ISAP NEWS

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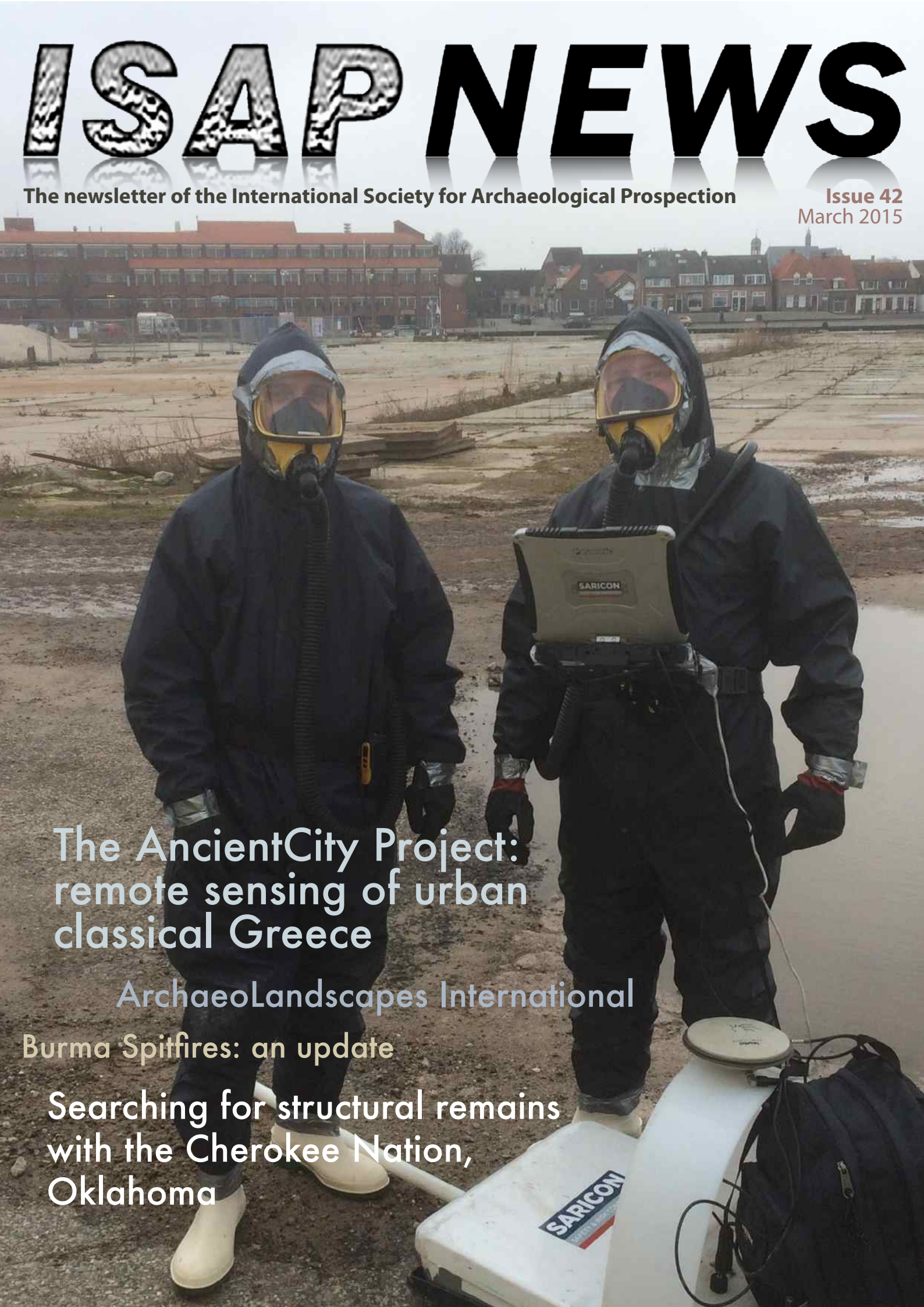

The AncientCity Project: remote sensing of urban classical Greece

ArchaeoLandscapes International

Burma Spitfires: an update

Searching for structural remains with the Cherokee Nation, Oklahoma

Welcome to the 42nd issue of ISAP News! Thank you - as always - to those who have found time to send in contributions for this issue. These range from an account of satellite/aerial/low-altitude survey of classical Greek cities, to an update on the ArchaeoLandscapes International project (to be launched later this year, having evolved from the related EU-funded project), notification of the publication of the report evidencing the 'lost squadron' of spitfires in Burma (see link on page 9), and details of a multi-method geophysical survey in search of a Cherokee seminary in Oklahoma, US. Enjoy!

And, as always, we'd really like to hear about your projects: 700-ish words and a couple of images would be great. Don't forget that we'd also like your photographs! Please send any contributions, notifications, and cover images for the next newsletter (ISAP News 43) to the email address below by the 30th June 2015. All entries are gratefully received!

Rob Fry & Hannah Brown

editor@archprospection.org

The Cover Photograph shows GPR survey of asbestos-contaminated industrial sites. Photo: Ferry van den Oever.

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A Satellite, Aerial and Low-Altitude Approach for Ancient Greek Cities

Gianluca Cantoro, Nikos Papadopoulos (Project Director), Nasos Argyriou, Kayt Armstrong, Carmen Cuenca-García, Jamieson Donati, Tuna Kalayci, Ian Moffat, Apostolos Sarris & François-Xavier Simon

