**PGR Archaeology Symposium 2014**

**University of Southampton**

**22nd – 23rd May**

**Abstracts, listed in alphabetical order**

**Bolton, Lucie: Simple cores, complex minds**

From around 300,000 BP onwards hominins in Europe started producing flakes in a more systematic way. This core working technique, known as Levallois or Prepared Core Technology (PCT), has long been of interest to researchers; however, the origins of this technique are still highly debated. Fully developed Levallois reduction sequences seem to have their roots in a lesser studied technique referred to as either ‘proto’ Levallois, ‘reduced’ Levallois or more recently as Simple Prepared Core (SPC) technology.

This research represents the first comprehensive study comparing these techniques using a uniform methodology, bridging data from different sites in Britain and continental Europe. This paper presents results that demonstrate identical reduction techniques at all British sites allowing for the construction of a new overarching technological definition of SPC technology. The material from Kesselt-Op de Schans and Mesvin IV will also be discussed in relation to this definition. Preliminary results would suggest an *in situ* development for SPC and the origins of Levallois from the Acheulean. Finally, this paper will also present my current thoughts on the implications the presence of this core working technique has on our understanding of tool production the Lower Palaeolithic of northwest Europe.

**Botturi, Chiara: Romanization: old issues and new perspectives**

The phenomenon of Romanization has been the object of a century long debate. Many interpretations have been proposed to understand the process that, with spatial and chronological variability, led to the creation of what can be generally defined “Roman world”. The aim of previous research was the comprehension of the nature of such an entity and of the causes that led to its formation. The presentation will approach the theoretical concept of Romanization, with all the implications related to it such as: cultural assimilation, Roman identity and nature of Roman imperialism. A particular focus on Italy and on the matter of the Romanization of ritual practice has been deemed important, in order to derive from such a complex theoretical background the interpretive guidelines to approach the case study of the PhD research. Indeed, the study of such a broad and discussed subject has been considered a pivotal premise to the reconstruction, through the mapping of funerary and non-funerary remains, of the topography and society of the territory comprised in the Chiese river basin (Brescia, Italy). The study of the Romanization process is especially called for due to the chronological span selected for the research: the crucial period of Roman colonisation of northern Italy and the following centuries.

**Brugger, Peter: The curious case of the 3D print and the museum**

The technology behind 3D printing (3D rapid Prototyping) has advanced very far in a comparatively short space of time. Previously the 5 different technologies behind 3D printing were limited in what they could produce and in the materials they could use; but now the long list of printable materials: Plastic, Paper, Silicone, Gold has increased to: Wood, Stone, Clay etc. To produce a replica artefact and print this off using this technology does seem ideal.

Having used a type of 3D printing known as Fused Filament Fabrication in the production and display of replica archaeology; I shall explore the appetency and status of this type of museum replica.

In production onlookers wonder; in display however wonder becomes a mixture of curiosity and relative confusion. Can these replicas in fact be called replicas? There are of discrepancies, pros and cons concerning this technology. Is what it can do really suitable for museum archaeology? Is this suitable for a museum?

**Campbell, Peter: Innovation and Technological Change in the Archaeological Record: The Warship Ram**

At last year’s PGR symposium, I discussed distinguishing technology on a conceptual basis. This talk reviews conceptual classification through examples of anchors and ships’ hulls and then examines my primary case study, warship rams. Ramming was the primary method for naval attack during Antiquity. Ships were used as projectiles and bronze rams were fitted to the bow of the ships to pierce enemy hulls. Rams have traditionally been viewed as fairly static over several centuries; however, examining them on a conceptual basis shows that there are at least three distinct approaches to ramming between the 8th century BC and 1st century AD. The talk presents eleven Roman and Carthaginian rams recently discovered off the Egadi Islands in Italy. It then places the Egadi Rams in context with three different types of rams evident from the archaeological record and iconography and discusses their functional differences. Digital analysis and experimental archaeology show the performance characteristics of each conceptual approach and how they perform differently.

**Cascino, Roberta: Geographical and historical background of the Ager Veientanus. Research Methodology**

My research aims to answer questions about the nature of trade and commerce in the hinterland of Rome using the archaeological material. My first task was to define as much as possible territorial and chronological boundaries of the research: in terms of the geographical boundaries, I have chosen to deal with the strip of land that extends between the Tyrrhenian coast and Rome. This area corresponds to the ancient Ager Veientanus (the territory dominated by Etruscan Veii). Regarding the chronology, I will focus my study on the period between the 7th c. BC and the 2nd c. BC.

