Presentation Abstracts

Timothy Abel

Gray and Pape, Inc., Cincinnati, OH

I Wish You Could See the Style in Which We Live: Archaeology of a War of 1812 Soldier's Cabin at Cantonment Saranac, Plattsburgh, New York

In the summers of 2012 and 2013, archaeologists and students from Clinton Community College conducted excavations at the Zagreb site, part of Col. Zebulon Pike's 1812-1813 winter cantonment in Plattsburgh, New York. Excavations revealed a modest structure roughly 12'x16' with several architectural features apparent. Artifacts found in the cabin corroborate the documentary record of the camp's destruction in the summer of 1813, as well as giving details about the lives of soldiers who occupied it. This evidence, combined with historical accounts, paints a picture of misery for the army camped there 200 years ago. Location: Plattsburgh, NY.

Christopher Adams see Haecker and Adams

Lawrence Babits see Wittig and Babits

Joseph Balicki

John Milner Associates, Inc., Annandale, VA

"All Quiet Along The Potomac To-Night": Archeological Sites Associated With The Control Of The Potomac River During The First Year Of The American Civil War

The Potomac River was a main transportation route to Washington, DC, capital of the United States. It also demarcated the boundary between the North and the Confederacy. Beginning in May 1861 and continuing until March 1862 the combatants fought over control of the river. This paper synthesizes regional historical and recent archeological information in order to present an overview of the strategic rational and tactical positioning of the combatants during this period. The 29 May and 1 June 1861 engagement between Confederate infantry and Federal naval forces at the confluence of Aquia Creek was a series of minor artillery exchanges between mostly static Confederate positions and the mobile ships of the Federal Potomac Flotilla. The forces engaged were small, artillery rounds exchanged were few, casualties slight, and there was no decisive victor. The Confederate fortifications were primarily defensive in nature. From October 1861 until March 1862, Confederates manned offensive batteries along the Potomac River in an attempt to blockade the river. Federal troops countered by erecting batteries on the Maryland shore, and by using balloon ascensions to reconnoiter Confederates positions. Throughout the winter the combatants engaged in a prolonged artillery duel. The main Confederate positions were in the vicinity of Evansport, Virginia. At this location a preserved archeological landscape contains evidence for offensive fortifications and camps of troops supporting the batteries. A geophysical survey at Shipping Point Battery 1, utilizing two techniques, gradiometry and ground-penetrating-radar, resulted in the identification of remnants of the earthwork. Inland from the battery, the Confederates used the landscape to conceal a large cantonment in which upwards of 3,500 troops built winter quarters. Archeological investigations recorded a site complex with camps, magazines, picket posts, paths, earthworks, and a target range. Location: Northern Virginia.

Joanne Ball

University of Liverpool, Liverpool, UK

The Battlefield Disposal of the Battle-dead in Classical Antiquity

The treatment of the battle- and war-dead continues to be an issue of contemporary interest. The modern media reports solemn, respectful repatriations in flag-draped coffins, and displays well-ordered military cemeteries both at home and abroad. These are seen as the contemporary expression of a respect for the disposal of the war dead which stretches back through human history; which prior to the C20th was manifested through the mass burial or cremation of battle-dead on or near the battlefield. Though it has been accepted that for much of human history it was not possible to repatriate the vast majority of the battle-dead, it has been assumed that the disposal methods used would be respectful and acceptable within contemporary societal norms. That the same situation applied in antiquity, particularly the Greek and Roman worlds, has been extrapolated from a small number of non-specific literary references and self-perpetuating 'archaeological' explorations. Mass graves remain viewed by many

non-battlefield Roman historians and archaeologists as the only decisive archaeological proof of Roman battlefield locations. Yet recent archaeological work at a number of conflict sites from antiquity, including Kalkriese in Germany and Alken Enge in Denmark, suggest that in some cases there may have been no formal process of disposal of the battle-dead. Instead, the remains were left exposed on the surface for months or even years, before eventually being covered over. This paper will explore the archaeological and historical evidence to challenge current assumptions concerning the disposal of the battle-dead in antiquity. Location: Iron Age & Roman Europe.

Iain Banks

University of Glasgow, Glasgow, Scotland

Prisoner of War Camps: Best Forgotten or Memories to be Cherished?

The PoW experience was one shared by millions in WWII, and the remains of the camps lie scattered across the globe. Some are the focus of commemoration and memorial, where veterans return with their families to visit, and tourists come to see where men were locked behind barbed wire for years at a time. Others have disappeared under development or are forgotten in fields or forests. Should PoW camps be commemorated, perhaps being used as a means of healing the scars of WWII, or are they best forgotten as something that keeps those scars fresh? This paper will consider these questions, using case studies from Poland, Germany and Britain. Location: Poland, Germany, Britain.

Brandon Batt see Garrett Silliman and Brandon Batt

Daniel Battle

Cypress Cultural Consultants, Beaufort, SC

Annihilation of Georgia's Continental Army; Evidence of the Battle of Brier Creek Uncovered

The March 3, 1779 Battle of Brier Creek Georgia was a pivotal event in the Southern British Colonies. A successful strategy of multiple fronts with open conflict was unleashed on Georgia beginning in the last month of 1778. Georgia's resistance quickly collapsed under the onslaught and finally concluded with an opportunity for the British to execute one final crippling blow to the efforts by the Patriot Americans to recapture Georgia. Brier Creek became that defining victory for the invaders and is believed by some historians to have significantly extended the war by many months. A day after the battle, Georgia was declared to be the only one of the original thirteen colonies officially returned to British governmental control. Textbook strategies and blunders of a complex military political environment helped define this critical Patriot defeat along the Savannah River. The remoteness of the event, however, helped to obscure the location of the site for well over 200 years. Modern LiDAR mapping and improved application of metal detector search strategies by archaeologists have now brought this significant battle into focus for historians. In addition, extensive research has provided details of the events leading up to and during the battle. The Brier Creek Battlefield is now one of Georgia's top candidates for a Revolutionary War battlefield park. Location: Georgia.

Daniel Bell

South Carolina State Parks, Charleston, SC

The Face of Battle: Interpreting the Casualties of the Battle of Rivers Bridge

The battle of Rivers Bridge was fought on February 2-3, 1865, during the Carolinas Campaign of the American Civil War. The battle was a small engagement, and the battlefield, preserved by the South Carolina State Park Service as Rivers Bridge State Historic Site, covers a small area. Visitors to Rivers Bridge can readily understand the site and the battle, and because almost all the casualties at Rivers Bridge have been identified, visitors can grasp the cost of the battle on a personal level. An intensive study of the battlefield landscape at Rivers Bridge was funded by a 2003 grant from the American Battlefield Protection Program. The South Carolina State Park Service has combined the results of that study with ongoing historical research to closely investigate aspects of the battle and the battlefield terrain. These investigations increase our understanding of the battle, provide a dramatic human dimension to our interpretation of the site, and may even bring us closer to knowing such minute details as where Lieutenant Kirby fell. Location: South Carolina.

Peter Bleed, Douglas Scott, and Amanda Renner

University of Nebraska-Lincoln, NE, UNL, and National Park Service, Lincoln, NE.

Battlespace: Archaeological Applications of a Strategist's Concept

As conflict archaeologists have developed techniques for documenting where and how battles took place, battlefield research has moved from discovery and description of past warfare to behavioral assessment of those who were involved. To understand the actions of soldiers and their leaders, archaeologists need conceptual tools that can explain why they created the record we find. Battlespace is that kind of conceptual tool. As presented in military training literature, battlespace is refers to the environment and conditions that must be understood to successfully apply combat power or complete a military mission. Viewing operational areas as battlespace helps commanders understand the diverse contextual factors that can impact military actions. It offers a context for assessing the information available to commanders and provides a set of terms and categories that describe features of conflicted terrain. Battlespace does not offer operational guidance to field commanders and it certainly was not used in its modern form by historic combatants. As a conceptual means of dealing with conflict, however, battlespace may help archaeologists appreciate the diverse factors that have shaped past military operations. This paper describes the battlespace concept and assesses it as an archaeological model. To illustrate its potential utility, the model is applied to consideration of the North Platte campaign of February 1865. Archaeological reflections of this conflict between U.S. Volunteer Cavalry and a force of Cheyenne, Sioux, and Arapaho raise questions about the intentions and motivations of the two sides at the opening the Indian Wars period. Location: Nebraska.

Scott Butler

Brockington Associates, Inc., Atlanta, GA

Metal Detector Survey of the Waxhaws Revolutionary War Battlefield (May 29, 1780), Lancaster County, South Carolina

In 2005, the South Carolina Department of Transportation (SCDOT) planned safety improvements at the intersection of SC Routes 9 and 522, in Lancaster County, South Carolina. Historic markers indicated the highway intersection is near the Battle of the Waxhaws (May 29, 1780), a significant event during the Revolutionary War. Tales of the massacre here caused a renewed uprising which ultimately led to American victory. A mass grave of 84 Virginia Continental soldiers is marked by a stone cairn approximately 100 feet south of the proposed intersection improvements southern terminus. For decades, historians debated the exact location of the Waxhaws battlefield. Using metal detectors, archaeologists quickly determined that battlefield evidence was within the highway improvements study area, extending well beyond the mass grave. Consultation between reviewing agencies determined the intersection improvements would have an adverse effect on the Waxhaws Battlefield. As a mitigation component, an archaeological delineation was undertaken to define battlefield boundaries. During the intensive 2010 metal detector study, firm battlefield boundaries were defined. Archaeologists recovered numerous musket balls, gun parts, and uniform accoutrements extending from a mass grave of SC 522. Careful analysis revealed the artifact concentration represented Colonel Buford's battle line that was overwhelmed by Tarleton's attacking troopers. The 84 Virginia Continentals were interred close to where they fell on May 29, 1780. Location: South Carolina.

