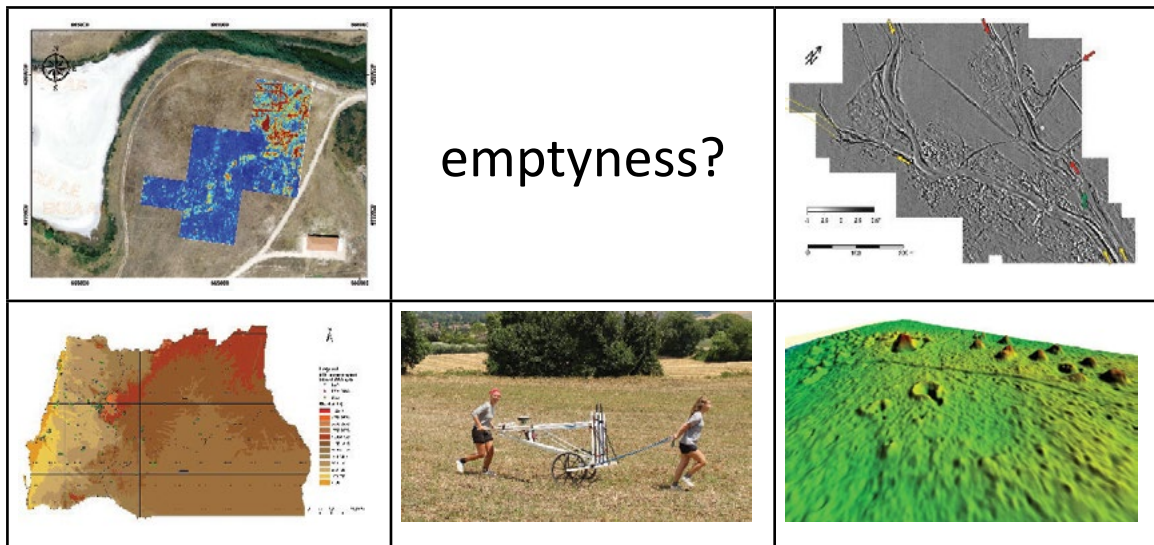


Mapping the Past

From sampling sites and landscapes to
exploring the 'archaeological continuum'

edited by

Michel Dabas, Stefano Campana
and Apostolos Sarris



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Proceedings of the XVIII UISPP World Congress
(4-9 June 2018, Paris, France)
Volume 8
Session VIII-1

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Foreword to the XVIII UISPP Congress Proceedings

UISPP has a long history, originating in 1865 in the International Congress of Prehistoric Anthropology and Archaeology (CIAAP). This organisation ran until 1931 when UISPP was founded in Bern. In 1955, UISPP became a member of the International Council of Philosophy and Human Sciences, a non-governmental organisation within UNESCO.

UISPP has a structure of more than thirty scientific commissions which form a very representative network of worldwide specialists in prehistory and protohistory. The commissions cover all archaeological specialisms: historiography; archaeological methods and theory; material culture by period (Palaeolithic, Neolithic, Bronze Age, Iron Age) and by continents (Europe, Asia, Africa, Pacific, America); palaeoenvironment and palaeoclimatology; archaeology in specific environments (mountain, desert, steppe, tropical); archaeometry; art and culture; technology and economy; biological anthropology; funerary archaeology; archaeology and society.

The UISPP XVIII World Congress of 2018 was hosted in Paris by the University Paris 1 Panthéon-Sorbonne with the strong support of all French institutions related to archaeology. It featured 122 sessions, and over 1800 papers were delivered by scientists from almost 60 countries and from all continents.

The proceedings published in this series, but also in issues of specialised scientific journals, will remain as the most important legacy of the congress.

L'UISPP a une longue histoire, à partir de 1865, avec le Congrès International d'Anthropologie et d'Archéologie Préhistorique (C.I.A.A.P.), jusqu'en 1931, date de la Fondation à Berne de l'UISPP. En 1955, l'UISPP est devenu membre du Conseil International de philosophie et de Sciences humaines, associée à l'UNESCO. L'UISPP repose sur plus de trente commissions scientifiques qui représentent un réseau représentatif des spécialistes mondiaux de la préhistoire et de la protohistoire, couvrant toutes les spécialités de l'archéologie : historiographie, théorie et méthodes de l'archéologie ; Culture matérielle par période (Paléolithique, néolithique, âge du bronze, âge du fer) et par continents (Europe, Asie, Afrique, Pacifique, Amérique), paléoenvironnement et paléoclimatologie ; Archéologie dans des environnements spécifiques (montagne, désert, steppes, zone tropicale), archéométrie ; Art et culture ; Technologie et économie ; anthropologie biologique ; archéologie funéraire ; archéologie et sociétés.