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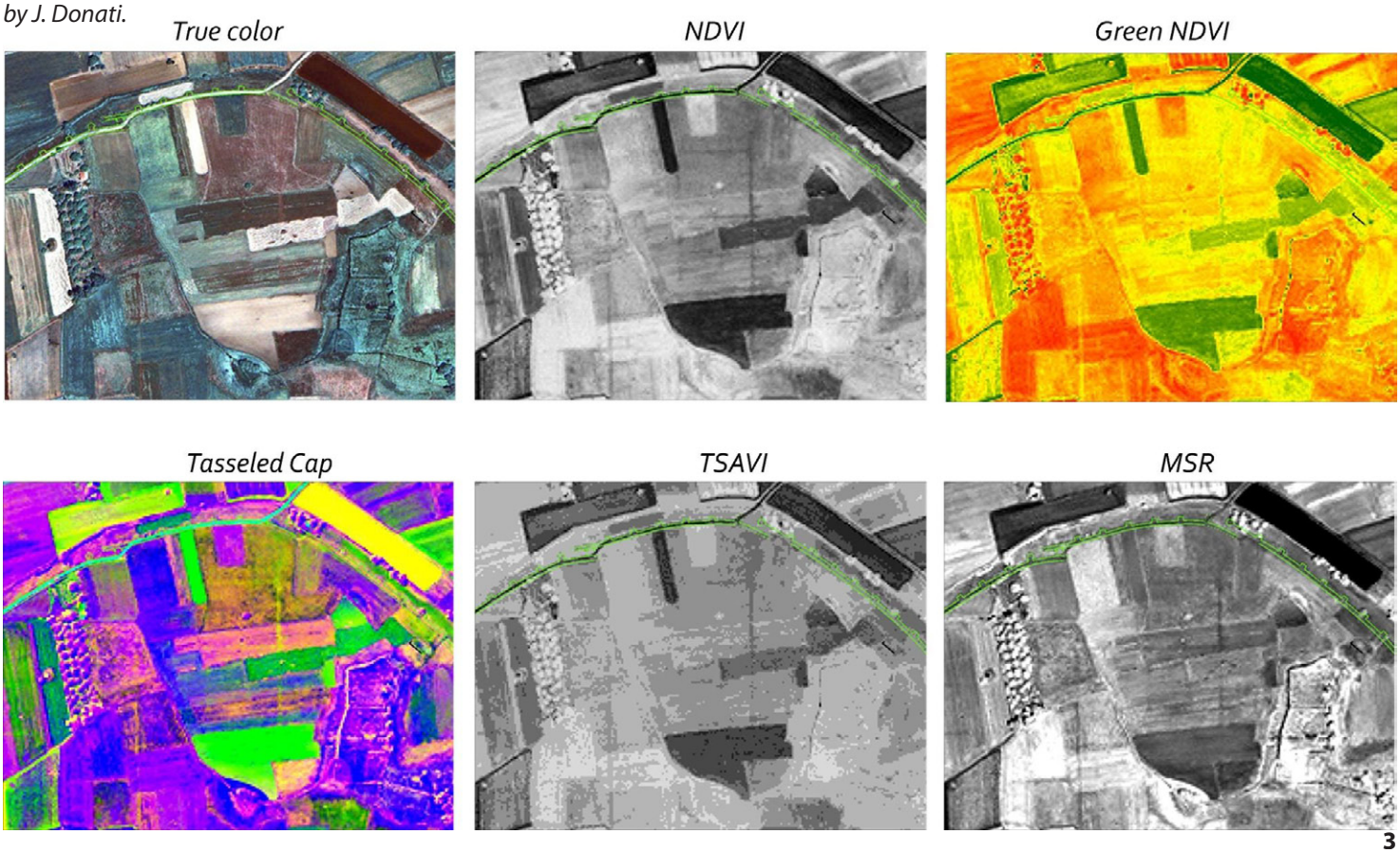
In the framework of the AncientCity project - ARISTEIA II Action - extensive and non-destructive field campaigns have been conducted in 2014 in several sites in Greece, known for being the location of classical cities. Together with geophysical investigations, a number of other remote sensing methods have been employed for the understanding of classical urban Greece. Specific modules consisted of the accurate and comparative investigation of different sets of satellite, aerial and low-altitude images. This analysis, that normally precedes and is strictly connected with the actual fieldwork, produced encouraging results that enhanced our understanding of Greek urbanism. Indeed, the geophysical survey was implemented to confirm and modify the findings of aerial remote sensing, uncovering at the same time additional urban features at a higher resolution. This paper describes the approach and presents some results of the aerial remote sensing module, which included the use of satellite images, aerial archive vertical imagery and low altitude photographs taken by means of remotely piloted aerial vehicle.

Satellite Image processing

Before on-site fieldwork, a remote sensing campaign was conducted using four high-resolution multispectral satellite images. The Quickbird and WorldView-2 satellite images cover a broad area of 25 sq. km. Feature enhancement filters were applied to optimize the spectral signatures reflected from ground targets. Since chlorophyll in plants absorbs and reflects spectral wavelengths differently depending on the climate and health of vegetation (Kvamme 2010), subsurface features, such as a building with stone walls, can put stress on vegetation thereby creating 'crop marks' that betray the presence of a subsurface feature. Although it is entirely feasible to identify anomalies using true colour images, feature enhancement algorithms, including vegetation indices like NDVI, maximize feature detection.

At Mantinea, this method proved valuable in identifying an extensive system of orthogonal streets (Donati et al. 2015), showing that the city was a planned settlement. The frequency, ordered arrangement, and metrology of

Figure 1: *Feature enhancements on the QuickBird satellite image with the results from different algorithms. Satellite image processing by J. Donati.*



