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Abstracts

The Battle of Aljubarrota (1385)

Maria Antónia Amaral, Catarina Quinteira (Battle of Aljubarrota Foundation)

The Battle of Aljubarrota was one of the most symbolic medieval battles of the Portugal History that marked, indelibly, the independence of the Portugal kingdom. Persisted in the collective memory because our symbolic value, exciting the imagination of national and transnational generations, over time. The Royal Battle, as it became known, occurred on a upland that extends over three and a half miles (3.5 km) in North-South direction, between the Boutaca bridge in North (Batalha Village), and Chão da Feira place at South (Porto de Mós), in two geographical opposites points that correspond of two positions of the Portuguese army on August 14 of 1385.

One of the unusual characteristics of this battle, which proved crucial for the development of archaeological research, which began in 1958 with Lieutenant Colonel Afonso do Paço, relates to the happy circumstance of knowing the precise geographic location of the confrontation site. The construction of a chapel in honor of St. Mary and St. George in 1393, in the place where had been the standard of D. Nuno Alvares Pereira during the confrontation, displays still today an foundational inscription, first put on the ogival latch door, which perpetuated the event and allowed the archaeologist Afonso do Paço organizing the first campaign of excavations in 1958, revealing, for the first time in the military European history, material remains of an unprecedented military tactics, developed in the 100 Years War, which is evidence the complex defensive system consisting about 800 pits and dozens of defensive ditches.

This campaign, using archaeological methods of excavation usual in that time and questionable today, consisting in open ditches that follow the structures that were emerging, has, however, pioneering initiatives in the archaeological sciences such as the study of osteological human collection by Dr. Xavier da Cunha, of the Institute of Anthropology in Coimbra University, and the attempt, unfortunately unsuccessful, their dating with Carbon 14 and Fluorine, as well as pollen analysis carried out by Dr Quitéria G. Pinto da Silva in order to confirm a dominant plant species of the landscape as was described by Fernão Lopes.

Along the campaign we have had since 2003, we have tried to reinterpret the battlefield, developing the theories already existents and questioning some of the results and trying to contribute to a deeper and better understanding of this battlefield in a synchronic and diachronic perspective of the place, identifying and registering new traces of material culture and the organization of the space at the time of the Aljubarrota Battle concreting and perceiving changes that have occurred over time.

In our work we used the archaeological excavation of new spaces and reexcavation of some areas targeted by Afonso do Paço, the study of the entire geographical area where the field is inserted using the photo interpretation and recreation of the medieval landscape with a digital terrain model. We Recreated the period immediately before the battle and the after period, to detect any changes arising from the new model of agriculture and reorganization of space in time the construction of the Batalha (Battle) Monastery and the following times.

This process contained also the new chemical dating of the osteological collection of human and animal origin, particularly to the horses identified by Afonso do Paço.

The signed team of this communication presents now the results of the work carried out since 2003 in the Aljubarrota Battlefield and also all work of the Aljubarrota Battle Foundation for preserve the battlefield, his landscape and the symbolic memory of this military event.

Army Analytical Formats and Battlefield Archaeology Planning: The Use of METT-T, KOCOA (OCKOA), and the Principles of War applied to Chesapeake Engagements

Lawrence E. Babits (Maritime Studies, East Carolina University, Greenville, NC)

The United States Army has created guideline acronyms to assist commanders from the squad level up much higher commands in planning military operations. These acronyms ensure that all potential aspects of an operation are considered in advance. Archaeologists have recently adopted, and adapted, one acronym (OCKOA and changed it to KOCOA in the process) without fully appreciating the full range of exploration these formats give archaeological analysis for both planning and interpreting battlefields. Examples from the American Revolutionary War and the War of 1812 are used to illustrate these procedures.

Battlefield Recoveries, Recycling, Looting, or Souveniring: A view from American Wars

Lawrence E. Babits (Maritime Studies, East Carolina University, Greenville, NC)

Archaeologists routinely bemoan the loss of cultural material from a battlefield. In the post-World War II era, loss has accelerated due to indiscriminate use of metal detectors. While serious, this loss is actually part of the on-going site formation process that commenced when the battle began and thus is deserving of greater study. That is, Armies created the sites we investigate but those same military entities also altered battlefields and, in some cases, continue to alter them. The American Civil War and World War II are cited as examples with reference to other wars.

Battlefield Geology of Jena and Auerstedt (1806)

Gerhard H. Bachmann (Institut für Geowissenschaften, Martin-Luther-Universität Halle-Wittenberg)

The “terrain” (Clausewitz 1843) or, in other words, the geological-geomorphological situation is often crucial for the outcome of military campaigns. Such is especially so in two of the most decisive battles of the Napoleonic wars that were fought on October 14, 1806 in Thuringia near Jena and Auerstedt between the armies of France and Prussia. Reasons for the devastating defeat of the once-feared Prussian army include (apart from political, strategic and other blunders) the out-dated line tactics, in contrast to the modern French tirailleur (riflemen) and column tactics, and the ponderous baggage system, in contrast to the French living from the countryside. These shortcomings prevented the Prussians from taking advantage of geological and other natural obstacles and dominating positions, whereas the French army did so, much to the surprise of the Prussian commanders. This became obvious when the French advanced swiftly and unexpectedly through the mountainous region of the Paleozoic Thuringian Forest Uplift, and even more so, when they brought men, horses and cannons up to the edge of the high Muschelkalk plateau (Triassic) overlooking the Saale river. There they took risky, but commanding positions on Muschelkalk hills, from which they launched decisive attacks onto the Prussian lines near the villages of Vierzehnheiligen and Hassenhausen. Another example of the inability (or unwillingness) to consider, and to take advantage of, geological obstacles was the last Prussian counter-attack near Kapellendorf, which failed in front of the uphill French positions on the Muschelkalk plateau.

This paper proposes “Battlefield Geology” (Schlachtfeldgeologie) as a novel geoscientific discipline for the analysis of historic battlefields. Furthermore, geological, geomorphological and pedologic methods, especially mapping, are extremely useful complementary interdisciplinary tools for archaeological investigations of battlefields.

'Fields of Glory, Where the Green Grasses and Flowers Grow: Protection and Management of Scotland's Battlefields'

Iain Banks (Centre for Battlefield Archaeology, University of Glasgow)

In recent years, the importance of battlefields in the cultural heritage of Scotland has become recognised, and an Inventory of Scottish Battlefields has just been published by Historic Scotland. This reflects a non-statutory approach to heritage management, which has determined the form and content of the Inventory. The process of negotiation between the demands of planning and cultural resource management on the one hand, and the archaeological researchers on the other, has been instructive and occasionally frustrating for all concerned. It reflects the fact that battlefields are of concern to a wide range of interests from the heritage industry to construction and forestry, and that battlefields are landscapes rather than sites. It also reflects the fact that archaeology as a discipline has failed to build a consensus on how battlefields should be treated. This paper will consider the lessons learned in the production of the Inventory of Scottish Battlefields and whether any real progress has been made.

Archaeology of the Second Punic War: the battlefield at Baecula (208 B.C.)

Juan P. Bellón (Escuela Española de Historia y Arqueología en Roma (CSIC)), Arturo Ruiz, Francisco Gómez, Manuel Molinos, Inmaculada Cárdenas, Carmen Rueda (Centro Andaluz de Arqueología Ibérica de la Universidad de Jaén)

Since the year 2001, the Andalusian Centre of Iberian Archaeology have been working on a research project focused on the archaeological analysis of the Second Punic War in the Guadalquivir Valley (Jaén, Spain). The ‘Baecula’ Project is currently funded through the Research & Development National Plan (Ministry of Science and Innovation) and the Department of Culture of the Andalusian Regional Government

A brief review of the locations related with this section of the Guadalquivir River Valley in connection with the Second Punic War, cited by Roman authors such as Polibio or Tito Livio, reflect the geopolitical importance of the region. Iberian Oppida, such as Castulo, Ilturgi, Orongis, and most probably Amtorgis and Ilorci, would follow Carthago in order of importance, according to the Roman writers themselves. Furthermore, while in other regions of the Iberian Peninsula the conflict is centred around certain cities, such as Sagunto or the aforementioned Carthago, in the Guadalquivir Valley the dynamics of the events seems to correlate with a series of confrontations pursuing the control of the rich mining area of Sierra Morena, located to the north of the Guadalquivir river.

Our experience has enabled us to document the battlefield, camp structures and materials (militaria) thanks to a sampling technique for archaeological prospecting and excavation. The study of the scene of Baecula (208 B.C.) is one of the few examples of battlefields of the Second Punic War archaeologically investigated in Europe.

La Palma – Nova Classis: Archaeological evidences of war booty in a roman encampment during the Second Punic War.