Le XVIII^e Congrès mondial de l'UISPP en 2018, accueilli à Paris en France par l'université Paris 1 Panthéon-Sorbonne et avec le soutien de toutes les institutions françaises liées à l'archéologie, comportait 122 sessions, plus de 1800 communications de scientifiques venus de près de 60 pays et de tous les continents.

Les actes du congrès, édités par l'UISPP comme dans des numéros spéciaux de revues scientifiques spécialisées, constitueront un des résultats les plus importants du Congrès.

Marta Azarello

Secretary-General /
Secrétaire général UISPP

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Mapping the Past

From sampling sites and landscapes to exploring the 'archaeological continuum'

General introductory text of the series

The last decade has seen the application of new approaches to landscape archaeology, essentially based on high-precision, high-speed, large-scale geophysical surveys along with the collection and analysis of high-resolution LiDAR data and the integration of multiple data sources based on GIS spatial tools. These approaches have proved their potential effectiveness in rural and formerly urban landscapes, suggesting the possibility of prompting the adoption of new paradigms within landscape studies.

The application of large-scale and multi-source surveys, especially at parts of countries such as Britain, Austria, Belgium, France, Germany, Italy, Norway and Sweden, has eliminated as far as possible gaps in space and time and has radically transformed archaeologists' views about almost every aspect of the past.

A crucial concept shared by all of these major surveys has been the perceived possibility of identifying what might be called the '*archaeological continuum*' within the areas concerned.

This concept can be defined as the summative evidence detected (or detectable) within the area under examination, reducing spatial and chronological gaps as far as possible through the intensive and extensive application of a wide variety of exploratory methods and analytical techniques.

Research work across Europe has already demonstrated that it is now possible to explore the whole landscape of carefully chosen areas and study them as an *archaeological continuum*.

Archaeological interpretations derived from this kind of approach can be expected to reveal differing layers of information belonging to a variety of chronological horizons, each displaying mutual physical (stratigraphic) and conceptual relationships within that horizon.

Introduction to the volume

The session of UISPP 'Mapping the Past' has brought together several contributions reflecting on the need to develop sustainable and reliable approaches aiming to map our landscape heritage. At the same time, these communications have raised new archaeological questions and proposed alternative conservation strategies directly stimulated by the radical ideas inherent in the concept of the '*archaeological continuum*' which is depicted by the landscape surveys more clearly than has been possible in the past.

This volume consists of six contributions that cover different aspects of the study of our cultural heritage, not in the form of a discrete set of sites but in the form of a continuum both spatial and temporal. In relation to the origin of the concept of the '*archaeological continuum*', our first author, S. Campana, notes that this new vision makes it possible to get rid of the traditional approach, which is based on punctual sites that translate into a 'point' distribution on a map. The archaeological site is no longer an entity characterized by a defined boundary, itself underpinned by the old

assumption that human behavior is partially confined in space. Only research on a smaller scale, that is to say at the level of the landscape (essentially based on landscape blocks), makes it possible to have the necessary perspective. As traditional tools like 'surface collection' became inadequate for this purpose, Campana proposes a new scale of study that is adapted to the archaeological questioning and not vice versa.

Wooded areas, often considered as white areas due to lack of effective prospecting systems, have recently benefited from LiDAR technology (ALS). The micro-reliefs highlighted by the article of M. Szubski allow us to view a continuum of occupation in the pristine forest of Bialowicza (Poland) over a considerable area (1500 km²). It is actually part of a more comprehensive study of the biodiversity of this environment, which includes the identification of paleo-environmental features and archaeological features since the Iron Age. The challenge is the characterization of a particular type of structures (mounds), which dominates the landscape of the forest. The return to the field is always necessary to distinguish on the function and the chronology of these mounds (funerary versus production). The author shows that these mounds form a specific continuous landscape over time and space and whose morphological study by ALS could make it possible to deduce their function.

The third paper by Daniela de Matos *et al.* illustrates the construction of a cultural landscape over an even longer continuum time (since the Pleistocene) in a particular region of Angola. The continuity of traditional semi-nomadic foraging life has attracted the curiosity of anthropologists and archaeologists who were part of a large-scale geologic survey mission. If the hunters-gatherers have been shaped by the exploitation and adaptation of landforms and geological formations, the comprehension of these societies is mainly possible through the tools provided by archeology and geosciences.