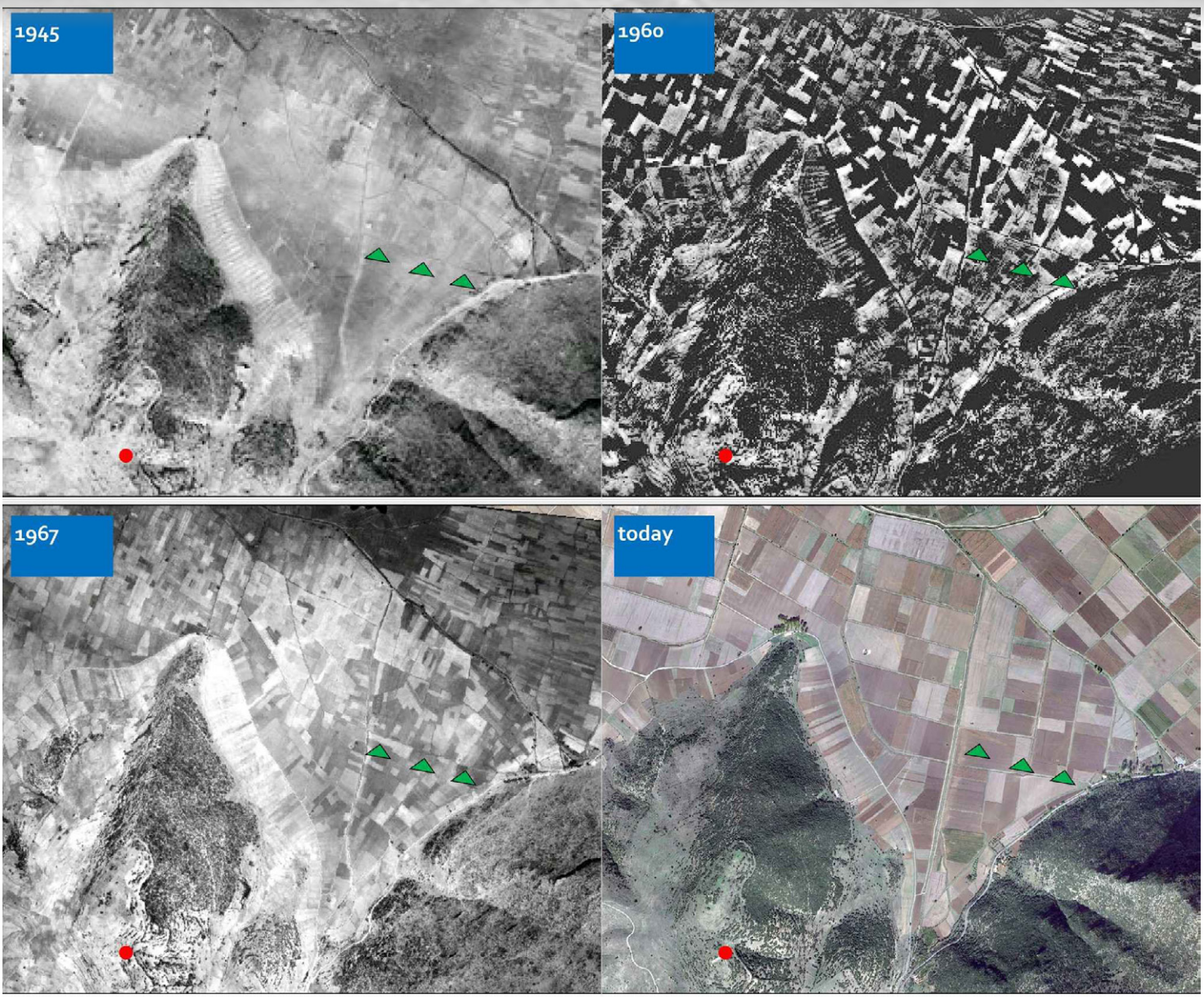


Figure 2 *Landscape changes across a few decades, from 1945 until today. The red dot represents the archaeological site of Orchomenos, Arkadia. Notice how an old dirt-road (green arrows) in use in '40s and '60s, loses its function in modern times but it is still visible in aerial imagery.*

anomalies are clear, and many of them start to form the outlines of long rectangles, which we presume to be from city-blocks.

Historical Aerial Photographs

From around the Second World War, all countries started or optimized their practice of aerial photo-collection for reconnaissance and mapping purposes. Most European countries made these large archives available to general public in recent years.

The value of those images in archaeological applications is immense, since they allow a view from above of areas before the mechanized development of agricultural activities or before the development of major urban centres (Hanson and Oltean 2013). Similarly to the satellite images, historical photographs provide information on localized stresses on vegetation growth, at times suggesting the presence of buried archaeological structures. In other conditions, archive aerial photography may suggest – if properly approached and interpreted – the presence of archaeological structures also by means of slight localized altimetric variations (perceivable as shadows) or even clearance areas, where stones potentially belonging to ancient structures may have been removed from field-plots and piled up at their edges to facilitate agricultural activities.

Normally aerial photographs depict larger numbers of details with higher resolution than satellite images, but they need further processing to reduce the camera lens distortion and eventual print-related issues. When photographs from more than one year are available for the same area, they can be overlaid into a GIS system in order to enhance and localize small differences.

It is often the case that major modification in field shapes or orientations or available connecting infrastructures take place in one particular region, so that it becomes quite hard to recognize the same area of interest in chronological sequences of historical photographs. In

Orchomenos (Arkadia, Greece) for example, large scale changes can be located in the valley at the Northern edge of the archaeological site.

Change detection such as that above, warns any researcher operating in the particular area about the intense modern field activities and their potential destructive consequences on the archaeological context.

UAV Photogrammetry

A further addition to the AncientCity project is the use of Remotely Piloted Aerial Systems (RPAS, also known as UAV or drones) equipped with compact high-resolution cameras for the creation of accurate 3D models and ortho-photos with digital photogrammetry (Remondino *et al*. 2011).

Thanks to the overlapping of digital photographs captured with this system from variable low altitude (between 50 and 150 meters above the ground), three dimensional information can be extracted so that a digital terrain model is created.

This same accurate 3D model then becomes a working tool for further processing, such as the topographic correction of geophysical measurements data or the enhancement of altimetric variations in specific spots for archaeological identification.

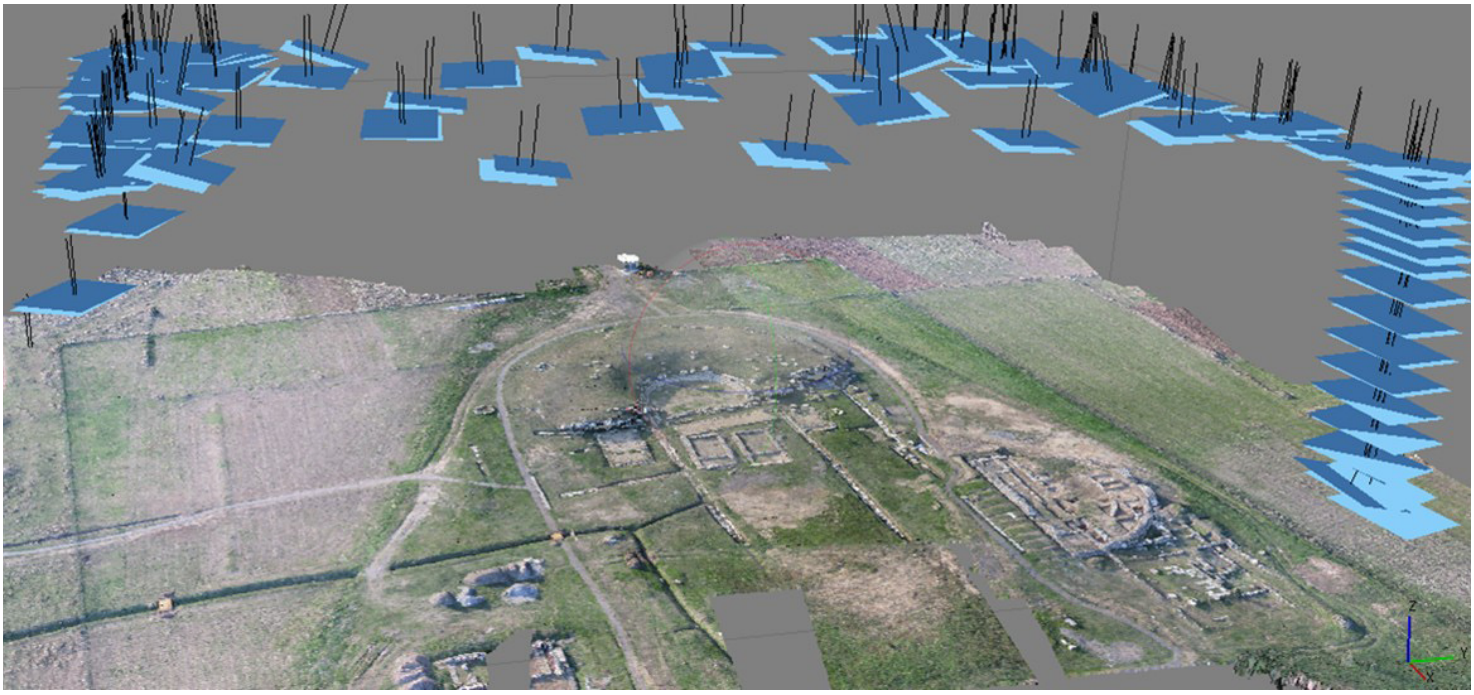


Figure 3 (above) *Fieldwork activity with the DroidWorx DX4 (navigation system: DJI WooKong M; cameras: regular and NIR modified Canon PowerShot A2500).*

Figure 4 (below) *Theater at Mantineia. Perspective photogrammetric view of the dense pointcloud and camera positions, regular RGB (dark blue) and modified NIR (light blue).*

(Gianluca Cantoro *et al*. continued...)