During the first months of my PhD, I have focused my attention upon reconstructing the geographical and historical background of the area. I have also defined the amount of the archaeological material useful for my topic. It will be essentially pottery from various archaeological survey contexts, either published or unpublished. With regard to the latter, my study will start from the pottery collected during the South Etruria Survey by John Ward-Perkins between the 1950s and 1970s, and stored at the British School at Rome. This survey covered a large part of the Rome’s hinterland and collected a huge quantity of varied archeological material dating from prehistory to the early modern period. It represents an important basis for this kind of study, and my previous work has given me an unparalleled knowledge of the collection and its potential. In addition to these materials, there are some other unpublished archaeological contexts, excavated by the Soprintendenza, and made available for my study.

**Chittock, Helen: Technological Weakness or Cultural Strength: Shapeless Jars in Iron Age East Yorkshire**

The project ‘Aesthetics of the Everyday in Iron Age East Yorkshire’ stems from a desire to better understand the production and function of decorative material culture in Iron Age Britain, with a focus on East Yorkshire. While the elaborately decorated metalwork of the later half of the Iron Age in this region has seen much attention from archaeologists, the design and production of the material culture that formed the backdrop to day-to-day activities have remained comparatively understudied.

The main focus for the project is pottery, and the East Yorkshire assemblage is dominated by a plain and unembellished group of ceramic vessels, an aesthetic that becomes particularly striking when juxtaposed against the intricately decorated metalwork. The lack of technical and artistic innovation employed in the production of these vessels is commonly seen as the manifestation of a lack of skill, care, technical knowledge or artistic vision. I argue, however, that this explanation does not account for the complex nature of craftsmanship and decorative material culture in Iron Age Britain.

This talk will detail the background and context of my project, introduce my collection and look at ways in which I plan to move forward towards a better understanding of craftsmanship and artistic innovation across varying materials in Iron Age East Yorkshire.

**Chuang, Richard: The Localness of Domestic Equids in Romano Britain**

Domestic equids played an essential role in the Roman world. From military campaign to economic activities, domestic equids -were not only the main medium of long distance transportation over land, but also provided substantial labour for local agricultural production. According to written sources, mules, in particular were used predominantly as pack animals by the military and enable the transport of troops, supply, and large weaponry to every corner of the empire. The production of mules requires the presence of both male donkey and female horse, and thus mule production in northern Europe would necessitates the importation of donkeys -to regions outside of the natural distribution and/or the import of mules from elsewhere. In addition, the Roman military had specific standards for their horses. Despite much of these standards were associated with behaviors rather than conformation, breeds from particular regions are favoured over others. Such preference for particular horse breeds suggests that the export and import of horses was not uncommon. This has been indeed described in historical sources but not recognized in the zooarchaeological record. For the second part of my thesis, isotopic analysis will be applied to examine the localness of domestic equids in Roman Britain in order to comprehend the procurement of mules and horses. The use of oxygen isotopic analysis on teeth will results in an average value representing the environment where the subjects grew up in. The data then can be compared between local value and other equids to provide a comprehensive view of their localness.

**Cowie, Doug: Time and Space on Windmill Hill**

Johnsons submerged iceberg of graduate research into Temporal-GIS (Johnson, 1997) has failed to materialise, despite some innovative work by individuals such as Chris Green (Green, 2008). A key hurdle to graduate studies in the area is suitable software, especially for dealing with the probabilistic dates used commonly in Archaeology.

This study aims to develop a Temporal-GIS system built on top of ArcGIS and using Bayesian modelled radiocarbon dates. Such dates provide a significant increase in resolution compared to non-modelled dates and help us look at sites with time frames of decades and life spans rather than many centuries. So far this kind of research has made limited use of GIS, instead analysing dates independently or via a visual comparison of model and dates.

The Temporal-GIS will enable analysis of dates within a GIS framework and will be able to provide temporal analysis (as we have spatial analysis now) and spatio-temporal analysis, enabling us to glean even more information from the data we have available. This area of analysis is a new horizon in Archaeological Computing, the unknown potential of these techniques will be tentatively explored through a range of case studies, although this will be just the beginning.

Our initial case study will focus on Windmill Hill, we will analyse a selection of the events at this site that have been radiocarbon dated and Bayesian modelled (Whittle et al, 2011) and apply a range of exploratory temporal analysis. The results of this will feed into updates to the software, and subsequent case studies.

