

S6a : LAC2018: List of Sessions and session organisersⁱ

1A: Geoarchaeology and Landscape;

Lisa-Marie Shillito, Helen Mackay and John C. Blong; *Newcastle University (UK)*

Geoarchaeology in its broadest sense applies the methods of earth sciences to address archaeological questions, but it is more than just a methodological approach. Geoarchaeology is an interdisciplinary subject area that utilises methods ranging from soil chemistry to limnology, and from geophysical survey to GIS. What makes it different from related subjects is that it considers the data from such analyses in the context of archaeology, i.e. the cultural perspective. It forms a bridge between the physical reconstruction of past landscapes, with interpretative approaches concerning the human experience and behaviour. How did aspects of landscape such as vegetation cover and landforms change in the past? How did people inhabit and use these landscapes? What impact has the physical landscape had on socio-cultural development? And finally, what lessons from the past can we learn for modern day landscape conservation and management? This session at LAC2018 will bring together geoarchaeologists from archaeological and geoscience backgrounds, to consider the different approaches to landscape and to address these questions.

6C: Understanding Cultural Landscapes from Space in the era of open, big and multi-temporal data

Deodato Tapete & Francesca Cigna; *Italian Space Agency [ASI] (Italy)*

Archaeological remote sensing from space has reached such a level of maturity that many established research methods and image processing tools are now available to practitioners, not only to characterise the physical components of the landscape (e.g. geology, topography, soils, water resources, climate, vegetation) but also to capture the human footprint (e.g. urbanization, use of natural resources) and assess environmental changes (e.g. drought, natural hazards) across space and in time. Satellite data (including from sensors operating in different bands such as microwave) is becoming embedded in archaeological practice. Freely accessible long time-series of multi-spectral satellite images such as Landsat providing coverage of wide and remote regions of the world over decades are considered an asset by landscape archaeologists. Two particular factors play a key role in shaping the research methods of landscape archaeology from space: (1) new multi-temporal data accessed at planetary scale via either open databases and platforms (e.g. the ESA's Sentinel satellites with multi-sensor capabilities in radar, multi-spectral and thermal infrared domains) or open calls for scientific proposals (e.g. the Italian Space Agency's COSMO-SkyMed images); and (2) cloud computing facilities and infrastructure (e.g. Google Earth Engine) that allow users to undertake their research running their own codes and processing routines. This session will explore the archaeological and remote sensing community's perception and understanding of the opportunities given by these new space and computing science technologies. It aims to facilitate an interdisciplinary exchange of ideas and promote discussion on current capabilities and challenges in the use of open, big and multi-temporal satellite data. We welcome interdisciplinary papers presenting novel research methodologies of satellite time-series analysis for landscape archaeology, as well as developed case studies, for example dealing with condition or damage assessment of cultural landscapes.

8G: Settlement Desertion and Cultural Landscape Transformations

Zdeněk Kučera¹ & Agnieszka Latocha²; ¹*Charles University, Prague (Czechia);*
²*University of Wrocław (Poland)*

Cultural landscape is a palimpsest and a multi-period heritage. Landscape is subject to constant transformation and (re)interpretation, and settlement desertion or abandonment is an inevitable part of landscape development. Even in entire areas, many settlements have been abandoned only recently and remnants of former inhabited places from various periods are identified worldwide. For a landscape to become cultural, it has to be inhabited. Settlements are established by people for people, they are used by them, become part of their identities, are perceived, interpreted and evaluated. Settlements evoke a certain sense of stability. Deserted settlements are thus often perceived as a symbol of particular and extreme discontinuity in landscape cultivation. However, once abandoned, deserted settlements often do not transform into completely forgotten places, as their remnants or ruins are integrated with continuing, ongoing social and cultural activities. Thus, the story of settlement desertion

is not only the story of loss, destruction and oblivion. Through their material inertia, abandoned settlements may become a part of local and regional heritage and be integrated in the activities of those people that strive for the maintenance or creation of a relationship with certain historical and intergenerational continuity to the lived-in landscape. The session thus seeks papers that do not only discuss the causes and consequences of settlement desertion in various regions in the distant as well as the recent past but also pay attention to the present condition, functions and meanings of abandoned settlements, and of their remains and ruins.

11B: Dynamic Landscapes: The human role in reshaping the geomorphology of arid environments
Nizar Abu-Jaber¹ & Catreena Hamarneh²; ¹*German Jordanian University (Jordan)*,
²*Von Humboldt University (Germany)*

Landscapes in tectonically active areas are by nature dynamic, which means that humans living in such areas need to factor this into their landscape management. Climate fluctuations also come into play as well. Humans are accustomed to their surrounding landscape, considering it the natural condition in which they live. Changes over several generations are difficult to perceive, and mutual interactions with the landscape may go largely unnoticed. Environmental studies, however, point to a long relationship of interchangeable roles between humans and their surrounding landscape. Archaeological evidence coming from *tells* (artificial mounds with several occupation settlement layers) frequently shows uninterrupted human settlement through many centuries, periods and even dominant powers. Other evidence shows the transformation of human livelihood patterns between nomadic to settled farmers and *vice versa*, while some sites become totally abandoned. The question is whether this a reaction to human adaptation to a changing environment, or a result of humans modifying the landscape, causing drastic changes in environmental conditions, for better or for worse. Various evidence exists in the surroundings of settlements showing human interference with geomorphology, including the diversion of rivers and gullies, creation of artificial dams that collect water, building of terraces, creation of soil covers, introducing new crops while eradicating others, or exhausting water tables. This session calls for participants to share their research that covers the following topics: palaeo-environmental studies focusing on human modification; Hydrogeological cataclysms affecting surrounding landscapes (drying of springs, change of water table, floods; Constructions modifying the surface morphology, such as dams, terrace or barrages; Archaeological evidence of human resilience and adaptation to changeable environmental conditions; Archaeological evidence for human modification of the plant cover.