Acknowledgements
This work was performed in the framework of the AncientCity project within the ARISTEIA II Action of the Ministry of Education & Religious Affairs which is co-financed by Greece and the European Union (European Social Fund) under the NSRF 2007-2013 and the Operational Programme "Education and Lifelong Learning". We thank the Ephorate of Arcadia, in particular the Ephoros Mrs Anna-Vasiliki Karapanagiotou, and the Ephorate of Olympias and the Ephoros Georgia Hatzi-Spiliopoulou, for permission to access these sites and for their assistance during project planning and fieldwork.

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ArchaeoLandscapes International – coming soon!

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In September 2015 ArchaeoLandscapes International (ArcLand) will be launched, developing from the highly successful EU funded project 'ArchaeoLandscapes Europe'. While planning is still ongoing, this note will give ISAP members some insights on the developments.

The story so far - ArchaeoLandscapes Europe

www.arcland.eu/

The ArchaeoLandscapes Europe project was born out of a desire to promote the application of remote sensing techniques, both ground-based and airborne, for archaeological landscape studies. Because these techniques underpin the creation of knowledge about the past and its material remains across a variety of domains, raising awareness of their potential and facilitating the broader adoption of their use was seen by the project's instigators as vital. Beyond their importance in research and heritage management contexts, the results of archaeological remote sensing can have a dramatic impact in illustrating to the general public, policy makers and government representatives the character and importance of heritage sites and of the evolving landscapes within which they lie. Recognising this, the project has emphasised communication and education activities bringing archaeological remote sensing to a variety of communities and groups, supporting fuller understanding and appreciation of past-in-present landscapes.

A central aim of the ArchaeoLandscapes Europe project has been to address regional imbalances in the application of remote sensing and to improve conditions for the regular use of these strikingly successful techniques across Europe as a whole. With 27 core institutional members and 61 associated partners this project is the largest such initiative funded by the EU, and has resulted in the creation of a strong network engaged in knowledge-exchange, content creation, and education activities that promote archaeological remote sensing. During the last four and a half years, six training schools and 22 technical workshops have been organised, hosting a total of 572 students and young professionals. Some 54 ArcLand grants have enabled their beneficiaries to attend these educational events or an ArcLand related conference. Thirteen internships in ArcLand partner institutions have allowed young archaeologists to learn new skills and gain experience in a working environment. To date seven larger publications have been supported through the ArcLand Project and consequently are badged with the project logo. The travelling exhibition "Traces of the Past", previously hosted in various places in Ireland and in the USA, will be shown in Germany, Slovenia, Denmark, Spain and other countries in the coming months. These activities, as well as many smaller events, press and media work, and active conference participation have generated a high level of visibility for ArcLand in the scientific and archaeological communities. These activities have also highlighted ArcLand to the broader public and have strengthened the network, creating fertile ground for ArchaeoLandscapes International and its future work.

see
www.arcland.eu/images/articles/PDFs/e6_43.pdf
for an interim report on activities

From the outset, one of the aims of the ArchaeoLandscapes project has been to ensure the continuation of the network that lies at the heart of this success story beyond the life of the project. To achieve this, discussions between ArchaeoLandscapes Europe, ISAP and AARG began in 2014, resulting in a plan to establish ArchaeoLandscapes International (ArcLand). This new organisation will be dedicated to expanding and sustaining the existing network, and using the network's collective expertise to develop projects in research, knowledge-exchange, education and outreach.

Looking to the future - ArchaeoLandscapes International (ArcLand)

The vision for ArcLand beyond the end of the EU-funded project in September 2015 reflects its origins and ambitions for subsequent development beyond the borders of Europe. The immediate challenge for the newly created ArcLand organisation is sustaining an active network after the end of the EU's project funding and to support initial activities, while seeking new sources of funding. To accomplish this, the network has been 'adopted' by two well established archaeological societies, AARG and ISAP, who share a common interest in archaeological remote sensing and landscapes. We envisage that ArcLand will promote integrated approaches to prospecting and identify common purpose between AARG and ISAP, and in the future other organisations that may support it, as appropriate.

Reflecting the interests of the ISAP and AARG memberships and those of the current ArchaeoLandscapes Europe network, the central aim of ArcLand is the promotion of non-destructive prospecting methods for archaeological investigations.

In particular it:

- considers all methods of remote sensing, aerial archaeology, ground-based geophysical and geochemical prospection and surface survey;
- is concerned with archaeological investigations on all scales, from monuments and sites to landscapes, along with their analysis and interpretation;
- has an international remit in archaeological research and membership;
- is a liaison partner for other organisations and institutions with regards to archaeological prospecting in landscape archaeology;
- promotes the use of archaeological prospecting as a method of archaeological enquiry;
- facilitates education in these methods;
- informs policymakers, government representatives and all parts of the general public about the potential and limitations of archaeological prospecting; and
- supports the development of new equipment, software and methods.

Practical arrangements will remain under discussion for the next few months, but some general principles have already emerged.

- The organisation will again be based on institutional membership; procedures for joining will be established by September; there will be a simple constitution; there will be no subscription fee; external financing will be sought; it relies on the commitment and support from its members.
- It will be administered by a General Management Board (GMB – in the first instance drawn from the current membership), comprising a permanent member from AARG and one from ISAP, with three or four others drawn from the rest of the membership.
- The permanent GMB membership of AARG and ISAP creates a sustainable framework, and reflects the commitment to ongoing material support by these organisations, both through in-kind contributions and in small amounts of seed-funding. Eligibility for other GMB positions will be based on similar in-kind or financial contributions, demonstrated over a certain period.
- Looking for funding to support the network will be a key activity, and a development officer (or a small group of officers) will be responsible for identifying funding opportunities and nascent research, education and outreach projects in the community, and match-making between them. Arrangements for an ArcLand Project Officer are still to be determined, and a person to fulfil this role in the short term on an honorary basis may be sought from AARG and ISAP members.

It is clear that a sustainable network is important for future funding applications, and a programme of ArcLand activities that maintains the visibility of the network after September 2015 will be important. Outcomes from ArchaeoLandscapes Europe, including several publications, will help, and members of both AARG and ISAP may consider badging collaborative or integrative projects as 'ArcLand', if appropriate. The continuation of a series of guidelines to best practice, including World War I aerial photographic archives and Airborne Laser Scanning visualisations, is also an aspiration of the future organisation. Such promotion of best practice benefits everyone, and carries weight when published in a defined series with good profile. Members will be encouraged to consider future contributions to the series.