**Cuthbertson, Cory: Theory of Mind as a Proxy for Language Ability in the Palaeolithic Record**

This presentation offers new support that evidence of theory-of-mind ability in Palaeolithic hominins indicates language ability. Theory-of-mind is the cognitive ability to recursively think about thoughts. Standardized theory-of-mind test scores are found to predict an individual’s language test scores and vice versa. If this correlative relationship is taken to have also existed in the past, indicators in the archaeological record could be used to infer concurrent linguistic ability. This method is preferable to the inference of language via symbolism, where interpretations are binary, apply only to rare and recent material, have little empirical support, and often fail to contain a sound symbolic interpretation in the first place. Using indications of theory-of-mind to assess language ability precludes these issues. It is also applicable to the Lower Palaeolithic, a time of accelerated encephalization in hominin evolution. According to the Social Brain Hypothesis brain size in primates correlates with social complexity, making the Lower Palaeolithic a likely time for communicative innovations, vital for language evolution research. My hypothesis is that theory-of-mind ability leaves indications in the material culture of past hominins. Indicators of intentional teaching would have required a theory-of-mind because a teacher must see a student as a receptor of knowledge. My doctoral project will construct a computer program where participants recreate objects through various levels of intentional teaching over multiple generations. The resultant patterns will be compared to a Lower Palaeolithic lithic assemblage, to see if a pattern left by intentional teaching is discernable.

**Dhoop, Thomas: Man, Ships, Harbours & Towns: A short overview of research into 12th to 14th century maritime trade and commerce in northern Europe.**

Ships are objects which are interesting to study from a technological point of view, but also objects that can tell us more about the needs and ambitions of people in the past. In the ship-record, an increase in size and change in technology of clinker-built vessels, coincides with the introduction of a new ship type; the cog of the archaeological tradition. The indications of growth, changing status and organisation of sea-borne trade that we can deduce from the ship-record has to be connected to observations of change in harbour technologies and the topography of towns, especially in those parts of town that are related to seafaring and trade.

This research studies the archaeology and history of commerce and trade in 12th to 14th century northern Europe by examining the relationships between ships, harbour technologies and the maritime town topography. It is through the study of innovation and change of these actors that the dialectic relationships between these will become apparent. These can help us understand how individuals and groups acted within a changing socio-economic environment. Hidden in these observations might lie a possible key to shed new light on the ways in which maritime commerce spearheaded social change towards capitalism and the global world.

This presentation will give a short overview of the topic, applied methods and goals set for this PhD research topic.

**Dixon, Charlotte: Sailing the Monsoon Winds in Miniature: Model boats as evidence for boat building technologies, cultures and collecting**

Model boats produced and collected from the Indian Ocean region, from East Africa through to Western Australia, feature in museum collections around the UK. These models are considerably understudied and rarely exhibited. This paper seeks to start exploring what can be learnt from these models in terms of boat building traditions, maritime cultures and collecting.

The focus of the research has so far been on collating boat model data from various museums around the UK, including the British Museum (the collaborative partner for this research). This has initially revealed a higher quantity of models originating from the Indian Ocean region than first thought. The paper will highlight trends in these model boats across museum collections and identify how this data can be used to understand boat building, cultures and collecting. To conclude I will discuss potential case studies to give the research a more definitive focus.

It is my aim, throughout the research, to show how models can potentially provide new and complimentary evidence about boats from the Indian Ocean aiding archaeological, historical and iconographic evidence. I also aim to highlight the value these collections may have for museums, in terms of both research and exhibitions, and to explore the culture of collecting and collectors.

**Dugdale, Nick: Modeling Trade Networks in Late Antiquity: A Case Study of Marble Architectural Elements**

In this talk I will present one case study that have been working on as part of my dissertation work this year. I will begin with a brief overview of the mechanisms by which marble was produced, exchanged, and distributed in late antiquity. I will then move on to a more in-depth analysis of one particular form of 6th century marble chancel screen that has been found at a variety of sites throughout the Mediterranean. I use a combination of spatial mapping, network analysis, and statistical approaches to show that the distribution of these objects appears to be closely correlated with economic constraints, particularly transport cost and trip duration. Based on these results, I would like to suggest that the role of marble as an economic commodity that could be sold by traders and purchased on the open market by private or ecclesiastic consumers (that is, by those other than the imperial court) may be more significant than has previously been thought.

**Elmer, Chris: Basing House; anatomy of a heritage site**

In recent years there has been increased debate around the notion that public engagement in archaeology is vital to the health of society as well as the Profession. This debate has become even more relevant as funding cuts threaten the ability of organisations to offer public access to archaeology. This research focuses on the historic site of Basing House, near Basingstoke and examines its role in offering the public opportunities to engage with archaeology. An analysis of the ‘Disciplinary’ and ‘Identity making’ function of the site is being used to better understand the shifting values that accompany recent organisational change and to suggest why a range of attitudes and approaches to public engagement exist. Through a process of recurrent interviews with site staff, visitor meaning mapping and local community engagement projects, this study is beginning to reveal the tensions that accompany the provision of new approaches to heritage management and interpretation. This talk will examine some of these tensions but also seeks to provide solutions to address these contemporary concerns.