A. Sarris *et al.*, describe an investigation in another type of difficult environment, namely the coastal zones. The Lechaion Harbour and Settlement Project in the vicinity of Corinth, Greece aims at studying the settlement through all his time-life. Geophysical data were massively used and proofed successfully to reveal the formation of that particular site, both from natural and anthropogenic causes. Like the previous case study in Angola, geophysical and archaeological approaches, working in tandem, were possible to reveal the interaction between natural hazards and the human habitation of the coastal landscape of Lechaion.

The case-study described by W. de Neef and F. Vermeulen in Italy (Potenza Valley Project) is a long term project that has also used numerous technics to study a temporal gap linked to the proto-historic settlements (and their catchment), which are often hindered by the numerous studies related to Roman and Late Antique times. For this purpose, numerous non-destructive technics were used and helped at filling this time and spatial gap. Practically, several micro-regions, reflecting the site catchment of the settlements, were intensively studied. This paper also addresses the challenge of the use of non-destructive techniques: detection and interpretation of ephemeral traces without ground- truthing and the problem of detectability as a function of landscape formation processes.

The last paper by T. Herbich focuses on three different sites in the Fayum Oasis, Egypt. Non-invasive methods were used resulting in the discovery of a number of buried channels suggesting the importance of water which controlled irrigation in this particular area. Together with the traces of water erosion found, which were interpreted as an explanation for settlement destruction, the paper makes a clear demonstration that landscape changes are directly related to the habitation changes.

In conclusion, the use of new and non-destructive technologies like LiDAR, GPR and other conventional technologies like magnetics, resistivity, aerial, etc. has helped us to fill some of the

spatial and time gaps encountered. These new technologies are usable in challenging environments like forests, coastal regions, desert areas and mountainous zones, which have been poorly described in the past. The complexity of data obtained in these specific areas demonstrate in fact a continuity of landscape usage that was not observable with standard tools like field surveying or aerial photos.

We should not forget that this new information lead also to a higher level of complexity in our interpretation of the archaeological data. As a consequence, we need to start focusing also on improving the quality of our interpretation in parallel to the large quantity of data collected. This new information rises an awareness about new preservation processes for our buried cultural heritage, which in turn should reflect in new preservation policies for our landscape.

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Establishing meanings, roles and limits of 'Archaeological Continuum' paradigms

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*'After all, no one lived, worked, and died solely within
the confines of his or her own settlement'
(T. W. Gallant 1986)*

Abstract

This paper introduces the concept of continuity within the landscapes of the past, discussing the development of ideas about the meaning and mutual relationships of the terms 'site' and 'landscape' within concerted efforts to develop a methodological framework that would enable research to move away from traditional 'site-based' archaeology towards a more genuine focus on a 'landscape' scale of investigation and interpretation. It is argued that what we should be seeking, within the limits of practicality and with as few spatial and chronological gaps as possible, is the capacity to analyse physical, cultural, social and in some cases even political interrelationships in space and time across significant sample areas of intensively studied landscape.

Keywords: continuity, discontinuity, site, landscape, scale of investigation

Résumé

Cet article introduit le concept de la continuité dans les paysages du passé en abordant le développement d'idées sur le sens et les relations mutuelles des termes « site » et « paysage » dans le cadre d'efforts concertés visant à développer un cadre méthodologique permettant aux chercheurs d'abandonner l'archéologie traditionnelle « basée sur les sites » pour se concentrer davantage sur une échelle d'investigation et d'interprétation « proprement du paysage ». Il est soutenu que ce que nous devrions rechercher, dans les limites de la fonctionnalité et avec le moins de lacunes spatiales et chronologiques possibles, est la capacité d'analyser les interrelations physiques, culturelles, sociales et parfois même politiques dans l'espace et dans le temps, à l'aide d'un échantillon significatif zones de paysage étudié de manière intensive.

Mots-clés : continuité, discontinuité, site, paysage, échelle d'investigation

1. Introduction

There is a strong possibility that what we see in past and present distribution maps reflects not so much the original spread of human activity across the landscape as a 'filtered' version strongly affected by data-collection strategies, methodologies and discontinuities in the present-day land-use.

A guiding principle which could help us to offset at least some of these shortcomings could lie in the integration of our basic thinking and practical methodology of the concept of the 'archaeological continuum'. This would mean revisiting a hypothesis developed in the late 1970s and widely accepted even in Mediterranean archaeology. This questioned the supposition that human behaviour is spatially confined, producing what we might call 'site-based archaeology', and arguing instead that the archaeological record is spatially continuous (Foley 1981a). Accepting this alternative paradigm we should, within the archaeological community, have developed consistent and effective practices that would have enabled the assembly of evidence that closed or at least

reduced some of the gaps in the basic data upon which we had been formulating our landscape interpretations up to that point. However, while the concept of continuity continues to play a progressively key role within the development of stratigraphic archaeology, mainly within the practice of archaeological excavation, the concept never established itself to quite the same extent within archaeological investigation and interpretation at the landscape scale.

