with brooches, three with

Findspot	Region	Object	Context	Reference
1. Arthur's Seat	Midlothian	Finger ring with gem of Alexander the Great	hillfort	Henig 1970; Stevenson 1970
2. Cairnhill, Monquhitter	Aberdeen	Intaglio of dancing satyr	votive / cairn	Stevenson 1967; Henig 2007, 113 no 178
3. Culbin Sands	Moray	Glass vessel with marvered blobs	stray	Ingemark 2014, 40-43, 250
4. Dod Law West	Northumberland	Hod Hill and Aucissa-derivative brooches	hillfort	Allason-Jones 1989
5. Dores	Highland	Aucissa brooch	stray	Curle 1932, 395, fig 36 no 1
6. Dunragit	Dumfries & Galloway	Aucissa-derivative brooch	open	Hunter 2021
7. East Brunton	Northumberland	Amphora sherd (Dr 2-4 or Haltern 70)	settlement	Bidwell 2012
8. Gurness	Orkney	Amphora sherd (Haltern 70)	broch	Fitzpatrick 1989
9. Leckie	Stirling	Glass vessel with marvered blobs; cast and lathe-turned glass cup	broch	Ingemark 2014, 40-43, 168, 256
10. Loch Kinord	Aberdeen	Glass perfume flask	votive	Ingemark 2014, 120-123, 251 (Hilary Cool (pers. comm.) considers this an early type)
11. Merlsford	Fife	Langton Down brooch	burial	Hunter 1996, 120-122
12. Norwick, Unst	Shetland	Nauheim derivative brooch	open?	Cambridge – Watt 2003
13. South Bellsdyke, Stenhousemuir	Falkirk	Birdlip brooch	stray	Britannia 52, 2021, 393

Tab. 1 - Pre-Flavian Roman finds from Scotland

glass vessels and two with gemstones. The brooches may seem fairly prosaic, although fibulae were little used in a local context (Hunter 2013), so such novelties probably had a cachet beyond their modern appearance. Glass finds were of more obvious significance: two unusual polychrome decorated vessels and a perfume flask, not uncommon in the Roman world but rare beyond the frontier in Scotland. The flask and the wine amphorae suggest attempts to introduce these northern groups to exotic substances.

Most remarkable are the two gemstones: one of a dancing satyr found unmounted in a cache of charms deposited in an older burial cairn at Cairnhill; the other, of Alexander the Great, still in its original iron ring, from a settlement on Arthur's Seat in Edinburgh. Both are of notably high quality; the former is late Republican in manufacture, the latter Augustan. They are normally seen as Flavian introductions, but this need not be the case; both would be entirely suitable as diplomatic gifts before the conquest. Indeed the overall finds distribution, sparse but widely scattered to the northernmost tip of Shetland, suggests the results of scouting or intelligence-gathering operations rather than down-the-line trade or a halo-effect around the province. The absence of any rich sites on current evidence is noteworthy: there is no northern equivalent of Stanwick in north Yorkshire, which was established as centre of a client kingdom from the time of Augustus, and characterised by its wealth of early imports (Haselgrove 2016).

Caveat and response

We must enter an important caveat here. The chronology is based on the production date of the object. In most cases we have no indication of its use-life and how long elapsed before it was deposited, though cautionary tales abound: for instance, Roman gems survive

Fig. 2 - Examples of pre-Flavian finds. – a Intaglio with image of Alexander the Great, Arthur's Seat, Edinburgh. – b Haltern 70 amphora sherd, Gurness, Orkney. – c perfume flask, Loch Kinord, Aberdeenshire. – d Aucissa brooch, Dores, Highland. (Images: National Museums Scotland except c, University of Aberdeen).

in quantity in Medieval settings (e.g. Cherry, Henig 2018), while Louisa Campbell and Colin Wallace have both warned of the likelihood of long lives and extended phases of fragmentation and reuse for samian (Wallace 2006a; Campbell 2016). This must always be borne in mind, but cannot readily be assessed when contextual data are sparse. However, the marked differences between the pre-Flavian and Flavian material, both also differing from the overall distribution of Roman finds from non-Roman sites, suggests there are meaningful chronological patterns; these finds are the interpretable residues of different processes. The general absence of pre-Flavian material from Flavian forts in Scotland also gives confidence that these are not derived from army heirlooms. (Objects such as *trullae* of P. Cipius Polybius, for instance, are ignored; while pre-Flavian in production, their association with Flavian sites at Cardean (Angus) and Barochan (Renfrewshire) clearly shows their use into the Flavian period; Petrovszky 1993, 232–233, C.22.37, C.22.39).

The character of Flavian contact

Site	Roman finds	Demolished?	Later activity?	Reference
Edinshall (Borders)	None	no		Dunwell 1999
Tappoch (Stirling)	None	no		Cook *et al*. 2020
Coldoch (Stirling)	None	no?		Graham 1949, 12-14
Torwoodlee (Borders)	Flavian	yes	Possible (later burial)	Piggott 1951
Fairy Knowe (Stirling)	Flavian	yes	no	Main 1998
Castle Craig (Perth)	Flavian?	yes	no	Poller in prep
Hurly Hawkin (Angus)	Flavian?	yes	yes	Taylor 1982
Leckie (Stirling)	Flavian +?	yes	yes	MacKie 2016
Bow (Borders)	Not closely datable	yes?	no	Curle 1892, 68-70; Robertson 1970, table II

Tab. 1 - Key aspects of excavated lowland brochs in east and central Scotland.

Fig. 3a plots the distribution of typologically Flavian (or Flavian-Trajanic) finds against a greyed-out backdrop of all Roman finds from Iron Age sites in Scotland. This emphasises a point made by Anne Robertson (1970) and by Lesley Macinnes (1984), that first-century finds are rarer than second-century ones. Fig. 3b shows the earlier finds alone to make the distribution clearer. Two further points emerge: the distribution is firmly concentrated in southern and central Scotland, almost exclusively within the area of Flavian occupation; and it shows five clear clusters, in marked contrast to the broader and more general spread seen in the overall pattern. Roman contacts in the Flavian period were directed within, not beyond, the newly-occupied territory, and were strongly targeted to what must have been key regions.

If one looks at the range of finds from individual sites (a technique devised to compensate for varying scales of excavation by using indicators rather than absolute numbers; Hunter 2001), we see a clear pattern (Fig. 4). Most sites have only a small finds range, and only a very few have a larger range (taken here as four or more categories). The seven richest sites are plotted on Fig. 3b. Most finds clusters contain one rich site, suggesting they represent a single focal place within an area which was a target of contact, but the Forth valley shows more rich sites, suggesting a more competitive social environment.

What was the character of these rich sites? All except one were single large households: the crannog (artificial island) of Hyndford, and a series of lowland brochs. The broch was the classic form of Iron Age architecture in Atlantic north and west Scotland, a circular drystone house, the best of which were tower-like, reflecting virtuoso architectural skills (Armit 2003; Romankiewicz 2011). As Macinnes (1984) argued, their arrival in southern Scotland is best seen as deliberate adoption of an exotic architectural form for status purposes. Lowland brochs merit wider review, but this is not the place for it (see Cook *et al*. 2019). For present purposes the brochs of south-west Scotland are separated from this group, as they are part of a wider tradition of Atlantic architecture in these areas (Cavers 2008).

Many of the lowland brochs have other indicators of an exclusive social position, such as restricted craft skills, local prestige materials such as Celtic art, or unusual imports like amber. Such brochs were not just a Roman Iron Age phenomenon. Tab. 2 lists excavated examples in east-central Scotland; of the three at the top of the list, two (Edinshall and Tappoch) have seen extensive excavation, and the absence of Roman finds is marked. It suggests a pre-Roman floruit for these; lowland brochs were not just linked to Roman contact.

Thus, six of the seven rich sites are wealthy individual households. They often sit among a cluster of sites with smaller numbers of finds, suggesting local redistribu-

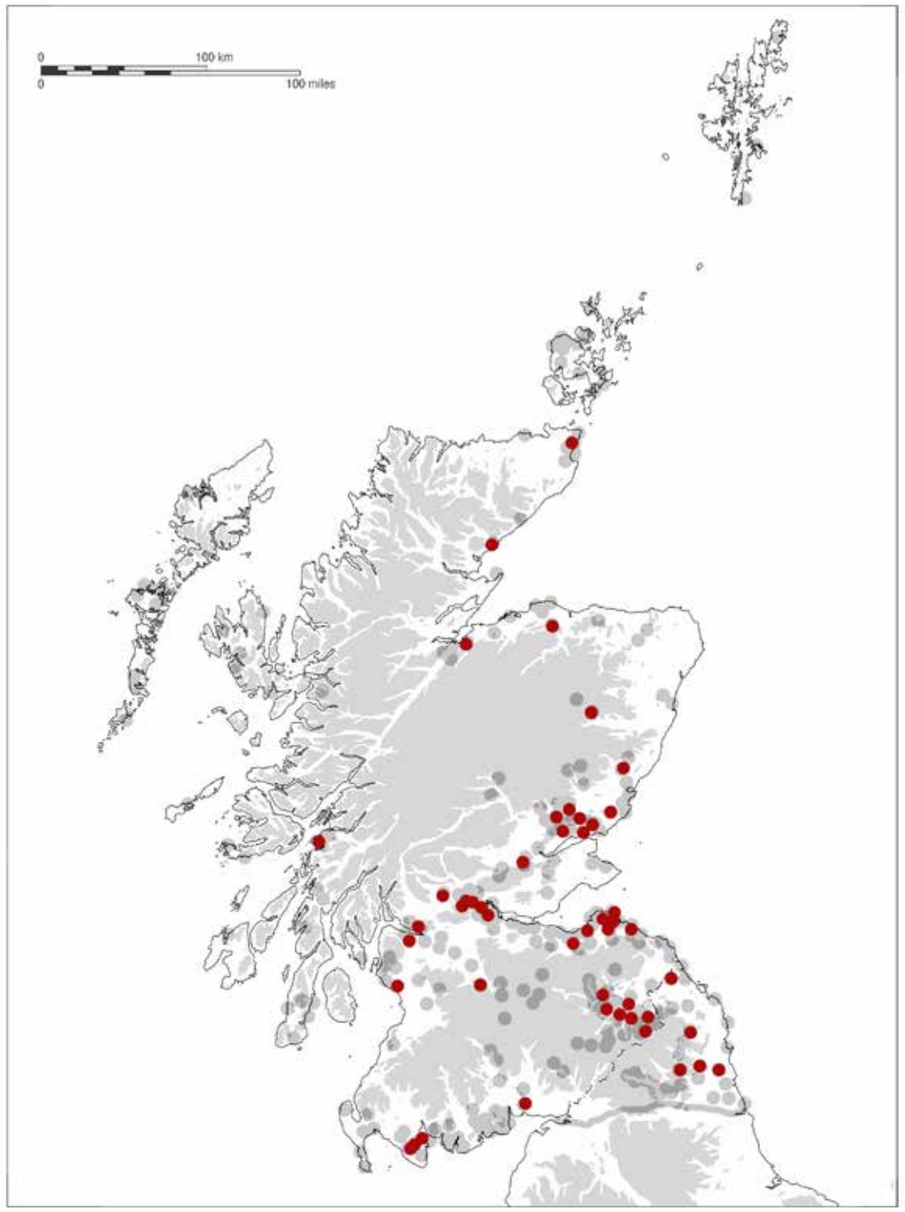

Fig. 3a - Distribution of Flavian finds from Iron Age sites north of Hadrian's Wall, against backdrop of all Roman finds from Iron Age sites. (Image: author)

tion networks. The seventh site is quite different: the major hillfort of Traprain Law in East Lothian, an area where no lowland brochs are known. This suggests a different kind of society in this area, controlled by a larger powerful group rather than single households. There is no evidence Traprain was significant in the immediately pre-Roman period – it shows no early imports – but it became a site of habitual and apparently friendly contact with Rome from the Flavian period onwards (Hunter 2009), though most of the material dates from the second-fourth centuries.

The character of finds

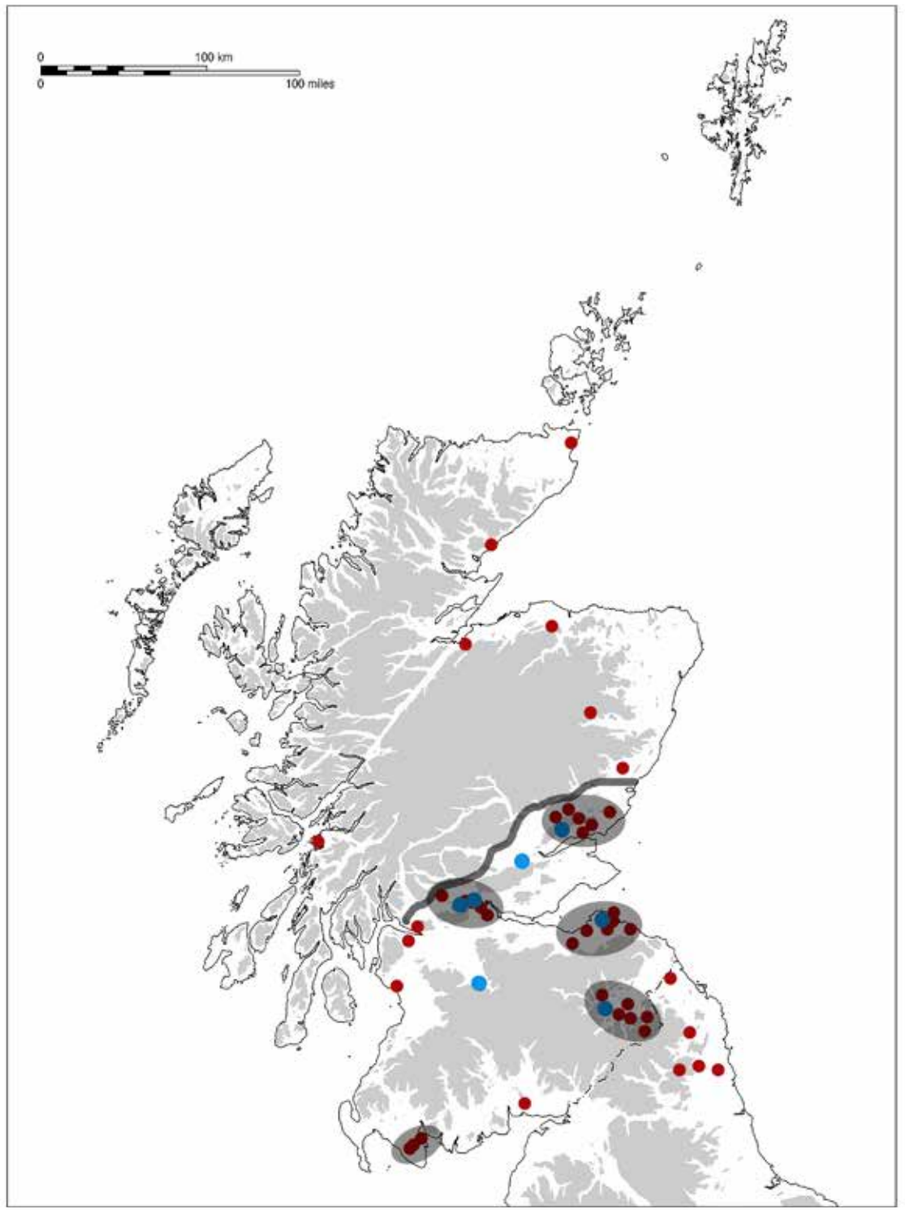

Fig. 3b - Distribution of Flavian finds from Iron Age sites north of Hadrian's Wall. Flavian finds only, with clusters indicated and rich sites highlighted in blue. The extent of the Flavian occupation is marked. (Image: author)

Fig. 5 illustrates the frequency of different types of finds. This conforms to broader patterns noted previously (Hunter 2001): local Iron Age sites wanted Roman feasting equipment and personal ornaments, adopting material which fitted indigenous social practices. There are some distinctive features: Colin Wallace (pers. comm.) has noted that the pottery spectrum is broader than on second-century sites, with a wider range of coarse and finewares, not just samian. (This is true of the lowland brochs, but interestingly not of Traprain, where Campbell's (2012) analysis indicated the non-samian pottery was overwhelmingly second century or later.)

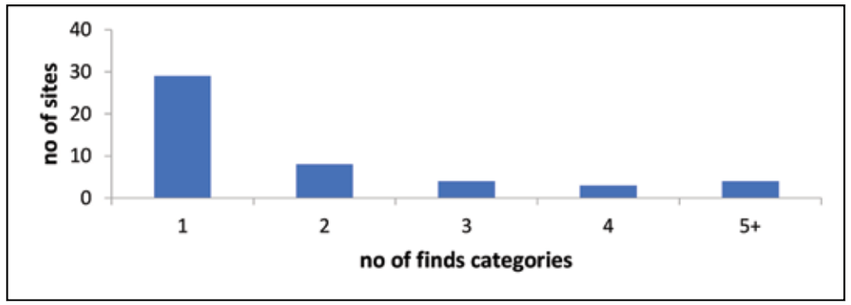

Fig. 4 - Bar chart of numbers of find categories per site (see table 3 for data).

Another noteworthy feature is the presence of Flavian militaria on five sites (Traprain Law; Hurly Hawkin; Leckie; Fairy Knowe; Dun an Fheurain; Hunter 2009, 230-231 and n. 33, Fig. 21.3; Taylor 1982, Fig. 6 no. 26; MacKie 2016, Fig. 4.4.10; Main 1998, 357, illus. 27 no. 451; Ritchie 1971, Fig. 2 no. 8). While the numbers are small, they are exceptional compared to later periods, when militaria is all but unknown.[1] All the finds consist of cavalry harness apart from the Fairy Knowe javelin butt (which could readily be a cavalry weapon), and it seems plausible that this represents people who had served in Roman cavalry units, returning home with some tack from their service (cf. Nicolay 2007). This idea of locals serving in the Roman army is consistent with another phenomenon: local-style swords and scabbards occur on Roman sites in the Flavian period, but are unknown after c. AD 100 (Hunter 2016).

The rise and fall of lowland brochs

Tab. 2 also considers evidence for the fate of the lowland brochs. It is notable that no putatively early sites show certain evidence of demolition, but those with Roman finds were consistently destroyed. All show certain or probably evidence for demolition, in some cases with associated burning horizons. The consistency indicates a pattern.

Examples with diagnostic finds (four of the five) consistently show Flavian material. More problematical is the question of when they might have been destroyed. Since Macinnes' (1984, 236–238) review of dating, more have been published. Three brochs show no evidence of Antonine material, and at a fourth, Hurly Hawkin, it occurs in post-broch contexts; in these cases, it seems the broch was destroyed before the Antonine advance. The apparent exception is Leckie, a fascinating and challenging site with a long history of Roman contact. The excavator used the presence of two Antonine samian sherds and a Hadrianic one in the destruction deposits to argue it was destroyed in the context of the Antonine reoccupation of Scotland; a secondary structure built over it also produced Antonine pottery (MacKie 2016, 15–16). At face value this seems a clear sequence, but the Roman finds need more sustained consideration than is possible here. There are more Roman finds in the assemblage than the report noted, and their very variable condition suggests a complex taphonomy: some pottery sherds are fresh, for instance, while others were worn and reused, and graffiti on one suggests second-hand material. Work is in hand to consider this more fully; for the moment, we may note an absolute dominance of Flavian material in levels related to the broch. It may be unwise to rely on only three sherds to date the end of this phase, given other indications of both residual material in the sequence (such as pre-Flavian material in supposedly mid-second-century contexts of phase 3c) and intrusive items (such as a late Roman find from the same phase).

These lowland brochs were thus focal points of contact in the Flavian period, growing rich on Roman support, but in most if not all cases they did not long survive the Flavian withdrawal. Their violent collapse suggests a fast-changing political situation. Roman contact may have been beneficial at times of close contact, but after the withdrawal of the army (and thus of Roman

[1]It is found only at Traprain Law (Antonine scabbard chape, late Roman belt fittings; Hunter 2009, 230–234, Fig. 21.5), and a stray Antonine cavalry fitting near Tap o'Noth hillfort, Aberdeenshire (Curtis, Hunter 2006, 212–213).

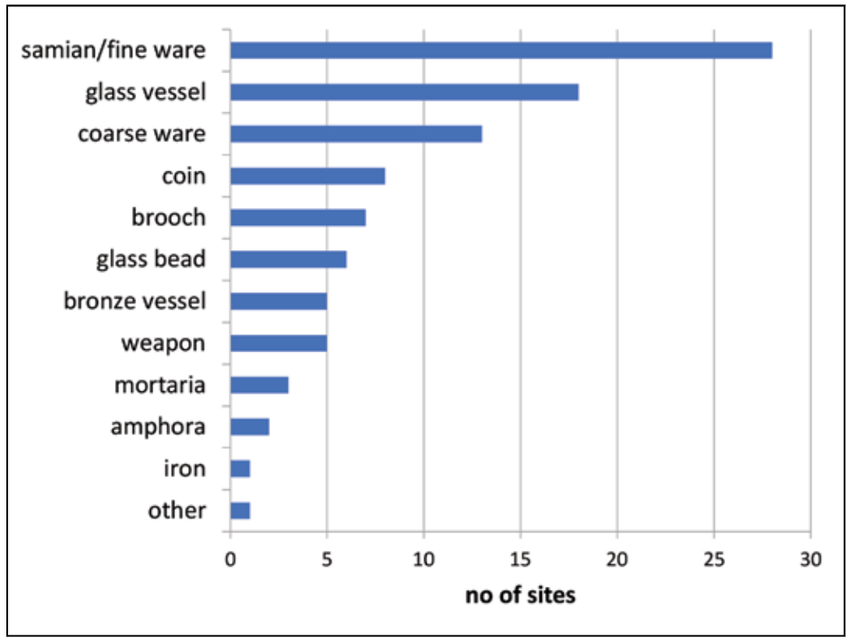

Fig. 5 - Frequency of different categories of Flavian finds, indicating the number of sites on which they are represented (not the total number of finds). (Image: author)

patronage), these households may have found themselves dangerously exposed – viewed with suspicion, perhaps, in the charged aftermath of what had been a brutal invasion. The majority were not reoccupied, but both Leckie and Hurly Hawkin show Antonine contact as well, although in the latter case at least this seems to post-date the broch.

Conclusions

Reappraisal of old and new data has allowed a much clearer view of the nature of first contacts in northern Britain. Evidence of pre-Flavian (pre-conquest) contact is rare but notably widespread, consistent with Roman explorations aimed at building relations and assessing the nature of the land and its people. Material securely of Flavian date is more abundant and shows a very different distribution. The vast bulk is concentrated within the area of occupation, suggesting the key concern was finding ways to hold down the freshly conquered territory. Clear hotspots within the distribution (in contrast to the Antonine period) indicate targeting of particular areas and groups. The finds concentrate on high-visibility households (especially on architecturally unusual sites such as the massive stone-built lowland brochs), and on the hillfort of Traprain Law which came to play such a key role in relations with the Roman world. The focus on feasting gear and, to a lesser extent, personal ornaments represents the two social arenas which were most locally desirable. Finally, some of these favoured groups (notably many of the lowland brochs) met a catastrophic end. It suggests fairly brutal means of resolving tensions which had developed in local society between groups who had found Rome's favour, and grown rich on this, once the protection of Rome was withdrawn.

Appendix: *Iron Age sites with Flavian finds in Scotland and north Northumberland*

Site	Region	Type	Finds	Tally	Ref
Castle Newe	Aberdeen	souterrain	Coin; ?glass bead	1-2	Robertson 1970, table IV
Dalladies	Aberdeen	unenclosed	Samian; coarse ware	2	Watkins 1980, 157; Wallace 2006b, table 1
Dunnicaer	Aberdeen	promontory fort	Glass	1	Noble *et al*. 2020
Ardownie	Angus	souterrain	Samian; ?CuA (vessel)	1-2	Wallace 2006a
Auchlishie	Angus	souterrain	Samian	1	Wallace 2006a, table 1
Dundee Law	Angus	hillfort	Samian	1	Leslie 1995
Hurly Hawkin	Angus	broch	Samian; coarse ware; CuA (militaria, vessel)	4	Taylor 1982, 225-244 nos 8, 24(?), 26, 183, 187, 208, 209
Tealing III	Angus	souterrain	Glass	1	Ingemark 2014, 254
Dun Fheurain, Lorn	Argyll & Bute	fort	Samian; CuA (militaria)	2	Ritchie 1971, 107-108, fig 2 nos 2 & 8
Crock Cleugh	Borders	enclosure	Glass	1	Ingemark 2014, 267
Falla Knowe S	Borders	homestead	Coins	1	Bateson, Holmes 1997, 533 (termed Middleknowes and not recognised as Iron Age)
Hirsel	Borders	?	Samian; ?coarse ware	1-2	Bidwell 2014
Kippilaw Mains	Borders	enclosure	Samian	1	DES 1999, 74
Longnewton Mill, Ancrum	Borders	enclosure	Samian	1	DES 2003, 114
Rink	Borders	fort	CuA (brooch)	1	Robertson 1970, table 1
Torwoodlee	Borders	broch	Samian; coarse ware; amphora; mortaria; coins; glass; ?CuA (brooches)	5-7	Piggott 1951 & recent Treasure Trove finds (including AR of Domitian, AD 92-95)
Boonies	Dumfries & Galloway	enclosure	Coarse ware	1	Jobey 1974, 135
Castle Loch Mochrum	Dumfries & Galloway	island	Coarse ware	1	Ralegh Radford 1950, 60, no. 8
Cruggleton	Dumfries & Galloway	fort	Brooch	1	Caldwell 1985, 64
Dowalton	Dumfries & Galloway	crannog	Samian; bronze vessel; ?bead	2-3	Robertson 1970, table III
Broxmouth	E Lothian	hillfort	Samian	1	Campbell 2013
Craig's Quarry, Dirleton	E Lothian	fort	Samian	1	Robertson 1970, table I
Knowes	E Lothian	enclosure	Samian	1	Willis 2009
Traprain Law	E Lothian	hillfort	Samian; glass; coins CuA (militaria)	4	Hunter 2009
Whitekirk	E Lothian	house	CuA (brooch)	1	Robertson 1970, table V
Edinburgh Castle	Edinburgh	hillfort	Samian; coarse ware; ?glass	2-3	Driscoll, Yeoman 1997
Prestonpans, Edinburgh Rd	Edinburgh	enclosure	Coarse ware	1	DES 2001, 37 (revised identification by C Wallace)
Everley	Highland	broch	Samian; glass	2	Robertson 1970, table II; Ingemark 2014, 248-249
Foulis	Highland	unclear	CuA (brooch)	1	DES 2016, 110
Seafield West	Highland	enclosure	CuA (brooch)		Cressey, Anderson 2011
Birnie	Moray	unenclosed	Glass; coin	2	Ingemark 2014, 250-251; Hunter in prep.
Fawdon Dene	Northumberland	settlement	Coin	1	P. Carne, pers. comm.
Gubeon Cottage	Northumberland	settlement	Glass?	1	Jobey 1957, 179
Huckhoe	Northumberland	settlement	Coarse ware	1	Gillam 1959, 256 nos 6-8
Murton High Crags	Northumberland	settlement	Samian	1	Jobey, Jobey 1987, 181-182
West Whelpington	Northumberland	settlement	Glass	1	Jarrett 1962, 219; Ingemark 2014, 269
Castle Craig Auchterarder	Perth	broch	Samian; ?glass; ?CuA (vessel, tools); ?beads	1-4	Poller in prep.
Shanzie	Perth	souterrain	Samian	1	Coleman, Hunter 2002, 90, 94
SW Fullarton	Perth	?	Coarse ware	1	Strong 1985, 218
Braehead	Renfrew	enclosure	Fine ware	1	Dore 2007
Gourock Burn	S Ayrshire	roundhouse	Samian; mortarium; ?glass	2-3	Robertson 1970, table I; Hendry 2020
Hyndford	S Lanark	crannog	Samian; coarse ware; glass; bead	4	Robertson 1970, table III
Castlehill Wood	Stirling	dun	Glass	1	Robertson 1970, table II
Easter Moss, Cowiehall Quarry	Stirling	souterrain	Samian; glass	2	Information from C. Wallace, H. Cool
Fairy Knowe	Stirling	broch	Samian; coarse ware; amphora; mortaria; glass; coin; Fe; ?CuA (brooches)	7-8	Main 1998
Keir Hill	Stirling	roundhouse	Fine ware; ?glass; ?glass bead	1-3	Cook *et al*. 2018
Leckie	Stirling	broch	Samian; coarse ware; glass; coins; CuA (militaria; vessel); ?beads	5-7	MacKie 2016
Dumbarton Rock	West Dunbarton	hillfort	Samian	1	Alcock *et al*. 1992, 293 no. 30

Tab. 3 - Sites with Flavian/early Trajanic finds (arranged alphabetically by region). Only sites with material certainly of this period are included; material not intrinsically closely datable but likely to be Flavian in the absence of later finds, is marked as ? 'Tally' is the number of categories listed under 'finds'

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Zusammenfassung

Obwohl die römische Armee bereits im Jahre 43 n. Chr. in Britannien einmarschiert war, finden sich wenige Funde, welche auf Kontakte mit dem Gebiet des heutigen Schottlands hinweisen, bevor dieses dann in flavischer Zeit besetzt wurde. Nur dreizehn Fundorte mit Material aus vorflavischer Zeit sind bekannt, aber diese beinhalten einige eindrucksvollen Gemmen, sowie Fragmente von Weinamphoren, Glassgefäßen und Fibeln. Diese finden sich selbst auf den nördlichen Inseln, was zu bedeuten scheint, dass römische Kontakte im Vorzuge der Eroberung diese Inseln gezielt ins Visier genommen hatten. Im Kontrast dazu konzentriert sich flavisches Material auf eisenzeitlichen Siedlungen innerhalb der dann eroberten Gebiete. Es häuft sich in bestimmten Gegenden, besonders an scheinbar politisch einflussreichen Plätzen. Viele dieser Siedlungen stechen durch ihre spektakuläre Architektur hervor – die Steintürme, die als brochs bezeichnet werden, stellen eine für diese südschottische Regionen exotische Architekturform dar. Er scheint, dass die meisten dieser Orte nach dem flavischen Rückzug zerstört wurden, was bedeuten könnte, dass bestimmte Gruppen durch Rom reich und einflussreich

geworden waren, diese Position aber nicht lange halten konnten, nachdem Rom die Bevorteilung dieser Orte aufgegeben hatte.

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The rationale behind the Roman military deployment in NW Iberia during its initial phase (2nd to 1st c. BCE)[1]

ABSTRACT

The discovery of new Roman military sites in northwestern Iberia in recent years has contributed significantly to diversifying our field of study. Driven by the availability of new open geospatial datasets, the discoveries have been made quickly, so there has not yet been time for a comprehensive analysis and reflection.

The study of morpho-typological and local aspects helps to understand better the logic that motivated the construction of these field fortifications, as well as to detect the factors that may have had a determining influence on the adoption of different practical solutions. GIS analysis (visibility, mobility, etc.) can help us identify the dynamics that guided the deployment of the Roman army in the same territory in a diachronic manner.

These approaches provide us with useful information to understand the role played by the Roman army in NW Iberia and clarify how the interaction between this imperial agent and the different indigenous populations was articulated during the first phases of the occupation. Given the diversity manifested by the Late Iron Age societies in this vast region (from Cantabria to Galicia), a certain degree of heterogeneity in the actions of the Roman army is to be expected. However, does the static picture of this process reflect ancient realities, or is it the result of historiographical bias?

Key Words: Roman army, camps, NW Iberia, settlement patterns, remote sensing, GIS analyses

[1]Research reported in this publication is an outcome of a postdoctoral research project funded by the Galician Autonomous Government (Xunta de Galicia) under award number ED481B 2016/117-0. In order to respect the original spirit of the publication (submitted on May 2019), only grammatical and typographical changes have been made. The author considers the ideas and theories presented in this paper still valid. However, archaeological research has advanced considerably in the study area in the last four years and he strongly recommends that readers consult recent literature on the topic. Given the spatial limitations of this contribution, those parts where new or relevant archaeological information has been published are marked with an asterisk (*).

1.- The times they are a-changin´

A few decades ago, any external observer could reasonably believe that Roman military studies in NW Iberia were a research topic condemned to stagnation. The prevailing narratives about the conquest and occupation of these territories had been provided by historians trained in an already outdated classicist tradition, while archaeologists kept flying in circles around the few permanent fortifications discovered to date[2]. The development of urban archaeology and the systematic survey of the eastern Cantabrian Mountains significantly contributed to breaking this dynamic in the 1990s. The former set the foundations for a better knowledge of the permanent fortifications in the *longue durée*, helping to reconstruct the evolution of the military deployment between the late 1st c. BCE and late 3rd c. CE.[3] The latter made it possible to archaeologically trace one of the episodes most debated by historians: the Augustan campaigns against the *Cantabri* and *Astures* (29-19 BCE)[4]. By the mid-2000s, several new camps and temporary installations had been discovered following this impetus[5].

More recently, the increasing incorporation of remote sensing techniques and new geospatial datasets (aerial and satellite imagery, airborne LiDAR, etc.) has had a significant impact on this field of study (Fig. 1)[6]. Far from causing a mere accumulation of homogeneous information, this "digital revolution" has contributed to the exponential diversification of our research topic, allowing us to catch a glimpse of realities simply unknown to us some years ago. However, the "discovery frenzy" has left very little room for the analysis and reflection on the data gathered all together, let alone the development of innovative narratives based on them.

In this sense, it is worth emphasizing an obvious statement: the Roman army did not move through empty spaces. In fact, it actively interacted with indigenous societies, which showed different social, cultural and political traits within the region; a portrait of diversity constantly depicted by Late Iron Age researchers[7]. This aspect surely had a direct impact on how they interacted with Rome, from resistance to resilience[8]. Somehow, Roman military Archaeology in Iberia has tried to build its own narratives without seriously considering this reality.

2.- Methodology and goals

This paper aims to briefly assess the archaeological evidence related to the Roman military presence in the territories the classical sources assign to *Cantabri*, *Astures* and *Callaeci* in order to identify patterns of serializable behaviour that could be translated into useful historical information. The methodology, already described in previous works[9], tries to obtain new data through the extensive use of GIS analyses. The study of aspects such as the morphology, defensive system or locational pattern of the Roman military sites allows us to to understand better the rationale behind their construction as well as to detect some of the agents which could have caused the adoption of locally adapted solutions. The implementation of visibility and mobility analyses can help us identify the dynamics of the Roman military deployment in a given territory through time. These approaches could not only provide useful data about the actual role played by the Roman army deployed in NW Iberia, but also contribute to clarifying the nature of the interaction between these imperial agents and the local population during the early stages of the Roman presence in the area.

3.- Fossilised Violence

Since the initial discoveries took place in the mid-1990s[10], the archaeological study of the Roman military presence in the territories of modern-day Cantabria and northern Castile has come a long way (Fig. 1.1)[11]. After two decades of research, Archaeology offers a vivid account of the conquest of these mountainous territories in Augustan times (26-19 BCE) which is consistent with the story transmitted by classical authors[12]. Undoubtedly, the Romans not only dismantled the indigenous population's traditional forms of organisation but practically exterminated them[13]. This episode had a relevant impact on the geopolitical scenario that emerged after the conquest[14].

[2]Morillo, Martín 2005
[3]Morillo 2009
[4]Camino *et al.* 2007; Peralta 2002
[5]Camino *et al.* 2015
[6]Costa 2018a
[7]González Ruibal 2012
[8]Marín, González 2011
[9]Costa 2017; 2018b
[10]Peralta 1999

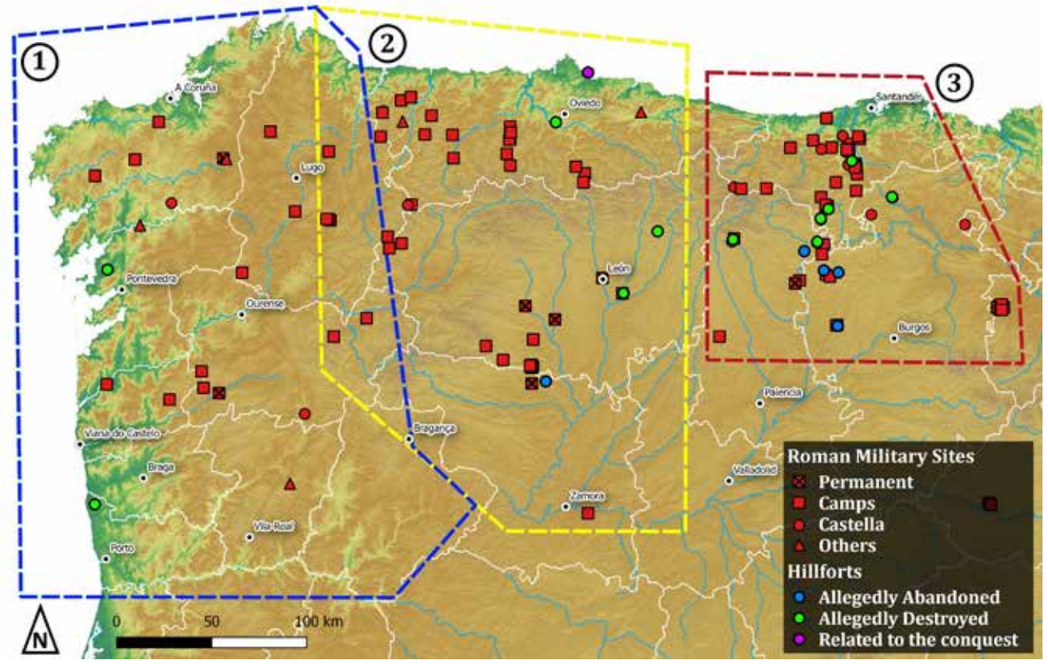

Fig. 1 - Roman military presence in Northern and North-western Iberia (May 2019).
Galician-Northern Portuguese (1), Asturian-Leonese (2) and Cantabrian-Northern Castilian (3) sectors.

After establishing its operational base on the Iberian northern plateau[15], the Roman offensive aimed to quickly reach the shores of the Cantabrian Sea by crossing the mountain ranges. In order to do so, the army had first to control the large *oppida* located on the southern slope of the Cantabrian Mountains. The siege and assault on the *castro* (hillfort) of La Loma (Palencia) reveal the thoroughness and brutal effectiveness with which the Roman commanders implemented this strategy[16]. In Monte Bernorio (Palencia), the outstanding preservation degree of the archaeological remains even allows to serialize the different phases of the assault on the *oppidum* from the camp

[11]Camino *et al.* 2015, 87–211
[12]Cass. Dio 53.25–29, 54.5, 54.11; Flor. 2.33; Vell. Pat. 2.90; Oros. 6.21
[13]Fernández-Götz *et al.* 2018
[14]Very few auxiliary units carried the ethnonym *Cantabrum* (Perea 2010), as opposed to those recruited among *Astures*, *Callaeci* or *Celtiberi* (Spaul 1994; 2000).
[15]Augustus' headquarters have been traditionally located in Sasamón (Burgos), where the remains of some temporary installations were documented in recent times (Didierjean 2015; García, Costa 2019) (*). The massive presence of structures in the vicinity of Herramélluri (La Rioja), on the upper course of the river Ebro, has also been linked with these campaigns (Didierjean *et al.* 2014).
[16]Peralta 2006

of El Castillejo[17]. In their violent advance northwards, the Roman columns crushed all opposition, and other important war scenarios have been documented at the indigenous sites of La Espina del Gallego (Fig. 2) and Santa Marina-Monte Ornedo (Cantabria)[18]. The *castro* of Las Rabas (Cantabria)[19] was also destroyed at this time, although the link between this episode and the neighbouring camps in La Poza is unclear (Fig. 3) [20].

To consolidate their advance, the Romans placed small outposts (*praesidia*, *castella*) within the already dislodged *castros* or in locations from which it was possible to have a wide visual control of the surrounding landscape[21]. The classical sources convey that the local population focused its loathing and anger on these enclaves as soon as Rome began to reorganize the land and demand tribute[22]. It was not until 19 BCE that the *Cantabri*, still fighting tooth and nail, were mercilessly subdued by *M. Vipsanius Agrippa*.

4.- Mastering the landscape

The Romans devised a similar strategy to subdue the *Astures* (25-22 BCE) (Fig. 1.2), but the natives anticipated this move and tried to surprise the invaders in their winter garrisons. This strategy would have been effective if not for the betrayal of the *Brigaecini*: an episode that reveals the *Astures* were not a homogeneous block but several tribes with a high degree of political autonomy[23]. After this initial crisis, it looks like the Romans neutralized the main *oppida* of the southern *Astures*. Unfortunately, we lack reliable archaeological evidence related to this initial phase of the conflict (*)[24].

To the north, in the mountains, the detection of Roman military settlements linked with traditional transit routes has been a constant trickle for the past two decades, being the sites of the Vía Carisa (Asturias/León) perhaps the best known of them all[25]. The camps of Picu L.lagüezos and Monte Curriel.los show very complex layouts, different from one another, probably resulting from a diachronic occupation of both sites. They also show a similar settlement pattern of sticking to summits from where they could control and even block the transit through the mountain route. More surprising is the pattern of Cuaña Carraceo, a small *castellum* which also controls the Carisa route, but at the cost of compromising its defensive position and close-range visibility against any recommendation in *castra metatio*[26].

Up to six enclosures have been discovered in the last decade following the Camín Real de La Mesa (Asturias) (Fig. 4)[27]. Some interesting behaviour patterns can be observed among this heterogeneous set. The large camps of El Xuegu la Bola and El Mouru (ca. 10 ha) place their rear at the highest point of the mountain range, drawing a square or trapezoidal layout downhill. This way, they clearly face and control the route, particularly to the north (Fig. 5). Slightly smaller in size, Cueiru is a more complex site. It shows a double enclosure facing south, so it may respond to regrouping and/or withdrawing of troops from the mountains. Rather than with a massive deployment of troops, Las Cruces and El Llauriezu appear to be related to rearguard actions or the seasonal control of the route. Quite interestingly, the visibility from these sites is complementary. Finally, Valbona is the most discordant -and doubtful-

[17]Brown *et al.* 2017

[18]Fernández, Bolado 2011

[19]Fernández *et al.* 2012

[20]Those supporting this hypothesis (Cepeda, Jiménez 2015) probably ignore that La Poza I and II are oriented toward the NW, while the hillfort is located to the NE of their position. Perhaps the archaeological features recently detected by LiDAR in the area could be liked with this episode (Hesse, Costa 2016)..

[21]Costa, Fonte 2017

[22]Cass. Dio 54.5.3, 54.11.2.

[23]Costa 2015. The Bierzo Edict (15 BCE), written after the conquest, also shows that some social groups took sides in favor of the Romans during the conflict Sánchez-Palencia, Mangas 2000.

[24]The written sources explicitly mention the assault on *Lancia* (Flor. 2.33.57–58; Cass. Dio 53.25.8; Oros. 6.21.10), Around Villasabariego (León) some traces of military presence were documented via aerial photography (Didierjean 2015). More recently, LiDAR data has revealed structures that could be linked with a Roman assault on the oppidum of Las Labradas (Zamora) (Hierro *et al*. 2020).

[25]Camino 2015; Camino, Martín 2015; Martín, Camino 2018

[26]Costa 2018b

[27]González Álvarez *et al.* 2011-12; Martín 2015; Menéndez *et al.* 2018

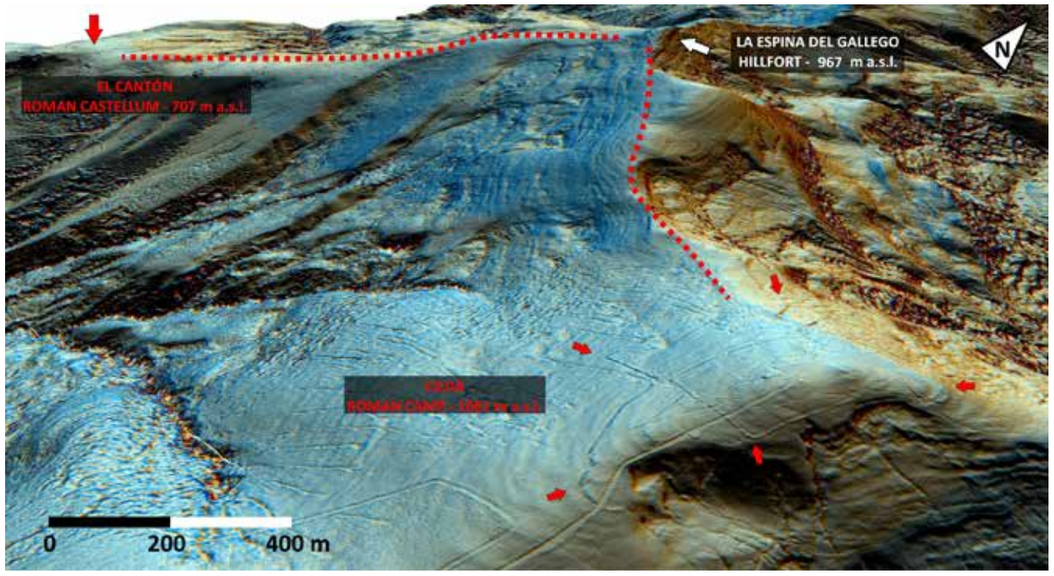

Fig. 2 - The assault on la Espina del Gallego. 2.5D LiDAR-derived visualization (2012). Note how the Romans effectively blocked the routes giving access to the hillfort from the South. © Author (based on data provided by Peralta 2011)

element of the set, showing an anomalous settlement pattern and a minimal range of visual control.

Further west, five sites have been detected following an analogous pattern in the mountains of Peneda-Ouroso (Lugo/Asturias)[28]. Three of them (A Penaparda, El Pico el Outeiro Zarrado, A Pedra Dereta) show a similar extension (ca. 10 ha) and a tendency to build up a rectangular defensive perimeter. El Chao Carrubeiro, half their size, follows a previously documented settlement pattern (Fig. 6): the rear is placed at the highest point and the vanguard faces a point of interest. In this case, the transit across the neighbouring range. Finally, a small *castellum* on the top of El Pico el Outeiro Zarrado could reveal a diachronic occupation of the route and its seasonal, more static control.

One last area around the Serra dos Ancares (Lugo/León/Asturias) could be linked with the Augustan campaigns against the *Astures*. Some fortifications different in size (4-12 ha) and morpho-typology have been documented here (A Serra da Casiña, A Cortiña dos Mouros, As Penas de Perturexe), all of them in the vicinity of mountain passes[29]. To the west, three camps showing a similar size range (4-13 ha) were detected on A Chá de Santa Marta plateau[30], in what could have been a logistical centre of first importance at the foot of the mountain massif. To the northeast, the camp of A Granda das Xarras (León/Asturias) and the *castellum* of A Recacha (Lugo), very close from one another, have been dated before the change of era[31]. In the eastern sector of the mountain massif, there have also been important discoveries in recent years[32].

In short, some recurrent behaviours were detected in this area: mobility following the mountain ranges, concern about controlling the transit across mountain routes, and quite consistent settlement patterns for camps and *castella* -despite some notable exceptions. It is also remarkable the virtual absence of the native population in this archaeological account. It has been impossible yet to find a single archaeological scenario

[28]Menéndez *et al.* 2013; 2015

[29]Vidal *et al.* 2018

[30]Costa *et al.* 2018; Orejas *et al.* 2015

[31]Orejas *et al.* 2015; 2018

[32]Menéndez *et al*. 2020

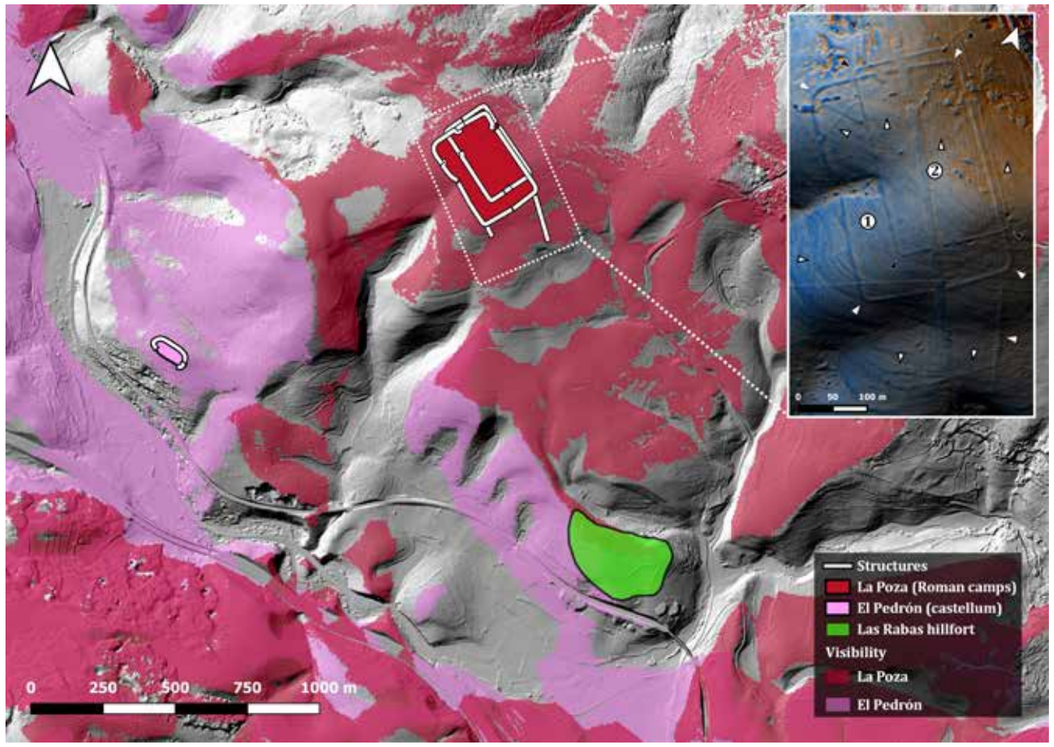

Fig. 3 - A controversial connection. LiDAR-derived DTM (2012). Even if the visibility analyses might indicate a joint action from the Roman military sites against the indigenous settlement, the fortifications turn their backs to the indigenous settlement. © Author (based on data provided by Cepeda - Jimenez 2015).

where the connection between Roman military presence and Late Iron Age sites is explicit[33]. The different settlement patterns shown by camps and hillforts, and the weight of scholarly traditions focused on studying strict historical periods instead of formulating diachronic, Landscape-based research questions have undoubtedly influenced this matter.

5.- The void to be filled

Apart from offering some approximate dates (roughly *ca*. 138-29 BCE), historical research has not yet proposed a solid periodisation of the conquest of Galicia and Northern Portugal (Fig. 1.3). The paucity of mentions of this process in the written sources[34] and the lack of archaeological evidence that could be related to it[35] have been a major obstacle to overcome. Although Archaeology must lead the construction of innovative narratives, we are still handling unconnected and poorly contextualized data to a great extent.

Some sites located in eastern Galicia have already been mentioned in connection with the Augustan campaigns against the *Astures*. Considering their proximity to this war scenario, the large camps (8-13 ha) of O Monte de Ventín and O Monte dos Trollos (Lugo) could perhaps

[33]The abandonment and even destruction of some Iron Age *castros* before the end of the 1st c. BCE has been linked with Roman military operations -i. e. Llagú (Berrocal *et al.* 2002)-, but the evidence is still fragmentary if not merely circumstantial. The battle scenario in the surroundings of Monte Curriel.los was discarded by their own theorists a long time ago (Camino 2015 *contra* Camino *et al.* 2005).

[34]The campaigns of D. Iunius Brutus (138-137 BCE) (App. *Hisp*. 71–74; Strab. 3.3.1, 4; Flor. 1.33.12; Liv. *Per*. 55–56; Oros. 5.5.12; Val. Max. 6.4), P. Crassus (97-96) (Strab. 3.5.11) and C. Iulius Caesar (61-60 BCE) (Cass. Dio. 37.52–53; Suet. *Caes*. 18.1; App. *Hisp*. 102; Plut. *Vit. Caes*. 11–12) are briefly addressed. Except for a problematic passage of Orosius (*Hist*. 6.21), no ancient source links the *Callaeci* with the Augustan campaigns, so it has been commonly assumed that the area was already conquered by then (Morillo 2016).

[35]Costa 2018a, Costa *et al*. 2019

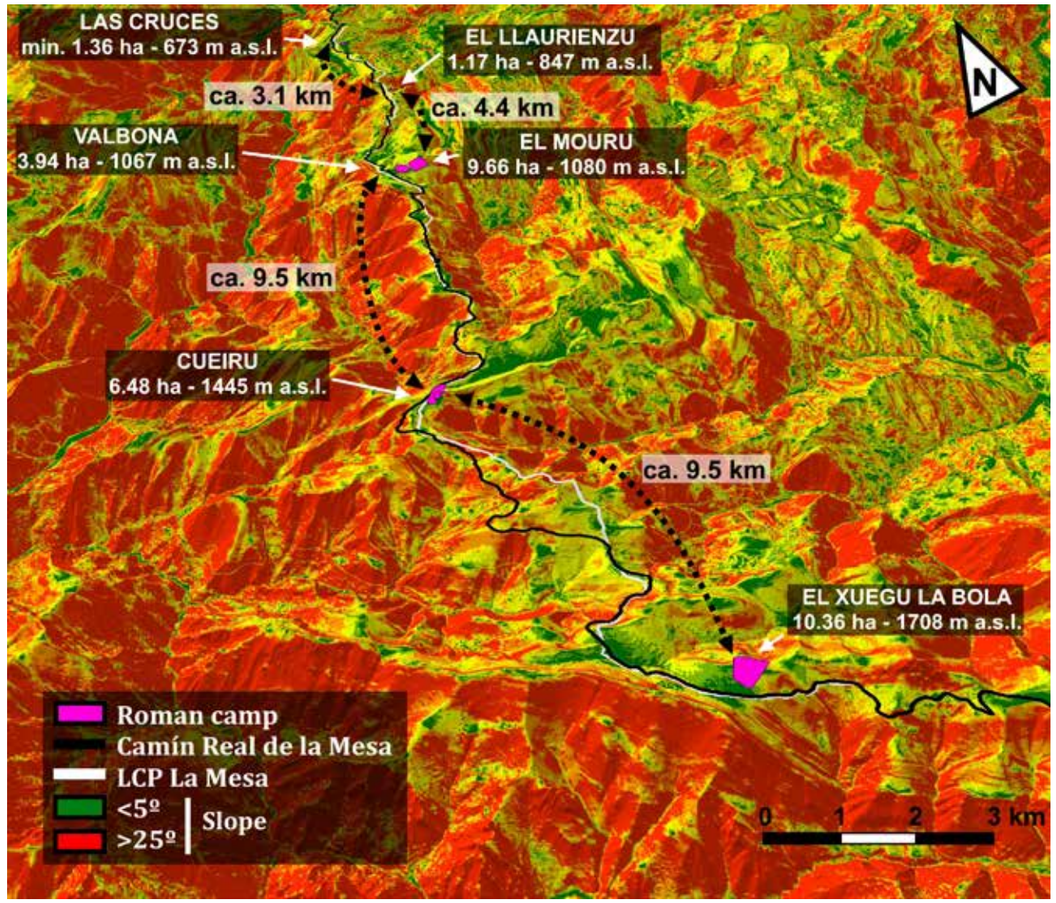

Fig. 4 - Roman military presence along the Camín Real de la Mesa (official route as recorded by Heritage Management Bodies -black- and GIS Least Cost Path -LCP, white-). 2.5D LiDAR-derived slope shade visualization (2010). Quite interestingly, no indigenous hillforts have been located at this altitude. © Author

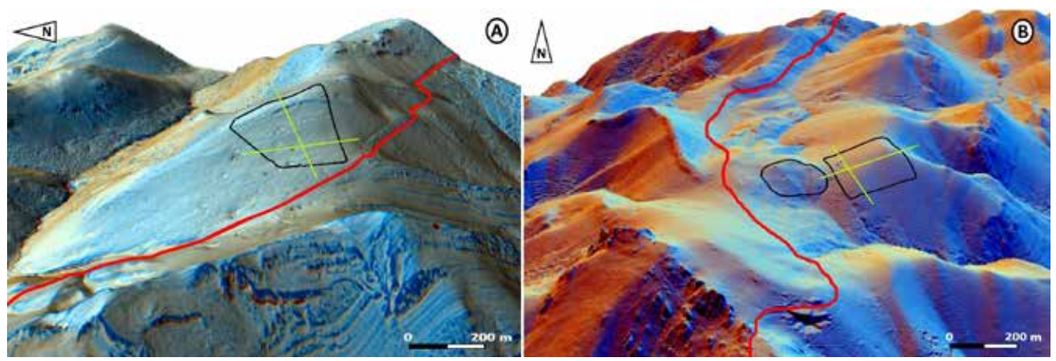

Fig. 5 - Facing a point of interest. 2.5D LiDAR-derived visualization (2010). El Xuegu la Bola (A) and El Mouru (B) show an identical settlement pattern: the porta praetoria is oriented towards the Camín Real de la Mesa. © Author

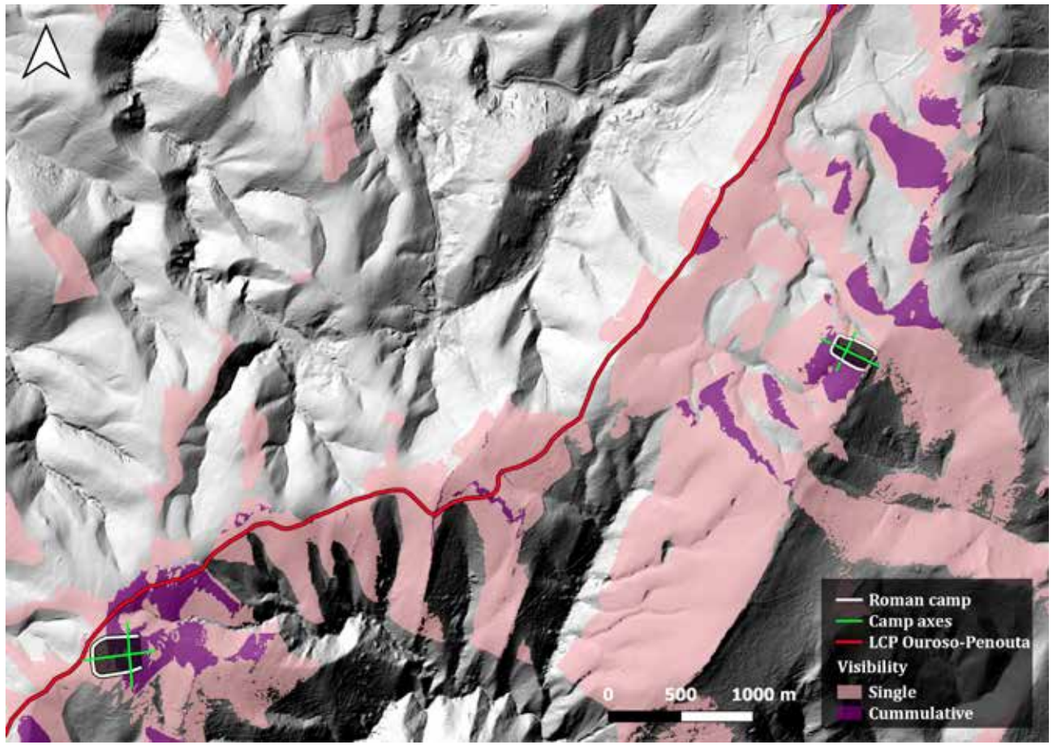

Fig. 6 - Controlling the mountain routes. LiDAR-derived DTM (2012). Two different settlement patterns, from almost blocking the transit across the mountain route -LCP- (A Pedra Dereta, to the left) to the visual control from a safe distance (El Chao de Carrubeiro, to the right). © Author.

be added to the list[36]. They also are two excellent examples of how Romans strategically used the land to control river fords (Fig. 7).

Up to four small-sized sites (1,5-2,5 ha) reveal a particular concern about controlling some natural corridors in mountainous or hilly landscapes across the territory (Fig. 8). A Cova do Mexadoiro (A Coruña), Coto do Rañadoiro (Lugo), Alto da Pedrada (Viana do Castelo) and Penedo dos Lobos (Ourense) also draw a regular playing card layout. Thanks to coinage, the latter has been recently dated ca. 25-22 BCE[37].

It is more difficult to contextualize the military presence in other areas of this wide territory. Close to the Atlantic coast, the camps of O Cornado, Santa Baia (A Coruña) and Campos (Viana do Castelo) are related to significant deployments of troops (5-13 ha) in an area where the latest mentions of Roman military actions date back to the 60's BCE[38]. In the mountainous border area between Galicia and Portugal, two huge enclosures (ca. 20 ha) were detected in Lomba do Mouro and Chaira da Maza (Fig. 9)[39]. Once again, we do not know the motivations behind the deployment of such numerous contingents, being the scarce mentions to Late Republican campaigns our only guide[40].

Thus, the Galician-Portuguese territories offer an excellent setting for future research. The morpho-typological and locational diversity of the archaeological

[36]Costa *et al.* 2017
[37]Costa *et al.* 2017
[38]See above n. 32
[39]To date, only the camps of Cildá, El Castillejo (Peralta 2006; 2011) and Villalazán (Del Olmo 1995) have a comparable size.
[40]See above n. 32

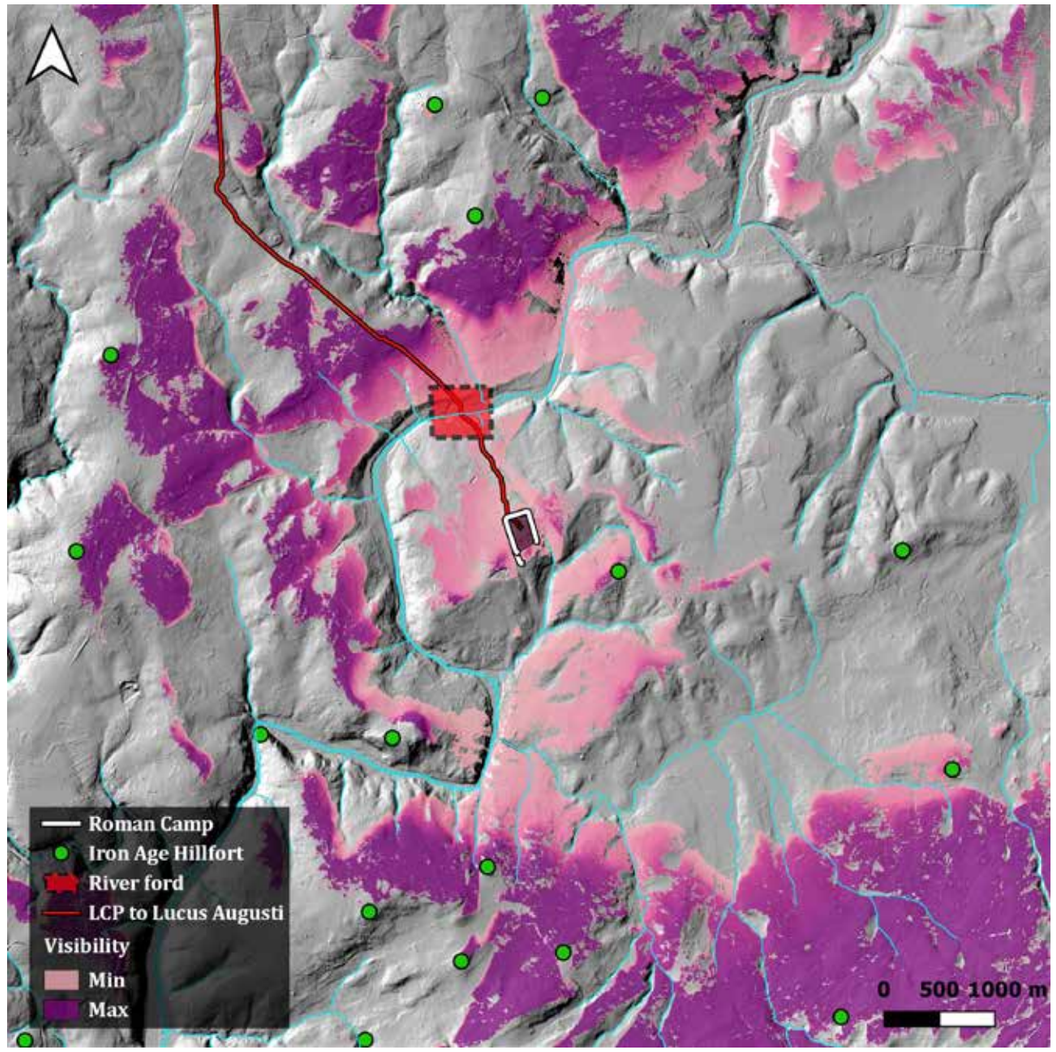

Fig. 7 - River fording. LiDAR-derived DTM (2009). The Roman camp of Monte dos Trollos is placed next to the only place where the River Miño is fordable several kilometres around. It is also possible to control several Iron Age hillforts from here, but the Romans do not seem worried about their proximity. © Author.

evidence is extremely attractive, and the very question of its presence in the different areas has to be answered yet. Similarly, the nature of Roman-native interaction remains unclear here. In several cases, the disposition of the camps reveals a lesser concern for the close presence of indigenous hillforts and a greater interest in controlling the surrounding physical space.

6.- Still a long way to go

Our knowledge about the numerous sites in NW Iberia is very uneven. Most of them have been archaeologically surveyed only for their characterisation and cataloguing. In this research phase, the identification of morpho-typological variables susceptible to serialize and the documentation of locational patterns allow us to approach this dataset more holistically and recognize realities that could have gone unnoticed in the past.

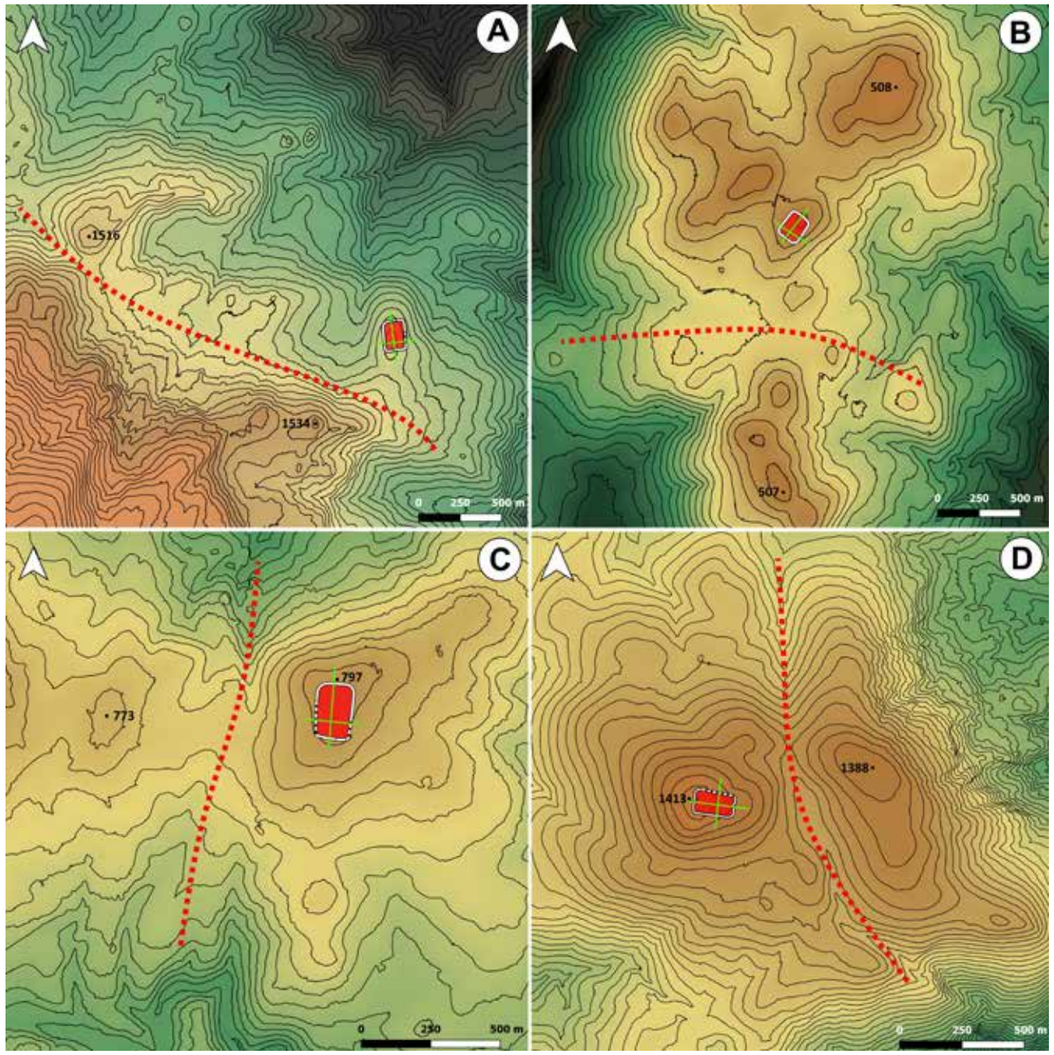

Fig. 8 - Small but fierce. LiDAR-derived DTMs (2009-2017). With slight variations, all of these camps seem to be related to the control of natural passages: Penedo dos Lobos (A), Cova do Mexadoiro (B), Coto do Rañadoiro (C) and Alto da Pedrada (D). © Author.

The precise dating of these sites is the greatest challenge in the coming years and a major barrier to creating historical narratives. Only a handful of sites in NW Iberia have been dated thanks to the presence of material culture -mainly coinage-, while many others were ascribed to certain periods just by context[41]. The situation worsens as we move away from the Cantabrian Mountains. The Iberian northern plateau is a vital area for understanding both the first phase and the aftermath of the conflict against *Cantabri* and *Astures*, but the anthropogenic pressure related to agricultural activities has already wiped out many sites detected by remote sensing (*)[42]. The diverse soil composition and the greater acidity levels in NW Iberia are a true

[41]Camino *et al.* 2015
[42]Didierjean *et al.* 2014; , Menéndez *et al*. 2020

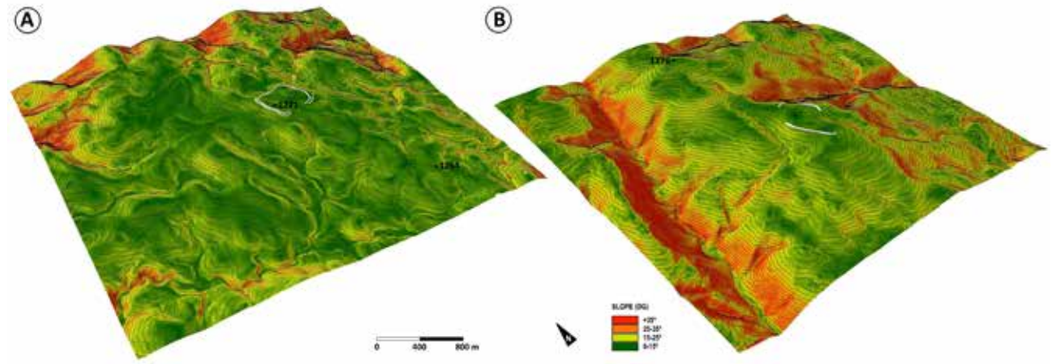

Fig. 9 - Adapt to overcome. 2.5D LiDAR-derived visualizations (2009-2015). The layouts of the neighbouring camps of Lomba do Mouro (A) and Chaira da Maza (B) may look different, but follow the usual patterns of the Roman army in Iberia when moving across the mountains. © Author.

challenge for material culture preservation. To these deterioration agents, we must add large-scale reforestation activities and the negative impact of treasure hunting. Since we are practically facing "mute" sites, the excavation and dating of the surviving structures are needed to reverse this situation, something that we have only begun to see in recent years[43].

It is also essential to make an effort to better contextualise Roman camps from an archaeological and palaeoenvironmental point of view. The need for building bridges with Iron Age Archaeology has already been stressed out in this work. Likewise, the number of Roman military sites where environmental studies of any kind have been carried out is alarmingly low[44], making it impossible to assess the real impact of Rome's arrival on these territories.

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[43]Menéndez, Sánchez 2018; Orejas *et al.* 2015; 2018.
[44]Camino 2015; García 2015; Orejas *et al.* 2015; 2018; Peralta 2011

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Resumen

El hallazgo de nuevos asentamientos militares romanos en el noroeste de Iberia en los últimos años ha contribuido de forma señalada a la diversificación de nuestro campo de estudio. Impulsados por la disponibilidad de nuevos datos geospaciales en abierto, los descubrimientos se han producido a gran velocidad, lo que significa que no ha habido tiempo aún para un análisis y reflexión de conjunto.

El estudio de aspectos morfotipológicos y localicionales ayuda a comprender mejor la lógica que motivó la construcción de estas fortificaciones, así como a detectar los factores que pueden haber influido de forma determinante en la adopción de unas u otras soluciones prácticas. El uso de análisis SIG (visibilidad, movilidad, etc.) nos puede ayudar a identificar las dinámicas que guiaron el despliegue del ejército romano en un mismo territorio de manera diacrónica.

Estas aproximaciones no solo nos proveen de información útil para comprender el rol jugado por el ejército romano en el Noroeste, sino también contribuir a clarificar cómo se articuló la interacción entre este agente imperial y las distintas poblaciones indígenas durante las primeras fases de la ocupación. Habida cuenta de la diversidad manifestada por las sociedades del final de la Edad del Hierro en esta amplia región (desde Cantabria hasta Galicia), es de esperar cierto grado de heterogeneidad en las acciones del ejército romano. Sin embargo, ¿la imagen que de este proceso tenemos en la actualidad refleja las realidades antiguas o es fruto de una deriva historiográfica?

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Limes in Serbia - the early days

ABSTRACT

The arrival of Romans to the territory of what is now Serbia was a complex process. In certain aspects, local population along the Danube was already acquainted to the Roman material culture. Still, many aspects were completely new to them. In an occupied country and with new inhabitants, local people had to find a way to survive and adapt themsleves to the new situation. Those who chose to stay, gradually made contacts with the Romans, initially presumably through trade and supplying. However, those who decided to leave, crossed the Danube and fled to barbaricum. Their role in what was yet to come was also of great importance both for the barbaricum and for the Roman Empire.

Key Words: Romanization, Roman Limes, New Era, Danube, Scordisci, Serbia

During the last decades of the Old Era, in many parts of Europe, social and economic changes took place, caused by the always growing power of Rome. Even before actual occupation, presence of Roman tradesmen and trade were attested. The expensive Samian ware or bronze ware was exchanged against raw materials or slaves. However, regular trade was established only after the Roman army reached these regions.

Settlements and forts

At the territory of modern Serbia, both unfortified and fortified pre-Roman settlements were erected close to the land or fluvial roads and communications. As an example, unfortified Scordiscian settlements in Srem can be named. Many of them were discovered and excavated during construction of the motorway from Belgrade to Zagreb (Fig. 1). Many of them were well-preserved and indicated a highly developed Late Iron Age farming (Brukner 1995, 188, plan 2).

On the other hand, fortified pre-Roman settlements (Todorović 1974, 50), for example those along the right Danube bank, showed poor state of preservation. This is mainly because they were destroyed by fluvial erosion. Many of them also suffered from destruction during some of the later periods – Roman, Byzantine or even later.

An illustrative example of continuity from pre-Roman to Roman times can be seen at the right Danube bank in eastern Srem. In pre-Roman times, there was a row of Scordiscian fortifications, the *oppida*, placed upon

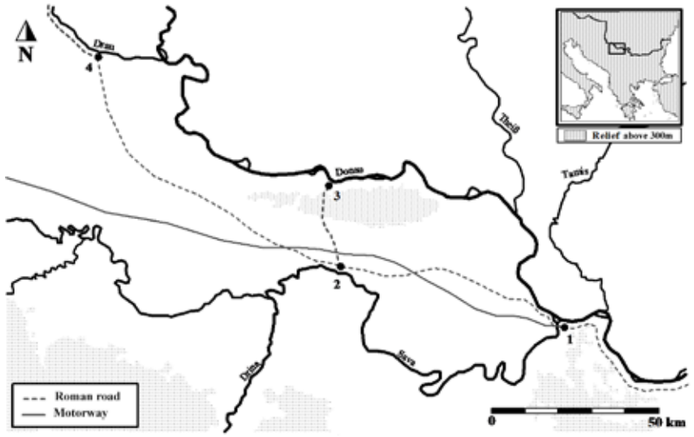

Fig. 1 - Direction of the Roman road compared to the modern motorway from Belgrade to Zagreb (after Brukner 1995, 188, plan 2)

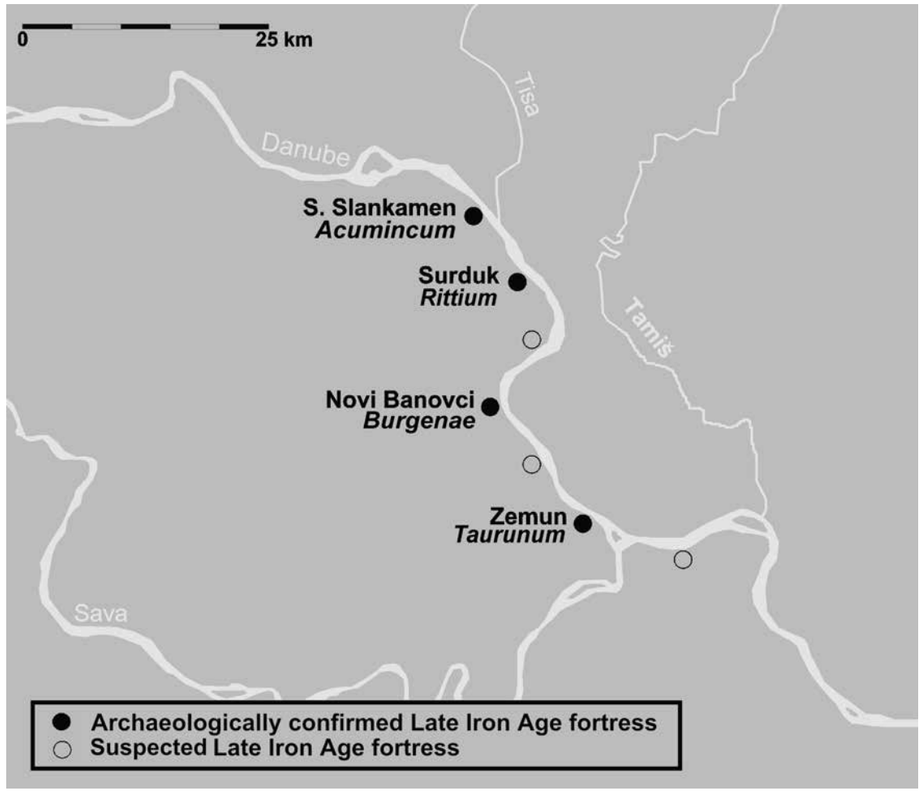

Fig. 2 - Scordiscian forts along the Danube, later turned into Roman castra (after Tapavički-Ilić 2007, Fig. 1)

the right Danube bank. All of them were at an approximately same distance from one another, measuring about 7 km and visible to one another. In Roman times, on all of those places, Roman *castra* were established, their names now known, from *Acumincum* (Slankamen) in the north to *Taurunum* (Zemun) in the south (Тапавички, Илић 2006а; Tapavički Ilić 2007). (Fig. 2) Due to its strategic position at the mouth of the river

Tisa into the Danube, *Acumincum* represented an important stronghold and the center of the *civitas Scordiscorum* through the entire Roman period.

If we move to the south, the two well-known pre-Roman sites include *Singidunum* (Belgrade) and *Viminacium* (Stari Kostolac). Both during pre-Roman and Roman times, they possessed extraordinary strategic positions. On both sites, significant traces of Scordiscian culture were discovered (Todorović 1972; Jovanović 2018). In Roman times, they turned into important military strongholds and legionary forts. Due to presence of the Roman army, these two settlements soon developed into large cities and represented spots of highly advanced Romanization.

Burials

Changes that took place in burying rites relate more to grave-goods and less to actual graves. A good example includes graves of the so-called "Stenjevac" type, common for the period between the turn of the Eras to the 3rd century AD in Pannonia Inferior (Jovanović 1984, 50). (Fig. 3) Those are cremations performed on a common stake, with remains later transferred to the grave pits and buried together with grave-goods. Grave-goods of pre-Roman times include pre-Roman types of pottery, jewelry (brooches or arm-rings) and weapons. The same type of graves from Roman times also includes pottery, only this time mostly Roman tableware. (Fig. 4) Further on, there are vessels made of metal or glass, oil-lamps and coins. Weapons were no longer parts of such grave-good sets. (Jovanović 1984, 49-51). (Figs. 5 and 6)

A specific and very new type of burials was brought to these regions by Roman soldiers from Gaul – burials in the shape of wells or shaft graves. They were never widely spread here and they were dated into a limited time span, actually only the beginning of the Roman presence. They were discovered on sites later to become great urban centers, like *Singidunum* (Belgrade), *Viminacium* (Kostolac) and *Sirmium* (Sremska Mitrovica) (Valtrović 1885a; Valtrović 1885b; Golubović 2008; Milošević 1985).

Finally, the highlight of Romanization in the realm of the dead includes the tombstone inscription from the end of the 1st and the beginning of the 2nd century AD discovered in Slankamen (*Acumincum*). It is well-

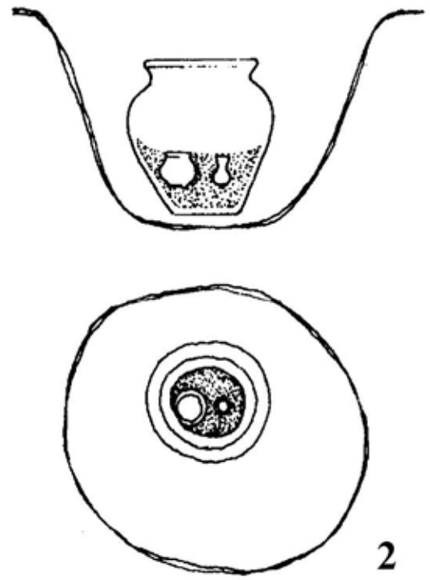

Fig. 3 - Example of the "Stenjevac" type grave (after Jovanović 1984, 50, Fig. 11)

known that prehistoric pre-Roman ethnicities in the Balkans were illiterate. But here, on this inscription, a man named *Titus Flavius Proculus* is mentioned, who was a *princeps praefectus Scordiscorum* (Papazoglu 1969, 265). It clearly shows that Scordisci were up to a certain level integrated into the Roman administration and were enjoying some kind of limited autonomy.

Pottery

After the Roman occupation, only wheel-thrown pottery underwent changes. Most of the table ware types were replaced with Samian or Campana ware. However, until the 1st century AD, only the newly immigrated Italic population was the user of Samian or similar high-quality ware. Local inhabitants did not use it. Only after the 1st century AD did local pottery workshops get romanized. This is confirmed with finds of various molds for the production of Samian or Terra Nigra vessels, but also with finds of various jugs or amphorae. (Tapavički, Ilić 2009). (Fig. 7)

Simple, not wheel-thrown pottery was not imported and this refers to kitchen ware. Pots, sieves, lids or storage vessels did not change at all. The only type of kitchen ware that was imported is a *mortarium*. It stands exclusively in connection with Roman cuisine

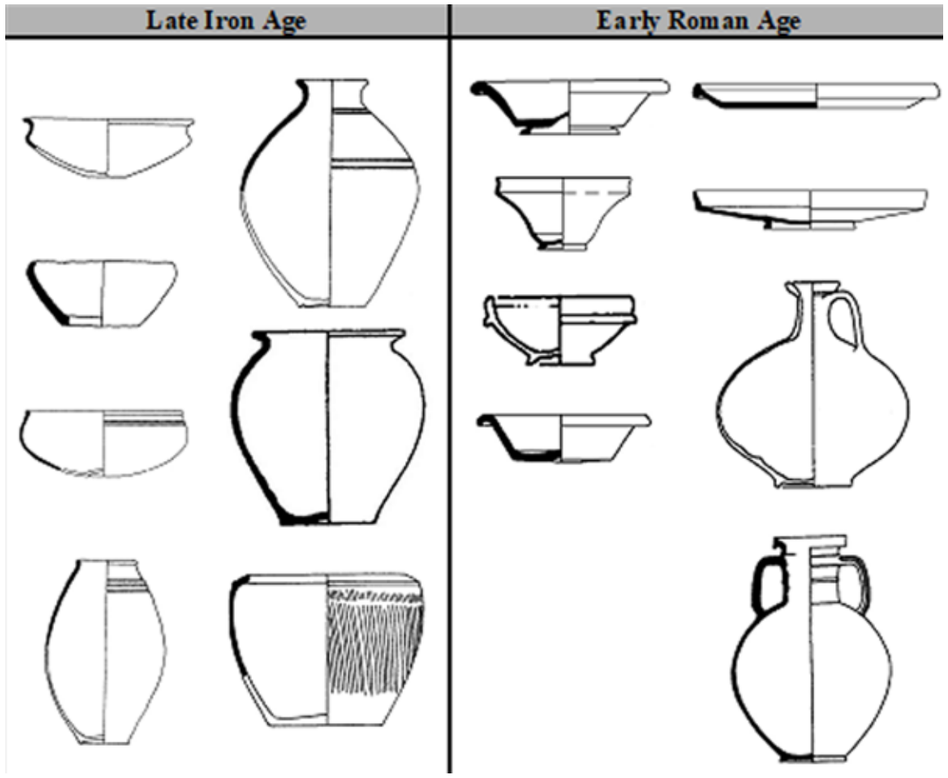

Fig. 4 - Comparison of vessel types deposited as grave-goods in pre-Roman and Roman times

LATE IRON AGE	EARLY ROMAN AGE
SWORDS	SWORDS
SPEARS	SPEARS
SHIELDS	SHIELDS
	PICK - AXES
	AXES
	TONGS
	WHET STONES
	MEDICAL INSTRUMENTS

Fig. 5 - Comparison of grave-goods in pre-Roman and Roman times (male graves)

and their way of preparing food and was not known in pre-Roman times. Presence of *mortaria* among finds indicates changes in local diet (Tapavički, Ilić 2008). Before the arrival of the Romans to the territory of

LATE IRON AGE	EARLY ROMAN AGE
BROOCHES	BROOCHES
SCISSORS	SCISSORS
GLASS BEADS	
METAL PENDANTS	
	TERRACOTTA FIGURINES
	CASKETS
	OIL - LAMPS
	MIRRORS

Fig. 6 - Comparison of grave-goods in pre-Roman and Roman times (female graves)

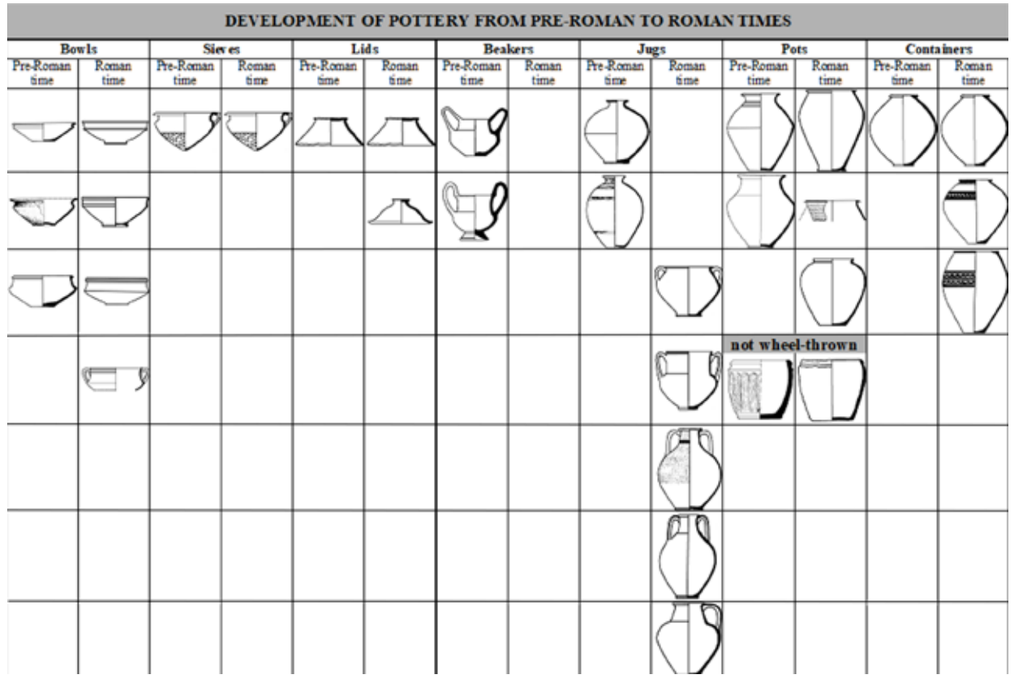

Fig. 7 - Comparison of pottery types in pre-Roman and Roman times

modern Serbia, Dacian cups were used as lamps. Their main fuels were various lipids. In Roman times, the earliest import of oil-lamps occurred. It reflects developed trade, not only of oil-lamps, but also of olive oil, that was used as fuel. According to mold finds, the earliest workshops for oil-lamp production were established in Pannonia during the second half of the 1st century.

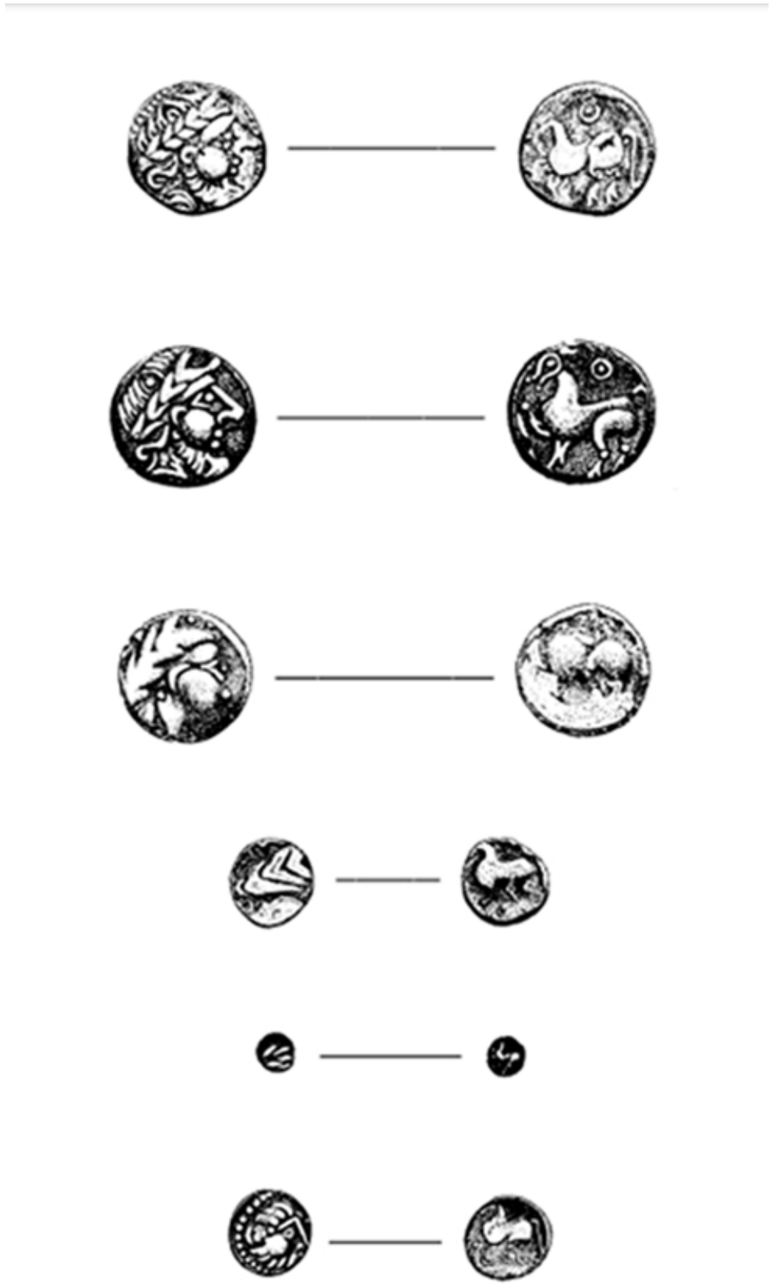

Fig. 8 - Changes in images and weight of Scordiscian coins of the “Srem” type
(after Popović 1987, 46, Fig. 1; 48, Fig. 2; 51, Fig. 3; 52, Fig. 4; 53, Fig. 5 and 59, Fig. 6)

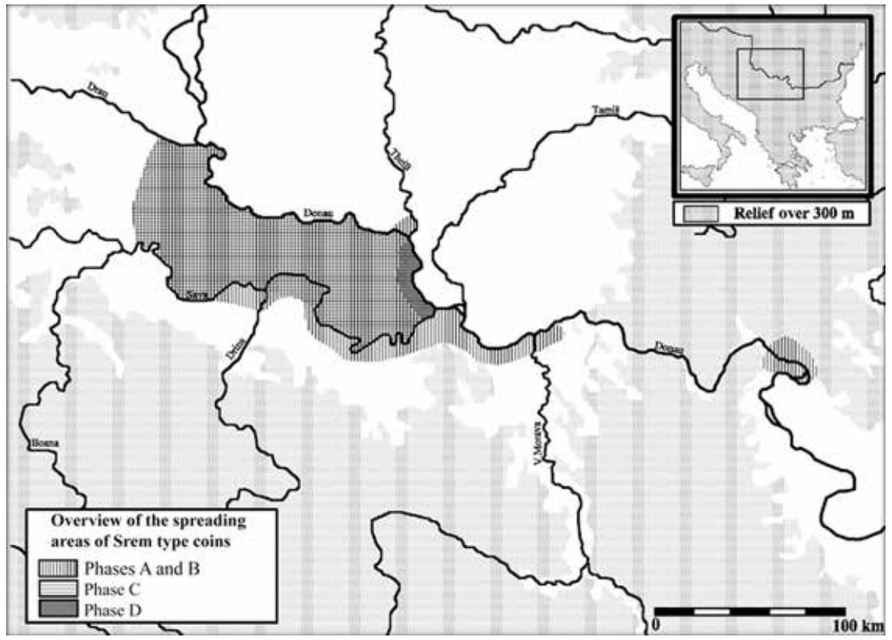

Fig. 9 - Narrowing down of the spreading territory of the Scordiscian “Srem” type coins

Coinage

At the territory of modern Serbia, the tribe of Celtic Scordisci was the first one to mint coins. Their earliest minting was in silver, but only after bronze coins were introduced, one is allowed to speak about monetary economy. As an example, the “Srem” type of coins shall be named, minted from the 2nd century BC to the turn of the Eras. It was first minted in silver, but later on in bronze. With the always decreasing metal quality, weight reduction and decrease of artistic expression took place. The fourth indicator of decline was narrowing down their spreading territory, as shown on map. (Fig. 8 and 9) Coin circulation was thus limited only to a narrow strap along the Danube River in eastern Srem. With such a process going on, it was easier for the Romans to suppress the local currency and to introduce a common monetary system throughout the Empire. This change took place at the turn of the Eras, much supported with the always growing needs of the Roman army stationed in this part of the Empire (Tapavički, Ilić 2006b).

Conclusion

It may seem that this overview of changes is too short and too modest. Possibly it is. The idea was to illustrate only those changes that took place soon after the Roman occupation, basically during the 1st century AD. On the other hand, the idea was to illustrate only those changes that have been confirmed archaeologically. Surely, also many other aspects of life have changed, but archaeological evidence is missing or it hasn’t been discovered yet. For example, there must have been changes in costume, both male and female. New animal species must have been introduced. The same refers to agriculture - new kinds of crops, fruits and vegetables must have gradually been introduced. Marshy soil around the rivers must have been dried out and new surfaces gained for ploughing. At the same time and in the same manner, new surfaces were gained for building a road network, leading to an easier movement of people and goods. So, better trading conditions were established.

Among the intangible changes, there must have been a gradual change in religious aspects. Local deities were either forgotten, but most likely assimilated with the Roman gods, giving them a so-called *interpretatio Romana*. Along with this, there must have been a change in onomastic, both regarding people’s names and names of geographic terms, like settlements, rivers, mountains etc. Some can be recognized bearing eg. Celtic prefix or suffix (like *Singi-dunum*).

Romanization was a long lasting process, with its highs and lows. It was a process that took place more or less spontaneously. On one hand, the Romans tried to gain sympathies of local aristocracy and people in general. On the other hand, there was always a tendency by local populations for an easier and better way of living, like they imagined the life of Romans would have been. The more local populations were influenced by the Romans, the easier it was to control them. Many of such influences still remain to be discovered.

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Zusammenfassung

In diesem Text versuchte man, jede Änderung in den Leben der Einheimischen darzustellen, die nach der römischen Okkupation stattfand. Die Leitungsidee war, nur diejenigen Änderungen darzustellen, die im Laufe des 1. Jh. n. Chr. stattfanden, aber auch nur diejenigen zu besprechen, die archäologisch nachweisbar sind. Sie schließen Änderungen in Siedlungs- und Straßenbau, in den Bestattungssitten, in der Herstellung unterschiedlicher Gegenstände wie Tongefäße, Lampen, Schmuck oder Münzen mit ein. Bestimmt haben sich auch weitere Lebensaspekte geändert, wozu archäologische Nachweise nicht existieren oder noch nicht entdeckt wurden (wie Tracht, Landwirtschaft oder Viehzucht). Darunter kommen auch Änderungen in unterschiedlichen Religionsaspekten. Einheimische Götter wurden wahrscheinlich mit den römischen assimiliert und durch eine *interpretatio Romana* verehrt. Aufgrund einer lateinischen Inschrift konnte man ebenso Änderungen in der Verwaltungsstruktur nachvollziehen.

LIMES XXIIII

Session 26

Re-evaluating old excavations: are they worth it?

INTRODUCTION

Session organisers / Chairpersons:
Orsolya Láng, Aquincum Museum

Even though, excavations at most sites along the Roman Limes have been going on for 120-150 years now, publishing the several decades old excavation data and finds is always problematic. Different standards of evaluation were used to document excavations from the 19th century onwards ranging from short reports and traditional layer-description methods to writing long "stories" on drawings and find bags… How can data and finds of an early 20th c. excavation be used nowadays for example? Can these various types of documentations be integrated with the more recent researches and re-interpreted according to more modern methods? How can these data be re-evaluated? Could re-evaluation of old excavation documentations lead to the elimination of old topoi concerning a site? What are your experiences?

This section is rather planned to be a methodological one (with case studies), but extremely important, as large amount of data and finds from age-old excavations of Limes settlements still await processing.

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Digging in the archives - The 19th century excavations of J. J. Schmid in *Augusta Raurica* (CH)

ABSTRACT

The late antique *Castrum Rauracense*, successive settlement of the Roman colony of *Augusta Raurica*, lies on the southern bank of the Rhine some 10 kilometres east of the city of Basel in north-western Switzerland. Surrounding the *castrum* are several necropolises, combined in the Northeastern cemetery. Most of the graves have been excavated more than 50 years ago. This article will focus on the cemetery's discoverer, Johann Jakob Schmid, and his excavations in the first half of the 19th century. Is it possible to reconstruct the *c*. 150 graves with their grave goods? Is their re-evaluation worth the effort and are they going to help us with modern research analyses? The article will describe the extensive documentation and material that resurfaced due to archival research.

Key Words: 19th century, burial, grave, Schmid, Viollier, Martin

Introduction

The Roman colony of *Augusta Raurica* is situated in present-day north-western Switzerland, today beneath the communities of Augst (canton of Basel-country) and Kaiseraugst (canton of Argovia). It has been of great interest for researchers since the 16th century. An early discovery were the late antique and early medieval inhumation burials surrounding the *Castrum Rauracense*. The *castrum*, built around AD300, lies directly on the southern bank of the Rhine and was part of the late Roman frontier. The people of *Augusta Raurica* supposedly left the colonial city centre on the hilltop and moved to the *castrum* when times became more unstable[1].

It is in the early 4th century AD that the first necropolises surrounding the *castrum* emerged (Fig. 1). Officially summarised as the Northeastern cemetery of *Augusta Raurica*, the cemetery is best known for the excavations of the Landesmuseum Zürich[2], conducted by Daniel Viollier in 1907-1913 and published in

[1]A general overview of the site's history and research can be found in Berger *et al* 2012. On Late Antiquity see also Schatzmann 2013.
[2]Today Schweizerisches Nationalmuseum.