**Flores-Munoz, Julieta: A Study of Identity and the Production and Reproduction of Space Following Migration**

The history of archaeology in Mexico has been complex and the theoretical and methodological currents followed have been strongly influenced by politics. Mexican archaeology has traditionally recognized a glorious national past but diminished study of cultural continuity or discontinuity. The archaeological narrative presents a trajectory of a multi-ethnic past that narrows toward a modern state with cultural homogeneity and different social classes. A multi-ethnic country is thus reduced to a single national identity. In order to enrich archaeological research there is a need for Mesoamerican archaeologists to understand the multi-ethnic interaction and social organization. This research focuses on the case of study Central Veracruz, an area in which several ethnic intrusions and different settlement patterns have been archaeologically documented. Two migration flows by what appears to be groups of Nahua came into the state in different times. The first around 1200-1350 A.D. and the second associated with the Late Postclassic period (1350-1521 A.D.). But can we really trace Nahua through material culture in Veracruz? This project explores the material expression of Nahua identity over time. It explores both how the Nahua may constantly re-signify themselves and how they may retain a degree of uniqueness or ‘singularity’. I consider that this singularity hides in the way that they produce and reproduce everyday life. Therefore their vital space will become the representation of Nahua uniqueness. In order to investigate this, the research will compare Nahua material culture pre-and post-migration, including up to the present day. It will focus on the following questions: How does vital space shape their singularity? And how does this singularity travel and become modified over time.

**Girdwood, Peter: Making sense of Late Hallstatt Fürstensitze**

Since the discovery of the extent of the outer settlement at the Heuneburg in recent years, the sheer scale of some Hallstatt D sites has been reassessed. On the back of this the title of “First Cities” or “First Towns North of the Alps”, previously attributed to the Oppida of the later Iron Age, has been reappropriated by some working in the area to these Late Hallstatt Fürstensitze. But what difference does attributing an “urban status” to the Fürstensitze actually mean for our understanding of Late Hallstatt society?

Despite, or alternatively because of, a long and varied history of the study of Late Hallstatt archaeology, we are far from a consensus as to the structure of the society. Any attempt at an understanding of Hallstatt society will inevitably rely heavily on an understanding of the function of the best known and most investigated group of sites from the period. This paper will discuss some preliminary ideas of what the Fürstensitze actually are, how they functioned and what this might suggest about the society in which they existed. It will concentrate on the sites in Baden-Württemberg in general and the Heuneburg in particular, looking at how we can understand their position in the landscape and relationship to subsidiary settlements on the one hand, and how we can understand internal site dynamics on the other. This should provide an insight into the complexity of these sites and society implied by the urban label.

**Griffiths, Sam: Bridging the Gap**

Palaeolithic scholarly research over the past twenty years has largely split between French and British traditions in Northern Europe. This is no more evident than the record of the Channel Plain Region since the publication of the La Cotte de St Brelade monograph (1986) and the developing research along the coasts of Normandy and Brittany. My research intends to bridge this gap bringing the record of the Channel region together and re-accessing the lithic record. The central theme is Neanderthal technological adaptability through the late Saalian (MIS 7-6). The assemblages of La Cotte provide the perfect chance to assess this with a number of distinct occupations spanning the Middle Palaeolithic. A climatic record from a number of sources such as the raised beaches of Northern France can be mapped against this occupational sequence. Distinct patterns can be highlighted in this record. This research intends to question the impulse for these patterns in the data with quantitative and qualitative assessment of the lithic record and contextualise new and old research conducted on the Island of Jersey and the broader Channel region.

**Harrison, Matthew: Bridging Divides: 3D Models as Epistemic Tools for Archaeology**

Definitions of models and their role in research vary considerably, though centre around the idea of models as intermediaries between theory and reality. Philosophers of science have traditionally based their analysis of the epistemology of modelling on its manifestation in economics and physics, though more recently a vibrant debate has emerged in the social sciences and humanities regarding what models can do, and how. Much of this debate has been sparked by the proliferation of computational “social simulation” approaches, with debate focussing on what kind of explanations models can achieve, their relationship to truth and reality, and the significance of different modes of validation. Systematic criticism, drawing on concepts in the philosophy of science, has led some to characterise social simulation models as providing little more than subjective and unprovable ‘just-so stories’, hidden behind the superficial rationality of computation and scientism.

3D models in archaeology have developed from the passive and under-theorised “ingenious images” of the 1980s and 1990s to become utilised as interpretative and analytical tools in a multitude of different ways. How do these more recent claims of insight into the past achieved through 3D modelling relate to the affordances and limitations of models *per se*, as identified in the philosophy of science and critiques of social simulation? This paper will show that 3D models in archaeology are affected by similar issues in their mediation between *theory* and *reality*, but show distinction in their concurrent focus on mediation between the *material world* and *conceptual world*, as part of a multi-stage explanatory process.