In this context the term '*archaeological continuum*' could perhaps be seen as another formulation of the deliberately provocative neologism '*emptyscape*' coined by the author to describe the prevalence of 'empty' spaces within current archaeological maps (Campana 2018). The '*emptyscape*' concept, in turn, could find a parallel in Groube's '*black holes*' (1981), representing in many cases not real gaps but simply weaknesses in our ability to detect relevant archaeological evidence in particular areas or for particular periods in the passage of time. Looking at it in another way, both in practical and ideological terms, the '*archaeological continuum*' could be seen as an antonym of '*archaeological emptiness*'.

A misunderstanding may arise here about our determination to achieve comprehensiveness. It is rightly acknowledged that the archaeological record is and always will be incomplete in the sense that so much of what once existed has been placed beyond effective recovery by later human activity or the inevitable degradation of post-depositional processes. The approach that is being advocating here is not aimed at the 'total' recovery of past situations but rather at a **fair representativeness**, or a reasonable representation, of landscapes created or influenced by the impact of past human activity (economic, social and political) as well by natural environmental transformations over time. The attempt to attain 'fair representativeness' would mean that research designs, methodological frameworks, analytical practices and reporting procedures should be consistent with the objective of gathering as large a range as possible of the 'facts' that are pertinent to the broad archaeological questions currently under discussion. At the same time, we must **always be aware of what is or might be missing**, which should entail being aware of its presence elsewhere in practice or even just in theory. This would also mean keeping thoroughly up to date with all kinds of evidence actually or theoretically recoverable in our own or other contexts, as well as challenge 'emptiness' by seeking new ways to recognize, record and interpret kinds of evidence that for one reason or another may have remained hidden from us up till now.

However, to illustrate the concept of continuity within landscapes it will be useful in the rest of this paper to discuss the development of concepts about the meaning and mutual relationships of the terms 'site' and 'landscape', in the light of a concerted effort to develop a methodological framework that would enable us to move away from traditional 'site-based' archaeology and towards a genuine 'landscape' scale of investigation and interpretation. What we are seeking, within the limits of practicality and with as few remaining gaps as possible, is the capacity to analyse physical, cultural, social and in some cases even political inter-relationships in space and time across a significant piece of landscape.

2. Sites and landscapes: shifting the paradigm from isolation to interconnection

The concept of 'site' has a long history in archaeology, characterized by repetitive updating of the meaning in response to the arrival of new methods, more advanced technology and of course the intellectual development of the discipline as a whole. Well into the last century the term was mostly associated with standing monuments or partially preserved ruins. Following WWII, the term was expanded to cover underground remains, including the traces of settlements and other features identified through aerial survey and air photography (Bradford 1957). A few years later the meaning was expanded to include scatters or concentrations of cultural material brought to the surface by the inexorable spread of mechanical agriculture (Ward Perkins 1961). When only monuments or standing ruins were involved, the need to define the term 'site' did not

really arise. But as soon as the range of evidence was broadened to include surface artefacts and the traces of below-ground features revealed by air photography or ground-based survey, the definition of 'site' became more problematic, hedged around by a number of inherent difficulties. With the appearance of so-called processual archaeology and the idea of a universal methodology, Lewis Binford (1964) extended the implication of 'site' to encompass any trace of human activity, whatever its age or function, defining the 'site' by its formal content and the spatial and associational structure of the populations of cultural items and features that betrayed its presence.