18B: Climate, Heritage and Environments: collaborative approaches to the study of climate change impacts on the historic environment

Louise Barker¹, Sarah Davies² & Sandra Henry³; ¹*Royal Commission on the Ancient and Historical Monuments of Wales (UK)*, ²*Aberystwyth University (UK)*, ³*Discovery Programme Ireland (Ireland)*

Climate change brings a number of significant global challenges to the historic environment. This session seeks to explore the methodologies and collaborative approaches that researchers are employing to study the past, present and future impacts of climate change on cultural heritage. The session organisers are part of the five-year EU-funded CHERISH Project - Climate, Heritage and Environments of Reefs, Islands and Headlands of the Irish and Welsh regional seas. CHERISH brings together a cross-disciplinary, cross-border team of specialists from a variety of fields including climate change, hydrography, geology, archaeology, remote sensing, environmental science and scientific dating. The project seeks to target data and knowledge gaps in the coastal zone of Ireland and Wales, establish new coastal baseline data and recording standards, link land and sea through tackling the 'white ribbon' zone and reconstruct past environments and weather histories. The session brings together papers which showcase collaborative and innovative research and fieldwork approaches, whose principal aim is to raise knowledge and awareness of the impacts of climate change on heritage sites and landscapes. We are keen to promote an exchange of ideas and active discussion between researchers on projects tackling a variety of climate challenges on land-based, coastal and maritime heritage.

20G: Transhumance

Mark Bowden¹ & Pete Herring²; ¹*Landscape Survey Group (UK)*, ²*Cornwall Council (Historic Environment Service) (UK)*

Transhumance has been extensively and deeply studied in many parts of Europe and elsewhere in the world but has in Britain received relatively little attention away from the northern and western highland zones. There have been some local studies, some survey and excavation on the physical remains of shieling sites, some consideration

of the place name evidence associated with the practice, some application of ethnographic models derived from early modern accounts, and a few attempts to consider the experiential or phenomenological aspects of moving to and from the summer pastures spending several months away from home. But there has not been the sustained academic attention paid to this important aspect of rural economy and society that has been seen, for instance, in France, Italy and Spain, or in Scandinavia and Ireland. Transhumance - 'summering' in traditional English terminology - is a group of differing but related systems. They involve seasonal movements of livestock over long or short distances to exploit pasture in complementary ecological zones. It is an economic activity, a widespread aspect of pastoralism, but also driven by the needs of arable agriculture. The movement of flocks and herds, however, also involves the movement of people, and this has profound social implications. There is widespread evidence of its prevalence in the British Isles in historical periods, and strong suggestions in prehistoric arrangements that are still visible today of deeper roots and a wider influence on the development of the British landscape. There is, however, little understanding of how it worked, its origins and development, its impact on social practice or, indeed, its decline.

21F: Speaking Monuments - the stories behind the stones

Michael Freikman Evie Gaessner; *The Hebrew University of Jerusalem (Israel)*

Monuments are the most conspicuous anthropogenic element of virtually any landscape. These monuments are defined not only by their scale and architectural complexity but also (and possibly even more) by their exceptional visibility in the landscape; their primary function is to be seen and admired (though not necessarily physically accessed) by spectators. Sometimes they are visible from long distances, thus becoming, intentionally or not, a kind of beacon in the local space. But a monument is more than a highly visible feature. Planted in the centre of a local landscape, over time it becomes a connecting spot that turns various unrelated spatial features like roads, rivers, gardens, and private and public buildings into parts of a single system, like a huge body of which the central monument is the heart. Even more important, these relations between different elements are an embodiment in stone and timber of stories told by the builders to explain their appearance in the landscape to future generations. The reasons behind the construction of such monuments can be many things – for example imperial propaganda, founding myths or historical events, episodes of religious significance, etc. It is only rarely, however, that an ancient monument is eager to tell us its story, especially in the absence of textual evidence. Archaeological evidence directly related to the monument itself is usually very scarce, and so the monument stays, conspicuous but silent in the middle of the field, stimulating our imagination. It is the landscape that often surrounds it which can be helpful in revealing the story behind the monument. Therefore, the main goal of this session is to present case studies from various periods and regions of the Mediterranean basin and beyond which can illustrate the phenomenon of transmitting ideology through an interaction between monument and landscape. The outcome of this session should hopefully be a set of tools which will help us to read and analyse the landscape context of monuments and understand its language in a better way.

22E: Archaeology, Methods, Action! - rigorous methodologies for understanding past mobilities

Michelle de Gruchy & Ed Caswell; *Durham University (UK)*

It is an exciting time for those interested in past mobilities. As described by Jim Leary (2014) in the introduction to the book *Past Mobilities*, researchers working around the world are continuing to develop new methodologies, including quantitative methodologies, for exploring mobilities and movement within landscape (and *vice versa*). By definition such study areas embrace a broad range of regions and time periods and (rarely having the chance to meet in the same room) researchers find it easy to lose track of relevant or inspiring methodological developments in other regions or periods. The aim of this session is to bring together researchers from a wide range of fields and regions. This session will be coordinated with two other sessions at LAC2018; the focus of this session is on methodology, rather than applications, including particularly quantitative methods, for modelling and understanding movement from the individual to the societal scale. Current topics on which papers are invited include (but are not limited to) reconstructing/predicting routes, understanding past route choice decisions, identifying traffic patterns, and examining the travel of individuals; more broadly, how can we track the impact of travel on culture?

24F: Landscape and Belief

Freya Horsfield; *Durham University*

Papers are invited which consider the impact of belief on landscape. Archaeology has long engaged with belief, often through study of specific places, features or religious movements. More recently, archaeologists have also become interested in the impact on the wider landscape of the behaviour of people who have been motivated by religious belief but whose actions may appear mundane. For example, landscape-scale water management such

as wetland reclamation and waterway diversion for agricultural purposes enabled religious institutions such as Medieval monasteries both to adapt their physical environment and also to incorporate such activities into a wider narrative about the relative agency of seen and unseen actors. Such actions might be termed belief-powered rather than overtly religious. The session welcomes papers from researchers working on landscape change associated with any religious tradition, and from all parts of the world. What are the challenges and opportunities in understanding such belief-powered behaviour, and its long-term impact on landscape? What are the implications of this type of understanding, for research, and for contingent decisions?