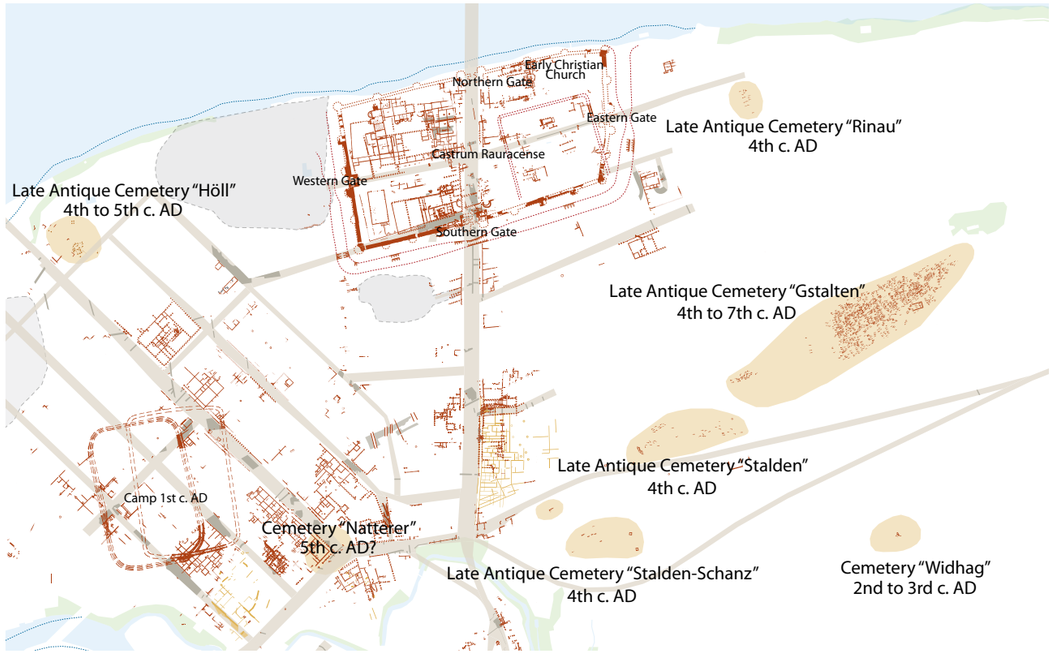

Fig. 1 - A map of the excavated Roman and Early Medieval structures in Kaiseraugst, AG. The Northeastern cemetery with inhumation burials from the 4th to the 8th century AD is located south of the *Castrum Rauracense*. Supplement Berger *et al*. 2012, modifications S. Mayer.

1976 and 1991 by Max Martin[3]. Smaller parts of the cemetery have been excavated during the 20th century, most of them are unpublished or only published in preliminary reports[4].

This article will focus on the excavations in the first half of the 19th century, when the cemetery was first discovered and examined by Johann Jakob Schmid, the local owner of the paper mill[5]. He kept the finds sorted by grave and had an artist draw them, as he was planning on publishing his results. Unfortunately, he died before he could finish his work. His heirs sold the collection of finds and drawings to different institutions in Basel and Zurich.

The finds have been inventoried several times over the last 200 years. The original notes that came along with the finds have been lost and are only passed down in the notes of researchers from the 20th century, while the preserved notes and letters are written in old German handwriting.

The article's aim is to present the work of J. J. Schmid and to demonstrate that it is possible to work up those entangled old excavations and to show the necessity of such re-examinations.

Johann Jakob Schmid and the Northeastern cemetery

In 1820 Johann Jakob Schmid (born in 1794) bought the paper mill in Augst and soon developed an interest in the history of the place[6]. He started to excavate at different sites in *Augusta Raurica* and bought land

[3]Martin 1976 / 1991.

[4]Most important Laur-Belart 1947.

[5]This is part of my ongoing PhD project with Prof. Dr. P.-A. Schwarz, Vindonissa Professur, Departement Altertumswissenschaften at the University of Basel: S. Mayer "Untersuchungen zu den spätantiken und frühmittelalterlichen Gräberfeldern von Kaiseraugst AG" (working title).

[6]Information about J.J. Schmid and his work in *Augusta Raurica* can be found most recent in Martin 1978, 104–110.

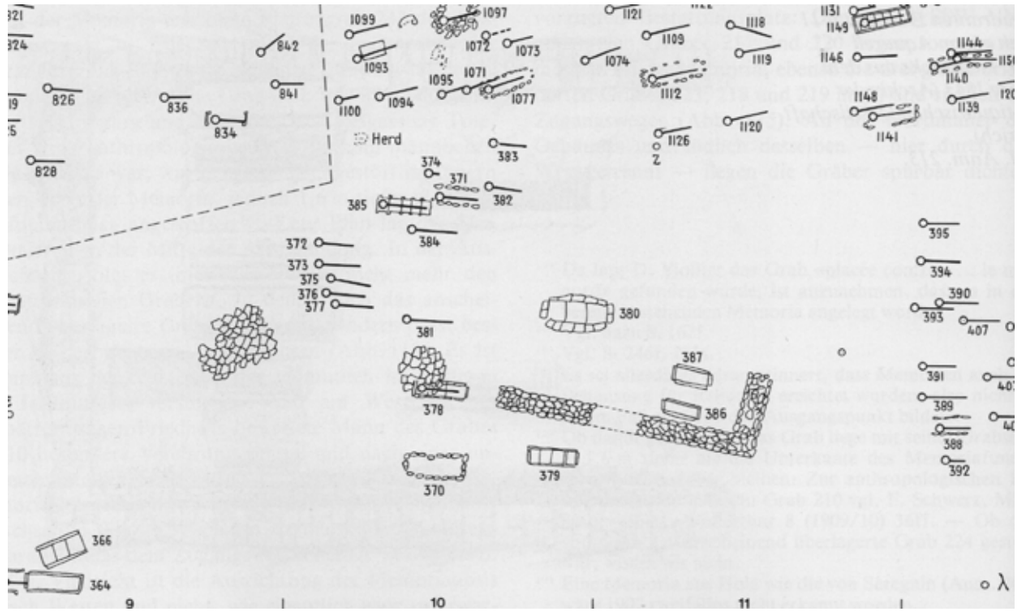

Fig. 2 - The burials inside the cemetery chapel on D. Viollier's plan of the Gstalten necropolis. Martin 1991, 210 fig. 120.

from the local farmers to save the Roman theatre and temple district from destruction. He was in contact with the leading regional archaeologists of the time, like Ferdinand Keller and Frédéric Troyon. He was also the first to recognise that the *Castrum Rauracense* was chronologically later than the actual colony of *Augusta Raurica*[7].

Schmid started his work in the Northeastern cemetery in 1833 and continued it until 1843. He planned to publish the results and assigned a local artist, Johann Jakob Neustück, to draw the inventories of the graves. He also insisted on the importance of publishing an exact description of the graves and the grave goods, which got him into an argument with Keller[8]. Unfortunately, his death in 1849 kept him from going through with the project.

The necropolis, which Schmid started excavating, lies some 200m south of the *Castrum Rauracense* (Fig. 1), along the "older and younger Raetiastreet" that lead from the former colony to *Vindonissa* / Windisch (AG). I will focus on the necropolis "Gstalten" or "Gstälty" where Schmid unearthed 100 to 150 inhumation graves.

It was in this same area that Daniel Viollier conducted the excavations for the Landesmuseum Zürich from 1907 to 1913. The documentation and finds from those campaigns are preserved today at the Swiss National Museum. Max Martin's fundamental work on the Northeastern cemetery of *Augusta Raurica*[9] was the result of his extensive research on the Viollier excavations. Martin was aware of the earlier excavations by Schmid but could not include them in his research that already consisted of more than 1300 graves (see below).

It is not easy to reconstruct Schmid's excavations. He kept no diary to describe his work progress or list the excavated graves. Neither is there any documentation of his work in the archives of the Römerstadt Augusta Raurica itself. But Schmid was corresponding with contemporary Swiss archaeologist Ferdinand Keller, then president of the Society of Antiquities in Zürich. The archives of said society hold some 34 letters from

[7]Martin 1978, 105.

[8]Martin 1978, 107.

[9]Martin 1976 / 1991.

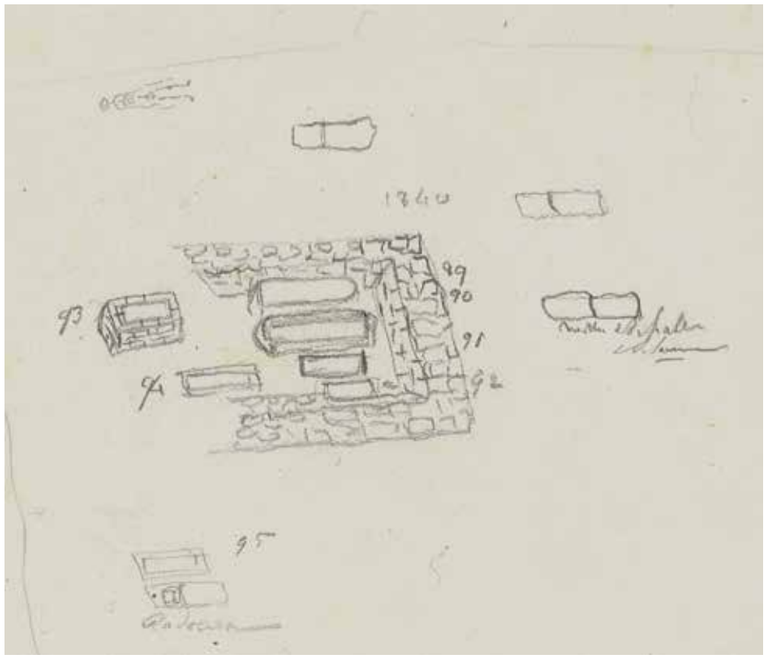

Fig. 3 - The burials inside the cemetery chapel on J. J. Schmid's sketch of the Gstalten necropolis. Detail of Reproduction Staatsarchiv Zürich, Archive AGZ, Sign. W I 3 400.31, first folder, 6.

Schmid to Keller[10], in which he describes his finds and work progress. They also contain the drawings that Schmid had Johann Jakob Neustück[11] make of the finds and some of the graves and which he planned to use in his publication. And, maybe most importantly, there is a map[12] where Schmid had not only sketched the graves but also gave a short description of most of them on the side of it.

Reworking Schmid's legacy

After collecting all documentation from Schmid, we can compare it with the documentation from D. Viollier's campaigns: Viollier excavated some burials that he suspected had been opened before. If we can match those suspicious cases with some of the sketched graves on Schmid's map, we have an actual location for the 19th century excavations.

M. Martin already proved that this approach is working[13]: the easiest structure to recognise on the two maps from the cemetery (Schmid's sketch and Viollier's drawing) is a rectangular stone building interpreted as a cemetery chapel (Figs. 2 and 3). In comparing the two maps, one can be certain that Viollier's and Martin's grave no. 380 is the same burial as Schmid's no. 93. This also applies to Viollier/Martin no. 87 and Schmid no. 91 as well as Viollier/Martin no. 386 and Schmid no. 92.

After locating and linking Schmid's burials to the results of newer excavations, is it also possible to reconstruct the contents of the graves and to allocate the grave goods?

After Schmid's death, his collection was sold to the Historical Museum in Basel. They acquired the main

[10]Archive AGZ, Staatsarchiv Zürich, Sign. W I 3 174.1, letters no. 80-92; W I 3 174.2, letters no. 104-109; W I 3 174.3, letters no. 130-140.
[11]Archive AGZ KRF IV.7-26, Staatsarchiv Zürich, Sign. W I 3 400.31, second folder, no. 7-26.
[12]Archive AGZ, Staatsarchiv Zürich, Sign. W I 3 400.31, first folder, no. 6.
[13]Martin 1991, 209–211.

Fig. 4 - Bronze fittings from Schmid's grave 84. Collection Historical Museum Basel, Inv. 1906.839.91. Photo S. Schenker, Römerstadt Augusta Raurica.

corpus in 1857[14] and a second part was donated by Schmid's heirs in 1924[15]. After almost 200 years, you can imagine that some finds got mixed up after exhibitions and enjoyed different treatments in restauration.

Various archaeologists took an effort to publish the material but could never finish their work. Most importantly, Rudolf Moosbrugger and Max Martin[16] looked at the finds in the 1970s and 1980s, collected documentation and wrote their own notes on the finds. Fortunately, those notes are preserved: both researchers had copied the original scraps of paper with notes from Schmid himself and his son about the inventories that were kept with the respective finds until they got "misplaced". With those notes it is possible to reconstruct most of the original inventory for each grave.

With the following example I will show the possibilities of understanding some of the more enigmatic finds. Amongst the finds from grave no. 84, we find today several small fittings[17] (Fig. 4). They seem to be very small and delicate for a belt, but we might assume that they originate from some kind of leather strap. Examining the drawings from J. J. Neustück, we find our fittings again (Fig. 5) as a nice arrangement on a strip of leather that was apparently still preserved.

Schmid's notes for grave 84, passed on by Rudolf Moosbrugger and Max Martin, describe a female burial with a leather bracelet at the woman's left wrist.

> *«Steinsarg mit Grund angefüllt enthielt weibliche Überreste. Am linken Vorderarm oder Handgelenk ein Armband von Leder, dessen Spuren sich deutl.*

[14]Vischer 1858.
[15]Archives Historical Museum Basel, letter R1-a2-014_0024.
[16]Martin planned to publish Schmid's work but never found the time to continue the extensive archival research (Martin 1978, 111, fn. 19; Martin 1991, 1).
[17]Historical Museum Basel, Inv. Nr. 1906.839.91.a/b.

Fig. 5 - Leather bracelet with bronze fittings from Schmid's grave 84. Detail of a drawing by J. J. Neustück from 1845. Photo S. Mayer, Archive AGZ, KRF IV.23, Staatsarchiv Zürich Sign. W I 3, 400.31, second folder, 23.

zeigten; auf dem ledernen Armband waren die metallenen Verzierungen angebracht, zwischen den Stäbchen, welche um das Leder gebogen u. mit Stiften dran befestigt waren hingen die glockenähnlichen Verzierungen. [Skizze] Die dabei befindl. Zunge scheint am Ende des ledernen Bandes angeheftet gewesen zu sein. […]»[18].

So, thanks to the drawing in the archives of the Society of Antiquities in Zürich, we can reconstruct the small finds in the archives of the collection from the Historical Museum Basel and know about their original finding position because Max Martin copied J. J. Schmid's notes. Thus, it is actually possible to reconstruct the inventories and produce a catalogue of the 19th century excavation finds.

Conclusion

It certainly is a lot of work to reconstruct the documentation and thus the graves and their inventory from the old 19th century excavations. Working with old excavations consists of a lot of research history and the excavations must be set into their historical period as well, if only to understand what happened to the finds and documentation. As illustrated above, it is worth the effort: by combining the different archival finds we can reconstruct a catalogue of the results from the 19th century campaigns.

Contemporary research questions concern larger patterns of migration and cultural interchanging during the Late Antique and Early Medieval time periods. The scarce archaeological remains of settlement traces in the area can be complemented with the analysis of the better-preserved burial structures. The cemeteries of *Augusta Raurica* and the later *Castrum Rauracense* contain graves from the 1st to 8th century AD – providing a possibility to study the development of the burial landscape at the site. But many parts of those cemeteries have been excavated in different smaller campaigns over the last 200 years.

[18]Documentation M. Martin, quotation of Schmid or Schmid's son.

If we want to get information about the local people and their cultural and social development and maybe try to understand larger changes by comparing different sites, then we need to research and publish those old excavations to get an entirety of the accessible data. After what I have seen in the documentation and finds it is well worth the effort to complete the research on the Northeastern cemetery.

The objects are very well preserved, and they deserve to finally be published. And this also applies to the work of the contemporary researchers, in this case J. J. Schmid: he did a very profound job in his time and he deserves that his project is finally going to be completed.

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Zusammenfassung

Die Gräberfelder der Spätantike und des Frühmittelalters im Umfeld des *Castrum Rauracense* in der heutigen Nordwestschweiz wurden in verschiedenen kleineren Kampagnen über die letzten 200 Jahre ausgegraben. Lohnt es sich überhaupt, die Daten zu diesen Altgrabungen in den Archiven zusammenzutragen? Der Artikel beschäftigt sich mit dem Beispiel der Grabungen von Johann Jakob Schmid in der ersten Hälfte des 19. Jahrhunderts. Die intensive Archivarbeit hat nicht nur das Fundmaterial seiner Ausgrabungen, sondern auch Schmids Korrespondenzen, Notizen und Fundzeichnungen hervorgebracht. Mit diesen Unterlagen lassen sich die Grabinventare rekonstruieren. Die Aufarbeitung von Altgrabungen ist notwendig zur Vorlage möglichst vollständiger Datengrundlagen aus Gräberfeldern um Augusta Raurica. Auf dieser Basis können moderne Forschungsprojekte, vor allem auch überregionale Untersuchungen zur Migration, Sozialgeschichte und Kulturentwicklung in Spätantike und Frühmittelalter durchgeführt werden.

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Demystifying the Roman fort at Gračine (Bosnia and Herzegovina)

ABSTRACT

The site of Gračine (Ljubuški, Bosnia and Herzegovina) has been studied since the 19th century, but so far remained poorly understood. Already Carl Patsch assumed that it was a Roman auxiliary fort, but the evidence accumulating over the years was not fully convincing. The excavations in late 70s yielded material of undoubtedly military character, but the structures uncovered in the middle part of the site were not understood correctly – and the results were never fully published. The ambiguity of the evidence has even led some to stipulate that the site was of a different character, and the presence of a military unit should be looked for in other areas. During the realization of grant 2015/19/N/HS3/00886 awarded to Tomasz Dziurdzik by the National Science Centre (Poland) and within the wider framework of Ljubuški Archaeological Project, a Polish-Herzegovinian programme of non-invasive archaeological surveys, it became possible to undertake geophysical research also on a part of the site Gračine. The results of electrical resistance survey have revealed interesting anomalies in a distinct pattern, which were then verified in an excavation by the University of Mostar. The excavated part is a centurion's house, together with two double rooms for rank-and-file soldiers, along with parts of two streets on both sides of it. Thus the anomalies have been proved to be created by the remains of two barrack blocks, and the interpretation of the whole site as an auxiliary fort has finally been verified, ending the long debate about the character of the site.

Key Words: Dalmatia, Roman army, *auxilia*, military architecture, forts, barracks, archaeogeophysics

*Research presented in the article was financed from grant number 2015/19/N/HS3/00886 entitled *Soldiers, Veterans and Civilians in the Hinterland of a Roman Colony. Research on the Ancient Cultural and Social Landscape of the Region of Ljubuški (Bosnia and Herzegovina) with the Use of Non-Invasive Methods of Archaeological Prospection*, awarded by National Science Centre (Poland) to Tomasz Dziurdzik and realised in 2016-2020 at Faculty of History, University of Warsaw.

Introduction: aims and scope of the article

The paper deals with the Roman site Gračine (Ljubuški, Bosnia and Herzegovina), which was disputed for more than a century, its interpretation as an auxiliary fort so far never persuasively proved (or, matter of fact, never convincingly negated as well)[1]. The article is divided into nine parts, starting with an introduction to the site, a short overview of the early scholarship, and a presentation of the discussion which gained momentum following the excavations of a part of the site in the 70s, which disastrously failed to deliver an answer to the question of the character of the site, while also obscuring the central part of the complex for further research.

The next parts are devoted to the most recent archaeological work done on the site within the wider framework of Ljubuški Archaeological Project, a Polish-Herzegovinian programme of non-invasive archaeological surveys which is presented in part 4. During the realization of grant 2015/19/N/HS3/00886 awarded to Tomasz Dziurdzik by the National Science Centre (Poland), it became possible to study a part of the site with an archaeogeophysical method, namely an earth resistance survey (part 5), and to propose a preliminary interpretation of the detected anomalies as the remains of Roman military architecture, precisely – two barrack blocks (part 6). A further section is devoted to the verification excavation conducted by the University of Mostar. The combined findings are summarised in part 8 of the article, and the site is finally firmly established as a Roman auxiliary fort. It is also put into the context of archaeology and history of the area, as well as of the wider region, including the province of Dalmatia's defences. The final fragment, however, points to further problems that need to be explained to fully understand the site, including the need for further fieldwork and a reinterpretation of the excavations made in the 70s.

1. The site: location and characterisation

The site is located in village Humac, in Ljubuški, a municipality in Western Hercegovina Canton (Bosnia and Herzegovina), on a low plateau overlooking the river Trebižat. It is located close to the middle of the wider river valley, overlooking a favourable crossing spot. In Antiquity the site was located within province Dalmatia, in the territory of Roman colony *Narona* (todays Vid in Croatia, some 13,5 km as the crows fly), as attested by the famous inscription recording the grant of land plots to legionary veterans by Tiberius[2]. In addition to being located above a river crossings, it was situated on the road connecting *Narona* with *Salona*, the province's capital, and close to the main route towards Balkan hinterland along the Neretva river, that is, in a spot with significant strategic importance.

The site is surrounded on southern and eastern side by piles of stones, some of which undoubtedly originally come from Roman structures and were moved to the current location during agricultural activities. Meanwhile, the western and northern sides are highly damaged by human actions, but a regular, rectangular shape of ca. 140 x 110 m with slightly rounded corners is probably partially preserved in the divisions between individual land parcels. It is supposed that these limits follow the line of an ancient stone wall (in the scholarship often referred to as "perimetral wall"); while indeed highly probable, this must be treated with some caution until the question is recorded in detail, as while it was studied, it has never been properly documented and published.

The central part of the site has been excavated in the 70s (see part 3 of this article) and the remains of stone architecture (two buildings and a part of the third) have been partially reconstructed and preserved. However, the condition of the site deteriorated after excavations, as it was left in a peculiar situation: even though it was protected since 1977 and declared a national monument in 2003, the parcels on which it was located remained in private ownership. This unfortunately resulted in the destruction of parts of protected site (and its surroundings) by private owners and/or the denial of access to archaeologists. Only recently this negative trend has been reversed thanks to the involvement of the local municipality.

[1]The first author would like to express his gratitude for the award of a Student's Grant for participation in the Limes Congress.
[2]AE 1950, 44.

Fig. 1 - Aerial view of site and its surroundings to the north (city of Ljubuški in the background). State of preservation in 2015, before the recent archaeological works. Photo by Michał Pisz.

2. Early scholarship: "fort *Bigeste*"

While being one of the most important sites in the region, it has suffered from a number of factors including conservation issues resulting both from natural and anthropogenic causes. Concerning the history of research, in the past it was subject to far too little fieldwork (and what was done was of debatable quality), while the little information that was obtained and documented was unfortunately sometimes exaggerated. Some assumptions were made and then cited as certainties, leading to the creation and persistence of a number of scientific myths.

The site is sometimes associated with the ancient toponym *Bigeste*, a road station attested in ancient sources[3]. However, based on the evidence of milestones and the distances along the probable course of Roman roads, it was suggested that the road station could have been located some 3.6 km north-west, in the village Donji Radišići[4], where another Roman site was located. Since yet another ancient toponym, *pagus Scunasticus*, is attested in close proximity, the exact relation of place names is unknown. To prevent further confusion, it is best to use just the modern name of the site.

Though the existence of Roman remains at the site Gračine was known already in 19th century, most of the early research into it and the other Roman sites in the region is owed to the founding father of Bosnian-Herzegovinian archaeology, Carl Patsch[5], who firmly stated that the site was a fort. While the stray

[3]Tabula Peutingeriana VI.4 / Talbert 5A4.
[4]Bojanovski 1973; 1977, 123–127.
[5]Patsch 1897.

Fig. 2 - Results of the earth resistance survey in the east part of the site over ortophoto of the site. Figure by Tomasz Dziurdzik and Michał Pisz.

finds included elements of military equipment and tiles stamped by military units, and from the immediate surroundings numerous grave inscriptions of auxiliaries in active service are known[6], the evidence was not fully convincing.

3. The excavations of the 70s: more questions than answers

After some structures were discovered during the removal of stones from the site for the construction of a road (sic!), an area of ca. 2500 square meters in the central part of the site was excavated in 1976-1980, first as a rescue excavation and from 1977 as systematic research[7]. It resulted in the discovery of two buildings and a part of a third, as well as a rich assemblage of small finds. Unfortunately, the Yugoslav excavations offered very little in terms of understanding the site.

Part of the problem lies in the fact that the excavators lacked previous experience in Roman military archaeology. The interpretation of one of the buildings as a two-storey high headquarters building (*principia*) and the other as a square, courtyard barrack for a *centuria* clearly shows that the excavators struggled with interpreting the finds, even more so since parts of the architecture were only poorly preserved. However, of even greater importance is that apart from the yearly reports and a short summary[8], the excavations have never been fully published. Moreover, the conservation and reconstruction work done on the excavated part of the site was performed without proper understanding of the architecture and without marking the originally

[6]Recently covered in Mayer-Olivé 2016; Marić 2016a, 2016b, 2017.
[7]Since 1977 the research was led by Ivo Bojanovski.
[8]Bojanovski 1981.

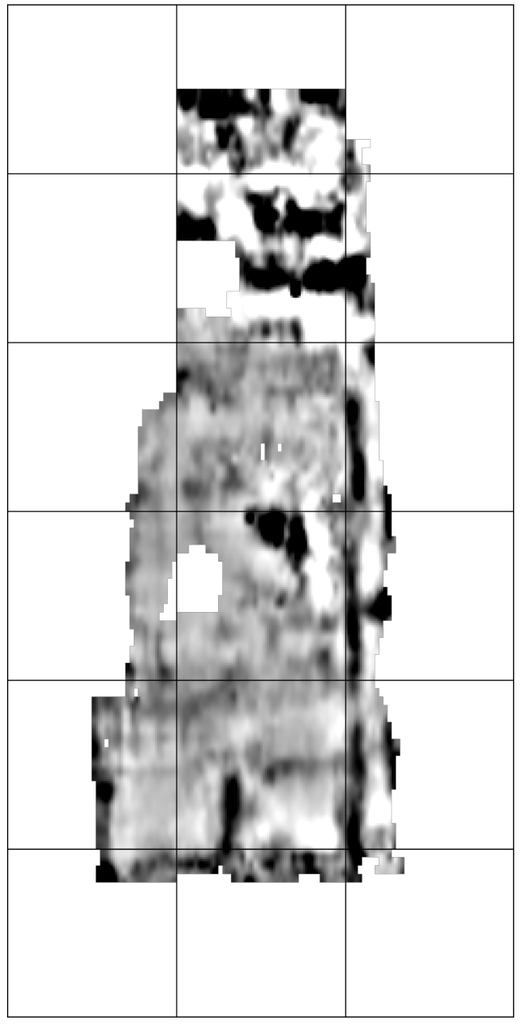

Fig. 3 - Results of measurements (apparent resistivity, measurements in Wenner array, depth 0.5m, sampling 1x0.5m, results filtered: Despike, Low Pass Filter, High Pass Filter, Interpolated, 1-1.5 Standard Deviation). The characteristic shape of barracks, though faint, is visible, especially the square rooms at their ends, in southern part of surveyed area. Figure by Michał Pisz.

preserved parts. This means that any attempt at re-evaluating the results is seriously hampered, especially by the obstruction of the relations between the walls.

The interpretation of both the functions of the uncovered buildings and of the character of the site as a fort quickly became challenged. Some suggested different roles for the buildings as a bathhouse and a house with a courtyard[9], while other went so far as to even suggest that the site was not a fort, but rather an annexe to it[10] or even part of a civilian settlement. This scepticism is understandable, as the architectural remains as presented by the excavators are difficult to understand at first glance in the context of highly standardised Roman military architecture. In fact, to properly re-evaluate the uncovered buildings, it became necessary to look for further evidence, even though the original excavators (and subsequent scholarship) were quite convinced that the site has little more to offer, in the opinion of some due to the destruction of ancient structures, in the view of others – because the area inside the so-called "perimetral walls" was empty (except for the already excavated buildings) in the Roman period.

4. Recent developments in the Roman-era archaeology of the area: Ljubuški Archaeological Project

In 2015 a new development began in local archaeology: non-invasive archaeological research in Polish-Herzegovinian cooperation (between the University of Warsaw, University of Mostar and the community of Ljubuški) under the name of Ljubuški Archaeological Project[11]. Within this broader framework, a research grant has been realised by Tomasz Dziurdzik, entitled *Soldiers, Veterans and Civilians in the Hinterland of a Roman Colony. Research on the Ancient Cultural and Social Landscape of the Region of Ljubuški (Bosnia and Herzegovina) with the Use of Non-Invasive Methods of Archaeological Prospection*, awarded by National Science Centre (Poland) under number 2015/19/N/HS3/00886. Fieldwalking surveys and geophysical research (earth resistance, magnetometry, and magnetic susceptibility) have been conducted in the region, aimed at reconstructing the Roman settlement landscape with the use of the most recent advancements in archaeological prospection and remote sensing, a much needed development in an area facing a substantial increase in building and agricultural ac-

[9]Basler 1985, 22.
[10]Dodig 2006; 2011.
[11]Dziurdzik, Mech, Pisz, Rašić 2016; Dziurdzik 2018.

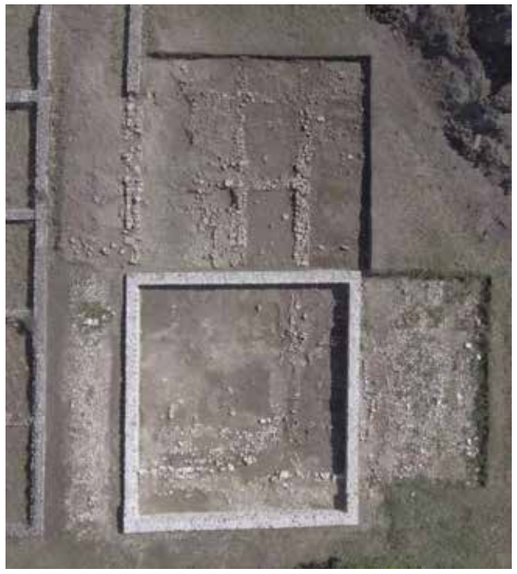

Fig. 4 - The remains excavated in 2017-2018. Square object "A" with the walls after conservation (= centurion's house) and north of it rows of double rooms (= rooms for contubernia), flanked east and west by streets. Figure by Mirko Rašić.

tivities. Meanwhile, thanks to the cooperation of some landowners and the purchase of some parcels by the municipality, an opportunity arose to include parts of the site Gračine in the geophysical prospection as well.

5. Archaeogeophysical survey on Gračine: challenges and results

Earth resistance area survey was conducted in 2016 and 2017[12], as different land plots within the site became gradually available for research due to the involvement of the local municipality and were cleared of vegetation. Since the area studied in 2016 was partially outside of what was assumed the limit of the site, assumed sampling of the survey was 1 × 1 m (level 1 investigation according[13]). Thus, for practical reasons, it was divided into two 40 × 40 grids. The area surveyed in 2017, in the eastern part of the site, was divided into grids 20 × 20 m in order to adjust them to the complicated local conditions and shape of accessible area. The survey in 2017 was a level 2 investigation since it was expected to take place inside the extent of a fort. Sampling resolution was increased from 1 to 0.5 m with traverse interval remaining 1 m. The choice of earth resistance area survey is rarely a first choice technique in opposition to magnetometry.[14] However there is a justification for applying this method. Electrical contrasts of archaeological features are usually stronger than magnetic ones and since the area is densely populated and has been intensively exploited over years, it was contaminated with ferrous garbage. The close presence of modern infrastructure (wires, fences) seemed to be a serious impediment for magnetic methods as well. The situation was difficult also because of several other factors. In addition to the private ownership of some parcels, the trenches, piles of earth and stones left behind by the 70s excavations, as well as the local geological situation forced to skip many spots within the survey extent. In this region, the bedrock is very close to the surface, there are even some outcrops visible above the surface in the near proximity to the north and east of the site.

The measurements were taken with Geoscan Research RM85 resistance meter. Measurements were taken with sampling resolution as described above. The electrodes configuration was Wenner α[15] with distance between electrodes of a = 0.5 m. This pattern allows the meter to record resistance (R) up to maximum depth of 0.5 m below the surface. Measured resistance values have been calculated to apparent resistivity (ρ) by multiplying measured values by a geometry factor (K) related to the electrode array[16]. In this case a geometry factor K=2πa was equal *ca.* 3.14, since a used in this survey was 0.5. The recorded apparent resistivity values have ranged from circa 40 to more than 600 Ωm with mean value *ca.* 90 Ωm for northern area and 130 Ωm for eastern and standard deviation 50 and 80 Ωm respectively[17]. Most recorded values (especially in the southern

[12]Pisz, Dziurdzik 2019
[13]Schmidt *et al*. 2015, 42.
[14]Schmidt *et al*. 2015, 68; Schmidt 2013, 1.
[15]Schmidt 2013, 40–41.
[16]Schmidt 2013, 49–51.
[17]Given apparent resistivity values were calculated basing on output resistance values after Despike filter applied (Schmidt *et al*. 2015, 101–2 multiplied by a K factor value

Fig. 5 - An interpretation of the combined geophysical and archaeological results over ortophoto of the site, in relation to the location of structures excavated in the 70s. Figure by Tomasz Dziurdzik.

part of the surveyed area) did not exceed 100 Ωm, and in the case of highly resistant structures *ca.* 250 Ωm.

In the three grids with most promising results, the measurements were repeated with higher sampling resolution – with traverse interval reduced from 1 m to 0.5 m.

A fragment of the site where the most essential anomalies were detected (circa half of a 20 by 20 m grid) was additionally measured in Wenner α array with the distance between the electrodes increased to a = 0.75 m in order to slightly increase the maximum depth of prospection. The idea of this additional measurement was to obtain information about the thickness and state of preservation of the underground structures. To the maximum depth of *ca*. 0.75 m apparent resistivity ranging from 60 to 220 Ωm has been registered, including two faint linear anomalies corresponding to the results from the measurements done with narrower electrode separation distance. This suggested that the preserved stone structures were close to the surface, and their thickness was low. In turn, this was interpreted as possibly related to a poor state of preservation of the structures.

The maximum extent of prospection covered a surface of ca. 0.45 ha. In both seasons corners of the grids have been measured with GPS RTK in order to provide a spatial relation to obtained data.

6. Archaeological interpretation: hypothetical objects

In the northern part, the situation was complicated due to a combination of several factors, mostly the generally poor state of preservation of this part of the site, as well as the bedrock being very close to surface in several spots. The interpretation of the observed anomalies will require obtaining further information.

On the eastern side of the site the situation was much better. The anomalies were clearer, well-organised in groups parallel and perpendicular to each other. One of them also finds a continuation in the wall of the building partially excavated in the 70s. This allowed a

preliminary interpretation of several of the anomalies of *ca.* 70-120 Ωm as caused by the remains of walls. Their plan is that of two parallel, long buildings with two rows of similar, small rooms and a larger room/house at the end – the shape immediately reminding any Roman archaeologist of the plan of Roman barracks. Two further, slightly wider, parallel anomalies of *ca.* 200 Ωm on both sides of this complex were interpreted as the possible remains of streets, one dividing the barracks from the central complex excavated in the 70s, the other possibly being caused by the remains of *via sagularis*, the street encircling the fort on the inside of the fortifications. All the new information gathered strongly pointed out to the interpretation of the site as a Roman auxiliary fort, and to the need for a reconsideration of the results of the excavations in the 70s in the context of new, neighbouring structures. This suggested that finally a breakthrough was possible in the so far futile discussions on the character of the site. At this stage, the need to verify the results of geophysical research through excavations became obvious.

7. Verification excavation: barracks

An area of almost 400 square meters has been excavated by the Department of Archaeology of the Faculty of Philosophy in Mostar (two seasons, 2017 and 2018) in cooperation with the municipality of Ljubuški. The team was led by prof. Brunislav Marijanović with assistance of prof. Dario Vujević, assist. Tino Tomas, assist. Mirko Rašić and assist. Nina Čuljak[18].

In the southern part of the trench, the remains of a large room (object A) measuring 10 x 10 m have been found and uncovered. Both on east and west side it was flanked by hardened surfaces, representing parts of north-south communication (streets). Within the object, traces of internal divisions were found, as well as a waste water channel. At least two phases of functioning of the site were recorded, the later one being a layer of clay with finds corresponding to 1st century CE (terra sigillata, Sarius ware, East Mediterranean glass, early Imperial coins, parts of military and horse equipment) with further subphases (changes in access by closing the western entrance). An earlier phase, represented by a layer of dark earth, is underlying the remains of stone architecture. This earlier layer contains local ceramics and animal remains.

To the north of object A, a series of small rooms was found, with simple partitions east-west that make up six small rooms in three groups of two. Here the cultural deposit is very thin and the remains of architecture poorly preserved. Finds include military and horse equipment, ceramic and glass, as well as dice for playing.

Both the locations and the state of preservation of the structures uncovered turned out to perfectly match the proposed interpretation of the geophysical anomalies. The remains of the walls were indeed located close to the surface, and were severely damaged by past agricultural activities, including the remains of plough lines going through the top layer of stones in the walls.

8. Conclusions

The research proved several points. Firstly, while the archaeogeophysical survey was something of a challenge to perform and interpret due to the local conditions (both conservational, geological and resulting from lay and ownership of land), it provided crucial insight into the site. This fully proves the assumption behind the Ljubuški Archaeological Project that a systematic non-invasive survey implementing the most recent methods is a must to understand this part of *Narona*'s hinterland. Secondly, a combination of archaeogeophysical survey with verification excavations enabled a much better outcome than would be possible with just one method, as it allowed a cross-comparison of results. In the context of poor preservation of archaeological structures, this was of special importance.

Thirdly and most importantly, we were able to determine that we are dealing with the interior of a Roman auxiliary fort, with streets and barrack blocks of classical form, consisting of a house of the centurion and rows of double rooms for the soldiers. This finally proves that the site Gračine is indeed the remains of a Roman auxiliary fort, allowing for a conclusion in a discussion lasting for more than a century. This is of a special importance for the study of the military history

[18]A more detailed excavation report is to be published separately. The authors would like to express their gratitude for the information and discussion of the results of excavations.

of Dalmatia and the Roman system of defence, particularly since the site has been included in the concept of the so-called *limes Delmaticus* as its southernmost point. In recent years this hotly discussed theory has been re-formulated[19] and the establishment of Gračine as an auxiliary fort, most probably dated in the late 1st half of 1st century CE, similarly e.g. to the next legionary camp at *Tilurium*[20], provides a further point in this debate. The reign of Claudius appears to be the time when the Dalmatian camps and forts were established in a permanent, stone form.

9. Most important puzzle solved, but more remain

However, our results, while solving the most important problem of the character of the site, are just a starting point for further inquiries, especially as there are several contradictions between them and what was suggested by earlier researchers. An obvious example is that the original Yugoslav excavators have reconstructed some mysterious walls in a spot where we would rather expect a continuation of the street. Interestingly, already in the early re-interpretation of the architecture[21] those walls were discarded. It is therefore highly probable that what the excavators treated as walls belonging to buildings are in fact remains of a water channel, or that they mistakenly connected unrelated walls of separate buildings on two sides of the street.

In fact, the whole area excavated in the 70s requires a new interpretation. Its position in the middle of the site, combined with the final confirmation that it is a fort means that it is precisely where the *principia* are to be expected. However, only the southern of the two buildings in the central part exhibit a plan which could belong to the headquarters, if indeed the excavators have unearthed them wholly. Its orientation, however, is exactly the opposite of what is to be expected. Not only it appears to be opening to the south, but there is also no place for a *via principalis* on the northern side, while the positioning of the barrack blocks in line with the two central buildings means there should be an east-west street immediately to the south of them. If indeed those are the *principia*, then they are not facing the north, which in this case is also the general direction of possible enemy (most probably the *Delmatae* with their core territory to the north-west), but rather the south. That this does not follow the standard rule that *principia* should face north and/or the enemy, is all the more unexpected since *Narona* is south-east; the very city which is believed the fort was supposed to protect.

The northern building excavated in the 70s is also problematic. Judging by its plan and the presence of heating in some rooms, it could be a bathhouse, but its location inside the fort and next to the (probable) headquarters is rather unexpected, as typically the bathhouses of auxiliary units are found outside the rather cramped forts. The position would better suit a commander's house, though the architecture indeed matches a bathhouse better.

Until the renewed research at Gračine and the reinterpretation of old excavations reaches a later stage, we cannot rule out the possibility that the peculiarities are in fact the result of different construction phases which were missed by the original excavators in the 70s and combined into a single plan. While they cannot be easily separated on geophysical pictures, the verification excavations provided evidence that at least the barracks underwent small changes at some point in time. Different construction phases at the site are also indirectly attested by the tile stamps of several units. However, it is tempting to suggest that the unusual layout is the result of an early construction date (as indeed matched by small finds), a date when the typical plan and architecture of a permanent stone fort was not yet fully established.

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Sažetak

Rad se bavi recentnim geofizičkim i arheološkim istraživanjima na lokalitetu Gračine (Ljubuški, Bosna i Hercegovina) koji je djelomično iskopan 70-ih godina, ali njegov karakter je bio diskutabilan. Istraživanja električnim otporom tla provedena su kroz realizaciju granta 2015/19/N/HS3/00886 dodjeljenog Tomaszu Dziurdziku od strane „National Science Centre (Poland)", otkrila su karakterističan uzorak anomalija na istočnom dijelu lokaliteta. Preliminarna interpretacija bila je da imamo dva reda prostorija sa većom kvadratnom prostorijom na kraju, kao i identičan kompleks sa druge strane ulice: karakterističan zrcalni uzorak kod objekata baraka. Ovo je potvrđeno istraživanjima Sveučilišta u Mostaru, čiji rezultati potvrđuju interpretaciju. U konačnici ovi rezultati potvrđuju da je riječ o auksilijarnom logoru i zaključuju sve daljne rasprave o karakteru lokaliteta.

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Different methods, different terms: understanding old excavations

ABSTRACT

Present day archaeologists encounter relatively often the situation where the site that they are excavating has been investigated before them in one way or another by archaeologists in the past. Sometimes these predecessors have been investigating the site quite a long time ago, possibly 70, 100 years ago or even longer than that. It is thus not surprising that the past researchers used quite different investigation methods than the ones of today. Even quite basic excavation and interpretation methods like stratigraphical digging or providing the scale and orientation in the archaeological drawing and photography were not a given – at least not everywhere in the world – say 100 years ago. Similar issues arise when it comes to written archaeological report in the past. From the terms used for describing the excavation technique to the ones for the uncovered archaeological features, the wording of some old reports can sometimes be puzzling or even misleading. The purpose of my paper is to examine the relation of a modern-day archaeologist to his predecessors, the scientific gains, but also the hurdles of this relation. I base in this approach mainly on my own experiences, that I'm presenting as two case studies. First case study is based on my reading of the well known volumes *Der obergermanisch-raetische Limes des Roemerreiches*, that were published between 1894-1937. Second case study encompasses my experience as the leader of excavations in the auxiliary fort from Vărădia, in the south-west of Roman Dacia (in nowadays Romania), where at least two predecessors have excavated – one of them (Felix Milleker) more than 100 years ago, the other one (Grigore Florescu) approximately 80 years ago – and then reported about their research. It turned out that in these cases too there are essential differences in methods and terms between our predecessors and our times. This however doesn't rend the old excavations and reports useless, even as the earlier researchers could see structures and aspects that are physically not visible anymore today.

KEY WORDS: OLD EXCAVATIONS, EXCAVATION TECHNIQUES, TECHNICAL TERMS, RECORDING OF ARCHAEOLOGICAL DATA

There are situations in life when one doesn't go off beaten paths or, at least, one doesn't "boldly go where no one has gone before". This kind of situations happens seemingly quite often in archaeology as well. Many times we start exploring and excavating sites that have been explored and even excavated before us. Why are we even doing this? Why are we investigating sites that have been investigated 70, 90 and 100 years or more before our times? Well, I can answer, for myself only: because we have the feeling that the site in question still has something to offer. Sometimes we consider that the site hasn't been investigated enough to offer satisfactory information, or in other words, that the predecessors haven't finished the job properly. Other times we deem that our predecessors haven't done a very good job, either because we think that they weren't up to the job – and let's admit that we do think this way sometimes – or because we consider their methods and techniques obsolete and inappropriate. So we believe that our modern methods and techniques could retrieve far more information from that site as the ones of old.

In the present paper I would like to present in short two case studies of old archaeological investigations and, at the end, attempt to draw some conclusions in a more general way.

First case study for me is the famous excavations along the limes of Upper Germany and Raetia (Obergermanischer-Rätischer Limes, ORL). The investigations on this huge stretch of the Roman imperial frontier have been undertaken at the end of the 19th and the beginning of the 20th century. The Reichs-Limeskommission, founded in 1892, started the huge and impressive work of tracing, describing and partially excavating the military installations along the fortified Roman frontier of the two provinces, of course, the part that was situated on German soil at that time.

For the stretches that have been established ("Strecken"), the Reichs-Limekommission had the so-called "Streckenkommissare", who were responsible for describing, investigating (including excavations) and publishing the reports for the segments of the limes they had within their area of responsibility. In those times, archaeologists were not numerous enough so that each of the 15 segments would be investigated by an archaeologist or, at least, a historian. Some Commissioners were army officers (Otto von Sarwey), physicians (Heinrich Eidam), pharmacists (Wilhelm Kohl), city counselors etc. Hence the research these Commissioners have undertaken wasn't homogenous, and this is visible also in their reports, gathered in the 15 monumental volumes of "Der obergermanisch-raetische Limes des Roemerreiches", published between 1894 and 1937.

The particularities of these research reports could be categorized as: a) excavations methods, b) localization techniques of sites, c) terms used and d) aspects of drawings and photography.

a) From the published documentation it is quite clear that the excavations were not preoccupied with stratigraphy, unless the trenches cut the curtain wall/palisade, earth ramparts and ditch/ditches. The stone walls were usually followed, their both sides unearthed left and right from the wall, but they heeded no trench profiles if it wasn't a curtain wall. The only way they separated between different phases or buildings on the same spot was where they could notice the respective floors.

In this respect it's interesting to point out to the situation of the auxiliary fort from Zugmantel (Fig. 1), where Louis and Heinrich Jacobi (H. Jacobi was the stretch Commissioner) found dozens of so-called "cellars" ("Keller") within and next to the fort, which they couldn't properly chronologically assign and thought that some of these post-Roman underground dwellings could be features of the fort or its adjacent settlement[1].

Also it is openly admitted that not all ceramic shards have been kept and studied, since "lieutenant-colonel Dahm kept only a few shards, that seemed valuable to him, but almost no common ceramic ware."[2]

b) The localizations are accordingly to the technical possibilities of that time. Many are given in referral to relief or human-made features like farms, wells or

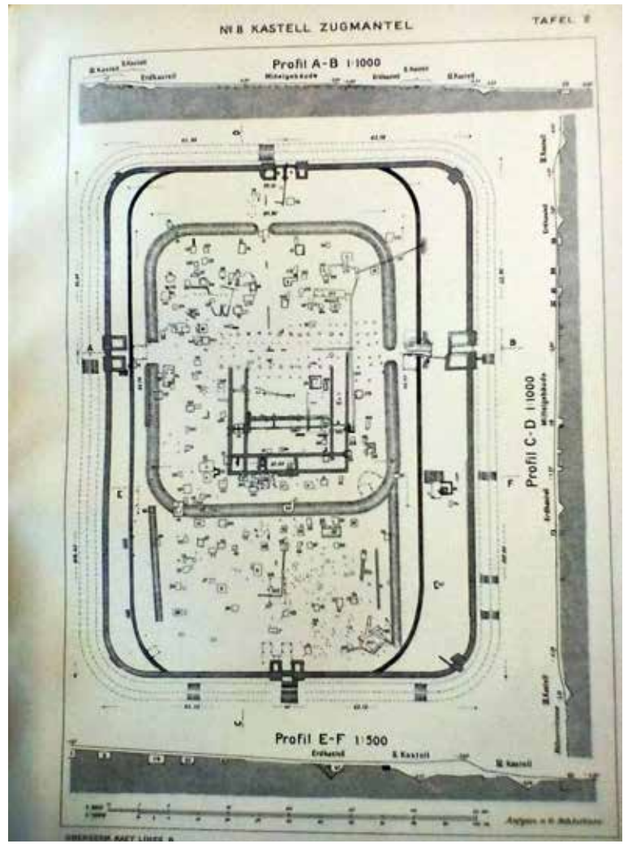

Fig. 1 - Plan of the auxiliary fort from Zugmantel with the so-called "cellars". (source: Fabricius *et al*., 1937)

bridges, by indicating an approximate distance and compass direction. Some reports are more precise and use topographical coordinates, which is not without difficulties either, as Germany still had at that time several different topographical reference systems, like, in our case, "badische Koordinate" (coordinates of Baden) and "württembergische Koordinate" (coordinates of Württemberg)[3].

c) The terms used in these archaeological reports are sometimes quite different than terms used nowadays. Most of them have meanings that are clear to us, despite the changes and updates in terminology. Some of them are not that clear and need either further research of the terms or we can only deduce their meaning from the context they were put in at that time.

Examples of terms that we can still understand today, although we use different words now, were:

"Pfahl" as the combination of earth rampart, ditches and palisade on the limes;

"Rekognoszieren" for field walking (nowadays "Geländebegehung");[4]

"Profil" means mostly "Längenprofile", i.e. long distance sections through the archaeological remains, that show only the features of the terrain on the today's walking level, without any stratigraphy (images will be indicated further down, in the section of the paper that approach the drawings and photography techniques);

[1]Fabricius *et al*. 1937, 10–27.
[2]Fabricius *et al*. 1936, 155.
[3]Fabricius *et al*. 1936, 38-39.
[4]Fabricius *et al*. 1936, 14 etc.

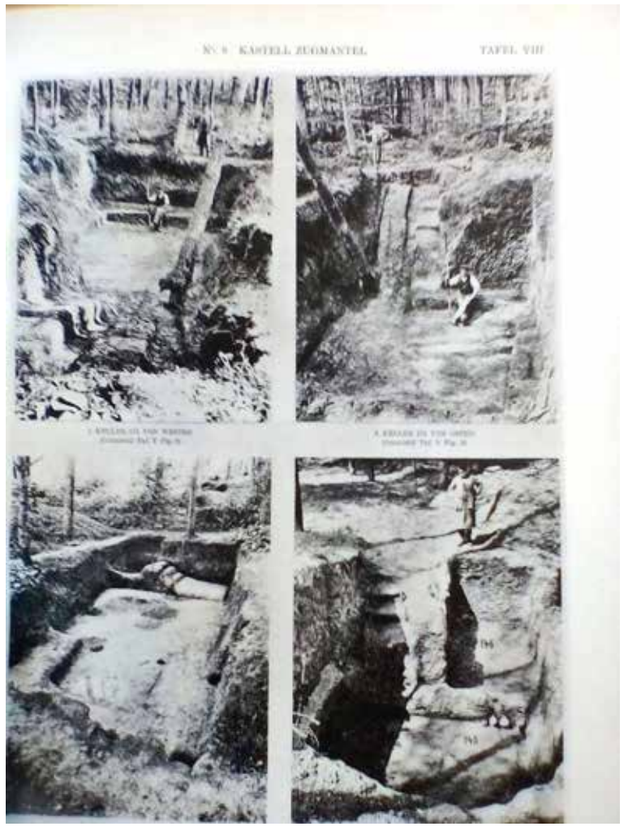

Fig. 2 - Photographs of the excavations in the auxiliary fort from Zugmantel. (source: Fabricius *et al*. 1937)

„Großerz“, „Mittelerz“ are names given to bigger and smaller Roman copper/bronze coins, without saying which exact type (*dupondius, sestertius, as*);[5]

„Praetorium“ or „Mittelgebäude“ (“central building”) for the headquarters building (*principia*) was a common terminology internationally in those times;[6] interestingly though, E. Fabricius debates this terminology and agrees with A. v. Domaszewsky (who already published about this in 1899) that the building should be called “principia”[7], but still uses and allows to be used the old terms (Fabricius has revised most of the reports by different Commissioners).

“Praetorialseite” and, associated to it, “Dekumanseite”[8] for *praetentura* and *retentura*, although both Latin terms were well known;

„römische Gewandnadeln“ (“Roman clothing needles”) for “Fibeln” (Fibulae)[9], although the latter term was also known and used then.

d) Drawings of excavated areas show often sections through the sites, however without containing the stratigraphy, but only the shape of the terrain surface (Fig.1). Photographs of excavated features sometimes either don’t provide a scale at all or they show persons as scales. Of course, we have no idea how tall those persons are (Fig. 2).

[5]Fabricius *et al*. 1936, 36, 46 etc.

[6]Fabricius *et al*. 1929, Abt. B, Nr. 65, Das Kastell Unterböbingen (Major z.D. Steimle); Nr. 66. Das Kastell Aalen, 7 (“Mittelgebäude“) and many more.

[7]Fabricius *et al*. 1929, Abt. B, Nr. 66a. Das Kastell Urspring, 19.

[8]Fabricius *et al*. 1929, Abt. B, Nr. 69. Das Kastell Dambach, 7.

[9]Fabricius *et al*. 1937a, Abt. B, Nr. 1a. Das Kastell Nieder-Bieber, 67.

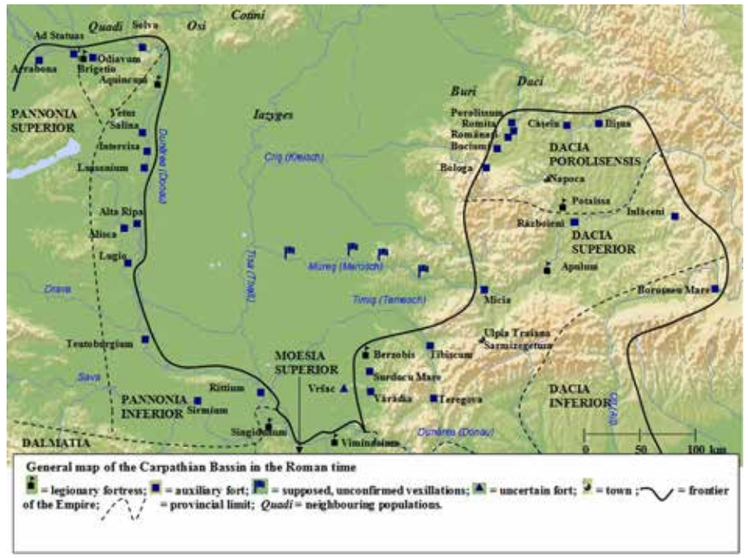

Fig. 3 - General map of Roman Dacia and the surrounding provinces. (source: the author)

Fig. 4 - Satellite photograph of the Vărădia area with the two Roman forts (photo source: Google Earth).

Coming now to the second case study that I’d like to present in short. Conducting excavations in the Roman auxiliary fort of Vărădia, in southwestern Roman Dacia (Fig. 3) there were two predecessors who have done archaeological research on this site and the immediate surroundings. First one was Felix Milleker, the curator of the Museum of Vrsac (Werschetz), in nowadays Serbia, who has visited the site at the turn of the 19th and 20th century and published the conclusions of his work here in a monograph in three volumes[10] concerning the archaeological features of what was then called “the

[10]Milleker 1897; Milleker 1899; Milleker 1906.

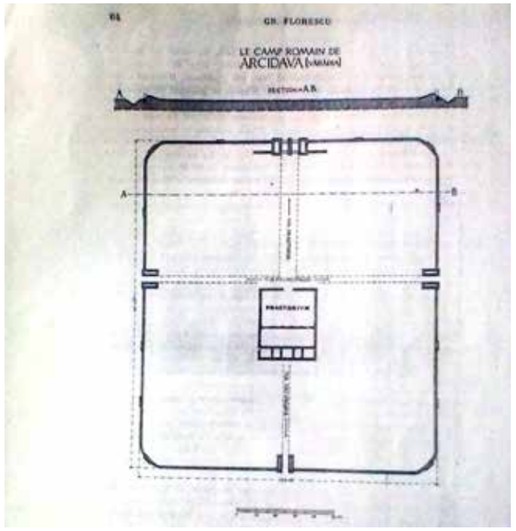

Fig. 5 - Gr. Florescu's plan of the auxiliary fort from Vărădia. (source: Florescu 1934).

Southern Hungary", part of which were the nowadays Romanian province of Banat and Serbian province of Vojvodina. In his publication, Milleker used the same type of localizations as in the ORL publications, referring to natural features like the river Caraș, or positions of properties of different persons/families from the village of Vărădia as reference marks on the terrain (Fig. 4). The terminology is also sometimes peculiar, for instance Milleker describes a structure on the hill "Chilii" as a "specula", meaning by that a watchtower[11]. The new excavations on the same hill have shown that there is no watchtower there, but a full Roman fortress built of earth and timber, currently referred to in publications as Vărădia-"Chilii", that has preexisted the one I'm currently excavating, which is situated 500 m to the south, in the plain (Vărădia-"Pustă"). As what the excavation methods are concerned, Milleker describes how he emptied (in 1901 and 1902) the ditch of the "specula" to the native bedrock, but gives no indication whatsoever that he would have made any stratigraphic observations[12].

The second archaeologist that excavated in Vărădia-"Pustă" was Grigore Florescu in 1932. Apparently well funded, Florescu excavated in one campaign only, that lasted the whole summer of that year. The terminology used in his excavation report published in 1934[13] is not that far from what we use today, with the exception of consistently using "praetorium" for the headquarters building and the term "crepido" for the interior stone wall of the fortress[14], while correctly recognizing by this the role of mere support of the inner slope of the rampart, rather than a full wall that would have doubled the exterior precinct (Fig. 5).

The excavation methods of Florescu were very similar to the ones largely used previously along the Upper Germ-Raetian limes. He cut the whole width of the fort with a trench, found several transversal stone wall foundations and started chasing the said foundations with superficial digging, while usually only uncovering one edge and maybe a third of the width of these foundations (Fig. 6). To this "wall chasing" excavation we owe the plan of the fort in what the stone walls are concerned, of course. There is no stratigraphy mentioned in the text of his article, not even where he says that he dug the afore-mentioned transversal trench.

The drawing of the fort plan shows similarities with those in the ORL volumes, displaying the largely useless "profile" of the transversal trench, that actually only shows the particulars of the terrain surface that was cut, not also the stratigraphy, i.e. what **we** would call a profile.

Both case studies show that there are some difficulties when we are examining 70 or 100 years old archaeological reports. They reside mostly in terms, localizations and methods. Most of these difficulties are not insurmountable, so we can successfully decipher the meanings and the conclusions. Now to the question: "are old excavation still worth something nowadays?" My answer to this is not unequivocal. On one hand, old excavation can be a nuisance, especially during our own excavations when digging out the same spots only to find out that some predecessor has already been digging there and possibly irreparably destroying

[11]For example Milleker 1899, 69–71; Milleker 1906, 257.
[12]Milleker 1906, 257.
[13]Florescu 1934..
[14]Florescu 1934, 63.

Fig. 5. — Le mur qui sépare la première cour du *praetorium* de la cour sacrée.

Fig. 6 - Photo of a wall within the headquarters of the Vărădia auxiliary fort as excavated by Gr. Florescu. (source: Florescu 1934)

some archaeological features, while not interpreting them properly or even not noticing/mentioning them at all. Also, some of the localizations are impossible to reconstruct today. Landmarks like wells, trees, properties may have in the meantime disappeared, changed owners, names or have been reshaped. On the other hand, same predecessors might have been able to observe archaeological features that were visible still at that time and have vanished since, so their reports often contain the only information ever available about said features. What would I do (and do)? I would still take a glimpse at those "ole dusty books and journals on the back shelf", because they could still contain something useful.

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Zusammenfassung

Unterschiedliche Methoden, unterschiedliche Termini: wie verstehen wir alte Ausgrabungen?

Heutige Archäologen sind oft in der Situation wo das Objekt, das sie ausgraben, vor ihnen von anderen Archäologen untersucht wurden. Manchmal geschahen diese vergangenen Untersuchungen vor ziemlich langer Zeit, mögicherweise 70, 100 Jahre oder sogar länger zuvor. Es ist nicht ungewöhnlich, dass die früheren Forscher unterschiedliche Grabungs- und v. a. Aufnahmemethoden als die heutigen Techniken benutzten. Ziemlich elementare Augrabungs- und Aufnahme- und Interpretationsmethoden wie das stratigrafische Ausgraben oder das Eintragen des Maßstabes und der Himmelsrichtungen in archäologischen Zeichnungen und Fotos waren nicht unbedingt selbstverständlich vor – sagen wir – 100 Jahren. Auch die Termini, die man in alten Grabungsberichten und Aufsätzen zur Beschreibung der Grabungsmethoden oder der Befunde und Funde benutzte, können manchmal rätselhaft oder sogar irreführend sein. Im vorliegenden Aufsatz untersuche ich die Beziehung des heutigen Archäologen zu den Vorgängern, den daraus entstehenden wissenschaftlichen Gewinn, aber auch die Hürden, die in dieser Beziehung vorkommen. Dabei stütze ich mich auf meine eigenen Erfahrungen, die ich als zwei Studienfälle darstelle: erstens meine Lesung der Bände von *Der obergermanisch-raetische Limes des Roemerreiches*, die zwischen 1894-1937 veröffentlicht wurden; zweitens meine Erfahrung als Leiter der Ausgrabungen vom Auxiliarkastell von Vărădia im Südwesten des römischen Dakien (im heutigen Rumänien), ein Kastell wo mindestens zwei Vorgänger - einer von ihnen (Felix Milleker) vor mehr als 100 Jahren, der andere (Grigore Florescu) vor ca. 80 Jahren - ausgegraben und darüber berichtet haben. Es stellte sich heraus, dass auch in diesen Fällen einige wesentliche Unterschiede in Methoden und Termini zwischen diesen Vorgängern und unseren Zeiten bestehen, was aber die alten Grabungen und Berichte nicht unnützlich macht, zumal die früheren Forscher Strukturen und Aspekte sehen konnten, die es heute physich nicht mehr gibt.

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Niederbieber and Early 19th-Century Research at the *Upper Germanic-Raetian Limes*

ABSTRACT

The Roman fort of Niederbieber (Distr. Neuwied, Rhineland-Palatinate) is one of Germanys most important dated sites in Roman Archaeology (AD 185/194–259/260). The first excavations were carried out in 1791 by Christian Friedrich Hoffmann (1762–1820). During almost 30 years he discovered the bathhouse, the *praetorium*, the *principia*, parts of the stonewall with its characteristic turrets and various other structures. Spectacular and partly unique finds like an almost complete signum were displayed in the former *Princely Wiedian Collection of Antiquities* in the palace of Neuwied. Hoffmann also discovered the northernmost part of the Upper-Germanic Limes. In 1826/27 many of the results were published by the Prussian diplomat Wilhelm Dorow (1790–1845). Extensive excavations (Reichs-Limeskommission [RLK] 1897–1912) and few publications followed decades later. However, the current state of research is still insufficient considering the significance of the fort.

My dissertation project presents a full analysis of the original sources of the late 18th and early 19th centuries. More than 1500 handwritten notes, letters, manuscripts, sketches, maps and drawings show Hoffmann's self-taught methods of archaeological research during the very difficult times in the aftermath of the French Revolution. The documents reveal many unknown details of building structures. In addition, several finds can be relocated to their original context of discovery. The correspondence shed light on Hoffmann's attempt to establish a scientific network of people sharing his enthusiasm for archaeology or – as it was called in those times – Alterthumskunde. A complete inventory of the former "*Wiedian Collection*" with many unpublished objects has also been created. The results of the study lay the foundation for further in-depth research on the younger excavations and are essential for a complete reevaluation of this important Roman site.

Key Words: history of archaeological research, 18th/19th century archaeology, Niederbieber, Roman forts

Introduction

"The palace of the prince, overlooking the Rhine, possesses a collection of Roman antiquities discovered in this neighbourhood, and principally derived from the buried city of Victoria, near the village of Niederbieber, about two miles north of Neuwied. The destruction of this Roman settlement, which, from the antiquities preserved in it, may be considered as a sort of Northern Herculaneum, appears to have been occasioned by an attack of the barbarian Germans – the remains of burnt beams, and of shattered and levelled walls, attesting the fury of their ravages. The objects brought to light comprise works in bronze and iron, armour, helmets, weapons, a ploughshare, locks and keys, tools of various trades, and a sacrificial knife, pottery in great abundance, tiles, hand-mills; bones of deer, pigs, dogs, and a large quantity of oyster-shells, proving that the garrison of a remote colony in the third century sent all the way to the sea for the luxuries of the table. [...] It is much to be regretted that the remains of the city from which all these curiosities were derived, should not have been permanently exposed; but owing to the value of the land for agricultural purposes, the excavations have been long since filled up, and few traces of Victoria are perceptible, since crops of corn and grass again wave above its scanty ruins."

These lines from an early 19th century travel guide illustrate the significance of the fort of Niederbieber and its collection of antiquities as a tourist attraction for the city of Neuwied[1]. The fort, however, is most prominent for its archaeological significance. Due to a short occupation span (AD 184/190–259/260), it is one of the most important *dated sites* for the study of the Roman northern provinces[2]. Yet, despite its importance, the state of research is still limited and mostly based on the over 100-year-old results of the research program of the *Reichs-Limeskommission* (RLK)[3]. Unfortunately, extensive open cast mining for pumice sand and building activities destroyed huge areas of the site during the 20th century[4], mostly areas of the vicus. Because modern research is lacking as a result of this, a close look at the original sources of the old excavations may be able to provide new and unknown data and could lead to a yet deeper understanding of the site[5].

The more than 250 years of research history at the site can be split into three major phases:

1. pioneering research of the late 18th and early 19th centuries
2. the research program of the RLK (1897-1912)
3. rescue excavations of the 20th and early 21st centuries

The analysis of the first phase is the topic of my completed PhD thesis and some of the results will be presented in this short overview[6]. Surprisingly, two major

[1]Murray 1838, 242–243. With river cruises on the Rhine having become very popular under the influence of German Romanticism many travel guides throughout the 19th century suggested its readers to stop and visit this collection at Neuwied before it was moved to the Saalburg Museum in 1903.

[2]Even modern research still refers to the so-called *Niederbieber Horizon*, a chronological marker for Roman finds from the late 2nd and the first half of the 3rd centuries AD. The term was established after Franz Oelmann's study of the pottery of the fort was published in 1914; Oelmann 1914. However, recent research, especially on the topic of the characteristic pottery of this "horizon", the so-called "Urmitzer Ware" (now termed "Ware Urmitzer Machart") shows that the chronological definition of the *Niederbieber Horizon* has to be critically re-evaluated.

[3]Heising 2010, 65; 68; The results of the RLK-excavations were published by Ernst Fabricius in 1937. He edited the scientific estate of Emil Ritterling who was in charge of the excavations in Niederbieber: ORL B01a 1937; The article is based on an earlier essay from Ritterling: Ritterling 1912.

[4]These activities were sometimes documented by the former *Kreismuseum* Neuwied (today *Röntgenmuseum*) and later by the archaeology department of the *Generaldirektion Kulturelles Erbe Rheinland-Pfalz* (GDKE) in the city of Koblenz. Results of these poorly documented rescue excavations have not been published yet. Only some photos, drawings and plans have been published: Eiden 1982, 137–170. The most famous object of these rescue excavations is the *draco*-standard, which was found in the *vicus* area.

[5]Only a very few recent excavations were carried out by the GDKE, i. e., in the early summer of 2019 when a Roman cellar was excavated within the western part of the *vicus*.

[6]The study was funded by a scholarship from the *Deutsche Limeskommission* (DLK) and supervised by Prof. A. Heising (University of Freiburg) and Prof. E. Deschler-Erb (University of Cologne). Preliminary reports about the project can be found in Mergen 2015; 2019a.

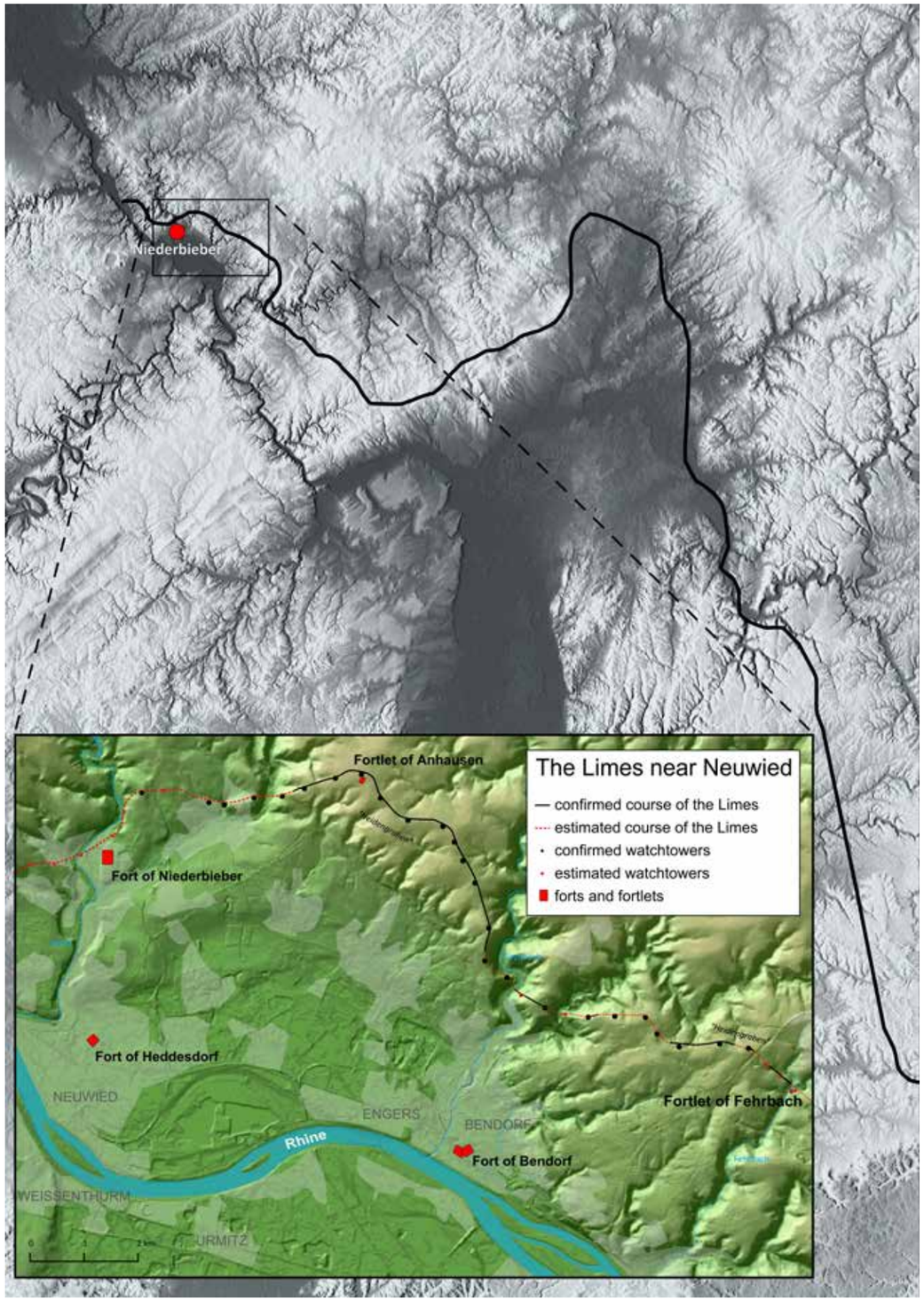

Fig. 1 - Large map: The Upper Germanic Limes with the location of Niederbieber. Small map: The *Neuwied basin* with Roman forts, fortlets and the course of the Limes.

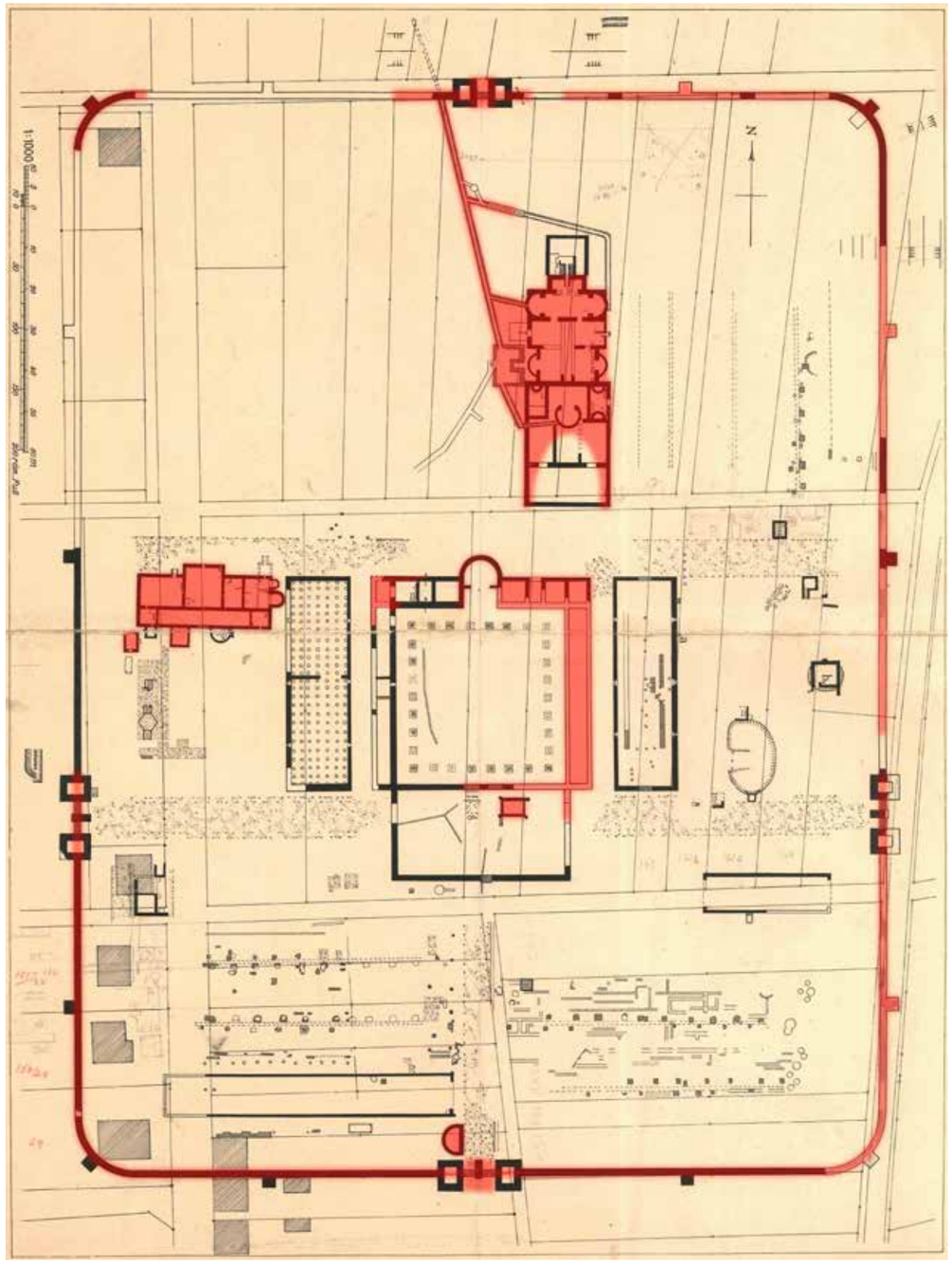

Fig. 2 - Plan of the fort of Niederbieber. Excavations 1791–1823 are highlighted in red.

convolutes of documents were preserved, one of which was discovered in the course of my research project[7].

The Fort of Niederbieber

Built around AD 184/190, the fort was strategically situated on a flat spur, northeast of the village of Niederbieber between the little stream Aubach to the east and the river Wied to the west (Fig. 1). From this location, the entire northern *Neuwied Basin* could be overlooked and controlled. With an area of 5.2 hectares (~12.85 acres), it was one of the largest camps on the Upper Germanic Limes. Furthermore, it had several new defensive features, such as a bathhouse situated *intra muros* and 14 protruding square-shaped towers, which were most likely used as catapult platforms with a 180 degree shooting angle (Fig. 2)[8]. Two garrisons are known to have been stationed in Niederbieber: the *Numerus Brittonum (Antoniniana)* and the *Numerus Exploratorum Germanicianorum Divitiensium*[9].

Over time, after its destruction in AD 259/260, knowledge of the fort's presence faded. Only the local people were still aware of the ruins close to their village. In medieval and early modern times they excavated stones and tiles and reused them as building material[10].

Scientific interest in the remains of the fort and *vicus* can be stated as early as the mid-17th century, when two stone inscriptions (CIL XIII 7760 and 7750) became part of the collection of the Count Herrmann of Manderscheid-Blankenheim (1535–1604), one of the oldest collections of Roman antiquities in Western Germany[11].

First field work was carried out in the mid-18th century, initiated by growing evidence and interest in the remains. Two priests of the villages of Heddesdorf and Niederbieber were ordered by Count Johann Friedrich Alexander zu Wied (1706–1791) to conduct the excavations [12]. However, although remains of Roman building structures were discovered, they made no useful description or documention of their results and most of the recovered artefacts are lost today. Solely a few letters and reports as well as a few coins attest to their work.

Christian Friedrich Hoffmann (1762–1820) and his Research

By the end of the 18th century, the fort was gaining more attention not only on a local and but even international level. This was due to its rediscovery by Christian Friedrich Hoffmann from Braunschweig (Fig. 3). Hoffmann studied mathematics and natural science at the *Collegium Carolinum*[13] and moved on to become an engineer officer. He also translated several English science books into German. In 1789 he moved to Neuwied to work as a private teacher for the Wiedian princes and princesses. One of his students, Prince Ma-

[7]One convolute is part of the *Fürstlich-Wiedisches Archiv* (FWA) in Neuwied. Its scientific value was first discovered by the archivist Bernhard Gondorf (1950–1995). His successor Hans-Jürgen Krüger, who passed away in 2017, supported my study in a friendly and helpful way. I am dedicating this article in his memory. The second convolute was coincidently discovered at the LVR-LandesMuseum Bonn in January 2016. It is part of the personal estate of Helfrich Bernhard Hundeshagen, an architect, who illustrated Wilhelm Dorow's publication about the fort.

[8]This fact alongside a more recently discussed date of its construction presents a strong argument that the purpose of the fort was not primarily the protection of the province territory from raiding Germanic tribes but rather from Roman forces and their siege tactics. The events between Emperor Septimius Severus (commanding the troops in *Germania Superior* and *Raetia*) and Clodius Albinus (commanding the legions in *Germania Superior* and *Britain*) at the end of the 2nd century AD could be seen as a possible reason to establish a defensive camp with two strong garrisons (the *Numerus Exploratorum* could be compared to an elite unit, operating behind enemy lines) at the very north of the Upper Germanic Limes: Reuter, Steidl 1997, 231–234.

[9]It is not proven whether both troops were stationed at the fort at the same time, but the size and the spots where the inscriptions were found are strong hints that the fort was divided into two sections.

[10]The church of Niederbieber, first mentioned in 1203, contains a lot of recycled Roman tufa stone and tiles. A stamped tile (COH [ors] IIII VIN [delicorum]) was excavated in the central well of the nearby castle *Altwied* from the 13th century: Georg 2017. Two massive columns, most likely of diorite, in the medieval monastery of Rommersdorf are said to be of Roman origin as well. In modern times stone material from the fort, e.g., the ruins of the bathhouse, have been used as gravel for road building. A copper alloy object found at Niederbieber is a strong indicator for professional stone recycling. This so-called *stylus with an S-Z decoration* was a characteristic tool of medieval stone masons from the Lombardy, the *magistri comacini*, who worked at cathedrals and monasteries all over Europe. Gnaedig, Marquart 2012.

[11]ORL B01a 1937, 1 f.; Schneider *et al*. 1996, 61; about the collection see: Hanel 2019.

[12]Schneider *et al*. 1996, 61–68.

[13]today: Technical University (TU) of Braunschweig.

Fig. 3 - Christian Friedrich Hoffmann. Charcoal drawing around 1808 by Johann August Karl zu Wied (1779–1836).

ximilian zu Wied-Neuwied (1782–1867), later became a natural scientist and a well-known explorer in Brazil and North America[14].

Hoffmann's interest in archaeology was first awakened on February 1, 1791 when he and one of the princes witnessed two farmers unearthing stones and tiles from a sunken building close to the village of Niederbieber. Curious about these remains, Hoffmann started archaeological fieldwork in the spring of the same year. The project was approved and promoted by Maximilian's mother, Luise Wilhelmine zu Wied-Neuwied, née zu Sayn-Wittgenstein-Berleburg (1747–1823). Influenced by the ideas and ideals of the Enlightenment and Romanticism, she promoted arts and science of various kinds[15]. During the summer of 1791, almost the entire military bathhouse was examined except for the main *praefurnium* in the north and the *palaestra* in the south (Fig. 4). Hoffmann later described the atmosphere of his first excavation:

"During the whole summer of that year, one could see princesses and noble ladies on the fields near Biber with shovels in their hands excavating the ruins, which had been buried for almost fifteen hundred years. Princes, a 70 year-old General-Lieutenant and the most noble men where pushing wheelbarrows and removed, what the ladies had excavated."

Only two short press announcements about the excavation were published in the fall and winter of 1791[16]. The most prominent artefact, found in the main sewer of the bathhouse, was the bronze statuette of a *Genius*, donated on September 23, 246 by the *collegio baioli et vexilari Victoriensium* (CIL XIII 7754)[17]. The inscription led Hoffmann to believe that the settlement's ancient name was Victoria (Fig. 5). He thought he had found parts of a Roman city that had emerged from a former military camp.

Hoffmann's perspective on landscapes and terrain as an engineer officer and his knowledge of military strategy were of great benefit for his archaeological studies. Keeping the Roman discoveries near Neuwied in mind, he postulated that Caesar's Rhine crossings in BC 55

[14]Schach 1994, 9: "[...] Maximilian's love for nature, which is revealed throughout his journals and correspondence, was nurtured by his mother, a woman of exceptional intelligence and education. An avid hunter since childhood, the prince became intimately acquainted with local flora and fauna on his frequent hunting excursions in the Wied preserves in and near the Westerwald. His ingrained sense of history - his paternal ancestors were prominent in government affairs in Cologne in the thirteenth century - was sharpened through his observation of the excavation of two nearby Roman ruins undertaken by his tutor, Captain Hoffmann, at the instigation of Princess Luise Wilhelmine. [...]".

[15]She wrote a poem about the Roman ruins called *Elegie bei den Ruinen Niederbiebers* which was published in 1828 by her former physician; Bernstein 1828, 146–149.

[16]*Intelligenzblatt der Allgemeinen Literatur Zeitung* (IB ALZ) 107, 1791, Sp. 875 f; as a reaction to this first short and incorrect announcement, Hoffmann published another short report in December: IB ALZ 133, 1791, Sp. 1083–1086.

[17]Stoll 1992, 423–429.

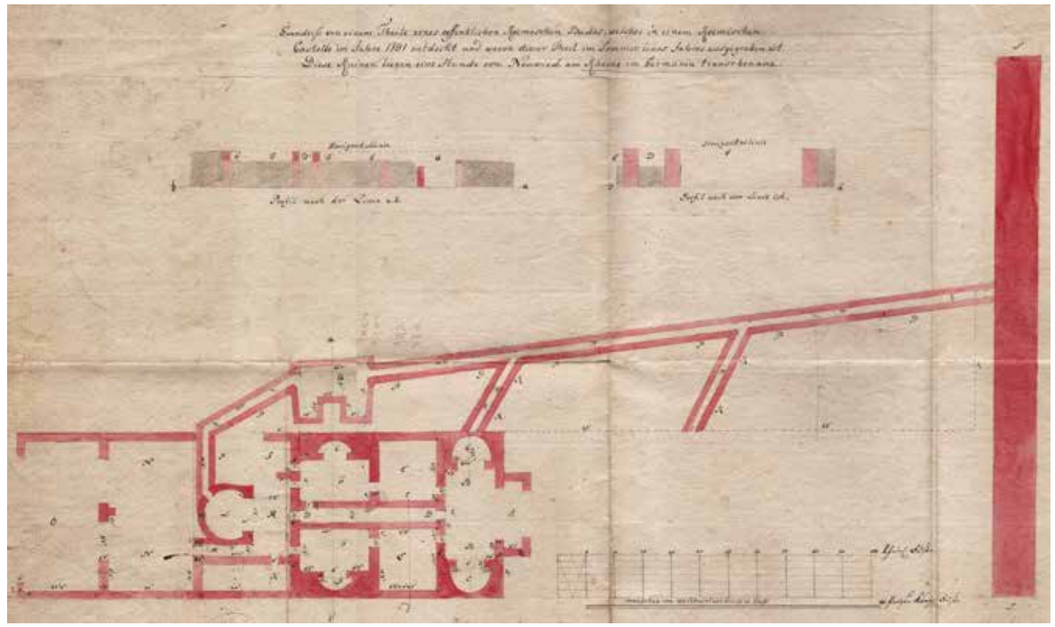

Fig. 4 - Ground plan of the bathhouse by C. F. Hoffmann, September 1791.

and 53 would most likely have taken place in the Neuwied Basin[18].

As an autodidact and thus initially lacking an archaeological methodology, Hoffmann was at first very careful with the publication of his results and interpretations. Professor Christian Gottlob Heyne (1729–1812) in Göttingen became his scientific mentor who provided books from the university's library and even published some of his manuscripts in the university's journal[19].

In the later years, with more experience and growing confidence, Hoffmann started exchanging his ideas with other scholars and Limes researchers like Christian Friedrich Habel (1747–1814)[20]. He also started to publish more articles and essays about the Roman history of the Neuwied area[21]. In 1819, his book "*Ueber die Zerstörung der Römerstädte am Rhein [...]*" was published[22]. Based on a manuscript from January 1815 it provides information about past excavations. The book is also a tendentious essay with strong anti-French connotations, reflecting Hoffmann's patriotic excitement following the victory over France. This interesting aspect shows how his results had strong ties to the current political developments and suggests that archaeological research is always affected by the *Zeitgeist* of the time. During Hoffmann's time, political tendencies of an early German nationalism in connection

[18]He eyewitnessed the crossing of the Rhine by the *Grande Armée* under the command of general Louis Lazare Hoche (1768–1797) near Weißenthurm in September of 1795 and April 1797. This supported his hypothesis about Caesar crossing the river near Neuwied. Another reason was the ruin of the late antique *burgus* of Neuwied-Engers, which Hoffmann interpreted as an abutment of a Roman bridge. Knowing that Caesars bridges were made of wood, Hoffmann dated these remains to the time of Drusus. One of Hoffmann's manuscripts on this topic was later published by C. G. Heyne: Heyne 1811.

[19]About Heyne and his connection to the excavations at Niederbieber see: Heidenreich 2006, 317–323; Graepler 2007, 63 f.; The former archivist of the FWA, Bernhard Gondorf (1950–1995), analyzed the correspondence of Heyne and Hoffmann: Schneider *et al*. 1996, 72–79.

[20]Habel was a co-founder of one of the oldest organized societies for history and archaeology in Germany. The *Verein für Nassauische Altertumskunde und Geschichtsforschung* was founded in 1812. One of its main purposes was to promote and intensify archaeological research of the Limes in the former duchy of Nassau (today parts of Rhineland-Palatinate and Hesse); Eiler 2013, 35–38.

[21]e. g. Hoffmann 1802a & b; 1811; 1812; 1813.

[22]Hoffmann 1819 (2nd edition published in 1823).

Fig. 5 - Bronze genius of the baioli and vexilarii of the collegium Victoriensium signiferorum; drawing from 1793 by an artist with the initials A.G.E.

with cultural movements like Romanticism strongly affected historical, cultural and linguistic studies[23].

Hoffmann kept his fascination for archaeology up until his death from tuberculosis in October 1820. Only one year prior to his passing, he was called to Bonn by the governor of the Prussian-Rhine Province. Here, the University of Bonn was excavating the Roman legionary camp[24]. The excavations were on the verge of being aborted due to the overwhelming abundance of features and structures, and the complicated sequences of construction phases raised more questions than answers. By this time, Hoffmann was well known for his archaeological achievements and his opinion and expertise were of great value. This shows how Hoffmann, even as an autodidact can be seen as a pioneer of his time in the field of archaeology.

A Short Chronology of Archaeological Research in Niederbieber

The period of research between 1791 and the 1820s was characterized by long and numerous interruptions due to the turbulent aftermath of the French Revolution. Still, over the course of these years, many parts of the fort were examined and an abundance of artefacts retrieved. The excavations focused on four main areas which were congruent with the occurrance of massive stone structures of the fort: the fortification walls with its gates and towers, the bathhouse, the *principia* and the *praetorium*. Wooden structures such as the soldier's barracks (*contubernia*) were, according to the methodical standard of archaeological fieldwork around 1800, not yet able to be detected.

The initial excavation took place in 1791 and uncovered the bathhouse. This was followed by a 10-year break due to the outbreak of the *War of the First Coalition*. Then, in late August of 1801, after the crops were harvested, Hoffmann discovered the extent and shape of the fort. He describes how the fortification walls were clearly visible from an elevated point at the time the crops growing above the ruins started to ripen. The results of these excavations led to the publication of Hoffmann's first articles about Niederbieber[25]. A ground plan based on Hoffmann's drawings was also published for the first time in 1804[26].

In 1811, after another 10-year interruption, fieldwork was resumed but only little information about these excavations is preserved. In 1812, Hoffmann discovered the *principia*. Excavations continued during the following two years. These excavations unveiled an array of the most interesting artifacts discovered at the

[23]Gramsch 2007, 277–279; Mergen 2019a, 49.

[24]Mergen 2019b.

[25]Hoffmann 1802 a & b.

[26]Minola 1804, folding plan; one year later another plan of the fort, was published in a French article by Friedrich Christian Matthiae (1763–1822) along with other illustrations like a ground plan of the bathhouse and several inscriptions; Matthiae 1805.

fort of Niederbieber. Between 1814 and the spring of 1815 Hoffmann wrote much about the discovery of the fort's headquarters while describing the artefacts and interpreting their historical meaning. In the spring and fall of 1815, he excavated parts of the *praetorium* but did not publish any of the results. Hoffmann's final excavations took place in 1818 and focused on a Roman stone building within the *vicus*. In 1822 and 1823, after his death, Hoffmann's successor, Hugo von Knopäus, conducted two further excavations of the *praetorium*.

In 1826/27, Hoffmann's results were summarized, analyzed (Bernhard Hundeshagen) and finally published (Wilhelm Dorow) in "*Römische Alterthümer in und um Neuwied am Rhein.*" The book concludes the first phase of research of the Fort of Niederbieber. It took almost 80 years until research at the fort was continued due to the founding of the RLK and its widespread extensive research programme.

The *Praetorium*

Located west of the *principia*, the *praetorium* is a great example for the benefit of studying old sources and how it can result in providing new and crucial scientific data (Fig. 6)[27]. It was the first building of the fort to be discovered and documented, piece by piece, within the entire timeframe of the excavations (1791 to 1823).

On February 1, 1791, Hoffmann and his noble student, after observing famers digging for stones, discovered a rounded wall. Unaware of its context and extent, it was not until the excavations in the spring of 1815 that Hoffmann realized its significance. During the fieldwork, it became evident that the wall was part of a small apse, belonging to the private bath of the *praetorium* (Figs. 6.1 - 6.4 yellow). Two sketches of the 1815 excavations, from Hundeshagen's estate, vividly illustrate the results. In the spring, Hoffmann continued the excavations by uncovering the north-eastern part of the building with a test trench (Figs. 6.2 - 6.4). He proceeded to excavate westwards along the northern wall until reaching the central square room of the *praetorium*. In October 1815, they examined the north-western part of the building (Fig. 6.3). This room (labeled 'c' according to the ORL) was indirectly heated from the rooms to the south and likely directly heated by another *praefurnium* outside of the building. The *suspensurae* of the *praetorium* were supported by small columns made of local pumice stone[28]. Unfortunately, Hoffmann did not provide a summary or conclusion regarding these excavations.

In 1822/23 Hoffmann's successor Hugo von Knopäus († 1838) conducted further excavations on the building. His focus was mainly on uncovering the southern rooms and the private bath located in the east. During this phase, ground plans were drawn in a style similar to Hoffmann's (Fig. 6.7) and a detailed coloured drawing of the southern part of the private bath (Fig. 6.8).

Hundeshagen attempted to contextualize the few plans and sketches when designing a ground plan of the fort for Wilhelm Dorow in 1824[29]. However, due to the little information available at that time, Hundeshagen's plan and hypothetical reconstruction of the building turned out to be somewhat generous (Fig. 6.5). Doubting the accuracy of this plan, the building underwent re-excavation in 1897 by Emil Ritterling. His results proved to be an invaluable source for crosschecking the documentation from 1815 and 1822/23.

Combining all these existing sources, now allows for a more comprehensive and detailed description of the *praetorium* to be presented. Hoffmann's and von Knopäus's documents significantly contribute to our knowledge of the building, especially concerning the areas which Ritterling found found to be in an advanced state of destruction or was unable to excavate in 1897. This not only facilitates a much more accurate reconstruction of the building but also with the help of Hundeshagen's notes, allows some of the objects to be relocated to their original location of discovery[30].

[27]Ritterling 1912, 269; ORL B01a 1937, 32–41, pl. 4.2.

[28]Dorow 1826/27, pl. 5.5.

[29]Dorow 1826/27, pl. 2.

[30]Hundeshagen meticulously recorded his observations on small paper strips, resulting in several thousand such notes in his estate. Although most of these notes hold little scientific value, a few of them contain crucial information about specific building details or the precise locations where certain objects were unearthed.

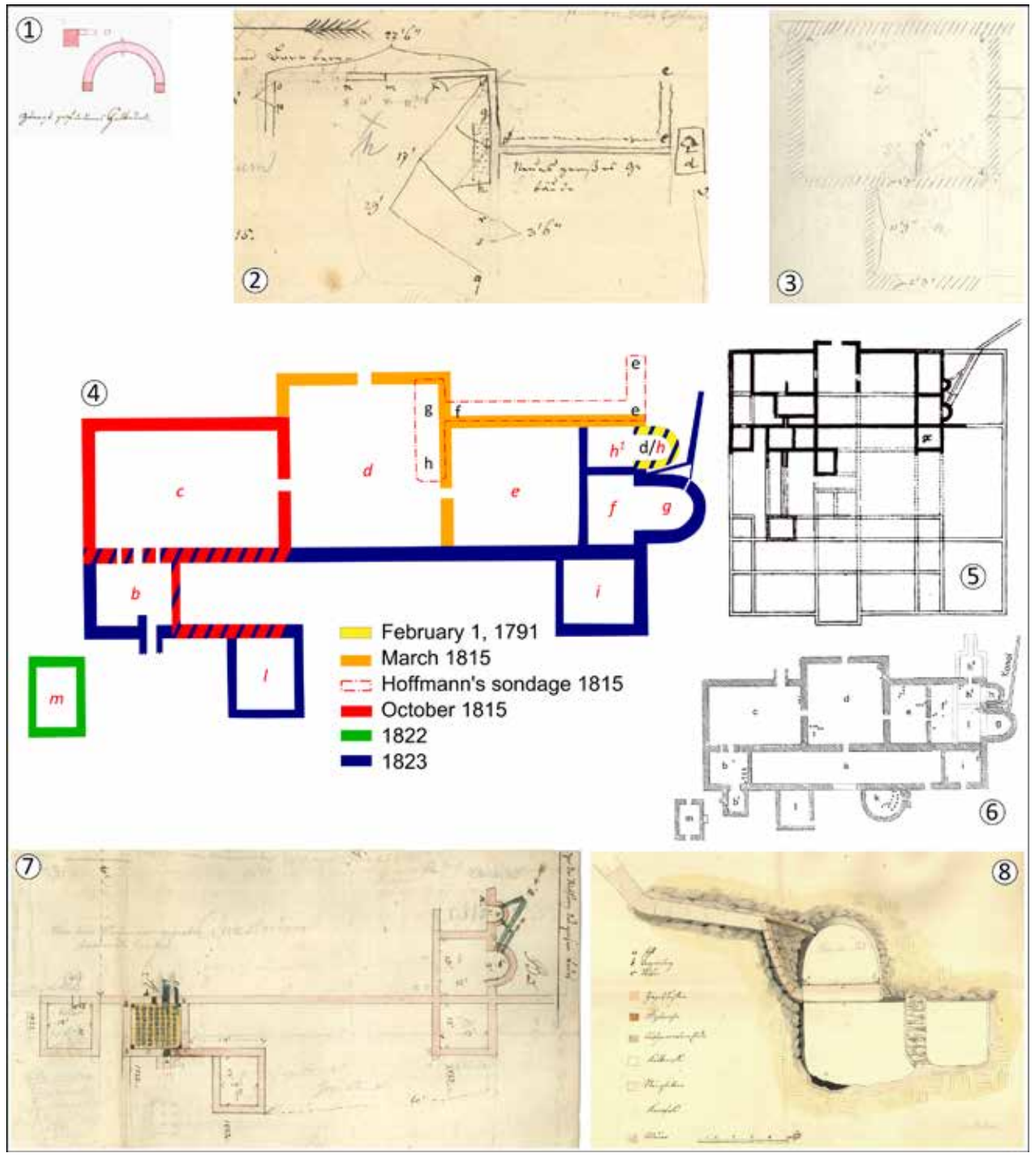

Fig. 6 - The praetorium of the Fort of Niederbieber, overview of the excavations 1791–1823. 1) C. F. Hoffmann 1791(?), northern apse. 2) C. F. Hoffmann, March 1815, pencil notes by H. B. Hundeshagen. 3) C. F. Hoffmann, October 1815, pencil notes by H. B. Hundeshagen 4) reconstruction of the excavations 1791–1823 on the base of the ORL groundplan 5) groundplan after Hundeshagen/Dorow. 6) groundplan after ORL. 7) unknown artist, results of the excavations 1822/23, pencil notes by H. B. Hundeshagen. 8) drawing by Puschner 1823, southern apse

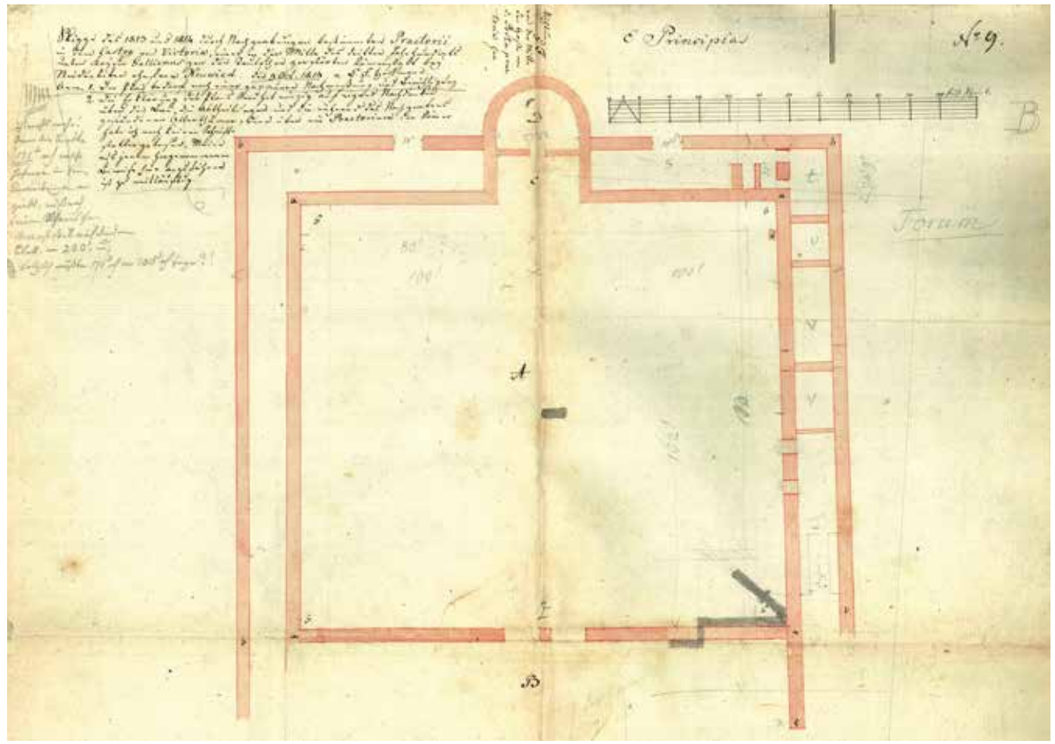

Fig. 7 - C. F. Hoffmann, October 9, 1814, ground plan of the principia, pencil notes by H. B. Hundeshagen.

The *Principia*

One of the most important discoveries was the partial excavation of the *principia* in 1813 and 1814 (Fig. 7)[31]. This exemplifies how ancient sources contribute to the advancement of modern research. Hoffmann focused on examining the row of rooms east of the *sacellum* in the northern part, as well as the eastern part with the *armamentarium*. His efforts yielded astonishing artifacts, elevating Niederbieber to one of the most renowned forts of the Upper German Limes. Among the remarkable objects were the eponymous iron helmet and the individual parts of a more or less complete *signum*[32]. The inscriptions discovered within the *principia* not only provided valuable information about the fort's garrison and the Roman cult of genius worship[33], but also shed light on the purpose of specific rooms within the *principia*, such as the *schola* of the *collegium* of the *vexillarii* and the *tabularium*. Hoffmann's exclusive excavation within these rooms significantly enhances the value of his findings. Subsequent excavations conducted by the RLK were unable to explore this area, resulting in limited knowledge of its inner structure (see Fig. 2)[34]. Hoffmann's records, therefore, serve as an indispensable supplement, providing crucial information about this part of the building. Notably, his documentation of a *hypocaustum* in the *tabularium* and the precise location of the discovery of the inscription

[31]In 1801, Hoffmann excavated within the *principia* as well but did not know yet about the extent of this building. Among various sculptured stones he most likely discovered is the statuette of the *genius horrei* of the *Numerus Brittonum* (CIL XIII 7749) from the area of the water basin or fountain in the *basilica* or *Querhalle*: Minola 1804, 214–215; ORL B01a 1937, 19.

