

# XXIII. Limes Congress 2015

Abstracts of Lectures and Posters  
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## **Fawzi Abudanah**, *Via Nova Traiana* between Petra and Ayn al-Qana in Arabia Petraea

This paper presents new evidence concerning the most possible path of the Roman road *via nova Traiana*, in the area between Petra and Ayn al-Qana in southern Jordan. The new evidence is based on a systematic fieldwork. Special attention is given to the work of David Graf, the most recent fieldwork study before this study dealing with the same issue, *via nova Traiana*. It also presents detailed description for the route of the Roman road, adds new information to Graf's study and challenges some of his suggestions. The paper considers also other ancient roads in direct connection with the Roman highway. It also sheds light on the role of *via nova Traiana* within the Roman frontiers in southern Jordan.

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### Cristina-Georgeta Alexandrescu, Not just stone: Building materials used for the fortifications in the area of Troesmis (Turcoaia, Tulcea County, RO) and its territorium (second to fourth century AD)

The present paper will focus on the case of ancient *Troesmis* (Turcoaia, Tulcea County) on the Danube, legionary fortress of *legio V Macedonica* and later Roman *municipium*, surrounded by a constellation of rural settlements of different level of wealth. The area is now dominated by two fortifications dated to the Late Roman and Middle-Byzantine period respectively. The stone materials used have been investigated within the last five years the ArheoMedia-project and the *Troesmis*-archaeological project of the Archaeological Institute in Bucharest. One of the main tasks was to determine the used stone and the provenance of the material. The state of research of the site, with little archaeological investigation, makes this kind of analysis very valuable.

The building material of the late fortifications and the re-used earlier monuments from the area have been investigated. Those have been made of local limestone from the quarries in the middle of the province Moesia inferior (so-called Babadag area) but also from the ones along the Danube, to the south. Imported crafts from Asia Minor used to work in this local stone as well, besides in the imported marble, as made evident by a beautiful Corinthian capital from Troesmis. Further detailed studies have shown that the stones for the filling of the walls came from the granite and limestone quarries in the neighbourhood of *Troesmis* itself.

Further analysis was undertaken for marble items, representing votive monuments (reliefs and sculpture), funerary statues and, for the first time, elements of the decoration of the walls.

The first results are pointing out the awareness on the available stone material in the near area, within the province and through import via the Greek cities on the shores of the Black Sea. Further was possible to realize that the ancient crafts were able to distinguish between the different kinds of limestone and to choose those best suitable for their different purposes, even within the fortification.

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### Cristina Georgeta Alexandrescu, Signaling in the army

The signaling in the Roman Army benefited in the last decades from dedicated studies concentrated on regions with a rather advanced state of research, as Britain and Germany, and on the equipment.

This session invites contributions – based on theoretical and practical/experimental approaches – to the generous discussion of D.J. Woolliscroft's thesis: Roman frontiers could have been equipped with a comprehensive signalling system adapted to terrain, visibility, and tactical considerations.

Of great interest are possible completions to Woolliscroft's work on the Hadrian's Wall, the Wetterau Limes in Germany, and the Upper German/Raetian border starting from the extended investigation on these limes lines but also from the intensive research on the other borders of the empires, like for example Dacia and Pannonia.

Further are welcome contributions on eventual experiments on the intervisibility as well as on the signaling within the battlefield and the functioning of visual and acoustic signaling as defined by Vegetius (mil. 3.5).

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Ignacio Arce, *Severan Castra, Tetrarchic Quadriburgia, Ghassanid Diyarat: Patterns of Transformation of Limes Arabicus Forts during Late Antiquity*

The aim of this paper is to analyze the physical transformations and changes of use of relevant structures of Roman military architecture from the *Limes Arabicus*, from the 4<sup>th</sup> throughout the 7<sup>th</sup> C AD, with special attention to the area between the *Via Nova Traiana* and Azraq fort at the gates of *wadi Sirhan*.

The systematic and recurrent patterns of enlargement, transformation and change of use identified in several of these structures (Hallabat, Deir el-Kahf, Umm al-Jimal, Khirbet es-Samra, etc) during this “*longue duree*” period, illustrate and correspond to key transitional periods which determine the history of the Levant from the apex of the domination of the Roman Empire in *Oriens*, till the advent of Islam, and are relevant to understanding this historical shift.

Trying to answer the question posed by the Session#9 chairs (The function and chronology of fortifications in the immediate hinterland of a frontier; one plan or an ad hoc development?), the hypotheses and conclusions presented on the typological characteristics of these forts and their related diachronically change of use, are based on recent excavations and research conducted in several sites in Jordan and Syria. They are focused on the recurrent patterns of change identified, which correspond to the transformation of *Severan* forts into *Quadriburgia* during the *Tetrarchic* period, and the vicissitudes of these structures (and those of the annexed *vici*) in the aftermath of the claimed abandonment of the *Limes* forts by the regular Roman Army in the south section of the *Limes Arabicus*, as a result of the change of the defensive strategy from the 5<sup>th</sup> C AD onwards. In many cases, they were transformed into monastic and/or palatial venues by the Ghassanid *Phylarchs*, a change related to the new strategic defense of this stretch of the Limes and the socio-political events which accompanied this new *status quo*.

The analysis of the changes operated on these structures (transformed afterwards in many cases into fortified monastic venues) has led to include in the discussion other closely related issues, like the development of new architectural types derived apparently from the pattern of transformation of these Tetrarchic *quadriburgia* into monasteries or religious venues (with the construction of shrines and monasteries within pre-existing fortified structures, or in some cases, defensive walls around pre-existing Christian shrines), or the development of new fortified monasteries, which played a role that exceeds that of the defensive needs of the monastic communities themselves (playing a key logistic role in the defense of the *limitrophe* during the 6<sup>th</sup> C at territorial scale).

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## Ignacio Arce/Denis Feissel/Thomas M. Weber, The Edict of Emperor Anastasius I from Qasr al-Hallabat: The Text and its Architectural and Historical Contexts

The proposed paper presents the preliminary results of the Anastasius Edict Project, which has been conducted during the last five years on the more than one hundred inscribed blocks of basalt found at Qasr al-Hallabat (and other sites in Jordan), as a result of the recent campaigns of excavation and restoration of the site conducted by the Spanish Mission under the direction of Dr. Arce, which has allowed the retrieval of numerous new inscribed blocks which has enriched the already existing corpus, which had been the object of previous study by the Princeton Expedition and by Dr. Marcillet-Jaubert. The project involves three different components:

Firstly the analysis and exegesis of the text of the Edict itself, a unique document on the military administration of the Limes, which represents the effort done by Emperor Anastasius I to reorganize the fiscal system and to control and regulate the heavy expenses devoted to the Army in charge of the defence of the frontiers. The analysis conducted has allowed to reconstruct entirely its first part for 135 lines (amounting 1400 words), and fragments of two following sections amounting 47 and 23 lines respectively, with a total of more than 40 different chapters. The text will be the object of an specific monographic publication by Dr. Feissel, the summary of which will be nonetheless presented in this paper.

The Second component of the project is related to the historical and architectural contexts of the Edict. the historical context will review the unique moment in the turn of the 6<sup>th</sup> c. AD during which the Edict was issued and in force, and the immediate transformation of the defensive strategy operated by Emperors Anastasius himself and Justinian in the Limes Orientalis, and its ultimate collapse in the 7<sup>th</sup> c. AD. The architectural context, makes reference to the vicissitudes of the architectural and material support of the inscribed edict, i.e.: the discussion on the building (and the town) on which this copy of the Edict was originally inscribed/located, and which were the reasons for its reuse at the reconstruction of Qasr al Hallabat in the second half of the 6<sup>th</sup> c. AD. This research is linked to the research conducted by Dr. Arce on the Roman military architecture, and that of the Arab foederati during this transitional period.

The third component of the project is devoted to the musealization and presentation to the public of the inscribed fragments and the reconstructed text, by means of replicas of all the fragments found up to date (carried out with the support of German Government, and in collaboration with Dr. Weber), and further didactic material to understand that historical context and its significance, which is being displayed at the Jordan Museum and the Site Museum at Hallabat (together with the museographic display already carried out with some of the original fragments). This initiative is intended to the dissemination and presentation of the historical and cultural values embodied and associated with these inscribed fragments of the Anastasius Edict to better understand the history of the region and the role played in it by the local population and the Arab elites during the transitional period between the end of Roman role and the advent of Islam.

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### Martina Back, Brick fabrication

Due to the scarcity of stone as a resource at the lower Rhine, clay bricks were a favoured building material. First introduced by the Romans, bricks played an uncommonly large role in the construction of CUT and remained the region's favourite material long after.

The brick factory of Vetera I. and II. was a major producer in the Region. Located between the fortress and the city and in close proximity to the river, the location of the factory had been chosen carefully and remained active between the 1<sup>st</sup> and the 4<sup>th</sup> century.

The ongoing analysis and classification of approximately 3000 imprints provide insight into the industrial techniques and customs of the legions stationed in Vetera I. and II., showing a strong variation in the choice of shapes and labels of the imprints used by the various legions.

A simplification of the shapes of the tegulae over time can be observed. This simplification indicates technological improvement. The fact that new shapes emerge with new legions underlines the assumption that innovations were imported and were not developed by the legion itself.

The evidence further shows that technological know-how stayed relatively constant within a legion, even over extended period of time.

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### Gereon Balle/Markus Scholz. The monumental building beside the fort of the *ala II Flavia milliaria* in *Aquileia*/Heidenheim – Public baths or administrative building of the provincial government? (Raetia)

From around 110 until 160 AD *Aquileia*/Heidenheim was the main garrison of the „Alb-Limes“. The *ala II Flavia milliaria* was stationed there. During this period *Aquileia* was the biggest military base in the province of Raetia. In the 1980s and 1990s the remains of several stone buildings were excavated in the eastern neighbourhood of the fort and the nearby river Brenz. One of these buildings was exceptionally large and had a symmetrical ground plan. The interpretation of this monumental building ranges from public baths to a building for official duties of the provincial government. In order to discuss its function a summary of the archaeological evidence including architectural features and small finds will be presented. Not only the monumental building itself but also its surrounding area and the layout of the *vicus* of *Aquileia* as a whole will be considered. Despite the remaining problems of exact dating and of missing links in the settlement plan, it seems likely that *Aquileia*, due to its geographic situation, was primarily a central place in the northwestern part of the province of Raetia, for military purposes and provincial administration, and less the seat of a civil self governing body for a local community or even a *civitas*. Therefore the monumental building was probably built as part of the *praetorium* of a high ranking official of the provincial government even the governor on tour himself.

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### Thomas Becker/Ayla Jung, Unusual building structures in the *vicus* of Inheiden (Germania Superior)

The fort of Inheiden is situated in the north-east of the Wetterau-Limes, and was part of the province of Germania Superior. Early excavations by the Reichs-Limeskommission revealed information about the dimensions of the *vicus* and the fort. In the 1970s aerial photography yielded new evidence. A systematic prospection by aerial photography followed in 2011 and a geophysical survey was launched in 2009. All these surveys brought together a lot of detailed information of the inner structure of the *vicus*. Different zones of urbanisation can be distinguished by different types of "strip-houses". Some stone buildings in the western part of the *vicus* differ from the regular form of housing. Based on the plan of these buildings a different function can be assumed. Their function could be determined due to their position within the settlement structure and the ground plan. Our paper will compare these buildings with structures in other *vici* in order to determine their function in the *vicus* of a *numerus* fort.

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### Thomas Becker, Der Pfeilerbau im Emsbachtal (Wp 3/43a) bei Glashütten und das Ende des Limes im Hochtaunus

Beim so genannten Pfeilerbau handelt es sich um einen im Mittel 8,3 x 9,6 m großen Steinbau am Limesverlauf westlich des Feldberges im Einschnitt des Emsbachtals. Neben der ungewöhnlichen Bauform finden sich weitere Besonderheiten, die ihn aus dem bisher bekannten Bauprogramm entlang der Grenze herausheben. Bei einer Untersuchung und Dokumentation des aktuellen Zustands im Vorfeld der konservatorischen Abdeckung im Jahr 2014 konnten weitere Baudetails beobachtet werden. Das wenige bei der Untersuchung geborgene Fundmaterial deutet auf eine Besetzung der Anlage im fortgeschrittenen 3. Jahrhundert, was aufgrund der peripheren Lage und der aktuell geführten Diskussion über Reduktionen bei den Besetzungen der Kastellplätze ungewöhnlich erscheint. Daher soll eine Betrachtung der Untersuchungsergebnisse hinsichtlich der Bauform des Gebäudes im Kontext vergleichbarer Wehrarchitektur vorgenommen und unter Hinzunahme der späten Funde vom Limesabschnitt im Taunus die Diskussion des Endes der römischen Grenzsicherung an diesem Abschnitt geführt werden.

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### J. M. Bermúdez Lorenzo, Nueva epigrafía anfórica de Raetia.

La dispersión de ánforas Dressel 20 a lo largo del limes nos da idea de la actividad comercial que protagonizaba en la economía romana un producto que para las provincias de nueva conquista era exógeno: el aceite de oliva. Tomando este "fósil conductor" de la economía romana, estamos desarrollando una investigación a partir de los objetos encontrados.

Nuestras estancias en Múnich bajo la supervisión del Prof. Mackensen nos han permitido acercarnos a los materiales anfóricos de la tipología Dressel 20, que transportó el aceite necesario para las



tropas apostadas en la provincia de frontera de Raetia en época altoimperial. En concreto hemos podido documentar los materiales disponibles de las ciudades de Augsburg, Regensburg, Straubing, Munningen, Künzing, Eining, Oberstimm, Weissenburg, Pocking, Landshut, Bregenz.

Son especialmente importantes las inscripciones que hemos podido documentar en los depósitos de los museos del territorio de Raetia. En total hemos sacado a la luz en torno a un centenar de inscripciones nuevas, que unidas a las ya publicadas por varios autores, suman más de doscientas. Entre ellas hay en su gran mayoría sellos, aunque también hemos encontrado en ocasiones *tituli picti* y grafitos.

Mediante esta fuente arqueológica pretendemos exponer unas conexiones entre dos puntos tan alejados del Imperio como la Bética y Raetia, y así extraer ciertas conclusiones de tipo económico sobre la importancia de este producto en el comercio entre la Bética y el limes renano-danubiano. Tomaremos como principales referentes bibliográficos las obras del Prof. Remesal y del Dr. Schimmer, entre otras.

### Szilvia Bíró/Orsolya Láng, „Unpleasant to live in, yet it makes the city rich”: industry and commerce along the Pannonian limes section

Even though industrial activity is traditionally considered to be something restricted to areas outside the settlements in the Roman period – based on literary sources and earlier excavation results – more and more data refer to the contrary nowadays: several workshops – even those with stinky, incendiary and noisy activities – have been located inside civil settlements, sometimes even close to the centres. This raises several questions about the urban structure, town planning or even the interest of the workshop – owners and merchants in the settlements’ public life. Equally interesting is the identification and/or localization of shops or other commercial premises in both military and civil settlements along the limes. Nevertheless, the archaeological traces of such activities have been often misinterpreted or not recognized, due to lack of evaluation of the excavation documentations and finds. What kind of industrial activities had been practised inside the settlements and what are their archaeological manifestations, what are the criteria? Can definable industrial and/or commercial quarters be observed in these settlements? Whose need did these workshops serve: the army, the civilians or both? The aim of our paper is to give a brief insight into the economic life of Pannonian settlements and see if there are tendencies regarding the above mentioned activities. Through a couple of Pannonian case studies we shall present the above-mentioned questions, especially investigating the situation of Aquincum (civil town, military town) and the hinterland of the limes section. Our paper will also hopefully serve as a keynote paper: what are the experiences elsewhere along the Roman *limes*? Is it always easy to locate workshops and identify their functions? What evidences do we have for commercial quarters (or activities at all) in military and civil settlements?

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## M. C. Bishop, No Schutt, Sherlock! Military middens and the taphonomic dynamic

Roman military middens remain comparatively rare finds from the frontier regions and attention is inevitably focused on the biggest and best-known: Windisch-Vindonissa. It was not the only example, however, and this paper sets out to examine what is known about military middens, including the preferred locations, the formation processes involved, instances of truncation, and most particularly evidence for selectivity in what went into them. The taphonomy of those contents, and the potential for developing artefact and site narratives from them, will be discussed, whilst the gentle art of midden prediction will be explored. The paper concludes by considering how the buzz-words of modern waste-management – recycling, upcycling, and downcycling – were tackled by the Roman army and seeks to define what might be termed a waste hierarchy for military sites.

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## Eduard Ble/Jaume Noguera/Pau Valdés Matías, Roman republican military archaeology in the northwest of the Iberian Peninsula

Since 2006, The University of Barcelona has developed the project War and conflict in the northwest Iberian Peninsula during roman Republic age. The aims of the project is the localization, identification and analysis of the archaeological evidences relate to the military activities in the area between III and I BC.

From a chronological perspective the study expands nearly 200 years, from the crossing of the Ebro river by the Carthaginian army during the spring of the year 218 BC until the roman conquest of the Iberian Peninsula during the age of Augustus, in the last quarter of I BC. The scope of the intervention can be divided in 3 phases: the first one begins in the year 218 BC with the Second Punic War and ends towards the first quarter of the II BC with the repression of the native rebellions. The second phase is centred in the Sertorian Wars (83–73 BC). The last period analyzes the fighting between Caesar and Pompey.

Regarding the first phase, the research developed has allow to identify the scipionic encampment of Nova Classis, in the Ebro's mouth, as well as an encampment from the beginning of II BC related to the assault and destruction of an Iberian citadel. As for the second phase, two archaeological sites related to the sertorians armies had been found, as the finding of sling bullets with the inscription Q SERT PROCOS, coins, clavii caligari, brooches, etc.

Right now, the focus of the research is centred in the study of others sites relates to the Second Punic War, as the Iberian citadel of Vilar de Valls (Tarragona), probably the ancient Kissa or Cissis, mentioned by Polybius and Livy, were Hispano-Carthaginian coins, slings bullets and the defensive moat of the city have been documented. Forthcoming works will focus in the study of the conflicts related to the Caesarian Wars, specially centred in the battle of Ilerda (49 BC), thanks to the identification of sling bullets with the inscription SCAEVA.

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## Lars Blöck/Marcus Zagermann, From hinterland to frontier: the Upper Rhine valley AD 200–330

This lecture concerns the region around the Kaiserstuhl hills on the southern Upper Rhine. It traces the development of the region from a rural area, characterised by nucleated settlements and *vici* to become part of the border region (*ripa*) in Late Antiquity. Recent research projects have provided valuable information which allow us to better understand this structural change. The nature of these changes are the subject of this presentation. Contrary to what was previously believed, Gallo-Roman settlement structures from the Middle Imperial period can be shown to have existed on the right bank of the River Rhine up to around AD 280. It is about this time that radical change apparently happened. A new fortified settlement covering more than 7 ha) was established on Münsterberg hill at Breisach. However, it is no longer possible to interpret the stronghold purely as a military facility; the location, rather, exhibits distinctly urban features and it is quite likely to have also played a significant administrative role.

The radical change in the settlement landscape between the Imperial period and Late Antiquity is clearly identifiable and this raises a variety of questions: was there a state directive that prompted the abandonment of the territory on the right bank of the river Rhine? Was Breisach founded as a new settlement to accommodate the inhabitants of the *vici* and *villae* in the area, which would suggest that the site performed a military role?

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## Mario Bloier, Das norische Kastell Boiodurum (Passau-Innstadt) – Versuch einer virtuellen Rekonstruktion

Das mittelkaiserzeitliche Kastell *Boiodurum*, das am Ende des 1. Jahrhunderts n. Chr. in der Passauer Innstadt gegründet wurde, kann als eines der am wenigsten beachteten Kastelle im gesamten römischen Reich gesehen werden. Liegt es doch im Schatten der Diskussionen um die Altstadtkastelle sowie des weiter innaufwärts liegenden spätantiken *Boiotro*. Durch die Lage jenseits des Inns wurde seine Zugehörigkeit zu einer anderen Provinz (*Noricum*) und Zollbezirk (*publicum portorii Illyrici*) festgelegt. Heute bilden *Boiodurum* und *Boiotro*, die einzigen auf bayerischem Boden gelegenen Kastelle *Noricums*. Anders jedoch als *Boiotro*, dessen Form und Überlieferung wohl deutlich reizvoller erschienen, wurde *Boiodurum* im Lauf der Zeit auf seine reine Existenz reduziert. So kam es, dass *Boiodurum* – abgesehen von wenigen Publikationen – kaum einen Niederschlag in der Forschung findet.

Der Umbau und die Neukonzeption der Ausstellung im RömerMuseum Boiotro lenkten so auch den Blick erneut auf *Boiodurum*. In einer virtuellen Idealrekonstruktion, die den Besuchern das römische Passau als Film näher bringt, wird das Kastell den Besuchern als neue, virtuelle Rekonstruktion präsentiert.

Durch die Zusammenführung älterer und neuerer Grabungsbefunde und Interpretationen gelang eine Überarbeitung und Ergänzung des bereits Ende der 1950er Jahre durch H. Schönberger erstellten Bebauungsplanes. In dieser neuen Form konnten sowohl detailliertere Befundansprachen und Gebäudezuweisungen erfolgen, als auch die Basis für eine virtuelle Idealkonstruktion gelegt

werden. Durch die Zusammenarbeit mit mehreren Kollegen, die bei oft problematischen Darstellungen halfen, die Zusammenhänge zu sehen, gelang es, eine wissenschaftlich fundierte Grundlage zu schaffen. Durch die enge Zusammenarbeit mit Grafikern und Programmierern konnte ein wissenschaftlich fundiertes Modell eines nur in geringen Teilen ergrabenen Kastells wieder entstehen. Dennoch bildet diese Rekonstruktion, wie jede andere, nur ein Abbild des momentanen Kenntnis- und Forschungsstandes. Neue Grabungsergebnisse könnten die so entstandene Rekonstruktion binnen kurzer Zeit widerlegen oder bestätigen. Wie es bereits H. Schönberger 1956 formulierte, soll die Rekonstruktion „nicht darstellen [...], wie das Kastell Boiodurum bebaut war, sondern wie es bebaut gewesen sein könnte“.

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### Steve Bödecker, Zur Belegungskapazität römischer Marschlager der Kaiserzeit anhand schriftlicher und archäologischer Überlieferung

Zur Belegungskapazität und Innengliederung römischer Marschlager liegt mit dem Werk *De munitionibus castrorum* des sog. Pseudo-Hygin eine detailreiche schriftliche Überlieferung vor (Lenoir 1979). Hier werden exakte Abmessungen vom einzelnen Zelt bis zum gesamten Lagergrundriss für ein hypothetisches Marschlager angegeben. Bisherige Versuche, die Belegungsdichte der umfangreich erhaltenen römischen Marschlager in Britannien modellhaft abzuschätzen, basieren entweder auf einer möglichst genauen Adaption der Maße des Pseudo-Hygin oder sie stehen den daraus resultierenden Belegungsdichten kritisch gegenüber und halten geringere Belegungskapazitäten für realistischer. Dadurch erbeben sich erhebliche Unterschiede von ca. 500 Mann/ha (Maxwell 2008) bis ca. 1150 Mann/ha (Gilliver 1999).

Dabei sind die archäologischen Untersuchungen zu den temporären Lagern von Masada (Schulten 1933) sowie zu einigen frühkaiserzeitlichen Lagern (Morel 1989) kaum in die Diskussion einbezogen worden. Diese bieten jedoch wichtige archäologische Hinweise v.a. zur Ausdehnung von Zenturien in temporären Lagern und liefern damit eine wesentliche Grundlage zur Beurteilung der Belegungsdichte von Truppen *sub pelliibus*.

Der Vortrag bietet einen kritischen Überblick über die bisherige Forschung zur Belegungskapazität von Marschlagern und setzt sich mit der Aussagekraft der Befunddokumentation der Lager von Masada auseinander. Aus der Synthese von archäologischen Befunden und historischer Überlieferung wird die Belegungskapazität von Truppen *sub pelliibus* neu bewertet.

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### David J. Breeze, The role of zeitgeist in the study of Roman frontiers

Interpretations of the role and function of Roman frontiers have been offered almost since the time they were built. Most have related directly to the circumstances of the time in which the interpreter lived. In this lecture, I will explore these changing interpretations and consider how we might go forward.

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## Peter Brennan, The tantalising *Notitia Dignitatum*: realising a mirage.

The *Notitia Dignitatum* (ND) remains a riddle. Centuries of scholarship have produced no authoritative interpretation of its purpose, reliability or mode of composition. It is unimaginably important for Roman military history. Without its information on command structures and military units, Edward Luttwak could not have conceived his model of a grand strategy of defence in depth; he had no other framework on which to hang scattered and laconic external details. But Luttwak used it to create a synchronic typology, without much regard to its puzzles and its context. A reliable record would provide a fixed point for command structures and deployments, but only for the army in the early 5<sup>th</sup> century; but many argue that it contains much obsolete information. Luttwak's model focussed on the earlier 4<sup>th</sup> century, retrojecting the static evidence of the ND to give shape to very unclear evolutionary processes; that was hazardous. I take up two of the many puzzles that Luttwak and many who use the ND do not fully face: the reliability and sources of its registers.

All want the ND to be a synchronic record. It looks like that, but it is a mirage. An almost universal consensus puts its two registers at different dates, the eastern c. 400, the western in the 420s. It is an artificial creation. Any underlying realities lie in its constituent registers. The jury is still out on whether either is reliable at its date; most see the eastern register, but not the western, as a reliable record. But external literary, documentary and archaeological evidence has been used to argue for significant obsolescence in many lists; only in Egypt and Thebais can we test and reject reasonable doubt. There, the lists are consistent with being reliable records c.400, but this cannot be generalised. External evidence is unlikely ever to be good enough to establish certainty for most lists. Therein lies a problem. If any list is obsolete, we can assume only by faith that any list is reliable, unless there is corroborating external evidence.

A register can be no better than its sources. All interpretations assume our registers come from bureaucratic sources. Unconscious bureaucratic carelessness and tralatitancy processes explain many anomalies and allow us to excavate relics of earlier disposition; they do not easily explain the retention of obsolete lists or sections. These involve conscious decisions, made in line with the nature of the sources and/or the purpose of the registers. The mode of composition from sources to register can only be speculative. I offer a possible explanatory model. The ultimate source was lists or reports made in the *officium* of each dignity and sent to its hierarchical superior, a *magister militum*; they ended in the *scrinium dispositionum*, a mysterious department under the *magister officiorum*, and were used to make our registers. The latest available disposition list for each dignity was not necessarily recent or properly up-to-date or even for a still-existing command. Each list was meant to be reliable at its date, which was not necessarily the date of its register.

The ND is a mirage; realising the realities within its tantalising registers eludes our grasp. One must treat details in all lists with caution, but at the structural level required by Luttwak, its information allows deductions about strategies, if only for the early 5<sup>th</sup> century and for each court. The ND has little to contribute to whether it is a modern mirage to posit for any earlier period a grand strategy of defence in depth (or any other).

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## Clive Bridger, Last (b)orders please! The beer necessities of Roman military life on the German limes

*"Their drink is a fluid made from barley or wheat, which when fermented has a certain resemblance to wine."* With these words Tacitus provides us with the oldest literary reference to beer in Germany. In deference to the Limes Congress's host city of Ingolstadt, the spiritual home of German beer since the 'Reinheitsgebot' of 1516, it would seem appropriate to review the literary, epigraphic, archaeological and iconographic evidence of the supply and demand for beer to the Roman military on the German Limes.

In recent years more scholars have turned from dealing with wine to beer in antiquity, where the literary and epigraphic data have been efficiently collated. In 1978 the first Roman brewery in Germany was located near the legionary fortress of Regensburg. Only in 2012 was a second identified near the legionary base at Bonn. Other structures and finds point towards further beer production in Möttingen in Bavaria, Xanten on the Lower Rhine, as well as in the hinterland, especially on the Moselle. In addition, new finds with graffiti and organic remains have advanced our knowledge. Large wooden barrels and flat-bottomed amphorae may provide more clues to the demand for and supply of beer.

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## Marion Brüggler, The late 4<sup>th</sup> and early 5<sup>th</sup> centuries on the German Lower Rhine in the light of recent research

As a regional study within the framework of the theme of this session, I would like to look at the archaeological evidence for the late 4<sup>th</sup> and early 5<sup>th</sup> centuries on the Lower Rhine, i.e. the region between Xanten and Nijmegen. Within this region, several sites are known to have had a connection with military activities, such as Nijmegen, Cuijk, Asperden, Kalkar-Burginatum, Qualburg-Quadriburgium and Xanten. I would like to focus on recent research: in Burginatum and the Reichswald at Asperden and Kranenburg excavations by the Archaeological Heritage Service for the Rhineland have been carried out, also, rescue-excavations at Quadriburgium have taken place. At Burginatum, the site of an auxiliary camp (ala) since the reign of Claudius, the outer wall of the fort, which was damaged by fluvial erosion, was repaired in Late Antiquity<sup>1</sup>. The small finds indicate the presence of soldiers with a Germanic background (belt fitting, fragment of a glass bowl type Helle). At the site of Asperden, the well-known burgus not only protected a road-crossing, but also a glass workshop dated to around AD 400 and the first part of the 5<sup>th</sup> century. It produced goods which were used a few kilometres downstream at the Frankish<sup>2</sup> settlement at Gennepe, NL. Chemical analyses carried out by Thilo Rehren, UCL<sup>3</sup>, have yielded an interesting result concerning the supply of raw

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<sup>1</sup> Bödecker/Brüggler/Berkel, Untersuchungen an der Rheinseite des Alenlagers Burginatum (Kalkar, Kreis Kleve). In: Der Rhein als europäische Verkehrsachse – Märkte, Rohstoff- und Warentransporte im Kontext rheinischer Flusshäfen im 1. Jahrtausend n. Chr.. Bonner Beiträge zur Vor- und Frühgeschichte 16 (Bonn 2014) 185-191 (in print)

<sup>2</sup> Cf. especially the discussion of the use of this term for Gennepe: F. Theuvs, Terra non est. Zentralsiedlungen der Völkerwanderungszeit im Maas-Rhein-Gebiet. In: H. Steuer, V. Bierbrauer (eds.), Höhsiedlungen zwischen Antike und Mittelalter – RGA-E Band 58 – (Berlin/New York 2008) 765–793.

<sup>3</sup> Rehren/Brüggler, Chemical Analyses of Late Antique glass bowls type Helle, in prep.

glass: The workshop had access to fresh raw glass, i.e. not diluted with recycled glass, from the glass producing sites in the eastern Mediterranean. A few kilometres north, a very large building has been excavated in the Reichswald-forest<sup>4</sup>. Even though no finds give a clue to the date of that building, it too might have been a burgus or granary. These results, together with the evidence from Cuijk, where repairs to the bridge were carried out in AD 393, and Gennepe, which was founded around 390, point to a functioning military network at that time. It does not appear that the area in question was left open to devastation.

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### Marion Brüggler/Steve Bödecker, Xanten-Beek: Temporary camp and monumental graves near Vetera

The results of rescue-excavations near the legionary fortress of Vetera at Xanten conducted in winter 2014/2015 by the LVR-State Heritage Service for the Rhineland contribute some interesting aspects to the Roman military topography of that area. The thesis given in this abstracts are preliminary, since excavation is still in progress and the finds have not yet been processed. The authors hope to state the results especially concerning the dates more precisely until Sept. 2015

The south-eastern corner of a temporary camp was excavated. It was situated roughly 1 km away from Vetera I on the "Fürstenberg" and a few hundred meters away from Vetera II on the "Bislicher Insel". The latter fortress cannot be securely located: It has been destroyed by the Rhine, but several hypotheses point to certain areas of its former location. Within the temporary camp, several phases of use were discerned. A series of oven-structures can probably be associated with the use of the camp. Later, somewhere in the 1<sup>st</sup> or 2<sup>nd</sup> century AD a layer of soil of 20 cm thickness was put on top of these ovens. Then a row of square fundaments of monumental graves obviously aligned along a road were dug into the artificial layer. The graves date to the 2<sup>nd</sup> or 3<sup>rd</sup> century. The road must have lead to Vetera II, thereby narrowing the presumed locations down to a smaller area. Behind the graves, viewed from the road, a series of settlement features (postholes, pits, ditches, well), also from the 2<sup>nd</sup>/3<sup>rd</sup> centuries were investigated.

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### James Bruhn, The furthest limits of Empire: the implications of the dating evidence from the ovens at the Roman camp of Kintore, Aberdeenshire.

The excavations at the Roman camp at Kintore (Cook and Dunbar 2008) have had a significant impact on our understanding of Roman camps in Scotland. Through the discovery of numerous ovens and pits containing the discarded rubbish of campaigning, Kintore has strengthened the argument that there is more to the excavation of Roman camps than their defensive ditches. The radiocarbon dating of samples from the ovens has allowed an understanding of the camp's occupation to emerge that is not limited by the discovery of datable artefacts. This has considerably changed the way Roman camps are understood and how these sites are designated and managed in Scotland. This paper will

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<sup>4</sup> Unpublished



discuss the Roman ovens at Kintore and implications of the radiocarbon dates from these ovens on the occupation of the camp and by extension the other 44ha camps which are found to the north of the Mounth (Jones 2011). This series of camps relates to the furthest known extent of Roman conquest in northern Britain, informing both our understanding of Roman campaign strategy and the formation of the Roman frontiers of Britain.

Literature:

Cook, M and Dunbar, L (2008) *Rituals, Roundhouses and Romans: Excavations at Kintore, Aberdeenshire 2000–2006*, vol.1, STAR Monograph 8, Edinburgh.

Jones, R H (2011) *Roman Camps in Scotland*. Edinburgh: Society of Antiquaries of Scotland monograph ser.

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### Raymond Brulet, AD INTIMA GALLIARUM

Ammianus Marcellinus understood that it was necessary to restore the forts along the internal roads because they prevented the Germans from penetrating the heartland of Gaul, as was always their intention (AM. XVI, 11, 11). This had nothing to do with a grand imperial strategy, but it underlines the accepted importance of a 'defence in depth' policy by using a network of fortified towns such as Saverne which will be discussed in this paper and which can be seen as representing a major fortification of this type.

In northern Gaul, the cities of small or average size participated in the protection of land, working alongside a network of *burgi* and towers, which were distributed along the main routes. Because this network of fortifications was built or developed in the same period, it is possible to suggest that there was a common policy but organized in different regions in different ways, so they could support the frontier installations and even replace them when the frontier was unable to cope, as was certainly the case on the Lower Rhine, upstream from Xanten.

The existence of these networks will be examined in the light of recent discoveries for the region which included the northern provinces of Gaul, differentiating between the different types of fortification, the evolution of this network over time and, where possible, to identify the presence of military forces.

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### Ilya Bulkin, The Roman defensive fortifications of North Black Sea Coast: pro et contra Limes Tauric

The border of the Roman Empire in the north-east was the Northern coast of the Black Sea. During the I–III centuries AD Romans constructed a network of the boundary fortification there which was similar to Danube, Dacia or Mauritanian *limes*. Such geographical peculiarity of that place as the lack of a natural boundary line in the form of the river caused Romans to apply a special strategy. Therefore there was no uniform line of boundary fortification, as it was along the Rhine or Danube rivers, traditionally called "*limes*".



Rather small fortified areas blocked all the main roads from the steppe territories to the Black Sea coast, cutting off nomads from the mouth of the large rivers and convenient sea bays. But their destination was absolutely the same as the classical boundary fortification lines had. That's why these works also should be referred to the Roman *limes* category.

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## Boris Burandt, *Habitare et deponere* – Neue Ausgrabungen in der Nord-West-Ecke des römischen Legionslagers von Bonn

Von September 2013 bis März 2014 fanden in der Nord-West-Ecke des römischen Legionslagers *Bonna*/Bonn Ausgrabungen auf einer Fläche von insgesamt ca. 10 000 qm statt, im Zuge derer größere Partien von zwei Wirtschaftsbauten und zwei Doppelkasernen aufgedeckt werden konnten. Wie der Großteil der Militäranlage, so ist auch das Areal zwischen Augustusring und Graurheindorfer Straße, zwei Verkehrswegen, die in etwa der antiken Fortifikation des Lagers entsprechen, seit dem 19. Jahrhundert überbaut. Einblicke in den archäologischen Bestand dieses Bodendenkmals sind somit nur möglich, wenn es durch bauliche Veränderungen in diesem innenstadtnahen Viertel zu Abrissarbeiten kommt und Flächen bauvorgreifend untersucht werden können. Dank einer städtischen Baumaßnahme auf dem Gelände der Marie-Kahle-Schule, vor deren Errichtung 1905 C. Köhnen erste Ausgrabungen an dieser Stelle durchführen konnte, war eine großflächige Grabung möglich, welche neben neuen Befunden und zahlreichen Kleinfunden die erhofften Anschlüsse zu den bestehenden Altgrabungen liefern konnte. So lässt sich nun ein heterogener Bauabschnitt, den Köhnen noch als *tabernae* ansprach, zu einem großen Wirtschaftsbau mit Lagerhalle ergänzen. Ein weiterer Komplex, welcher in den 1960er Jahren bereits in einem kleinen Abschnitt ergraben wurde, lässt sich auf Grund der neuen Grabung als große Vierflügelanlage rekonstruieren, verfügte über eine Laderampe und legt mit einem nachträglich vor die Süd-West-Ecke gesetzten Prellstein Zeugnis von der offensichtlichen, antiken Verkehrsproblematik an dieser Stelle der Garnison ab. Unter Zweien der römischen Lagerstraßen ließ sich auf längerem Streckenverlauf die antike Kanalisation nachvollziehen – wohlgermerkt in ihrer jüngeren steinernen Ausbauphase und darunter in einer älteren hölzernen Variante. Mit diesem Befund liegt einer der wenigen in Bonn greifbaren Nachweise der Holz-Periode des Lagers vor. An anderer Stelle konnten zwei Doppelkasernen angeschnitten werden, wobei sich die angenommene Abfolge von *armae* und *papiliones* bestätigte. Der Kopfbau der südlichen Kaserne weist mit steinernem Keller, Badebecken und zahlreichen Fragmenten mehrphasiger Wandmalerei einen luxuriösen Wohnstandart auf, der durch die Kleinfunde bestätigt wird. So kamen Fragmente von Buntmarmor-Inkrustationen, aufwendige Möbelbeschläge und eine Statuetten-Basis aus Buntmetall zu Tage. Den Mannschaftsunterkünften entstammen große Mengen von Fein- und Gebrauchskeramik, Münzen und ein umfangreiches Fibelspektrum, das vom frühen 1. bis in das späte 3. Jahrhundert datiert. Zahlreiche Tierknochen, aber auch Austernschalen und Gräten eines Lachses liefern Aufschluss über die Ernährung der Legionen am Rhein. Mit provisorischen Mauerplomben, zugesetzten Straßenzügen und einem bislang noch ominösen turmartigen Bau lässt sich die spätantike Nutzungsphase des Stützpunktes fassen, bevor das Lagerareal im späteren 4. Jahrhundert aufgelassen worden zu sein scheint. Lediglich einige kleinere Schmelzöfen weisen auf die zumindest temporäre Anwesenheit von Siedlern in dieser Zeitspanne hin, die das bereits ruinöse Legionslager als Steinbruch und Buntmetall- Quelle genutzt haben dürften. Mit den Grabungen von 2013/14 ergibt sich folglich ein weiterer Mosaikstein für das Gefüge des Legionsstützpunktes Bonn und somit die baulichen Strukturen an der germanischen *ripa*, dem ‚nassen Limes‘ des römischen Reiches in Niedergermanien.

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### Daniel Burger, The sequence and development of a defence wall using the example of the Roman fortress of *Mogontiacum* (Mainz)

The Roman fortress of *Mogontiacum*/Mainz is considered to have been one of the most important military bases at the Rhine. The fortress was built for two legions around 13/12 BC and was used as the initial point for the Augustian wars against the Germans. After the rebellion of Saturninus 89 AD, the garrison was reduced to one legion. With the construction of the Limes on the right bank of the Rhine, the fortress lied in the hinterland of the border until the second half of the third century. However, after the loss of the Limes area and the withdrawal of the Roman army to the Rhine river border, the base camp developed the character of a front line town again. The use of the fortress probably went on until the second half of the fourth century.

Apart from the almost completely preserved ground plan of the fortress-baths only a few internal structures of the fortress (approx. 36 ha) have been published. Furthermore only solely selected parts of the defence structures have been investigated archaeologically so far. New results of the internal structures are not to be expected in high numbers, as the antique stratigraphy was disrupted by new-age fortifications. Excavations of the last 30 years have already demonstrated a far more differentiated picture of its shape and features than previously expected.

The presentation shows features, which give insights into the technical procedures for maintenance and rebuilding of the timber-earth-wall surrounding the fortress. Furthermore the talk will present the particular working process used in replacing the wooden defence wall by a stone-wall and the renovation of the defence wall in the fourth century which is well documented in the archaeological context.

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### Norbert Buthmann, From geophysical data to archaeological interpretation – Identification of urban structures at Arnsburg-Alteburg (Germania Superior)

Although geophysical survey methods are used regularly as part of archaeological fieldwork, their potential in the processing of archaeological questions is not used to its full extent. Whereas an extensive evaluation of an excavation is considered as a natural step, an archaeological interpretation of measurement results is often done only rudimentarily. In fact, however, the results allow extensive archaeological conclusions that can extend beyond the description of the individual features. Far-reaching conclusions on urban structures of Roman vici for example can be made on the basis of verifiable interpretation.

The main steps in the interpretation of geophysical data are introduced and analyzed by the example of the vicus of Arnsburg-Alteburg at the Northern edge of the Upper German Limes. The starting point of the analysis at the level of the geophysical data is the formulation of categories of anomalies. Essentially the characteristic of the measured values, the shape and size of the anomalies and the spatial relation with other structures have to be considered in this analysis. At the next level of interpretation the different categories can be interpreted archaeologically based on analogies. In a

further step, it is possible to consider the features in a broader archaeological context, and thus indirectly to identify as elements of parent structures such as parcels, roads, public places, public buildings etc. Finally, the identification of urban structures is an indirect interpretation of the anomalies and it is the last step in a longer sequence of interpretations. This kind of analysis is only comprehensible if the levels of interpretation are clearly separated and named. In this way, the distinction between direct and indirect circuits and hence the critical examination of the interpretation of prospection data is possible.

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### **Julia Chorus, First in timber, next in stone: building auxiliary forts along the Lower Rhine (NL)**

As in many parts of the Roman Empire, also along the Lower Rhine in the West-Netherlands every stone fort has one or more timber predecessors. Old publications deal for the greater part with stone fort remains. But our knowledge of the timber building phases is steadily increasing. At many sites, especially in the West-Netherlands, timber remains are well preserved in water-logged conditions. The initial lay-out in timber is often the first in a long building sequence, eventually ending up in a stone fort. In this lecture I will compare the timber with the stone forts in the research area.

The first topic will be the change in need for timber during the transition from timber to stone forts. During the period of c. 250 years in which wood was needed to build the forts, tons of wood were to be collected in the building campaigns. First for several timber building phases, and after that, during the stone phase, wood was still necessary for some timber buildings and for foundations of stone ones. Do we see differences in the use of wood? And what is there to say about the availability of wood during the transition?

A second question I'd like to discuss is whether the differences that are striking between the timber forts in the research area (Chorus in press, paper Newcastle 2009) are also visible between the stone forts. It is usually thought that forts, whether of timber or stone, were all built in the same way, with similar building techniques and ground plans that look very much alike. The opposite appears to be true, at least in case of the timber forts. In this lecture I will look for those differences between the stone forts along the Dutch Lower Rhine.

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### **Adriana Ciesielska, The Concepts of Frontier in Tacitus' Works.**

In my paper I intend to analyze the meaning of the word "frontier" in Tacitus' Works. Latin word "Limes" means not only the "frontier", it is its primary meaning, it also means "path", "way", "route" and "fortification". What did it refer to in the ancient sources? I am going to use the works of Tacitus as the example of different usage of the word "Limes".

Secondly, I would like to investigate how and to what extent the contemporary branches of knowledge such as anthropology and sociology are helpful in understanding the notion of "frontier". We know the notion of "border" and "borderline" and I would like to think how they relate to the words used by Tacitus in what way the descriptions of Tacitus can be understood in contemporary notions.