In the 1970s the widespread development of field survey in archaeology and the overall desire for the better definition of concepts and their practical application in this field provided another spur for re-thinking and re-definition of the terms used in archaeological discourse. Several different and sometimes 'competing' schemes were defined – too many and too varied to be discussed in detail here. That said, it is relevant to note that most of definitions still in use share two elements in common: a 'site' is always defined (and delimited if only conceptually) by some kind of **boundary**; the 'site' also becomes the **elementary unit** through which the 'archaeological landscape' is itself defined, commonly seen as equivalent to the 'stratigraphic unit' in the field of archaeological excavation. However, there are significant several differences between 'site' and 'stratigraphic unit' (Manacorda 2007). Indeed, two major peculiarities of the 'stratigraphic unit' are substantial continuity within the archaeological record, and mutual physical relationships between the various units. Both of these characteristics are typically missing in attempts at comparison between 'sites' since the latter usually appear in the archaeological record as systematically isolated physical elements surrounded by impenetrable 'blanks' within which little if any form of interconnection can be traced. That said, as we will see as the discussion unravels, the parallel between archaeological excavation and landscape analysis can help to focus attention on some of the contentious issues involved in the continuing discussion of concepts, definitions and practices within the field of landscape archaeology. For instance, alongside the concept of 'site', the development of wide-ranging archaeological survey work has given rise to the balancing concepts of 'off-site' or 'non-site', perhaps best described and discussed in the first instance by Foley (1981b). In the archaeological literature of the following decades the terms 'off-site' and 'non-site' came into regular use for such things as the artefactual evidence of agricultural cultivation (manuring) or other kinds of human activity that had failed to leave stratified archaeological deposits in the sub-surface soil. But the very concept of 'off-site' calls into question the initial idea that human behaviour is spatially confined to what archaeologists had decided to define as 'sites'. Foley introduced (within the particular circumstances of nomadic societies) a new and ground-breaking concept, the proposition that the archaeological record is, at least originally, **spatially continuous**. At that time, in the 1980s and onwards, continuity in this sense was described primarily through observed and recorded variabilities within artefact densities detected across the target landscape. On the other hand, an equally important role in establishing the reality of such continuity had already been played, as mentioned above, by well-timed aerial survey work above favourable landscape areas, typified by the exceptional results achieved in parts of southern Italy in the months immediately before and after the end of WWII, revealing virtually uninterrupted evidence of human settlement and landscape exploitation across a vast stretch of space and time (Bradford 1957; Radcliffe 2006).

The concept of continuity also worked well in theoretical terms as a response to the problem of site definition and to inherent subjectivity in the identification and interpretation of surface evidence. Indeed, some scholars shifted the orientation of research away from the 'site' to the artefact or cultural feature (solving site definition issue) in the broader sense as the minimal unit representing past human activity answering intrinsic subjectivity within site definition by emphasising any changes in whatever kind of evidence density (Thomas 1975). The term 'artefact' was at that time being used for the most part to mean material evidence identified by field-walking survey in the

form of ‘positive’ physical features or surface assemblages reflecting past by human activity: vestigial walls or earthworks, building materials, charcoal or industrial waste, potsherds, tiles, tools, weapons, ornaments, coins, glass and so forth. By contrast, ‘negative’ features concealed beneath the present land surface, such as pits, post holes, boundary or drainage ditches, enclosures, field systems and abandoned communication routes remained more or less invisible to field-walking survey and were thus not included within the definition of ‘artefacts’.

However, further developments in the decades either side of the second millennium made artefact-level surveys a required standard by British and UK-influenced archaeologists in the Mediterranean area. Among the main consequences of this attention to artefact-based investigation there was an intensification of survey work that aimed at improving the quality of data recovery, counterbalanced to some extent by a progressive reduction in the size of the area that could realistically be subjected to intensive investigation. In practice, post-depositional processes and variations in ancient and/or present-day land use, along with other factors, can still produce significant inadequacies and risks of bias in the collected information, giving rise to continuing but as yet unresolved criticism about the validity of landscape interpretations based on this kind of survey work. Despite genuine efforts to overcome these semantic and practical difficulties, and to refine the procedures used in the collection and interpretation of ‘site’, ‘off-site’ and ‘non-site’ evidence, these aspects of the archaeological process remain a controversial source of debate and disagreement within the global topic of methodological approaches to landscape archaeology (Terrenato 2004).

The meaning of ‘*landscape*’ in archaeology has changed significantly over time. For long periods it was thought of largely in artistic and aesthetic terms. The close association of the words ‘landscape’ and ‘archaeology’ does not have a particularly long history. Initially, the ‘landscape’ simply represented something larger than the ‘site’, a framework for conceptualizing observations, speculative inter-relationships or parallels between sites of a particular type, or to suggest or deduce transformations across time: identifying the settlement patterns and material culture of a particular region, and their changes over time, became the main focus of the investigation. Between the 1970s and 1980s ‘landscape’ became an object of investigation in its own right and ‘landscape archaeology’, now recognised as such, began to take its present shape. The first linking of the two words as a meaningful whole should perhaps be attributed to the British archaeologists Mick Aston and Trevor Rowley in the mid-1970s (Aston and Rowley 1974) but it was only from the mid to late 1980s that the formulation attained common usage in academic publications (David and Thomas 2008). At that time, the focus was on human impact, people and interactions with their physical surroundings. Among outcomes focusing on the relationship between human beings and the environment there then came about a substantial proliferation and refinement in field practices and statistical methods of analysis, particularly with regard to the distribution of archaeological material and sites across the broader landscape (Hodder and Orton 1976). In such a context Hodder (1978) and others moved towards a more socially-oriented assessment of landscapes based on ideas about the social construction of space, encompassing an interlinked complex of practices, meanings, attitudes and values. This approach involved the consideration of landscapes in all their lived-in dimensions – ‘experiential, social, ontological, epistemological, emotional, as place and emplacement concern social identity as much as they concern the economic and environmental aspects of life’ (David and Thomas 2008). However, despite the best intentions of reducing or eliminating gaps in the recorded spatial distributions, the overall methodological framework, at least within the Mediterranean area, remained largely ‘site-based’, defined as a set of physical nodes within a background of largely unexplored open space.