Other possibilities for maintaining the profile and growing the network include website content, conference sessions, workshops/training/exchanges, cross-cutting working groups (e.g. on prospecting in woodlands or community involvement), maintaining publication output and perhaps a newsletter.

Working together

The discussions between ArchaeoLandscapes Europe, AARG and ISAP have made it clear that there are strong motivations to create an institutional umbrella organisation for all those working in archaeological prospecting. This organisation should provide a forum to identify challenges that are best addressed at an international community level, add weight and capacity to funding applications, and facilitate and enhance projects carried out by network members. We anticipate that bringing together our two membership-based groups, reflecting different specialist areas of practice, and an integrative shared organisation that looks to the general overarching issues across the whole of archaeological prospecting and remote sensing will benefit the entire community as individual and shared projects are pursued.

The presentations of the ArcLand Final Conference 'Sensing the Past' in Frankfurt from 24-26 February 2015 are available as video streams!

Burma Spitfires

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Two years ago, a team of archaeologists and geophysicists was asked to investigate rumours of a cache of Spitifre aircraft buried in the grounds of Yangon International Airport, in Myanmar. The story sparked international interest and media attention, but extensive archive and field research suggested that rumours were nothing more than rumour. Fascinating, intriguing and a unique opportunity to study a conflict archaeology site - but rumour nonetheless. Dr Adam Booth (Imperial College London) was involved with field geophysical surveys at the site in 2004 and 2013.

http://www.scribd.com/doc/260010985/Assumed-Missing-Reported-Buried-as-Published-23-March-2015

This downloadable report, prepared by the whole of the Burma Spitfires Research Team, presents the evidence for and against the reported burials, and we invite you to judge for yourselves whether there is truth behind the rumours of the "Lost Squadron", or whether it's a Myanmar Myth.

A Shallow Geophysical Prospection Study of the Cherokee Female Seminary and the Ross Cottage Sites, Cherokee Nation, Tahlequah, Oklahoma, 2009 / 2013

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Beginning in December 2008, with analyses continuing into 2009, a shallow geophysical prospection survey was conducted on the grounds of Cherokee National Historical Society, Inc. (CNHS) and Cherokee National Museum, in Tahlequah, Oklahoma. A second, week-long survey was conducted, in July 2013, at the location of the Ross Cottage, in Park Hill, Oklahoma, near CNHS. The initial survey used magnetometry (MAG), electrical conductivity (EM) and ground radar (GPR), whereas the second survey did not include EM as a technique. These studies were carried out by the authors, assisted by staff members of the Cherokee Nation of Oklahoma. The results of these surveys, both completely successful in meeting all research objectives, have formed the basis for interpretation and redevelopment of these sites by the Cherokee Nation of Oklahoma.

Background: The 2008-2009 Female Seminary Survey

The rationale for this survey was to locate and/or avoid any structural remains of the original building of the Cherokee Female Seminary, which burned in 1887 (Mihesuah, 1993:1). Three brick columns, (see **figs. 1 and 2**) are all that remain of this historic building and these are found on the entrance plaza to the Cherokee National Museum (**fig. 2**). Acting on the assumption that these columns remain in situ, a non-invasive geophysical survey of the area directly adjacent to these columns, and current museum, seemed justified.

The Cherokee were just one of five southeastern American Indian tribes forced to remove from tribal lands in Alabama, Georgia, Tennessee and North Carolina by the United States government between 1834-39. The 'Removal', more commonly known as 'the Trail of Tears', resulted in a loss of nearly a quarter of the tribal population of just over 18,000 people. After the harrowing removal, the tribe rebuilt their nation in what was then Indian Territory. Part of this rebuilding of tribal institutions and structures included schools. The Female Seminary and a second, Male Seminary, was the top tier of their educational system.

The current museum buildings are known to have been built on the property of the first Female Seminary, but their exact relationship to the old seminary was not completely known. What was known was the dimension and design of the original Seminary's 1852 structure (Minesuah 1993: 26-27). Designed by a Boston contractor, Sheppard H. Blackman, the main building was two stories and measured 80 x 40 feet divided into two 40 foot wings separated by

Figure 1 (above) *The Cherokee Female Seminary and students, view from southeast.*

Figure 2 (below) *The site just before construction began on the present-day museum. The three extant columns may be those shown in fig. 1, below the far left chimney.*

an 18 foot passage. The west, south and east faces of the building were arcaded with classical columns (**fig. 1**). A hall extended from the west entrance through to the east side, while a large open court occupied the center. In 1877, the National Council authorized a three-story addition to the building, including rooms for about 150 students, a basement, laundry, auditorium, dining hall, guest rooms and a parlor (Minesuah, 1993: 55). This addition increased the overall footprint of the building to its final size of 90 x 185 feet (Carey Tilley, 2008, pers. comm.).

Historic photographs (the southeast perspective, Female Seminary, and 2 free-standing columns at time of the

museum's construction) suggested a close, if not direct, relationship between the historic and modern buildings. Using this as a working hypothesis, a 200 x 100 foot survey grid was established on the eastern front of the museum grounds. The 200 foot axis was laid along a north-south orientation and the 100 foot baselines ran east-west. The south baseline extended from the front of the remaining columns on the east to a small collection of oak trees to the west, spanning the width of a concrete plaza constructed at the entrance to the museum. A span of 44 feet was left between the east side of the survey grid and the museum. Instruments used were a GSSI GEM-300 multi-frequency conductivity meter, a Gem Systems model GSM-19 Overhauser Effect gradiometer and a GSSI SIR-3000 and 400 MHz antenna system.