26G: Archaeological prospection in high-mountain environments

Francesco Carrer¹ & David Gonzalez-Alvarez²: ¹*McCord Centre for Landscape, Newcastle University (UK)*, ²*Instituto de Ciencias del Patrimonio, CSIC (Spain)*

In the last two decades, upland archaeology has emerged in Europe as a new and vibrant field of research. This new branch of landscape and environmental archaeology investigates the interaction between human communities and high-altitude ecosystems in the long-term. In this context, there are significant methodological challenges that need to be addressed to maximize the interpretative potential of archaeological evidence in the uplands. Archaeological prospection is one of these challenges. Remote sensing, field survey and geophysical survey at high-altitude are quite different from the traditional large-scale prospections in the Mediterranean lowlands. The difficult accessibility of the uplands, the low surface visibility of alpine and subalpine grasslands and the complex morphology of the terrain affect the use of the aforementioned methods in the mountains. For this reason, researchers working in different mountainous areas face similar or complementary problems. Discussion and confrontation are necessary to generate synergies, learn from each other's experiences and reinforce the methodological strength of archaeological prospection in high-mountain environments. This session aims to bring together contributions focused on the use of archaeological prospection in different mountain region. We welcome papers investigating case-studies in Europe and beyond, with different chronological and thematic focuses. We are also interested in papers discussing new methodologies and new techniques, specifically aimed at the study of mountain landscapes. We are particularly interested in the following topics: 1) New approaches to address surface visibility problems in field survey, testing the suitability of specific geophysical methods and calibrating their use according to local environmental conditions; 2) The use of remote-sensing methods (satellite and aerial imagery, LiDAR, drone survey, 3D modelling and photogrammetry, etc.) to inform field survey and archaeological excavation; 3) Assessing the reliability of inductive and deductive predictive modelling to identify target areas for field and geophysical survey.

27G: Landscape Archaeology in Africa's later prehistory: new methods and current research

Nadia Khalaf; *University of Exeter (UK)*

African research is often omitted from prominent debates in landscape archaeology, but this does not reflect its absence in research on the continent. This session therefore focuses on the unique position of landscape archaeology in Africa. African landscapes provide a deep-time history that have provided some important discoveries which are valuable for global archaeology discussions. Furthermore, the spatial complexity of historic landscapes in the continent challenges colonial assumptions of a primitive and empty past. A vast amount of new landscape data is being collected in Africa, and researchers are innovative in their method and interpretation. The use of GIS, remote sensing and photogrammetry is becoming more frequent, although we have yet to see these technologies used on the same scale as other regions of the globe. This session showcases new and ongoing research projects from a range of areas across the continent, discussing current trends and methodological advances in African landscape archaeology.

28C: Aerial Approaches in landscape Archaeology: past, present and future

Stephen Davis¹ & Rachel Opitz²; ¹*University College Dublin (Ireland)*, ²*University of Glasgow (UK)*

Aerial methods have been at the forefront of landscape archaeological studies for over a century. They range from traditional air photo interpretation through to the 'lidar revolution' of the last decade and the increasing use of both drone-based technologies and spaceborne sensors. In combination with GIS, such methods form the basis for the majority of landscape-scale archaeological projects undertaken today. This session, organised by the Aerial Archaeology Research Group, aims to focus principally on the use and integration of aerial methods with other forms of survey. We seek papers that can incorporate the modern interpretation or reprocessing of historical aerial archives, the use of novel sensors and methodologies or integrated projects with aerial methodologies at their core. We also welcome contributions of a more theoretical nature, exploring the tension between aerial approaches and

physical engagement with the landscape, and looking also to the future development of this important sub-discipline of landscape archaeology.

29C: Remote sensing in landscape archaeology research

Louise Rayne¹, Chris Brooke² & Danny Donoghue³; ¹*University of Leicester (UK)*,
²*University of Nottingham (UK)*, ³*University of Durham (UK)*

This session assesses the status of remote sensing applications in landscape archaeology and explores how their use could in future have a more significant impact on archaeological research and cultural heritage protection. It is organised in conjunction with the Remote Sensing and Photogrammetry Society (RSPSoc), which has an Archaeology Special Interest Group. Remote sensing and GIS have rapidly been adopted by archaeologists for several key reasons: fast mapping of entire landscapes, analysis of large datasets, and a way of recording features in areas rendered inaccessible, for example in places affected by current conflict and by land-use change. In recent years many image interpretation-based studies, classifications and automated detection projects (and thermal imaging, photogrammetry, lidar, SAR [Synthetic Aperture Radar] and the relatively low-cost and user-friendly sfm [‘structure- from-motion’] software packages) have been applied to cultural heritage protection and recording. Applications have also sought to demonstrate the use of remote sensing for specific regions, sites, buildings and even objects. The value of many of the products of these analyses needs to be established more robustly, however, reflecting on the need for them to enhance our understanding of past landscapes rather than primarily acting as aesthetically-pleasing visualisations. The session presents a number of relevant remote sensing tools and case studies across a wide temporal and spatial range including Europe, Africa and the Middle East, and will assess the impact of an increasingly open-source research environment. The session will also promote a discussion of how to increase the impact on landscape archaeology and cultural heritage of remote sensing and GIS techniques. The use of remote sensing to detect archaeological soils and topographies and make condition assessments based on monitoring land use and changes to structural features will be evaluated. The potential offered by cloud parallel computing for answering questions about wider landscape dynamics in high resolution is also highlighted in this session.

32E: The ‘Why’ in Landscape Archaeology

Rachel Opitz, Claudia Glatz and Michael Given; *University of Glasgow (UK)*

Landscape archaeology as a set of methods, and ‘archaeologies of landscape’ as a type of study and set of questions, should go together, but often make an odd couple. When preparing to study a landscape we pick our data and methods and declare our intellectual framework and research questions. Some of us choose settlement patterns and spatial statistics that quantify distance, declaring that they are doing landscape history and professing an interest in whether or not urban political change is reflected in where farmers live. Others see monuments as fundamental building blocks of landscape in spatial, political and social terms and analyse their physical and experienced qualities. We then set about trying to interpret our inevitably ambiguous data, to say why we think what we think. We have various ways of formalising structures of knowledge through a range of ontologies and quantitative and modelling approaches as a result of trying to clarify and formalize the question ‘why’. This session invites papers that explicitly connect data and ideas or attempt to develop new approaches to building the intellectual scaffolding between the data we have and the questions we want to answer.