[32]The helmet was recently examined at the LVR-LandesMuseum Bonn and new results were presented by the author at the *ROMEC XX* in 2019. A detailed publication is in progress. About the *signum* see: Töpfer 2011, 71 cat.-no. AR 1

[33]Stoll 1993; Reuter 1995, 51.

[34]Dorow 1826/27, pl. 2. The accuracy of the ground plan published by Dorow was doubted by the scholars of the RLK. Only in comparison with the western part, could it be assumed that the inside of the eastern part was of similar design.

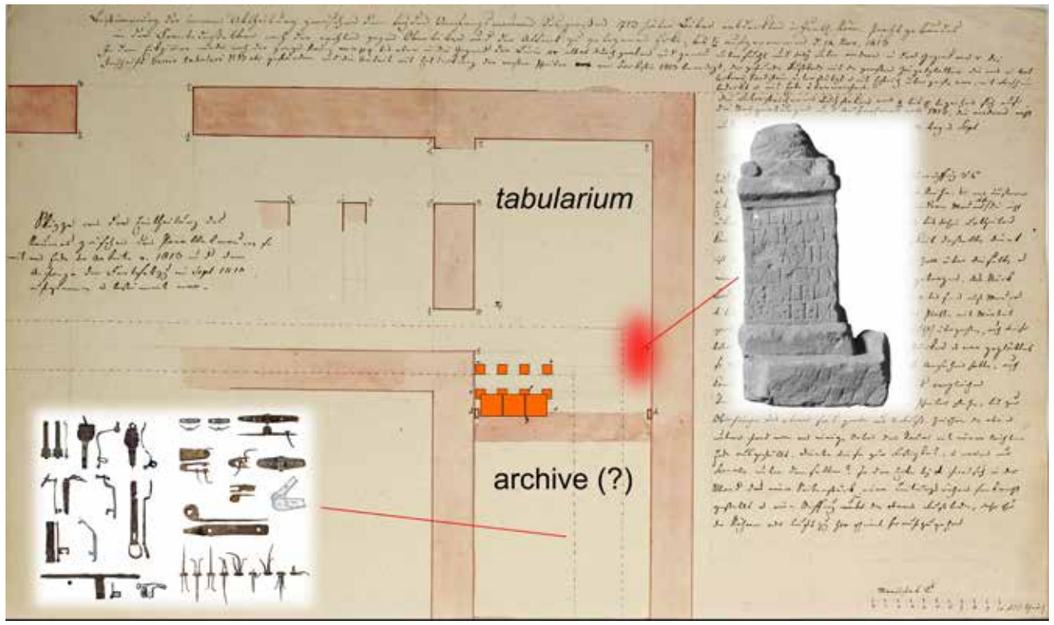

Fig. 8 - C. F. Hoffmann, 1813/14, ground plan of the eastern part of the principia. Modification: J. Mergen.

of the Genius of the tabularii of the *numerus Brittonum* (CIL XIII 7752) stand as the most significant examples of his contributions (Fig. 8). Among the intriguing discoveries were numerous metal fittings, locks and hinges found in a small, unheated room south of the *tabularium*, suggesting it may have served as the administrative section of the fort, probably an archive.

The rooms discovered further south were most likely used as *armamentaria*[35]. Unfortunately, some of objects discovered in these rooms – a *lorica hamata* fragment and a couple of heavy lance heads – have been lost over time. Only an inscription dedicated to Mars (CIL XIII 7756) discovered near the wall that separated the *armamentarium* from the *archive*, can still be identified. According to Hoffmann, fragments of a tall bronze statue, possibly depicting the god, were found close to the inscription.

In summary, the meticulous documentation of Hoffmann's excavations in 1813/14 provides a significantly more detailed insight into the *principia*'s construction, substantially augmenting the previous knowledge derived from the RLK's results about this prominent building.

Early Research at the Limes

In addition to his research in Niederbieber, Hoffmann also explored segments of the Roman Limes in the area between the Rhine and the river Lahn, known as the *Strecke 1* according to the RLK's definition. At the beginning of the 19th century, the state of research on this topic was largely based on the studies of Christian Ernst Hansselmann (1699–1776)[36]. According to Hansselmann, the starting point of the Limes at the Rhine was situated south of the Lahn river. Hoffmann, however, estimated a connection between the Niederbieber fort and the Roman frontier. Especially in 1802, the sources show an intensified research activity by Hoffmann, who diligently searched for traces of the Limes on his hikes along the western slopes of the Westerwald near Neuwied. Additionally, he sent out questionnaires to knowledgeable individuals in some surrounding villages and communities, inquiring about unusual anthropogenic modifications of the landscape

[35]ORL B01a 1937, 20.
[36]about Hansselmann see: Neumaier 1993.

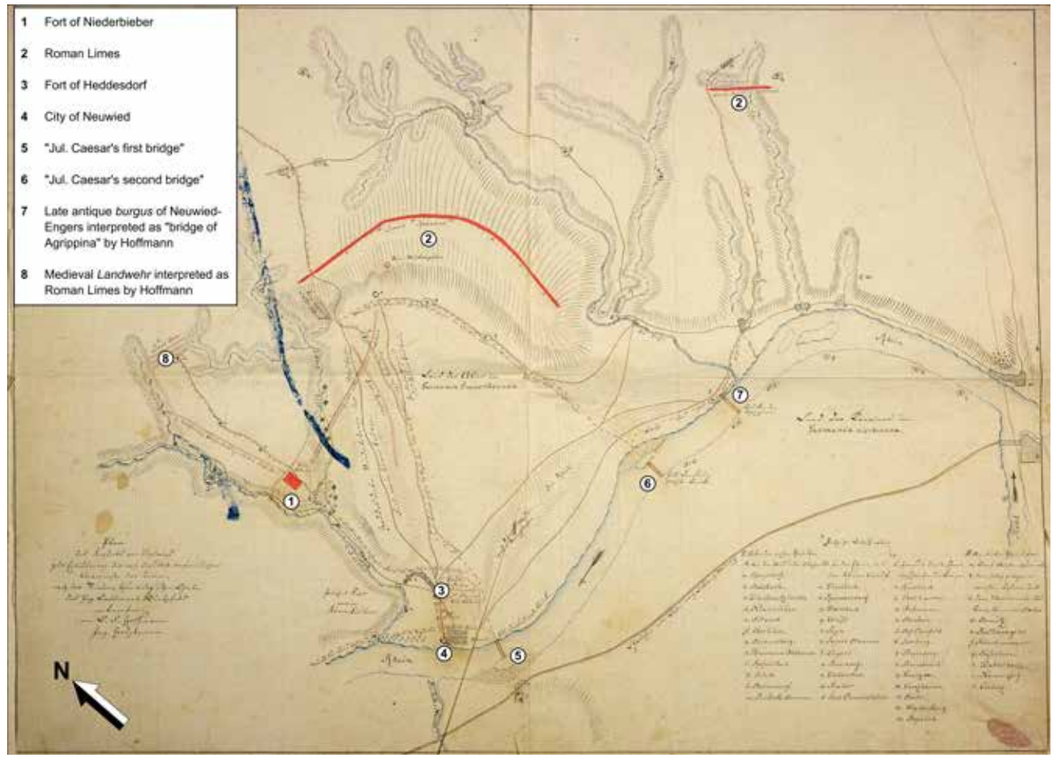

Fig. 9 - C. F. Hoffmann, after 1811, "Plan des Keßels von Neuwied [...]". Modification: J. Mergen.

such as walls, trenches or conspicuous field names like *Heidengraben*. This early attempt can be valued as an early form of archaeological mapping. Based on his observations, he proposed in 1802 that the Limes, coming from the south, would likely cross the river Lahn not far from the town of Bad Ems[37].

In addition to uncovering genuine traces the Roman Limes, Hoffmann also stumbled upon remnants of former medieval or early modern territorial borders, known as *Landwehren*, and surmised that these could also have Roman origins. The prevalence of these newer earthworks led Hoffmann to believe that the course of the Roman Limes extended across the northern *Westerwald* and the *Bergische Land* north of the river Sieg. He did not know about the *caput limitis* near the village of Rheinbrohl much closer to Neuwied. Despite this assumption, Hoffmann was correct with his interpretation of the real remains he discovered in the area. In his opinion the hill-like outcroppings occurring at regular intervals on the western side of the Limes were remains of watchtowers. This was correct, although Hoffmann never excavated any of these buildings during his research[38].

Only one of Hoffmann's maps mentioned above is preserved in the FWA. In this map, dating from before 1811, Hoffmann listed every archaeological monument or discovery he knew of (Fig. 9). The stretches of the Limes he discovered correspond perfectly with the results of modern research[39]. Hoffmann's investigation of the course of the Limes in the area of *Strecke 1* was also a pioneering achievement of early Roman archaeology.

[37]In Bad Ems a fort and a fortlet controlled and secured the river transition of the Limes. Hoffmann wrote his assumption Friedrich Christian Matthiae (1763–1822), ten years before Christian Friedrich Habel "officially" discovered the transition in Bad Ems.
[38]At the same time similar structures at the Limes in the area of the Odenwald were interpreted as graves or crypts: Knapp 1813, 108–109.
[39]Mergen 2015, 26–27.

The Princely Wiedian Collection of Antiquities

As the quote from Murray's handbook in the introduction shows, this collection was one of the most outstanding collections of Roman antiquities in the Rhineland and beyond. In fact, the collection can be considered one of the first so-called *vaterländische* collections, a term that was also used to describe the local archaeology of a certain region like the Rhineland. Almost the entire collection consisted of artefacts from Niederbieber. Unlike other collections at the time, there were no foreign purchased antiquities in the collection. Hoffmann used to guide visitors with great passion and enthusiasm through the rooms.

In 1903 the collection was transferred to the Saalburg Museum. The aim was to present the most important artefacts of the Upper Germanic Limes at this central location. Soon, the capacities of the museum became limited by the extraordinary number of objects from nearby forts like Zugmantel, Feldberg and the Saalburg itself. The objects from Niederbieber were transferred back to the Rhineland in 1927. In the course of its relocation, the collection was split up between the *Provinzialmuseum* Bonn and the newly established *Kreismuseum* Neuwied. The latter demanded on presenting Roman artefacts from Niederbieber to the people of Neuwied. Considering it has experienced two World Wars, relocations and being split up, the 200 year-old collection is still in quiet a good condition. Only the collection of coins vanished during World War II. In addition to Dorow's publication, catalogues of several groups of objects such as brooches or military equipment have been published during the 20th century[40]. The extensive analysis of the collection lead to a full presentation of the collection in my PhD thesis. Surprisingly, famous objects such as the eponymous helmet had never been published in adequate manner before.

Summing up the results of the exhaustive archive analysis of the research phase 1, a remarkable increase in knowledge can be substantiated. Especially, as it is the case for fort Niederbieber, if modern research results are lacking, the examination of old documentation sources is most definitely worth the effort. In addition to new results about the fort and its environs, this case study is also a notable contribution of data for the history of archaeological research.

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Zusammenfassung

Das Kastell Niederbieber ist eine der wichtigsten *dated sites* der Provinzialrömischen Archäologie. Obwohl seine Erforschung mehr als 250 Jahre zurückreicht, ist der Forschungsstand immer noch unbefriedigend. Er beruht im Wesentlichen auf den Forschungen der Reichs-Limeskommission zwischen 1897 und 1912. Da große Teile des Kastellareals im 20. Jahrhundert zum Teil undokumentiert zerstört wurden und moderne Forschungsergebnisse weitgehend fehlen, kann ein Blick in die Archive neue und bisher unbekannte Erkenntnisse erbringen. Im Rahmen meiner kürzlich abgeschlossenen Doktorarbeit wurden die Aufzeichnungen zur frühesten Erforschung des Kastells zwischen 1791 und den 1820er Jahren ausgewertet. Die damaligen Forschungen wurden vom Fürstenhause zu Wied beauftragt und in den schwierigen Zeiten nach der Französischen Revolution finanziert. Der Prinzenerzieher, Mathematiker und Militäringenieur Christian Friedrich Hoffmann führte die Grabungen durch und erzielte beachtliche Ergebnisse und förderte spektakuläre Funde zutage. Seine Aufzeichnungen bilden den Kern der Studie, die neue und bislang unbekannte Details zu diesem wichtigen Fundplatz vorlegt.

LIMES XXIIII

Session 27

Saxon Shore

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Cross-Channel Connections. The fort at Oudenburg within its wider context: new insights into the *Litus Saxonicum*.

ABSTRACT

For the first time within the context of the Shore forts, recent excavations at the Oudenburg (Belgium) fort precinct yielded securely datable structural evidence with regards to the evolution of the mid- to late Roman fort. Through the integration of old and more recent data, Oudenburg has become a key in the study of the development of the coastal defence system within the Channel region, especially as part of the late Roman 'Saxon Shore'. Research of this fort has contributed considerably to historic-military, but also to socio-cultural and socio-economic insights. Significant conclusions are the increasing cross-channel connections from the later 3rd century AD onwards, the changing character of the community *intra muros* and the tangible indications for a general Shore programme in the 4th century.

Key Words: Saxon Shore, *Litus Saxonicum*, Oudenburg, Shore fort, cross-channel connections.

The five synthesis publications on the Saxon Shore forts that came out after the middle of the 20th century[1] were mainly focused on the late Roman period and on the Saxon Shore situation in *Britannia* rather than on the Continent. Since then, new sites have been discovered on the Continent and there has been renewed archaeological research on known sites, emphasising the military strength in this area already from the late 2nd century onwards. It has become clear that the *Litus Saxonicum* should be considered as the final phase of a complex evolution in the coastal defence in the North Sea area, covering both sides of the Channel. Excavations and subsequent post-excavation studies at late Roman forts along the Channel yielding insights into the historic events and their impact on the fort communities and the region, and into the wider debate of interpretation and identity, are limited. Many of the forts along the Channel have been excavated only very limitedly and/or many decades ago, when other (often less sophisticated) field methods and other research questions were in place. Knowledge on the fort interior and its evolution at the 'Saxon Shore' forts in Britain is restricted and thorough contextual analyses on the find assemblages of these forts were performed only

[1]White 1961; Johnson 1976/1979; Johnston 1977; Maxfield 1999; Pearson 2002b.

in a limited way, evidently resulting in limited structural, economic and social interpretations of the internal occupation of the forts. In *Britannia* only at the fort of Reculver significant excavations yielded clear insights into the fort's interior[2].

Nonetheless, these forts should be considered as – to say it with the words of Gardner – '*essential contexts for the broader changes in the Roman world*'[3]. Especially in Late Antiquity, the forts of Britain and northern Gaul show a balance between tradition and transformation, between continuity and change, resulting in specific natures of Roman military identity.

From the Oudenburg fort along the Belgian coast no remains survived above ground, in contrast to most of its British counterparts. Its use as a stone quarry during the medieval periods and the subsequent development of this location into the core of a medieval town led to a major destruction of the defences and a build-up of soil over the surviving remains and levels. It is however this situation and the inevitable soil interventions which take place in a modern town, that has made that the Oudenburg fort is the shore fort that we now know most of regarding the evolution of its fort interior[4].

Oudenburg in Roman times – nowadays about 8 km from the Belgian coastline, between Ostend and Bruges – was positioned strategically on an elevated sand ridge penetrating the coastal plain. Its location was very similar to that of the Aardenburg fort in the Netherlands, a long day march away from Oudenburg and which has a parallel evolution until the late 3rd century[5].

Synthesis research of the Oudenburg data[6] conclude to the following evolution of the Roman occupation of the sand ridge. A pre-fort settlement started to develop at the west side of the sand ridge from the second half of the 1st century onwards. When the army arrived in the late 2nd century it became a military *vicus* extending eastwards around the fort, to further flourish until its maximum extent in the first half of the 3rd century. A large cremation graveyard to the south of the fort excavated in the early 1990s uncovering over 500 burials can be related[7]. The extramural settlement and this graveyard were abandoned in the 260s. From the late 3rd century onwards, the marine influence increased significantly, narrowing the sand ridge. In the 1960s two military inhumation graveyards were discovered at *c.* 400 m to the west of the fort[8]. The northern graveyard, graveyard A, 4th until early 5th century, could be almost totally uncovered with 216 graves, and is characterised by a large amount of crossbow brooches (33 examples). More to the south, three graves were uncovered of a graveyard of a slightly earlier date, graveyard B, which could not be explored further. In 2014 preventive archaeological excavations to the east of the fort yielded the edge of another late Roman inhumation graveyard, graveyard C, with a similar date as graveyard A. Graveyards A and C can be firmly connected to the final fort period of the 4th and early 5th century.

The starting point for the new insights into the fort's evolution, chronology and organisation were the large-scale salvage excavations of the south-west corner of the *castellum*, conducted by the Flanders Heritage Agency between 2001 and 2005[9]. Excavations at the northeastern corner in 2003-2004 and 2008-2009 – the latter in collaboration with the City of Oudenburg – yielded important additional data[10]. The approximately 1 m thick Roman occupation level underneath the so-called dark earth revealed to be the result of a far more complicated fort sequence than formerly thought, with five main periods running from the late 2nd century until the early 5th century, a sequence of three earth-and-timber forts followed by two stone *castella*. Every fort level shows a different spatial and functional organisation of the inner building, with reorganisations

[2]Cf. Philp 2005.
[3]Gardner 2007, 657.
[4]Vanhoutte 2018b. Papers at previous Limes conferences presented preliminary results or specific research topics: Vanhoutte 2009; Vanhoutte *et al.* 2009; Vanhoutte 2015; Vanhoutte & Verbrugge 2017.
[5]Cf. van Dierendonck, Vos 2013.
[6]Vanhoutte 2018b.
[7]Hollevoet 1994.
[8]Cf. Mertens, Van Impe 1971; Mertens 1977.
[9]Vanhoutte 2007; Vanhoutte 2018b.
[10]Vanhoutte *et al.* 2014.

Fig. 1 - Aerial view of Oudenburg showing the situation in the 3rd century AD as understood from the archaeological observations so far, with indication of the course of the waterways (blue), the presumed position of the sand ridge during the High Empire and the super-imposition of the extramural settlement (including peripheral structures; minimal alignment of the *vicus*' maximal extent (green)), the Roman earth-and-timber fort of the mid-3rd century, the cremation graveyards (red), the bath house in the west (purple) and the roads of the High Empire (grey) (© aerial photo: AGIV).

also within the main fort periods, representing the rapid troop changes certainly in the 3rd century, and this also reflects the political turmoil at that time. The findings at the Oudenburg fort emphasise that this coastal defence was not a static system, but grew organically, with the Saxon Shore system as its final phase.

The first earth-and-timber fort was erected around or somewhat later than AD 180. At the excavated south-west corner of the fort the inner building reveals remains of soldiers' barracks in that period. Also the installation of the first earth-and-timber fort of Aardenburg should be dated in this period. A fragment of a monumental inscription possibly adorned its first principia. The preserved capitals refer to the emperor Commodus and more specifically to the period AD 180-192[11]. At the British coast, the first generation of Shore forts dates from the same period: Reculver, Caister-on-Sea and Brancaster. Only at Reculver could be concluded to a precise construction date of AD 185-195[12]. With this limited number of forts in this early phase, the question arises whether these forts were not rather erected for the protection of harbours.

The coins and samian wares suggest an interruption in the fort's occupation at Oudenburg and at Aardenburg in the first two decades of the 3rd century, or at least a very restricted occupation. Striking is that also the fort at Reculver seems to have been unoccupied in the early 3rd century. This may be related to the Scottish

[11]De Clercq 2009, 381; van Dierendonck, Vos 2013, 299.
[12]Philp 2005.

Fig. 2 - Aerial view of Oudenburg showing the situation in the 4th century AD as understood from the archaeological observations so far, with indication of the course of the waterways (blue), the presumed position of the sand ridge during the late Roman period and the super-imposition of the Roman stone fort with surrounding defensive ditch in the city centre, the late Roman inhumation graveyards (yellow) and the late Roman roads (white) (© aerial photo: AGIV).

campaigns by emperor Septimius Severus, dated to AD 208-211[13]. It is likely that army units from the shore forts were summoned to join Septimius' army for campaigning in Scotland.

Around AD 220 a renewed earth-and-timber fort was built at Oudenburg. The south-west corner area was then dominated by a *valetudinarium*, decorated with mural paintings. A critical analysis of the published chronological data from the Aardenburg fort and the presence of a similar tile stamp (C- Λ) at the Oudenburg and Aardenburg fort (with an identical Λ character) and which can be related to this period, assumes a concurrence of their fort occupations and a close connection between them.

It is likely that the new troops of fort period 3A around the middle of the 3rd century were responsible for pulling down the plastered and painted south wall of the hospital prior to levelling and raising the fort precinct to build a new earth-and-timber fort. Fort period 3 (*c.* AD 245/250 – 260) is characterised by several renovations at the interior building, even with a complete rebuilding of the area, with a totally new organisation. First, freestanding units with central fire places occupied the south-west corner area, after some time replaced by a possible officers' quarter, however preserved too limitedly to reconstruct its layout. A remarkable find related to these quarters is an exquisite samian plate of Rheinzabern with a combination of three decoration techniques (incised decoration, barbotine and relief), probably a special demand at the Rheinzabern workshops. These quarters were even-

[13]Hodgson 2014, 32–33.

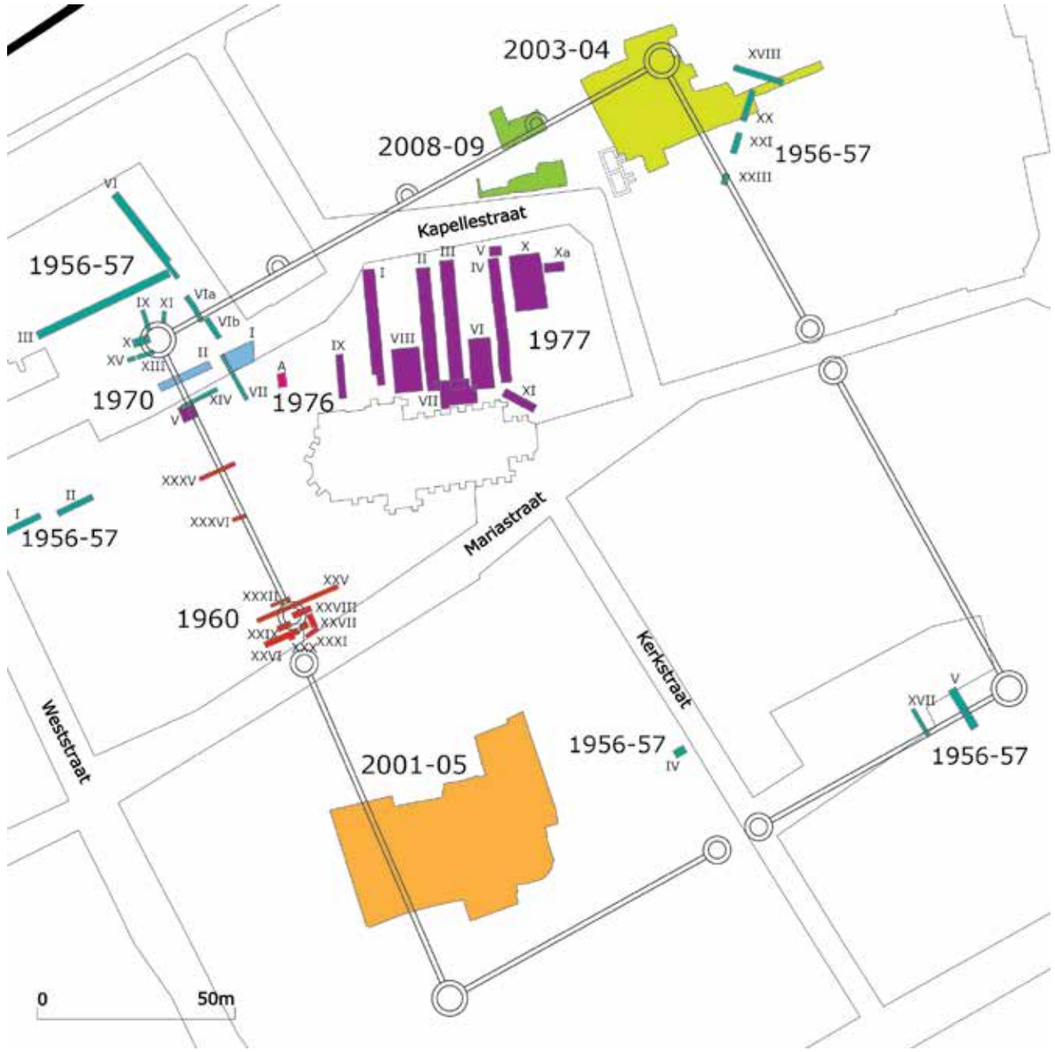

Fig. 3 - Localisation of the excavation campaigns on the Oudenburg fort precinct and the immediate surroundings.

tually followed by again freestanding units, now with a totally different orientation.

These subphases suggest that this fort period 3 witnessed at least three different garrisons, within only one decade, or somewhat more. It points to the rapidity of the troop changes and to a lot of political developments which will have been related to the increasing Frankish threats. From this period onwards, we see in the region also a striking increase of coin hoards.

It is also at this fort period 3 that the pottery assemblages show the first contacts with *Britannia.* Besides, the freestanding '*contubernia*', resemble well those recovered at Reculver. It may be another argument for the connection of these forts within a general Shore programme.

It seems rather unlikely that the earth-and-timber forts Oudenburg 1, 2 and 3 were designed as temporary installations. The decision to erect earth-and-timber forts at Oudenburg and at Aardenburg, with sand, clay and wood – oak was amply available in the region, whereas hard natural rock hardly exists – was probably rather an economic decision than determined by the character or intended duration of the occupation.

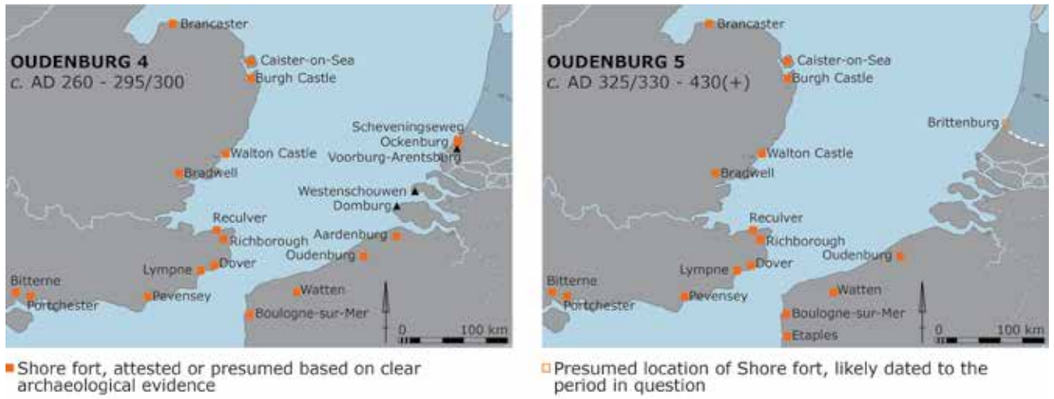

Fig. 4 - The Oudenburg fort during its successive fort periods 4 and 5 in relation to the other military sites in the Channel region (basic map: © Frontiers of the Roman Empire Culture 2000 project (2005-2008), http://creativecommons.org/licenses/by/2.5/scotland).

It was under Postumus, as part of the Gallic Empire in the later 260s, evidenced by dendrochronological results, that the first stone fort was erected at Oudenburg, likely as the petrification of the third earth-and-timber fort. In this period the southwestern corner of the fort was an industrial area reserved for various workshops. These workshops primarily concerned bronze and iron production, for reparations and newly made objects as evidenced by the production of (simple) brooches and bracelets, but they also had a market function as can be deduced from many finds.

Also at Aardenburg the construction of the first stone fort can be attributed to Postumus. The stone walls of the Oudenburg and the Aardenburg fort are strikingly similar. Both were constructed with foundations and facings in Tournai limestone, imported from 70 km to the south of Oudenburg as the crow flies. The walls had a similar width and showed the same building technique namely small blockwork, with no extra foundation, and both were banked by an earthen rampart. Their walls are remarkably thin, somewhat over 1 m thick. This is in strong contrast with the building style of the second generation of British Shore forts characterised by thick walls, next to exterior towers or bastions, tile bonding courses and a lot of re-use of earlier material. These elements cannot be recognised in the remains of the defensive wall of fort period 4. The Oudenburg and Aardenburg fort indicate that the building trend under Postumus was still connected to that of the High Empire. An additional argument is that the façade of the north wall was covered by mortar imitating masonry (and presumably painted white-red), a known phenomenon at forts of the High Empire. The limited thickness of the walls at Oudenburg and Aardenburg was probably determined by the lack of local/regional suitable building material, and thus an economical use of stones. When we compare with the British Shore forts, studies by Pearson have demonstrated that most of the stones used for their construction came from sources within a 30 km radius of the construction site[14].

The pottery evidence at the Oudenburg fort of this later 3rd century period shows a considerable orientation towards *Britannia* and points to the important interaction between the Oudenburg fort and the British Shore forts at that time.

The Oudenburg fort, as well as the Aardenburg fort, continued to be an important military base throughout the entire Gallic Empire. Even after Aurelianus brought under control the Gallic Empire, the Oudenburg fort remained occupied without interruption and underwent no major changes. Apparently the same unit stayed in place. So far, the evidence at the Oudenburg fort indicates that during the episode of the British Empire, under Carausius and Allectus (AD 286-296) – if the fort was still active, and this is a likelihood – it was part of the official Roman Empire. While the Oudenburg fort formed a close system with the British Shore forts during the Gallic Empire and during the successive years, they seem to have been counterparts during the period of Carausius and Allectus.

The end of the Oudenburg fort 4 is marked by a destruction level dated to the very end of the 3rd century. A significant detail at Oudenburg is the deposition of a large iron anvil in the central well at the south-west corner area, at the time that the well already served as waste dump. Probably the unit did not want to let this object of high value get in the wrong hands. The presence of a lot of metal at this level is a further indication that the fort was rapidly and unmethodically abandoned, rather than decommissioned. Also the stone fort of Aardenburg saw an abrupt end with a fire destroying the inner buildings. Perhaps this episode can be related with an important coin hoard period in the 290s in Gaul and in Britain[15]. Around that period *Forum Hadriani* (Voorburg-Arentsburg in the Netherlands) also lost its role as supply centre of military bases along the coast; this is marked by some intentional deposits pointing to so-called 'military stress'[16]. The coin hoards and the depositions at *Forum Hadriani* seem to have been the result of a supra-regional phenomenon. The exact events which initiated them and/or prevented the retrieval of the hoards are so far unknown, but may be related to incoming Frankish groups.

The end of the Aardenburg *castellum* appears to have been the definite end of its military occupation[17]. The decision not to reoccupy the Aardenburg fort in the 4th century was most likely due to the increased marine influence which must have made it difficult to have easy access to the fort. The Oudenburg fort, however, played a major role in the Channel region in the 4th and early 5th century AD.

It is interesting to observe that it is from fort period 4 onwards that the composition of the fort community at Oudenburg changed. Also women and children then lived within the fort walls – which is clear from *e.g.* the shoe finds, the many hairpins, the jewellery –, and I believe that there is a relation with the abandonment of the civil settlement in the late 260s. Very significant are the feeding bottle found at a burnt-down workshop of the late 3rd century, and the breastpump fragment from fort period 5 of the 4th century.

In the third decade of the 4th century the stone *castellum* of Oudenburg was renovated and reoccupied. In that period a bath house dominated the south-west corner area[18]. Finds at this level show that the bath house interior was luxuriously decorated with marble, with pieces coming from Greece, and with small statues. A start date for this fort period around AD 325/330 is indicated by dendrochronological analysis in combination with the chronological range of the samian roller stamps. It is with this renovation of the fort that semi-circular bastions were added to the north side of the fort. At this side of the fort there was no longer a defensive ditch in fort period 5; by that time a side-branch of the tidal channel reached this far. The renovation of the northern wall with the addition of intermediate towers also involved a refacing with the addition of bonding courses, only at this northern side of the fort.

Not only did the bastions offer extra protection, facing the enemy, their symbolic meaning in embodying power and strength will at least have been as important. The Oudenburg bastions are similar in size and shape to the ones of the British Shore forts of the second generation, Richborough, Burgh Castle, Lympne, Walton Castle, Pevensey, Portchester, Bradwell. Clearly a military identity expressing Roman imperial power was installed in the Channel region through a general building programme, most likely in light of the consolidation policy of Constantine I.

This clearly also enhanced the cross-channel socio-economic exchanges, as is for example evident from the pottery imports, with now a considerable amount of Romano-British fine wares coming in. This becomes even the more emphasised when we also consider all the Romano-British fine ware imports which survived in the post-Roman level as residual material.

The renovation of the stone fort and its reinforcement with bastions emphasise the importance of the Ouden-

[14]Pearson 2002a; Pearson 2003.

[15]Cf. Chameroy 2011.
[16]Van Kerckhove 2014, 472.
[17]Cf. van Dierendonck, Vos 2013.
[18]Cf. Vanhoutte 2018a.

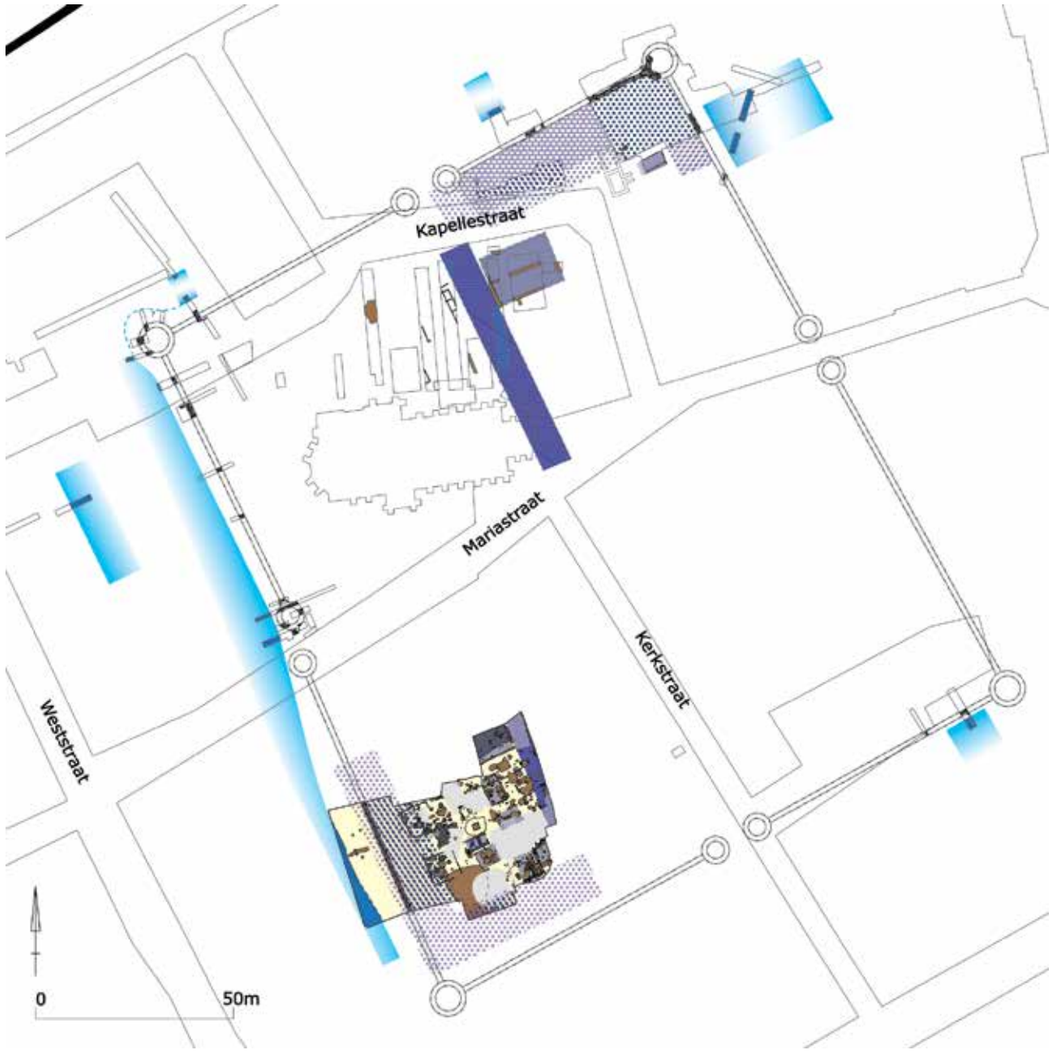

Fig. 5 - Overview map of the Oudenburg fort of period 4 with the contours of the stone fort and the excavated features.

burg fort. Furthermore, several burials of graveyard A which can be attributed to fort period 5A contained a crossbow brooch, pointing to an important presence of high-ranked military personnel.

The inner building of the *castellum* shows a renovation of the fort in the later 4th century. This date can be precisely set at AD 380 through dendrochronological dating. At AD 380, with the reoccupation of the fort, the bath house was left in disuse, fell in decay, and the area was occupied by horses, stabled here within compounds, divided by long palisades. The scientific results point out that this corner area after AD 380 was a very messy area, full of dung and offal.

This change of the inner building can be linked to a new phase in graveyards A and C. The overlap of existing graves by new grave cuts – implying the earlier ones were no longer visible – and their shift in orientation indicate that there must have been a considerable break. The fact that grave markers must have disappeared, and the graves were no longer visible, suggests some time had passed before the fort was reoccupied in AD 380 by a new unit.

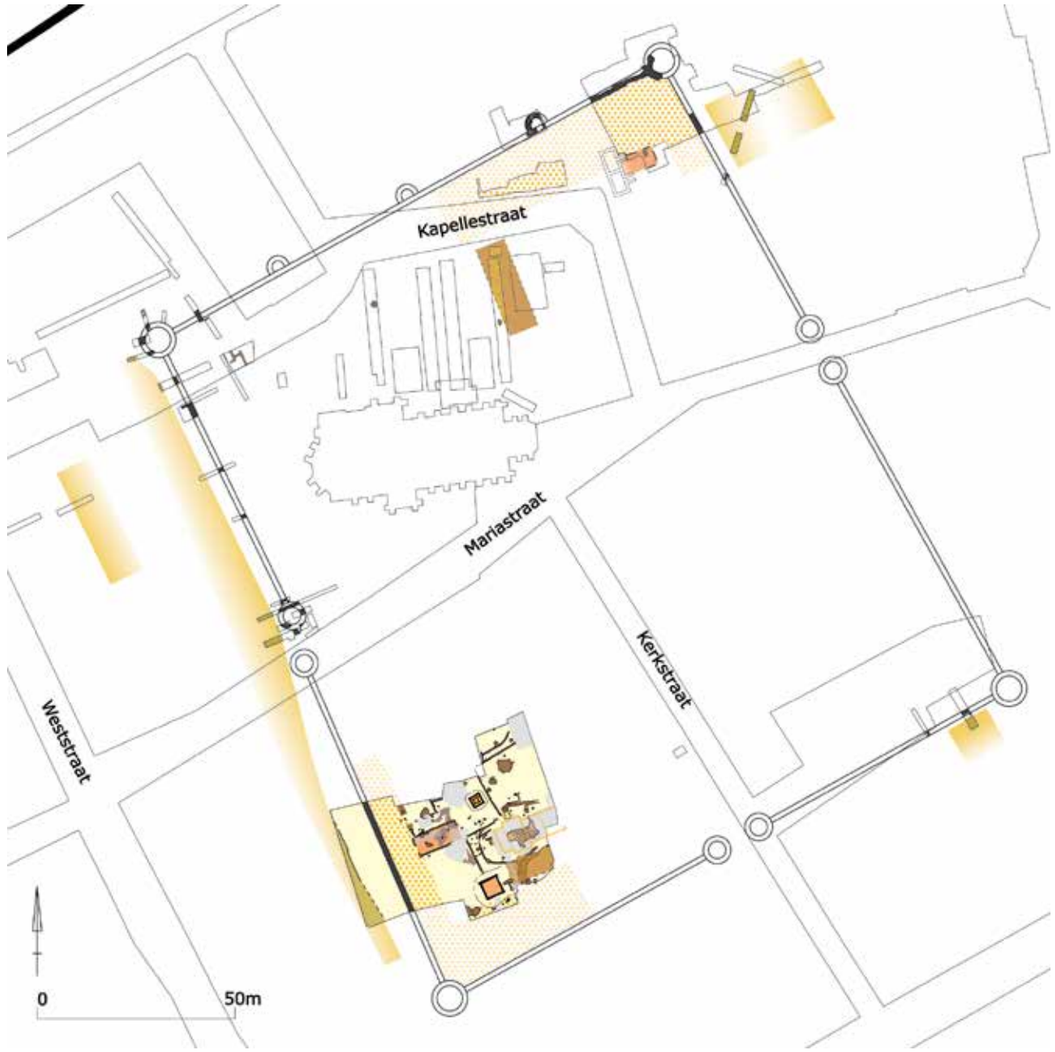

Fig. 6 - Overview map of the Oudenburg fort of period 5 with the contours of the stone fort and the excavated features.

Probably in the 360s or early 370s, the army unit of the Oudenburg fort was pulled away. This can be related to troop movements to the East most likely those by Valentinianus I in the 370s; he transferred troops from Gaul to Illyricum. These Gaulish units kept on being deployed in other campaigns in the East, probably Raetia, certainly until AD 378 (cf. Ammianus Marcellinus XXXI.10, 5–6). Several grave goods of graveyard A, mainly the jewellery, testify to close links with *Pannonia* and *Raetia*[19] and indicate that the fort in AD 380 was manned by a unit with several soldiers who served there. It is a likelihood that the soldier buried in grave 76 of graveyard A together with his dog and with his purse with an AD 379 closing coin and at least seven coins minted at *Siscia,* located in *Pannonia*, obtained these issues himself while he was stationed in the region.

In AD 380 emperor Gratianus already had moved the western court to Italy and his removal from the North-

[19]Sas 2004.

West probably resulted in an increase of unrest and revolt, eventually leading to the usurpation by Magnus Maximus in AD 383. Magnus Maximus withdrew regular army troops from the North of Gaul for his war against Gratianus and it is believed that he manned military bases with irregular units. The reoccupation of the fort in AD 380 may be directly related to these military actions. If so, it would probably imply that the Oudenburg fort in its final phase no longer formed part of the Saxon Shore system, which was still under official Roman control as may be deduced from the *Notitia Dignitatum*.

With the reoccupation of the fort in AD 380 the imperial lifestyle represented by the bath house was abandoned, and this is very significant. Finds at the fort precinct and at graveyard A demonstrate the cosmopolitan character of the unit but also the Germanic influences it had. Remarkable are for example the shoes from Wijster Style, similar to bog finds in Denmark, but at Oudenburg they show Roman techniques and they were locally made, with Germanic decorations[20]. It certainly is a bridge too far to say that this unit consisted entirely of Germanic soldiers. Some may have been Germanic but what the Oudenburg fort community shows, is representative for the society in the North-West of Gaul in the second half of the 4th century and early 5th century. At that time we cannot speak any longer in terms of a dichotomy of Roman versus Germanic. It was a merged culture, the result of a long history of incomers, multi-cultural, cosmopolitan and definitely Germanic-influenced.

By convention the end date of the fort occupation at Oudenburg was set, mainly based on the historical sources, around AD 410 and was related to either the AD 406-407 invasions or the events under Constantine III between AD 407 and 410. With all chronological indicators in place, this end date should now be shifted to a somewhat later date, but to what date exactly is difficult to assess. In 1987 Böhme revised his typology of 'Germanische Grabfunde'[21] and according to this revision the brooches and buckles from the latest grave assemblages should be dated from AD 430 onwards. However, for some grave assemblages this is in conflict with the proposed dates by other scholars. New research is definitely needed to shed light on this topic. We still lack hard evidence from within the fort to establish this late date firmly. Seven roller stamped samian from within the fort have a date from AD 410 onwards, but they were all found in an unclear level on top of the final *in situ* structures of fort period 5 or in the dark earth on top. Moreover, are they still reflecting the Roman military community or are they remains of later inhabitants of the fort, military or not? Nevertheless, a later date, well after AD 410, would be in line with the proposed end dates of the presumed fort at Kortrijk at *c.* 45 km south to Oudenburg (cf. the *milites Cortoriacenses* in the *Notitia Dignitatum*), of the fort of Boulogne and of the late Roman fortified city of Arras (the latter two both in the North of France).

The fort community at Oudenburg of the latest fort phase, starting in AD 380, most likely evolved into a system of warlordship in the first decades of the 5th century, comparable to the evolution at the forts at Hadrian's Wall like Collins has demonstrated[22]. The unit or part of the unit may have remained in place and eventually transformed losing their military identity, at least their 'Roman' one, as time passed. In this respect it is important to bear in mind that the Oudenburg evolution in the later 4th and 5th century was also locally determined and should be seen within its specific context. The remote position of the fort, topographically and at the end of the road network but also without accompanying settlement and in a seemingly rather deserted region, will have had its impact resulting in a very specific evolution of the site. The fort as a boundary space, so visual in the landscape and so loaded as a symbol of authority, most certainly remained occupied. By who exactly remains for now uncertain.
In conclusion, the following findings at Oudenburg are the most significant points in light of the wider context of the Saxon Shore.

Under Postumus, at the time of the Gallic Empire, the coastal defence developed into an extended, permanent cross-Channel system, linked and expressed by a unified stone defensive architecture. On the Continent the Oudenburg and Aardenburg forts became stone forts. While a lack of natural stone sources in the region and

[20]Study by C. van Driel-Murray.
[21]Böhme 1987.
[22]Collins 2012.

the ample availability nearby of oak as construction material did not necessitate a stone defence circuit at the Oudenburg and Aardenburg forts before – probably just an economic choice, rather than related to the character and duration of the occupation as mentioned – now a stone defence was erected at both forts, symbolising their status and their integration in the larger defence system.

Carausius reinforced and completed the Shore system with the addition of the two most southern forts at the British side, those of Portchester and Pevensey, the first probably in light of his duty against Saxon and Frankish pirates, the latter possibly within the context of his actions against the Emperor. Within the context of the British Empire, the Channel defence system clearly was divided into the British side serving against the Emperor and the continental side (with Oudenburg and Aardenburg) serving the official state. But apparently this certainly did not stop the socio-economic cross-channel interactions.

The combination of the start date of Oudenburg fort period 5 around AD 325-330 and the fort's renovation with the addition of intermediate towers and bonding courses at the north side are highly noteworthy. Visually and strategically the latter mirror the manner in which the British Channel forts were reinforced, and are strong indications to believe that the *Litus Saxonicum,* as it was later called, was indeed already created under Constantine I. The reinforcement with bastions of the north side – the direction of the enemy – not only symbolises a general building programme along the Channel. It is furthermore an indication that these forts indeed played a military role and were in the first instance strategic defensive installations. In the late 4th century the Continent and *Britannia* seem to have gone separate ways and their shore forts followed another path.

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Résumé

Pour la première fois dans le contexte des forts côtiers, des fouilles récentes au *castellum* à Oudenburg (Belgique) ont livré des indications structurelles, solidement datées, représentant l'évolution du fort du Haut-Empire à la période tardive. Par l'intégration des données vieilles et plus récentes à Oudenburg, on pourrait dire que ce fort est devenu un site clé pour la recherche du développement de la système côtière défensive de la région du Canal, plus spécifiquement dans le contexte du *Litus Saxonicum*. Il faut voir la contribution du fort d'Oudenburg plus large que seulement au niveau historique-militaire; elle inclut certainement aussi le niveau socio-culturel et socio-économique. Notables sont les conclusions concernant les connections transmanches qui s'intensifient dès le 3ième siècle tardive, le charactère changeant de la communauté *intra muros* et les indications concrètes pour un programme côtier général dans le 4ième siècle.

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The Saxon Shore Forts and Hadrian's Wall in the 3rd to 5th centuries A.D.

ABSTRACT

While the status of Hadrian's Wall as a frontier has rarely been questioned, interpretations of the purpose of the Saxon Shore Forts have ranged widely from defensive scheme built by the usurper Carausius against the main Empire to a network of fortifications designed to prevent widespread raiding in the North Sea to a series of fortified ports aimed at providing a safe haven for trading and supply ships. In all of these theories, one of the key pieces of evidence lies in the presence or absence of a military garrison at the forts and the degree to which the military was involved in their construction, maintenance, and occupation. This paper offers an overview of the military material culture at the Saxon Shore Forts and several of the coastal forts around Hadrian's Wall to suggest a similarity in purpose and use during the Late Roman Empire.

Key Words: Hadrian's Wall, Saxon Shore Forts, frontiers, military, fortifications, Late Roman Empire, Roman Britain

Constructed at various times in the 3rd c. A.D. on the south and east coasts of England, the Saxon Shore Forts owe their unusual name to a single reference in the enigmatic *Notitia Dignitatum*, which mentions nine of such sites under the command of the *Comes Litoris Saxonici* or 'Count of the Saxon Shore.[1] 'Nevertheless, the *Notitia* is notorious for its omission of sites, and thus it is with no great surprise that the current number of coastal forts known in southeast England is eleven with the possibility of a twelfth. Their unusual architecture, variable dating and unclear function have caused them to be seen in the past as anomalies in Roman Britain and scholarship on the subject tends to place a much heavier focus on the more "normal" and commonly studied forts on Hadrian's Wall and elsewhere in the province. As recent research on Hadrian's Wall has focused more strongly on occupation layers dating the 3rd to 5th centuries, the military equipment found in these periods have traditionally been seen to indicate that their military occupation continued far into the late empire and perhaps even after the traditional end of Roman occupation in Britain in A.D.

[1]Pearson 2002, 8.

410.[2] While previous scholarship on the Saxon Shore Forts has concentrated on their architecture and internal structures, little attention is given to their military finds. Indeed, the few works that do acknowledge the military culture of the Saxon Shore forts conclude that the number of discernable military objects from each fort is low compared with other garrisoned fortifications of Late Roman Britain; an observation which has been interpreted to signify the Saxon Shore forts' reduced operation as military instillations in this time period.[3] Proponents of this theory have labelled the instillations as "fortified ports" occupied by "small units of second rate *limitanei*" which served more in logistical role than any sort of military force.[4] However, it is impractical to attach any decline in troop numbers and quality simply to one group of forts in the empire and in fact this trend can be seen throughout Late Roman Britain and is carefully explored in a number of recent publications which question its overall implications.[5] Indeed, through a systematic survey of the military objects at all of the excavated Saxon Shore forts, this article will demonstrate that a military occupation is equally as applicable to nearly all of these forts during the Late Empire as contemporary riverine and coastal forts on Hadrian's Wall and its Cumbrian extension. Thus, rather than viewing these two groups of forts as stark opposites, this article argues instead both these groups of forts in the same military framework, namely as frontier instillations aimed towards controlling and monitoring their respective areas.

With the growing number of wars and revolts that plagued the Roman Empire during the Crisis of the Third Century, emperors were forced to take unprecedented measures to ensure its survival. These ranged from Gallienus' adoption of a mobile cavalry force to Diocletian and Constantine's complete reorganization of the army into field armies (*comitatenses)* and more static frontier troops (*limitanei)*.[6] Despite all these administrative acts, the frontier army in late Roman Britain seemed to be largely understaffed and any future recruitment relied heavily on barbarian, primarily Germanic, tribesman to keep units effective.[7] Likewise, in addition to suggesting that it was common practice for women and children to occupy forts in the late Roman period, James suggests that the garrisons stationed at many of these forts in Britain may have consisted of no more than 100 men.[8] Indeed, the theory of troop depopulation of the late Roman frontiers is one that remains heavily entrenched in studies of the late Roman Empire.[9] However, it is important to note that military occupation on a frontier, although perhaps not essential to its primary purpose of control, is still necessary for defensive or policing duties. Despite the distorted opinions of several late Roman authors concerning the merging of barbarian and Roman soldiers, most evidence in the harangues of Zosimus, and the apparent perception of frontier troops as 'second-rate,' there is no clear evidence that suggests the *limitanei* were ineffective soldiers, but rather simply operated at a smaller scale.[10] Unfortunately, this image of 'degeneration' through barbarian recruitment has also crept into the study of Roman military equipment with the result that any time an object of Germanic-style is found in Roman context, such as chip-carved belt fittings, the immediate assumption is to attribute it to a barbarian mercenary.[11] However, Coulston suggests that Roman military equipment is culturally diverse as the Romans adapted numerous foreign styles to their own military equipment.[12] Both sides of this argument apply in particular to Britain where the known interaction with Germanic people and ideas has led to continental imports or imitations in military equipment as well as the debated settling of barbarians on the island.

[2]Coulston 2010, 60.
[3]Cotterill 1993, 235–237; Pearson 2002, 157.
[4]Cotterill 1993, 235.
[5]See Gardner 2007.
[6]Southern, Dixon 1996, 11–19
[7]Southern 2004, 405
[8]James 1984, 165
[9]*Ibid*, 166
[10]Whitby 2004, 520; Collins 2012, 36–7
[11]Coulston 2013, 468
[12]*Ibid*, 482

The study of late Roman military equipment in Britain has unfortunately been subject to a number of restrictions that have hindered further research.[13] A dearth of historical, epigraphic and sculptural evidence in the 3rd to 5th centuries has led to a reduction in comparable materials for the military artefacts.[14] Additionally, apart from the Saxon Shore Forts and a few other instillations that were constructed in the late Roman period, identification and dating of military equipment found on Roman sites depends primarily upon securely dated layers; even with these contexts, reuse of earlier material cannot be discounted.[15] The lack of major late Roman 'depot' sites in England such as the 2nd century Corbridge Hoard has resulted necessary comparisons with continental contexts where greater numbers of military equipment were preserved in 4th century inhumation graves and large deposits at Koblenz and Intercissa.[16]

Fortunately, recent research in Britain has also given rise to several clear breakthroughs in the study of Roman military equipment. In his analysis of the material culture of the Roman auxiliary fort and *vicus* at Vindolanda, Andrew Birley convincingly depicts how 'military' objects appear quite commonly within the extramural settlement while objects of a more domestic nature, are found within the walls of the fort.[17] This research strongly emphasizes that the predisposed notion of forts as 'military' zones and *vici* as 'civilian' zones is in fact inherently wrong and the boundary between the two areas is much more permeable than previously thought.[18] As Birley's suggestion for a more integrated community appears to be transferable to other forts outside of Vindolanda, such a model will be applied to the Saxon Shore Forts and the coastal forts on Hadrian's Wall to relate military finds found in the *vici* back to the fort's garrison.[19] Furthermore, the few excavations of *vici* in northern Britain have produced evidence of general abandonment of extramural settlements during the 3rd and 4th centuries.[20] Whether or not this trend was widespread in the province of Britain, as few extensive excavations of *vici* have occurred in the south, the clear permeability of a military fort's wall such as at Vindolanda suggests that the extramural settlement and fort should be thought as in tandem rather than as polar opposites.[21]

Another potential obstacle to the study of late Roman military equipment revolves around the actual identification as 'military' since, while certain objects such as armor, swords and shields are more clear indicators of armed presence, other finds such as brooches have been suggested to belong to high ranking civil officials.[22] Gardner has addressed this issue in a theory-based approach, proposing a simple military/civilian dichotomy is an inaccurate portrayal of the material culture, as the notion of military identity in Roman times may have shifted to identify more with the local community rather than that of the army.[23] He further argues that the material culture of late Roman Britain can be seen to reflect this breaking down of a common military identity based on the dearth of obvious 'military' equipment at forts on the frontier.[24] While his ideas match up well with Birley's suggestion of an integrated community, there are other options to explain the lack of clear late military materials including post-Roman disturbances and even the obvious possibility that Roman soldiers retained or recycled their old equipment.[25] Clearly, what is found in the archaeological record does not represent what was at the site, but rather what was left behind or purposely abandoned and thus the absence of evidence for military life in a fort does not necessarily

[13]Coulston 2010, 50
[14]*Ibid*, 51
[15]*Ibid*, 51
[16]*Ibid*, 60
[17]Birley 2013, 103
[18]*Ibid*, 103
[19]*Ibid*, 103
[20]*Ibid,* 102
[21]*Ibid*, 103
[22]Collins 2010, 65
[23]Gardner, 1999, 414
[24]Gardner 2007, 414
[25]Bishop, Coulston 2006, 27; Coulston 2010, 51

mean it was never there. With the decline in political administration that is seen as one of the primary reasons for the collapse of the Western Roman Empire, it seems hardly surprising that soldiers and inhabitants of the fort would want to retain their individual possessions more than ever.[26] However, even with the absence of a shared military identity, there are objects that do have strong connections towards military life and it is these finds that will serve as the main evidence towards establishing a military occupation at the Saxon Shore Forts.

Although armour and weapons are clear indicators of military presence, other artefacts have a more dubious connection to soldiery. Certain types of brooches, in addition to being an ethnic indicator, are also believed to have been connected with the late Roman military uniform, the foremost of these being the crossbow brooch.[27] Although these artefacts are found with women and children, their distribution tends to peak in frontier areas, although this may be due to an absence of surveys in non-frontier provinces.[28] While crossbow brooches are seen in military context in representational evidence, most notably on the Roman general Stilicho in his ivory diptych, scholars have also argued that they are seen on civil officials as well.[29] Thus, their status as a military indicator remains somewhat suspect although they are generally seen as belonging to an 'officer class,' whether civil or military.[30] However, since a clear typology of crossbow brooches has already been established as well as an accurate survey of their presence in the northern British frontier, crossbow brooches in the Saxon Shore Forts and the coastal forts of Hadrian's Wall will be included to see if any comparable trends of military presence can be observed.

The last part of the late Roman military outfit that readily survives in the archaeological record is the belt. The visual appearance of a soldier's belt is thought to be an indicator of his military status, a theory best supported by the number of different mounts and attachments that represent the largest category of military equipment in the northern British frontier.[31] Vertical stiffeners, most commonly shaped like a propeller, were mounted on the belt to prevent curling and wear.[32] Strap-ends, which attached to the end of the belt and prevented fraying, could occur in a variety of shapes including hearts, amphorae and lancets.[33] Two styles that are clearly identified within belt manufacture are the use of the chip-carving technique and the use of zoomorphic buckles. Chip-carving, long thought to be indicative of German *laeti* on account of its perceived spread from barbarian Germany, has now been reassessed to reveal how many of the decorative elements on the belt plates actually relate well to those of the Romans.[34] Thus, the style of chip-carving should be seen to represent both Germanic mercenaries and German regular troops within the Roman army.[35] It has been suggested that zoomorphic buckles, unlike other types, actually show a tendency for non-military zones, and recent surveys have shown a generally paucity of zoomorphic buckles in Roman military instillations in Britain including many of the Saxon Shore Forts.[36] Distribution of the zoomorphic buckle subtypes has even been suggested to parallel known *civitates*, but such a discussion remains beyond the scope of this article.[37]

Clearly, while the line between 'civilian' and 'military' culture may not be so clearly drawn, there are artefacts that can be more definitively connected with the Roman military. These objects that have a clear military connection such as weapons and armour are categorized as "strong military indicators" while other finds such as arrowheads or crossbow brooches, though prevalent in military areas but not possessing an absolute link to military occupation, were categorized as "possible military evidence" and serve to support the more definitive military finds (Fig. 1). Previous scholars have suggested that a clear change in 'organization' between presumed military and 'disorderly' civil occupation can be detected at certain sites, but in fact, although a change in character and intensity of occupation at many forts can be observed, these changes often cannot definitively be tied to specific groups of people.[38]

As discussed earlier, previous work on the Saxon Shore Forts has focused primarily on their architecture. The dating evidence from chronological archaeological finds and architectural trends has divided the Saxon Shore Forts into two main periods of construction referred to by some as the Period I and Period II forts (Fig. 2)[39]. The three forts that were constructed at an earlier date around the early to mid 3rd century (Reculver, Caister-on-Sea and Brancaster) tend to parallel architectural designs of that time period, characterized by a rectangular circuit wall with rounded corners and no external bastions.[40] A fourth fort of this type, located underneath the medieval castle at Carisbrooke, has also been suggested based on the similarities in the plan of the walls.[41] The remaining eight forts are all assigned a construction date after 260, and while significant differences appear from fort to fort, they all possess the massive walls and external bastions indicative of later Roman forts and towns on the continent.[42] In fact, at least two of these forts (Burgh Castle and Dover) are suggested to represent a transitional stage in the development of Roman defences as several of the bastions at each of the sites seem to be later additions.[43] However, as mentioned previously, dating methods based on architectural typology in late Roman defences can be extremely problematic so that only overall trends can be observed in the Saxon Shore Forts. To account for these individual deviations, Johnson has proposed that the lack of standardization within the Saxon Shore Forts can actually represent a contemporary construction with individual architects applying their own ideas.[44] Thus, while there is a clear change in architecture from the period I to period II Saxon Shore Forts, a direct temporal progression from simple to more complex defenses should not be assumed as scholars have noted how different methods of fortification can be found next to each other in the late Roman Empire.[45]

The shift from an established and repeated plan of Roman walls in the early empire to one that is more variable has also raised concerns about the clear identification of sites as military fortifications. This doubt has largely arisen due to the large number of cities in the western provinces that became surrounded by similar stone circuits following the large barbarian transgressions in the mid 3rd century as well. In British towns, where the stone defenses were created mostly overlying existing earthworks, these fortifications seemed to be largely effective as raiding parties possessed little in the way of siege equipment and only the blocking of several town gates points to any possible evidence of insecurity.[46] This confusion is further exacerbated by the role of the towns in supplying the military either through localized manufacture or the mysterious *fabricae* or state workshops that are mentioned in the *Notitia Dignitatum*.[47] Furthermore, while many late military fortifications still remain largely identifiable based on the buildings located in their interior that can still be tied to a military purpose such as the *principia, praetorium,* and barrack blocks, many of the internal structures of the late Roman forts in Britain were either built of timber or were obliterated by post-Roman disturbances, thus making this method of verification very difficult and the analysis of material culture all the more important.

[26]Collins 2012, 4–5
[27]Collins 2010, 64
[28]*Ibid*, 64-5
[29]Southern, Dixon 1996, 125
[30]Collins 2010, 73
[31]Coulston 2010, 52
[32]*Ibid*, 52
[33]*Ibid*, 52
[34]Coulston 2013, 468
[35]*Ibid*, 469
[36]Leahy 2007, 138
[37]Coulston 2010, 53
[38]Cunliffe 1975, 425; Pearson 2003, 164
[39]Philp 2005, 217
[40]Pearson 2003, 70
[41]Philp 2005, 221
[42]Pearson 2002, 57
[43]*Ibid,* 73
[44]Johnson 1989a, 43
[45]Pearson 2003, 73
[46]Wacher 1995, 411; Rodgers 2011, 110
[47]Rodgers 2011, 35

Strong Military Indicators	Sub Category
Melee Weapon	Sword
Melee Weapon	Scabbard Slide
Melee Weapon	Scabbard Mount
Melee Weapon	Scabbard Chape
Melee Weapon	Spearhead
Missile Weapon	Balista Bolt
Missile Weapon	Axehead
Missile Weapon	Stone Shot
Missile Weapon	Javelin
Armor	Scale Armor
Armor	Helmet
Armor	Helmet Handle
Armor	Shield Boss
Belt Accessories	Belt Mount
Belt Accessories	Belt Buckle
Belt Accessories	Strap End
Belt Accessories	Buckle Plate
Belt Accessories	Buckle Tongue

Possible Military Evidence	Sub Category
Brooch	Crossbow Brooch
Brooch	Types Common on German Limes
Horse Equipment	Harness Mount
Horse Equipment	Strap Distributor
Horse Equipment	Snaffle Bit
Horse Equipment	Horseshoe
Horse Equipment	Ring
Horse Equipment	Spur
Melee Weapon	Ferrule
Missile Weapon	Arrowhead
Belt Accessories	Zoomorphic Buckle
Other	Miscellaneous

Fig. 1 - The two groups of artefacts denoting military presence

Fort	Wall Thickness (m)	Tile Coursing	Bastions	Corners	Rampart Bank?	Hectares	Ditches
Period I							
Reculver	3.05	No	No	Rounded	Yes	3.24	2
Brancaster	3	No	No	Rounded	Yes	3.03	?
Caister	3	No	No	Rounded	Yes	3.53	?
Carisbrooke	3	No	Vestigial	Rounded	?	2	?
Dover	2.5	No	Yes	Angular	Yes	1.56	1
Richborough Earth Fortlet	Earth Rampart	No	No	Rounded	Ues	0.5	3
Period II							
Richborough	3.3	Yes	Yes	Angular	No	2.7	2
Burgh Castle	3.2	Yes	Yes	Rounded	No	2.58	?
Lympne	3.5	Yes	Yes	Angular	No	3.23	?
Walton	?	Yes	Yes	Rounded	?	?	?
Pevensey	3.7	Yes	Yes	None	No	4	?
Portchester	4	Yes	Yes	Angular	No	3.42	?
Bradwell	4.27	Yes	Yes	Rounded	?	2+	?

Fig. 2 - The proposed groupings of the Saxon Shore Forts (from Philp 2005)

While the military finds from the Saxon Shore Forts reveal valuable information about the occupants of the forts by themselves, they are best viewed in comparison with the military assemblages from other forts in the province of Britain, particularly those that traditionally have a stronger connection with the Roman military. As the Saxon Shore Forts draw much of their strategic advantage from their proximity to the sea, the most appropriate parallels come from the few forts along Hadrian's Wall that also border the ocean and also remained occupied through the 3rd to 5th centuries. Additionally, a series of forts, fortlets and turrets that served as a westward extension to Hadrian's Wall down the northwestern coast of England (the Solway coast) also saw significant reoccupation during the later years of the empire with many of these fortifications perhaps being pressed back into service to counter the historically attested raiding on the western coast of Britain.

Thus, at least one "strong military indicator" was found at a large number of the forts analysed and many of the forts possessed tens of these objects (Figs. 3 and 4). The most conclusive evidence for military life comes in the form of tiles or lead seals that are stamped with the name of a garrison unit and such objects were found at three of the studied forts, revealing the presence of the *Cohors I Aquitanorum* at Brancaster, the *Cohors I Baetasiorum* at Reculver and the naval *Cohors I Aelia Classica* at Ravenglass.[48] Probable late military burials at Richborough and Caister also offer evidence of a clear military presence at these forts. Apart from epigraphic evidence, the discovery of weapons and armour dating to the late Roman period remains the best proof of military occupation. For many of the sites along the northern frontier, a proper late Roman context is crucial for assigning weapons to this period (because of their pre-existing occupation), while many of the Saxon Shore Forts were built in areas that possessed little or no prior settlement and thus even unstratified military equipment can be convincingly attached to the period of these forts. Within the group of weapons and armour found at the forts, several pieces, including the helmet and possible throwing axes from Burgh Castle and the knife from Lympne are especially important due to their stylistic parallels with continental pieces. Their presence may thus suggest a garrison either from the continent or at least one with knowledge and ties to continental trends.[49]

It is important to note that these graphs and tables are not intended to be analysed on a purely quantitative level, but rather on a relative scale. As each artefact, be it a common find such as a belt fitting or a more substantial object such as a helmet, counts equally toward the final total, this could create a very skewed representation of occupation. However, based on the relative values of objects between the Saxon Shore forts and those on Hadrian's Wall, it is safe to observe a few similar trends between the two groups. Firstly, the "low" levels of military objects at the Saxon Shore Forts alluded to in previous scholarship (i.e. Cotterill, 1993; Pearson, 2002) seem to be completely absent as the majority of the forts contain as many objects as those in the north. Similarly, the variety of strong military indicators seems equally spread out between the two groups of forts with belt accessories proving again to be the most prevalent.

The presence of strong military indicators at the majority of the Saxon Shore Forts and the coastal forts on the northern frontier suggests that a military garrison occupied these forts at some point between the 3rd and 5th centuries and thus both of these areas should be classified as proper 'frontiers' of the Roman Empire and viewed within the same light. Since many of the dates assigned to the military objects remain fairly broad (i.e. 4th-5th century), it is impossible to determine the time period of military occupation at the forts, but each of the forts that possess some form of late Roman military equipment seem to have had a military presence prior to the supposed date of the *Notitia Dignitatum* in the late 4th century. However, it is important to remember that on a purely administrative level, the forts were under separate commands, the *Dux Britanniarum* commanding the northern forts and the *Comes Litoris Saxonici* for the Saxon Shore Forts, and most likely the construction or reoccupation of these forts were to deal with different and varied threats. Thus, even though many of the fortifications share similar military characteristics, it is improper to view the forts as a single unified coastal defence against foreign raids, but rather as separate individual systems to cope with more localized threats. The construction of the Yorkshire fortlets in the late 4th century provides an excellent example of such a localized defence, likely providing support against raiding for isolated communities.[50] However, military occupation cannot be attested for significant periods of time at many of the sites, suggesting that these forts reverted back to a more 'civilian' role and abandoned a primarily defensive purpose. Indeed, Cotterill's recommendation that the Saxon Shore Forts were fortified ports may be true during these periods. The most probable interpretation for the Saxon Shore Forts, and indeed all of the coastal forts in Britain, is that they alternated between coastal military defences and fortified refuges, depending upon the current threat from the sea.

[48]Potter 1979, 73; Hinchliffe, Green 1985, 180; Philp 2005, 216
[49]Johnson 1980, 312; Johnson 1983b, 73; Hawkes 1980, 267
[50]Wilson 1991, 146

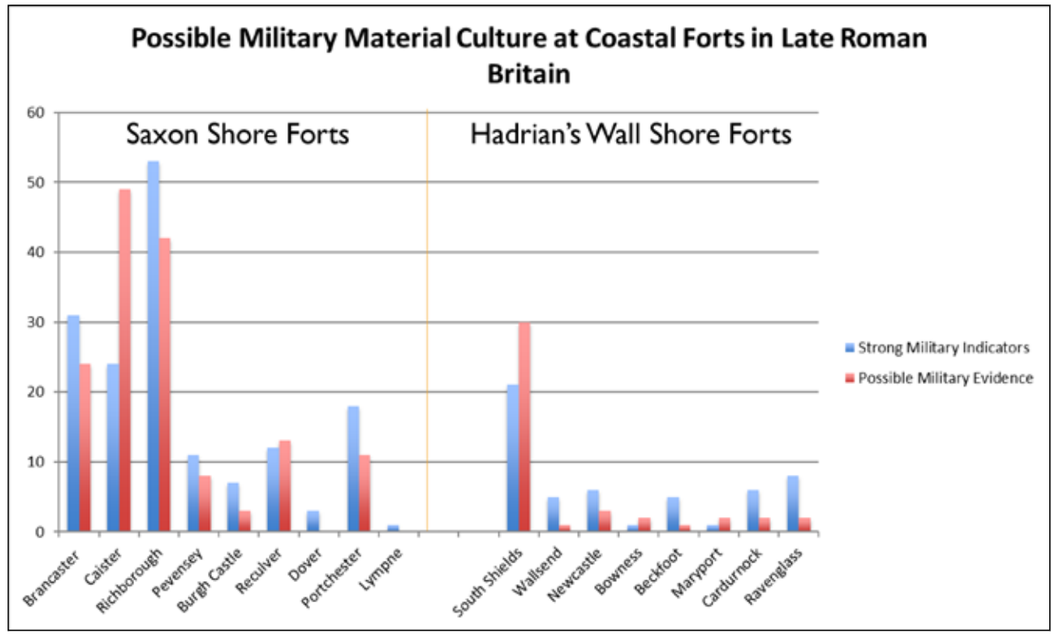

Fig. 3 - Military Objects from the Saxon Shore Forts and the Coastal forts on Hadrian's Wall

Fort Name	Stamped Tile	Melee Weapon	Armour	Missile Weapon (Artillery)	Openwork Belt Accessories	Chip-Carved Belt Accessories	Strap Ends	Other Military Belt Accessories
Brancaster	X	X	X	X	X		X	X
Caister		X		X	X	X	X	X
Richborough		X	X	X	X	X	X	X
Pevensey			X	X				X
Burgh Castle		X	X					X
Reculver	X	X						
Dover		X		X				X
Portchester								X
Bradwell								
Walton Castle								
Lympne		X						
South Shields		X	X		X		X	X
Wallsend		X						X
Newcastle				X	X			X
Bowness				X				
Beckfoot		X*	X*					
Maryport								X
Cardurnock		X						X
Ravenglass			X	X				X

Fig. 4 - Presence of Strong Military Indicators at British Coastal Forts

Finds of military equipment and other strong military indicators at the Saxon Shore Forts and the coastal forts near Hadrian's Wall prove that each group of forts was part of a localized frontier zone, most designed to prevent or anticipate coastal raiding. Like many other frontiers, the coastal systems in the British provinces were subject to reorganization and often forts were either constructed (such as the Period II Saxon Shore Forts) or recomissioned (such as the forts on the Cumbrian coast) to either reinforce existing defences or combat new threats. Because of the uncertain construction date of many of the coastal forts, it is impossible to say whether or not groups of forts were all built in a single effort, but the historical references to fortification of the frontiers by emperors in the 3rd century as well as the usurpation of Carausius certainly offer a perfect context for this to take place.[51] As none of the coastal forts in Britain possesses strong indisputable evidence for destruction by hostile action, the abandonment of the sites (or simply the end of a 'clear' Roman occupation) seems to have been relatively peaceful. However, as many of these forts have received little to no extensive excavation within the past few decades, further research is paramount to gaining a better understanding of the coastal defences in Britain in the 3rd to 5th centuries.

[51]Fulford, Tyers 1995, 1013

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LIMES XXIIII

Session 29

Mapping the Edge of Empire

INTRODUCTION

Session organisers / Chairpersons:
Richard Talbert,
Boris Rankov, Royal Holloway, University of London

The panel invites perspectives on how, if at all, Romans demarcated frontiers on the ground, for example (and if not, why not?), recorded them on maps or other documents, conceived of them mentally and legally, attached special significance to them, exploited them, or assumed distinctive patterns of behavior in adjacent areas. Reference to the edges of empire in the Danube lands is especially welcome, but the scope of papers is by no means limited to that region. Instructive comparison with the frontier consciousness (or lack thereof) found among imperial powers elsewhere at any period is also encouraged. Should Roman attitudes to frontiers be regarded as at all exceptional in fact? Are there major deficiencies in our understanding, and can effective means be found to remedy them?

Anyone wishing to contribute a paper to this panel should send an abstract of 400 words (maximum) to Professor Boris Rankov (b.rankov@rhul.ac.uk) by 1st March, 2018 at the latest; all applicants will be notified by 31st March whether their papers have been accepted. Papers should last no longer than 20 minutes.

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Velleius Paterculus on the Frontiers

ABSTRACT

This paper considers how Velleius Paterculus described the Roman frontiers. It explores and compares his treatment of the physical geography (especially the rivers and terrain) and peoples on the eastern and northern frontiers, especially along the Euphrates and Rhine rivers. An examination of his conception of these limits of empire illuminates not only his appreciation of Rome's imperial endeavors and rivals, but also his own personal understanding of (and hopes for) the Roman empire. Through his geographic descriptions and ethnographic references, he emerges as both a writer immersed in the geopolitical culture of his age, and a military commander who was aware of the harsh realities and difficulties associated with ensuring the security of the empire. He thus illustrates the dichotomy that existed between imperialists and chroniclers that claimed limitless power, and soldiers and participants who better knew the realities on the ground.

Key Words: Velleius Paterculus, *Limes*, frontier, Rhine, Elbe, Euphrates, Germania, Parthia, map, worldview

Velleius Paterculus served the Roman Empire for some three decades prior to the publication of his history in 30 CE. He was a military tribune in Thrace and Macedonia, and then a cavalry prefect and legate along and beyond the Rhine frontier with the armies of the future emperor Tiberius. He also stood on the banks of the Euphrates and explored the eastern provinces.[1] This paper considers how Velleius imagined the imperial frontiers.[2] He emerges as a soldier-turned-historian immersed in and affected by the geopolitical culture of his age, but also as a military commander who claimed a special awareness of the difficulties associated with the security of the empire.

By the time Velleius was born, Parthian sovereignty had checked Roman *imperium* in the east.[3] In 20 BCE, Augustus had recognized the legitimacy of king Phraates IV in exchange for previously lost standards

[1]For his military postings, see Vell. Pat. 2.101.2–3; 2.104.3; 2.113–4. For Velleius' biography, see Sumner 1970; Levick 2011. My translations are based on Watt's 1998 text.

[2]For Velleius' conception of the empire's internal geography, see Turner 2015.

[3]For Velleius' birth dating sometime around 20 BCE, see Levick 2011, 3n9.

and prisoners of war.[4] After this agreement, opportunistic diplomacy, not war, characterized Rome's relationship with Parthia, at least until the mid-first century CE.[5] By the time Velleius published his work, the Euphrates was widely accepted as the border between two empires.[6] Indeed, Velleius' eyewitness account of the stately conference between Augustus' grandson Gaius Caesar and Phraates V around 2 CE appears to recognize quite clearly that the Euphrates marked the "symbolic and actual border" between the Roman and Parthian empires.[7]

As Velleius remembered it:

> [Gaius] met with the king of the Parthians, a young man of very high stature, on an island in the middle of the Euphrates; each one with an equal number of followers. This spectacle of the Roman army standing on one side [*hinc*] opposite the Parthian army on the other [*illinc*], while two of the most eminent leaders of their empires and mankind came together – a truly illustrious and memorable event – it was my luck to see as a military tribune at the beginning of my career. … First the Parthian dined with Gaius on our bank [*in nostra ripa*], and afterward Gaius dined with the king on the enemy bank [*in hostili*].[8]

The entire passage emphasizes gestures of equalizing etiquette.[9] The precise location of the meeting – on an island in the middle of the Euphrates – admits a certain parity; as do the equally sized entourages that accompany the two leaders, who are together "two of the most eminent leaders of their empires and mankind." The conference then ended with reciprocal dinners on either side of the river. Roman diplomatic engagements with Parthia were not always so well ordered; often they were characterized by Roman ignorance or arrogance.[10] After Augustus, however, such decorous protocol became typical of formal diplomatic relations (cf. Tac. *Ann.* 15.28–29) and may even be emphasized in many of the triumphal images depicting "humbled" and "domesticated" Parthians who have been viewed as "contributors" to peace.[11]

The passage's slight shift in focalization – that is, the view or perspective through which the events are described – also defines the Euphrates as a boundary.[12] Velleius began his narrative with a relatively impersonal description of the river's banks: Romans stood on "one side" while Parthians stood on "the other". He then formalizes distinct ownership at the end of the passage when he stresses that the banquets were held, first "on our bank" and then "on the enemy bank." In other words, everything up to the river belongs to Rome, anything beyond is enemy territory.[13] The passage moves from that of a relatively objective geographer, although perhaps admittedly one describing the world from the Roman perspective, to one written by a distinctly Roman general and imperialist who has admitted a rival's power and a geopolitical status quo.

Beyond this, Velleius had little to say about the eastern frontier.[14] Armenia was simply dismissed to the "farthest and most remote corner of the world" (2.102.3). Despite what seem to be obvious military interests, Velleius did not spend much time describing Rome's eastern battlefields like the location of Crassus' disaster (2.46.4) or Antony's disastrous campaign of 36-35 BCE (2.82.1-3). He briefly notes a wooded area (*silvestris*) through which Antony (somewhat) safely proceeded to avoid a Parthian army (2.82.2). Such limited descriptions of the terrain and geography pale in comparison with those of other authors who recognized and even emphasized the role played by topography and climate in the outcome of these campaigns.[15] So while Velleius had alternatives, he appears more interested in challenging the character flaws of his fellow Romans and, interestingly, praising some Parthians.

Simple statements including few annotations and no general stereotypes also mark Velleius' portrayal of the Parthians themselves. Only twice, in fact, does he even pause to comment on the characteristics of a specific Parthian. First, he describes Pacorus, the son of the Parthian king who joined Labienus in the invasion of Syria in 40 BCE, as the "most celebrated of their young men" (*celeberrimus iuvenum,* 2.78.1). Second, Phraates V was noted for his youth and stature (*iuvene excelsissimae,* 2.101.1). In both cases, then, Velleius' observations do not disparage the Parthians even though he had access to no shortage of deleterious stereotypes.[16]

In contrast, it is perhaps worth noting that when describing the east, Velleius frequently portrayed a Roman negatively. While he matter-of-factly describes the Parthians' role at Carrhae, ("… when King Orodes surrounded [Crassus] with a massive force of cavalry and killed him along with the greater part of the Roman army," 2.46.4), the Romans who are specifically named in the passage are disparaged. Crassus knew no limits in his desire for money and glory (*pecunia* and *gloria*, 2.46.2). Cassius, meanwhile, whom Velleius did credit with saving the few surviving forces at Carrhae and defending Syria from a Parthian counterattack, is also glossed as a man "soon to be the author of a most atrocious crime" (*atrocissimi mox auctor facinoris,* 2.46.5), the assassination of Caesar. In another passage, Antony is accused of capturing king Artavasdes "by trickery" (*fraude,* 2.82.3).[17] Velleius (2.102.1) also notes that the Parthian king informed Augustus of the treacherous behavior of Marcus Lollius, a man who was full of cunning (*subdoles*) and deceit (*versutus*).[18] Even Gaius Caesar, who was praised while attending the meeting on the Euphrates but who died after being wounded in Armenia, receives similar treatment. Velleius named the attacker, Adduus, but offers no further comment about his character or crime. Rather, it was Gaius, who had "rashly entrusted himself" (*se temere crediderat,* 2.102.2) to the conference at which he was wounded. Florus (2.32.44), in comparison, suggests that a "barbarian" took Gaius by surprise.

Of course, Velleius was criticizing Julio-Claudian rivals. Even Gaius may have been viewed as an unworthy challenger for Tiberius.[19] Such competition could explain the denigration. One would indeed be hard pressed to describe Crassus without mentioning his greed and ambition, as seen, for example, in Valerius Maximus (1.6.11, 9.4.1). Yet, in Strabo, Crassus simply "began a war" against Parthia (16.1.28) and was captured "by the treachery" of Surena (16.1.23). Antony, meanwhile, performed "badly" in war after being "betrayed" by his Armenian advisor (16.1.28). Velleius again had alternatives. That Romans (of whatever ilk), not Parthians, are criticized at moments of conflict is unexpected and further underlines Velleius' generally positive impression of Rome's diplomatic partners in the east. While some contemporaries may have shared this opinion,[20] it appears to contradict that of Livy (9.18.6), who felt that the glorification of Parthia at the expense of Rome was an absurdity dreamt up by Greek authors.[21] In contrast, even the most Roman of authors like Velleius could recognize a level of genuine respect for the Parthians. This depiction of the eastern frontier stands in stark contrast to Velleius' portrayal of the northern border.

Unlike in the east, where diplomacy secured the frontier, war dominated the northern frontier during Velleius' lifetime.[22] By the time he wrote his history, the northern frontier was essentially marked by the Rhine and Danube rivers, but this was not always the case. Significant attempts were made to expand Roman power

[4]Vell. Pat. 2.91.1; 2.94.3.
[5]Wheeler 2007, 240–41.
[6]Strabo 16.1.28, 6.4.2, 11.9.2; Edwell 2008, 7–8; 2013, 200–201; Wheeler 2007, 240.
[7]Campbell 2012: 190; see also Edwell 2008, 9–10. For the date, see Elefante 1997, 457.
[8]Vell. Pat. 2.101.1–3.
[9]Woodman 1977, 126; Elefante 1997, 457.
[10]See Plut. *Sull.* 5; Plut. *Pomp.* 33; Campbell 1993, 214.
[11]Rose 2005, 21, 22, 28, 36. For diplomacy, see Sidebottom 2007, esp. 13.
[12]On focalization, see Pelling 2009 and 2011; Clarke 1999, esp. 33–36, 214.
[13]Edwell 2013, 200–1. Valerius Maximus (6.9.9), calls Parthian territory "hostile soil," [*hostile solum*].
[14]As noted by Christ 2001, 189.
[15]Dio Cass. 40.15.1–6; 40.18.1–28.4; 49.28.1–32.5, and see Hellegouarc'h 1982, 226n5.
[16]See Campbell 1993, 216–20.
[17]See further Hellegourac'h 1982, 226n7.
[18]See further Woodman 1977, 128 and also Vell. Pat. 2.97.1.
[19]See further Vell. Pat. 2.101.1 and Elefante 1997, 459.
[20]See Trogus (Just. *Epit.* 41.1) or even Strabo (1.2.1; 11.9.2), although he also recognized Roman predominance (6.4.2, 16.1.28; cf. Clarke 1999, 226 and 303).
[21]Note also Dueck 2000, 14.
[22]For conditions in Germania, see Timpe 2006.

beyond the Rhine, and the territory south of the Danube was filled with unruly tribes in need of pacification.[23] Velleius (like Strabo) regularly portrayed the Rhine as a border that symbolized the security of the Roman Empire.[24] In his description of the *clades Variana,* for example, Velleius criticizes Vala Numonius, a legate of Varus, because he fled for the Rhine (2.119.4). In contrast, Velleius praised Lucius Asprenas, another legate, because he held steadfast the wavering peoples on "this side of the Rhine," (… *cis Rhenum …,* 2.120.1). That peoples in Roman territory, on the western bank of the Rhine were afraid, and that Aspernas' needed to bolster its defenses, illustrates how much stock Velleius put in the Rhine as a symbolic marker of Roman security.[25]

Like at the Euphrates, the crossing of the Rhine could indicate the start of war.[26] In response to the Varian disaster, Tiberius "crossed the Rhine with his army" (*ultro Rhenum cum exercitu transgreditur,* 2.120.6). Whatever the precise nature of Augustus' German policy – whether he went on the defensive, or as now seems more likely, was preparing to continue expansionist efforts – the passage illustrates that the transgression of the Rhine marked the beginning of the offensive.[27] Remarkably, Velleius uses the same technique in his description of the violent migrations of the late second century BCE: "At that time the Cimbri and the Teutones crossed over the Rhine; they would soon become famous because of the many defeats they inflicted upon us and suffered themselves" (*Tum Cimbri et Teutoni transcendere Rhenum, multis mox nostris suisque cladibus nobiles,* 2.8.3). The Romans, of course, had not expanded anywhere near the Rhine at the time of the invasion, and the most significant battles occurred far south at Arausio, Aquae Sextiae and Vercellae. Yet still Velleius marked the start of their story with their crossing of the Rhine, an act which could only have been a concern after the consolidation of the Gallic provinces. For Velleius, then, the Rhine was a symbolic border that marked the security of the empire whose crossing meant war.

This value placed on rivers as borders and their potential to be transgressed also explains Velleius' excitement upon reaching major rivers beyond the Rhine. For example, the crossing of the Weser and the penetration of the hinterland beyond its banks are listed alongside the subjugation of the Canninefates, Attuarii, Bructeri and Cherusci as the principal achievements of Tiberius' 4 CE campaign beyond the Rhine.[28] It is the sense of accomplishment associated with reaching these rivers that illustrates their significance as markers of the expansion of Roman power. Their significance can also be seen in the Romans' tendency to include representations of rivers in their triumphs.[29] Velleius' notice of the sequential crossings of the Rhine and Weser likewise measure Roman successes, as does his description of their reaching the Elbe.

In 5 CE the Roman army reached the Elbe. Decades later, the veteran Velleius celebrated the accomplishment:

> By the gods, how large a volume could be filled with the deeds we accomplished in the following summer under the general Tiberius Caesar. All Germania was completely traversed (*perlustrata*) by our armies, peoples barely known by name were conquered, … Finally – something never even hoped for, much less actually tried – a Roman army with its standards was led 400 miles from the Rhine to the Elbe River, which flows by the territory of the Semnones and Hermunduri.[30]

The recollection that he and the armies of Rome "completely traversed" all Germania suggests that the marching soldiers achieved a sort of territorial domination.[31] In fact, Velleius is even able to offer a specific figure – 400 miles – as the distance between the Rhine and the Elbe. He is, then, both clearly marking Roman power and yet still leaving a sense of awe and ambiguity at the vastness of the territory.[32]

It was at the Elbe that Velleius witnessed another remarkable diplomatic exchange, similar to the one he attended along the Euphrates. Here he offers a triumphant, joyful and even reverent encomium:

> I cannot restrain myself from including here with these great events the following story, whatever its significance. After we had established a camp along the nearer (*citeriorem*) bank of the previously mentioned river and the farther (*ulterior*) bank was gleaming with the armed youth of the enemy (*hostium*), who consistently fell back with every movement of our ships, one of the barbarians, aged in years, tall in stature, and of high rank (as his attire illustrated), boarded a canoe made from a hollowed-out log, as is their custom. Alone he navigated this strange boat to the middle of the river (*ad medium processit fluminis*) and asked if he could safely land on the bank we were holding (*tenebamus*) with our soldiers and see Caesar. The request was granted, and he then beached his boat, and silently contemplating Caesar for a long time he said: "Our young men are crazy, for when you are absent they revere you as a god, but when you are present they fear your arms rather than accept the promise of your protection *(sequitur fidem*). But I, Caesar, as a result of your kindness and permission, have seen today the gods whom I had heard about, and in my whole life I have never wished for or experienced any happier a day." After being granted permission to touch Caesar's hand, he returned to his little boat, and sailed back to the bank of his people (*ripae suorum*) without shifting his gaze from Caesar.[33]

Just like the Euphrates, the Elbe here divides two armies. At first glance, the passage appears to emphasize Roman power. The "enemy," as Velleius styles them, skittishly fall back with every Roman maneuver. While Velleius describes the dignity of the chieftain, his references to the strange little boat seems to suggest an "air of amused superiority," as Woodman put it.[34] As at the Euphrates, Velleius again emphasizes the mid-point of the river, but here, rather than serve as the location of an excessively balanced diplomatic ceremony, it is where the enemy chieftain pauses to ask permission to proceed across to meet Tiberius. As the morning greeting (the *salutatio,* or imperial *admissio*) between patron and client illustrated, the Romans regularly recognized the power associated with being approached, rather than approaching.[35] The chieftain's later comment about Tiberius' "protection" may also stem from the language of the patron-client relationship.[36] Alongside the humility with which the chieftain presents himself, Velleius' reverential comments praise Tiberius.[37] The passage, then, tends to illustrate the extension of Roman power and Tiberius' renown to areas far beyond the limits of the Roman empire.[38]

Similar to his description of the Euphrates meeting, Velleius again refers to the possession of the riverbank. The western bank of the river is called the "nearer", while the eastern bank is called the "further", thus emphasizing Velleius' Romano-centric perspective. Later the barbarian chieftain returned "to the bank of his people (*suorum*)." The use of the possessive pronoun once again marks Velleius' (perhaps unconscious) worldview. Yet here, Velleius stops short of calling the western bank "ours" as he did at the Euphrates. Instead, he notably uses the imperfect tense (*tenebamus*) to describe how the Romans were holding their position. In

[23]Velleius only once mentions the Danube (2.110.1).

[24]Strabo (17.3.24) defines the Rhine as a border, and notes (at 4.3.5) the peace and obedience on its western side; such conditions did not extend beyond it (Strab. 7.1.1–5).

[25]On officers in Velleius, see Christ 2001, 188. Late antique authors likewise viewed the Rhine as a sort of "defensive sanctuary" (Campbell 2012, 196). Rivers, of course, did not guarantee security; Campbell 2012, 186–97.

[26]Crassus' invasion began after he "crossed the Euphrates," (2.46.4); afterwards the Parthians "crossed into [Syria]," (2.46.5).

[27]Elefante 1997: 506. For Augustus' foreign policy, see Rich 2009.

[28]Rivers could be viewed as both starting and stopping points of imperial expansion; see Campbell 2012, 188 and Clarke 1999, 99.

[29]Östenberg 2009, 230–45.

[30]2.106.1–2. Elefante (1997, 469) and Hellegouarch'h (1982, 248n2) recognize panegyric elements in the passage.

[31]Clarke 1999, 100–1 notes a similar example in Polybius.

[32]Cf. Strabo's (7.1.4) description of the distance. *Perlustrare* might also be the rendering of a soldier who "wandered" all over an otherwise unknown landscape.

[33]2.107.1–2. See Woodman 1977, 146; Elefante 1997, 473; Bloomer 2011, 111.

[34]1977, 147; see also Elefante 1997, 471–72.

[35]Cf. Tiridates travelling to Rome to receive the kingship of Armenia from Nero (Tac. *Ann.* 15.29), or how the crossing of the Euphrates by a Parthian king (Artabanus) was presented as an illustration of Roman power (Suet. *Calig.* 14).

[36]For *fides* in Velleius, see Schmitzer 2011; for *fides* and patronage, see Deniaux 2010.

[37]Christ 2001, esp. 185.

[38]Schmitzer 2011, 184 and 2000, 298.

this way, he may be admitting the ephemeral nature of Rome's presence. To whatever extent Augustus was able to claim in his *Res Gestae* (26) the extension of the Roman Empire to the Elbe, he did so sometime before his death in 14 CE, less than a decade after this diplomatic exchange.[39] Velleius wrote some fifteen years after Augustus died – when claiming possession of the Elbe was impossible. He did not have the luxury of promulgating this hope as fact.[40]

Likewise, Velleius' descriptions of the terrain and peoples along and beyond the northern frontier differ from his eastern account. The topography of Germania, for example, provided a haven for Rome's enemies. When Tiberius led a Roman army beyond the Rhine, the Chauci were well protected "by their location" (*situ locorum,* 2.106.1). The Marcomanni sought refuge in Bohemia, an area surrounded by the Hyrcanian Forest (2.108.1). Varus' army, meanwhile, was ambushed and destroyed among the forests and marshes (*silvae* and *paludes*) of northern Germania (2.119.2).[41] The details Velleius provides for the north stand in stark contrast to his bare descriptions of the east.

A similar conclusion can be drawn from Velleius' depictions of the peoples beyond the limits of the Roman Empire. Unlike the generally positive representations of the Parthians, Velleius regularly portrays the peoples of Germania as clear threats to Roman security. Maroboduus and the Marcomanni, in large part because of their location, were considered a threat not only to their neighbors but even to Italy and Rome (2.109.3-4). But proximity alone was not enough; the Romans also feared the quality of their soldiers, who had been so well trained that they nearly met the standard of Roman discipline (2.109.1).[42] The growing size of Maroboduus' army also posed a problem (2.109.2). Another Germanic people, the Chauci, were huge warriors and infinite in number (2.106.1).[43] In his description of the *clades Variana,* Velleius describes Arminius' warriors as "highly ferocious and most cunning, a race born to lie" (*in summa feritate versutissimi natumque mendacio genus,* 2.118.1).[44] In all these cases, Velleius is doubtless repeating widespread geographic and ethnographic tropes, but my point here is to emphasize just how much these descriptions differ from what he wrote about the east.

Modern scholars have long debated the quality and purpose of Velleius' surviving work.[45] Once considered little better than a sycophant or liar, Velleius eventually became "a uniquely reliable gauge of official opinion," and so especially useful to scholars investigating political culture in the early imperial period.[46] Recent publications, however, illustrate a continued debate over his attitude towards the condition of the Roman Empire, especially in the latter half of Tiberius' principate when he wrote and published his work. Some scholars have concluded that Velleius was an optimist who (obsequiously) praised the empire-wide peace that Augustus and especially Tiberius had achieved.[47] There are, however, skeptics who have questioned Velleius' desire to applaud the state of the empire.[48]

The differing depictions of Rome's frontiers might readily be explained by the fact that Velleius spent so much time fighting in the north with his hero Tiberius. Describing (or exaggerating) the threat in that part of the world was, then, a necessary device of imperial adulation.[49] But while he praised, he also understood the limits of empire and offered a warning. He had accepted the position of Parthia as Rome's eastern partner, but at the same time he was keenly aware of the dangers lurking to the north. The prayer with which Velleius ends his work reveals that he was quite worried about the future security of the empire (2.131.2-2).

[39]See further Cooley 2009, 221–22.
[40]For similar uses of the possessive, see Campbell 2012, 191 and Marincola 1997, 287–88.
[41]See also 2.95.2, 2.115.2, 2.115.4.
[42]The Pannonians receive a similar treatment at 2.110.5.
[43]See also 2.95.2, 2.110.3, 2.114.4.
[44]See also 2.95.2, 2.106.2, 2.110.2, 2.114.4, 2.115.2, 2.115.4.
[45]See Rich 2011.
[46]Rowe 2002, 44. For Velleius' reception, see Schmitzer 2000, 9–23 and Cowan 2011.
[47]Balmaceda 2014, 343, 352 and 362. Rich (2011, 79) views the work ending on a happy note.
[48]Connal 2013, esp. 50–52. Bispham (2011, 44) recognizes "a palpable sense of gloom and anxiety at the end of [Velleius'] work."
[49]Kuntze 1985, 214–17.

Although he begs the gods to offer successors to bear the burden of empire so ably managed by Tiberius, at the time he published his work Velleius had no idea how much longer Tiberius would reign. With that in mind, he may well have found himself agreeing with his fellow senators who seemed increasingly to question Tiberius' foreign policy.[50] In that sense, at least, his history need not appear as a pure exercise in flattery. While he may have praised Tiberius' diplomacy,[51] Velleius' frontier geography reveals the genuine and continued concerns of an officer of the Roman army.

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[50]See Tac. *Ann.* 4.32.
[51]2.129.3.

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Résumé

Cet article examine comment Velleius Paterculus décrit les frontières romaines. Il explore son traitement de la géographie physique et des peuples des frontières de l'est et du nord (notamment le long de l›Euphrate et du Rhin). Sa conception de ces limites de l'empire éclaire non seulement son appréciation des efforts impériaux de Rome et de ses rivaux, mais aussi sa compréhension personnelle de l'empire romain (et de ses espoirs). Il illustre ainsi la dichotomie qui existait entre les impérialistes et les chroniqueurs qui revendiquaient un pouvoir illimité, et les soldats et les participants qui connaissaient mieux la réalité au terrain.

LIMES XXIIII

Session 30

[Continuation of] Building materials: Elements of construction, elements of expression?

INTRODUCTION

Session organisers / Chairpersons:
Craig A. Harvey
Tanja Romankiewicz
Guus Gazenbeek

Whether it be by forts, watch towers, or walls, military installations played an integral part in defending the Roman Empire and projecting control over its border regions. The construction of these installations, along with their associated infrastructure and support buildings (such as roads, baths, barracks, horrea, etc.) and the civilian buildings and settlements that followed in their wake, was therefore of the utmost importance. While there are many ways to study these structures, a particularly fruitful avenue of their exploration is through their building material. The construction materials used along the frontiers often depended on the local geography and availability of resources (stone, timber, clay, earth, water, lime, etc.). These installations therefore not only expressed Roman military might, but also represented the ingenuity of its architects, engineers, surveyors, construction workers, and material preparers. Above all, these works embodied the Roman military's capacity to organize the logistics that form the basics of building on such a large scale. In many cases it may also be possible to see the influence of indigenous building traditions on these Roman military installations.

This session focuses on the literal building blocks of the Roman limes, and the people who selected, created and used these elements of construction. We would like to invite contributions which present a specific building material and how it has been used for a specific context, or which consider new methods of analysis. More general contributions are also welcome that explore:

- Where are building materials sourced: locally, locally-adapted, or imported? What does this tell us about who sourced these materials and who used them?
- How are these materials used in constructions: to what extent is regional or local influence present in the building program of the Roman frontier?
- Can we trace developments and innovations? Or experiments, failure, and deterioration of skills and knowledge – in different places, at different times?
- What evidence is there for ephemeral building materials (i.e. timber, unfired clay/bricks, other organic materials), and what can this tell us?
- How can the application of theories, such as chaîne opératoire or network analysis, contribute to the study of these materials or building processes?
- What is the influence of local building traditions on Roman building techniques in new territories, and, what happened to these local traditions once the Romans had established themselves?
- To what extent did the regional geography or availability/lack of resource affect the decisions made by engineers and builders regarding the building material and techniques used?
- What was the role of civilians in constructing the limes? Were they just bystanders or leading participants? To what extent did the military contract out the work or rely on civilians for the sourcing, preparation, or actual assembly of the material?

Limes XXIIII. Proceedings of the 24th International Congress
of Roman Frontier Studies, Serbia 2018

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The Manufacture of Ceramic Building Materials from the Roman Fort at Hauarra (Modern Humayma, Jordan)

ABSTRACT

This short article presents findings from a recent study of the ceramic building materials found in the second to fourth century AD Roman fort at Hauarra (modern Humayma, Jordan). While ubiquitous in the region, this material (i.e. bricks, cylindrical pipes, *tubuli*, and roof tiles) generally receives only cursory attention in excavation reports. As a result, little is known about the production, distribution, and use of ceramic building materials along the *Limes Arabicus*. This article, which focuses on the manufacturing processes of this material, attempts to address this gap in scholarship. It is hoped that this article will also serve to encourage further studies on ceramic building materials from Roman forts in the eastern provinces.