Eduard Blé, S. Lacruz, J. Noguera, Pau Valdés (Universitat de Barcelona)

Since 2006 a research team from the Universitat de Barcelona has conducted a systematic survey at the roman encampment of la Palma (Tarragona, España). It is a military encampment that lies near the

ancient mouth of the river Ebro, occupied between 217 and 209 BC during the Second Punic War, most likely the Nova Classis of Livy (XXII, 21) and where Publius Cornelius Scipio gathered his troops before the attack over the punic base of Qart-Hadasht (Cartagena, España). For the time being, no constructive structure has been identified but the survey has recovered hundreds of coins, remains of weaponry, fibulae, tent pegs and studs from caligae.

The aim of this paper is to highlight the latest conclusions of the current investigation, and to propose that certain materials, of Carthaginian origin, came from the spoils of the confrontations developed in the geographical surroundings of la Palma as the battle of Cissa (218 BC), the naval battle of the Ebro (217 BC), Hibera (216 BC) and Intibilis (215 BC). Maybe, a sign that plunder was a basic element for supplying the army and a solution to the logistical problems faced by the roman legions in Iberia during the Second Punic War.

Modeling Battlefield Behavior: Battlefield Archaeology on the North Platte River, Nebraska, 1865

Peter Bleed, Douglas Scott (Department of Anthropology, University of Nebraska-Lincoln)

To assure that objectives are consistent with real world actions, modern military planners conceive of war with a model composed of three connected levels. The strategic level describes how objectives are set. The operational level is composed of actions taken to conduct and sustain those objectives. As a result of those actions, units are employed in combat at the tactical level. Since it is designed to connect material systems with human actions and intentions, the Levels of War model provides archeologists with concepts for the interpretation of military sites. The 1865 engagements at Mud Springs and Rush Creek illustrate how the levels of war model can treat historic and ethnographic warfare and how archeologically observed tactical differences can be linked to changes in operations and strategy. The North Platte Campaign also suggests how the model can offer a context for interpreting activities at military facilities where combat did not take place.

“Super sanguinem et spolia”: a survey of combatant behaviors and their impact on archaeological formation processes at sites of armed conflict

Michael P. Bletzer (Department of Anthropology, Southern Methodist University Dallas)

Few archaeological sites can capture the imagination of casual and professional observers as thoroughly as battlefields, both ancient and recent. Yet not infrequently an expectation gap exists between the range and scale of remains a given battle is assumed to have “produced” and the tangible physical record at hand. There is a tendency to view surviving military hardware and other relics as direct correlates of the scale of the conflict that produced this archaeological record. What is often lacking is an appreciation for post-battle combatant behavioral variability and its impact on what actually gets into the ground. Considering this, it seems worthwhile to approach the problem via behavioral paradigms derived from ethnographic and archaeological observations of how artifacts are retained or discarded under different conditions of site abandonment. Modified and reviewed in the context of a cross-cultural survey of past combatant behaviors, these paradigms strongly suggest that immediate and significant post-battle material depletion was the rule rather than the exception for the vast majority of pitched battles and other instances of armed conflict.

QUO VADIS CONFLICT ARCHAEOLOGY IN EUROPE? Putting ourselves on the European map

John and Patricia Carman (Institute of Archaeology and Antiquity, University of Birmingham)

Debates about the relevance and merit of the archaeological study of battlefields and other conflict sites have now receded. We have attracted widespread public interest, have been well represented at larger archaeological conferences both national and international, and as well as Fields of Conflict other entire

conferences have been devoted to the topic in a number of countries. While our internal debates focus legitimately and increasingly upon issues of methodology, there are also efforts to broaden the base of interest and support for conflict archaeology. Accordingly, this paper will outline some of the developments that have taken place in Flanders since Fields of Conflict V in Oudenaarde, and their implications for conflict archaeology at the level of wider European involvement.

Into Thin Air: toward a standardised methodology for the archaeological investigation of Second World War aircraft wrecks

Terence Christian (University of Glasgow, Centre for Battlefield Archaeology)

With a production total of nearly one million units, aircraft represent the largest composite artefact classification of the Second World War. Even with such vast production numbers, less than five-percent of operational aircraft remain. Indeed, the majority of the extant five-percent only exists in a wrecked state amongst the forests and fields of towns worldwide. Due to both the wreck sites' proximity to areas of human habitation and their global distribution, the past 70 years have seen thousands – if not millions – of hillwalkers encounter, handle and re-deposit aircraft wreck site artefacts. It is argued that the increased attention given to WWII wreck sites through popular media, coupled with the ease of artefact identification in the Internet age, endangers wreck sites' contextual integrity.

By using historic photographs; Ministry of Defense crash dossiers; and modern archaeological surveying and soil chemistry analysis to examine Scottish WWII aircraft wreck sites, this paper addresses the long held belief that such archaeological sites are unmodified time capsules. In demonstrating large-scale human alteration of artefact distribution prior to geological encasement, this paper investigates the ecological impact of developing archaeological sites and examines the deletion of culture-specific technology in the post-modern age. A new aircraft archaeology-specific methodology will be presented as a means to both compensate for tourism induced site modification and to direct future resource management. The excavation of de Havilland Mosquito Fighter-Bomber MM244, which crashed on the shores of Loch Ness in 1943, will be offered as the central case study.

'Ancient Landscapes of Conflict'

Jon C. N. Coulston (University of St Andrews)

Battles and sieges were a prime interest of ancient writers and at least from the Renaissance onwards there has been a concern to identify actual locations, for example of the formal encounters of the Persian, Peloponnesian and Punic Wars, or of the Teutoburg Forest defeat of Varus. However, a new wave of techniques and practices for remote sensing, disciplined site recording and proper publication, building on the example of the 1980s Little Big Horn project, have not only transformed the study of 'gunpowder' landscapes, but also redirected studies for earlier periods. This paper will review these developments as they pertain to ancient world conflicts. As specialised work has progressed it has often been drawn into contexts not previously known from the literary sources and not constituting the 'big battles' of the historical record, just as has happened for other conflicts, such as the American Civil War. A prime case of this is the Harzhorn landscape. The salient features of ancient conflict archaeology will be examined, particularly site formation processes. Despite the lack of gunpowder projectiles, ancient missiles have to be studied as the class of artefact most likely to have been deposited. Moreover, post eventum site processes prove to be just as crucial to interpretation as they are in later periods. Mortuary evidence also plays a crucial role, mass-graves helping to locate and identify conflict contexts, as well as to provide the usual data on health, trauma and ritual observance.

The fights of a bridgehead and the possibilities on the field.

Ferenc Dávid (Department of Modern History, University of Pécs)

The battle, code named Operation „Waldteufel” (or „Sylvan Devil”) was one of the last German operations against the Soviet-Bulgarian forces on Hungarian territory. North from the River Drava a trench system had been built up by the Soviets, which was possessed by the Bulgarian Army in 1945. One of the three counter-attacks of the Germany Army during the Spring of 1945 was planned to break through the defender's line at Dravaszabolcs to reach the River Danube and cut the supply lines of the Red Army. Without reaching their main objective, the Germans became defenders in a small bridgehead for two weeks before they pulled back.

Our branch makes regular researches on the area of the bridgehead at Dravaszabolcs to know more about the fights and events. The question was, how could we get acquainted with the wartime micro-history of the area?

We found and mapped the former artillery and anti-tank positions, infantry trenches and pillboxes in the woods, near the main and dirty roads, around the villages. We looked for the eyewitnesses of the events and the books, archive documents about the story of the bridgehead were our basis to locate the scenes and get the necessary information to reconstruct the military events. We had localized the scene of the fights and moreover we tried to find a place in the bridgehead where the traces of two weeks of heavy firefights are belonging only to one (questionable) event.

In my presentation I would like to introduce the audience in the story of the bridgehead where our work still goes on.

Foodstuff of the German, British and French soldier on the western front through an archaeological approach of the First World War waste pits.

Yves Desfosses (Service Régional de l'Archéologie de Champagne-Ardenne, Châlons-en-Champagne), Alain Jacques (Service archéologique municipal d'Arras, Arras), Michaël Landolt (Pôle d'Archéologie Interdépartemental Rhénan, Sélestat ; UMR 7044, Strasbourg), Frank Lesjean (Conseil Général de la Marne, Châlons-en-Champagne)

The progress made in French World War One archaeology goes together with defining new research aims. Among these, the study of the waste pits completes considerably our perception of the world-wide conflict. The First World War is indeed at the origin of a major disruption in diet, subject rarely treated as it is supposed to be known or on the contrary by lack of documentation. The recalling of the food conditions at the front and during rest by soldiers is often incomplete and of minor interest. The interpretation of the artefacts linked with foodstuff requires special attention as they contain an amount of unexploited information. Such kinds of objects have been neglected in favour of illicit excavators.