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**Tim Clerbaut, To heat or not to heat, that's the question. *Tubuli* from the late Roman fort at Oudenburg. Systematic study and remarks on their origin and function.**

In military contexts, *tubuli* or box tiles are quite often found in relation to Roman baths which are situated *intra-* or *extra muros*. Simplifying their function and one-on-one relationship with baths would be a mistake. This paper wants to zoom in on this specific type of building material, its use and its diversity. As a case study the large collection of *tubuli*-fragment from the *castellum* at Oudenburg (Belgium) will be discussed in detail. Here, a large diversity of box tiles was discovered of which at least a part can be linked to the heating system of a *valetudinarium* or field hospital. The large diversity in production techniques, sizes and fabrics raises questions about the production, supply and (complementary?) use off these *tubuli*-types. In a comparative framework, this paper tries to understand the relationship between the fort and its surroundings by looking at supply and production mechanisms which provide them from the needed (ceramic) building materials.

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**Sorin Cociş/Cosmin Onofrei/Vlad-Andrei Lăzărescu/Dragoş Blaga, New Data regarding the Roman Settlement from Sutor (Dacia)**

Researches to date, started in 2001 at the site called Sutor, Sălaj County, brought to light the traces of a complex Roman settlement. Based on some information from the XIXth century archaeological literature, a series of archaeological excavations have identified initially a civilian settlement (of the vicus-type) and later the necropolis and a bath complex. The researches were expanded in 2002, 2006 and 2008 and uncovered some of the elements of a Roman fort.

The site was strongly affected by the extensive floods caused by the river Almaş and the torrents from the Capuş valley nearby. This hampered classical archaeological excavation. Starting from 2009 a project initiated by the Romanian Institute of Archaeology and History of Art, of the Romanian Academy attempted a new approach, based on geophysical surveys (both GPR – Ground Penetrating Radar – and magnetometry) of the site's area, followed by the excavation of the key features discovered. This system allowed the identification of a series of structures inside the fortification and also some important evidences for the chronology of the site.

The magnetometric survey showed the perimeter of the fort but also a smaller fortification in its western corner. The object of the 2013 excavation was the establishment of the chronological relationship between the two structures through an excavation that would investigate the area of their intersection. Another priority of the project was the accurate mapping of the area through a detailed topographic survey of the excavated structures since 2001 and their integration in the Romanian National Topographic Grid, Stereo 70.

The purpose of the paper is to show the integration of all these new data provided by archaeological, topographical and geophysical analysis regarding the Roman Settlement and Fortification from Sutor and their integration in the settlement system of Roman Dacia.

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## Rob Collins, The 'Virtual' Wall: Building global interest in Roman frontiers through digital outreach

The *Frontiers of the Roman Empire Digital Humanities Initiative* at Newcastle University (NU) was established to deliver new digital resources to enhance research and teaching in 2013. While involved in a number of endeavours, two projects have provided valuable insight into engagement with global audiences: NU Digital Heritage; and the Hadrian's Wall MOOC (massive on-line open course). Both of these projects serve as useful case studies for Roman frontiers in a digital age, aimed at different audiences, employing different data and interpretive models, and utilizing different methods for delivery of the digital resource.

NU Digital Heritage was established to digitally capture and disseminate 3D-models of material culture from Hadrian's Wall. The first phase of the project has delivered approximately 50 models of altars, tombstones, dedications, and sculptures, and it is hoped that a second phase will deliver a similar number of 3D models of artefacts. The impetus behind the project was to provide models that could be used by educators around the world where museum collections were insufficient in the teaching of the Classics and archaeology, though other benefits to digital modelling have also been recognized.

The Hadrian's Wall MOOC was Newcastle University's first offering in this type of free, internet-based education, and involved a small, dedicated team from different offices of the university working in conjunction with FutureLearn. The primary aim of the course was educational, and content was delivered with an expectation that learners had no previous knowledge of Hadrian's Wall, Roman history, or the discipline of archaeology. This presented pedagogical challenges, while the sheer scale of Hadrian's Wall and the desire to include the community of Wall-scholars presented further logistical challenges. However, these challenges were met, and the first-run of the course (Sept–Nov 2014) was deemed a great success.

This paper will provide an overview of these two projects, focusing on the challenges of creating the digital resources required and audience/user response. Consideration of these aspects are not only useful for improving future engagement, but provide valuable data that can better inform interpretation and management of Roman frontiers – these projects on the 'virtual Wall', therefore, have universal value for other projects in the digital *limites*!

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## Rob Collins, 'Where are the whores?' Expectations and realities of sexual relations in Roman military communities

A generation of scholarship has stimulated Roman frontiers studies to broaden its research and understanding of frontier communities beyond the traditional dichotomies of soldier/civilian and Roman/barbarian; evidence for the presence of women and children in military communities is not only commonplace now, but the Roman fort and activities within it are no longer seen as an exclusively military male preserve. However, the diversification of military communities raises questions about social relations between its constituent populations and other groups in the

frontiers. The presence of wives and families further humanizes Roman soldiers, reminding us that love and affection were a normal part of their lives; but conquest and occupation often manifest in dehumanizing and violent sex acts.

This paper is offered as an introduction to the session, establishing what can be understood as normative behaviours and expectations in regards to sexuality in the Roman Empire and the implications and potential transformations to these cultural values and practices when shifted from centre to periphery. Drawing on evidence from the ancient world and modern research in anthropology, military sociology, and gender studies, we must consider how social intercourse influenced sexual intercourse in regions with clear extremes in political and economic power, constituted by diverse and sometimes opposing communities. What are our expectations, and to what extent do material remains testify to sexual relations – in any form – among frontier populations?

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### Anthony Comfort, Fortifications on the frontier between Rome and Persia in Late Antiquity: the case of the Tur Abdin

In the middle of Rome's eastern frontier in late antiquity lies a remarkable concentration of fortified towns and strong-points, centred especially on the limestone hills above the Mesopotamian plain called the Tur Abdin. These fortresses have not yet been the subject of a detailed comparative study but many were visited in the course of research on ancient roads and bridges of the region. The paper seeks to explain the reasons for the high degree of militarisation of the area and place this in the context of the frontier and of relations between the Later Roman Empire and Sassanian Persia. Use is made of satellite imagery to display the plans of the towns and fortresses and to assist in explaining their location and purpose. The extent to which the construction of fortresses and fortified towns, as opposed that of a long linear defensive wall, constitutes a strategy of 'defence in depth' will be addressed.

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### José Manuel Costa García, Roman Camp and Fort Design in Hispania: Distribution, Morphology and Settlement Pattern of Roman Military sites during the Early Empire.

Despite the progress made in the last decades, the Roman army in *Hispania* is still found lacking of archaeological studies characterized by an overall view. Our aim in this paper is to broaden the awareness of a topic traditionally laid aside as a result of the scarcity and heterogeneity of archaeological data at our disposal. Fortunately, the development of *low-cost* specific methodologies based on the combination of historical aerial photography, modern satellite photography, aerial LiDAR, GIS software and conventional archaeological field survey techniques has allowed the detection of new sites as well as the review of those previously discovered. Thanks to these more detailed data about the planning and location of the sites we can analyse how the theoretical

principles of the *metatio castrorum* should be locally adapted for several reasons which cannot be always explained by archaeology. In this paper we have focused on three main subjects of study in trying to adopt a diachronic and multi-spatial perspective: sites directly related to the Augustus' campaigns against *Cantabri* and *Astures*; some other camps with more debateable dates of occupation and mostly located in the Meseta Norte – a plateau close to the northern mountainous areas where the war took place; and finally the few stable bases that have been dated to the first centuries AD in *Hispania*.

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José Manuel Costa García/Andrés Menéndez Blanco/David González Álvarez/Manuel Gago Mariño/João Fonte/Rebeca Blanco-Rotea, The presence of the roman army in north-western Hispania: New archaeological data from the ancient Asturian and Galician provinces

In the last decades several Roman camps have been discovered in the northernmost territories of the Iberian Peninsula, mainly related to the Augustus's campaigns against the indigenous communities called Cantabri and Astures by the Roman ethnographers. Our aim in this paper is to divulge deeper into this topic by presenting some sites recently discovered in the Spanish provinces of León, Asturias, Lugo and Coruña, as well as in northern Portugal. A low-cost methodology has been applied for their study combining historical aerial photography, modern satellite and aerial photography, aerial LiDAR, GIS software and conventional archaeological field survey techniques which also provide a strong attention to local place-names and folklore. After an accurate morphological analysis based on the resulting data, the spatial and functional characterization of these camps is taken into account to achieve their proper historical and archaeological contextualization. Since not many castra aestiva have been located in those areas, these findings represent an important step in order to understand the activities carried out by the Roman army in north-western Iberia during the early years of the Principate.

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George Cupcea, Roman Military Personnel and Frontier Security

Military personnel on frontiers are present at multiple levels. The general aspect of garrisons and deployment of the army will not be the focus of the paper proposed here. On the contrary, I will attempt to approach the subject of military men on the frontier from a more particular perspective. Military security and administration was an important subject for more than a century now. The personnel entrusted with this matter varied extensively throughout the Empire, but basically fit into a provincial pattern established under the form of *stationes*, manned with soldiers called *stationarii*. Their role in police and administrative duties was already established, but their superiors in rank raise rather tricky questions. The centurions were the most adaptive and versatile military men, already ranking quite high, usable in any matter of the state in the provinces – administration, police, justice, intelligence, assassination, execution etc. Some of these centurions are entitling themselves



*regionarii*. Their number of attestations is not large and their duty not specifically argued, but a number of documents hint towards full military administration or district police duties. Most of these *regionarii* were mentioned in the East, in particular Egypt, where they are mentioned, not in this fashion, of course, but as the '*centurion (in charge) of this place (region)*'. This is actually the Greek equivalent of *regionarius* and tends to point towards what was suspected, full administrative duties. Other examples in the East mention them as police chiefs in cities or roads, a task suitable for the *stationarii*. In Europe, however, the situation seems to be quite different, as these *regionarii* are attested in completely different places and situations, as for example, the frontier zone.

Scholars tend to exclude from their duties border or resources security, but attestations in mining areas and zones of Imperial interest are dominating, as well as attestations in the frontier area. Most recently, such a centurion was recognized on a monument on the Northern frontier of Dacia, on a revisited monument, tipping the balance in this sense. Together with other examples, from Dacia and the European frontier of the Empire, they can add up as evidence in reconsidering the role of these important professional officers, particularly in this part of the Roman world. The most recent examples of Dacia, together with the reconsiderations of the other evidence in the European frontier zones, will attempt to identify, if any, the role of the centurions *regionarii* or equivalent officers in border administration and security and also if their area of competence/authority stretches even beyond it.

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## Wolfgang Cysz, A Trajanic horreum in Günzburg (Raetia) and the expansion of the Limes in Raetia

Pre-construction archaeological investigations in the autumn of 2013 for a modern housing estate outside the area of the fort of the *ala II Flavia miliaria* and its *vicus* revealed a large timber building 100,60 m long and about 50 m wide. A row of about 50 *cellae* (5,5 x 6 m) surrounded a 38 m wide rectangular courtyard. The wet ground threatened the stability of the well preserved posts so that they had to be set to two or three underlying planks to prevent the building from sinking. The particular ground plan defines the building as a huge wooden *Horreum*. According to the current state of research dendrochronology dates the oak timbers to 111 AD. It allows a first attempt, to set the remarkable building in its historical context, in the reign of the Emperor Traian (98–117 AD). Similar store buildings along the Danube, on the Alblimes and the outer Limes show the same chronological background and a similar context for its development. Most of these *horrea* do not show traces of a long and intensive use; installations, wells, pits, tiles, ceramics and other finds are missing, so that it is probable, that they were used only for a short period and then were abandoned. The historical context seems to fit with preparations for military operations on the crossing of the Danube line and pushing forward the forts. The crossing of the Danube had to be logistically well prepared, so that the construction of *Horrea* would be considered a necessary prerequisite for the extension the province and the new dispositions of about eight *auxilia*. If these ideas are true, the first absolute date would now fix the date from "about 110 AD" to 111/112 AD (*terminus post quem*) or a short time later.



## Ilija Danković/Ana Bogdanović, Contribution to Knowledge of Water Supply in the East Part of the Agger of Viminacium

Extensive salvage excavations have been carried out on the territory east of the Viminacium military camp and civil settlement since 2003. Among many archaeological features three lines of aqueducts, as well remains of two *castellum aquae* (water towers) have been discovered. Since research of aqueducts revealed no proof of existence of branches or diversions, the question of water supply of residential and other buildings discovered in the east part of the *agger* of Viminacium was raised. Only recent excavations provided some information on this subject. Namely, one *villa rustica* had remains of rainwater roof runoff system, and also, twelve water wells were discovered. Major part of our paper will be contributing to morphological and functional analysis of later archaeological features. Vessels discovered in the wells that will be presented will help in understanding the way how water was raised, and its volumes will be used to determine validity of their usage in exploiting water in everyday activities.

## Robert Darby, Put Before the Legions: The Auxilia in Late Roman Arabia and Palaestina under Diocletian

It has hitherto been assumed that the provincial reorganization of *Arabia* and *Palaestina* in the Late 3<sup>rd</sup> – early 4<sup>th</sup> c. under Diocletian followed the relocation of the latter's two long standing legions, *X Fretensis* and *VI Ferrata*, to new positions along what had been the southern sector of the *Limes Arabicus*. While the transfer of the legions necessitated a shift in the provincial border with *Arabia* to ensure that neither province exceeded a total of two legions under their respective *duces*, there is no evidence to suggest that the actual movement of either *X Fretensis* or *VI Ferrata* precipitated the official incorporation of *S Arabia* to *Palaestina*. In fact, a new Tetrarchic building inscription uncovered in 2013 during excavations of the Late Roman fort of the *Cohors II Galatarum* (*Notitia Dignitatum* 34.44) at 'Ayn Gharandal, Jordan (*Arieldela*) demonstrates that the earliest evidence for the provincial reorganization is surprisingly not related to the legions at all, but rather the *auxilia*. To date, however, no serious consideration has been given to the *auxilia* and what must have been a crucial role in carrying out the provincial reorganization.

This paper examines the changing role of the provincial *auxilia* in the establishment, maintenance, and defense of the hinterlands of the *limes Arabicus* during the 4<sup>th</sup> c. More specifically, it challenges common assumptions regarding these units and the concept of an imperial strategy of a "defense in depth". Drawing upon recent archaeological and epigraphic evidence from the region it seeks to understand the substantial military investiture initiated by Diocletian from the perspective of the *equitatae*, *cohortes*, and *alae* in large part responsible for its success and/or failure. Finally, an alternative paradigm of imperial strategy in the region is offered which departs from traditional interpretive models centered on defense and instead focuses on resource control and commerce as central to any imperial ambitions.

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## D. Deac/E. Pripon, Rethinking the Religious Landscape of the vicus from Porolissum

Porolissum, one of the most interesting Roman settlements found on the frontiers of Dacia has always triggered the attention of scholars, both Romanian and foreign.

In 1996, prior to the Limes Congress from Zalău, N. Gudea published his book on the Roman custom of Porolissum identified through the archaeological investigations done in 1986–1988. The main results were the discovery of the fortlet and the building of the *tabularii* of the Customs house attached to it, composed out of two rooms, in which 4 statue bases were found, parts of large bronze golden statues and other archaeological material. Outside the building, an altar and a statue base were found in a secondary position, dedicated to Jupiter, the genii of the Customs and to the health of the emperor Commodus. The texts on these monuments speak about the fact that Commodus was the *restitutor commercii* and were put by Imperial slaves/freedmen who were part of the Customs mechanisms. This made N. Gudea affirm that the Custom building of Porolissum was identified, which was actually the first kind of this type of buildings ever found in the Roman Empire.

Recent archaeological excavations conducted in 2014 have revealed some new data on the use of these buildings. Firstly, the plan and phases of the building were reanalyzed, giving some very interesting results and a new inscription found in the collapsed wall of the building which fell on the near-by road was excavated. The inscription tells us that the building was not the *tabularium* of the Customs but a temple dedicated to the spirits of the emperors (*Numini Augustorum*), Septimius Severus and Caracalla and to the Genius of the customs, by a previously unknown procurator of Dacia Porolissensis, Heraclio. Thus the 4 base statues mentioned before must have been put for statues of the two emperors, Septimius Severus and Caracalla, the genius of the Customs and probably of Heraclio.

These new evidence makes us rethink the religious aspects of Porolissum, the functionality of the building previously thought to be a *tabularium* and its chronological phases.

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## Eckhard Deschler-Erb, Wie erschliesse ich eine römische Provinz? Augsburg-Oberhausen und das frühe römische Rätien

Noch über 100 Jahre nach seiner Entdeckung zählt der augusteische Fundplatz von Augsburg-Oberhausen zu den Militäranlagen mit dem umfangreichsten Spektrum an Metallfunden. Darüber hinaus handelt es sich weiterhin um einen der frühesten römischen Militärplätze im raetischen Voralpengebiet.

Die über 6000 Metallfunde umfassen neben zahlreicher Militärausrüstung vor allem ein umfangreiches Spektrum von Handwerks- und Baugerät. Ausgehend von einer ausführlicheren Analyse dieser Funde soll die Funktion von Augsburg-Oberhausen näher angeschaut werden.

Es erscheint demnach denkbar, dass dieser Militärplatz als ein Basislager für die Vermessung und Erschließung der späteren Provinz gedient hat.

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## Zdravko Dimitrov, Colonia Ulpia Traiana Ratiaria – architectural complexes found by the latest excavations of the Roman military and civic center on the Lower Danube

In 2013, after 25-year break the regular archaeological excavations of Ratiaria were resumed. This significant military camp, Roman colony and provincial capital was abandoned in the last decades. Because of that whole site was almost totally destructed by the treasure hunters' activities. Thanks to the initiative of the Ministry of Culture, the National Archaeological Institute of the Bulgarian Academy of Sciences and with active participation of RMH-Vidin was established new archaeological team: Assoc. Prof. Zdravko Dimitrov (NAIM-BAS), leader, Assoc. Prof. Ivo Topalilov (Shoumen University) and Ilko Tsvetkov (RHM-Vidin), deputy-heads. In this presentation to 23<sup>rd</sup> International Limes Congress we summarize results of the last two seasons:

- Complete excavations were made in the zone of the Residence of provincial governor of Dacia Ripensis (first studies started in the 80s);
- Newly founded and fully explored were a completely unknown baths from the late Roman era, consisting of at least three separate rooms and contains a magnificent interior decoration. It is located in one insula north of the residence;
- Our studies have reached the unknown northern fortress wall and quarters behind it, which has also not been studied in the 80s;
- More than 40 architectural detail, grave stones and inscriptions were found and stored;
- We found significant amounts of import finds – terra sigillata, lamps, fibulae, coins and etc.;
- First rescue studies were carried out in the necropolises of Ratiaria where archaeologists revealed two early Christian tombs with a semi-cylindrical vault.

These first archaeological studies after huge break and considerable destruction of the site gave many new data for the topography and architectural complexes of the city. We acquired information also to the chronology and stratigraphy. Today we can summarize new records for the roman baths in Ratiaria. They are not only from newly founded thermal complex, but also from the largest baths of the city. These are baths from so-called "Imperial type" where we registered a large amount of architectural details in the Corinthian order. Among the epigraphic data stand two inscriptions, made by the order of the provincial governors of Upper Moesia, and dedicated to Diana (probably from the temple of goddess).

With this paper-presentation to the 23<sup>rd</sup> International Limes Congress the studies of Ratiaria go back within the frames of normal scientific activity, conducted by the researchers of the frontiers of Roman Empire. These contacts at the highest international level enable the problems of Ratiaria again be discussed and new data from the excavations to be presented, published and included in bibliographical sources.

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### Mark Driessen/Fawzi Abudanah, The Udhruh lines of sight: connectivity in the hinterland of Petra

This paper focuses on the communication system in the vicinity of the Roman legionary fortress in Udhruh (South Jordan). Several watchtowers, fortlets and territorial markers have been examined during the 2011–2014 field surveys of the Udhruh Archaeological Project. These seem to be part of a system that connects Udhruh with the Nabatean capital of Petra and the trade routes to the south.

The Udhruh Archaeological Project – which was launched in 2011 – is a joint venture between the Petra College for Tourism and Archaeology of the Al-Hussein Bin Talal University from Wadi Musa–Ma'an (Jordan) and the Faculty of Archaeology of the Leiden University (The Netherlands). The project is an international and interdisciplinary research program that combines archaeology, geo-archaeology, archaeological related disciplines, sustainable tourism and environmental sciences as irrigation and land degradation.

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### Monica K. Dütting, Fishing for facts

Fish seldom features in discussions on food consumption by the inhabitants of the regions along the *limes*, and if so, mostly only in the form of fish sauce. However, fish remains from military and civilian sites show the consumption of freshwater and sea fish in Late Iron Age and Roman period. This paper focuses on the NW limes on the European continent and in particular the Netherlands, where Roman period sites have been the subject of continuous study over the last fifty years. Preservation of fish remains and fishing equipment from archaeological sites tends to be excellent in most parts of the Netherlands, due to wetland conditions. As the River Rhine formed the northern border of the Roman Empire, finds come from both military and civilian sites, ranging from local farmsteads and hamlets to watchtowers, forts, harbours, and urban centres.

Bringing all evidence together for the first time, what can we deduce from even the single fishbone or hook for themes such as fishing, logistics, consumption, status, preference, and perhaps even identity?

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### Michal Dyčka, Modus Operandi of the Antonine Wall

How did actually frontiers work? This essential question has been discussed over the last two centuries through and through and the presented paper is trying to offer a new perspective – this time by means of the landscape study and understanding the positioning of individual forts on one of the short-lived Roman frontier, the Antonine Wall. New approach to this problem is represented by using the Viewshed Analysis of Digital Elevation Model of the broader area around the Antonine Wall.

Presented paper is trying to answer a series of questions, some of them discussed already in the past, some of them so far only partially explained. Were the positions of forts and fortlets along the line of the Antonine Wall intervisible? Which forts had and which had not a direct line of sight to its

neighbours? How important were the fortlets as a relays of potential signal? This is the first set of questions that the paper is trying to answer. Second group of queries is mainly concerned with the line of sight in general. Which places were good for observation of the frontier area and what in fact can we determine as an observed frontier area in reality? Weren't some parts of the frontier omitted by the line of sight from permanent bases? Is there any difference between western and eastern part of the Antonine frontier in nowadays Scotland in terms of the line of sight from permanent bases? All these questions cannot be nowadays answered by mere observation. Vital areas in the eastern and western ends of the Antonine Wall are now build up by modern infrastructure and housing, the good view to the countryside is on other places blocked by trees. To at least partially answer questions above, one has to move forward to reconstruct the visibility unobstructed by modern development. As a bonus, work in the artificial environment offers a work in broader perspective and in practical visualization.

In the end, the question 'Were the Roman forts positioned where they were in order to (among other) have a good line of sight to the surrounding area and to the Roman forts in vicinity?' may be at least partially answered, and so perhaps a clue to the fundamental question in first line of this abstract can be given.

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### Piotr Dyczek, Wooden Barracks of the First Cohort of the Legio VIII Augusta from Novae (Moesia Inferior)

In 2011 fieldwork at Novae was begun at a new section (XII), where we expected to find the remains of stone barracks belonging to the first cohort of the *legio I Italica*. However, below the stone buildings we discovered the relatively well preserved remains of wooden barracks, which had two construction phases. More than 200 post holes were found, fragments of partition walls and burnt wooden roof beams, fragments of the thatched roof as well as various items belonging to the barrack equipment, including surgical and pharmaceutical instruments (!). The size of the wooden building, characteristic attributes of its plan and construction and the dating of several finds suggest that this was the barrack of the first cohort of the *legio VIII Augusta*, which was stationed at Novae approximately 45–69 AD. Furthermore, about a dozen refuse pits were unearthed, holding numerous finds: lamps, glass and pottery vessels, amphorae, bronze items. Some pits were dug during the functioning of the barracks, some during their dismantling.

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### Pia Eschbaumer, Der augusteische Militärstützpunkt am Zusammenfluss von Main und Nidda bei Frankfurt-Höchst

Bislang noch nicht publizierte Forschungen aus jüngster Zeit bereichern unser Wissen um die augusteischen Germanen-Feldzüge im Rhein-Main-Gebiet und fügen einen neuen, wichtigen Aspekt hinzu.

Der Stützpunkt von Höchst liegt im Vorfeld des Legionslagers Mainz/Mogontiacum auf einem spornartigen Plateau am Zusammenfluss von Nidda und Main. Er wurde im Zuge der augusteischen

Feldzüge in Germanien besetzt. Schon seit langem waren hier Stücke von Wehrgräben sowie augusteische Funde bekannt. Durch die Grabungen der Stadtarchäologie Frankfurt in den Jahren 2001/2002 kennen wir nun auch Teile der Innenbebauung; zudem ist das Fundmaterial stark angewachsen.

Es konnten zwei Bauperioden festgestellt werden, die sich in Ausrichtung und Form unterscheiden. Neben Gebäuderesten, Abfallgruben, Öfen und Brunnen ließ sich auch eine Straße nachweisen, die den ergrabenen Ausschnitt der Siedlung erschlossen hat.

Zu beiden Bauperioden gehören sowohl römische als auch einheimisch-germanische Funde. Der reichhaltige Fundstoff erlaubt eine enge Datierung innerhalb der augusteischen Zeit. In erster Linie sind hier Münzen und Terra Sigillata zu nennen. Bemerkenswert ist die Vielfalt der Waren, die aus verschiedenen Regionen hierher geliefert wurden: von Amphoren aus dem Mittelmeerraum über Sigillata aus Italien, Feinkeramik aus allen Gegenden Galliens bis hin zu handgeformten germanischen Gefäßen. Zu den Speisen zählten neben Zuchttier- und Wildfleisch auch Austern. Das Fundmaterial erlaubt aber auch Rückschlüsse auf handwerkliche Produktion, die hier stattfand.

Welche Funktion hatte die Anlage? Wie lange wurde sie genutzt? Wie ist der einheimisch-germanische Fundstoff innerhalb des römischen Kontextes zu interpretieren? Diese und weitere Fragen sollen in dem Vortrag erörtert und beantwortet werden.

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### Miriam Etti, Sanctuaries in the *vicus* of Zugmantel

In the end of the 19<sup>th</sup> and the first half of the 20<sup>th</sup> century the fort and civil settlement of Zugmantel on the Upper German Limes has been extensively excavated. The results are published in 'Der Obergermanisch-Raetische Limes des Römerreiches' and in the 'Saalburg Jahrbücher'. However there is no synthesizing study of the excavations applying modern research-standards and, especially, there is no analysis of the relationship between features and find material which is very important for the understanding, interpretation and detailed study of the site itself. Although the main focus of the current research is concerned with specific questions to the different building phases of the fort and civil settlement the sanctuaries in the *vicus* offer an important part of the daily life of the soldiers and the *vicani* and should also be considered under the topographical aspect of space within the site.

Especially regarding the small finds the sanctuaries of the Zugmantel, like the 'dolichenum' and the long-rectangular stone building north of the fort need to be discussed again to receive new answers.

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### Zbigniew T. Fiema/François Villeneuve, A Nabataean/Roman Military Camp in Ancient Hegra

Madâ'in Sâlih (ancient Hegra) is large archaeological site in the Hijâz, Saudi Arabia, located ca 300 km SE of Petra. Hegra was a major Nabataean political and commercial center on the Incense Route and, following the annexation of the Nabataean Kingdom by Rome in 106 AD, the town seemingly continued as an important Roman provincial center. Since 2008, the Saudi-French Project has carried

out archaeological excavations at the settlement site, which produced a wealth of information on the chronology of the site, building techniques, material culture and external contacts. The massive rampart surrounding the town and the gates were also investigated, the former considered to be Nabataean, i.e., of the 1<sup>st</sup> century AD date, the latter yielding evidence on the Roman military presence in the town. The explorations of the southern section of the rampart led to the discovery of what appears to be a military camp of a relatively regular layout. This paper will summarize the results of the rampart investigations as well as present preliminary comments on the 2015 excavations of the camp.

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### Thomas Fischer, Prunkgürtel vom Typ Großprüfening

Im 3. Jahrhundert n. Chr. kommen bei der römischen Armee Gürtelverschlüsse auf, die ohne die bisher übliche Schnalle mit Schnallenrahmen und Schnallendorn funktionieren. Dazu gehören auch neben den Ring- und Rahmenschnallencingula die Gürtelschließen vom Typ Regensburg-Großprüfening. Bei den Rahmenschnallencingula sind als Sonderentwicklung auch silberne Prunkausführungen zu beobachten, die auffällig häufig im Donauraum vorkommen.

Soweit dies momentan schon absehbar ist, stellen die Gürtel mit Verschluss ohne Schnalle einen erheblichen Anteil an den Cingula des 3. Jahrhunderts n. Chr. Die Gürtelschließen vom Typ Regensburg-Großprüfening bestehen aus zwei rechteckigen durchbrochene Platten mit Durchbruchdekor und Nietlöchern, die sich durch T-förmige Durchbruchspaare und entsprechende T-förmige Haken in drei verschiedenen Positionen miteinander fixieren lassen. Möglicherweise ist dieser Gürteltyp mit dem von H. Ubl auf Grabsteindarstellungen des Donauraums für das 3. Jahrhundert n. Chr. erschlossenen "Koppelschlosscingulum" mit seinen charakteristischen rechteckigen Verschlussplatten identisch. Ubl's Meinung, diese Form des Militärgürtels sei höheren Chargen und Offizieren vorbehalten gewesen, konnte bisher über das originale Fundmaterial nicht gestützt werden.

Nun sind als spezielle Varianten der Gürtelschließen vom Typ Regensburg-Großprüfening aus Privatbesitz aufwendig gearbeitete silberne Prunkgarnituren aufgetaucht. Sie stammen wohl aus Grabfunden im Donauraum, besitzen aber in der Regel keinen archäologischen Kontext. Nur das silbervergoldete Exemplar aus einem Grabfund bei Abritus (Razgrad) in Bulgarien stammt aus einem Körpergrab. Damit verdichten sich die Indizien, in den Gürtelschließen vom Typ Regensburg-Großprüfening im Sinne von H.-J. Ubl die auf Grabsteinen des 3. Jahrhunderts n. Chr. im Donauraum abgebildeten "Koppelschlosscingula" zu sehen, die als Prunkausführungen auch von höheren Chargen getragen wurden.

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### Veronika Fischer, Magnetometerprospektion im Bereich von Ostkastell III b von Straubing/*Sorviodurum* – Die Innenbebauung des Kastells der *Cohors I Flavia Canathenorum milliaria sagittariorum*

Das ca. 3,2 ha große Steinkastell III b von Straubing wurde spätestens in hadrianischer Zeit südlich der Donau zwischen Regensburg und Künzing auf einer Niederterrasse erbaut. Sein bis heute



weitgehend unbebautes Areal bot der Stadtarchäologie Straubing und dem Bayerischen Landesamt für Denkmalpflege Gelegenheit das Kastell einer teilberittenen milliaren Kohorte nahezu komplett einer Magnetometerprospektion zu unterziehen. Die Messergebnisse von August 2013 ließen sich mit Luftaufnahmen ergänzen, die das Straßennetz des Kastells hervorragend abbildeten. Trotz Störungen im Westen des Kastells durch Kiesabbau und zwei mittelalterlicher Gräben sowie intensiver landwirtschaftlicher Nutzung der Fläche in den vergangenen Jahrzehnten, konnte ein annähernd vollständiger Kastellplan erstellt werden. Dieser offenbart Details wie den Verlauf des Abwasserkanalsystems oder die Unterteilung in Reiter- und Infanteriebaracken. Im Mittelstreifen konnte das *praetorium* im Osten lokalisiert werden und im westlichen Bereich ein mögliches *valetudinarium*. Der entstandene Plan soll hier vorgestellt und diskutiert werden.

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## Hannes Flück, Hide(s) and seek – Finding evidence for handicraft in the *canabae legionis* of Vindonissa

The legionary fortress of *Vindonissa* has been under archaeological investigation for more than a hundred years. On the other hand, its civil settlement was rarely in the focus of interest. From 2006 – 2009 a series of excavations on the western border of this settlement were carried out. For the first time, this offers the possibility to examine the development of the civil settlement and its margins in particular.

Within the framework of a thesis, eight plots with nearly 40 successively built buildings were analyzed. Most of them were strip-houses, the typical housing type for civil settlements near military fortresses. They were used to live in, but also as workshop for various handicrafts. Easily recognizable – by means of slacks and scales – were various workshops of smiths. The paper will discuss some of the archaeological features observed within these workshops.

Thanks to archaeozoological analyzes (by S. Deschler-Erb and R. Schmidig) two tanning workshops – for hides but also for skins – were identified. Pits containing one to three barrels might have been used while processing the animal skins. The evidence for the processing of hides has rarely been identified in the archaeological record. The hides main use is for the fabrication of shoe soles. The key customer of this workshop must have been the legion, with its demand of 18'000 shoes per annum.

The combination of the analysis of the features with the archaeobiological data allows us to identify not only the practiced handicrafts but can give us an idea of the living environment and offers even a whiff of the smells which might have prevailed.



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## Christof Flügel/Eva Kuttner, Stronghold of the Roman Empire. The Interpretation Framework for the Danube Frontier in Austria and Bavaria

Austria and Germany are currently preparing the nomination dossier for the Danube Limes section to be included into the transnational serial "Frontiers of the Roman Empire" World Heritage Site. This Framework is part of the future Management Plan for the Austrian-Bavarian Danube Limes Section and comprises the Roman River Frontier along the Upper Danube between Bad Gögging (Germany) and Bad Deutsch-Altenburg (Austria), covering four different administration regions (Bavaria/D; Upper Austria/A; Lower Austria/A; Vienna/A). We will present the main principles and structures of our Interpretation Framework, which divides the stretch of approximately 450 km into various interpretation regions.

The Danube Limes Interpretation Framework should be considered as a guideline with advisory character for interpretation and access to the monuments of the nominated property and thematically connected museums, and aims to increase awareness for the FRE Bavarian-Austrian Danube Limes Section in accordance with the OUV for local, regional, national and global audiences. The main goal of the Danube Limes Interpretation Framework is the enhancement of intellectual access to sites and museums as life-long places of learning and education. It suggests local, regional and supra-regional interpretation levels and relevant themes which can be adapted according to local needs and politics. The Framework is not intended as a strategy concept for international, regional or local tourism development.

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## Christof Flügel/Martina Meyr, Urban qualities of military vici?

In the last years several types of public architecture hitherto not known in Roman military vici were identified. Wooden amphitheatres like in Künzing (Raetia) and, Arnsburg (Germania Superior), the scenic theatre with adjacent forum in Theilenhofen (Raetia) and a possible schola or temple in front of the porta principalis dextra in Ruffenhofen (Raetia), indicate that buildings for the general public may have been more widespread than generally assumed. Military vici clearly had more to offer from the architectural point of view than the classical strip-house. The clear distinction between public and sacred space which can be identified in some military vici, the evidence for public buildings for leisure, cult and administration, as well as the standardization of building lots for private buildings, lead to the conclusion that there was organised "town-planning" which was most certainly coordinated by military staff in the adjacent forts. The architects in auxiliary units, as known for example from a newly discovered inscription from Binchester (UK), may have been responsible also for the planning of public buildings and the setting out of the vicus grid. This pseudo-urban setting of military vici seems to have developed many features which are commonly seen as classical elements of a Roman town.

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### Regina Franke, *Principia*/Stabsgebäude und *aedes*/Fahnenheiligtum in Militärlagern des 3. und 4. Jhs. n. Chr.

Das Stabsgebäude, die *principia*, bildete den Mittelpunkt eines römischen Militärlagers. Hier befanden sich die Amtsräume und das Archiv der Militärverwaltung, die Truppenkasse und die Waffenkammern. Außerdem waren in den *principia* die Fahnenheiligtümer (*aedes* bzw. *sacellum*) der Lager untergebracht und dienten damit auch als religiöse Zentren, in denen an Fest- und Feiertagen die Kulthandlungen durchgeführt wurden. Die *Principia* der frühen und mittleren Kaiserzeit sind sehr gut erforscht, die einzelnen Bauelemente sind charakteristisch im Grundriss, in ihrer Abfolge und in ihren unterschiedlichen Funktionen eindeutig definiert. Im Gegensatz dazu gibt es nur wenige spätrömische Militäranlagen, in denen die *principia* sich zweifelsfrei ansprechen ließen oder gar die Funktion einzelner Räume klar zu bestimmen wäre.

Es sind die z. T. deutlich besser erhaltenen Denkmäler in Nordafrika und im Osten des Reiches, die helfen können, die nur bruchstückhaft und ausschnittsweise erhaltenen Befunde in den Rhein- und Donauprovinzen zu interpretieren. Neue Forschungen, zu denen vor allem auch die Ausgrabungen des Instituts für Vor- und Frühgeschichte und Provinzialrömischen Archäologie der LMU in dem spätrömischen Kastell Nag'al-Hagar in Oberägypten gehören (2005–2013), konnten den Kenntnisstand zu spätantiken Stabsgebäuden um sehr interessante Befunde erweitern.

Das Fahnenheiligtum wurde architektonisch immer stärker hervorgehoben; neben der Verehrung der Standarten gewann vor allem der Kaiserkult an Bedeutung. Die vorderen Bereiche des Stabsgebäudes rings um den Innenhof wurden vereinfacht und reduziert, der rückwärtige Teil mit Amtsräumen und vor allem dem Fahnenheiligtum stärker betont. Insgesamt wurde das Niveau in der Sichtachse vom Torbereich ab immer weiter angehoben, so dass die *aedes* bei geöffneten Türen schon von großer Entfernung aus sichtbar war, auch von Zuschauern, die den eigentlichen Kultraum nicht betreten durften.

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### Robert Frečer, New evidence on the organization of the Roman lamp industry. The lamps of Gerulata (Bratislava-Rusovce)

The auxiliary fort at Gerulata (present-day Bratislava-Rusovce, Slovakia) stood opposite a ford over the Danube from the Flavian period until the 4<sup>th</sup> century AD. The 210 oil lamps archaeologically recovered from civilian, military and funerary contexts here form a comprehensive assembly of wares spanning roughly AD 75–250. The majority are Firmalampen of Loeschcke types IX, X and their variations – a koiné type of lighting device in the Northern provinces. Their bases were often stamped with the marks of a variety of firms (much like brand names are used today), some of which persisted for over three centuries while the basic lamp shape remained virtually unchanged. The paper presents a novel study of the firm and workshop marks from the lamps of Gerulata as new evidence for the heterogeneous organization of the lamp industry. Parent firms in Northern Italy mass-produced lamps which were traded even over great distances, using workshop marks to differentiate matrices. In the absence of copyright, independent craftsmen used finished lamps to make unauthorized matrices and produce their own wares. But firms also relied on a wide network

of subcontracted or branch workshops to produce lamps on demand and on location, using symbols to differentiate these manufacturers. The paper examines the connection between firm and workshop marks at Gerulata, as well as original producers' marks of clandestine manufacturers, to illustrate the operations of lamp workshops on the Limes. Together with personal marks they document one community's involvement in the manufacture of ceramics and the making of light.

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### Sebastian Gairhos, A new inscription of an *eques singularis* and merchant from the province capital *Aelia Augusta*/Augsburg

In January 2014 the inscription block of a grave monument was found in the area of the northern necropolis of *Aelia Augusta*. It was set up by the widow of Tiberius Claudius Victor, former veteran of the *numerus equitum singularium* and later merchant for clothes (*negotiator artis vestiariae*) after he died in the age of 70 probably in the early 3<sup>rd</sup> century.

As the inscription is the first proof for the organization of a governor's guard in two separate numeri (*pedites* and *equites*) the paper will give a closer look on the *singulares* of the *procuratores provinciae*. Tiberius Claudius Victor is also the first *singularis* who tells us about his profession in civil life. Veterans and active soldiers were often engaged in trading goods, therefore it is assumed that they may have used their personal network in the army for business affairs.

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### Sebastian Gairhos, Bread and Water. Supplying the *vexillatio* in Augsburg (Raetia)

The early-Tiberian *vexillation*-camp in the city centre of Augsburg was identified in the 1990s. It covered an area of 8–10 ha and was therefore the largest early Roman military base in Raetia et Vindelicia.

The water supply of the camp, its garrison, and the large surrounding vicus was one of the first infrastructure measures of the Roman army. The river levels of Lech and Wertach are 15 m, the level of ground water 12 m below the plateau of the camp, on which there are no natural streams. So the Romans diverted the river Singold, a tributary stream of the Wertach, onto the plateau and conducted the water in a 35 km long artificial channel towards the camp.

This channel was examined closely in several excavations in the Southern hinterland of Augsburg. It consisted of an open ditch up to 2,5 m wide at the bottom and 3 m deep and showed at least eleven phases of repair and rebuilding from the early 1<sup>st</sup> to the late 4<sup>th</sup> centuries. The channel was able to transport 1.000 litres per second and primarily provided water for industrial production inside and outside the camp rather than drinking water.

On the banks of the channel a large rural settlement was excavated 6 km outside the camp. The finds from this settlement show a remarkably close relationship to the camp in chronological, structural and functional matters. The proportion of imported goods (Samian ware, coloured glass vessels, wine and oil amphorae, oyster shells) and of objects for a romanised and military lifestyle is significantly higher than in the rural settlements east of the river Lech. Surely the settlement was established for

agricultural purpose amidst the fertile plateau and had to deliver grain for the independent provision of the nearby vexillatio.

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## Guus Gazenbeek, Building on the edge, adapting to the landscape. Supplying building material for the frontier forts

This paper looks at the building material used in the construction of forts on the frontier. Two examples are given, one from the north, and one from the east.

During the past 5 years the castra and the surrounding landscape of Udruh have been extensively surveyed by the Universities of Leiden and Ma'an. One of the points of interest is the building material used in constructing the castra, and where this originated. Udruh lies on the rim of the plateau that forms the eastern boundary of the mountain ranges that separate the Rift valley from the eastern desert. The curtain wall of the fortress is built in the opus caementitium technique, with an outer cladding of large blocks of coquina limestone and an infill of rubble. This wall sits on a foundation of large, irregular blocks of silicified limestone. Both limestones were quarried in the direct vicinity of the castra, the silicified limestone forms the bedrock on which the castra is built, the coquina originates from remnant outcrops on the edge of the plateau. One such outcrop lay just to the west of the castra, but due to extensive quarrying this has all but disappeared. A larger outcrop lies on a hillslope a few hundred metres to the north, where the results of extensive quarrying can be seen. Mortar could have been produced using the coquina debris from quarrying, but the harder limestone which outcrops on some of the surrounding hills could also have been used. There are indeed traces of quarrying on at least one of these hills. Ceramic building material is virtually absent, with only a handful of fragments having been found, mostly of lateres. This absence of ceramic building material can be seen on most of the sites in this sector of the frontier. As yet, little is known about the buildings inside the fort, but the rubble seems to consist mostly of the same stone as used in the walls. Udruh is situated at the south-eastern limit of the coquina beds. To the north coquina was used extensively, for example in Qasar al Bashir and Umm al Rasas. To the south, the fort of Humaya was built using the local sandstones and mudbrick/pise. To conclude, along the desert frontier in Jordan, local material was used, nearly all of it originating within view of the sites.

The fortlet (castellum) of Alphen aan den Rijn has now disappeared under the centre of the modern city. The town lies on the lower Rhine, not far from the North Sea coast. The fortlet was located on a natural levee of the river, consisting of clay and very fine sand. Due to the development of Alphen in the Middle Ages, little of the fort has survived. The remnants were excavated between 1998 and 2001 by the University of Nijmegen. Unfortunately, no systematic study of the building material was carried out. In general terms, the development of Alphen follows the same pattern as most of the forts along the lower Rhine, starting as timber and earth structures which are gradually rebuilt, at least in part, in stone. This transformation is remarkable, as stone is completely absent in the delta of Rhine, Meuse and Schelde. Stone therefore had to be transported long distances down these rivers from the Ardennes/Eifel uplands and the hills along the upper Schelde. Clay and loam is however very abundant in the delta, so the use of ceramic building material was widespread. As yet however, kilns connected to the military have only been located at the legionary forts of Nijmegen and, farther upriver, Xanten, Neuss and Köln, although wasters have been found near the fort of Leiden Matilo, just downriver from Alphen. Civilian production sites are known from the area just north of the Ardennes/Eifel uplands, and are generally connected to villae.

To which extent stone was used in the fort of Alphen, or for that matter, any building in the delta, is still open to debate. The presence of heavy gravels on most sites suggests that at least in part, buildings were constructed in adobe/cobb on a stone foundation. The curtain wall of the fort was built using volcanic tufa originating from the Eifel, where it was quarried extensively in the Bröhlthal and around Kruft. This material is found at all sites along the Rhine, but is virtually absent along the Meuse and Schelde. Along the Meuse Carboniferous sandstones and calcareous tufa were used, besides other types of stone originating from the Meuse valley. Along the Schelde Carboniferous limestone was commonly used. The use of volcanic tufa and Carboniferous limestone intermingles on the coast, between the estuaries of Schelde and Rhine, although the limestone is also found in small quantities upstream along the Rhine, and almost certainly for use in the production of mortar. To conclude: in the delta of Rhine, Meuse and Schelde, obtaining and producing building materials was much more complex, involving transport over long distances and from different sources, but also making extensive use of the local clays. Unraveling the logistics and the economics of building materials on the frontier is still a wide, open field.