Wade Catts, Robert Selig and Matthew Harris

John Milner Associates, Inc., West Chester, PA,

Independent Researcher, Holland MI, and URS Corp, Burlington, NJ

"As Great a Piece of Generalship as ever was Performed:" A Reinterpretation of the Battle of Princeton, 3 January 1777

The Battle of Princeton was General George Washington's first victory in the field against the British regulars and followed on the heels of the American victory in the first and second battles of Trenton. Termed the 10 Crucial Days, these three engagements marked a turning point in the American War of Independence by establishing Washington as a superb strategist, forcing the Crown Forces to contract their lines and garrisons in New Jersey, and buoying the flagging American spirit and desire for war. A recently completed study of the battle, sponsored by the Princeton Battlefield Society and funded by the American Battlefield Protection Program, has reinterpreted the battle through the use of written, graphic, and archeological resources and correlation of the historical record with the existing terrain. We will discuss several important changes to the standard interpretation of the chronology and geographical distribution of opposing forces before, during, and after the Battle of Princeton. Thorough compilation

of first-person accounts, many not previously used in the interpretation of the battle, offered new insights into the engagement. Military terrain analysis, the use of digitized historical maps and aerial photographs, the application of a digital elevation analysis, and archaeological data further support the reinterpretations. The historical trajectory of land development where the battle occurred was forever altered by the short but bloody engagement. Situated in an increasingly suburban landscape, Princeton Battlefield would have long ago succumbed to development, but for the significance that Americans ascribe to the battle. While some land is preserved in a state-owned park, other properties where the battle took place have no such protections, despite the presence of tangible remains of the engagement. The intrinsic "sacred" or hallowed value attached to the battlefield is a curious phenomenon about fields of conflict, their interpretation, memorialization, and commemoration. Location: New Jersey.

Richard Chacon

Winthrop University, Rock Hill, SC

Cotacachi and Otavalo Indian Ritual Violence: Inti Raymi Fiesta of Highland Ecuador

The San Juan, San Pedro & San Pablo, and Santa Lucia festivals conducted by the Cotacachi and Otavalo Indians of Highland Ecuador are linked to the Inka Inti Raymi solstice celebrations along with the Pachamama cult. These festivities take place in the Andean communities of Otavalo, Peguche, Iluman, San Juan Pugio, Cotacachi, and San Pedro de Cotacachi. The Inti Raymi fiesta functions as an agricultural fertility rite associated with blood sacrifice. Participation in the sometimes lethal ritual battles concomitant with this fiesta complex also serves as a mechanism for affirming indigenous identity as well as a means of asserting political rights. Lastly, plans for future research on Andean ritual violence involving cultural anthropologists, archaeologists, and biological anthropologists will be made known. Location: Ecuador.

Charles Cobb see Chester DePratter, Brad Lieb, Charles Cobb, Steven Smith and James Legg

John Cornelison and Rolando Garza

National Park Service, Tallahasse, FL., and National Park Service, Brownsville, TX.

Palo Alto Symposium. Palo Alto Battlefield: A GIS and Archeological Analysis of the Core Battlefield

In January of 2004, Palo Alto Battlefield National Historic Site (PAAL) opened the on-site visitor center with a half mile walking trail leading to the core battlefield. As soon as the park was opened there was immediate pressure to expand visitor access and interpretation on the core battlefield. As a result, a number of small scale archeological projects were undertaken as the park grew. Although, the core area of the battlefield was accurately located during earlier archeological surveys, these investigations were not of the intensity to precisely identify battle lines, troop movements, and other battle related features. Therefore, PAAL developed a plan to systematically investigate the entire core battlefield rather than conducting a series of narrow-scoped surveys driven by development. In 2005 Palo Alto's Archeologist partnered with battlefield archeologists from the National Park Service's (NPS) Southeast Archeological Center (SEAC) and the Southwest System Support Office (SSSO), along with a Military Historian and Geographic Information Systems Specialists from the NPS Cultural Resource Geographic Information Systems (CRGIS) program to begin a systematic archeological metal detector survey of the core battlefield. This partnership enabled the park to initiate the systematic investigation of the core battlefield prior to securing final project funding. A 200 meter grid was established covering the entire park. Over the next three years the team, with the assistance of numerous volunteers, began surveying the 200m2 survey quadrats in a checkerboard fashion. In 2010 PAAL acquired three years of project funding, and by 2012 the team was able to systematically investigate 100% of the core battlefield on NPS property. The results of this archeological investigation allowed the park to precisely locate the battle lines, verifying the location of the historic road used by the U.S. Army and the pond where the soldiers watered prior to battle. The investigation also exposed the substantial impact on the archeological record from twentieth century agricultural activities and artifact collection. Despite this impact, the archeological record provided evidence suggesting the location of the battle lines, U.S. wagon train, the initial Mexican cavalry flanking maneuver, and the exit route of the Mexican Army. Location: Texas.

John Cornelison see Michael Seibert, John Cornelison, Sara Kovalaskas, and Bruce Kaiser

Steve Dasovich see Doug Scott, Steve Dasovich and Thomas Thiessen

Carlos Del Cairo Hurtado

University of Sorbonne, Paris, France

True lies or the topology of war The maritime battlefield landscape of Bocachica, Cartagena de Indias

The war between Spain and its army's enemies in the New World developed new ways of sea and land control where military architecture and military engineering were the base of domination, control and rationalization of the espace lisse and the espace strié (marine and terrestrial areas) of the Bay of Cartagena de Indias. The French attack in 1697 and the British attack in 1741, which occurred at the port of Cartagena, turns out to be a case study of interest to the archeology of war, because the elements such as military construction, the numerous modifications made for tactical purposes in the natural environment of the Bay, the intentionally sunken ships and the natural modifications of the coast line, compose a diversity of maritime warfare landscapes. Through Actor Network Theory- ANT, this research based on historical sources and underwater and coastal archaeological evidence in the zone of Bocachica, Tierra Bomba Island (the only access to the city), is aimed at identifying the hybrid associations between radically heterogeneous actors (human –non human). In this sense, forts, ships, cannons, firearms, sea, land, mosquitos, colours, wind, soldiers, rain, among others, contributed to understanding a physical, cognitive and sensory dimension of a maritime warfare battlefield. Location: Colombia.

Chester DePratter, Brad Lieb, Charles Cobb, Steven Smith and James Legg

South Carolina Institute of Archaeology and Anthropology (SCIAA) Columbia, SC, Chickasaw Nation, Jackson, MS, SCIAA, SCIAA, and SCIAA

The Search for the 1736 Battles of Ackia and Okla Tchitoka

In 1736, the French mounted two major expeditions against Chickasaw towns in what is now the State of Mississippi. Neither effort was able to breach the Chickasaw defenses and the French suffered major defeats in both cases. The places where these two battles took place have been the subject of great interest for many decades, but neither has ever been located precisely on the landscape. Using a combination of archival sources and archaeology these two battlefields have now been pinned to specific locations. Details of these two battles allow contrasting views of French and Chickasaw battle tactics in the first half of the eighteenth century. Location: Mississippi.

Carl Drexler

Arkansas Archaeological Survey, Fayetteville, AR

Palo Alto Symposium. Excavating the King of Battle: Approaches to the Study of Artillery Ammunition in Battlefield Archaeology

It is now well-established that the gross patterns of ammunition on a battlefield can tell us much about the disposition of units during an engagement. The dynamic analysis of types and forms of artillery ammunition recovered can tell us yet more about the location of different units during the battle and the practical application of period military techniques in combat. Many archaeologists have shown the potential for such analyses in the past. This holds as true for artillery ammunition as for small arms. Drawing on fieldwork at the American Civil War battlefields of Wilson's Creek, Missouri, and Pea Ridge, Arkansas, we now can show that further analysis adds much greater interpretive potential. Through studying the compositional aspects of artillery ammunition, the microscopic structure of the material of which it was crafted, and the fine-scale metrics of the finished ammunition, we can sketch a picture of the production conditions under which munitions were manufactured. These conditions vary based on time and across lines of belligerency, and index growing disparities in weapons manufacturing techniques played out on the battlefield. In addition to these analyses, the materialist studying of artillery ammunition takes us well beyond the battlefield, and offers unique avenues to the study of multiple aspects of the past and our relationship to it. This paper reviews all the various ways in which the Pea Ridge and Wilson's Creek assemblages have expanded our understanding of what we can learn from a cannonball. Location: Arkansas and Missouri.

Daniel Elliott

The LAMAR Institute, Savannah, GA

Stirring the Hornet's Nest: Recent Conflict Archaeology in Wilkes County, Georgia

This research effort establishes two key landmarks of Wilkes County's Revolutionary War legacy. The approximate location of the Kettle Creek battle was known prior to the 2007 study, and delineated through LAMAR Institute fieldwork. The location of Carr's Fort and battlefield remained a mystery. After weeks of careful detective work of the historical documents and relentless field survey of over four square miles in 2013, LAMAR Institute researchers achieved archaeological delineation of both battlefields. Wilkes County, Georgia was a hotbed of patriot sympathies in the American Revolution, so much so, that it earned the moniker, "Hornet's Nest". This area was in the newly "Ceded Lands" on the Creek and Cherokee frontier. National Park Service-funded battlefield surveys by the LAMAR Institute offers the first tangible evidence of military events there. The Loyalist occupation of Captain Robert Carr's Patriot fort on Beaverdam Creek resulted in a short-lived siege by Georgia and South Carolina militia on February 10, 1779. After learning of approaching Loyalist recruits, Colonel Andrew Pickens broke off the siege, carried off the Loyalist's horses and supplies and began a chase after Colonel Boyd's forces. Ironically, after a 150-mile journey, the Patriots caught up with Boyd's men at Kettle Creek, barely four miles from the Carr's Fort battlefield. The outnumbered Georgia and South Carolina militia surprised Boyd's Loyalists in a decisive American victory. The Kettle Creek engagement on February 14, 1779 was a rare Patriot victory in Georgia. The Carr's Fort battlefield study also resulted in the location of more than a dozen early farmsteads, a blacksmith shop and early road networks that were in the cultural landscape surrounding the battlefield. These findings are summarized in this presentation. These baseline data enable future studies of several dozen other early military sites in the Ceded Lands. Location: Georgia.

Rita Folse Elliott

The LAMAR Institute, Savannah, GA

Identifying, Locating, and Preserving the 1779 Battle of Savannah in an Urban Lost City

On October 9, 1779, the world came to Savannah, Georgia, for armed conflict. African-American, British, French, Haitian, Hessian, Irish, Native American, and Scottish troops participated in the brutal hour-long Battle of Savannah during the American Revolution. The attack on fortified Savannah by multinational forces under French and American command marked the first combined ground exercise by these allies. The abysmal allied failure wounded or killed 800 allies contrasted with 50 British casualties. The loss strained the Franco-American alliance, and left the British in firm control of Savannah and its gateway to Charleston, South Carolina. In 2005, archaeologists located Spring Hill redoubt, which was the scene of the most intensive fighting. Grants from the National Park Service, American Battlefield Protection Program in 2007 and 2009 enabled archaeologists with Coastal Heritage Society and the LAMAR Institute to discover additional battlefield features in what is now an urban environment. This paper examines the successful and unsuccessful roles played by historical documents, geographic information systems, ground penetrating radar, metal detectors, relic collectors, and 19th and 20th century urban development. It also focuses on current battlefield and preservation efforts, including the development of site-related interpretive technology and the challenges of a local preservation ordinance. Location: Georgia.