3. The *continuum* of space (and time) in landscape archaeology

Despite several decades of theorising and the general acceptance of ‘archaeological continuity’, experience on the ground has yet to achieve the final goal – the collection of relevant evidence

from beyond the level of 'sites' in order to detect physical relationships between elements (paleo-surfaces, archaeological features, natural remains, etc) that would allow the archaeologist to depict past landscapes as continuous human ecosystem in both space and time. Indeed, even in the best case-studies a major bias was seen to be inherent in the concept of density plots derived from the surface collection of plough-disturbed artefacts. The representation of variable densities across the landscape, rather than as single dots for individual occurrences in a sea of 'emptiness', should in theory have provided a more realistic depiction of landscape continuity. However, density patterns do not in themselves represent any real physical or functional relationship between surface scatters beyond a mathematical interpolation process: the number of artefacts in sherds per hectare (or whatever spatial unit the archaeologist might choose to employ). Given the acknowledged frailties of artefact-collection the chance of establishing *either* continuity *or* genuine spatial relationships between differing density areas came down to purely speculative estimates – sometimes based on no more than a few sherds within any chosen hectare, devoid of any tangible physical relationship.

There are further sources of potential bias or uncertainty in the definition of 'off-site' data. The presence or absence of evidence was intended to be artefact-based (as is often the case within the 'sites' themselves) but associated in the 'off-site' context with activities which leave in the sub-surface soil no archaeological stratification to betray the presence of related anthropic activity. This is in fact a faulty characterisation of the situation. The process of manuring or other agricultural processes *do* sometimes generate stratification, however ephemeral, that would sometimes be detectable through the application of appropriate investigative techniques (Powlesland 2009). Palaeo-soils of this kind might well be bounded by or associated with field system and ditches, whether for demarcation or drainage, or by specific agricultural practices, road systems, water supply and even settlements and productive areas. Deposits of this kind can be identified indirectly by the presence of artefact scatters on the surface but the boundaries and inter-relationships between the activities involved in their creation can rarely be detected through field-walking survey. In this case, theoretical and methodological issues interact with one another. On the one hand there are strong ambiguities in the definition of the 'off-site' evidence but at the same time there are methodological inadequacies that prevent our escape from this kind of uncertainty or apparent 'gap' in the available evidence.

It might be useful here to return for a moment to the parallel with archaeological excavation. Philip Barker, in his magisterial book on 'Techniques of Archaeological Excavation', stresses the importance of stratigraphic excavation over *large areas*, in particular criticising any real reliance of excavation by trial trenching: 'To dig holes, however well recorded, in an ancient site is like cutting pieces out of a hitherto unexamined manuscript, transcribing the fragments, and then destroying them, a practice which would reduce historians to an unbelieving stupor but whose counterpart is accepted by the majority of archaeologists as valid research. A single section, even of a ditch, can be grossly misleading, as anyone who has cut multiple sections will know. [...] Extensive excavations on sites previously trenched [...] have so often shown that the earlier conclusions have been completely misleading, that it is now clear that only total, or near-total, excavation will yield results which are not deceptive' (Barker 1977).

The analogy with current practice in landscape archaeology is very strong. Excavation by trial trenches fits well enough with the concept of 'site-based' landscape archaeology, characterized as it is by the relative isolation of individual 'sites' or bits of 'sites' within a more or less unexplored surrounding landscape. But, for a broader definition of landscape archaeology, trenching of this kind falls far short of the sort of critical mass advocated by Barker ('only total, or near-total, excavation'). Instead, it is liable to uncover just the tips of the proverbial iceberg, concentrating on the partial sampling of individual 'sites' already identified through field-walking survey but unlikely – for want of any realistic means of 'targeting' the operation – to reveal anything useful in the vastly greater area of the intervening spaces. The absence of evidence for physical

continuity between the ‘sites’ excludes the possibility of establishing reliable stratigraphical relationships between them. There may, of course, be apparent chronological synergies based on the mutual presence of distinctive artefacts or well-monitored radiocarbon samples but even in the most favourable circumstances this provides no more than a sort of ‘proto-stratigraphic’ relationship between the sites involved. Open-area excavation, by contrast, investigates real stratigraphical relationships through an intimate contextual logic that has as its guide and ultimate purpose the recognition and physical interconnection of the archaeological evidences.