Key Words: Ceramic building material, Humayma, Roman Arabia, *Limes Arabicus*, bricks, roof tiles, *tubuli*, pipes

Although ceramic building materials (hereafter CBM) were produced and used by the Roman military throughout the Roman world, scholarly interest in this material has been decidedly more prominent for military sites in the Roman West than for those in the eastern provinces. This difference results in part from the fact that only a single legionary kiln works has been excavated in the eastern provinces, at Jerusalem,[1] and only a few sites in the region have produced military tile stamps.[2] Consequently, many excavation reports of military sites in the Roman Near East provide only superficial descriptions of CBM, thereby hindering the creation of regional typologies and obscuring the role of this important material. In response to this oversight, the present authors undertook a detailed examination of CBM recovered from the Roman fort at Hauarra (modern Humayma, Jordan) with the goal of elucidating the source and production of this material and to

[1]Arubas, Goldfus 2005; Murphy *et al*. 2018
[2]E.g. Jerusalem (Geva 2003), Legio (Tepper 2007, 66), Bostra (Brulet 1984), Zeugma (Kennedy 1998, 133–135)

provide a much-needed reference for future studies of CBM in the region. In addition to creating typologies based on form and fabric, this study also investigated the manufacturing processes of this material. This examination has resulted in a much better understanding of the local CBM industry and is the first step towards placing the production of this material within its regional and extra-regional contexts. The final results of this study will be published in the third volume of the Humayma Final Report Series.[3] This short article presents a few highlights from this study, with particular attention to the manufacture of the bricks, cylindrical pipes, *tubuli*, and roof tiles.

The site of Humayma is located in the Hisma Desert of southern Jordan, roughly 45 km south of Petra and 55 km northeast of Aqaba (Fig. 1). Founded by the Nabataeans in the first century BC, the site became home to one of the earliest Roman forts in the region soon after the annexation of the Nabataean Kingdom by Trajan in AD 106 (Fig. 2). A late second- or early third-century AD inscription found in the neighbouring *vicus* attests to the presence of a detachment of the *Legio III Cyrenaica* at the fort, and it is also possible that it was at some point manned by a detachment from the *Legio VI Ferrata*.[4] In addition, the *Notitia Dignitatum* mentions the presence of a unit of *equites sagittarii indigenae*, probably in the fourth century AD (*ND Or.* 34.25).[5] Excavation within this military fort, under the direction of John P. Oleson (1993-2005) and later by M. Barbara Reeves (2012), succeeded in uncovering many of its structures, including the *principia*, the *praetorium*, a *horreum*, a barracks building, an industrial complex containing a brewery and latrine, and a large reservoir.[6]

The Hauarra fort also produced a large quantity of CBM; however, the collection strategies used for this material varied from year to year. While earlier seasons recorded all CBM found, the use of a "count, weigh, and discard" strategy resulted in less than 1% of excavated CBM being retained for further study. By comparison, the 2012 season saved all CBM pieces for subsequent typological analyses. These different collection strategies have resulted in a sampling bias that prevents a truly quantitative study of the material. Instead, the emphasis of our examination of CBM (both from the fort and across Humayma) has been on creating typologies, where possible, based on form and fabric. Each piece was categorized by its architectural type (i.e. brick, cylindrical pipe, *tubulus*, roof tile) and then described in terms of its characteristics (i.e. subtype, such as *bessalis*, *pedalis*, etc., shape, dimensions, weight, fabric, production techniques, surface treatment, drying environment, handling, amount and location of mortar/plaster, amount and location of heat exposure, and context).[7]

Bricks

Within the Hauarra fort, ceramic bricks were not widely used as a building material, but instead were found only in the construction of a hypocaust system in the *praetorium*[8] (Fig. 3) and a floor in the *horreum* (Fig. 4).[9] Excavation also uncovered a stack of three bricks (perhaps an installation) in a structure identified as a barracks and workshop. Nearly all of the bricks from the fort have measurements relating to modules of the Roman foot (*pes monetalis*) of 29.6 cm, and thus it was decided to categorize them, when possible, by standard Roman brick names (i.e. *pedalis*, *bessalis*, etc.). For example, a square brick recovered from within the *horreum* measured 29.3 cm by 29.7 cm, clearly denoting this brick as a *pedalis* (a brick measuring one Roman foot by one Roman foot). The circular bricks that formed the pillars of the hypocaust system had diameters ranging from 19.3 to 19.8 cm (roughly two-thirds of a Roman foot), which corresponds to the measurement of a typical *bessalis*. While this use of the Roman foot as a module of measurement suggests direct Roman influence in the production of these bricks, it is important to note that the Nabataeans were producing ceramic bricks with Roman measures long before annexation.[10]

[3]Reeves, Harvey, In preparation
[4]Oleson 2009, 535
[5]Oleson 2010, 53–55
[6]Oleson *et al*. 1995, 1999, 2003, 2008; Reeves *et al*. 2017
[7]Reeves, Harvey 2016, 450, table 1
[8]Reeves *et al*. 2017, 126–132
[9]Oleson *et al*. 2003, 46
[10]Reeves, Harvey 2016, 463, 467

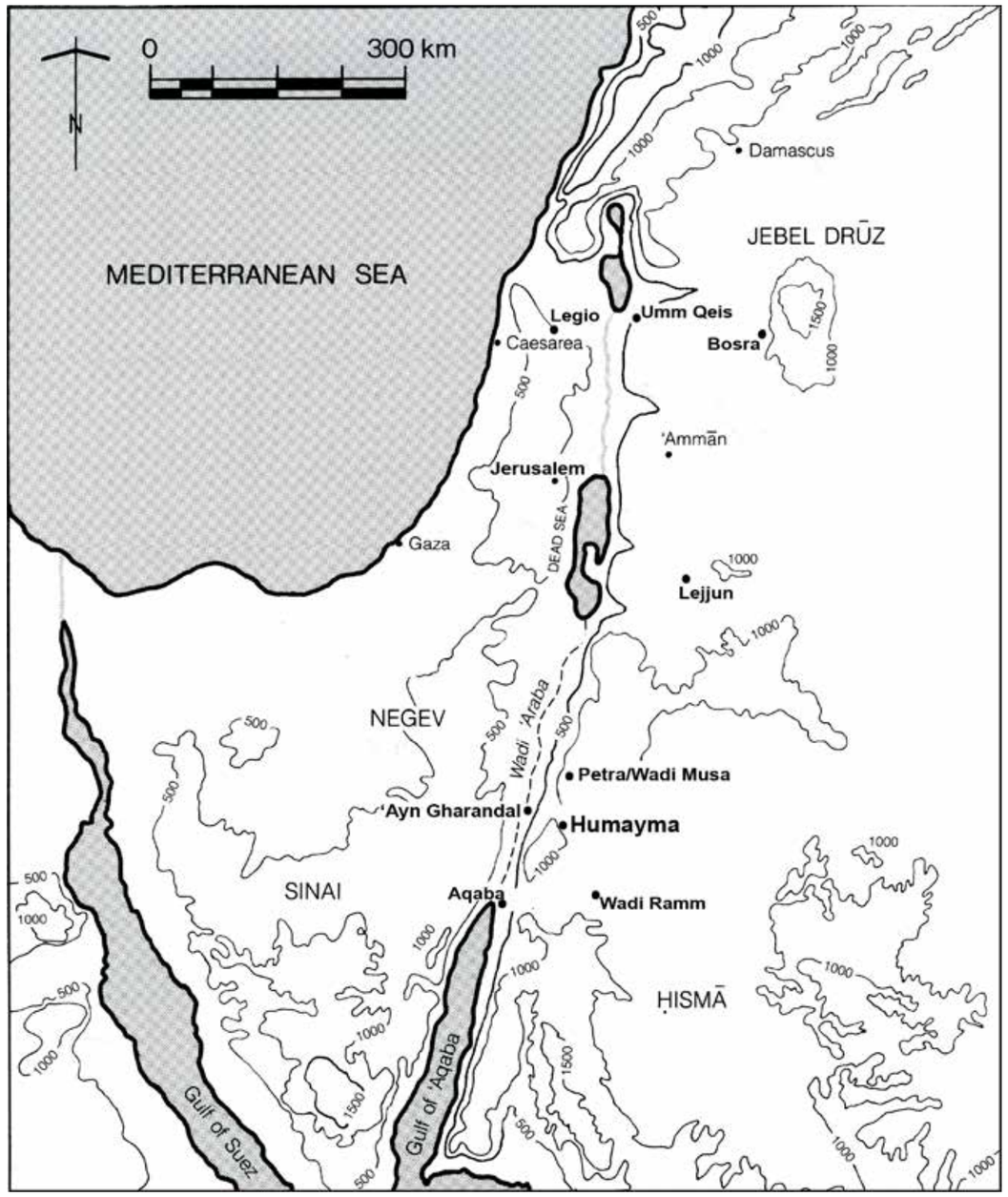

Fig. 1 - Map of the region with the relevant sites highlighted in bold. (map by the authors, after Oleson 2010, fig. 2.1)

In addition to categorizing the bricks by size, the study also attempted to identify assemblages of bricks with common fabrics, production characteristics, and archaeological contexts. Interestingly, nearly all the bricks used within the heated room of the *praetorium* seem to belong a single assemblage of CBM that

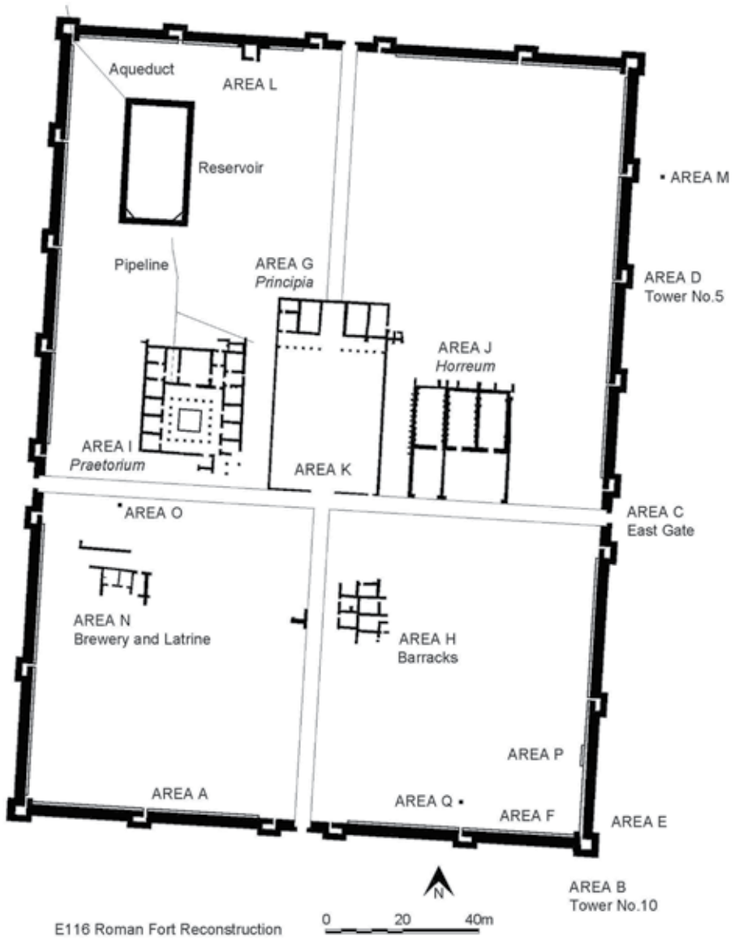

Fig. 2 - Reconstructed plan of the Hauarra fort showing the excavated structures. (courtesy of J. P. Oleson)

Fig. 3 - Bricks from the *praetorium* hypocaust system. 1. *In situ* stack of circular *bessales*. 2. *Pedalis* showing shadow of circular *bessalis* on which it was placed. 3. *In situ* stack of small rectangular bricks. (Humayma Excavation Project)

also included heating pipes.[11] This homogeneity and the discovery of this material in its primary use suggest that this assemblage was imported as a unit for the construction of the *praetorium*'s hypocaust, which has been dated to fourth century AD. Conversely, the *pedalis* found in the *horreum* belongs to a separate assemblage that has also been identified in the garrison's extramural bath.[12]

The study of these bricks also included close examination of their surface treatment, which provided important information on how this material was produced. As all of the collected bricks had sides that were flat, even, and smooth as well as thin projections of clay along their bottom edge, it seems very likely that they were made in a mould without a bottom. Some of these bricks had distinctive linear marks on their sides, likely formed by the tool used to release them from the mould. The square and rectangular bricks all showed signs of smoothing on their top face by hand or tool, whereas their bottom faces often contained the imprints of straw or other material from the surface on which they were set to dry. The square *pedalis* removed from the *horreum* contained human footprints impressed into its smoothed upper face, further indicating that this face was up during the drying phase (Fig. 4). The production process appears to have been slightly different for the circular bricks found in the hypocaust. These circular *bessales* were smoothed on both faces and their edges were trimmed with a knife before firing.

As this is the first detailed study of bricks in this region, the identification of parallels has proven difficult. As there is no evidence for ceramic production of any sort at the site, these bricks must have been imported to Hauarra.[13] It is hoped that the detailed publication of Hauarra's bricks will assist in the future identification of parallels.

Cylindrical Pipes

Excavators of the Hauarra fort retained several examples of cylindrical pipes for further study. These ceramic pipes are of the standard form found throughout the region with two distinct ends: a spigot (narrow end), often featuring a short narrow collar, and a socket (wide end or bell), featuring a wide opening. The spigot of one pipe was inserted into the socket of another in order to form a better connection between adjacent pipes.

[11]The "Praetorium Room J Type", Reeves, Harvey 2016, 471, Fig. 10, Table 4

[12]The "Smoothed Top/Ovoid Bottom Type", Reeves, Harvey 2016, 471–472, Fig. 11, Table 5

[13]Oleson *et al*. 2003, 328, 337; Reeves *et al*. 2017, 136

The most common use of these pipes was as conduits for water, and many of the pipes collected from the fort were *in situ* in hydraulic pipelines. Several other examples were found within the *praetorium*'s heated room and contain soot and signs of heat damage on their interiors. These cylindrical pipes likely acted as exhaust or chimney pipes for the hypocaust system. Four types of cylindrical pipes were identified from the Hauarra fort; however, because so few of the fort's many pipes were collected and available for study, this typology cannot be considered as representative of all the pipes that may have been used (Fig. 5).

In all collected examples, these cylindrical pipes display rilling (wheel-marks) on their interiors and exteriors, indicating that they were manufactured on a potter's wheel, with finishing touches added after the pipe had been removed. This production method was the standard technique used by local Nabataean potters in the century before Roman annexation of the region and was the method by which pipes from Petra and the surrounding region were produced.[14] The discovery of wheel-made cylindrical pipes at the kiln works of the *Legio* X *Fretensis* at Jerusalem also suggest this was the fabrication method employed by the military in this region.[15]

Past publications of ceramic pipes from southern Jordan rarely provide enough details about their shape and fabric to allow definitive comparisons, and thus it has been difficult to identify close parallels for the Humayma cylindrical pipes. Similarities do exist, however, between the Humayma pipes and those found in Wadi Musa, particularly the fourth-century AD pipes from az-Zurraba, the first-century AD pipes from Dar al-Birka, and the second-century AD pipes from Jabal az-Zuhur.[16]

Tubuli

Another type of pipe found within the fort, but one with a very distinctive shape, is the *tubulus* (elsewhere referred to as box flue-tiles). These ceramic tubes were designed specifically to be installed against the walls of heated rooms in order to create a hollow void in which hot air from the hypocaust could circulate and thus contribute to the heating of the room. Vents cut into their sides enabled the lateral flow of air between columns of pipes. Within the Hauarra fort, the greatest concentration of *tubulus* fragments unsurprisingly came from a small heated room in the *praetorium*, which contains the only known hypocaust in the fort.[17] Excavation of this small room uncovered thousands of *tubulus* sherds, nearly all of which appear to belong to a single type (Fig. 6). This uniformity is noteworthy, as other wall-heating systems in the region were built with *tubuli* of various sizes and shapes.[18]

The presence of rilling on all collected samples clearly indicate that these heating pipes were initially formed on a potter's wheel before being pressed into their characteristic box-like shape. The presence of finger indentations on their exterior reveals that this shaping was done by hand. Curiously, only one end of the tube was shaped in this way, resulting in *tubuli* that uniformly had one end that was more rectangular than the other end, which retained a more oval shape. Before firing, vents were cut into the short sides.

The manufacture of these *tubuli* on a potter's wheel differs from the various methods of producing *tubuli* using slabs of clay common in other regions of the Roman Empire. For example, in Britain, *tubuli* were produced by wrapping a clay sheet around a wooden frame,[19] while in the Decapolis region, of northern Jordan, *tubuli* were made from slabs of clay placed into a wooden mould.[20]

Wheel-made *tubuli* (as opposed to slab-made) therefore seem to have been a local variant and have been

[14] Amr – al-Momani 2001, 270, Fig. 24; Bellwald 2008, 90, Fig. 66
[15] Rosenthal-Heginbottom 2005, 279-80, no. 217
[16] Amr – al-Momani 2001, 270, Fig. 24
[17] Reeves *et al*. 2017, 126–132
[18] Harvey 2019, 170–179
[19] Morgan 1979, 395–397
[20] Vriezen, Mulder 1997, 330

Fig. 4 - Drawing of *pedalis* from the *horreum* showing footprints. (Humayma Excavation Project)

found in other heating systems in southern Jordan, including in the extramural garrison bath at Humayma.[21] These variant *tubuli* also appear in other military baths along the southern *Limes Arabicus*, such as at Lejjun[22] and 'Ayn Gharandal.[23] Elsewhere in the region, excavation has also uncovered wheel-made *tubuli* from non-military sites, including the first-century AD baths at Wadi Ramm[24] and at various locations in Petra.[25] The presence of wheel-made *tubuli* in Nabataean heating systems that date before the Roman annexation suggests that this production technique was a local innovation.

Roof Tiles

The last category of CBM found within the Hauarra fort is roof tiles, which can be divided into two sub groups: *tegulae* and *imbrices*. The *tegula* is a large rectangular tile with a flat underside and two raised flanges running along its long sides. The underside sits on surface of the roof so that the flanges of one tile abut those of the horizontally adjacent *tegulae*. Vertically adjacent tegulae on a sloping roof overlap so that the upper end of one is covered by the lower end of the tile above it. The *imbrex* (or cover tile) was designed to sit overtop the seam between two horizontally adjacent *tegulae*, covering the gap between their flanges. One end of the

[21] Harvey 2013, 61–84; Reeves, Harvey 2016, 471-473, Fig. 12; Reeves *et al*. 2017, 121-122
[22] Parker 2006, 361, Figs. 16.76-16.79
[23] Harvey 2019, 170-179
[24] Reeves, Harvey 2016, Fig. 8, table 2
[25] E.g. Wadi Farasa (Schmid 2002, 261, Fig. 13), Zantur IV (Kolb, Keller 2000, 361-62, Fig. 9)

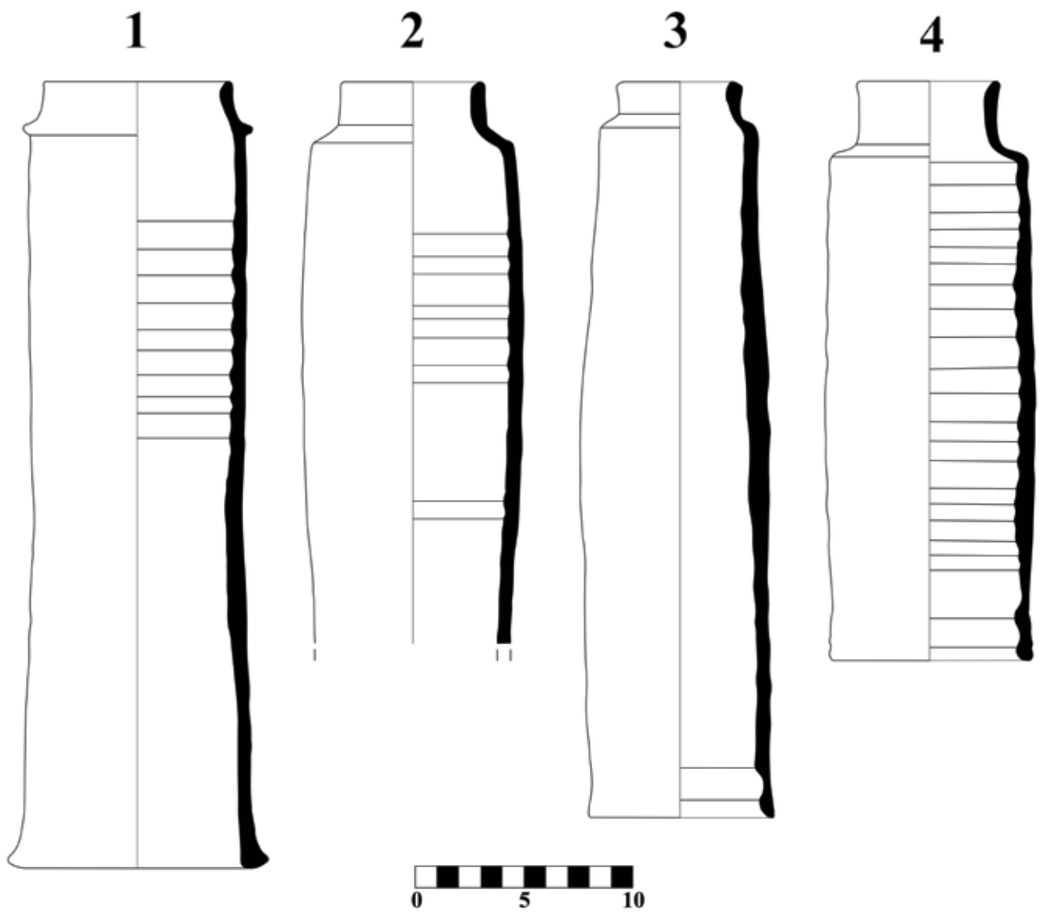

Fig. 5 - Drawings of four cylindrical pipe types. (Humayma Excavation Project)

imbrex is taller and wider than the other, allowing vertically adjacent *imbrices* to overlap so that the upper (shorter, narrower) end of one is covered by the lower (taller, wider) end of the *imbrex* above it on the roof. To help a *tegula* overlap the tile immediately below it on the roof, manufacturers typically cut away sections of the tile before firing. These cutaways generally removed the flanges at the top of the tile and the underside corners at the bottom end.[26] At Humayma, like other sites in the region,[27] these lower cutaways are absent suggesting this is another regional variant. Only the flanges at the top end of the tiles are cut away to help these tiles overlap.

Excavation at Humayma uncovered roof tile fragments throughout the fort, but it is likely that tiles were primarily used in the roofing of the *principia* and *praetorium*. Many of the fort's roof tiles were reused elsewhere in the settlement after its abandonment, and an estimated 18,000 *imbrices* from the fort were recycled as gutter tiles in an aqueduct renovation.[28] The very small number of *imbrices* retained for study prevented

[26]Brodribb 1987, 16–17; Barat 2002, Figs. 6-8; Warry 2006, 20-28; Shepherd 2007, 58-67

[27]Vriezen, Mulder 1997, 328-30; Hamari 2008, 380; 382, Fig. 10; Hamari 2017, 103

[28]This renovation was originally dated to the late third or late fourth century (Oleson 2010, 328–330), but recently a date of the seventh century has been proposed (Reeves 2019, 121).

Fig. 6 - Drawing and photograph of wheel-made *tubulus* from the heated room in the *praetorium*. (Humayma Excavation Project)

the creation of a typology; however, it was possible to identify at least four types of *tegulae* from the fort, which probably correspond to different phases of occupation. Not a single tile from the fort contained a stamp, paralleling the absence of stamps at the legionary fortress at Lejjun.[29]

As with the other CBM from the Hauarra fort, the close examination of the tiles' surfaces revealed important clues regarding the manner in which they were produced. For example, many of the *tegulae* collected from the fort had a thin ridge extending outward around its bottom edges. This ridge is likely an unintended consequence of the production technique used, although the exact technique is uncertain. It may have been the result of wet clay leaking out of the bottom of a mould and could indicate that the *tegula*'s underside was down in an open bottomed mould.[30] Alternatively, such a ridge might also have been created while the side was being smoothed by a finger or tool.[31] A third possibility is that the tiles were formed in an inverted mould and this thin ridge resulted from clay being smoothed over top of the mould while the tile was face down. In support of the inverted mould theory, many of the *tegulae* samples show signs of smoothing on their undersides and imprints on their upper surface.

One such imprint (present on at least three fragments) is a raised circular ring, with a diameter of 7.8-8.0 cm (Fig. 7). On one fragment, this circular ring overlies a possible rectangular mark. To the left of this raised ring is a similarly raised linear ridge, seemingly running the length of the tile from its upper to lower edge. This raised ring and linear ridge appear in the same position on all three fragments, strongly suggesting that not only were these tiles mould-made, but likely the same mould was used for their manufacture.

[29]Parker 2006, 361

[30]cf. Warry 2006, 10

[31]cf. Vrizen, Mulder 1997, 329–30, Figs. 8, 9, 11

Another recurring imprint is a much smaller circular impression (maximum diameter 1.5 cm) in the upper right corner of at least two tile fragments (Fig. 8). These matching imprints likewise suggest that these two tiles were made using the same mould. Interestingly, a similar circular impression (also with a diameter of 1.5 cm) is recorded on a group of *tegulae* from Petra,[32] which raises the possibility that these tiles were produced using the same type of mould.

Many of the collected *tegulae* from the Hauarra fort have pitted surfaces, the pits ranging in diameter from 0.2 to 0.5 cm. It is not clear what caused this pitting, but one possibility is that it is the result of a work palette or mould interior covered in very fine to fine gravel or a textile in order to prevent the clay from sticking. Similar pitting, which has been interpreted as the impression of a textile, appears on two Roman period plaster surfaces at Humayma.[33] Textile imprints also appear on the surface of roof tiles found elsewhere in the Roman Empire.[34] Other tiles with a smoothed upper surface also could have had an originally pitted surface smoothed away after being removed from the mould.
Cross-sections of the tile flanges also reveal clues about their manufacture. The presence of folds of clay in the flanges suggest that some of them were made by folding up the long edges of the slab. In some cases, the slab was only folded once, but in other cases it was folded twice (first up and then down towards the slab's surface). Similar folded flanges have also been found at Umm Qeis[35] and Petra.[36]

Like the *tegulae*, all the *imbrices* from the Hauarra fort were slab-made, and a close examination of their surfaces reveals how they were likely produced. Notable surface features include the presence of a lip along the bottom interior edge (on at least 7 out of 24 fragments), the presence of an interior pitted surface (on at least 6 out of 24 fragments), and the presence of longitudinal finger grooves on the apex (on at least 10 out of 24 fragments). The first step in the production of these *imbrices* was the creation of clay slabs by throwing clay into a wooden mould and running a wire or other tool across the top in order to peel away the excess clay.[37] It is possible that the lips on the interior of some *imbrices* may have been created at this time by peeling off less clay along one or both long edges. If this was the case, the *imbrex* face with the lip must have been face up in the mould used to form the slab. Another possibility is that the interior lips were formed by indentations in the former used to create the curved profile. As was the case with the *tegulae*, the pitted surface on some of the *imbrices* may have been caused by fine gravel or a textile placed on the work surface, mould, or former in order to prevent unwanted sticking (Fig. 9). To create the necessary U-shaped curve, the slab was placed over an upright former, and the tile's exterior surface was smoothed with fingers or a tool. This smoothing left longitudinal striations on the outside of the *imbrex*[38] and would have increased the exterior face's surface tension and weather resistance.[39] The deeper finger grooves along the apex of many Hauarra *imbrices* would have been added at this time, but it is not clear what function they served. Once shaped in this way, the *imbrices* were allowed to dry leather hard before being fired in a kiln.

As with the other types of CBM, the absence of similar studies in the region severely hinders the identification of comparanda. As a result, no parallels for the *imbrices* found at Hauarra have been located. On the other hand, many characteristics of one type of *tegula* (Fig. 8) correspond closely with the Ez Zantur Type 2 identified by Hamari at Petra and tentatively dated to the second century AD.[40] A complete example of another type of *tegula* at Humayma (Fig. 10) was used as pakking beneath an early floor in the *principia*. Based on appearance and archaeological context, both of these

[32]Hamari 2017, 92, Fig. 6.3
[33]These impressions appear on both a plaster sealing on a lead pipe (Oleson 2010, 334, Fig. 6.8) and the plastered surface of a *piscina* (immersion pool) in the garrison's bath (Reeves, personal communication).
[34]Brodribb 1987, 125
[35]Vriezen, Mulder 1997, Figs. 8, 9, 11
[36]Hamari 2008, 379
[37]Vriezen, Mulder 1997: 328, Fig. 7; Warry 2006, 36
[38]cf. Vriezen, Mulder 1997, 329, Fig. 7
[39]Warry 2006, 36
[40]Hamari 2017, 92–93, 102–103

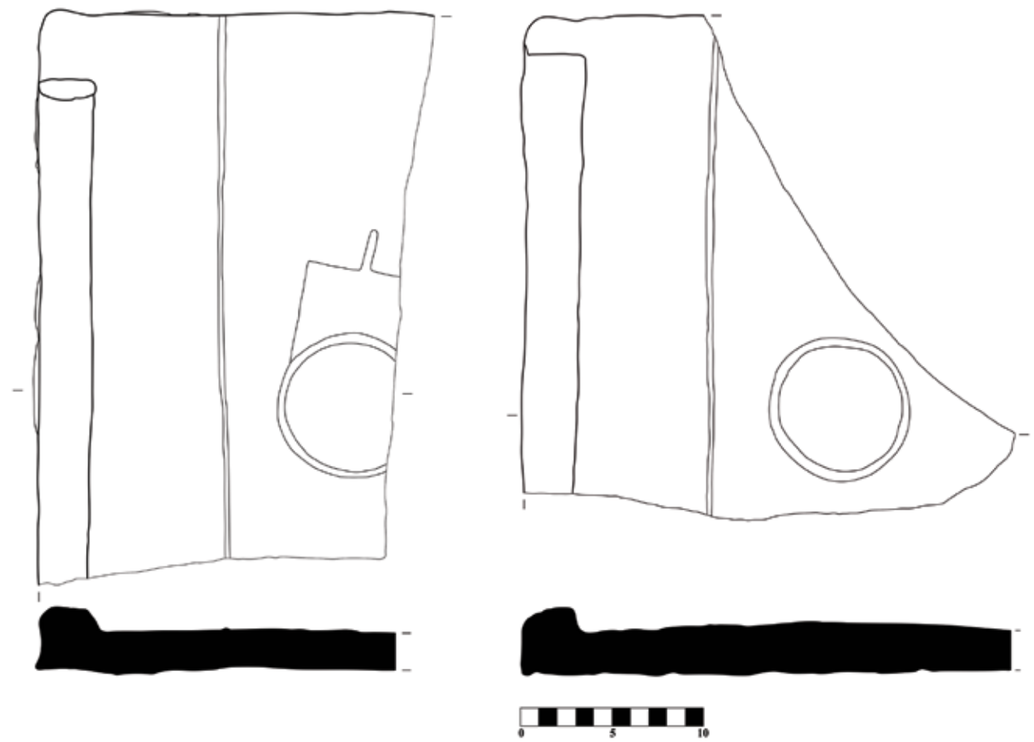

Fig. 7 - Drawings of *tegulae* with raised ring imprint. (Humayma Excavation Project)

tegulae types are tentatively dated to the first phase of the fort's construction (early second century AD). Two other *tegulae* types (e.g. Fig. 7) may date later, as they have similar widths to a published *tegula* from the Petra Church, which also lacks ridges across its top.[41]

Use of CBM at Hauarra

The limited use of CBM within the Hauarra fort is not surprising, as the scarcity of clay, water, and fuel in the region made the large-scale local production of CBM impossible. Consequently, CBM would have been expensive to produce and thus used only when necessary. For example, the heat resistance of bricks made them the material of choice for the construction of hypocausts, such as the one in the *praetorium*. The discovery of ceramic bricks as floor pavers in the *horreum* may also reflect best practices, as brick is recommended by several ancient authors for granary floors (Columella, *Rust.* 1.6.13; Palladius, *Ag.* 1.19.1).

Conversely, the use of ceramic roof tiles and pitched roofs in the fort was unnecessary, given the arid desert climate of the site. Instead, the decision to use this expensive and unnecessary roofing material was likely an expression of power and was designed to make high status buildings of the fort, such as the *principia* and *praetorium*, stand out from other buildings, particularly the flat-roofed structures in the neighbouring settlement. The use of such roofscapes to convey messages of status has also been argued for Beirut and Petra.[42]

Concluding Remarks

Although this article gives only a brief synopsis of the larger study of CBM from the Hauarra fort, its intent was to demonstrate how the careful analysis of this

[41]Kanellopoulos 2001, 185, Fig. 73
[42]Mills 2013, 112–114; Hamari 2017, 107–108

Fig. 8 - Left: *Tegula* fragment from Hauarra with circular imprint. (Humayma Excavation Project) Right: *Tegula* fragment from Petra with similar circular imprint. (courtesy of P. Hamari, after Hamari 2017, fig. 6.3)

Fig. 9 - *Imbrex* fragment showing pitting on interior surface. (Humayma Excavation Project)

material can help reveal how it was made and identify otherwise undetected types. The publication of the full study will appear in the third volume of the Humayma Final Report Series.[43] It is also hoped that this study will encourage other scholars in the region to publish CBM in greater detail, which will aid in the creation of regional typologies and lead to a much better understanding of this important but often overlooked material.

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Résumé

Ce court article présente les résultats partiels d'une récente étude concernant les matériaux de construction en terre cuite trouvés dans la forteresse romaine de Hauarra (aujourd'hui Humayma en Jordanie). Omniprésents dans la région, les matériaux de construction en terre cuite (qui comprennent les briques, les tuyaux, les *tubuli* et les tuiles) sont souvent négligés par les rapports de fouilles archéologiques. Par conséquent, on connaît peu de choses sur la production, la distribution et l'utilisation de ces matériaux le long du *Limes Arabicus*. La présente étude se concentre sur les processus de fabrication de ces matériaux et tente de combler cette lacune. Nous espérons que cet article encouragera de nouvelles recherches sur ces importants matériaux dans la région.

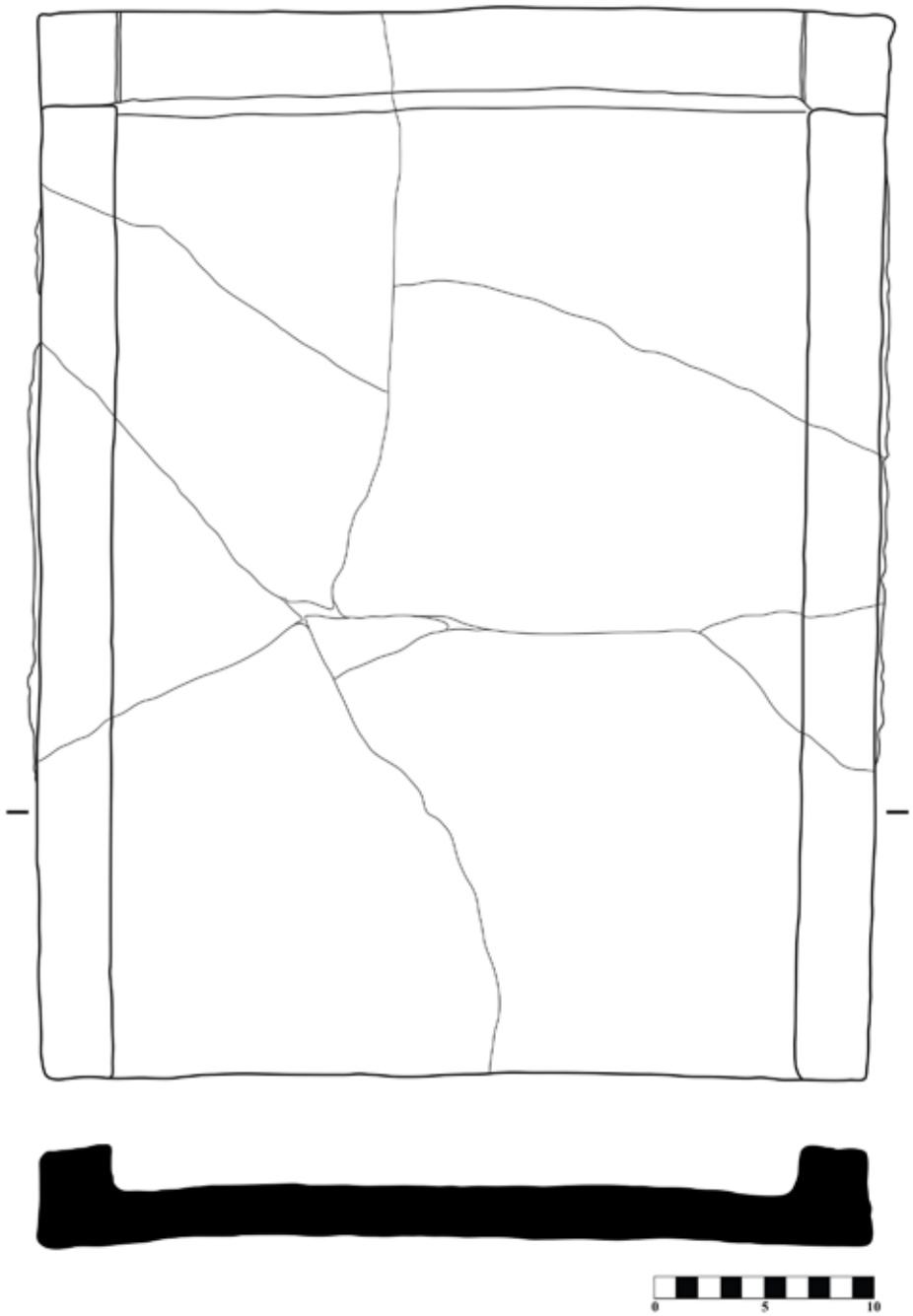

Fig. 10 - Drawing of complete *tegula* with ridge across its top. (Humayma Excavation Project)

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House of the peristyle" from Novae: House of the centurion of the first cohort of *Legio I Italica*?*

ABSTRACT

During fieldwork in the spot of the wooden barracks of the 1st cohort of legio VIII Augusta, a large stone building erected by legio I Italica. A courtyard with portico and a basin with two conchae were surrounded by rooms of various types. It appears that those in the west wing were for workshops/storage, while the rooms in the north and west were representational in character. From the south the complex was closed by a row bath.

The rich inventory of the building included glass and ceramic vessels, bronze and ceramic lamps, bronze figurines and elements of furniture as well as small marble and bronze statues of religious function. The walls of some rooms were painted. Coin finds, as well as analogies with a Flavian bath from Novae suggest that the building was erected right after the arrival of the legio I Italica i.e. 70 AD. The location of the building in a place where the stone barracks of the 1st cohort of legio I Italica suggest that we are dealing with the centurio's house. The size – currently more than 1000 m2 – and luxurious equipment, as compared to other such buildings stress its unique character and open the way for other interpretations as well.

Key Words: Novae, first cohort, legio I Italica, Centurion House

Recent excavations in Novae (Fig 1), starting from 2010[1], have concentrated on the part of the legionary fortress to the east of the principia, where the remains of the barracks of the first cohort were expected (Fig 2). Three seasons of work by the team from the Research Center on the Antiquity of Southeastern Europe University of Warsaw uncovered a large double wooden barrack, which radiocarbon dating of samples from the wooden frame placed roughly between AD 45 and 59[2].

*The projected has been financed with resources provided by the National Science Center, Poland, alloted on the basis of decision 2018/31/B/HS3/02593

[1]Dyczek 2018b. 27–71.

[2]Dyczek 2018, 530–536. Dyczek 2018a, 551–558.

It became clear that the barracks had belonged to the first cohort of the VIII Augusta. Whether there were two or just one barrack filling the *scamnum*, which was almost 100 m long, remains to be established[3]. Even so, the building is unique, approximating 20 m in width and furnished with porticoes along the length. The barrack was dismantled once the I Italica legion replaced the VIII Augusta in Novae and a new stone building of the same function built in its place[4]. So far, no direct correlation in layout has been noted between the two structures. The tabernae remained in place, but the plan of the building raised in place of the *contubernia* was changed completely. The new barracks were more than 48 m long and more than 33 m wide, taking up a third of the length of the *scamnum* (its edges have yet to be traced archaeologically), (Fig. 3).

Central to this building was a large courtyard, 12.55 m by 10.16 m, paved with marble slabs and surrounded by a portico about 2 m deep. A cistern was located in the southeastern corner of this courtyard and further to the north, touching on the stylobate of the portico, was a pool with conches, filled with rainfall collected from the roof. Two large sewers removing water from the courtyard and from the pool have been preserved. Round the courtyard ran a series of chambers about 5 m wide . A bath was added alongside the southern wing of rooms. Not to prejudge on its function at the present stage of exploration, we have designated this building as the “House of the Peristyle”.

Numismatic data coupled with the dating of artifacts coming from the “House of the Peristyle” indicate that the “House of the Peristyle” was raised directly after the arrival of the I Italica. It can be compared therefore directly with another early building uncovered under the ruins of the *valetudinarium*, that is, the legionary Flavian baths. Despite the functional difference, the two buildings evince many similarities that can hardly be accidental.

The foremost similarity is the architectural design. The bath, despite being intended for legionaries, are unlike any other known army baths in plan and primarily in the manner of decoration. The large courtyard is a characteristic feature. The comparison with civil baths is compelling as far as the plan is concerned. The Tuscan order, in which they were raised, was seldom used in the provinces, not to mention legionary border fortresses. Some of the architectural features, like the frames of doorways and window niches, were made of *Rosso antico*[5] a luxurious red stone imported from Euboea. Quite conceivably, a *labrum* discovered in another legionary bath built in the western end of the principia at the beginning of the 2nd century AD, right after the army hospital was constructed on the spot of the intentionally dismantled Flavian bath, may have been salvaged from the debris of this structure.

The walls in many of the bath chambers were decorated with characteristic paintings[6] and the water source/ nympheum was decorated with sculptures of reclining nymphs made of imported marble. Judging by these elements, it may be assumed that the architects responsible for the project, most probably civilians, adapted general principles of bath construction to the particular needs of legionary users. The explanation lies in the specific history of the I Italica, a legion formed of Italics for the purpose of Nero's planned campaign in the East, as reported by Suetonius. The campaign never materialized and after a few years, when the political situation had quieted down, it was transferred to the Danube. A legion formed from scratch, like this one, would have had difficulties in ensuring the right personnel necessary for effective operation, e.g., doctors, some groups of craftsmen, architects. Hence the presumed hiring of civilian architects for legionary construction.

The “House of the Peristyle” (Fig. 4) also evinces a number of architectural features taken straight from the repertoire of civil architecture, not only the layout, but also detailed designs of the pool in its unique shape, the inner communication network and interior decoration, and primarily the row bath. It is much more like a private Roman house than a legionary structure, even if it was inhabited by a high-ranking military officer. The difference is particularly clear when comparing these

[3]Cf. Hyg.3; Breeze 1993 59–64.
[4]Ciołek, Dyczek 2011, 9–10, cf. Sarnowski *et al.* 2014, 81–82.
[5]Biernacki, Klenina, 2016, 49; Mielsch 1988, 57; Gnoli 1988, 184–186; Antonelli, Lazzarini, 2013, 298–300.
[6]Dyczek 1994, 89–94.

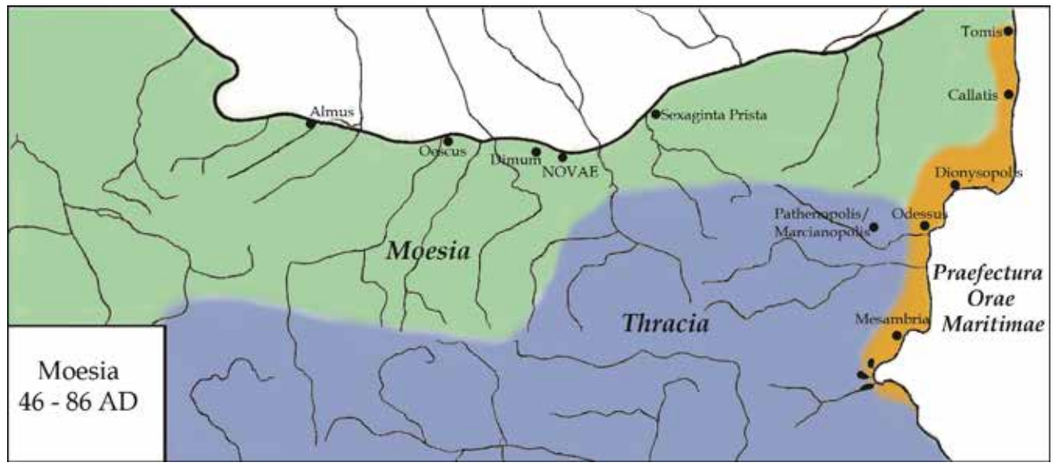

Fig. 1 - Map of Roman Province Moesia, P. Dyczek.

two structures with the *principia* and with the houses of the tribunes in Novae. The latter are no different from other legionary buildings of their kind known from other fortresses. It seems that advantage was taken of model army building plans wherever possible, but where these were lacking, civilian architects reached with some elasticity for variants well known from civil architecture. It is equally possible that two groups of architects were working simultaneously: those with close ties to the army and others employed for an army project for the first time.

Two of the architectural features applied in the “House of the Peristyle” are taken straight from civil architecture. First is the pool with conches, 1.80 m by 1.20 m in size and about 0.60 m deep (Fig. 5).This unusual shape was given to a cistern, which clearly served also as a small pool as suggested by the size and geometry of the conchs. The form refers to garden pools of unusual shape especially popular in luxurious Roman and Graeco-Roman houses. In Novae, however, the architect imparted a new function on this feature; the outer walls of the pool were made of flat pieces of *tegulae* and *bessales* bonded heavily with hydraulic mortar, which covered the inner walls and floor. A small hole in the square part of the pool drained the water from it to a canal.

The other feature taken from civil architecture is the row bath in the southern wing of the “House of the Peristyle”. Two chambers have been uncovered so far: a *frigidarium* with the outline of a small pool and a presumed *tepidarium* with a hypocaust system and *tubulatio*, (Fig.6) The floor of this room was made of a thick leveling layer of hydraulic mortar overlying a *suspensura* structure of flat *tegulae* fragments poured with the same hydraulic mortar. The floor was repaired with a different kind of waterproof mortar that was poured over a crack in the floor over a limited area. The size of the bath—reconstructed length about 40 m, width about 5 m—and its characteristic layout refers directly to the catalogue of private house baths with parallels even in Novae itself.

However, baths of this type, of a private nature, are very rare in legionary fortresses. Moreover, the walls of the bath chambers as well as some other rooms in the “House of the Peristyle” were decorated with paintings. Some of the floors were in an unusual way made of hydraulic mortar, framed with a rounded molding painted red at the joining with the painted walls. Most of the walls of the “House of the Peristyle” were painted red or white. Those where figural compositions were present cannot now be reconstructed save for one (Fig. 7). Here, a zone 0.60 m high above the floor molding was painted red with white smudging, designed apparently to imitate the Euboean stone. A series of horizontal lines separated this socle from a white panel on the middle section of the wall where garlands painted green and red were depicted suspended from the cornice modeled in stucco.

The technique of execution as well as a characteristic motif and lines, and the form of the cornice find close

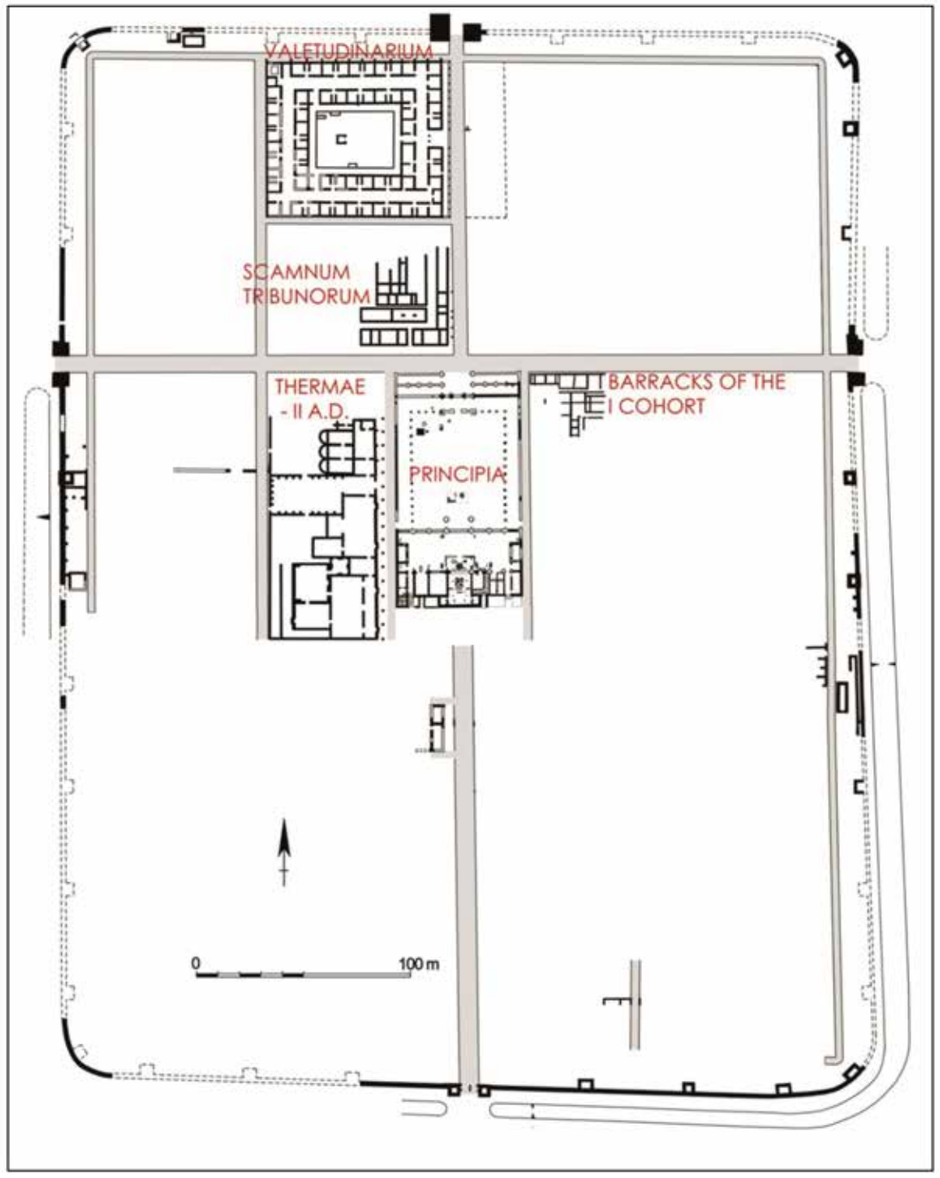

Fig. 2 - Plan of Novae in second half of the 1st c.AD, P.Dyczek, A. Biernacki, T.Sarnowski.

parallels in the painted decoration of the Flavian legionary bath in Novae. Even the garlands are identical in their overall expression. This can be construed as evidence of execution by the same group of artisans/craftsmen, who were probably not legionaries and who were working on the two buildings at the same time. Indirect proof for this theory and a significant dating *terminus* is the said repair of the *suspensura* in the bath of the "House of the Peristyle". The cracking represented quake-related damages, similar to that recorded in the Flavian legionary bath, where the repairs were dated by numismatic evidence to AD 80.

All the described buildings are connected by yet another element, that is, the material used in their construction. Research on this issue is still in the early stages, but the results to date have indicated beyond all doubt that local materials from a radius of 30 km around

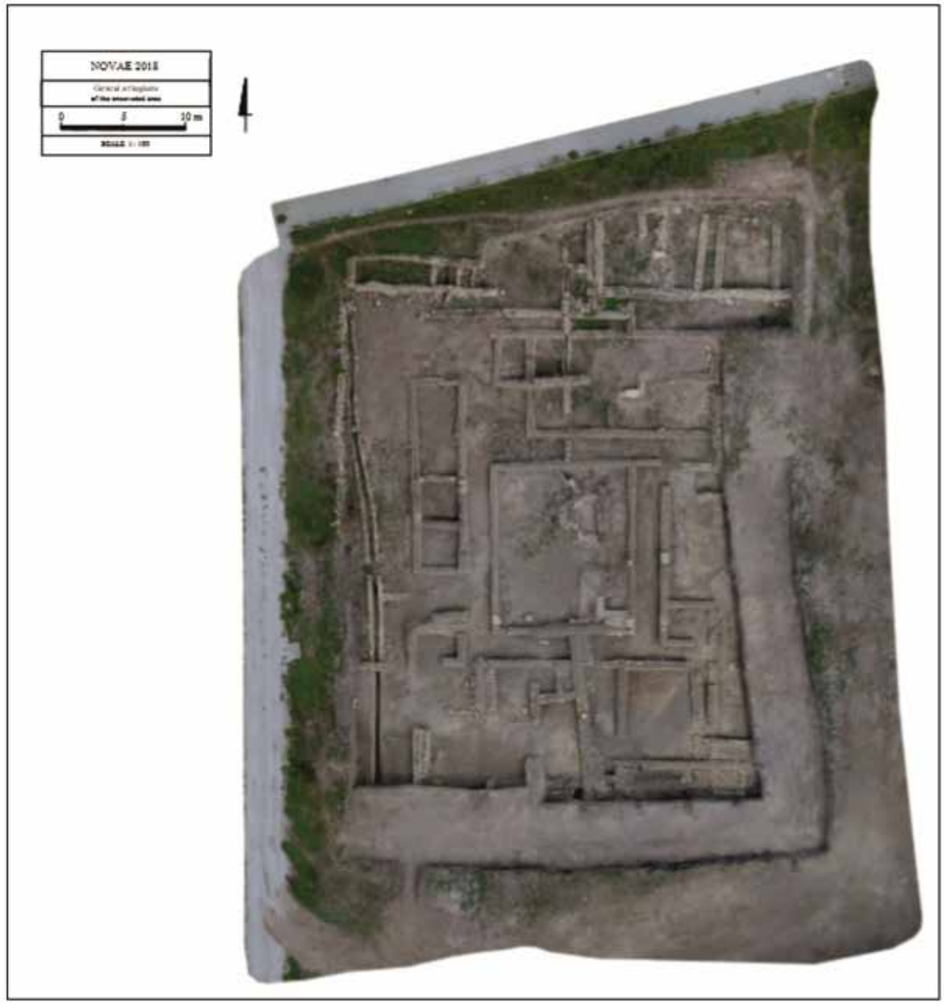

Fig. 3 - Orto-photo of section XII, M. Lemke.

Novae were used for building purposes. Foremost the sandstone which can be traced in outcrops along the Danube and which was quarried most probably to the south of Novae.

The lime for building mortars came from limestone close to Novae in the locality of Biala Voda (White Water). Calcreous quartz sandstone of the same origin was used, differing in the chemical composition depending on the place of extraction. It corresponds to a geological region stretching for about 40 km along the Danube, starting from the *castellum Iatrus* in the east to Dimum in the west. The quartz sandstones were grouped to the west and south of Novae, the limestones are nearer to the said *castella*, and the isolated finds of basalt rocks surely came from the Butovo-Pavlikeni region with volcanic remains situated 50 km to the south of Novae. Column shafts and capitals were made for the most part of bio-micrite and bio-sparite limestone extracted mainly around Iatrus.

When the "House of the Peristyle" was renovated, because it was repaired most probably already in the 2nd century and at the turn of the 2nd century AD (in Severan times), a different kind of stone was used, the so-called Hotnitza stone coming from a quarry in the vicinity of Nicopolis ad Istrum (the name derives from a local village near the quarry). This stone was a partly

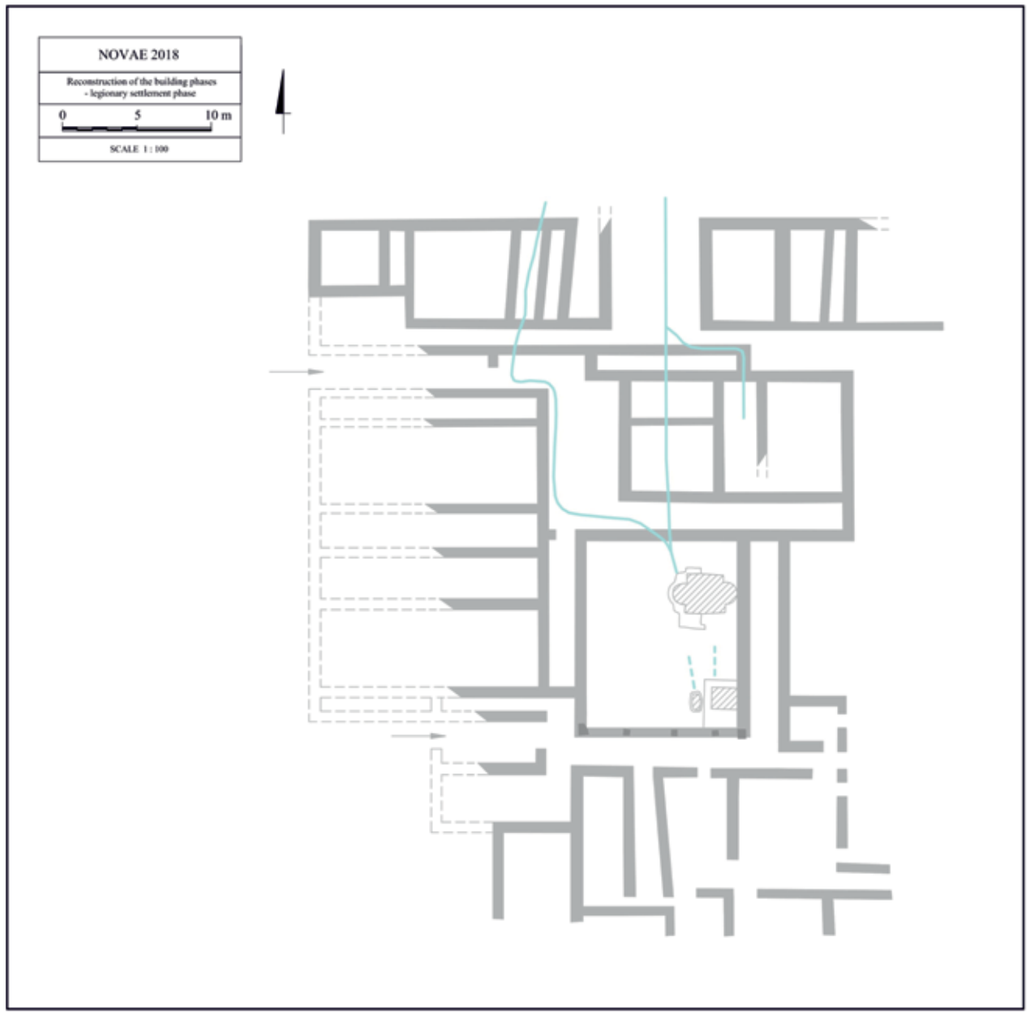

Fig. 4 - The plan of House of Peristyle, P. Dyczek, B. Wojciechowski.

recrystallized bio-oopelmicritic limestone composed of calcite. Stones from distant quarries, like the imported red stone from Euboea, were used for the architectural decoration and sculpture in the round.

The other imported stone was marble of a still undetermined provenance. It was a fine-grained white marble which could have originated from the northern Balkan highlands, from the vicinity of Zlatna Panega where there were quarries as well as sculpting workshops. Some of the architectural elements as well as the paving of the courtyard of the “House of the Peristyle” were made of a grey-veined marble imported from Proponti[7] As for other pieces of white fine-grained marble, two places of origin can be indicated at present: the Greek islands and the large quarries in Slovenia.

The “House of the Peristyle” and the Flavian bath in Novae also yielded data on wooden structures. Fragments of burned roof beams were found in the house and clear imprints of boarding formwork planks were preserved in the mortared edges of the pool in the caldarium. The micro-structure of wood examined in the two cases, directly and indirectly, identified the species as English oak. An examination of more samples from the wooden barracks of the VII Augusta legion have confirmed these results. Most of the wooden architecture in Novae was of this particular wood.

7 Skoczylas 1995, 91–99; Skoczylas, Jochemczyk 1995, 87–90; Skoczylas 1998, 39–41.

Fig. 5 - The pool with conches, P. Dyczek.

Fig. 6 - Bath from the House of Peristyle at Novae, P. Dyczek.

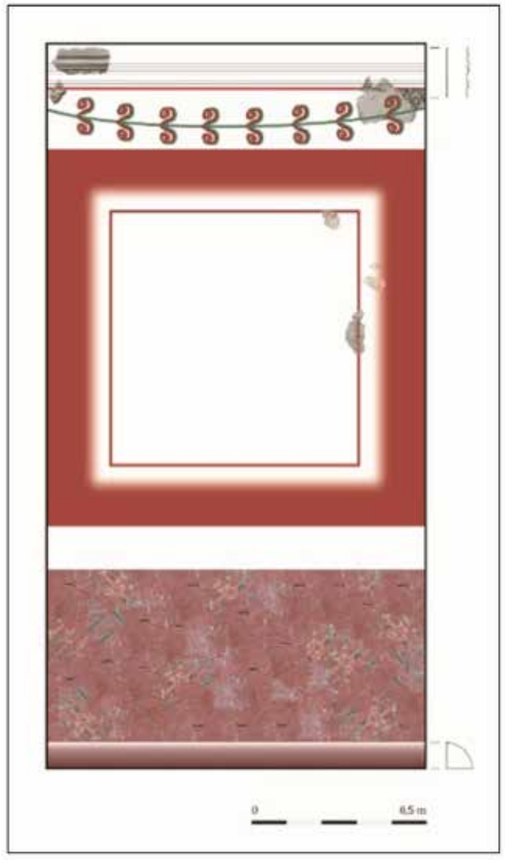

Fig. 7 - Reconstruction of wall-paintings from the House of Peristyle, P. Dyczek, A. Momot.

The civil inspirations mentioned above, recognized in the planning, the unusually rich painted and architectural decoration and the use of the Tuscan order, can be considered as one of the elements of the *manus legionis*, characteristic of the first stage in the development of the fortress manned by the I Italica. This phase of unification is evident very clearly in the case of buildings raised in the second half of the 1st century AD. Other data refer to building techniques and in the current state of the investigation we are dealing with evidence from the two buildings described above. First to be considered are the foundations. Whether on a hard loess surface like the Flavian baths or on a leveling layer of loess covering debris like the wooden army barracks, foundations were built in one of two ways. A low foundation without a footing, rather more rare, could take on the form of *opus spicatum*, or a low platform could be built of small stones under a stone wall of the same width. It is difficult to say why such techniques were used. The compact structure of the ground allowed stable walls without deep foundations, but it is also possible that the seismic threat in the region was taken into account, hence the preference for foundations that offered greater elasticity of the construction.

Walls were consistently 0.60 m wide when of structural importance and 0.40 m wide when they acted as partitions. They were constructed of roughly dressed stone blocks in courses about 0.20 m high. This bond resembles *opus isodomum*. Its greater overall irregularity is due to the fact that the wall surfaces were originally concealed under coats of white and red plaster inside and out. The structural walls had a slight core of small stones and a few rooftile fragments, all poured with mortar; partition walls did not have such a core. The prevalent mortar was a grayish lime mortar, the color due to the sand from the Danube that was used to make it. Used with lesser frequency were mortars of pinkish color due to added crushed ceramics and yellowish due to the use of quartz sand. These two kinds of mortars evince a practical savings approach to building materials. Whenever a large quantity of broken rooftiles were on hand, they were added to the lime mortar, and when broken stone and sand from floor making (consistently made of a layer of pure quartz sand) were available, they would be added.

Channels were also built in a characteristic way. Two different kinds of channels were distinguished both in the “House of the Peristyle” and the Flavian bath: one made of stone blocks and broken tegulae, and another made entirely of stone. The *modus operandi* could be reconstructed for both kinds. First a ditch was dug along the line to be taken by the projected channel, but in some sections the channel walls were built freehand and a leveling layer introduced raising the ground level to the intended utility surface. The channel would be straight or meandering depending on whether it joined the main sewer in the street and was supposed to accommodate a large water flow quickly from a given area (also the pool, for example) or it collected water from different rooms inside the building (passages, inner chambers, small courtyards). Meandering channels were also used to negotiate large differences in levels over small distances. In the case of the first kind of channel, the floor was laid with *tegulae* which had had the edges removed, leveling them in a thin layer of mortar (of the same kind as the bonding mortars) and then the side walls were constructed of stone blocks

Fig. 8 - A fragment of a marble sculptural group – Dionysus with Satyr, P. Dyczek.

0.15–0.25 m high, overlapping the *tegulae* and pointing all the joins with mortar. The channels were covered on top with *tegulae* and occasionally thin stone slabs. The second kind of channel was built in a different way. The bottom was constituted of small stones in earth and then the side walls were constructed of two rows of stone blocks touching directly on the stones of the channel floor. Thick rectangular slabs of stone were used to cover these channels.

The finds from the “House of the Peristyle” determine the function of particular sections of the building. The western wing lining the street separating the building from the principia served domestic functions. This role is attested, among others, by a large pithos fragment still in place, pieces of stone querns and cooking ware. The northern wing, which lay by the *tabernae*, must have had a more official character. A fragment of a marble sculptural group was discovered here, (Fig. 8) as well as a piece of torso of local limestone, but of very good quality, depicting most probably Mars and a “flying Eros”.[8]. A water intake was located most probably where the northern wing met the eastern wing. Fragments of the bottom of a small pool made of very thick mortar and a probable piece of the stone frame of this pool are easily associated with a lead water pipe running nearby. Most of the finds of high artistic quality were discovered in the eastern wing. All of the chambers in this wing had walls painted red and white, and some could have even been decorated with painted compositions. Bronze artifacts from luxury furniture: figures, appliqués and legs shaped like lion's paws were found here in significant quantities. A well preserved lamp of bronze was discovered here as well. The eastern wing was clearly a private dwelling area, but of an official kind, and so was the southern wing, which was dominated by the bath complex with painted walls.

The function of the “House of the Peristyle” is a separate issue that will surely be resolved as the excavation progresses in the coming years. It lies in the *scamnum*, which is where the barracks of the first cohort of the I Italica legion should be located. The currently known dimensions of this building, compared to the size of the *scamnum* itself, do not exclude the possibility that we are dealing with the house of the centurion The furnishing of this building is in agreement with this idea and yet its exceptional lavishness is surprising, rather not matched by the known parallels of centurion houses in other fortresses eg.Noviomagus or Inchtut-

[8]Dyczek 2021, 415–426.

hil[9]. A psychological explanation for this state of affairs may draw from the fact that the legion was formed of Italics and the buildings were designed most probably by Italic civil architects. Combined, these two elements translated into greater luxury and more attention to the aesthetic side of the architectural complex. After the civil war had ended, the new emperor must have ensured better financing for the legion, securing or to be more precise, buying, the allegiance of his legionaries.

Regardless of the function of the "House of the Peristyle", it is in every way unique among the buildings raised inside the legionary fortress of Novae. Other castra do not provide good parallels for it. Its importance lies also in the unique opportunities that it provides for architectural analysis, identification of building materials and reconstruction of building techniques. The regularities noted in Novae seem to have universal application, hence it is possible on their grounds to speak of the so-called *manus legionis* of the I Italica in a larger sense.

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[9]V. Petrikovits 1975, 59–63 cf. Pitts, Joseph 1985, 47–156; Reddé 2006, 109–111.

Zusammenfassung

Im Jahr 2010 begann man in Novae mit der Erforschung eines neuen Abschnitts östlich der principia und erwartete, die Überreste der Lagerbaracken der ersten Kohorte der Legio I Italica in Novae zu entdekken. Als Ergebnis der Ausgrabungen wurde ein großes Gebäude enthüllt, das von uns "Peristylhaus" genannt wurde, und dessen zentraler Teil ein gepflasterter Innenhof mit zwei Zisternen und einem Bad mit Konchen war, umgeben von einem Portikus. Die vier angrenzenden Flügel hatten unterschiedliche Funktionen. Der Nord- und Ostflügel waren repräsentativ, der Westflügel wurde von einem terrassenförmigen Badehaus mit Tubulatiosystem und mit Blumenmotiven bemalten Wänden eingenommen. Die Analyse des Bebauungsplans lässt Assoziationen mit zivilen Bauten, aber auch mit anderen Militärbauten in Novae aus der zweiten Hälfte des ersten Jahrhunderts erkennen, z.B. mit dem Legionsbad. In diesen Gebäuden wurden identische, charakteristische (manus legionis) Techniken und Baumaterialien verwendet, sowohl in Bezug auf Wände und Kanäle, als auch in Bezug auf die Malerei. Aus den Steinbrüchen um Novae wurde Rohmaterial antransportiert. Der Plan des Gebäudes und seiner Ausstattung deutet darauf hin, dass es sich wahrscheinlich um das Haus eines Zenturios handelte.

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On the research of ceramic building material from Vindobona and its surroundings.

ABSTRACT

The Ceramic Building Material forms a significant portion of the findings on nearly every Roman military site. Though the construction material of walls can vary depending on the available local resources, ceramic roofing was a common choice for buildings associated with a permanent military presence. During the second half of the 1st century AD, likely during Claudius' reign, stamping of military CBM became a standard practice. The middle Danuban part of Limes Romanus was not an exception. The frequent appearance of stamped CBM has captivated scholars for over a century, particularly for its epigraphic significance. However, the focus has primarily been on stamps, with other aspects of the material being overlooked. In this article only a smart part is dedicated to the stamp analysis, mostly to illustrate how the identical stamps can be traced along different sites. The focus is on the production technologies of tiles and their development over time. Examined dataset consist of finds from Vindobona, todays Vienna, and its surroundings. The focus was on treatment of the undersides, the lower cutaway form, and the flange profile. All observation of various shapes are presented along with possible interpretation.

Key Words:

Introduction

The ceramic building material (further as CBM in the text) forms a significant share of finds on almost every Roman military site. Although the construction material of walls depends on the local resources, the ceramic roofing was frequently used on buildings connected with a permanent military presence. In the second half of the 1st century AD, probably during the reign of Claudius, stamping of the military CBM appears[1] and becomes a standard. The middle Danubian part of Limes Romanus was not an exception. The stamped CBM appears on every Roman site and has attracted interest of scholars for over a century, particularly for its epigraphic value. The focus of this article is on the production of CBM near legionary fortress in Vindobona and its distribution area (Fig. 1). It offers a critical view on the current state of research and pro-

[1]Brandl 1999, 31

poses new ways of how the CBM could be approached in today's era of digital technologies. After overview of the brief history and current state of research, major part of the article is dedicated to the methodologies and implementing of the computer application into the standard workflow. The research is based on the dataset consisting of more than 2000 pieces of CBM from 4 different sites supplemented with information from previous publications. The research focuses on two subjects – stamps and technological procedures. The stamp analysis is discussed on the examples of CBM produced by the Legio X Gemina, it represents one of the largest group of finds and also contains the greatest variety of forms and inscriptions. The analysis of technological procedures is based on the case study of the material from the production centre near Vindobona and is discussed more in detail. All observations are statistically evaluated and displayed in the chartss.

History, state and setbacks of research

The first unit garrisoned in Vindobona was Legio XIII Gemina, which started construction of the camp around year 97 AD. After 4 years the legion was transferred to participate in the Dacian wars[2]. It never returned to this area again, thus their stamped bricks and tiles have become a good anchor for dating. Around year 101 AD Legio XIIII Gemina has arrived to Vindobona and continued construction of the camp[3]. The legion stayed until 114 AD[4], when it was transferred to Carnuntum and remained there until the late antiquity. The last unit garrisoned in Vindobona was the Legio X Gemina, which remained in the camp untill the late antiquity[5]. Relationship between the units stationed in Vindobona and Carnuntum and their building activity is not clear[6]. The CBM stamped by the units stationed in those two fortresses can be found in every fort downstream the Danube up to the fort Ad Mures[7]. Ratio between the stamps and their spread across the sites is very similar and sometimes they can be found next to each other. There is evidence of a brickyard in Vindobona[8], but there is none known in Carnuntum, although analysis of the clay suggests that CBM was also produced there[9].

The problems which complicate the research of the building ceramics are mostly caused by two factors. One is the preservation of the material base, usually found in fragmented state, when only the stamped CBM are collected during the excavation. The second is caused by the placement of most of the sites within modern cities with extensive building activity. Most finds come from excavations without the proper stratigraphy or are retrieved from the secondary medieval or later contexts. The CBM was regularly reused in the buildings even in the Roman times which makes the dating of the material based on the context nearly impossible. In the research area discussed in this article, the knowledge about the building ceramics in the past one hundred years is almost completely based on the work of János Szilágyi[10], Alfred Neuman[11] and Barnabás Lőrincz[12]. All these works focused on collection of stamps with an effort to create their typology and the distribution map. The most extensive publication dealing with the stamp typology by Barnabás Lőrincz remained unpublished due to the new stamp types emerging with almost every excavation. The work offers an extensive collection of stamps, but the typology consists of too many types and can no longer be considered as valid[13]. Dating of the material was solely based on the inscriptions. The dating of Legio XIII Gemina and Legio XIIII Gemina in Vindobona is based on the length of their stay in the fortress. The narrower dating of Legio X Gemina for the 2nd and 3rd century is nearly impossible except for the Severan period when the unit used cognomen Severiana (LEG X GS[14]) and the reign of Caracalla when the cognomen changed to Antoniniana (LEG X GPF ANT[15] / LEG X G ANT[16]). However, such stamps are rare and does not reflect the building activity during those times. Two possible explanations emerge - either the old buildings were dismantled and exploited for the building material or regular stamp types were still in use next to those with changed cognomen. The 4th century military stamps carry the name of officers and thus are easily datable as well[17].

In the past years, the research on building ceramics from Vindobona has been held by Martin Mosser who published many works focused on the legionary brickyard and the brickfinds from the legionary fortress and its surrounding. One of the most significant works has been made through cooperation of Ch. Gugl, M. Mosser and R. Sauer, and focused on clay analyses. The result was successful identification of clay types used in Vindobona and Carnuntum[18], which made it possible to pinpoint the production centre also for CBM from other sites. The CBM from properly dated stratigraphic context might open new possibilities for classification and dating of the material. Recent discoveries in the legionary brickyard, with the kilns and the drying halls included, provided also significant amount of CBM[19].

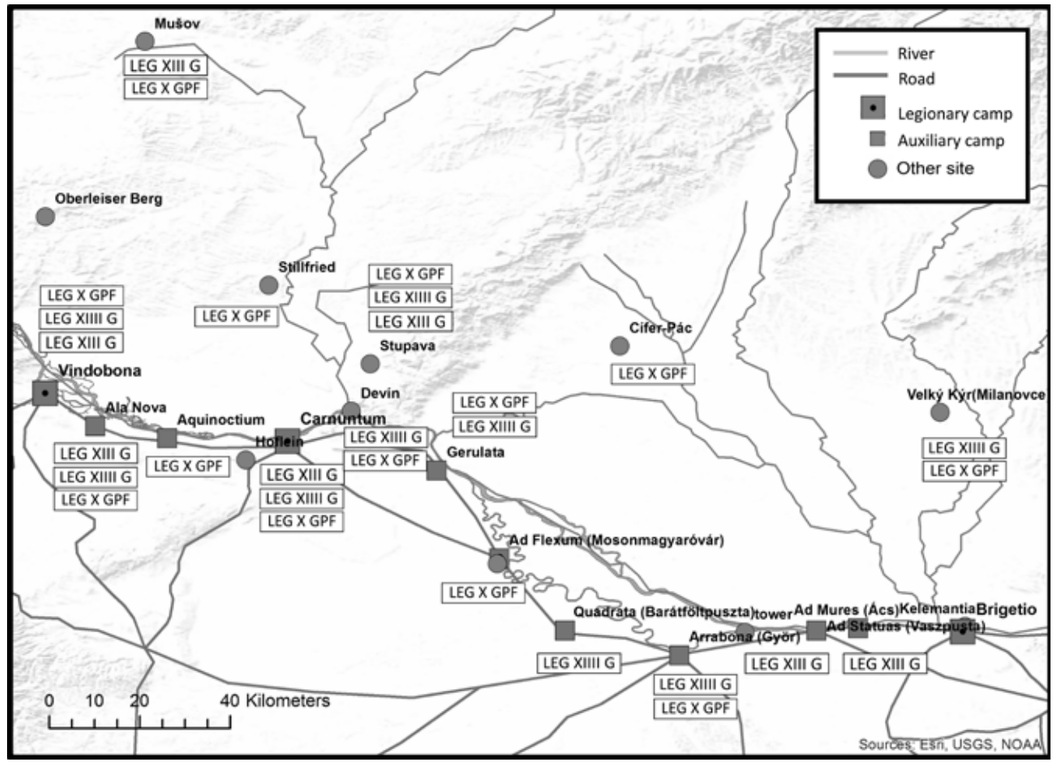

Fig. 1 - Map of the research area with spread of the legionary stamps by legions (T. Janek).

[2]Mosser 2005, 131
[3]Brandl 1999, 150
[4]Mosser 2009, 483
[5]Brandl 1999, 116; Mosser 2009, 483
[6]Janek 2018a, 82–83
[7]Kraskovská 1991, 49–68; Lorincz 1980,11–119; Lorincz 1989, 121–161
[8]Mosser 2013, 161
[9]Gugl 2003, 274–275
[10]Szilágyi 1933
[11]Neuman 1973
[12]Lőrincz 1977
[13]Janek 2018b, 598
[14]Lörincz (unpubl.), Taf. 5, 14
[15]Lörincz (unpubl.), Taf. 5, 6–13
[16]Lörincz (unpubl.), Taf. 5, 4
[17]Lörincz (unpubl.), Taf. 6, 2–14
[18]Gugl 2003, 233
[19]Mosser 2018, 166–181

Dataset

The material in the dataset was selected to represent different contexts: the production centre, the nearest building site and the site where the material was exported, one being part of Limes Romanus and the second site placed in Barbaricum (Fig. 2). The largest and most important collection of the material comes from the legionary brickyard placed in the Vienna's city district of Hernals, from excavation held at Steinergasse 17 in 2017[20] and consists of 1468 stamped CBM, from which 1031 were used for the roofing. Material from the inside of the legionary fortress comes from the excavations conducted at Am Hof 7-10[21] between 2007-2009 and consists from 220 stamped CBM, out of which 184 were used for roofing. The exported material is represented by the auxiliary fort at Bratislava-Rusovce (ancient Gerulata) in Slovakia. The site was excavated between year 1965 and 1975[22], the material consist from 171 CBM out of which 116 was stamped and used for the roofing. The last site is represented by the Roman building complex found near Stupava in Slovakia. The complex was first excavated in 1940-41[23], then in the 70's[24] and from 1986 the excavation was revised during several more seasons[25]. From 269 stamped CBM reported from the site, 195 bear the stamps of Roman army units, out of which 124 were used for the roofing[26]. All material was systematically examined by author and the unstamped CBM were excluded from the statistics along with the material with unclear manufacturer.

Methodology

Methodological approach is divided in the two parts, based on the subject of research. Firstly, the focus is on the stamp and its identification. The aim is to determine which unit produced the CBM and to create the groups of identical stamps. The second part focuses on the shape of CBM with aim to identify the variations in production techniques. The research of production techniques involves tiles only.

The analysis of each stamp consists of several steps, based on the observed criteria. The purpose is to process the large amount of finds in the most effective way possible. If the stamp is preserved completely, the first step is to determine which unit produced it. In the second step the form of the stamp is determined. Stamps usually have five basic forms: rectangular, elongated with both sides rounded, circular, planta pedis and tabula ansata. The last group can be called "various", stamps with unusual shape or are decorated in any different ways. In the third step, the focus is on the inscription. Even if there is an official form how the acronym is written, there can be many variations. In case of Legio X Gemina there are 23 ways writtinh the unit's name[27]. The simplest examples are "LXG"[28] or "LEX"[29], the standard inscription is "LEG X GPF[30]", which might also have prolonged form as "LEG X GEPF"[31] or "LEG X GEMPF"[32]. The inscription can be also retrospective[33] or upside-down[34]. After inscription as a whole, the focus is on the individual letters. Although the font of the letters is often similar, some peculiarities can appear. The most common are that letter "L" can have foot[35] and letter "F" can be written as Germanic rune "fehu"[36]. If the stamps show high degree of similarity, computer analysis of the proportions can be performed[37]. With computer analyses it is also possible to identify the fully preserved stamps with unreadable letters or fragments which have at least three letters preserved. With the combination of all steps described above, it is possible to create identical groups of stamps almost with certainty. Although the computer analysis of stamp is only at the beginning, it already proved that the approach towards stamps should change and that larger groups of identical stamps exists as was previously thought[38]. This is crucial not only for dating of the material, but also for determination of the distribution network.

Successful stamp identification is currently insufficient for dating. The dies could be made from various materials (wood, clay, metal)[39] and thus their durability varies. The lifespan of wooden dies was probably not very long, but clay ones would not break easily and if, it was not difficult to make a copy from the imprint, metal could survive for centuries.

To widen the dating possibilities of CBM, the production techniques were examined. However, the setback of this approach lies in insufficient amount of comparative studies. Publications are usually focused on stamps only, and complete drawings describing the shape of CBM are rather rare[40]. To the authors knowledge, the only recent work dedicated to production procedures and their development is: *Warry, P. 2006: Tegulae: Manufacture, typology and Use in Roman Britain. British Archaeological Reports 417. Oxford.* In this work every detail was examined along with proportions of finds. The focus was on dimensions and shape of complete tiles, outside treatment of the flanges, shape of the flanges along with their profiles, treatment of the ends of tiles, treatment of the upper surface along with

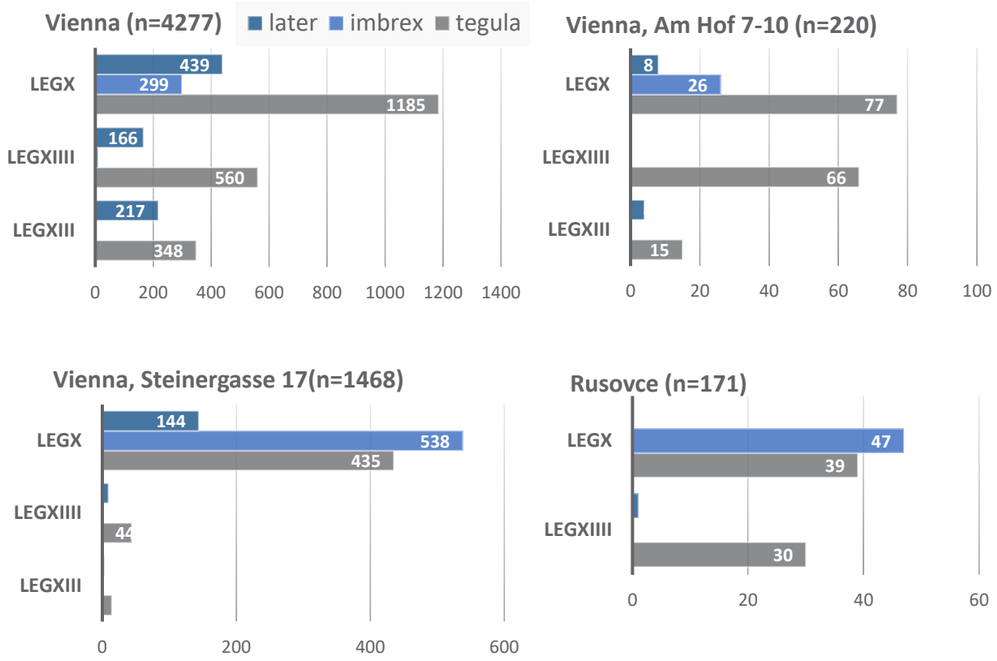

Fig. 2 - Distribution of CBM based on the site and the type (T. Janek)

[20]Mosser 2018, 166–181
[21]Mosser 2010, 50–74
[22]Kraskovská 1991, 49–68
[23]Ondrouch 1941, 1–66
[24]Kraskovská 1979, 33–47; Kraskovská 1980, *161–162;* Kraskovská 1982, 51–71
[25]Turčan 2000, 20–26; Turčan 2011, 25–28
[26]Kolník 1997, 417–423
[27]Based on the database provided by M. Mosser (Stadtarchäologie Wien)
[28]Lörincz (unpubl.), Taf. 7, 9
[29]Lörincz (unpubl.), Taf. 7, 1
[30]Lörincz (unpubl.), Taf. 2, 3
[31]Lörincz (unpubl.), Taf. 25, 20
[32]Lörnicz (unpubl.), Taf. 26, 16
[33]Lörincz (unpubl.), Taf. 26, 14
[34]Lörincz (unpubl.), Taf. 11, 2
[35]Lörincz (unpubl.), Taf. 16, 15
[36]Lörincz (unpubl.), Taf. 17, 16
[37]Janek 2018a, 595–600
[38]Janek 2018a, 598
[39]Kurzmann 2006, 24
[40]Dolata 1998, 144; Gazenbeek 2017, 65; Twan 2006, 230;

Lőrincz 19_11	Steinergasse 17	Steinergasse 16	Am Hof 7-10	Stupava
	MV109015/09 MV109015/20 MV109039/14 MV109052/10	MV109177/04? MV109191/04	MV49504/1 MV62160/1 MV75290/1	AP8712 AP8724 AP8815 AP72810 AP8748 AP8751

Lőrincz 26_04	Steinergasse 17	Bratislava - Rusovce		
	MV109111/21 MV109111/40 MV109111/42 MV109111/89 MV109116/2 ? MV109116/37 MV109116/4	AP27541 AP27717 AP27723 AP27726 AP27727 AP27733 AP27786	AP27791 AP11718 AP27740 AP27754 AP27779 AP11719 AP11726	AP11742 AP11745 AP11747 AP11762 AP11774

Fig. 3 - Interconnectivity of the stamp types (marked with inventory numbers) between excavated sites. (T. Janek)

the undersides and shape of the lower cutaways[41]. To collect data to such an extent is only possible while dealing with the fully preserved CBM already stored in the depositories.

The aim was to select the criteria which would be easily recognisable and describable during the field work. Most finds are usually found in the fragmented state and only those parts which are stamped or have unusual shape are collected and stored[42]. This way a substantial amount of the information could be lost. Thus, the examined and observed data were narrowed down to the shape of the lower cutaway, the profile of the flanges and the treatment of the underside. One worker could produce very large amount of material in relatively short time[43]. It can be expected that the techniques used during the production did not change significantly during the lifetime of a brickmaker. It is possible that the same techniques were in use for few generations. In the case of roofing material, it was also important for the tiles to be compatible within each other, so they can lay stable on the roof.

The techniques were examined on the material found inside the brickyard, which also forms the largest collection of building ceramics found in Vienna[44].

The material was measured and filled in the database with detailed description.

To be able to uncover all the traces left during the manufacture of tiles, the standard photo documentation was supported with the reflectance transformation imaging (RTI) and photogrammetry.

Reflectance transformation imaging is a method developed by Hewlett Packard introduced in 2001 as Polynomial Texture Maps[45]. It is a computational method which can mathematically enhance the relief of the examined object. The use is widely spread in the research of inscriptions and epigraphic monuments, but

[41]Warry 2006, 9–28
[42]Mosser 2018, 176
[43]Janek 2018b, 93
[44]Mosser 2018, 176
[45]Malzbender 2001

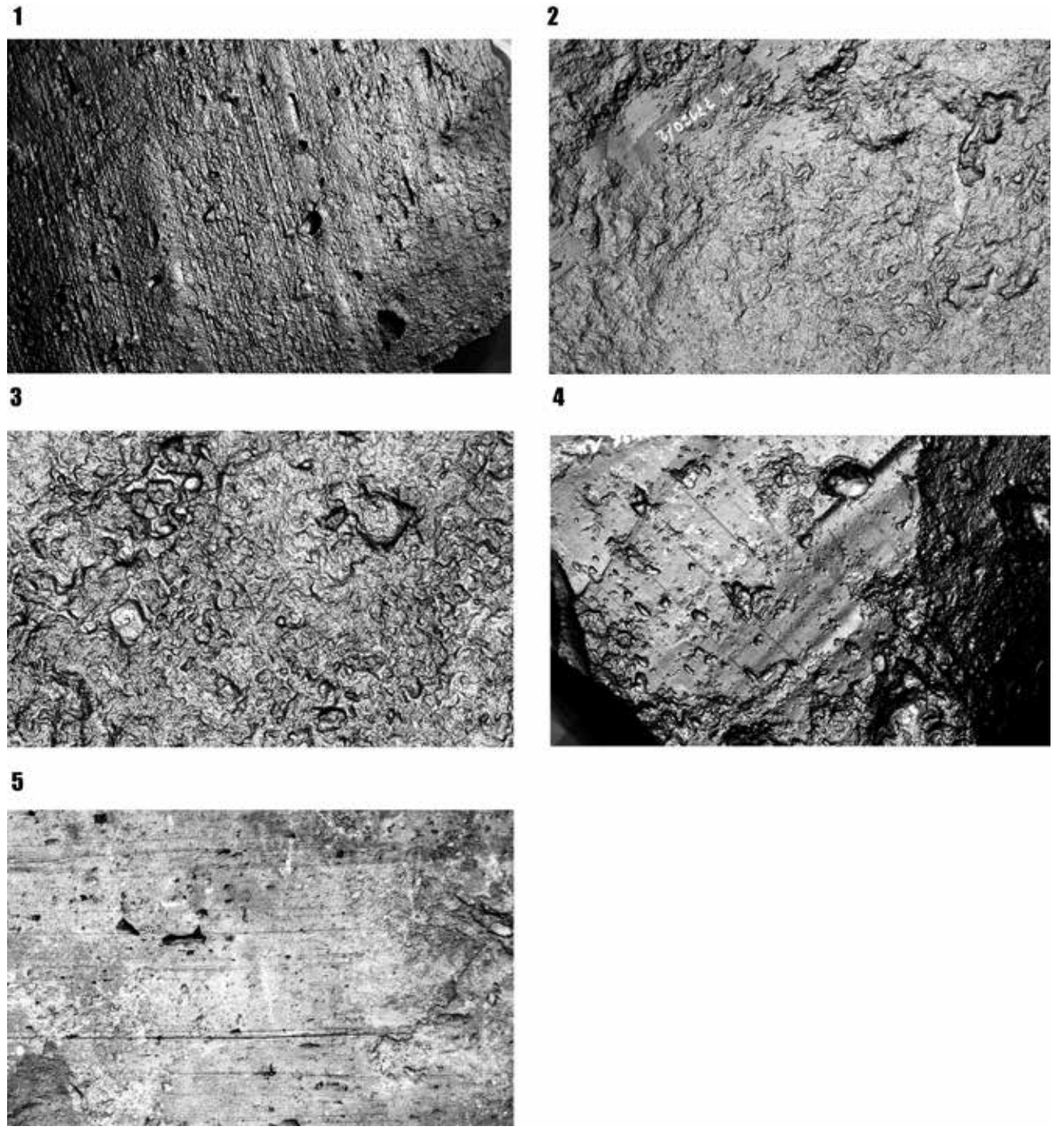

Fig. 4 - The treatment of the surface: 1 - wood imprint, surface covered with sand consisting of grains with various sizes 2 - fine sand, 3 - coarse sand, 4 - sand with cutting marks and 5 – wiring. (T. Janek)

to the authors knowledge the method was never used to examine traces of production in the building ceramic material research. RTI was used to examine the treatment of the upper surface and the underside of the tile. The documentation set consisted of the camera on tripod, 2 black glossy balls and 3V LED used as the source of light. The software used is freeware, provided by Cultural Heritage Imaging[46]. The method does not require a lot of computing power, but the pictures need to be taken under specific conditions in the dark. The examined object is systematically lit from various angles and the position of the light is reflected on the

[46]http://culturalheritageimaging.org

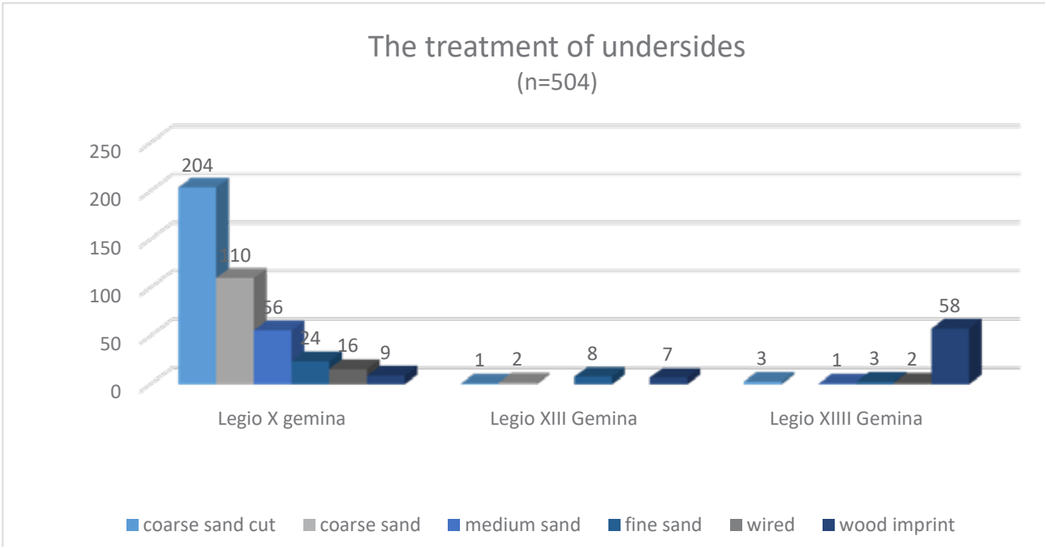

Fig. 5 - Graph representing the treatment of undersides according to legions (T. Janek)

black glossy ball. A series of photographs is taken and merged into an interactive model, where the angle and intensity of the light can be simulated. This method was used for examination of both sides of tiles with intention to search for any traces left during the production.

Though photogrammetry is a time-consuming method and requires a substantial computing power for processing of the models, in the case of flange and lower cutaway documentation, it proved to be the most accurate. Creating 3D model of the flange is still more time efficient than using a profile comb which is commonly used in the documentation of pottery. Once the 3D model is created it is possible to measure and extract the profile in any part of the flange. The greatest benefit of the method is in lower cutaway documentation. Neither the photos nor the drawings provide an accurate image of cutaways which is necessary for further comparison. Creating plain mesh enables to filter out the colours of the tiles and other disturbances as thin layer of calcareous sinter which often covers the surface. When the model is created in high quality, it is possible to simulate various angles of the light revealing direction of cuts and other small details.

Results of the research

The stamp analyses were successfully performed on all finds from Bratislava – Rusovce and Stupava, in the case of finds from Vienna only selected pieces were analysed to confirm the interconnectivity of types between the excavated sites. It was possible to find identical groups of stamps which have their origin in the brickyard of Vindobona and were used on buildings in Rusovce and Stupava. It is possible that it was a common habit to export the material from the brikkyard to the construction sites of military facilities, but further research and analyses of the clay will be necessary to confirm this theory

Further research will also be focused the production techniques. The research focuses only on the tiles.

Most of the examined tiles were found in the fragmented state. The surface of their undersides can be divided to the six basic groups: wood imprint, surface covered with sand consisting of grains with various size (fine, medium, coarse), sand with cutting marks and wiring[47] (Fig. 4). For the treatment of undersides, the examined dataset consisted of 504 tiles (Fig. 5). The imprint of wood along with fine sand and wiring indicate produc-

[47]Warry 2006, 28

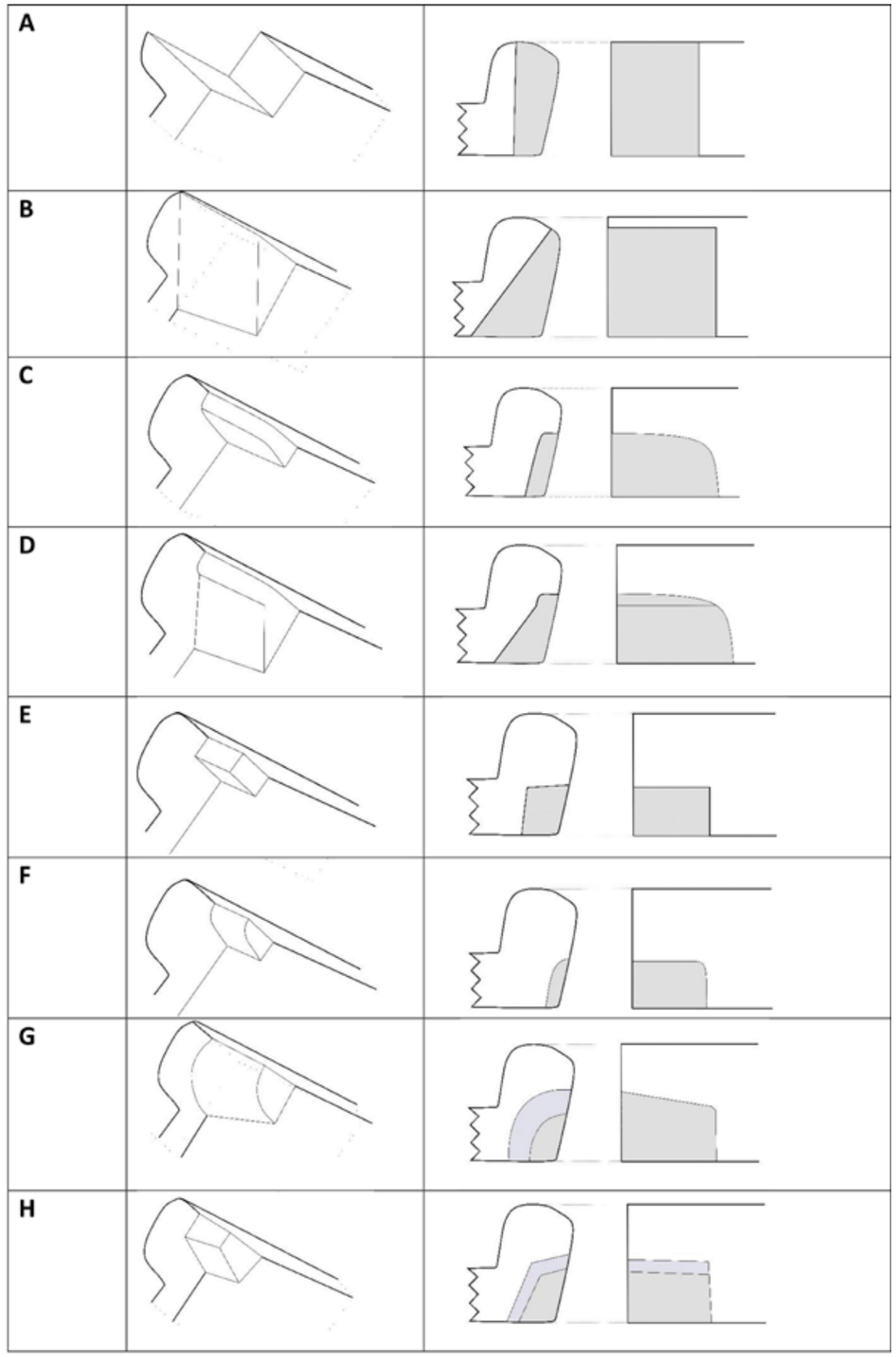

Fig. 6 - Lower cutaway forms. (T. Janek)

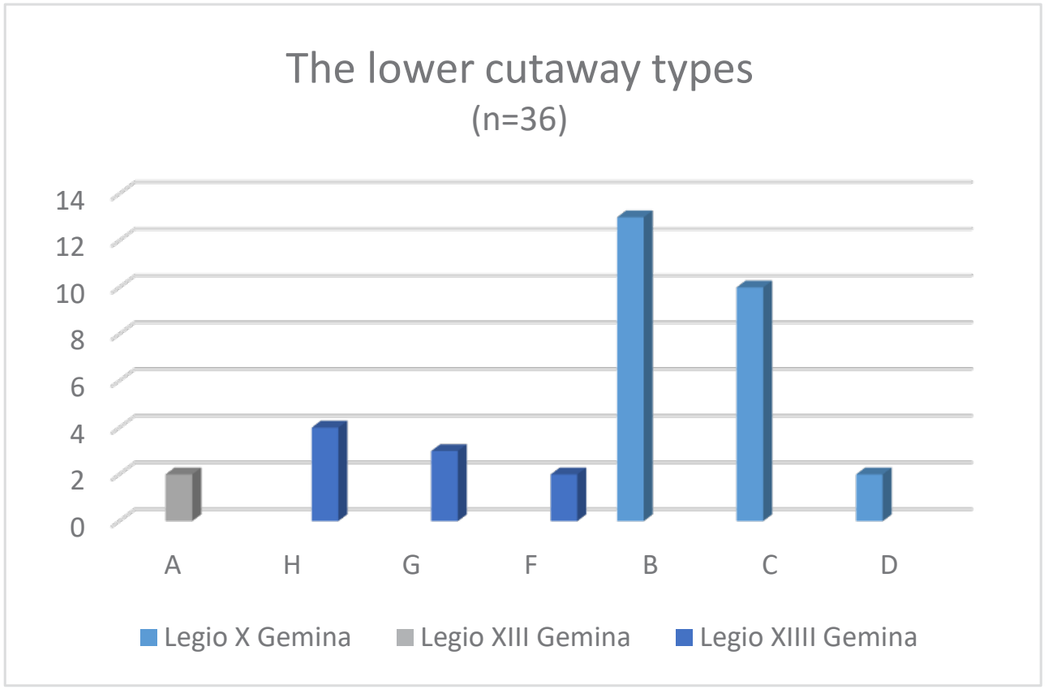

Fig. 7 - Graph representing the lower cutaway forms according to legions (T. Janek)

tion of the tiles indoors on a working bench. The rest is probably connected with the tile production outside in the open area, where the material was left to dry on the ground[48].