Chris Espenshade and Patrick Severts

Commonwealth Cultural Resources Group, Inc., Jackson, MI, and New South Associates, Inc., Stone Mountain, GA

Two Routes, One Destination

There are two main issues limiting the effective application of metal detecting in professional research. Many professional archaeologists lack training, experience, and knowledge of best practices in metal detecting. At the same time, most avocational detectorists have strong metal detecting skills but are unfamiliar with ethical and methodological parameters in which professional research occurs. To help address the first issue, the continuing professional education class, Advanced Metal Detecting for the Archaeologist, was developed. To date, there have been three successful offerings of this RPA-certified course, and 74 professional archaeologists have completed the training. On the second point, another course, the Archaeological Partnership Program, is being developed to train avocational detectorists to work effectively with professional archaeologists. As more professional archaeologists and avocational detectorists complete their respective courses, we hope to see increased partnership between the communities, with battlefields and similar resources benefiting significantly. Location: America.

Natasha Ferguson

Treasure Trove Unit, National Museums, Scotland

Conservation through Recognition: Material Culture Research as a Heritage Management Tool for Sites of Conflict

In Scotland (UK) treasure trove law requires all discoveries of archaeological objects, regardless of age or composition, to be reported to the Treasure Trove Unit (TTU). This capacity to record and scrutinize a broad range of artefacts allows the Unit to build a significant body of comparative material. This has become an important heritage management tool utilized to great effect in recognizing the presence of previously unknown sites of conflict within the archaeological record, in particular, training and mustering sites associated with the raising of Volunteer Units in the late 18th century. Such material, primarily recovered through hobbyist metal detecting, includes assemblages of lead projectiles, fragments of military accoutrements, and military uniform components such as buttons and buckles; all of which reflect a diverse level of social interaction not represented in historical accounts. Using a select example of case studies to profile the archaeological footprint of recently highlighted 'Volunteer' sites in Scotland, this paper will outline the TTU's current approach to researching associated material culture and the process of ensuring such sites are recorded and recognized in future heritage strategies for conservation. Much of this is achieved through outreach programmes and the development of educational tools, together with small-scale surveys undertaken by the author. At a wider level, this paper will also provide an overview of the TTU's active role in the heritage management of other conflict sites in Scotland, through our ability to monitor metal detecting activity on battlefields and ensure reported battle-related objects are allocated to local museums. Location: Scotland.

Glenn Foard

Huddersfield University, Huddersfield UK

Palo Alto Symposium. The Rise of Firepower from the 14th through the 16th Centuries

Gunpowder weapons were first used in Europe in the early 14th century and they were already being deployed in substantial number on battlefields by the 1380s. However, it would appear that there were substantial developments in the technology of gunpowder weapons around 1470 that transformed their battlefield use - both handguns and artillery. Over the following half century further improvements in both technology and tactical deployment resulted in the gun taking a battle winning role on the battlefield, with the battle of Pavia (1525) often being taken as the tipping point. Unfortunately the documentary record is very limited for the apparently crucial developments in the second half of the 15th century. Recent discoveries from the battlefield of Bosworth in England, fought in1485, suggest that archaeological evidence has the potential to complement the historical record in this key transitional period. The evidence of the round shot from Bosworth suggests it is possible in some cases to identify the type as well as bore of gun barrel from which lead and lead composite rounds were fired. This has been confirmed by detailed studies of surviving guns of the period, scientific analysis of the projectiles and a program of experimental firing. In addition, the distribution of rounds across the battlefield may offer clues as to where the guns were deployed and how they were used tactically. The Bosworth evidence also seems to confirm the traditional documentary analysis that small arms were not then in regular use in English armies. Location: England.

Philip Freeman

University of Liverpool, Liverpool, UK

Wellington and JT Jones at the Siege of Burgos: An Archaeological Appraisal

Even today, in the majority of writing of military history in Europe the archaeological evidence is generally relegated to the subsidiary role of enhancing or corroborating the material (or 'facts') preserved in the literary sources, whether they be official histories, action reports of personal reminiscences. Such an approach runs the risk of creating self-renewing descriptions or persisting in regarding archaeological evidence as the hand maiden of history. As a case example demonstrating how archaeological approaches can open up new and pressing questions, in histories of the Peninsular War (1808-1814), the writings of John T Jones and in particular his Journal of the Sieges are vital. Jones' account, crucially blessed by Wellington and lauded by subsequent major historians of the war, Napier, Fortescue and Oman, now underpin all appraisals (in at least English) of the Duke's management

of the siege. Jones complimented his descriptions of all the major sieges with detailed maps and plans of the various operations. Little consideration has been given to how he was able produce such material, especially in the case of the Siege of Burgos (Sept. - Oct. 1812). Not only was Jones invalided out after being wounded during that siege - which in turn has implications for his description of it – but the operation ultimately failed. Therefore, how could he have mapped the site, let along complete his description of the siege down to its abandonment? Recent archaeological work at the siege works at Burgos has shown that Jones' map of them is in fact significantly incorrect in key places. In turn, working with a flawed understanding of the topography of the French defences, Jones' coordinated, if not devised, a number of operations which either succeeded by de fault or failed miserably. In the aftermath, blame and accusations followed but without appreciation of the fact that Jones, and therefore Wellington, was working with incorrect information. Complimenting the archaeological results, a review of contemporary but less widely known literature shows that that information was in fact readily available. The same literature also offers a counter-version to the blame – much of it repeated by Wellington – cast on certain units and officers. In turn a search of Spanish archives has discovered how Jones' obtained his base map of the site but which at the same time led him to misunderstand the nature of its defenses. Location: Spain

Garza, Rolando see John Cornelison and Rolando Garza

Clarence Geier, Alyson L. Wood and Joseph W. Whitehorne

James Madison University, Harrisonburg, VA., JMU, and JMU

Wesley Merritt at Cedar Creek; an Archaeological Delineation of the 1st Division Cavalry Corps Camp, Army of the Shenandoah, October 1864

On 11 October, only days from participating in the "Burning" of the Shenandoah Valley and the rout of Confederate cavalry at Toms Brook, elements of the Federal 1st Cavalry Division, Army of the Shenandoah, commanded by Brig. Gen. Wesley Merritt, took position on Middle Marsh Run, a tributary of Cedar Creek in southern Frederick County. Situated on the right flank of Major General Philip Sheridan's 37,000-man Army of the Shenandoah, the troopers settled in for re-supply before resuming operations. Beyond the Division headquarters, the camp included approximately 1700 men and horses belonging to the Reserve Brigade commanded by Col. Charles Russell Lowell and the 2nd Brigade commanded by Col. Thomas Devin. On the morning of October 19, 1864, Sheridan's camp above Cedar Creek underwent a brilliant surprise attack by the Confederate Army of the Valley commanded by Maj. General Jubal Early. Merritt's cavalry engaged the advancing Confederate forces and with elements of the 3d Cavalry Division commanded by Brig. Gen. George Armstrong Custer and the 6th Infantry Corps, slowed the advance and then participated in a counter attack that routed and destroyed Early's army. Since 2010, field teams from James Madison University have been involved with identifying and studying the plan of Merritt's encampment at Middle Marsh Run. This massive, essentially single component, encampment lay on terrace slopes above the Run almost entirely within the boundaries of the working farm of Abraham Stickley. The farm, historically identified as Nieswander's Fort, was occupied at the time of the battle by the family of his elder son and heir, Benjamin Franklin Stickley. This paper documents the results of the extensive archaeological program and the methods used to identify three encampment areas that define the larger camp, considers the in-place material culture that serves to define the deployment, and discusses the evidence of site plan within the established natural and cultural landscapes that house it. Location: Virginia.

Lance Greene

Georgia Southern University, Statesboro, GA

"Little shanties made of pine boughs": Investigating Civil War Union Prisoners' Huts

The debate regarding the Confederate treatment of Union prisoners during the Civil War has continued unabated for 150 years. The discussion, often heated and accusatory, focuses on the last two years of the war, and on POW camps like Andersonville. Camp Lawton, located 150 miles east of Andersonville, was built in the summer of 1864 by order of General John Winder, in an attempt to reduce the devastating effects of overcrowding. Recent excavations at Camp Lawton by archaeologists from Georgia Southern University have uncovered hut or "shebang" features, representing semi-subterranean housing constructed by prisoners in the fall of 1864. Through the use of traditional excavation methods as well as geophysical survey and LiDAR scanning, the architectural traits, organization of huts, and material culture are being identified. These data are a significant contribution to the ongoing discussion of the prisoners' quality of life during incarceration and the treatment received from their Confederate guards. Location: Georgia.

Charles Haecker and Christopher Adams

National Park Service, Santa Fe, NM, and U.S. Forest Service, Gila National Forest, NM

Archaeological Evidence of Asymmetric Warfare: Victorio's War 1879-1880

U.S. campaigns against recalcitrant Apache bands during the 1870s typically ended in failure due to the Apaches' centuries-old mastery of asymmetric warfare, which offset their deficiencies in numbers and quantity of firearms and ammunition. In contrast, numerically superior and well-equipped U.S. military units were hobbled by inefficient logistics combined with a chronic inability to pre-select conflict sites. As a consequence, Apache warriors almost always commanded high ground and usually had sufficient time to prepare positions with mutually supporting fields of fire. Archaeological research of Apache-Euro American conflict sites is defining the opponents' disparate small arms tactics, and will be the basis for locating the Victorio's War battle site of Massacre Canyon,New Mexico. This battle, fought 18 September, 1879, is considered an exemplar of Warm Springs Apache Chief Victorio's adept use of insurgency tactics, and thereby holds relevance for today's counterinsurgency tacticians. Location: New Mexico.

Matthew Harris see Wade Catts, Robert Selig, and Matthew Harris

Larry James

South Carolina State Parks, Summerville, SC

Hidden Vestiges: An Approach to Recognizing An 18th Century Landscape Within An Urban Environment

Archaeological landscapes set in urban environments present challenges for the study and understanding of battle sites and their physical remains. This paper addresses this problem by presenting a methodology that contributes to the study of Battlefield Archaeology and the events of the 18th-century American Revolutionary War battle called the Siege of Pensacola. A non-invasive approach to understanding this battlefield landscape has offered a way to reconcile the modern urban landscape with a past landscape of conflict. By combining historical maps and documents with previous archaeological investigations, a descriptive model was developed that placed key landmarks and events on the modern city grid. New data from a resident survey was used to evaluate how well this model describes the battlefield. The comparison of the model to the new data required reconciliation that refines the placement of the events of the 1781 battle on the modern landscape and validated the utility of the methods used for the study of battlefields in urban settings. Location: Florida.