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### Russell Gentry, 'Ayn Gharandal Archaeological Project

This paper is intended to provide some preliminary results for our findings in A:4-3/7-6, an excavation square in which I worked for several seasons as part of my staff responsibilities on the 'Ayn Gharandal Archaeological Project (AGAP). The square in question constitutes what has been interpreted as a principia for the Tetrachic fort identified by a recently discovered inscription. The paper is also intended to facilitate discussion and aid in further interpretive debate about the nature and function of this room and similar facilities at Roman forts throughout the eastern frontier.

To that end I will first summarize the evidence which has led us to interpret this room as a principia, or part of a principia, which includes a well-preserved painted document with a tabula anstata. Next I will briefly summarize the excavation history of this room at the 'Ayn Gharandal Archaeological Project, focusing on our findings related to the fort's original occupation and operation. I will then offer a discussion of some examples of principiae from other contemporary forts in the Late Roman East, varying in size to include two large legionary fortresses, two medium sized fortresses, and two smaller forts similar in scale to the fort at 'Ayn Gharandal. Finally, I will return to the fort at AGAP to conclude by illustrating the value of this and future work on Gharandal's principia, and I will offer more detailed hypotheses about the evidence from this structure in light of similar facilities from other Late Roman forts.

I have presented a preliminary version of this analysis at a Symposium in the fall of 2014, and I look forward to updating the current interpretation of this possible-principia after further excavation in the 2015 season. It will be particularly helpful to my own research to engage expert scholars of the Roman Limes, in order to enrich my interpretation of this facility and receive advice on how to proceed in following excavation seasons. Finally, if my paper is accepted I look forward to beginning my scholarly contributions to the rich history of the Roman frontiers.

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## Farkas István Gergő, The Roman Army of Raetia. A Study of Dislocation during the Principate

In the course of the last century, researchers have uncovered approximately fifty Roman forts via excavations in Raetia. The rapid technological advancement of the last two decades allowed to use a variety of non-destructive methods with increasing precision and range. These methods (including regular aerial surveys, geophysical prospection and LIDAR scanning) enabled the discovery and identification of more than thirty, previously unknown forts and Roman military installations. Furthermore, these new methods allowed to observe more precisely the mostly unknown inner layout, ground-plan and periodization of the already-known forts' buildings. Dendrochronological analyses supplied data to the dating of some of the fort's defenses and structures, which, in numerous cases, led to a drastical redefinition of previous chronology, which was mainly dependant on the typology of finds.

The constructional/reconstructional phases of several forts was modified by decades, thus resulting in the establishment of a completely new chronological system regarding the history of Raetia. O. Braasch, W. Cysz, J. E. Faßbinder and C. S. Sommer are the main advocates of these new methods. The spread of non-destructive archaeological methods did not effect a decrease in traditional excavations and fieldwork. Thus the number of known epigraphical sources from Raetia increases even nowadays. The discovery of new inscriptions displaying the names of units as well as Raetian discharge documents continue to further enrich and tinge our knowledge on provincial military history. The dislocation of Roman auxiliary troops in Raetia was first summarized by H.-J. Kellner in a short article of eight pages in 1971. The system he established continued to be in use, despite the various changes in the operating of the forts brought about by the above-mentioned new methods. Publishers of Raetian military diplomas discovered during the last two decades, continued to use H.-J. Kellner's system with minor improvements, but the overall reexamination and reestablishment of H.-J. Kellner's system was yet to be done.

Due to this significant bias between the system of forts and the system of units – the two of which should not and cannot be separated – it has become inevitable to draw up a new dislocation regarding Raetia, which considers the results of both research branches, i. e. that of the forts and that of the units. The summary of forts and units on a provincial level allows to further specify historical details and furthermore, enables a better understanding of the events that occurred and the relations that existed between Raetia and other Roman provinces.

Possibly the most excruciating question any archaeologist or ancient historian dealing with epigraphy can encounter, is to which of the occasionally dozen units with the same (or similar) designation does the inscription, graffito or stamp they have refer to? To anyone who has had at least a minimal involvement into the matters of the Roman army, this question needs no further explaining, as even a cursory glimpse into monumental works by J. E. H. Spaul, G. Alföldy, Fl. Matei-Popescu, H. Wolff and other connoisseurs of Roman dislocation studies shows, how a single alternate interpretation in even the seemingly simplest dislocation details can induce far-reaching chronological or organizational reconsiderations, to oversee which requires the capability to handle huge sets of data in its tremendous complexity. To enable members of the scientific community to utilize the results and conclusions stated in this book in their entirety, a new system of internal references have been devised, which at first may seem gratuitously complex or intimidating, but once accustomed to can offer a quick oversight into numerous aspects, which regular numerical cataloguing lacks.

The proposed presentation was aimed to fulfill three goals:

1. to collect, organize and examine together different sources of Roman military history in regard of Raetia (archaeological evidence, literary, epigraphical and numismatic evidence) and reach new conclusions with an interdisciplinary approach of these materials;
2. to establish the dislocation system of the Roman army in Raetia during the Principate;
3. to write an up-to-date synthesis on the social, economical and religious aspects of the Roman army in provincial life.

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### Maaïke Groot, How to feed a Roman camp

When a new Roman military camp was built, organising food supply was one of the most important tasks. The earliest camps were sometimes built in potentially hostile territory, or in regions unaccustomed to supplying food to others. This means that local supply was not always possible or straightforward. This paper will investigate zooarchaeological data in order to find out how meat supply to the early camps in Germania Inferior was organised and where the meat came from. What strategies do the zooarchaeological data indicate: self-reliance, local requisition or long-distance supply? Was there a common strategy used by the military? If that was the case, the camps should show similar results. And do these strategies change when the camp is more established? Was there any impact on animal husbandry in the surrounding countryside? To answer these questions, I will compare species proportions, slaughter ages and measurements from military camps and rural settlements in their vicinity.

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### Martin Grünewald, Migration zur Grenze

Die allmähliche Vorverschiebung der Auxiliareinheiten von der Rhein- und Donaugrenze an den Obergermanisch-Raetischen Limes – nach dem Modell von Sebastian Sommer gemeinsam mit den *vicani* – wurde vielfach untersucht. Dies geschah in Einzel- sowie Überblicksstudien anhand von Forschungen zu Beginn, Auflassung oder Weiterbestehen der Lager sowie der zugehörigen Kastellvici. Im gleichen Zuge wurden mehrere römische Bestattungsplätze in den Rheinprovinzen sowie in Raetien in den letzten dreißig Jahren als monographische Einzelstudien vorgelegt. Ein Überblick, der die Ergebnisse dieser einzelnen Gräberfeld-Vorlagen demographisch auswertet, stellt hingegen ein Desiderat der Forschung dar. Welche Tendenzen ergeben sich aus dem Fehlen oder Weiterbestehen der Gräberfelder zu den jeweiligen Zeitstellungen für die bisherigen Thesen zur Genese der Bevölkerung? Inwieweit unterlag die Bevölkerungskonzentration und -verlagerung wandelnden Parametern wie der jeweiligen Verortung der Reichsgrenze?

Während belastbare Bevölkerungsschätzungen für das Gebiet des römischen Deutschlands für das 2. Jahrhundert existieren, bleibt eine differenzierte Entwicklung der Bevölkerung während der Römischen Kaiserzeit offen. Diachrone Bevölkerungstrends anhand einer Literaturstudie der publizierten Gräberfelder herauszustellen, ist ein Desiderat der Forschung.

Ziel ist es diese Bevölkerungstrends innerhalb der Römischen Zeit anhand exemplarischer Gräberfelder für die Germanischen Provinzen sowie Raetien herauszuarbeiten und Thesen zur Migration zu formulieren. Das Gräberfeld einer der wichtigsten Auxiliareinheiten – der *Ala II Flavia*



*Pia Fidelis Milliaria* – und der zugehörigen *vicani* in Günzburg wird zurzeit als Teilprojekt 7 „Gontia als „Melting pot“? – Die Zusammensetzung der kastellzeitlichen römischen Bevölkerung Günzburgs im Spiegel der Gräber. Ein Modell für Raetien“ im Zusammenhang mit der DFG-Forscherguppe FOR 1670 „Transalpine Mobilität und Kulturtransfer“ ausgewertet und wird zukünftig zur Beantwortung dieser Fragen zur Migration exemplarisch beitragen.

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### Markus Gschwind, Keeping Syria under Roman Control

The paper will provide a short survey of the cultural, political, and natural realities the Roman governors were facing in the Near East. The political and military concepts that were applied to keep the region under Roman control on the one hand were designed to fit these realities. On the other hand the preferred administrative and military solutions to achieve this aim underwent significant changes from the 1<sup>st</sup> to the 4<sup>th</sup> century AD. With this in mind, the question will be discussed, whether Luttwaks 'Grand Strategy' is a helpful model for detailed understanding of the chances of the Roman military organization that took place in the province of Syria during the late 3<sup>rd</sup> and early 4<sup>th</sup> century AD.

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### Bill Hanson, Open or closed frontiers?

One of the primary interests of Limes Congresses has always been to understand how frontier systems operated and what function(s) they were intended to perform. There is, however, a major dichotomy in our current interpretations of their role. Some see demarcated frontier lines as entirely military in function, intended primarily to protect the territorial integrity of the Empire and exclude, or at least strongly discourage, unwanted infiltration. Others see them as having a more socio-economic administrative function and thus being more open in nature, designed not to prevent movement into the Empire, but to facilitate its control and regulation.

The aim of this session is to re-assess the evidence on which our current fundamental assumptions are based and, in the course of doing so, to address a range of associated questions. These might include: What was the relationship between the definition of frontiers on the ground and the limit of direct Roman control in the area? Within frontier zones were there formal boundaries or precise geographical limits and, if so, how were they defined? To what extent did cultural, economic or even administrative criteria determine the location and function of frontiers? To what extent were the local peoples treated differently on either side of those frontier lines which we can define? Why do some linear barriers appear to have been provided with multiple gateways while others have very few? Why did linear barriers develop in some areas but not others? To what extent did frontier systems change in their aims from the early expansionist days to the retrenchment of the late Empire?



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### William S. Hanson/Ioanna A. Oltean, The Roman conquest and occupation of the Dacian capital at Sarmizegetusa Regia: new evidence from LiDAR analysis

Airborne Laser scanning (LiDAR) provides an important new tool for archaeological survey, facilitating visualisation and analysis of extant archaeological remains even beneath a thick canopy of trees. Recent LiDAR survey of Sarmizegetusa Regia and its immediately surrounding area has revealed new evidence of the structural development of the site and of associated Roman military installations. These shed new light on the character of the Roman conquest and occupation of this important political and religious centre of the Dacian kingdom.

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### Timothy C. Hart, The Decline and Fall of the Vandal Kingdom: Can We Read the Frontier and Military Actions of the Vandals in Africa as a Microcosm of Late-Roman Policy and Collapse?

After conquering Carthage, removing North Africa from the Roman body politic, Gaiseric, king of the Vandals, did a curious thing. According to Procopius and others, the king allied with Moorish tribes to the south, and used these desert warriors as marines in a protracted raiding campaign against the coasts of the Roman Empire, including the dramatic sack of Rome in 455<sup>5</sup>. In this paper, I will argue that, taken as a whole, the military actions of the Vandals, once settled in North Africa, both can help us understand earlier Roman frontier policies in that region, and, more importantly, follow the same general patterns observed at a larger scale along Rome's Danubian frontier.

It is my assertion that Vandal frontier policies in the south failed for the same reasons that Roman ones did in the north. Systematic recruitment of barbarian auxiliaries served to stabilize both frontier zones when the recruiters held a marked superiority in punitive force, however things began to fall apart in both spheres once the Vandals and the Romans each found their military might questioned. It has been frequently argued that conflict with the Huns in the Danubian zone effectively destroyed the Roman army's deterrence factor in the region; I will argue that the same thing occurred almost simultaneously among the Vandals after their loss of Tripolitania and Sardinia to a Roman counteroffensive in 468<sup>6</sup>. With the threat of retribution removed in both regions, neither the Romans nor the Vandals were able to maintain their trans-frontier recruitment policies. Subsequently, both zones endured increased invasion/immigration by trans-frontier peoples, with the official military forces in each area seemingly unable to staunch the flow. In both regions, the economic impact of military losses and territorial devastation was compounded by the evaporation of income from foreign conquest, which had helped support both states during their periods of power.

The similarities between Vandal and Danubian-Roman frontier policies are more than mere coincidence. Rather, they reflect the hybrid Danubian-Roman origins of the Vandals themselves, but

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<sup>5</sup> Procopius, *Wars* III.5.1-7, 18-25; Sidonius *Pan.* V.388-440 (This famous passage gives a dramatic account of a raid into Italian soil by an army of Vandals and Moors, providing a rare glimpse at Gaiseric's policy in action, as viewed by his antagonists).

<sup>6</sup> Procopius, *Wars*, III.6.8-9; Priscus, fr. 53.9.

also suggest some Empire-wide coherence to Roman frontier actions. The Vandals inherited a Roman frontier system and adapted it in its particulars to their political ends while maintaining intact the essential relationship between empire and vassal. That both powers suffered essentially the same fate for essentially the same reasons, despite their vastly different ecological and cultural positions, suggests strongly to me that we must see local Roman frontier policies as, if not guided by some grand strategy, then at least as shaped by a common "play-book" of actions and reactions – something more than a mere collection of ad-hoc responses to specific local conditions.

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### Craig A. Harvey, The Ceramic Building Material Industry along the Southern *Limes Arabicus*: the *Tubulus* as a Tool for Investigation

Roman bathhouses were prominent features along the Roman frontier, where they were introduced by Roman soldiers who also brought with them the skills necessary to construct the bath's elaborate heating systems. Included within these skills was the manufacture of specialized ceramic building materials such as the *tubulus*, or box-tile, the squared hollow tube designed to create wall voids through which hot gases could circulate and heat the walls. Although the deployment of Roman troops typically led to the local adoption of bathing culture and technology, this process is not seen in Nabataea. Here, the Nabataeans adopted the Roman heating system a century before their formal annexation in AD 106, and developed new ways of fabricating *tubuli*, using a potter's wheel rather than the Roman method of using slabs of clay. Intriguingly, this local production technique was not replaced after the Roman annexation, but instead these wheel-made *tubuli* were used in every military bathhouse on the *Limes Arabicus* from Aila to Lejjun

This paper examines the use of the wheel-made *tubulus* along the southern *Limes Arabicus*, and will demonstrate its potential for answering questions relating to the organization of the ceramic building material industry on this frontier. The ubiquitous use of the wheel-made *tubulus* south of the Lejjun fortress suggests that the Roman builders likely contracted locals to produce these materials. Based on micro and macro analysis of the ceramics, the manufacture of *tubuli* throughout the Roman period was based in the region of Petra, home to a major ceramic production center. The distribution of the wheel-made *tubulus* reveals that this building material was shipped as far away as Lejjun in the north to Aila in the south. This incredible range points to the existence of a well-developed ceramic building material industry that was tied closely to the Roman military. This paper also considers the extent to which this model can be applied to other ceramic building materials such as pipes, roof tiles, and hypocaust bricks. Although this examination focuses on the wheel-made *tubulus*, it nevertheless illuminates part of the organization of ceramic building material production along the southern *Limes Arabicus*, and supports other evidence for the close relationship between indigenous craft production and the new imperial administration.

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## Orsolya Heinrich-Tamáska, Remarks to the Hinterland of the middle part of the Danube Limes

Entlang des mittleren Abschnittes der Donaulimes wurde in die Ausbau und Verstärkung der Grenzverteidigung während des 4. Jahrhunderts mehrfach investiert. Aber nicht nur die Grenze wurde in dieses Konzept einbezogen, sondern auch das Hinterland der Provinzen. Sowohl Städte, als auch Castra bildeten Bestandteile dieses Umstrukturierungsprozesses. Welche Aufgaben kam es jedoch den einzelnen Siedlungstypen zu und wie wurden sie infrastrukturell miteinander verbunden? In meinem Vortrag möchte ich bis heute prägende Forschungskonzepte diskutieren und neue Ergebnisse in Bezug auf diese Fragen vorstellen.

To the Extension and Fortification of the Defence of the Border along of the middle part of the Danube Limes was invested more than once during the 4<sup>th</sup> century. But not only the Frontier has been included in this concept, but also the Hinterland of the Provinces. Both, towns as well as Castra formed components of this reorganisation process. However, which functions take over the different types of settlements and how they were infrastructural connected to each other? In my talk, concerning these issues, I'd like to discuss formative research concepts and to present new results.

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## Orsolya Heinrich-Tamáska/Zsolt Vasáros, Keszthely-Fenékpuszta: On Archaeological Park and their architectural reconstruction options

Keszthely-Fenékpuszta is one of the most important archaeological sites in Hungary for the Late Roman Period and also for the continuity of the Roman life during the Migration Period. Following the previous research, the fort with 44 round towers was built during the 4<sup>th</sup> century. The influence of Roman military architecture is clearly visible in the ground plan and in the type of defensive buildings (wall, gates and towers). The territory of the fort includes 15 acres and is not overbuilt today. For this reason, since the 1960s, several concepts were formed for the establishment of an archaeological park at this site. The aim of this paper is to present the different theories for the realising of this idea and to discuss the essential methodological basics for a reconstruction from an archaeological-architectural point of view.

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## Sebastian Held, Überlegungen zur Vermessung und Errichtung früher Standlager

Der Vortrag widmet sich den frühen römischen Anlagen der augusteischen Okkupationszeit, unter besonderer Betrachtung des Standortes Oberaden.

Dieses Lager sowie weitere temporär genutzte Stützpunkte des römischen Heeres weisen eine hybride Errichtung zwischen festen Bauten und vermeintlichen Zeltreihen zur Unterbringung der

einfachen Mannschaften auf. Bereits vielfach sind dabei mögliche Rekonstruktionsansätze zur Barackenbauweise, oder vielmehr zur provisorischen Überdachung der Legionärszelte publiziert und diskutiert worden. Hier allerdings soll noch einmal die ursprüngliche Vermessung von frühen Lagerarealen untersucht werden. Dabei sollen eben die Parzellen der Lager als Ausgangspunkt dienen, auf denen die Zelte gestanden haben dürften und wo nur wenige Pfosten(-reihen), Gruben, Brunnen und fest errichtete Kopfbauten archäologisch zu fassen sind. Sie bilden den Anknüpfungspunkt von den Marsch- und Übungslagern hin zu den festen Lagern, die die römische Armee über einige Zeit, oft mehrere Jahre hindurch permanent nutzte.

Vom Vermessungsschema des sog. Pseudo-Hygin ausgehend soll die theoretische Belegung auch auf den Bau der frühen Standlager projiziert werden. Die Konstruktion und Überdachungsmöglichkeit zum Schutz der Zelte vor der Witterung soll dabei in den Hintergrund gestellt werden.

Zur Diskussion soll gestellt sein, dass die Grundlage für die Lagervermessung auch in frühaugusteischer Zeit das *hemistrigium* war. Allerdings nicht wie beim Marschlager in seinen einfachen Maßen von 30 x 120 röm. Fuß, sondern multipliziert mit der Zahl zwei. Es wären demnach Parzellen mit den Abmessungen von 60 auf 240 röm. Fuß gewesen, die römische Pioniere aussteckten und den einzelnen Centurien bei der Errichtung ihrer Wohnbereiche zur Verfügung stellten.

Zur Untermauerung dieser These sollen die in Oberaden ergrabenen Pfostenspuren heran gezogen werden. Sie erstrecken sich dort – wo sie nachgewiesen werden konnten – über nicht mehr als 120 röm. Fuß, somit innerhalb der Länge eines *hemistrigium*. Eine Breite ist nicht festzustellen, da genaue Zeltstandspuren fehlen.

Es scheint, dass die Soldaten beim Aufstellen der Zelte so in ihrem vorgegebenen Schema verhaftet waren, dass sie den zur Verfügung stehenden Platz gar nicht in Gänze ausfüllten, sondern sich so anordneten wie es lange geübt worden war. Erst mit dem beginnenden Ausbau zur festen Kaserne scheint das gesamte Areal für eine Nutzung in Betracht gekommen zu sein. Diese letztgenannte These kann allerdings nur durch die Kopfbauten für die Centurionen gestützt werden, die bereits durch Wandgrabenbefunde als feste Gebäude nachgewiesen sind.

Vertreten wird hier der Ansatz, dass beim Bau römischer Militärlager die Bereiche der Mannschaften bereits beim Bau der Lager bewohnt waren, bis schließlich auch die Baracken ausgebaut wurden. Demnach wäre auch der oft genutzte Begriff vom „Baulager“ in Frage zu stellen.

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## Richard Hingley, The context of interpretations of open and closed Roman frontiers

This paper will address how these oppositional interpretations tend to mirror or contradict ideas about frontiers and borders in the modern world. During the early twentieth century, the idea of the manned military line of control fitted very well with current perception of the role of contemporary imperial frontiers. For the later twentieth century, the idea of the Roman frontier and defence in depth appears to mirror interpretations about the nature and function of the 'Iron Curtain'. The currently popular idea in heritage interpretation of Roman frontiers as cosmopolitan places for various people to meet looks directly comparable to recent ideas about the enabling character of

border zones in the contemporary world. This paper considers how changing accounts of the function of Roman frontier reflect conceptions of migration and bordering in their contemporary age.

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### **Nick Hodgson, Discoveries at the eastern end of Hadrian's Wall 2013–15**

In recent years the eastern end of Hadrian's Wall, in the urban areas of Newcastle upon Tyne and Tyneside, has been the scene of some of the most important recent discoveries about the Wall. For example, the system of obstacles between the Wall and its frontal ditch, first seen at Byker in 2000, represents a wholly new addition to the repertoire of structures making up the Wall. In 2013–15 funding from the UK Heritage Lottery Fund and other sources has supported a major programme of research, carried out by local communities under the leadership of Tyne & Wear Archives & Museums. This paper reports on some of the key results. These include:

- The discovery of the site of the Roman baths outside the fort at Wallsend. The modern reconstructed baths there are not on the site of the original Roman building, which has now been found much further away from the fort, close to the river Tyne.
- The excavation of the Wallsend baths – this is the first extensive excavation to be carried out on a Hadrian's Wall bath-house since the nineteenth century and has revealed how the original Hadrianic building-plan was drastically altered in the later Roman period.
- Excavation at Benwell fort which has clarified the relationship of the fort to Hadrian's Wall.
- New information about the location of the Roman bridge across the Tyne at Newcastle.

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### **Birgitta Hoffmann, Vici and secondary settlements in the periphery of Roman Legionary fortresses**

It is one of the peculiarities of Roman Legionary fortresses, that they have not only a *canabae*, but also at about 2.2 km distance a secondary civilian settlement, which is frequently ascribed a 'indigenous' background. This paper will explore how far this civilian indigenous status is noticeable in the archaeological record and if there are commonalities in these settlement that might define their character beyond a civilian settlement, and that might result from their proximity to the Roman army.

A further question will be how common are other settlement clusters within a 5 km radius of the fortress? Is there a preference for only two, or are the secondary settlement around Chester with their strong association with pottery and quarrying or the Bonner Berg the exception?

Preliminary results suggests that in numerous cases the *vici* and secondary settlements provide more of a focus for industrial and economic activity than the *canabae*, but there are some striking exceptions, such as York.

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### Sabine Hornung, Aktuelle Forschungen zum spätrepublikanischen Militärlager von Hermeskeil

Im Rahmen des Vortrages sollen zunächst die Ergebnisse der Grabungen 2010–2014 in Hermeskeil vorgestellt werden, welche zahlreiche Informationen zur Nutzung der verschiedenen Lagerareale und Struktur des spätrepublikanischen Stützpunktes geliefert haben. Aktuelle Analysen zur Provenienz von Keramik und Mühlsteinen können u. U. sogar potentiell zur Klärung der Frage nach dessen Datierung bzw. der Nahrungsmittelversorgung der römischen Armee während der Eroberung Galliens beitragen. Außerdem gelang in unmittelbarer Nachbarschaft zum Militärlager der Nachweis einer spätlatènezeitlichen Siedlung mit dorfartiger Struktur (5 ha Siedlungsfläche) der Stufe LT D2, so daß es nunmehr auch möglich wird, das kontemporäre Siedlungsumfeld zu rekonstruieren und vor dem Hintergrund neuer Ergebnisse zur Besiedlungs- und Wirtschaftsgeschichte der Hochwald-Region im 1. Jh. v. Chr. eine Synthese der archäologischen Quellen mit Blick auf die historische Überlieferung zu wagen.

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### Gábor Horti, An imperial policy of 'Defence in Depth': a reality AND a mirage

The theory of Edward N. Luttwak, proposed in 1976, in his monograph, *The Grand Strategy of the Roman Empire* had a controversial reception among scholars and even nowadays, it has its supporters and critics as well. As a 'Grand Strategy', the 'Defence in Depth' should be examined as a complex issue.

My intention is to give a presentation on the basis of a thorough analysis regarding the military aspects (military reforms and the characteristics of the army; the analysis of the wars of Rome; the features of the fortifications of the Late Empire) of the later period of the Roman Empire.

In the 20 minutes available, I would like to answer two questions. When and how did the Roman Empire began to settle in for defence? Can 'Defence in Depth' be considered as a 'Grand Strategy' or should it be looked upon and defined differently?

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### Stefanie Hoss, Wet military middens in the Netherlands – a different element and its consequences

During the 1998–2002 excavations of the fort Albaniana at Alphen aan de Rijn (province Zuid-Holland, the Netherlands), a part of the riverbed directly in front of the main gate was fortunately included into the excavation, which revealed some piers and part of the fort's dump.

The latter contained vast quantities of pottery and other interesting finds, many of them normally biodegradable, such as leather sandals. Another exceptional fact was the number of metal finds,

2072 pieces in total (including the scrap and unidentifiable bits, but not the coins). The large amount of finds makes this site the largest military wet dump in the North-western provinces up to date. In my paper, I would like to use the finds of this excavation and of other wet middens in the Netherlands to illustrate the differences between wet and dry dumps in their formation processes and explore what the materials found only in wet dumps can tell us about the waste management and recycling policy of the Roman army.

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### Claus-Michael Hüssen/Balázs Komoróczy/Ján Rajtár/Marek Vlach, Temporary camps north of the Middle Danube – Roman campaigns against the Marcomanni and Quadi

The major Romano-Germanic confrontation in the Barbaricum north of the Danube took place under Marcus Aurelius. During the long-winded conflicts called Marcomannic Wars, the Romans undertook several military campaigns against their Germanic opponents. The temporary camps discovered north of the Middle Danube (on the territory of what are now the Czech Republic, Lower Austria and Slovakia) represent unique sources and evidence of extent of the Roman troops deployed and their strategy, as well as of movement corridors that have been used during these military operations on the enemy territory.

The Barbaricum north of the Danube is divided by the Lesser and White Carpathians into two geographical areas, which may have corresponded with the traditional tribal territories of the Marcomanni and the Quadi as they were recorded in written sources. In these regions today about 30 temporary military facilities are known. Within an international cooperation (Romano-Germanic Commission, German Archaeological Institute in Frankfurt; Institute of Archaeology, Slovak Academy of Sciences in Nitra; Institute of Archaeology, Czech Academy of Sciences in Brno) on examination of these structures in the past years, various methods have been systematically applied. They yielded more detailed knowledge of the extent, fortification structure, building development, hints for dating and lifetime, as well as information on the environment. All of them will be presented in the following papers.

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### Claus-Michael Hüssen/Róbert Ölvecky/Ján Rajtár, Roman temporary camps in Quadic territory to the east of the Lesser Carpathians

The part of the Barbaricum situated to the north of Danube and to the east of Lesser Carpathians, nowadays territory of the Slovak Republic, was settled by the Germanic tribe of Quadi. During the Marcomannic wars they belonged to the main adversaries of the Romans who undertook two offensive campaigns against them.

In the area the larger number of the temporary camps has been already discovered. They are situated predominantly in the Danube lowland, some of them directly on the bank of Danube or in its vicinity. Others can be found to the north in the Quadian inland. Some of them point out the advance route from Carnuntum, which led to the east of Lesser Carpathians further to the north through the



river Vah valley. Other camps testify for the fact that one of the important places of campaign onset was located in Brigetio. The research during the recent years yielded more precise information about the size and structure of these military installations, as well as evidences and means for their dating and determination of the period of use. Differentiated camps size point out that during the war campaigns there operated smaller Roman troops as well as the large ones or even considerable army unions. In some cases there have been ascertained multiple concentrations of camps. The Roman apparently used such convenient locations repeatedly or simultaneously, especially in order to concentrate more military units. In some cases there can be found evidences suggesting that they come from the second phase of the Marcomannic wars.

The military installations point out to strategic and tactical aspects as well as movement dynamics of the Roman army units during the military operations in the Quadian territory.

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## Tatiana Ivleva, Same-sex and single-parent families in the Roman frontiers

Any studies on Roman families, Roman army ones in particular, provide us with a lopsided image of a simple nuclear heterosexual family unit consisting of a man, a woman, and a child/children, sometimes including freedmen and slaves as well. Using primarily epigraphic evidence I investigate the 'non-normative' families that extended the traditional Roman model of *paterfamilias* to show the existence of a much more complex and nuanced reality in the family (and sexual) relationships in the Roman frontiers. While it has been widely accepted in the scholarship that the Roman soldier right of *conubium* to one woman only disguised the existence of polygamy relations in the Roman army, the work on the single-parent families and same-sex ones has so far been non-existent due to the accepted equation of the Roman army with masculinity, manhood and heterosexuality.

The paper discusses in detail two inscriptions from Roman province of Pannonia. The careful reading of the texts tentatively indicates the existence of a homosexual family of two legionary soldiers from legio II *Adiutrix* and family of a single mother, who was plausibly also a rape victim. The presentation discusses also those single-parent families where a soldier may have raised child(ren) on his own, in circumstances when a mother died in childbirth. The stereotyping of the Roman soldiers in terms of 'man the warrior' has led to neglect of their roles as loving and caring (single) fathers.

In the end, the paper reassesses the traditional model of the military Roman family, a model that is based on the androcentric narratives and gender stereotypes. It suggests that the sexual behavior in the frontiers should be examined in light of recent studies on Roman sexuality and flux gender identities, which show that what is assumed to be non-normative was actually part of the mainstream culture.



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## Tomaš Janek, Morphometry as new, promising method in the problematic of roman building terracottas

Research of building terracottas has great importance in understanding roman building activity along Limes Romanus. On roman camps like Gerulata, Ad Statuas, Ad Mures and many others, stamped bricks considerably widens our knowledge about different building phases. Current dating is based mostly on epigraphic analyses which are not accurate in most cases. They often provide timespan stretching for decades or centuries. However there is some amount of in situ finds that can be dated more precisely. Thanks to the uniqueness of every die used for stamping, these finds can serve as dating base for stamped bricks from different locations. The focus here is on Vindobona as production center and its distribution area which stretches to Ad Mures and covers even the objects in barbaricum, like those in Velký Kýr-Milanovce or Mušov-Burgstall. The amount of stamped bricks found in whole area exceeds 5000. In order to process such a big amount of finds with accuracy, new methodological approach was chosen. Morphometric analyses are in this case more accurate and promising than typological approach. Data are collected and measured from vertical photos of stamps. The analysis examines the shape of edge of stamp impression and then it compares its exact dimensions. Comparative criteria were developed precisely for the roman stamped brick material. Analyses on finds from Mušov-Burgstall and Vindobona have even proven that current typological sorting can be incorrect. In fact, stamps separated into several types proved to come from one die.

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## Sonja Jilek/Alessia Mariotti, The Danube Limes – Joint Tourism Strategy Action Plan

Following the EU background policy on tourism, one of the roles temporary mobility and tourism should play, is to contribute to the creation of a shared European Cultural Identity. The main question is then how cultural tourism could be used as a tool for overcome ethnic divisions and discrepancy in cultural heritage values perceptions by communities. Fostering “crossing borders” cultural tourism helps in building common future and identity, giving new values also to contested heritage/history/memory through the visitor’s gaze. The competitiveness of the European tourism industry is closely linked to its sustainability, as the quality of tourist destinations is strongly influenced by their natural and cultural environment and their integration into the local community.

The core values upon which the Danube *Limes* Tourism Strategy Action Plan is developed are:

- Strengthening the cultural identity: the Danube *Limes* as part of the Roman Empire has shaped the landscape as well as the settlement of structures, the culture and the traditions of the communities along the Danube, thus creating a common identity, which is a basis for reconciliation and for the creation of a common tourism destination
- Recognition of diversities: characters and differences of regions represent an important asset and make the area of the Danube a unique combination of homogeneity and diversity; recognizing and emphasizing characteristic elements and differences is essential for establishing a multi-cultural tourism destination
- Preservation of tangible and intangible cultural heritage: the legacies of the past should be protected and restored together in order to increase their value for future generations

- Development of sustainable tourism: tourism should be managed basing on strategies that are respectful of natural and cultural environment; tourism should be considered as a tool for developing and protecting local assets without compromising the capacity of future generations to satisfy their own needs
- Focus on authenticity: cultural heritage should be promoted and engineered into tourism products consistently with its historical roots and in “credible, truthful and genuine” ways
- Promotion of local awareness and commitment: local communities are the first recipients of all the initiatives, they must be included in the nomination process and must be the main actors in the development of presentation strategies towards a cultural tourism destination.

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### Rebecca H. Jones, *Soldiers and Sailors in the conquest of Scotland*

Studies of the Roman conquest of Scotland have, naturally, focused on the archaeological remains recorded on land (primarily through aerial survey and excavation) and the biography of the Governor Agricola by his son-in-law, Tacitus. Much has been written by scholars on the weight which can be given to Tacitus' narrative, and further ink spilt on the still un-located battle site of Mons Graupius. Yet, Tacitus also refers to land and sea forces pushing forward in northern Britain simultaneously, as well as meeting to share 'supplies and high spirits' and boast about their exploits. Such activities are hardly surprising, with combined operations between land and sea forces attested elsewhere. Tacitus also informs us that the fleet was deployed in the circumnavigation of the island.

The location of these meeting points between soldiers and sailors is vague, with very few sites currently proposed. But some of the remains currently assumed to relate to land forces may have been specifically constructed for or by the fleet. Sites along the coast are recorded in a handful of places but in some parts of Scotland, such as the south-west (between Hadrian's Wall and the Antonine Wall) we know that our knowledge is extremely fragmentary and many more sites remain to be found. It is in this area that some of the most curious coastal remains have been recorded, some of which may indicate locations used in the Flavian conquest. Furthermore, hints of 2<sup>nd</sup> century activity along the coast in some areas may hint at the role played by the fleet in the bringing of supplies to the soldiers garrisoning the Antonine Wall.

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### Kai Juntunen, *"Married with Children" – The Marital Patterns of the Roman Auxiliary Soldiers in the Diplomata Militaria*

Ever since the days of Augustus, the Roman propaganda cultivated an image of professional soldiers dedicated solely to the military service. This ideal state of affairs was supported by set of prohibitions, which debarred the soldiers from such distractions as (legal) marriage and family-life. The evidence related to the soldiers themselves (tombstones, judicial papyri and discharge diplomas) shows that this was wishful thinking at best, especially in the case of the auxiliary soldiers, who tended to form marital alliances with local (usually peregrine) women and raised children with them. But although some marital alliances did occur, the general tendencies of the troops during service time remain a disputed issue as the available evidence tends to provide only one-sided information.

It could be argued that the discharge diplomas provide a true insight to the actual reality of the marital relations on the frontiers, as they were given to both bachelors and men with families, thus being much more democratic in nature than the official historiography or legislation. Also, as the number of discovered diplomas has soared in the recent years, a more detailed examination of the statistics in the marital patterns of the auxiliary soldiers upon discharge is now a more feasible task. Thus, this paper will provide a full examination of the available material and investigates the regional and periodical differences in marital patterns as they are indicated by the *diplomata*.

Among the questions that are attempted to answer are: what were the proportions between the bachelors and family men upon discharge; what could have been the reasons that would explain the periodical differences in the statistics and whether the results are only an anomaly related to the nature of the evidence or if they represent the actual historical realities on the frontiers? In addition, the challenges related to the research of the Roman discharge diplomas and the dangers to the interpretation of the larger marital patterns on the basis of this single type of evidence alone are explored; as is also the question whether other types of evidence can be seen to support or contradict the patterns suggested by the diplomas.

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### Gergana Kabakchieva, The timber and stone defences of the early Roman military camps along the Lower Danube Limes (BUL)

Excavations of the timber-and-earth and the stone-and-earth camps have taken place in Augustae (Harlez), Oescus (Gigen), Dimum (Belene), Novae (Svistov) and Tutrakan on the right bank of the river Danube. South of the river area also in Conbustics (Kladorup) and Montana similar traces have been documented. These places have been occupied for a very long time, so less information is provided during research in Oescus, Dimum and Novae.

The earliest traces of timber-and-earth defences are late Augustan, like the ones in Augustae, Oescus, Dimum and Novae. After several rebuilding phaseTres they disappear at the end of the 60-ies AD. From the Flavian period onwards a new building technique is in use and defences are being built with the so-called stone-and-earth building technique.

Research in Oescus, Dimum and also in Novae shows this change in building. The new excavations give us a lot of information about the development of the early Roman military building along the Lower Danube.

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### Iva Kaić, Several small finds from Burnum and Tilurium as a glimpse into the Roman soldiers' sexuality

Several small finds associated with sexual representations were found on the territory of the Roman fortresses of Burnum and Tilurium, situated in the Roman province of Dalmatia. A dozen phallic pendants from Burnum, as well as four similar ones from Tilurium are known; among them, several different types can be determined. These pendants also had apotropaic function. Erotic and sensual symbolism can be found on three engraved gems, offering us a closer look into the personal sensual desires and expectations of their owners. On the carnelian from Tilurium a Venus Pudica is shown with the inscription Korinthoi, perhaps suggesting a link with the Aphrodite temple in Corinth, well-known for the temple prostitution. On the red jasper from Tilurium a scene of satyr embracing a

maenad is depicted, bearing a direct allusion to sexual act. On the glass gem from Burnum a genre scene of two cupids is shown, with one cupid sitting on the ground with his hands tied behind his back, while the other one is standing in front of him. The motive of Cupid bound relates to the reduced power of Cupid, who is no longer able to arouse desire. These small finds from military sites of Tilurium and Burnum, though not numerous, still offer an insight into the sexuality of Roman soldiers.

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### Dmitry Karelin/Tatjana Zhitpeleva/Maria Karelina, Some problems and peculiarities of the 3D reconstruction of the late Roman fortresses in Egypt

The main aim of the paper is to study the architectural features of late Roman fortresses in Egypt and to discuss several problems concerning their peculiarities on the examples of the authors' 3D reconstructions. The preservation of the Roman fortresses in Egypt in whole is worse than in other provinces of the Empire. The most of them preserved only at the level of foundation and the large part of their territories is covered by modern Egyptian cities and villages. The best way to imagine how they could look is to carefully examine the ruins, to compare them with the better preserved fortresses in the other parts of the Roman world and to make their 3D reconstruction.

The paper includes the authors' 3D reconstructions of several fortresses (or their structures) of different types: Luxor, Babylon, Nag el-Hagar, Dionysias and some smaller late forts at Kharga oasis. We think that these examples give the opportunity to discuss several important problems concerning their architecture and construction methods. One of them is a supposition about the walls height in the fortresses for *comitates*. The question is why some of them could have lower walls (Luxor, Nag el-Hagar) than others (Babylon) and then several smaller forts for auxiliary troops (for example Umm el-Dabadib). Another point is the search of analogies for some architectural elements (arrow slits, parapets) and fortress structures (walls, towers, barracks etc.). Next interesting question concerns the gates construction and using the special courts and portcullis in them. Traces of such courts were found in many fortresses in Egypt, while portcullis for sure was used at Babylon fortress and possibly at the Nag el-Hagar western gate. The traces of different building stages with their own architectural peculiarities in some forts are also of particular interest. The discussion on these points and problems gives opportunity to understand the Roman military architecture in Egypt better.

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### Tünde Kaszab-Olschewski, The use of medicinal plants in military camps

Hundreds, even thousands of people lived in the Roman military camps within a small area. They also stood in permanent contact with civilians and traders in their region. Concerning the health of the soldiers the army was involved not only in physical activity, but also through the procurement of good drinking water, thermal baths, sanitary facilities, waste disposal and also by hospitals. In this context, especially in the northern and in the central part of the Roman Empire, it was necessary to fight against fever, cough or stomach upset without highly effective and potent drug in case of bad

weather conditions and epidemics or individual diseases. Since the way of the reconvalescence is accelerated due to the giving of herbal aids their regular use can be assumed. Therefore within the topic of nutrition an attempt based on concrete archaeobotanical finds should be made to answer the following questions:

- What sort of plants can be found there?
- Can their therapeutic effect be confirmed today?
- What were the most common medicines and the most common diseases?
- Is it possible to find evidence for the use of medical teas?
- Did the plants grow local (in “hortus medicus”) or had they been imported?
- Is it possible to verify the use of these plants with written sources?
- Is it possible to determine concentrations of medicinal plants in certain areas (e.g. *valetudinarium*) or are there also indications even in the soldier’s *contubernia*?

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## Ildar Kayumov, Μονάγκων and onager: A New Look at an Old Problem

A one-armed torsion stone-throwing machine, μονάγκων, known at least since the end of the third/the beginning of the second centuries B.C.E., in all probability became the main heavy stone-thrower of the Roman army of the period of the Dominate under the name of onager. This transition from complex two-arm to simpler single-arm machines aptly demonstrates the changing nature of warfare and of the post-reform Roman army itself. Nevertheless, judging from surviving descriptions of sieges and defenses of fortresses, the simplicity of their construction had little impact on the effectiveness of their use in battle by late Roman artillerymen.

Unfortunately, a clear description of this simple engine, similar to those found, for example, in treatises of Philon, Biton, Heron or Vitruvius, is currently unknown. Either the engineers of antiquity did not deem it necessary to give it any consideration, or such description simply did not reach us. All we have at our disposal are small fragments from the poliorcetic treatises of Apollodorus of Damascus (first century C.E.) and Anonymus Byzantinus (tenth century C.E.) with descriptions of machines similar to the μονάγκων. And there is the well-known “Digression” by the late Roman historian and soldier Ammianus Marcellinus that still torments its researchers.

So far, all attempts to interpret the surviving information and to reconstruct this machine faced numerous contradictions with the text of Ammianus Marcellinus, our main source. And while it is possible that Ammianus Marcellinus did not understand the principles of its action, it is unlikely that he provided incorrect and contradictory description of the appearance of the machine, since he personally and repeatedly saw it in action. His text, therefore, has no need in conjectures, whereas he himself must be acquitted of the charges of incompetence.

Resolving the contradictions within numerous variations of the only dominant theoretical model does not seem to be possible, despite the fact that it relies on the authority of such eminent researchers of the Greco-Roman artillery as Erwin Schramm and Eric Marsden. However, through careful analysis of the above sources and taking into account certain late medieval iconographic witnesses as well as experimental data, it becomes both possible and necessary to literally turn the existing model of this machine’s design “on its head.”

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## Frederik-Sebastian Kirch, The Vicus of Biriciana-Weißenburg (Raetia)

The fort of the Ala I Hispanorum at Weißenburg-Biriciana is located few kilometres south of the Raetian Limes upon a hillside east of the Swabian Rezat. The associated civil settlement developed in close proximity south of the great thermae and covered an area of nearly 5000 sqm.

Excavation in 1987 and 1988 concentrated on a row of parcels along the road leading to the porta principalis dextra. It was possible to observe both the road through the vicus with its attendant ditches and associated structures to the south. There are six Roman building lots in total. The entire length of the houses on four of these lots were excavated.

The vicus shows two major periods, one timber-built and the other one stone-built. The timber period is characterized by a dense row of strip houses. These show a uniform structure with a trade and working area, frequently with frequent ovens/furnaces for iron- or copper-alloy working, at the front, a rear area with occasional ovens and regular occurring cellars (constructed in both wood and stone) and a back garden area. The strip houses were erected one tightly to another with common walls. In this case the walls are built on the boundary lines of the individual properties. While the width of each lot is different, the length of the buildings in the timber phase seems to be limited and ends in a common rear wall.