Starting with a corpus from Picardy, Champagne-Ardenne, Lorraine and Alsace, the food of Germans, British and French soldiers can be studied. From characteristic examples such as alcohol, mineral water, canned food or condiments, particularities of each belligerent will be underpinned. This comparative analysis emerges into several subject matters:

supplying circulation (official and personal), material and origin of containers (metal, glass, pottery...), shortage and corruption of containers, patriotic representation, contribution of archaeozoology, recovery of civil objects linked to meals, removal of waste (burying, destroying and recycling).

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Perceptions of Misconceptions

Kevin M. Donaghy (Temple University, Philadelphia, PA)

In battlefield archaeology researchers are often using contemporary and period cartographic resources to determine the locations of units and actions on the field. GIS technologies provide a valuable series of tools to improve the study, quantification, and assessment of cultural resources. This paper will illustrate examples from sites from the American Revolutionary War and present a methodology for archaeological sampling technique strategies.

Their last battle – A Mass grave and the Battlefield of Wittstock 1636

Sabine Eickhoff , Anja Grothe, Bettina Jungklaus (Brandenburgisches Landesamt für Denkmalpflege und Archäologisches Landesmuseum)

In 2007 the "Wittstock Battlefield Project" was initiated with an excavation of a mass grave found during gravel extraction on the site of the historical battlefield near Wittstock in the state of Brandenburg/Germany. The archaeological excavations undertaken by the Brandenburg State Office for the Preservation of Monuments and Archaeological Museum (BLDAM) uncovered 88 skeletons in situ.

The burial measuring 6 m in length and 3.5 m in width may have once contained the bodies of up to 125 soldiers who fell during the battle on September 24th/October 4th 1636. The corpses, rid of their personal belongings and most of them without any trace of clothing, lay in neat rows of several layers in the grave. On some of the bodies the presence of small hooks and eyelets were indicative of underclothing; one individual still wore a headpiece.

The main focus of this paper investigates the patterns of injuries and lesions found on the skeletal remains. It will also discuss the evaluation of contemporary records and the results of the ongoing metal detecting field-surveys in the general area of the battlefield. These, started in 2009, aim to find the extent the battlefield arena and retrieve more information about the battle itself, e.g. the course of the fighting, the weapons used and post-battle processes such as retreat and plundering.

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Battlefield Archaeology at Tannenberg (Grunwald, Žalgiris): Physical Remains of the Defeat of the Teutonic Order in Prussia in 1410

Sven Ekdahl (Berlin, and Polish-Scandinavian Research Institute, Copenhagen)

On 15 July 1410 a Polish-Lithuanian army won a strategically important victory over the Prussian branch of the Teutonic Order in fields around the villages of Tannenberg (Polish: Stebark), Grünfelde (Polish: Grunwald), and Ludwigsdorf (Polish: Łodwigowo) in the Komturei (District Command) of Osterode (Polish: Ostróda) in Prussia. After the Second World War this part of Prussia was ceded permanently to Poland. Accordingly, in July 2010, the Poles organized solemn celebrations on the battlefield site, in which also the presidents of Lithuania, Romania, and Moldova as well as the Grand Master of the present-day Teutonic Order, the president of the European Parliament and many other statesmen, diplomats, and military leaders of different nations participated. The victory of 1410 is fundamental in forming the national identity of many countries in East Central and Eastern Europe and thus is subject of intensive research.

This article presents the main outlines of the battlefield archaeology at Tannenberg from the end of the 18th century up to the present day, as interpreted first by Germans and, after 1945, by Poles. Special interest is devoted to an intriguing question: Have historians and archaeologists until now accepted a fallacious theory about the march routes and battlefield deployment of the armies, as created by the famous Prussian historian Johannes Voigt in 1836? Recent research by the author of this article leads to the conclusion that the main battlefield was actually situated in another place than the one identified by Voigt and all his followers. It means that future archaeological research now faces new and most challenging tasks.

‘Biting the Bullet: Considering the contribution and impact of metal detecting activity to battlefield archaeology in the UK’

Natasha Ferguson (Centre for Battlefield Archaeology, University of Glasgow)

Battlefield archaeology and hobbyist metal detecting may often be regarded as a marriage of convenience; they are necessary, yet often uncomfortable bedfellows. As battlefields in the UK are now more frequently associated with the label ‘heritage at risk’, we must ask what role metal detecting has played in this equation.

With a particular focus on the results of current doctoral research, due to be completed in Spring 2011, this paper will aim to address not only the detrimental impact of hobbyist metal detecting to battlefield archaeology, but also the positive contribution the hobby can make. Results of this research have been drawn from work within the metal detecting community, with the aim being to assess the extent and form of metal detecting activity on sites of conflict and to gauge the volume of unrecorded material removed from battlefields. This was achieved through the recording of private collections and the monitoring of sources such as eBay. The contribution metal detectorists have made to our understanding of past conflict through the declaring of material, detailed recording and the discovery of previously unknown sites will also be recognised in case studies detailing work by individuals in Cornwall, Somerset and Inverness.

War without battlefields: Investigating Violence and Conflict in Neolithic Europe

Linda Fibiger (School of History and Archaeology, Cardiff University, Wales)

Conflict and interpersonal violence are as old as humanity itself, but its nature and prevalence has undergone considerable changes over time. Well-known evidence of conflict within Neolithic society include the mass graves from Talheim in Baden-Württemberg, multiple burials from Eulau in Saxony-Anhalt and the mass-fatality site of Asparn-Schletz in Lower Austria. These high-profile cases document larger-scale violent events but do not tell us how common violent interaction during the Neolithic really was. Are we looking at something exceptional during a period otherwise characterised by relatively low levels of violence? Was violence only affecting those who happened to be caught up in these events or

something that people experienced on a broader scale? To answer this question, a population-based, cross-regional analysis of non-accidental cranial trauma was carried out, analysing the remains of over 1000 individuals from Neolithic Germany, Denmark and Sweden. Results indicate interesting regional and temporal variations in the nature and severity of violent interaction and provide evidence for varying scales of conflict. Most importantly, violence during this period appears to have been endemic – although we do not find battlefields, violent conflict would have been very commonly experienced by both individuals and settlement groups living in Neolithic Europe.

Archaeology of ancient battlefields

Phil Freeman (SACE, University of Liverpool)

The success of the series of Fields of Conflict conferences can be read as an index of the progress in the study of the archaeology of battle and its consequences. As the list of papers offered for this conference shows the sub-discipline ‘battlefield archaeology’ is now truly international in terms of geographic reach and chronological parameters. While any number of innovative projects and case studies can be cited that exemplify that progress, we seem now to be moving in to a new phase where there is a growing concern with a more reflexive approach to the objectives and methodology in the subject, as exemplified by some recent publications. But one curiosity persists, the study and reporting of the archaeology of ancient warfare, in what is otherwise called the Classical period, has been, with notable exceptions, under-represented at previous conferences. In this presentation I will offer some observations for why the results of research on ancient battle have been relatively anonymous and in doing so will provide some ideas as to how the situation might be redressed.

The Harzhorn Incident. Archaeological research on a late Roman battlefield near Northeim, Lower Saxony.

Michael Geschwinde (Niedersächsisches Landesamt für Denkmalpflege, Braunschweig), Henning Haßmann (Niedersächsisches Landesamt für Denkmalpflege, Hannover), Petra Lönne (Kreisarchäologie Northeim), Michael Meyer (Freie Universität Berlin), Günther Moosbauer (Archäologie der Römischen Provinzen, Universität Osnabrück)

The battlefield at Harzhorn was discovered by chance by a metal detectorist. Shielded from the public (danger of treasure hunters), an area measuring one mile 0.3 mile was combed systematically several times with metal detectors; hundreds of located artifacts were excavated and documented in detail before initial preservation. Small test excavations and ballista experiments with an re-enactment group to simulate the distribution patterns of iron bolts excavated there helped to understand what happened 1800 years ago. In the process, it quickly became evident that the site in question was a vast battlefield struggled over by Roman troops and Germanics. In parts of the extensive grounds, the artifacts are so well-preserved that it is possible to understand isolated events during the fighting, for example, the impact of specific arrow salvos or individual infantry attacks. No other ancient battlefield that archeologists have been able to discover up until now has delivered such impressive, undisturbed legacies of grim fights.

This site is at Harzhorn at the eastern tip of a miles long mountain ridge, running from east to west, which leads up to the western edge of the Harz Mountains as a natural barrier. The north-south connections must cross a narrow pass here, where the modern roads and the historical chaussee run close side by side over a strip of ground just 900 feet wide. The slopes of the adjacent hilltops to the west, which drop precipitously to the north, are passable in only a few places, and it is here that the biggest concentrations of weapons are located. Up to now, the artifacts have been concentrated in two main areas that indicate a very violent clash between the opponents. The results are less unequivocal in other areas of the archeological site: Either the fighting here was less intense or these areas were looted after the battle. It is also conceivable that artifacts in these areas were buried under debris swept from the slopes in a landslide.