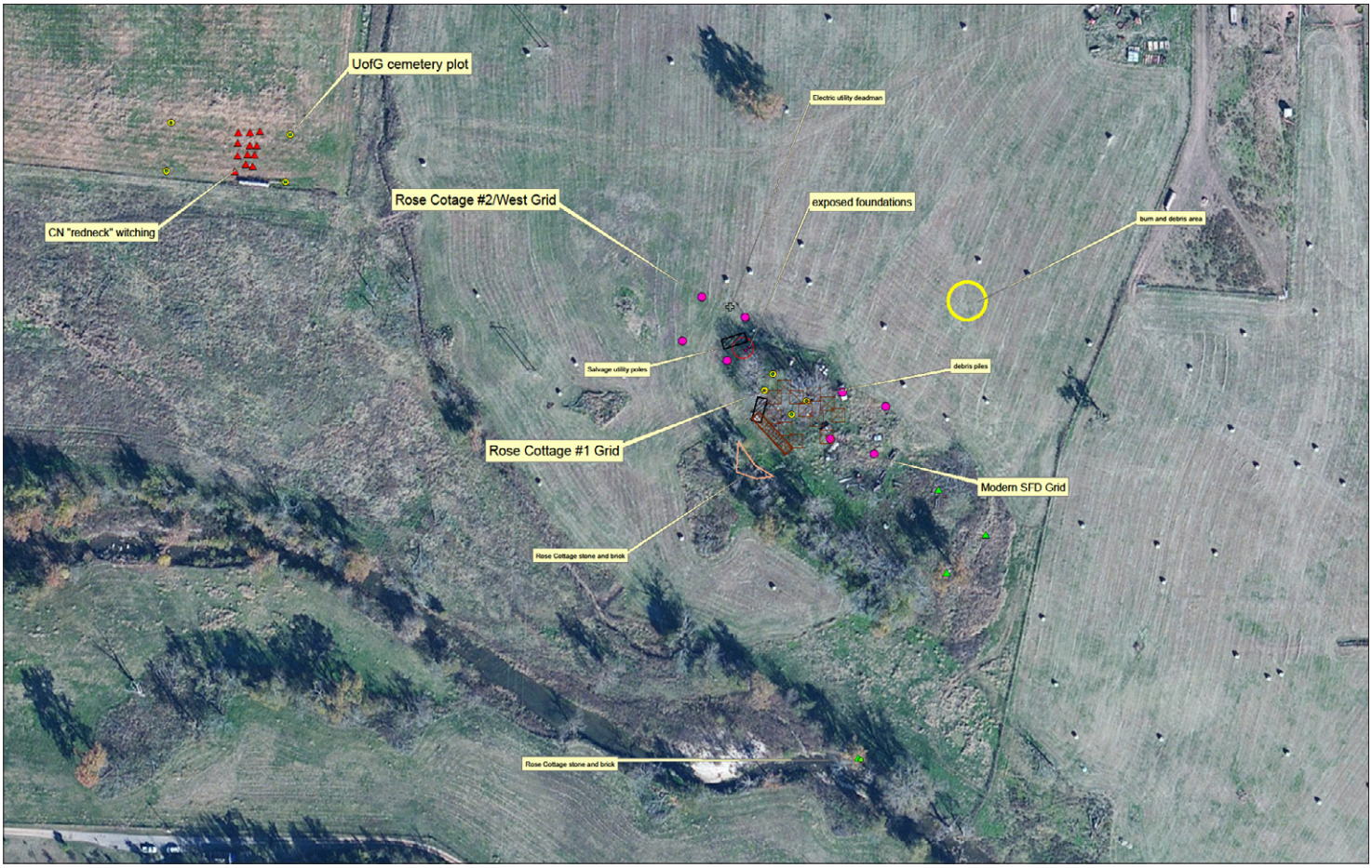
The 2013 Survey, Rose Cottage

The site of Rose Cottage is at Park Hill, Oklahoma. It was the residence of Chief John Ross, Principal Chief of the Cherokee Nation, 1828-1866, after the tribe's forced removal from tribal lands in Alabama, Georgia, Tennessee and North Carolina, in 1838-39. There were at least four residences built on the site of Rose Cottage beginning in 1840 (Moulton, 1978: 143-144). The initial building was a log cabin that was quickly replaced by a 2 storey brick structure in 1841 (**fig. 3**). This second residence was burned during the U.S. Civil War, in 1863, by Confederate Cherokee forces under the command of Colonel Stand Watie (*supra*).

Figure 3. *Rose Cottage, from a painting of the house done from memory. Oklahoma Historical Society.*

Two additional houses were constructed on the site, the last building lasting into the early 20th century. None of the latter homes were as lavish nor well-built as the Antebellum house, which bore the name 'Rose Cottage' because of the many roses planted there by Ross' second wife, Mary Brian Stapler Ross. Because of the historic nature of this property, the Cherokee Nation desired to obtain as much information about the site as possible after obtaining ownership. The location was examined in the 1990s by Lois E. Albert, an archaeologist of the Oklahoma Archaeological Survey. She visited the location as part of an overall assessment and inventory of sites in the Cherokee Nation's historical boundaries. The location bears an official archaeological site inventory number of 34CK366.

Figure 4. *A Geopdf showing the location of UGA survey grids and other landmarks at the Rose Cottage site.*



The principal objectives for research at the Rose Cottage location were: 1. assess the Rose Cottage site and immediate vicinity (**figs. 3 and 4**) for subsurface features using multisensor geophysical methods; 2. create and interpret graphical representations of subsurface features at Rose Cottage and its immediate vicinity; 3. make recommendations concerning any future archaeological investigations and preservation of features found by the geophysical survey.

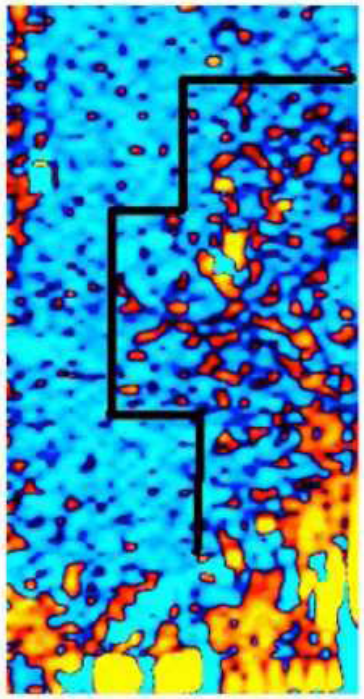
To these ends the suspected location of the Rose Cottage site was initially gridded and surveyed using a 'Core Area' of 8 x 16m (**fig. 4**). Additionally, two other so-called 'Outer Grids' 20 x 20m, were examined on either side of the suspected Rose Cottage site in an attempt to better define the site and any auxiliary buildings that may have once been there. The Core Area was surveyed using both radar and magnetometry, as were the Outer Grids. The radar data was acquired using a 0.5 m interval between adjacent survey lines or transects. This yielded data files for analysis and post-plotting efforts. In the case of the magnetometer survey, the modern era scrap metal surrounding the Core Area grid posed a bigger problem in terms of creating extraneous magnetic signatures or "anomalies" that would not be directly associated with the Cottage or succeeding structures. In the cases where the scrap metal could be removed, this was done; where it was impossible to clear this material, all efforts were made to avoid surveying in proximity to it or note the presence of these materials so subsequent analysis could take it into account. Where the Outer Grid margins neared the Core Area some interference was observed with the magnetic results but not to the degree encountered in the Core Area.