After a large-scale destruction of the vicus around the middle of the second century AD strip houses were replaced by so called “complex strip houses”. They are constructed in stone, or at least with stone sockets and compartments constructed in wood and timber. These buildings are bigger and more complex than their predecessors. The two stone houses occupy several parcels of the former period. The owner of these areas seems either to have expanded his property or a new landholder gained possession of two parcels at once. Despite the destruction of the older structures of the vicus, the subsequent properties are, now used as double-parcels, still orientated in the same lines as were the parcels of the first period of the vicus. It appears that there was a legal compulsion to construct buildings along already existing property boundaries. If that is the case, we may conclude that the registration of building lots survived the first destruction of the vicus and had to be kept centrally.

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## Barbara Köstner, When the cheers have died away – the roman re-use of the amphitheatre at Künzing as dumping pit

The unexpected find of a 2<sup>nd</sup> century AD wooden amphitheatre in Künzing/Quintana (near Passau at the Danube ripa) in 2003 held an even more unexpected filling. The single-phase arena had been in use for only a short time and was then filled up completely with rubbish. This very profane re-use of a prestigious building in a rural region offers a singular opportunity for detailed research on the disposal of waste in roman Quintana and the taphonomy of a big waste pit in a military context.

While the seemingly homogeneous filling does only allow vague conclusions on the dumping process, pits in the arena bottom establish the systematic nature of the waste disposal. The finds of articulated animal bones, pottery and building rubble with traces of secondary burns within the filling may indicate the background of the filling-up.

The paper focuses on the identity of the users of the arena rubbish 'pit', the process of its filling and the nature of the rubbish disposed of. The possible movement of rubbish after its deposition in the pit either by humans to search for materials to recycle or by animals looking for food is another focus. The case study of the Künzing arena is used to demonstrate that the amount of information contained in such an 'all-knowing trash heap' transcends the simple dating of the finds and illuminates its Roman period users.

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**Balázs Komoróczy/Marek Vlach/Ján Rajtár/Róbert  
Ölvecký/Claus-Michael Hüssen, The Roman temporary camps  
along the military axial route of the lower reaches of the Morava and  
Dyje rivers (Suchohrad, Závod, Charvátská Nová Ves)**

The middle and lower reaches of the rivers Morava and Dyje constitute axial corridors and shape geomorphology conditions in the major settlement areas of the Middle Danube region since the very beginnings of the human presence. Thus the Germanic settlement zones were shaped accordingly. The research into the Roman military presence to the north of the Middle Danube reckons with substantial role of the path corridor along the river Morava during the initial stages of advance through the barbarian territory both in perspective of river-born and land routes and their logistic capacities. Within the corridor, direct evidence is known from Suchohrad, Závod, and Charvátská Nová Ves. The recent research activities including field survey and excavations broadened our knowledge concerning their construction and phases of use, their chronological position, and overall interpretation possibilities, as well as recognition of fortification features so far undetected within the region.

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**Balázs Komoróczy/Marek Vlach/Claus-Michael Hüssen,  
Dislocation of Roman troops within the core parts of the  
Marcomannic territory  
(Mušov, Přibice, and Modřice)**

The evidence of Roman military impact on the territories to the north of the Middle Danube is particularly dense within the Germanic settlement core parts along the rivers Jihlava, Svratka and the middle reaches of the river Dyje. From the hinterland of the well-known Roman military base at Mušov-Burgstall, several complexes of Roman temporary fortification systems are known which are closely connected to the local river network. The latest research brought new evidence of the Roman military presence in the region since the earliest discovery more than 20 years ago through the aerial survey. It was possible to recognize factual state, overall form, and features of the multiple temporary camps at Mušov-Na pískách. Another situation with multiple comparable examples of these features is known from Přibice to the north of Mušov-Burgstall. Further to the north along the river Svratka there was a temporary camp in Modřice near Brno in the very centre of local Germanic settlement region. In all the above cases, the presently available information basis was substantially



broadened in the sense of spatial extent, chronological position and recognition of other features connected with the presence of Roman military power.

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### Balázs Komoróczy/Pavla Růžičková/Marek Vlach, The Presentation of the Roman Army Traces within the Barbarian Territory: The State and Perspectives of the Presentation of the Archaeological Site of Burgstall by Mušov, Czech Republic

The archaeological site of Burgstall by Mušov, located about 80 km to the north of the *Limes* of the Roman province *Pannonia Superior*, is a unique archaeological locality in the Czech Republic. Because of its strategic location, it was presumably repeatedly used by the Roman Army operating within the Marcomannic territory, especially during the Marcomannic wars. The archaeological research conducted thus far at the site has discovered a complex system of fortifications and several interior structures, which imply that this installation played a role as a main operation base of the Roman Army. The site is considered to be unique evidence of the Roman Army presence beyond the borders of the Roman Empire and, together with the other military installations in its wider area, particularly the temporary camps, represents an important set of archaeological remains that have no parallel in Czech archaeology. On the one hand, the distance from the Roman Empire and the exclusivity among the archaeological sites represents vast potential for presentational, educational, cultural and tourist utilization. On the other hand, they also represent limitations, which, together with the specific local conditions, constitute numerous challenges in effort to present these sites. The presenters will try to outline the actual state of the site presentation and the concrete proposals for the near future. At the same time, they will try to reflect the wider cultural and social context of the archaeological presentations in the Czech Republic, which are separated from the regions of the Roman *Limes* by the present possibilities given by the field of study.

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### Laura I. Kooistra/Pauline van Rijn/Silke Lange, Supply networks of the Roman army in the first century AD in the lower Rhine delta

In the first decades of our era the Roman army built several small forts in a wet coastal area of what is now the Netherlands. The area was situated in a remote corner of the Roman Empire. It was thinly populated and most of the landscape wasn't cultivated. There is no doubt that besides the operation goals of the army these environmental conditions have influenced the way the Romans designed their supply chains. During the first century AD the landscape and the goals of the army changed, and so did the supply chains.



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### Julia Kopf, The position of *Brigantium* (Bregenz, Austria) in the Augustan and Tiberian. High-Rhine defensive line

In the course of excavations in the years 2009–2012 in Bregenz remains of probably three Early Imperial military forts were discovered. Additionally, a significant number of militaria demonstrate the presence of soldiers in *Brigantium* during this period. Both the military features and small finds are complemented by findings from former excavations in Bregenz. The chronological frame of these military forts ranges between the first decade BC and the first years of the reign of Claudius. The paper deals with the regional historical context which led to the establishment of a military base in *Brigantium*. The main question is: which strategic considerations could have been decisive of the construction of military forts at this place? Therefore, the focus shall be put on the position of the garrison *Brigantium* within the Augustan respectively Tiberian defensive line in the High-Rhine area and the later province Raetia. For this purpose there will be examined for instance if connections with the 13th Legion in Vindonissa are detectable, e. g. by searching for evidence for the presence of legionaries in the find material. A probable indication of a reliance of the last fort in *Brigantium* on the 13th Legion is given by the dendrochronological dating of a wooden feature of the first civilian settlement phase: its construction date 44/45 AD chronologically matches the withdrawal of the 13th Legion from Vindonissa.

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### Miomir Korać/Snežana Golubović, The Roman frontier in Serbia – a vision of development

In 2012, Serbia officially took part in the “Danube *Limes* Brand”, an introductory project to the “Frontiers of the Roman Empire” – a complex, phased and trans-national UNESCO world cultural heritage project. One of the results of the project is the submission of the tentative list. The main barrier and the back bone of the entire Roman defensive system was the river itself. Its part leading through the Iron Gates is probably the most iconic section of the Roman *Limes*, attested with a chain of forts and fortlets, today mostly under the water. However, it does not prevent their protection and highlights unconventional ways of presentation.

*Viminacium* has been taken as a model for the future development since, until now, it is the best presented Roman site in the former Roman province of Moesia Superior. Owing to its strategic position near the entrance of the Iron Gate, it is intended as the main visitor centre for the Roman *Limes*. Further plans are based on the experience achieved over the past several years through the projects *Itinerarium Romanum Serbiae* and Danube *Limes* Brand that brought *Viminacium* and the newly established Archaeological park into the centre of cultural events. Over the years, cooperation has been established with local organizations and regional museums that recognized the importance of Roman *Limes* presentation. This led to the creation of the new interpretation strategy and indicated how to develop our own characteristic interpretation offer.

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## Pamela Koulianos, The Economy of Petra from the First Century BC through the Fourth Century AD: An Analysis of the Nabataean Perfume Industry

This paper is an attempt to reconstruct the economy of Petra during the third century AD, a period that can be described as a "miniature dark age." This analysis is made through the lens of a particular type of ceramic vessel, the Nabataean piriform *unguentarium* or perfume juglet.

The Nabataean Kingdom (consisting of primarily of modern day Jordan) was first a client state of the Roman Empire. However, it was annexed as Provincia Arabia in AD 106. The Nabataean perfume industry began ca. the late first century BC and flourished through the first and second centuries AD. It declined and apparently disappeared in the third century. Yet, what happened to this perfume industry? This paper suggests that the perfume industry failed to revive at Petra due to the lack of sufficient quantities of key imported ingredients, frankincense and myrrh, thus halting production at Petra. The major routes for important of these key ingredients shifted north and south (of Petra). The reduced quantities which did reach Petra after the third century were apparently only for local consumption. The perfume industry after the third century continued elsewhere at major urban centers such as Alexandria, when unguents were henceforth shipped primarily in glass *unguentaria*.

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## Elisabeth Krieger, All along the watchtower – Erste Ergebnisse zu den Wachttürmen am Raetischen Limes

Den heutigen Kenntnisstand zum Raetischen Limes verdanken wir vor allem den Bemühungen der Reichs-Limeskommission (RLK). Über mehrere Jahre führten diese Grabungen entlang der Limesmauer und bei den Wachttürmen durch. Zum Abschluss ihrer Arbeit wurden die Grabungsergebnisse in der mehrbändigen Reihe "Der Obergermanisch-Raetische Limes des Römerreiches" (ORL) publiziert.

Die seitdem durchgeführten Neugrabungen wurden zur Überprüfung der Ergebnisse der RLK und zur Erweiterung des Wissenstandes durchgeführt. Besonders durch moderne Methoden, wie Airborne Laserscanning und geophysikalische Prospektionen, konnte das Bild über den Raetischen Limes erweitert werden.

Die Bearbeitung der alten RLK-Grabungsdokumentation unter Berücksichtigung der neuen Ergebnisse und Methoden verspricht weitere Aufschlüsse über das Grenzsystem in Süddeutschland. Erste Resultate können im Hinblick auf den Vergleich zwischen RLK-Dokumentation und den später im ORL publizierten Angaben und deren Unterschiede vorgelegt werden, außerdem bietet die Analyse der Airborne Laserscans mittels Computerprogrammen eine einfache und schnelle Lösung zur Beantwortung von verschiedenen Fragestellungen, wie etwa der Lokalisierung von einzelnen Wachttürmen und den Sichtverbindungen untereinander.

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### Hans-Peter Kuhnen, Caravan trade, foederati and the Limes Arabiae et Palaestinae

The boom of caravan trade in the Roman East caused a growing demand of camels. Camel breeding became an important source of income for the bedouin tribes along Rome's desert frontier in the provinces of Palaestina III and Arabia. Through trade connections the tribal chiefs became partners of the Roman authorities, and formed a new aristocracy in the limes area. From the 3<sup>rd</sup> century onwards interaction was extended to security matters on the basis of foedera between the Bedouin tribes and the empire. This process led to the gradual arabization of the desert borders and put an end to the regular limes garrisons long before the Muslims conquered, in AD 634–640, the Holy Land. The paper will focus on epigraphic and archaeological evidence to illustrate this process, mainly from excavations in Southern Palestine.

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### Gertrud Kuhnle, Die revidierten Eckdaten der römischen Militärpräsenz in Straßburg-Argentorate

Die historischen Quellen schweigen weitgehend zur Frage der Militärpräsenz in Straßburg. Lediglich im 2. Jh. n. Chr. erwähnt Ptolemäus, dass *Argentorate* Truppenstandort der *Legio VIII Augusta* ist.

Nach dem Fundspektrum zu urteilen, beginnt die römische Besiedlung Straßburgs ab ca. 15 n. Chr. und könnte – entsprechend seiner Zusammensetzung (vor allem der Münzen und der Importsigillata) – mit einer Militärpräsenz unter Tiberius in Verbindung gebracht werden. Dafür kommt die *Legio II Augusta* am besten in Frage, insofern diese Einheit laut Tacitus bis 43 n. Chr. im *exercitus superior* (obergermanischer „Heeresbezirk“) verweilt und fünf Grabdenkmäler aus Straßburg drei Soldaten (CIL XIII, 5976, 5977, 5978) und zwei Veteranen (CIL XIII, 5975 ; AE 1998, 983) der II. Legion nennen.

Eine weitere Soldatengrabstele (CIL XIII, 11628) und das Mausoleum eines Veteranen und zweier Soldaten (AE 2000, 1064) werden ebenfalls der II. Legion zugeordnet. In die erste Hälfte des 1. Jh. n. Chr. datieren auch der, erst 2013 entdeckte, Grabstein eines Reiters der *ala Indiana* und ein Weihaltar eines Reiters der *ala Petriana*. Das vorausgesetzte Lager der II. Legion, das auch Reitereinheiten beherbergen konnte, ist bis dato jedoch nicht entdeckt worden.

Nach der (vermutlich von Straßburg aus erfolgten) Verlegung der II. Legion nach Britannien um 43 n. Chr. ist Straßburg bis zur Ankunft der VIII. Legion am Ende des 1. Jh. n. Chr. sicher kein Legionsstandort. Nur ein Reitergrabstein (Espérandieu 1918, n° 5522), dessen Inschrift nicht erhalten ist, könnte in die legionslose Zeit datieren und eventuell von der Präsenz einer kleinen Auxiliareinheit zeugen.

Die Verlegung der VIII. Legion von Mirebeau (Côte-d'Or) nach Straßburg erfolgt – aufgrund der archäologischen Funde und Befunde aus Mirebeau und aus Straßburg – in den Jahren um 90 n. Chr. Die VIII. Legion befestigt in Straßburg ihr Standlager zuerst mit einer Holz-Erde-Mauer. Dieser wird im 2. Jh. eine Steinmauer vorgeblendet, welcher wiederum in spätrömischer Zeit (um 300?) eine massive Steinmauer mit vorspringenden Halbrundtürmen vorgeblendet wird. Eine 2008 in der „4 rue

Brûlée“ durchgeführte Ausgrabung eines Teils der Mannschaftsunterkünfte im *latus praetorii dextrum* beweist, dass die VIII. Legion bis mindestens 320 im Lager anwesend ist.

Ab dem zweiten Drittel des 4. Jh. wird vermutlich Zivilbevölkerung im nun stadähnlich befestigten Legionslager aufgenommen. Von einer römischen Militärpräsenz bis (mehr oder weniger weit) ins 5. Jh. zeugen die Nennung eines *comes Argentoratensis* in der *Notitia Dignitatum*, gestempelte Ziegel der *legio VIII Augusta* mit dem Zusatz *C ARG* und gestempelte Ziegel der unbekannten Truppe *XII Victr(ix)*. Vielleicht bilden diese beiden Einheiten zusammen eine Art Stadtgarnison in der Zeit der Umwandlung des Straßburger Legionslagers in ein *castrum*, eine spätantike befestigte Siedlung, in der Verwaltung, Zivilbevölkerung und Militär untergebracht sind. Ein erst 2014 unter dem Münster (im ehemaligen *scamnum tribunorum* des Legionslagers) entdecktes spätantikes Wasserbecken (4.–5. Jh.) ist möglicherweise das Taufbecken einer ersten christlichen Gemeinschaft, die dieser zivilen und militärischen Bevölkerung angehört.

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### Kira Lappé, The praetoria of the Augustan Legionary Camps

The establishment of permanent camps in the Augustan period, associated with prolonged campaigns at the end of the Roman Republic, went hand in hand with the invention of new types of military buildings – among them the praetoria, which were used for the accommodation of the commander of a Roman military camp according to the ancient sources. The Augustan praetoria represent a self-standing wooden transitional type between the commander's tent of the Roman Republic and the stone buildings of the mid-first century AD.

There are four preserved praetoria dating to the time of the first princeps: those built as part of the camps of Oberaden, Haltern, Anreppen and Marktbreit. The archaeological features of the Augustan period make it possible to identify a nearly standardised type: all of them possess an axial ground plan with a large central hall and an open courtyard in the central axis, a range of similarly shaped rooms and a large hall in the back part of the building.

It is particularly true of military architecture that its appearance is determined by its function. Since these buildings served to accommodate the *legatus legionis*, the roots of the praetoria must go back to Italic civilian residential architecture. Careful analysis of the contemporary, that is, late Republican and Augustan, housing trends has indeed established this link. Several parallels can be identified: the axial ground plans, the adjustment to the peristyle and the erection of a single, over-dimensioned room (about 50 m<sup>2</sup> in size) in the courtyard.

One fundamental difference is the building technique: the stone architecture of the upper-class residential buildings in Italy had to be transformed into all-timber architecture, 2,100 to 3,400 m<sup>2</sup> in size. The differences between the floor plans were caused by climatic as well as functional factors. A comparison with Roman housing architecture in the northern provinces explains the increased number of corridor systems, the reduction of open spaces and the heating of larger rooms. Building design clearly had to be adapted to the climate. Functional requirements naturally imposed alterations as well. Revisiting the ancient literary sources, the main activities in the praetoria were determined and could, to some extent, be connected to specific rooms in the praetoria. 3D reconstruction and visualization of the central halls of the praetoria in Oberaden and Haltern clearly indicate that differences in the ground plans can be caused by varying objectives of representation.

The analysis of the floor plans shows a change in the function of the praetorium from the Augustan time to the mid-first century AD. While the Augustan praetoria were apparently divided into public-administrative areas, on the one hand, and private ones, on the other, the later stone praetoria, starting with the reign of Claudius, lost the administrative parts. They simply served as residential buildings for the *legatus legionis* and therefore follow the main function mentioned in literary sources.

The purpose of my paper is to present for the first time a detailed study of the Augustan praetoria: their architecture, their origins (which have not been associated with contemporary residential architecture before), their adaptation to the climate and functional needs as well as their development in the post-Augustan period.

### Andrew Lawrence, The cults and sanctuaries of Vindonissa – aspects of religious communication in- and outside the legionary camp.

The legionary camp of *Vindonissa* (today Windisch, Canton Aargau, Switzerland) was established on the site of a Late Celtic fortified settlement in the 2<sup>nd</sup> decade AD and was the garrison for three legions up until 101 AD. In the course of the 1<sup>st</sup> cent AD, a civil settlement developed outside the camp's walls.

By analysing the location and character of the sanctuaries as well as their chronological development, a religious topography of the site starts to emerge – the influences thereof can be found not only in roman military architecture but also in galloroman traditions.

Epigraphic and iconographic sources offer further information on the forms of worship as well as on the deities and the protagonists attested in *Vindonissa*.

Finally, the cult practices will be discussed. As, for example, the distribution of the cult vessels shows, cult practices were not solely confined to the sanctuaries but could also take place in varying locations, thus providing evidence for further forms of ritual action.

The synthesis of all sources offers an approach for the understanding of the religious life of the inhabitants of *Vindonissa*. Special attention is given to the aspects of the cults and sanctuaries concerning the periods before and after the camp, as well as those highlighting the exchanges *intra* and *extra muros*.

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## Vlad-Andrei Lăzăresu/Ştefan Bilaşco/Monica Gui, You Sound Familiar! But Why Can't I See You? Visual vs. Acoustic Signalling on the Northern Frontier of *Dacia Porolissensis*

Even though researching the advanced system of observation on the northern frontier of *Dacia Porolissensis* has been a constant scholarly preoccupation ever since the end of the 19<sup>th</sup> century, the grand scheme of things is not fully grasped even today. Among the reasons we can count the inherent complexities of the frontier system, the impossibility to excavate every probable structure, the difficult and changing landscape, limitations in fixing geographic locations etc.

More problematic is the area around *Porolissum* because the relief virtually opens up an access point through the Meseş Mountains. This section of the *limes* had to be especially kept in check, and to this concern testify the two auxiliary forts and a number of *turres, burgi* etc. that had been more or less investigated and dealt with in the archaeological literature. However, considering the abovementioned shortcomings, it becomes clear that there are a lot of unaccounted variables which hinder one's understanding of how all of these components might have communicated with each other. Moreover, the recent remote sensing investigations carried out in the area have added an entirely new layer of information that has to be fed into the inquiry.

The present study aims to take advantage of the possibilities offered by the recent techniques of acquiring and analysing data, in an attempt to by-pass as many of the unknowns as possible. By computing variables like distance, terrain, visual field, but also climate conditions or sound propagation, we propose a predictive model of the communication network established between various watchtowers, fortlets and forts that could hypothetically be valid even if not all of the elements making up the system have been spotted. An important part of this process was the establishment of the most probable route between the advanced line of watchtowers and the main fort by means of Least Cost Path analysis. One of the significant advantages of this approach lies in the fact that it can potentially lead to the identification of new watchtowers.

Underlying our tests was the idea that a sharper distinction has to be made between the area that could be supervised and the range of visual communication, as, considering the very specific local conditions (e.g. extreme fog), visual signalling may not have been the primary means employed to exchange information within the system centred around *Porolissum*. Consequently, we introduced into the equation the variable of sound propagation. Each type of signalling has its strong points and limitations determined by biological factors and ambient/landscape conditions. We wanted to go beyond the general and compare their efficiency in this very precise circumstance by modelling several scenarios with the help of GIS platforms in order to elucidate the best manner of transmitting a message.

Ultimately, our analyses resulted in a micro-regional model of the way in which we believe the information was exchanged between a given point on the *limes* and the main fort on Pomét Hill. This has a direct bearing on the question of the time needed for the arrival of a 'rapid response task force' in case of imminent danger. We hope that it will lead to a better understanding of how the signalling system along the frontier was designed and how it worked.

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### Catherine Leisser, Jupiter Dolichenus, Axiom or Enigma?

Jupiter Dolichenus is most commonly identified as a Roman military god, yet many civilians, including women, also dedicated altars to him. His followers are often thought to be predominantly Syrian, yet others worshipped him too. He is most often portrayed standing on a bull, holding an ax and a lightning bolt, wearing Roman military dress and a Phrygian cap, yet he sometimes appears nude or in Near Eastern attire of tunic and baggy pants.

His cult is often identified as a mystery cult, yet there is no literary or epigraphic evidence to indicate this, as is the case with other mystery cults. Indeed, perhaps it was the most mysterious of cults because so little is known about its rituals and processes. Judging by an increase in datable inscriptions, the cult rapidly gained popularity in the second century CE; many of his temples, however, were no longer functioning by the end of the third century CE.

Jupiter Dolichenus was venerated as the undefeated god of the sky/universe, rain and thunder and bore many likenesses to the ultimate Roman deity, the Capitoline Jupiter Optimus Maximus because of this connection, yet faith in his power is thought to have been shaken by the destruction of his temple in Doliche by King Shappur I, or was it?

Much of the evidence for this cult has been found in the western provinces of the Roman Empire including Britain, and particularly along the Rhine-Danube frontier. Thus, my MA research examined five Dolichena, one each in the provinces of Pannonia Superior, Noricum, Raetia, Germania Superior and Britannia. The intent of my MA research was to examine possible regional differences in temples and artefacts from one province to the other and to determine whether differences existed between temples serving predominantly military or civilian populations. The result was a combination of the anticipated and the unexpected.

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### Tino Leleković, Food and beverage consumption in the Roman town of Mursa (Osijek, Eastern Croatia)

This paper presents the results of research on the pottery collected in the Roman colony of Mursa (Osijek, Eastern Croatia), an important center of the SE part of the Pannonian Limes. It was founded on the point where the Limes road crossed the River Drava, near its influx in to the River Danube. Therefore, Mursa became an administrative, cultural, commercial and trade centre in that part of the border zone. The aim of the study is to establish the differences in form and function of both tableware and kitchenware assemblages throughout the history of this town (1<sup>st</sup>–5<sup>th</sup> centuries).

Archaeological finds from Mursa, pottery in particular, can be divided into five archaeological phases: the late Flavian–Trajanic period, the Hadrianic–Early Antonine period, the late Antonine–Severan period, the second half of the 3<sup>rd</sup> century, and the Late Roman period. This study is based on archaeological material found in contexts that have been reliably dated to one of the periods mentioned above. Assemblages from both burial and settlement contexts were used in the creation of typological-chronological tables, and also in the detection of the function of some of the typological groups. The aim of this study is to define differences in cooking, eating and drinking customs for each of the periods. In this regard, it is interesting to observe that graves from the first stage of development, when Mursa was a military post, were furnished with assemblages used for wine consumption, while in the 3<sup>rd</sup> century graves were furnished with vessels probably used for



beer consumption. Along with the finds from the burial contexts, particularly interesting are septic and residual pits filled with pottery and organic remains from the kitchens. The content of these pits reveal the use of different type of vessels in certain period. Archaeozoological and archaeobotanical analyses also prove usage of different produces in particular time periods.

This paper argues that for each of the mentioned archaeological phases of Mursa it is possible to define some distinguishing characteristics, as well as the continuity of usage of certain produces and types of wares. Conclusions based on the material from Mursa will be correlated with rare finds from other nearby military sites on the Danubian Limes in order to propose general customs connected to the consumption of food and drink in this, rather unexplored, part of the Roman Limes.

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### **Tino Leleković, Rediscovering surroundings of Roman forts on the Croatian part of limes**

During the past two decades several sites on Croatian part of limes were subject of intensive archaeological research. This paper will present the results of research done on five limes sites: Batina, Zmajevac, Mursa, Sotin and Ilok. It has to be noted that excavations were conducted on peripheries of sites, mostly aiming Roman cemeteries. Alongside Roman graves these excavations also revealed remains of service buildings and installations related to limes forts, and also enabled to position more precisely limes road that connected them. Paper will try to, on the basis of results from conducted excavations, propose a better insight in how were Roman limes sites were organized. In this regard, along conducted excavations, paper will present the results of several archaeological surveys done in that area, which also revealed some new insights in to landscape of this part of Danube border.

The aim of this paper is to reconstruct visual appearance of above mentioned sites, to recognize topographical and strategic reasons for selection of these sites as positions of military installations, and finally it will study the landscape that surrounded forts on abovementioned sites.

General observations made on abovementioned examples will be applied to other neighboring sites, with special emphasis on reconstruction of the exact position of the limes road in the Croatian part of Pannonia.

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### **Martin Lemke, The water supply of the legionary fortress *Novae* (Bulgaria).**

The roman army went to great lengths to ensure a stable water supply in their army camps. Providing several thousand soldiers with water was an immediate necessity, both in temporary camps on unknown territory as well as in the permanent headquarters fortresses of the legions, where facilities like the *thermae* or *latrines*, but also workshops and drinking water for men and animals required huge amounts of this natural resource. Therefore, the Roman army was competent at acquiring and distributing the precious element in various ways.



We know that at *Novae* two main aqueducts brought the water to several large cisterns (*castellum aquae*), close to the fortress, but outside its walls, from where it was further distributed through a network of pipes and channels to the various recipients and the excess and sewage water was eventually disposed of into the Danube. I will present the state of knowledge on this topic after 50 years of fieldwork at *Novae* in an overview and point out some interesting details and finally the perspectives for future research in this area.

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### Christoph Lindner, Two fortlets in Hanau-Mittelbuchen. New evidence on the Wetteraulimes in the late 1<sup>st</sup> and early 2<sup>nd</sup> century AD

In 2001 two fortlets and a part of a rampart were discovered between the roman forts in Salisberg and Heldenbergen. Analyses of features and finds indicate an early period of the limes in this area. These results are compared to military sites in the Wetterau of late first to early second century date. This provides the base of discussion concerning the existence of an older limes period in the eastern Wetterau between Oberflorstadt and Hanau-Kesselstadt. Hence it suggests that a construction of a limes section in the Wetterau took place under the rule of Domitian.

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### Michael Mackensen, Organisation and development of the late Roman frontier in the provinces Raetia prima and secunda (c. 280/300 – mid 5<sup>th</sup> century AD)

The late Roman frontier in Raetia runs from the lower end of lake Constance via Bregenz to Kempten and along the River Iller and the Upper Danube to the confluence of the River Inn. New excavations as well as the revision of epigraphic, numismatic and archaeological evidence have yielded some astonishing results, upon which a reassessment of frontier development in this province during the last quarter of the 3<sup>rd</sup> and the early 4<sup>th</sup> century can be based. The small forts at Bürgele, Burghöfe and probably Neuburg and Straubing, as well as the larger forts at Konstanz, Kellmünz and Martinsbühel belong to the same Tetrarchic building programme carrying out the construction of military fortifications of varying size, layout and arrangement of barracks or other interior buildings; the same applies to Eining, the only auxiliary fort on the Raetian Danube to be refortified and strengthened at the time, although reduced in size. At sites which provided ample coin-evidence the construction dates could be shown not to predate 295/300 AD. Characteristic for Valentinianic building activities are not only the small towers but also the fort at Bregenz-Leutbühel next to a natural harbour on Lake Constance and additional storage facilities (*horrea*) at military sites such as Eining and in the hinterland at Goldberg, Lorenzberg, Innsbruck-Wilten and Schaan etc.) as well. Numismatic and in particular archaeological evidence of rouletted Argonne red slip ware and chip-carved and punch-decorated fittings of late Roman military belts suggest that military units have been stationed at several forts until 420/440 and beyond. Flavius Aetius and his comitatensian units campaigned in Raetia against the Juthungi in 430/431. Probably at Burghöfe and certainly at Passau-Niedernburg evidence is provided for small military garrisons after the middle and during the third quarter of the 5<sup>th</sup> century.

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## Shota Mamuladze/Emzar Kakhidze/Merab Khalvashi/Lasha Aslanishvili, The fort of Apsarus: central stronghold of Pontus-Caucasian frontier

In the southwestern Georgia, at modern Gonio, 8 km. to the south of the city of Batumi at a strategically important site, where the roads leading to the north, south and east join each other, today too stands a playing-card shape fort of Apsarus.

In spite of the Caucasus was routed by the Roman commander Pompey already in 65 BC only after Nero who stimulated concentration of Roman military forces in the East, a special, so-called 'Pontic Limes' or Pontus-Caucasian frontier was formed in order to serve the purpose of reinforcement of Roman positions in the southern Caucasus and to take the region of northern Caucasus under good control as well.

According to Pliny (*NH* 6. 12), Apsarus was a functioning fort already in the seventies of the 1<sup>st</sup> century AD, which is confirmed by archaeological evidence as well. Flavius Arrian, governor of the province of Cappadocia visited Roman military camps located in the eastern Black Sea region, including Apsarus in AD 134. He writes that five cohorts served there. Written sources, epigraphic materials and artefacts confirmed that *numeri* mentioned in Abel inscription, Cohors II Claudiana, Cohors Sagittariana, Cohors Milliaria, Cohors Civium Romanorum, named after the Emperor Aurelius were stationed here.

On the Peutinger Table, unlike other contemporaneous forts of the surrounding region, we find not only the name of the fort of Apsarus but its diagrammatic sketch as well (10.5). As is known, Castorius used old sources, viz. those of the 1<sup>st</sup>–2<sup>nd</sup> centuries AD. According to Procopius of Caesarea an amphitheatre and hippodrome were arranged in Apsarus as well. Remains of bath-houses, barracks, *principia* and of several others, coupled with the remnants of water supply and sewer systems, water reservoirs and wells, etc. were revealed on the territory of fort. All of them supported with the great number of excavated material are dated by 1<sup>st</sup>–3<sup>rd</sup> centuries AD.

The Apsarus example creates significant contrast in relation with another Classical centre of the eastern Black Sea area, Pichvnari, where local population and the Greek colonists used to be in close contacts.

In the long run, the fragility of the Roman impact became clear after the crisis of the 3<sup>rd</sup> century AD. As elsewhere in the Black Sea area, the coastal fortifications came to nothing and ceased to function: it had proved to be ill-adapted to local circumstances. New fortified settlements were built inland. The same process is observed at the end of Roman and Byzantine domination, when the coastal strategic points were replaced by internal fortified or ecclesiastical centres.

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## Michał Marciak, Roman Adiabene? On the origin of a historical and cultural misconception

The purpose of this paper is to give an overview of the history of Roman military campaigns and political developments in Northern Mesopotamia with a special focus on Rome's relations with Adiabene in the Parthian and Sasanian periods. It is frequently stated that Adiabene accounted for a buffer state between Rome and the Parthians and Sasanians, or that, at least for some time, Adiabene even belonged to the Roman Empire. On the contrary, the thesis of this paper is that

Adiabene was an integral part of the Parthian and Sasanian Empires, both in political and cultural terms. First of all, despite some claims to the contrary, Adiabene has never belonged to the Roman Empire. What is more, Adiabene's material culture features anything but distinct Roman cultural traces. To illustrate this thesis, several steps will be undertaken. First, the history of Roman military campaigns through the territory of Adiabene will be discussed. In this part, it will be argued that there is no evidence that Adiabene became part of the Roman Empire, especially under the reign of Emperor Trajan. Second, the history of the development of the Roman limes in Northern Mesopotamia will be outlined. This will show that Roman military installations never reached the territory of Adiabene. Third, a short overview of Adiabene's cultural environment will be given. In this part, it will be made clear that although the available data shows that the culture of Adiabene included several distinct cultural elements (Semitic, Greek-Hellenistic, and Iranian), there is no substantial data of Roman provenience (not even in Nineveh). All in all, the paper will make the case that Adiabene has never been part of the political and cultural system of the Roman Empire. Although it was open to various cultural influences, Adiabene remained an integral part of the Iranian Commonwealth, first under the Parthians, and later under the Sasanians.

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**Maciej Marciniak, "He recognized Ceasar by the purple *draco*..."**  
**Ammianus Marcellinus, *Rerum gestarum libri XXXI*, 16.12.39**

"He recognized Ceasar by the purple *draco*..." (*Rerum gestarum libri XXXI*, 16.12.39). Words of Ammianus Marcellinus are an excuse to start a debate about the connection between the roman emperor and one of the most fascinating military standards ever – draco.

In his article "The draco standard" published in *Journal of Roman Military Equipment Studies* (vol. 2, 1991) J.C.N. Coulston briefly states that „dracones were employed as the personal standards of emperors during the 4<sup>th</sup> century." (1991: 106). The analysis of the depicted texts of the roman Latin authors such as Nemesianus, cited above Ammianus Marcellinus or Claudian provides us to the concrete conclusion: The person with whom the draco was described was in fact not only the emperor but any of the high roman commanders, often young successors of the current ruler. Such thesis is supported by iconography. Both scenes from the large monuments like triumphal arches of Galerius or Constantine the Great, sarcophaguses Portonaccio and Ludovisi, even little pieces of decorative arts like copper alloy box panel from Ságvár (Hungary).

All those evidences allow to specify the statement that the dragon standard was in fact an item related to roman warlords, not only the emperor himself. We can assume that this practice began in the early III century and continuous through the years of the reign of so called "barracks emperors" till the beginning of the IV century.

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## Felix Marcu/Corneliu Gaiu/George Cupcea/Radu Zăgreanu/Csok Zsolt, Recent developments in understanding limes porolissensis

We will present the latest discoveries in the most interesting area of the limes of Dacia, including non-invasive and archaeological excavations.

The geographic limits of the Roman frontier in Dacia are not clearly established, rather often presumed and connected to archaeological sites. In the Northwest, the limit of Dacia was the highland chain of the Mountains Meseş and some Sub Carpathian high hills with knolls and parallel ridges in the North which separates the Transylvanian Plain from the Pannonian Basin. Its summit connects the Apuseni Mts. and the Eastern Carpathians, as a natural barrier, a geographical limit between two basins, more than 150 km long. The structure of the limes is made here of a complex watchtower system, turf walls, small forts/fortlets and the fort placed behind the frontier line.

It is by now obvious that the Dacian defensive system was established in several stages, but we know little other details. Regarding the watchtowers in the Northwest, some of them are rectangular, other round; some are made of stone, other of timber. The layout of several of them proves different construction stages, as it is the case of the first two towers north of the river.

Only in the vicinity of Porolissum was any stonewall identified. In gorges and vulnerable areas small fortlets were erected, attached to the limes wall, where identified, but to a certain distance from the turf wall, in a similar manner as the watchtowers. In these passes the turf wall barriers were erected, although lately they have been detected not only here, but also on plateaus. The watchtowers seem to draw a line, but in fact they are placed in a network, depending on terrain configuration and communication availability. The features of the northern frontier can be recognized only partially in the other areas, but arguments are scarce for the time being.

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## Florian Matei-Popescu, The Roman Military Amphitheatre in Drobeta (Dacia)

In 2010, on a construction site in the courtyard of the Iron Gates Museum in *Drobeta* Turnu-Severin (Mehedinţi county, Romania), the remains of a Roman amphitheatre were uncovered. Starting in 2012, a team of archaeologists from Vasile Pârvan Institute of Archaeology, Bucharest, has been conducting archaeological excavations on the newly discovered monument. So far the eastern half of the arena wall, together with three out of the four entrances (on the East, South and West sides) have been uncovered. This has demonstrated that the amphitheatre had only its arena wall (35x37 m) and the entrances made of stone, whereas the seats (*cavea*) were made of timber using the natural slopes of the site. The amphitheatre is located at appreciatively 200 m distance from the southwest corner of the stone auxiliary fort. A timber amphitheatre seems to have been constructed during Trajan's visit in the spring of 105 AD. Thereafter, possibly during Hadrian's reign, its arena wall and the side walls and thresholds of the entrances replaced in stone (). The coins discovered in the area of the entrances show that it had been in use until the middle of the third century AD, when it was destroyed by a large fire.

It will be the task of my paper to briefly present the main results of the archaeological excavations along with a short discussion on the new questions raised by this highly important monument. I shall, therefore, focus on the depiction of an amphitheatre on Trajan's Column, next to the bridge over the Danube from *Drobeta* (scenes XCIX-C, after C. Cichorius), and on this monument in relation to the other amphitheatres from the Upper Moesia and Dacia provinces (especially those in *Viminacium*, *Micia* and *Ulpia Traiana Sarmizegetusa*).

The newly discovered amphitheatre reopens the discussion on this type of construction next to Roman auxiliary forts (see C. S. Sommer, *Amphitheatres of Auxiliary Forts on the Frontiers*, in T. Wilmott, ed., *Roman Amphitheatres and Spectacula: a 21<sup>st</sup>-Century Perspective*, Oxford, 2009, p. 47–62). It seems that *Drobeta* was a special case: the amphitheatre was built on the occasion of the imperial visit and, from Hadrian's reign until that of Marcus Aurelius the fort and its surrounding area (the military vicus, the amphitheatre and the baths) were placed under the authority of the governor of the province of Upper Moesia. At the same time, the *municipium Hadrianum Drobetense* (from Septimius Severus' reign it became a *colonia*), part of the Upper Dacia province, was founded (its core is to be found not in the military vicus, as hitherto assumed, but in another civil settlement outside the military zone – from the archaeological point of view little is known, since the modern town overlaps the Roman town). The two settlements were for about fifty years clearly divided, being parts of different provinces. The newly discovered amphitheatre belonged to the auxiliary fort and to the military vicus, whereas the *municipium* had, probably, its own amphitheatre.

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## Steve Matthews, Moving the Food the limes Garrison in the Dobrogea

The organisation of freight traffic moving food to the limes garrison is not described within the literary tradition. Therefore we have only been able to speculate as to how many days and hours of work this might have taken after drawing radii about a given point, or measuring possible routes one by one. Now however, it is possible to utilise a function of ArcGIS designed for modern freight delivery companies to map the so called 'Service Areas' around a given site to arrive at a more accurate picture of the days and hours of travelling involved with reference to the ancient road network.

The potential loads of the wagons and mules involved moving food to the garrison have been previously researched from literary texts and comparative early 20<sup>th</sup> Century military manuals [Goldsworthy 1996]. In the case of the Roman Dobrogea I have previously [*limes* 2012] suggested an estimate of what percentage of the military supply need is still visible in the archaeological record of the Dobrogea and which sites were best placed to feed that garrison. The road network of the Roman Dobrogea between these producers and consumers is also well understood [Panaite 2006, 2010, *limes* 2012].

The power of the ArcGIS programme can assess the number of the producer sites that fell within a particular travelling time or distance of a consumer site or sites, rapidly allowing for the many permutations of possible routes from production to consumption centre and the relative speeds of different vehicles. The result is that radii indicating a day's theoretical travel about a site can be replaced with irregular polygons representing a more accurate although still theoretical assessment of travelling times and distance. From this it is possible to calculate the number of wagon, or mule days, required and the number of carters or muleteers who would have been required to drive them.

The overall results show that the logistics of moving food to the Roman army required actually very few men *pa* and was not a significant drain upon the resources of the region.

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## Brahim M'Barek, Théodore le Silenciaire et l'architecture militaire dans l'Empire romain d'Orient du VI<sup>e</sup> siècle ap. J.-C. (Theodorus the Silent and the Military Architecture of the Eastern Roman Empire in the VI<sup>th</sup> century AD)

Pour la recherche portant sur la poliorcétique romaine tardive et protobyzantine, le VI<sup>e</sup> siècle marque une ère de foisonnement, où sources textuelles, épigraphiques et vestiges archéologiques font état de la rénovation et du renforcement des défenses de nombreux sites, voire de certaines créations *ex nihilo*. Pour autant, on ne sait que très peu de choses des personnes en charge de la conception et de l'exécution des travaux de fortification. Cette présentation vise à discuter diverses sources textuelles et épigraphiques en les confrontant aux observations archéologiques faites dans les provinces du Proche-Orient et des Balkans, afin de tenter de lever le voile sur un personnage en particulier : Théodore le Silenciaire.

À la suite de la guerre contre l'Empire sassanide des années 502–506, les défenses romaines du nord de la Mésopotamie nécessitaient reconstruction et renforcement. En ce début de VI<sup>e</sup> siècle, les Balkans connaissaient aussi une certaine accalmie – du fait de la stabilisation du Royaume ostrogothique – et la reprise en mains de territoires par Constantinople alla de pair avec de lourds travaux de mise en défense. Ce large programme commencé sous Anastase se poursuivit jusque sous Justinien, empereur dont Procope dans ses « *Édifices* » fait, parfois trop, l'apologie en tant que bâtisseur et restaurateur des frontières. En parcourant successivement les provinces de l'Empire d'Orient, le panégyriste de Césarée fournit parfois des informations relatives aux hommes de l'ombre qui ont dirigé les travaux. Certains des architectes qu'il nomme se rencontrent chez d'autres auteurs, mais également dans des inscriptions, permettant ainsi de restituer une partie de leur carrière. Par la confrontation des informations fournies par Procope avec diverses observations archéologiques faites tant dans les Balkans que sur la frontière orientale, il est ainsi possible de proposer de nouvelles orientations de recherche quant à la carrière du dénommé Théodore.

Dans cette proposition de communication : 1) nous examinerons les différentes occurrences de ce personnage, versé dans l'art de la poliorcétique et les différents rapprochements effectués entre ce dernier et des homonymes par la prosopographie ; 2) nous reprendrons les sources, dont nous tirerons le modèle type d'interventions pour lesquelles il a été détaché ; 3) enfin nous proposerons de lui attribuer les travaux de l'une des fortifications du limes danubien, en tentant de confronter cette hypothèse avec les attributions généralement reconnues à d'autres architectes poliorcètes, dans le but de mettre en évidence un courant innovant au sein de l'architecture militaire du VI<sup>e</sup> siècle.

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### Al McCluskey, The Functions of Hadrian's Wall; a view from the trenches.

The debate over the function or functions of Hadrian's Wall have become somewhat polarized between those who see it as an instrument of border control (Collingwood, Birley, Breeze Dobson et al) and those who see it as an instrument of defence (Daniels, Bidwell, Hodgson, Wooliscroft et al). Both perspectives are based on archaeological and historical evidence. The former argues that the Roman preference for offensive battle in the open field and the structural ineffectiveness of the wall as a fighting platform militate against its credible role in combat. The latter point out the combination of the ditch, berm pits, wall, and vallum, together with its various garrisons suggest a military object far more ambitious than mere border traffic control. This paper will attempt to reconcile both positions by using modern military analytical frameworks to reassess the evidence. Specifically, the Operational Framework of shaping, protecting, sustaining and decisive tasks will be used to suggest a coherent functional concept – containing elements of both current standpoints – that could be used to bring an elusive enemy to battle at a time, place and manner conducive to Roman success.

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### Frances McIntosh, The Clayton Collection; insights into everyday tools and manufacture at Chesters.