Archeologists initially dated the find as belonging to the Augustan Age, i.e., the decades bracketing Christ's birth, but it became clear that the event happened approx. 200 years after the Battle of the Teutoburg Forest in 9 AD. The most reliable indications of dating up until now are several coins (Commodus, 180 - 192 AD till Severus Alexander, 222 - 235 AD). The entire spectrum of weapons and carbon14-data support this timeframe within the first half of the third century AD.

The very extensive find material indisputably documents a strong Roman military presence and clear traces of Roman military tactics. The size and mission of the Roman forces remain unclear. Because they had catapults and carts with them, it was certainly not a small unit. The present observations make the following working hypothesis likely: Roman troops returning from the north found the pass leading south blocked and then fought their way over the mountain ridge with massive use of weapons. Apparently the Roman troops remained successful in this battle on account of their superior military technology, but were forced to withdraw in the direction of the Leine valley because of a persistent threat.

Subsequently, the northern external frontier of the Roman Empire consolidated along the Rhine. Above all, Rome used diplomacy to continue to influence the territories on the right side of the Rhine. The situation changed drastically during the third century AD. Germanics surged southward in large bands across the Upper Raetian Limes, the border between the Danube and the Rhine, and westward across the Rhine to profit from the economically blossoming Roman areas. These areas were well-known to them because comingling with the local populace had long since already taken place in the provincial Roman border regions. Members of Germanic tribes served as soldiers in the Roman army or traded with the inhabitants of provincial Roman areas.

By the end of second century, the first major wars triggered by migration processes southward occurred, the conflicts with the Marcomanni on the middle Danube which kept the forces of Rome and Emperor Marcus Aurelius tied up for a long time. In 213 AD a new alliance of various Germanic tribes

invaded Germania Superior and Raetia. Caracalla crossed the Limes to launch a military expedition against the Germanics. In 233, in turn they devastated the blossoming border regions. Therefore, in the year 235 AD, Maximinus Thrax led an army consisting partly of oriental units deep into Germania- as handed down by Herodian and in the Augustan History - to win a major victory. In historical research, this event was frequently shifted to the vicinity of the Roman external frontiers, because penetration for many hundred miles into areas outside of the Roman Empire seemed highly unlikely. The new discovery means that this depiction must be revised. Here is the first evidence at all of a major Roman combat unit, like that described in connection with Maximinus Thrax, operating in the midst of Barbarian- territory in the third century AD.

Catapult bolts document the use of Roman torsion-pressure powered catapults. A plethora of three-bladed arrowheads may indicate the presence of oriental archers who used reflex bows. Spearheads complement the spectrum of weapons. Parts of carts such as linchpins, wheel hubs and harness accessories, but also fragments of slave chains or tent stakes, are evidence of the baggage train. The pattern of distribution of the hobnails left behind from soldiers' sandals makes it possible to retrace the Roman army's route of march southwards over the pass. The impacts of Roman projectile points indicate the Germanic positions.

Moreover, the investigation of the Harzhorn battlefield is still in the preparatory stage from the point of view of research. To understand the events, the topography must be accurately documented, further excavations and prospection campaigns undertaken, the small finds precisely mapped and analyzed.

(Un)forgotten tomb. Massgrave of bolshevik soldiers who died near Warsaw on August 1920.

Michał Grabowski (National Heritage Board of Poland)

In the mid-August 1920, the Red Army, which had been fighting with Poland for more than a year, almost reached Polish capital – Warsaw. The nearest place the Red Army got to was the small village Ossów, located about 20 kilometers from Warsaw boundaries. During archaeological works carried out in Ossów, the graves with remains of 22 bolshevik soldiers were discovered. The larger tomb (grave no 1) was partly destroyed in the interwar period. More than half of killed soldiers were moved to some other

place, with some skeletons fully preserved, some fragmented and several single bones. The further research revealed different after-burial processes which took place in the grave. On the basis of discovered artifacts (uniforms remains, equipment, ammunition) an attempt has been made to come to closer conclusions regarding the Red Army military supplies during this conflict.

Human bones at Kalkriese – a battlefield without mass graves

Birgit Großkopf (Historische Anthropologie und Humanökologie, Universität Göttingen)

Skeletal remains were recovered at Oberesch in Kalkriese, the site of an ancient battle fought between Romans and Germans. The bones were found in varying archaeological situations, often as solitary finds or fragmented. The articulated, complete skeleton of a mule was also discovered under a wall which had been destroyed, as were a number of pits containing bones nearby. The nine pits exhibit different diameters, some measuring only a decimeter and others up to four meters. Bone preservation varies greatly.

The bone pits contain human bones mixed with faunal remains, none of which are anatomically articulated. This is an important aspect for interpreting the site, which is associated with the Varus battle of 9 AD. Apparently, the bodies of fallen legionnaires lay exposed on the surface where they were vulnerable to scavenging and the elements. Historical sources describing the Varus battle, indicate that the scattered remains of the victims were buried six years later by Germanicus and his legions.

Some pits contain bones with the consistence of peat dust; one pit with lime stones produced a number of well preserved bones. In this case it was possible to identify the bones as belonging to two different men of different ages, heights and stature. It proved impossible to associate the other remains with any specific individuals and these were recorded as isolated bone finds and used to establish a minimum number of individuals. In all, the remains comprise 17 individuals. In some cases the level of decomposition was so great that only tooth enamel was still preserved. Without the enamel, these remains could not be interpreted as being those of a human individual. Finds such as these illustrate the power of taphonomic processes to completely dissolve calcified tissues. It is therefore difficult to deduce the original number of casualties based on the existing material.

The Army in the Lake: Deposited human remains at Vædebro/Alken in Central Jutland, Denmark from 1st century BC/1st century AD

Ejvind Hertz (Skanderborg Museum), Mads Kähler Holst (Section of Archaeology, Aarhus University)

For more than a century human skeletal remains have been recovered from the wetland area of Alken at lake Mossø in Central Jutland. It is estimated that the remains found so far, represent about 200 individuals, though only a minor part has been preserved until today. New investigations of the find material show that the bones were deposited in a lake at around 1st century BC to 1st century AD. The anthropological analyses reveal a male population within the age range of 15-50 years. There are several examples of unhealed sharp edge injuries, and there are abundant traces of gnaw marks from minor rodents presumably reflecting that the bones were deposited in the lake after having lain exposed on the ground elsewhere for some time. The find is interpreted as the remains of a ritually deposited defeated army. Dispersed artefacts in the wetland may be related to ritual activities both in connection with the deposition of the human remains and in the centuries before and after. The finds at Alken seem to anticipate the later large scale weapon depositions in wetland areas in Jutland in the following centuries, among which the famous Illerup Ådal site is located within the same valley system as Alken just four km further to the northeast. However, the contents of human remains are unique to Alken and may be seen as related to another, older ritual tradition.

Lost – Picked up – Recycled: Traces of Post-Battle-Activities on a Battlefield of the First Schleswig War (1848-51)

Arne Homann, Jochim Weise (Universität Kiel)

During the last years, the Archäologisches Landesamt Schleswig-Holstein carried out extensive metal-detecting surveys on two agriculturally used areas in the vicinity of the city of Schleswig (Schleswig-Holstein, Germany). On several of these occasions, metallic relics of the Schleswig-Holsteinischer Krieg (First Schleswig-War, 1848-51) were found. Among them are different types of projectiles of handheld firearms, parts of bladed weapons as well as metallic elements of uniforms and equipment of the time.

This paper presents ca. 600 finds recovered in 2008 and 2009 from a field near the village of Hüsby. Of these, ca. 500 can be assigned to the First Schleswig-War. Most of the projectiles found are in an unfired condition while closely associated with partially broken elements of equipment etc. and most of the finds belong to the Danish army of 1848. Therefore it is assumed that these objects got “lost” during the clearance of the respective area by victorious Prussian military forces following a battle against Danish troops that took place in the vicinity: the so-called Osterschlacht bei Schleswig (Battle of Schleswig, 23. April 1848).

Finding Fulford: The results of post-battle metalwork processing

Charles Jones (Battlefield Trust, UK)

The 1066 battlesite provided a set of debris that was hard to interpret. By matching the fragments to pieces found in museum storage collections in England and Sweden, it was possible to interpret these as evidence of post-battle, metal reprocessing. Four sites have been identified which suggest that the reprocessing was done very close to the place of conflict.

The destruction of the Norse army at Stamford Bridge, just five days after their victory at Fulford, would explain why so much material was abandoned as the items include tool and part-made arrows and axes have been found. Flooding, and the remote location, help explain why this material has been undisturbed until recent deep-ploughing.

The unique circumstances at Fulford might suggest a method for identifying other battlesites where only hearth debris remains. There are also suggestions that surface scatter can provide statistical pointers and another diagnostic tool for some battlesites.