The special focus was on the lower cutaway forms. Firstly, they were documented in 3D and afterwards converted to simplified drawings for the purpose of publication. Altogether 8 different forms were distinguished, marked A-H as listed in the table (Fig. 6). The dataset consists from 36 finds (Fig. 7). The most problematic groups appear to be types B and H (Fig. 8), where although the shape of each type is the same within its group, the difference is in the way how they were cut away. Also problematic is type D which at first was moulded as the Type C cutaway and afterwards adjusted with cuts to match the Type B. Sometimes the partial imprints of the wooden block from the form remain and just the bottom edge is cut away and sometimes the original shape is completely removed. This type has large number of variations, the common feature is that it was created with several cuts which are often not very precise.

Very specific shape appears on type G - quadrant created by three cuts. Tool used to remove the clay must have had a special curved shape, since in all three cases it was done in the same way. Very interesting detail which was discovered on a 3D model is also the small imprint of the wooden block (Fig. 8). This imprint seems to match the type F, further research needs to be done to confirm it.

The observed flanges have various shape in profile and as presented on the ideal drawings (Fig. 9). The dataset consisted from 122 finds (Fig. 10). After the clay was bent into the flanges, they were further shaped in hand or by another device. The side, facing the inside of the *tegula*, was finished with a sharp edge or with a long line made with one or two fingers. In two types specific procedures could be identified. In the case of flange type D the special tool adjusted to the flange profile was

[48]Warry 2006, 20

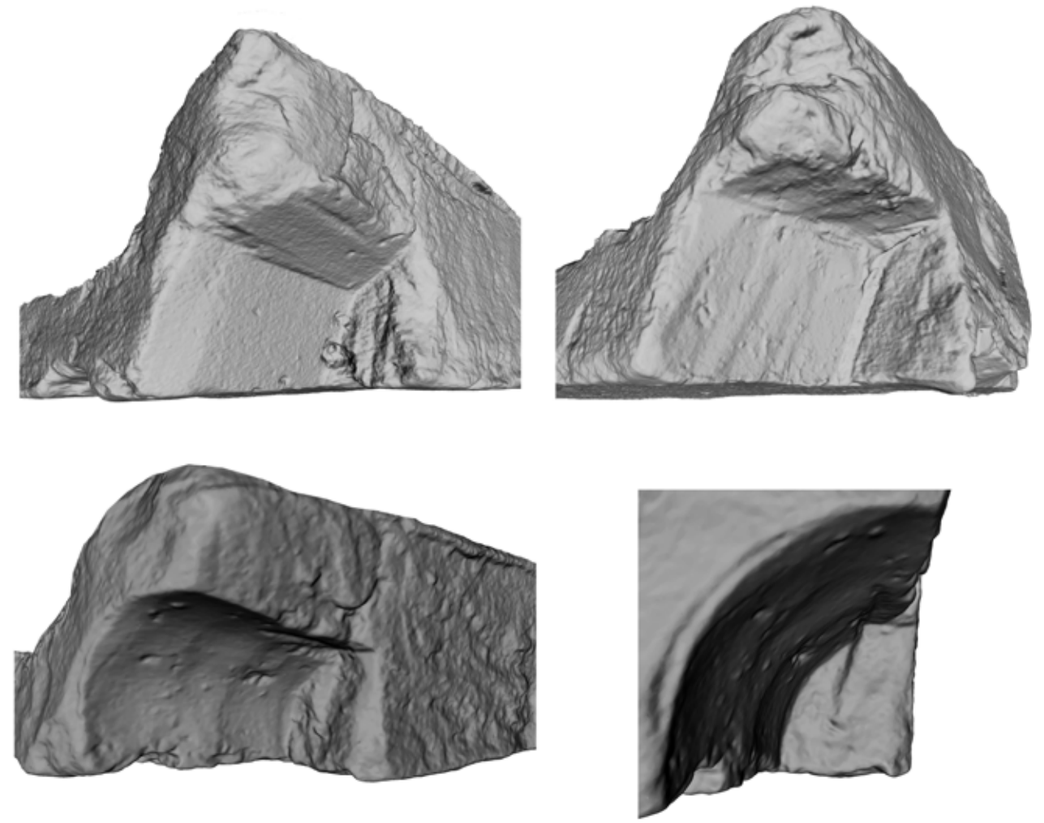

Fig. 8 - Detail of lower cutaway forms, top: different ways of cutting shown on type H, below: traces of the block put inside the mould of type G (T. Janek)

used. The type A of the flange was created with hinged mould where lump of clay would be placed on the flat mould with sides down, rolled flat and then trimmed to the outside profile of the flat mould. The sides of the mould would then be raised with the clay inside being bent up to form the flanges[49].

In case of Legio XIII Gemina 21 tiles were examined from which 2 had preserved flanges and lower cutaways. All finds were preserved as fragments of various size. Both lower cutaways are type A, made with a rectangular wooden block put inside the mould. The flanges are in both cases type D, with width broader on the side of the lower cutaway, narrowing down towards the opposite end. The height of the flange is even over the whole preserved length. Both, outer side of the flange and the lower cutaway, are covered with a very fine sand. Small difference in the production techniques can be observed on the treatment of the undersides. Although the surface is always flat, in 7 cases the mould left a wood imprint and in 8 cases the underside is covered with fine sand. Those traces could suggest that the mould used in the production consisted from two parts: four-sided rim and wooden board which were not joined. After the tile was moulded, the rim was removed, and tile was left to dry out on the wooden board leaving the wood imprint on the underside. In two cases, the surface of the underside is covered with a coarse sand which in one case bears cutting marks. The possible explanation could be that in this case the

[49]Warry 2006, 31

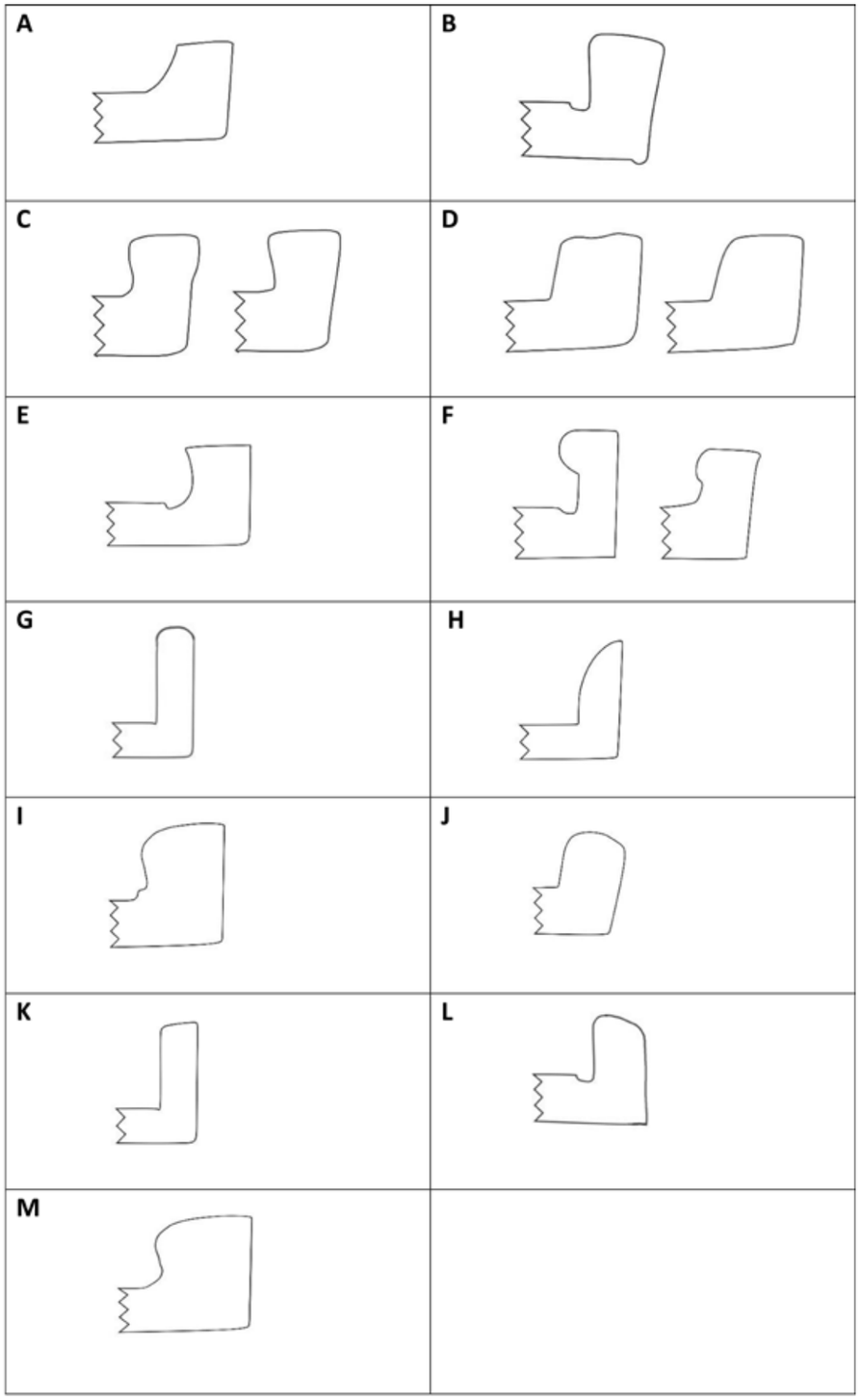

Fig. 9 - Various forms of the flanges (T. Janek)

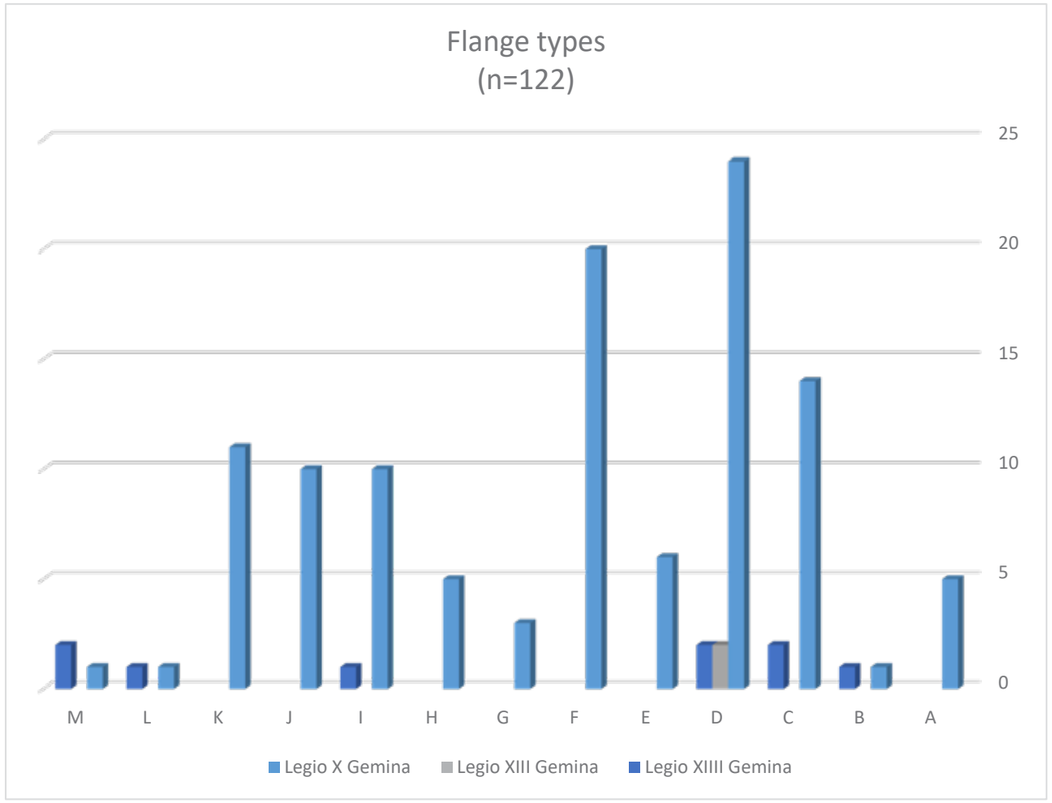

Fig. 10 - Graph representing the flange profiles according to legions (T. Janek)

wooden board was not used as the base, but tiles were moulded directly on the working desk or on the ground in the open space.

In case of Legio XIIII Gemina total of 67 tiles were examined from which 9 had preserved flanges and lower cutaways. Three types of lower cutaways were distinguished on the material from excavations at Am Hoff 7-10 and Steinergasse 17 this includes types F, G and H, type E was identified in the collection of Wien Museum and comes from stray find. The profiles of flanges are represented by groups B, C, D, I, L, M. All flanges have equal width along the whole preserved length. The overlap of clay on the upper part of flange suggest moulding in rim with two sides fixed to bottom part or in four-sided rim where the bottom part was removable as in case of the Legio XIII Gemina. The underside has in 87% imprint of wood, in 4% the surface is flat, covered in fine sand and in 3% the surface is wired. This implies that almost all finds were produced in the halls where they were also left to dry.

Most of the observed finds was produced by the Legio X Gemina which was garrisoned in Vindobona for the longest period. The total sum of the material consists of 419 tiles, none of them was preserved complete. Three types of the lower cutaways were distinguished – types B, C and D. Two finds with the lower cutaway type D (MV109126/01 and MV109142/01) can be dated to the period of Caracalla (211-217) based on the stamp. The flanges show the greatest variety and includes all profiles represented in the figure 6. No chronological sequence can be found, even the types which have the same shape as those produced by Legio XIII Gemina and Legio XIIII Gemina (type D) appear also in the 3rd century. The most significant difference in the production of the Legio X Gemina are the treatments of undersides, 88% is rough covered with the coarse or medium sand, which can be further removed with cuts. This suggest the common custom was to produce the tiles on the ground in the open space where they were left to dry. Since the largest building activity is related to the Legio X Gemina, this change in the production

can be expected. The capacity of drying halls was no longer sufficient for drying and they were changed solely to storage rooms.

Procedures used during the production of the CBM, especially of the tiles, shows the different approaches between the legionary units. Although some procedures are similar - as treatment of the undersides and the flange profiles, the use of lower cutaway form was specific for every unit. Similar types of the lower cutaways found in Vienna are documented also in Peter Warry's work[50]. Type B from Vindobona is like Warry's type B6, Type H from Vindobona is like Warry's type A 28 and type A from Vindobona is similar to Warry's type C4. However, when the dating of the lower cutaways is compared, it differs. The greatest difference is in the case of Vindobona type A, which is dated to very end of first century AD but in Britain it is dated to 160-260 AD[51]. This means that although similar types and production techniques can be observed on various Roman sites, their dating might be different. The research of the production techniques has a great potential for dating purposes, but more data from various parts of the Roman Empire will be necessary to fully understand how the production worked and under what influences it changed.

Conclusions

The development of digital technologies and their broad availability are opening new ways of how the CBM can be approached. Thanks to the morphometric comparison it is possible to identify groups of identical stamps almost with certainty. Fragments can be completed, and unreadable stamps can be identified. RTI can reveal details unseen with a naked eye and 3D models can help to compare the material with higher precision. Unfortunately, implementation of the methods described above into the research of CBM is in its very beginning and consumes too much time to be applied on all excavated material.

This article is the outcome of the project 'Technological development of legionary production of building terracotta in Vindobona' funded by the Grant Agency of Charles University (GAUK 899918).

[50]Warry 2006, 4
[51]Warry 2006, 63

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Summary

The focus of this article is on the production of ceramic building material (CBM) near legionary fortress in Vindobona and its surroundings. It offers a critical view on the current state of research and proposes new ways of how the CBM could be approached in today's era of digital technologies. After overview of the brief history and current state of research, major part of the article is dedicated to methodologies and implementing of the computer application into the standard workflow. The research is based on the dataset consisting of more than 2000 pieces of CBM from 4 different sites supplemented with information from previous publications. The research focuses on two subjects – stamps and technological procedures. The stamp analysis is discussed on the examples of CBM produced by the Legio X Gemina, it represents one of the largest collections of finds and contains the greatest variety of forms and inscriptions. Standard classification based on comparison of the shape of stamps and letters is supplement with morphometric analyses. An example of intercon-

nectivity of stamps on different sites is also provided. The analysis of technological procedures is based on the case study of the material from the production centre near Vindobona and is discussed more in detail. The use of digital methods as reflectance transformation imaging and photogrammetry are explained. The various production techniques are documented, presented in the forms of tables and graphs. All results are evaluated and compared with published works.

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Stone extraction for Vindobona Regional Infrastructure and Economic Relationship by the Example of a Legionary Garrison in Pannonia*

ABSTRACT

In this paper interdisciplinary methods are discussed to locate ancient quarries of the Roman Legionary site of Vindobona. Furthermore, it was attempted to calculate the time required and the amount of stone material required for the construction of the fortification wall of the fortress. Least cost path analyses were used to illustrate possible transport routes from the assumed quarries to the legionary camp.

Key Words: Vindobona, legionary fortress, fortification, quarry, stone extraction, monument, building material, petrology, GIS, transport

*The following article is based on the research status of 2018

Introduction

The specific issue of the following discussion will be the origin of Roman stone objects in the area of Vindobona (Vienna), which was one of the four legionary garrisons in the province of Pannonia.[1] Additional subjects should be possible transport routes from quarries to the building sites and the necessary need of stone material when constructing a legionary fortress – in particular the defensive wall. These studies are part of the interdisciplinary Austrian Science Fund project called "Stone Monuments and Stone Quarrying in the Carnuntum – Vindobona Area".[2] The corresponding activities are based on intense cooperation of archaeologists and geologists from various institutions. The entire project focused on the detection of possible Roman quarrying areas and stone supply in the greater area of the two legionary fortresses of Carnuntum and Vindobona in the north-western part of the province of Pannonia.[3] Even if no ancient quarries from this area are definitely known until now, the petrographic determination of stone objects related with appropriate archaeological data should lead to satisfying results. For this purpose, the following basic works were implemented:

The recording of more than 2000 documented Roman stone objects within the project area in a database.

A GIS based mapping of these stone objects and of nearly 2000 Roman sites in the hinterland of Vindobona and Carnuntum to detect possible relations between material culture and settlement structures with potential quarry sites.

The macro- and mesoscopical classification of the lithotypes of almost 1000 stone objects kept in various deposits and museums supplemented by thin-section analyses of well comparable rock samples.

Based on a comprehensive lithological grouping and the knowledge of the geological and archaeological background, seven potential ancient quarrying areas were defined (Fig. 1).

This requires the interpretation of airborne laser scans in connection with relevant historical topographic maps and manifold geological data, like the compilation of quarries archived by the Geological Survey, and is conducted through joint inspection surveys in the selected quarry areas during which lithological and excavation features are observed and rock samples for comparison are taken. Furthermore, scans of the hand specimens and thin sections were prepared. The defined quarrying regions had different relevance to the settlement centres in Carnuntum and Vindobona and a part of them had only local importance. Yet the quarry regions located in the north-eastern and south-western Leitha Mountains (region I, II) played a major role for both legionary fortresses. In these instances, longer transportation routes were accepted in exchange for a higher-quality result of the stone material. The quarries in the Rust Hills (region III) mainly ensured the supply of the *municipium* of Scarbantia, but, not very frequently, stones from there could be found in Carnuntum and Vindobona as well.

However, as was to be expected, it turned out that the majority of the stone material which was delivered to the respective legionary fortress came from the geographically nearest or most easily accessible quarries. The Hainburg Mountains (region IV) were of particular importance for Carnuntum[4] and the same role played the areas of Vienna (region V) and further south along the western side of the Vienna Basin (region VI) for Vindobona.[5]

Let us now take a closer look at the situation of Vindobona: Mapping all the stone objects in the greater Vindobona area, you will first recognize the wide range of their different uses as building materials, architectural elements, funerary and votive monuments, milestones and even tools such as millstones and stone mortars. One of our most important research questions was whether or not there would be a connection be-

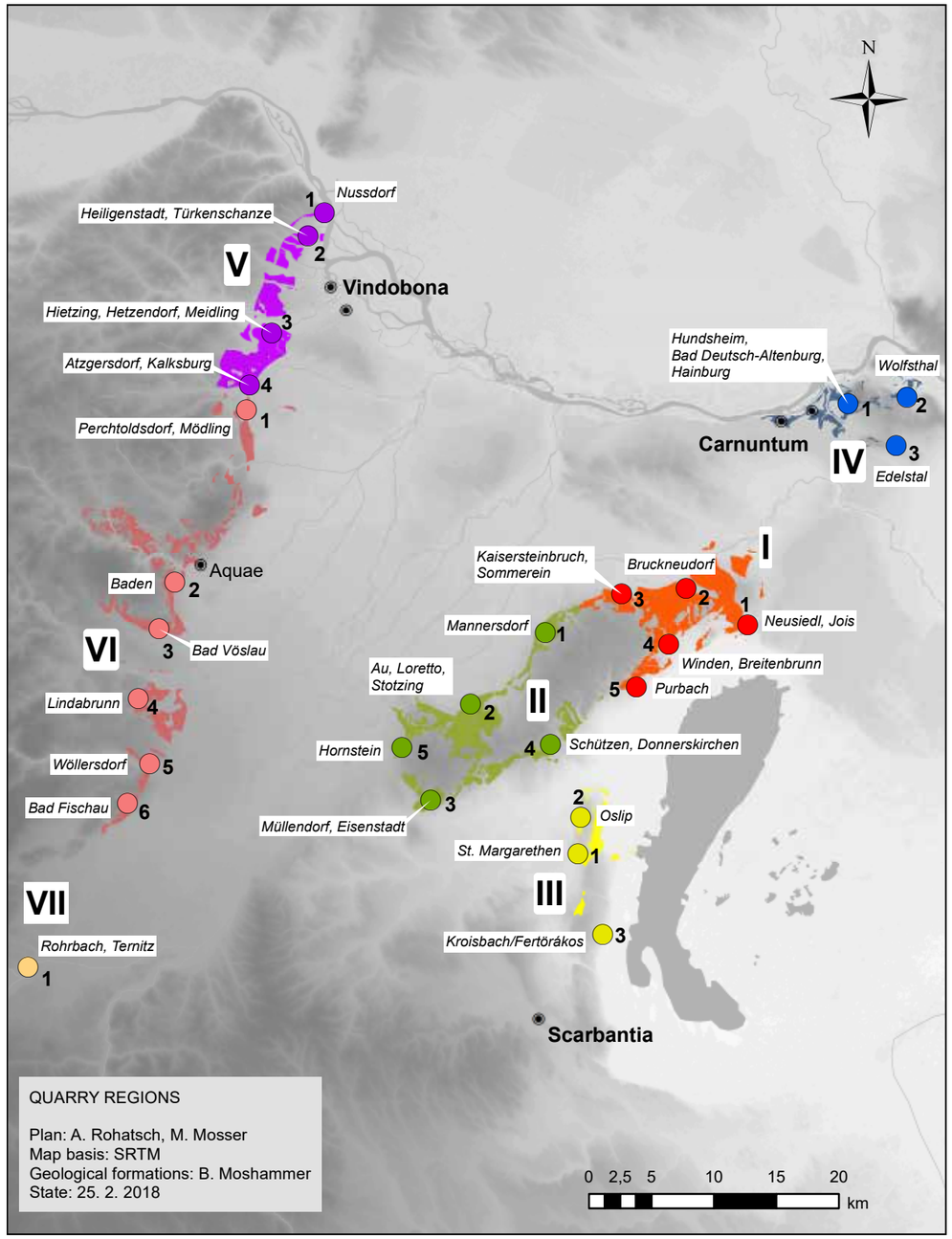


Fig. 1 - Ancient quarrying regions in the Vindobona – Carnuntum area (Plan: A. Rohatsch, M. Mosser).

[1]Kronberger, Mosser 2015.

[2]FWF P 26368-G21; https://www.oeaw.ac.at/antike/forschung/monumenta-antiqua/religion-und-gesellschaft/csir/ [19.05.2019]). Project Leader: Gabrielle Kremer. We would like to take this opportunity to thank Sophie Insulander for her diverse support.

[3]Kremer, Kitz 2016; Kronberger *et al.* 2016; Insulander *et al.* 2018; Kitz, Insulander 2018; Kremer *et al.* 2018; Rohatsch *et al.* 2018.

[4]Kitz, Insulander 2018, 250; Kremer *et al.* 2018.

[5]Kronberger *et al.* 2016, 92 f.; Insulander *et al.* 2018, 155–157; Rohatsch *et al.* 2018, 366 f.

tween the use of different types of rock and different groups of objects[6] and whether it is possible to calculate the effort required to transport the stone material from the quarry to its destination. As a preliminary result it can be stated that since the 1st century A.D. the quarries situated in the immediate vicinity of Vienna (region V) were preferably exploited for various types of stone monuments. Moreover, it turned out that especially for infrastructural measures of the first phase of the legionary fortress, stone material from more distant quarries located along the western edge of the Vienna Basin southwest of Vienna (Region VI) was also used. For certain types of stone monuments, especially votive monuments, a large number of imports from certain quarry regions in the Leitha Mountains can be proved (region I, II).[7]

Early quarrying and transfer of knowledge

In order to trace this topic in detail, one should concentrate on one of the most important construction activities in Roman Vienna, the building of the legionary fortress by the 13th and 14th legion. As we know from the history of the legions, they started in 98 A.D. with the construction of the fortress in the area of today's Vienna's city centre, which is additionally proven by the presence of a large number of stamped tiles.[8] According to the Traian gate inscription – which symbolizes the completion of the fortress wall – the towers, gates and the wall were finished in the autumn of 102 A.D. (Fig. 4).[9] From that it can be estimated that the full construction period did take about 5 years. But before turning to that topic, we should go back to the year 90 A.D. – about 8 years before Vindobona became a legionary fortress. At this time, the auxiliary unit *ala I Flavia Augusta Britannica mil. c. R.* was stationed in Vienna, probably in the area of today's Schottenstift.[10] The stationing is verified by the stele of *Titus Flavius Draccus*, who served as an *eques* in this unit (Fig. 2).[11] The stone material used for this object came from the area of Perchtoldsdorf, approximately 13 km southwest of Vindobona. This means that quarries in region VI were already in use several years before the establishment of the legionary garrison. Within Perchtoldsdorf, which today is a densely populated residential area, the exposure of an old extraction wall within a private garden is an extreme rarity, as other quarries were used as waste dumps, levelled and overbuilt or re-cultivated a long time ago. The up to 3-meter-high extraction wall consists of a massive to thick-bedded Miocene breccia. Beside the dominating angular fragments of dolomite from the Northern Calcareous Alps and well-rounded quartz-arenite pebbles from the Rhenodanubian Flysch Zone changing amounts of debris from coralline red algae and other fossil remains are observable.[12]

Several years later the quarries of Perchtoldsdorf were exploited again for the construction of the legionary fortress's infrastructural features and for parts of its fortifications. The massive sewers of Vindobona, as high as 2 m, were demonstrably built by the 13th legion at the beginning of the construction period at the end of the 1st century AD. They were covered with manhole cover stones, of which ten examples were found in Vienna, five of them inside the legionary fortress (Fig. 3).[13] Like the stele of *Titus Flavius Draccus*, these were quarried in the area of Perchtoldsdorf. In addition, there are one ashlar and two building inscriptions from the construction period of the legionary fortress that can also be allocated to the same quarrying area (Fig. 3, Tab. 1).[14] In conclusion, a knowledge transfer between the different military units can thus be proven by this fact.[15]

[6]Rohatsch *et al.* 2018, 368–370.
[7]Insulander *et al*. 2018, 157; Rohatsch *et al*. 2018, 368.
[8]Mosser 2014, 208–212.
[9]CIL III 14359[32]; Mráv, Harl 2008.
[10]Lőrincz 2001, 16; 174–175 Nr. 55–57; Kronberger 2005, 27–30; Mosser 2005, 143–149.
[11]CIL III 15197; Lőrincz 2001, 174 Nr. 55; Kronberger 2005, 248 Taf. 31, C5; Mosser 2005, 144–146.
[12]Insulander *et al.* 2018, 156 f.
[13]Farka *et al.* 1978, 175, S16–17; Kronberger *et al.* 2016, 92 f.
[14]Kenner 1897, 51–52 Fig. 34; Kenner 1911, 112 Fig. 2; Farka *et al*. 1978, 172–173, S7–S8; Mosser 2005, 131 Abb. 3; 138–139 Abb. 6; CIL III 1435932; Mráv, Harl 2008; Lupa 4791; Lupa 9110; Mosser 2020, 7–8 Abb.
[15]Insulander *et al.* 2018, 157.

Fig. 2 - Tombstone of T. *Flavius Draccus* (Photo: M. Mosser).

Building the wall

Exciting results can be expected in connection with one of the most striking monuments built by the arriving Roman legions – the massive fortification wall with a length of around 2 kilometres. Carrying together all existing elements belonging to this wall, to the towers and to the gates, 33 associated components have been preserved (Fig. 4).[16] This sample includes facing ashlars, building inscriptions, the stone bases of the *porta principalis sinistra* and *porta decumana*, battlements and cornices. In order to reconstruct the origin of the stone material and possible transport routes from presumed quarries to the fortress, the question of petrographic examination of these stone objects was essential.

Hereafter 25 of them could be analysed by the geologists (Tab. 1). According to the examinations, 21 objects were made of rocks originating from region V, located at the slopes below the Vienna Woods in the outer area of today's Vienna. The closer examination even resulted in exciting detailed results. Thus, two battlement coverings excavated about 470 metres away are geologically almost identical. This means that at least in this case, masonry components with special uses were quarried simultaneously and delivered to different construction stages.[17] As already mentioned, the remaining four stone parts come from the Perchtoldsdorf quarries including one ashlar from the *porta decumana*, two building inscriptions and last but not least a relief from the *porta principalis dextra*, showing a bull, the animal of the 10th legion.[18] The latter can be assigned to a later post traianic-period, when this legion replaced the 14th legion in Vindobona.[19]

According to the petrographic analyses, the most plausible extraction site of the known fortress wall elements in region V, in particular with regard to nearby archaeological findspots, can be supposed in the area of Heiligenstadt (Fig. 8, quarry region V.2).[20] As will be shown later, the postulated quarry lies on a terrace edge of the Danube, which was demonstrably developed as a transport route in Roman times, and where an important road still runs today. The distance to the place of use was probably covered without difficulty also with larger loads in reasonable time. Although no Roman quarry could - for the same reasons as in Perchtoldsdorf - be established in this area either, large clay and sand pits which also delivered freestones were active until the 19th century in the area of today's Heiligenstädter and Türkenschanzpark and are therefore probable source areas. At Heiligenstädter Park the terrace slope facing the Danube exhibits maybe the last very small surface outcrops showing horizontally bedded sandstones otherwise covered with scree and rubbish. Some old formatted blocks of this stone, which might be remnants from old quarrying, lie on the ground. Here, the former clay pits are reclaimed as sport courts and settlement area and to the south there is a striking loess wall. The sample from the outcrop of the terrace slope shows a calcitic cemented sandstone of quartz grains and bioclasts with minor open pores.[21] The lithological comparison with the Roman components showed close similarity. Their origin from the vicinity of this abandoned mining site can be therefore assumed as probable.

From the outcomes outlined above it can be concluded that the petrographic analyses of preserved architectural elements of the fortress wall indicate two most likely sources of stone supply. The obviously more often used one from the Heiligenstadt area and maybe for special requirements the further away quarry region around Perchtoldsdorf (Fig. 1).

But what quantities of stone material are to be expected for building the fortress wall? To demonstrate the expense of the building operation, some hypothetical figures were calculated to get an idea of what happened in the early years of the Roman military occupation of Vindobona. After digging the ditches and building the rampart, which, according to Elizabeth Shirleys research into Inchtuthil, took 60 to 100 days for the legion,[22] the construction of the defensive wall could

[16]Farka *et al.* 1978, 172–178; Mosser 2011.
[17]Kenner 1905, 138–139; 142 Fig. 291; Farka *et al.* 1978, 175, S15.
[18]Kenner 1897, 59–60 Taf. V.1; Farka *et al.* 1978, 210, S123; Lupa 6382.
[19]Mosser 2005, 139–142; Kronberger, Mosser 2015, 244.
[20]Kronberger, Mosser 2015, 260–261; Insulander *et al.* 2018, 155.
[21]Insulander *et al*. 2018, 156.
[22] Shirley 2000, 114.

	Analysed stones	Perchtoldsdorf (Region VI.1)	Nußdorf/Heiligenstadt (Region V.1–2)
Building inscriptions	3	2	1
Ashlars	7	1	6
Reliefs (gates)	5	1	4
stone bases	4	0 (1)	4 (3)
Cornices	2	0	2
Battlement coverings	4	0	4
Fortification wall/sum	25	4 (5)	21 (20)

Tab. 1 - Quantity and origin of analysed stones from the fortification wall.

begin. From older excavations in Vienna it is known, that the fortress wall had a masonry shell with *opus caementitium* inside and ashlars for the shell. The original width was around 1.70 metres.[23] The documented well shaped blocks from the representative front side of the wall and the roughly made blocks at the backside have a depth of half a metre, a volume of 0.20 to 0.30 cubic metres and a weight of about 400 to 600 kg (Fig. 5).[24] The foundations were up to 2 meters wide and deep and consisted of big rubble stones of sandstones from the Flysch Zone.[25] The extent of the fortification wall was about 2.100 m (see Fig. 4), the height without foundation can be supposed by minimum 6 metres,[26] what all in all is resulting in about 60.000 ashlars and more than a million rubble stones needed for the whole defensive wall. Elizabeth Shirley calculated around 340.000 working hours for the fortress wall with nearly the same size of that in Vindobona.[27] Assuming a cohort of 480 men was involved in the construction of the wall, it would have been completed in just one season.

Case Study *"Porta decumana"*

A rescue excavation carried out in April 2019 as part of the construction of a new pipeline for district cooling in downtown Vienna was able to contribute another detail to the use of rock in the area of the legionary camp's defence system. The lucky coincidence allowed that exactly the western parts of the southern gate, the *porta decumana*, were found in the narrow construction trench (Fig. 6).[28] The lithological examination of the stone material, an ashlar overlying a stone base and a number of foundation stones yielded the following results: The stones of different parts of the gate architecture have different lithotypes (Fig. 7) and therefore originate from different quarries or quarry regions. The ashlar with a dimension of at least 70 x 70 x 30 cm comes from the quarries in region VI (Perchtoldsdorf area) while all the other six pieces found already earlier originate from the region Heiligenstadt. The debris of the foundations belongs to the region V (Heiligenstadt), which is well in line with a finding from an excavation of 2012, from which the foundations of the fortress wall in the area of the southwestern part of the legionary camp could be documented.[29] In contrast in the internal structures of the legionary fortress, for example in the two tribune´s houses, which can still be seen today in the Roman Museum at Hoher Markt, very fine-grained homogeneous quartz sandstone from region V.3 and V.4 (Hietzing, Atzgersdorf) was often used for the foundations. The third stone from the *porta*

[23] Mosser 2011, 170–173 Abb. 9.
[24]Farka *et al.* 1978, 174–175, S13; Insulander et *al.* 2018, 154–155, Fig. 2.1; see Pearson 2006, 89.
[25]Mosser 2011, 181 Tab. 2; Mosser 2013, 184–185; Kronberger *et al*. 2016, 92.
[26]See Shirley 2000, 71–72 Fig. 5.28.
[27]Shirley 2000, 141.
[28]Mosser 2020, 6–11.
[29]Excavation Naglergasse 25–27, GC 201203, Inv. Nr. MV 99.668; Mosser 2013, 182–185, fig. 1–3.

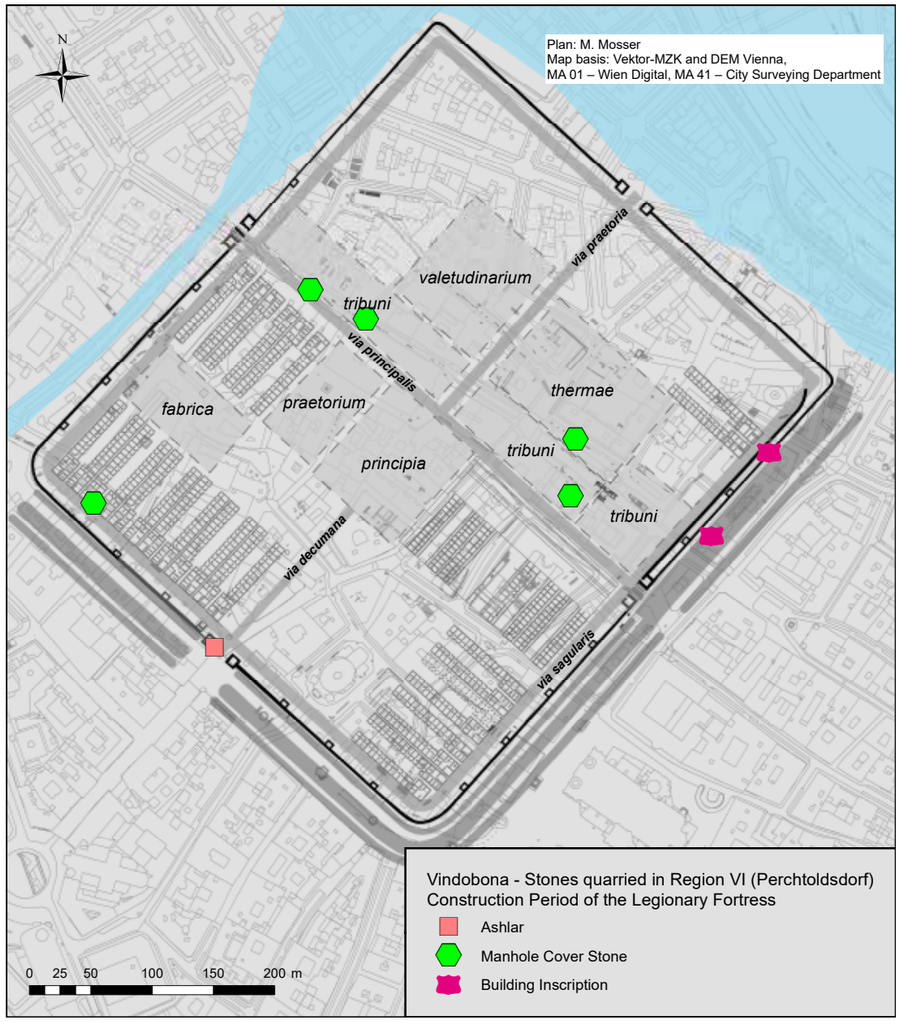


Fig. 3 - Distribution of manhole cover stones and building inscriptions in the legionary fortress of Vindobona quarried in the Perchtoldsdorf area (region VI, 1). Plan: M. Mosser.

decumana served as the base for the ashlar of the gate passage (at least 55 x 45 x 23 cm). According to its lithotype, this third stone belongs to Leitha limestones, which on the one hand appear in the Leitha Mountains themselves (quarry region I and II) but also occur not far from Vienna on the western edge of the Vienna basin in the area of Nußdorf (region V.1) and in Maria Enzersdorf near Perchtoldsdorf (region VI.1). The last two mining areas are therefore geographically close to the previously discussed stone material (ashlar and foundation stones) and thus have the same transport routes to Vindobona.

Even if the exact origin with very specific Roman quarries is practically not determinable and not always systematically assignable the example shows that at least both quarry regions were obviously used for the building of the complete fortification of the legionary fortress wall from the end of the 1st century AD onwards.

Transport Routes (Fig. 8)

Now the best transport route from the assumed quarry areas to the legionary fortress of Vindobona shall be considered. The topographic position of the assumed quarry in Heiligenstadt near the unregulated Danube

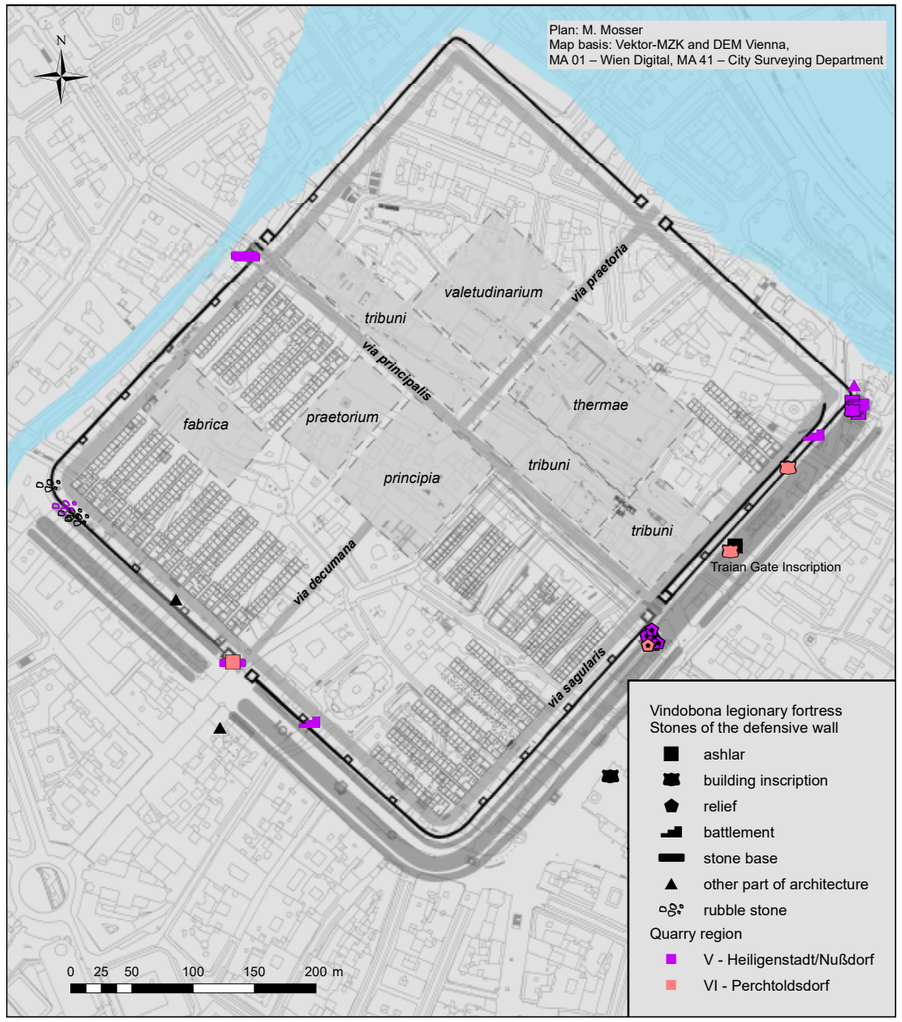


Fig. 4 - Origin and distribution of the stones of the defensive wall (Plan: M. Mosser).

River and along the Limes road between the two garrisons of Arrianis (Klosterneuburg) and Vindobona seems to be more favourable than alternative options of quarrying for example in nearby Nußdorf, where similar stone material can be found .[30] Applying GIS least cost path analyses (Fig. 8)[31] the distance to the fortress would be around 5 kilometres which will be done by ox carts in just over two hours. The route on the Danube River would take three quarters of an hour, but without time consuming transhipment that would have to be carried out.[32] The assumed quarry in Perchtoldsdorf, which was also used for extracting construction material for the legionary fortress, was located in a distance of around 13 kilometres southwest of the Roman centre, whereas one has to keep in mind that the calculated easiest least-cost ways to the fortress differ from the previously assumed Roman road system. Especially the path would not lead through the Roman road station

[30] Kronberger, Mosser 2013, 110–111 Abb. 2.
[31] To the method see Herzog 2014.
[32] See Salač 2018, 63–64 Tab. 2.

Fig. 5 - Facing ashlars from the fortification wall of the legionary fortress of Vindobona

at Inzersdorf.[33] A factor that needs to be discussed. An ox cart from Perchtoldsdorf to the legionary fortress would need about five and a half hours, which should not have been a problem for the construction unit of a legion. According to our current knowledge, the transport routes discussed above are the more likely for the two potential quarry regions to the fortress. The stone material was most probably transported on ox carts by land and perhaps partly along the Danube River. Probably the type of transport depended on the capacity of the available river vessels, the disposability of oxen and the size and quantity of ox carts.[34] In spite of these unknown facts we venture an approach to calculate the necessary time to transport 60.000 ashlars to the legionary fortress: After Ben Russell one ox is able to haul loads of 800 kg,[35] so one team of oxen could pull

[33]Kronberger, Mosser 2013, 114–116.
[34]See Pearson 2006, 90–103; Russell 2013, 96–110.
[35]Russell 2013, 98.

Fig. 6 - Ashlar, stone base and foundation on the western side of the *porta decumana* gateway (Photo: M. Mosser).

at least two ashlars of an average weight of 400 to 600 kg. From Heiligenstadt to the fortress, this ox cart can go twice daily at a speed of approximately 2.5 km per hour. For example, if you were to use 100 oxen every day, you could supply 200 ashlars. For our calculated sum of approximately 60,000 of that stone blocks, which are needed for the construction of the fortress wall, one would therefore need 300 tours, which can be carried out in 150 days with this use of resources.

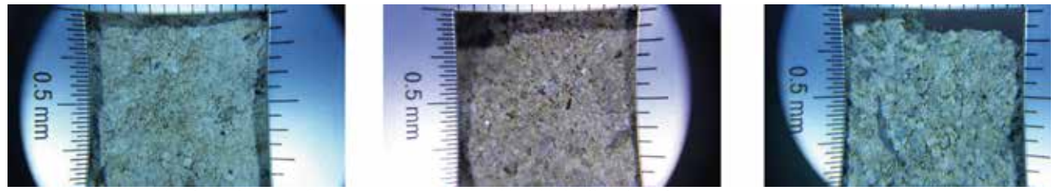
The example presented here briefly outlines one of the questions that arose in our project in the course of our work. These are small results, but they give a vivid picture of the logistical challenges associated with the construction of such a monumental structure as a legionary fortress.

In this way, the results of the lithological and cultural-historical processing of the stone material from Vindobona will raise numerous further questions, such as the 40 km long transport of votive monuments, tombstones and sarcophagi from quarries in the Leitha Mountains to Vindobona.[36] These supplies of either unprocessed stone or perhaps of semi-manufactured products or even worked monuments, may have been carried out by private companies which certainly would have needed more than one day for oxen.

It is a matter of fact that all calculations carried out have a wide range of variation, depending on a lot of mostly unknown parameters. But undeniably, a legion was able to organize common labour and pool resources without problems.[37]

The contribution presented here should be understood as a first approach to show how the supply and building of stonework structures could be managed by the 13th and 14th legion in the case of the wall of the legionary fortress in Vindobona at the end of the 1st century A.D. It demonstrates the importance of the interdisciplinar-

[36]Insulander *et al*. 2018, 157–159 Fig. 5.
[37]Russell 2013, 38–45.



ashlar: region VI (Perchtoldsdorf) | base: region V or VI Nußdorf or Perchtoldsdorf | rubble stone: region V (Heiligenstadt)

Fig. 7 - Magnifier photography of stone samples from the porta decumana (Photo: M. Kronberger).

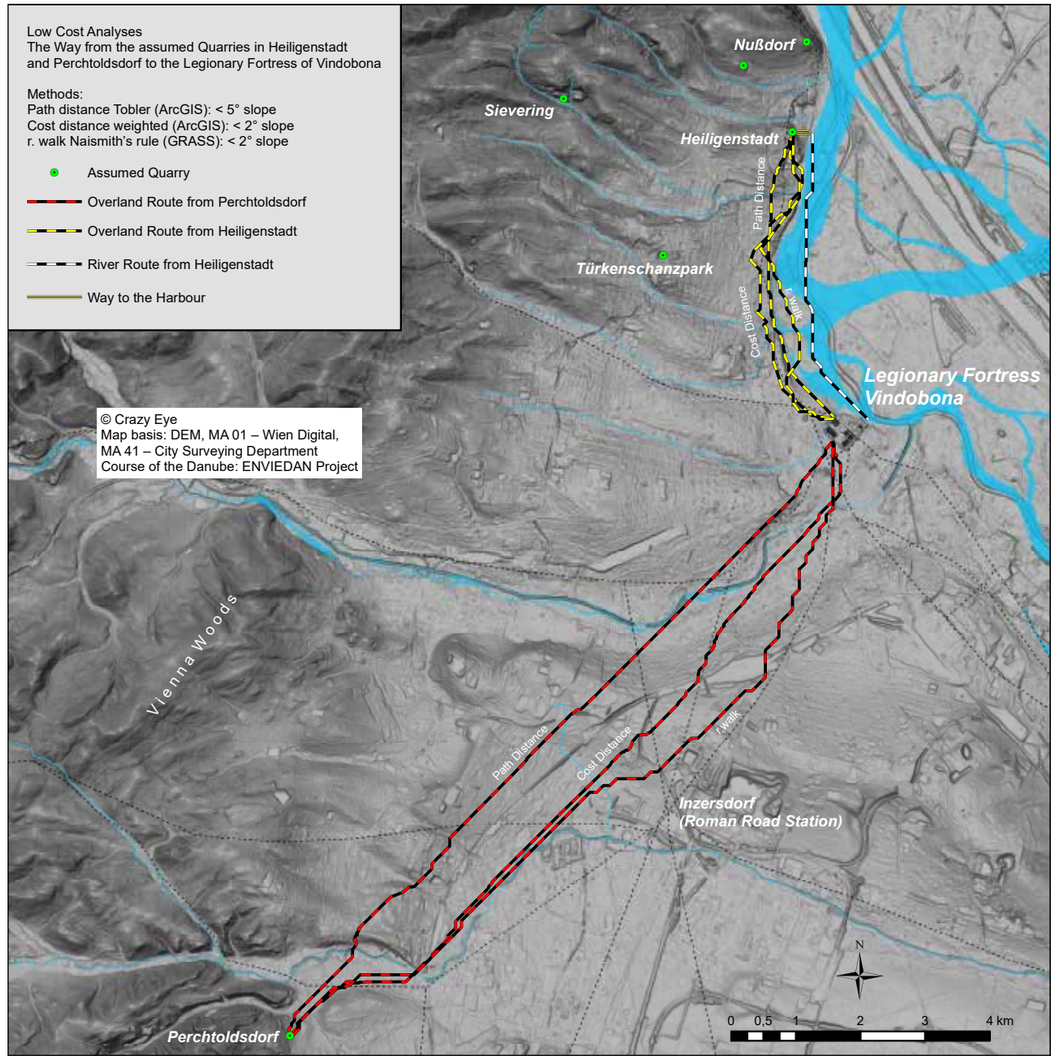


Fig. 8 - Transport Routes: The Way from the assumed Quarries in Heiligenstadt and Perchtoldsdorf to the Legionary Fortress of Vindobona (Plan: R. Skomorowski – M. Mosser).

ity of our research cooperation, which comprises the consolidation of geological, settlement historical and landscape archaeological data. It was of great advantage for this project that we were able to build on research results, especially the processing of the archaeological material and its topographical localization, that were achieved before this project was initiated. But it was only by working together as a team that further pieces of the mosaic could be found which enabled new insights into living and working at the border of the Roman Empire.

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LIMES XXIIII

Session 31
Bath Buildings

INTRODUCTION

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Together with amphitheatres, military bath buildings were erected near forts and in legionary camps to enable the soldiers to enjoy their favourite leisure activities. Indeed, bath buildings are vastly more common than amphitheatres in connection with military installations, regardless of whether these are situated on windy and wet Hadrian's Wall or in the hot and dry deserts of Africa. It seems that the pleasures of a visit to the bathhouse - including the nicely decorated and warm rooms, abundance of clean and warm water plus the pleasure of meeting friends for a chat - seem to have been judged to have such an overriding importance that even the smallest forts aspired to them.

Whereas amphitheatres were also used for military parades and show fights of units against each other, bath buildings had no direct military use beyond ensuring the health and happiness of the soldiers. We can thus conclude that the regular occurrence of bath buildings near forts and in legionary camps is a sign of the central position the bathing habit had in Roman society and an indication of the importance of the soldiers as a class within that society. Both were on the rise during the 1st century AD and gained their full importance in the early 2nd century, retaining it for at least two hundred years.

But a number of issues on the social habit of bathing and the resulting buildings are still unanswered in the military sphere and this session will invite contributors to ask questions such as:

- were military baths restricted to soldiers or could all inhabitants of the legionary camp or the fort and vicus bathe there?
- was the bathhouse of a given fort or camp of a size that allowed all the soldiers of the unit to take a bath there every day or every two days? Or was the bathhouse only for a few of them?
- as these buildings are technically challenging to construct, were they built by specialists within the Roman army, a travelling 'bath building corps' or perhaps by civilian contractors?
- can we determine differences between military and civilian bathhouses of the same region – either in the architecture or the decoration?
- which of the countless activities recorded for non-military bath buildings in towns and cities such as eating and drinking, exercising, getting a haircut, consulting a doctor, listening to lectures or poetry readings and satisfying one's sexual desires may have been available in military bathhouses?
- how was the location of the bathhouse determined when it was built outside a fort or inside a legionary camp – were positions chosen for easy access to water or other location advantages specific to bathhouses or were military considerations of a higher importance?

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My bath is in my fort? Bath buildings in military contexts in Noricum and western Pannonia

ABSTRACT

In the provinces of *Noricum ripense* and *Pannonia prima*, baths (or parts of baths) are known at a total of 13 fortlets, forts and legionary fortresses, and are found inside or outside these military installations. In this paper the bath buildings and their associated finds are briefly described. A comparison of their size, layout, and location illustrates the differences which can occur. In legionary fortresses the baths are always located within the fortress in the *praetentura* and are roughly similar in size. In contrast, bath buildings associated with fortlets and forts are found inside or outside these military installations and often vary in size. From the 4th century AD onwards, the baths become smaller, and after the abandonment of the forts most of the bath buildings were cleared and used for other purposes in Late Antiquity. Because of this, find material from the baths' last period of use is quite rare.

Key Words: Noricum, Pannonia, military baths, bath buildings

Introduction

Out of necessity, heated bath buildings are closely connected with stone buildings to prevent the danger of fire more effectively. There are no traces of bath buildings in the early turf and timber camps in either *Noricum ripense* or *Pannonia prima*. Military baths inside forts are confirmed since Neronian times, as soon as structures were built of stone. Inside legionary fortresses the exact location of bath buildings is quite diverse at first. Later, a standard placement in the right *praetentura* was introduced. No standardized design exists for those baths. Their varied layout was derived from civilian baths. From the Flavian period onward, baths were also considered essential at auxiliary forts. The location of baths inside those forts is rare. They were usually built outside, but close to the fort, using the so-called row-type design: rooms for the main bathing process were built in a row: from *frigidarium* to *tepidarium* to *caldarium*.

In *Noricum ripense* and *Pannonia prima* a total of 13 military bath structures are known to date (Fig. 1). These are baths, parts of baths, or structures interpreted as the remains of baths, which are situated within the military installations or outside, but close by.

Fig. 1 - Map of the Limes section of *Noricum* and western *Pannonia*; the places discussed are indicated in red (R. Ployer, BDA)

Passau/*Boiodurum*, fort (Fig. 2)

The approximately 1.3 ha fort of *Boiodurum* was built as a turf and timber camp in about AD 90 and was rebuilt in stone in the 2nd century AD.[1] The bath is situated directly south of the *porta principalis sinistra*, about 75 m from the walls and about 40 m from the third and outermost ditch.[2] Its location, therefore, indicates a close connection to the fort.

The remains of a 21 x 7 m building are known, which probably extended further to the west. The rectangular, row-type structure was divided into at least four rooms, three of which were excavated.[3] The third room to the west had a semicircular apse. Pottery finds indicate that the bath was built during the 2nd century AD. A similar structure at the fort of Schlögen proves the structure's use as a so-called row-type bath. The bath and the fort may have been destroyed during attacks of the *Alemanni* between AD 240 and 250. The remains were removed towards the end of the 3rd century AD and the building material was re-used.[4] One significant find is a round golden fibula with a blue glass inlay, dated to the 3rd century AD and said to be of Germanic origin.[5]

Oberranna, fortlet (Fig. 2)

The Late Antique fortlet or *Quadriburgus* of Oberranna is a nearly square building. It measures approximately 28 x 28 m with four round corner towers of different diameters.[6] A small courtyard was located in the middle of the 18 x 18 m core structure. The western tower is bigger than the others and was used as a bath.

The *caldarium* with *hypocaustum* and *tubuli* was located in the west room, and the *praefurnium* was placed outside the tower towards the west. The east room was used as a *frigidarium* and had a built-in *piscina*. It also contained three stone benches. The *piscina* was built into the wall, thus indicating that the bath had originally been planned as part of this structure. A lead pipe was used for drainage. The floor pavement consists of a variety of mostly re-used tiles and bricks. Both rooms were connected by a door.

Most of the previously found artefacts are clearly older than the *burgus* itself. This indicates that there may have been a building that preceded the one we know of.[7] The only find directly connected with the known bath structure is a coin: a 4th century AD *follis* minted during the reign of Constans which was found in a drainage pipe.[8]

Schlögen, fort (Fig. 2)

Built around AD 170, the fortlet of Schlögen measures just under 0.8 ha and probably housed a garrison of 100 to 150 men.[9] To date, no traces of a bath have been found inside the structure which measures approximately 110 x 70 m. A bath measuring 14.9 x 6.15 m was found in the *vicus*, located about 250 m west of the fortlet. The bath, with its three consecutive rooms, is another example of the row-type bath with an elongated, rectangular layout.[10] The southern room was the *frigidarium*, and it contained a *piscina* and had two apses: one facing south and the other facing west. The *tepidarium* and *caldarium* were located to the north and were divided by a wall containing a heating channel. Another apse is located on the west side of the *caldarium*. The *praefurnium* is situated to the north. The bath building was erected between AD 130 and 150 and was used for about 300 years.

Recent excavation reports state that a great deal of pottery was found, such as *terra sigillata*, coarse wares such as mortars, as well as some finer table wares.[11] As the small finds have not yet been published, no further information is currently available. Unfortunately, none of the finds discovered in the 19th century can be linked to the baths, because the exact location of the findspots was not recorded at that time.

Linz/*Lentia*, fort

Lentia provides an example of a bath located outside the fort. In 1927 and 1930 excavations were carried out on the grounds of the Wimmer printing company located between the Promenade and Steingasse streets. Two or three buildings can be reconstructed from the walls that were exposed.[12]

To the north is the apse (A), under which an older cellar was discovered. This paved apse belonged to a structure which continued to the north. The apse had already been interpreted by the excavator, Paul Karnitsch, and later by Christine Ertel as belonging to the bath of the Roman fort, and both assumed that it was located within the fort.[13] However, recent excavations allow for the reorientation of the previously, and not clearly, proven fort of Lentia.[14] As a result, the apse of the bath is now considered to be located outside the fort, toward the west. Only one find is recorded: an arrowhead which was found on the floor in the apse.[15]

Enns/*Lauriacum*, legionary fortress (Fig. 2)

The legionary fortress of Lauriacum measures 20.5 ha (534 x 396 m) and has the shape of a parallelogram.[16] It was constructed at the end of the 2nd century AD. The internal buildings extend to five *scamna* of 90, 112, 90, 60 and 100 m in length, respectively. The second, 112 m long *scamnum* located in the northwest part of the fort contains the *valetudinarium* and at least two other buildings. A large part of the bath complex occupied the southeastern area of this *scamnum.* The 59 x 58 m bath building is connected to a 2.500 m² *basilica thermarum*. Together, the entire bath complex covers an area of nearly 6.000 m².

The bath at *Lauriacum* is the largest known bath complex in the province of *Noricum* and is classified as a parallel row-type bath, with a sequence of *apodyterium* (room G, 12 x 36 m), *tepidarium* (room C, 12 x 21 m), another *tepidarium* or *caldarium* (room B, 12 x 21 m) and *caldarium* (room A, 16 x 21 m).[17] Heated water basins were situated on the west side of the last three rooms. In room C the basin was located in an apse; in

[1]Moosbauer 2015, 132
[2]Niemeier 2000, fig. 2; Moosbauer 2015, 131 fig. 69
[3]Niemeier 1998; Niemeier 2000, 67–69 fig. 10
[4]Niemeier 1998, 93–94; Niemeier 2000, 70
[5]Niemeier 1998, 93–94 fig. 77; Niemeier 2000, 70–71 fig. 14
[6]Ployer 2018a, 20–21; Traxler, Klimesch 2018, 223–226
[7]Traxler, Klimesch 2018, 223
[8]Excavation report, archive of the Federal Monuments Authority
[9]Ployer 2018a, 22–23; Traxler 2018a, 209
[10]Traxler 2018a, 211–214
[11]Klimesch, Reitberger 2017, 302–304.
[12]Karnitsch 1952, 422–430 pl. 1. 2; Ertel 2005, 70–71
[13]Karnitsch 1952, 420–477; Ertel 2005, 72 plan 4
[14]Ployer 2018b, 733–734 fig. 1
[15]Karnitsch 1952, 422–423 pl. 3 no. 4
[16]Groh 2018, 34–35 fig. 34. 43; Ployer 2018a, 34–41 fig. 10. 11
[17]Vetters 1953, 50–51 fig. 24; Groh 2018, 84 fig. 88

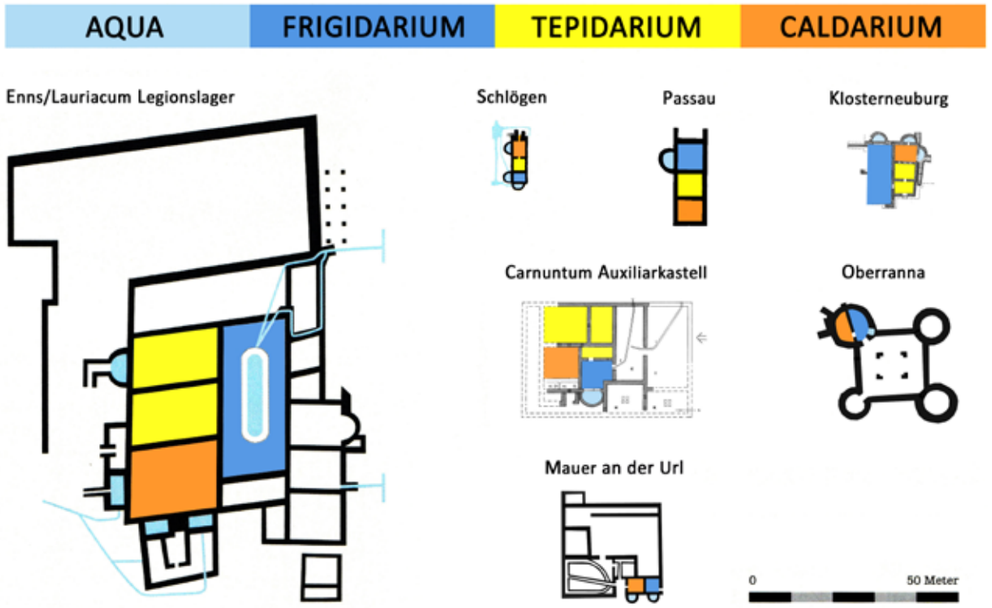

Fig. 2 - Layouts of the bath buildings belonging to legionary fortresses, forts and fortlets (R. Ployer, BDA; templates: Traxler 2018b, 221; Traxler – Klimesch 2018, 225; Niemeier 2000, 68 fig. 10; Egger 1962, 326 fig. 1; Philipp 1997, 27 fig. 2; Ployer 2018a, 21 fig. 2; Groh 2017, 105 fig. 6)

rooms A and B the basins were located in two square annexes. The basins in rooms A and B were drained by a sewer, which was connected to the fortress' main sewer located under its main road. Heated rooms flanked the large *frigidarium* (room H, 36 x 15 m) which also contained a *natatio* measuring 20 x 4 m. A latrine was discovered in the north corner of this bath complex. The *praefurnia* were added to a yard located outside the bath to the south and southwest. A 5 x 3 m solid stone block found to the south was probably the base of a water tank.

Later, another smaller bathing facility was added on the northeast side of the baths. This area was also interpreted as a living space for the stokers who tended the *praefurnia*. The other rooms on the northeast side were probably recreation and storage rooms. At least three construction phases are known for this bath.

Similar baths can be found in the legionary fortresses of Ločica (Slovenia) and Potaissa (Romania).[18] It is a style that first appeared in the late 2nd century AD.

Groller lists a huge number of finds for this bath complex, such as military equipment, lamps, coins, pottery, *fibulae*, jewellery and even hair pins.[19]

Mauer an der Url, *castrum* (Fig. 2)

The site is situated about 10 km south of the Danube River and it is probably a *mansio*, or a settlement with defensive installations dating to the 2nd century AD. It was re-purposed as a *castrum* in the middle of the 3rd century AD.[20] The layout is slightly trapezoidal with massive round towers at each corner. The west and east sides have gates with horseshoe-shaped towers and other half-towers. The longer north and south sides have rectangular towers. At least 15 buildings

[18]Groh 2018, 83–86
[19]Groller 1919, 243–254
[20]Groh 2017, 87–92; Ployer 2018a, 58–59

have been identified along its east-west road, and one of these buildings is a bath.[21]

The building (Nistler Gebäude c = Groh Gebäude S1) located at the southwest corner of the *castrum* is described as having two phases: the first building phase had two rooms containing flue heating and *praefurnia* (rooms A, B, G). The second phase was a later alteration with a small bath (rooms C–F), which was not directly connected to the main living space. The whole building measured about 22 x 24 m (528 m²) with a long corridor, a rectangular annex, a 170 m² courtyard and another room to the north of it. The bath was accessed through the courtyard. Finds, such as a *pilum*, belt adornments, pottery and five coins are listed, but their findspots are unknown.[22]

Pöchlarn/*Arelape*, fort (Figs. 3-4)

The fort of *Arelape* was originally a turf and timber camp constructed in the last decades of the 1st century AD and subsequently rebuilt in stone in about AD 110.[23] Today, the northern part of the fort no longer exists due to erosion caused by the Danube River.

From 1913 onwards, evidence for a Roman bath was repeatedly recorded in the *vicus* located directly southeast of the fort. In 1951, during sewer work, the remains of the bath were found at a depth of three to four meters. A preserved, 1.4 m high, dry-stone building wall, measuring at least 10.6 m long, was also uncovered.[24]

According to the unpublished excavation documents from 1913, this discovery could be part of a bath complex. The excavated remains were photographed and drawn, and then back-filled.[25] Finds from these excavations consisted of pottery sherds (partly with *graffiti*), *terra sigillata*, arrowheads, an iron knife blade, and Kelheim stone slabs. During sewer work in 1951, the screed layer of the bath building was uncovered. Coins, a glass jar, a bronze button with enamel insert (disc brooch), a key, pottery, including *terra sigillata* from Lezoux, and a brick with stamp of the *LEG II ITA* were also found.[26]

Mautern/*Favianis*, fort (Fig. 5)

At Mautern/*Favianis*, the earliest turf and timber camp was erected at the end of the 1st century AD. It was rebuilt in stone by the mid-2nd century AD.[27]

In 2008 a bath building was partially excavated north of the *via principalis*.[28] There was a massive semicircular apse with *tubuli* to the south facing the *via principalis*. The apse was 1.4 m high and had *tubuli* used for panel heating inside. The terrazzo flooring had some traces of being burned, and the lower-lying substructure of the *hypocaustum* remained in situ. The hydraulic mortar at the wall-floor-juncture was also preserved, and fragments of wall paintings were found deposited during renovation, so that at least two to three building phases can be confirmed. The bath was built during 2nd to mid-3rd century AD. North of the building, a Roman-era sewer was found in the 1950s, together with fragments of wall paintings still in situ on a wall.[29]

The bath of the auxiliary fort at Carnuntum is comparable to this one. An *ala* was stationed there as well, and the scale and proportions of the two forts are similar.[30]The placement of the bath within the fort occurs at both and the type of bath may also be similar.

The finds do not indicate any specific use or group of persons using the bath complex. Since the building is preserved as it was found, the *hypocaustae* were not excavated. All catalogued finds come from strata

[21]Nistler 1909, 124 fig. 57; Groh 2017, 82. 105 fig. 6
[22]Nistler 1909, 131–136
[23]Ployer 2018a, 64–67
[24]Wais 1952, 176
[25]Excavation report, archive of the Federal Monuments Authority
[26]Wais 1952, 176–177
[27]Ployer 2018a, 84–91
[28]Steigberger 2012, 89–95
[29]Gassner *et al*. 2000, 32 (Fundstelle A3)
[30]Cf. Zimmermann *et al*. 2007, 595

Fig. 3 - *Pöchlarn/Arelape*, photo from the excavation in 1913 (Archive BDA)

dating to periods after the baths were no longer used, or are from strata outside the baths but dating to the time of its use. Only pottery, tile, stamped bricks and fragments of wall paintings were found.

Traismauer/*Augustianis*, fort

In Traismauer/*Augustianis* a turf and timber camp dating to the Flavian period can be confirmed. It was rebuilt in stone late in the 2nd century AD.[31] During various modern construction works, a bath was partly uncovered in the *vicus* located immediately east of the *porta principalis dextra*. Until 1964, part of the bath was used as the cellar of an old post office building. During sewer works in the late 1960s, four rooms, with partial brick pavements, and a sewer, as well as rooms with hypocausts and terrazzo pavements, were uncovered. According to an unpublished report in the archives of the Austrian Federal Monuments Authority, the bath must have been a row-type construction.

Only a few small finds are known, including a 20 cm long, lead dovetail clamp, an architectural fragment, a coin dating to the reign of Constantine the Great (AD 306–337), a bronze, dolphin-shaped handle, and pottery fragments. Bricks with the stamp of the *LEG XIV GMV* and brick tiles were also found.

Klosterneuburg, fort (Fig. 2)

In Klosterneuburg, the 1st century AD turf and timber fort was rebuilt in stone during the early 2nd century AD. The bath originally had two apses and was located in the *retentura,* near the southern edge of the fort.[32] It was rebuilt several times until Late Antiquity. The structure had three heated rooms which are identified as building A.[33] Room I of building A is the *caldarium*; it was enlarged by two apses. In front of the lateral apse is the *praefurnium* (this is also because there would otherwise have been insufficient space for passing between the fort wall and the bath building). The adjoining room II is identified as the *tepidarium*, which was additionally heated from room III, whose *praefurnium* is located on the northwest side. The only access to the bath was also located here. So far, no traces of the water supply and drainage structures have been identified.

The unheated building B follows building A to the northeast. Since no room divisions are recognizable, building B should be interpreted as a multi-purpose

[31]Ployer 2018a, 96–99
[32]Ubl 1997, 237 fig. 87. 239; Ubl 1992, 63–66; Philipp 2005, 326
[33]Egger 1962, 326 fig. 1; Ubl 1992, 64 fig. 21. 22; Philipp 2005, 326–327 fig. 1

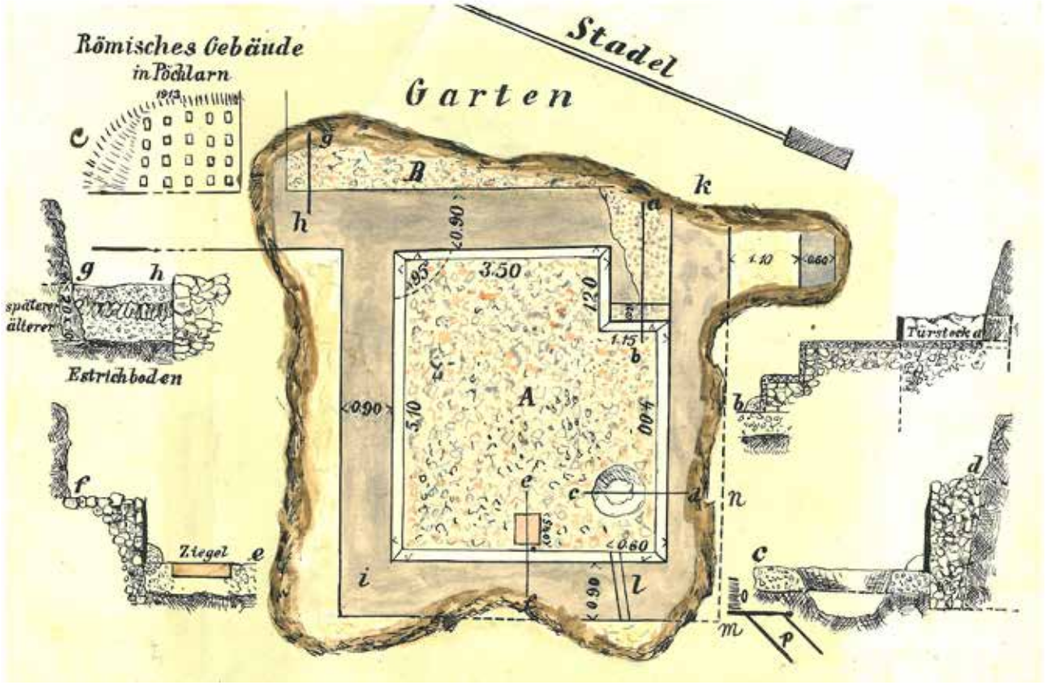

Fig. 4 - *Pöchlarn/Arelape*, excavation drawing from 1913 (Archive BDA)

room, which probably combined the functions of a *frigidarium* and a recreation room. A *piscina* was probably located in the apse on the southeast side. The northern part of the building is disturbed by a later cemetery.

Overall, two construction phases could be determined.[34] The older building A was erected at the end of the 4th century AD. After a fire, renovation work was done in the early 5th century AD. The building was no longer used as a bath by the 5th century AD at the latest.

The finds were mostly pottery sherds dating to the 4th century AD, which point to a Germanic occupation. In building A, a bronze *Lar* statuette was found. Bricks of the OFARN group are known from the late 4th century AD reconstruction work.

The bath of the Klosterneuburg fort belongs to the variant of a longitudinally divided block-type, which occurs mainly in the provinces on the Lower Danube.[35] The rooms of this type of bath are arranged on either side of a hall running the length of the structure. This longitudinal axis separates the hot and cold rooms. The heated part of the structure always consists of a series of three rooms, which occupy a smaller area than that of the unheated rooms. A compilation of this type of fort bath on the Lower Danube was created by Manfred Philipp.[36]

***Wien/Vindobona*, legionary fortress**

The legionary fortress at Vindobona was built around AD 97 on a tributary of the Danube River.[37] Measuring about 400 x 500 m, it was approximately 18.5 ha in size.

[34]Ubl 1992, 66
[35]Philipp 2005, 328–330
[36]Philipp 2005, 329–330 fig. 2
[37]Kronberger, Mosser 2015, 242

The bath measured about 100 × 66 m, and was situated in the *praetentura* of the fortress. It was apparently in use until Late Antiquity.[38] It was equipped with a *frigidarium*, a *tepidarium*, a *caldarium*, a *sudatorium* and a courtyard. The bath was probably built over the ruins of a *horreum*. During construction work in the 1960s wall segments of an apse in the *caldarium*, as well as sewers were uncovered. The ruins of the bath structure were changed into a fortified settlement, or castle, as of the early Middle Ages.

Carnuntum, auxiliary fort (Fig. 2)

The auxiliary fort of Carnuntum is one of the best-researched forts on the Norican-Pannonian Limes. It is situated on the western edge of the *canabae* and was able to accommodate an *ala quingenaria*.[39] The early fort was a turf and timber construction, and aligned with the legionary fortress. It was about 4 ha in size, measuring 178 x 225 m. The second phase had the typical layout rotated to 90° and was slightly smaller than before. The only stone building known is the bath, which has three construction phases.[40] The type of the building belongs to one of the hitherto unspecified bloc-types. During a later phase, dating to about AD 200, the layout and construction of the bath were altered.[41] This last phase indicates a 5 m wide apse in the *frigidarium*, thus making it similar to the one at Mautern with its 4.8 m wide apse.

How long the bath was in use remains unknown; however, the walls of the bath still existed around the middle of the 4th century AD.

Finds tell us little about the structure's use, since the documentation leads to the conclusion that the bath was cleared out and anything of any value was removed.[42] The only things which remained were bricks, tiles and pottery sherds.[43]

Carnuntum, legionary fortress

The earlier turf and timber camp of Carnuntum's legionary fortress was constructed during the Claudian period, and rebuilt in stone in the 70s AD.[44] The legionary fortress measures about 17.5 ha (207 x 177 m).

There is no concrete evidence for the bath building itself, because the northern part of the fortress has been destroyed due to erosion caused by the Danube River. According to one assumption, the bath was located in the northern section of the fortress, north of the *principia*, somewhere between the *via praetoria* and the *via principalis*.[45] In 1901 Groller reported that large-scale destruction of large Roman *hypocaustae* and flooring had taken place during the construction of a house in the 19th century.[46] He described preserved walls that were 3 m thick and up to 4 m high, and foundations deeper than 2 m which were constructed of large ashlar blocks.

Analysis and conclusions

The situation is rather bleak regarding finds and distinctive objects linked to the use of the baths, or of the people using these facilities. There are very few documented finds for the baths excavated in earlier years. Better documentation exists for the more recent excavations, but they also yield very few items. This might be the result of the ongoing use of bath buildings for other purposes and therefore an organized cleaning, or removal, of all that was considered non-essential (the rubbish).[47] Some bath buildings were used as living quarters during Late Antiquity. This change in purpose or destination was a rather common occurrence throug-

[38]Kronberger, Mosser 2015, 246 fig. 152 no. 8. 249
[39]Kandler 2008, 12–31
[40]Philipp 1997, 26–42; Kandler 2008, 19
[41]Kandler 2008, 27–28
[42]Philipp 1997, 43
[43]Kandler 2008, 30
[44]Gugl 2015, 280–282
[45]Gugl 2015, 218 fig. 180
[46]Groller 1901, 74 pl. III
[47]Philipp 1997, 43

Fig. 5 - *Mautern/Favianis*, apse with tubuli and a smaller apse from a later period (E. Steigberger, BDA)

hout the Empire, since the buildings were solidly built and had heating, which was sought after.[48] In the case of Mautern/*Favianis*, we know of its subsequent use as a church.

There is no indication whatsoever that baths inside the military installations were restricted to soldiers, but there are also no indications regarding the military using baths located outside but near forts. Only in three cases (Enns, Linz and Pöchlarn) are finds of military equipment documented from the baths directly – namely lances, arrowheads, and part of a sword hilt. Those finds might just reflect the usual immediate vicinity of a military installation. We can assume that eating and drinking was done inside military baths, because the finds indicate dishes for this, though not for cooking. Exercising might not have been such an issue, since the military did a lot of training all the time. Room for taking some exercise existed in the larger bath houses. Consulting a doctor in all cases concerning soldiers might have happened in a *valetudinarium* which was there solely for that purpose; it is therefore not apparent if there was a need to do so in the baths.[49] In the archaeological record nothing has survived that indicates recreation of any sort: no small finds, no murals, and no inscriptions – we simply do not know. Four hair pins were located in the baths at *Lauriacum*. But, it is not certain whether this indicates female use of the facilities, or not.

The location of bath buildings inside the forts varies. All three bath buildings inside legionary fortresses in *Pannonia* (*Vindobona* and *Carnuntum*), and in *Noricum* (*Lauriacum*) are situated in the northeast part of the fortress, the *praetentura*. For other military installations in *Noricum* the situation is quite different, since the baths occur in the western half of the fort only. In *Pannonia* the baths at Klosterneuburg and Carnuntum (auxiliary fort) are located in the *retentura*, or southern part of the fort. The bath located at Oberranna is unique in all ways as it was located in the western tower of the fort, and was dated to a much later period.

The bath buildings located outside the forts all seem to have a very close connection to the fort, since they are all situated close by: two are located west of the fort, two are to the east, and one is to the south. They all lie alongside the road leading to or from the fort.

At Schlögen it might be that there simply was not enough space to build the bath inside the fort. As the bath in the *vicus* is quite far away from the fort, it is possible that a bath was built closer to the fort which remains unknown.

There are indications that the size of the baths was adapted to the size and character of the troops stationed at these different facilities. There is only a small variation in size for the baths located in the three legionary fortresses. At *Vindobona* 6.600 m² are confirmed; while nothing is known for sure at *Carnuntum*, a similar space would easily have been available in the missing part of the fortress. The bath in the legionary fortress at *Lauriacum* in *Noricum* measures 3.422 m² in addition to a large, 2.500 m² courtyard, thus amounting to almost 6.000 m² which is similar in size to *Vindobona's* bath. There is, therefore, no significant difference between the legionary fortress baths in *Noricum* and *Pannonia*.

Baths associated with the smaller military installations are much more difficult to assess. Most of the structures interpreted as bath buildings were only partially excavated, so their size remains an educated guess, at best. There are only four examples where we can at least guess: two with exterior bath buildings, and two with baths located within the forts. Bath buildings located outside the fort vary from slightly under 100 m² at Schlögen to about 150 m² at Passau/*Boiodurum*. The ones located inside are similar to one another, yet only the one at *Carnuntum*/auxiliary fort has been excavated to a larger extent. It measures approximately 1.218 m². The one at Mautern/*Favianis* seems to be the same type, and as the few excavated and preserved remains correspond exactly with the layout of the bath at *Carnuntum*; it is therefore estimated to be about the same size. The bath at Klosterneuburg is partly excavated and seems to measure only about 216 m²; it is therefore significantly smaller than the ones at Mautern and *Carnuntum*. The reason for this might be the dating of the building. The Mautern and *Carnuntum* baths are from the Imperial period, while the Klosterneuburg bath is part of the Late Antique fort and built in a very different style to the fort itself. The newly re-excavated bath at Oberranna is the "special case" – or exception to the rule as it is the only one in a tower, and measures only about 50 m².It was therefore the smallest, and also probably the most recent one since it dates from the 4th century onward.

It seems, therefore, that size does matter. Legionary fortresses are more likely to have baths inside the fortress than any other military installations. The bath buildings are bigger, as they have to accommodate at least three times more users. Smaller auxiliary forts with interior baths tend to have baths about one-fifth the size of the legionary examples. And only the ones at Late Antique period forts or fortlets have small bath buildings – thus adjusted to the smaller garrison. In considering whether the baths were used on a daily basis we might be imposing our modern views of life. The sizes of the baths, however, would certainly allow daily use with strictly regulated times; but did they really regulate the use of baths in that way? We have to consider regulated duties that took a number of men away on patrol, out on guard duty, and maintenance duties, for example. In general it seems that while the daily use of baths might be possible, the military schedule would make this rather difficult.

With the limited available data it appears there is no link between the differences in bath types and the sort of fort the baths were attached to; there is no distinctive preference for any one particular type. So far, mostly row-type bath buildings are known, whether placed outside, such as at Passau and Schlögen, or inside, such as at the legionary fortress of *Lauriacum*. Two block-type baths are known at *Carnuntum* (auxiliary fort) and at Klosterneuburg; if Favianis is included there are three.[50] This remains inconclusive with the data available at the moment. The construction of the baths might not have been too difficult if someone there knew how to go about planning and building such structures. We know of trade-specialization in the Roman army, so this might not have been too challenging. Based on the archaeological evidence, however, it remains impossible to determine whether special corps were employed to do this work. While construction of the buildings is similar in regard to the building-types and materials used, they do not reveal the distinctive traces which would identify one unit doing all the work. In addition, the remains, which are rather poor in comparison to other provinces, provide no hints of civilian contractors, since the building material used was usually there already. The only possible indication would be the exclusive use of either civilian or military bricks and this cannot be ascertained. The same situation exists for differences in military and civilian bath houses. Other than the size and location – the only truly identifiable civilian baths are those of *villae* and town houses. These are very similar, because they also are rather poorly preserved. We do know that all of them had some sort of wall-painting decoration, tiling and heating; the "wealthier" baths also had marble decoration, mosaic pavements or *piscinae.*

The results of this analysis show that little can be confirmed from the rather meager data sample of just 13 baths in the two provinces which is currently available. We hope that future research will provide further evidence of baths in military contexts.

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[48]Cf. Scholz 2018, 141–157

[49]See also Vetters 1953, 53: bath and *valetudinarium* at least in Lauriacum were in immediate vicinity.

[50]Philipp 2005, 328–329

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Zusammenfassung

Entlang des Donaulimes sind in den Provinzen *Noricum ripense* und *Pannonia prima* insgesamt 13 Legionslager, Kastelle und Burgi bekannt, wo Bäder (oder Teile davon) inner- oder außerhalb dieser militärischen Anlagen nachgewiesen sind. In vorliegender Abhandlung werden diese Bäder und das in ihnen entdeckte Fundmaterial kurz erörtert. Weiters werden die Grundrisse, die Größen und die Lage der einzelnen Bäder miteinander verglichen. Während bei Legionslagern die Bäder stets innerhalb der Lagermauern in der *praetentura* zu finden sind und etwa von gleicher Größe sind, können sie bei Kastellen sowohl inner- als auch außerhalb liegen und sehr unterschiedliche Größen aufweisen. Ab dem 4. Jahrhundert n. Chr. sind die Badegebäude in den militärischen Anlagen kleiner ausgeführt und auch das Fundmaterial aus der Zeit der Benutzung der Badegebäude ist gering, da die meisten von ihnen in der Spätantike ausgeräumt und anderswertig genutzt wurden.

LIMES XXIIII

Session 34

Roman Egypt

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Babylon of Egypt: The reconstruction of the Diocletianic fortress

ABSTRACT

This paper is dedicated to the virtual reconstruction of the Late Roman fortress of Babylon, located in the district now known as Old Cairo. The fortress is mentioned in the Déscription de l'Égypte, and has been explored and recorded since the end of the nineteenth century. From the 1990s onwards archaeological investigations have accompanied conservation work and the lowering of the groundwater level in the area, and the results of this work and its importance to the origins of the city of Cairo have been published.

Babylon was a typical Diocletianic fortress for comitates; Legio tertiadecima gemina may have been quartered here. However, it displayed a number of unique features:

- it was constructed over the earlier Trajanic-era stone harbour at Babylon where the Amnis Trajanus joined the Nile. The entrance to the canal was flanked by the massive round towers of the Diocletianic fortress.
- archaeological and historical evidence indicates that a bridge over the Nile led to the western gate of the fortress.
- the massive size and strength of the fortifications were much more solid than those of any other Diocletianic fortresses in Egypt, which might be explained by the strategically important position of Babylon at the apex of the Nile Delta.

The recent archaeological work has shown that much of the southern part of fortress survives today below ground. Above ground the southern gatehouse is preserved largely intact, with the Coptic 'Hanging Church' (Al-Mu'allaqa) built over it. The two round towers also survive, one of them within the Greek Orthodox Church of St. George (Mari Girgis)

The aim of the reconstruction is to show the architectural and constructional peculiarities of the southern gatehouse and of the round towers flanking the Amnis Trajanus, and also to present the possible view of the fortress from the Nile.

Key Words: Old Cairo, reconstruction, Late Roman fortress, Tetrarchs, Egypt.

Introduction

The paper is dedicated to the virtual reconstruction of the Late Roman fortress of Babylon in Old Cairo[1]. Its aims are to classify the corpus of the sources, to present the reconstruction and to show the connection between each source and the reconstruction's argumentation.

The fortress is located in the district now known as Old Cairo in the southern part of modern Cairo, close to the ancient Nilometer. It was mentioned and described in a few sources from the 18th century. The first is the description and drawing by Richard Pococke[2]. The most detailed description was done by the French Napoleonic expedition and published in the *Déscription de l'Égypte*[3]. The drawing from "Illustrations of Cairo" published in 1840 by Robert Hay[4] (Fig. 1) also gives detailed information about the South Gate's state of preservation in the middle of the 19th century. The fortress has been further explored and recorded since the end of the 19th century[5].

From the 1990s onwards archaeological investigations have accompanied conservation work and the lowering of the groundwater level in the area[6], and the results

of this work and explanation of its importance for the origins of the city of Cairo have been published by Peter Sheehan[7].

The aim of the reconstruction is to show the architectural and constructional peculiarities of the best-preserved parts – the southern gatehouse and the round towers flanking the Amnis Trajanus, which led to the Red Sea. During the reign of the Emperor Trajan, the entrance to the ancient canal linking the Nile to the Red Sea was shifted to Babylon and a stone harbour with massive embankments constructed there[8]. Under Diocletian this entrance to the canal from the Nile was enclosed within a massive fortress[9].

Just as in Luxor[10] and Nag el-Hagar[11] U-shaped towers at Babylon were set along the walls, and the corner towers were square. Inside there would have been a regular layout of streets, as is usual in Roman fortresses. From the western gate a bridge led to the other bank of the river[12].

The fortress of Babylon was laid out in two parallel enclosures on either side of the canal (Fig. 2). In the centre of the south wall of the eastern enclosure there is a well-preserved gatehouse, above which the Coptic "Hanging Church" (*Al-Mu'allaqa*) was later constructed. The southern half of another gate set in the centre of the eastern wall of the fortress also survives above ground[13]. In the southwestern wall there are two round towers, flanking the junction of the Nile and the canal, on one of which now stands the Greek Orthodox Church of St George (*Mari Girgis*). It is possible that where the canal passed through the northern wall of the fortress, there used to be similar round towers.

[1]The research was created by the team from Moscow Institute of Architecture and British archeologist Peter Sheehan.
[2]Pococke 1734. Unnumbered figs: View of granary in the Coptic quarter of Cairo. Plan of Roman fortress in the Coptic quarter of Cairo. Plan of the tower of the fortress (C). View of Roman fortress (B).
[3]DÉ, T.5, Pl. 20.
[4]Hay 1840. Unnumbered fig: Gate at the Roman fortress of Babylon, today in the Coptic quarter of Cairo.
[5]Butler 1914; Toy 1937, 1939.
[6]Grossmann *et al*. 1994; Lambert 1994, Sheehan 1996; Grossmann *et al*. 1998.
[7]Sheehan 2010.
[8]Sheehan 2010, 35–53.
[9]Sheehan 1996, 95; Sheehan 2010, 55–75.
[10]el-Saghir *et al*. 1986.
[11]Wareth, Zignani 1992.
[12]Sheehan 2010, 70.
[13]Sheehan 1994,14–16.

Fig. 1 - Gate at the Roman fortress of Babylon, today in the Coptic quarter of Cairo (Hay 1840)

We intentionally chose only these two parts for detailed reconstruction (Figs. 3-6), because there is not enough evidence to reconstruct the planning, configuration of buildings and number of levels for other parts. We think that for the central part of the fortress the schematic reconstruction done by Nicholas Warner[14] is currently enough.

All the sources used for the reconstruction can be divided into several groups, in order of decreasing reliability (Tab. 1). The reconstruction is provided with a visual scheme showing the connection between the details of the construction and the types of the sources (marked by different colors) on which we based our view (Figs. 4 and 6). Now we will examine each group of sources in connection with the reconstructed parts of the fortress.

The South Gate

The South Gate had a number of important features (Figs. 3 and 4), such as the posterns in the towers or walls, a fortified courtyard beyond the initial passage of the gate and others described below.

Unfortunately, earlier depictions of the fortress, for example, engravings from the *Description de l'Égypte*[15], were not of much help for the gate's reconstruction. However there is one exception. The depiction in the *DÉ* and the drawing from *"Illustrations of Cairo"* of a small symmetrical arcade above the portal of the southern gate suggest that in the 6th – 7th centuries the gate might have had a fourth level similar to the Aurelian Walls under Narses. This however seems quite controversial.

[14]Sheehan 2010, Fig. 27.
[15]DÉ, Tome 5, Pl. 20.

1.1		The surviving elements of the fortress with known dimensions, and up-to-date photo documentation (the part of the towers and the gatehouse above ground)
1.2		The surviving elements of the fortress discovered in the course of archaeological research (the foundations and the lower floors)
2		The architectural and constructional details recreated on the basis of the surviving elements of other parts of the fortress (the arrow-slits etc.)
3		Surviving *in situ* architectural elements (the capitals and the cornice)
4		The architectural and constructional details recreated on the basis of similar elements from other Roman fortresses (parapets)
5	SIMILAR TO 1.1	Drawings by the Comité de Conservation des Monuments de l'Art Arabe
6		Photographs dated to the end of the 19th – the beginning of the 20th centuries (the archive of the Comité de Conservation des Monuments de l'Art Arabe)
7		The engraving from Description de l'Égypte (DÉ) и and other historic images
8		The logic of construction

Tab. 1 - Sources used for the reconstruction of the fortress of Babylon

The surviving parts and the Comité's drawing show the presence of *portcullises*[16]. Traces of these devices are quite often discovered in Late Roman fortifications[17], but in Egypt they are very rare.

A number of sections of the Trajanic river bank survive which help to reconstruct its configuration, architectural and constructional features[18].

Let us consider the configuration of the arrow-slits. The eastern tower of the southern gatehouse has four openings of different sizes. The lowest opening and the second from the top are relatively small, while the topmost and the second from the bottom are much larger. We can suppose that the latter were arrow-slits and that the smaller openings served for lighting and ventilation. The last suggestion was proposed by Peter Grossmann[19]. Examples of windows set very high above the floor of a tower, which have no traces of a wooden floor set into the wall, are known both in Greek[20] and in early Byzantine architecture[21].

[16]In the first gate the inner reveal of the jamb of the arched doorway displays a groove for a portcullis that is marked on the plan of the fortress of the Comité drawn by Max Herz in 1902 (Sheehan 2010, 129, Fig. 69).

[17]The examples are the gates of the Aurelian Walls in Rome, the fortress of Dmeyr in Syria (Gregory 1997, Fig. E12.3), the fortifications of Iznik (Nicaea) (Schneider/Karnapp 1938, Taf. 13-14) and in Felix Romuliana which we visited during the congress excursion.

[18]Sheehan 2010, Fig. 19.

[19]Grossmann *et al*. 1994, 281.

[20]Lawrence 1979, 218.

[21]Lawrence 1983, 182.

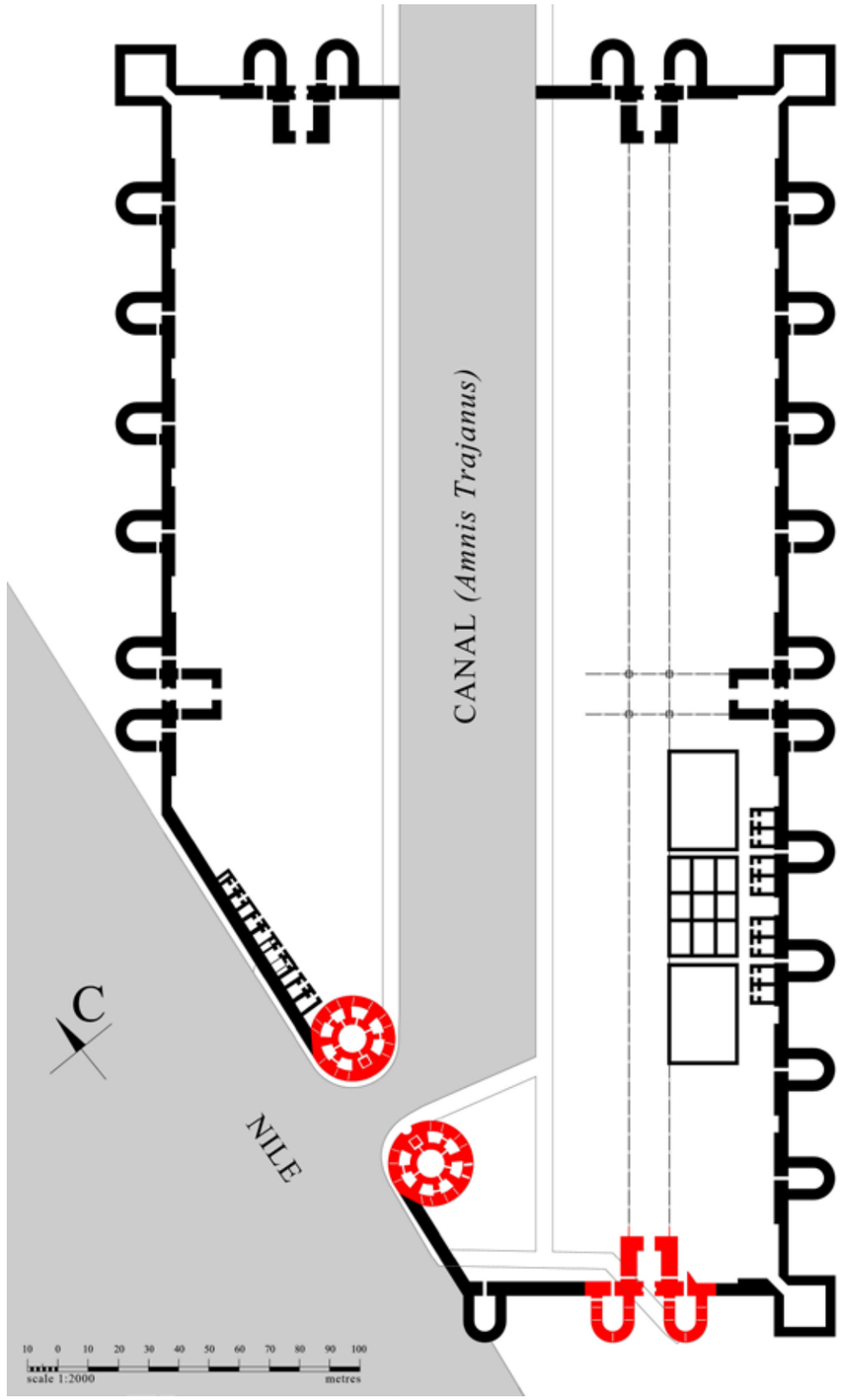

Fig. 2 - Plan of the Roman Fortress of Babylon and the entrance to the Amnis Trajanus. Late 3rd – early 4th AD. Drawn by D.K. (based on Sheehan 2010, Fig. 26)

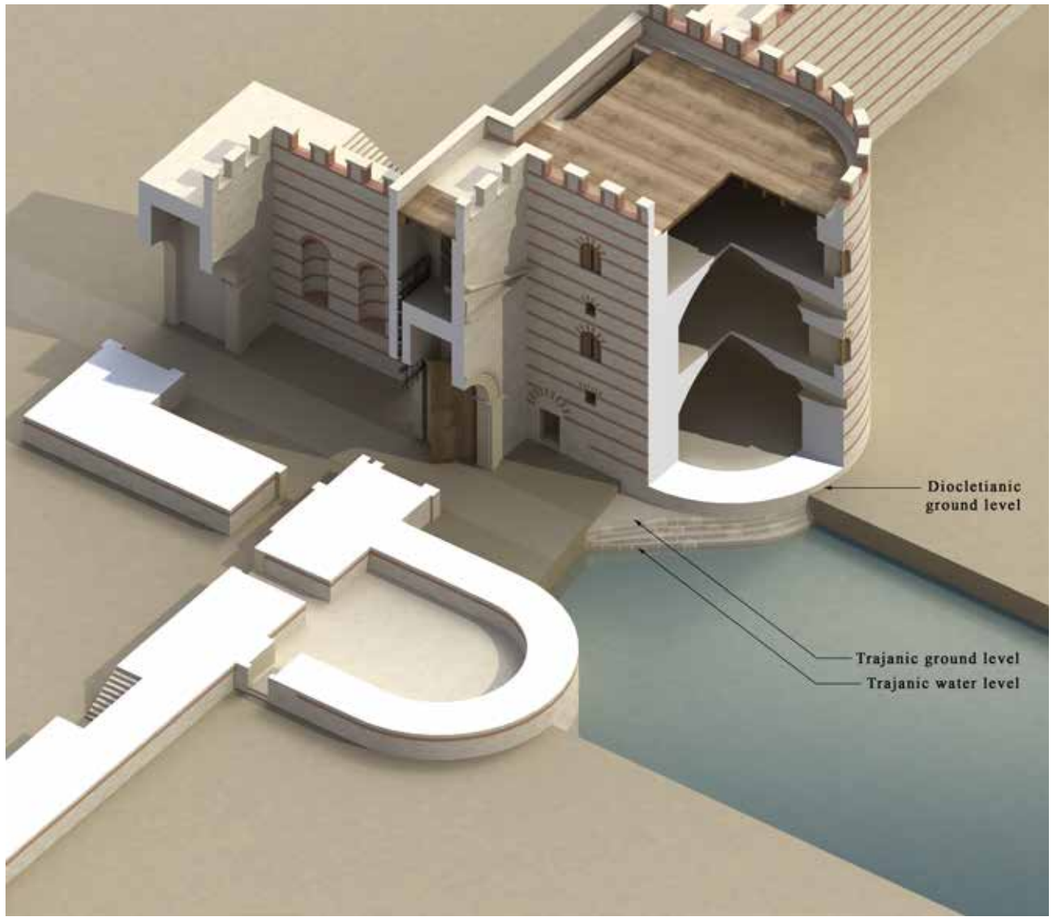

Fig. 3 - Reconstruction of the South Gate of the fortress of Babylon. Late 3rd – early 4th AD. Axonometric view. Reconstruction by the authors

Unlike the arrow-slits commonly used in the Roman Empire in the 3rd – 5th centuries AD[22] , these openings had practically no narrowing towards the exterior. This conclusion is based on the fact that the size of the surviving openings in the inner wall of one of the U-shaped towers in the eastern wall of Babylon[23] coincides with the size of the exterior openings in the towers of the southern gate. We might suggest that in the fortress of Babylon a soldier, while shooting, could be protected by a stone or wooden screen with a slit.