The Clayton Collection comprises a wide range of Roman period artefacts mainly from the Central Sector of Hadrian's Wall. It was collected by John Clayton (1792–1890) in the 19th century, a prolific excavator and preserver of sites along the Wall. By the time he died he owned five forts a large stretch of the central sector of Hadrian's Wall. The material is currently curated by English Heritage and can be viewed at Chesters Roman fort, where much of the stonework is displayed.

The collection contains pottery, sculpture, inscriptions, dress accessories, coins, tools and much more. The collection database contains c. 11, 300 object records as well as c. 2000 archive related records. This paper will focus on the c.200 tools (mostly iron) which have come from Chesters. Most of the tools are well preserved and so will allow division in sub-types. Some of the material has been used as comparisons by Manning in his catalogues on the iron work from the Museum of Antiquities and the British Museum but it has never been looked at as a whole. It is hoped that study of the tools may offer insights into the workmen present at Chesters and the techniques they were using.

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### Jost Mergen, Niederbieber and the earliest research on the Upper-German limes in the late 18<sup>th</sup> and early 19<sup>th</sup> century.

The fort at Niederbieber (185/194–259/260 a. D.) in Neuwied, Rhineland-Palatinate, is one of the most important dated sites of the Roman history of Germany. Despite its historical significance and long history of research concerning the fort, updated research is lacking.



The first excavations were carried out in 1791 by Christian Friedrich Hoffmann (1762–1820), while teaching the three princes of the dynasty zu Wied. The archive of the dynasty, the Fürstlich-Wiedische Archiv (FWA), includes a large pool of more than 1000 handwritten pages regarding his archaeological activities. So far a widespread analysis of these sources hasn't been carried out, even though they present various details and unknown aspects of the site. The localisation and reconstruction of archaeological findings is one of the main aims of this study. In many cases objects mentioned in the primary sources can be traced back to their original archaeological context. Furthermore, the documents are very important for the history of the research of the roman frontier in this part of Germany and in general. Hoffmann was the first person who described his observations of the limes in the adjacent area of Neuwied, discovering remains of the frontier itself, ruins of watchtowers and small forts. His correspondence shows contacts with other early researchers of the Roman limes such as Christian Friedrich Habel or Franz I. Earl of Erbach-Erbach. Hoffmann was a typical example of an autodidact, who constantly improved his excavation skills and methods of interpretation. During the so-called Befreiungskriege and early German nationalism, a development in Hoffmann's language can be traced which in turn shows how archaeology was able to be used for the creation of a national identity.

The analysis of the FWA will present an inside view of the earliest archaeological fieldwork carried out in the Rhine area long before this discipline became an accepted academic subject. The dissertation project is supported by a scholarship from the Deutsche Limeskommission.

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## Marcus Meyer, Der römische Militärplatz von Welzheim, WN, Baden-Württemberg. Auswertung der archäologischen Forschungen von 1974–2006

Im Gebiet der heutigen Stadt Welzheim befand sich von etwa 160 bis um 260 n. Chr. der bedeutendste Militärstandort nahe dem Süd-Ende des 80 km langen schnurgeraden Teilstücks des Obergermanischen Limes. Hier existierten drei verschiedene Militärlager, von denen das größte, das sog. Westkastell, eine 500 Mann starke Reitertruppe beherbergte, wahrscheinlich die Ala I Scubulorum, die zuvor in Bad Cannstatt stationiert war. Östlich davon stand ein Numeruskastell, das Ostkastell, in dem eine 300 bis 400 Mann starke Besatzung aus Infanterie, dem Numerus Brittonum L., sowie einigen berittenen Kundschaftern (*exploratores*) untergebracht war. Das dritte Militärlager ist das nördlich vom Ort gelegene Kleinkastell Rötelsee mit einer ursprünglichen Besatzung von rund 20 Soldaten.

Innerhalb des heutigen Stadtgebiets und größtenteils modern überbaut erstreckte sich ursprünglich auch das rund 20 ha große Lagerdorf, das überwiegend aus einfachen Holzfachwerkbauten bestand und über das nur geringe Kenntnisse vorliegen. Im Nordosten der Siedlung befand sich ein beigabenarmes Brandgräberfeld; weitere Einzelgräber im Süden sind ebenfalls bekannt.

Ein bislang ungelöstes Rätsel stellt der Limesverlauf im Stadtgebiet von Welzheim dar, weil hier trotz 120-jähriger Suche bislang auf eine Länge von 3,2 km keine Sperranlagen nachweisbar sind. Wäre der schnurgerade Limesverlauf auch im Bereich der heutigen Stadt beibehalten worden, würden das Ostkastell, Teile des Lagerdorfes und des Gräberfeldes außerhalb des Limes liegen. Da dies unwahrscheinlich ist, dürfte das Sperrwerk östlich um das heutige Stadtgebiet herum verlaufen sein und anstelle von Graben und Wall markierte dort der kleine Fluss Lein die Grenzlinie.



Seit 1974 bildet Welzheim aufgrund zahlreicher Ausgrabungen einen Schwerpunkt der Landesarchäologie in Baden-Württemberg. Neue Erkenntnisse lieferten darüber hinaus mehrere geophysikalische Prospektionen. Überregionale Bekanntheit erlangten die besonderen Brunnenfunde. Dazu zählen der über 100 Individuen umfassende Schuhfund aus dem Ostkastell von 1976 sowie die bronzenen Paraderüstungsteile eines Reitersoldaten aus dem Lagerdorf von 2011. In einem von der Deutschen Forschungsgemeinschaft geförderten Auswertungsprojekt werden die Grabungen in den Militärlagern derzeit bearbeitet. Im Rahmen des Vortrags werden Befunde und Funde sowie neue Erkenntnisse aus den Auswertungen vorgestellt.

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## Nigel Mills, Illuminating the Frontier

This paper explores opportunities to raise the public profile of the Frontiers of the Roman Empire through partnership events and activities, building on the experience of a number of major events and exhibitions carried out across the full length of Hadrian's Wall between 2008 and 2014.

The Living Frontier event in 2009 featured around 500 re-enactors in events at sites all along the Wall, with the highlight being a 90-minute pageant in Corbridge, which brought together all performers and re-enactors in a spectacular show of music, drama, and technical wizardry. The event included bringing together a full century of legionary soldiers.

Illuminating Hadrian's Wall created a spectacular line of light from coast to coast on Saturday 13 March 2010, following the whole route of the 84 mile long Hadrian's Wall Path National Trail. 1500 volunteers from around the world lit the Wall for an hour at dusk. The event received international publicity and reached an audience of over a billion people world-wide.

Connecting Light was a digital art installation along the Wall created as part of the London 2012 Festival celebrating the Olympic Games. The event was designed by New York based digital arts collective YesYesNo with founding member Zachary Lieberman. The concept was to present Hadrian's Wall as a bridge not a barrier, allowing people to share their experiences and thoughts about the barriers, physical or emotional, in their lives today. The vision was for 400 two metre diameter balloons with internal LED lights changing colour in response to digital messages, creating lines of pulsating colours.

Wall Face was an experiment in partnership working across the Wall that took place in 2014. All eleven sites and museums across the Wall hosted part of a Wall-wide exhibition, undertaken in partnership with the National Portrait Gallery, displaying portraits of notable archaeologists and antiquarians who first revealed and protected the monument. This has created a basis for future partnership projects.

These different experiences could provide a template on which to build partner activity across the different parts of the Frontiers of the Roman Empire, helping to raise the public profile of the monument and its significance.

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### Carsten Mischka, Large buildings in the vici at the Raetian Limes in Bavaria. Gradiometer-surveys 2010–2014

Since March 2010, the Institutes of Pre- and Protohistory at the Christian-Albrechts-University Kiel and the Friedrich-Alexander-University Erlangen-Nürnberg, in cooperation with the Bavarian Cultural Heritage Department have conducted gradiometer surveys on the civil settlements at the forts along the Raetian Limes in Bavaria. For the first time in Germany, the results of these surveys allow us to draw up a representative picture of the civil landscape in a complete limes segment. On this segment between Ruffenhofen to the west and Hienheim in the east, places without any trace of civil settlement coexist with vici of some hectares in size, with complex spatial order, the remains of scenic theaters (Theilenhofen), big stone-built complexes of more than 100m front-length (Gnotzheim, Dambach) and porticus-enclosed squares up to one hectare in size (Pförring, Ruffenhofen, Theilenhofen). These structures lead to new insights to the special organization of the military settlements and the scale of organization of the community in this borderland of the Roman Empire.

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### Blanka Misić, The Roman Army and the Divinities of Mursa

In recent years the field of cognitive science of religion has become ever more popular among scholars of antiquity who seek to understand the relationships that ancient peoples entertained with their divinities. The present paper proposes to analyse, in light of the cognitive science of religion theoretical approaches, religious evidence from *colonia* Aelia Mursa (modern-day Osijek, Croatia), a settlement which flourished on the Danubian *limes*, in the southern part of the Roman province of Pannonia. It is well known that throughout the Roman period several military units, consisting primarily of auxiliary troops and *beneficarii consularis*, were stationed at Mursa. This paper seeks to shed greater light on the ways in which these soldiers contributed to enhancing the religious identity(ies) of Mursa: how they transferred their own religious concepts to the inhabitants of the settlement, and how they came to understand and interact with existing divinities of the region.

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### Timothy Mitford, East of Asia Minor. Rome's hidden frontier

The Roman frontier in eastern Turkey stretched for nearly 500 miles, from Samosata in northern Commagene to Trapezus on the Black Sea coast. Its existence has remained largely unknown to scholarship. Hogarth and Yorke searched in vain in 1894. A fuller picture has emerged during 50 years of fieldwork, mainly on foot, along the valley of the upper Euphrates and over the mountains of Armenia Minor and Pontus, in eastern Turkey. I first sighted the Euphrates in 1963. It was a golden age for fieldwork. Villages had no roads, running water, or electricity. Animals and the land supported an ancient way of life little changed since Roman times. In this remote and desolate region, 800 miles by road from the Aegean, the mountains of eastern Asia Minor presented challenges of altitude, accessibility and climate unknown in other sections of the imperial frontiers.

The scale was daunting, and the distances were great. Between Samosata and Trapezus the Cappadocian limes was five times the length of Hadrian's wall, and in places more than seven times as high. The right bank of the Euphrates, at around 3000 feet, is impassable in several enormous gorges. In places driven high above and in rear of the river, the main frontier road can be traced almost throughout. From Commagene it climbed over the Taurus to the legionary fortress of Melitene and the furthest reaches of Cappadocia, crossed the main ranges of the Antitaurus, passed through and over Armenia Minor to the fortress of Satala, at nearly 6000 feet, and in summer scaled the Pontic mountains at an altitude of nearly 8400 feet. Here, a vertical mile above the Euphrates, Xenophon and Hadrian looked down on the sea. The Antonine Itinerary and the Peutinger Table give us a sequence of place-names, mainly of auxiliary forts carefully sited about a day's march apart, and alternative routes over and around the mountain barriers. But this was a world ravaged since Roman times by nearly 300 years of Arab raids, the onslaught of the Selcuks in the 11<sup>th</sup> century, the Mongol invasions of the 13<sup>th</sup> and 14<sup>th</sup> centuries, in the north the Russian advance in 1916, and the frightful departures of the Armenians and Pontic Greeks. Destruction of antiquity has been on a grand scale. The fortresses at Samosata and Trapezus have vanished. Of the auxiliary forts, clear remains survive of only three. But the positions of most, some signposted by military inscriptions, can be determined with precision. The military road, 5 to 8 metres wide, preferred high ridgeways, avoiding a need for bridges except over the larger rivers. Beside these survive the remains of five, two dated to Severus and Decius, and all carrying a roadway of c.5m20. Milestones are scarce: Marcus and Lucius in northern Commagene, Diocletian and Constantine around Melitene, Vespasian, Domitian and Hadrian in Armenia Minor. Established by Vespasian, the Cappadocian limes was among the most important in the Roman empire.

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### Cecilia Moneta, New Research on the Roman Fort at the Saalburg.

The fort at the Saalburg was excavated from the middle of the 19<sup>th</sup> century until 1934. The fort is very important in the history of German research on the limes, the first timber fort, the so-called Erdkastell, is one of the few dated sites of Roman archaeology in Germany. Though the phases and the plan of the fort were often items of discussion, the excavations were never completely published. Through a re-evaluation and the study of the old excavation documentation many unanswered questions can now be answered. The several construction phases of the fort were clarified and dated. Another important aspect is also the question about the internal buildings of the fort. The Saalburgfort in the stone-phase has a very irregular layout; the location of some buildings is unusual. This paper shows a reconstruction of the fort with the buildings in the various phases. Different areas with different functions in the fort can be recognized.

While the vicus was destroyed probably in 233 AD, the fort had a longer history. There are some indications that in the last phase the fort had a different layout. Barracks were abandoned and instead small heated rooms were built. After 260 AD the fort was also abandoned.

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### Dominic Moreau, Les évêchés sur le *limes* romain jusqu'à la fin de l'Antiquité (The Episcopal Sees on the Roman *limes* up to the End of Antiquity)

In the Later Roman Empire, most episcopal sees were set into the urban fabric of existing cities, their hierarchy mirroring that of these cities. Because the *limes* was relatively little urbanized, the establishment of bishoprics on the frontier was thus unusual. However, there are a few exceptions and this paper will focus on them, by considering, both historically and archaeologically, four *bordelands* : the Near East, Africa, the Rhine and the Danube.

An emphasis will be put on that latter region, since it includes the most obvious example of a network of episcopal sees of the Roman frontier. Indeed, the urban development of the Danubian provinces followed the military outposts on the river, especially in the Lower Danube (Northern Serbia and Bulgaria, Southeastern Romania). The second line of fortifications also seems to have played an important role in the Christianization of the territory, since many of its cities predated the arrival of the Romans (unlike the first line).

This paper will thus consider the reasons for the establishment of bishoprics on the *limes* and in its hinterland, as well as the place and role of their bishops in the ecclesiastical organization, not only with regard to the civic *statutes*, but also by reviewing the value of sources like the *notitiae episcopatum*. It will also consider the episcopal presence in the urban framework, through the study of the ecclesiastical infrastructures. This survey will be completed by a brief discussion of the episcopal sees outside the Roman Frontier. Often considered by the imperial Church as belonging to the Roman/Byzantine ecclesiastical hierarchy, they suggest that the notion of *limes* may have been more blurred than is usually thought.

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### Ángel Morillo/Victorino García Marcos/Javier Salido, The military *vicus Ad Legionem* – Puente Castro, León (*Hispania citerior*)

This paper focuses upon the architectural layout of the Roman military *vicus* discovered in 2000 near to the town of Puente Castro, to the south east of the city of León (Spain). The buried buildings appear to be part of a secondary agglomeration or military *vicus*, within a well-developed communications network, and in close interdependence with the nearby camp of *Legio VII Gemina*. The settlement is called *Ad legionem*. The present study allows us not only to propose the possible function of the buildings of the *vicus*, but also to identify at least two phases of construction at this civil settlement.

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## Jennifer Morscheiser-Niebergall, Neue Grabungen und Forschungen im Zentralbereich des Bonner Legionslagers

Seit dem letzten Limescongress in Bulgarien konnten im Zentralbereich des Bonner Legionslagers eine ganze Reihe größerer und kleinerer Grabungen die Erkenntnisdichte entlang der *via principalis*, aber auch an der Rückseite der *principia* deutlich erhöhen. Besonders erfreulich sind die Ergebnisse sowohl für die Gründungsphase in tiberischer Zeit, als auch zur Nutzung des Areals bis in das fünfte Jahrhundert.

Im ersten Teil des Vortrags sollen zunächst die jüngsten Grabungen vorgestellt werden. In der Drususstraße legte 2014 die Firma Archaeonet unter Leitung von M. Hoffmann eine Mannschaftsbaracke, aber auch die südwestliche Ecke des Stabsgebäudes frei. Diese unterscheidet sich in dem Befund deutlich von der südöstlichen Ecke, die bereits 2005 durch die Außenstelle Overath des LVR-Amtes für Bodendenkmalpflege untersucht wurde. Hier zeigen sich Hinweise auf die Umnutzung des Gebäudes in der Spätantike. Im Bereich der angenommenen ersten Kohorte konnte durch die Außenstelle Overath sowohl Wohnbebauung als auch eine Badeanlage freigelegt werden. Die Nutzungsveränderungen spiegeln sich besonders gut in dem Wandputz wider, der großflächig abgenommen und in einer Grube deponiert wurde.

Die neuen Grabungen der letzten Jahre machten eine grundlegende Überarbeitung der bestehenden Lagerpläne notwendig. In Zusammenarbeit mit St. Bödecker wurde ein neuer Gesamtplan des Lagers erstellt, der im zweiten Teil des Vortrags vorgestellt werden soll.

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## Martin Mosser, The legionary brickyard of Vindobona (Vienna, Austria)

Based on recently excavated kilns within the legionary brickyard of Vindobona, about 2 miles west of the fortress, the reconstruction and infrastructure of such a manufactory with kilns, drying halls, sumps and water pipes etc. will be presented. For the first time the legionary stamps as well as the archaeometry of the bricks let us comprehend the supply of the fortress and the whole settlement of Vindobona with building material from the brickyard in Hernals. A nearby graveyard and a passing Roman arterial road leads to the question how the workshop was integrated in the settlement pattern of Vindobona. Another topic will be the supra-regional significance of that location by providing bricks and tiles nearly along the whole Pannonian limes.

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## Nemanja Mrđić, Roman limes in Serbia from Sources, Through Travel Journals to Modern Multidisciplinary Research

Research of the limes in Serbia, or better to say Danube limes in Lower Pannonia and Upper Moesia, had been object of research for past several centuries. Iconographic and literary sources from

antiquity like Itineraries, ancient histories and Notitia Dignitatum were often used as a base, but lack comprehensive analyze with results of modern multidisciplinary research. Similar situation can be attested when comparing journals and drawings and fortification plans of European travelers like A. Marsigli, F. Kanitz and others through Serbia from 17–19<sup>th</sup> century. These were usually taken for granted without deeper analyze what do these people really saw during their journeys. These people had the opportunity to see many architectural remains before they were destroyed and only now we can fully understand their descriptions, modify our interpretations or correct their unintentional mistakes. This paper will offer new interpretations and conclusions based on what these sources have recorded with data of recent surveys and excavations. Focus of the text is on Viminacium and new research of the city and legionary fort, but other fortification will also be included depending on the level of research in past several decades.

We will offer new solutions for discrepancies in Notitia Dignitatum and discuss transformation of the late roman military iconography in relation to troops that were the traditional garrison in forts along Danube. Large excavation projects, both protective and systematic that are undergoing since late 1960-ies combined with systematic aerial surveys as well as analyses of satellite imagery finally provide enough data for this comparative study.

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### **Gundula Müldner, Diet and Foodways at the Northern Frontier: The Isotope Evidence**

Stable isotope analysis of skeletal remains is a relatively new addition to the suite of techniques which are used to study diet and foodways in the Roman Empire, offering the rare opportunity to study the food consumption of individuals. Recent years have seen a very significant increase in the number of isotope data available for Romano-British populations and, as a result, it is now possible to make meaningful interpretations beyond the level of individual case-studies. This paper will give an overview of the main trends that can be observed in the isotope data from Roman Britain and examine specifically, how food consumption was used to express social status and individual identities.

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### **Eduard Nemeth, Close Encounters at the Roman Frontiers during the Principate**

The frontiers implanted by the Roman Empire in various regions caused more often than not major disruptions in the life of the traditional societies in those parts of the world. Sometimes the encounters were violent or took at least some form of conflict. There were also regions and periods of time when the Roman state and its neighbours coexisted peacefully through trade and other types of mutually beneficial exchanges through the so-called “open frontiers”. The scope of this paper is to investigate how some of the encounters between the Romans and the local communities unfolded during and after the establishment of the Roman provinces and frontiers in their vicinity and why sometimes the interactions between Romans and “Barbarians” were peaceful, while other times they became conflicts or even open wars. What was the fundament of peaceful vicinity and which

were the causes of conflicts? Were the economical factors, the political factors or the mentality and conceptual differences prevalent? I'll try and answer these questions based on written and on archaeological evidence, where available.

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### Ryan Niemeijer, The large Augustan camp on the Hunerberg in Nijmegen (NL)

In the 1950's the first traces of a large camp, dating to the early Augustan period, came to light on the Hunerberg in Nijmegen (NL). Initially it was thought the camp was built for legions that never came, and therefore was never finished. It was thought that only the defenses had been built, and that the housing consisted of tents instead of proper buildings. Later excavations inside the camp have proven this theory obsolete. Until now, traces of the central buildings with the principia, the possible praetorium, and residences of high ranking officers have been found. In addition, tabernae along the via principalis and numerous barracks and barrack-like buildings have been identified.

These were built in timber framework technique. The sandy soils of high Nijmegen are unfit for preservation of organic materials, but the decayed wood is visible as dark brown traces in the yellow sand.

The use of timber as a building material was not a matter of choice, but the result of availability. Stone is absent in the Nijmegen area, and in this early period there was no infrastructure to import large quantities of stone. In fact, it wasn't until a century later before this kind of building material was imported and used to rebuild the Flavian timber camp of the Legio X Gemina in stone. The timber used for building the first camp could have been provided locally. Clearing the site for the camp included grubbing up a forest; it is plausible the timber was used as building material.

The ground plans of most of the interior buildings are far from complete. However, by comparing the layout with buildings with known functions, and using the location in the camp and the finds as additional sources of information, even these partial plans can provide information on the builders and/or intended users.

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### Karl Oberhofer, Moving out from Brigantium (Bregenz/A): a wood construction as indicator of the military fort's demolition

In 2010 excavations in Brigantium/Bregenz a well preserved wood construction was unearthed. Covered by the compact gravel of the road embankment the construction could be located just in the area of the main road. It consisted of shaped planks over a stabilizing grate of beams with an overall width of 6 metres.

At first it was not possible to determine the longitudinal extent of the construction. Thanks to new research on excavations from the beginning of the 20<sup>th</sup> century in the close vicinity the total extension of the wood construction has now been clarified. The processing of these related features, including a GIS-based georeferencing, allows to correlate recently terminated excavations with field studies of the 19<sup>th</sup>/20<sup>th</sup> century.



The stratigraphic sequence shows the systematic dismantling of the Tiberian fort and the immediate transition of Brigantium into a civilian settlement: the demolition of barracks and other internal buildings is signalized by thick levelling strata of homogenous clay. Probably because of this process the Roman main road crossing the area of the former fort became unpassable. Subsequently the mentioned wood construction had to stabilize younger road embankments. Further this paper also deals with recently completed dendrochronological analyses of the wooden material. The results of more than 600 samples of beams and planks demonstrate the wide spread of the determined felling years and the inhomogeneous structural composition of the wood construction. The systematic final use of old constructional timber provides an insight into the processes accompanying the dismantling of the Tiberian military fort of Brigantium.

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### Ioan C. Opriș/Alexandru Rațiu, Capidava – The Late Fortlet (end of the 6<sup>th</sup> – beginning of the 7<sup>th</sup> c. AD). Chronological Issues

In the past decade, the archaeological research from Capidava (Constanța County, Romania) materialized in several campaigns having as secondary objective the research of the fortification system of the fortlet. The latter represents the last significant Roman defensive effort in the southern quarter of the previous fortification. This fortification was built a fundamentis after the dramatic Gothic attacks by the middle of the 3<sup>rd</sup> c., at some time between the reign of Gallienus to Tetrarchic times, according to a plan inspired by the legionary fortresses. It knew several constructive phases, with minor or severe destructions and subsequent repairs, serving this local strategic crossing of the Danube until the 6<sup>th</sup> c. AD.

Through archaeological excavations performed in several areas within the precinct of the late fortlet and its surrounding defence ditch, along via principalis, one could identify the stratigraphic and chronological sequences dating from the 4<sup>th</sup> c. AD up until the violent destruction stage taking place in the last two decades of the 6<sup>th</sup> c. AD, which led to the desperate and temporary re-dimensioning of the fort. In our presentation, we will try to reflect this chronological succession through the analysis of several known archaeological finds along with other newly recorded data.

The fortlet from the southern quarter of Capidava represents the latest known construction of its kind. Its closest analogy is on the Rhaetian Limes in Eining (Abusina), yet dated two centuries earlier.

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### Coriolan Horațiu Opreanu/Vlad-Andrei Lăzărescu, The Limes Elements on the Dacian Northern Frontier. An Analysis Based on Recent LiDAR Scanning

This paper is a result of a Research Project “Seeing the Unseen. Landscape archaeology on the northern frontier of the Roman Empire at Porolissum” that uses an interdisciplinary approach to explore the ancient habitat from the area of the Roman *limes* of *Dacia Porolissensis* on the territory of nowadays Romania. In order to map the structures of the advanced defence system of the military and civilian complex at *Porolissum* in March 2013 a LiDAR survey has been performed on a 10 km<sup>2</sup> forested area. The data was acquired using a D-EBMW/C207 helicopter equipped with Riegl’s LMS-



Q560 laser scanner, flying at an altitude of 600 m. The raw LiDAR data were used to create a very accurate DTM and DSM obtaining a very good resolution of 0.5 m.

The results of the survey showed for the first time the precise location of several types of defence works such as turf walls, stone walls, forts, *burgi* and watchtowers. It is now possible to understand the connection of this system to the line of the *limes* of the province. It is a contribution to the attempt of understanding the genuine *limes* of *Dacia Porolissensis* which was not based on a continuous defence line but rather as a complex system of in-depth surveillance.

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### Coriolan Horațiu Opreanu/Vlad-Andrei Lăzărescu/Dan Deac/Cosmin Onofrei/Dragoș Blaga, Roman-Barbarian Flee Market Place Identified on the Northern Limes at *Porolissum* (Dacia)

The north-western frontier of *Dacia Porolissensis* faced the Barbarian world. The main military point of this *limes* sector was *Porolissum*. During the Marcomannic Wars, new barbarian mixed groups advanced from southern Poland coming close to the Dacian frontier.

*Porolissum* was the end of the Imperial road crossing *Dacia* from the Danube to the northern frontier. Here, right at the edge of the road, was excavated a mile-castle having attached the Roman customs office building. Two inscriptions dedicated to Commodus call him *restitutor comerciorum* after the ending of the Wars. Recently, a rescue excavation was performed in the vicinity of the customs point, outside the watchtower's line which protected the Roman settlement. There were no stone constructions identified, only large pits surrounded by post-holes suggesting wooden temporary structures with light roofs and without fire installations. Instead, many archaeological artefacts were recovered: a lot of Roman fine fabric vessels as well as handmade pottery, more than 150 Roman bronze and silver coins (some counterfeited), more than 100 iron hobnails, 40 brooches, raw amber fragments and other small finds. The numerous coins suggest intensive trade activity. Most of the brooches are of barbarian type specific to the Przeworsk culture. Our hypothesis is that it was a place where periodically were organized flee-markets where Barbarians were allowed to trade. Such markets are mentioned in the ancient literary sources.

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### Coriolan Horațiu Opreanu/Vlad-Andrei Lăzărescu/Monica Gui/Dan Deac, The "Ballistarium" Building from the Roman Fort at *Porolissum* (Dacia)

The building is situated on the northern side of the Roman fort very close to the *porta praetoria* and was excavated between 2010 and 2014. It is a 25 x 10 m construction divided into equal compartments. The stratigraphy revealed five main habitation layers. The analysis of the small finds and coins showed that the building was erected around AD 140–160 and functioned between AD 160–180/190. Around AD 200 it seems that this building collapsed and was never reconstructed. The destination of the building was established based on the finds recorded from the main habitation layer. Among the military equipment fittings, weapons, pottery, glass and bone objects the most significant category of artefacts was approximately 100 rounded stone artillery projectiles having an

average diameter of 9 cm. We concluded that the building had as its main destination the storing of artillery projectiles, war machines and other weapons being a “ballistarium”. It is also discussed the situation from other auxiliary forts in Britain, war machines used by auxiliary troupes being always identified in “conflict zones” of the Roman frontier.

## Szilamér-Péter Pánczél/Daniel Cioată, The Fortlet of Vătava (Mureş County, Romania). A Transylvanian Fairy Tale

At the Eastern limes of Roman Dacia on the Brâncovenesti/Marosvécs–Sărățeni/Sóvárád segment three auxiliary forts (Brâncovenesti/Marosvécs, Călugăreni/Mikháza and Sărățeni/Sóvárád), five fortlets (Vătava/Felsőrépa, Ibănești/Libánfalva, Chiheru de Jos/Alsókőhér, Eremitu/Nyárádremete I and II) and a watchtower (Ideciu de Sus/Felsőidecs) has been identified so far. This borderline is running parallel with the western slopes of the Inner Eastern Carpathians, mainly the Călimani/Kelemen and Gurghiu/Görgény Mountains.

The fortlet of Vătava was identified due to metal detecting, which was followed by aerial archaeological and geophysical survey. Through recent small scale excavations we managed to acquire important structural data, and through the discovered finds we revealed relevant dating and functional evidence from the fortlet and its surroundings. The quite large concentration of finds and small finds, in comparison with the other fortlets of Dacia, stretches at least from the middle of the 2<sup>nd</sup> until the middle of the 3<sup>rd</sup> century AD, proving also an intensive roman land use of the area.

The fortlet was in the vicinity of the province boundaries between Dacia Superior and Dacia Porolissensis, but being closer to the one from Brâncovenesti where the *ala n(umeri) Illyricorum* was garrisoned, we can presume that this cavalry unit was providing the necessary manpower and supplies for it. The roughly 250m<sup>2</sup> fortlet was probably supervising a major traffic rout leading towards the Barbaricum following the ridges of the Călimani mountains. On the maps of the late 18<sup>th</sup> century this mountain route is supervised by a ‘Watch post’ (positioned further up the hill) and it seems that at least that time this was still a functional route to cross the Carpathians.

## Szilamér-Péter Pánczél/Máté Szabó, Filling the Gaps. Looking at the Landscape on the Eastern Limes of Dacia

The Eastern limes of Dacia superior is one of the lesser-known border areas of Roman Dacia. In papers regarding the defensive system or individual sectors, one can find mainly scarce data concerning the structural evidence of the sites and scattered reference to the artefacts. In the area between the upper Mureş valley and the upper Târnava Mică valley (the territory of today Mureş/Maros County, Romania) three auxiliary forts and neighbouring military vici are known, the ones from Brâncovenesti/Marosvécs, Călugăreni/Mikháza and Sărățeni/Sóvárád. Except Brâncovenesti for all the other elements possibly belonging to the defensive line (watch- or signal towers, fortlets, earthworks, roads etc.) only preliminary research reports or smaller studies concerning individual finds or artefact categories are available.

Since 2008, in the framework of different projects an intensive investigation of this area started focusing on varied aspects of the research, protection and heritage management of the sites. The

aim of the international and interdisciplinary research team was to start a fundamental research which will create a point zero for future research by collecting and reinterpreting all the available data from publications and though the recently acquired survey data (aerial archaeology, field survey, geophysics, metal detecting, etc.) and results of small scale excavations. The main aim of this paper is to analyse how this border sector could have been working in the 2<sup>nd</sup> and 3<sup>rd</sup> century AD. Due to the quite fragmented landscape of Eastern Transylvania and the gaps in the research, our main endeavour was not just to locate new sites which might have belonged to the limes and to acquire new data about the already existing ones, but also to have a more convincing narrative or at least an insight about how this peculiar border segment of the Roman Empire was operational.

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### **S. Thomas Parker, Military versus Civilian Diet on the Arabian Frontier**

Various lines of recently published evidence from both military and civilian sites on Rome's Arabian frontier now make possible at least a preliminary comparison of the military versus civilian diet. The available military evidence is not only strongly biased towards late Roman sites but also presents other difficulties in interpretation, especially the lack of quantified evidence from several key sites. Nevertheless, some useful comparisons and contrasts may be drawn, either directly from the botanical and faunal remains or indirectly from artifactual evidence, such as imported amphorae and various kinds of local coarse ware ceramics. It seems that, although the basic diet appears to be similar for both soldiers and civilians, the evidence may suggest some rather subtle differences.

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### **Karolien Pazmany, Tension between military and civil lifestyle at the frontier. Urban developments and recent archaeological discoveries in the Roman provinces of Germania Superior, Raetia and Noricum**

This paper examines the rôle that garrison settlements played within the broader urban framework of the north-western Alpine region during the Roman period. The results presented are part of doctoral research embedded within the larger project 'An empire of 2000 cities: urban networks and economic integration in the Roman Empire', undertaken at the University of Leiden (The Netherlands) under the supervision of Prof. Dr. L. de Ligt and Prof. Dr. J. Bintliff and funded by the European Research Council. As the project's title suggests, the aim is to investigate the processes of urban development, the relations between urban centres, and the socio-economic implications. For this task the Roman Empire has been divided between eight researchers, each investigating a particular region. One of these study regions consists of the provinces of Germania Superior, Raetia and Noricum. The urban character here seems to have been defined by two main influences. On the one hand, the wave of official municipalisation seems to have been more limited compared with other parts of the empire, such as on the Iberian Peninsula or in North Africa. The rôle of non-official, or minor centres therefore has an increased emphasis. On the other hand, the structure of the urban network in these provinces was strongly influenced by the character of the military presence. These two aspects, along with the presence of public buildings and urban features in these garrison

settlements, ensure that the function of military vici in this region is central to the question of urban development.

Fora, markets, theaters and amphitheaters were urban elements originally related to official Roman towns. New research has shown that these types of architectural adornment also arose in lower order civilian settlements, such as Gleisdorf, Brennodorum (Bern), and in garrison settlements, such as Arnsburg, Iciniacum (Theilenhofen), and Quintana (Kuenzing). Although there have been important provincial studies, few attempts have been made to compile a complete catalogue of the urban features of military and civilian centres, and to compare this with that of the officially recognized Roman towns on a broader scale. In the North-Alpine region, recent survey reports as well as older synthetic studies, such as the Die Römer in ... series, allow us to reconsider the urban character of this frontier region. An overview of the official towns with their public buildings and urban characteristics will be compared to the degree of urbanism in non-official centres (i.e. garrison settlements). Through an examination of these various physical features, an answer to how town-like garrison settlements were will be approached.

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### Adam Pažout, Early Roman fortifications in northern Negev – spatial analysis

Roman-period fortifications in northern Negev received great deal of scholarly attention since pioneering work of Musil and Alt and then again between 1960s and 1980s with the research of Gichon, who proposed existence of “Limes Herodianus” – fortified border zone in existence since Herod’s reign. This claim was later contested and mostly abandoned, however new interpretations are scarce and focus on few excavated sites. This contribution concentrates on various aspects of functioning of military sites. In order to examine “mode of operation” of these sites one needs to evaluate all types of data; and spatial analysis using GIS tools is one of the means to explore relationships between military and civilian sites. Results of two analyses will be presented and evaluated – inter-visibility and cost-surface. Both analyses aim to answer question about inter-connectivity of the sites in terms of visual communication and reconstruction of the Early Roman road system in northern part of Negev, known mostly only from 2<sup>nd</sup>/3<sup>rd</sup> c. CE onwards, supposing that both types of communication and connection – visual and physical would have been of primary importance for military of Herodian rulers of Judaea and later that of Roman governors. This paper argues for two zones of interaction in the region – one in sparsely populated desert areas and another one in inhabited agricultural region; each reflecting different approaches in policing, control of population and administration of province.

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### Liviu Petculescu/Cristina Mitar, The civilian settlement at Micia in Dacia Superior. Topography, chronology and legal status (Dacia Superior)

Built immediately after the annexation of Dacia, the auxiliary fort at Micia was located on the western Dacian limes, where the river Mureș cuts through the Carpathians Mountains making one of

the major routes linking the Roman province to the Sarmathian territories. Due to the importance of commanding this road, in the first half of the 2<sup>nd</sup> century AD the garrison of Micia was increased to three military units quartered in a fort of c. 7 ha lying on the southern river bank.

Towards the line of the frontier which is about 2800 m to the west of the fort, there are only a few isolated buildings, among which is at least one temple. On the other three sides the situation is different. To the north, towards the river bed at a distance of about 100–120 m, there are some unidentifiable buildings and three baths, one with a palestra. To the east, is a densely built-up area with a road network of a grid pattern extending for c. 400 m, which represents the core of the settlement. At c. 300 m distance from the southern wall of the fort lies a recently excavated dwelling house with an enclosure wall surrounded by out buildings and a tract of land. This looks like a so-called villa suburbana and not a part of the proper settlement of houses aligned along the road network. So it seems that the land towards the hills, some 750 m south of the fort was used mainly for agricultural activities or even leisure, specific for the outskirts of settlements.

The excavation of a bronze workshop c. 200 m east of the fort provided evidence for the broad chronology of the civilian settlement. Thus Phases 1 and 2 dating from Trajan and until the Marcomannic Wars are characterized by timber buildings. From c. 180 until 260/270 follows Phase 3, when the stone buildings are generalized. The bronze workshop marks the outskirts of the Phase 2 settlement. Stone dwelling houses were built over the levelled workshop and further east doubling the area of Phase 3 settlement in which the “industrial quarter” was c. 400m from the fort wall. Also in this phase the villa suburbana and probably the amphitheatre were built, and the military baths were rebuilt.

The Micia settlement is attested epigraphically as a pagus obviously belonging to the territory of Ulpia Traiana Sarmizegetusa, the only colonia of Dacia founded by deductio. However, some land near the fort must have been under military jurisdiction, and in fact the baths are documented epigraphically to be cohorts property. Thus, at least the baths and very probably the constructions in the northern part of the settlement including the amphitheatre were built on military land. Yet the development of a proper military vicus seems to have been hindered by the existence of the pagus itself. Anyway veterani et cives romani lived together in pagus Micia (CIL III 7847), as did the veterani and pagani from Rapidum in Mauretania Caesarensis who resided inside the same fortified settlement (CIL VIII 20834–20835).

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### David Petts, The vicus bath-house at Vinovia-Binchester (Britannia)

Recent excavations within the vicus next to the Roman fort at Binchester (County Durham; UK) have revealed the remains of the best preserved Roman bath-house on the Northern British frontier with walls surviving up to 2m high. This complex probably had its origin in the 2<sup>nd</sup> century and had seemingly fallen out of use in the 4<sup>th</sup> century, when it became the focus of large-scale dumping of refuse deposits entirely filling the interior of the structure. This paper explores the development of the bath complex and drawing on the structural, artefactual and epigraphic evidence considers the range of potential users including the garrison and the vicani. There will be a particular focus on the range of religious and ritual practices that have been identified as taking place in the baths and their immediate surroundings.

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## René Ployer, Neue Forschungen zum römischen Kastell von Lentia/Linz

Die Präsenz römischen Militärs in Lentia ist aufgrund schriftlicher Überlieferungen sowie zahlreicher Funde militärischen Charakters unumstritten. Die genaue Lage eines Kastells ist jedoch unbekannt und die Suche danach gestaltet sich im dicht bebauten Stadtgebiet schwierig.

Rekonstruktionsversuche eines mehrphasigen Lagers im Bereich des heutigen Linzer Landestheaters wurden in den letzten Jahrzehnten in Zweifel gezogen. Allein die strategisch ungünstige Lage unmittelbar am Fuße des Schlossberges spricht gegen ein Kastell in diesem Bereich. Zu Beginn dieses Jahrtausends konnte zumindest für die mittlere Kaiserzeit ein Lager im Bereich der Spittelwiese postuliert werden, auch wenn der endgültige Nachweis für das Vorhandensein eines Kastells an dieser Stelle wohl nie geliefert werden kann. Für einen Militärstützpunkt der frühen Kaiserzeit und ein Militärlager der Spätantike konnten durch archäologische Rettungsgrabungen in den letzten Jahren neue Anhaltspunkte gewonnen werden. Befunde und Funde aus den Grabungen im Bereich des Linzer Schlosses zeigen deutlich, dass nicht nur das benachbarte Martinsfeld, wo sich Siedlungsreste ab dem 1. Jahrhundert v. Chr. fanden, sondern auch der Schlossberg in spätkeltischer und frühromischer Zeit genutzt worden war. Es ist durchaus denkbar, dass bereits zu dieser Zeit auf dem Schlossberg eine militärische Anlage bestanden haben mag, um diese sich im Schutz der römischen Truppen auch Zivilisten niedergelassen hatten. Für die Spätantike bezeugen ein mächtiger Graben sowie ein Garnisonsfriedhof militärische Präsenz auf dem Schlossberg. Ob zu dieser Zeit ein Kastell in klassischem Sinn oder eine befestigte Siedlung errichtet wurde, muss einstweilen noch unbeantwortet bleiben. Es liegt aber nahe, dass Lentia in jene für die Spätantike charakteristische Kastellkette am Donaulimes eingereiht werden kann, die in valentinianischer Zeit im Zuge der letzten großen Grenzerneuerung angelegt worden ist.

Im Beitrag zum Limescongress sollen Argumente gebracht werden, die auf einer Auswertung des Fundmaterials und der Grabungsergebnisse beruhen und die für bzw. gegen die verschiedenen in der Forschung diskutierten Lagemöglichkeiten eines Kastells in Linz sprechen. Hauptaugenmerk wird dabei auf die Grabungen auf dem Linzer Schlossberg gelegt, wo sich die Hinweise für eine spätantike Anlage mehren.

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## Andrew Poulter, Soldiers in towns and towns in forts: the role of the military in the hinterland of the Danubian *limes* in the provinces of Thrace, c. 259–378

There is no doubt that the epigraphic and archaeological evidence proves that the lower Danubian frontier was substantially and massively rebuilt in the period 298–302, with fortifications constructed along the right bank which were amongst the most impressive ever built in the Late Roman period. For Diocletian, the river separated Roman territory from barbarian lands to the north: no suggestion here of a 'defence in depth'. Nor is there reason to believe that there was any tactical change in strategy until the 370s; there were improvements in the late 360's, but only to counter minor raids by bandits (*latrunculi*) from across the Danube: an irritation, not a threat.

In the interior, there were a few military bases in southern Thrace which could have provided regional supervision but were too far apart to co-ordinate action or resist an invasion. There were some small fortlets to the rear of the frontier, in the Danubian plain, but they represent a reduction rather than an increase in military control, compared to the 2<sup>nd</sup> to early 3<sup>rd</sup> century.

However, it will be argued that there was a major change in the relations between civilians and the military in the frontier zone south of the Danube which was underway by AD 259 and which is most clearly seen in the actions of Licinius and Constantine: no 'advance back into Dacia' took place, despite the propaganda which suggests otherwise. But there was a fundamental and co-ordinated plan of creating 'military towns', centres of civilian administration, but performing a military role. The central theme of this paper is to demonstrate that such a radical change did take place and to explain why the army was involved. The conclusions presented here are not only of regional importance: I would suggest that a similar process can be applied to other 4<sup>th</sup> century frontier regions: notably in Pannonia as well as in central and northern Gaul. It will be fascinating to learn from colleagues whether the same practise was applied in other 'frontier zones' or whether different methods were introduced, perhaps *ad hoc*, to ensure the best possible defence of the Empire.

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### Ivan Radman-Livaja, 1<sup>st</sup> century AD small finds from Burgenae: chronological clues for the establishment of the fort

The site of Novi Banovci on the Danube river, in the south-western part of the Serbian province of Vojvodina, has yielded a large number of Roman finds since the 19<sup>th</sup> century, which is hardly surprising since the village occupies the spot of a Roman frontier fort called Burgenae. Before the collapse of the Austro-Hungarian Empire the archaeological finds from that area were usually dispatched to the Archaeological department of the Croatian National Museum and due to that fact, a fairly large collection of Roman finds from Novi Banovci is kept today in the Archaeological Museum in Zagreb, numbering several thousand objects. Some of them have been published since, but the majority still awaits a thorough analysis and publication. This should not be a matter of distant future since a catalogue of Roman finds from Burgenae is currently under preparation by the staff of the AMZ, due to be published by 2017 or 2018.

For this occasion, a selection of finds will be presented, namely finds which can securely be dated to the 1<sup>st</sup> century AD. Of particular importance are finds which may be dated to an even narrower timeframe since they can give us significant clues about the foundation of the fort, i.e a more precise dating of its establishment. As a matter of fact, there is no much doubt that the fort was built during the Flavian period at the latest (with the *cohors II Asturum et Callaecorum* as the first unit presumed to have been stationed there), but epigraphical data and sources do not point to a more precise dating. The analysis of early finds does not necessarily contradict a Flavian dating, but preliminary research has shown that an earlier foundation is not to be excluded.

Obviously, only field research may answer more precisely the question when the fort of Burgenae was actually built and garrisoned for the first time, but in the meantime the analysis of numerous old stray finds collected on the site may provide a plausible answer, albeit not a definite one.