34E: Markers and Mobilities: Interpreting Dynamic Landscapes

Poul Heide¹ & Oscar Aldred²; ¹*Øhavsmuseet Faaborg (Denmark)*, ²*University of Cambridge (UK)*

This session (one of three sessions on movement and mobility at LAC 2018) foregrounds mobility as both a method of enquiry and as an interpretative framework. Markers are features in the landscape whose histories continue to resonate in the present day. Examples include the large and diverse group of small markers that have aided transportation and mobility across the landscape on land and at sea, or monuments to the dead such as burial mounds that through time have taken on new community meanings at boundaries or trackway nodes. Markers have a strong connection to their immediate surroundings, and their permanence, directionality, and inert/latent intentionality gives them agency that shaped/s the way landscape was/is perceived and how it was/is acted upon. In many environments, markers of stone or with high degrees of material investment tend to outlive their original contexts and can be extremely resilient while the landscape around them changes. They offer important interpretative frameworks for representing and researching the dynamism of landscape and have great potential for both archaeological research and presentation; how are markers and their landscapes managed, and what

kinds of future landscapes will we offer the next generations of landscape archaeologist? To open discussion about markers and the role of mobility in understanding past, present and future landscape, this session aimed to bring together colleagues from different disciplines and geographic areas. Discussion will include – but will not be limited to - the field archaeological identification and dating of mobility markers, discovering how people engaged in wayfinding/navigation, the use of movement or mobile methods as a research tool, the explanation of markers, routes and mobilities to the public, and management strategies for securing marker systems in landscapes.

35D: A Sense of Place: Community Archaeology in the Landscape

Angela Gannon¹, Lawrence Shaw² & Nathalie Barrett³, ¹*Historic Environment Scotland (UK)*, ²*New Forest National Park (UK)*, ³*Winchester University (UK)*

Gone are the days when public participation in archaeology involved turning up as a volunteer to help excavate a site with the promise of free board and lodging for a few weeks over the summer holidays. Today, Community Archaeology is a diverse and growing area of research and practice offering opportunities beyond those of archaeological process. Many projects now involve public participation as a primary objective and can be seen as gateways to stimulate interest, learn new skills and create a sense of belonging both spatially and temporally. Engagement with the historic environment can deliver wide-ranging benefits to individuals and communities and this is acknowledged in the funding streams that support these projects, either wholly for some or as a precondition for most. Far from excavation, such projects are often interested in less invasive techniques from locally based survey and recording initiatives to nationwide citizen science projects. Public engagement can range from following a series of prescribed tasks, either desk-based or on the ground, to the learning and adoption of new skills and the creation of knowledge. The session is supported by the Landscape Survey Group (<http://landscapesurvey.org/>) and will adopt a workshop format, introduced by several papers, to stimulate thought and provoke involvement from participants in discussing how best to deliver and support community engagement projects and consider challenges and lessons learned to create an understanding of future best practice.

37B: The Flip Side of The Coin: Resilience, Adaptation and Innovation in the Wake of Natural Disasters

Paolo Forlin¹ & Simon Jusseret²; ¹*Durham University (UK)*, ²*University of Texas (USA)*

Natural disasters such as volcanic eruptions, earthquakes, tsunamis, floods, extreme weather events and abrupt climate changes are key agents in transforming landscapes, sometimes in largely irreversible ways. From an archaeological perspective, these sudden and unpredictable events are often investigated as part of an ever-popular 'collapse paradigm' or through the paradigm of long-term evolutionary changes. As a counterpoint, this session aims to explore the impact of natural disasters, and the adaptive responses of affected communities, from a landscape archaeological perspective, understanding landscapes in their physical and socio-cultural dimensions. Instead of traditional categories such as 'continuity' and 'discontinuity', we seek to explore more fluid concepts of vulnerability, resilience, cultural change and risk reduction, focusing primarily on how adaptive strategies adopted in the aftermath of natural disasters impacted the cultural and physical fabric of landscapes. We particularly welcome contributions that highlight the creative role played by natural disasters in shaping cultural landscapes, either as 'windows of opportunity' or 'exploitation' (allowing the emergence and proliferation of alternative lifeways), 'stimuli to innovations' (providing new material conditions amenable to the development of innovative ideas) or 'teachable moments' and 'learning reviews' (allowing societies to reflect on their own practices, infrastructures and vulnerabilities). We invite papers that take account of the varied aspects of disaster archaeological research, bringing together case studies, methodological approaches and theoretical perspectives without geographical or chronological restrictions. We also encourage contributions showcasing ideas and reflections on the possible role of archaeological approaches to contemporary risk assessment and hazard communication in disaster-prone regions. Session participants will be invited to contribute to a collective scientific article focused on the creative impacts of natural disasters on ancient societies and the landscapes they inhabited.

38A: Towards a Landscape Archaeology of Wetlands: on-site data to macro-scalar view

Benjamin Gearey¹, Roy Van Beek² & Nicki Whitehouse³; ¹*University College Cork (Ireland)*, ²*Wageningen University*, ³*University of Plymouth (UK)*

Wetland archaeology has long been dominated by a focus on single archaeological sites and palaeoenvironmental sequences, in part due to the time and expense required for investigation. Consequently, the broader spatial and chronological patterns of landscape scale processes in the evolution of wetland systems are in general poorly understood. Reconstructing wetland evolution and wider environmental change from site scale to landscape is critical for understanding the role of different 'drivers' (e.g. Climate, relative sea level, human impacts etc.) And for

contextualising the archaeological record and human activity. Such investigations present significant problems and little concerted effort has to date considered the methodological and theoretical challenges faced by wetland archaeological, palaeoenvironmental and chronological research seeking to understand how to move across and between spatial and chronological scales. In addition, questions concerning the character of human activity in wetland landscapes and between wetlands and drylands necessitate an integrated approach drawing on scientific and humanities-based research. In this session we intend to move beyond single sites and records to discuss progress in method and theory, moving towards a landscape archaeology of wetlands. We especially welcome contributions addressing the following themes: Methodological approaches addressing the theoretical challenges of 'scaling up' site specific palaeoenvironmental records to larger spatial and temporal scales; Potentials and problems of connecting archaeological records from wetlands and dryland to better understand macro-scale processes of environmental and cultural change; Recent insights gained from landscape-scale research projects or from studies on the specific archaeological sites within their wider landscapes; Integration of humanities and scientific data and approaches at various scales, and the difficulties of 'disentangling' social and environmental drivers of resilience and change.

39D: Where Next for Historic Landscape Characterisation?