Robert Jolley

Virginia Department of Historic Resources, Stephens City, VA

Archaeological and Historical Investigations of an American Civil War Battlefield: The Third Battle of Winchester, Virginia Fought on September 19, 1864

Archaeological survey was conducted at four postulated battle lines of the Confederate left flank at the Third Battle of Winchester. Battle lines were found in areas previously unrecognized by historians based on their interpreting historic maps and records. General research questions relating to the archaeological imprint of the battlefield and how archaeology can contribute to a better understanding of battlefields are discussed. Specific research questions concerning arms and equipment used by the opposing forces and how to conduct an effective metal detector survey are addressed. Location: Virginia.

Bruce Kaiser see Michael Seibert, John Cornelison, Sara Kovalaskas and Bruce Kaiser

Matthew Kirk and Corey McQuinn

Hartgen Archeological Services, Inc., Rensselaer, NY and HAS

Archeology and the Second Battle of Sackets Harbor: Why the Militia Deserves Its Due

During the War of 1812, Sackets Harbor, New York served as the principal American shipbuilding facility on Lake Ontario. A rag-tag team of volunteers, militia, and American regulars repulsed attacking British-Canadian forces in May 1813. The battle left numerous casualties, American ships and stores burned, and no clear victor. Later testimonies placed some of the blame for British advances on the American volunteers who "rose from their cover

and fled." A soldier at the battle later remarked, however, that "the truth is never more than half told—that the most important held back." Hartgen Archeological Associates, Inc. directed an archeological study of the battlefield sponsored by the National Park Service. Metal detecting and later high-tech analyses of the artifacts provide alternative archeological evidence at odds with the historical record. Location: New York.

Sara Kovalaskas see Michael Seibert, John Cornelison, Sara Kovalaskas and Bruce Kaiser

Nathan Ledbetter

U.S. Army

Palo Alto Symposium. Employing Modern Military Doctrine to Study Pre-Modern War: The 1575 Japanese Battle of Nagashino

Pre-modern warfare presents significant challenges to those who would attempt detailed analysis. Unlike post-Napoleonic era militaries, pre-modern armies rarely have any standardized organizational structure or guiding tactical doctrine that enables us to make assumptions of how components were arrayed and employed on the battlefield. Unfortunately, this means much historical analysis simply glosses over or fails to examine details which would significantly affect our understanding of what occurred on the pre-modern tactical battlefield. This does not mean, however, that we must accept generalizations and assumptions. My research into inconsistencies in historical analysis of the Battle of Nagashino (Japan, 1575) has demonstrated the value of using certain concepts of contemporary military analysis as a construct for reexamining pre-modern conflict. Comprehensively viewing a battle or campaign across the levels of warfare, delving into the details of how each combatant army was organized and equipped, and in-depth analysis of terrain and weather effects provide insights beyond those that can be gleaned from reading old texts. With this approach, the need to drastically reevaluate how samurai armies utilized firepower at Nagashino becomes obvious. The goal of this paper is to explain these approaches as an analytical model to augment textual analysis by traditional historians, material analysis by archaeologists, and anthropological methodologies focused on participants, bringing these disparate approaches together in complementary ways. Location: Japan.

James Legg see Chester DePratter, Brad Lieb, Charles Cobb, Steven Smith and James Legg

Brad Lieb see Chester DePratter, Brad Lieb, Charles Cobb, Steven Smith and James Legg

C. Brian Mabelitini

Gray and Pape, Inc., Cincinnati, OH

Confederate River Defenses during the American Civil War: A Case Study from the Hammock Landing Battery

With the outbreak of the American Civil War, the defense of the Apalachicola River in northwest Florida and its connection to the industrial center of Columbus, Georgia was of strategic importance to the Confederacy. Defense of the river was necessary to protect Confederate interests against a Federal blockading squadron positioned at Apalachicola Bay in early 1862. Constructed during the summer of 1863, the Hammock Landing battery on Neal's Bluff (site 8LI334) in Liberty County, Florida was one component in this defense line. The results of archaeological investigations at Hammock Landing provide valuable insights into the military strategy, armaments, and construction methods employed by the Confederacy along the Apalachicola River. Location: Florida.

Adrian Mandzy

Morehead State University, Morehead, KY

Memory, Legends and Material Culture: a multi-disciplinary study of a Ukrainian Partisan Army ambush of a Soviet battalion near the village of Kosmach, Kolomyia Region, Ukraine, January 1945

One of the most celebrated ambushes carried out by the Ukrainian Partisan Army (UPA) against Soviet internal security forces took place in January 1945 on an approach to the village of Kosmach. Although some supporting materials about the ambush had previously appeared in UPA and Soviet documents, the majority of the evidence about this operation relies upon oral testimony provided by the former acting commander of the ambush, Myro-

slav Symchych. An archaeological metal detecting survey of the battlefield area, which is located in an extremely mountainous terrain, found new materials that support the claims made by the former UPA commander. Analysis of these finds provides additional information about the armament of a particular UPA company in January 1945. Location: Ukraine.

Kim McBride see W. Stephen McBride and Kim McBride

W. Stephen McBride and Kim McBride

McBride Preservation Services, LLC, Lexington, KY, and Kentucky Archaeological Survey, University of Kentucky, KY

"I tremble for the fate of the Greenbrier People": Border Conflict in Revolutionary War West Virginia

Conflict between white settlers and Native Americans over land in present day West Virginia reached a climax during the American Revolutionary War. By 1777 most Ohio Valley Indians had allied with the British and began raiding into the Appalachian frontier, including the Greenbrier River Valley of eastern West Virginia. These raids included both small scale (10 to 20 warriors) and larger scale (50 or more warriors) raids by Shawnee, Wyandot, and Western Iroquois (known as Mingo by the settlers) and focused on both settler farmsteads and forts. To counter these raids, settlers created a local defensive system consisting of organized county militia, spies, and neighborhood fortifications. The Virginia colonial government assisted these efforts by building a chain of forts on the Ohio River, by providing some supplies, and by organizing (rarely) offensive campaigns into Indian country. Historical and archaeological investigations of battle sites within the Greenbrier Valley, including Forts Arbuckle, Donnally, and McCoy, and the Graham farmstead, will be utilized to gain a better understanding into the nature of frontier warfare and defense during the Revolutionary era, particularly strategy and tactics and fortification design and location. Excavations at these sites have recovered evidence of stockades, house and chimney foundations, outbuildings refuse pits, and battle related artifacts, particularly lead balls. Location: West Virginia.

Ryan McNutt

University of Glasgow, Centre for Battlefield Archaeology, Glasgow, Scotland

Infantry Incidents and Projectile Power: GIS and Digital Reconstruction and Modelling of Marian Battlescapes, AD 1545-47

Sixteenth century battlefields in Scotland represent a thorny problem for conflict archaeologists. Despite the increase in records as by-products of an increasing bureaucracy, landscape modifications, lack of terrain descriptions, etc complicate locating battlesites within a modern landscape. For Scotland this is an imminent concern, as locating battlefields on modern maps is a key requirement for inclusion on the Scottish Inventory of Battlefields, and thus for planning consideration. Presented here is an applied theoretical framework, which allows a conscious agency of choice in the selection of terrain through a mental 'grammar' of conflict and tactical knowledge: a military lifeway distinct from, yet intertwining with, the overarching culture. Rather than assuming topography and environment dictate where conflict occurs, this theory asserts battles occurred through conscious agency, informed by a culturally forged, tacit knowledge of the advantageous use of terrain. Mediated by a praxis of temporally distinct tactics, armies were directed and deployed advantageously in conflict contexts. Thus, this theoretical framework, coupled with a methodological approach, allows for the digital reconstruction, analysis and modelling of possible battlescapes within GIS. By applying this to battlefields from the Marian War of the Rough Wooing—the AD 1545 Battle of Ancrum Moor, and the AD 1547 Battle of Pinkie—which have generally known locations, it will show this GIS approach selects the most probable combinations of terrain for the conduct of warfare within a battlescape. The model's veracity will be tested by cross-checking the location of terrain features highlighted by the GIS reconstruction and analyses against spatial distribution of presumed battle related artefacts from a multitude of sources. The accuracy of these correlations will show this model can be utilized for battlescapes with unknown or uncertain locations, as modelling allows for the prioritization of high probability areas within potential battlescapes, which can be targeted with archaeological fieldwork. Location: Scotland.

Corey McQuinn see Matthew Kirk and Corey McQuinn

Angélica María Medrano Enríquez

Universidad Autonoma de Zacatecas, Mexico

Palo Alto Symposium. Rough People in a Rough Situation: Mixtón War (1541-1542) and the Caxcanes

On arrival of the European conquerors in northwest Mexico in 1530, they found a mosaic of multiethnic indigenous groups inhabiting the region. The "caxcanes" caused great damage in the early years of the viceroyalty, culminating in the Mixtón War (1541-1542), an event that put on the line the Spanish occupation of New Galicia as well as the whole of New Spain. The new colony defended their territory with "blood and fire". For this reason the chronicles identified as warlike and mean the "chichimecas", "tochos", "rústicos mexicanos" o "villanos mexicanos". Who were these people? Do the historical records simply refer to resistance by native peoples who were being subordinated and enslaved? Many of these vernacular terms survive today and are still applied to certain groups. This presentation will provide information for the documentary sources relating to armed conflicts with caxcan and the Spanish, specifically those carried out by the Viceroy Antonio de Mendoza in late 1541. To do this I conducted a landscape analysis of the various battle sites (Tototlán, Acatic, Nochistlán, Juchipila and Mixtón), using satellite imagery and aerial photography with the goal of locating the exact place where these battles were raised. Also, I will offer the results of research carried out at archaeological site El Tuiche, the location of the Peñol of Nochistlán, space witnessed by two of the most important battles of the War of Mixtón. Location: Mexico.