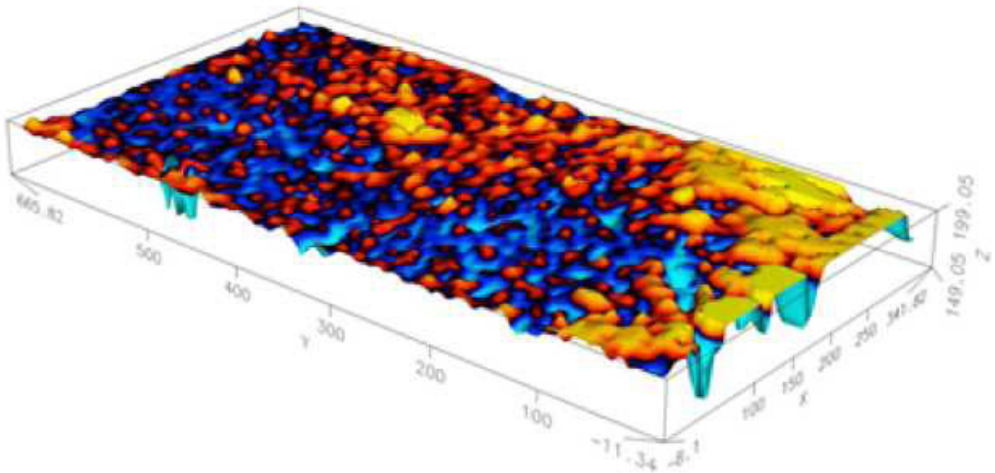
The 2013 Survey, The 'Forgotten Cemetery'

Located just below the higher elevation of the Rose Cottage site (**fig. 4**), tribal officials asked that a site known as the 'Forgotten Cemetery' be investigated. A grid was placed in a mown, grassy pasture bordered by a low elevation on its north side by the so-called 'Old Road', which connected the Rose Cottage with the modern day road and the location of the now vanished 'Ross Store'. As indicated in the 1937 Elizabeth Ross interview, "One of the oldest burying grounds in Cherokee County, now altogether obliterated, once lay near the north bank of the Park Hill branch, several hundred yards northeast of the Campbell Spring (supra)." A 20 x 50m survey grid was surveyed using both magnetic and radar instruments: a Gem Systems Model GSM-19 Overhauser Effect gradiometer and a GSSI SIR-3000 and a 400 MHz antenna system.

Figure 5. (right) *The grid used for the December 2008 surveys. The top of the plot is north. The photograph shows the surveyed area looking south. The modern museum is shown in the top left.*

Figure 6. (below) (a) *left: plot of the 330 Hz conductivity data with the area of greatest EM response outlined corresponding to the buried portion of the Seminary building; The modern museum's entry plaza appears as the bright yellow area at the bottom;*
(b) *right: the isometric view of the same conductivity data.*





Cherokee Female Seminary
EM 330 Hz, Quadrature
4.95 feet in depth

Survey Results

Shown in the following series of plots are the results the surveys. What we can say is archaeological geophysical prospection proved to extraordinarily successful in detecting and helping identify long-buried and lost historic tribal places. The data presented in the following plots were rendered using GPR_Slice software for the radar data and that used for the EM and magnetic data was OASIS Geosoft Montaj software along with Golden Software's SURFER 9 program.

The 2008-2009, Female Seminary Survey

Figures 5 and 6. *See previous page.*
Figure 7. (right top) *GPR time slice for radar data at a depth of approximately 1.13-1.27 meters or 3.7-4.2 feet. Buried basement walls are clearly shown.*

The 2013 Survey, Rose Cottage

Figure 8. (right middle) *GPR plot of the 'core area' of the Rose Cottage site clearly showing buried walls. These features were 'ground-truthed' resulting in discovery of the corner of the buried building thought to be the Rose Cottage (cf. figure 9).*
Figure 9. (right bottom) *Two courses of exposed, unpointed, masonry wall, Core/West Grid, Rose Cottage. Scale divisions are cm. On figure 5, the nearest coordinate is 0, 14 m.*

The 2013 Survey, The 'Forgotten Cemetery'