So far the material is from surface scatter and the next stage of the project must be to try to pinpoint all the working areas and to investigate the charcoal pits that have been identified.

Last flight of Lancaster HK594. In search of a World War two crash site in Sweden.

Bo Knarrström (Swedish National Heritage Board)

During the Second World War, some 380 planes crashed, or were forced to land, in neutral Sweden. Some days the most southern Swedish airfields looked like allied auxiliary air bases when strewn with ditched Flying fortresses and Lancaster bombers. Many however crashed due to extensive damage caused by German flak and fighter planes. This paper will deal with one of these unfortunate English bomber crews who in August 1944 went on what would be their last mission. They were scheduled for a raid against the city of Stettin but were intercepted by German night fighters between the southern Swedish coast and the Danish island of Bornholm. Swedish anti aircraft-batteries fired more or less blindly up in black sky which thundered from dozens of planes. Lancaster Hk594 was shot down and crashed in vicinity of the idyllic rural village of Svensköp, Scania. One Swedish flak battery was credited with shooting down this plane, but during the project the official history of this incident took a new turn.

In 2009, The Battlefield team from the Swedish National Heritage Board tracked down the location where their Lancaster crashed, and conducted a thorough metal detector survey of the impact area. The evidence from this field work combined with eye witness accounts and new information from Danish Luftwaffe records finally lets us know what really happened.

Anthropological analysis of mass graves from the „Thirty Years’ War“

Alexander Lutz (Ludwig-Maximilians-Universität, München)

In 2007 a mass grave was excavated in a sandy dell located in the southern part of Wittstock, Germany. The initial anthropological report prepared by employees of the „Brandenburgisches Landesamt für Denkmalpflege und Archäologisches Landesmuseum (BLDAM)“, showed that the skeletons belonged to soldiers that fell during the 1636 battle of Wittstock. Bone samples taken from these remains were sent to the department of Anthropology and Biodiversity Research at the Ludwig-Maximilians University in Munich (LMU) for stable isotope analysis. Bone collagen and structural carbonate, as well as the strontium isotope signature from dental enamel were analyzed. The combination of these isotope systems allowed for the dietary reconstruction and detection of regional provenance of numerous individuals. For those persons whose provenance could not be determined with certainty, various potential places of origin were suggested. The multinational composition exhibited by the army is underlined by the findings presented here and is also supported by available literature.

In February 2008 in Alerheim, Germany construction workers discovered a mass grave during earth removal while laying a pipeline. The skeletal remains belong to soldiers killed during the battle of Alerheim which took place August 3rd, 1645. An anthropological examination was carried out within the framework of an LMU Masters thesis at the State Collection for Anthropology and Palaeoanatomy in Munich. According to historical documentation, the bodies remained unburied and exposed to the elements for at least two months prior to their interment. Co-mingling of bones and the disarticulated nature of the skeletons proved challenging during the exhumation and subsequent examination and necessitated a special methodological approach. Standard osteological methods were accompanied by a particular focus on evidence for traumatic injury. Cranial traumas were recorded using a computer animated 3D model. Location and shape of a trauma plus inferences to the weapons potentially used to inflict these injuries were discussed in detail. This was augmented by historical references to the battle which are well documented in the literature. Projectiles that remained embedded in bone were x-rayed for further analysis to detect their position, expansion and deformation. An average age of 21 to 25 years was estimated, which is characteristic for the last period of the Thirty Years’ War. Young individual age was especially apparent based on the presence of deciduous teeth and unfused epiphyses in the skeletal material. The archaeological findings are currently undergoing examination and will hopefully be combined with the anthropological interpretation in a combined effort to gain more insight into this past occurrence.

Guns on the Frontiers of Europe during the XVII and XVIII centuries: Adventures in Black powder munitions.

Adrian Mandzy (Morehead State University)

Over the last two decades, large quantities of spent ordinance were recovered from battlefields throughout the world. Ammunition recovered from five 17th and 18th century sites in North America and East Europe are quite standardized as to their particular shapes and calibers. The recovery of similar projectile types from two continents argues for the continued utilization of various weapons and asks how effective were the different firearms projectiles that were used along the fringes of Europe? Was one particular weapon better than another, and if so, why do we continue to find evidence of more than one type and diameter of ordinance?

To assess both the accuracy and lethal nature of the archaeologically recovered munitions, a series of firing tests were conducted to study weapon effectiveness. These tests included the firing of weapons and projectiles at targets set at 40, 70, and 120 yards to determine weapon accuracy. Perma-Gel, a specific type of ballistic gel, was used to quantify the effectiveness of these weapons on human targets. Based on our results, the authors have made a number of calculations as to how different weapons acted on the battlefield and suggest why certain projectiles continued to be used over time.

Great War Landscape: Aerial Photographic and Geophysical investigation of a conflict landscape.

Peter Masters (Cranfield University, Shrivenham, Swindon), Birger Stichelbaut (Ghent University)

The Western Front trenches, stretched, for 500 miles from the Belgian coast at Nieuport to the Swiss frontier and was meticulously photographed and documented from the air by the reconnaissance squadrons of all combating nations.

By using archaeological geophysical techniques in combination with the extensive aerial photographic coverage of the frontline, it has been possible to map with reasonable accuracy the location of these trench systems and evaluate where material remains of this conflict are still preserved beneath the surface in the surrounding buried conflict landscape of Plugstreet. Since 2007, aerial photographic evidence has been digitally mapped and an extensive coverage, some 30ha of the present landscape has been surveyed using non-destructive archaeological prospection techniques. This paper will focus on new geophysical research in Plugstreet and other sites in the infamous Ypres Salient.

Detecting Mass Graves on Historic Battlefields

Peter Masters, Charlie Enright (Cranfield University, Shrivenham, Swindon, Wiltshire)

This paper presents the results obtained from a series of integrated geophysical surveys conducted on known historic battlefields in order to locate mass graves. This research project was undertaken as part of an MSc in Forensic Archaeology and Anthropology.

Four most commonly used techniques were employed; GPR, earth resistance, magnetometry and EM38.

The objectives of this study were to adapt and expand on the strategy and methodologies employed at the Battle of Towton mass burial site, to demonstrate the importance of utilising an integrated array of geophysical survey techniques to enhance the interpretability when locating such remains and to gain a greater understanding of the physical properties exhibited by mass graves to increase confidence levels in the interpretation of geophysical results.

A simulated mass grave was used as a control site in order to record the types of responses expected from each of the techniques used. All techniques produced unambiguous anomalies associated with the location of the mass grave. The earth resistance results produced a typical response of a mass pit.

Each of the techniques was then applied to historic battlefields - Battles of Bosworth (1485) and Stoke Field (1487) from the War of the Roses (1450 – 1487) and Edgehill (1642) and Naseby (1645) from the English Civil war (1638 – 1660).

This initial research has shown that using a combination of various techniques increases the detection of anomalies associated with grave type features considerably.

Cranial injuries and patterns of interpersonal violence in two Early Medieval skeletal populations from Germany

Christian Meyer, Kurt W. Alt (Institut für Anthropologie, Universität Mainz)

Reports of violent trauma in human skeletal remains are quite common in the literature. The Early Medieval period of Europe is no exception. Many reports however focus on only one or a few cases of spectacular wounds with no attempt to gain information on the population level which would enable comparisons of trauma rates and applied fighting techniques between different burial sites. In order to provide new data for this period and to identify patterns in the anatomical and demographical distribution of interpersonal violence, a large skeletal population (n=907) from a recently excavated cemetery in Mannheim has been thoroughly screened for evidence of violent interactions.

Unambiguous evidence of interpersonal violence is largely restricted to the skull. Other bones are rarely involved. Sharp force injuries (eg swordcuts), healed and unhealed, were seen only in men, sometimes in the same individuals. There is a clear predominance of trauma to the left side of the skull and lethal blade wounds are found mainly on younger adults. Blunt force injuries are also chiefly present on males, but not exclusively so.

The results from the completely excavated very large cemetery of Mannheim-Seckenheim are compared to another, much smaller and very fragmentary cemetery from Bitburg, which, in relation to its preserved skeletal remains, shows a high number of cranial injuries. It is discussed how site context and preservation, number of individuals and the condition of the bones can affect the interpretation of archaeological sites regarding interpersonal violence.

From Civil War Defenses of Washington to Fort Circle Parks: How Community-Driven Archaeology Can Be Made Part of the Archaeology of Conflict Arsenal

Tamara A. Mihailovic (American University, Washington D.C.)