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### Jennifer Ramsay, Roman Military and its Effects on the Arid Landscape of Southern Jordan and Israel: An Archaeobotanical Study

This archaeobotanical analysis seeks to gain an understanding of how the increase in the Roman military during the Roman and Byzantine periods affected agricultural production in the arid regions of southern Jordan and Israel. Archaeobotanical material from the sites of Aila, Humayma, Bir Madhkur, Ayn' Gharandal and Yotvata provide evidence during the Roman and Byzantine periods of local agricultural. The identification of cereal grains, legumes, crop by-products (e.g. chaff, culm and rachis segments) and weeds specific to crop fields supports the likelihood of successful local agricultural in this arid region occurring in antiquity. The environmental conditions of the southern desert and highland regions of southern Jordan and Israel that encompasses the study sites has not changed significantly since the Roman and Byzantine periods and yet the sites are either surrounded by ancient agricultural fields or show likely evidence of local production (e.g. Aila and 'Ayn Gharandal). It appears that water management in antiquity was more advanced than is currently recognized since there is a lack of modern cereal agriculture in these regions. The results of this study aid in revealing the changes to the landscape of southern Jordan brought about by local agricultural production, which would have been necessary to supplement the food supply for the increased Roman military presence. This data can also illuminate the production potential of dry-land agricultural techniques in such arid environments.

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### John H. Reid, Miniature drone technology and the north-west frontiers

Local history societies have a significant role to play as a potential bridge between academia and the wider community. Public engagement lies naturally at the core of many of these societies who rely on popular support and funding to remain sustainable.

For the last two decades, such a society, the Trimontium Trust in Melrose (located near the Roman fort at Newstead in the Scottish Borders) has successfully expanded its public engagement repertoire. It has used conventional publications and other initiatives such as dig sponsorship and 3D reconstruction to excite interest in Roman and Iron Age archaeology in inter-wall Lowland Scotland. Promotion of knowledge and interpretation of this area and period are key aims of the Society.

Due to advances in technology and particularly digital visual media we have recently explored the use of miniature drone technology to create images which help the public better understand these complex linear frontier structures. Aerial footage is produced using a low cost Phantom 2 quadcopter and then edited using Gopro Studio software to create visually interesting material which is aimed at the general public.

It represents a unique amalgam of skills including photography archaeology and film making. We shall illustrate the presentation which explains the opportunities and limitations of the technology with appropriate video clips.



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**John H. Reid, Roman slingshot on the north-west frontier**

This paper reviews the morphology and distribution of clay and lead slingshot (over 300 specimens) from the frontier areas of Roman Scotland. In this setting, the sling appears to have been exclusive to the Roman army with an almost complete absence of shot from sites which have no Roman military association. Clay shot has been found north and south of the Antonine Wall and tends to come from auxiliary forts whose principle occupation was during the Flavian period. Lead shot is confined to sites between the two Walls, particularly the probable siege site of Burnswark. The review also shows that the morphology of lead shot used by the Roman army in this arena was of two types: biconical ovoid (lemon shaped) and glandular (acorn shaped). This review will demonstrate that the latter type is rare, confined to Britain and unique to within a 50 km proximity of Hadrian's Wall.

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**J. Remesal Rodríguez/Ll. Pons Pujol/J.M. Bermúdez Lorenzo/J. Pérez González, Nuevas Propuestas de datación de la epigráfica anfórica a través de la cronología de los asentamientos militares del limes renano-danubiano y tingitano**

Tradicionalmente, los objetos han sido datados explícitamente por diversas razones, siendo las más comunes por la clase de epigrafía asociada: sello, *titulus pictus* o grafito; por el análisis tipológico del objeto; o bien, por el contexto arqueológico, ya sea el de una excavación o el de un pecio. En el presente trabajo, queremos proponer nuevas dataciones para algunas marcas sobre anfóras olearias y vinarias a partir de la cronología estratigráfica de los campamentos militares de la frontera germano-rética y tingitana.

En el marco del proyecto EPNNet (ERC-2013-ADG-340828), se procedió a lo largo del pasado año a una revisión de los materiales contenidos en la base de datos online del CEIPAC. En esta línea, el estudio de los distintos campamentos militares con cronologías bien definidas, nos permite establecer diversas propuestas de datación para las marcas conocidas sobre recipientes alimenticios y que carecían, hasta el momento, de cronología. Hemos seleccionado diversos campamentos del *limes* renano-danubiano y el tingitano por su cronología precisa. Cuatro son los ambientes diferenciados en el artículo: un primer espacio perteneciente del limes de *Germania Inferior* a su paso por la actual

Holanda; un segundo apartado corresponde a la frontera transalpina de *Germania Superior* en la confederación suiza; un tercer apartado compete a los campamentos de *Germania Superior* resiguiendo la línea del Rín hasta el Danubio, y un último sector que incumbe a los campamentos de Mauretania Tingitana. Debido al gran número de asentamientos de *Germania Superior*, se subdivide entre: los campamentos fundados durante el gobierno de Vespasiano, Domiciano, y bajo época Antoniniana, además de la frontera del Neckar-Odenwald y el conocido como *Alblimes*.

## Stefan Reuter, „*Non satis est ars sola coco...*“ – Untersuchungen zur sogenannten Offiziersküche im Legionslager von *Vindonissa*/Windisch

Between 2002 and 2004, in the legionary fortress of *Vindonissa*, large excavations took place directly to the east of the *principia*. The documented archaeological structures can be dated from the beginning of the settlement of *Vindonissa* (between 80 and 40 BC), through the occupation of the legionary fortress in the 1<sup>st</sup> cent. AD, up until late antiquity. The finds and structures are currently being investigated within the framework of an interdisciplinary evaluation, which started in 2012 and which is being carried out on behalf of the Archaeology Service of Canton Aargau. One of the main priorities of the project is the analysis of a large stone building, constructed in the 2<sup>nd</sup> half of the 1<sup>st</sup> cent. AD, and which can probably be reconstructed as a representative peristyle house. It is interpreted as the residential quarters of a high-ranking officer.

The most important discovery is the identification of an exceptional preserved, large kitchen (*culina*) in the south-western part of the building complex. The paper will present the current results of the studies concerning the archaeological features and the associated finds belonging to the *culina*. These form the base for a reconstruction of the workings of such a large kitchen in its different facets.

Due to the in-situ preserved kitchen fittings and other installations – amongst them a L-shaped raised hearth, made of *tegulae* (roof tiles) and mudbricks, it is possible to identify various function and working spaces. A functional analysis of the kitchen's (pottery) inventory yields important insights into the reconstruction of the activities. Thus, the pottery vessels that were either thrown away or left behind when the 11<sup>th</sup> legion abandoned *Vindonissa* in 101 AD give an overview of the kitchen's crockery. The results of the archaeobotanical and archaeozoological investigations offer evidence on the meals prepared in the kitchen, as well as on the diet of the inhabitants of the peristyle house in general. Astonishing results come not only from the rubbish of the *culina* itself, but also from leftovers thrown away in a side room, located outside of the building complex and used for waste disposal. Various plant rests, in some cases exotic specimens like figs as well as animal remains, like Mediterranean mackerels and oysters have been identified. An above average proportion of young pigs, poultry and wild animals all point to a high standard of living of the building's inhabitants. The amphorae found in the kitchen itself and from the area of the presumed waste disposal site offer important indications on the consummation of foodstuffs from the Mediterranean.

The interdisciplinary studies on the so-called officer's kitchen of *Vindonissa* provide an assessment of the inner workings of a large-scale kitchen within a military context. At the same time, the evaluation gives a glimpse of a menu dating to the last third of the 1<sup>st</sup> cent AD and belonging to a high-ranking officer stationed in *Vindonissa*.

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## Anna-Katharina Rieger, Nomads as a threat? Indigenous people in eastern North Africa and the edge of the Roman Empire

Like many other ethnai around the Mediterranean Basin also people of Eastern North Africa came in contact with the Romans. Due to their habitats in the steppe and desert zones of Cyrenaica and Marmarica, the indigenous people partly pursued nomadic life-styles. Hence, they represented, but were also stylized, as an opposite to the urbanized and sedentary Graeco-Romans, living in the more fertile, northern regions of Eastern North Africa. Recent research shed light on settlement and land-use patterns as well as the material culture of indigenous people on the Libyan Desert fringe, inhabiting the eastern parts of the Roman province of Aegyptus, later the Libya inferior. However, our knowledge not only of Roman military organization but also of the interaction of the different people in this part of the Roman Empire is still patchy and incomplete. The paper discusses the extent of dichotomy and contrast between sedentary and nomadically living people and its probable manifestation in fortification buildings preserved in NE-Libya and NW-Egypt. By interpreting material culture and historical sources, the ways of symbiosis, contacts and conflicts between the indigenous and the Graeco-Roman people in this part of North Africa will be encompassed. Whether the lack of knowledge about the Roman military organization and structure of a limes is due to missing substantial research (Goodchild 1953, Reynolds 2001) or to the kind of border system the Romans established in this sparsely populated arid region, is one of the questions raised. Considering issues of the strategic necessities, the involved socio-cultural groups and the economic interests, the local aspects of Roman military presence and the adapted concept of a limes on the northern fringe of the Libyan Desert will emerge.

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## Sebastian Ristow, Das Kölner Praetorium als administrative Schnittstelle des Niedergermanischen Limes. Neues zur provinzialrömischen Archäologie und dem musealen Präsentationskonzept.

Nach den bedeutenden Ausgrabungen von Otto Doppelfeld in den 1950er Jahren gab es nur noch wenige Bodeneingriffe im Areal des Kölner Praetoriums. Wesentlich waren vor allem die Untersuchungen von Gundolf Precht, der auch die lange Zeit alleingültige Befundvorlage lieferte. Zuletzt erarbeitete Felix Schäfer eine neue, feinere Phasengliederung der Befunde bis in das 2. Jahrhundert. Bei der Erschließung der Befunde für den Bau der Archäologischen Zone wird aktuell durch die Grabungen des Römisch-Germanischen Museums erneut Wissen hinzugewonnen, das in absehbarer Zeit erschlossen wird.

Außer den Schriftquellen fanden Funde bisher nur sehr ausschnitthaft Berücksichtigung, vornehmlich Inschriften und Ziegelstempel wurden publiziert. Der Vortrag zeigt die Quellenlage und den Stand der Forschung auf. Fragen zur Aussagekraft der noch nicht publizierten Altfunde und den bisherigen Rekonstruktionsversuchen stellen sich jetzt im Rahmen der aktuell erarbeiteten musealen Konzeption durch den Landschaftsverband Rheinland. Weitere Punkte des neuen Museumskonzepts für die „LVR-Archäologische Zone Köln mit jüdischem Museum“ betreffen Forschungsfragen zur

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### Achim Rost/Susanne Wilbers-Rost, The extensive battlefield of Kalkriese (Varus Battle 9 AD) – Recent investigations and new results

The site Oberesch, at the centre of the ancient battlefield Kalkriese (9 AD), was in the focus of the research for many years. At this site, we find the major cluster of finds, and the distribution of Roman military equipment reveals the large variety of processes that took place after the actual battle was over. This enabled us to develop an explanatory framework for the creation of the resulting archaeological record that we observe today. Body-stripping and the plundering and scrapping of Roman military equipment by the victorious Germans were significant factors in these processes. A more profound analysis of distribution patterns has now yielded new clues for further Germanic post-battle activities. The concentration of certain artefact categories in the proximity of the Germanic turf wall was not only the result of combat operations or the organised scrapping of Roman metal artefacts for the provision of raw materials. A public display of Roman equipment, perhaps comparable to a Roman tropaeum, seems to have preceded the scrapping and sharing of the booty.

Beyond the Oberesch, Roman artefacts from the fighting are scattered over an area of more than 30 km<sup>2</sup>. To reconstruct the combat actions we need to know the basic conditions formed by the cultural landscape. As the Romans – on campaign in regions out of the territories which were under their control – had to use Germanic infrastructure, we need for instance information about indigenous settlements, transport routes and the dimension of cultivated areas. The recent project, the investigation of the Germanic settlements, is a new approach to study the Kalkriese battlefield as a part of a wider “Conflict Landscape”.

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### Nikolay Rusev, Late Roman amphorae from Bulgarian part of Danubian limes

This report presents some new evidence for the distribution of amphorae in the Bulgarian part of the Danube *Limes* between the end of the IIIrd – to the beginning of the VIIth century AD. Some types are widespread; others indicate developments in manufacture in this part of the *Limes*.

Amphorae LRA1, are one significant part of the recovered artefacts. They add new data for the prototype of these amphorae. Amphorae LRA2 are the most common type. Materials from Sexaginta Prista and Trimammium show the evolution of types Dressel 24 to LRA2. These ceramic products give new data for the developments and productions of this type in the region. Amphorae from *Durostorum* provide new data for distributions of types of Gaza and Asia Minor imports in the area of *Tegulicium*. The amphorae from the newest excavations in *Ratiaria* and *Bononia*, were studied in the last few years. They are from the building with mosaic „Achaean” in *Oescus*, *castellum Dimum* and *Abritus*. Some of the artefacts from *Oescus* and *Dimum* supplement new data for one type registered in *Nicopolis ad Istrum*, in several dependable contexts between the end of the IIIrd – to the beginning

of the VIth century and post-mediaeval contexts. Especially disseminated in early period of Late Antique (III–IV c. AD) are amphorae Kapitan II. In all sites are registered imports from the North African region. An unusual type adds some new data for the region of the Lower Danubian *Limes*. Probably this type was produced in Scythia and Moesia Secunda region. In all objects exists one type, evolved from Roman type Jugs with similar form.

## John Salvatore/Marc Steinmetzer, Recently discovered Roman military sites within the suspected *prata legionum* of the legionary fortress at Exeter, Devon, South-West England: interpretation and significance

In recent years a number of Roman military sites have been discovered in close proximity to the known legionary fortress at Exeter which is believed to be the base of Legion II Augusta occupied in the period c.AD55–75. The layout of the fortress itself, which lies beneath the later Roman, medieval and modern city, is known primarily from excavations carried out in the 1970s and 80s and reported on by the late C.G. Henderson at the XVth Limes Congress in Canterbury in 1989 (Maxfield and Dobson, eds. 1991, 73–83). The *prata legionum* associated with the Exeter fortress was suspected by Mason (1988, 168) to extend around the hill-top location at Exeter (which overlooked a probable Roman crossing point of the River Exe), south-east along the eastern side of the river estuary extending as far as Topsham which lies about 6.4km south-east of the fortress. This suspicion appears now to be fully borne out by the discovery of two Roman military establishments on the eastern side of the River Exe (one of which is at Topsham itself). In addition, evidence of Roman military activity, including ditched defences, detached compounds and at least one high status building, has emerged from excavations on separate development sites outside of the fortress on three of its four sides.

The purpose of this paper is to present the Congress with the evidence which has now accumulated for what may be argued is a considerable level of contemporary Roman military activity in the legionary ‘territory’ associated with the Exeter fortress during its period of occupation. The authors will offer brief summaries and current interpretation on all of the new sites brought together for consideration with particular emphasis paid to the results of open area excavation at the former St Loye’s College site (summary in Booth ed., 2011) located on the Roman road between the fortress and a fort or small base at Topsham. The establishment at St Loye’s is suggested by the authors to have been a works depot/supply base where excavation and analysis of the finds has suggested elements both for the distribution of imported goods and for on-site manufacturing.

Finally, some re-evaluation of the significance of the Roman army’s presence at Exeter is offered in which the nature of the newly found sites is put alongside the emerging results on the analysis of the pottery evidence by Bidwell (for the results of earlier studies see Holbrook and Bidwell, 1991; 1992). The new finds evidence, particularly from the St Loye’s site, for the importation of fine wares and for other imported wares has demonstrated clear links with Northern Gaul. This has prompted Bidwell (forthcoming in Salvatore et al) to state: .... it now seems possible, following discoveries in the last few years, that Exeter and Topsham, and the riverside strip between them accommodated the largest complex of military sites of the Neronian and early Flavian period in Britain. These sites, for a decade or so, might have been one of the most important military markets in Britain. The authors agree with this proposed scenario and will argue that, far from being on the periphery of affairs, the Roman military complex based around the Exeter fortress occupied a perhaps crucial role in the

distribution and supply of imported goods (including foodstuffs) from the North Gaulish ports to the Roman army stationed in South-Western Britain in the mid-1<sup>st</sup> century with some further implications beyond this initial period.

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### Mirjana Sanader/Domagoj Tončinić, Neue Erkenntnisse zu den Soldatenunterkünften. Ergebnisse der Feldkampagnen 2007–2015

Im Jahre 2006 wurde im Legionslager Tilurium die Untersuchung einer Mannschaftsbaracke (centuria) mit Strebepfeilern abgeschlossen. Der Befund hat bereits damals darauf hingewiesen, dass sich um eine Gruppe von sechs ost-west ausgerichtete Mannschaftsbaracken handelt, auf die sich gegen Westen eine weitere, allerdings nord-süd ausgerichtete Mannschaftsbaracke ansetzt. Die mit Strebepfeilern gestützte Süd Mauer dieser ist gleichzeitig auch die Süd Mauer der voran genannten ost-west ausgerichteten Mannschaftsbaracke mit Strebepfeilern, während die Ost Mauer gleichzeitig die West Mauer aller voran genannten ost-west ausgerichteten Mannschaftsbaracken bildet.

In den kommenden Jahren konnten, auf einer weiter westlich liegenden und für die Grabung zur Verfügung stehenden Fläche, geophysikalische Messungen durchgeführt werden. Der Vergleich des damit gewonnenen Grundrisses mit den bereits bekannten Mannschaftsbaracken und typischen Grundrissen römischer Legionslager hat zum Schluss geführt, dass sich auf die sechs ost-west ausgerichteten Mannschaftsbaracken gegen Westen in der Tat sechs weitere nord-süd ausgerichtete Mannschaftsbaracken ansetzen. Während der seit 2010. laufenden archäologischen Grabungen konnte zwei Mannschaftsbaracken, samt angrenzenden Flächen südlich und nördlich derselben freigelegt werden und anhand der gewonnenen Erkenntnisse die südöstliche Ecke des Legionslagers Tilurium rekonstruiert werden. Die vorläufigen Resultate dieser Grabungen sollen an dieser Stelle vorgestellt werden.

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### Claudia Sarge, Die römischen Bronzestatuen zwischen Nordsee und Saarland.

Von 500 zu 5000 bekannten Statuenfragmenten – so lautet die Bilanz nach 5 Jahren Forschung zu römischen Bronzestatuen vom Limes bis zum Hinterland zwischen Nordsee und Alpen.

Das Forschungsprojekt „Römische Großbronzen am UNESCO-Welterbe Limes“ untersuchte von 2010 bis 2015 entlang der Grenze des römischen Imperiums von der niederländischen Küste bis in den voralpinen Raum in den Provinzen *Germania inferior*, *Germania superior*, *Raetia*, dem östlichen Bereich der *Gallia Belgica* sowie Teilen der *Germania magna* alle Fragmente von römischen Bronzestatuen. Dabei konnte nicht allein die bei Projektstart geschätzte Gesamtzahl der bekannten Statuenfragmente von rund 500 auf über 5200 Stück erhöht, sondern gleichfalls ein überregionaler Vergleich zum Vorkommen von Bronzestatuen gezogen werden. In diesem Vortrag werden die Ergebnisse aus dem nördlichen Untersuchungsgebiet, der sich zwischen der niederländischen Küste und dem Saarland erstreckt und rund 1500 Fragmente von rund 90 Fundplätzen umfasst, vorgestellt.

Das zeitliche Aufkommen von Großbronzen reicht dabei vom Beginn der römischen Besiedlung bis weit in spätrömische Zeit. Mit dem Bau von Städten, Vici, Villen, Heiligtümern und Militäranlagen nach römischem Muster begann man auch den öffentlichen und privaten Raum mit Statuen auszustatten. Die Qualität der Figuren ist dabei kein Marker für die „Wichtigkeit“ des Aufstellungsortes. Die Untersuchungen konnten ferner nachweisen, dass die Statuengrößen in den nördlichen Provinzen von unterlebensgroßen bis hin zu kolossalen Figuren reichten. Vergoldete Statuen treten sowohl in zivilen, aber wesentlich häufiger in religiösen Kontexten auf, fehlen hingegen im militärischen Zusammenhang. Regionale Unterschiede zwischen den einzelnen Provinzen zeichnen sich in der Herstellungstechnik von Bronzestatuen beispielsweise bei der Verwendung von Tauschierung zur Gestaltung der Oberflächen ab.

Die Untersuchung der Fragmente von Bronzestatuen erbrachte viele neue Erkenntnisse und Beobachtungen, wirft jedoch gleichfalls viele neue Fragen auf, die es in Zukunft weiter zu untersuchen gilt.

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### Juraj Sarkisjan, Bulk finds from the temples of Eastern cults in Upper Danubian Roman provinces

Presentation of the secondary output of the dissertation thesis, that concerns the analysis of the small finds found in the temples consecrated to the Eastern deities. Research is focused on the provinces Raetia, Noricum and Pannonia and it is supplementing the previous research at the temples from Gaul, Britannia and Germania. The research is based on the comparison of zooarchaeological and archaeological material (pottery) from the excavation reports of the temples.

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### Tadeusz Sarnowski, Das Stabsgebäude des Legionslagers Novae. Baubestand, virtuelle Idealrekonstruktion und Nachbau in Originallage

Der Beitrag beschäftigt sich prinzipiell mit dem heutigen Zustand des Stabsgebäudes von Novae nachdem es 2013 im Rahmen eines großangelegten Revitalisierungsvorhabens des Zentrums des Grabungsgeländes innerhalb des römischen Legionslagers auf ursprünglichen Mauerresten aus Stahl und teilweise aus Beton nachgebaut wurde. Von der langen Existenzperiode der *principia* der 1. Italischen Legion, die von der flavischen Zeit bis ins fortgeschrittene 5. Jh. reicht, wurde für die Rekonstruktion das frühe 3. Jh. gewählt. Auf den Photoaufnahmen werden im Referat die



wichtigsten Komponenten des Gebäudes gezeigt, wie sie in den Jahren 1970 bis 2010 während der Grabungsarbeiten aussahen. Das Bild der erhaltenen Bausubstanz wird dann mit ausgewählter zeichnerischer und photogrammetrischer Dokumentation ergänzt, die für graphische Rekonstruktionsversuche der Geometrie der nicht mehr vorhandenen Aufbauteile, der Gebäudeschnitte und endlich für virtuelle Idealrekonstruktionen und computergenerierte virtuelle Innen- und Aussenansichten des gesamten Komplexes als notwendige Grundlage gedient hat. Am Ende des Vortrags wird die eigentliche Präsentation des im vorigen Jahr im offenen Gelände für die Öffentlichkeit geöffneten Nachbaus dargestellt.

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### Eberhard Sauer/Konstantin Pitskhelauri, Securing the Caucasus through Intelligence and Hard Power

What was the Roman Empire's remotest military outpost at greatest distance from its land borders? Gela Gamkrelidze (2012: 91, 97–98) and Livio Zerbini (2013: 36–37, 39) have recently advanced the interesting hypothesis that there was a contingent of Roman soldiers stationed on Dariali Fort (in the north of modern Georgia) under the Flavians and in the second century. A note in the *Historia Augusta* (*Hadr.* 17.11), of Hadrian having given to the king of the Iberians a cohort is thought to refer to a special command of troops permanently based in the Dariali Gorge. Noel Lenski (2002: 173–74 with no. 117) argues that a quarter of a millennium later Valens (AD 364–378) fortified the Caucasus passes, and that Rome was then in command of the Dariali Pass, only later taken over by the Persians. It is true that Dariali Gorge has been of crucial strategic significance to Rome and Persia, and a series of invaders from the steppes reportedly took this route through the central Caucasus. Known as the Caspian, Caucasian or Alan Gates, there is arguably no mountain pass in the ancient world that features in a wider range of ancient sources.

Is it also true that Rome actively garrisoned this key route across Europe's highest mountain range? Written sources imply remarkably accurate military intelligence on the area, based on eyewitness accounts – unsurprising as the famous gorge was the planned target of a military expedition of Emperor Nero and was reportedly reached by Roman forces in the second century. A joint team of Iv. Javakhishvili Tbilisi State University and the University of Edinburgh has been excavating at Dariali Fort since 2013. The well-built outer walls of a substantial fort at the site, generally agreed (e.g. Braund 2000 & 2001; Gagoshidze 2008: 19) to be Pliny's (*nat.* 6.30) *Cumania*, date back to Antiquity. The evidence uncovered so far suggests that Rome largely relied on local Iberian hard power and diplomacy to keep this key route secure. Our findings have also shed new light on the logistical difficulties in supplying a garrison in an Alpine environment far beyond imperial frontiers. Accurate military intelligence appears to have led to a remarkably pragmatic local solution to a major security problem.

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### Alfred Schäfer/Michael Dodt, Neue Forschungen zur Innenbebauung des spätantiken Castrum Divitensium

Das constantinische Brückenkopfkastrum am rechten Rheinufer in Köln-Deutz nimmt trotz seiner für die Spätantike charakteristischen Mauerstärken eine Sonderstellung ein. Die dichte Abfolge der



Mannschaftsbaracken, die sich zu beiden Seiten der zentralen Lagerstraße (Via Praetoria) aneinander reihten, schienen keinen Raum für weitere Lagerbauten zu gewähren. Man vermisst im archäologischen Befund Speicherbauten (*horrea*), Werkstätten (*fabricae*) oder eine Thermenanlage. Selbst das anzunehmende Kommandaturgebäude in der Mitte des Lagers kann räumlich kaum genauer bestimmt werden. Wo befand sich die notwendige bauliche Infrastruktur der Soldaten? Führte die räumliche Nähe zur *Colonia Agrippina*, die über eine etwa 400 Meter lange feste Rheinbrücke mit dem Kastell verbunden war, zu einem Verzicht derartiger Einrichtungen? Man möchte dies kaum annehmen.

Mehrmonatige Rettungsgrabungen des Römisch-Germanischen Museums in den Jahren von 2010 und 2011 am Kennedy-Ufer in Köln-Deutz zeigen, dass die etwa 12 m auf 60 m großen, langrechteckigen Baracken räumlich untergliedert waren. Es ergaben sich verschiedene funktionale Räume innerhalb, aber eben nicht außerhalb der Baracken. Wie vielseitig die Raumnutzung der Baracken gewesen sein muss, wird auch durch ihre anzunehmende Zweigeschossigkeit nahe gelegt. Für diese Hypothese sprechen massive Steinfundamente mit Mauerstärken von 1, 20 m. Der Schwerpunkt des Beitrags liegt auf der Erschließung und Rekonstruktion einer Thermenanlage am südlichen Kopfende von Baracke 4. Die Baubefunde, zu denen ein mächtiger Schürkanal gehört, sprechen in der Summe sicher für ein Militärbad.

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## Andreas Schaflitzl, Sacred spaces in the Vicus of Losodica-Munningen (Raetia)

The Roman fort of Munningen is located on the Northern border of the Nördlinger Ries and was discovered in the beginning of 20th century.

The fort was built during the northern expansion of the frontier in the late Domitian period in order to protect the fertile area of the Nördlinger Ries. After a short time in use it was abandoned around 110 AD. The ditches were filled up and shortly after this the civil settlement started to grow over the military parts and flourished until the late 2<sup>nd</sup> century. The end of the settlement seems to be connected with the Marcomanic wars.

In 2009 road building activities led to archaeological investigations. The remains of 20 wells, a Roman street, a wooden building, erected in 112 AD, and the remains of two stone buildings were documented. Stone buildings, as known from earlier investigations, seem to have an official character. The main parts of the small settlement were built of wood and clay. According to the geomagnetic investigations the Northern building can be reconstructed as a gallo-roman temple. The stones of the wall have completely been broken out so only the robber trenches have survived. 20m to the South a better preserved multi-phase building with an unusual layout could be identified. The finds indicate a religious context: burnt bones of sheep and goat, amounting to 250 litres after washing indicate a place for burnt offerings. Heads of stone statuettes, parts of musical instruments and a demolished lorica segmentata can be interpreted as further evidence for the use of this building in a cultic context. The fragmented inscription might name a collegium. It is likely that this building was the building of a collegium next to a temple.

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### Florian Schimmer, The hinterland of the Severan oasis fort of Gheriat el-Garbia in the 3<sup>rd</sup> century

The oasis fort of Gheriat el-Garbia represents the largest Severan military site along the limes Tripolitanus in the Tripolitanian pre-desert zone on the fringes of the Hamada al-Hamra in Libya. It is situated on the central Tripolitanian trans-sahara route from Oea (Tripoli) in the north via Garian down to Fazzan in the south. The section between Gheriat and Mizda, a military site about 120 km to the north, is of particular interest due to its strategic importance in the northern hinterland of Gheriat. However, it remains uncertain if or to what extent this part of the Tripolitanian central route was controlled by military posts or watchtowers.

The paper focuses on an exceptional tower-like monument, which was located in the wadi Wasiq, close to the Gheriat-Mizda road, discussing both its chronology and function.

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### Dirk Schmitz, Der frühromische Großbau an der Hohe Straße in Köln und die Verwendung von Trachytgestein als Baumaterial

Zwischen August und November 2014 haben Ausgrabungen in Köln an der Hohe Straße stattgefunden. Es handelt sich bei dieser Straße um den *cardo maximus*, der Nord-Süd verlaufenden Hauptstraße des römischen Köln. An dessen östlicher Seite schloss sich eine monumentale Basilika an, die mit einem kleinen Ausschnitt auf zwei seit dem Mittelalter bestehenden Parzellen das erste Mal seit 1930 angeschnitten wurde.

Es konnte festgestellt werden, dass die zu erwartende Basilika mehrphasig war, was bislang aufgrund unzureichender Einblicke so nicht bekannt war. Die große Überraschung bildete ein zweiphasiger monumentaler Bau aus reinem Trachyt. Dieser Bau kann über einen anbindenden Werkzollhorizont in vermutlich augusteische Zeit datiert werden.

Die Mauern sind etwa 1,10 m breit und im Fundamentbereich etwa drei Meter tief gegründet. In einer modernen Parzellenwand fand sich im erhaltenen Aufgehenden ebenfalls reines Trachyt.

Das verwendete Baumaterial Trachyt wurde im Siebengebirge bei Bonn, einem seit langem bekannten Steinbruch, abgebaut. Betrieben wurde er seit römischer Zeit, dann wieder im Mittelalter, als dort u. a. für den Kölner Dom Steine gebrochen wurden, bis in die Neuzeit.

Die bisherige Forschung ging davon aus, dass in römischer Zeit der Steinbruch erst unter den Flaviern gegen Ende des 1. Jahrhunderts n. Chr. erschlossen wurde (vgl. jüngst H. Kennecke, Der Trachytabbau im Siebengebirge und sein Transfer über den Rhein in römischer Zeit. In: Dies., Der Rhein als europäische Verkehrsachse. Die Römerzeit. Bonner Beitr. Vor- und Frühgesch. Arch. 16 [Bonn 2014] 93–108) und der Stein für Bodenplatten oder als Zuschlagstoff im Mörtel, selten sichtbar im Mauerwerk als Handquader verwendet wurde. Nun wurden überraschenderweise frühromische Bauten aufgedeckt, die zumindest im Fundamentbereich, vermutlich aber auch im Aufgehenden vollständig aus Trachyt bestanden. Der aufgefundene Großbau verkörpert eine augusteisch–tiberische Monumentalisierungsphase, wie sie erst seit wenigen Jahren in der Forschung vertreten wird und das alte Bild von einem dorfähnlichen oppidum Ubiorum mittlerweile ablöst.

Fundmeldungen weiterer, in den meisten Fällen abgebrochener Trachytmauern des frühen Köln, sind bislang zu wenig gewürdigt worden. Die Verwendung von Trachyt in der Anfangsphase des römischen Köln könnte mit dem kurzfristig entstandenen Bedarf sowie mit der günstigen verkehrstopographischen Anbindung des Abbauggebietes erklärt werden. Spannender ist die Frage, warum nach einer ersten Nutzungsphase in frühromischer Zeit der Steinbruch 60 bis 70 Jahre nicht weiter betrieben wurde. Im Gegensatz zum Mittelalter war Trachyt in römischer Zeit als Baumaterial nicht beliebt. Die kristalline Struktur des Gesteins, an dem es gut zu identifizieren ist, wurde von den Römern nur ungern und erst spät gestalterisch bearbeitet. Andere Gesteinsarten wie Kalk- oder Sandstein wurden für architektonisch gestaltete Großbauten bevorzugt. Insgesamt handelt es sich bei der Frage der frühen Verwendung von Trachyt um ein bemerkenswertes Kapitel zur römischen Steinbruchtätigkeit in der Provinz Niedergermanien.

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### Alexandra Schubert, Waste disposal in Krefeld-Gellep

Pits are common in and around Roman military bases. In some cases, their fillings established a far better understanding of Roman material culture.

A large pit full of Roman finds came to light 2001 in the vicinity of the auxiliary fort of Krefeld-Gellep. Its contents could be connected to the Roman army based at Gelduba. The pit seems to have been dug as a quarry ditch for clay, then backfilled with rubbish over a longer timespan of a few decades. The composition of the finds suggests a certain amount of sorting, although it is unclear whether this took place before deposition or if someone scavenged the pit for useful materials after the original dumping.

Additional data comes from the 1970ies, when the modern harbour of Krefeld was enlarged, demolishing the eastern part of the fort and the old riverbank. The publication of the small finds recovered at the time leads to the conclusion, that a big part of the forts' refuse ended up in the river or on the riverbank, which would be a striking parallel to some other known Roman military locations.

This paper will try to sort out some of the different procedures of waste dumping in and around Roman forts and present some of the research questions that arise when trying to interpret the archaeological data.

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### Philip Smither, A 3<sup>rd</sup> Century Roman Camp: Digitally Reconstructing The Past

Through an interpretive digital reconstruction, using Google Sketchup and Cinema 4D, this research aims to understand how Septimius Severus (AD193–211) organised his forces, c.50,000 men according to Cassius Dio, within the camp, which was featured on a BBC Scotland documentary, Scotland: Rome's Final Frontier. The Roman marching camp on St. Leonard's Hill, Scotland, is the largest known in Britain at 165 acres and was constructed during the Severan campaign into Scotland in c.AD209–10 against the Caledonians and Maeatae.

Digital modelling is used to reconstruct everything from small pots to giant structures from antiquity. Here, it is employed to reconstruct remains that are largely archaeologically invisible to answer key questions about the organisation of the Roman army and the 3<sup>rd</sup> century campaign. In order to create the model, both archaeological and ancient sources were employed, including a 2<sup>nd</sup> century treatise on Roman camp construction and images from Trajan's column. This research furthers the growing interest in digital reconstruction of the ancient world along with practical applications for the model, providing a visual impression of something that is difficult to visualise through drawn plans and to recreate through experimental archaeology.

This paper aims to present three aspects of the Roman marching camp.

Firstly, to create a digital plan, row by row of Pseudo Hyginus camp. Within the commentaries, diagrams have presented the idea that his camp does not fit his plan. However, within reasonable estimates from his work, a row by row, tent by tent reconstruction demonstrates his layout far better than a drawn plan.

Secondly, whether his plan can be mapped onto a known Roman camp. St. Leonards is estimated to hold the c.50,000 troops of the Severan campaign, however, it is clear that difficulties with the terrain, layout and additional baggage train, the camp is closer to the size for 35,000 troops; much closer to the Hyginus camp.

Thirdly it will briefly outline some aspects of the Severan campaign, bringing other archaeological evidence, from camps and forts linked to the campaign, to aid the historical narrative from ancient authors.

By viewing the camp through a digital reconstruction, we can see how it would have looked within the landscape and how the Roman soldier would have seen the camp from the ground. It will also show that the challenges in constructing the camp were far more than a mathematical equation of men to space, but a challenge of landscape providing the best fit for all who would inhabit the camp over its lifetime.

\*This research was originally undertaken with Dr. Matthew Nicholls at the University of Reading during the summer of 2012.

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## C. Sebastian Sommer, Raetia – Rise and Development of a Military Province

“Why Raetia?” is a question Romans and people nowadays may (have) ask(ed) when looking at the resources of this province. Few or no people, no natural assets, problematic topography, to name but a few obstacles which had to be faced after the conquest 15 BC.

This paper will deal with that difficulty, imbedded in a description of the development of the region north of the Alpes after the Alpine campaign to the “fall” of the Limes. Naturally, in the context of the Limes Congress, the military aspect and the history of the Raetian Limes will be the prime concern. Over the past years, in particular after the inscription of the Upper German-Raetian Limes into the World Heritage List in 2005, new work and modern prospection techniques, like geophysics and airborne laser scanning, resulted in an immense amount of new knowledge. We, therefore, got many answers to old queries but are confronted with a lot of new questions to be considered.

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## Sue Stalibrass, Provisions & procurement: multiple lines of evidence for 'Who' and 'How'

Who provided the provisions for the Roman army, and who procured them? This paper looks at various possibilities and lines of evidence, including the Vindolanda writing tablets, animal bones and plant remains from northern England, historical records of post-medieval livestock production, and Egyptian ostraca. Each type of evidence provides new information. It is clear that many different groups of people were involved. The types of provision and the quantities that changed hands were very varied. Named individuals sometimes made single transactions of small, desirable commodities. Some regular large-scale orders of staple provisions were placed through a hierarchical network of delegates. A range of different payment systems existed: reciprocity & obligation (there's no such thing as a free lunch...), payment in kind, payment in coin. Several economic networks operated within a single region, indicating a complexity and flexibility that might not be apparent from a single source of evidence.

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## Eva Steigberger/Christoph Gutjahr, „Devil's Ditch“ – a Late Roman Limes in the middle of Noricum?

Part of a combined earth bank and ditch system is preserved in a rural part in southern Styria, south of the capital Graz in the Late Roman province of *Noricum mediterraneum*. The so called "Teufelsgraben" ("Devil's Ditch") originally linked the river Mur in the east and the river Laßnitz in the west. It marks the boundary of two communities in the North to two other communities in the South even today. The first kilometer runs North-East to South-West from the river Mur, takes a sharp turn and then runs from East to West. The preservation varies between shallow ditches to ditches which are 16 m wide and partially 1.4 m deep. The base of the bank to the South is 5.5 m wide, its top 1.5 m, a preserved height measures approximately 1 m. The northern bank is not so well preserved with a base of 3.5 m and a top of 0.7 m.

The monument is mentioned in various literary sources, the oldest dating from 982 AD issued by the Archbishop of Salzburg to the Emperor, followed by six other sources dating from 989 to 1199 AD. Styrian research dated the monument either in Roman or Early medieval times. An excavation 2005 and its results give a date between 380/392 to 430/450 AD.

The presentation will discuss the original purpose and function of the monument, its builders and the interpretation.

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## Kaja Stemberger, Marriage, childbirth and death – rites of passage in the graves of women from Emona

Excavations at Colonia Iulia Emona (Ljubljana) in Slovenia have unearthed over 3,000 graves containing 15,000 artefacts dating from the 1<sup>st</sup> to 5<sup>th</sup> centuries AD. While the majority of artefacts and associated data are preserved, the skeletal remains and pyre debris are mainly lost or completely

unassessed. My study therefore focuses on material remains from which sometimes gender and even age can be deduced. I analyse deposited sets of artefacts through their cultural, actual and metaphorical meanings, which enables me to address the question of how and why women from Emona are represented in a certain way. I base my interpretations on parallels with literary sources, legislation of the period, epitaphs, art history and material culture. I discuss the significance and possible origins of two groups of women's burials and why they differ in terms of grave goods and style of burial. The first group is rather large and consists of what I consider to have been married women. Typically found in their graves are hairpins, mirrors and, in a few cases, jewellery boxes, while any jewellery found in these graves is neither of great quantity nor mostly of great quality. I focus specifically on the metaphorical meaning of toiletry items and wool-working objects. The second group comprises nine graves with exceptional sets of artefacts, dating from the 1<sup>st</sup> to the beginning of the 4<sup>th</sup> century AD. They stand out for their lavish gold and amber jewellery. Such a concentration of rich female graves is exceptional for a Roman cemetery anywhere in the Empire. I discuss how the strange arrays of objects may have been considered to act as a protective and magical assemblage in the context of rites of passage and the associated liminal stages. I discuss how these groups may be interpreted in terms of status based on the quantity and quality of the grave goods. Last but not least, I address one borderline case from each of the two groups in order to demonstrate how a few objects can change the entire interpretation of the deceased to whom the grave belongs.

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## Ulrich Stockinger, Worth their Salt. The Importance of Salt for the Life on the Frontier and in Military Operations

The ›white gold‹ played a vital role in the conservation and preparation of food in the Roman World. This importance for the food production and for the logistics of supply especially affected areas without a constant supply of fresh perishables and military operations. For example, the preparation of the diverse fish sauces – which constituted together with olive oil and wine the Holy Trinity of fluids in the Roman provinces' cuisine established by the soldiers in the border regions – required enormous amounts of salt.

Moreover, the frontier regions were a zone of mobility, with soldiers, merchants, workers and local population moving between the different industrial, civilian and military sites. Salt was an important drive for mobility and gave people a certain choice of food by making perishable goods from distant regions and past seasons available.

Salt was considered one of the characteristics of Greco-Roman culture by contemporary authors whereas the lack of salt resp. of its use was considered typical for barbaric civilizations. This paper combines archaeological, epigraphic and literary sources and focusses on the northern frontiers (especially Germania inferior), complemented by examples and evidence from other parts of the Empire such as Dacia or the Dead Sea region. Thus, it analyses the impact that »Roman salt« had on the diet in the formerly barbaric regions and illustrates the effects on the production, trade and use of salt resulting from the Roman occupation.

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### Lynn Stoffel, The Fort, fortlet and civil settlement in Mainhardt (Germany, Baden-Württemberg, Kreis Schwäbisch-Hall)

The fort and fortlet of Mainhardt was part of the *Obergermanische Limes* frontier. Since the 18<sup>th</sup> century the site of modern Mainhardt has been an object of archaeological studies. The results were published in “Der obergermanisch-raetische Limes des Roemerreiches”(1909). Excavations between 1967 and 2001 revealed parts of the breastwork and internal constructions of the fort and parts of the *vicus*. Only one excavation (1975) has been carried out on the adjacent fortlet.

Partially amended by preliminary reports of excavations in the 20<sup>th</sup> century, the actual state of knowledge about the fort is still mainly that of 1909. Furthermore the fortlet was published in preliminary reports. The documentation of the civil settlement is not yet analysed.

This PhD-research aims at collecting and analysing all information of roman Mainhardt. The several construction phases of the fort are to be clarified. The examination of the fortlet will provide more information about its function and relation to the fort. Another aspect is the analysis of the structure and development of the civil settlement.

Furthermore the strategic function of Mainhardt on the Limes is to be clarified. Another question is whether if the end of the civil settlement was coincident with the troop withdrawal. Additionally the location of the sanctuary of the *beneficarii* and the parade ground are to be identified.

The overriding question is to clarify the interaction between military and civil structures on the Upper German-Raetian Limes, and if in that respect any differences between the frontier-lines exist.

This project is financed by a grant-aeded by the Deutsche Limeskommission and the Landesamt für Denkmalpflege im Regierungspräsidium Stuttgart and supervised by the Institut für Archäologische Wissenschaften der Albert-Ludwigs-Universität Freiburg.

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### Karl Strobel, What's new in the 'Third Century'? From the Limes to a great strategy of defence-in-depth?

Imperial self-definition, ideological tradition, reactive political decisions and continuity of military structures or strategic concepts of global and/or regional military policy of defence: Edward Luttwak in his grand-strategy-concept opened the discussion about a change in Roman military strategy from forward and linear defence to defence-in-depth in the 3<sup>rd</sup> and 4<sup>th</sup> centuries AD. However, the discussion was not new. Theories about great military reforms in Severan times, under Gallienus and a conservative defence policy under Diocletian were already formulated in the 19<sup>th</sup> century. This was combined with the picture of declining quality and military ability of the Roman army after the ‘golden age of the Adoptivkaiser’ or even since Hadrian who introduced a general concept of fortified linear defence. Such ideas were combined with an alleged decline of garrisoned frontier troops until they became a sort of peasant militia. Even a break was postulated in the development of the army in East and West and their strategic handling of the ‘big enemies’ in the east. We must reopen the question how to understand the nature of Roman and Imperial self-definition and how to analyse its consequences for the Roman army and the frontiers of the Empire.