**Hawley, Donovan: Lithic signposts in the landscape**

Lithics are an ideal data source for study as they represent an archaeologically persistent element of past people’s actions in the landscape and they are arguably a valuable strand of evidence for past peoples’ activities on Guernsey. To date, although there is a rich archive of lithics on the island that derives from collections, field-walking exercises and excavations, little quantitative and interpretive work has yet been carried out on this resource and there exists a potential narrative of the human past yet to be revealed. My thesis is therefore motivated by the following research question: what can the lithic data of Guernsey tell us about human residence, activity and mobility patterns in the landscape during the Mesolithic, Neolithic and Bronze Age periods?The knowledge gained will contribute to an understanding of the people who sourced the raw material, fashioned the tools and eventually discarded them.

In this presentation I shall provide an overview of the progress thus far achieved in the first half of my PhD study period.

**Hoggard, Christian: Laminarity, Levallois and their long-term relationship: examining concurrent blade strategies in the Middle Palaeolithic of north-west Europe**

It is now widely accepted that Neanderthals, in Europe, possessed the ability to produce blades in a similar way to Modern Humans, using laminar (volumetric/prismatic) systems of blade technology. Whilst this is now accepted, it is poorly understood within its Middle Palaeolithic context, and those studies that have focused on laminar technological systems (Delagnes, 2000; Delagnes & Meignen 2005; Locht *et al.* 2010; Koehler *et al*. 2014) have examined a fraction of sites, all from the Late Middle Palaeolithic. Large-scale inter-site analyses of both periods are absent and could be of great potential to our understanding of Middle Palaeolithic behaviour and Neanderthal technological variability.

This presentation provides an introduction to my research on the extent of laminar strategies within the Middle Palaeolithic of north-west Europe and their relationship with Levallois technological strategies of blade production. These two forms of blade production are, in almost all examples, concurrent with the former representing a small percentage of the overall assemblage. Why adopt both blade strategies? Were they of differing importance in the Early and Late Middle Palaeolithic? Did they have cultural significance? Do they represent different behaviours? And why were laminar systems not widely adopted, given their prominence in the Upper Palaeolithic?

Through extensive morphometric and technological analyses, in conjunction with the available spatial and geological data, a full account of laminar/Levallois blade technology in both parts of the Middle Palaeolithic, will be outlined to address the key questions above.

**Hunt, Daniel: An archaeology of emotions: a defence and a preliminary model**

Scholars from both the human and life sciences have long stressed the importance of emotions as a central component of the human experience. However, the subject has been little addressed by archaeologists, with some arguing that the archaeological reconstruction of emotional states and experiences is beyond recovery, or is inherently subjective and speculative. It is true that the movement from the material to the emotional is not easy, particularly in preliterate cultures, but it must be attempted if we are to grasp the true complexity of human involvement with the material and social worlds.

Here, I will seek to defend the study of emotion in Palaeolithic archaeology. Drawing on rich interdisciplinary discussion I will address questions surrounding the ‘evolution’ of emotions; specifically the movement from basic mammalian emotions to the vast array of complex, social, culturally variable, and uniquely human emotions that we see today. How and why this happened is a hugely important question for our understanding of our species, and has implications for many facets of our evolution, including sociality, language, religion, art and more besides.

Ultimately, the focus will be on providing an emotional perspective to recent work by the Social Brain Project. This will lead to the construction of an evolutionary model of emotions, which will establish the cognitive capacities required to conceptualise different emotion, link this to evidence for developing hominin cognition, and investigate the implications of this for hominin behaviour.

**Jones, Jemma: Neuroaesthetics and Ice Age Art: A Modern Interpretation of the Prehistoric Mind**

Prehistoric ‘Religion’ as a term has been used widely throughout archaeological literature often without substantial definition or evidence. My research into Neuroaesthetics & Ice Age art proposes an interdisplinary approach to construct a wider picture of sociality in the Palaeolithic and offer a more focussed explanation of the term religion and its significance 40,000 years ago.

Whilst archaeologists often conclude sites have ritual significance they very rarely relate the archaeological evidence to other branches of human science such as neuroscience, sociology or anthropology. The work of French sociologist Emile Durkheim particularly ‘The Elementary forms of Religious Life’ offers an insight into the beginnings of human social networking which in turn has led to what we perceive as religion. Durkheim understood religion and society as synonymous elements of human life ‘If religion has given birth to all that is essential in society, it is because the idea of society is the soul of religion’.