Community-driven archaeology is an important tool in giving voice to marginalized groups and neighborhoods; it has the power to engage and inform communities of their past, as well as strengthen ties and stewardship to public lands, cultural resources and national heritage. It is a particularly effective approach when engaging contexts within which various groups interacted in times of crises. At the onset of the Civil War, Washington DC, nestled between the Confederate state of Virginia and the Union state of Maryland, was highly vulnerable to attack. Over the course of five years various defenses were erected, consisting of 68 forts, detached batteries, rifle pits, wooden blockhouses, military roads, stockaded bridgeheads and picket stations. As components of the region's Civil War heritage the Civil War Defenses of Washington (CWDW) represent some of the more overt manifestations of conflict associated with the city. In addition to their original defensive character CWDW also have long associations within the African-American community, beginning with their construction and extending to the present day. Applying community-driven archaeology to CWDW would allow us to examine a landscape created by the African-American community within the larger context of military use of land and resources in the city.

The battle of Manzikert and medieval logistics

Philip Murgatroyd (University of Birmingham)

In AD1071 the Byzantine Emperor Romanos IV Diogenes gathered the largest Byzantine army for over 50 years and marched across Anatolia to the fortress at Manzikert.

There he fought and lost a battle that would have far reaching consequences for the Byzantine state as a whole, precipitating a civil war that allowed Seljuk Turks to occupy much of Anatolia. Yet we know little of how the army transported itself over 700 miles to the site of the battle. We do not know the size of the army, the route it took or the effect it had on the communities it relied upon for supplies. This paper provides an update on the work of the Medieval Warfare on the Grid project and focusses on the movement of the army. It looks at the historical evidence for how Byzantine armies organised themselves and investigates how this information can be used to create agent-based models allowing simulation of the army's march. These simulations add new types of evidence to the debate on medieval military logistics. Taken with historical and archaeological data they allow a more detailed appreciation of the problems involved with moving large numbers of people across a pre-industrial landscape.

The siege of Zrínyi-Újvár

Lajos Négyesi (Mod Institute and Museum of War History, Esztergom)

In 1661 was build by the river Mura in the south part of Hungary a bridge head fortress. Its name was Zrínyi-Újvár (New fort of Zrínyi). In 1664 a huge Ottoman army has destroyed it. Our research group

decided to find the traces of the siege, because it was an unique possibility, because the fortress existed only 3 years long and never was rebuilt. The terrain is covered with vineyards and orchards. Since 2006 we use the method of battlefield archaeology and we found a lot of artifacts - musketballs, cannonballs, shell fragments – and nowadays we can sketching the artifacts pattern and we can reconstruct the siege.

Lone grenadier. Some episode from the battle of Kunersdorf fought on 12th August 1759

Grzegorz Podruczny (University of Poznan), Jakub Wrzosek (National Heritage Board of Poland)

The fields of one of the bloodiest battles of the Seven Years' War near Kunersdorf (Kunowice, Słubice district, Lubusz voivodship) fought on 12th August 1759 between Prussian army and allied armies of Russia and Austria, have remained under archaeological research for the several years. During the last three years, apart from the cataloguing and geodetic works, archaeological investigations have been carried out. In 2010, remains of a soldier, killed in the battle, were unearthed during the field research.

Archaeological excavations revealed the partly preserved skeleton. Anthropological analysis confirmed the soldier was about 165 cm tall, at the age of 40 – 50. Frontal bone fragment showed signs of two injuries caused by a sharp object, which, however, did not cause soldier's death. Other artifacts were uncovered, such as brass uniform buttons, fragments of leather pouch or cap, elements made of bronze sheet and an emblem with the symbol of a burning grenade and the monogram of the empress Elizabeth of Russia. Deformed lead bullet was obtained from poorly preserved scapula. Basing on the discovered objects the soldier was recognized as the Russian grenadier. Analysing the skeleton's position, its fragmentation and the related layers, it was assumed that this soldier was most probably robbed after death and not buried but left to birds, foxes or dogs.

The two most important military historical mass graves of Hungary: The mass graves at Mohács (AD 1526) and Kiskunhalas (AD 1705)

Balász Polgár (E. Lorand University, Budapest)

Few mass graves of historical age are known in Hungary. I want to assess the mass graves' battlefield archaeological problem: the mass graves' interpreting and dating. I want to demonstrate this problems with the examples of Mohács and Kiskunhalas. 5 mass graves were found by László Papp and Borbála Maráz at Sátorhely (near Mohács) in the 1960-70's. (The Hungarian royal army was defeated against the Turkish army at Mohács in 1526. The Hungarian king, some barons and prelates died in the battle.) The archaeologists found 1000 soldier's skeletons. István Szeder Nagy and Rezső Pataky excavated the mass grave of Kiskunhalas in 1908. (The Hungarian insurrectionist soldiers were defeated against the German mercenaries at Kiskunhalas in 1705.) The archaeologists found 220 Hungarian insurrectionist soldiers' skeletons.

The Two Thousand Yard Stare: Indigenous Archaeologies of World War II on Peleliu (Palau, Micronesia)

Neil Price, Rick Knecht (University of Aberdeen)

In September 1944, US Marines invaded the tiny Micronesian island of Peleliu in the Palau group, held by the Japanese. It would become one of the worst battles of the Pacific War, but the struggle for Peleliu was afterwards largely overlooked in the public consciousness in favour of better-known conflicts on Guadalcanal, Iwo Jima and Okinawa. This situation suddenly changed in 2010, when memories of the battle were spectacularly revived by the HBO mini-series *The Pacific*, meeting with a popular reception equal to its predecessor *Band of Brothers*. Tourist impact on the island, with its community of only 700 native Palauns, poses acute issues of heritage management, but no less important is the indigenous perspective on the remains of an imported and deeply alien war. This paper presents the results of a field project exploring these issues on Peleliu.

The battlefield *tropaion*: Marking Victory in Classical Greece

Britta Rabe (Institut für Archäologische Wissenschaften, Universität Frankfurt)

In Greek warfare immediately after the battle a *tropaion* was erected: a tree trunk with the captured arms of the conquered enemy. The victorious party set their sign of victory exactly at the *tropé*, the point on the battlefield where the enemy was put to flight – In fact the *tropé* was a point defined by the victor. Thucydides and Xenophon alone mention around sixty battlefield trophies; the *tropaion* was erected after stripping the arms and armour of the slain opponents and dividing the booty. The trophies play an important role in establishing the victor and the defeated.

Visual representations beginning from the 5th century B.C. show a highly stereotypical arrangement of these presented arms. They closely correspond with those consecrated in the sanctuaries. For example in the sanctuary of Olympia the arms were displayed on the posts on the stadium ramparts of the mid-6th century B.C. The literary evidence shows that the battlefield *tropaion* was also perceived as a votive gift.

Due to the victories of the Persian Wars in Greece the need for longer lasting commemoration arose, which led to a monumentalisation of the battlefield *tropaia*.

Transformations. Post battle processes on the Hürtgenwald battlefield

Christoph A. Rass (Universität Osnabrück)

The Hürtgenwald is the major distinct battlefield of the Second World War in Western Germany. Fighting started in late 1944 when the 1st US Army decided to launch its first major attack on the heartland of the Third Reich right across the Eifel Mountains roughly 30 kilometers south of Aachen which lay under siege since September 1944. Planned as a swift push, the American operation turned into a series of gruesome battles which lasted from October 1944 to February 1945 and might have cost up to 35.000 KIA on both sides.

When the war finally moved further East towards Cologne and the Rhine, it left the Hürtgenwald and its villages not only devastated but literally covered with military wreckage, explosives and thousands of dead soldiers. Thus the first post war years witnessed intense mine clearing, recovering human remains, rebuilding and resettlement – and the construction of a much contested regional culture of memory.

The proposed paper will focus on three particular aspects of post battle processes. Firstly, it will trace the recovery of the dead on the German and the American side from the end of the war into the recent past. Secondly it will discuss how various actors dealt with the physical remnants of war, especially ordnance and the fortifications of the Westwall. Both arguments will, thirdly, be related to the construction of various spaces of memory across the battlefield and their significance for its historiography.

Thus the presentation covers essential aspects of the complex conversion of a modern battleground into a *lieu de memoire* based on the physical transformation of the site. As a sideline the importance of data on dead soldiers and their death for the reconstruction and analysis of the fighting will be highlighted.

The paper represents the joint effort of a study group devoted to a critical and interdisciplinary history of the Hürtgenwald battle and its site.

Relevant publications include:

- Konejung, Achim: You enter Germany: Hürtgenwald – Der lange Krieg am Westwall (Part 1), film documentary, 2007.
- Konejung, Achim: You enter Germany: Hürtgenwald – Der lange Krieg am Westwall (Part 2), film documentary, 2010.