4. Towards a new methodological approach

The need for a different set of methodological procedures has been widely acknowledged within the archaeological community (Knapp and Ashmore 1999; David and Thomas 2008) but proposals which offer the real possibility of change in our capacity to detect and record continuity have so far proved elusive, or in some cases illusory. How, indeed, can we escape from this ‘blind alley’?

The problem goes back to the first principles. At the very start of the search we need to recognize the complexity of investigating past landscapes, particularly so in the Mediterranean world where climate, soils and land-use place so many obstacles in our way. In doing that, we may be well-advised to set aside any seeming equivalence between field-walking survey and archaeological excavation, the latter acknowledged as the most comprehensive method at our disposal for the direct exploration of evidence from beneath the present-day land surface. Many innovative techniques and investigative methods have been devised to allow us to gather information about individual ‘sites’ or group of ‘sites’ but most of them can be applied systematically *only* within the framework of archaeological excavation. A ‘landscape’, however restricted or extensive in scale, is much more complex, multivariate and diffusely stratified than any individual ‘site’ but – just like the ‘site’ – it can be, and *has* to be, defined through observed relationships in four dimensions: three dealing with space (ideally devoid of gaps) and the fourth of course with time. Currently, no single methodology equivalent to that of excavation has yet been devised or become available for the study of ‘landscapes’ as such. Around the Mediterranean the situation has been complicated by the prominent – one might say over-riding – role that field-walking survey has continued to play in the pursuit of landscape archaeology, acting as a *de facto* – but clearly inadequate – counterpart to the central role occupied by archaeological excavation at ‘site’ level. This is a major problem which clearly affects and also in some senses derives from the question of definitions. Within any landscape research project based on the identification of relative artefact densities a large amount of the potentially relevant evidence remains undetected because of the widely acknowledged frailties and inherent risks of bias involved in the surface collection technique. A further, and even more debilitating weakness, lies in the technique’s incapacity to detect with any clarity a broad range of below-ground features which are necessary to fill otherwise insurmountable *gaps* in the basic evidence upon which we base our overall understanding of the landscape (or even, whether in theory or practice, to determine what really constitutes ‘site’ or ‘off-site’ features within the broader context of the ‘landscape’).

There is an urgent need to develop a **new methodological framework**, building on past experience but capable of responding to current and future archaeological questions, re-balancing the currently dominant ‘site’-based approach by defining new scenarios and new **units of analysis** that will facilitate our search for understanding of past landscapes in all their complexity and mutability across the passage of time.

5. A new elementary unit: the ‘local’ scale

Historians and archaeologists have long recognized the value of ‘context’, the interrelationship of physical, biological, social, economic and cultural circumstances within a landscape: ‘the whole

of relationships that gives things mutual attraction, congruence, meaning and value' (Carandini 2017). Despite this, the interpretation-unit of landscape studies in the Mediterranean world has still remained primarily that of the 'site'. Settlements, particularly 'central places', cemeteries, productive structures, temples and churches have long constituted the pivots of landscape studies particularly around the Mediterranean but also in Continental Europe. In reality, of course, rural landscapes do not consist of settlements and 'sites' alone: inseparable elements in the understanding of past landscapes lie in the study of agricultural patterns, the shapes and sizes of enclosed fields or open pastureland, the parcels of land and elements of the local environment that people of one age or another exploited and enjoyed in their daily lives. These little considered and frequently undetected 'landscape elements' offer us invaluable insights into the realities of past societies and their social, economic and political systems (Muir 2000).

In much the same way communication systems, infrastructure elements, ecofacts, geomorphology, hydrology and the distribution and availability of natural resources are often overlooked or only briefly considered despite constituting essential elements in the 'connective tissue' of man-made landscapes (Campana 2009). Moving from site-based archaeology to a genuinely 'landscape' approach means exploring and analysing sample areas of the land-mass as human ecosystems, contextualizing sites, features and environmental evidence so as to envisage a more realistic and nuanced image of the whole (Butzer 1982).

The underpinning and added value of this approach will lie in a quantitative and above all qualitative improvement in our data sources and in the possibility of establishing meaningful relationships between differing types of archaeological evidence. In some instances, physical overlaps or other discernible relationships between features may allow us to apply or extend the stratigraphic approach which is now an integral part of almost all archaeological thinking, including in the final analysis also landscape archaeology. Instead of establishing historical reconstructions by comparing individual 'sites' or groups of 'sites' belonging to differing contexts or even time-frames, this shift from a 'site' to a 'landscape' perspective will provide a more stimulating and fulfilling opportunity to compare differing contexts or situations in the past not as individual sites, features and artefact scatters but as multi-faceted and intelligible human ecosystems.