David Orr

Temple University, Delaware City, DE

New Discoveries at Valley Forge: Re-interpreting the 1777-78 Encampment of the Continental Army

During the late fall of 2013 an archaeological feature was unearthed which contained thirty bayonets in an area which produced material evidence for weapon repair and manufacture. This is a significant interpretation for this "brigade" area now occupied by the George Washington Chapel Association, part of the American Episcopalian Church. Temple University, under several graduate students, most recently, Jesse West-Rosenthal, has been working there since 2007. Nearby was also located a six pound cannon ball and other military ordinance. This paper will place these finds within the work conducted by the author over four decades on several sites throughout the encampment site. These include the outer brigade areas of the Virginia and Pennsylvania Regiments, the inner brigade site of Conway's Brigade, sites on the north side of the Schuylkill River, sites on the eastern periphery of the camp, and Washington's Headquarters. Issues clearly addressed by the above sites and finds include leadership and administration, quartermaster activity, drilling and preparedness, arms maintenance, sanitation and identity. A host of former colleagues and students assisted in the development of this paper whose work will be used in the creation of this interpretative synthesis. Although preliminary, this materially based interpretation hopefully will lead to a new and more accurate story of an almost mythical event in American History. Location: Pennsylvania.

Shawn Patch

New South Associates, Inc., Greensboro, NC

From the Bald Hills to Camp Creek: Archaeological Perspectives on The Battle of Resaca

The Battle of Resaca was fought over several days in May 1864 and was a significant engagement in Sherman's Atlanta campaign. Located in Gordon County, Georgia, much of the core battlefield is owned by the Georgia Department of Natural Resources (GADNR). Recent efforts have been geared toward the development of a visitor's center and public interpretation for the sesquicentennial in 2014. Since 2008, three separate archaeological studies have been conducted in support of those efforts. Two studies included intensive metal detector surveys of the battlefield adjacent to Camp Creek that saw artillery and infantry action. One additional study included intensive metal detector, magnetic gradiometer, and ground penetrating radar (GPR) survey of Bald Hills, overlooking the main battlefield. Multiple rifle pits and trenches were also investigated archaeologically. This paper synthesizes the results of those studies and offers new insights into the battle with an assessment of the information potential of heavily collected sites. Location: Georgia.

Tony Pollard

University of Glasgow, Centre for Battlefield Archaeology, Glasgow, Scotland

Palo Alto Symposium. Islands of No Return: The Archaeology of the Falklands War

On the face of it, thirty years may appear too short a time for the term 'archaeology' to be applied to an historical event. However, this contribution will contend that the study of the Falklands War is a prime candidate for the application of archaeological techniques. From the twentieth century, remains such as the trenches of the First World War and the invasion beaches of the Second have come to be regarded as elements of our shared cultural heritage and have been subject to archaeological investigation, a process that has served to promote understanding and memorialization. Despite being of brief duration, the Falklands War left its mark on the landscape of the Falkland Islands and today the fieldworks and military detritus left behind after the fighting form a rich assemblage of battlefield remains. Thanks to the islands' isolation and the relatively short span of time between today and 1982 these remains are generally better preserved than their equivalents from earlier twentieth century wars. However, this is not to say that site clearance, souvenir hunting, the elements and decay haven't taken their toll. There has never been an attempt to subject the physical remains, which now, among other things, represent an important aspect of the islands' economy, to detailed record. In late 2012, a reconnaissance of key sites gave some idea of the wide range of remains still visible and an overview of these will be presented here. It will be proposed that a thorough archaeological survey would not only provide a useful heritage management tool but also contribute to the development of methodologies geared to the archaeology of modern conflicts. Location: Falkland Islands.

Brad Posey

Independent Researcher, Nurnberg, Germany

The Lost Battalion Archaeological Project, 2009-2013

The story of the "Lost Battalion" in the Argonne Forest is the most enduring epic of the American Expeditionary Force during the Great War. Since 2009, the Lost Battalion Project has conducted archaeological research documenting the operational context of the event. The siege pocket itself, which has been heavily impacted by relic hunting, has remained unavailable. Access was granted, however, by the owners of all the various properties in a huge tract of the Argonne Forest south of the Lost Battalion position. This project area was the scene of the Lost Battalion's penetration of the German front, as well as several poorly understood small-unit actions immediately preceding, and during, the Lost Battalion siege and relief. It has exhibited very little evidence of prior collecting. The Lost Battalion Project is engaged in defining and documenting these various engagements with large-scale metal detector survey, with the goal of finally figuring out who did what, where, during this remarkably confused interval. There was early skepticism that a coherent picture would emerge, and that the work would reveal a generalized, essentially anonymous scatter of battle artifacts throughout the project area. In fact, the results to date have shown a remarkable degree of clarity. This paper summarizes progress to date. Location: France.

Benjamin Rennison

Clemson University, Hunley Center, Charleston, SC

H.L Hunley and USS Housatonic Site Analysis. Analyzing the Siteplan

On February 17th 1864, the H.L Hunley was the first submarine to successfully sink a ship in battle. Since its recovery in 2000, the history and archaeological study of the vessel have been a major source of research for the staff of the Warren Lasch Conservation Center in Charleston, South Carolina. To date, the staff has made a number of discoveries regarding the vessel. This paper will present the results of the exterior siteplan excavation and the submarine's recovery. The paper will discuss the site formation processes that took place from the moment of battle to the moment of discovery 136 years later and consider USS Housatonic's sinking and the scene of the battle. By focusing on how both shipwrecks have altered during their time on the seabed the paper will study the nature of historic site protection and archaeological siteplan development. Location: South Carolina.

Michael Scafuri

Clemson University, Hunley Center, Charleston, SC

The Attack of the H.L. Hunley: Ongoing research into the first successful submarine engagement

On February 17, 1864, the American Civil War submarine H.L. Hunley attacked and sunk the USS Housatonic just outside of Charleston harbor, becoming the first submarine to ever sink an enemy vessel in combat. The ongoing archaeological investigation of the H.L. Hunley has revealed new information about the weapon system used by the submarine and provided new clues about the circumstances surrounding the attack. This paper will present the current status of the investigation of the H.L. Hunley's engagement with the USS Housatonic and outline the some of the more relevant ongoing avenues of research being undertaken by project staff and collaborative research partners. Specifically, we will address the recent 3D recreation of the attack scenario and the preliminary results of a collaborative study to understand the effects of the torpedo detonation of both the submarine's hull and the Hunley's crew. The results of this research will be presented and discussed in light of their implications to our understanding the events surrounding this historic engagement. Location: South Carolina.

Matthew Schmader

City of Albuquerque, Albuquerque, NM

The Slingstones and Arrows of Unfortunate Outrage: Vázquez de Coronado and the "Tiguex War" of 1540-1542

From 1540 to 1542, captain general Francisco Vázquez de Coronado led one of the largest land-based explorations ever assembled in the New World by the Spanish crown. Coronado departed from the Spanish colony of Nueva España (modern-day México) and marched a huge contingent into the southwestern United States and further onto the Great Plains. His force of 375 European men-at-arms was supported by an army of 1,300 or more Méxican native mercenary soldiers, or indios amigos, hailing from numerous ethnic areas. The expedition headed north toward the province called Cíbola (today's Zuñi pueblo). There, the expedition's goals were hoped to be realized: an undiscovered civilization with exploitable resources and possible passage to the Orient. These expectations did not materialize and Vázquez de Coronado was compelled to move to the Rio Grande valley. By the brutally cold winter of 1540, he established a base of operations in what was called the "Tiguex province," to the dismay of pueblo peoples. A program of remote sensing and intensive metal detection surveys has been carried out at a large pueblo village outside Albuquerque, New Mexico. Studies have identified material remains of one of the earliest conflict sites in the United States. Over 1,000 pieces of sixteenth century metal have been found in direct relationship with remotely sensed adobe architecture. Diagnostics of the Coronado expedition, including copper crossbow points, lead musket balls, and pieces of chainmail have been found at the site along with many broken metal pieces. Distributions of metal artifact categories are presented, along with analysis of several artifact concentrations. Importantly, native weaponry such as slingstones and projectile points has also been found and their relationship to metal artifacts in a battlefield context is discussed. This native weaponry represents some of the earliest Contact-period evidence of inter-indigenous fighting in the United States. Location: New Mexico.

Andre Schuerger

University of Glasgow, Scotland

Thirty Years War Battle of Luetzen 1632 AD: New results from an archaeological investigation

The most renowned military leaders of the Thirty Years War, Generalissimus Albrecht Eusebius Wenzel Graf von Waldstein Herzog von Friedland, called Wallenstein, and the King of Sweden Gustav II Adolf 'Vasa', met only twice in battle, at Nurnberg (Alte Veste) 3 September 1632, a Swedish disaster, and at Lützen 16 November 1632, which became the most famous battle of the Thirty Years War. With the death of the Swedish King on that day the dream of a Swedish-Protestant victory died as well. The metal detector survey of the battlefield of Lützen, carried out from 2006 to 2011, has covered an area of 1.1 km^2 with full coverage detector sweeps, recovered 11.000 small finds. In addition, three trial trenches were made to shed some light on Wallenstein's fortifications. Finally, all archaeological data, some newly discovered historical sources, aerial photography, and a geophysical survey have led to the discovery of a mass grave. Since 2011, the archaeological data, as well as some data from other 17th century battlefields and historical sources about the battle of Lutzen are reviewed in a PhD thesis at the University of Glasgow (UK). This paper presents some results of this thesis, concerning the interpretation of lead bullets and their distribution patterns on the battlefield, and how the results are connected with historical sources. Location: Germany.

Scoggins, Michael and Steven D. Smith

Culture & Heritage Museums, York, SC and SCIAA

The Search for Williamson's Plantation

On 12 July 1780, a small but important battle was fought between elements of General Thomas Sumter's South Carolina militia brigade and British Provincial troops at James Williamson's Plantation in York County, South Carolina. This battle was the first patriot victory over British regular troops after the fall of Charleston in May 1780, and proved to be a tremendous morale booster for the revolutionary cause in the Carolina upcountry at a time when the war in the South seemed doomed to failure. Subsequently known as "Huck's Defeat" after Captain Christian Huck, the British commander killed in the battle, this engagement was the first in a series of important victories fought and won by the Carolina backcountry militia during the summer and fall of 1780. However, by the mid-20th century the exact location of this battle had been lost. Between 2006 and 2012, the Culture & Heritage Museums of York County and the South Carolina Institute for Archaeology and Anthropology conducted extensive historical research and archaeological field surveys that successfully located the site of the Battle of Williamson's Plantation or "Huck's Defeat," now part of the Historic Brattonsville living history site in southern York County. This paper presents an overview of the original historical and archaeological research that resulted in the discovery of this long-lost and highly significant turning point of the American Revolution. Location: South Carolina.