- Lohmeier, Jens: Der Weg der Toten: Das Schlachtfeld Hürtgenwald nach 1945 zwischen Totenbergung und Erinnerungskultur [in print spring 2011].
- Quadflieg, Peter M.: "Es muß also unser absolutes Ziel sein, hier im Westen die Sache offensiv zu bereinigen": Die Ardennenoffensive 1944, in: Quadflieg, Peter M.; René Rohrkamp (Ed.): Das "Massaker von Malmedy": Täter, Opfer, Forschungsperspektiven, Aachen 2010, S. 13-32.
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- Rass, Christoph; Peter M. Quadflieg; Jens Lohmeier: Das "Schlachtfeld Hürtgenwald" als Schauplatz und Erinnerungsort, in: Jahrbuch Monschauer Land [in print 2011]
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The Archaeology of republican airfields in Catalonia

Maria del Carmen Rojo Ariza; Ramon Arnabat Mata; David Íñiguez Gràcia; SOT Prospecció Arqueològica; A. Espinal Valverde; David Gesalí Barrera (University of Barcelona)

The aim of this paper is to present the results of the field surveys of airfields placed in Catalonia and associated with Republican Government (1931-1936/1939) and Spanish Civil War (1936-1939), which were done from 2008 to 2010. The importance of these remains is explained due to the fact that during the Spanish Civil War (1936-1939) almost 80 airfields were built in the 3rd Air Region (Catalonia and Aragon). This means that Air Warfare had a significant impact in the territory which is reflected in the creation of a net of infrastructure linked to the aviation. In fact, there are many remains from this net which are remarkably preserved. Based on this fact, our hypothesis, derived from combining archaeological and textual sources, is that the Air Warfare was more important in the development of Spanish Civil War than previous studies had shown.

The paper shows the excavation of republican airfields by using non-aggressive methods combined with metal detector surveys, GIS and statistical analysis in order to better understand the organization of these places. Relevant results from the excavations of this airfields are discussed with the purpose of finding

common patterns of use of space. Finally, it is hoped that the work will stimulate the awareness of the value of the heritage related to the Spanish Civil War's aviation.

Interpretation of distribution patterns at the battlefield of Kalkriese

Achim Rost (Archäologie der Römischen Provinzen, Universität Osnabrück)

Based on the Roman military objects in the Kalkriese area, we can assume that this was the site of a large battle in a defile with a length of more than 10 km along the northern slopes of the Kalkriese Hill. The distribution of the finds indicates that there was a series of military engagements proceeding from east to west in the course of which the Roman troops were worn down. In this paper I want to reconstruct the military collapse of the Roman army, based on an analysis of the archaeological finds. As we shall see, post-battle processes are essential in our aim for a better interpretation of the archaeological record and the activities on this ancient battlefield.

Recently a new research project on the Kalkriese battlefield aims to investigate the Germanic settlement pattern in the area between the mountains and the marshland since the Germanic infrastructure had an important impact on the cultural landscape and thus shaped the general conditions for the Romans' march and the battle. By including aspects of landscape archaeology, our aim is to build up a more comprehensive picture that allows us to analyse the "conflict landscape" in Kalkriese as a whole.

Simulating battlefield dynamics

Xavier Rubio (Computer Applications in Science & Engineering, Barcelona Supercomputing Center),
Jose María Cela (CASE-BSC), Francesco Xavier Hernández (Universitat de Barcelona)

Computer simulations are being increasingly used in Archeology, both in terms of virtual lab, to test new hypothesis about human behavior, and as a tool to create new perspectives to explore existing archaeological evidence. Following this approach, this paper presents the possibilities of simulation, and particularly of agent-based modeling, in order to understand the dynamics developed in a battlefield.

This research involves two different problems, each one of them focused on a different phase of the creation of a battlefield (the engagement itself, and the archaeological works made afterwards).

The first problem can use computer simulation to model hypothesis about the way warriors face combat, including psychological, physical and cultural constrains. Regarding the second one, simulation is able to address issues regarding the recovery of artifacts, as even the best methodological approaches can generate errors that will modify the understanding of the battle through the use of material remains. In this sense these techniques allow the archaeologists to simulate recovery works, in order to understand potential pitfalls of these processes.

As a way to show these theoretical issues this paper will present the Agent-Based Simulation of a XVIIIth century battlefield, comparing its results with already excavated engagements like Talamanca (1714).

Irish Battlefields Project

Damian Shiels (Headland Archaeology Ltd., Ireland)

The Irish Battlefields Project was initiated by the Minister of the Environment, Heritage & Local Government in 2007. The eventual aim of the project is to assist in identifying the appropriate statutory protection under the National Monuments Acts 1930 – 2004 that should be extended to battlefield sites in the Republic of Ireland within the ongoing consolidation and modernisation of this legislative code. It

also seeks to determine their extent for the purpose of making recommendations within the planning system with regard to development in these areas. The Minister appointed an expert advisory panel to oversee the work, and following this Headland Archaeology (Ireland) Ltd and Eneclann Ltd were commissioned to conduct the research and fieldwork necessary for report production. The battlefield reporting element of the project is due for completion in the summer of 2010.

The project methodology consists of historical research on each potential battlefield site being conducted by Eneclann Ltd. This information is then utilised by Headland Archaeology (Ireland) Ltd to conduct a site visit and place the battle in the modern landscape. Well over 200 battle sites ranging in date from the eighth to eighteenth centuries have been investigated, allowing nearly 80 battlefield sites to be identified and mapped. This paper will provide an overview of the project and look at some of its results, and discuss the potential archaeological benefits of conducting such a review.

Archaeology of the Thirty Years War: New results from the Battle of Lützen (16.11.1632)

André Schürger (Universität Halle/Landesdenkmalamt Halle)

The archaeological survey of the battlefield of Lützen is carried out since 2006. The research on the imperial left wing has already been presented on the Fields of Conflict Conference in Ghent (2008). Since then, new areas were surveyed on the left wing and the centre with a total of 1.000.000 m² and 100% coverage (i.e. search grid of 1,8 m). 10.000 small finds were recovered from the battlefield, from which 3000 relate to the battle.

The interpretation of the small finds distribution is based on the 2300 lead bullets. Their allocation to the weapon classes (musket, carbine and pistol) allows a general interpretation of fire combat and troop movement of infantry and cavalry. As Lützen was a static battle, many attacks and counterattacks took place in the same areas. Therefore the result of the lead bullet distribution according to weapon classes is confusingly dense and difficult to interpret. Also, both sides used mostly similar musket types and their lead bullets are indistinguishable.

With the identification of some of the weapon types, in particular the 19,7 mm Swedish musket we are now able to locate the areas of fire combat and movement of a single unit in consideration of the historical sources – the assault of Mitzlaff's Brigade on the imperial windmill battery.

While the musket shots indicate infantry fire combat some of the close combat areas of the cavalry were identified by concentrations of pistol bullets and uniform pieces: The counterattack of the imperial cuirassier regiment Götz, which leads to the death of Gustav II Adolf and the skirmish of Isolani's Croats and Stalhandske's Finns which started the battle.

This paper will examine the problematic of lead bullet allocation to weapon classes and types on a Thirty Years War battlefield and the interpretation of their distribution along with other battlefield related artefacts.

More than barracks, a survey. The spatial dimensions and functions of the Amersfoort concentration camp, the Netherlands.

Ivar Schute (RAAP Archeologisch Adviesbureau, Leiden)

Visiting the remains of the Nazi-Amersfoort concentration camp there is not a lot more to be seen than the information center and an enormous shooting gallery, made by the prisoners. You can walk around it;

signs indicate a morgue, some former mass graves and trenches. The information center is placed within the former inner wall of the concentration camp where the barracks were. Although most people associate concentration camps with barracks alone, the actual camp is often much bigger. It consists of a set of areas with different functions and functional relationships. An archaeological desktop-study made clear that the area within the former outer wall of the camp enclosed an area of 45 hectares, while the prisoners camp is only 3 hectares. The biggest part of the concentration camp has turned into a forest, a golf course, some offices, an animal asylum and so on. The inner structure and total dimension of the camp has now been mapped. A small area is excavated to clarify the function of that particular area; it turned out to be a flak position. Although a small-scale investigation, it was the first archaeological excavation in a (concentration) camp in the Netherlands. Through this the awareness of the magnitude of this concentration camp, of its different spatial elements and the story behind them can have effects on the strategy and focus of heritage management.

Surveying, Statistics and Spatial Mapping: Predictive Modeling of 18th-Century Artillery at Monmouth Battlefield State Park, NJ

Dan and Eric Sivilich (BRAVO: Battlefield Restoration and Archaeological Volunteer Organization, USA)

Twenty years of metal detecting at Monmouth Battlefield State Park, Freehold/Manalapan, NJ has uncovered thousands of artifacts from the June 28, 1778 conflict, and the resulting data has raised as many questions as it has answered. One of the most fascinating areas of study are the speculative "cones of fire" generated on GIS maps to estimate original cannon locations based on the anti-personnel ordnance blast pattern. However, this technique assumes a gun location and generates the cone from that point. As my Senior Project in the Surveying program at New Jersey Institute of Technology, I elected to re-examine the data to see if a more accurate predictive model could be created using surveying, statistics and spatial mapping. Using this technique and a working knowledge of 18th-century artillery, the ordnance data is used to accurately establish several artillery positions throughout the battle.