Through applying a multidisciplinary approach incorporating key principles in social & cultural anthropology, art theory & philosophy of religion to data from the British Museum, Ashmolean and Pitt Rivers Museums we can begin to consider what it means to regard an object ‘religious’. How & why were they deemed to be religious to the people who discovered and displayed them? What can this tell us about objects at prehistoric sites such as Montastruc France, Dolni Vestonice Czech Republic, & Willendorf Germany & the prehistoric sanctuary sites of Phylakopi Greece & Gobeli Tepe Turkey.

**King, Louise: The Pathological appearance of infectious middle ear disease (IMED) on human skeletal remains and its potential in identifying pre-antibiotic polymicrobial chronic otitis media (OM) in past populations.**

My research is exploring the relationship between infectious middle ear disease and its various magnitudes through the pathological or morphological changes that may be seen on human skeletal remains, in particular the three ear ossicles: the malleus (hammer), incus (anvil) and stapes (stirrup). The tympanic cavity (middle ear auditory canal) located within the temporal bone of the cranium will also be a focus; incorporating other pathological modifications on and within the bone due to possible secondary infections caused through middle ear disease. Other factors such as age of host, exposure of host to pathogen i.e. through population densities will also be considered. The biology of main causative bacteria will also be explored and its reaction to host’s immune response.

**MacKintosh, Robert: Does the 2001 UNESCO Convention on the Protection of the Underwater Cultural Heritage succeed in protecting the Underwater Cultural Heritage?**

The 2001 UNESCO Convention on the Protection of the Underwater Cultural Heritage has gathered momentum after coming in to force in 2009, with 46 states having now ratified or accepted the Convention.

Most of the analyses of the 2001 UNESCO Convention for the Protection of Underwater Cultural Heritage to date have been from a purely legal perspective and have invariably used a ‘top down’ approach, studying the wording of the convention itself, the negotiating process behind it, and its relationship to other international laws. Very little is known about how it is working in practice. This study will therefore take a ‘bottom up’ approach, identifying how it is being implemented in the states which have ratified it, how it affects the work of archaeologists in those states, and whether it is succeeding in protecting the underwater cultural heritage itself.

The questions the study seeks to answer are:

1. How does the Convention work in practice?
2. Are the processes it sets up effectively addressing the issues the Convention was created to solve?
3. How can its implementation be improved?

A methodology for this will draw on international relations and empirical legal studies, and will be highlighted throughout by the use of archaeological case studies.

It is anticipated that the research will allow guidelines to implementation to be suggested which could subsequently stimulate real changes in the law and practice underwater cultural heritage protection and encourage other States that are not yet party to the Convention to ratify.

**Murray, Michael: Recording Historic Shipwrecks at the Speed of Light: An Analysis of the ULS-200 Underwater Laser Scanner to Sonar, Video, and Photographic Recording Methodologies**

The effective recording of underwater archaeological sites has been a challenge since the inception of underwater archaeology in the mid-20th Century. The relative inaccessibility of these sites compared to terrestrial ones and the dynamic environments that they reside in have compelled the underwater archaeologist to discover novel ways by which a site can be more accurately reproduced at an affordable cost. The primary aim of this study will be to compare an underwater laser scanning device, the ULS-200, to other traditional archaeological recording devices that rely on sonar, photographic, and conventional measuring techniques. The ULS will quantitatively ascertain the average amount of time it takes to conduct a scan underwater, its accuracy in resolving an image in mm at different turbidities and its affordability of use. A secondary aim will be to develop an easily cross-referenced chart of materials with differing characteristics that can be seen underwater at different resolutions. The expected outcome is that while the ULS-200 will take an equal or longer amount of time to acquire an image underwater and currently cost more to use compared to other means, within a range of 0-10 NTU’s of turbidity, it will be able to provide an unprecedented amount of detail and accuracy at the sub-millimetre level. Even more profoundly, the creation of a comparative chart of resolution will not only be highly functional for the archaeologist, but of great value to other disciplines and industries when it comes to the precise measurement and evaluation of various features underwater.

**Newman, Danielle: The Theories and Practices of Public Engagement with the Maritime Context**

The romance, adventure and mystery of archaeology found within the maritime context has made the subject hugely popular with the public. As public perception of a field directly influences social, economic and government policies it is imperative that maritime archaeologists challenge what is being presented by treasure hunters and popular culture. Equally important is to combat psychological access issues such as ‘out of sight, out of mind’ and perceived physical access issues of non-divers.

In the past twenty years, archaeologists who are engaging with the public have developed theories as to how we can best communicate the messages of the heritage community and increase the reciprocal communication between the public and heritage managers. However, to date very little research has been done into how and even if these theories of public communication are being implemented within projects that focus on the maritime context. There has been no research into who is implementing them, and the views these practitioners have on how the public should be engaged with. In order to better understand how communication and engagement is happening on both theoretical and practical levels, research must be done to establish how informed and capable maritime archaeology initiatives are to implement theory within the current social & economic environment. The proposed methodology to accomplish this is a series of ethnographic surveys of a wide range of maritime based initiatives, including both observation and interviews. This paper will thus provide an over view of the first year of my research.