To achieve this advance in our understanding of landscape in human terms we must define and then implement a suitable scale of investigation and formulate an appropriate methodological framework – or more correctly, perhaps, a *range* of appropriate means of investigation and analysis. Elsewhere I mentioned the need for what we might call the 'local scale', lying somewhere between the scale of large 'regional' areas (the 'macro' scale) and that of spatial foci (the 'site' scale; Campana 2018). This 'local scale' might focus on areas broadly matching the **physical scale at which human societies operate**, within which human eco-cultural systems form and re-form over the time. A predecessor or equivalent of this concept might perhaps be found in the so-called 'catchment area'. It is difficult, or perhaps simply inappropriate, to attempt a definition of size by pinpointing a particular range in terms of hectares, square kilometres or whatever. A more suitable measure might be to propose that within such an area of landscape the scale of mapped and documented detail should be such that any settlement, road system, field pattern, geomorphological element or other significant feature should be capable of depiction by its physical characteristics, notably shape and size, rather than just by dots or symbols. In broad terms, perhaps, the scale of mapping might lie within the range of 1:10,000 to 1:2,000.

The definition and implementation of a new analytical level does not in any way mean abandoning those that have been used as a matter of routine in the past. The 'macro' scale, for large regions, and the 'point' scale (for individual 'sites'), will continue to play a fundamental role in communicating information or responding to questions that can only be answered through investigation at

a sufficiently broad or concentrated scale. The questioning, analysis and interpretation of archaeological data are of course heavily dependent on the level of analytical scale. For example, business or trade relations in the manufacture or distribution of ceramics, building materials, luxury goods and the like should generally be studied and then illustrated at the maximum scale, preferably that of the Mediterranean, European and beyond. Other phenomena, including the creation and supply of resources such as metals, stones, clay, wood, etc. may require observation and analysis at the regional or even sub-regional scale. When contemplating a research project, it is essential to establish a clear definition of the archaeological questions that one is aiming to address, and to understand which scale or scales might be appropriate in achieving the desired objectives. The choice is not always straightforward and may be particularly problematic for landscape studies which by their very nature are generally multifaceted and strongly interdisciplinary. Interacting with fields of study such as geology, geomorphology and palynology often means dealing with spatial and temporal scales which are very different from those which are customary within archaeology.

That said, past experience in central and northern Europe has demonstrated over and over again that a full-blooded multidisciplinary approach, along with multiple scales of investigation and presentation, is essential if one is to record and explain the complexities of human behaviour, as must be the ultimate aim in landscape research. Besides open-minded and critical thinking, projects of this kind demand the creation of a methodological framework that itself remains permanently open, in a state of continual development so that it can take advantage of whatever established or innovative technique might (now or in the near future) help to improve our overall understanding of the past.

Currently, alongside the ‘traditional’ framework of Mediterranean landscape archaeology, which for all the vulnerabilities of field-walking survey is still valid in many respects (Banning 2002), there are several fields of related study – such as remote sensing, geo-archaeology and bio-archaeology – that have enormous potential for widening our understanding if properly integrated within a landscape perspective. To take just a single example, experience of remote sensing techniques has shown quite clearly that a central role in reducing the evidential gaps within and between survey areas can be played – on both arable land and permanent pasture – by high-precision, high-speed, large-scale, continuous geophysical survey (Powlesland 2009; Millett 2016; Gaffney *et al.* 2012; Campana 2018). In wooded areas, so prevalent in Italy and other parts of the Mediterranean, the next transformative development might lie in the collection and analysis of high-resolution LiDAR data, perhaps mainly from lightweight equipment mounted on locally-controlled drones rather than traditional aircraft (Opitz and Cowley 2013; Campana 2017).

Despite the very real differences in climate and ground conditions, it is a striking reality that, wherever large-scale continuous geophysical surveys have been implemented in these countries, the results have totally transformed archaeologists’ views about almost every aspect of the past (Powlesland 2009; Neubauer *et al.* 2013; Campana 2018). When integrated with the techniques traditionally used around the Mediterranean, these complementary techniques and their theoretical underpinning, so revolutionary in their impact on landscape studies elsewhere (and partially introduced by the present writer in Central Italy too), will hopefully bring about radical changes in the methodological framework, or frameworks, through which we will be able to confront archaeological and historical questions that have long been crying out for answers (Ch’ng *et al.* 2011).

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