Petersburg, 1864-1865: the Archeology of a Complex Campaign

Julia Steele and James Blankenship (U.S. National Park Service, Petersburg National Battlefield)

In the Petersburg Campaign in the final year of the American Civil War, two armies dug in along a wide arc surrounding the critical cities of Petersburg, a manufacturing and transportation hub, and Richmond, the capitol of the Confederacy. This paper concentrates on a small section of the opposing lines, where the opponents entrenched within a few hundred meters of each other for nine and a half months and fought three major battles.

Using newly discovered maps and photographs and using the results of recent geophysical studies and archaeological excavations, we attempt to understand this complex field of conflict where the 292 day campaign left many different signatures on the landscape and in the archaeological record.

The Army Chaplains in the First World War

Norbert Stencinger (Miklós Zrínyi National Defense University, Budapest)

I am a Phd student at Miklós Zrínyi National Defense University in Budapest, Hungary. I do researching in „The Army Chaplains in the First World War.” With my colleagues we are researching the battlefields of the first six Isonzo battles near the River Isonzo in Italy and Slovenia. They were the most famous and

bloodiest battlefields in Hungarian army history from June of 1915 until August of 1916. The number of the dead soldiers were so high that there was a big problem how to bury them. The headquarters established numerous army cemeteries. It was not only very hard work, because the soil was rocky but it was also very important work because the weather was extremely hot in summer and there was a great threat of a pandemic.

After the war the army cemeteries were abandoned and the earthly remains were taken to other cemeteries. With my colleagues we identify the old cemeteries with the help of maps and sketches of the era. These documents are from the military archives in Vienna and Budapest. Many of the old cemetery sites were identified during our field trips. On the conference I wish to talk about our research and its result.

Their campaign ended there: The mass grave of Napoleon's Great Army soldiers in Vilnius

Valdas Steponaitis (Medieval and Post-Medieval Archaeology Department, National Museum of Lithuania, Vilnius)

In 2001, on Verkių street in Vilnius, a mass burial site of soldiers from the Napoleonic army dating from the Franco-Russo war was found. At the beginning of December in 1812, Vilnius was an exceptional place for Napoleon's army during their flight from Russia. After a journey of almost 1000 km, about 50,000 soldiers from this great army arrived in Vilnius, sick, emaciated and demoralized. Leaders of the French army could not control the situation and over 37,000 soldiers died from hunger, cold and illness and were buried in Vilnius. The Russian administration buried dead soldiers in several places in Vilnius in order to prevent disease epidemics.

In 2002, archaeologists excavated a 600 m² plot in one such mass grave and found at least 3,269 individuals buried in a disorderly manner. Dead soldiers and other participants of campaign were thrown to former defence redoubt. Over 4,600 artefacts were found, and they are now held by the National Museum of Lithuania. This collection is composed of buttons from more than 70 regiments, clothing details, uniform hats, fragments of shoes, leather and metal hat ensigns, various brass and iron fasteners, copper alloy rings, coins, crosses, icons, fragments of rosaries, medallions, cufflinks, a pistol bolt cleaner with chain and etc. According to observations made during the examination, it is not possible to attribute most of the artefacts to individual remains. Small quantity of personal things, some postmortem lesions of bones, let us assume, that some of deads were looted.

The anthropological material, collected during the excavation, represents population of all Europe from the beginning of XIX century.

'I have buried this under the ashes...': Archaeological Approaches to Holocaust Landscapes

Caroline Sturdy Colls (Institute of Archaeology and Antiquity, University of Birmingham, Forensic and Crime Sciences, Staffordshire University)

The Holocaust been studied intensively by historians and other specialists and it is often believed that this is a period about which we have little more to learn. However, whilst the historical events have received considerable attention, this period has rarely been considered in terms of its surviving archaeological remains and landscapes, and the majority of known sites are still ill-defined and only partially understood from both spatial and structural points of view. Additionally, thousands of sites across Europe remain unmarked, whilst the locations of others have been forgotten altogether. Such a situation has arisen as a result of a number of political, social, ethical and religious factors which, coupled with the scale of the crimes, has often inhibited systematic search. This paper will detail the subsequent development and recent implementation of a non-invasive archaeological methodology at several known Holocaust sites aimed at rectifying this situation and will present a case for the establishment of Holocaust archaeology as a sub-discipline of conflict studies. In particular, the importance of moving away from the notion that the existence of historical sources precludes the need for the collection of physical evidence will be stressed,

and the humanitarian, scientific, academic and commemorative value of exploring this period will be considered.

Battlefield Protection: The history behind a new initiative

Tim Sutherland (University of York)

Protecting battlefield landscapes that are not covered by government legislation from metal detectorists in England has proven to be necessary but problematic. From rallies where hundreds of metal detectorists swarm over the battlefield to single users who slowly pick at the site, the archaeological evidence of battle is systematically being eroded away without sufficient recording being carried out. Evidence of these activities finally provided the incentive for the author to initiate a solution which would protect the battlefield at Towton (1461), where an archaeological project has been carried out since 1996. An agreement has been reached between the director of the archaeological project and the different local landowners not to allow metal detectorists to detect on the battlefield. This agreement was witnessed and will be policed by representatives of the Towton Battlefield Archaeology Project, the Towton Battlefield Society, the regional police force, the district council local inhabitants and metal detectorists. The proceedings were also filmed by a television production company. Only metal detectorists working as part of the archaeology project will be allowed access to the site in order that the locations of all artefacts will be recorded as accurately as possible. The agreement will mean that anyone found detecting on the site without permission will be prosecuted for theft.

Campaigns of Germanicus, 14-16 AD

Ilkka Syvanne (Kangasala, Finland)

My suggested research paper for the Osnabrück Conference is to present a brief analysis of all the major military themes present in the Germanicus War in 14-16 AD as allowed by the 20 minutes timeframe. The presentation will also suggest a new theory of what really happened in the background during the war.

The research paper assesses the Roman strategy from the viewpoint of Augustan German policy, Germanicus' plans, and Tiberius' internal, dynastic and foreign policies. The presentation also analyses the successes and failures of Roman tactics against the Germans as well as how the Romans attempted to adapt their military methods (policies, strategies, types of units and equipment, battle formations and tactics, stratagems etc.) to the local conditions and how successful the Romans were in this.

The research paper also assesses the German political and military response to the Roman threat while taking into account variances of goals and opinions among and within the tribes, tribal groupings and families. The analysis also shows how the different Germanic tribes and groupings adapted their own military methods to the challenge posed by the Roman military.

The research paper presents the material in chronological order and then suggests some tentative conclusions and further lines of inquiry.

From bones to battle – The Bronze Age site in Tollense Valley, Mecklenburg-Vorpommern, and its interpretation

Thomas Terberger, Gundula Lidke (Universität Greifswald), U. Brinker, D. Jantzen

Since the 1980s amateur archaeologists collected a remarkable number of human bones along river Tollense in Northeast-Germany. In 1996 an arm bone with a flint arrow head embedded in the joint was found and during subsequent test excavations a find layer of scattered human remains and animal bones was documented. In 2008 an interdisciplinary research program started. The lecture will present first

results of geoscientific and archaeological field work, underwater surveys as well as first results of metal detector surveys, anthropological, radiocarbon, and stable isotope studies. Until now a minimum number of 90 human individuals was identified from a stretch of the river c. 2 km long. A find layer was observed at several locations and this is in accordance with AMS-dates which assign the find layer to a very short period of the Bronze Age (period III). Some lesions on the human remains, two wooden weapons, some arrow points, and the context of the finds suggest that the situation probably represents the remains of Bronze Age warfare. However, we do not want to rule out that sacrifices were also involved in the accumulation of the finds.

Recent research at the site “Oberesch” in Kalkriese

Susanne Wilbers-Rost (Department of Archaeology, Museum und Park Kalkriese)

One of the largest battlefield research projects in Germany was started off by a handful of coins found by an amateur archaeologist in Kalkriese in 1987. Step by step different clues indicated that a major battle took place here between Germans and Romans in the early first century A.D., probably the Battle of Varus A.D. 9. It was the first ancient battlefield to be investigated in detail by archaeologists, osteologists, botanists and soil scientists.

This paper recapitulates the results of almost 20 years of excavations on the site “Oberesch” that has turned out to be one of the main sites of activity among the at least 30 km²-battlefield. There, about 5,000 Roman military objects were discovered, but also man-made structures, for example a rampart built by the Germans as an ambush and pits that contain the bones of men, mules and horses who died in the battle.

The interpretation of the finds and their distribution pattern at the site Oberesch reveal new and stunning insights in a number of events of the battle and – even more – in the activities which followed the battle, such as looting and processing of metal. The paper aims to present the results of recent research projects and an up-to-date evaluation of finds and features.