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### Simon Sulk, The roman water mill in the vicus of Hanau Salisberg, Upper Germany

The eastern section of the Upper German Limes was built in the last decade of the first century AD. The so called "Wetterau-Limes" ran from Inheiden in the North via Oberflorstadt and Heldenbergen to Hanau-Salisberg where it met up with the River Main. This frontier was advanced ca. 15 km towards East in the end of the reign of Traian or the beginning of Hadrian. The auxiliary fort of Salisberg was abandoned in that time but the civilian settlement continued until the 230's when the vicus was neglected. An area of ca. 5000 m<sup>2</sup> of the dwelling area was excavated in the 1990's by the historic society of Hanau. Some years after the garrison had left its fort, a water mill was constructed in the northern part of the excavated site. Beside the remains of several millstones there was found a system of ditches which equals the features of Avenches and other places. The construction was only used until the end of the second century while the settlement was occupied until the 230's. Why was the operation of the water mill stopped after only few decades and who drove it? Why was it constructed in the centre of the vicus and not in the surroundings or at least at the border of the settlement? Based on the fact, that the mill used two or even more parcels of the early constructing phase there comes the question up whether the operation of the mill was led by some administration. This could help to understand administration and the role of the civil settlements of the Limes hinterland.

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### Miroslava Šurinová, Limes in Egypt: Divide and connect

Although there are over 90 Roman fortlets, forts and fortresses in Egypt, they are only occasionally studied as a part of the bigger fortification system. A large number of preserved forts were built in the Late Antiquity. Therefore we can follow the development of the fortification system in Egypt from the creation of the province in the year 30 BC through the Late Antiquity and the Byzantine era to the Arab conquest in 641 AD. There are three distinguishable limes areas in Egypt: the Nubian frontier, the frontier in the Eastern desert and the frontier in the Western desert. Each area had its own characteristic. The Nubian frontier is the closest to purely military frontier in Egypt. It protected Egypt against the neighbouring Meroe kingdom. However it did not separate those two lands. The frontier area was a zone of trade and worship of both Egyptian and Meroitic deities. The desert frontiers had broader socioeconomic functions. The Eastern desert was more in the focus of the Roman army in the Early Empire and the Western desert in the Late Antiquity. In this paper I will focus on the differences between those three parts of Limes in Egypt, the influence of the nature of the enemy and geographical conditions on the form of the Limes and the change of the frontier over the time.



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### Miroslava Šurinová, Stone and mud-bricks: the fort building material in Egypt.

The aim of this paper will be the two most used materials for the fort construction in Roman Egypt: stone and mud-bricks. The other materials were used only in very limited scale. There were no earthtimber forts in Egypt. Even the marching camps in Nubia were built in stone. The bricks and tiles, except one 6<sup>th</sup> century fort, were used only for esthetic purposes. The mud-bricks were dominant in the Western desert and the stone in the Eastern desert. Some forts, mainly in the Nile Valley, were built from a combination of stone and mud-bricks, such as a fort in Nag el-Hagar. Both stone and mudbricks seem to be produced locally. The stone, due to its diversity, is a better example of local material. Harder stones, which would be too expensive for a fort construction, were used in the Eastern desert where there were quarries for export. The reuse of the stones from pharaonic temples is specific for Egypt. The pharaonic stone block with hieroglyphic inscriptions can be seen in the Roman fortresses in Luxor, Cairo and el-Kab.

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### Matthew Symonds, Who goes there? The evolution of access through Hadrian's Wall and the Antonine Wall

Ever since the discovery that the milecastles (or fortlets) on Hadrian's Wall held a pair of gates permitting passage through the frontier curtain, discussion of these installations has been dominated by debate about who could pass through them. This discourse extended to encompass the Antonine Wall after fortlets seemingly built to the same specifications were detected there. Despite the scrutiny that these fortlet portals have received, limited attention has been paid to the implications of the evolution of these crossing points over the course of the operational life of both Hadrian's Wall and the Antonine Wall. This paper will weigh the limited evidence for who could transit through these gateways, and also assess the implications of a major redesign to them. It will be proposed that both frontier systems became less permeable over time, and possible reasons for this will be discussed.

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### Felix Teichner/Robin Duerr, Vindenis (Gllavnik/Glamnik, Kosovo) – a Roman military camp in the heart of the Dardanian mining district

The site of Vindenis (Gllavnik/Glamnik) is located in the southern part of Moesia Superior, about 200 km from the Danube *limes*, controlling the north-south traffic routes through the Dardanian mining district (*metalla dardanica*).

The exact location is on a fertile low terrace on the banks of the meandering river Llapi/Lab in the north of the modern Republic of Kosovo. Because of rich surface finds, the first series of excavations was held here between 1980 and 1986. A biritual necropolis with 40 cremations and 129 inhumations in earth or tile graves and a single marble sarcophagus was found. Based on the burial

goods, a period of usage from the 2<sup>nd</sup> to the 6<sup>th</sup> century CE can be assumed. During a rescue excavation in 1984, a stone building with two staggered rows of rooms was unearthed. One of the rooms was decorated with a complicated wall painting and a multicolor mosaic floor. Because of its strategic location on the Roman imperial road Danube–Adriatic Sea within the Podujevo/Podujevë basin, the building complex can be considered a *mansio*. Coin finds date the building to the 4<sup>th</sup> century CE. Due to its easy accessibility and the favorable location it is not surprising that the settlement was mentioned by ancient authors such as Claudius Ptolemaios and the anonymous geographer of Ravenna. Besides, a settlement called *Vindenis XX milla passum* south of the *Statio ad fines* (Kuršumlia) and *XIX milla passum* north of *Viciano* (south of ? Pristina), that is, on the main road from the Danube *limes* near Ratiaria via Naissus (Niš) to the Adriatic Sea near Lissum/Lissos (Lezhë), is recorded on the Tabula Peutingeriana. Because of its supraregional importance, an extensive geophysical area analysis of the settlement around the graveyard was carried out by the Roman-Germanic Commission (Römisch-Germanische Kommission) and local partners in the years 2008 and 2010.

The Roman imperial road and its rectangular flanking structures could be documented on a length of 500 meters. Although the settlement appears to follow normal patterns for *vici* built along streets, special attention should be paid to a 145 m x 140 m rectangular structure that was built across the road immediately to the north of the settlement. Based on the clearly recognizable corner towers, the structure can be identified as a military barrier construction that seems to be similar to the auxiliary castles of the Danube *limes*. A concentration of structures in the north-east corner of the barrier is comparable to late antique *burgi* on the middle Danube frontier. Parallels can also be found in the garrisons within abandoned camps in Abusina in Raetia, Tibiscum in Dacia and Lederata in Upper Moesia.

### Ovidu Tentea, Bath and bathing in Dacia under Trajan (Dacia)

The main topic of the study refers to the small baths discovered in the South-eastern part of Roman Dacia during Trajan. A clear distinction has been made between the *thermae* belonging to the legionary fortresses and the *balnea* pertaining to the auxiliary forts. The analysis of the current status of research regarding the small baths (*balnea*) from Dacia led to the conclusion that most of these structures were found in a military milieu. Buildings in the civil settlements have not been yet sufficiently investigated to provide relevant information. Most probably under the Flavians, the baths were used by the auxiliary troops and the placement of *balnea* outside forts was a standard feature. Prior to this period the inner layout of the forts is well defined, and does not include such edifices. This situation is entirely reflected by this brief study concerning the *balnea* from Dacia. The troops who built such baths would have had as models similar buildings in their native provinces, since the taste for public bathing became widely spread during the Flavian period.

Recent studies focused on the deployment of the Roman army during the conquest of the Dacian kingdom (101/102 and 105/106 AD) up to the end of Trajan's reign (117) providing a series of details concerning the main events which took place in this period.

The dramatic events which took place in this territory after Trajan's death forced the new emperor to undertake a series of strategic measures, among which was the retreat from present-day Walachia, an area which would later be controlled from the north-west and west by the troops in Dacia, and from south and east by the army of Lower Moesia located in the *castra* along the Danube.

The forts of north-west Walachia have been a subject of interest for scholars both because of the short period during which they were used, and their particular location. These are the forts from Târgșor, Mălăiești and Drajna de Sus, situated along the Teleajen valley, at a distance of 50km (31 miles) or a day of March. At this moment it is known that these are three castra stativa, based on the data provided by the archaeological excavations made on the camps from Mălăiești and Drajna, and the baths from Târgșor and Mălăiești.

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### Eugen S. Teodor, Watch and alert along the Limes Transalutanus

*Limes Transalutanus* was built around the threshold of the second and third Century AD, and lasted until 245, when it was crushed by *Carpi* invasion; the Roman defence refolded back along Olt River (*Alutus*) for another generation. The line started at the Danube River, a few kilometres east of Olt embouchure, crossed a 150 km wide plain, climbed the Southern Carpathians and finally descended at the upper course of the same *Alutus*, having 312 km in all.

The plain section of the border could be the most interesting part, because the flat terrain enforced large earthworks; nevertheless, it is maybe the less studied from the Roman frontiers in the Lower Danube basin. My interest in the area is relatively recent, split in two periods: the first when I was trying to recap the things we should know about, organized as a GIS file, ended with a book published in 2013 (Eugen S. Teodor, *Urișul invizibil*, Târgoviște: Cetatea de Scaun, 2013); the second, benefiting of a research grant beginning with the fall of 2014, which provides the means to check my previous hypotheses in the field.

The Roman frontier known as *Limes Transalutanus* can be divided, south of Argeș River (152 km), in three sections with specific features: a continuous *vallum* from the Danube to the Vedea River (55 km); a typical *ripa*, beyond Vedea and Cotmeana Valleys (40 km); and a final section where the border was crossing another undefended plain, from Cotmeana Valley to Argeș Valley (57 km), where one would expect another continuous embankment, but it is not... The Argeș River is also the northern limit of the current investigation.

The new project is planned to develop some field research from south to north, therefore I will rely on facts connected more on the first southern section. Giving the fact that almost all previous archaeological research was conducted in forts, we barely know lots of other facts about the *limes*, as the main traits of the embankment (trajectory, width, height, ditches etc.; see yet Ioana Bogdan Cătănicu, *Limes* 11, 1976, 333–352), the watch towers, the roads, the bridges. So far we succeeded to locate some towers and to map the first lengths of Roman roads.

The paper will focus on watch towers and their possible classification regarding the visibility issues. We did not find so far a complete link of towers, able to send alarm messages from one end to the other, but the areas where such links should exist are known. Looking at the relationship with the landscape, there are three kinds of locations: in the middle of a plain, but using the supplementary height of some prehistoric mounds; at the edge of a terrace, looking both in a valley and across the upper plain; inside the valley, controlling a passage way (like a bridge or a ferry). For the last case, they need a relay on the terrace to send or to receive messages, having a 'blind' sight, restricted to the valley.

Looking at the range of distance between two towers, the close related towers are rare, in fact only a pair, located only half a Roman mile one of each other. Of course, I am considering here only the

towers with a relatively certain identification, supposing that there are still a lot unidentified. Due to the flat relief, slightly tilt southward, middle and long range visibility was also achievable. I am also pretty sure that between the Danube and the Vedeia Rivers there were no large forests. Such conditions could suggest that close range towers were in fact not necessary. Middle range towers – located up to 5 km distance from each other – are to be expected, and some items of this ‘middle range’ network are already known. A third class – the long range signalling towers – is clearly shown in the GIS based application; its parameters show a very bad location for close range visibility, but an outstanding capacity to see very far locations along the border, even beyond the limit of 20 km.

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### Andreas Thiel, Timber forts and their stone successors

Along the Roman frontiers – at least in the northwestern provinces – when building a fort, a fortress or even a tower, it was a common feature to start with a wooden structure and end up with a massive installation fixed in stone. Wherever possible, the latter was obviously the preferred building technique, when a site became a permanent military base. But despite the fact that stone walls were more durable in the long run changing a site from wood into stone was not only a matter of time and money. It was also a challenge as the building work had to be done on a “living” garrison and in the very heart of the meanwhile existing civilian settlement outside the old fort. Nevertheless, looking at the relation between timber and stone forts – of all possible positions, rebuilding at the very same place, rebuilding in the neighborhood and rebuilding on nearly the same site only slightly moved – all three of them are known from archaeological record. The paper compares the locations of stone forts with their wooden predecessors along the Roman Limes in Germany to find patterns in which cases and for what reasons i.e. the new fort was built on the very same spot and in which cases the new position was (slightly) shifted.

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### Agnieszka Tomas, Canabae Novae (Moesia inferior). The results of recent investigations

The project of non-destructive investigations carried out recently in the extramural area of Novae allowed to establish several important facts concerning the settlement and archaeological remains. A three-year research project involved remote sensing, aerial photography and mapping of finds discovered with metal detectors, supplemented by the analyses of archaeobotanical remains. Due to the results of field walking surveys the size of both the *canabae* and the second settlement at the place “Ostrite Mogili” was finally estimated. The GIS database contains the georeferenced outlines of defensive walls, excavated buildings placed within and outside the legionary walls, as well as some features in the *canabae*. One of the finds is a fragmentarily preserved inscription from the site of Ostrite Mogili.

The monuments related to the inhabitants of Novae, including epigraphic evidence, bring additional important information. Some of them turned out to be never published, and others received more extended documentation and analysis. Special attention was paid to civilian settlers mentioned in the inscriptions.

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### Ivo Topalilov, Rediscovery of the so-called 'Praetorium' in Ratiaria, Dacia Ripensis

One of the main complexes discovered and excavated partly within the provincial capital Ratiaria is the 'Residence' located almost in the center of the city considered to be the 'palace' of the provincial governor. The excavations were made a quarter of a century ago and the preliminary results were published ten years later in a small article (Kuzmanov 2000; Valeva 2000). In 90s and afterwards the site suffered by treasure-hunters who almost destroyed the ruins. This drew the attention of the authorities in order to preserve the ruins, so new excavations of the area begun in 2013 and continued up to the present. Among the sites excavated is also the Praetorium. The main idea is to reveal all that had been excavated and to see how deep is the penetration in the cultural layer made by the treasure-hunters. In the course of the excavation, not only the whole excavated building was revealed, but also new sectors. They allowed to specify precisely the technique phases of the complex, but also to alter some concepts advanced in the initial publication. It is therefore a goal of this presentation to discuss the new data obtained from the recent excavation of the Praetorium.

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### Bettina Tremmel, The defences of the Augustan 'Hauptlager' in Haltern (excavations 2012–2015)

As part of the establishment of the Archaeological Park on the site of the military base of Haltern, an excavation was mounted by the LWL-Archäologie für Westfalen on the western section of the enclosure around the late Augustan camp of Haltern („Haltern-Hauptlager“). The work began in April 2012 and was completed in June 2015. A 270 m stretch of land was investigated to unearth the foundation remains, the Via Sagularis and parts of the extramural zone. It is the first opportunity to examine a particularly long section of the enclosure. The west gate was excavated by Siegmund von Schnurbein in 1971.

The 3 meters wide timber-earth-wall (“Holz-Ede-Mauer”, “box-rampart”) was defended by two V-shaped ditches measuring 4.5 and 5 meters width. The timber uprights were set in individual postholes. They stood 2.8 to 3.6 meters apart. The average distance between the wall towers is 22 to 25 meters.

For the first time in Haltern, it was possible to identify a building in the Via Sagularis beside the gate. Orientated parallel to the interior wall of the timber-earth-wall and located right beside the camp gate, the same type of building is also known from the Lippe camps in Bergkamen-Oberaden and Delbrück-Anreppen. Now the remains of foundations beside the southern gate of Haltern can be identified as such building type.

A wooden building outside the camp was also examined. The building measures 5 x 10 meters. Its internal space was almost completely taken up by a timber-lined pit c. 1 meter deep. A channel-like structure, also timber-lined, led down the slope away from the camp towards the south-west. Nothing is yet known about the function of this building.

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### J. Trumm, The famous «Schutthügel» of *Vindonissa* (Windisch/Switzerland) – some facts, more questions

With the so-called «Schutthügel», the roman legionary camp of *Vindonissa* (modern-day: Windisch, Canton Aargau), Switzerland possesses a unique resource: Situated directly to the north of the *castra legionis*, on a steep slope leading down the river Aare, a large amount of waste was disposed of here during the 1<sup>st</sup> cent. AD, thus gradually creating a veritable rubbish dump. In the following centuries, this extraordinary archaeological site was never built over and wasn't rediscovered until 1855, in the course of railway construction. Between 1903 and 1952, sondages were carried out almost every year. Systematic excavations followed in 2004/2005. The actual amount of finds from the Schutthügel is hard to grasp, wooden writing tablets and tents made of leather are among the rarities.

This paper will give an overview on the topography, research history and finds from the „Schutthügel“, leading to questions, which aren't just restricted to Vindonissa: What was thrown away and what wasn't? How did the waste disposal function and what remained in the rubbish pits within the camp itself? And finally: what measures can be taken to simultaneously investigate and preserve such an important archaeological site?

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### C. van Driel-Murray, Abandoned shoes: dumped, recycled, deposited?

Incidental finds of leather footwear in Roman forts are relatively frequent, but occasionally massive dumps of shoes, seemingly discarded in a single event, occur in a ditch or well (Welzheim, Camelon). Such large associations are of particular interest for establishing the character of the fort occupation, as well as the spectrum of footwear styles available to the inhabitants at a particular point of time. But what do such huge numbers of shoes signify? The exploration of the reasons behind these single event dumps will touch on issues such as the provision of clothing to both soldiers and civilians in the forts, the extent of local manufacturing as well as the role of footwear in ritual.

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### Pau Valdés Matías, Logistics and Intelligence in the Second Punic War

The Second Punic War has been considered as a turning point in how the Roman army gathered intelligence. Two theories had been proposed to explain this change. In the first one, the army improved through a slow learning process that reached its peak in the figure of Scipio the African (Austin and Rankov 1995; Austin and Rankov 1995, 10, 15; Sheldon 1987, 65; Urso 1991, 75–6). In the second one, the prorogation of the commandments allowed the generals to be more experienced and a better understanding of Intelligence (Fournie 2009, 518).

In our judgment, both visions pose problems for an adequate understanding of the logistics of the army. There is a clear interrelation between Intelligence and Logistics, even though it hasn't received much attention in the previous works. From our perspective it is necessary to review how roman intelligence is portrayed in the classical authors and approach it from a logistical perspective. Thus, we set the following objectives:

- Highlight the relation between Intelligence and Logistics and how important they are for the survival of any army.
- A review of Polybius, especially his comments on the alleged inexperience of the roman army and his criticism of the roman generals when they fail.
- Review the notion that a prolonged time in commandment was the factor that favored intelligence gathering.
- Propose a new explanation for the flawed Intelligence of the roman army at the beginning of the Second Punic War and its improvement through the war.

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### Sofie Vanhoutte/Anton Ervynck, The Saxon Shore fort at Oudenburg (Belgium): local craftsmanship in the later Roman period

Large-scale excavations in 2001–2005 on the south west corner of the Roman coastal fort at Oudenburg (Belgium) gave insight into a remarkable evolution of the spatial and functional organisation *intra muros*, covering the period from the late 2<sup>nd</sup> to the early 5<sup>th</sup> century AD. An important part of the area investigated proves to have been used for craftsmanship, i.e. the production of a range of artefacts. Throughout five fort periods, a diversity of materials provides evidence of local manufacture, partly illustrating the self-sustainability of this army group. In the 4<sup>th</sup> fort period (dating to the later 3<sup>rd</sup> century AD) the south west corner was clearly occupied by workshops for metal working. Starting around AD 260, hearths and ovens functioned in an operational sequence of bronze and iron processing, with the attested production of spiral brooches and bracelets, of which the remains of the different steps in the production process were found. Other finds categories can also be used as proof for local craftsmanship be it without certainty where, within or near the fort, the actual production took place. The site yielded evidence for leather working (or at least recycling), in the form of leather offcuts and the presence of certain tools. The production of objects from animal products is illustrated by half-finished bone artefacts (especially needles and pins) and waste products consisting of sawn parts of the antlers of red deer. The latter production line already started in fort period 3 (around the middle of the 3<sup>rd</sup> century AD) and must mainly have been oriented towards the manufacturing of antler combs. Wood working is suggested by a large number of iron implements.

In this paper, a chronological and contextual analysis of the products, the production techniques and the workshops will be presented, evaluating – where possible – local production versus import. Inferences will also be made about the consumers of the produced commodities and comparisons will be drawn with contemporaneous Roman sites in the north of the Imperium.



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## Zsolt Vasáros, Then and now – roman forts in Brâncovenești, Călugăreni and Sărățeni on the eastern limes of Dacia. Architectural and topographical observations

The subject of this paper focuses on the reconstruction of three roman forts and their surroundings. The 'Roman Limes as Cultural Landscape' project focused on researching, presenting and preserving the Roman limes sector in the area of Mureș County (RO). In 2013 and 2014 we worked in the framework of an international project (Erasmus IP-Intensive Programme) financed by the European Union with the participation of students and specialists from the Humboldt University of Berlin (DE), the University of Cologne (DE), the Fachhochschule Erfurt (DE), the Budapest University of Technology and Economics (HU), the Eötvös Loránd University of Budapest (HU), the University of Pécs (HU), the Babeș-Bolyai University of Cluj Napoca (RO), and the Mureș County Museum (RO). The main aim of the interdisciplinary project is to identify new sites along the limes section found on the territory of Mureș County, and the thorough mapping of the already known sites with the help of field walking, aerial photography and geophysical surveys.

Along the limes section in Mureș County three auxiliary camps are known (Brâncovenești, Călugăreni and Sărățeni). As a current result of the project beside the topographical and geophysical survey of the three auxiliary camps architectural reconstructions and proposals for the roman land use will be presented. One of the main research questions topography deals with in the Roman Period is the human impact and the changes caused by the process of land use within the surrounding area. Focusing on the topography, the relation between terrain and the usually rectangular composition of the military installations is still interesting. The layout of the excavated remains and the suggested reconstructions is very different in every cases. The later re-use of the territory seems to be unusual in some elements, this is also indicated by the current settlement structure. In the case of Brâncovenești is the former area of the fort free of later built structures, small part of the destroyed by the renaissance castle. The fort Călugăreni is on the fringe of the village, large part of the vicus and the roman road also not covered by the later buildings. Sărățeni is an enigmatic case, the former quadrata of the fort and the connecting roads are covered by the current village buildings.

From the perspective of the challenges of cultural heritage management, on major task that awaits us in the near future is to protect and present these sites as part of a touristic itinerary running parallel to the limes and connecting the different elements that were part of it.

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## Zsolt Vasáros, Detail and Composition – architectural consequences of the 3D Reconstruction of the Late Roman Period Complex near Szabadbattyán, Hungary

The aim of this paper is to present the methodological approach and the results of the virtual reconstruction of the Late Roman period complex near Szabadbattyán in Hungary. Reconstructions are a matter of course in the communication of research results in archaeology, architecture and related fields. The large scale villa, located near to Gorsium, which is a well-known fortified settlement, contains mainly Roman remains from various construction phases. This villa was built

and expanded into the final complex presumably in the second half of the fourth century. This was a flourishing period in the life and history of Pannonia, only the last two decades brought a kind of decline. The almost completely excavated building is one of the largest peristyle villas in the entire Roman Empire and contains many interesting and unusual elements. Nowadays due to the development of technology we are able through many different methods to visualize bits of the past that no longer exist or survive only in part. As usual, before 3D modeling, the representation of the volume of the complex was given in two dimensions based on drawings. Already the problem of analyzing the archaeological documentations arose, with important consequences for the final result, in particular when only the foundations or the trenches of the former foundations were found. In our case we have wall remains, only a few architectural fragments, almost all the terrazzo floors and many decorated fresco fragments from the walls and ceilings that in some exceptional cases are even in situ. In the beginning, instead of a debated and imaginative reconstruction our proposal consisted of several elevation projections and 3D sketches. Even now 3D modeling sometimes still has no scientific value, the erected remains of the superstructure and its proposed reconstruction are always just conjecture. After recalling what comprises an edifice, we collected the essential data to take into consideration for all the relevant architectural analyses and requirements. Based on these elements, we extracted the method for analysis and the steps for the virtual presentation. For this reason, the final reconstruction should no longer be just a possibility based on conjecture but the 3D product should be a representative conclusion of the current state of the scientific results. The intent of this paper is to focus on the 3D visualization based on the archaeological data, including fine details as well as the role the reconstructed “surfaces” in constructing a visual narrative.

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## Zsolt Visy, Some considerations on the late Roman inner defence of Pannonia

The barbarian invasions of the 3<sup>rd</sup> century into the inner territories of the Roman Empire changed the military doctrine: Rome had to corroborate its inner defence. The first step was the building walls round the towns, begun in Rome under Aurelian. The erection or re-erection of town walls can be detected also in Pannonia. Another dimension of this movement is the building of new military posts in the rear territories, partly as imperial centres like Romuliana or Spalatum under the tetrarchy. However, there is also a third type of fortifications in the 4<sup>th</sup> century in Pannonia which doesn't belong to either group. There are big fortifications without any previous settlement or fort in the site. They are big, sometimes bigger than a standard legionary fortress. Some of them have two periods, the first one under Constantinus/Constantius 2<sup>nd</sup>, the second under Valentinianus, and two types of side towers according to the two periods. Excepting the fortification at Keszthely-Fenekpuszta their inner territory was built in only scarcely. The most significant building which is always to be found in them is the big granary (*horreum*). It is significant that they were placed in valleys, near to water. According to an earlier explanation their placement was chosen because the builders/users wanted to hide them from the enemy. However, it was pointed out that the real reason was to ensure enough water for the herd kept inside the walls. This observation allows some new considerations on the long discussion about the function of these fortifications, wavering between the interpretations as fortified estate centres or military fortifications.

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## Sanja Vučetić, Negotiating Provincial Sexualities through Everyday Objects. The Case of Sexual Representations on Molded Terracotta Lamps

Much of Roman provincial archaeology is concerned with the consequences of Roman imperialism on provincial people. One of the key questions for Romanists has been how provincial people generated, experienced, interpreted and responded to the social, cultural, and political forces of the Roman Empire. Informed by the post-colonial theories, studies have argued that the experience of 'being Roman' was not uniformed but varied between individuals and groups, and across time and space. Yet, a focus on sexual imagery decorating luxury objects from the center of the empire has produced an overwhelmingly elitecentric archaeological account of Roman sexuality. Consequently, in the current archaeological discourse, Roman sexuality is frequently presented as a monolithic and, above all, static concept that uniformly pertains to culturally distinct Roman provinces over a prolonged period of time.

This paper demonstrates the ways sexual decorations on ordinary, mass-produced objects, such as lamps, can be useful to the study of sexuality of people who lived at the edge of the empire. Lamps were manufactured and used across the Roman world, and accessible, for prolonged period of time, to people of different social strata. Their sexual decorations are characterized by the apparent standardization of the iconographic repertoire that is Romano-Hellenistic in nature. Nevertheless, a brief survey of common sexual representations highlights the presence of specific motif variations that operate within a strict set of iconographic themes.

Taking provincial sites of Trier, Vindonissa, Athens, and Corinth as case studies, this paper looks at the ways sexuality was articulated through sexual imagery decorating lamps in the context of western and Mediterranean provinces of the Roman Empire. By integrating quantitative and qualitative analyses, the study examines sexual decorations from temporal, spatial, stylistic, and iconographic perspectives. The paper further employs comparative and contextual approaches to investigate the character, distribution, social function and the symbolic meaning of lamps with sexual imagery in the context of the Roman frontiers. In examining sexuality as a lived experience, the paper approaches sexual imagery as an agency through which sexuality embodiments are transmitted, and explores the role of sexual iconography in the articulation of sexual practices and identities of the people living under the Roman rule.

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## Igor Vukmanić, Presenting an invisible Roman site on the example of the *Limes* fort *Ad Militare* in Batina, Croatia

The most northeastern *Limes* locality in Croatia is the Roman fort *Ad Militare* which is located in a modern-day settlement of Batina. Geophysical research has been conducted on the site during a 3-year survey (2010–2013), with the result that the probable layout of the complete stone Roman fort has been identified. At the time, it was the first site whose entire internal ground-plan on the Croatian section of the Danube *Limes* was known.

Given the fact that the fort *Ad Militare* is partly overbuilt by recent structures, circumstances prevent excavations on a larger scale. Despite the currently limiting *in situ* presentation possibilities, experts from the Museum of Slavonia in Osijek and the Institute for Tourism in Zagreb have developed a concept to present this Roman site to the general public in the short term. Within the framework of the EU funded South East Europe-Danube *Limes* Brand Program, the first information-board along the *Limes* in Croatia has been installed near the Roman site in Batina, where a visitor centre could be established in the future. The information board contains a QR-code which can directly lead the user to the website: [www.limescroatia.eu](http://www.limescroatia.eu). This is where one can browse through a short, 3D computer visualization of the *Ad Militare* fort. Also, a first-person real-time animated version of the site is developed and designed for PC and as a smartphone application.

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### Mirna Vukov, Altars Erected by Roman Soldiers from the Military Sites along the Danube and Dalmataean Limes

Numerous epigraphic inscriptions come from Roman military sites along the Croatian part of the Danube and Dalmataean Limes, and part of them have been found on Roman altars. This research will analyze the altars set up by Roman soldiers, in two geographically and chronologically separate areas. The first area is the Danube Limes, 188 km long, and encompasses the forts Batina Skela (*Ad Militare*), Zmajevac (*Ad Novas*), Nemetin (*Ad Labores*), Dalj (*Teutoburgium*), Sotin (*Cornacum*) and Ilok (*Cuccium*). Altars dedicated by Roman soldiers recovered from the civilian settlements of Osijek (*Mursa*), Petrijevi (*Mursella*) and Vinkovci (*Cibalae*), located in the outback of the Danube Limes, will also be included in this research. The second area is the Dalmataean Limes, and includes the legionary fortresses Ivoševci (*Burnum*) and Gardun (*Tilurium*), as well as the auxiliary forts Tepljuh (*Promona*), Balina Glavica (*Magnum*), Gornji Muć (*Andetrium*) and Humac (*Bigestae*). The research will also include the altars from Solin (*Salona*), an administrative centre of the province of Dalmatia, located in the outback of the Dalmataean Limes, where a large number of military finds have also been documented. When it comes to Roman altars dedicated by soldiers, the altars set up by the *beneficarii*, which have been found across the province, shall not be excluded. They represent a third, mostly geographically and partly chronologically, distinct area. The purpose of this research is to establish the chronology and typology of Roman military altars. This type of research is the first of its kind carried out on the altars from Croatia, and it is part of a larger project examining the typology and chronology of Roman altars from Croatia.

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### Sonja Vuković-Bogdanović, What was eaten at the Moesian limes? Archaeozoological evidence from the city of Viminacium (Serbia)

In contrast to other parts of the Roman world (e.g. Northern and Western parts of the Empire), the knowledge on dietary practices in Roman times on the territory of Serbia is pretty scarce. There are only a few bioarchaeological studies from Roman period sites in this part of the world. However, archaeozoological surveys conducted in the past few years in the Roman city of Viminacium might open the broad topic of meat diet at Moesian limes. This paper is the result of a study of faunal remains as food disposal in Viminacium, the capital of the province of Upper Moesia (and later

Moesia Prima) and legionary fortress. Bones originate from different archaeological features: from the area of the city (amphitheatre) and from the area outside the city walls (dump at the necropolis). The goal of this study is to understand the meat diet, butchery practices and animal exploitation in Viminacium. This study is also an attempt to establish whether archaeozoological results from Viminacium correspond to those from other Roman urban sites within Roman limes and to understand regional trends of meat diet in the province of Moesia. Taxonomic composition, distribution of skeletal parts, fragmentation, aging data, butchery patterns and also biometric data will be discussed in order to answer the main questions. Although there is no direct textual evidence on the diet in the province of Moesia, general written sources are going to be used as additional evidence in interpreting the diet preferences. Archeozoological results will be compared with the ones from other sites in surrounding provinces in order to understand the local dietary preferences better.

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### Walter D. Ward, "Pilgrimage, Trade, and Security in the southern Levant in the Sixth Century CE"

My paper explores the connection between Christian pilgrimage, trade, and security in the southern Levant in the sixth century. Scholarship, arguing from archaeological evidence such as abandoned Roman legionary bases (el-Lejjun) and literary sources such as Procopius, has emphasized that the Roman authorities decreased security along the frontier with Arabia in the sixth century. My research, however, has demonstrated that fortifications and garrisons increased along transit routes within the empire at this same time period which were used by both pilgrims and merchants. This suggests that military planners perceived a different kind of threat in the region: instead of focusing on an invasion from outside, the authorities concentrated on internal problems. In the southern Levant, specifically southern Israel and Jordan, the major threat originated from nomadic peoples, often labeled in the sources as "Saracens," who often dwelt inside the empire.

Extensive evidence suggests that the mid-late sixth century was a time of enhanced security in the southern Levant along pilgrimage routes leading to Mount Sinai. Literary sources, and now archaeology, indicate that Justinian fortified the monastic communities at Mount Sinai and Rhaithou. The sites of Pharan and Dahab, also in the Sinai, were also fortified in this period. At Pharan, there was a unit of troops specifically ordered to defend pilgrims, according to the Piacenza pilgrim. The recent excavations of sites in the southern Levant support the idea that the emperors were concerned with securing the pilgrimage routes into the Sinai. Recent reevaluations of two forts, Ein Boqeq and Upper Zohar in the northern Negev, demonstrate that they were constructed in the late sixth century for a small garrison – most likely to escort travelers in the region. According to the Madaba Map, dating to the sixth century, Mampsis, Arad (unidentified), and Gerara (unidentified) in the Negev, and at Praesidium, Thamara, and Moa in the Wadi Araba were all forts in the area at this time.

In my recent book, *Mirage of the Saracen* (UC Press, 2014), I examined the rise of pilgrimage traffic in this region. In previous articles I have looked at the impact of security in the region on commerce. This paper ties these three topics together to emphasize that in the sixth century, the Roman authorities became increasingly interested in defending travelers – both pilgrims and merchants – inside the empire in the southern Levant.

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### Patricia Weeks, Capturing Hearts and Minds; Capturing Digital Data

In developing new projects for the Antonine Wall Management Plan 2014–18, Partners have increasingly focused on audiences: on understanding them; on engaging with them; on tailoring projects and products to suit them.

Key to this has been the increased use of digital technologies and techniques to offer both an enhanced visitor experience and suitably tailored products. The last 18 months have seen the development of a new website for the Antonine Wall, where key users were at the heart of the development; work to digitally capture and process 3D renditions and virtual reconstructions of archaeological artefacts and sites which feed into both the website and a new app; technical collaborations with colleagues on the German *Limes* (in app technology) to ensure consistency of brand and user experience; and the development of a digital game developed from 3D models for the education market.

Throughout these projects, the aim has been to understand who the different audiences are and discover what they want; to focus interpretation using accurate historical and archaeological evidence as the basis for all works; to open up the visitor experience and break down perceived barriers between sites and museums; and to apply digital technologies for the benefit of the end user, not for the sake of using digital techniques.

From the outset, the various projects have been Partnership based, with different combinations of Partners working on different projects, attempting to match skillsets and experiences to effective delivery. Processes have been focused throughout on the needs of the end user and not on those of the Partners.

This paper will consider several of these key projects and address the integration of digital techniques and resources into heritage interpretation practice, based on experiences along the Antonine Wall. It will explore the successfulness (or otherwise) of attempts to scope and understand audience needs and to tailor digital responses to these needs. It will explore the issues of balancing historical and archaeological accuracy with visitor expectation of digital products, and will examine how successful these approaches have been to date for the Antonine Wall.

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### Sarah E. Wenner, Petra's Relationship with its Udhruh Hinterland from the Nabataean through Early Byzantine Periods

Traditionally, research on Nabataea and Roman Arabia has focused on larger cities, centers of trade, and military sites. Hinterland sites, on the other hand, remain almost completely unexcavated. This means that little is known about non-elite or nonurban life in the Classical periods (ca. 63 BC–AD 500), nor is the province's shift away from Petra in southern Jordan—upon the construction of a legionary fortress only 15 km east of Petra—understood. When extensive excavation is impossible, surveys provide the best remedy for this knowledge gap, identifying smaller villages and even single farmsteads, examining field and water-management systems, and tracing general changes in landscape use over time. To explore these three topics, a Dutch-Jordanian team is currently surveying the marginal area around Udhruh, which receives around 100mm of rainfall annually. In ca. AD 300, the Romans built a legionary fortress for legio VI Ferrata at Udhruh, but the site's history

began long before its construction, with significant occupation beginning in the Nabataean era. In the 1980s a British team conducted a regional survey and excavated some parts of the fortress and an associated pottery kiln, the latter only briefly mentioned in preliminary reports. A final report from this project was never published and, as a result, little is still known about the site, which is now experiencing rapid development. Partially in response to this growing threat, a Dutch- Jordanian team began an ongoing regional survey in 2011. This paper explores Petra's relationship with its hinterland, specifically Udhruh, in the Nabataean (ca. 63 BC–AD 106), Roman (ca. AD 106–324), and Early Byzantine periods (ca. 324–500). Using ceramic evidence collected from the Udhruh survey and other regional surveys, as well as other archaeological and documentary evidence, it argues that Petra had an intimate but fickle relationship with its marginal desert environment. In the 1<sup>st</sup> century AD, Petra served as the conduit between its periphery and the larger eastern Roman Empire, but settlement shifted dramatically after the Roman annexation in AD 106; many smaller hinterland sites seem to have been abandoned and their inhabitants moved either into the newly walled city of Petra or out of the area. Only after the legionary fort at Udhruh was constructed ca. AD 300 did population resurge on the marginal hinterland. Udhruh (later Augustopolis) went on to succeed Petra and became the largest settlement in the region—suggested by the 6<sup>th</sup> century Beersheba Edict and evidenced by the new archaeological work.

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### Martijn A. Wijnhoven, Mail Making in the Roman Period: The Evolution of a Craft

Mail armour has been one of the most popular types of defensive equipment among the Roman army and that of the peoples living beyond their borders. As is well known, its popularity did not wane during the Middle Ages. While at first glance mail from the Roman Period resembles that of later times, there are differences between the two. These differences are the result of the manner in which craftsmen approached their subject, how they proceeded, and the tools they used. Careful inspection of mail remains, akin to forensic examination, allows its manufacture process to be recreated. Such analysis illustrates the unique methods in which mail makers in the Roman Empire and in the Barbaricum carried out their craft. Moreover, it also serves to demonstrate that the mail making craft has not been static, but evolved through the centuries.

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### Tony Wilmott/Ian Haynes, Sacred spaces in the extra-mural settlement of Alauna-Maryport (Britannia)

Maryport is situated on the Solway coast, and is part of the Cumberland Coast section of the Hadrian's Wall system.

During the last Congress in Ruse, we reported on excavations in the area of the well-known 19<sup>th</sup> century discovery of buried Roman altars. This demonstrated that, contrary to received opinion, the altars were not buried as ritual acts shortly after their dedication, but were used as packing in the massive post-holes of a major late Roman or early post-Roman building. As the altars were deposited at the same time in the same building operation it followed that they had stood together from the time of their dedication (120+) to the time of their reuse (?late 4<sup>th</sup> century +). The vast majority of the altars were dedicated to Jupiter Optimus Maximus, though other deities are represented.



In excavations during 2013–14, further work has been undertaken to find out the original context for the use of these altars. In 1880 two buildings were revealed by the antiquarian, Joseph Robinson. These were re-excavated. One was a classical temple, having a colonnaded facade facing northward towards the site of the altar find. Further altars were found close by in the 19<sup>th</sup> century. The second, adjacent building was a circular possible temple. To the south of the buildings their precinct was defined by a sequence of ditches. To the north was a broad open space, to one side of which was a substantial monument base, too large for an altar.

Currently we associate the classical temple with the dedication to Jupiter Optimus Maximus Capitolinus, found nearby in 1873, and suggest that this building was a capitolium. Further work between the writing of this abstract and the date of the Congress will explore further the area between the temples and the altar find. The latest results will be reported.

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**Pete Wilson, *Was Britannia different? Defence in depth, topographic necessity or inertia? Military deployment in Northern England in the fourth century.***

Away from the Hadrian's Wall system Paul Bidwell and Nick Hodgson record some 15 forts as being occupied north of a line from the River Tees in the east to the River Kent in the west during the period AD 197–369, along with a further 13 or 14 in Lancashire north of the River Ribble and Yorkshire<sup>7</sup>. While up to five of the forts may have been given up before the end of the fourth century we see an apparent intensity of military occupation that had changed little from that of the second century. The reasons for the intensity of military occupation, with in excess of 17,000 or 18,000 auxiliary troops on Hadrian's Wall and in northern England, have been discussed at length<sup>8</sup>. Whatever the reasons for the initial disposition of units following the abandonment of the Antonine Wall in the early AD 160s, the fact that the deployment did not change significantly, despite pressures on frontiers elsewhere and the removal of troops by Imperial adventurers, poses a number of questions. It seems unlikely that over 200 years following the withdrawal from Scotland that the Roman army was still dealing with internal opposition if that is what had prompted the second century strategy of concentrating units within and west of the Pennines. Building on contributions given at previous Congresses, and in particular that considering third-century deployments in Yorkshire given in Ruse in 2012, this paper will seek to consider the rationale for the fourth-century distribution of military units in northern England that, at least on the surface, if it was not the product of inertia, may suggest a strategy that at least in part relied on 'defence in depth' in apparent contrast with what is seen in other provinces.

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<sup>7</sup> Bidwell, P. and Hodgson, N. 2009 *The Roman Army in Northern England*. Kendal: The Arbeia Society, figure 9.

<sup>8</sup> See Bidwell, P. and Hodgson, N. 2009 *The Roman Army in Northern England*. Kendal: The Arbeia Society, 42-45 for a summary.

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## Elisabeth Wolfram Thill, Don't Confuse Us with the Facts: Visualizing the Frontier in the Capital City

Depictions of enemy architecture along the Roman frontier are a striking, yet often overlooked feature of monumental reliefs in the capital city. Five major monuments include representations of frontier buildings: the Column of Trajan, the so-called Great Trajanic Frieze (now in the Arch of Constantine), the Column of Marcus Aurelius, the panels from a lost arch of Marcus Aurelius (also now in the Arch of Constantine), and the Arch of Septimius Severus. Scholarship has generally ignored these depictions, yet it is striking that when attention has been paid to the buildings, it has focused almost exclusively on using them to reconstruct actual architectural practice along the frontiers. To give a few examples, the huts on the Column of Marcus Aurelius played a role in early twentieth century anthropological studies of Germanic tribes (Mielke 1915; Drexel 1918; Behn 1919), while the exotic looking buildings of Panel 4 of the Arch of Septimius Severus have been seen as a source for the reconstruction of the Arsacid Palace at Ctesiphon (Picard 1962; Brilliant 1967). What has been stressed, in other words, is the assumed accuracy of the depictions. This reflects and has fed a general view that Romans in the capital were interested in and relatively well informed about the foreign peoples and lands the army conquered. This view is tied to the practice of the triumph, where captives and booty were paraded before the populace of Rome. Indeed, scholars have drawn connections between monumental reliefs and literary descriptions of the contents of triumphal parades (Holliday 1997; 2002; Hölscher 2004; 2005; 2006; La Rocca 2004; Lusnia 2006; La Rocca et al. 2008; Östenberg 2009).

Yet closer examination of these sculpted enemy architectural depictions shows that they were ideologically motivated, determined more by judiciously crafted official messages regarding the frontiers than ethnographical interest. The Column of Trajan, for instance, depicts complicated building types for the Dacians, in keeping with the monument's portrayal of the enemy as a noble, worthy opponent. The Great Trajanic Frieze, which commemorates the same conflict but emphasizes complete Roman dominance over an inferior enemy, portrays the same Dacian architectural tradition using simple huts. This begs the question of how much the populace of Rome actually knew about the frontiers where their soldiers fought. The placards, maps, and paintings carried in triumphal processions, all lost to modern eyes, are assumed to have been broadly accurate representations of the campaigns they commemorated. But if monumental reliefs are believed to be our best reflection of these lost media, then our evaluation of triumphs must be reconsidered as well, and with it the relationship between Rome and the frontier. The general populace of Rome was fed a carefully constructed view of the outside world. Rather than focusing on native wattle-and-daub vs. stone construction techniques, or which legionary fortress with three gates Marcus Aurelius visited in Germania, scholarship must use the depictions of enemy architecture in monumental reliefs to explore why certain parties felt the need to present particular visions of the frontier to their fellow Romans at home, and how this might have affected strategy both at home and abroad.

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### David J. Woolliscroft, Geophysical surveys of the Inchtuthil legionary fortress and its surroundings.

One of the best known plans of any timber built Roman military installation is that for Inchtuthil, produced by Sir Ian Richmond's excavations after the Second World War. When first seen, this appears to be one of the few whole site plans of a Flavian legionary fortress, but in truth the excavations consisted largely of narrow slit trenches that covered only one or two per cent of the site, with the rest of the famous plan being interpolation. Air photography, and a small amount of additional excavation have since added further data, but for the most part Richmond's work still reigns supreme. Likewise, although aerial work has added greatly to our knowledge of the rest of the Inchtuthil plateau, large areas still remain blank. The Roman Gask Project has thus mounted a geophysical survey of the entire plateau to test our current understanding, coupled to an extensive field walking program. The results have largely vindicated Richmond's interpretation of the fortress interior, but suggest a hitherto unsuspected industrial complex outside the ramparts along with other activity including what may be a large market square.