The portal of the southern gate at Babylon was framed with an archivolt resting on pilasters, and above the gate was a pediment decorated with a typical cornice created in the so-called Alexandrian style[24]. Such cornices were usually provided with distinctive narrow flat-grooved modillions alternating with square hollow modillions. It differs from more ornate cornices of the Roman Corinthian and Ionic orders.

[22]As an example we can take one of the arrow-slits of the lower floor of the *Porta Ostiensis*, as well as surviving analogies in the Near East (Gregory 1995, 154).

[23]Grossmann *et al*. 1994, 274, Fig. 4; Spence *et al*. 1994, Pl. 1.3; Sheehan 1994, Pl. I. 3.

[24]During the rule of the Ptolemaic dynasty an original antique school of architecture and sculpture was developed. J. McKenzie called it the Alexandrian school (McKenzie 1996, p. 130; McKenzie 2007, p. 80–118).

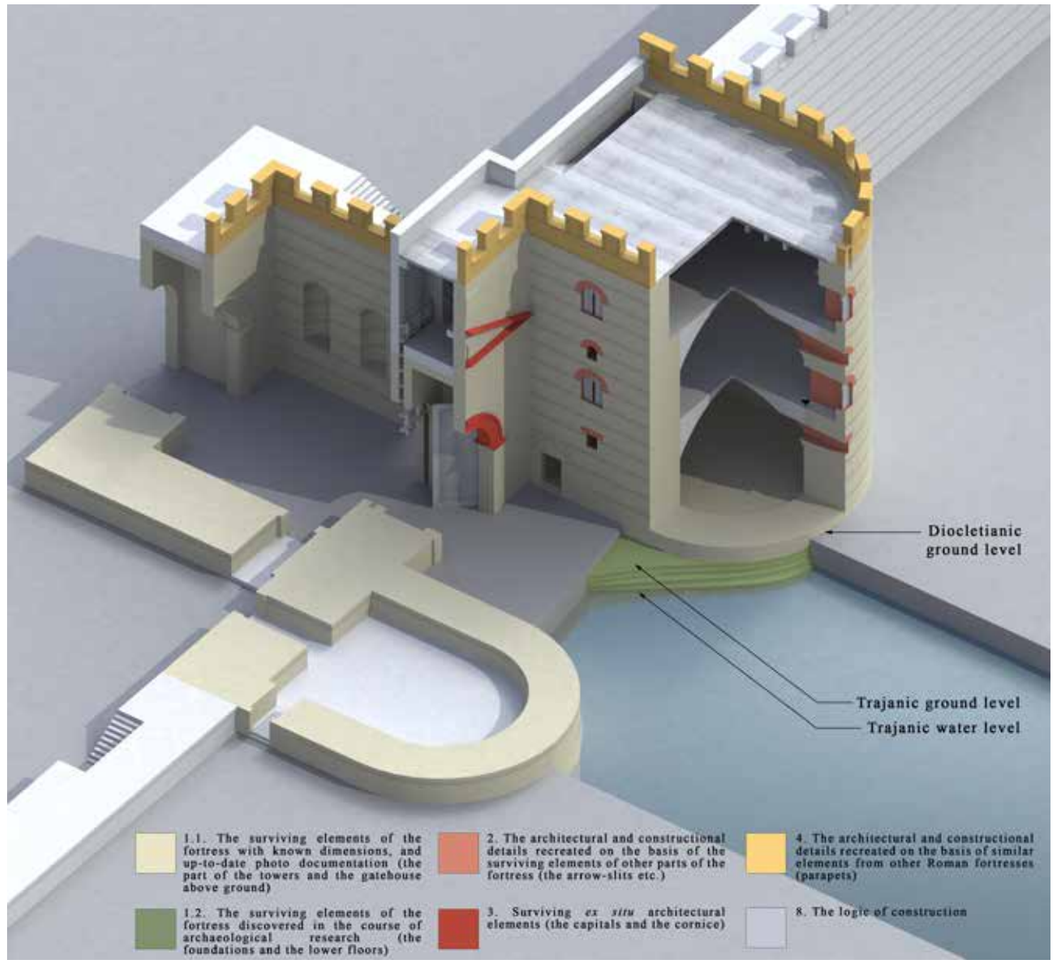

Fig. 4 - Reconstruction of the South Gate of the fortress of Babylon. Axonometric view. 3D-modelling with key showing connection between details of the reconstruction and their sources. Reconstruction by the authors

The next point concerns the parapets. Unfortunately, we could find only one clearly surviving parapet of Roman times in Egypt – in the fortress of *Maximianon*[25], which dates back to the beginning of the 1st – mid 3rd centuries AD. The wall to the east of Ben Ezra Synagogue at Babylon also preserves a section of the rampart walk with parapet[26], but we don't know the dimensions of the merlons. We can suppose how these parapets looked, judging by the examples from the other parts of the Roman Empire, which have been widely studied[27]. The surviving Late Roman examples of parapets show that their height was usually about 1 m, with the height of the merlons being also 1 m. The merlons were no less than 1 m wide and the embrasures between them could be of different sizes[28].

[25]Cuvigny 2003, 240–241, Fig. 77.

[26]Spence *et al*. 1994, Pl. 1.5; Sheehan 1994, Fig. I.10.

[27]Baatz 1983, 136–137.

[28]See more: Karelin *et al*. 2018, 382-383.

Fig. 5 - Reconstruction of the Round Towers of the fortress of Babylon. Late 3rd – early 4th AD. Axonometric view. Reconstruction by the authors

Round towers

It is difficult to find analogies in Roman military architecture of the 3rd – 4th centuries for the two reconstructed towers, flanking the entrance to the Red Sea Canal that ran through the fortress (Figs. 5-7). We can suggest therefore they were quite unique for their time.

Unlike the gate's reconstruction the old archive photographs have some significance for the reconstruction of the round towers. A few archive photographs[29] give us information about the interior of the central atrium and the upper levels of the southern round tower.

On the inner walls of the southern tower today, as well as in old photographs and technical drawings from the archive of the Comité[30], we can see the slots used for fixing beams, which suggest the tower was provided with wooden floors. In the outer façades of the towers facing each other across the canal there were also semi-circular alcoves where statues of Emperors or honorific columns may have stood. There may have been some sort of lock between the towers to retain the water level in the canal which was filled during the time of the Nile flood. The configuration of the Trajanic river bank was reconstructed from archaeological trenches and other investigations and can still be seen close to the southern gate.

The southern round tower has several surviving openings. We can see the same configuration of arrow-slits as elsewhere in the fortress. Another important detail is the lion-headed mooring stone, which was found during the archaeological monitoring project[31]. There are depictions of mooring stones like this on Trajan's Column in Rome[32].

[29]Sheehan 2010, Fig. 62, 68, 70.
[30]See more: Sheehan 2010, Fig. 62 and unpublished Comité section (1931).
[31]Sheehan 2010, 44, pl. 19.
[32]Sheehan 2010, Fig. 22.

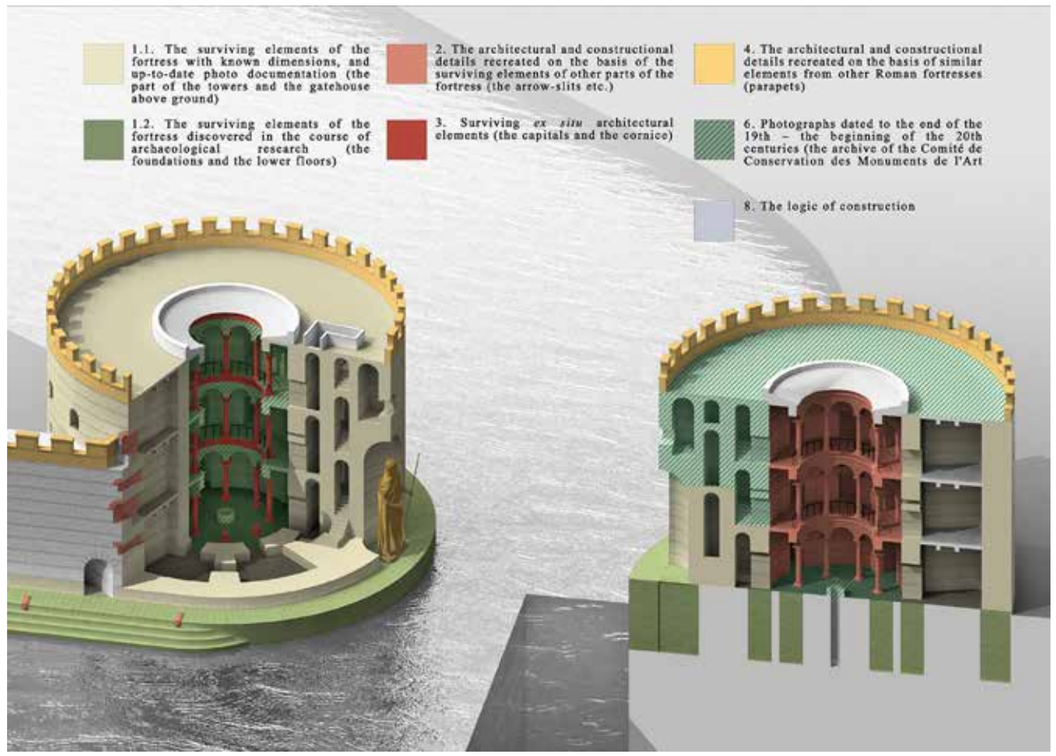

Fig. 6 - Reconstruction of the Round Towers of the fortress of Babylon. Axonometric view. 3D-modelling with key showing connection between details of the reconstruction and their sources. Reconstruction by the authors

There was a small atrium in the centre of each tower, framed by a circular arched colonnade (Fig. 7). Two capitals of the columns survived and were found during previous excavations in the tower[33], as well as some fragments of the cornice that probably surmounted the arcades. This cornice is very much like the one that topped the pediment of the southern gatehouse and also has the features of the Alexandrian style.

The configuration of parapets of these round towers should be the same as elsewhere in the fortress. The form of the large niches facing each other in the external facades of the towers gives the idea that they contained statues or columns. We have rejected the idea of the columns, because the niches were too low to contain columns of normal proportions. The alternative of standing or sitting statues seems more probable. We suppose these were statues of the Augusti (Diocletian and Maximian), while similar facing statues of the Caesars (Galerius and Constantius Chlorus) may have stood on the junction of the canal with the northern fortress enclosure. There are some analogies for such a depiction of the tetrarchs: the statues from the Vatican Museum and Venice, possible statues of tetrarchs and Jupiter from the niches of the Golden Gate at Split, the five-columned Diocletianic monument from the Forum Romanum, sitting statues of Constantine the Great from the *adlocutio* relief of the Arch of Constantine, the porphyry statue (bust) of a tetrarch (presumably Galerius) in the Egyptian Museum in Cairo[34], the porphyry statue of a man sitting on the throne from the Graeco-Roman Museum of Alexandria[35] that may

[33]Sheehan 2012, 37-38, Fig. 1, 10.
[34]CG 7257 (Strzygowski 1904, 6-7; Tiradritti 1999, 391).
[35]CG 7256 (Strzygowski 1904, 3-6; Tiradritti 1999, 17, Fig. 24).

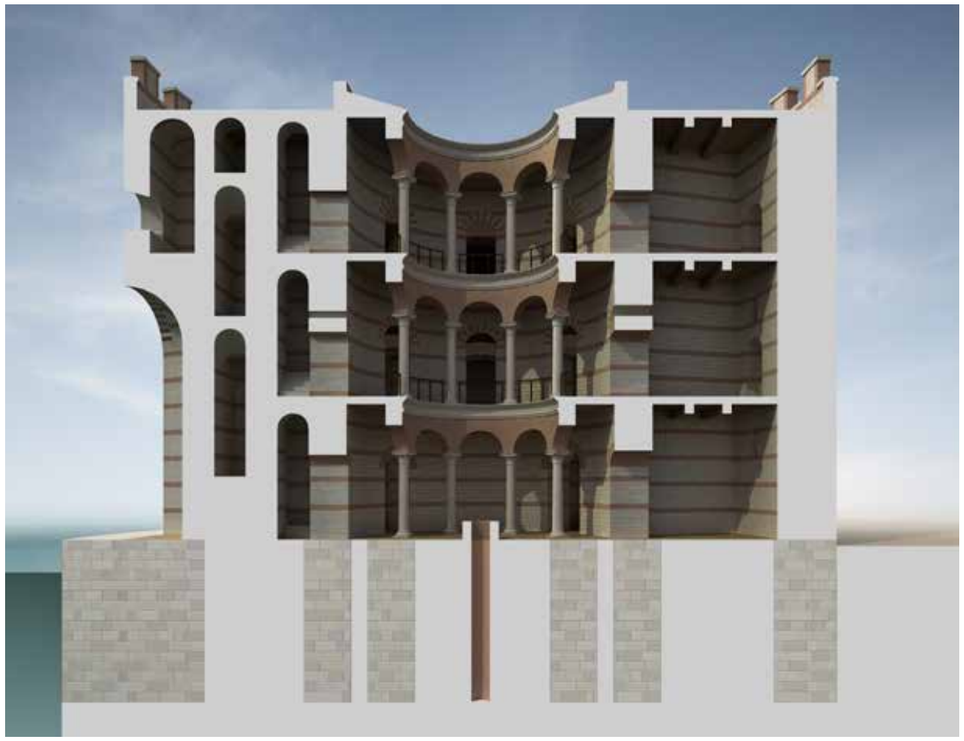

Fig. 7 - Atrium of Round Tower of the fortress of Babylon. Late 3rd – early 4th AD. Reconstruction by the authors

Fig. 8 - Fortress of Babylon. Late 3rd – early 4th AD. View from the Nile (from the west). Reconstruction by the authors

represent Diocletian, Constantine or even Christ[36] (this one is in a very poor condition), fragments of the porphyry seated statue of an Emperor from the fortified palace and the memorial complex in Šarkamen[37], and the porphyry statue in the Museum of Art History in Vienna[38]. We would also like to particularly note the depictions of the tetrarchs in the paintings of the *principia* at Luxor Temple[39]. There are two types of iconography: either the tetrarchs are portrayed in togas with their attributes of power (as in Luxor, the Arch of Constantine, Šarkamen and the Graeco-Roman Museum in Alexandria); or they are shown in armor bearing weapons (as in the Vatican and at Venice).

[36]For attribution see: (Delbrueck 1932, Taf. 40; Alföldy 1935, 126; Empereur 2000, 17, Fig. 24).
[37]It could be linked with Maximinus Daia, Galerius' nephew (Popović 2018, 19, Fig. 13).
[38]Inv. No I 685 (Gschwantler *et al*. 2012, 238-239).
[39]Карелин 2016, 57, 73–77.

Fig. 9 - Fortress of Babylon. Late 3rd – early 4th AD. View from the Nile (from the south-west). Reconstruction by the authors

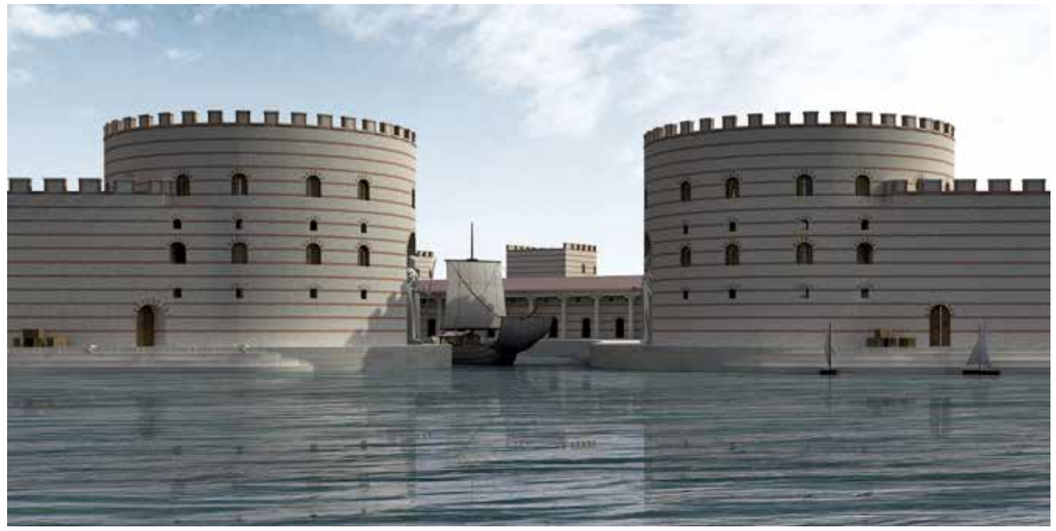

Fig. 10 - Fortress of Babylon. Late 3rd – early 4th AD. Detail of the view from the Nile (from the west). Reconstruction by the authors

We might suppose standing statues of the second type, because it was a military location, and they were not located inside, as at Luxor. However all the surviving examples of such iconography show two embraced figures and there are not any examples of single tetrarchic statues with military attributes. That is why we have tentatively shown them in the same manner as at Luxor.

The final results of our work are views of Babylon from the Nile, which show the fortress and the bridge from the west (Fig. 8), the walls and the South Gate from the south (Fig. 9) and the round towers (Fig. 10).

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Résumé

Cet article est consacré à la reconstruction virtuelle de la forteresse de Babylone de la fin de l'ère romaine, située dans le quartier maintenant connu sous le nom de Vieux Caire. La forteresse est mentionnée dans la Déscription de l'Égypte et est explorée et enregistrée depuis la fin du XIXe siècle. Depuis les années 1990, des travaux archéologiques ont été complétés par des travaux de conservation et d'abaissement du niveau des nappes phréatiques dans la région. Les résultats de ces travaux et leur importance pour les origines de la ville du Caire ont été publiés.

Babylone était une forteresse dioclétienne typique pour les comités; Legio tertiadecima gemina a peut-être été situé ici. Cependant, il affichait un certain nombre de caractéristiques uniques:

- il a été construit sur le port de pierre de Babylone de l'ère Trajanic, où Amnis Trajanus a rejoint le Nil. L'entrée du canal était flanquée des énormes tours rondes de la forteresse dioclétienne.
- des preuves archéologiques et historiques indiquent qu'un pont sur le Nil menait à la porte ouest de la forteresse.
- la taille et la force massives des fortifications étaient bien plus solides que celles de toutes les autres forteresses dioclétiennes en Égypte, ce qui pourrait s'expliquer par la position stratégique de Babylone au sommet du delta du Nil.

Les travaux archéologiques récents ont montré qu'une grande partie de la partie sud de la forteresse survit aujourd'hui sous terre. Au-dessus de la terre, la porte sud est en grande partie préservée, avec "l'Église suspendue"copte (Al-Mu'allaqa) construite au-dessus. Les deux tours rondes ont également survécu, dont l'une au sein de l'église orthodoxe grecque de Saint-Georges (Mari Girgis)

Le but de la reconstruction est de montrer les particularités architecturales et constructives de la porte sud et des tours rondes qui bordent l'Amnis Trajanus, ainsi que de présenter la vue possible de la forteresse depuis le Nil.

LIMES XXIIII

Session 35

Small finds assemblages as a means to understanding social and economic patterns within the settlements close to Roman camps

INTRODUCTION

Session organisers / Chairpersons:
Hannes Flück
Paul Franzen

The last Roman Frontier Studies conferences (Limeskongresse) treated us to several different approaches towards the military vici, the canabae legionis and the towns. Topics like their legal status, the topography of the vici or their economic function(s), all had their place at the RFS. Recently, and outside the RFS, several comprehensive studies were published on (parts of) the canabae legionis at e. g. Carnuntum or Vindonissa.

So far, the small finds from all these sites took a back seat. We define small finds here as those finds, that come in reasonable numbers, e.g. metal finds, glass, worked bones, stone etc. Is it possible to use small finds beyond their obvious dating purposes, and to add to our knowledge on military vici and towns? With several large scale excavations since the 1980's at our back, with their emphasis on stratigraphy and the combination between finds and features, we think this should be possible.

For instance, the following questions could be put forward:

Is there a difference in the small finds assemblages from the canabae and military vici to those from the purely civilian sites which exist in close proximity to the forts and fortresses?

Which similarities and differences can be seen in the assemblages between these sites (vici and canabae) and the forts and fortresses?

Can we differentiate social classes within the canabae and military vici, or is it all the same?

The same question could be applied to the purely civilian sites on the Limes, and how do they compare with the canabae and military vici?

Have we any idea what a typical assemblage is, for any of these sites, i.e. what is the norm?

Are there certain categories of small finds that are especially well suited to answer some of the questions above?

And of course we are open for any other stimulating questions along the lines sketched here.

Proposals, including an abstract of not more than 500 Words in English can be sent to:

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Weights as an indication for trade and commerce and as a means to determine whether the context is military or civilian

ABSTRACT

Two large-scale excavations in Nijmegen, carried out in the last quarter of the 20st century, have yielded unusual high numbers of weights. Unusual high means here: well over 400 weights, a number that so far nowhere else has been recorded. Most of these weights are made from lead and date from the first century AD. In combination with the coinage also found, they present a clear pattern indicative of commercial zones, where mainly goods were traded that weighed less than one Roman pound (libra). Where in one case the pattern and context are what we would expect, in the other case it raises questions as to our understanding of the character of the settlement: is it military or civilian?

Key Words: Nijmegen, Hunerberg, Kops Plateau, small finds, military or civilian, weights, canabae, emporium

Introduction

The first Roman presence in Nijmegen dates from the first half of the second decade BC. Somewhere between 19 and 16 BC the Roman army marched in force into Nijmegen, and settled down in a 42 ha large camp. This fortress is located in the eastern half of modern Nijmegen, on a site locally known as the Hunerberg. With this early date it is one of the earliest fortresses on the Lower Rhine, if not the oldest. Its presence is generally associated with the conquest of Germania. It has at least two phases, attested by the ditches and repairs to the western gate. It housed both legionary and auxiliary troops.[1]

Around the time the fortress was abandoned in ca 10 BC, two new settlements emerged, more or less at the same time. One with a strong military connotation on a site called Kops Plateau, which is actually more or less adjacent to the east of the Hunerberg. And, some 650 metres to the west, a roadside vicus emerged along the road coming from the Augustan fortress, following the southern bank of the river Waal. This settlement has been identified as the oppidum Batavorum, a pro-

[1]Haalebos 1995; Franzen 2009; Driessen 2007; Willems, Van Enckevort 2009.

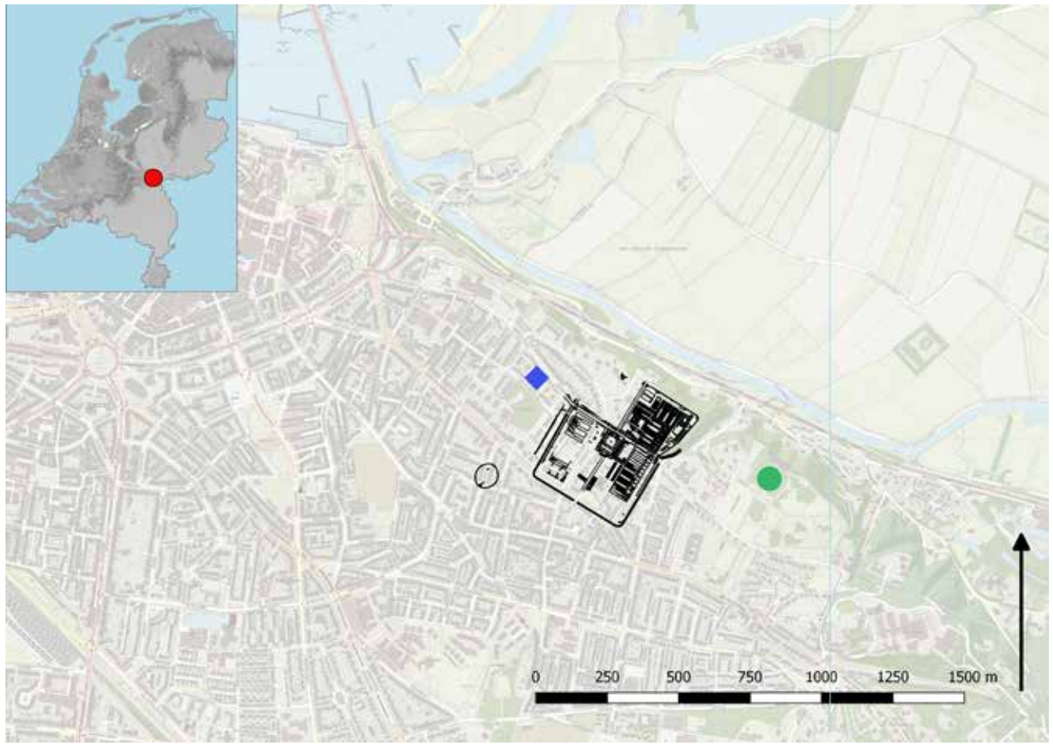

Fig. 1 - Nijmegen with the locations of the two excavations. Blue diamond: canabae legionis, green dot: Kops Plateau. The Flavian castra is shown as a reference.

to-urban settlement which functioned as the de facto Batavian capital. Given its Roman appearance, as a vicus with mainly strip buildings and finds that in many ways resemble the finds from the Kops Plateau, it has been dubbed a town for the Batavians, but not by the Batavians.[2] Both settlements functioned until the Batavian revolt. Whereas the oppidum was purposefully abandoned and destroyed, this was not the case at the Kops Plateau. During a short period between 10 and 20 AD a separate fort was in use, to the east of the oppidum. It is generally associated with the campaigns of Germanicus at that time.

The Batavian revolt from 69/70 AD was a watershed in the Roman occupation of Nijmegen. Prior to it, it had seemingly been on its way to develop from an initial military settlement to a prosperous civilian settlement in the rear of the limes. After it, a second fortress was built, partially overlapping the Augustan site. Along with its military town (canabae legionis) and a new, civilian town (the municipium Ulpia Noviomagus), it dominated the development of the most western part of the lower German limes. This was certainly true for the first 30 to 35 years, after which the legio X gemina left for a new posting on the Danube. Apparently, on and off, units or vexillationes from both Britain and Germania inferior occupied the empty fortress. This lasted during most of the 2nd century AD, and seems to have ended somewhere around 175 AD. During that time and into the third century, the municipium and the countryside flourished. The number of inhabitants of what must have looked like an urbanised landscape, stretching for some 4.5 km and ¾ to 1 km deep, probably numbered in the tens of thousands.

[2]Willems, Van Enckevort 2009, 21.

A clear military presence returned to Nijmegen when a fort was built around the year 300 on or partially next to the site of the oppidum Batavorum.[3] With conclusive evidence lacking, it seems to have continued as a Roman site into the early middle ages.

Method

For this paper we have studied two large collections of lead objects. One comes from an excavation by the University of Nijmegen between 1987 and 1997, which revealed part of the Augustan fortress and a large part of the Flavian canabae legionis. In total, over 20,000 features were recorded, with well over half a million (Roman) finds. The other set comes from the excavations on the Kops Plateau by the Dutch State Service between 1986 and 1995. In both cases, all finds groups yielded massive amounts of finds, including metal, even despite adverse soil conditions. The systematic use of metal detectors probably helped a lot, but it also highlights the sheer amount of metal used by the Romans.

The canabae excavations yielded 1,025 lead objects; the Kops Plateau site 1,608 objects. Both these numbers do not represent the factual numbers found or present on site; they represent only those that made it into the archaeological record.[4] For both sites it is known that at first lead was considered not a useful, collectible finds group, as the potential was not realised. On the contrary, its value as scrap metal prevailed and many objects, including parts of lead waterpipes, were sold off. It seems this effected the Kops Plateau collection more than the finds from the canabae. Still, the remaining numbers are impressive, especially compared with other (and older) excavations.

The canabae yielded 333 weights and 19 steelyard weights, for a total of 352 weights, and the settlement on the Kops Plateau has 111 weights and 20 steelyard weights, for a total of 131. One of these is made of iron and 39 are made of bronze or bronze with a lead core. The vast majority (455) are lead weights. Two settlements, only several hundred meters apart and spanning just over a century in time, have so far yielded 481 weights. As collections of weights go, this number is unsurpassed.[5]

The internet-based database Pondera, spanning the Archaic period until the end of the Byzantine era, comprising the entire Mediterranean including Egypt and the Near East, and all of central and north-western Europe, has registered just over 20,000 weights. For the Early Roman Empire (27 BC - 284 AD) it lists 783 lead weights, 2 iron and 113 copper alloy.

GIS was used to plot these finds onto the vectorised structures from both excavations. This yielded some interesting patterns, especially when combined with another finds group and one specific type of features: roads. The other finds group are the coins; in addition, for the Kops Plateau we have added evidence from a publication on the provenance and distribution of amphorae. It is the combination of several find groups that renders meaning to our results.

The weights

As stated before, both collections contain there is a large component of lead weights. These weights can be classified by the material they were made of − which here is mainly lead, but also bronze and iron. So far, no weights from another material, like stone or glass, have been identified. More importantly, we looked at the use of these weights. This is related to the sort of scales which were used. Often prominent in publications on Roman weighing and measuring are the weights used with steelyards. These counterweights are often figurative and made of bronze. In Nijmegen they are a minority, and mostly functional and not aesthetically pleasing. Most weights were used with a two-scaled balance. Remarkably, both excavations yielded only a very small number of artefacts from said balances and steelyards. This could be due the adverse soil con-

[3]This date is entirely coin based: Reijnen 2010, 173–174.

[4]These numbers differ from the databases from the excavators. I personally went through all archived boxes with finds and my numbers reflect both what was present, and my classification. Not all objects turned out to be lead, and several items listed were no longer present. The numbers presented here are thus the factual numbers.

[5]A large excavation of part of the oppidum Batavorum yielded 24,515 pieces of metal, of which 52 are classified as weights. I was not able to study these as well, but the number underscores the impression of Nijmegen as a serious centre of trade. See: Van Enckevort, Heirbaut 2010, 30.

Nijmegen	Canabae		Kops Plateau		
	Weights	Counterweights	Weights	Counterweights	
Copper alloy	7	1	12	5	
Iron	1	0	0	0	
Lead	323	18	99	15	
	331	19	111	20	**481**

Fig. 2 - Table with the weights from the canabae and the Kops Plateau.

ditions; the slightly acidic sandy component of which very negatively affects the preservation of iron. It also could point to a pattern of loss and retrieval, before more traditional post-depositional processes kick in.

Most of the weights are well under half a Roman pound.[6] In fact, most range between 1 and 4 unciae. This points to something remarkable, namely that the trade practised here concerned goods that did not weigh a lot, at least not in the portions that were sold. Unfortunately, it is still unknown what this trade comprised of. Apart from the relation with the coins, there seems to be no other group that has a (strong) correlation with these weights. As there are no parallels, neither in numbers nor with more or less the same context, this remains a riddle.

Another way of dealing with the weights, and for archaeologists probably a second nature, is to classify them by shape. This helps determining whether an object is a weight or not, and could give an indication of a date or special use. Although the presence of marks helps to identify an object as a weight, not all weights have marks. Marks come in different forms, shapes, sizes and materials. Sometimes they are just holes or indentations, and some are numerals or characters inlaid with a copper alloy. Scratching the green 'bronze' patina, both brass and messing were encountered. Such a varied array of marks was found that we think that each trader seems to have had his own system. The presence of different (numbers of) marks on both top and bottom points to another possibility: that of unfair trading. A less negative explanation would be the use of different systems of weighing, where for instance the Roman system would meet a local system.[7]

Some forms are so common that even without marks their identification is not problematic. On the other hand, the original determination of the metal objects from the Kops Plateau described many lead disks, with or without either a round or square hole, as weights. There are no marks to help this identification, and apparently their actual weight was not used in determining if they could be weights. The latter is essential but also problematic. A modern digital scale with multiple digits is so precise, that it seems to declassify any other means of weighing. Also, weights are susceptible to corrosion (which can both add or detract weight), intentional and unintentional damage, and simple wear and tear. And there is of course always the possibility of fraud. As most weights were not in pristine condition, a 5% margin has been used in determining if a weight would correspond with the standard Roman system. But the lighter the weights are, the higher the risk that this method doesn't function anymore, as the difference between standard units gets increasingly smaller. However, in most cases it does work, and it also points to the possibility that at least some weights were fractions, like 1 2/3 or 2 ¾ unciae. This would open the possibility of very fast and precise measuring. It also could explain quite a few weights that seem to be either over or underweight, leading to discussions and doubts in modern literature.

Coins, roads and weights

Although the quantity of the weights is in itself an important item, it is their distribution pattern that makes it even more interesting. A building project in Bodegraven in 1994 revealed a Roman road, several buildings, a remarkable number of coinage, and at least 11 lead weights. The location of this site was outside the fort,

[6]We take a Roman pound to be 327.45 gr, divided in 12 unciae of 27.28 gr each. This follows the general convention, although other values are mentioned in literature.

[7]Especially in British literature there is a mention of a Celtic pound existing alongside the Roman pound. For a recent discussion on the possibilities and problems, see Brickstock 2011, 42–43.

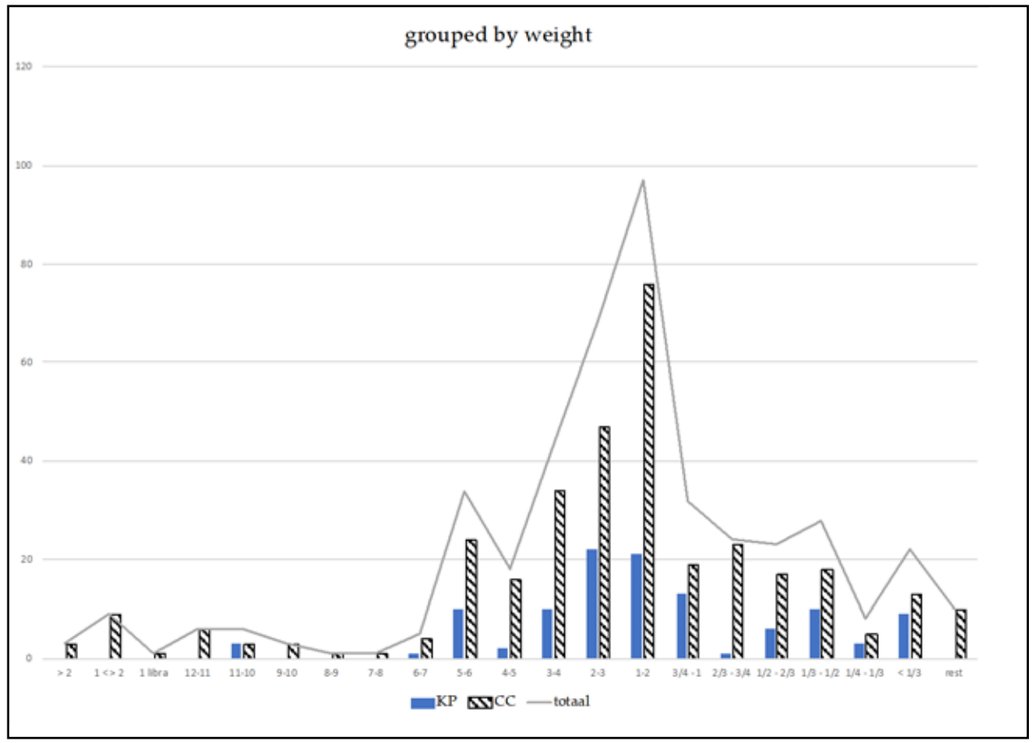

Fig. 3 - Graph with weights from the canabae and the Kops Plateau plotted using the Roman uncia / libra system.

but within what was probably the military vicus. Unfortunately, this was not done under archaeological supervision, and the finds ended up in private collections.[8] Interestingly, this combination of finds resembled the situation in Nijmegen.

The 3,500 coins from the university excavation were the basis of a PhD thesis.[9] Mainly dating to the Flavian era, they pointed to trade and accidental loss. The distribution pattern followed more finds groups: closer to the main road (the extended via principalis from the fortress) the numbers spiked. This is also in line with the perceived use of strip buildings: trade taking place in the front or under the porticus, and production inside. Coin loss is expected there more than anywhere else.

The combination of a (major) Roman road, in a civilian settlement (outside a fort or fortress) and a distribution pattern of coins and weights with near total overlap, all points to a typical civilian economic activity: trade on a daily basis. One could see this as the ultimate example of a monetarised economy. It is a pattern that we do not see in Roman camps, for instance in Vetera, where all the finds have been catalogued and the distribution has been studied using a GIS.[10] One of the explanations why Roman forts and fortresses yield far less finds inside the defences may be correlated with the nature

[8]I had a chance to see some, including the weights. There is no proper publication available and it must be feared that some collections have been dissolved, after all these years.

[9]Kemmers 2005. She also ruled out any hoards that might disturb or contradict this conclusion. It seems there were no (substantial) coin hoards on the Kops Plateau either. Thus, most coinage found is qualified as simple loss.

[10]Hanel 1995 and Allison *et al*. 2005.Hanel lists 28 (possible) lead weights, 2 bronze ones and 3 pieces belonging to scales or steelyards. Vetera 1 has a near identical start date as the Kops Plateau and the same end date. But being many times larger this emphasizes the exceptional numbers found in Nijmegen even more.

Fig. 4 - Flavian canabae legionis. To the right is the porta sinistra from the fortress. Top: coinage plotted, bottom: weights and coinage plotted.

of the settlement. The army took care of its waste, and most rubbish including lost and broken items are discarded outside the camp.[11] This is reason for the famous Schutthügel at Vindonissa, with finds in the many thousands. In Alphen aan den Rijn the waste was deposited in the river, creating an underwater Schutthügel. There, the number of metal finds is just under 5,000 and most were found in this dump.[12] Finds from within camps are usually related to construction and rebuilding phases, when spaces open up for pits and deposition.[13] Notwithstanding this, weights are more usually found outside camps instead of inside. This seems to be not so much the result of a post-depositional process as a reflection of where trade was mostly conducted: in a civilian context, outside forts and fortresses.

Distribution patterns

The distribution maps with the coins and weights for the canabae and the Kops Plateau show a similar pattern. In the canabae, the main road coming from the Flavian fortress just touched on the northern part of the excavated area. The ditches and dozens of pits in or under the porticii along the road acted as find traps. It is here that most of the coins and weights were found. A second row to the south points at a (probable) second (ary?) road, which more or less coincides with the via principalis of the Augustan fortress. A third road, which deflects to the southwest, has also a (small) concentration of weights. It also coincides with a cluster of buildings.

[11]At the 23rd International Congress of Roman Frontier Studies in Ingolstadt 2005 an entire session was dedicated to this theme, see: Sommer, Matesic 2018, 230–262.

[12]During the 2001-2002 excavations in Alphen aan den Rijn 4,985 objects of metal were retrieved, excl. 742 coins. 45 items were classified as weights, 3 were of a copper alloy, 42 of lead. See: Zee 2004, 192 and 196. I haven't seen this collection yet. Another large number of finds was made later, some 2,500 of which have been recorded in a publication. Of these 14 or 15 are probable weights. See: Bakker, Bron 2013, 149–150.

[13]Bloemers, Van Dierendonck 2016, 165.

Fig. 5 - The settlement on the Kops Plateau, with defences in 3 phases, roads and main buildings. Plotted in red are the weights, in green the coins. Not depicted are buildings and (Flavian) roads to the south of the settlement.

The patterns for the Kops Plateau are more or less identical, although the coin pattern is more diffuse. If we do not plot the defensive works on the map it looks like a clear civilian pattern, which we could encounter in any thriving Roman town. A closer look at the 'Innenbauten' reveals an orthogonal street layout, densely flanked by all sorts of buildings, including horrea.

To the north, a large building with a large court stands out, not only by its size, but also because its orientation. It is not exactly in line with the roads, but, probably because of the scenic view, aligned to the steep slope which forms the end of the moraine on which this part of Nijmegen is located. This is the building that has been attributed the function of a field HQ, the seat of Drusus.[14] It clearly is an impressive building, built in a Roman or Italian tradition.[15]

The Kops Plateau: a civilian site?

If we believe the pattern described above as a typically civilian pattern, then there is a problem with the traditional identification of the Kops Plateau site as a military fort or HQ. If we take a closer look at the sheer numbers of finds and their distribution, this too points to a non-military settlement. There is just too much inside the defended area to be a 'proper' Roman fort. In 1972, a small set of trenches on the northern slope found several layers with rubbish, which yielded Arretine ware and military equipment. It resembled a Schutthügel. Recent research showed that these layers were only local, and did not cover the entire width of the settlement.[16] With an occupation of nearly 80 years, much more could have been deposited here. A study of all amphorae sherds from the Kops Plateau confirms this as well. Not only were the authors able to show

[14]Willems, Van Enckevort 2009, 35–38 with references to older literature.

[15]Peterse 2002 and Peterse 2005.

[16]Boreel 2018.

all kinds of new insights in trade routes and foodstuffs transported to the Kops Plateau, it also made it possible to do some serious statistical analysis, especially on the dating and spatial distribution.[17] Two of three of the earliest clusters occur within the settlement, centred on the main north-south road.[18] The third cluster is located approximately 140 m to the south, measured from the ditches of the first phase. Given the mass of finds, a hotspot analysis was done. This shows that these two early concentrations are indeed more than average concentrations, and they add another cluster between the so-called praetorium and a horreum.[19] It appears that the concentrations with weights alternate with those hotspots with amphorae. The more diffuse coinage pattern seems to coincide with several different hotspots (weights, amphorae and other finds groups).

A closer look at the structures within the Kops Plateau does not show any of the classic barracks we are used to finding since the Cantabrian wars and the other early fortresses from the campaigns to conquer Germany. The presence of large amounts of militaria, of arms and equipment, has a definite military feel. Yet the buildings do not. This military civilian combination is not unknown. In recent years, excavations on the Titelberg have given us new insights in the oppidum, the Roman military presence there and, most recent, into what the excavators call an emporium or trading post.[20] Given the nature of the finds, they connect it to traders from Italy, who played a role in supplying the army on its campaigns to conquer Germania. There seems to be a large overlap with the Kops Plateau site in certain finds assemblages, like amphorae, next to the longer known connections regarding coins, brooches and Roman arms and equipment. The main difference is the chronology: the Titelberg dates (just) prior to the Kops Plateau.

One other possible parallel site could be inside Germania itself: Waldgirmes. Here too we see a military and also a civilian component within a settlement. The settlement has a box wall, two ditches and encloses an area of ca 8 ha. Except two possible barracks, dated to the founding period, there are no obvious military buildings inside the settlement.[21]

Although there are many similarities between the Kops Plateau and Waldgirmes, the difference in numbers of finds is striking. There are notable similarities, like the combination of military and civilian finds, the presence of defensive works and even the street pattern. Also, the absence of military buildings, save two in the initial phase, is striking. In Waldgirmes we see most of the 337 coins lining the roads, as the ditches seem to have presented themselves as one long finds trap.[22] Very different is the number of (possible) weights: only 2, with two objects catalogued as possible fragments from scales.[23]

The notion of walled civilian settlements, with a large military component in the associated finds, is not new. Cassius Dio referred to these as πόλις, when describing the situation in Germania. The town of Waldgirmes would fit this description; the question now is whether or how the emporium on the Titelberg and the settlement on the Kops Plateau in Nijmegen would fit in.[24]

Conclusion

By combining the distribution patterns of Roman roads, coins and weights, we established a civilian trading pattern. The sheer number of objects involved are already a strong indication for a civilian context. The presence of large amounts of finds inside a settlement is also an indication of a non-military context. Applied to the Kops Plateau site this gives reason to question its proposed, purely military character. The fact that so many finds were found inside the walled settlement, and the insights in the distribution patterns from the amphorae, underscore the rather civilian character.

Without attempting to dissect the settlement on the Kops Plateau in all its details, the purpose of the small finds session was to demonstrate that small finds can be used to better understand settlements on the Limes, whether they are purely military, purely civilian or a combination of these. This applies both to intra-site as inter-site analysis. Based on the combined evidence from the lead weights, the coins and the amphorae, for at least one phase of the settlement on the Kops Plateau a more civilian than military function seems plausible. In all likelihood this seems to be the first phase.

Small finds can play an important role in the study of the functioning and working of the Limes. It goes beyond mere dating certain features and helps formulate new questions and possibly new insights.

[17]Beijaard, Polak 2017, 29–46.

[18]Beijaard, Polak 2017, Fig 10.

[19]Beijaard, Polak 2017, Fig 13.

[20]Metzler *et al*. 2018. In 2018 at a conference held in Krefeld on 'Roman Networks in the West', further excavations and insights were presented. A publication is alas still lacking, but should be exciting.

[21]Becker, Rasbach 2015.

[22]Becker, Rasbach 2015, Abb. 109.

[23]Becker, Rasbach 2015, 168–169.

[24]Cassius Dio 56, 18, 2, where he describes the gradual pacification or Romanization of Germania, prior to the uprising in 9 AD. The army wintered in Germania, towns (πόλις) were being founded, markets held and meetings in peaceful assemblies were absolved.

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Cassius Dio, Roman History LVI, 18.

Zusammenfassung

Zwei große Ausgrabungen in Nijmegen haben zusammen 481 römische Gewichte zu Tage gebracht. Der größte Teil dieser Gewichte ist aus Blei. Die meiste Gewichte wiegen zwischen einer und vier römische Unzen. Die eine Grabung wurde im Bereich der flavischen canabae legionis durchgeführt, die andere betraf die Siedlung auf dem Kops Plateau. Diese wurde bisher als rein militärisch gedeutet. Die Siedlungen datieren zwischen 10 vor Chr. bis kurz nach 100 nach Chr. Bei beiden konzentrieren sich die Gewichte an die römischen Straßen, wo sie mit ähnlichen Konzentrationen von großen Mengen Kleingeld ein Muster bilden, dass wir als typisch für alltäglichen Kleinhandel deuten. Es ist ein Muster, dass außerdem typisch für einen zivilen Kontext ist. Während im rein militärischen Bereich aufgeräumt wird, deuten große Mengen an Funden innerhalb einer Siedlung eher auf einen zivilen Kontext hin. Dies wird für das Kops Plateau unterstutzt durch eine Publikation der dort in großen Mengen gefundenen Amphoren. Aufgrund dieser Daten muss man erwägen, ob nicht mindestens eine der drei Phasen der Siedlung nicht eher zivil als militärisch geprägt ist. Damit gäbe es Verbindungen zu Waldgirmes und dem vor kurzem entdeckten Emporium auf dem Titelberg.

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Millstones from the settlement complex of Aquincum: preliminary research

ABSTRACT

Excavations carried out in several parts of the settlement complex of Aquincum (legionary fortress, Military and Civil Towns, villa estates) have so far revealed more than 200 complete or fragmentary hand querns and millstones of different types. Most were discovered reused in secondary contexts, but some were found in their original position (i.e. courtyards of town houses or villas).The cataloguing of this group of finds has just been completed (although new ones keep coming in from ongoing excavations), and therefore detailed research on the types, material, and economic significance has only just begun (in a cooperation between the University of Oxford and the BHM Aquincum Museum). This paper presents the preliminary results of this workonthe find location anddating of these stones,as well as distinguishing between hand querns and water mills. It explores the potential of this neglected group of Aquincum finds, and especially what they might suggest about the extent of the use of water-powered milling on the Roman frontier in Pannonia.

Key Words: Aquincum, millstones, handquerns, Civil Town, legionary fortress, water-mill

Research history

Even though archaeological research has been undertaken in the settlement complex of Aquincum for than 130 years now, and while dozens of millstones — both small and large— have been collected from excavations and stored either in the museum's *lapidarium*or in the archaeological park itself, relatively little work has been carried out on this group of finds (Fig. 1).The first researcher to study them was János Schauschek, who already observed that most of the stones belonged to handquerns,[1] and described a frag-

[1]Schauschek 1949, 59–60.

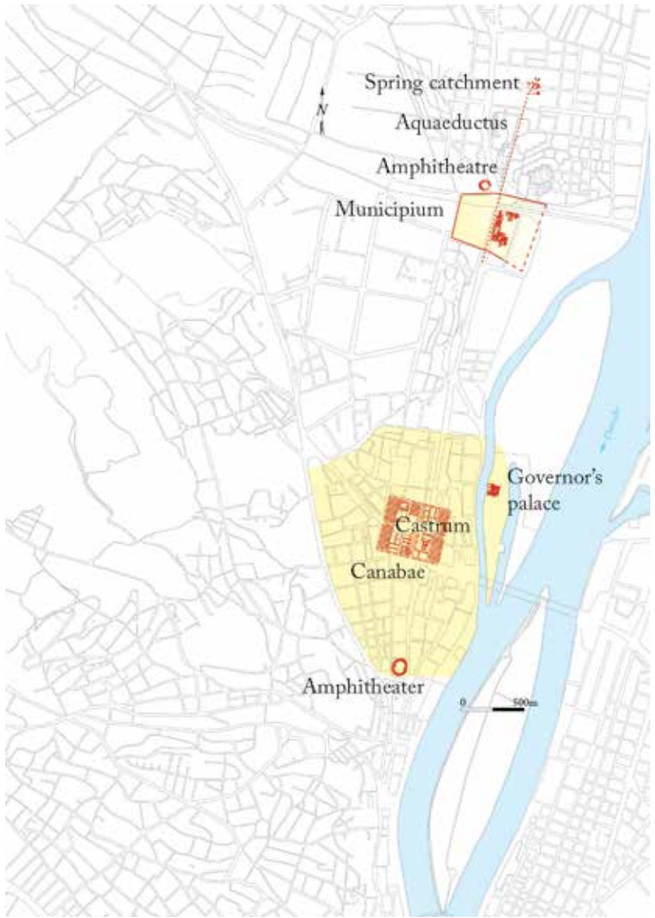


Fig. 1 - The settlement complex of Aquincum (drawing by Krisztián Kolozsvári).

ment of a possible *catillus* and the working mechanism of Pompeian-type Roman mills (Figs. 2 a-b).[2] The next archaeologist was Mária Pető, who mentioned 50 pieces of millstones (with the first attempt to typologize them)– mainly hand querns, but without any precise find location –as well a mill rynd kept by the 1970s in the collection of the Aquincum Museum, as part of a description of Roman food processing in the light of the finds from Aquincum.[3] Apart from these two works, no further articles have been dedicated to these finds until now, even though the number of millstones found during the numerous excavations had reached 250 by 2018.[4]

Aquincum millstones – reports on finds

Although no detailed work has been publishedon millstones, preliminary excavation reports do menti-

[2]Schauschek 1950, 119–121. The fragment has since been lost.

[3]Pető 1976a, 148–151. Pető 1977, 148–149. However, apart from the millstones themselves, several baking ovens were mentioned in preliminary reports, mainly considered to be part of commercial bakeries: Kaba 1956, 153–158.; Szilágyi 1965, 235.; Pető 1977, 149.;

[4]See below. However, some further basic research had been done on the subject, particularly regarding the similarities and differences between Celtic and Roman period handquerns by a Hungarian researcher: Selmeczi 1981, 206–211.

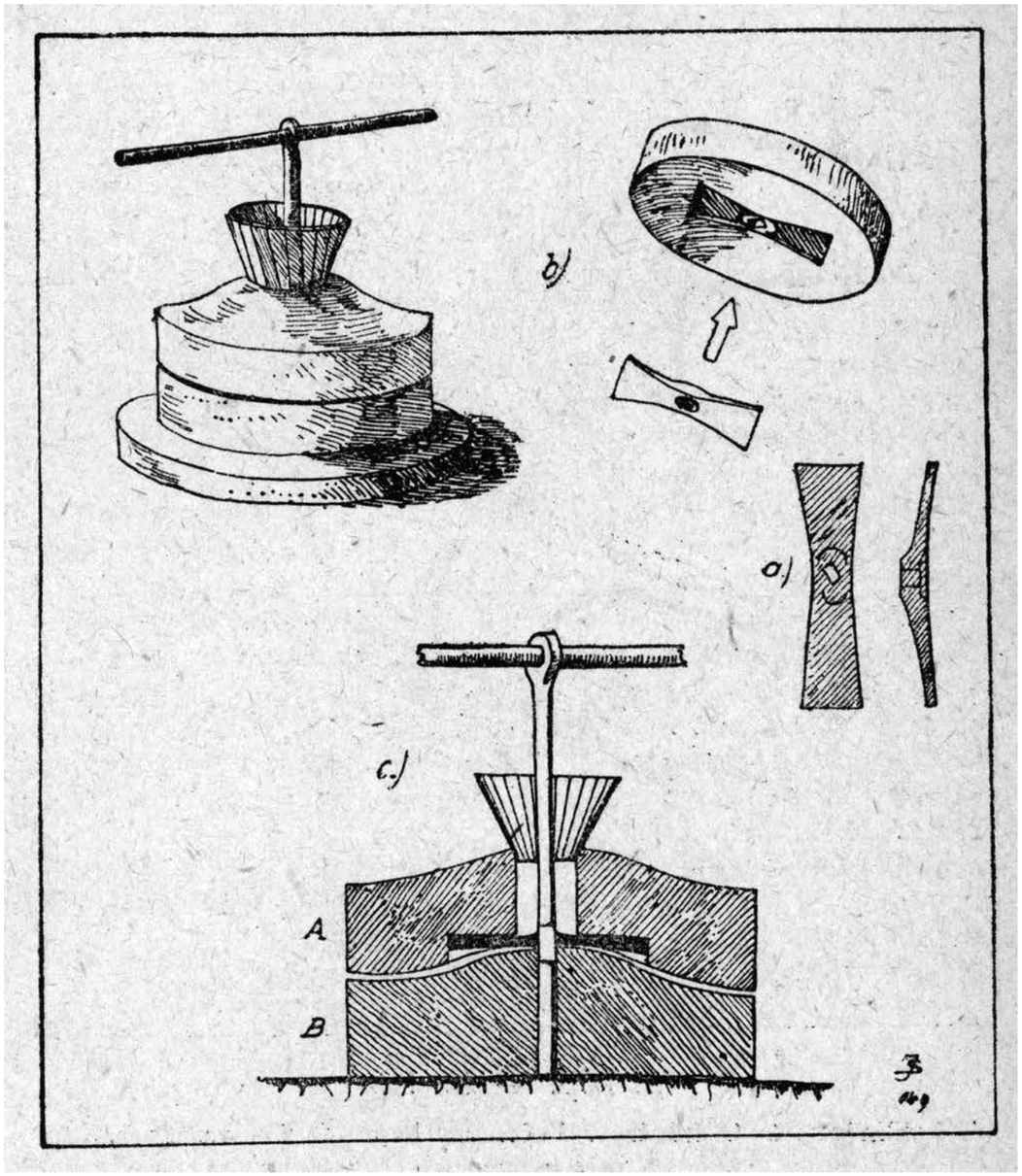


Fig. 2a - Reconstruction drawings of the Aquincum millstones by J. Schauschek. Schauschek 1949, 59, Fig. 1.

on millstone fragments from the area of the legionary fortress,[5] the *canabae*,[6] the Civil Town (Fig. 3),[7] and the surrounding villa estates (Fig. 4).[8] South of the Aquincum settlement complex, the *vicus* of the *ala* fort "Vízi-

[5]Pető 1976a, 116.

[6]Póczy 1955, 60.; Kirchhof 2009, 48 (secondarily reused).

[7]Póczy 1976a, 425;Láng 2016, 358.

[8]Láng 2009, 81. A further millstone was found as a stray find close to the villa in 2017. Unpublished. Courtesy Fanni Fodor.

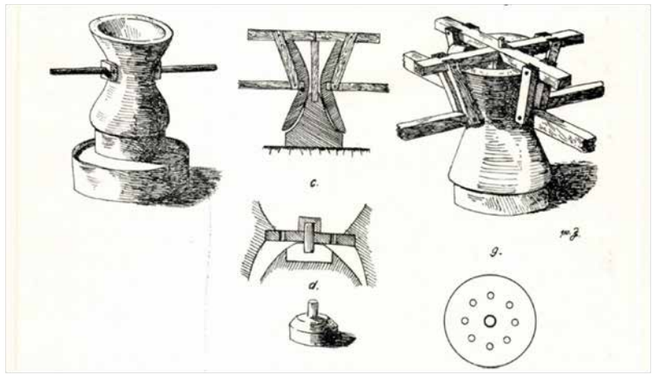


Fig. 2b - Reconstruction drawings of the Aquincum millstones by J. Schauschek. Schauschek 1950, 121, Fig. 1.

Fig. 3 - Fragment of a handquern from the Civil Town, during recovering (photo: O. Láng).

Fig. 4 - Lower part of a handquern and its base found *in situ* in the paved courtyard of the so-called villa of Harsányle-jtő (photo: O. Láng).

város" also yielded some fragments.[9]Dozens of further fragments,mostly of handquerns,have been discovered during the numerous developer-funded excavations of the BHM Aquincum Museum in the present-day Budapest in the last decades, but nearly all of them have remained unpublished.[10]

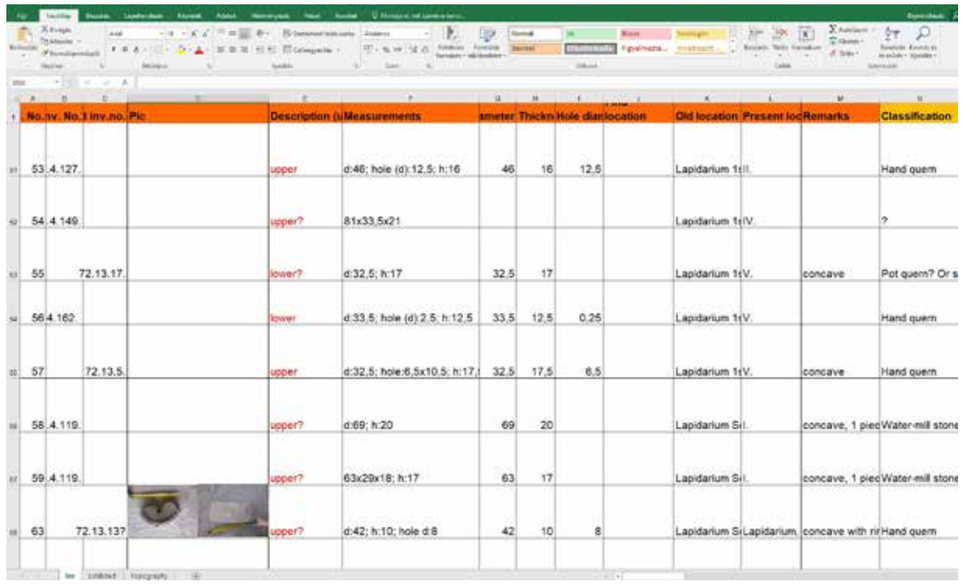
Aquincum millstones – some figures

Because of the growing number of finds and the fact that this has so far been a rather neglected group of finds, a decision was made to collect and process all millstones of all types kept in the museum's collection. Most of them —mainly the intact pieces — are currently exhibited in the archaeological park, while the fragments are stored in the *lapidarium*. Of the 250 pieces catalogued to date,111 are complete millstones, while 139 are fragmentary (Fig. 5). Since excavations are still going on in and around Aquincum[11] their number continues to grow, by about 2–5 pieces per year, and thus their cataloguing is always in progress.

[9]Sites: 3 Bem József – 4 Feketesas streets: Kérdő 2000, 77, Fig. 1.; 9-13 Medve street: (2 pcs), unpublished. Courtesy to late Katalin Kérdő.

[10]Nor were they mentioned in preliminary reports of the excavations.

[11]Nowadays, mainly development-led excavations are carried out in Budapest and only one or two planned ones. The number of archaeological interventions performed by the Budapest History Museum (which the Aquincum Museum is also part of) in Budapest — regarding all archaeological periods – was as high as 697 in 2018.



No.	inv. No.1	inv.no.	Pic	Description (u	Measurements	ameter	Thickn	Hole diar	location	Old location	Present loc	Remarks	Classification
53	4.127.			upper	d:46; hole (d):12,5; h:16	46	16	12,5		Lapidarium 1	II.		Hand quern
54	4.149.			upper?	81x33,5x21					Lapidarium 1	IV.		?
55		72.13.17.		lower?	d:32,5; h:17	32,5	17			Lapidarium 1	V.	concave	Pot quern? Or s
56	4.162.			lower	d:33,5; hole (d):2,5; h:12,5	33,5	12,5	0,25		Lapidarium 1	V.		Hand quern
57		72.13.5.		upper	d:32,5; hole:6,5x10,5; h:17,(	32,5	17,5	6,5		Lapidarium 1	V.	concave	Hand quern
58	4.119.			upper?	d:69; h:20	69	20			Lapidarium Si		concave, 1 piec	Water-mill stone
59	4.119.			upper?	63x29x18; h:17	63	17			Lapidarium Si		concave, 1 piec	Water-mill stone
63		72.13.13?		upper?	d:42; h:10; hole d:8	42	10	8		Lapidarium Si	Lapidarium,	concave with rir	Hand quern

Fig. 5 - Excel catalogue of the Aquincum millstones (O. Láng).

Preliminary data on types

Some preliminary observations can already be made concerning types and sizes.Based on the data gained from the finds catalogued so far, the following groups can be distinguished.

1. Hand querns

Most identifiable pieces,where the diameter could be measuredcan be considered hand querns (144 pieces).[12] Unfortunately, no complete mill, with both the upper and the lower stones surviving,is yet known from Aquincum. Fifty-one lower and 53 upper (runner) stones can be identified.[13] In some cases, iron and bronze elements survive in the rynd sockets of the upper stones (2013.4. 127) or traces of lead can be observed in the central hole of the millstones (2013.4 26) (Fig. 6). Further holes for handles are also observable on most upper stones.In one case an incised inscription—possibly referring to the user/owner (or his/her origin) of the mill[14]— could be observed onthe side of the upper stone (2013.4.64 – legionary fortress). These relatively common hand querns were used in both civilian and military contexts.

2. Mechanically-driven stones

There are significantly larger stones (at least 34 pieces) with a diameter above 52cm and large central holes (Fig. 7 a-c).[15] Although the find spots of these large pieces are mainly unknown,[16] their morphology shows that many of theseare certainly water-powered millstones, driven by a central drive from the spindle.[17] Running water was at hand: the Danube itself, its (artificial?) branches, and the streams coming from the Buda

[12]Their diameter falls between 30 cm and 52 cm. Even though, there is no exact limit, millstones over 45-50 cm (1.5 Roman feet or more) in diameter are usually considered as belonging to water mills: Baatz 1995, 9; Nagy-Szabó 2008, 16., Sulk 2018, 644, fn. 54. A. Wilson considers stones bigger than 55 cm as part of powered mills: Wilson 2020, *in press*.

[13]Based on their characteristic features, such as form and surface of the stone, rim, number and size of holes, sidehole for handle, or spout.

[14]Inv. no.: 2013.4.64.: [ER]AVIS(sci)? It could even refer to the origin of the user.

[15]See fn. 12. For recently identified water-mill stones from the *vicus* of Salisberg: Sulk 2018, 641.

[16]For find locations, see section „Find locations".

[17]Wilson *in press*.

Fig. 6 - Handquern with lead in the central hole / inv. no.: 2013.4.26. / (photo: P. Komjáthy).

hills (e.g. Aranyhegyi stream, Barát stream, Rádl-ditch etc.).[18] Water power made milling possible on alarge scale, which would have been also very useful in Aquincum, where some 50–60,000 inhabitants[19] and a legion of 6,000 soldiers would have needed to be supplied with bread, in addition to the *ala* camps and their *vici* further to the south (see above).

3. Pot querns

Apart from these — relatively common — types, a few other stones are recorded from Aquincum, possibly belonging to different milling structures.Pot querns could be identified among the Aquincum finds (e.g. 2013.4.159), used for milling grain,[20] even though in some cases their identification as stone vessels is also possible (e.g. 2013.4.82, 2013.4.164). However, their dating is yet uncertain, they might as well date to the Middle Ages.

3. Edge-runner stones

A large stone, 1.07 m in diameter, with a rectangular smaller hole in the centre (2013.4.57) could have belonged to an olive mill (trapetum) – based on analogies, such as one from Sufetula, in Africa Proconsulari.[21] Two further pieces could have been edge-runner stones of similar mills (2014.4.34, 2013.4.36). As there are no archaeological data or written sources describing olive trees grown in this part of the Empire so far, other vegetable oils or perhaps colouring liquids could have been produced via these mills.[22]

[18]On the Roman period water courses and ditches in Aquincum: Kérdő, Schweitzer 2014, 97, 109–111, 123–125.Ditches supplying a possible water-mill in the *vicus* of Salisberg: Sulk 2018, 642.

[19]Póczy 2004, 14.

[20]Modern analogy: Selmeczi 1981, 210., Fig.4.

[21]Waliszewski 2014, 27, Fig. 1.2.

[22]Press slabs found both in the Civil Town and the legionary fortress could have had a similar function: Pető 1976a, 113–121, Láng 2008, 280 and fn. However, in case of the press slab found in the Civil Town, horn-pressing is also possible: Láng 2016, 367–368.

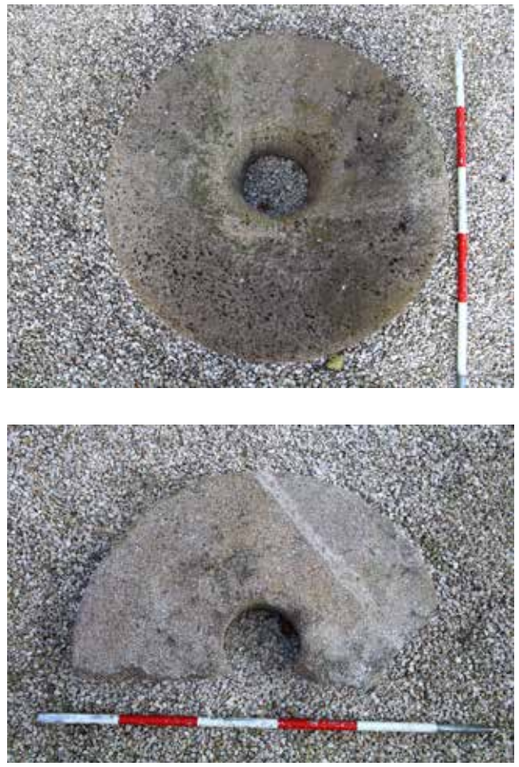


Fig. 7 - Large millstones (possibly belonging to water-mills) from the settlement complex of Aquincum a., b., c., (photos: P. Komjáthy).

The well-known Pompeian type of millstones seem to be absent in Aquincum: no securely identified *catillus* has been found yet,apart from the one described by Schauschek(see above), but that has been missing since his publication, in contrast with Savaria, where two *catilli* have been found so far.[23] The reason could lie in the fact that Savaria was founded as a colony in AD 43 and was closely related to the Amber Road and inhabited by merchants, veterans, and with strong Mediterranean connections. On the contrary, Aquincum only became the capital of Lower Pannonia in AD 106, while its inhabitants were mainly locals, veterans from all over the Empire (and their families),with fewer Mediterranean connections. It appears that the Pompeian type of mill was not widely adopted in this part of the Empire,and had fallen out of use here by the time Aquincum was raised to the rank of a provincial capital.

Find locations

As mentioned, unfortunately, only a small proportion of the whole material has exact data on find locations (Fig. 8). Most of the millstones — particularly those found before World War 2 — lack all information about their find spot. Of the 85 that do have precise find spots 16 pieces were found in the legionary fortress, 13 in the *canabae*, 7 pieces south of the *canabae* and 3 in the governor's palace. A further 9 were discovered in the Civil Town and in its immediate vicinity. Three can be connected to a villa estate, and 15 pieces—a relatively large number — were found in an Early Roman settlement in the territory of Aquincum (Harsánylejtő). Further to the south, 10 pieces can be attributed to the *vicus* of the first *ala* fort (and possibly also the fort itself) in the Víziváros. The Roman cavalry fort at Albertfalva, further to the south, also produced three millstones, while five were found in its *vicus*. So far only one millstone can be attributed to southernmost cavalry fort, Campona.

Material and dating

Although most of the millstones come without any relevant excavation data, since they were discovered in the 19th century and the first half of the 20th century, some are datable, which are all hand querns. The documented ones found in the Civil Town all date between the 2nd century and the end of the 3rd century

[23]Balázs *et al* 2017, 83–85.; Hódi 2015, 50–56.

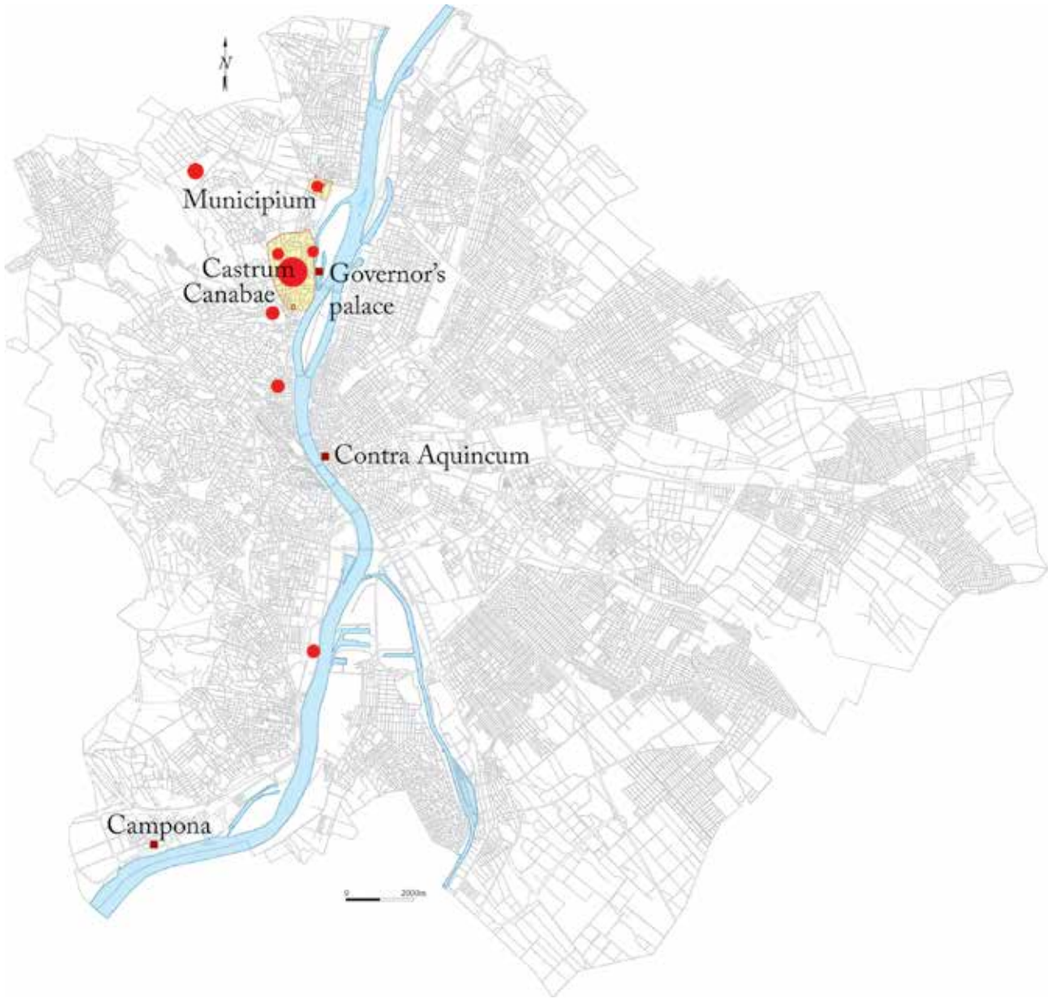


Fig. 8 - Find spots of millstones in the settlement complex of Aquincum (drawing: K. Kolozsvári).

AD,[24] while there is piece coming from a 4th-century villa in the city's territory.[25] Some datable pieces also come from the south-western part of the Military Town, a zone commonly associated with economic activities,[26] as well as from the western cemetery of the *canabae*.[27] Although most stones cannot be dated from their context, typological analysis — which is currently in progress — might help with the dating. The material analysis of most of the millstones has begun,[28] and simple visual inspection shows that they are mostly of volcanic material (andesite, basalt etc.) whose source could have been the nearby Buda hills. In any case, material analysis ofthe Aquincum millstones could be expected to provide new information on local and regional trading systems. So far the onlysuch work carried out in Pannonia has been the analysis of the millstones of Sala (Pannonia Superior).[29] Here basalt, andesite, and trachyte were all used for millstones and their provenance was the nearby Ság-hill,while the farthest site from which stones were imported was Gleichenberg, about 50–60km away.[30]

[24]Inv. no.: 2013.4.52, 2013.4.53, 2013.4.54 and 2013.4.55.: currently in the garden of House no. VIII, though probably collected from other buildings of the Civil Town. 2013.4.81: found with building debris west of the Aquincum Civil Town. Relatively late, most probably also 2nd -3rd c. horizon. Preliminary report on this part of the area: Lassányi, Láng 2014, 20; 2013.4.153 (=75.7.6.):with no precise dating – Pető 1976b, 32; Pető 1977, 149 and Figs. 5-6; 2013.4.132: end of the Antonine era – courtesy P. Zsidi (information from the archaeologist, unpublished).

[25]Láng 2009, 81.

[26]Distr. 3rd, 24 Szőlő str.: inv. no: 2013.4.185, 2013.4.186, 2013.4.187, 2013.4.189. Unpublished. Courtesy P. Vámos. On the function of the SW part of the *canabae*: Póczy 1983, 258–262.

[27]Distr. 3rd, 102 Bécsi road: inv. no. 2013.4.192. Possibly reused in a secondary context. Unpublished. Courtesy F. Fodor.

Fig. 9 - Open-air exhibition of millstones in the Aquincum Archaeological Park (photo: O. Láng).

Preliminary conclusions

As seen above most of the millstones in the collection of the Aquincum Museum are hand-querns, and most of those whose find locations are known were discovered in the legionary fortress. Due to the lack of find locations, dating of most of the millstones is problematic, but when data are available the stones can be dated between the 2nd and the 4th c. AD, most from the 3rd c. AD. Apart from the hand-querns, the important new findingis that there are a significant number of large, millstones many of which seem to indicate water-powered milling. This — onthe other hand — makes sense given the need to supply thousands of people (including probably the soldiers of the legionary fortress). The water-mills could have made good use of the Danube itself and its branchesas well as the streams of Óbuda. Even though the material analyses of the millstones has just been started, which will hopefully throw some light on the provenance of the stones and could even help with the typology, it can already be observed that most of the stones (particularly the handquerns) are of volcanic stones. Finally, it must be empasized that we are still at the beginning of the re-

[28]Performed by György Szakmány and his colleagues in the University of Technology and Economics.

[29]Nagy, Szabó 2008. Similarly local arethe material of the millstones from Porolissum (mainly volcanic but also sedimentary rock): Gudea 1997, 237.

[30]See previous footnote.

search work, it is still a long way to go until this so far neglected group of finds could tell us more about eating habits, applied technologies as well as the economic history of Roman Aquincum (Fig. 9).

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LIMES XXIIII

Session 36

General Session

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Was Durostorum the seat of the Lower Moesian governors?*

ABSTRACT

The aim of this paper is on the base of the available epigraphic and archaeological data to answer the question was Durostorum a seat of the governor of Moesia Inferior province or not. Three inscriptions where the governors of the province are mentioned and a comparison with Pannonia and Moesia Superior where the governors had there residences near the legionary fortresses are evidence that this city was a seat of the governor according to some scholars. On the other hand the building where the inscriptions have been found does not meet necessary requirements of a *praetorium consularis* as it is the case with other places. Besides no other inscriptiones connected with the entourage of the governor or bricks with seals of the units of his guards were discovered. That and exsamples from other Roman provinces lead to the conclusion that on this stage of knowledge it would be rashly to accept Durostorum as a seat of the governor of the province.

Key Words: Durostorum, inscriptions, Moesia inferior, governor

In 1975, in the former territory of the *canabae* of the *XI Claudia* legion (Silistra, Bulgaria), during rescue archaeological excavations carried out at the construction site of two blocks of flats, namely "Mladost 1-2", located on the "Drastar" Blvd. and "Patriarch Evtimiy" Str., two Roman period building complexes were thoroughly studied (Figs. 1 and 2). One of them was dated back to the first half of 2nd c. AD up to the beginning of the 4th c.AD, while the other was dated back to the first half of the 4th c.AD up to the end of the 6th c.AD (Donevski 1994, 155) The long use of these complexes, also the change of their owners and their purpose of use, required transformations which are easily distinguished on the site (Fig. 2). A more careful study of the plan of the early building and a cautious attempt to complete this plan show that it refers to a *villa urbana* with a number of premises situated along the yard space (Fig. 3). The eastern part of the complex

*I am grateful to Prof. Rudolf Haensch who was so kind to send me his work Capita provinciarum and to make some notes on my manuscript. I express my gratitude to my Romanian colleague Fl. Matei-Popescu who helped me with literature and made some notes on this work. Thankfulness to my Bulgarian colleague Nikolai Sharankov who explained me the status of the provincial governors in the end of the 3rd century. The writing of this paper is provoked by the incorrectness and lack of fellow feeling expressed by Prof. I. Piso in his article "Le siege du gouverneur de Mésie inférieure". - In: V. Cojocaru, A. Goscun, M. Dana (eds.), Interconnectivity in the Mediterranean and Pontic World during the Hellenistic and Roman Perid.Cluj-Napoca,2014.

Figures

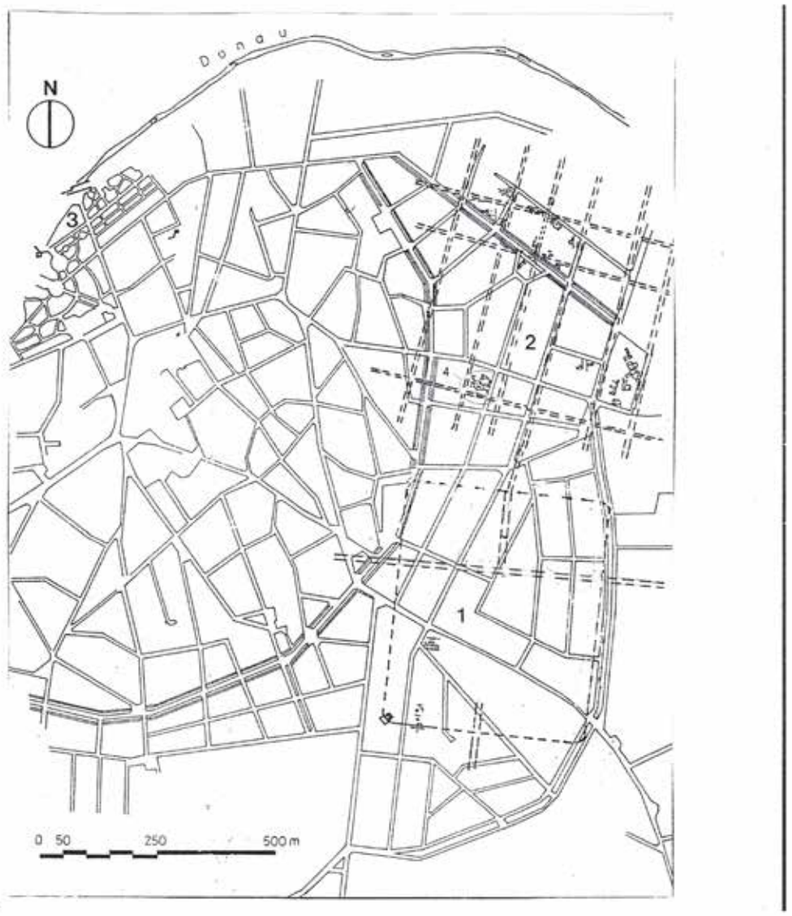

Fig. 1. Silistra. 1 – *Castra legionis*; 2 – *Canabae*; 3 – Late Roman Fort; 4 – Residence(?) (after P. Donevski).

Fig. 1 - Silistra. 1 - *Castra legionis*; 2 - *Canabae*; 3 - Late Roman Fort; 4 - Residence (?) (after P. Donevski)

consists of three rows of premises, situated from north to south. In many of them remains of the hypocaust heating system were discovered, which suggest that they were inhabited. One of their entrances was discovered there and it was outlined by two small walls, lateral to the most eastern-situated wall. The purpose of the premises that are south and west of the yard is difficult to be determined because of the considerable damages caused by the construction of the later buildings and the excavation works for the contemporary housing blocks. In the eastern end of the yard, on an area of about 54 square m, a bath house was built, detached to the mentioned 3 rows of premises of the *villa*. The bath house has a chain plan with four premises with different sizes. The *praefurnium* is located on the southern side where the hot premises are also situated.

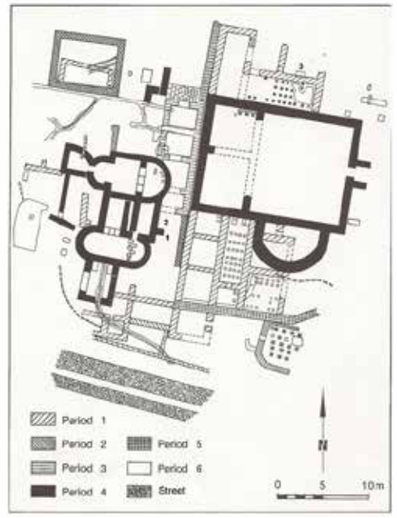

Fig. 2 Silistra.
General plan of the excavations in the block of houses "Mladost 1 –2" and the positions of the Latin inscriptions there (after P. Donevski).

Fig. 2 - Silistra. General plan of the excavations in the block of houses "Mladost 1-2" and the positions of the Latin inscriptions there (after P. Donevski).

The entrance is facing north and the space in front of it is paved with bricks.

In the first half of the 4th c.AD, after the terrain was flattened, on the same place another complex of premises was built. Its plan and probably its purpose are notably different of the former one (Fig. 2). One building is clearly distinguished from the plan. It has two premises with approximately similar areas, and a third one which is almost double the size of the first two. The latter also has a big *exedra* on its southern side. In the west there is a bath which includes two ellipse-shaped parts (with four *exedrae*) connected by a rectangular space. During a later period the bath house was considerably restructured, and this changed the walking lines and the location of the main premises. The old *praefurnium* in the southern part was replaced by an *apodyterium*, and a new *praefurnium* was detached to the north-west *exedra*. At the same time the south-east *exedra* stopped from being used. It is during these and other reconstructions that three Latin inscriptions of governors (Доневски 1976, 61–64) were reused as a building material (Fig.2). They also give us the ground for answering the question about the existence of a *praetorium consularis* in Durostorum.(Fig. 1).

The first inscription is cut in a marble block which is 0,85 m high, 0,57 m long and 0,60 m wide. It consists of 10 lines and the height of the letters is 0,055-0,060 m (Fig. 4).

The text reads:

Divinib[u]s Ro-
mae aeternae,
Ge[ni]o provin-
ciae Moes(iae) Inf(erioris)
Dom(itius) Antigo-
nus, v(ir) c(larissimus), leg(atus) Aug(usti)
pr(o) pr(aetore), cum Pompea

Apa, c(larissima) f(emina), coniuge
et Dom[i]tiis An-
tigon(o) et Ant(igona)

There are ligatures in line 2 – AE, line 3 – IN, line 6 – AU, line 7 – PR, RP, UM, line 8 – NIU, line 9 – ET and line 10 – ET.

Domitius Antigonus, the governor of the province, makes his dedication not only on behalf of himself but also on behalf of the rest of his family members. He governed the province in the period of AD 235-236 and he is known from two more inscriptions from Lower Moesia (Stein1940,97;Velkov 1961, 216; Fitz 1966, 31;Thomasson 1984, 143).

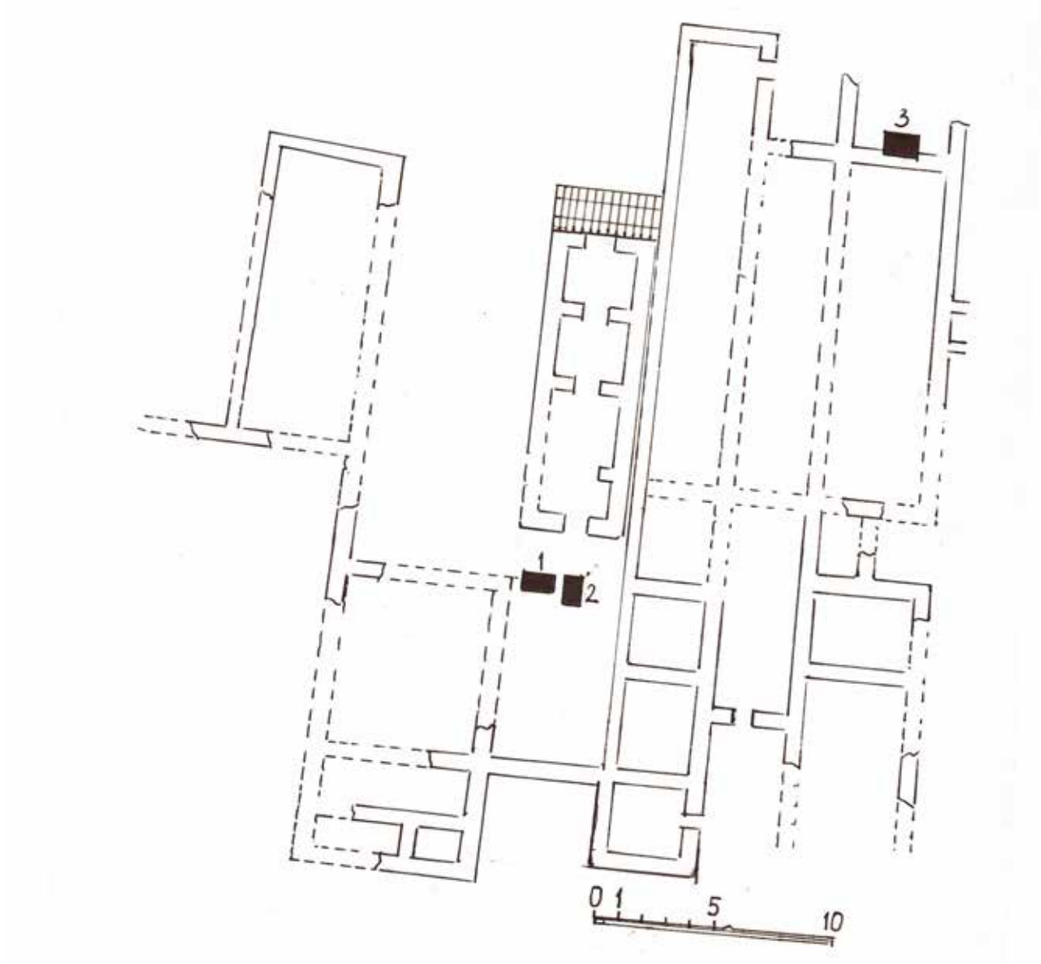

Fig. 3 - Silistra. Reconstructed plan of the villa urbana in the block houses "Mladost 1-2" and the positions of the Latin inscriptions there (after P. Donevski)

The second inscription is an *ara*, made of limestone with a height of 0,725 m, length of 0,49-0,57 m and a width of 0,58 m. It is carefully cut in seven lines. The height of the letters is 0,035-0,040 m. A triangular full stop is used as a dividing mark. The upper right corner is cracked (Fig. 5).

The text reads:

I(ovi) O(ptimo) M(aximo)
sacrum.
Aur(elius) Dizzo, v(ir) p(erfectissimus),
praes(es) prov(inciae), pro
salute sua, suor-
umque omnium
v(otum) l(ibens) p(osuit)

This dedication to Jupiter is made by Aurelius Dizzo, an unknown governor of the Lower Moesia province as of the time the inscription has been found. The title *v. p.,* characteristic of the late 3rd c.AD, refers his governance from the first years of the reign of Diocletian (Zahariade 2006, 293–294) or later (Velkov 1977, 241–243).

The name of the person making the dedication shows that he is of Thracian origin (Detschew 1957, 135).
The third inscription is on a block of limestone which is 1,10 m high, 0,625 m long and 0,50 m wide. The letters are 0,055-0,060 m high and are also carefully

Fig. 4.

Fig. 5.

cut to form a text of 10 lines. (Fig. 6):

The text reads:

I(ovi) O(ptimo) M(aximo) Sal[uta]ri,

Iunoni Reginae
Ceterisque
Diis inmortalibus
[S]ilvius Silvanus,
v(ir) p(erfectissimus), praeses prov(inciae)
Moesiae Infer(ioris)
pro salute sua
et suorum votum
solvit.

Silvius Silvanus is also an unknown governor of Lower Moesia. Since the two men had the same title, it has to be accepted that Silvius Silvanus held this post in a period close to Aurelius Dizzo's time.

With reference to this, after having outlined the facts, we should certainly raise the question whether the above mentioned inscriptions themselves are sufficient evidence that could prove the existence of a residence (*praetorium consularis*) in Durostorum and what their relation is, if there is any connection at all, with the excavated building that dates back to 2nd – 3rd century AD.

I would like to direct the attention to two oppinions that give a positive answer to the first part of this question.

According to the first one (Velkov, 1977, 421–423), at the end of the 3rd c. AD Moesia Inferior was separated into Moesia Secunda and Scythia Minor and Durostorum became the capital of the first one, or as Velkov calls it "the new province of M. Inferior". His assumption is based on the inscriptions of S. Silvanus and Aur. Dizzo, which he dates back to the rather long period, i.e. from 284 to 302 AD. According to Velkov, Durostorum, together with the other towns situated on the Lower Danube such as Sexaginta Prista and Transmarisca, is a subject of special attention on behalf of the Authorities in Rome at the end of 3rd c. AD. This is due to the heavy military construction work undertaken in this part of the Empire. The Emperor Diocletian himself also visited these places several times.

The other opinion needs a more special attention because its author (Piso 2014, 493–497) has made more comparisons and has found more evidence supporting his theory. He believes that the greater number of artefacts and remains that have been found in Tomis and can be connected with the provincial governors shoud not give the city an advantage over Durostorum. This is due to the fact that, like Sarmizegetusa in Dacia, Tomis was a *metropolis* and a centre of a *conventus* and therefore was visisted more often by the governors. One of the strong arguments of the author is the comparison with Upper and Lower Pannonia and Upper Moesia where the residences of the provincial governors are close to the legionary fortresses in Carnuntum, Aquincum and Viminacium. According to him, one governor

Fig. 6.

residing in Tomis could not control the army situated along the Danube when the nearest legion was 200 km away. Since the XI Claudia legion near Durostorum occupies a central position in this part of the limes, he thinks it is reasonable to conclude that the seat of the governor was exactly there. In addition, he finds the building, where the inscriptions were found, considerably impressive and believes that its location in the canabae undoubtedly classifies it as a *praetorium consularis*.

At first sight the outlined arguments seem well reasoned but let us decide whether they are actually logical. First, it is hardly necessary and acceptable to use such a pompous and unambiguous description of the building where the inscriptions were found.In fact it is an ordinary city house situated approximately 150 m north of the legionary fortress and west of *porta praetoria* and can hardly be connected with or be part of a larger complex because there is no archaelogical data about this (Figs. 1 and 3). During the construction of the administrative building of the Ministry of the Interior, there were no noticeable traces of solid structures to the west. The same applies for the foundations of an apartment building to the south. To the east, during the construction of a school the remains of some walls were found but there is no obvious reason to connect them with the construction we are interested in. To the north, across a present – day street, archaelogists have studied the premises of not so big public baths from 2nd – 4th century AD but there is no data about the connection of the two constructions (Donevski, Milosevic 2009, 52–54). What is more, the building, where the fourth inscription related to the governor of the province (Piso 2014, 496) was found, is situated approximately 500 m to the north – east and is much more impressive. The same applies to the other constructions in the canabae but this is not enough to connect them with the *praetorium* of the provincial governor (Burrell 1996, 232). With reference to the building in question, it can be said that it is not typical and characteristic of the *praetorium consularis* because it is known that such buildings both in Aquincum and in Apulum for example are situated to the side of the canabae and the other civil settlement and are much more impressive with their plans and architecture.

It is also important to note that during the excavations in the present - day city of Silistra, below which the remains of the legion fortress, canabae and a large part of the necropoleis lie, the archaelogists have not found any bricks with seals of the military units of the governor's guards or inscriptions mentioning members of his staff. Let us see what information can be obtained from the inscriptions found in the building. The first one, as we already know, is dated to AD 235-236 and, not just according to me, can be connected to the participation of the provincial governor in the military activities of the XI Claudia legion against the Sarmatians and Dacians of that time (Haensch 1997, 333). The other two inscriptions, dated by Velkov to AD 284-302 AD cannot be connected with certainty to the time before separation of Lower Moesia, which is considered to be in AD 286-293 , although some archaelogists have tried to do so (Zahariade 2006, 294). Connecting the placement of these inscription with the end of the reconstruction of the fortification system in this part of the limes in AD 285-286 contradicts the available epigraphic material and the latest archaelogical findings in Durostorum which indicate that this process finished considerably later (Atanasov, Mihaylov 2018, 96–98). Our governors were given the title of *vir perfectissimus* which was used from the time of Gallienus to that of Constantine the Great. The other title, i.e. *praeses* indicated very broadly someone who governed the province without specifying their functions. In the earliest list of the newly – separated provinces, the so called List of Verona or Laterculus Veronensis that could be most probably dated to the second decade of 4th c. AD, the new province is still called Moesia Inferior. Therefore,

the inscriptions that are placed by the governors themselves (in all other cases to an even greater extent) are conservative and apply the old formulae. This is one more piece of evidence, albeit indirect one, that the studied inscriptions might have been placed after the administrative reforms carried out by Emperor Diocletian when the capital of the new province became Marcianopolis. But even if we assume that the inscriptions are from the first years of the reign of Diocletian, this does not automatically lead to the conclusion that they were placed by the governors residing in Durostorum. This could be due to many different reasons such as solving legal, military, or other problems.

With reference to the fact that the governor was away from the limes and provided that his *praetorium* was in Tomis, we can give many examples of the European borders of the Empire where this representative of the central authority did not reside so close to the military contingents as we might expect. In Germania Inferior where the seat of the governor was in *Colonia Claudia Ara Agrippinensis* (Cologne), the closest legion in Bonna was approximately 30 km away, while the other legionary fotresses in Vetera (Xanten) and present-day Nijmegen were about 100 and 150 km away respectively. In Raetia after 170 AD, the legion was situated in *Castra Regina*(Regensburg) but the governor of the province continued to reside in the old residence *Augusta Vindelicum* (Augsburg), 150 km away from the border(Haench, 2007, 274).

In Lower Moesia, the legion fortresses in Novae, Durostorum and Troesmis are situated approximately 180 km away from one other. At the same time, Tomis is approximately 130 km away of Durostorum and Troesmis and considerably farther from Novae but relatively closer to forts such as Axiopolis (50 km), Capidava (50 km) and Carsium (80 km) which are situated on the Danube limes. If we study more carefully any map of this region, we will notice immediately that Tomis occupies a central position with reference to the two legionary fortresses in Durostorum and Troesmis and is not that far from the limes as many researchers think. With reference to this and from a military point of view I do not think there would be any advantages or anything would be obtained if the governor resided in or at the fortress of the XI Claudia legion since the other legions were located so far away. In provinces with big garrisons, contrary to the expectations, the seats of the governors were not located there. Only half of the consular *legati Augusti pro praetore* were seated close to the respective legion. (Haensch 2007, 274). However, there were exceptions such as those in the Mediterranean and Moesia Inferior (Haensch 1997, 365–366).

Becoming a seat of the governor was obviously a result of specific political vision and historical circumstances. If we take as an example certain legionary fortresses along the Danube and Rhine that were situated close to the seats of the governors, we will find out that it was the legion and its needs that determined the economy of these cities. The situation of the seats of the governors in the provinces by the Mediterranean Sea or on navigable rivers was completely different because the seats were located in the the cities that were big and busy commercial centres. For this reason their prosperity and existence were not threatened when they stopped being major administrative cities. This is the Utica case, for example, which lost its rights when the governor moved to Carthago. Much more jeopardised were similar centres when their harbours were silted up as happened with Narbo and Ephesus (Haensch 2007, 275). With reference to this, by taking into account its rich history, cultural traditions and commercial prosperity we can make the assumption whether Tomis does not fall within the second category of the provincial seats. However, I cannot prove this. What is more, this is not the purpose of my article. Nevertheless, I cannot help but mention a recent study. In it the author makes an overview of the different types of military personnel who are mentioned in the existing epigraphic materials from Tomis and reaches the conclusion that the presence of such a large number of servicemen in the city can be connected with and explained only by the fact that the seat of the provincial governor was there (Matei-Popescu 2014, 182–185). This pertains to the period after 46 AD because according to the author until this year Tomis and the other Western Pontic cities and their territories belonged to an administrative zone that was separate from Moesia and was governed by *praefectus civitatium* or *praefectus Ponti* (Matei-Popescu, 2017, 24).

The pre-eminence of Tomis can be noticed even from the 1st century.Tullius Geminus,the governor of Moesia was present here of a date between 47-53.He came to Tomis either for settling the border problems of Histria or his headquartes were here.Otherwise,Tomis is considered to have been seat of the governor of Moesia

province (Busoianu, Barbulescu 2012, 46–47).

In conclusion, it should be noted that at this stage of the research there is not enough archaelogical and epigraphic evidence to assume that Durostorum was the seat of the Lower Moesian governor after the arrival of the legion in 106 AD. The fact that we have only one inscription dated with certainty to the Principate period and two others that can be connected to the period after the division of Moesia Inferior when the *praeses Moesiae II* resided in Marcianopolis can hardly make archaeologists decide in favour of Durostorum. On the other hand, the building where the inscriptions were found with its architecture and location can hardly be compared with other well – studied *praetoria*.

Finally, the facts that there is a great variety among the seats of the governors in the Roman Empire, and there is no trace of uniformity between them allow us to conclude that different historical conditions and circumstances are the reason for their appearance and existence (Haensch 2007, 276).

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LIMES XXIIII

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Fortifications and settlements from the 1st to the 6th c. at the Mouth of the Yantra River (Lower Danube, Bulgaria)

ABSTRACT

This contribution provides a review on research activities in the last decades on the lower Danube focussing especially on the mouth of the Yantra. Up to the current state of knowledge, this section was secured for the first time by a fortification with the reorganisation of the limes under the Tetrarchs and Constantine. The newly erected castrum Iatrus started to function around 320.

A new interdisciplinary project supported by the German Research Foundation aims the investigation of a settlement complex at the south slope of the Tash bair at the western edge of the Yantra mouth plain. By using different survey methods, clear evidence for a systematic land division and an intensive agriculture in the border zone from the 2nd to the beginning of 5th c. was found. Geophysical investigation probably revealed a Late Roman fortified villa.

Key Words: Limes, Lower Danube, Yantra, Iatrus, Novae, Moesia inferior, Roman Army, River frontier, Latarkion

Limes fortifications along the southernmost part of the river Danube from the 1st to the beginning of 4th c.

For the 1st c. AD, the history and organisation of the Roman limes along the lower Danube (Fig. 1) remains uncertain for large parts. One of the few reference points for this time is the legionary camp of Novae in the eastern outskirts of the today's town of Svishtov. According to most of the scholars, the camp was founded in 44 AD[1]. The *legio VIII Augusta* was

[1]Recently Tomas 2016, 21 argues for a possible establishment of the legionary camp in the time of Nero.

the first military unit which was stationed here. It was replaced by the *legio I Italica* in AD 69. The existence of a fortification on this place was proved by archaeological excavations which revealed contexts and finds from the middle of the 1st c. AD[2].

The dislocation of a legion to this area had reasonable grounds: As it was already pointed out, the river Danube reaches the southernmost point of its course between the Bulgarian city of Svishtov and the mouth of the Yantra river[3]. Furthermore, the width of the river is here some 800 m only, and the high river terrace on its northern bank runs immediately along the river itself. This provides a good opportunity for the transition over the river at this point. But even the existence of a legionary fortress didn't prevent the invasion of the Goths under Cniva who crossed the river near Novae in the year 250 AD[4]. Still in modern times, the strategic position was also used by the Russian army during the Russian-Ottoman War in 1877. By crossing the river near Svishtov they've got the opportunity to send one part of the troops to the battlefield near Pleven, and to reach the passes in the Balkan on the shortest way along the river Yantra[5].

Between Novae and Sexaginta Prista, the efforts of excavations and surveys undertaken in the last years didn't prove the existence of an early Roman fort of the 1st c. AD. what can be expected at this endangered area with the possible access to the Balkan passes[6]. Based on the current knowledge, the weak construction of the limes between the mouth of the Yantra river to the mouth of the Danube in the first decades after the Roman occupation has probably historical reasons: different scholars consider a continuance of the toll district of the *Ripa Thraciae* as a military prefecture till the Flavian times subordinated to the provincial governor[7]. It is generally assumed that during this time the legions and other military units stationed in Novae had the military control over this section. The possible early fortifications which were made of earth and wood have still to be identified.