Peter Herring¹, Niels Dabaut² & Jonathan Last³; ¹*Cornwall Council (Historic Environment Service)(UK)*, ²*University of Newcastle (UK)*, ³*Historic England (UK)*

Landscape archaeology helps us better understand particular places. But through a classically typological, generalising approach, characterisation, it can also extend that understanding to other similar places in a region. Historic landscape characterisation (HLC) was developed in the UK to maximise the benefit of investment in landscape archaeology by spreading as widely as is reasonable a certain level of understanding to the more numerous areas that have not been studied in detail. Most places are not wholly unique but can be characterised on the basis of distinguishing attributes shared with other places to form a more generic type. For example, understanding gained by detailed study of one Vietnamese terraced field system, one 19th-century china-clay working complex in Cornwall or one walled hilltop town in southern Italy, can be extended through characterisation to numerous others in their regions. The shared understanding is of course shallower and less precise than that available in the closely studied places, but not substantially so. HLC-type methods have been applied (if less extensively) outside the UK as well, and in several other European countries and from the Amazon to Texas. This session will encourage exploration of HLC methods (are they sound?), its principles (are they helpful?), its application and its future. To what extent can it be used reflexively and predictively to guide further research in urban and rural landscapes? How can HLC help the people that live in, work in and use the landscape to develop their sense of place? Can it empower people to participate in the management of their surrounding heritage? Can it be used to judge the relative sensitivity of places to certain types of change? Or can it be made interoperable with the characterisations that natural environmentalists develop, to more subtly inform the understanding of ecosystem services? Can more socially inclusive futures then be designed for ecosystems that are based on greater awareness of their history and thus of the communities that created, nurtured and maintain them?

40E: Movescape: Toward an integrated study of movement, pathways and settlement dynamics

Laure Nuninger¹, Philip Verhagen² & Rachel Opitz³; ¹*CNRS, Univ. Bourgogne Franche-Comte (France)*, ²*VU Amsterdam (NL)*, ³*University of Glasgow (UK)*

Settlement patterns and path networks represent different but connected perspectives on human-environment interaction through movement, manifested through the appropriation and organisation of landscape by societies. Settlement patterns and path networks evolve with out of sync temporalities, but nevertheless are in constant interaction, rendering holistic territorial studies challenging. When analysing path networks in the context of territories, the questions are usually related to origins, variations, and duration over time. Why and when were the paths created, how long did they persist, and at what level of intensity were they used? Can the concept of corridors of movement be used to encapsulate the remains of flexible structures of travel? In this session we want to discuss the theoretical and methodological implications of an integrated study of movement, pathways and settlement dynamics. What concepts can successfully link these fields of study? What is needed to study the co-evolution of path networks and settlements patterns at different temporal and spatial scales? How should we deal with data quality issues? What is the contribution of state-of-the-art digital technology? This session brings together research addressing archaeological studies of movement and path, and which focus on the integration of detection and modelling, or work at the confluence of studies of settlements and paths.

42E: Classical Archaeology and Landscapes

Will M. Kennedy & Raphael Eser; *Humboldt University Berlin / Topoi (Germany)*

Classical Archaeology has traditionally been defined as the study of predominantly Greek and Roman material culture between the Aegean Bronze Age and the Late Roman Period (with a clear focus on the Classical Greek and Roman phases), and with an emphasis on Italy and Greece. The study of neighbouring cultures in the wider Mediterranean region has however increasingly attracted scholarly interest among classical archaeologists, whilst the later Byzantine and Early Islamic Periods are now also further integrated within Classical Archaeology. Additionally, the methodological scope of Classical Archaeology has expanded significantly in the last decades, from a focus on elite cultures to an increasingly diversified approach researching more general aspects and a far wider social sphere of cultures. Despite these developments, however, the disciplinary core of Classical Archaeology remains deeply rooted in art-historical and philological research, while other, more interdisciplinary approaches struggle to find scholarly acceptance within the field. This session will assert, agreeing with Achim Lichtenberger and Rubina Raja in their 2017 monograph *The Diversity of Classical Archaeology*, that it is time to redefine classical archaeology in a broader geographical, chronological and methodological frame. In particular, in the context of LAC and following Michael Teichmann who calls for a stronger interdisciplinary integration of the discipline within landscape archaeology, we aim to provide a discussion platform for bridging the still-persisting gap between traditional Classical archaeology and landscape archaeology and to establish landscape archaeological methodologies as part of modern Classical Archaeology. We thus invite speakers with a background in Classical Archaeology and related fields to present case studies with a strong landscape archaeological approach, to demonstrate that landscape archaeology does not stand in contrast to the more traditional approaches of the discipline and further to highlight the diversity of modern Classical Archaeology.

43A: Archaeohydrology as a Discipline? : Developing a new approach to the study of ancient waterscapes

Julien Charbonnier¹, Maurits Ertsen² & Kristen Hopper³; ¹*CEPAM-University of Nice (France)*, ²*Delft University of Technology (NL)*, ³*Durham University (UK)*

In recent years, archaeological studies of water, its use, management and meaning, have grown in number and thematic richness. Previous LACs have offered many excellent examples, and many studies have been published in *Water History*, the journal of the International Water History Association, including the work of the late Tony Wilkinson and his students at Durham University. Successful cooperation within the German Archaeological Institute has further increased our understanding of archaeological approaches to hydrological and hydraulic features. This increased attention enables and provokes a closer study of the theoretical and methodological issues related to water studies in landscape archaeology. For example, how do we relate archaeological research on communities living in arid or irrigated lands with hydro-engineering and hydrological disciplines? Conversely, how do we ensure that scholars from these backgrounds understand the socio-cultural contexts of archaeological sites and features? The main aims of this session are to explore how water studies within archaeology can be developed along similar or different lines as vegetation or animal studies, and to identify and define an applied archaeohydrology that could be used to inform present-day sustainable use of water, heritage education and protection. What does a disciplinary concept of archaeohydrology mean compared to archaeobotany or zooarchaeology? The session offers papers that discuss (combinations of) case studies and theoretical and methodological approaches to the subject.

44C: Landscape Archaeology and Reproducible Research -- A hands-on session

Daniel Knitter & Wolfgang Hamer; *Christian-Albrechts Universität zu Kiel (Germany)*

In the last years, Landscape Archaeology has opened up more and more towards quantitative approaches. Reproducibility and open data are crucial - especially when dealing with highly subjective aspects like perception - to providing sound methodological analyses and inspiring discussions. Besides, they are also a contribution to the necessary and important debate between model supporters and critics at the most transparent level of data preparation, selection, modification, and interpretation. But it is clear reproducibility is not for free. It is an approach to conduct research in a way where we as researchers must prepare our data and provide our methods in an accessible form in order to enable colleagues to reproduce our results and to use these as well as our

methodological approach in their own research. Currently within archaeology experience is limited as to what the best practices are to achieve such conditions. Hence, we can learn a lot from each other, especially in a practical manner. In this experimental live hands-on session, we invite everybody to present and discuss different approaches of how to conduct reproducible landscape research using open software and data. Our aims are to introduce curious colleagues to this new form of conducting research, and to strengthen collaboration and exchange ideas and approaches between colleagues already conducting reproducible research.