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### Radu Zagreanu, A roman funerary aedicula wall with an erotic scene from Porolissum

Porolissum, established as a military camp in 106 during Trajan's Dacian Wars, quickly grew through trade as an important city of the province Dacia Porolissensis. From its necropolis numerous and various monuments have been discovered. An old discovery it is an fragmented aedicula wall, recently reconstructed with a unusually depiction. Only the upper half of the right side wall of the aedicula is preserved. Both sides are decorated. Representation on the inside is indecipherable. On the outside we have an image with a couple kissing tenderly. The female character is wearing a tunic girded at the waist, its hairstyle was destroyed but it can be distinguished the long hair that falls on the shoulders and from its face highlights only the fleshy lips. She keeps a rough sculpted left hand on the shoulder of the male character and the right hand is holding hands with it. The male character seems to wear a sagum and from its physiognomy, the lips and the chin loom are well raised. The combination of the male genitals with the woman's body and breasts represented in reasonable way it is obviously. The artist worked the exterior in bas-relief: the surface is pitted, yet the viewer can appreciate the couple's complex pose as well as the artist's attention to details. The rest of the monument is extremely damaged, further comments been superfluous. We can assume that it depict an erotic act, enriching our understanding of the construction of sexuality and love in these peripheral region of the Roman Empire and offering valuable insights into Roman sexual acculturation in to the military world. Everything in this scene, as rudimentary as it is, bespeaks passionate and intimate lovemaking.

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**Mihail Zahariade, From the 2<sup>nd</sup>–4<sup>th</sup> century castra to the 5<sup>th</sup>–6<sup>th</sup> century polis: urban evolution within a fortified area: Halmyris: a test case on the Lower Danube river frontier**

Halmyris held a critical economic and strategic position at the mouth of the Danube and prompted, in different instances, its record in Greek and Latin sources. In 1981, a project of complex research of the site was launched and is in progress nowadays; it aims at studying the fortress components, chronology and topography, environmental and geographical evolution, climatic changes in the area. The stone fort built very early in the second century most likely in a typical card-like layout replaced the old turf and timber Flavian installation.

The late 3<sup>rd</sup> – early 4<sup>th</sup> century radical reorganization of the layout of the early and mid-Roman fort (2<sup>nd</sup> – 3<sup>rd</sup> century) consisted in the abandon of the idea of the card-like plan; instead, two new sides that merged to the north where the north gate lied were built that resulted in a configuration of a roughly isosceles triangle of a new fortress. The reason for such a radical measure must have been an utter destruction of the north-east and north-west respectively corners of the fort, possibly by the course of the Danube. The new fortress wall received U-shape north gate and curtain towers, trapezoidal corner towers and bastions. It is remarkable the preservation of the previous 2<sup>nd</sup> – 3<sup>rd</sup> century lines of the *cardo maximus* and *decumanus maximus*. A surprise of the Tetrarchic reconstruction phase is the opening of a third gate to the north-east, very close to the north gateway. The magnetometric investigations revealed two massive building blocks in the south-eastern and south-western corners of the fortress, while barrack blocks were bonded against the defense wall. A sizable building (Domus 2) was partially investigated indicating a civilian installation. A series of massive buildings and a basilica contributed much to the alteration of the military nature of the interior of the fortress; an important civilian component must be perceived in early 5<sup>th</sup> and especially 6<sup>th</sup> century.

However, the military character is obviously maintained as results from the finds of weaponry and equipment, and also from the terminology applied in case of the fortified perimeter in the in Procopius' work in the 6<sup>th</sup> century. The civil settlement around the fortress developed at a grand scale both in architecture and surface together with the Hierocles' term of polis applied, as in other cases, on the limes settlements strongly suggests a clear topographical difference between the Halmyris polis/civitas which covered the ca. 10 ha surrounding civil settlement and castra/phrourion representing the old military nucleus.

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**Piotr Zakrzewski, *Portae Castrorum*. Gates of the Roman Legionary Fortress at Novae (Lower Moesia)**

The legionary fortress at Novae has been excavated by Polish and Bulgarian archeologists for more than half a century now. Over the years excavations were carried out in different parts of the archaeological site (defences [gates, curtain walls, interval towers, ditches], headquarters building, military hospital, bathhouse, one of the officer's houses, centurial barrack). During the last few seasons one of the main goals of the Polish mission was to investigate the camp's defences along its east and north fronts. Most of the defensive structures had already been excavated from 1960s till

early 1990s by Polish and Bulgarian teams, but the documentation left much to be desired. That is why in 2005 we launched a project called “Per lineam munitionum”. Our work basically consisted of cleaning up and deepening old trenches as well of recording remains of the original building substance, stratigraphy and other archaeological remains using modern technologies and precise geodetic equipment.

This paper presents and re-evaluates all relevant data concerning the architecture of four gates of the legionary fortress at Novae, based on the results of our recent excavations inside the North- and Eastgate (*portae praetorian* and *principalis dextra* respectively) and old reports (South and Westgate) with the use of modern technologies (tachimetry, photogrametry) and new archaeological documentation methods (detailed plans, axonometric projections, 3d visualizations, computer generated imagery and DTMs).

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## Marenne Zandstra, Leaving their mark: graffiti from military sites on the Lower Rhine

In the 1<sup>st</sup> century AD, the Roman army brought new ideas and objects to the Rhineland, thus inducing a major transformation of culture in the area. This army had two distinctive but easily overlooked features: not only was it very mobile, but the soldiers had also very diverse backgrounds. So-called graffiti from this period have the potential to serve as a valuable source of information.

Graffiti consisting of owners' marks scratched onto pottery and military equipment, for example, may contain names of individual soldiers and of military units. In some cases, they convey personal names which can be traced to specific regions of the Roman Empire. These scratched-on marks can also contain details of specific military units or subdivisions, such as *centuriae* or *turmae*. They thus offer greater insight into the composition of the Roman army that was active in this border region during the 1<sup>st</sup> century AD.

Several collections of graffiti from military sites on the Lower Rhine have been analysed as part of a PhD project which aims to map out the markers of cultural diversity displayed by the Roman army in the said timeframe and region. The investigation of these marks left by the soldiers and their followers will be presented in this paper.

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## Alexander Zimmermann

The contubernium formed the legion's basic structure from the mid-Republican period through the Principate. Organization of tasks, supplies and logistics often conformed to the contubernium. At the same time there are only very few standards that can safely be applied to all contubernia as there was a high degree of specialization present in the Roman Army.

The presentation aims at visualizing and quantifying requirements, tasks, equipment and possible forms of organization of this smallest structural unit through contemporary sources, scientific

treatises, reconstructions and experimental testing with a focus on the early Principate. We will also highlight the open problems and questions surrounding this nucleus of the the Roman Army.

# Abstracts of Posters

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## Barbara Birley, Vindolanda Wooden Hair Combs; form and function on the frontier

Over the last 45 years, the Vindolanda Trust has been conducting excavations on its site just to the south of Hadrian's Wall on the northern frontier of the Romano-British province. Roman Vindolanda was established in about AD 85 and at least ten distinct levels of occupation occurred up till the abandonment of the site in the 6<sup>th</sup> century. The first five levels of occupation from AD 85 to AD 130s have produced some of the most remarkable organic objects from the Empire including the Vindolanda writing tablets. Wood, leather and textiles survive in excellent condition and artefacts range from the commonplace to the extraordinary. One of the unique aspects of the Vindolanda collections is the large number of wooden hair combs found in these early occupation levels.

The survival of so many hair combs at Vindolanda has revealed some of the grooming habits practiced on the frontier. Over 150 wooden combs have been unearthed from these contexts on the site, many from recent excavations. Resembling modern nit combs the small objects had the primary function of cleaning and detangling hair, but further examination of the collection allows for the exploration of different aspects of style and function. These objects show a range of interesting decorative techniques including makers' marks and intricate carving. This poster will focus on the form, decoration and archaeological evidence for the use of these objects.

## Mike Bishop, The EAMENA Project

The Endangered Archaeology in the Middle East and North Africa (EAMENA) project, supported by the Arcadia Foundation and based at the Universities of Oxford and Leicester, is using satellite imagery to record and make available information about archaeological sites and landscapes which are under threat across the Middle East and North Africa. The archaeological heritage of the Middle East and North Africa, which is of international significance for all periods, is under increasing threat from massive and sustained population explosion, agricultural development, urban expansion, warfare, and looting. EAMENA includes almost half of the length of the frontiers of the Roman Empire and this poster examines some of the Roman military and non-military sites within our study area with examples of the threats they face.

## Lisa Böhres-Rübeling, Food for the frontiers – economical orientation and specialisation of Roman Villas in the north-western provinces

The dissertation project focuses on exploring the agricultural orientation and specialisation of Roman Villas in the north-western provinces of the first five centuries AD matched with environmental, society related and resource orientated data gained in the field of economic archaeology. Estates with market orientated production formed the economical backbone and hence the base of livelihoods within the north-western provinces. Special emphasis has been placed on the economic relationship between rural estates and military locations. The aim is to explain the development of established specific requirement structures at the frontier areas.

The diversity of categories of findings stretches from solitary settlements to large Roman villa sites with clearly defined areas for housing (*pars urbana*) and for economical purposes (*pars rustica*). The density and variety of Roman estates as well as the material remains and the characteristics of the commercial facilities clearly show the focus on agriculturally targeted economic activities, especially if aspects related to the landscape are included.

One major reason of the neglected reception of this topic until present time was the absence of wide-reach prospecting methods, another the difficulty of an intertwined interdisciplinary analysis that this subject matter needs under profound treatment. By combining archaeological data with physiographical information and a conclusive evaluation oriented on cultural science it is now possible to single-mindedly devote research to the economical orientation and specialisation of Roman estates.

According to published archaeological primary sources (artefacts, findings and stone monuments) and under consideration of environmental, resource orientated and society related data, the scope of the project records evidence of agricultural orientation on a large scale and systematically. At the same time all evidence will be evaluated interdisciplinary in its general context. Preliminary studies mainly located in the province *Germania superior* have shown that the project will accomplish a significant enhancement and differentiation of the existing knowledge about the integration of Roman estates into the economical structure of the north-western provinces.

## Dorel Bondoc, Roman Bridges over the Lower Danube

Eloquent for the Roman policy in the north of Danube were the bridges that were built over the river. Since the time of Caesar (*Bellum Gallicum*, IV, 17), it was believed to be under the dignity of the Roman people to cross water courses by ships, since the technical and human possibilities of the Romans allowed them to build quickly bridges in various establishments.

On the lower course of the Danube, by the Romans three stone and wooden bridges have been erected: Drobeta – Pontes, Dolni Vadin – Grojdibodu and Sucidava – Oescus. The first (Drobeta – Pontes) and the last (Sucidava – Oescus) are famous in the Romanian archaeological literature. The least known is the bridge Dolni Vadin – Grojdibodu.

My presentation contains a brief comment (technical consideration, chronology) and illustrations (photos, drawings) about each bridge mentioned above.

A comparison between the three bridges shows us important details of the Roman architecture and building construction.

## Robert Darby/Erin Darby, The Late Roman Fort of the Cohors II Galatarum at 'Ayn Gharandal (Arieldela), Jordan: A Report on the 2015 Excavations

The fifth season of excavation at 'Ayn Gharandal, Jordan took place from June 17<sup>th</sup> – July 29<sup>th</sup>, 2015. Areas within the Late Roman *castellum* and bathhouse were investigated in order to further define the internal organization and layout of its rooms as well as to collect additional data regarding its stratigraphic and occupational sequences. This poster presents our preliminary findings from the 2015 season and the on-going field work of the 'Ayn Gharandal Archaeological Project (AGAP).

## Tomasz Dziurdzik, Spatial Aspects of Religious Ceremonies in Principia of Roman Military Camps

The *principia* of Roman camps, including the heart of a unit's religious activities, the chapel of standards, as well as altars, were the most important venues of official religious ceremonies of the army. In many ways, this setting was a kind of a military sanctuary. However, the multiple functions the headquarters were used for resulted in an architectural design that was not optimized for cult purposes, but was rather a compromise between the various requirements.

The aim of the poster is to determine the extent to which the course of military religious ceremonies was influenced by their spatial setting, the *principia*. Using the case study of *Novae* (Svishtov, Northern Bulgaria), various aspects are exemplified and analysed. One of the key issues is whether the headquarters complex was spacious enough to accommodate the whole unit. The extent to which the sensory experience of soldiers taking part in ceremonies was restricted due to obstruction of view or hearing by various architectural elements and by other participants is also considered. Several such factors provide us with reliable information on the impact of the headquarters complex on soldiers' active and/or passive participation in a ceremony and their experiences. This gives us further insight not only into the roles and design of *principia*, but also the key issue of who was expected to participate in the military religious ceremonies, a problem that is central for reconstructing the social impact the official army religion had on the members of the military.

## Anton Ervynck/Sofie Vanhoutte, The castellum at the end of the world. Fish and meat for the soldiers at Oudenburg (coastal Flanders, Belgium)

'An army marches on its stomach', a quote that is equally valid when the army is not marching at all. Truly, for any army camp ever, a steady food supply is essential for its functioning. The Roman soldiers camping with their families in and around the *castellum* of Oudenburg (end 2<sup>nd</sup> – early 5<sup>th</sup> c. AD) would have subscribed to this point of view. Not sure whether the most imminent danger came from the sea or the inland, their location at the edge of the saltmarshes in the most northwestern part of the Empire forced them to be creative maintaining a subsistence economy. Gradually neglected by the central authorities, the soldiers at Oudenburg managed to survive in a place, described from a Mediterranean perspective as 'the end of the world'. The numerous animal remains from a long excavation campaign (2001–2005) illustrate the contribution of livestock herding, hunting, fishing and shell collecting to the animal part of the military diet. The results of the archaeozoological analysis prove to be partly surprising, partly expected but adequately illustrate how the local landscape was exploited in order to keep the stomachs filled.

## Jane Evans/Alison Heke, Ceramic baking plates and pre-fabricated ovens: a Romano-British phenomenon?

Recent excavations in Worcester, England, have produced significant new evidence for the Roman use of pre-fabricated ovens and baking plates. These were made in a distinctive fabric, coarsely tempered with igneous/metamorphic rock, indicating a source around the nearby Malvern Hills. Fragments of similar baking plates have been found on Roman sites across the English Midlands, made in a variety of fabrics so, therefore, reflecting more than one source. The pre-fabricated ovens are more unusual and seem to be a Malvern speciality. Other pre-fabricated ovens have been found in Chester, made by military potters at Holt. While these share some basic similarities, the variations suggest that they must have been used differently: the Chester ovens have a wide upper opening while the Worcester ovens are enclosed; the Chester ovens have a small opening at the base while the Worcester ovens have a tall opening, and an internal ledge. The Chester ovens also date to the 1<sup>st</sup> to 2<sup>nd</sup> century AD, while the Worcester ovens date to the late 3<sup>rd</sup> to 4<sup>th</sup> century AD. These baking plates and pre-fabricated ovens seem to be regional types, relating to particular food-preparation techniques, but fragments have not always been identified or published. Are they just a British phenomenon or are they found elsewhere on the Roman frontier? The aim of the poster is to publicise the existence of this material in the hope that, if it exists elsewhere, it will be recognised and information can be shared.

## Annette Frølich, Roman glasses. For Drinking or Healing? Two glasses excavated in Denmark from graves dated to the Roman Iron Age.

The poster illustrates 2 glasses both excavated from closed finds. One is from a cremation grave at the Island of Funen and one from a burial located in Jutland. The function of the glasses is interpreted through parallels. The dating of both glasses will be documented.

## Alik Gabeliya, Pitiunt is a fortification of Pontus Limes

After the kingdom of Pontus has appeared under the rule of Rome, the historical territory of Abkhazia was incorporated into the Roman Empire as part of the province of Cappadocia. At a time at the turn of our era, Rome starts placing their regular troops in the eastern Black Sea region, including Abkhazia, initiating the creation of the Black Sea chain of fortifications with garrisons designed to protect not only the distant approaches of the Empire, but also to ensure the safety of navigation in the Black Sea.

In the late 60's of the 20<sup>th</sup> century, V.A. Lekvinadze, the Georgian researcher, having examined Roman fortifications of the Black Sea, incorporated them into the general system of ordinary Roman fortifications erected on the borders of the former Roman Empire (Limes). The researcher at the same time identified features of Black Sea system of fortifications, which allowed to distinguishing them from the whole "Eastern Border" and call "Pontus", according to their location.

Roman garrisons were stationed throughout the eastern Black Sea coast from the southernmost in the area of Apsar, near the city of Batumi, and up to the north, near the village of Novo-Mikhailovskoye, in the place of Tuapse of the present Krasnodar Region.

Pitiunt is the most important link of Pontus Limes located on Pitsunda Cape, 20 km from the town of Gagra. Pitiunt is the most studied Roman fortress in the eastern Black Sea coast. Its fortifications

were constructed in the second half of the I century AD. Called by Strabo “rich” and “great”, or rather “large”, Pitiunt is located directly on the property boundaries of the Geniokhs.

The heyday of Pitiunt is well known from archaeological point of view. A variety of materials have been identified here: walls and towers, public, residential and religious buildings. A plurality of ceramic, glass, metal products, more than 1,400 coins. The chronological scope of these materials date back to I–VI centuries, and a fortified settlement with stone walls and usual for Rome regular rectangular layout appeared in the second half of the II century. Based on archaeological data, in the V century the city has been experiencing a decline. The subsequent period is pretty well covered in the written sources, but poorly understood from archaeological point of view.

Pitiunt was rebuilt later on. It has been expanded, new walls and towers have been erected, its area equalled to 6 hectares. The heyday of the city-fortress is likely to be associated with the appearance of the early Christian community; it became the residence of the bishop, which indicates the status of the city. Pitiunt becomes not only a Roman fortress, but the trade-craft, cultural and religious centre, one of the provincial cities of the Roman Empire.

## Elizabeth M. Greene/Andrew Birley/Alexander Meyer, An Industrial Complex in the North Field at Vindolanda: Kilns and ceramic production on a military site

This poster displays the initial results of a recent excavation at Vindolanda in the field to the north of the well-known fort and extramural settlement. A kiln complex and its associated features were investigated from 2013 to 2014 and some unique finds were associated with this space. Dating to the 2<sup>nd</sup> century AD the complex comprises a large square kiln, which was fired only a few times, with a secondary smaller kiln that was the focus of intense industrial activity in the area. The small finds associated with this kiln complex, such as coarse-ware wasters, finished brick and tile, a wooden potter’s wheel and a ceramic mould for a fine ware surface applique, suggest that this kiln was probably used to manufacture a variety of products.

Ongoing analysis of the ceramic material from the production area, the local ground clay, and finished ceramic items from the main Vindolanda settlement in the 2<sup>nd</sup> century should indicate where the finished product was distributed and used. The current focus of the research is on the form and arrangement of the kiln area and its refuse pits. The large size and the square shape of the kiln is less common than the small rounded kilns typically found in Roman Britain, but it is a form that seems to be found more often on military sites. One difficulty in understanding this complex is the lack of similarly excavated spaces; therefore, we are hoping with this poster presentation to find researchers working with similar contexts that are either recently excavated or unpublished in order to discuss comparanda and analysis. The Limes Congress is the perfect venue to disseminate these new discoveries and to seek comparative material in order to place this complex within a broader industrial landscape on military sites on the Roman frontiers.

## Lavinia Grumeza, Where is the Border? In Search of the Western Dacian Limes from the "Barbarian" Perspective

Starting with the 40’ies, the research of the Roman period in the Sarmatian Barbaricum and west Roman Dacia also aimed at proving that the entire Banat (west of Romania) was part of the province of Dacia during the 2<sup>nd</sup> – 3<sup>rd</sup> centuries AD and subsequently, from the influence and interest area of the Roman empire.

A. Alföldi argued via several studies that the territory between Mureş, Tisza and the Danube was not included in Roman Dacia, but was controlled as early as the end of the 1<sup>st</sup> century AD by the lazyges offshoot of the Sarmatians. C. Daicoviciu refuted such statements by a series of reviews and articles, concluding that the lazyges enter Banat only after the second half of the 3<sup>rd</sup> century AD. These debates would influence all subsequent Romanian studies concerning 2<sup>nd</sup> – 4<sup>th</sup> century Banat, standing upon the course set up by C. Daicoviciu.

Rescue excavations carried out between 2010 and 2014, in occasion of road infrastructure works, revealed many Sarmatian settlements and cemeteries. Insofar, we identified 147 cemeteries and over 400 settlements in Banat, near the Dacian limes. All this new discoveries reopen the discussion about the western Dacian limes from a new perspective.

## Saša Redžić/Mladen Jovičić, Newly discovered Roman Villas in the northeastern suburb of Viminacium

Until recently the area northeast from the military camp of the legion VII Claudia has not been in the focus of archaeological research and the data about that location were modest. In last three years on site Rit a new excavations were conducted accompanied with geophysical prospection, which shed a new light on this part of Viminacium. During 2012 and 2013 two Roman villas and 17 graves were discovered at a distance of 550 m north from military camp. Most of the findings and structures are dated to the III century. Those villas and graves were set in the line, which suggest existence of the road and that assumption is supported by geophysical data. The second group of the structures was discovered in 2014. Two Roman villas and one object of economic character were discovered at a distance from 300 to 700 m northeast from the castrum. Next to those structures one trench and 15 graves were found. As in the previous case they were also grouped linearly and are dated to III century.

These excavations give us a new data about existence of two possible roads, starting from northern gate of military camp. The first road is going about 500 m to the north and then turns to the east. The second road is going directly to the east. It is possible that one of those roads was leading to ancient Lederata. Discovered villas in the northeast suburb of Viminacium show that in the III century this area close to the castrum was well populated.

## Gertrud Kuhnle, A late antique basin in the former military camp of Strasbourg-Argentorate: part of a baptistery?

On the occasion of the millennium celebration of Strasbourg Cathedral, a transdisciplinary research group (comprising archaeologists, topographers, architects, art historians and a stonemason) revised the 1966–1972 excavations under the Laurentius Chapel of the Cathedral having remains of Roman and medieval masonry. During these investigations archaeologists of the French Archaeological Research Institute INRAP and Sebastian Ristow (University of Cologne) made an additional excavation, approved by the state (DRAC Alsace), that sheds new light on the history of this holy place.

According to the research of 2014 a massive, late antique (4<sup>th</sup>/5<sup>th</sup> century) masonry wall surrounds a *piscina* (first recognized in 1968) from which only a part is preserved (2.30 × 2 m). Three phases can be identified because the first phase of the font shows the changes: a wall socket against the outer wall and wall masonry were added within the first basin. As a result, the basin was slightly enlarged and widened considerably (0.90 to 1.10 m width) and the floor area is reduced (estimated at 1.60 × 1.60 m). The waterproof floor and wall of the second phase shows that it is a water basin, which is



still preserved at 0.50 m deep. Finally, in the third phase a new floor level was raised by approximately ten centimeters. Without any foundation, execution of masonry and exterior plaster the architecture can be reconstructed as a kind of a free-standing podium structure (valued dimensions: 4.20 × 4.20 m). This was located in a closed or possibly partly open area with clay soil surrounding the *piscina*.

The comparison with many of the known several hundred baptisteries of the early Christian world speaks for the identification of the basin as baptismal font. Should this hypothesis be confirmed, the question of the location of the first Christian place of worship in Strasbourg would be finally answered after a long time.

The font of the Laurentius Chapel of Strasbourg Cathedral was situated in the area of former Tribune houses (*scamnum tribunorum*) of the Roman legionary camp of the 8<sup>th</sup> Legion. The transformation of urban villas of the Roman period – which include Tribune houses – can also be observed in other places of worship in the early Christian community.

### Lara Laken/Sofie Vanhoutte, Wall Paintings in a Military Hospital: The Roman castellum at Oudenburg (Belgium).

The Roman coastal fort of Oudenburg is one of the few archaeological sites in Belgium that has yielded paintings in context. In the southwest corner of the *castellum*, the Flanders Heritage Agency excavations of 2001–2005 uncovered some 53,500 plaster fragments, a remarkable quantity for a military site in the Low Countries. Most belonged to a *valetudinarium* (or military hospital) of the second fort period, dating to the first half of the 3<sup>rd</sup> century AD.

Although the colors are poorly preserved, preliminary study of about 25,000 fragments relating to this *valetudinarium* have revealed diverse decorative schemes. This study provides data not just about the building's decoration but also about its architecture. For our poster we focus on the wall paintings in the southern and northern corridors (or galleries). Both displayed a series of schematic plants in the dado, *opus sectile* imitations with lozenges in the main zone, and geometric schemes in the upper zone that repeat outlines of the *opus sectile* shapes.

We have based our reconstruction upon both find spots and decorative patterns, from which we have determined both the height of the rear wall in the southern corridor (3.80 m) and the position of its door, one of the entrances to the complex. Our poster will demonstrate how we have reconstructed this wall decoration, indicating the most important plaster fragments or clusters and explaining their place in our interpretation of the painted scheme.

### Michael Mackensen/Florian Schimmer/Regina Franke, The early Roman forts and late Roman fortification of *Submuntorium*/Burghöfe on the upper Danube.

The Roman site *Submuntorium*/Burghöfe is situated at the crossroads of the via Claudia Augusta from Northern Italy with the road running West-East on the southern bank of the Danube, a strategically important position on the northern frontier of Raetia in the early and the late Roman period. From 2001–2007, four excavation seasons as well as geophysical and topographical surveys were conducted on the east plateau, a spur of a promontory protruding into the Lech river valley, to the east of the previously known auxiliary fort. The results established for the early Roman period a succession of two military fortifications predating the auxiliary fort only a few years, starting in the early 40s of the 1<sup>st</sup> c. AD or even a decade or two earlier. After the auxiliary fort was constructed,



probably in the context of the completion of the via Claudia Augusta in AD 46/47, the eastern part of its vicus spread over the area. This eastern vicus was destroyed by fire around AD 80 and largely abandoned thereafter. Reoccupation of the eastern spur began probably in the mid-70s of the 3<sup>rd</sup> c. with the construction of a palisade, belonging to a military post or watchtower stationed there to protect and supervise the restoration of the important roads in Northern Raetia. The late Roman fort mentioned in the *Notitia Dignitatum* (oc. 35,16.18) was located by the excavations on the tip of the eastern spur of the promontory in form of a 1.5 m wide *opus caementicium* wall. The numismatic evidence points to a construction date in the late 290s AD. From the second decade of the 4<sup>th</sup> c. onwards, a vicus of simple timber houses spread over the east plateau in front of the fort, consisting mainly of combined workshops and living quarters, processing both ferrous and non-ferrous metals. By the evidence of the small finds the last phase of Roman military occupation of the site can be dated to the second, possibly even the third quarter of the 5<sup>th</sup> c. AD.

## Dragoş Măndescu, Then and now. Limes Transalutanus after 13 decades from its finding

The 235 km long Roman line from the eastern border of Dacia province, conventionally known today as Limes Transalutanus began to be reported to the European scientific world since the last two decades of the 19<sup>th</sup> century. The first field researches are carried out by the German archaeologist Carl Schuchhardt in 1884–1885. An extensive field research program, accompanied by sketches, drawings and descriptions and also archaeological excavations is carried by Romanian topographer Pamfil Polonic in 1898–1901, at the initiative of the National Museum of Antiquities in Bucharest. This limes from the first half of the 3<sup>rd</sup> century BC crosses all the relief forms between the Danube and the Carpathians. The fortification line is dotted by earth-walled stations, but also with brick walls some of them, a single one station being built in stone (Câmpulung-“Jidova”). The poster synthetically shows through charts and recent photographs the current situation of this line of fortifications after more than 100 years since its finding: the current state of archaeological monuments, the property regime of the land, researched areas vs. less or even not at all researched areas, monuments’ protection program granted by local authorities (municipalities in three counties in southern Romania: Teleorman, Ilt and particularly Arges County), threats and destructions of monuments, research perspectives and expectations of the public and scientific exploitation.

## Brahim M’Barek/Dominic Moreau, The Plan of Abritus (Moesia Secunda/Inferior). *Status quaestionis* in 2015

Since the association in 1954 of the city of Razgrad (Bulgaria) with the ancient Abritus, several plans of the fortress were published. Paradoxically, none of them were fully satisfying at its respective date of publication. Even the more recent one misses some architectural structures. For these reasons, the authors decided to compare all published informations on Abritus with visual observations on the site, to offer a plan that, while not perfect, will provide a true *status quaestionis* in 2015.

## Frances McIntosh, 19<sup>th</sup> century intellectual exchange; the Clayton Collection as a case study

The Clayton Collection comprises a wide range of Roman period artefacts mainly from the Central Sector of Hadrian’s Wall. It was collected by John Clayton (1792–1890) in the 19<sup>th</sup> century, a prolific excavator and preserver of sites along the Wall. By the time he died he owned five forts and a large stretch of the central sector of Hadrian’s Wall. The material is currently curated by English Heritage and can be viewed at Chesters Roman fort.

As well as excavating sites on his land, Clayton also occasionally bought material found by labourers, such as the Throckley Hoard, or was given finds by friends. Material from Kent, Lincolnshire, County Durham, Northumberland and Scotland came into the Collection through this route. There are hints too that Clayton gave material to friends and colleagues, perhaps in exchange for material from their excavations. He had a wide correspondence network, calling upon expertise from all over the country and beyond to help identify his inscriptions and coins. The Clayton Collection can be seen as an example of the intellectual exchange networks at play in the nineteenth century.

## Monica Gui, Military equipment from the recent excavations at *Porolissum*

The archaeological excavations commenced in 2010 by a team from the Archaeological Institute in Cluj-Napoca at various points of interest inside the Roman northern frontier main auxiliary fort at *Porolissum* and in its environs have produced, as expected, a significant quantity of *militaria*. While most of these weapons and other pieces of equipment offer no surprises, some indeed deserve supplementary comment and illustration. However, the most important aspect is that all this material is stratified. The location of every item recovered within the excavated areas was carefully noted down and can be integrated into a GIS. Consequently, the recent finds can be contextualized, both in a narrow (i.e. assigned to dated archaeological contexts and structures) and in a broader sense, allowing further discussions on aspects like equipment storage and recycling, as well as connecting different depositional practices with various situations observed archaeologically. Not the least, more narrower time frames can be thus suggested for miscellaneous types of equipment. The rest of the material brought to light by previous excavations will also be considered whenever possible, in an attempt to provide a more complete overview that would help in the detection of potentially significant patterns of distribution across the fort. Finally, the poster also aims at being complementary to the presentations, which will be held by members of the team currently researching *Porolissum*, and which, due to their broader scope, will not generally allow for a closer and in-depth discussion of the military equipment.

## Margareta Musilova, Bratislava Burg – Keltische Akropolis mit Römischen Monumentalbauten aus dem 1. Jahrhundert v. Ch.

The discovery of Roman buildings (Italique types) on the Bratislava castle hill is unique. Greatly enriching our knowledge of the past of Bratislava and the castle, it also brings benefits which reach far beyond the borders of Slovakia by changing views of the history and development of the entire Middle Danube region in the 1<sup>st</sup> century BC and at the turn of the millenia. The Bratislava oppidum played probably an important role to the end of the later Latène era. There do not exist parallels to these constructions to the North of the Alp, they have to be look for either in Italy or in former Roman provinces, or in the indigenous Celtic territory.

The ongoing research at Bratislava castle is the largest archaeological project of the Municipal Monument Preservation Institute in Bratislava. It was initiated by the reconstruction and renovation of the Castle, where excavation works had begun in 2008, and were interrupted in 2010. The Bratislava castle hill was considered to be the acropolis of the Celtic oppidum on the Amber Road leading from Aquileia towards the Baltic Sea. Our research was the first one to bring the proof that the Bratislava castle site was the seat of the rulers of an enormous territory of Celtic Boi on the territory of nowadays Southwestern Slovakia, East and Low Austria and Western Hungary in the 1<sup>st</sup> century BC and also that this Celtic nobility maintained intense relationships with the Republican Rome. The Celtic rulers probably played a crucial role in Roman diplomacy and their plans to conquer

the Dacians and Illyrians on the Balkan peninsula. For the first time in history were found remains of monumental architecture in this territory from the 1<sup>st</sup> century BC: architecture built by Roman architects, stonework masonry with perfectly preserved coatings and mortar floors of the terrazzo type, all of which came as a great surprise. A palace with Roman pavement and mosaic in „*opus signinum*“ a type of mosaic found in 2<sup>nd</sup> century BC – 1<sup>st</sup> AD from Sicily up to Northern Italy. Roman houses – *domus* built on terraces, with typical roman planning. The quality of these constructions and findings has served to confirm the intensive contact between Italy and the Mediterranean area and this has highlighted the significance and wealth of the Bratislava oppidum as a celtic trade center on the Amber Route. Particularly exciting was the discovery of a treasury of golden and silver Celtic coins under the floor of the *domus* in the former Ridinghall. The golden stater-coins bear the names of the first Celtic rulers BIATEC and NONNOS. Interesting is a find of a huge amount of amphora sherds and a hellenistic glass vessel. The discovery of the Arx Boiorum from the 1<sup>st</sup> century BC of such an extent and of such political importance has overcome all expectations. It fundamentally alter the view not only of the history of Bratislava and southwestern Slovakia but also with regards to the development of Central Europe during the Late Latène Period.

## Galya Rosenstein, The Early Roman Cemetery Oberstimm and Afterlife concepts on Raetian Limes

The Early Roman cemetery of Oberstimm was discovered fifty years ago by director of the domestic elementary school in the modern village, Josef Kneitingner. He was hobby archeologist, and his rescue excavations took place mainly by collecting the archaeological remains. A lot of the finds are perfectly preserved and the finder was so kind to donate his private collection to Stadtmuseum Ingolstadt. Nowadays the remains of cemetery are an important part of the museums exhibition. The purpose of my studies was to review and verify them according to the new professional requirements and standards, respectively to edit them as a part of a dissertation work.

The early roman cemetery Oberstimm is going to be presented for the first time to the attention of the scientific community. The artifacts, as well as the observations and conclusions are an important contribution to the limes science, because just few sepulchral sites of that early epoch are known in Raetia.

The starting point of the research project was the creation of a new unified catalog of graves and finds, as a base for further observations and conclusions. The preliminary study of archaeological artifacts revealed a lot of details about the funeral rites, death and the afterlife imagination of the population. If correctly read, the details could provide important information about the religious and spiritual life of the individual as well as its social and economic status. Furthermore the other aspects of life should be mentioned – such as ethnic background and origin of the settlers, the migration of peoples, trade relations and especially the role of the Roman army.

Haron coins, clay lamps, images and scenes on the luxury vessels, contribute some aspects of roman afterlife concept in the raetian limes. But in the same time, the meaning of some items is still not exactly definite. Are the terracotta cocks just toys, or they use to be votive figures? Were the metal mirrors just personal items or they have had a cult and ritual significance? What is the function of the small metal knives in the roman graves?

The research tries to answer some eternal questions, or at least to represent them through the perception of the ancient, as well as the modern vision. Modern science has a duty to participate in

the discussion about the death, dying and the life after life, because the Death is not a case of believe, but a case of knowledge.

## Helen Kohler/Sandra Schröer, Calculating borders? Spatial analysis as an approach to reconstruct Roman provincial borders. Do provincial boundaries become apparent through settlement patterns?

Two PhD-theses at the Universities of Freiburg and Zürich study this question. They examine if it is possible to approach Roman provincial borders by using different methods of GIS-based spatial analysis. The methods used are mainly Settlement Pattern Analysis, Settlement Density Analysis and the Reconstruction of Territories. The border between the two Provinces Germania Superior and Raetia serves as the area of study. While the northern part of the provincial border along the Swabian Alb is analysed by the PhD project in Freiburg (Sandra Schröer M.A.), the thesis at Zürich (Helen Kohler M.A.) focuses on the northeastern part of Switzerland.

Both theses are part of the trinational project „*Limites inter Provincias – Roms innere Grenzen*“. Within this project at the Universities of Zürich, Freiburg, and Innsbruck, methods of Archaeology, Ancient History and Archaeometry are applied to examine the course, function and development of Roman provincial boundaries.

## Andrea Stella, Roman provincial coins from Aquileia: a new evidence on the connection with Danubian *limes* in the 3<sup>rd</sup> century AD

The former Latin colony of Aquileia, founded in 181 AD, is the greatest among the Roman sites of northern Italy. Thanks to its location, it played a key role as commercial and military outpost towards the Danubian *limes*. Even if this last aspect is well-known based on literary and epigraphical sources, new evidences are being provided by archaeological finds such as coins. In particular, this work deals with the main bulk of Roman provincial coin finds, namely the eastern issues of the 3<sup>rd</sup> century AD and *Viminacium* coins, which have been recovered over the course of decades of archaeological investigations in Aquileia and nowadays kept in the coin cabinet of the local National Museum. Although these materials constitute a small group compared to those struck in the mint of Rome during the same period, they show little or no resemblance to those coming from other sites of ancient Italy.

The presence of Roman provincial coins, especially those produced by the eastern mints during the Severan period, has been a widely-explored feature as to the monetary circulation among sites of the *limes*. Due to the small amount of bronze denominations from the mint of Rome which reached this area, issues struck in the East played a subsidiary role in supplying with bronze coins of military sites along the river Danube. Afterwards this supplementary function has been carried out by the Balkan mint of *Viminacium* which began its production in AD 239/240.

Given the commercial ties between Italy and the Danubian *limes* throughout Pannonia and along the Amber Road, it is supposed that a small amount of provincial coins could have been driven up to Aquileia where they subsequently started circulating, besides the most represented coins from Rome. At the same time, this foreign currency could have travelled through those detachments of military units stationing on the *limes* which were assigned to Aquileia during the 3<sup>rd</sup> century AD, as suggested by epigraphical evidence.

## Ulrich Stockinger, Mapping the Centurions of the Roman Army

Centurions have left their mark on the history of the Roman Empire and are to be considered the backbone of the Roman army. This poster shall provide an insight into a study on this important rank's archaeological and epigraphic remains, which are complemented by ancient literary sources.

An analysis of the geographical information provided in this evidence gives a more detailed idea of the centurions' duties and lives – and of their role as bridge and catalyst for the military and civilian life in the frontier zone. They connected troops and command of the Roman army as well as units and inhabitants of distant provinces of the Empire, and thus accelerated the integration of areas and peoples formerly unfamiliar to Rome's comforts, restrictions and innovations.

## Máté Szabó, Peaceful Pannonia? – Late Roman villas in military territory

In recent years the Limes WHS programs have yielded significant results in the research of Roman remains in Hungary – primary through so-called non-destructive archaeological methods and using remote sensing, mainly aerial survey.

These programs and my PhD research have provided a large amount of information about the military and civilian places of the *limes* and by flying over Transdanubia further aerial images had been captured inside the Province of other Roman sites.

Along the *ripa*, in the vicinity of the Late Roman fort of Tokod it was possible to observe the remains of a large Late Roman villa from the air. Its Late Roman dating is certain through analogies and was confirmed by the results of a former small-scale archaeological excavation.

Its closest parallel is known also from aerial photos. Beside the Late Roman inner fortress of Alsóhetény, which was connected to the Late Roman defence system of Pannonia, a similar villa was discovered in 2011. Former research on the environment of the fortress has provided contemporary finds in the area of the buildings whose function at that time was unknown.

These non-destructive archaeological methods provide ground plans of these Late Roman villas which appear in military territory and the information of field survey and excavations can help their dating. The main question is the role what these buildings played in the history of Pannonia.

## Andrew Tibbs, Facing The Enemy – The Orientation of the Cumbrian Coastal Forts

*“The Porta Praetoria should always face the enemy.”*

**‘Pseudo’ Hyginus<sup>9</sup>**

*“The Praetorian gate should either front the east or the enemy. In a temporary camp it should face the route by which the army is to march.”*

**Vegetius<sup>10</sup>**

The direction that a Roman fort faces is often presumed, based on the writings of several classical authors, to face either the enemy or east towards the rising sun, although the forts of the northern frontiers of Roman Britain generally appear not to follow this advice and initially seem to be orientated in random directions.

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<sup>9</sup> Cap Ivi, (Richmond 2004).

<sup>10</sup> (Renatus 1767).

The exception to this are the forts along the West Cumbrian coast which would appear to be orientated towards indigenous settlements (hill forts) on the Dumfriesshire coast, and towards the Isle of Man. Could these Roman forts be deliberately orientated towards the enemy?

This poster will highlight research into the orientation of this small group of forts on the Cumbrian coast, and forms part of a PhD research project to be undertaken at Durham University.

## Petra Tušlová/Barbora Weissová/Stefan Bakardzhiev, Report on On-going Excavation of Roman Settlement Yurta in the Province of Thrace

The Roman settlement of Yurta, located near modern village of Stroyno in Yambol District, Bulgaria, has been excavated for two years (2014–2015) in cooperation of Regional Historical Museum in Yambol and the Institute of Classical Archaeology of the Charles University in Prague. The settlement is spread along 30 hectares along the Dereorman River, about 12 km east from the Tundzha River – one of the two navigable rivers passing through the Roman province of Thrace.

Finds revealed on the site suggest its occupation from the 2<sup>nd</sup> to the 3<sup>rd</sup> century AD. Imitation of Eastern terra sigillata is to be found, while abundant fragments of transport amphorae from the Eastern Aegean (Kapitän II, Dressel 24) as well as terracotta lamps produced in Athens, point to imports from the whole Aegean. Raw glass and melted fragments of glass vessels revealed this year suggest also local glass production, while abundant amount of big iron slag might as well point out to iron melting and working undertaken on the settlement itself.

This short poster presentation will introduce the settlement itself, the state of the excavation and the best finds discovered within those two years of the research.

## R. J. van Zoolingen, Curved ceramic firedogs in the western Low Countries

During the analysis of ceramics from a 2<sup>nd</sup> century rural settlement in The Hague, some 20 fragments of handmade, thick-walled, decorated ceramic objects caught the attention. They were identified as fragments of a so-called firedog. Although ceramic firedogs were not rare in the Roman period, this specific find stands out because of the atypical curved or bent shape, identifying a new group of firedogs.

Apart from the distinct curved shape, the group resembles Romano-Gallic parallels. Decoration with single, double or even triple circles was often applied. Also, the coarse ware and tempering with grog is comparable, as is the T-shape section. The Romano-Gallic firedogs mostly date late 1<sup>st</sup> until 3<sup>rd</sup> century AD, where none of the curved firedogs predate the second half of the 2<sup>nd</sup> century AD.

Distribution of the curved ceramic firedogs appears to focus on the western Low Countries, as examples have also been found at Vechten (NL), Goedereede (NL), Aardenburg (NL), Wervik (B) and Velzeke (B). It is however not limited to this region. At the site of an early Roman *elbgermanischer* settlement near Zwenkau in Germany, some remarkable fragments of lightly fired clay were documented. Both shape and decoration were similar to the Dutch and Flemish curved firedogs. But, where the latter date roughly 150–250 AD, the Zwenkau firedog was dated late La Tène / transitional period. Could it be that the curved ceramic firedogs found in the western Low Countries had their

origins in Germany? Unless other finds are published, the Zwenkau firedog remains an anomaly in the group, both in respect to its geographical position and date.

## Rada Varga, Epigraphic expressions of the medical personnel connected to the Roman army

The current research focuses on the epigraphy of the medical personnel connected with the Roman army, attested in the Latin-language provinces of the Empire. With about 50 characters registered, we will try to go into their epigraphic habits (ways of expression, identifying features), their social and familial environment, as well as to see how they relate to their profession. From social and occupational angles this category is very interesting, as it is formally associated to the army, but the nature of the medical professions ensures a strong interaction with the civilian environment as well.

## Tim Wittenberg, Generationswandel am Limes. Die Transformation der vici in Germania Superior und Raetia nach Abzug des Militärs.

In meinem Dissertations-Projekt beschäftige ich mich mit den vielfältigen Phänomenen, die nach Abzug einer (meist gründungsverantwortlichen) Militäreinheit in einem Militärvicus vorstatten gehen, welche Transformations-Prozesse eine solche Siedlung nach Aufgabe des Kastells durchläuft und was sie schließlich zu einer Zivilsiedlung macht.

Mit meinem Poster möchte ich gerne den aktuellen Stand der Arbeiten präsentieren und zur Diskussion stellen. Es sollen eine mögliche Kategorisierung der Nachnutzungsschemata vorgestellt sowie einige grundlegende Überlegungen zum Prozess der Aufgabe eines Militärlagers diskutiert werden.



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