Doug Scott see Peter Bleed and Doug Scott

Doug Scott, Steve Dasovich and Thomas Thiessen

University of Nebraska-Lincoln, NE, Lindenwood University, St. Charles. MO and National Park Service

The Battle of Moore's Mill and Porters 1862 Campaign in Missouri

On July 28, 1862, a Union cavalry column was ambushed by a Confederate force near present-day Calwood in Callaway County, Missouri. For several hours on this July afternoon, hundreds of men fought not far from Auxvasse Creek, a tributary of the Missouri River, near a place called Moore's Mill. Analysis of the archeological collection and artifact distribution through computerized modeling of the landscape and terrain provides us with a relatively specific location where troops and artillery batteries were positioned on the field. That evidence occurs in the form of impacted bullets and artillery shells, as well as lost equipment items and unfired bullets dropped or lost in the heat of battle. The archeological evidence provides the tangible link with the historic accounts of precisely where actions occurred. Location: Missouri.

Michael Seibert, John Cornelison, Sara Kovalaskas, and Bruce Kaiser

National Park Service, Tallahassee, FL, NPS, Tallahassee FL, NPS, Tallahassee, FL and Bruker, Industries

Palo Alto Symposium. Determining Battle Lines: a pXRF study of Lead Shot from the Battle of Palo Alto

In 2012-2013, the Southeast Archeological Center undertook a project to analyze the chemical composition of lead shot recovered from their recent surveys at Palo Alto National Historical Park, site of the first battle of the Mexican-American War. Using a portable x-ray fluorescence machine, 771 lead shot samples were analyzed in order to ascertain whether there was a difference in the chemical makeup between the lead shot that had been previously identified, using traditional techniques such as measured caliber size, as Mexican and American in origin. This paper will outline the findings of that study and their impact on the interpretation of the Battle of Palo Alto. Location: Texas.

Robert Selig see Wade Catts, Robert Selig and Matthew Harris

Patrick H. Severts see Jennifer Weber, Bryan Tucker and Patrick H. Severts

Garrett Silliman and Brandon Batt

Terminus Archaeological Research and Edwards-Pitman Environmental, Inc., Atlanta, GA

GIS Model Construction for Potential Projectile Distribution on Eighteenth and Nineteenth Century Battlefield Sites

Conflict site archaeology continues to utilize new technologies and approaches in order to better interpret site and artifact patterns. As geographic information systems (GIS) research and application becomes more sophisticated, its relevance in battlefield preservation and in the interpretation of these patterns has become more and more apparent. The purpose of the current study, which this paper explores, is to increase this relevance through the construction of a model used for the prediction of artifact patterns throughout a conflict landscape. Using specific inputs such KOCOA baseline data, projected ordnance ranges, and known or presumed ordnance expenditures for a specific conflict site, researchers may use this non-invasive investigation model to direct archaeological survey (primarily in a cultural resource management context) or preservation efforts with increased effectiveness. For the purposes to this paper we have selected data from two sites, one Civil War battlefield in Georgia and one Revolutionary War battlefield in Ridgefield, Connecticut, in order to illustrate the potential efficacy of this model. Location: US.

Lucas Simonds

East Carolina University, Greensboro, NC

A Determination Worthy of a Better Cause: Naval Action at the Battle of Roanoke Island

This paper presents a study of the naval action at the Battle of Roanoke Island, fought 7 and 8 February 1862 at Roanoke Island, North Carolina. This battle, in which the Union was successful in landing troops on the island and capturing its defensive works, marked the beginning of a large-scale Union occupation of eastern North Carolina which would last until the end of the war. The purpose of the present study is to investigate the maritime battlefield through historical anthropological and archaeological methods in order to present a more detailed record of this important event in North Carolina history and to test the efficacy of a number of battlefield archaeological theories and methodologies. A KOCOA study of the landscape is facilitated by the creation of a battlefield GIS which incorporates data on both the present and past landscapes of the area. In this way the influence of the terrain can be studied in the context of the landscape as it was at the time of the battle and the features of that past landscape can be better located in the present. This KOCOA study is augmented by a METT-T analysis and a study of contemporary trends in naval tactical theory. While the METT-T analysis highlights a number of external factors which influenced the decisions of the commanders at the battle, the study of contemporary tactics is meant to provide a better understanding of factors internal to the commanders. This should allow for a better understanding of the interplay between internal and external factors in the decisions made by the commanders at the battle. The combination of these analyses allow for a better understanding of the maritime battlefield landscape and allow for a more thorough account of the battle than has heretofore been presented. Location: North Carolina.

Daniel Sivilich

Bravo, Syracuse, NY

Palo Alto Symposium. Musket Balls: Diagnostic Tools for Military Sites

Musket balls are one of the most prolific artifacts found at mid-19th century and earlier conflict sites. For many years they have been excavated and documented simply as lead projectiles. If they were spherical, their diameters were usually recorded. If not, they were often simply noted and possibly their weights were measured. Musket balls are the most important diagnostic tools for early military sites. More recently, the use of the Sivilich Formula to determine the original diameters of nonspherical musket balls has been employed to better interpret many conflict sites. This paper will attempt to answer three basic questions about musket balls: are they always spherical before they were fired; are they always made of lead; and are they only used with small arms? I will discuss the size distribution and material composition of musket balls recovered from various conflict and camp sites with emphasis on the American Revolution. I will explore the question of how size can be used to determine the types of weapons used and shape can identify the probable objects that were struck. However, many misinterpretations of the causes of deformation of musket balls still exist and are proliferated on the internet by amateurs and relic hunters. Did soldiers really bite the bullet? This paper will explore how musket balls were altered intentionally by soldiers and unintentionally by foraging animals. I will identify the probable root causes of various different types of stresses that cause musket balls to become misshaped. Location: US.

Michelle Sivilich

University of South Florida, Tampa, FL

Measuring the Adaptation of Military Response During the Second Seminole War: KOCOA and the Role of a West Point Military Academy Education

In the early nineteenth century, the military as a cultural institution indoctrinated its members through extensive training at the United States Military Academy at West Point, New York. I propose this standardized education had a significant negative effect on the shape, direction, and outcome of the Second Seminole War (1835-1842) in Florida. There was an educational discontinuity between knowledge gained through schooling and the knowledge needed in the field when it came to an Indian war in the swamps and hammocks of Florida. Using modern military theory, the purpose of this research is to develop tools to measure how traditional European educational methods, which officers received while at West Point, hindered their ability to adapt to the unique and challenging environment of Florida which was encountered while trying to remove the Seminole Indians from the Florida territory. Conflict archaeology is well suited to investigate the more human side, such as the decision-making processes and adaptation, moving beyond the "what" and "how" aspects of conflict and starting to question the "why". One traditional approach to conflict archaeology uses a modern military method called KOCOA. This method, as used archaeologically, employs modern cartographic information to perform, however, those participating in the conflict would not have had access to this level of detail. Therefore, I propose that KOCOA be revised to incorporate the knowledge that would have been available to the decision makers at the time of the conflict. The aim of this research is to expand the methodologies of conflict archaeology to include indirect expressions of warfare and to incorporate them into a meaningful discussion of their role in the outcome of conflict. In order to accomplish this, a model has been developed against which hypotheses of the decision-making processes and their effectiveness could be compared. Location: Florida.

Steven D. Smith see Chester DePratter, Brad Lieb, Charles Cobb, Steven Smith and James Legg

Steven D. Smith see Michael Scoggins and Steven D. Smith

Julia Steele

Petersburg National Battlefield, National Park Service, Colonial Heights, VA

Petersburg: The Opening Salvos: June 15-18, 1864

The Union assault on the Confederate transportation hub of Petersburg, Virginia, from June 15 through June 18, 1864, was fought along a three mile front and eventually established the entrenched lines that were held by both sides until the Federal breakthrough nine and a half months later on April 2, 1865. During the 4 days in June, the Confederates were pushed back a half mile from their initial fortified position, but skillfully held interim positions long enough for reinforcements to arrive and the Confederacy to last through another winter. The battlefield of Meade's initial assault on the critical gateway to Richmond has been preserved since the nineteen twenties, but little studied or understood, its story obscured by wartime exigencies such as: loss of officers to write accounts; hope of imminent breakthroughs that never occurred; difficulty of mapping forested terrain; the battles of the Crater and Fort Stedman over some of the same ground, and Federal activities behind their lines. Our studies use the modern arsenal of LIDAR, GIS, metal detector survey, excavation and documentary research to sort through the detritus of 283 days of conflict and provide new insights into the opening salvos of the campaign that ended the war. The story is in the ground, if not on the page. Location: Virginia

Matt Tankersley

New South Associates, Inc., Stone Mountain, GA

Historical Research and Geospatial Analysis of the Brampton Plantation Battlefield

Access to geographic research tools has grown in the twenty-first century. LIDAR elevation data among others can be analyzed to produce highly accurate and informative perspectives of terrain. Employing these tools in conjunction with time-tested archaeological survey methods has resulted in a better understanding of sites, particularly military sites. Geographic analysis is well suited for interpreting the unique complexity of military sites. The discovery and examination of the Brampton Plantation Battlefield in Garden City, Georgia illustrates the challenges brought by Civil War battlefield sites and how an investigation integrating historical research and geospatial analysis can produce knowledge of a battlefield site fragmented by modern development. The Georgia Department of

Transportation proposed to realign Brampton Road with the intention of providing more efficient access to Garden City Terminal of the Georgia Ports Authority. Several alternatives spanning the industrial landscape surrounding the Dundee Canal were archaeologically surveyed. Excavation of 30-meter interval shovel test pits along the third road alternative produced one shovel test containing a single prehistoric lithic artifact. However, in addition to the isolated prehistoric find a linear parapet and ditch were noted on the western edge of the proposed road right-of-way. The discovery of the ditch and parapet initiated historic research and geospatial analysis that revealed a larger battlefield landscape tucked within an area heavily impacted by industrial development. Integration of historic maps and highly accurate LIDAR data was employed to forecast the locations of engineered earthworks and artifact deposits associated with the 10-day siege of Savannah occurring between December 11 and 21 of 1864. The locations of these resources were then confirmed using geophysical survey approaches with Phase II testing of Site 9CH1191, the Brampton Plantation Battlefield. Location: Georgia.