45E: Landscape as Excavation

Oscar Aldred & Mark Knight; *University of Cambridge (UK)*

When is a site a landscape? At what point can we say we are excavating a landscape? Is scale the measure, or is it complexity? Alternatively, is it a matter of persistence, both in terms of the temporal extent of occupancy and the time spent investigating a particular locality? In this session we aim to explore the contribution that excavation makes to investigating and interpreting landscapes by looking at different versions of 'landscape as excavation'. These will include the idea that 'excavating a landscape' means opening a very large area, i.e. an aperture equivalent to a landscape-scale; the idea of exploring landscapes within an excavation, drawing not only on the economic resources of the wider landscape but being able to evaluate from the material remains what it was like to inhabit a landscape (i.e. landscape as process); and the idea that excavation is used more as a metaphor to explore the different 'layers' in a landscape – which might involve excavation, but also other non-intrusive techniques of investigation. In other words, this session aims to examine and tease out ideas associated with landscape as a container and as a medium for action. This demands scrutiny of what is meant and implied by 'landscape archaeology' and 'excavation'. Through a series of papers exploring such issues, this session hopes to challenge the very nature of landscape archaeology by considering the impact that excavation has on understanding tenure and temporality.

47D: Food in the Urban Landscape

Ingrid Sarlöv Herlin; *SLU – Alnarp: Sveriges lantbruksuniversitet, (Sweden)*

This session takes a landscape perspective on the history and archaeology of food culture with a specific focus on the influence of food consumption and production on the urban fabric. Growing crops and keeping animals for sustenance have been carried out in and near cities and towns around the world throughout history. From the Middle Ages to the nineteenth century, grain was the common source of most people's diet in for example the Nordic countries, eaten or drunk in various forms as porridge, gruel and bread or beer. Where vegetables occurred, they were commonly types that could be easily stored or fermented such as roots and cabbages or dried such as peas and broad beans. Most European towns founded before the mid-19th century had access to agricultural fields with a considerable level of self-sufficiency, and particularly within the towns located in agricultural areas, large amounts of grain (and later potatoes) were produced. In capital cities, the court held central kitchen gardens, orchards and hops gardens, today often remembered through urban place names. What was the detailed relationship between food culture, food consumption, food production and the surrounding landscape? Urban commons could play a significant role, including in particular to support women's economy, for example through the sale of butter from cattle kept on urban commons. Animals for food production, such as pigs, sheep, cattle and poultry were commonly held in the cities along with working horses; the products however were not necessarily used by the urban farmers themselves but sold on. Was urban farming for the majority of the population mainly driven by the need for relatively basic sustenance, with more varied including more vegetables limited to the higher classes? This topic also includes studies on for example drovers' roads, food transport systems and food markets. Papers are especially invited on research on theory, method and interpretation of these intricate relationships between food culture and the urban (and rural) fabric. Papers are encouraged from any parts of the world, and in archaeological and related paleogeographic and historical fields.

48C: Landscapes and Heritage on a National Scale

Lukasz Banaszek & Dave Cowley; *Historic Environment Scotland (UK)*

National Mapping Programmes (NMP) in the UK and similar large-scale prospection projects elsewhere have profoundly affected landscape understanding across the world. Immense and complex databases have been created using many traditional prospection methods (aerial and field-walking surveys, interpretation of historic maps and other sources). These resources are used both for heritage management purposes and research-oriented approaches and are often available to the public. Additionally, in recent years the application of newer remote sensing techniques such as airborne laser scanning, spaceborne Earth observation, and extensive geophysical surveys has generated massive datasets, with consequent implications for NMPs, especially for data

integration and coherence. New techniques are also allowing prospection in areas that have not been easily accessible before, offering new insights into past landscapes. This session invites papers that discuss different approaches to national and regional mapping programmes and the use of information derived from them. It is designed to bring together researchers and professionals dealing with NMP, whether data suppliers, surveyors, mapping specialists, database managers or scholars using the NMP outcomes in landscape investigations. Topics and issues for papers may include (but do not have to be limited to): recent technological development of NMPs, data accessibility; open-access and its impact on heritage protection; integrating alternative, often contradictory, prospection techniques; level-of-confidence assessments of remotely-acquired data; landscape evaluation and modelling past societies and population on the basis of NMP results; data bias; tourism and community usage of NMP records; NMP legal environments; big data processing and automation; intangible heritage mapping; site and landscape monitoring; contemporary heritage and other layers of NMP; crowd-sourcing and non-professional input; landscape narratives built over the NMP data.

49G: Roman Military Landscapes

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²*Northumberland National Park (UK)*, ³*University of York (UK)*

Across Europe, the past fifteen years have seen a remarkable surge in archaeological research into the installations, battlefields and tactics employed by the Roman army, particularly in the late Republican era, most notably in Spain. This research has also extended to the social and economic impacts of the Roman military presence on native populations. In Britain the first major programme of research since 1907 into Caesar's invasions of Britain in 55 and 54 BC is under way, involving survey and excavation of Roman and native fortifications and a review of the socio-economic consequences of the campaigns. It hardly needs to be said that LAC 2018 will be held at the eastern end of Hadrian's Wall, a World Heritage landscape which overlaps to a significant degree with the Northumberland National Park and in which diverse and extraordinarily well-preserved military remains sit alongside abundant native settlements and their fieldscapes. Archaeological survey continues to extend our knowledge of these remains, while excavation, notably at Vindolanda, is shedding new light onto the social landscapes inhabited by Roman soldiers and camp-followers. Unsurprisingly, differences across Europe in methodological approaches and theoretical expectations remain apparent. With much research ongoing and more not yet in print, this international session offers an opportunity to showcase some of the most important recent and current research in the archaeology of Roman military landscapes across Europe.