The consolidation of this limes section started in Flavian times and especially after the Dacian wars of Traian[8]. A military building inscription from Appiaria (Ryahovo; Ruse Region; approx. 27 km east of Sexaginta Prista) can be dated AD 79 and confirms this assumption[9]. A Flavian lime production centre of pre-industrial scale at the mouth of the Yantra can be related to this process[10] (Fig. 2). Brickstamps of the *legio I Italica* proved that the production was organised for military needs, very likely related to construction works at the limes. In regarding the position of this production facility, it can be argued that the lime could be used for construction works at the mouth of the Yantra but was rather shipped along the Danube[11]. In Novae, the first buildings of stone and mortar were erected during the Flavian time[12]; corresponding building activities for the section between the mouth of the Yantra and Sexaginta Prista are still missing. Recent excavations on the limes fortifications of Scaidava (north of Batin) and Trimammium proved the occupation of the 2nd to 6th centuries but didn't reveal any traces of the 1st c.[13]. Both sides were obviously newly erected on promontories of the steep hill chain running parallel to the south bank of the Danube. Protection, inter visibility and a good overview on the Danube valley were guaranteed in this way. It can be assumed that during the 2nd and 3rd c. AD a small *presidio* of the *legio I Italica* or a street station existed at the mouth of the Yantra river only

[2]Ivanov 1997, 556 f.

[3]See also Ștefan 2011, 315–317, who discusses the position of the Iron Age fortification of Ziminicea as the southernmost point of today's Romania and the shortest way between the Aegean Sea and the Danube.

[4]For the historical development in the lands along the lower Danube, for example cf. Ivanov 1997, 477-479; Boteva 2001.

[5]Cf. the description of the Russian-Ottoman war by Kanitz 1982, 149 f.

[6]Conrad 2006, 315 f.

[7]Gerov 1979, 215; 222 n. 68 and Torbatov 2012a, 438 f. with the discussion of this problem.

[8]Torbatov 2012, 439 f.

[9]Beshevliev 1952, 71 f. Nr. 122; Sharankov 2016, 35 f.

[10]Vagalinski 2011a; b; Vagalinski, Conrad (in prep.).

[11]Vagalinski 2011b, 57.

[12]Ivanov 1997, 564–566; Dyczek 2000 89–91 Fig. 1; id. 2009.

[13]Scaidava: Vurbanov 2014, 57 f.; Vurbanov *et al*. 2014. - Trimammium: Varbanov *et al*. 2008; Torbatov 2012a - The localisation of the early fort of Sexaginta Prista is uncertain as well, cf. Torbatov 2012a, 129–130.

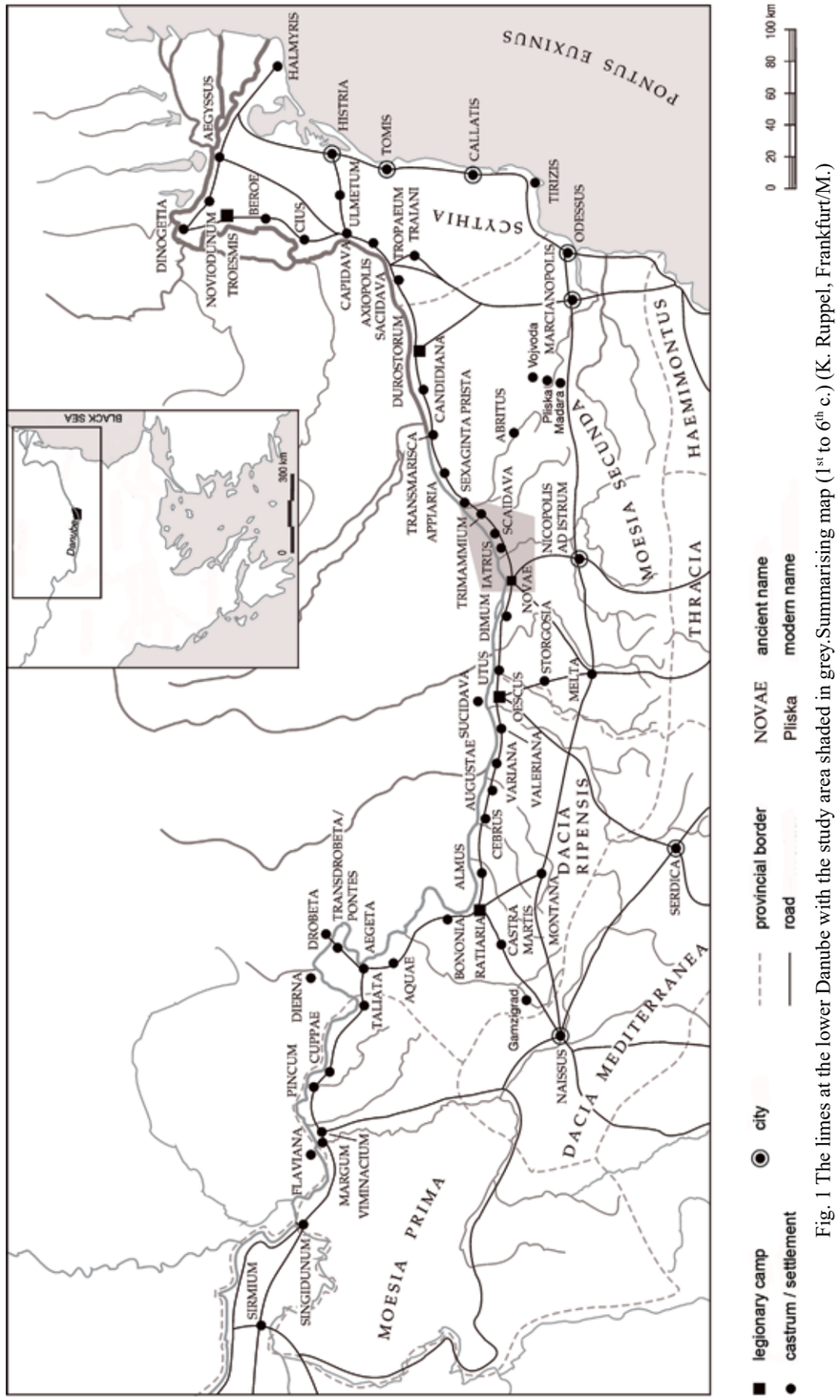

Fig. 1 The limes at the lower Danube with the study area shaded in grey. Summarising map (1st to 6th c.) (K. Ruppel, Frankfurt/M.)

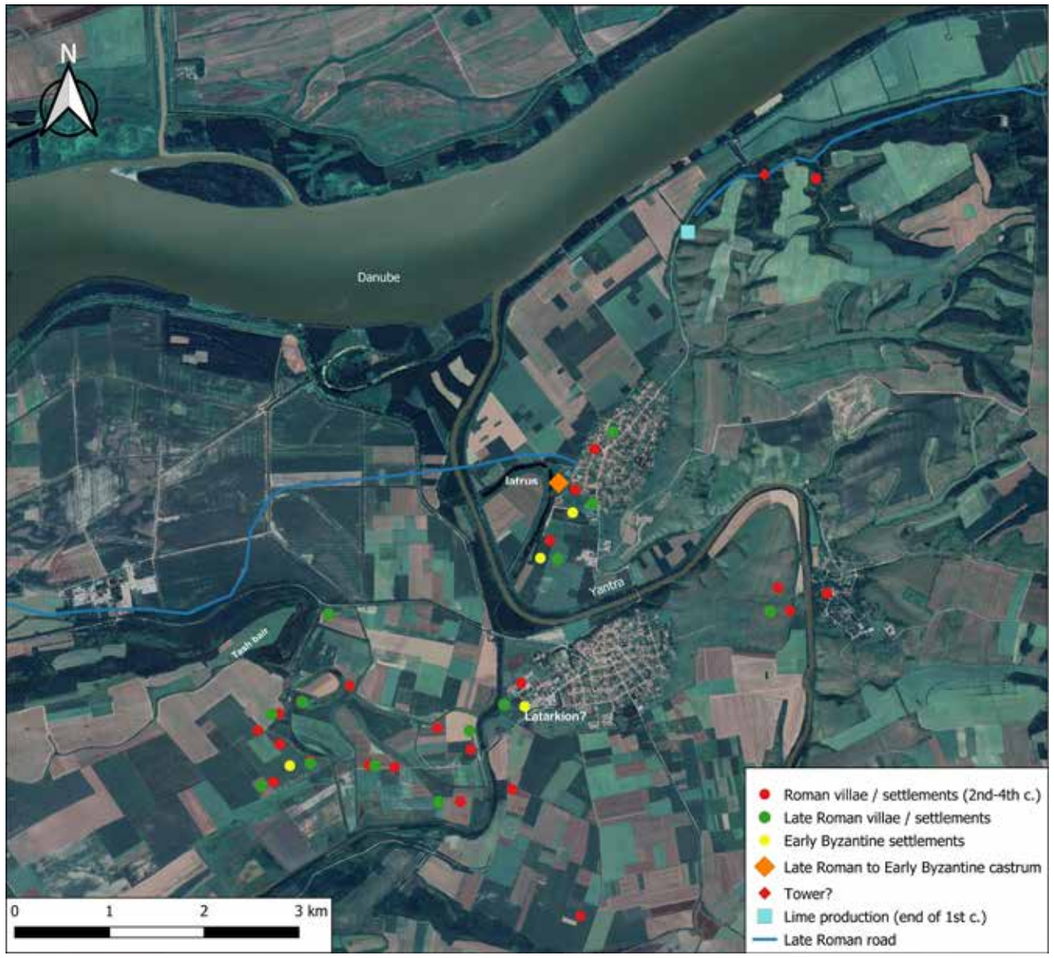

Fig. 2 - Fortifications and settlements at the mouth of the Yantra from the 1st to the 6th c. (base map: GoogleEarth)

but it was not worth to mention it in the *itineraria* of the 2nd and 3rd c.[14].

The settlement system at the lower course of the Yantra from the 2nd to the end of 4th / beginning of 5th c. AD

The establishment of new garrisons along the Danube and the stabilisation of the frontier had a great influence on the development of the settlement system in the region. Up to our current knowledge, the first *villae rusticae* were founded in the research area in the 2nd c. AD. The needs for supply of the army lead to a growing number of farms in the limes hinterland. Among the owners were very likely a high number of veterans and migrants from other provinces[15]. Some of the larger settlements which can be identified as *vici* may have ancestors of the Late Iron Age, but a possible continuity can be proved by excavations only. But it must be held that these conclusions are mainly based on surface finds. Up to now, there are almost no excavations in the rural landscape[16].

[14]For example, the Itinerarium Antonini 221,4; 222,1 does not mention a station between Novae and Scaidava.

[15]Cf. for example Duch 2017, 173–175.

Fig. 3 - Overview of the mouth plain of the Yantra with the old meanders in the middle (view to the North). To the left, the southern slope of the Tash bair (cf. Fig. 4). Iatrus is situated in the background right (arrow).

Despite a certain impact of the 3rd c. invasions, the settlement network reached its highest density approximately during the first half of the 4th c. In that time, most of the suitable areas, i.e. side valleys with direct access to water and south slopes in the river valley, were occupied. The high density of sites in the area south of Novae is considered being a result of a systematic land partition[17]. Although it is not sure that every find spot can attributed to a single land lot, the special feature in the vicinity of Novae can very likely directly related to a granting of land plots for veterans in connection with their *honesta missio* run by the military administration.

At the western edge of the Yantra mouth plain, a recently started project investigates a settlement complex at the Tash bair[18] (Figs. 2-4). On its south slope, Roman surface finds are spread over rather large area. Intensive surveys revealed the existence of several complexes of approximately 1000 to 3000 m² (Fig. 4). They produce especially high concentrations of architectural remains and household finds. Between the larger findspots, but even on small natural terraces of the south slope, there are small sites with a limited number of finds which can probably attributed to adjoining buildings.

Some of them appear as limited features in the geomagnetic measurements.

In the present state of research, a final interpretation of these complexes as houses (*pars urbana*) or economic buildings (*pars rustica*) of one or more *villae rusticae* or even as a road station is still not possible. Some more Roman findspots along the old river meanders in the lowlands might have a native origin (Figs. 2 and 4).

On the eastern side of the mouth plain, there are registered some find spots of the 2nd to beginning of 4th c. in and near the present-day villages of Novgrad[19] and Krivina[20]. According to the few information at the present state of research, they had very likely an economic function.

[16]Up to now, a Roman villa near the modern village of Vardim in the rural landscape between Novae and Iatrus was excavated. The villa which included a winery with a rather large capacity existed between the end of the 2nd and the 2nd half of the 4th c., see Dinchev 1997, S. 116 f. Nr. 2 with map; Conrad, Donevski (in prep.).

[17]Conrad 2006, 321–324 Fig. 11; 12.

[18]The project is carried out with the support of the German Research Foundation (grant no. 388543935) as a joint Bulgarian-German project of the National Archaeological Institute with Museum Sofia of the Bulgarian Academy of Science and the Institute for Prehistory and Archaeology of the Middle Ages of the University of Tuebingen. For detailed results cf. Vagalinski *et al*. (in print).

[19]Cf. the results of rescue excavation published by Stefanov 1956, 41–43; Stefanov 1974.

[20]There is a find spot about 300-400 m south of the later fortress of Iatrus, on the high bank of the Yantra river, see Conrad 2006, Fig. 8. Limited excavation in 2002 didn't reveal any traces of buildings, but there are some indications for a pottery production, cf. v. Bülow, in prep. There are also some stray finds of Roman pottery around the church of Krivina; an interpretation of the find spot is impossible.

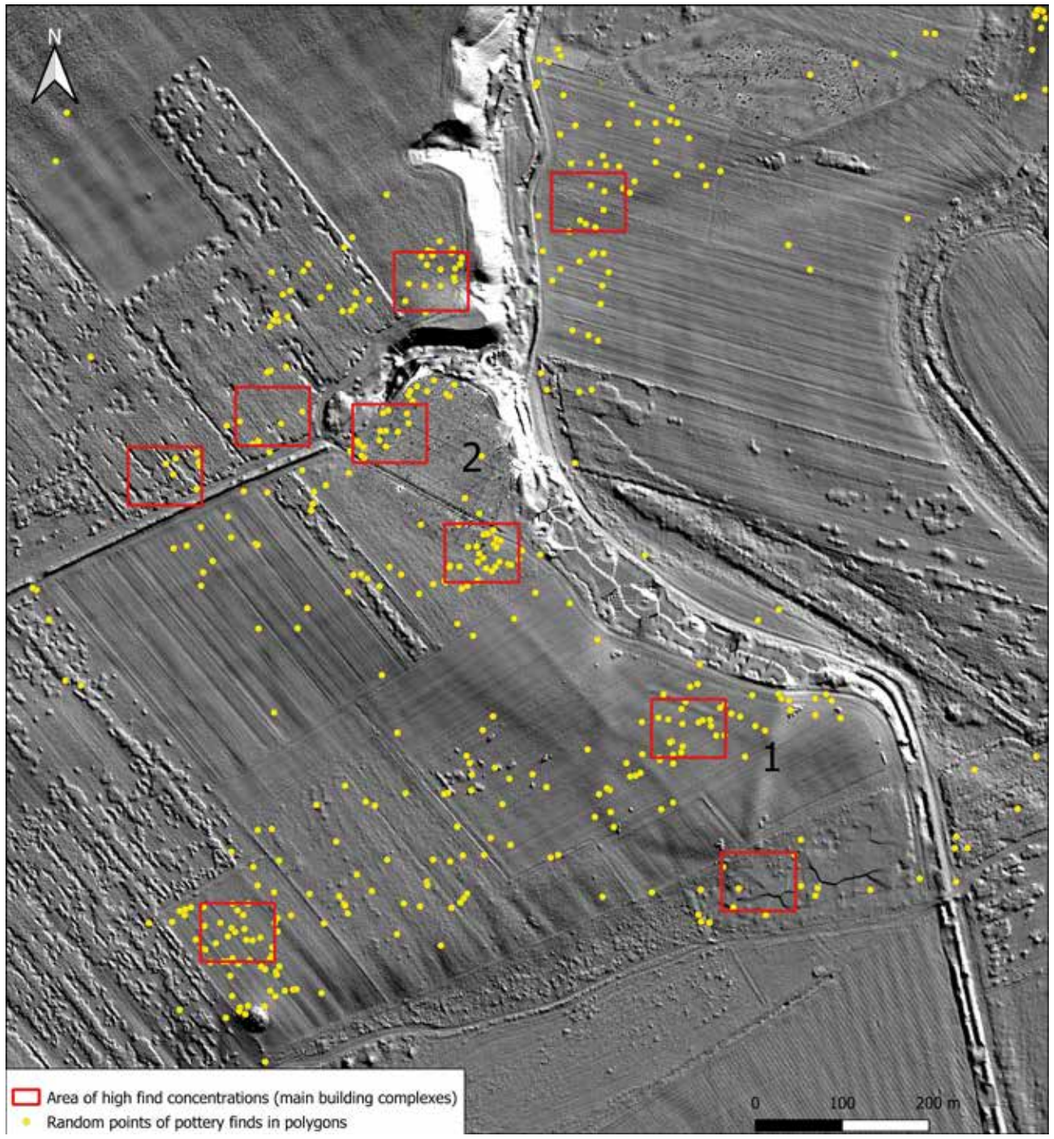

Fig. 4 - Results of the surveys at the southern slope of the Tash bair on a LiDAR map (sites 1; 2). The pottery finds of the 2nd to mid-4th c. are shown as random points in polygons (size of the polygons between 2500 and 3500 m² on average). The preliminary interpretation bases also on stone and architectural finds which are not shown in the figure. The ramparts of a medieval fortress on site 1 are clearly visible in the LiDAR map

Apart from the special case in the area around Novae, there is hardly any difference in the settlement density between the limes zone and the territory of Nicopolis ad Istrum to the south in the advanced development between the end of 3rd and the 1st half of 4th c. (Fig. 5)[21]. The demand for food and other needs for daily life from the troops obviously caused a high economic activity

[21]The area under research covers around 7000 km² with nearly 300 find spots, cf. Tsurov 2007.

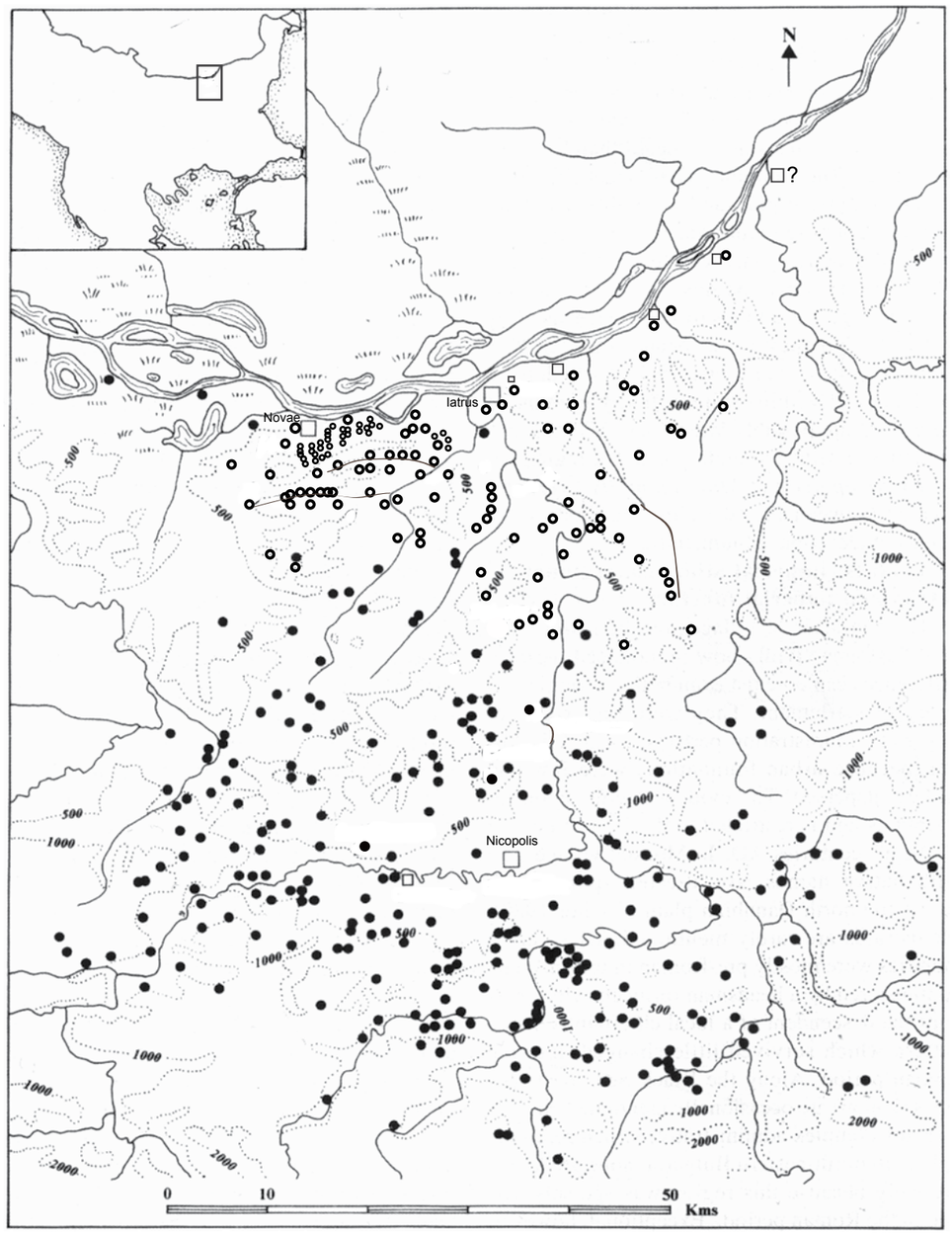

Fig. 5 - Settlements and fortifications along the Yantra river (1st to beginning of 5th c.; without exact chronological determination). Results of the joined Bulgarian-German at the lower Yantra (open circles) and the Bulgarian-British teams in the territory of Nicopolis ad Istrum (full dots). The distribution of find spots approximately marks the research area (base map after Poulter 1999, Fig. 1).

not only in the limes hinterland but in the border zone itself[22].

The consolidation of the limes in the beginning of the 4th c. till its abandonment in the middle of the 5th c. AD

During the reign of the Tetrarchs a general consolidation of the limes at the lower Danube began which was related to a renewal and extension of the existing and an erection of new castra as well[23]. Some archaeological traces under the fortress of Iatrus can probably assigned to an early occupation during the 2nd half of 3rd c.[24], while the new erected fortress Iatrus started to function around AD 320. It is not generally accepted that the *cohors equitum scutariorum* mentioned in the Notitia Dignitatum was stationed here from the beginning[25].

Very likely in the 4th c., a road made of stone pebbles and earth was built through the lowlands near the mouth of the Yantra river[26] (Fig. 2). In the same time, the legionary fortress Novae was extended by a fortified area to the east (Novae II).

With the defeat of the Roman army in the battle of Hadrianopolis in the year 378, the traditional organisation of the military system along the Danube collapsed. To stabilise the situation, Theodosius I contractually permitted large contingents of the Goths to settle south of the Danube. They were obliged to supply soldiers, to serve as *foederati* in the army and to protect the Danube border. Subsequently, the regular internal structure of the military fortifications was almost completely given up. Their character changed into fortified settlements with a congested, partially unregular construction plan.

The border was further secured and reinforced by the erection of *burgi*[27] between the existing castra at the Danube and new fortifications in the hinterland.

In this context, a newly discovered site at the south slope of the Tash bair hill might be of particular importance. The plan of the geomagnetic survey with the preliminary interpretation shows, apart from several small buildings and other anomalies, three enclosures (Fig. 6). The largest one is of trapezoid form and has side lengths of 40 to 60 meters. The strong rectangular anomaly situated at or near its NW corner is very likely caused bey the remains of a tower. Another tower could have been existed at the SE corner. A high number of surface finds suggest a dating in the Late Roman period (mid of 4th to at latest mid of 5th c.). This complex probably belongs to a group of buildings classified by J. Henning as fortified villae which are the link between the classical villa and the Late Roman fortification[28]. A common layout does not exist, but the ground view is more or less based on the outlines of a *quadriburgium*. A military function as a small castrum ('Kleinkastell') supposed by T. Völling[29] seems to be not very likely for Orlandovtsi (Fig. 7) and for the enclosure at the Tash bair because of the unregular and weak construction. This question cannot be solved without excavations and the obtaining of material proving this hypothesis.

According to the results of our research, most of the rural settlements in the direct or remote frontier areas were given up at latest in the beginning of 5th c. The collapse of the villa economy was registered in the territory of Nicopolis ad Istrum as well[30]. Together with the *foederati*, the remaining people settled in or nearby the fortifications. A higher density of hilltop fortifications existed in the retreat zone of the northern foreland of the Balkan range[31].

[22]The settlement density in Moesia inferior was very likely not everywhere the same as in the urban territory and the surroundings of a legionary camp. There are some indications for a reduced number of find spots in the rural territories to the east and to the west of the province. Apart from the city of Marcianopolis, there is no more urban territory in Moesian hinterland. The territories in between were organised as rural *civitates* or *regiones*.

[23]Cf. Poulter 2007a, 30 f.

[24]Cf. Vagalinski 2003, 43–46; v. Bülow 2007a, 463; v. Bülow 2007b, 9 f. Abb. 1.

[25]Döhle 1995, 26–28 accepts the opinion of most of the scholars that the text of the Notitia Dignitatium reflects the situation of the 1st half of the 4th c. Dintchev 1999, 172–174 considers the stationing of the unit after the mid of the 4th c.

[26]Conrad/Stanchev 2002, 676 Fig. 10–12.

[27]Cf. the *burgus* near Batin: Stančev 1999.

[28]Henning 1994, 477 Kat. 24 (Kolyu-Marinovo); Kat. 64 (Orlandovtsi)

[29]Völling 2000. - Dinchev 1997, 96 f.; idem 2007, 530–532 argues for an ecclesiastical function of this building complex (early monastery).

[30]Poulter 2004, 230–237; id. 2007b, 82. J. Henning (1994, 464; 472) had already suggested the end of the agriculture based on the villa rustica type in the beginning of the 5th c.

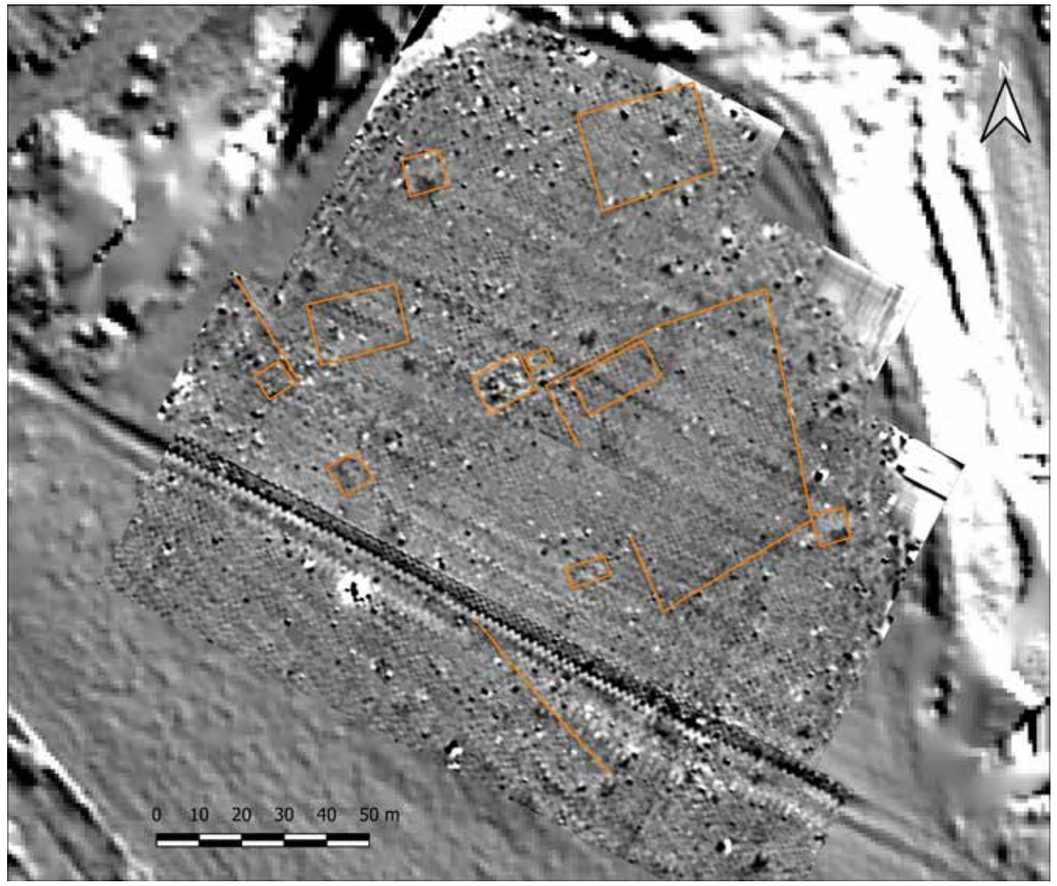

Fig. 6 - Tash bair, site no. 2 (cf. Fig. 2; 4). Residual map of the geomagnetic survey (P. Zidarov, Tuebingen) with preliminary interpretation

During the first decades of the 5th c., the territories south of the Danube were always endangered by the Hunnic invasions. Before the final collapse in the middle of the 5th c., Iatrus was partially destroyed in the beginning of the 5th c.[32]. Finally, a treaty with the Huns forced the Romans to give up the castra and a strip of land south of the Danube in a width of a 3-days journey[33].

Fortifications and settlements from on the lower course of the Yantra from the 2nd half of the 5th till the abandonment of the limes at the turn of the 6th and 7th c.

Only during the reign of Anastasius at the end of 5th c., a renewal of the limes together with a reconstruction of the fortifications was carried out. Most of the buildings inside the fortress of Iatrus were of very simple wooden and earth construction; stone foundations are very rare. The largest building was a basilica erected during the reign of Iustinian. There are some scattered traces of small settlement outside the fortification in the

[31]Poulter 2004, 242–250.

[32]See Vagalinski 2012 for the barbarian invasions.

[33]Cf. v. Bülow 1995, 43–49; Poulter 2007a, 39–41.

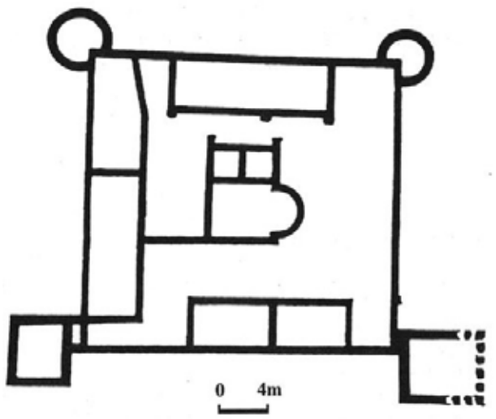

Fig. 7 - Orlandovtsi. Late Roman fortified villa (after Völling 2000, Fig. 2)

adjacent area of the today's village of Krivina. Open settlements of the end of 5th or of the 6th c. in the study area as well as in the territory of Nicopolis ad Istrum are very rare[34] (Fig. 2).

The late sources still mention most of the older fortifications along the Danube, but some new fortified places newly appear as well. The fortification of Theodoro(u)polis mentioned by Prokopios (aed. IV 7) and Theophylaktos Simokates (VII 2) was identified with the fortress on the Kaleto hill in Svishtov[35]. In the war campaign under emperor Maurikios, the troops passed the fortification of Λαταρκιον on their way from Iatrus to Novae. This toponym appears in this description by Theophylaktos Simokates only[36]. Up to now, an exact localisation of the site was not possible. According to S.A. Ivanov, the linguistic phenomenon of a metathesis changed the original name *Latrakion* into *Latarkion*. *Latarkion* as a diminutive or rather an adjective is related to *Iatrus*, which appears in the Late Roman sources in the variant of Latron too[37]. This striking hypothesis leads to the conclusion that Latarkion must be localised near the river Iatrus or the eponymous fortress. According to the results of excavations and extended surveys, there is up to now only one find spot which can probably be identified with Latarkion. In the western part of the present-days village of Novgrad, the stone fundaments of two buildings were excavated during rescue excavations in between 1928 und 1931. A coin of Iustin II was among the finds in one building[38]. However, traces of a fortification were not found.

At the turn from the 6th to the 7th c., the incursions of the Slavs and Avars lead to the consecutive withdrawal of the Byzantine army from the lands north of the Balkan range[39]. The coin finds from the fortifications along the Danube and its hinterland end with the reign of Iustin II or, at latest, with Heraclius[40].

Conclusions

There is obviously no initial layout for the dislocation of fortifications and troops on the lower Danube. The obvious weak defence line between Novae and the Dobruja between AD 44 and the Flavian times can very likely be explained by historical reasons, i.e. the existence of the toll district of the *Ripa Thraciae* and the lack of resources in the Roman army. The further development and strengthening of the limes along the Danube were not undertaken in advance, but mostly as a reaction to the barbarian invasions.

B. Rankov showed in an examination of the epigraphic and literary sources that the Romans used the great rivers such as Rhine and Danube intentionally as support for a defensive line[41]. Despite the reinforcing of the limes during time, the spacing between the fortification remained - to a certain extent - irregular throughout the times[42]. The variations in our sector are apparently due

[34]Conrad 2006, Fig. 14.
[35]Beševliev 1970, 123.
[36]Theophilaktos Simokates VII,2; cf. Schreiner 1985, 181.
[37]Ivanov 1995, Anm. 109. - Vgl. Proc. De aed. IV.7.6: Ιατρων; Notitia dignitatum XL. 13: Latro, Miller, 505: Latro; Raven. Geogr. IV. 7.2: Latron.
[38]Stefanov 1974, 291–293.
[39]Cf. Ivanov 1999, 144–146; Tomas 2016, 29.
[40]Bülow 1995, 66.
[41]Rankov 2005.
[42]Cf. Karavas 2005, 190.

to the nature of the terrain and the requirements for the supervision of the river[43].

The stabilisation of the border along the Danube in the beginning of the 2nd c. and the simultaneous foundation of Nicopolis ad Istrum as an urban centre approximately 60 km to the south were suppositions for the development of a dense settlement system in the Roman province of Moesia in the following 200 years. The need of supply for the troops was the base for a continuing prosperity which was not significantly impaired by the Gothic invasions in the middle of the 3rd c. Intensive farming existed even in the direct frontier zone.

With the collapse of the rural settlement system in the region the remaining fortifications along the Danube were continuously dependent on food delivery from outside the province[44]. Under these circumstances, and from the today's view, the stability of the frontier could not be maintained in the long term.

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[43]Cf. Breeze 1997, 73 f.
[44]Cf. the increase of amphora supply in Iatrus during the Late Roman and Early Byzantine Periods: Conrad 2007, 251–256 tab. 4-6.

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Summary

In the organisation of the limes along the streams like the Danube, the Roman military especially focused on the mouth of the big tributaries. This is proved by different examples like Singidunum, Oescus und Utus.

The mouth of the Yantra river in the province of Moesia (today's North Bulgaria) seems to be a special case. Although the region is situated in the most southern and for that reason very endangered section of the Danube, the *itineraria* of the second half of the 2nd and the first half of the 3rd century don't mention a fortress at the mouth of the Yantra.

Nethertheless, at least a temporary fortification can be expected for the first decades of the Roman occupation but was still not found during the long-term research activities. The surveys carried out in the last two decades, together with a new established joint Bulgarian-German projected at the Tash bair hill at the western side of the Yantra, anyway revealed some traces of military and settlement activities from the 1st c., a.o. the military production site for lime in a pre-industrial scale. The probable lack of a Roman fortification at the mouth of the Yantra is very likely due to the historical circumstances. In the early years of the Moesian province, the toll district of the ripa Thraciae still existed.

The stabilisation of the border along the Danube in the beginning of the 2nd c. and the simultaneous foundation of Nicopolis ad Istrum as an urban centre approximately 60 km to the south were suppositions for the development of a dense settlement system in the Roman province of Moesia in the following 200 years. The need of supply for the troops was the base for a continuing prosperity which was not significantly impaired by the Gothic invasions in the middle of the 3rd c.

Up to now, for the 2nd and 3rd centuries only civilian settlements were registered at the mouth of the Yantra river. There is a strong evidence for a systematic land partition and an intensive agriculture in the border zone.

The late Roman and early Byzantine fortress of Iatrus was erected by Constantine I., although the plans for the reconstruction of the limes along the Danube and the building of new fortresses could be very likely set up during the reign of Diocletian. As many brick stamps prove the *legio I Italica* of Novae was mainly involved in the building of the fortress. A road made of pebbles, stones and probably trunks was laid out as a short cut through the lowlands of the Yantra.
The *cuneus equitorum scutariorum* mentioned in the *Notitia Dignitatum* left Iatrus in the middle of the forth century. This regular unit was replaced by semimilitary troops, among them very likely *foederati*. After the collapse of the settlement system along the lower Danube in the second half of the fourth and the beginning of 5th c. the remote settlement areas at the limes were abandoned. Now the settling limited to the fortifications and their immediate vicinity.

With the collapse of the rural settlement system in the region, the remaining fortifications along the Danube were continuously dependent on food delivery from outside the province. Under these circumstances, and from the today's view, the stability of the frontier could not be maintained in the long term.

The fortified site of *Latarkion* mentioned by Theophylaktos Simokates must be located somewhere between Iatrus and Novae. Up to now a site at west bank of the Yantra river at the western edge of the village of Novgrad is the only one which can be considered for its localisation.

There is obviously no initial layout for the dislocation of fortifications and troops on the lower Danube. The further development and strengthening of the limes along the Danube were not undertaken in advance, but mostly as a reaction to the barbarian invasions.

Despite the reinforcing of the limes during time, the spacing between the fortification remained - to a certain extent - irregular throughout the times. The variations in our sector are apparently due to the nature of the terrain and the requirements for the supervision of the river.

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The Roman fortress and the detachment of Legio VII Claudia from Cioroiu Nou, Dolj County, Romania

ABSTRACT

The archaeological site of Cioroiu Nou is a special monument of the Roman period, for Oltenia in particular and for Dacia, in general. Located approximately 20 km north of the Danube, includes on its territory important traces of Roman civilization. A fortress equipped with two defensive ditches and two ramparts, a large civil settlement, a temple, several important buildings, workshops for building materials, ceramics or metalworking products and one or more necropolises are just some of the Roman archeological landmarks known through research archaeological finds or accidental discoveries.

The most important Roman monument is the fortress built by the soldiers of a Legio VII Claudia detachement. Also, in the first half of the 3rd century, in Cioroiu Nou functioned a military *statio*, as mentioned in the inscription of Germanus, *speculator* of legio VII Claudia.

For a complet archaeological image, we have to take into consideration the richness of the archaeological discoveries, and also of the epigraphical, sculptural, ceramic and numismatic ones. All these suggests a special feature and a certain social rank of the Romans from Cioroiu Nou.

Key Words: Cioroiu Nou, Roman, legio, fortress, military equipment

The Roman vestiges from Cioroiu Nou village[1], located in Cioroiași Commune, Dolj County, Romania, are among the most significant in the south-west part of this country. Within the area of this locality, it can be seen, in particular, a Roman fortress (Figs. 1 and 2) of considerable size, inside of which there is a bath-house build by a detachment of the Legio VII Claudia[2].

The fortress is situated in the south-east proximity of the modern village, on a upper terrace of almost 3m.

[1]Tudor 1978, 208–213; Tudor 1966, 847–854; Bondoc 2010.
[2]Bondoc 2015.

Fig. 1 - The Roman fortress of Cioroiu Nou.
Aerial photograph of 1969.

The today called *Cetate* plateau, is framed to the north and west of the Eruga water stream (The River of Cioroiu), at south by the Baboia canal, and west by the current cemetery and a modern road. The presence of the Eruga stream, near the northern side of the fortress, whose course has been affected by the defensive elements on this side, deserve a special attention; in fact, it was considered that this water stream flowed in ancient times through the main ditch on the north side of the fortification, may even have been directed on this route by Roman authorities in the area.

The fortress was built in a quadrilateral-trapesoidal shape with round corners and its dimensions (235 x 130m)[3] are impressive for the area of southern Dacia. On each side there is an interruption, suggesting the existence of gates[4].

Inside the fortress, several buildings were revealed[5], of which the bath-house is the most imposing (Fig. 9, bottom). Between these buildings and the ramparts there is a small space, in which it may have been existed an arrangement of *via sagularis* type, but our excavations did not reveal such a road.

The resemblance with a Roman auxiliary fort is striking, but the absence of the headquarters building , granary and inner roads (*via principalis*, *via praetoria*), makes me use the fortress term.

The defensive system of the fortress consisted in two ramparts and two ditches. The aerial photograph taken in 1969 (Fig. 1) shows us very clearly the two ramparts (*Vallum 1* and *Vallum 2*). I will say nothing here about the dimensions of ramparts; these arrangements were seriously affected by the agricultural works. The fortification had also two defense ditches- *Fossa 1* and *Fossa 2* (Fig. 3), located 3m distance from each other[6].

Fossa 1 is the largest and the most visible defensive ditch in Cioroiu Nou. Archaeological excavations carried out on the defensive system of the fortification in 2012, have recorded the dimensions of this trench of 7.80m wide and 1.90m deep. In section is V-shaped, but with rounded bottom (Fig. 3, up). Inside of it were discovered a lot of poterry, bricks, stones and other.

Fossa 2 has the maximum width of approx. 3.50m and 2m deep; the differences in width is due to the fact that the land, where the excavations were carried out in 2006, was heavily affected by the agricultural works. Its shape is completelly different from that of the first ditch (*fossa 1*). We can discuss in this case, about a *fossa fastigata* type[7] (Fig. 3, bottom). Summing the measured widths of the two earthern ramparts, the berm associated with the first rampart and widths of the two ditches, we get a length of the defensive system of 24.80m, therefore a reasonable number for a third century fortification (for comparison, the defensive system of auxiliary fort Slăveni, has a length of 25m[8]).

Regarding the dating of the fortress, there are some data in this direction. It is easy to notice, the diference between the shape of the two defensive ditches (Fig. 3); this fact represent an archaeological evidence that can not be ignored. Most probably we have to deal with two phases of construction.

[3]Tudor 1962, 547–548.
[4]Bondoc 2010, 126.
[5]Bondoc 2015, 71–73, Fig. 36.1-38.
[6]Bondoc 2007, 130; Bondoc 2010, 13.
[7]Hyginus, 49.
[8]Tudor 1978, 302.

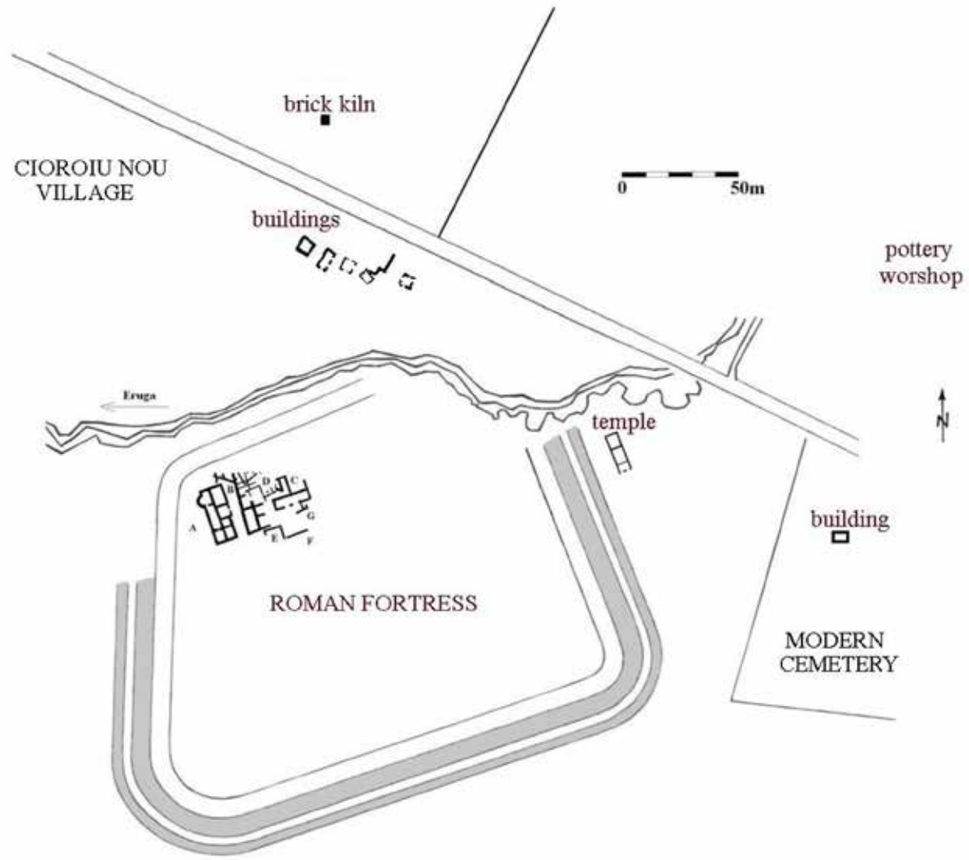

Fig. 2 - The Roman fortress of Cioroiu Nou and its civil settlement.

On one hand, the first phase of the bath-house inside the fortress (erected in the northwest corner) was after the end of the Marcomanic wars, in the time of Emperors Marcus Aurelius (AD 161-180) or at the latest, Commodus (AD 180-193)[9]. From this period, dates the dozens of stamped bricks of Legio VII Claudia (Fig. 4), used for the *pillae* of the *hypocaustum* in the *caldarium*. The type of stamps is unusual, except two similar items from Viminacium[10].

On the other hand, some Roman monuments have been reused to build or strengthen the ramparts of the fortress. One of them (three fragments, currently joined together) mentioned *Germanus*, *speculator* of *Legio VII Claudia Maximiniana*[11] (Fig. 5, up). Another one (fragmentary preserved) mentioned a *colonia*[12] (Fig. 5, bottom). Finally, a recent discovery consist in two fragments of an inscription of a *collegium*[13] (Fig. 6). The reusing of the old Roman monuments for reconstruction of different buildings is attested in Roman Dacia, only after the Carpic war from AD 247; in this

[9]Bondoc 2015, 51–53.
[10]Informations provided by L. Jevtovic, many thanks.
[11]AnnÉp 1959, no. 330; Tudor 1966, 847; IDR, II, 81–82, no. 141, with bibliography; Bondoc 2010, 27–29, no. 3.
[12]Bondoc 2007, 157–159.
[13]In print.

Fig. 3 - Fossa 1 (up) and fossa 2 (bottom) of the Roman fortress in Cioroiu Nou. Excavations 2012.

respect we can quote here the similarities from Răcari[14], Slăveni[15] and Romula[16], but also from other places.

Taking into account the data mentioned above, in the current stage of the investigations we can discuss about two phases of fortress construction. The first can be related with the arrival at Cioroiu Nou, of Legio VII Claudia detachement. Most probably, this happened after the Marcomanic wars, when there was felt a need of a military point in this place.

Some decades later, at Cioroiu Nou is attested a military post, of *statio* type, during the reign of Maximinus Thrax (AD 235-238)[17]. Untill now, this fact could not represent a distinctive moment. Actually, we have no other evidences regarding a construction phase of the fortress in the time of Maximinus emperor.

The second phase represent a reconstruction, after the Carpian invasion; on this occasion several old monuments were reused as building material (Figs. 5 and 6). This teory was already issued long time ago. At the middle of the 3rd century, the entire Roman Dacia has been affected by the Carps invasion; most probably, this event took place in 247 AD, when Philippus Arab emperor comes personal in Dacia to supervise military operations. After the rejections of the invaders, the Roman cities and forts from Dacia which suffered damages during the Carpian war[18], were rebuilt. In this context, we have to take into consideration the second phase of the Cioroiu Nou fortress.

There are not archaeological evidences concerning the end of the fortress. Above the last stratigraphical level, no traces of destruction were found. The last datable objects consist in three fibulae of trident type, two of them discovered in the area of the fortress, the third inside the civil settlement. These objects can be dated at the end of the third- the beginning of the fourth century AD[19]. But it is necessary to make a clear distinction between loosing the military function and the end of actual living in this place.

The presence of a unit of Legio VII Claudia at Cioroiu Nou is certified, as I have already said, by an inscription (Fig. 5, up) and by many stamped bricks (Fig. 4). In this respect, is very plausible to mention a ceramic mould used for casting figurines, with the rendering of a bull's head[20] (Fig. 8, bottom), animal whose image represent the emblem of Legio VII Claudia.

[14]Bondoc, Gudea 2009, 51–52; Bondoc, Gudea 2017, 23–24.
[15]Unpublished data; for the Roman fort Slăveni, see Tudor *et al* 2011.
[16]Negru *et al* 2008, 258–259.
[17]Bondoc 2010, 17 and 130–131.
[18]Piso 1974, 301–309.
[19]Jovanović 1994, 162; Ratković 2001, 61; Bondoc 2010a, 297–303.
[20]Tudor, Diaconescu, Popilian 1967, 597, fig. 3/5; Popilian 1997, pl. 43/4.

Fig. 4 - Stamped bricks of Legio VII Claudia from Cioroiu Nou.

Given the fact that the basic camp of the Legio VII Claudia was at Viminacium (today Kostolac, in Serbia), in Moesia Superior province (Fig. 8, up), it becomes more difficult to explain why it was felt the need of displacement in southern Dacia, at Cioroiu Nou, of a military detachment from another province. Today, however, we are able to assume that the deployment of several legionary vexillations in other provinces than that in which legion has its headquarters, represented a natural fact in special situations. For example, in order to fight against the Carpian invaders in 247 AD, units (detachements) of Legio XXII Primigenia were brought in Dacia[21] and also a *centuria* of Legio VII Claudia[22]; after the war, both units took part in rebuilding the walls of Romula.

An inscription put by someone from legio IIII Flavia (Fig. 9, up)[23], might suggest that soldiers belonging to this legion (a vexillation), were also sent to Cioroiu Nou; the inscription is fragmentary and the context of its discovery is unknown; untill now, the presence of the IIII Flavia soldiers at Cioroiu Nou has not been confirmed by other findings (there are not stamped bricks of Legio IIII). Even so, the inscription represent an epigraphic evidence that can not be ignored.

Taking into account the archaeological and epigraphical data from other places (see for example, the Roman auxiliary fort Bumbești-Gară where were discovered stamped bricks of Legio VII Claudia and also of Legio

[21]Tudor 1941, 239–241; Piso 1974, 305–306.
[22]AnnÉp, 1939, 28; IDR, II, 146–147, nos. 327–328.
[23]Bondoc 1997, 272, no. 3.

Fig. 5 - Cioroiu Nou. The inscription of Germanus, speculator of Legio VII Claudia Maximiniana (up) and an inscription from Cioroiu Nou which mentions a colonia (bottom), both of them reused to strengthen the ramparts of the fortress.

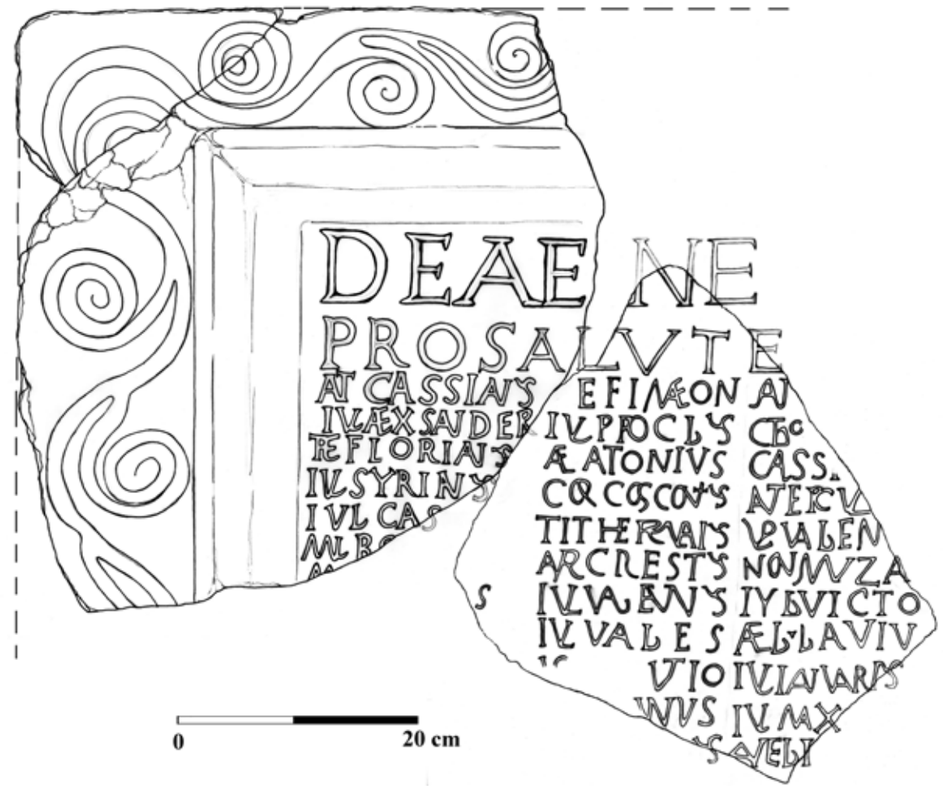

Fig. 6 - Cioroiu Nou. An inscription made by the members of a collegium, reused to strengthen the ramparts of the fortress.

IIII Flavia[24]), we cannot rule out future discoveries attesting the presence of a detachement of this military unit at Cioroiu Nou.

The military presence in Cioroiu Nou during the Roman period is also attested by a number of weapons and pieces of military equipment (Fig. 10). It is about spear-heads, spear-butts, catapult bolts, strap ends and belt fittings.

Other discovered archaeological materials are most important and can provide reasonable answers or explanations, regarding the questions related to this spectacular archaeological site. Thereby, we can explain the large quantity of Roman painted pottery from Cioroiu[25]; this situation cannot be found in any other place in Roman Dacia. A special discussion deserve the civil settlement, with a lot of stone buildings and a rich archaeological material, but that on another occasion.

[24]Bujor 1981, 350; Marinoiu 2004, 89.
[25]Bondoc 2006, 128–141; Bondoc 2015, 475–480.

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Fig. 7 - Cioroiu Nou. Trident fibulae from the fortress (up) and from civil settlement (bottom).

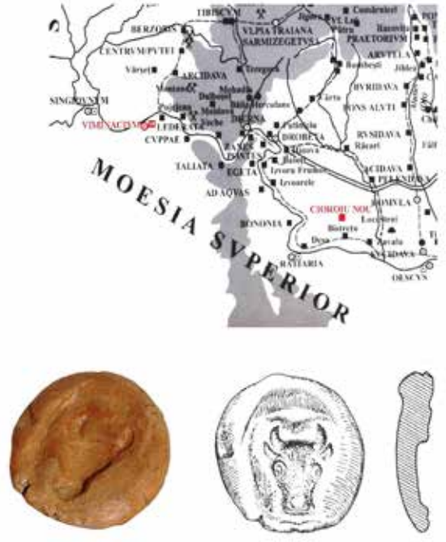

Fig. 8 - Viminacium, Cioroiu Nou and its surroundings (up) and a ceramic mould rendering of a bull's head (bottom), the emblem of Legio VII Claudia.

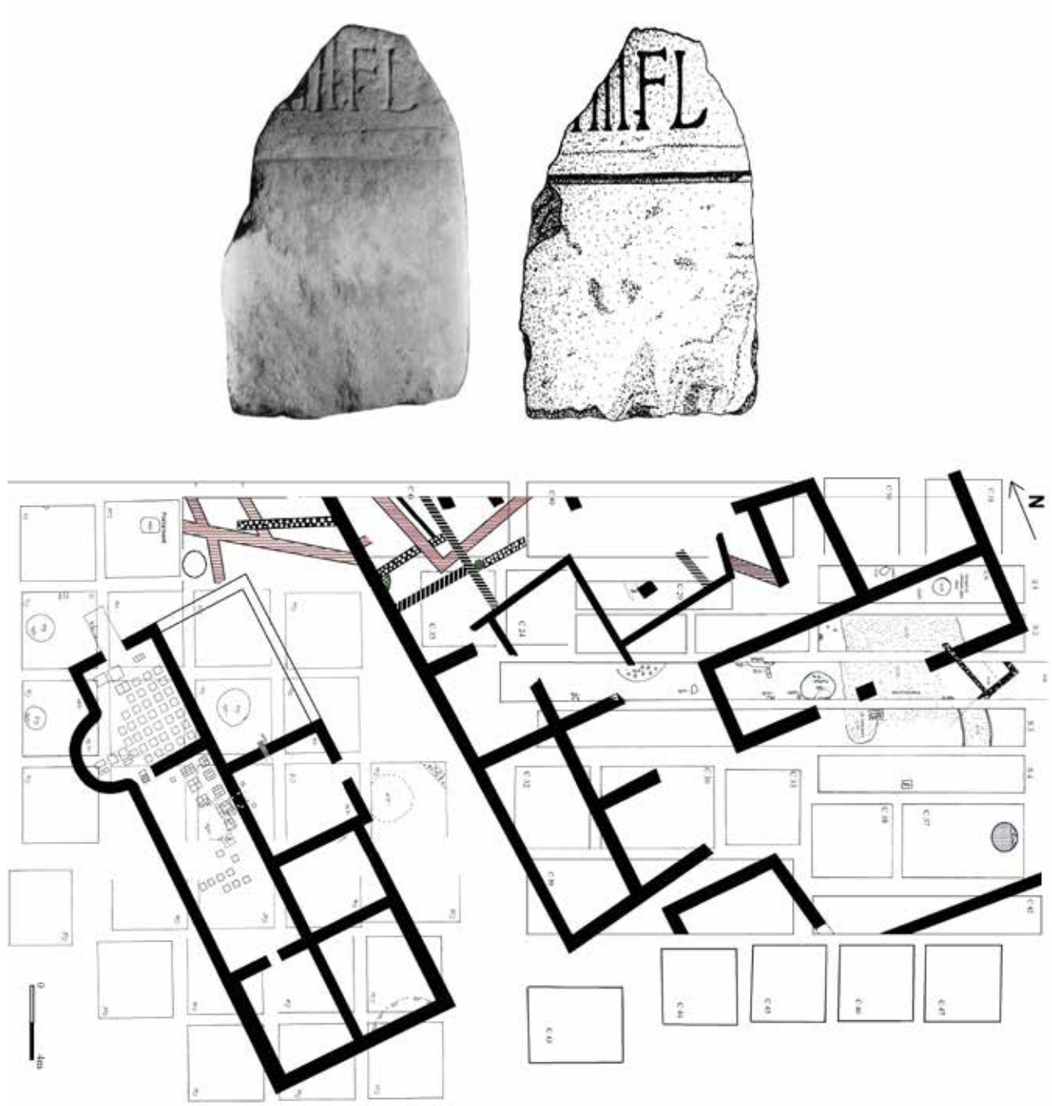

Fig. 9 - Cioroiu Nou. Inscription which confirm Legio IIII Flavia (up) and the excavations during 2008-2014 (bottom).

Fig. 10 - Military items from Cioroiu Nou.

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Offering to the gods - a ritual deposition and religious communication in *Vindonissa*

ABSTRACT[1]

In 2016, during an excavation outside the legionary fortress of *Vindonissa* (Windisch, CH), an exceptional deposit was discovered, most likely of ritual character. The find spot is located to the southwest of the fortress, in an area with otherwise no religious architecture. Several pots together with burnt animal bones, 22 lamps and 21 coins were carefully placed in a pit shortly after 68/69 AD. Not only does the deposition raise questions on the persons and deities involved, but it also adds a new dimension to the previously known forms of religious communication for the site of *Vindonissa*.

Key Words: *Vindonissa*, legionary camp, ritual deposition, sacrifice, civil wars 68/69 AD, religious architecture

[1]This paper was presented as a poster at the 24th International Limes Congress in Serbia, September 2018. It was only slightly reworked to be published as a short paper. For further reading on this topic we refer to the publications mentioned in the bibliography.

Religious architecture in *Vindonissa* and the ritual deposition

The deposition is located in an area with otherwise no religious buildings. Within the legionary fortress of *Vindonissa*, there are at least two sites with religious architecture: The *aedes principiorum* and the central temple. While the *aedes* can be found in almost all legionary fortresses and forts and is an important focal point for Roman army religion, the central temple – with dedications to Mars – seems to be unique for *Vindonissa*. It is located at the fortress's crossroads and might be connected to a pre-camp sanctuary.

Outside the fortress, a gallo-roman temple was located near the main road leading to the west and was part of the local civil settlement. Further possible sites of religious communication are located in the eastern civil settlement and also on a hill, about 600 m to the south of the legionary fortress. (Fig. 1)

Fig. 1 - The find spot of the ritual deposition (red dot) is located in the vicinity of a crossroads leading south out of the fortress, in an area with otherwise no cult buildings. The hitherto known cult buildings are located inside (circled in white) and outside of the legionary fortress (circled in blue).

The deposition - facts

The deposition consists of a pit, in which a completely preserved bowl, fragments of three other pots, 22 ceramic lamps, 21 coins and the remains of at least 22 burnt femora of young sheep/goat, most likely sheep, as well as skull parts of sheep/goat and cattle were found. 12 lamps, 13 coins and the 22 femora fragments (i.e. at least 11 individuals) were stacked carefully inside the completely preserved cooking bowl, the coins mostly on top of the lamps. (Figs. 2-5).

17 of the 21 coins were minted during the reign of Emperor Nero; the youngest carries a countermark dating to the years 68/69 AD. With all probability, the digging of the pit and the deposition of its special content can be dated to the period of transition from the *legio XXI Rapax* to the *legio XI Claudia Pia Fidelis*. For the time being, the context of the deposition reveals neither a clear architectural nor a topographical connection to a sacred place.

The deposition - questions

The deposition seems to be the remains of a private or non-official ritual. Due to its location, we suppose the deposition should be interpreted as an isolated event.

Could the numbers of certain objects allude to the legions stationed in *Vindonissa*? (*legio XXI Rapax* ca. 43-69/70 AD; *legio XI Claudia Pia Fidelis* ca. 71-101 AD).

The moment of the deposition is also of interest: Can the deposition be seen in connection with the civil wars in the year after Nero's death?

Similar depositions have been found in Köln-Altenburg (DE) and Sarmizegetusa (RO); nevertheless, at *Vindonissa*, the reasons for this ritual, the deities involved, the acting person(s) and meaning of the number of the objects are still unknown, due to the lack of epigraphic evidence.

Fig. 2 - Field drawing and digitalization of the deposition. The various find groups are marked with different colours: vessels (orange), lamps (beige), coins (green), tiles (brown), cremated animal remains (grey).

Fig. 3 - The cooking bowl with the lamps and coins after its discovery and before further excavation in the conservation laboratory.

Fig. 4 - The finds after restoration. On the left side are presented: the completely preserved cooking bowl, the lamps, coins and a selection of the burnt animal bones found within the bowl. The finds on the right side were located above and around the intact cooking bowl.

Religious communication in and outside the legionary fortress

In Roman society, in both civil and military contexts, religious communication wasn't just confined to temples or other designated buildings, but could take place in any structure or complex – even in the open. A rich and diverse spectrum of objects associated with these cult practices can be found in the find assemblages of *Vindonissa* and its surrounding civil settlements. Inscriptions, depictions of deities and cult vessels show not only how Roman religion functioned on a practical level, but also how different religious rituals may have influenced each other.[2]

Due to the deposition's specific location and structure, we now have another example of how military and civilian cult practices interacted, creating locally embedded variations of Roman religion.[3]

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[2]For further reading on religious communication in Vindonissa see Lawrence 2018.
[3]For further reading on the deposition see Trumm *et al*. 2019.

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Illustration credits

Fig. 1: Ikonaut GmbH / Kantonsarchäologie Aargau, Brugg, CH

Figs. 2-5: Kantonsarchäologie Aargau, Brugg, CH

Zusammenfassung

Unmittelbar vor der südwestlichen Umwehrung des Legionslagers *Vindonissa* (Windisch, CH) fanden in den letzten Jahren grossflächige Ausgrabungen der Kantonsarchäologie Aargau statt. Im Sommer 2016 entpuppte sich eine zunächst unauffällige Erdverfärbung als eine Grube mit rätselhaftem Inhalt: Neben einer vollständigen Keramikschüssel und drei weiteren Gefässen barg sie 22 vollständige Öllämpchen, 21 Bronzemünzen und Brandschutt mit verbrannten Knochen von mindestens 22 Lammkeulen. Eine der Münzen, ganz überwiegend Prägungen des Nero, weist einen Gegenstempel auf, der in den Bürgerkriegsjahren 68/69 n. Chr. eingeschlagen wurde. Das Ausheben der Grube und die Deponierung ihres ungewöhnlichen Inhalts fallen demnach sehr wahrscheinlich in die Zeit des Wechsels von der *legio XXI Rapax* zur *legio XI Claudia Pia Fidelis*. Der Kontext des Depotfundes lässt vorderhand keinen klaren architektonischen oder topographischen Bezug zu einem sakralen Ort erkennen. Der in der römischen Schweiz bislang ohne Parallelen dastehende Fundkomplex erweitert das Bild von der Sakraltopographie *Vindonissas* um eine ungewöhnliche Komponente.

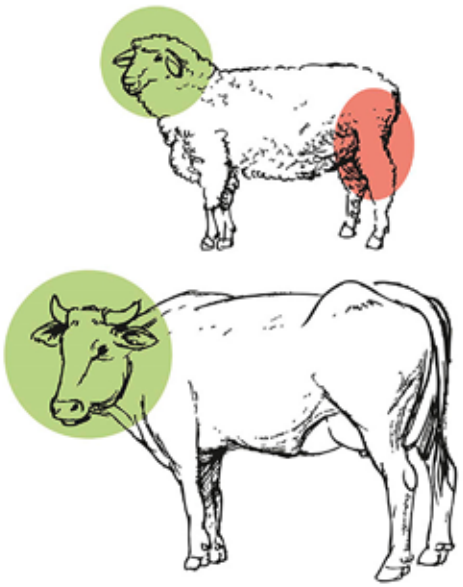

Fig. 5 - Only selected parts of the animals were deposited – leg and skull – and supposedly burnt during two separate events. This is the only explanation how the lamb shanks and skull remains could have been deposited separately.

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How to trace and date the Roman roads? Case study from the *territorium* of Antiochia Hippos: Between the desert frontier and the sea

ABSTRACT

New research on ancient roads in Gaulanitis and in the territory of Antiochia Hippos was prompted by re-discovery of undocumented road segment at the bottom of modern water reservoir. The questions that are dealt with in the article are a) how to distinguish Roman from other ancient roads; b) what is the westward continuation of the known segment of the Roman road; and c) whether anepigraphic/illegible milestones can help us establish the date of the road. The research was undertaken in three phases:

1) GIS analysis locating optimal routes in the region using cumulative focal mobility network analysis. The results are used in concordance with historical maps as a tool for field survey evaluating westward continuation of the known Roman road.

2) Survey of the physical remains of the various stretches of the ancient roads focusing on the physical characteristics of the roads (construction methods, dimensions etc.). Three presumably pre-modern roads were surveyed.

3) Metrological study of the Judaean and Golan milestones. This may clarify the dating of anepigraphic milestones and thus allow dating of the road system as well.

The westward continuation of the Roman road is to be sought on the north-western side of the Lawiye ridge, which stands out as principal ascent in the region. The Roman road could be clearly distinguished from other "old" roads in the area, which are tentatively dated to Medieval/Modern period. The metrological study of the milestones did not yield conclusive results due to deficiencies in milestone data.

Key Words: Roman Near East, Roman roads, Archaeological GIS, Roman milestones, Golan Heights

Introduction

The renewed interest in the research of the Roman-period roads in the territory of Antiochia-Hippos (southern Golan Heights) was prompted by the re-discovery of a ca. 270 m long stretch of paved road (Fig. 1), thanks to unusually low water level of the Revayah reservoir east of Moshav Natur in winter 2017/18. The discovery led to a discussion revolving around physical characteristics of Roman Imperial roads, issue of dating of ancient roads and whether the re-discovered road could be Roman. Coupled with those problems were several questions particular to the region of Hippos and Gaulanitis. It was realized that despite the research done on Roman roads by G. Schumacher in 1880s, Avi-Yonah (1966), D. Urman (1985); Z.U. Ma'oz (1993) and M. Hartal (2012), there still exists *lacunae* in our understanding of the development and chronology of the Roman road system in the region. Therefore, the principal research questions are:

Is it possible to distinguish Roman-period from other (Medieval/modern) roads based on their physical characteristics and relation to the landscape features?

How to date the Roman roads without any dated milestones?

What was the course of the known segment of the Roman road in the southern Golan Heights towards the west?

The research is part of author's PhD dissertation combined with Hippos Regional Research headed by Michael Eisenberg and Mechael Osband.

Methodology

The methodology was designed in two interconnected steps combining GIS regional-wide analysis and field survey. The aim of GIS analysis is to better understand connectivity and accessibility across the landscape and understand the choices made for location of the Roman road[1]. These results are in turn evaluated in the field survey. The third part of the methodology pertains to the study of milestones and is not connected to either GIS analysis or field survey.

a. GIS analysis locating best optimal routes in the region using cumulative focal mobility network analysis (CFMN). The results are used in concordance with historical topographical maps as a tool for field survey evaluating westward continuation of the Roman road.

b. Survey of the physical remains of the "pre-asphalt" roads focusing on the characteristics of road construction methods, materials, dimensions; and their spatial relation to other landscape features and settlements.

c. Metrological study of the Roman milestones from the Golan Heights and their comparison with milestones from provinces of Judaea and Syria. It may clarify the dating of anepigraphic milestones and thus of the road as well.

Cumulative focal mobility network analysis

CFMN is a least-cost path analysis computing all possible movement corridors for a source point (focal mobility network). In general the methodology is based on idea of "movement without destination" (Fábrega-Álvarez 2006). The density of these focal mobility networks is then computed in given radius. The result is a net of corridors showing hierarchy of routes from most preferred to least (Déderix 2016).

The analysis was done for 51 points with 2 km spacing in a diagonal grid, using r.walk in GRASS GIS and density of focal mobility networks was then computed within 50 m search radius (Pažout 2017; Fig. 2).

The result shows prominent corridor crossing the study region from south-west to north-east. This one however does not correspond to any known Roman road (no segments or milestones are known). The western continuation of the road is indicated by milestone found on a terrace on the north-western slope of Lawiye ridge, close to a high-hierarchy corridor due to northern coast of the Sea of Galilee. The computed corridor descends onto the wide lower terrace to the north-east of moshav Ramot where it is winding north and south-west in order to descend towards the Sea of Galilee. The survey of the area supports descent at the north-western part of the ridge, where modern dirt road is going, bypassing ancient village of Shuqayyif. The road then might follow the computed corridor probably more due north-west and join the road around the Sea of Galilee (indicated by other milestone find).

[1]See e.g. Fonte *et al*. 2017.

Fig. 1 - Segment of road A at the bottom of Revayah reservoir. December 2017 (photo by M. Eisenberg)

Further we may observe that the Lawiye ridge is one of three major ascents from the Sea of Galilee towards the Golan Heights (the other two being Kanaf and Ma'aleh Gamla to the north) as all three are major corridors high in the computed hierarchy. However, the course of the Roman road further east on the plateau does not correspond to any computed corridor. Although the road is roughly aligned with other corridors towards north-east (but not the southern branch of the road). The discrepancy is probably caused by edge effect and the chosen methodology, where without topographic obstacles corridors tend to emanate radially from the source points in all directions and so creating regular patterns.

In any case the road continued eastwards to Nawa where it joined north-south road from Damascus to Adraha (Dera'). The choice of Lawiye ascent over other ascents in the area however remains unclear. One possibility is that the Lawiye spur is located approximately mid-way between Jordan Valley road (going from the Sea of Galilee to Caesarea Paneas) to the north and city of Hippos to the south, thus providing good connection to both.

Survey of road segments

Apart from the Roman road two different segments of apparently pre-modern roads were surveyed (Fig. 3). Results are summarized in table below (Tab. 1).

Road A is ca. 270 m long segment of a paved road located in the Revayah reservoir. It could be traced north and south of the Roman road on the recent orthophotos for combined length of ca. 1.7 km. Road B is composed of two visible segments, south (ca. 150 m long) and north (ca. 1,300 m) of Moshav Ramat Magshimim.

	Width	Course	Spina	Construction
Roman Road	E segment: 4.4-4.6/4.6-4.8 m W and N segment: 4.8-5/5-5.2 m	Straight, angular turns	Always; single line of unworked basalt fieldstones, roughly rectangular ca. 0.3-0.4x0.2-0.4 m	Curbstones on both sides, straight face on the outside, ca. 0.3-0.4x0.4-0.6 m Pavement of small fieldstones (patchy preservation) 0.1-0.3 m on average
Road A	2.7/2.9/3.6/4.2-4.4/5.2 m; narrowing from south to north	Straight, probable continuation to the south curved	Perhaps one segment ca. 0.5-0.6 m wide elevated above pavement, built like a pavement of small basalt fieldstones	Curbstones on both sides, ca. 0.3-0.5x0.2-0.3 m Pavement: thick and dense cover of small fieldstones 0.1-0.3 m on average
Road B	S segment: 4.8-5/5.8-6.1 m N segment: 6.1-6.3 m up to 7 (14?) m	Winding	One segment surviving? Single line of unworked basalt fieldstones, ca. 0.3x0.4-0.5 m	Curb-wall on both sides? 1.1-1.2 m wide, bifacial, from basalt fieldstones (ca. 0.5 m on average) S segment: perhaps some segments of curbstones (0.4-0.6x0.3-0.4 m), often protruding above pavement level Pavement of small fieldstones (patchy preservation) 0.1-0.3 m on average

Tab. 1 - Physical description of the surveyed road segments

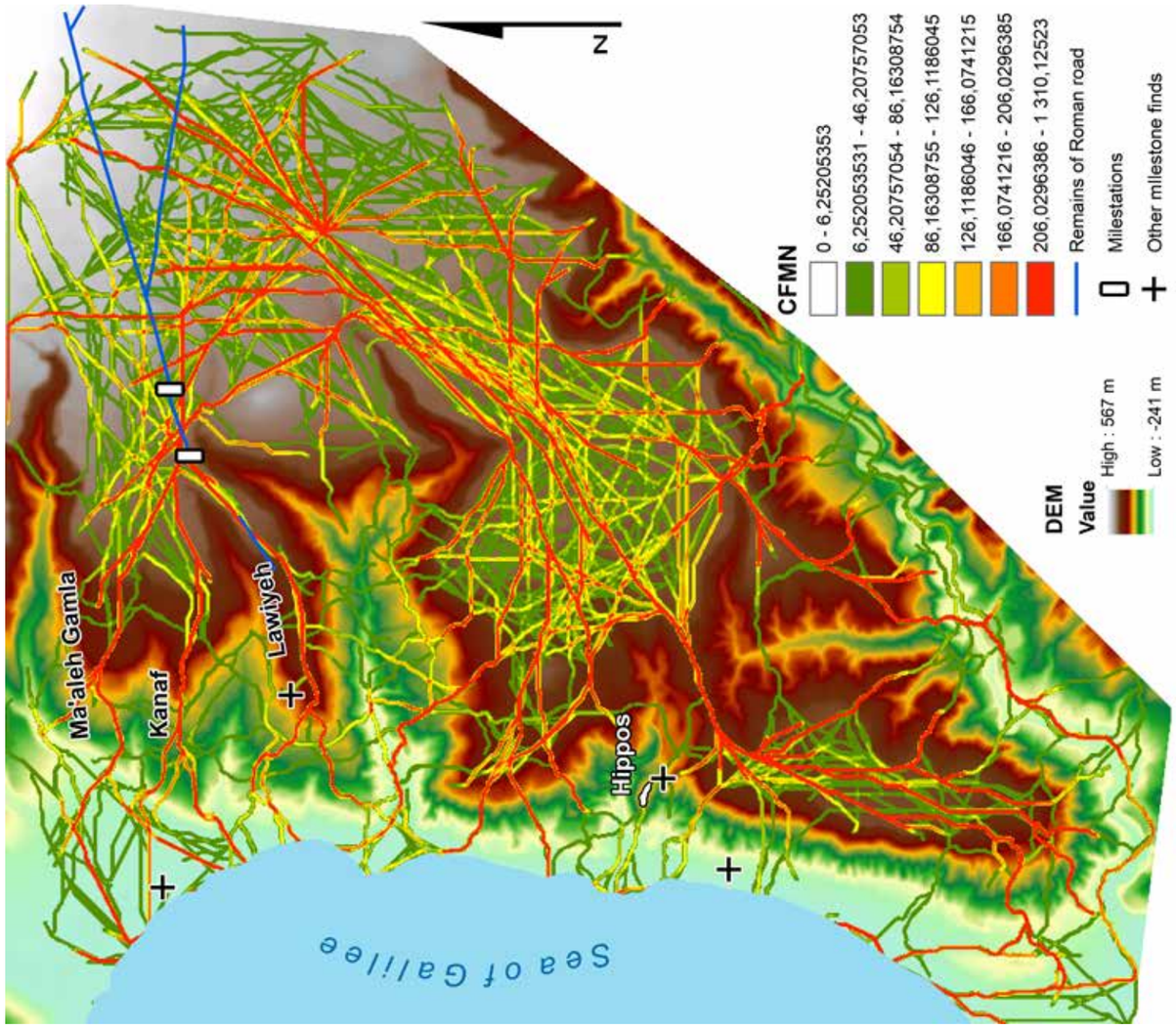


Fig. 2 - Results of CFMN analysis. Numbers indicate densities of connections within 50 m search radius (by A. Pažout)

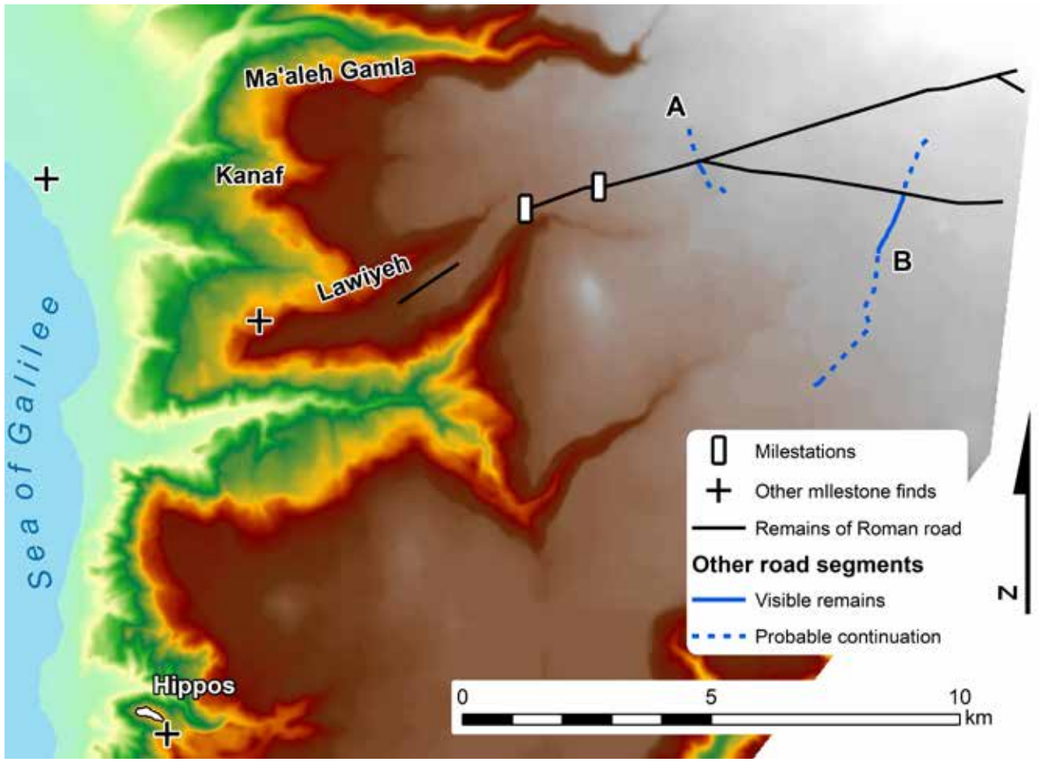


Fig. 3 - Map of surveyed roads in the study area (by A. Pažout)

The northern segment crosses the Roman road (Fig. 4). It can be traced north and south of the Roman road, leading to village Khisfin and then joining the southern segment for a combined length of ca. 5.7 km.

The consistent features of the Roman road (Fig. 5) are its straight course with angular turns, presence of spina and curbstones, and pavement of fieldstones. Its width somewhat varies but each segment (northern branch, southern branch and joint western continuation) in general keeps one width. On the other hand road A is straight but its continuation is curved. There are curbstones (on average smaller than on the Roman road) but no clear spina as on the Roman road. Its width varies greatly over short segment. Further it may be observed (Fig. 1) how deliberately the road cuts through the system of field walls. Road B seems more problematic: along most of its course it is bounded by field walls and no curbs are visible, only fragments of pavement, but its width in long segments is usually consistently around 6 m. Just north of the fields of Khisfin, it appears to be possible to distinguish between field walls and curbstones. The curbs are apparently constructed as a bifacial wall built of fieldstones 1.1-1.2 m wide, separated by shallow ditch (?) from the field walls (Figs. 6 and 7). At this point the width between the curb-wall is ca. 6.5-7 m but at one point it widens up to 14 m to contract again. In between the curb-walls the surface appears to be cleared of stones. In several places along the visible segments, the surface of the road is covered by later dividing walls, animal pens and other small structures built of fieldstones.

Road A seems to be identical to road connecting Mazrat Quneitra to Khisfin, but there is no such road on 1880s[2] and 1920 map[3] of G. Schumacher. It is definitely identified only on 1960s map (Fig. 8). The fact that it cuts through the field walls would support its construction

[2]Schumacher 1888.
[3]Karte des Ostjordanlandes.

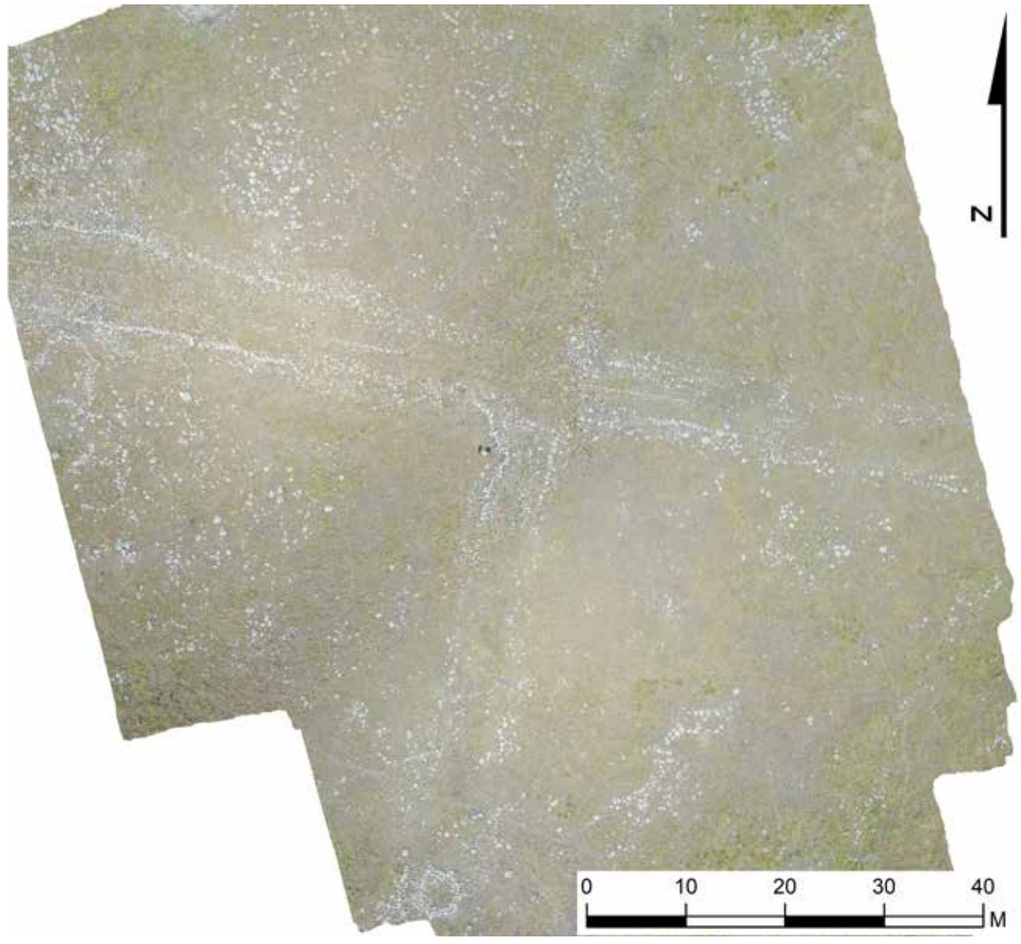


Fig. 4 - Crossing of the Roman road (east-west) and road B (north-south) (by A. Pažout)

sometime during the first half of the 20th c. in order to connect emerging villages of settled Bedouins.

Both segments of road B apparently shares orientation with old course of main south-west north-east road traversing Golan Heights (note the major corridor computed using CFMN analysis), so-called Sultane el-'Akabeh, as it appears on both Schumacher's maps (Fig. 9). By the time of publication of 1960s topographical map it was already replaced by straight asphalt road built to its east and it ceased to be used (Fig. 8). This would explain various structures covering its surface. Sultane el-'Akabeh was built on the orders of Caliph 'Abd al-Malik in the late 7th c. CE, as evidenced by a series of milestones found in the vicinity of village Fik and in the pass at the south-western tip of the Golan Heights (Elad 1999), as a primary road from Damascus to Jerusalem. The crossing with the southern branch of the Roman road suggests that Sultaneh cuts through (or covers) the Roman road, which was probably no longer used. The later date for this road could be also suggested by its position via system of field walls, where it appears as the road conforms to the existing system (and hence its winding course). Schumacher (1888, 64) describes this road as "…broad, smooth and tolerably stoneless," indicating both its importance in trans-regional network and the fact that at some point in the past it was cleared of stones (and so probably of the ancient pavement).

Metrological study of Roman milestones

The goal of the metrological study was to determine whether milestone series (of individual Emperors

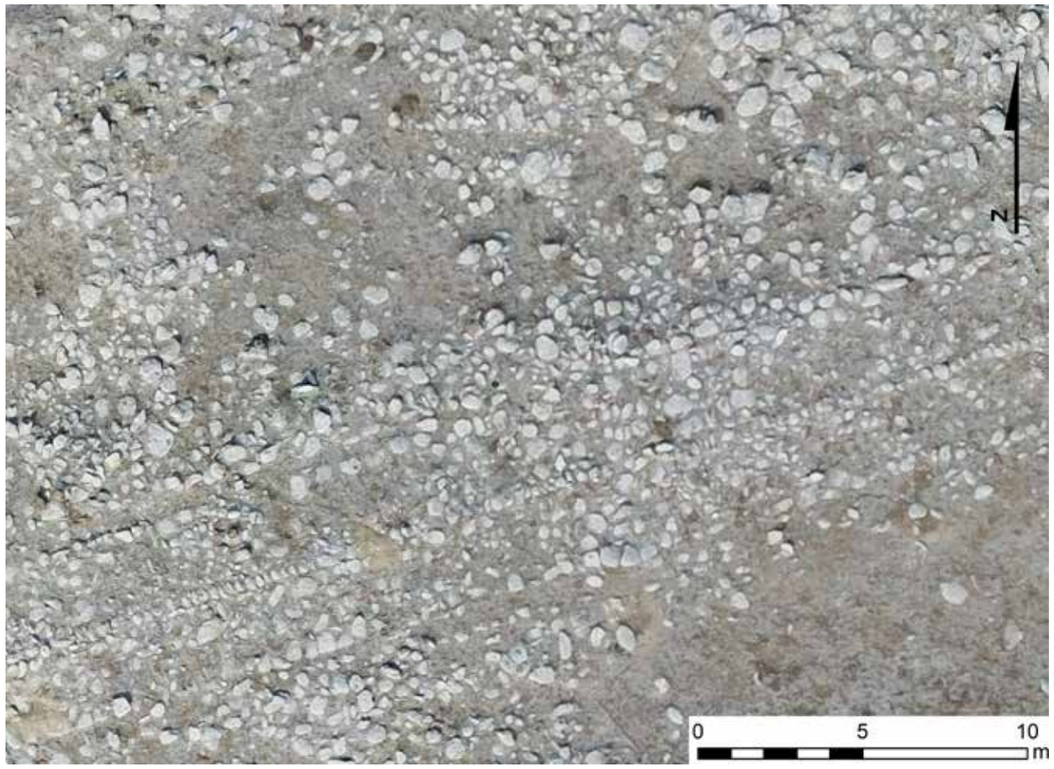


Fig. 5 - Detail of the extant segment of the Roman road (photos by M. Eisenberg, photogrammetry by A. Pažout)

and/or series within reign of individual Emperor) are carved according to same model, or whether there existed a typified model(s) of milestones. It was hoped to distinguish groups of milestones typical of certain time-periods, which could be used for dating of anepigraphic/illegible milestones.

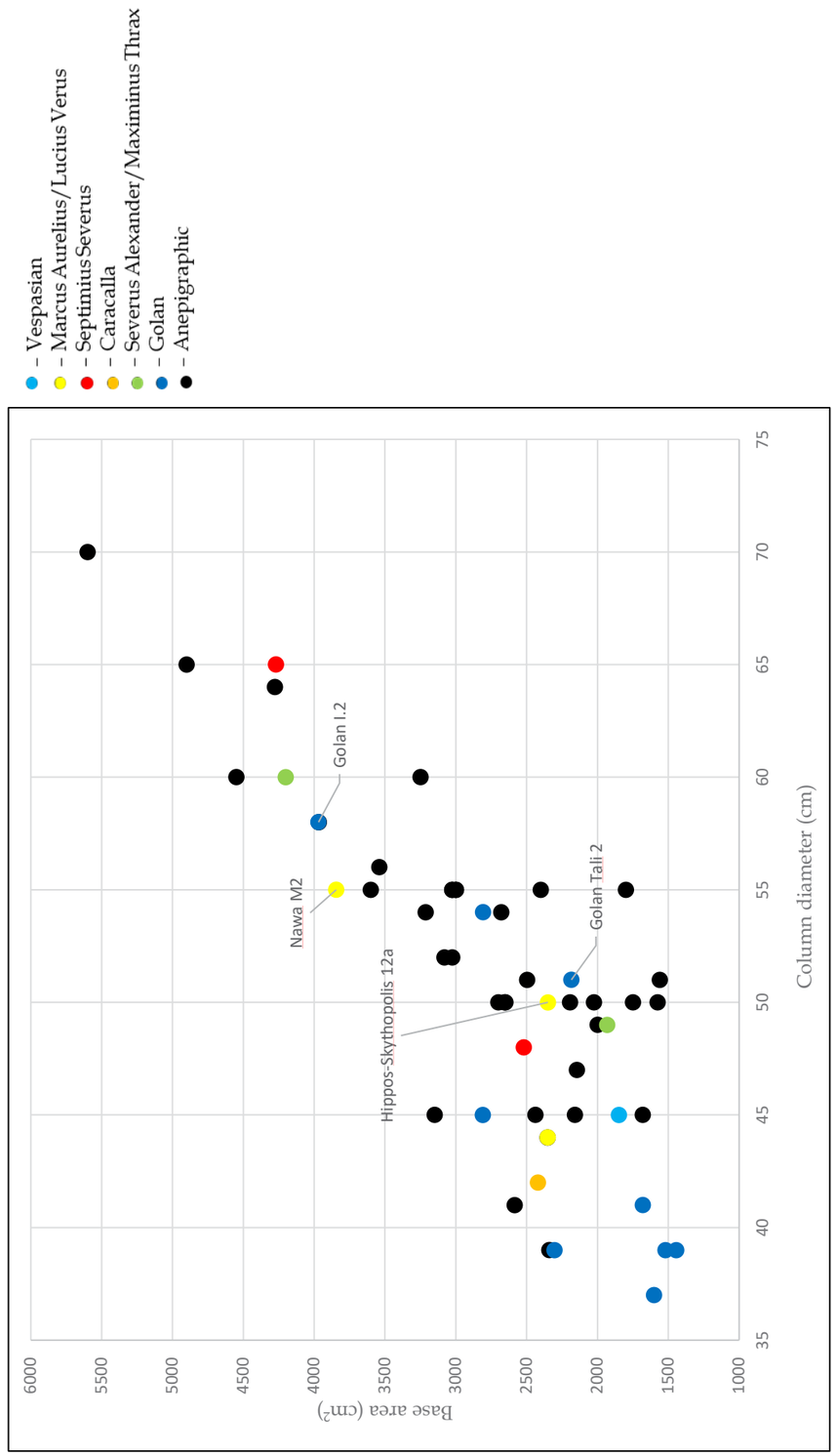
Graph (Tab. 2) shows the data collected on published milestones from Legio-Skythopolis (Isaac – Roll 1982), Hippos-Skythopolis (Cohen 2004), and Jerusalem-Yaffo roads (Fischer et al. 1996), with one milestone east of Nawa in southern Syria on assumed continuation of the Golan road (IGLS XIV,2 Nawa M2) and nine so far unpublished milestones from southern Golan Heights (n=54). The six Golan milestones used are in situ (four at milestation I; two at milestations II[4]); two were recovered from the fields of Ramot in the past and are now located in the moshav[5], the last milestone comes from a segment of road along the eastern shore of the Sea of Galilee. Two values were considered: column diameter and base area, therefore milestones without a base were not included[6]. Several problems occurred during research: a) many dated milestones are fragmentary and could not be used; b) many other milestones were published without their dimensions and could not be used either.

Small number of dated milestones in the sample (n=9) prevents us from providing clear conclusion. It may be observed that majority of Golan milestones (5 out of 9) are smaller than the rest, but there is no clear explanation. Two milestones are similar in dimensions to two milestones of Marcus Aurelius/Lucius Verus (162 CE): milestones from milestation I and Nawa M2; and

[4]Both milestations contain four milestones each. Two milestones from milestation II are fragmentary and were not used.

[5]I would like to express my thanks to Naftali Reuveni and Josh Weil in whose custody the milestones are currently located and who permitted their study.

[6]Base-less milestones in majority of cases belong to the reign of Caracalla.



Tab. 2 - Measurements of milestones from Judaea and southern Golan

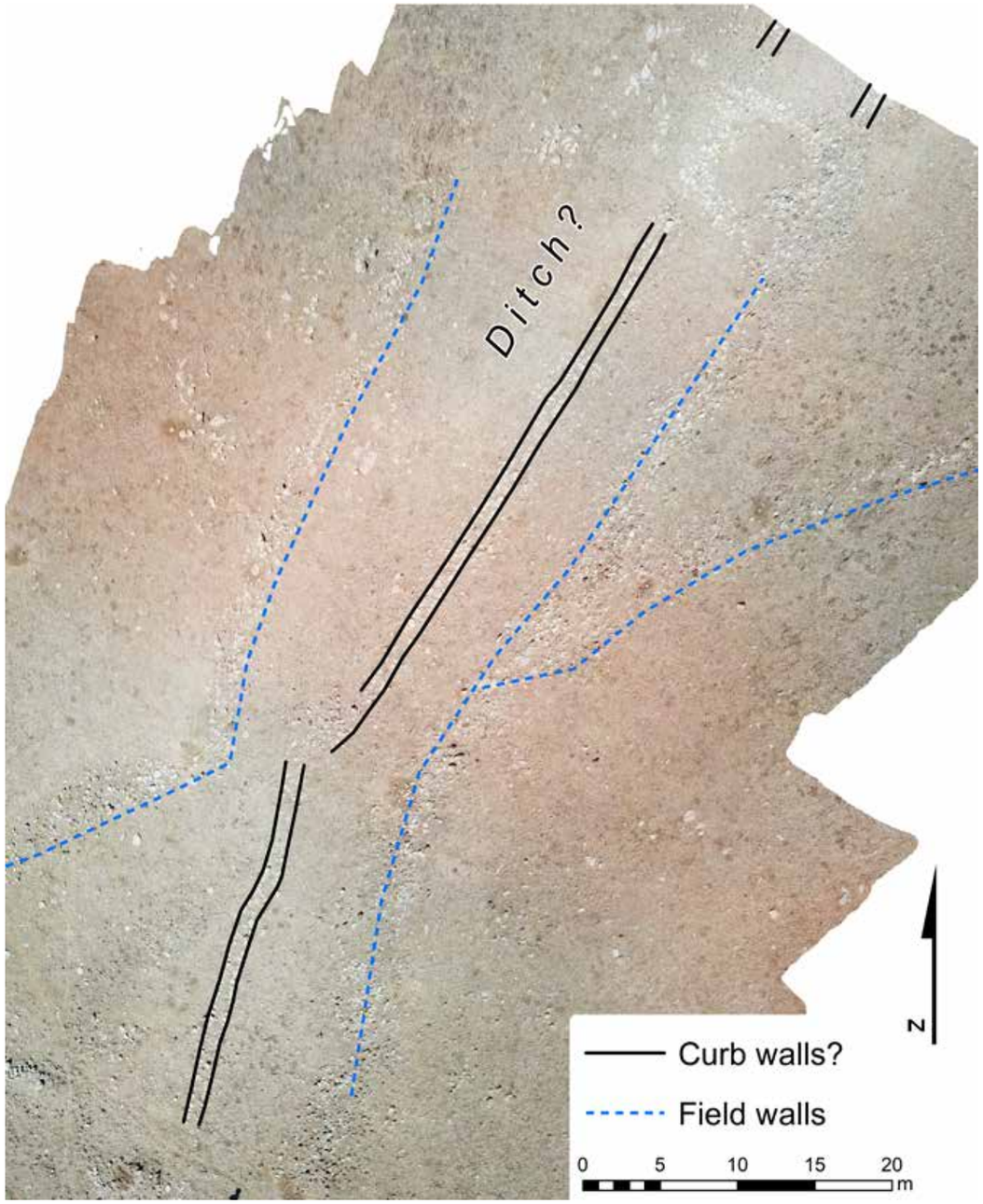


Fig. 6 - Segment of road B showing probable curb-wall and ditch with related system of field walls (by A. Pažout)

Fig. 7 - Probable curb-wall of the road B. Possible ditch on the left, road surface on the right (by A. Pažout)

milestone from 12th mile of Hippos-Skythopolis road and second milestone from below Lawiye ridge. However, those matches are not significant in such small sample. Three milestones (two from Ramot, one from the road around the lake) are currently studied by epigraphist[7], which will fortunately yield crucial information for the date of the road.

Conclusion

By combination of CFMN analysis, milestone finds and field survey it was possible to reconstruct the most probable western continuation of the Roman road traversing southern Golan from east to west. The GIS analysis also shows the prominence of the Lawiye spur as important ascent connecting the Sea of Galilee with the Golan plateau. Taken together with its position ca. in between north-south communication through upper Jordan Valley to Caesarea Paneas and city of Hippos to the south it gives good clue for the choice of this particular ascent.

The field survey of some of the visible remains of pre-asphalt roads in the region was able to clearly distinguish between Roman and later (Medieval and modern) roads based on construction methods, relation to other man-made landscape features and scrutiny of 19th/20th c. topographical maps. This suggests that the Roman roads shows characteristics not shared with other roads, even when some construction methods (e.g. the pavement) essentially remain the same for centuries.

The metrological study of the Roman milestones unfortunately did not yielded uncontested results due to many shortcomings explained above. Larger sample of dated (and sufficiently preserved) milestones could perhaps alleviate those problems.

However, the Nawa milestone dated to reign of Marcus Aurelius and Lucius Verus (162 CE) provides good lead as for the construction of the road. The primary connections between major cities in the region seems to be developed during the reigns of Trajan and Hadrian (including Via Nova in Arabia; Roll 2009; Isaac 2015). Whereas the full extent of the road system (with other supporting or secondary roads) was probably achieved under Marcus Aurelius and Lucius Verus attested by their most widespread series of milestones of 162 CE, in preparation for the Parthian War. The Golan road would be one of those "secondary" connections between earlier major roads: it connects the road around the Sea of Galilee, which is itself connected to Jordan Valley road, with another major north-south communication connecting Damascus with Adraha (Fig. 9). Eventually, after rounding the Sea of Galilee and arriving to Tiberias it connects to Sepphoris, Ptolemaïs-Ake on the coast to the north-west and to Legio (base of Legio VI Ferrata) and Caesarea further south-west. The "secondary" nature of the Golan road could be also inferred from its dimensions: on average it is ca. 5 m wide, whereas Via Nova is on average around 6 m (Bauzou.1998, 109–129).

Acknowledgments

I would like to thank M. Eisenberg (U. of Haifa), M. Osband (U. of Haifa) and prof. Ch. Ben David (Kinneret College) for their comments, ideas and help in course of the research.(Tab. 1.)

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[7]Gregor Staab of the University of Cologne.