Thomas Thiessen see Doug Scott, Steve Dasovich and Thomas Thiessen

Bryan Tucker see Jenifer Weber, Bryan Tucker and Patrick H. Severts

Jacqueline Veninger

University of Exeter, Exeter Devon, UK

Landscapes of Conflict in 12th Century Gwynedd, a Methodological Solution

The absence of battlefield archaeology, as a methodological tool, from archaeological endeavors relating to the Anglo-Norman conquest of Britain, and particularly of Wales, is unfortunate but not surprising. This problem is compounded by the British heritage communities' application of a post-medieval definition of 'battle' and does not give sufficient consideration to other types of armed engagements such as skirmishes or raids. These designations of battlefields further limit our understanding of medieval conflict by placing the primary emphasis on the archaeological recovery of portable military material culture. Further complicating matters is the lack of consensus among conflict archaeologists regarding the foundation of a methodological primer analyzing the archaeological signature for medieval events of armed conflict. At a fundamental level, my PhD research aims to demonstrate patterns of Welsh resistance to the Anglo-Norman conquest attempts on the Welsh Principality of Gwynedd in the twelfth century, through analyzing the archaeological signature of the conflict landscapes of Welsh and Anglo-Norman armed engagements. This research specifically focuses on the often overlooked conflicts associated with the reign of Owain Gwynedd from 1137-1170, particularly the series of battles associated with King Henry II's 1157 campaign along the North Wales coast, and the 1165 campaign in the Berwyn Mountains. The goal of this research is to expand knowledge of specific events and the broader conflict landscapes associated with the Anglo-Norman conquest and Welsh resistance, to generate a comprehensive cultural and societal native Welsh context to the Anglo-Norman incursion into Wales. An essential aspect of this research is the refinement of a holistic medieval battlefield archaeology methodology that has the potential to be effective cross-culturally. A significant part of this is accomplished by successfully utilizing the devices of military terrain analysis, represented via GIS technology, to reconstruct the historic landscapes of conflict particular to the events described above. Location: Wales.

Jennifer Weber, Bryan Tucker and Patrick H. Severts

Georgia Department of Natural Resources, Atlanta, GA, New South Associates, Inc., Stone Mountain, GA, and New South, Associates, Stone Mountain. GA

A Pilot Study to Assess the Potential Effects of Reenactment on Historic Sites

The 150th year anniversary reenactment of the Battle of Chickamauga was held in September of 2013 at the McLemore Cove in northern Georgia, USA. With about 5,000 participants, it was one of the largest reenactment events in the southeastern US to date. While anecdotal evidence has suggested that reenactments can be detrimental to the integrity of historic sites, no systemic studies have yet been employed to investigate their actual effects. Thus, in order to assess the potential impact of American Civil War reenactment on historic sites, the Georgia Department of Natural Resources and New South Associates, Inc. conducted a comparative metal detection survey before and after the 2013 Battle of Chickamauga reenactment at McLemore Cove. Prior to the event, three grids were laid out in the reenactment area and metal detected, in order to clear them of artifacts and metal debris. The three grid locations, the Union Camp, the Confederate Camp, and the battlefield, were selected based on information provided by the event planners. After the reenactment, the survey grids were metal detected again, to identify materials introduced by the reenactment. While no materials dating to the civil war period were recovered from any of the areas during the first survey, new ground disturbance resulting from the reenactment could indeed be noted during the second one. This paper presents a preliminary discussion of our findings to date. Location: Georgia.

Daniel J. Wescott

Texas State University, San Marcos, TX

Palo Alto Symposium. Shooting from the Hip: Skeletal Analysis of Mexican Soldiers from the Battle of Resaca de la Palma

The Battle of Resaca de la Palma was fought in an abandoned bed of the Rio Grande River near present-day Brownsville, Texas on May 9, 1846. A mass grave from the site contained the partial skeletal remains of approximately 36 young to middle aged adult male Mexican soldiers, many of which exhibit bone lesions that provide clues about the daily activities and the death of these soldiers. A majority of individuals exhibit projectile or sharp force trauma resulting from battle wounds. In addition, several have signs of active or healed periosteal bone formation on the tibia and fibula consistent with medial tibial stress syndrome, and more than half have femora (thigh bones) with a long, narrow area of periosteal reaction on the anterolateral surface of the proximal diaphysis that could be caused by chronic inflammation of the periosteum that resulted from shooting their muskets "from the hip" instead of mounted against the shoulder. Location: Texas.

Joseph Whitehorne see Clarence Geier, Alyson L. Wood and Joseph W. Whitehorne

Nicole Wittig and Lawrence Babits

East Carolina University, Greensboro, NC and ECU

A Mnemonic Artifact: a 1777 Cheval de Frise from the Delaware River Battlefield

An American War of Independence Cheval-de-Frise recovered from the Delaware River is currently undergoing treatment at the East Carolina University Conservation Laboratory. The artifact (ECCL. 2013.018.0001) consists of a 28 ft. 8 in. (8.7 m.) long, 13.6 in. (.34 m.) diameter unworked log, or tree trunk, tipped with an iron barb. Designed to puncture ship hulls, the individual spears were arrayed in long lines anchored to the river bottom in stone filled cribs as obstructions forcing shipping on the river into narrow channels covered by ship and land artillery. The Delaware River was the scene of a six week campaign as the British captured Philadelphia and then opened a river supply line to support the occupation forces. As only one facet of the American defense system, the chevaux de fries serve to direct new research into better understanding how the Americans utilized both passive and active defense system to protect their capital. This research, in turn, allows more complete understanding of the Delaware River as a battlefield. This paper discusses chevaux de fries and their employment as part of the American defensive system. Location: Delaware.

Alyson L. Wood see Clarence Geier, Alyson L. Wood and Joseph W. Whitehorne

Brooke Blades and Frank Dunsmore

A.D. Marble & Company. Conshohocken, PA

Landscape Preservation and Commemoration: The Allied Air Strip behind Omaha Beach, Normandy, France, June-July 1944

The preservation and interpretation of landscapes of conflict are complex and often controversial undertakings, being conditioned by national and regional ideological concerns that may seem unrelated to the historical events of interest. Questions of why archaeological excavations should be undertaken might only contribute to the complexity and controversy. However, the active or passive preservation of landscape often also preserves the underlying archaeological record for the future. This presentation will focus on one small element of a much larger and very complex landscape of the Second World War: Omaha Beach. An air strip was constructed on the bluff behind the Easy Red beach sector and opened in mid-June 1944. The location is well-documented in historical aerial photographs but virtually no trace is visible in modern aerial images. Historical landscape features such as pre-invasion German defensive positions, bombardment craters from 6 June and hundreds of fox holes excavated in June and July 1944 are also clearly visible in contemporary photographs. The historical development of the landscape will be examined and the condition of landscape preservation will be evaluated. The timing of the presentation is also significant, as it will serve to commemorate the service and sacrifice made by thousands on D-Day seventy years ago. Location: France.

Richard Leese

University of Huddersfield, Huddersfield, UK

The Archaeology of Early Modern Sieges: A Case Study from 17th Century England

Over the last two decades the application of modern archaeological practice for investigating fields of conflict has focused on the study of battlefields and the scatter of metal artefacts at these sites, of which the majority for this period are lead projectiles. Investigation of the actions at siege and garrison sites is less well developed, despite their strategic importance in control of the movement of armies in the theatre, and protecting supply lines to keep armies in the field. Research currently underway at the University of Huddersfield in the UK aims to establish a methodology to unlock the archaeology of these sites through a combination of metal detector survey of artefact scatter, and close analysis of impact scarring on upstanding remains together with impacted rounds where detectable. This poster presentation will discuss the nature of the evidence being examined for Civil War garrison and siege sites across England, and the method of investigation being applied. Examples of scarring observed at sites in Shropshire already pose a number of questions about the ratio of artillery to small calibre impact scars at sites, and their use against garrisoned structures. Observed impact scars have also hinted at the potential to deduce angle, and possibly range of incoming fire which, if correct, may reveal information about the location of the attacking force's positions. Detailed laser scanning of impact scars will be complemented by experimental firing to better understand the behaviour of impacted projectiles at different ranges and angles, together with data about relative hardness of stone types from surviving structures. This analysis and experimentation, together with recovered projectiles and interpretation of artefact densities, may be used to reveal information about sites where the defences have been destroyed, or where below ground archaeology no longer accompanies the upstanding remains. Location: England.

Jeremy Miller, Alvaro Ibarra and M. Scott Harris

College of Charleston, Charleston, SC

Combating Asymmetrical Operations: Understanding the Roman Occupation of Dacia

Rome entered into two conflicts with Dacia between AD 101-102 and 105-106. In the aftermath Rome annexed the territory and occupied Dacia, now modern-day Romania. The complete narrative of the Dacian Wars continues to elude Classical scholars. The only artistic evidence is visible on the Emperor Trajan's Column, located in Rome. This evidence is then inherently biased, portraying a formulated account of the Dacian Wars. Archaeological research conducted in Romania is now reassessing the subsequent occupation of Dacia by Roman forces after the Dacian Wars. This poster expands upon research conducted by the Brasov Archaeological Project in the Transylvanian Plateau of Romania, the heartland of Dacia. The poster demonstrates Rome's military posturing in the region by examining the martial landscape. The geospatial analysis of Roman fortifications and the surrounding terrain provide critical insight into Roman military operations and native resistance to occupation forces. These findings directly challenge belief of Dacian assimilation or eradication. The research focuses specifically on five Roman marching camps along the upper Olt River Valley (Boita, Feldioara, Cinsor, Hoghiz, and Homorod) in the Transylvanian Pla-

teau. The examination of these forts supports a shift in tactical operations by Rome to combat entrenched native combatants in the harsh terrain of the Carpathian Mountains. This poster illustrates the dynamic situation Rome faced in the eastern portion of Dacia, and their operational shift to combat insurgency. This research supports Rome's contributions to asymmetrical operations, reminiscent to what is being currently utilized in Afghanistan by U.S. and Coalition Forces. Location: Romania.

Peter Norris

University of Liverpool, Liverpool, UK

'Exercitus Omnium Fortissimus': Who were the soldiers of Varus?

In AD 9, the Roman army suffered a serious setback in the Teutoberger Wald. Three legions were annihilated along with supporting auxiliaries. The extent of this defeat resonated throughout the nascent empire and according to Tacitus (Ann. 1.11), Augustus advised it should not expand further. The whole philosophy of the empire was apparently changed on the actions of a single commander, Publius Quintilius Varus, and the troops he commanded. The campaign was a turning point in Roman military history, but who were these men? Being the man in command, Varus has been widely examined. No doubt resulting from the evidence of Velleius Paterculus (the only contemporary author), who blames the hubris of the commanders for the defeat. Interestingly, he attaches no blame to the soldiers. They are praised as 'the bravest of all the armies...' (Vell. 2.119). This poster examines the available evidence and proposes a possible composition of the forces under the command of Varus. A segment of the battlefield has been the subject of archaeological analysis, but few military items have been discovered. The three legions (XVII, XVIII, and XIX) suggested to have formed the main elements of the force have left little trace and the legionary numbers ascribed to them were never used again. The question of who actually constituted the personnel of this force has never been scrutinised closely, or why Velleius described them as he did. Keppie (1997,2000) examined the evidence available regarding the existence of these formations through a very limited corpus of funerary inscriptions. He did not attempt to identify the composition of the force during the clades Variana. An examination of the Roman army in more broader terms during the period of this conflict and a deconstruction of the constituents of the legions at this time can provide a plausible basis for the identification of these personnel and bring to life that force on whose actions Roman history turned. Location: Kalkriesse.