50F: Converting the Landscape: Mapping religious conversion and contested religious space through Landscape Analysis

Emmet Marron¹, Thomas Chenal² & Valentin Chevassu³; ¹*Newcastle University (UK)*,
²*CNRS Besancon (France)*, ³*University of Franche-Comte, France*

Religious monuments are one of the most ubiquitous features on the palimpsest of landscape because the landscape provides a highly visible canvas on which agents (states, communities, individuals, religious groups) advertise the presence, dominance, or claimed dominance of their belief system. This session will examine the key role played by landscape in the case of contested religious space, particularly how the process of large scale conversion from one religion to another is manifested in the landscape. In recent years advances in remote sensing techniques, geophysical prospection and landscape analysis have enabled researchers to map the ebb and flow of religious tendencies more precisely and have allowed for more nuanced narratives for the processes of conversion. This session will explore a variety of approaches used to map this change from Late Antiquity to the Post-Medieval Period and will consider a range of questions that are still relevant to this continuously evolving field of research. Is it possible to distinguish a hierarchy of roles played by various site types in the conversion process (for example parish churches, private oratories and monasteries in the case of Christianisation in the post-Roman West)? How do the results from landscape analyses compare with the picture from written sources? How can we effectively map the interaction between religious, secular, economic and political networks? Is it possible to detect strategies of resistance and resilience by the pre-conversion religion? How have modern religious nationalist narratives and interventions affected religious landscapes? The session welcomes papers from researchers working on landscapes of conversion from Antiquity through to the Post-Medieval period. It is hoped such a wide perspective will allow for a fuller discussion of the common mechanisms by which the landscape is utilised during the process of conversion across a range of temporal and spatial scales.

51b: Coastal Dynamics integrated in Landscape Archaeology of the Eastern Mediterranean

Sjoerd Kluiving¹, Pavlos Avramidis² & Ingmar Unkel³; ¹ *Vrije Universiteit of Amsterdam (NL)*, ² *University of Patras, Department of Geology (Greece)*, ³ *University of Kiel, Institute for Ecosystem Research (Germany)*

Early Mediterranean civilizations made broad use of the coastal areas of the eastern Mediterranean, as is clear from Greek, Roman and Phoenician settlements. Coastal areas provided them with accessible food sources, as well as a geomorphological setting for harbours for transporting goods. From the geological point of view coasts are dynamic sedimentary environments, whose characteristics and nature change from time to time due to sea level fluctuations, changes in the sediment budget, tectonics and human impact. Coastal transitional environments also constitute important archives for the study of Holocene palaeoenvironmental changes, shoreline dislocation as well as sea level and paleoclimatic changes. This session contains interdisciplinary contributions that integrate sedimentological, archaeological, archaeometrical, historical palaeobotany, archaeozoological or landscape modelling and any other relevant approaches. Contributions from excavations that link the narrative of coastal eastern Mediterranean archaeology compared to physical processes are encouraged. The results of this session will be published in a special section of a peer-reviewed journal of landscape archaeology.

52D: Landscape Archaeology as Landscape Planning

Gert-Jan Burgers & Niels Van Manen; *Clue+, VU Amsterdam (NL)*

Professional conservation ethics regarding archaeological heritage have experienced a paradigmatic change during the last decades. They are increasingly diverging from traditional approaches focused on protection through isolation of the heritage from its contemporary spatial and socio-economic contexts. As an alternative, they emphasize the potential role of heritage as a resource for regeneration and sustainable development is emphasised. This is stimulated by national policies and international conventions, promoting the integration of heritage in spatial planning and design projects (e.g. the Dutch *Belvedere Memorandum*, the English *Sustaining the Historic Environment* and *Power of Place*, the European Landscape Convention and the UNESCO Recommendation on the Historic Urban Landscape (HUL). In this developmental approach of 'heritage planning' the spectrum of archaeological heritage has come to include landscape at large, urban and rural; heritage is now commonly approached through the lens of landscapes, perceived as spatial and temporal palimpsests of memories and meanings, socially constituted and continuously redefined and designed. In current planning practice, those palimpsests are often considered vital building blocks and sources of inspiration with which to guarantee place-making, community cohesion and economic exploitation. Implementation of these (inter-) national policy frameworks is however faced with uncertainties that pose urgent questions to archaeologists. What are the critical spatial planning and related societal issues to focus on? How can scientific narratives inform and inspire design and decision making? How participatory concepts be developed that can support communities in formulating conservation aims and having their voices heard in heritage planning? New methods and tools are required to integrate scientific, professional and community perspectives on heritage in the planning process. This session invites papers that seek to address these challenges.

53D: Agricultural Landscapes of the past that effect the present & inform the future Carol

Lang¹, Cruz Ferro-Vazquez¹², Suzi Richer¹ & Daryl Stump¹; ¹ *University of York (UK)*, ² *Universidad de Santiago (Spain)*

Under current and future climate change predictions, natural resources (plants, animals, soils, water) will change in ways that will fundamentally affect all ecosystems, but of particular importance to the global community is the effect that it will have on food availability. 'Future proofed' farming systems, that deliver food and fuel security for an increasingly expanding market, must incorporate strategies that will enable farming landscapes to increase resilience and adapt to impacts caused by variability in natural resources and climate. New and innovative agricultural landscape management systems and farming practices, including conservation, multi-functional and climate-smart agriculture are attempting to develop precise, efficient and resilient farming methods. Alongside and within these advances there is a growing call to utilise traditional, historic and locally relevant evidence of past agricultural techniques to inform future agricultural practices. Landscape archaeology, through trans-disciplinary and multi-sectoral approaches well situated to contribute to discussions that:

1. test existing narratives around historic farming
2. provide case studies demonstrating reasons for agricultural change in the past;
3. investigate long-term change in terms of thresholds and tipping points
4. provide data to validate or test models of long-term change, such as climate models,
5. address issues of agricultural resilience and sustainability

The session focusses on the investigation of archaeological agricultural systems and how these can inform present day farming practices and management, notably relating to the points above.

54D: Urban Heritage Appeals - Or What?