**Norton, Elizabeth: Polished axes: viewing networks behind the construction of prehistory at the British Museum**

In this talk I will give an overview of the conclusions of my thesis. I have used polished axes as a way of navigating the network of collectors that have been built around the collections of the British Museum. There are over 4,500 polished axes, adzes and celts in the British Museum’s collections that have been sourced and donated from archaeological and ethnographic contexts from around the world. Although polished axes represent just a tiny cross section of the total collections in the British Museum they formed a common component of the private collections of individuals interested in both prehistoric archaeology and ethnography who donated to the Museum’s collections from the mid 18thCentury onwards. I aim to show how archaeological and ethnographic stone tools were used together to write the modern narrative or prehistory from the mid-18th Century onwards, using the case studies of tools donated to or collected by the British Museum from New Zealand, Papua New Guinea and Europe. Collectors are central to my thesis and special attention has been paid to the international circle of collectors that revolved around the British Museum’s arguably most important curator, Augustus Wollaston Franks, during the mid-19th Century, building on the important work of Caygill and Cherry (1997).

**Nurmikko-Fuller, Tehri: Ontological Representations of Sumerian Literary Narratives**

The Electronic Text Corpus of Sumerian Literature (ETCSL; http://etcsl.orinst.ox.ac.uk/) is an online resource that provides unrestricted, unlimited free access to some 400 thematically arranged composite text versions of literary inscriptions, all of which are written in Sumerian and have a provenance in the late third or early second millennium BC. Although active development of the site ceased in 2006, it remains an often-cited resource amongst students and scholars alike.

My research focuses on the potential of Semantic Web technologies to support and enable

Assyriological scholarship, assessing the suitability of three existing OWL ontologies (CIDOC CRM, Ontomedia and FRBRoo) to adequately represent the narrative structures of the stories that play out in the literary compositions published on the ETCSL. This has involved the development of a digital representation system and its validation with the community through the encoding of exemplar texts (in both the English translation and the original Sumerian) to demonstrate the expressivity of this approach.

**Osinga, Elizabeth: Ceramics in the Jordanian Countryside**

The countryside site of Umm el-Jimal is unassuming compared to the grand Decapolis cities nearby; however, it offers the best preservation of a late antique town in Northeast Jordan.  The site presents a challenge to the ceramicist, due to the nearly complete lack of pottery publications from the region, and the fact that ceramics are habitually used merely as a chronological tool in excavations in Jordan.  Too often, there is little insight into ware or fabric development, and even basic quantitative analysis is typically absent.

This sad lack of detailed, comparable data has left the entire region in the dark when it comes to discovering relationships between sites in the vicinity and further afield.  In an area that went though a series of political, religious and economic shifts over its long occupation, pottery is one key factor in investigating links to nearby settlements, to the Decapolis cities and even beyond, and how these relations changed over time.  For instance, when properly analysed, grouped and quantified, ceramics can help pinpoint where goods were being produced, how much was being imported and from where, and when production centres shifted over the centuries.

My research aims to advance the study of ceramics at Umm el-Jimal and in the greater region by forming ware groups, quantifying finds and by analysing how any economic shifts highlighted by the pottery relate to the religious, political and social climate of the site and its environs over time—whether by syncing with established transitions or challenging assumptions.

**Pacheco-Ruiz, Rodrigo: PhD concluding remarks: Lives in the SW of England during the Iron Age**

This paper is intended to be a quick summary of my research in the University of Southampton as a final year PhD student, funded by the National Council of Science and Technology (CONACYT). It covers all the different decisions and steps I took to understand and explain the nature of life in the coastlines of England during the Iron Age. As such, it hinders on my research design phase, fieldwork, data analysis and interpretation using a well-balanced mix of human/environment models as main research tools. Throughout all this time the Isles of Scilly and the SW of England were used as case study to explain how people lived in this region.

**Peacock, Becky: Outreach – A Journey**

This presentation will outline the journey of this thesis. It started off as a discovery of outreach within museums in Hampshire. Exploring what it is, who it is practiced by and what activities are classed as outreach. From this point those museums that undertook outreach had one of their activities observed. This provided a wealth of information on the practice in the ‘real world’. It highlighted a broad spectrum of activities. Highlighting a number of interesting case studies, these will be outlined. All of this work was important to create a sound knowledge on the topic and its practice with the county. However, this was descriptive and did not get to the heart of the issues facing outreach and museums within Hampshire. Funding, provider views on the practice and evaluation were pinpointed as impacts on outreach that needed exploring. Policies of public engagement are evolving but there are fundamental factors which constrain the way outreach/engagement is practiced.