Peter Norris

University of Liverpool, Liverpool, UK

'The abode of the Cyclops', Fawcett Preston, Liverpool and the struggle for freedom

The role of the United Kingdom in the American Civil War has long been one that has been overlooked, or at the very least, been left largely undisturbed. There has been the occasional book that, like a searchlight, has highlighted particular elements, but what exactly could have made a Swiss court of Arbitration award $15,500,000 in damages to the United States from the United Kingdom in 1872? The answer is simple. In spite of the Foreign Enlistment Act and the stated neutrality of the United Kingdom Government, many areas of the country were affected badly by the Federal blockade and when this is added to the sympathy that many industrialists had with the Confederate cause, ways were found to support the South or purely to profiteer from the conflict. One such area was Liverpool, through which 60% of cotton from the South entered Britain and one company, in particular, Fawcett Preston undertook engineering and armaments production. The opening shots of the American civil War (Fort Sumter) were claimed as being fired by a gun made in Liverpool and the last combatant (CSS Shenandoah) surrendered there. A visitor to Fawcett Preston, described the scene inside as 'the abode of the Cyclops', and this poster, shall explore the contribution of this company through the artefacts it produced, the ships it helped build and the people who were involved. In so doing, we will hopefully shed some light on the role of Fawcett Preston and Liverpool in the struggle for freedom. Location: England.

David Passmore, David Capps Tunwell and Stephen Harrison

University of Toronto, Canada.

Preservation of WW2 landscapes in the forests of NW Europe

This poster will explore the little-recognized potential of forests and woodlands for preserving the landscape evidence of WW2 combat and military activities in NW Europe. In particular, it will focus on archaeological landscapes associated with Wehrmacht military supply depots that are shown to be widespread throughout the forests of NW France. Field survey in the Forêt Domaniale des Andaines, central Normandy, has recorded nearly 900 discrete

earthwork bunkers, building foundations, trenches and other features associated with fuel, munitions and logistics depots, and which extend alongside some 14.5km of forest roads and tracks. Documentary evidence establishes these depots were administered from Bagnoles de l'Orne and were a key component of the German Seventh Army logistics network before and during the Normandy Campaign of June-August 1944. Numerous bomb craters also record Allied attempts to destroy the facilities. Post-war survival of features has been remarkably good in this forested setting and it is argued that this likely constitutes one of the best-preserved and most extensive examples of a non-hardened WW2 archaeological landscape yet documented in NW Europe. The paper concludes with a broader perspective on the preservation of combat-related and logistical landscapes in NW Europe and their potential for illuminating WW2 battlefields and military logistics operations, including examples from the Ardennes, Reichswald and Hochwald forests. Location: NW Europe.

David Passmore, David Capps Tunwell and Stephan Harrison

University of Toronto, Canada

The geoarchaeology of World War Two air raids; bomb-cratered landscapes in the forests of Normandy, France

With the notable exception of the D-Day site at Pointe du Hoc, on the western margin of Omaha Beach, there are no documented examples of WW2 bomb- and shell-cratered landscapes in NW Europe to compare with the preserved battlefield terrain of the Great War's Western Front. Recently, however, field survey of well-preserved Wehrmacht fuel and ammunition depots in the forests of Normandy, NW France, have also revealed extensive bomb-cratered landscapes that have survived post-war rehabilitation and modernisation of former battlefields. This poster presents the results of geoarchaeological investigations in the Forêt Domaniale des Andaines and Forêt Domaniale de Bourse, central Normandy, where field survey of extant bomb-craters can be linked to documentary and photographic records of air raids on German supply depots by the US Army Ninth Air Force during the Normandy Campaign of June-August 1944. Comparison of raid targeting plots with landscape evidence of bomb crater arrays and storage bunkers show that Allied intelligence was only partially successful at identifying and striking logistics facilities. Specific case studies of raids on the 13th June and 24th July 1944 also show that in some localities it is possible to link bomb crater size and disposition to detailed records of aircraft flight patterns, heights and bomb loads. It is concluded that the combination of documentary analysis and geoarchaeological survey has much to offer an evaluation of the strategy, effectiveness and landscape impact of Allied bombing of the German logistics network. Location: France.

Daniel Polito

Appalachian State University, Boone, NC

The Geophysical Search for Camp Mast

In the waning months of the American Civil War, a little known action at a remote Confederate Home Guard camp took place in the Sugar Grove community of Watauga County, North Carolina. Known as Camp Mast, this Confederate encampment was surrendered to a significantly inferior force of local Union sympathizers on or about February 5th, 1865. During the fall of 2013, a geophysical investigation was conducted on a suspected site of Camp Mast in an attempt to determine if this was truly the location of the Home Guard encampment. This investigation consisted of a systematic metal detection survey, core sampling, and ground penetrating radar. These surveys were recorded using a total station and the resulting data was then imported into ArcGIS. Based on the results of these geophysical surveys, a predictive model for potential excavation was then built and spatially represented across the surveyed area utilizing GIS technologies. Location: North Carolina.

Amanda Renner, Peter Bleed and Douglas Scott

Midwest Archeological Center, Lincoln, NE, University of Nebraska, Lincoln, NE, UNL

A GIS Analysis of two Civil War-era conflict sites along the Overland Trail in the Nebraska Panhandle

Archeologists with the NPS, Midwest Archeological Center partnered with University of Nebraska-Lincoln in the summer of 2013 to locate, document, and map extant trail ruts and associated features at Mud Springs Pony Express/Telegraph Station and Rush Creek Battlefield. Clashes at these two sites, in the North Platte River Valley, took place between the U.S. Volunteer Cavalry and Cheyenne, Lakota, and Arapaho forces during February of 1865. Recently collected, high resolution, LiDAR elevation data for the entire North Platte corridor has allowed for the application of several GIS techniques to further investigate both sites using a landscape approach. Historic

air photos and maps are overlaid with LiDAR hillshade data to identify extant historic features. Visibility issues influencing the battle at Mud Springs are addressed using viewshed analysis. Potential transit routes between the two battles are identified through a least-cost corridor analysis. Other cultural landscape features relating to the Civil War-era North Platte River Valley are also revealed. Location: Nebraska.

Achim Rost and Susanne Wilbers-Rost

Osnabrueck University, Osnabrueck, Germany and Museum and Park Kalkriese, Bramsche, Germany

The ancient battlefield at Kalkriese: Recent results

On the Oberesch, at the centre of the ancient battlefield Kalkriese (A.D. 9), where we find the major cluster of finds, the distribution of Roman military equipment reveals the large variety of processes that took place after the actual battle was over, which in turn provide an explanatory framework for the creation of the resulting archaeological record that we observe today. It has already been established for a number of years that 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 interesting 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 (e.g., shields) for the provision of raw materials. The recent research indicates that 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 fightings are scattered over an area of more than 30 km2. 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". Location: Germany.

Daniel Sivilich

Bravo, Syracuse, NY

Musket Balls: Diagnostic Tools for Military Sites: Did Soldiers Really "Bite the Bullet?

When many relic hunters and amateur archaeologists find musket balls that have deep teeth impressions, they immediately conclude that it was from a soldier biting on a bullet to ease the pain of having a limb amputated. They are usually wrong and propagate a myth on the internet of how, who or what chewed bullets. Humans are not the only ones who "bite the bullet". Location: US.

James Spirek

South Carolina Institute of Archaeology and Anthropology, Columbia, SC

The Archeology of Civil War Naval Operations at Charleston Harbor, South Carolina, 1861-1865

The poster will focus on Confederate and Union naval operations at Charleston Harbor during the Civil War, resulting archaeological sites, and analysis of the naval battlefield using the KOCOA-paradigm. Location: South Carolina.

Roy Stine, Stacy Curry, Linda Stine, Junshan Liu, Richard Burt, Charlene LeBleu and Jacob Turner

University of North Carolina-Greensboro,UNCG, UNCG, Auburn University, Auburn, Alabama, AU, AU, and UNCG

Terrestrial Lidar and GPR investigations into the Third Line of Battle at Guilford Courthouse

In the summer of 2011 a joint geophysical and archaeological field school was held near the third line action at the battle of Guilford Courthouse, March 15, 1781, located at the Guilford Courthouse National Military Park, Greensboro NC. The location of the third line is under heavy debate by historians and archaeologists. A ground penetrating radar (gpr) survey revealed a linear feature approximately 50 cm in depth, varying in width and trending north south for approximately 68 m before entering a heavily wooded area. Excavation of a narrow trench at the end of the field school showed a colonial surface, possibly a road or gully, covered in fill dirt. Both a road and a gully

have been discussed in the literature, and their discovery would yield important clues to the location of the third line. The surface of this buried feature was slightly concave. In November of 2013 a team from Auburn volunteered to aid UNCG researchers with a terrestrial LiDAR survey to see if a highly detailed elevation map could trace the surface manifestation of the feature into and through the wooded area. This poster will showed the results of the LiDAR survey in conjunction with the gpr investigations. Location: North Carolina.

Allison Young and Andrew LaBounty

Midwest Archeological Center, National Park Service. Lincoln, NE

Locating the Record of the Prisoner Experience: GIS Analysis toward Understanding the Cultural Landscape of a World War II Prisoner of War Camp

Recent investigations inside prisoner compounds at the Indianola POW camp in western Nebraska revealed only a minimum number of artifacts, many of which are impersonal objects unrelated to the prisoners held there. One theory about this absence states that policing behavior by the military prisoners and camp guards kept the compound areas clear of debris. An alternative hypothesis is that the prisoners restricted some activities to particular areas of the camp, beyond the guards' viewshed. Building on these concepts, this project uses a three-dimensional model of the camp to evaluate the context of the recovered materials and define the "cultural landscape" of a POW camp. The results of this project target additional locations for testing at the Indianola POW camp in hopes of revealing evidence of the lives of the prisoners of war at this site. Location: Nebraska.