Grete Swensen & Veronique Simon; *NIKU - Norwegian Institute for Cultural Heritage Research (Norway)*

Urban transformation – for example new housing and infrastructure – alter urban landscapes and represent challenges and opportunities for cultural heritage. The cities that will prosper in the future are those that can handle change and have the capacity to adapt to new needs while at the same time activating their long-term memory as a vital resource. Politicians and planners regularly make decisions on which existing structures and archaeological remains must give way to new land use, and which should be protected for the future. Urban heritage regularly appears in policy papers and strategic documents, where it is generally described in positive terms and portrayed as a historic asset in need of long-term safeguarding. In everyday planning practice, however, cultural heritage is rarely given top priority and is even neglected in favour of developments claimed to be better suited to modern economic conditions. In this session, we will ask when, where and how urban heritage becomes marginalised, and when, where and how it is activated? Planning sometimes uses heritage as a kind of ‘camouflage’ to hide other purposes, but heritage can also in various ways rejuvenate and transform towns and cities. We wish to know more about the extent to which urban heritage appeals to the actors involved in city planning and to the users of the city; we also wish to gain insight from cities that have chosen to give priority to heritage as a vital driving force in planning for the future. We welcome papers from many countries and from several disciplines, perspectives and scales to allow comparative discussion of current theoretical and methodological approaches. We hope the session will instigate a rich discussion of the role urban heritage is playing in urban transformation and the creation of future urban landscapes, in the context of the complex nature of contemporary heritage issues regarding sustainable development, resilience, and social justice.

55/3A: Multi-proxy environmental archaeology in aquatic settings: marine, lake and wetland sediment archives

Maarten van Hardenbroek, Helen Mackay & Andrew Henderson; *Newcastle University (UK)*

KEYWORDS. environmental archaeology; sedimentary archives; multi-proxy; taphonomy.

Paleoenvironmental records provide long-term perspectives on human activities and climate with resulting changes in vegetation and fauna. Coastal settlements expanded after the Holocene marine transgression came to a halt interacted with erosional-sedimentological processes and migrating shorelines. Similarly, lake and wetland settlements also provide evidence of human activities in sedimentary archives. Recently, several interdisciplinary studies have shown that the combination of geomorphological, geophysical, palaeoecological, biomolecular, and geochemical methods is an especially powerful and effective approach to evaluate coastal and lacustrine archives. A better understanding of the biases and uncertainties related to taphonomic processes and analytical procedures are especially desirable. We particularly welcome studies that showcase methodological developments of geophysics and use of sedimentary biomarkers (e.g. DNA and compounds that can be linked to specific human/animal activity). Studies that combine abovementioned approaches to provide an integrated picture of palaeo-landscapes will also be highly appreciated.

56D: A ‘natural’ place for landscape archaeology. Perspectives in interdisciplinary research and landscape management in natural parks

Alessandro Panetta¹ & Anna Maria Stagno^{1,2}; *University of Genoa (Italy)*; ²*University of the Basque Country (Spain)*

Natural Parks’ are very peculiar places. Commonly perceived and labelled as mostly ‘natural’ places from the perspective of rural/natural heritage, they are nevertheless, just as any other landscape, the result of interactions between humans and their environment. ‘Natural Parks’ is a contemporary category, which breaks the continuity of landscape into discrete entities, subject to ‘external’ fields, subjected to conservation, protection and research. But there is a further category in the middle of those entities: these are the resident communities, historical and in the present. The present heritage of natural parks was shaped by local communities through agro-forestry-pastoral practices, in which the organisation of husbandry and the juridical status of common-lands played a key role. Most natural parks are in mountain areas; it is no coincidence that in many medieval documents the Latin noun *monte* defines both the geomorphological object and its jurisdictional nature of shared area (commons). Investigating this superposition of concepts requires a holistic approach, which gives rise to new reflections about the present

management of Natural Parks. This session will tackle strategies shared by archaeology with other disciplines. Among them the most relevant one is historical geography, which is essential for the comprehension and reconstruction of the historical processes which shaped current Natural Parks. Then, through the interdisciplinary approach, it is possible to connect historical reconstruction with present management, find new approaches for the management of landscape, and involving local actors and communities both as a historical source for the reconstruction of local practices and as an active force for current conservation. This session will include papers from Europe and the USA which will 1) engage with natural/cultural interrelationships, going beyond the dichotomies between on-site archaeology and off-site landscape archaeology or environmental archaeology; 2) explore case studies from natural parks of different sizes (from regional to national ones), highlighting their archaeological character and social and jurisdictional dimensions; 3) present good practices of public engagement and discuss the role of archaeology in the construction of a more complex perception of the heritage and landscape of parks, emphasizing the impossibility of dividing their natural and cultural aspects and the possibility of using archaeology in planning park management (e.g. the reintroduction of historical practices), and 4) engage with various temporalities: even though the long-term perspective is important, practices and activities can also have other significant temporal and life cycles.

57H: Further horizons, a 'General' session:

- 57.1: People, Myths and Beliefs;
 - 57.2: Constructing Landscape Histories;
 - 57.3: Making and (Mis)Using Landscapes
- LAC2018 Organising Committee; *McCord Centre for Landscape, Newcastle University (UK) & Durham University.*

So broad and rich is the current (and still expanding) scope of landscape archaeology studies, with its great range of theory, methods, techniques and subject matter, that the 40 sessions that framed the conference call for papers were nonetheless unable to provide an appropriate home for every paper proposed. Collected in this session are those submitted abstracts whose themes and research explore this new terrain (beyond the *limes*, so to speak). It seems possible that some of these abstracts and the discussions they provoke at the conference will even turn out to be the seeds for full sessions at the next (10th anniversary) LAC2020. The chronological range of this session extends from today back to the Magdalenian Palaeolithic, and the range of landscape archaeological disciplines represented is a microcosm of the whole conference. Thematically, the 18 abstracts have been grouped into three sub-sessions: 57.1H, a set of seven abstracts (to which the session 3 related posters also belong) which in diverse ways reflect upon the visibility of myth and belief and on people's perceptions of landscape, for India and Egypt to western Europe and Greece; 57.2H, a set of six abstracts which describe ways in which the landscape histories are explored and created in a variety of European contexts; and 57.3H, a set of five papers about the making, reaction to and use (and in some case mis-use) of landscapes from Australia to the Euphrates and central Europe, and from the Bronze Age to the 21st century.

ⁱ Please note – for continuity of conference planning, the unique numbers attributed to sessions at the time of their submission to the Call for Sessions have been retained. Where sessions have been withdrawn or combined, there are therefore gaps in the number sequence: there are no sessions 2, 4, 5, 7, 9, 10, 12 -17, 19, 23, 25, 30, 31, 33, 36, 41, 46, and 3 has been combined with 55.