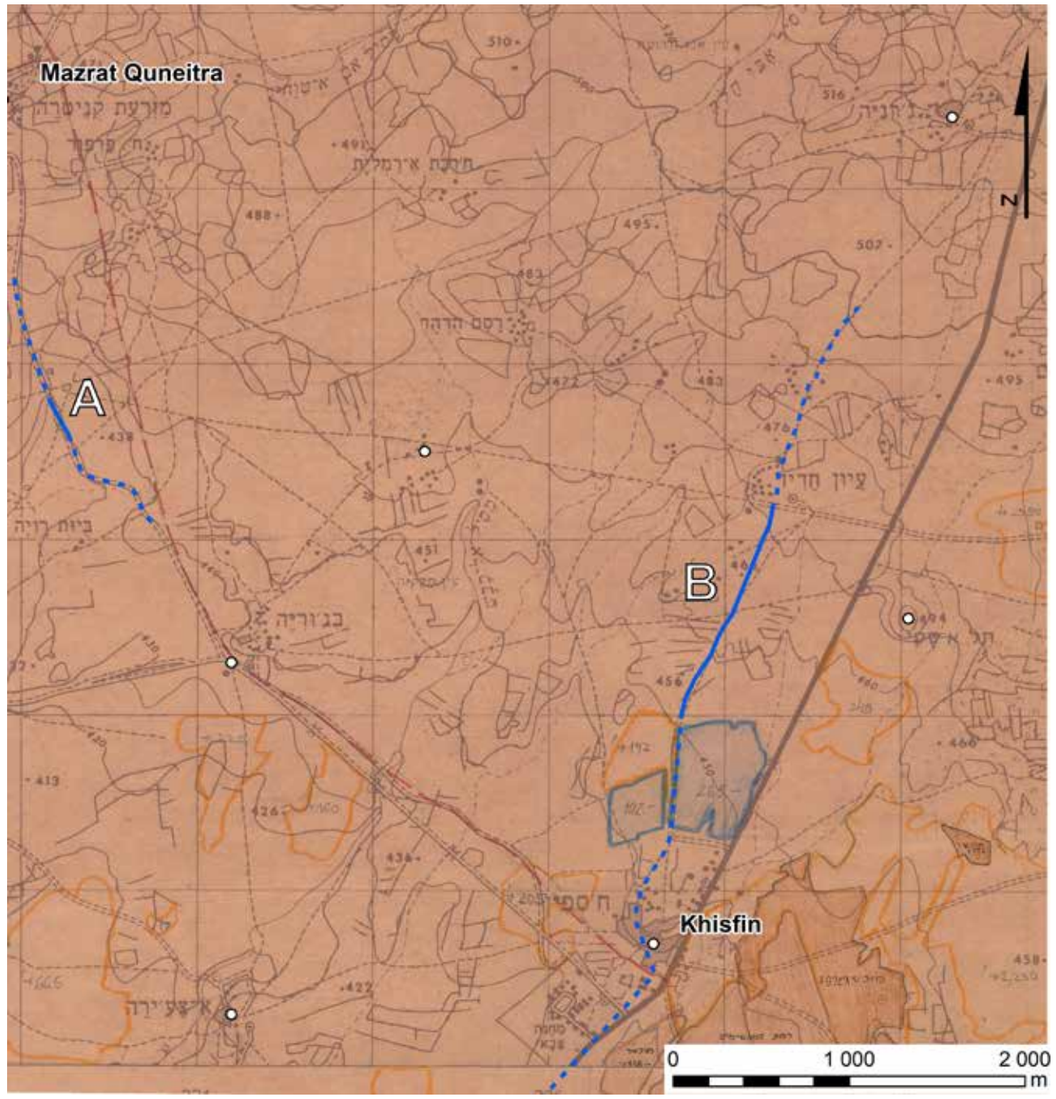

Fig. 8 - 1960s topographical map showing course of road A and B in relation to 20th c. settlements. Modern asphalt road is marked in black east of road B (by A. Pažout)

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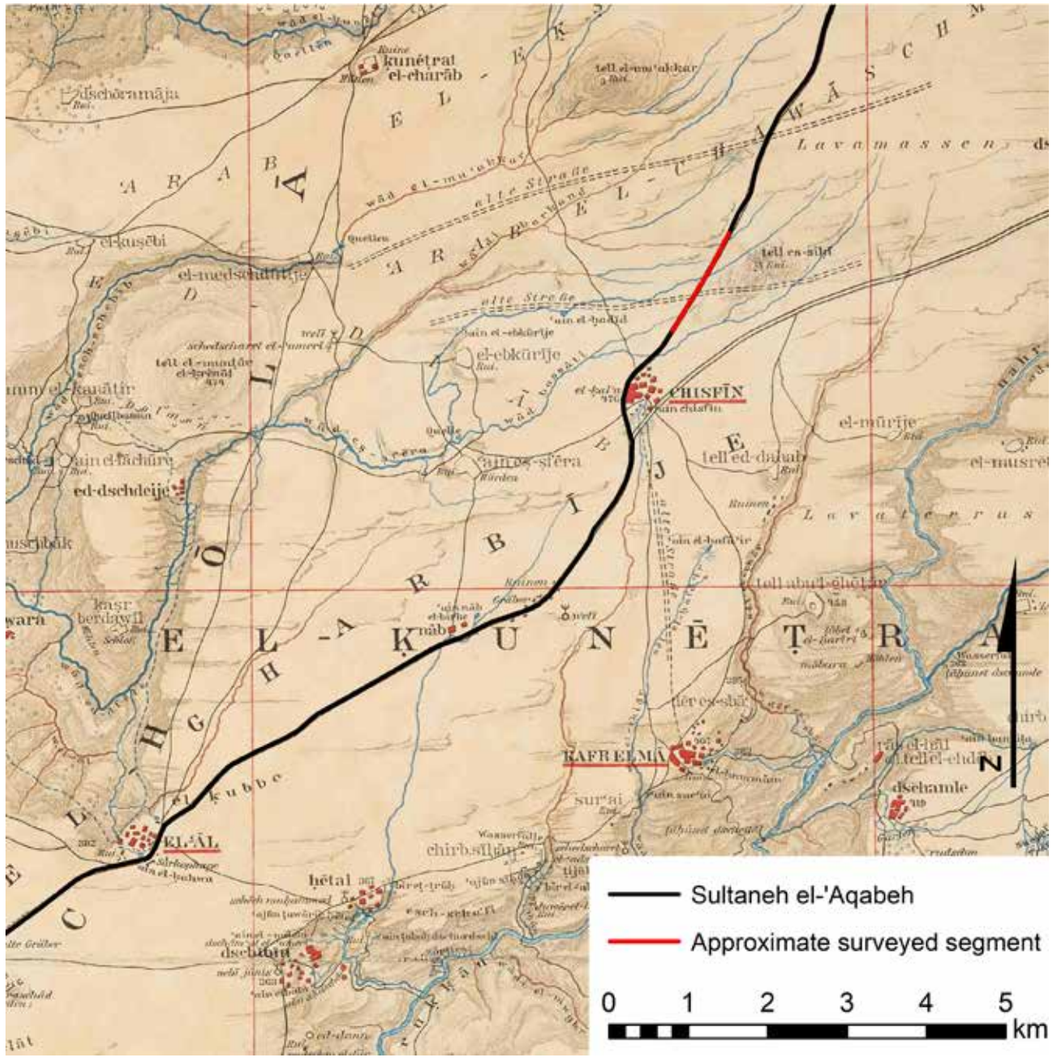

Fig. 9 - Schumacher's 1920 Karte des Ostjordanlandes, sheet A3 showing route of Sultaneh el-'Aqabeh and approximate position showing surveyed segment of road B (by A. Pažout).

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Zusammenfassung

Wie verfolgt und datiert man die Römerstraßen? Fallstudie aus dem Territorium von Antiochia Hippos: Zwischen der Wüstengrenze und dem Meer

Neu Forschung zu antiken Straßen in Gaulanitis und im Territorium der Stadt Antiochia Hippos wurde durch die Wiederentdeckung eines undokumentierten Straßensegments am Boden eines modernen Wasserreservoirs in Gang gesetzt. Die im Artikel behandelten Fragen lauten a) wie unterscheidet man römische von anderen antiken Straßen; b) wie setzt die westliche Weiterführung des bekannten Segments der Römerstraße fort; und c) ob anepigrafische/unleserliche Meilensteine uns helfen können, das Datum der Straße festzustellen. Die Forschung wurde in drei Phasen durchgeführt:

1) GIS Analyse zur Ermittlung der optimalen Routen in der Region mithilfe der CFMN Analyse (cumulative focal mobility networks). Die Ergebnisse werden in Übereinstimmung mit den historischen Karten als Mittel für Feldforschung genutzt, um die westliche Fortsetzung der bekannten Römerstraße zu einzuschätzen.

2) Untersuchung der physischen Überreste der verschiedenen Streckenabschnitte der antiken Straßen mit Fokus auf die physischen Eigenschaften der Straßen (Konstruktionsmehthode, Abmessungen usw.). Außer der Römerstraße wurden zwei vermutlich vormoderne Straßen untersucht.

3) Metrologische Untersuchung der Juda- und Golan-Meilensteine. Dies kann die Datierung der anepigrafischen Meilensteine klären, und somit die Datierung des Straßensystems ermöglichen.

Die westliche Fortsetzung der Römerstraße ist auf der nordwestlichen Seite des Lawiye-Kamms zu suchen, der als Hauptaufstieg in der Region hervorsteht. Die Römerstraße konnte von anderen „alten" Straßen in der Gegend eindeutig unterscheidet werden, die vorläufig aus dem Mittelalter/der Neuzeit stammen. Die metrologische Studie der Meilensteine ergab keine aussagekräftigen Ergebnisse aufgrund mangelhafter Meilensteindaten.

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Pitiunt is a fortification of Pontus Limes

ABSTRACT

The paper is devoted to Roman fortification – Pitiunt which was an organic part of the Pontus limes. Pitiunt, located about 20 km from the town of Gagra on the Capeof Pitsunda is the most studied Roman fortress on the territory of Abkhazia. A period of prosperity of Pitiunt is well known archaeologically, here have been identified a variety of materials: walls and towers, public, residential and religious buildings, lots of ceramic and metal products. These materials show a centuries-old, rich and multifaceted history of the Great Pitiunt, the rich trade center, the city – fortress, the oldest center of the spread of Christianity and major strengthening of the Roman Limes.

Key Words: Pontus Limes, legate, castel, kanaba, ancient settlement, Roman garnizon, fortress, temple, opusmixtrum, legion, citadel, tower.

Pitiunt is a fortification of Pontus Limes

At the beginning of our era, the historical territory of Abkhazia was dependent on the Roman Empire, as part of the province of Cappadocia. By this time, Rome begins deployment in Eastern Black Sea region of its regular troops in strategic locations such as the Apsar, Phasis, Sebastopolis et al., initiating the creation of the Black Sea chain of fortifications with garrisons, designed to protect the approaches of the empire and to ensure the safety of navigation in the Black Sea (Gabeliya 2015, 291–296). Researchers have revealed the features of the Black Sea fortifications, distinguished them from the entire "Eastern Border" of the Roman Empire and called them "Pontic", due to their location (Lekvinadze 1966, 203–210).

Pitiunt is the largest element of Pontus Limes located on Pitsunda Cape, to the east of Bzyb River, in 20 km from the town of Gagra in Abkhazia (Fig. 1). It is considered that the first settlement in this area was founded by Greek colonists due to the convenient harbor (Lekvinadze 1969, 92). The name "Pitiunt" comes from the Greek word Pityus, which is translated into Russian as "pine". Ancient authors define location of Pitiunt in relation to another famous city situated on the coastline that is Dioscuriada. According to Strabo, the distance from it to Pitiunt equals to 360 stages, i.e. 90 km from the modern Sukhum, where archaeologists localize ancient Dioscuriada (Strabo 1964, 14).

Written sources on Pitiunt. The first reference to Pitiunt is associated with the name of Artemidorus of Evessen,

Fig. 1 - The Cape of Pitsunda (Photo R. Dbar).

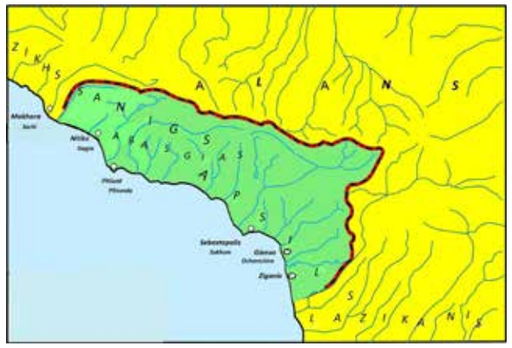

Fig. 2 - Roman Fortress on the Eastern Black Sea Coast

the geographer who lived in II- I century BC. Strabo, communicating a message of Artemidorus about the city, calls it "the Great Pitiunt" («Great Pitiunt» III, 1978, 23). According to the researchers, a definition "Great" may reflect the level of development of the urban life of the first centuries BC. In addition, this information is of particular importance for determination of the location of Pitiunt.

The fact that Pitiunt was not referred earlier than the II century BC is considered to be very specific to the study of the history of this city, as it indicates its relatively late occurrence. Moreover, Pitiunt is not mentioned in the work of Scylax of Karianda, the author of the IV century BC.

Of great interest is information of Pliny the Second, the author of the I century AD: "Heraclea is the next town from Dioscorida, which is located 70,000 steps from Sebastopolis. Here live Achaeans, Amardi, Kerkets, behind them – Serras and Kefalotoms. Inside of this space is located the richest city, Pitiunt, which was looted by Heniochi ". («The Great Pitiunt » 1978, 25). Apparently, Pitiunt in the times of Artemidorus of Ephesus (II century BC), Strabo (I century BC), Pliny (I century AD.) was the largest and richest city. This flourishing of urban life of Pitiunt undoubtedly contributed to a very wide and lively trade and economic relations, which existed already in the Hellenistic period between the cities of Asia Minor, Colchis and the Northern Black Sea (Dundua 1975, The Great Pitiunt I, 1975, 290–413).

In 131 AD, Flavius Arrian, the governor of Cappadocia, also writes in his report to the Roman emperor Hadrian about Pitiunt after an inspection tour. Arrian, describing to the Emperor the way from Dioscuriada to the Bosporus, writes: "So, if to move from Dioscuriada, first settlement will be in Pitiunt, at the distance of 350 stages" (Flavius Arrian 1961, 52). The report of Arrian indicates that Pitiunt was quite a significant settlement not included in the "dominion of the Romans" and of the Kingdom of the Bosporus. Perhaps as a result of "inspection" of the legate of the Roman Emperor Hadrian, an outpost of the Roman Limes has been moved to Pitiunt that had a good harbor, and Roman legionaries constructed the whole system of fortifications on Cape Pitsunda (Fig. 2).

Information of Flavius Arrian, with minor deviations has been preserved in the "Periplous" of nameless author of V century. Pseudo-Arrian says the following: "the first settlement for the one who moved in the direction Dioscuriada - Sebastopolis will be Pitiunt. There are 350 stages, 46 and 2/3 miles from Sebastopolis, where vessels spotted in a berth" (Flavius Arrian, 1961, 91) i.e. four anonymous authors including Flavius Arrian mentioned Pitiunt exactly the same way: "the place for spotting of vessels is in Pitiunt" by Arrian and " the place for spotting of vessels is in Sebastopolis" by Pseudo-Arrian.

The author of the V century Theodoret, Bishop of Cyrrhus, indicates as a border line of Pontus and the Roman authorities not Sebastopolis but Pitiunt.

Zosimus, the Byzantine historian of the end of V - beginning of VI century left us similar information about Pitiunt. According to him, Pitiunt is surrounded by a high fortress wall; the city has a very convenient harbor with a lot of vehicles spotted in there and the Roman garrison stationed in the city-fortress («The

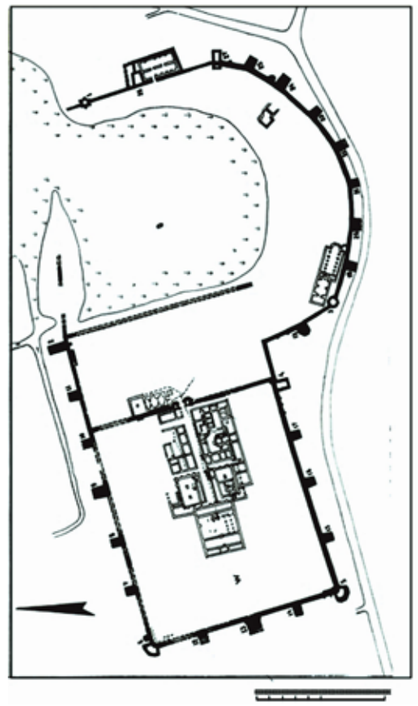

Fig. 3 - Pitiunt general plan of the city-fortress (according to A. Apakidze)Archaeology)

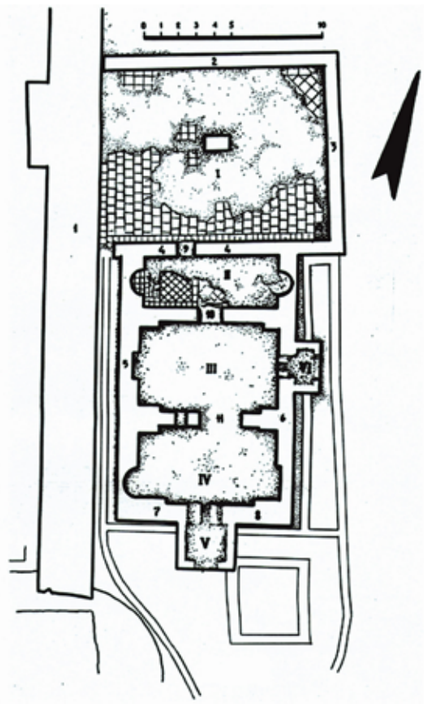

Fig. 4 - The remains of the Roman baths (according to G. Lordkipanidze)

Great Pitiunt » 1978, 30). In light of the mentioned, the information of the widely known Byzantine author of VI century Procopius of Caesarea is noteworthy. He mentions the fortified Pitiunt in his writings along with Arheopolis and Sebastopolis. And in the work "War with the Goths" he informs that the Romans "have built two coastal fortifications of Sebastopolis and Pitiunt located from each other at a distance of two days; from the beginning they kept here a military garrison" (Procopius of Caesarea, 1950, 101–106).

Flourishing period of Pitiunt is well known from the archaeological point of view, a variety of archaeological materials have been discovered, aimed to justify the reason, on the basis of which Artemidorus and Strabo recognized Pitiunt as a city.

Archeologists are exactly the ones who should demonstrate according to the real monuments the nature of urban life of Pitiunt, its appearance and purpose - whether it was just a fortress or a city - large and rich beside all.

Archaeological works of Pitsunda expeditions from 1952 to the beginning of the 1990s have revealed numerous and varied archaeological material, which is along with written sources is the basis for our study. («The Great Pitiunt », 1978).

Defensive installations of Pitiunt. Archaeological investigations under direction of A.M. Apakidze revealed well-preserved Roman fortifications, the whole system of guard fortifications, which served not only as a blockage of the coastal strip but the access to the mountains. The inner area of the fortress and the fortress itself have been archaeologically examined, namely such fortifications as ramparts, towers, buttresses, etc. (Fig. 3). Should be noted that it was not possible to completely uncover the wall, towers and buttresses. At the same time conservation of the eastern part has been carried out; cleaning of other units has been carried out only partly, on the level necessary for a compilation of the overall plan of the city-fortress. The general plan of a walled city has been drawn up for a number of years and adjusted according to the process of clearing of the sites, towers and buttress-

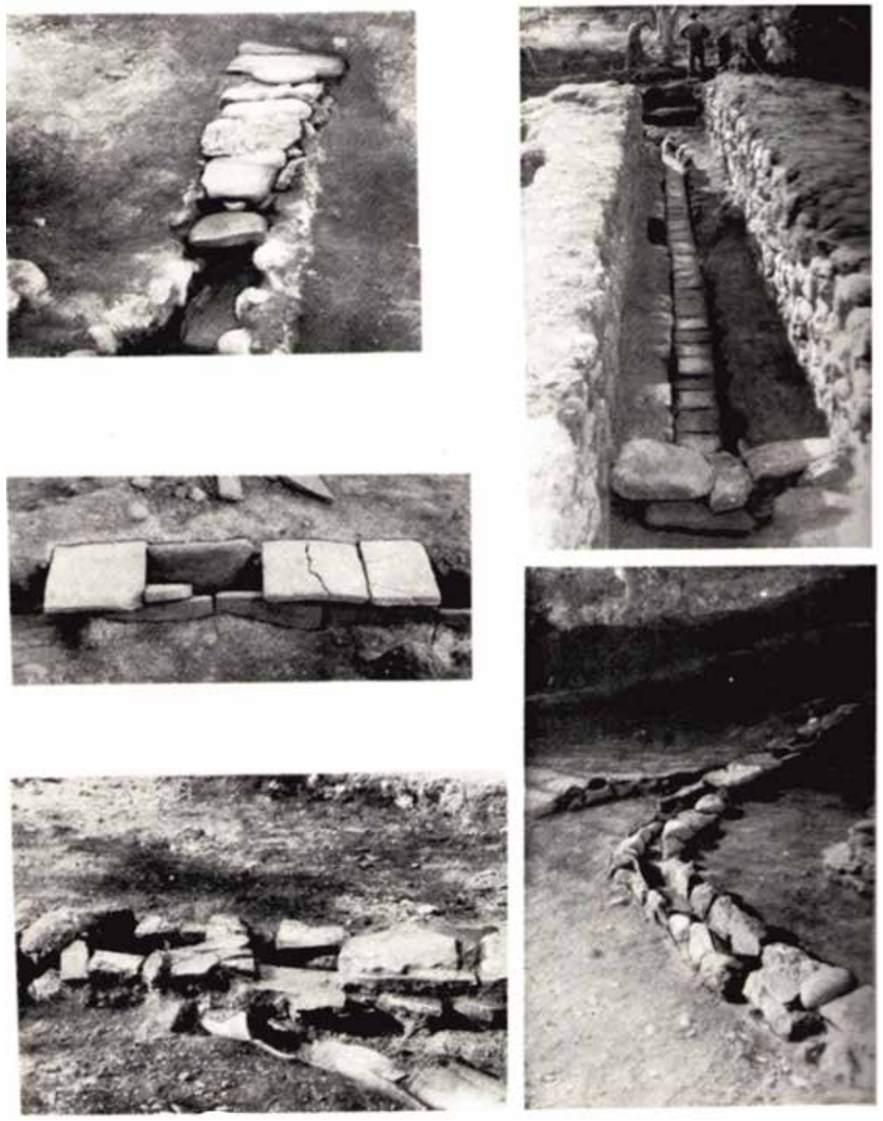

Fig. 5 - Late antique bath – fragments of the sewer system (according to A. Apakidze)

es. A waterlogged north-eastern part of the fortress of Pitiunt did not give complete picture of the fortification system of Pitiunt.

A very interesting picture of the walled city fortifications has been identified by aerial photography: one may quite clearly see two main parts of the walled city. The fortified part of Great of Pitiunt consists of two major parts: a) the western part represents a rectangle (155m x 130m) of about 20 000 m. b) the eastern part is represented in the form of an elongated oval (Fig. 3).

Both parts form a coherent whole in terms of fortification, but it is certain that the strengthening of the two parts of the walled city has not been conducted simultaneously and not according to a single plan. It was found that the western, rectangular part of the fortress is more ancient and was built according to the Roman fortification system.

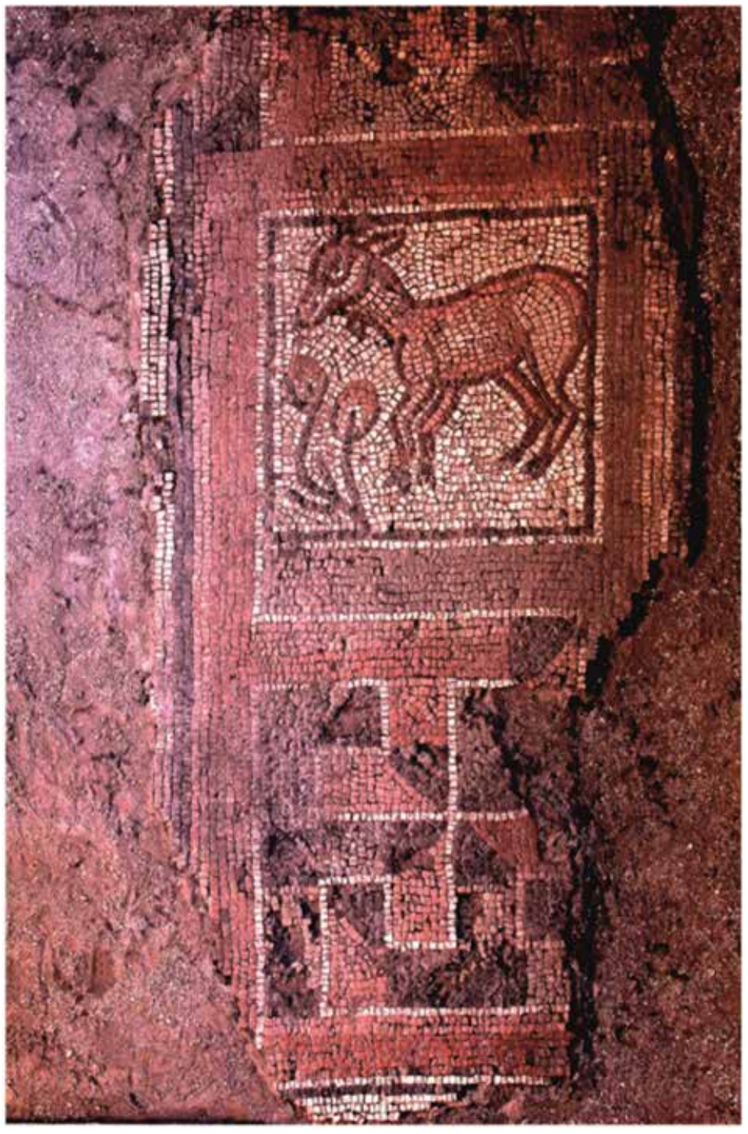

Fig. 6 - Mosaic (according to L. Shervashidze)

Excavations have shown that a common feature for both parts is primarily the fact that they are surrounded by a fortress wall equipped with towers and buttresses upon detection of significant differences in the outlines of the towers, their sizes, in the length of the clumps of trees and in the thickness of the fence. The difference is particularly evident in the general outline of the two main parts of the walled city: rectangular western part and oval eastern part.

The total perimeter of the fortress wall is about 1200 meters and is all equipped with the towers and buttresses.

It was found archaeologically that the western rectangular part of the walled city in Pitiunt was created on the first stage of the existence that has been emerged on the model of Roman fortresses. The basis for such a statement gives the plan of the excavations of Roman castellum revealed here, namely: a fortified wall, the

Fig. 7 - Fragments of Pitiunt amphorae (according to A. Apakidze)

location of the towers, main line laid on its center line and dividing the internal area into two parts, buildings constructed to the south of its gate, the building located in the eastern part with two small towers - on the right and left sides (Fig. 3).

Thus, the fortifications of the great of Pitiunt consist of two parts, which differ from each other by construction system, as well as undoubted chronological difference between them.

So, despite the fact that a relatively small part of a Pitiunt inner fortress was excavated, many important archaeological sites have been identified: a complex system of fortifications, household premises, press houses, ruins of the kiln, bathhouses (Fig. 4), sewerage system (Fig. 5), cult constructions, the rich and highly original mosaic and mosaic inscriptions (Fig. 6), fragments of Greek and Latin inscriptions, pottery, very richly represented, diverse ceramic containers - amphorae produced in various craft centers of the ancient world, building ceramics, rich numismatic findings.

Fig. 8 - Byzantine coins (according to A. Apakidze)

An important place in the archaeological materials of Pitiunt settlement belongs to the pottery that cover almost the entire inside part of the walled city and the adjoining to it territory of the city. The multiplicity, variety of materials produced in different time intervals, as well as belonging to various craft centers of the ancient world are clear evidence of the length and intensity of urban life of the ancient Pitiunt (Fig. 7).

The pottery reflect the historical life of the walled city and are a clear illustration of growth or decline of the economy, as well as an indicator of the level of trade-economic and cultural ties between the Great Pitiunt and the outside world.

Pitiunt numismatic findings represent an exceptional interest to specialists (Fig. 8). Coins of Pitiunt, totalled about 1,500 copies, chronologically covering a large period of time from the II century BC to the VIII century BC, except for the actual numismatic value represent a paramount historical source for reconstruction of a picture of urban life of the Great Pitiunt for studying and identifying of its trade and economic ties, for clari-

fication of the real age of many discoveries of Pitsunda archaeological expedition.

The remnants of the early Christian churches kept on the settlement of Pitiunt show that the walled city was the oldest and largest religious center of the Western Transcaucasia. It is also important that Stratophilus, the bishop of Pitiunt took part in the First Ecumenical Council in 325. Council was held at Nicaea (modern Iznik located in Turkey). It has played a special role in the history of the Christian faith. As in many other places of the Roman Empire, inhabitants of the city constructed the very first church the Edict of Milan, when the mass construction of temples has been started (Fig. 9). An ancient church of Pitiunt of the IV BC was located out of town, at a little distance from it. The first church became a cathedral of bishop Stratophilus (Fig. 9.2). It was the beginning of a long and complicated history of the religious complex, which has existed in this place for over two centuries. The second church, built in the beginning of V century was already much larger and of complex structure (Fig.3.3). Its floor has been decorated with mosaics (Fig.9.4). The church has been decorated with marble that was brought to Abkhazia from Constantinople workshops located on the island of Proconnesus. (Khrushkova 2002, 67–119). The second church was burned, too, a third one was built in its place. In the V century the city expanded, its wall has already covered the church complex (Fig. 9.5). In the VI century, the Eastern Black Sea region has become an arena of struggle between the two superpowers of that time - Byzantium and Persia. In 542, the military events developed unfavorably for the Byzantines. They were forced to temporarily leave the cities of Pitiunt and Sebastopolis destroying fortifications, so as not to leave them to the Persians. Soon they returned, and townspeople built the church again on the site of the ancient cult center (Fig. 9.7). But it was already a small one, as the ancient city lost its importance.

In the V century two small buildings were built in the settlement - a chapel and a rectangular building, the so-called Martyrios, a place where the martyrs have been venerated. They were buried in the tombs, built of stone and brick in a massive sarcophagus of solid stone. Later, during the second half of the VI century, when the number of Christians in the city has been increased, a large church was built on the same place. And already in the X century a large temple of Pitsunda was built near the church, which for many centuries remained the largest religious center of the region. (Khrushkova, 2002)

Thus, the fortifications and farm buildings, city buildings, the ruins of ancient temples, diverse building materials, pottery, monuments of small art, magnificent mosaic of Pitiunt and a rich collection of coins are the primary archaeological sources aimed to the reconstruction of the centuries-old, intense and multifaceted history of the Great Pitiunt – the rich trade center, the city-fortress, the oldest center of spread of Christianity and a major fortification center of the Roman (Pontus) Limes (Apakidze 1978, 99).

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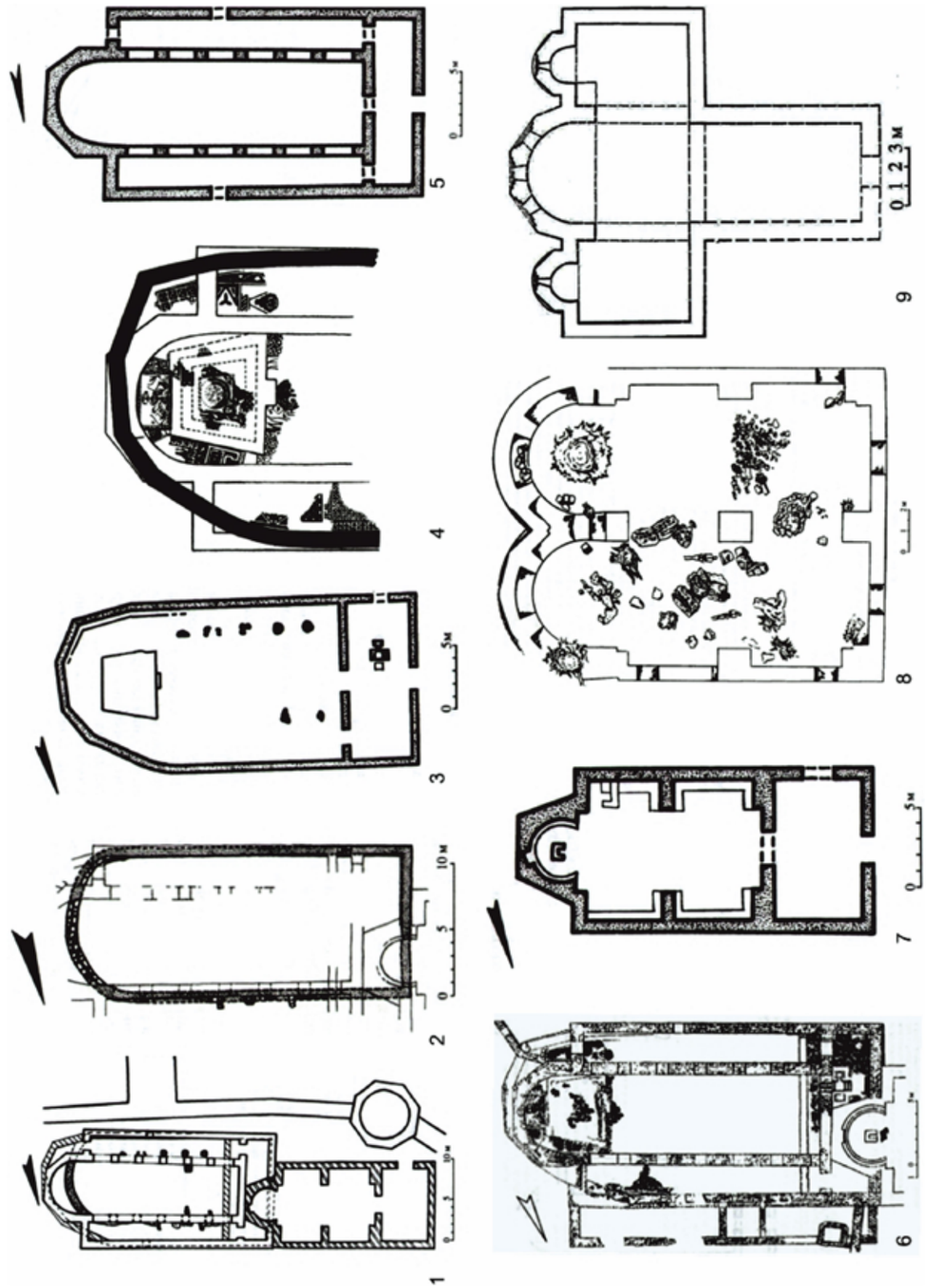

Fig. 9 - Cult constructions of Pitiunt (according to I. Tsitsiashvili)

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Zusammenfassung

Seitdem das Königreich Pontos unter dem Einfluss von Rom stand, wurde das historische Territorium von Abchasien ins Römische Reich als Teil von der Provinz Kappadozien / Cappadokia aufgenommen.

Nur dann, an der Schwelle zu unserem Zeitalter, beginnt Rom an der östlichen Schwarzmeerküste auch in Abchasien seine reguläre Armee zu entsenden und somit wird der Grundstein für die Entstehung einer Kette von Stützpunkten mit Garnisonen an der Schwarzmeerküste gelegt, die nicht nur die weit liegenden Regionen des Imperiums schützen sollten, sondern auch die Sicherheit der Schifffahrt an der Schwarzmeerküste bieten sollten.

Der georgische Forscher W. A. Lekwinadze hat die römischen Stützpunkte der Schwarzmeerküste erforscht und am Ende der 60-ger Jahre des 20. Jahrhunderts in das gesamte System der normalen römischen Stützpunkte, die an der Grenze (Limes) des ehemaligen Römischen Reiches errichtet wurden, aufgenommen. Der Forscher hat gleichzeitig aber auch die Besonderheiten von dem Stützpunktsystems der Schwarzmeerküste herausgestellt, die erlaubten diese Stützpunkte aus dem ganzen „Ostlimes“ hervorzuheben und aufgrund ihrer Lage als „Pontos Limes“ zu benennen.

Das wichtigste Glied „Pontos Limes“ ist Pitiunt, gelegen auf dem Kap von Pitsunda, 20 km von der Stadt Gagra entfernt. Pitiunt ist die meist erforschte römische Festung der östlichen Schwarzmeerküste. Die Festung ist in der zweiten Hälfte des ersten Jahrhunderts unserer Zeit erbaut. Schon von Strabon wurde Pitiunt als „reichste“, „erhabene“ oder noch genauer „große“ Festung genannt, die direkt mit dem Gebieten vom Heniochi – Volk grenzte.

Die Blütezeit von Pitiunt ist archäologisch belegt, hier wurde Vielfalt von Materialen entdeckt: Mauer und Türme, gesellschaftliche, private und religiöse Gebäude, zahlreiche Produkte aus Keramik, Glas und Metall, mehr als 1400 Münzen. Allgemeine chronologische Rahmen dieser Materialen liegen vom ersten bis zum sechsten Jahrhundert, aber die befestigte Siedlung mit den Steinmauern und die normale reguläre römische rechteckige Planierung entstanden schon in der zweiten Hälfte des zweiten Jahrhunderts.

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Hidden gems: Roman finds in the PUG-collection in Utrecht

ABSTRACT

The PUG-collection in Utrecht, The Netherlands, is an old archaeological collection with a strong emphasis on the Roman period, containing a lot of finds from the important castellum of Vechten (*Fectio*), one of the earliest Dutch castella. In 2007 a project was started to improve the state of the collection and make a digital registration of all the finds. A workplace exhibition in the Centraal Museum gave the public a look behind the scenes. The goal of the project is to make both the general public and researchers aware of this rich collection and its fascinating history.

Key Words: Roman archaeology, history of archaeology

The PUG-collection

In the beginning of the 19th century interest in the Roman history of Utrecht and its surroundings was growing. In 1841 the Provinciaal Utrechts Genootschap van Kunsten en Wetenschappen (PUG, Provincial Utrecht Society of Arts and Sciences) started actively collecting archaeological finds. Funds were made available to buy collections and antiquities and members of the Society were encouraged to donate their finds. The PUG also undertook some excavations itself and later on funded several excavations by professional archaeologists.

It was the beginning of an impressive collection with finds from all prehistory up to the Middle Ages, but with a strong emphasis on the Roman period. It tells us a lot about the Roman past of the province of Utrecht. It contains finds from no less than three Roman castella along the Rhine Limes: Vechten (*Fectio*), Utrecht (*Traiectum*) and De Meern.

Castellum Fectio (Vechten)

Vechten, to the southeast of the city of Utrecht, is one of the earliest Roman castella in the Netherlands, built during the reign of emperor Augustus, in 4 or 5 AD. A large portion of the Roman finds in the PUG-collection comes from this important site. In 1892-1894 the PUG excavated here for three summers in an attempt to locate the Roman fortress. Although they in fact excavated part of the fortress, they failed to recognize it at the time. But they did also find a first century Roman ship, a lot of leather from a leather worker, a few barrel wells and a lot of other Roman finds for the collection.

Fig. 1 - Fragment of a terra sigillata plate with graffito of a Roman liburna, Vechten, 25-50 AD (PUG-collection).

Fig. 2 - The PUG-collection on display in the City Museum of Antiquities in the city hall of Utrecht, A.E. Grolman, 1889 (The Utrecht Archives).

Later excavations in Vechten in the 1920s and 1940s also added to the PUG-collection.

Rescue plan

In 1995 the PUG-collection was conveyed to the care of the Department of Heritage of the city of Utrecht. Part of the collection is exhibited in the Centraal Museum in Utrecht. The collection was leading a somewhat languishing existence: there was no complete inventory and a lot of valuable objects were in danger of deteriorating. Therefore a plan was made in 2007 to improve the state of the collection. The main goal of the project is make an complete digital registration of all the objects, so both the public and the scientific community will be able to enjoy the collection online.

Archaeologists at work

Between 2011 and 2015 the public could see the work on the collection for themselves in an open workplace exhibition about the PUG-collection in the Centraal Museum. Visitors of the museum could take a look behind the scenes and ask questions to the curator working on cataloguing and photographing the finds. Archaeological workshops for children were organized with real Roman finds. Facebook and Twitter are used to let the public know about new discoveries and news about the collection.

A rich source for research

Our aim is not just to show Utrecht's antiquities to the general public, but this special collection is also a rich source for scientific research. Many important researchers have found their way to Utrecht in the past, for instance for the terra sigillata. Even though the information about the find circumstances only rarely complies with modern requirements, the objects from the PUG-collection can still add a lot to modern archaeological knowledge. They are still relevant. Fortunately we see a renewed interest from specialists who want to study objects from the PUG-collection.

Zusammenfassung

Die PUG-Sammlung in Utrecht, Niederlande, ist eine alte archäologische Sammlung mit starkem Schwerpunkt auf der Römerzeit und enthält viele Funde aus dem bedeutenden Castellum Vechten (*Fectio*), einer der frühesten niederländischen Castella. 2007 wurde ein Projekt gestartet, um den Sammlungsstand zu verbessern und alle Funde digital zu erfassen. Eine Arbeitsplatzausstellung im Centraal Museum gab der Öffentlichkeit einen Blick hinter die Kulissen. Ziel des Projekts ist es, sowohl die breite Öffentlichkeit als auch die Forscher auf diese reiche Sammlung und ihre faszinierende Geschichte aufmerksam zu machen.

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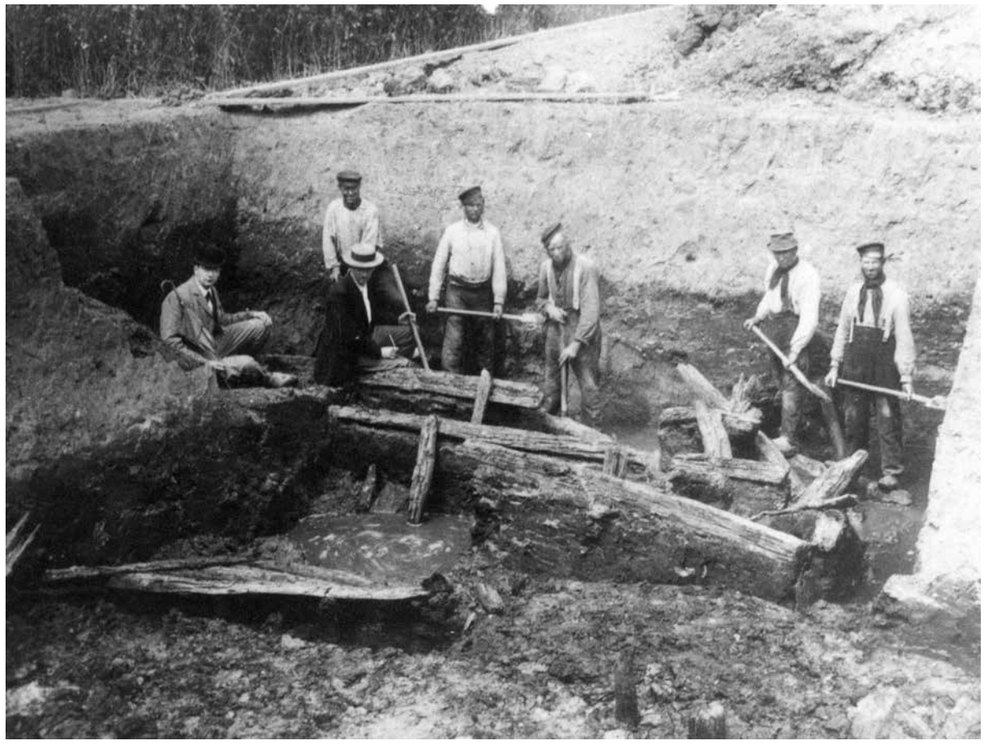

Fig. 3 - Excavation in Vechten in 1892-1894 (The Utrecht Archives).

Fig. 4 - Part of the PUG-collection in the beginning of the project in 2007 (Amerens Hedwich).

Fig. 5 - Roman finds from the PUG-collection (PUG-collection).

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Fresco fragments from the *extra muros* residence in Novae (Sector VIIIA)

ABSTRACT

Novae was founded as a legionary camp on the *Limes Moesiae*. It expanded into civilian settlement around its *canabae*. The most prosperous time for Novae was the period of the Severan dynasty. Our study will address the painted decoration of the rich house *extra muros*, which was presumably the residence for high officials staging temporary in the camp. The residence has several building phases. The largest part of wall paintings come from rooms B and Д. Recompositions of the preserved fragments yield the possibility of reconstructing the decorative system of the painted walls which consisted of fields devided by vertical bands. So far only vegetal motifs have been recognized on the fragments. There are also embroidery borders, reminiscent of the Fourth style. Precious evidence about the building and repair phases give the fragments with multiple painting layers. The house was destroyed during the Huns' incursions in the beginning of fifth century.

Key Words: Novae, domus decoration, Roman wall paintings, embrodery borders

The architectural context

Novae was initially the castrum of the *Legio VIII Augusta*, based here around AD 48. In AD 69-70 it was replaced by the *Legio I Italica*, which remained here until the first half of the fifth century. From the fourth century onwards the legionary camp and the civic *canabae* merged into one urban site. Novae was the residence of Theodoric the Great in 486-488 before his march to Italy against Odovacar. In sixth century AD Novae was an episcopal see[1].

In 1978 the archaeologists began the excavation of a large building with complex plan, situated at about 75

[1]A useful set of articles about Novae was published in 2008: Novae 2008. There are also numerous publications by Bulgarian and Polish colleagues who are carrying out joint archaeological campaigns for 60 years now without interruption: for bibliography see Novae 2008, 301 sq.

m west from the city wall[2]. There were several archaeological campaigns during which fresco decorations have been discovered: most of the wall paintings were found after 2007[3].

Presumably the earliest structures here were built in the early second century AD but they were destroyed during the Costoboki invasion in 170[4].

Soon a big residence was built at the site[5] which flourished during the Severan age. Most of the rooms were equiped with hypocaust heating, and were decorated with wall paintings and stucco. The thoroughly studied west part of the building appeared to be a bath with pool for cold water with impressive dimensions: 11.00 x 4.00 m.

It is assumed that the residence was used for visits of high military or civil officials: it was well maintained as shown by numerous fragments with several layers of wall paintings. This building perished during the incursions of the Goths in the middle of the third century or their later raids which continued until the 270-ies[6].

The new building which was erected on the same spot in the fourth century was of residential character as well. The foundations of the earlier house were used for the construction of the new one, which walls were built with sun-dried bricks. The inner courtyard provided with porticoes and a small pool, is surrounded on all cardinal directions by rooms. Not only the living quarters, but some of the facilities and service rooms had hypocaust heating. The hypocaust piers are made of circular or square tiles, while *tegulae mammatae* fixed to the walls secured the circulation of the hot gazes upwards.

Barbaric invasions (the Goths) caused the destruction of this residence which was in use in the course of the fourth century. Accordingly, a new residence was erected in the early fifth century, this time, however, with new orientation and plan. Its foundations were made of worked and crude stone bound with mud, and the floors were covered with bricks. The differences from the usual building techniques and the new layout suggest that the inhabitants were of different ethnic group. Presumably they were the Goths of Theodoric the Great. After they left Moesia in 488 the site became desolate. Burials began to be performed here but for a short period, because a Christian basilica replaced the necropolis at the end of the century (Fig. 1).

The wall paintings

The number of the painted fragments is big, and the majority of them belong to the decoration of the buildings that appeared successively from the second to the fourth centuries. Some wall paintings are preserved *in situ*, but most of them were found in fragments, fallen in the hypocausts among the debris of the collapsed burned roofs. So far the most interesting fragments were found in the western part of the *extra muros* complex, namely in rooms Б, Б1, В и Д (Fig. 2).

It is highly probable that new wall painted decoration will be found during next archaeological campaigns.

Wall paintings in room Б

The dimensions of the room are 4.20 x 6.50 m, the height of the walls being preserved to 1.40 above the level of the floor[7]. The room was heated by a hypocaust which square piers were made of bricks bearing the stamps of the First Italian Legion. Two layers are clearly visible on some fragments but the colours are simple: red stripes on white background.(Fig. 3) The painted fragments are in small number: they belong to the decoration of the residence built in the second century and destroyed about the middle of the third century.

[2]Čičikova 1987; Čičikova, Božilova 1990; Čičikova, Božilova 1990a.

[3]Vladkova 2003; Vladkova 2008; Vladkova 2010; Vladkova 2011.

[4]Vladkova 2003, 223; Vladkova 2011, 283, identifies the site VIIIA as the *canabae legionis*.

[5]Some finds like the brick seal of consul Lucius Cossonius Eggius Marullus (184-186) suggest the probable date for the construction of the new house: Vladkova 2003, 223; Vladkova 2010, 316.

[6]Čičikova 1987, 185–192; Čičikova, Božilova 1990, 44–50; Čičikova, Божилова 1990a, 611–619; Vladkova 2003, 221–229; Press, Sarnowski 1990, 239.

[7]Vladkova 2010, 314.

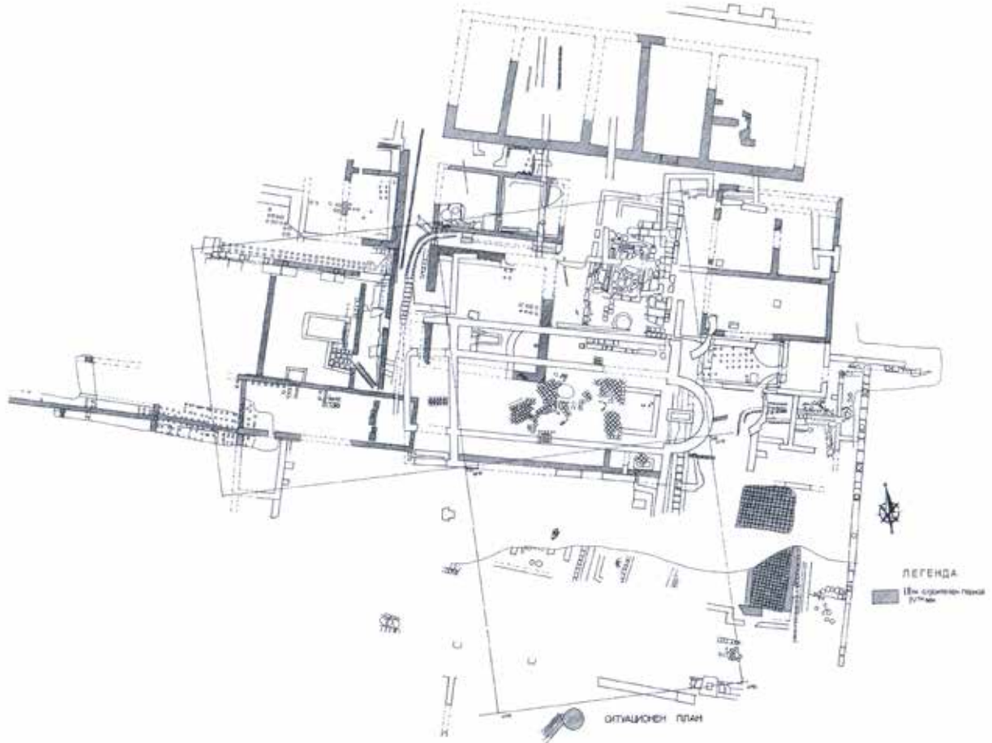

Fig. 1 - Novae. *Extra muros* residence. General plan. Photo: P. Vladkova

Wall painitngs in room Б1

Situated west of room Б, room Б1 is also rather large: 3.50 x 6.60 m[8]. Its hypocaust is built on the ground level as the one in room Б, but the bricks of the piers are round (diam. 19 cm), all marked with rectangular stamps of *Legio I Italica*.

The walls do not exist any more due to modern spoliation. The fragments of wall paintings are few, all found as usual among the debris in the hypocaust. Some of them show three layers of painted mortar. Bright red and azure hue were used to paint the walls (Fig. 4).

Wall paintings in room В

This room, with its L-shaped layout, borders the rooms Б and Б1 on south and west. Its overall dimensions are 17.50 x 2.50-5.0 m, the expanded part being at the northwestern side. Part of the plastered floor is preserved in the eastern and southwestern parts of the room. Beneath is the hypocaust which piers' bricks have stamps with rectangular or tabula ansata frames of the First Italian Legion. Among the piers many wall painting fragments have been found beneath or above the thick layer of the collapsed burned tile roof.

Among the small artefacts found in room В there are coins, the latest ones produced at the time of Gordian III (238-244), a fact suggesting that the room was in use at least to the middle of the third century.

The number of the painted fragments is bigger than in the rooms Б and Б1, and the motifs and colours they present are divers and variegated. Among the motifs there is a white rosette in a red circle with tangent dots, all on yellow background (Fig. 5). Dots are added to yellow or red lines on red background too, but it is not

[8]Vladkova 2010, 314–315.

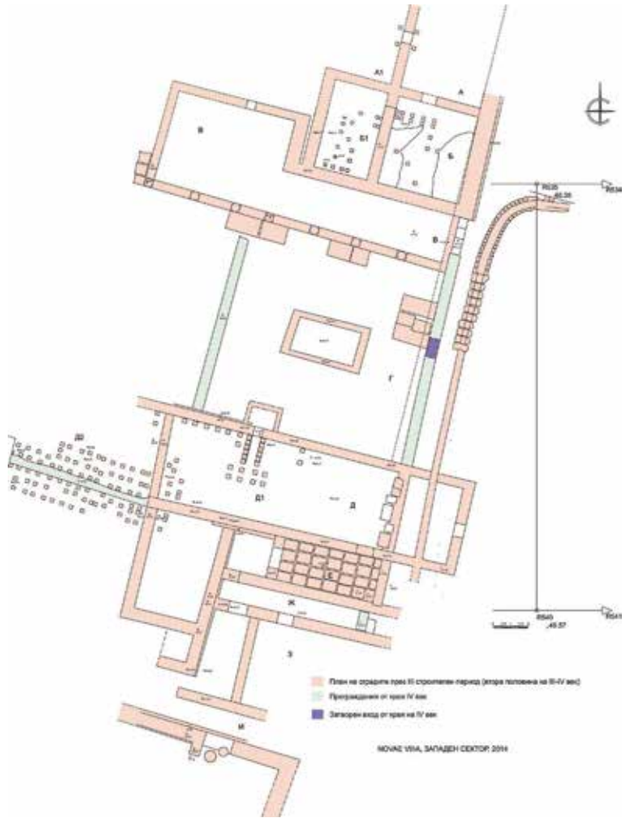

Fig. 2 - Novae. *Extra muros* residence: plan of its western part. Photo: P. Vladkova

clear in what combination stayed the rosettes and the dotted lines. In any case, the latter delineate frames within large red panels which were probably set on green background. The reconstruction we present here could be either in horizontal or in vertical position (Fig. 6). The ornamentation with the dotted lines belongs to the so-called "embroidered borders", designed within the Fourth Pompeian style. Its long use in domestic decoration makes the dating of the painted fragments under discussion difficult, urging us to rely on the archaeological context. In the case of the Novae *extra muros* residence paintings the late second century would fit well to the chronology of the site.

Several fragments with vegetal motifs allowed a reconstruction of another piece of the wall decoration in room B: a garland. One of the fragments is still sticked to a tile with the legionary stamp and a dog's footprint[9]. The painted surface bears two contiguous bands, one wider in red, and the other one in yellow, on a cream-coloured background. Next to them is a stem with pointed green leaves and black spots (Figs. 7a and 7b).

The recomposed pieces of decoration do not suffice to reconstruct the overall decorative programs applied during the periodical renovations of room B. For this reason searching for analogies is difficult. However, some details from the decoration of domestic architecture in another town on the Roman limes – Cologne (Köln) show the continuous and ubiquitous effect of the general decorative trends throughout the Empire. Dotted rosettes resembling the ones in Novae were

[9]The dimensions of the painted fragment sticked to the tile are: height 27 cm, width 14.5 cm, thickness 2.3 cm; the painting coat thickness 1.7 cm, that of the paint layer - 0.6 cm, width of red strip 4.5 cm, of yellow one – 1 cm.

Fig.3 - Fresco fragment from room Б. Photo: P. Vladkova

Fig.4 - Fresco fragment from room Б1. Photo: P. Vladkova

painted on the ceiling in room 254 of a small peristyle house (insula JK/1) in Cologne[10]. In the same town some walls of the Praetorium were decorated with contiguous panels and pilasters (Felder-Lisenenschema) in which exuberant straight garlands, similar to our recomposed fragment, were the filling motif (Fig. 8)[11].

Fig.5 - Fresco fragment from room B. Photo: P. Vladkova

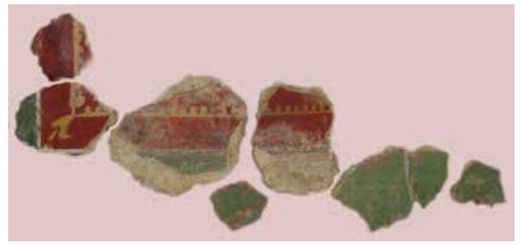

Fig.6 - Recomposition of fresco fragments from room B. Author and photo: J. Valeva

Room B had stucco decoration too (Fig. 9). Profiled frieze in light blue ran probably at the basis of a vault since other fragments with the same colour are slightly curved suggesting the form of an arched ceiling.

Wall paintings in room Д

South of room B there is an inner court with a small pool in the middle. Further to the south the court borders room Д. Its interior was reconstructed several times as the analysis both of the construction data and

[10]Today on Roncalliplatz, south of the South Portal of the Cathedral: Thomas 1993, 107–125, Abb. 34.
[11]Thomas 1993, 246, 248, Taf. 14b (Mauerecke 668–669).

Fig. 7a - Reconstruction of part of the panel decoration in room B. Author and photo: J. Valeva

Fig. 7b - Reconstruction of part of the panel decoration in room B, drawing. Author and photo: J. Valeva

the wall paintings suggest. The dimensions of the room changed in the course of time as well as the building material of the walls, first stone, later – sun-dried brick. It seems that initially this room was part of the bath complex of the first residence. Wall paintings from that period are preserved on the south stone wall on a thin plaster layer. The plaster is strong, with admixture of quartz. The decorative system in its lower zone consisted of large fields, framed by red bands and inner yellow lines (Fig. 10). This decoration is preserved *in situ* to a height of 0.30 m.

After a reconstruction this same south wall was isolated from the moisture by a wall built of *tegulae mammatae* with standard height of 0.53 m, and set up at a distance of 0.15 m from the rear wall. The *tegulae* wall was first roughly plastered. Follow the arriccio (0.7-0.8 cm) and the intonaco layers. The paintings in fresco technique are preserved to the height of the tegulae and a length of 4.00 m westward from the southeastern corner of the room. This is the plinth zone, divided by 1.5 cm wide lines into horizontal panels 1.30 m wide and 0.50 m high. In the middle of each panel is an *ara*-shaped column base, painted in green and white. Only on one of the bases there is a preserved part of a painted green fluted column shaft. Behind this line of columns which

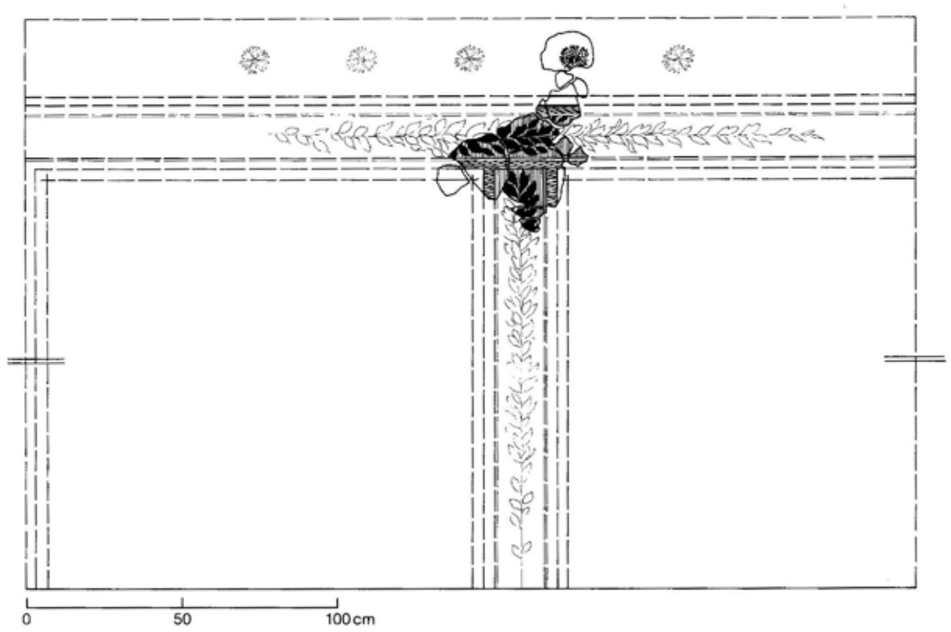

Fig. 8 - Cologne. Praetorium. From Thomas 1993, Taf. 14b.

were meant to give the illusion of depth, the wall was divided into large panels by red bands (Fig. 11).

It is difficult to date individually the two painted layers in room Д. We can only assume that both belong to the decades between the seventees of the second century and the last quarter of the third century if not the early fourth century for the second layer[12]. A similar design of the lower part of the wall with painted ara-shaped column bases have been discovered in a house in Philippopolis (Plovdiv)[13].

During the next renovation room Д was extended eastward reaching a length of 16.50 m (with preserved original width of 4.50 m). The walls were decorated anew but the paintings were applied on mud plaster. For the sake of a better cohesion between this layer and the wall, the latter was thoroughly notched, which led to the partial destruction of the paintings with the columns.

Conclusion

The wall paintings found in the residence *extra muros* in Novae are still in process of research. At this stage we can share only some general observations. The biggest variety of colours is observed in the wall paintings from the second building period of the residence, namely in rooms Б, Б1 and В. The plastering of the stone or brick walls was rather coarse, but the decorative system followed the classical type with alternating large panels and vertical fields, containing vegetal motifs. This decoration perished during the devastation of the Gothic invasion at the middle of the third century or a bit later.

During the reconstructions of the residence at the end of the third, and during the fourth century the walls were built with mud bricks. They were replastered and repainted several times with colourful marble imitations. The last layer on the preserved fragments displays

[12]Similar dotted lines (?) seem to have been painted on the walls of a villa rustica in Tsarkvene-Bare locality in Serbia, dated to the turn to the fourth century AD: Попкић Ђорђевић 2013, 92.

[13]Still unpublished.

Fig. 9 - Stucco fragments from room B. Photo: J. Valeva

Fig. 10 - Wall paintings *in situ* in room Д, first phase. Photo: P. Vladkova

Fig. 11 Wall paintings *in situ* in room Д, second phase. Photo: P. Vladkova

plain white painting without any ornaments or figural motifs.

The work on the identification of the fragments and the reconstruction of the decorative systems will continue.

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Résumé

Novae surgit comme camp légionnaire sur le *Limes Moesiae* et se développa en tant que ville autour de ses *canabae*. Le règne des Sévères était la période la plus prospère pour Novae. Notre étude est concentrée sur la décoration peinte de la domus *extra muros* qui était probablement la résidence pour les hauts dignitaires en visite dans le camp militaire. La résidence connut plusieures phases de construction et de reconstruction. La plupart des peintures proviennent des salles B et Д. A partir des fragments recomposés on put reconstruire certaines parties des systèmes décoratifs des murs qui étaient principalement divisés en panneaux alternant avec des lésènes (Felder-Lisenenschema). Jusqu'à présent on a reconnu seulement des motifs végétaux sur les fragments des fresques. Des bordures ajourées – des réminiscences du Quatrième style pompéien, apparaissent sur quelques fragments aussi. Les fragments sur lesquels sont préservés quelques couches picturales sont particulièrement importants pour la compréhension des phases constructives de cette résidence. Elle périt finalement sous les coups des Huns.

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Military Raetia – achievements and development since 2015

ABSTRACT

MISSING

Key Words: Raetia, Military, Military *vicus*, Late Roman

The 23rd International Congress of Roman Frontier Studies, held with its excursions to the Limes at Ingolstadt 12th – 23rd September 2015, organized by the German Limes Commission (DLK) and the Bayerische Landesamt für Denkmalpflege (BLfD), formed an important milestone not only in the studies of the Roman military as such but also in the studies of the Roman province of Raetia. Lasting achievements were the first guidebook to the Roman frontier in southern Germany in English[1] and – to be referred to with a certain pride – the proceedings of this conference in two volumes with almost 1000 pages.[2] Concerning Raetia the congress not only triggered a larger number of contributions to individual sites and specific questions[3] but two comprehensive summaries to the military development of the province in the early and middle Imperial period as well as in the Late Roman times.[4]

As for what has happened since 2015[5] we are still in an almost fierce debate about the question whether the Romans met at the time of the conquest a siceable autochthon population between the northern fringes of the Alps and the Danube or not. A large research project "Transalpine mobility and culture transfer" concerned

[1]Matešić, Sommer 2015; also in German: Matešić, Sommer 2015a.
[2]Sommer, Matešić 2018.
[3]See the contents of the various sessions in the Proceedings.
[4]Sommer 2018; Mackensen 2018.
[5]The following considers work done till 2018, including publications down to 2019.

with the population of a transsect across the Alps from the Bronze Age to the Romans[6] deals among others with the so called Heimstetten group, people who settled in the wider Munich area in the first Century CE. Their timber houses surrounded be large fence-systems reveiled very few finds, making the dating of their settlements beyond the few Roman finds and a few dendrodates, the earlier ones related to the middle third of the first Century, quite difficult. Bernd Steidl thinks that he can prove a continuity from the late Latène period especially through the plans of some of the buildings.[7] In an extensive study of the bone remains from these settlements Simon Trixl showed that the people were basically concerned with breeding large size oxen for the Roman market. He came forward with a differentiated model in relation to the food production in early Roman times.[8]

Fascinating are the results of the research on one branch of the *Via Claudia Augusta* near Eschenlohe at the northern fringes of the Alps. With the help of dendrochronological dates from the timber substructure it was possible to support the archaeological findings of only one phase of that road, dating exclusively to late 42/summer 43 CE, 3 years earlier than all the other dates known from the further course of that road crossing the Alpes. Werner Zanier suggests that the road was the result of a careful planning. He thinks that the road was set up for the return trip of Emperor Claudius from Britain to Rome on a route showing respect to his father Drusus and the sites of his actions, perhaps even visiting Marktbreit in that year (Fig. 1).[9]
New knowledge was gained on a little fortlet most likely dating into the first Century CE overlooking the entrance to the impressive Danube gorge at Weltenburg. Topographical and geophysical survey reveiled that next to the area excavated already 25 years ago[10] large parts of the fortlet Weltenburg-Am Galget are still preserved – three surrounding ditches and more than half of the interior abutting a steep decline into the Danube valley.[11] The fortlet is seen in connection with the early Roman occupation of the southern banks of the Danube, making it more and more likely that there was a chain of forts of various sizes down the Danube beyond Oberstimm already in the second half of the first Century CE.

Almost in "exchange", the idea of a Late Roman fortlet a bit closer towards the gorge just above the famous monastery of Weltenburg has to be given up finally. Its reconsideration reveiled that the large rectangular building was part of the Karolingian-Ottonian Castellum in relation to the monastery.[12]

The long-discussed "Donaukastell" at Regensburg of the late 1./2. Centuries as some kind of auxiliary predecessor to the legionary fortress (Fig. 2) has recently "resurfaced". Silvia Codreanu-Windauer and Thomas Fischer were looking afresh at old documents for this and figured that several Roman ditches in that region belong to an earlier fort.[13] Karlheinz Dietz relates the old controversially interpreted insciption from Regensburg CIL III 14370/Vollmer 361 to the suggested military *vicus* of that fort by reading now *Aur(elius) Artissius aedil(is) territor(ii) contr(ibutorum) et k(ivium) R(omanorum)*.[14]

Staying in the area it is important to mention the works done in the Bayerische Landesamt für Denkmalpflege and the relevant communal archaeology units between Bad Gögging close to Eining and Passau close to the Austrian border to prepare the nomination for World Heritage of the "Frontiers of the Roman Empire – The Danube Limes (Western Segment)" together with colleagues of Austria, Slovakia and Hungary. Following a Thematic Study suggested by ICOMOS[15] the plans ex-

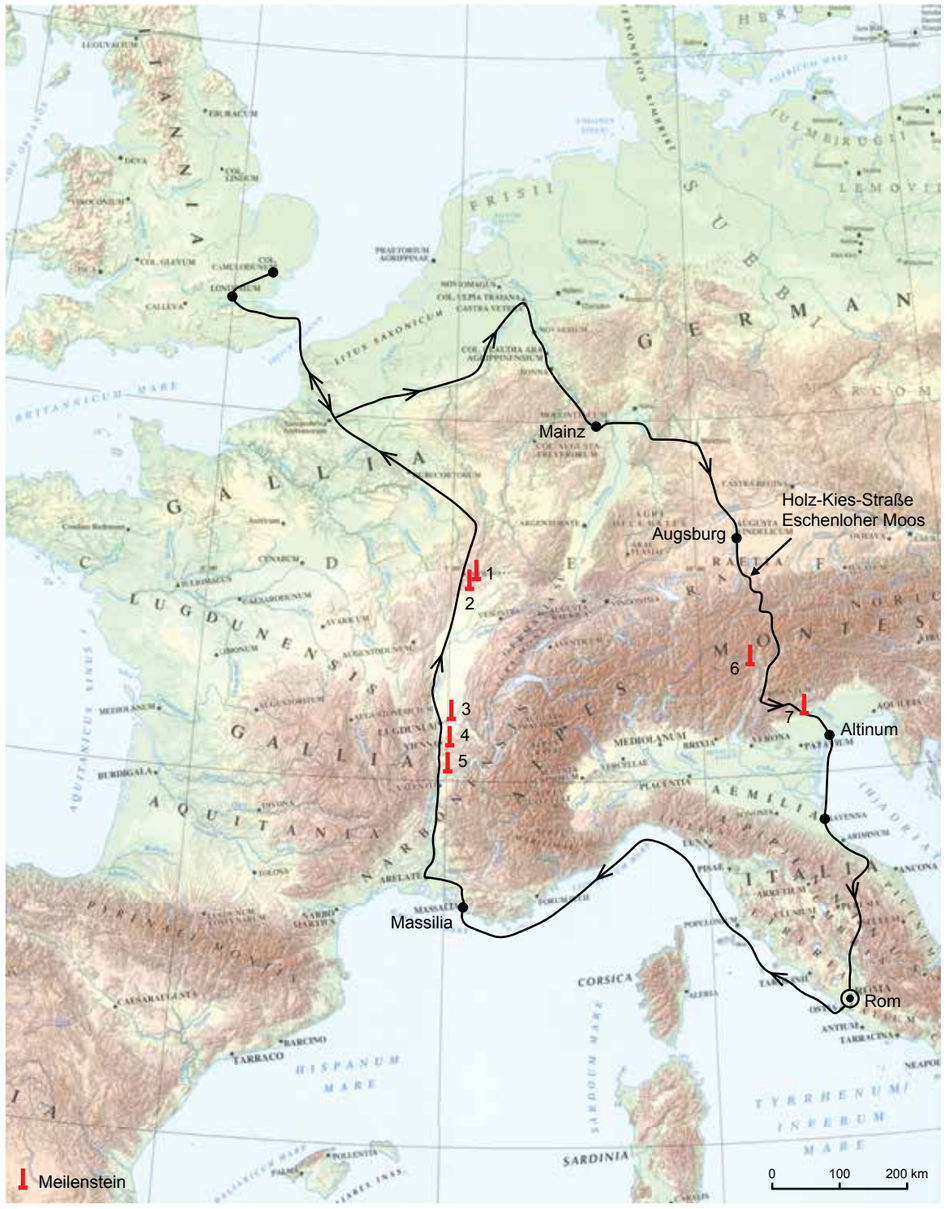

Fig. 1 - Suggested routes of the Emperor Claudius from Rome to Britain and back in 43 CE (Zanier 2017, fig. 16).

isting since the inscription of the Upper German-Raetian Limes together with Hadrian's Wall in England (and later the Antonine Wall in Scotland) as part of the then new World Heritage Site "Frontiers of the Roman Empire" to expand that WHS gradually had to be given up. They were replaced by the suggestion of nominating larger tracts of the frontiers of the Roman Empire as separate WHSs with individual Statements of Outstanding Universal Value. As a consequence the three States Parties mentioned prepared together with Germany/Bavaria a joint nomination for almost a 1000 km long stretch along the middle Danube down

[6]DFG FOR 1670; gepris.dfg.de; archaeobiocenter.uni-muenchen.de.
[7]Steidl 2019; Zanier 2019, 626–627.
[8]Trixl 2019.
[9]Zanier 2017.
[10]Rind 1995/96.
[11]Mischka, Gschwind in prep.
[12]Hensch 2019, 180–187.
[13]Codreanu-Windauer, Fischer 2018.
[14]Dietz 2018; but compare the critical view on both by Reuter 2019, 289–290. – For a new summarizing view onto Roman Regensburg as a whole see Dietz, Fischer 2018 (although again critically viewed at in Reuter 2019).
[15]Ployer *et al* 2017.

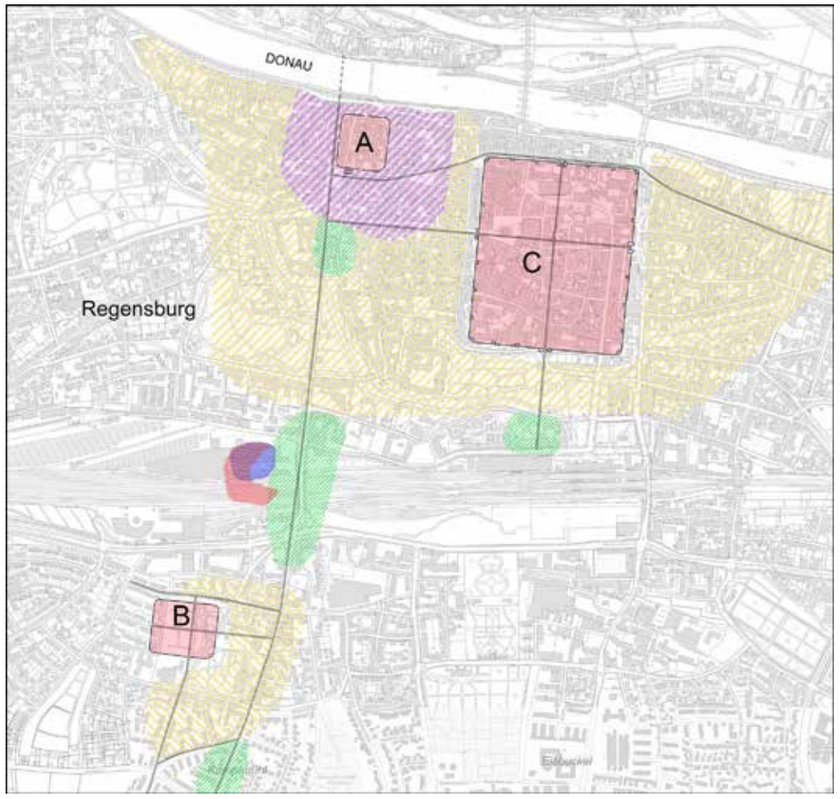

Fig. 2 - Compilation of the various military installations at Regensburg (Codreanu, Fischer 2018, fig. 11).

to the Hungarian/Croatian border, being submitted in 2018 and subsequently evaluated.[16] Included into the 98 Clusters with 175 Component Parts are the Raetian sites Bad Gögging – Heilbad, Eining-Weinberg – Wachtturm and Heiligtum, the already mentioned Weltenburg-Am Galget – Kleinkastell, Regensburg-Großprüfening – Kastell und Vicus, Regensburg Kumpfmühl – Kastell and Vicus, parts of Regensburg – Legionslager, mostly the defences but also parts of the *canabae* and the cemeteries, Straubing – Ostkastell/ the Late Roman fort Kastell St. Peter, Künzing – Amphitheater and Vicus, Passau Altstadt – Kastell/Boiotro Kastell and Passau Haibach – the Late Roman Burgus. Helpful in the preparation of the nomination was the input we received from Veronika Fischer in relation to Straubing from her just finished Ph.D.[17]

Turning to the Raetian Limes there were (and are) quite a number of Ph.D.s "in work" or just finished since 2015, dealing usually with specific sites on or behind the Limes – and I have to excuse myself explicitely to some of the young colleagues whose work I forgot to mention in my lecture in 2018. I hope the following includes now all of it:

On the basis of old and new linear excavations in the military *vicus* Monika Schwarzhuber finished her work on Pförring, providing a new basis for the study of this important cavalry fort.[18] Studying the results of a large scale excavation in the military *vicus* of Weißenburg Frederic Kirch finished a Ph.D. on the surroundings of that fort.[19] The civilian settlement at Munningen including a lot of interesting wooden features and a temple with a large amount of animal offerings are the concern of the studies of Andreas Schaflitzl, soon to be submitted.[20] Excitedly we are awaiting the results of the works of Paul Lotz on the *principia* at Aalen and of Paul Güldenstein on other interior buildings within that fort.[21] Additionally to those studies Claus-Michael Hüssen's recently published long term work on his own excavations of the second fort at Weißenburg, Weißenburg-Breitung, should be added.[22] For this curious rhomboid fort with seemingly only barrack buildings with a strange layout of five parallel rows of rooms he believes the short term garrison of the *cohorts VIIII Batavorum milliaria exploratorum equitata* during the time when the *ala I Hispanorum Auriana* temporarily (?) seems to have been absent from Weißenburg in the early 160s CE. However, I recently made an argument that the *ala I* was not at all stationed at Weißenburg but more likely at Ruffenhofen. The best evidence for the garrison at the regular fort at Weißenburg is with the *cohors VIIII*, leaving Weißenburg-Breitung again to some short term vexillation, perhaps in times of the construction of the physical barriers of the Raetian Limes after 160 CE or even in the beginning of the 3. Century.[23]

For different reasons two other Ph.D.-theses treating their topics in an overview are extremely important. One is the review of all the evidences for towers and fortlets on the Raetian Limes by Elisabeth Krieger.[24] As a kind of "horrifying" result we have to deal with the realization that our beloved "bible" of Limes studies, the "ORL",[25] is by no means as flawless as we tended to believe since our studies. On the contrary, Krieger shows that a lot of the plans of towers and fortlets printed are different from the original documentation and/or exist in different versions with different details, sometimes even being presented in mirrored images. Additionally, some of the results of the Reichs-Limeskommission do not fit with new evidence from geophysics and aerial photography.

The other is Renate Schiwall's dealing with the attempts for conservation, restauration and presentation of exposed Roman ruins over the centuries. She studied the treatment of monuments in the German speaking countries from the middle of the 18th to the middle of the 20th Centuries.[26] From the point of view of a heritage manager one could summarize by expressing the frustration that it seems that we still have nothing learnt from past experiences – as we are exposing walls over and over again, followed by the surprise (by the owners and the public) that after a fairly short period of time with the best of intentions our monuments appear as ruined ruins (I believe that this book should be in the library of every heritage manager around the frontiers of the Roman Empire).

A lot of smaller work on the ground added facts to our knowledge of the Limes area. To name but a few: At Oberdorf close to the Ipf the road from the fort to the little river Eger through the military *vicus* ends – according to geophysical survey – in a wide open space, suggesting some kind of market place connected perhaps with a landing place for small boats at the river (Fig. 3).[27]

Indirectly related, I would like to refer to a study about the navagability of the rivers and streams at the Limes and their role in the supply of the forts and civilian settlements by Thomas Becker.[28] Exciting is the dis-

[16]For the development of this nomination process see Sommer 2019.

[17]V. Fischer, Das Ostkastell III von Straubing/*Sorviodurum*. Ausgrabungen und geophysikalische Prospektionen von 1913-2013. Unpublished Ph.D. Freiburg i. Br. 2018; see also Fischer 2018.

[18]Schwarzhuber 2018.

[19]F. Kirch, Studien zum Westvicus von Weißenburg. Unpublished Ph.D. Köln 2018.

[20]A. Schaflitzl, Ph.D. Bern; see also Schaflitzl, Scholz 2018.

[21]P. Lotz, Die *principia* des Kastells Aalen. Befunde und Funde der Grabung 1978-1986 (Ph.D. Frankfurt/Main in prep,); P. Güldenstein: Studien zur Innenbebauung des Limeskastells Aalen, insbesondere im Bereich der l*atera praetorii* (Ph.D. Frankfurt/Main in prep.).

[22]Hüssen 2018.

[23]Sommer 2017; Sommer 2019a.

[24]Krieger 2018.

[25]ORL 1894-1937.

[26]Schiwall 2018.

[27]Bender, Posselt 2018. – Mentioning Stephan Bender it is my duty to report and mourn the unexpected death of this wonderful colleague in the summer of 2019, known to so many for his writing and tireless explaining of the Limes in southwest Germany (Sommer 2019b; Becker *et al*. 2019).

[28]Becker 2019.

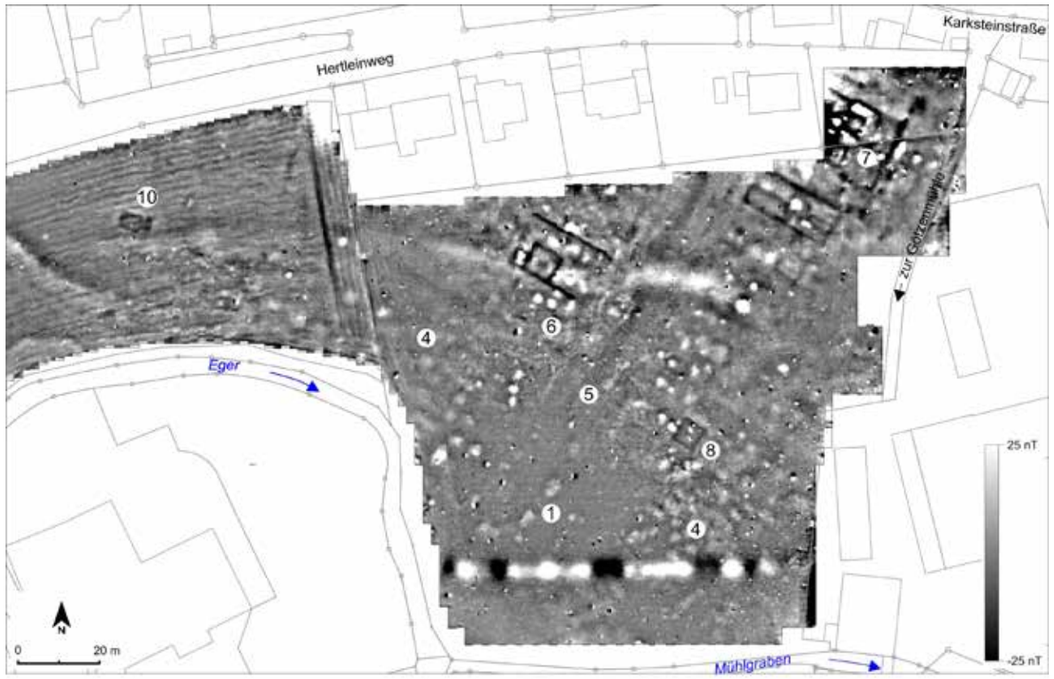

Fig. 3 - Oberdorf/Ipf; geophysical survey of the military vicus with a large open space towards the little river Eger (Bender – Posselt 2018, fig. 109).

covery of a new marching camp on the Swabian Alb, at Ohmenheim, or rather some clarification about it again through geophysical methods and some trial trenches. The camp of about 4.7 ha was to be entered only through two gates on the short sides protected by *tituli*.[29] Ruffenhofen, of course, is almost every year worth of new discoveries. Once more geophysics gave new insights into an area of the *vicus* so far almost unintelligible, east of the creek. A road leading to the northeast towards the bath building was densily packed with multiphase stone buildings one side while on the other a possible temple was reveiled.[30] Turning to the Limes line itself it was possible to confirm the existence of a timber tower at WP 14/19.[31] Close to WP 14/78 we were able to understand the palisade better (puzzling here, though, is a large pit in that fairly remote area dating to the early Medieval period ending at the line of the palisade). It was possible to have it "reerected" in an archaeological experiment (Fig. 4; though in the end

Fig. 4 - Kipfenberg, close to WP 14/78; reconstructed palisade (BLfD, C. S. Sommer).

the connectors turned out to be at the wrong side away from the Roman Empire).[32] Staying at the Limes, it is worth pointing at the many questions but few answers

[29]Bender 2018; Fischer *et al* 2019.
[30]Linck *et al*. 2019.
[31]C. Mischka, unpublished (files at Bayerisches Landesamt für Denkmalpflege).
[32]V. Fischer, A. Schaflitzl, unpublished (files at Bayerisches Landesamt für Denkmalpflege).

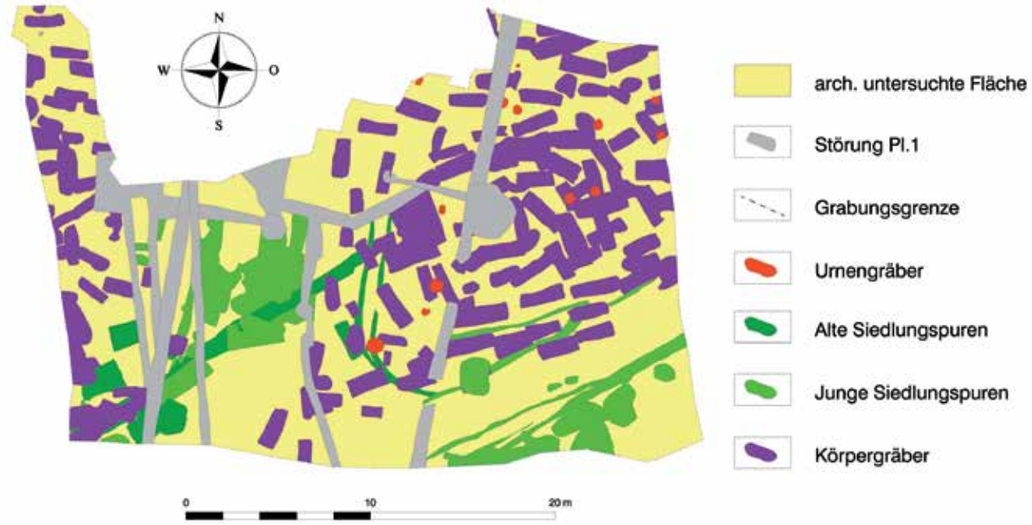

Fig. 5 - Regensburg, Plan of the Late Roman cemetery at Albertstraße (Mariné 2018, fig. 121).

risen recently by E. Krieger concerning drains and gaps for water in the Raetian Wall.[33] And, at last, at Regensburg there are new insights into the legionary fortress with small parts of barracks exposed in the *retentura*.[34]

Staying at Regensburg but finally turning to the Late Roman period incredible potential for future studies was gained through the enforced excavation of the last part of the "Great Cemetery" between the *canabae* of Regensburg and Kumpfmühl. Whereas earlier retrievals concerned primarily cremations[35] the large scale excavations north of the railroad exposed mostly inhumations of the Late Roman period reaching well into early Medieval times.[36] We are now faced with the question whether these graves are able to prove continuity from the Late Roman into the Early Medieval periods. The partially rich contents of the graves offer the possibility to ascertain this.

Surprising were the insights into another Late Roman cemetery a bit further east. In the main part one gets the impression that the inhumations dating into the 3.-5. Centuries CE where arranged in some kind of circle. The graves have been situated on top of a preceding part of the Roman settlement (*canabae*). Irritating it that 14 cremations seem to be later than the inhumations (Fig. 5).[37]

Perhaps the most exciting discovery of the recent years was a Late Roman fort of the Irgenhausen-Pfyn type not far from the long distance road between Augsburg and Salzburg at Aying (between Grünwald and Valley) (Fig. 6). Geopyhsical survey suggested that only the construction trenches where dug, never to be filled with foundations or even stonework.[38] However, in a trial trench remains of a foundation and even some building stones were found but no ajoining occupation layers.[39] What may have caused the interruption of the building process is at present only a matter of speculation. And equally one wonders whether there may have been more of those attempted installations in Raetia.

[33]Krieger 2019.
[34]Codreanu-Windauer, Bissinger 2018.
[35]Schnurbein 1977.
[36]Hümmer 2016; Hümmer, Zäuner 2017; Codreanu *et al*. 2018; Codreanu, Niepold 2019.
[37]Mariné 2018.
[38]Faßbinder *et al*. 2017.
[39]S. Ortisi pers. comm. (Ludwig-Maximilians-University Munich).

Fig. 6 - Aying, geophysical survey of the newly discovered Late Roman fort (Faßbinder et al. 2017, fig. 148).

Into the latest Roman period we are led by two extremely important sites for which 40 respectively almost 60 years after the excavations have started long lasting research culminated in amazing final publications. I am talking about Passau-Niedernburg on the one hand, for which Helmut Bender presented the features into the Late Roman period, the following period of "dark earth" (or "black earth) and findings down to the earliest church around 700 CE. The (mostly) stratified finds are presented as well, including the eponym "horreum-pottery", North African samian ware, and glass including some pieces of the 6th Century. Due the stratification it becomes very likely that coins minted in the late 3rd and 4th Centuries circulated well into the 5th and perhaps even the early 6th Centuries.[40]

On the other hand I am refering to Regensburg-Niedermünster and the excavations accessible for the last few years in the impressive *document niedermünster*. After the presentation of the excavations as such[41] and the results concerning the Roman period[42] Eleonore Wintergerst wrote up all the post-Roman stuff, again including the material-rich "dark earth" up to the earliest early medieval buildings and the churches at this later monastic site from around 700 CE onwards.[43]

To finish I would like to point out two aspects of dissemination. Firstly, we are happy to report that the Roman museum at Weißenburg with the famous treasure, which we could not visit during the congress 2015, was reopened with a completely new design in 2017. A little later B. Steidl published a wonderful and

[40]Bender 2018a; Bender 2019.
[41]Konrad, Rettner, Wintergerst 2010.
[42]Konrad 2005.
[43]Wintergerst 2019.

Fig. 7 - Alapp application being used by Roman soldiers in the Antonine Wall (alapp.eu).

"need to have" book for further studies based on the finds and the presentation in the museum.[44] Equally sensational is the 4th edition of the Limesmuseum in Aalen which had a grand re-opening in 2019.[45]

Secondly, it is worth mentioning the results of an Austrian-Bavarian-Scottish Creative Europe project[46] to create an app for the presentation of the Roman frontiers incorporating augmented reality and thereby providing new opportunities to connect sites with finds from them. The basic module called Alapp (Advanced limes application) is available to all segments of the Roman frontiers; finished is the Antonine Wall app (Fig. 7), whereas the partially finished app for the Raetian Limes in Bavaria (LIMES mobil) shows for the Eining area all the exciting features possible.[47] Due to Brexit the hosting of the app will be transferred from Historic Environment Scotland to the Bayerische Landesamt für Denkmalpflege.

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Zusammenfassung

Seit dem großen zusammenfassenden Bericht zur Lage in Raetien auf dem Limeskongress in Ingolstadt 2015 hat sich zur Kenntnis der militärischen Entwicklung in der Provinz trotz des relativ kurzen Zeitraums vieles getan. Dies liegt einerseits an den Aktivitäten der betroffenen Denkmalschutzbehörden und insbesondere der dort tätigen Limeskoordinatoren, andererseits an einer nicht geringen Zahl laufender bzw. abgeschlossener Dissertationen und Projekten verschiedener Forschungseinrichtungen bzw. Förderungen.

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Barbaricum in *Britannia*? The Fosse Way as a frontier to coin use

Introduction

The Portable Antiquities Scheme is one of the most significant recent innovations in British archaeology. Since 1997, it has created a database of more than 850,000 archaeological objects dating from prehistory to AD 1700, which have been offered for recording by members of the public. This database (http://finds.org.uk/database) provides an invaluable resource for those studying the material culture of England and Wales and numerous projects have been undertaken which integrate its material (cf. Worrell *et al*. 2010). Roman coins represent the largest single category of object recorded by the PAS, accounting for nearly a fifth of all finds recorded. The size of this dataset and its wide geographical spread allow patterns of coin use to be studied, not only at the level of the individual site, but also on a regional and provincial basis. This paper will explore the evidence for regional differences in coin use within the province of *Britannia* and will specifically examine the concept of a north-south divide.

Using the results of this comparison, I will briefly ask what they may reveal about life for those living in both the north and south during the Roman periods and evaluate the role of landscape features in creating a 'virtual' frontier in Roman minds.

The dataset

In September 2012, more than 140,000 Roman coins had been recorded by the Portable Antiquities Scheme. A basic distribution map of all coins recorded (Fig. 1), gives the impression that coin loss was, to a great extent, uniform throughout the province. However, such a map does not distinguish between stray losses of single coins and large assemblages. Whereas stray losses may indicate the arrival of one person who happened to have and mislay a Roman coin at some point during the 400 years of Roman rule, larger assemblages are more likely to represent habitual coin use. For this reason, I will focus on an investigation of assemblages of twenty or more coins recorded by the PAS alongside a comparative dataset of coins from published excavations.[1]

The distribution of coin assemblages

Fig. 2 illustrates the distribution of assemblages of 20 or more coins recorded by the PAS combined with the comparative dataset. Their distribution pattern is very different to that of all coins recorded by the Portable Antiquities Scheme and a stark north-south divide becomes apparent. The Fosse Way, a Roman road running between the legionary fortresses at Exeter and Lincoln, acts as an approximate dividing line between

[1]See Walton (2012) for a full listing of comparative coin assemblages.

two zones. The southern zone accounts for 80% of all the assemblages recorded with a wide variety of site types, including urban, rural, military or civilian represented. The largest assemblages also fall within this zone. Meanwhile, the northern zone is represented by far fewer assemblages, with those that do exist originating almost exclusively from military installations and their associated urban foundations. North Lincolnshire and East Yorkshire are something of an anomaly, with numerous assemblages recorded along the course of the region's Roman roads. These assemblages appear almost to have escaped around the northern-most end of the Fosse Way.

Biases in the data

It is absolutely clear that fewer Roman coins have been recorded in the northern zone, when compared with the southern zone. This is likely to be related directly to the numbers of coins both used and lost in the north during the Roman period. However, before advancing beyond observation to interpretation, it is worth noting that there are some biases inherent in the PAS material which may adversely affect distribution patterns. For example, finds recorded by the PAS are predominantly the result of metal detecting. Due to national park and scheduled monument designations in the northern zone, industrial disturbance of land in the nineteenth and twentieth centuries and upland terrain, the majority of detector users choose to enjoy their hobby elsewhere. The southern zone, with large areas given over to arable agriculture provides a focus for much metal detecting activity. We cannot therefore be absolutely certain that what is recorded is representative of what was actually lost. Even so, some fundamental differences can be observed, not only in the quantity of coins recorded north and south of the Fosse Way, but also in the chronology and denominational composition of assemblages.

The chronology of coin loss in northern and southern Britain

Following the chronological framework of Reece periods to organise the data (Reece 1972), average per mill values for coin loss in the northern zone have been calculated and compared with values for the southern zone. They are presented as a histogram in Fig. 3. There are obvious differences in the proportions of coins recorded in each of the zones. In the north, there are higher levels of early coin loss, with 45% of all coins recorded there dating to the first to early third century AD (Period 1 to Period 11). The values for Periods 4 to 8 (AD 69 to 180) are particularly high. In contrast, only 14% of all coins recorded in the southern zone date to the first to early third century AD. Instead, the values are consistently higher in the late third century and throughout the fourth century AD.

The denominational composition of coin loss in northern and southern Britain

It is not only the volume and chronology of coinage which varies between northern and southern Britain but also the proportions of each denomination lost. Throughout the first to third century AD, the silver *denarius* is the dominant denomination north of the Fosse Way and bronze denominations, whilst present in northern Britain, are far more scarce. For the sake of brevity, only a distribution map of silver and bronze coinage issued during the Flavian period (Reece period 4) is presented here (Fig. 4) More than 50% of Period 4 issues found in northern Britain are silver whilst in southern Britain, nearly 60% are bronze issues. Whilst it is relatively easy to observe that there are larger quantities of first to third century coinage in northern Britain and that the higher value *denarius* is the dominant denomination, it is far more difficult is providing plausible interpretations for the patterning. However, several suggestions can be made.

Accounting for difference: military losses in the frontier zone

The presence of the army in northern Britain will have provided much of the stimulus for coin loss. It is generally agreed that the main coin users in the early Roman period were the Roman army and administration (Davies, Gregory 1991, 71; Guest 2008, 139; Lokkyear 2000, 403 and 413) so this would account for the high volumes of first to third century coin loss in an area which experience extensive military campaigning. Furthermore, scholars have noted that military provinces such as Britain, Upper and Lower Germany and Pannonia receive more silver coinage than civilian ones such as Gaul and Italy and that individual sites with a military character tend to have higher proportions of high value coins than established civil sites (Hobley 1998, 128). Therefore, the regional variation of denominations exhibited by the PAS material may reflect the division of the province into military and civilian zones, each with its own pattern of coin supply and usage. The military north was supplied predominantly with *denarii* to enable the payment of the army. These *denarii* were accompanied by some *dupondii* and asses to facilitate low value transactions within the military community but were not intended for wider circulation.

This dominance of the *denarius* in northern Britain and its association with the military is also supported by the evidence of the Vindolanda tablets. The Vindolanda tablets comprise a range of documents excavated from the fort there and include receipts, letters and inventories. Of 28 published tablets which record amounts of money by denomination, 27 employ the *denarius* as the main unit of accounting, even expressing lower denominations as fractions of the *denarius* rather than as *sestertii* or *dupondii* (Bowman, Thomas 1974; Bowman, Thomas *et al*, 1983; Bowman, Thomas *et al* 1994; Bowman, Thomas 2003) In fact, the *as* is the only bronze denomination used and is listed in 10 receipts in conjunction with *denarii* or in one example alone. This is despite the fact that the *sestertius* is usually considered to be the usual denominational unit for accounting throughout the Empire (Reece 1987a, 32; van Heesch 2007, 80). The adoption of the *denarius* for accounting purposes and presumably actual payment at Vindolanda is therefore significant.

Accounting for difference: the native attitude to coinage

It is also possible that the high percentage of *denarii* in northern Britain represents the native attitude to Roman coinage in an area with no previous experience of money. Indeed, the PAS data is unlikely to have come from specific military contexts, instead originating on rural sites which interacted with the army and Roman administration. The presence of predominantly silver coinage on such sites may therefore represent recognition of their intrinsic value as silver objects rather than their use within a monetary system. Such an attitude is mentioned by Tacitus who noted that in first century Germany, the native population picked out precious metal coinage in their dealings with the Romans (Tacitus *Germania* 5, 3–5)

The dominance of the *denarius* has also been recognised as a phenomenon in regions on the fringes of the Empire. For example, in Scotland, large hoards of silver denarii, such as that from Falkirk, have been discovered during the excavation of native settlements. Rather than being seen as evidence for trade, they have been interpreted as targeted bribes by the Roman administration to troublesome areas which were then retained as status symbols within local society (Hunter 2007, 218). Perhaps, northern Britain in the first to third centuries should be interpreted as behaving in a similar way – an area inside the province, but acting more like *Barbaricum* where coinage is used as money, only by the army but trickles down to the local population where it is employed in other ways.

North and south in the third and fourth centuries AD

In this paper, patterns of early Roman coin loss have been used to illustrate regionality in coin use in the first and second centuries. But how, if at all, do things change in the late Roman period? The traditional theory is that changes in the denominational composition of Roman coinage in the late third century AD resulting in a plentiful supply of low value coinage, accompanied by a boom in economic production and prosperity (Moorhead 2001, 94ff) brought coinage within the reach of rural populations for the first time. Instead of functioning as a unit of taxation and a mechanism for paying the army and administration, it was embraced by the rural marketplace and used in everyday exchange throughout the province (Millett 1990, 169; Esmonde Cleary 1989, 96; Mattingly 2006, 497; Reece 1988, 102). However, the Portable Antiquities Scheme data does not appear to support such an argument. Instead, the distribution pattern of assemblages with above average coin loss[2] for the fourth century AD has much in common with that of earlier periods, indicating that there was no widespread adoption of coinage in the north. As in the early Roman period, assemblages are almost entirely restricted to the southern zone.

Within this pattern, it is possible to identify some chronological variation can be detected, when these assemblages are divided into those with above average

[2]Values which are double or more the PAS Mean value for that period. See Walton (2012) for further discussion of this method.

early, mid and late fourth century profiles. Indeed, as the fourth century progresses, there is a clear decline in the number of sites using coins and a contraction in their geographical extent. Fig. 5 illustrates this decline. Assemblages with above average coin loss for the late third and early fourth century AD are located throughout the countryside, even away from major road networks. However, by the mid fourth century, there are fewer sites and there is a significant shrinkage in their distribution. By the end of the Roman period, assemblages are almost completely restricted to sites located on major communication and transport routes, particularly at nodal points such as cross-roads.

Conclusion

This short paper has illustrated the distinctive patterns of coin loss for northern and southern Britain at different points during the Roman period and has highlighted the fact that there is little evidence for habitual coin use in most of northern Britain, except in military installations and their immediate hinterland. This discovery has tremendous implications for our understanding of Romano-British society. Indeed, through its coins the Roman north appears only tenuously 'Roman' and has more in common with its barbarian neighbours outside of the Empire. The Fosse Way, a physical marker in the Roman landscape, appears to act as something of a boundary between these two zones. Did the inhabitants of Roman Britain acknowledge that the road acted as a frontier beyond which something changed? It is impossible to be certain. However the evidence suggests that although not an impermeable frontier, the Fosse Way acted as a sort of buffer zone beyond which Roman coinage rarely reached. This road appears almost to create a province within a province.

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