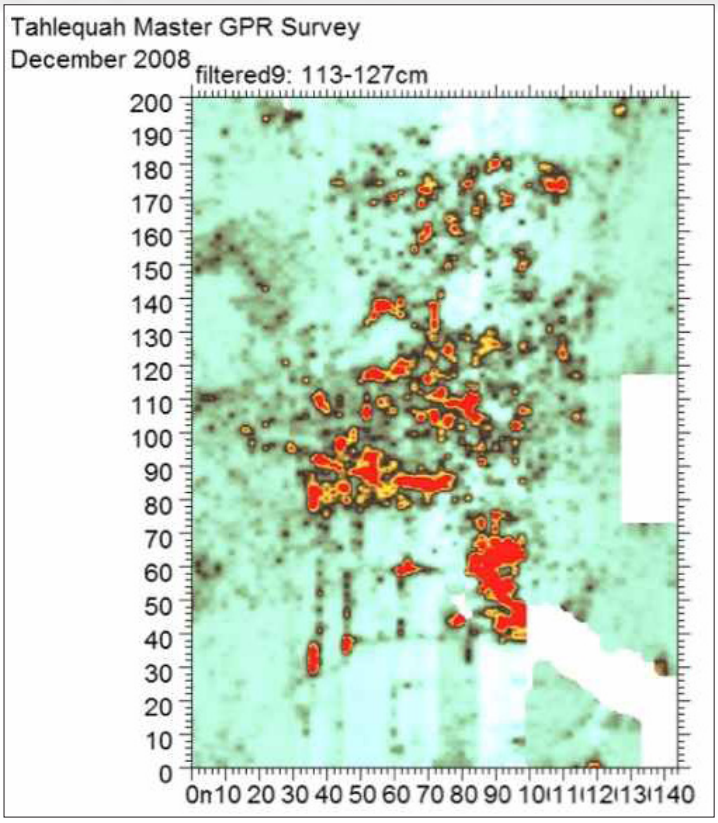
Figure 10 and 11. *See next page.*

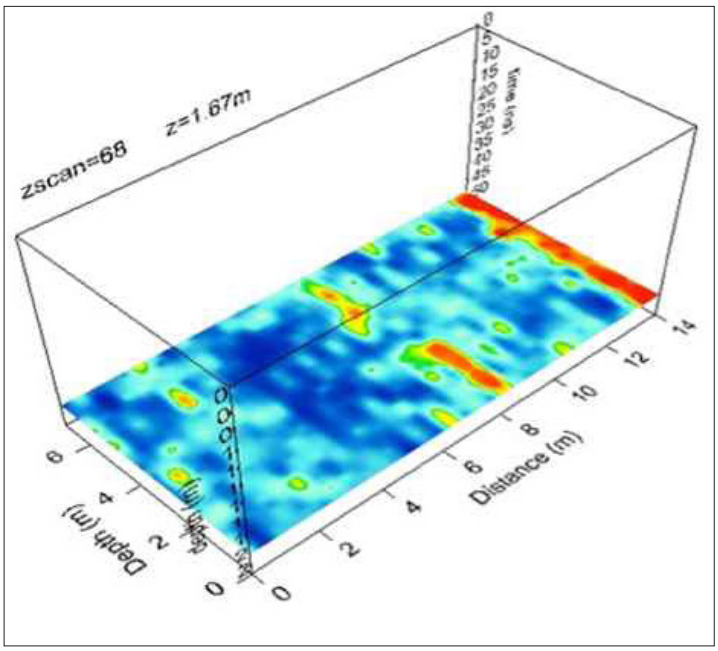
Summary

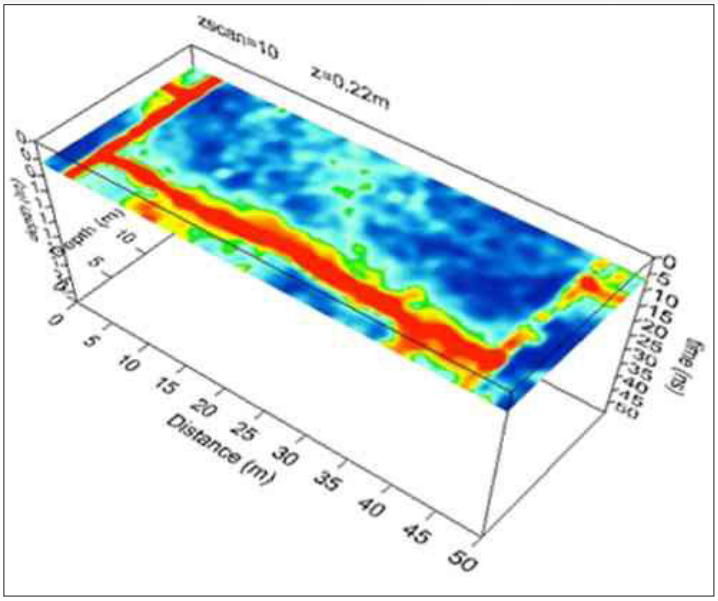
From the standpoint of Cherokee history, the existence of even architectural remnants of the first Female Seminary, the Rose Cottage and a 'Forgotten Cemetery' offers the possibility of both preservation and study of those remains. These now buried architectural 'ruins' are as important to the history of the Cherokee Nation as their language and long-held traditions. To non-native populations unfamiliar with the recent - 19th century onward - history of American Indian tribes, many would be surprised to know these peoples placed such a premium on education in assisting the tribe's desire to integrate - not assimilate - into the larger American nation.

To survive and thrive is a testament to the will and strength of peoples like the Cherokee after undergoing what many would characterize as almost genocidal treatment. The modern tribe understands the positive role archaeological prospection can play in the recovery of the past.

The tribe owns its own ground penetrating radar system. Plots and their interpretations based on geophysical data are useful and in the cases presented here, extraordinarily successful in augmenting the goals and objectives of the Cherokee Nation with regard to reclaiming and representing their history.







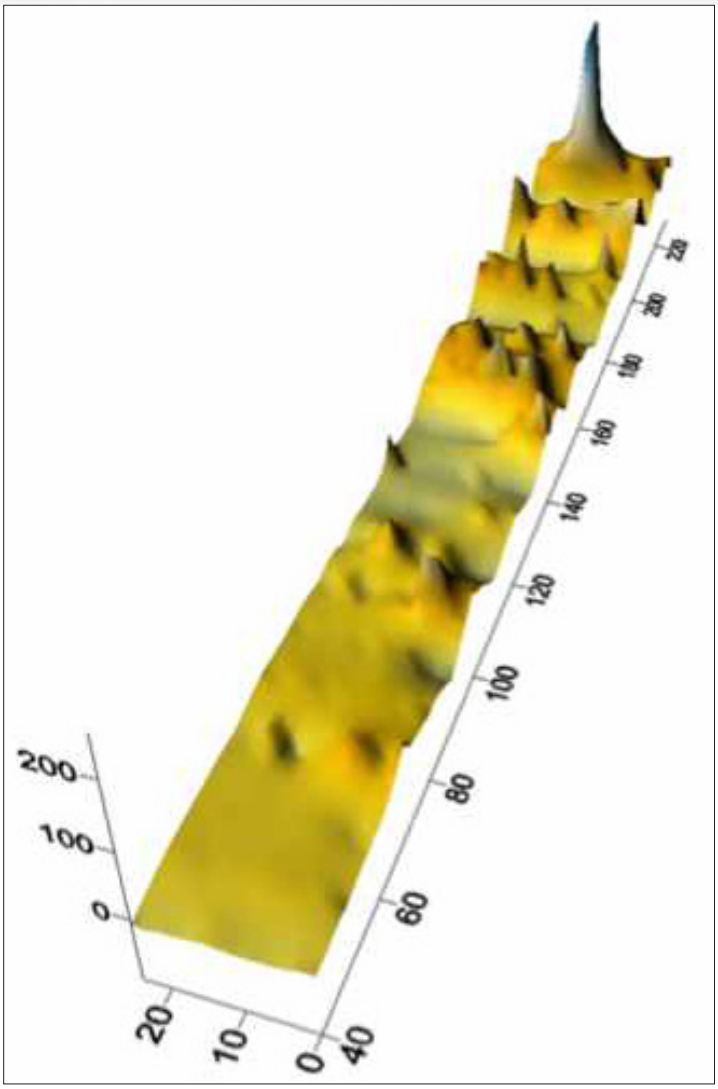


Figure 10. (above left) *GPR time slice view of the 'Forgotten'/Old Cemetery area. The upper view is at a depth of 0.22 m. The image clearly shows the rectangular subsurface feature interpreted as a the 'footer' of a stone or masonry wall.*

Figure 11. (above right) *Isometric plot of magnetic features for the 'Forgotten Cemetery'. The plot encompasses the entire 50m length of the grid. The anomalies are interpreted as graves.*

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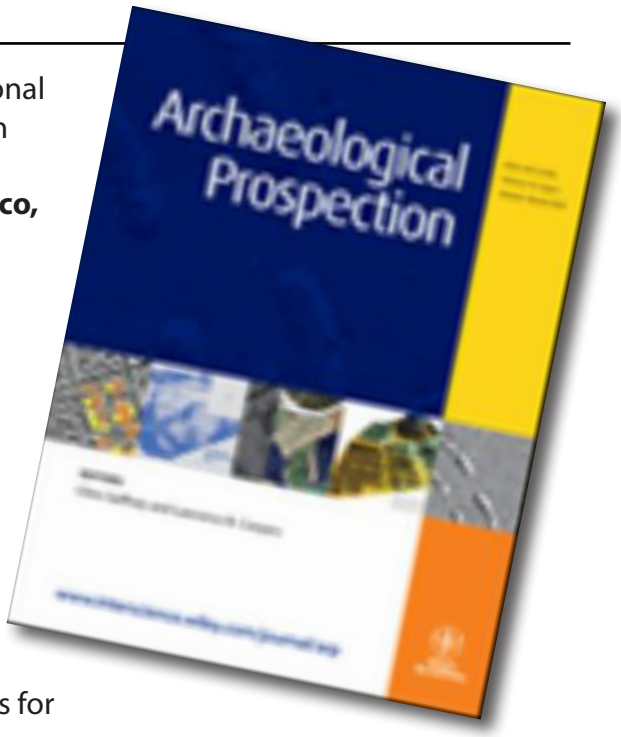
Archaeological Prospection 22 (1)



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Cover image: Magnetometer survey on the West Bank of Thebes, Egypt (photo: Angus Graham)