**Pereda, Javier: Enhancing Engagement with Online Museums**

Museums play a major role promoting knowledge about material culture. Museums usually share this knowledge through displays. These displays occupy a physical location and are limited to the amount of information presented on them. For this reason museum displays have certain requirements and limitations. Nevertheless, when museums present knowledge on the Web, those requirements change.

One of the primary issues that needs highlighting is that all engagement with digital content occurs via an interface. Especially on the Web, experiences and learning objectives become increasingly dependant on interaction design. Interfaces have to provide all or most of the elements that museums offer to achieve a meaningful visitor experience.

There are several interaction methods that can help online museums (OM) to achieve their communication and pedagogic activities. This research focuses on understanding such interaction methods and how users might interact and learn with online cultural heritage. Moreover, it is also important to understand how online learners might approach a system when looking for a specific set of knowledge.

Although different groups are working to make museums’ digital content more accessible to the world, it is still difficult for many visitors to use it. Tangible user interfaces (TUI) may help to solve this issue. Nonetheless, TUIs are still on their infancy and require further study, especially on the Web. This research adopts TUIs as a primary method of interaction for asking questions in a linked data system provided by OMs. This provides an innovative and alternative method for interacting with knowledge.

**Radaelli, Edoardo: Mid-Imperial age pottery contexts from the so-called “Terme di Elagabalo” excavations in Rome and their implications in ancient Roman economy and consumption**

Recent excavations at the ‘Terme di Elagabalo’ in Rome have revealed large amounts of pottery that are shedding light on the Mid-imperial economy of the City, with particular reference to the commercial activity. The research also involves the study of material from elsewhere in the Capital and sites nearby. The objective is to assess the phenomenon of imported foodstuffs from the perspective of consumers, thereby provoking a ‘semantic shift’ in how amphorae are interpreted. The aims are to gauge how far it is possible to read the personal choices and their purchasing attitudes of the City and to explore related methodological issues for future research.

**Richley, Elizabeth: Integration Techniques**

Fusing multiple geophysical data sets offers large potential for the improved archaeological understanding of the subsurface. Each, individual technique measures and records a different characteristic of the subsurface, for instance a magnetic survey might reveal only part of a buried building, whereas applying resistance survey as well could reveal the lay out of the structure as well as interior components. Patterns that appear as a result of data integrations/fusion may indicate anomalies that are much less visible or not visible at all in any single dataset and that, as a result, may have been overlooked. Integrated information in this manner from several surveys may provide increased knowledge of the subsurface. There has been considerable work focused on fusing 2d datasets extracted from 3d data volumes, resulting in redundant data or demanding multiple iterations of the integrating techniques to make the most of the data available. With the advent of 3d datasets it is important that we use as much as possible if not all the data that we have collected in the field.

The data available from Portus allows an unprecedented opportunity to investigate not only the tried and tested 2D methods but also 3D techniques for integration. Alongside the geophysics data, the availability of excavation and environmental data presents us with knowledge pertaining to the subsurface and allows the ability to ground truth the results from the integrations.

**Riris, Philip: Spatial analysis of pre-Columbian cultural landscapes**

This paper outlines the key questions that have driven my PhD research over the past three years, and presents some of the preliminary results of my spatial analysis and simulation-based approaches to archaeological data. The study seeks to characterize and understand the distinctive cultural landscapes of the eastern La Plata basin. A combination of methods is adopted to describe the spatial structure of the material record over a large study region, which draws in both settlement and monumental landscapes. The importance of understanding long-term patterns in this little-studied region will be underscored with reference to the lack of similar landscape-level studies in the broader regional context.

**Romanowska, Iza: Computational Modelling of Long Distance Dispersals**

The aim of this paper is to present the theoretical and methodological considerations for investigating long distance human movements (dispersals) using computational modelling. This paper focuses on a discussion on the modelling process drawing particular attention to the decisions one has to make during the code development and their underlying assumptions.

To illustrate the discussion an agent-based model was developed to test a simple hypothesis (Lycett & Con Cramon-Taubadel 2008; Lycett & Norton 2010) regarding dispersal driven population densities and their effect on the technological distribution of two lithic industries (the so-called ‘Movius Line’) during the Lower Palaeolithic.

Computational Modelling provides a unique opportunity to confront many of archaeology’s most pressing research questions. It allows to overcome some of the limitations of traditional conceptual methods and intrinsic biases of the archaeological record. Although simulations reflect our current understanding of a given system they can be built largely independent of the empirical data as a form of ‘virtual lab’, ‘thought experiment’ or ‘generative social science’ (Di Paolo et al. 2000; Epstein 2006; Premo 2006; 2010). Equally, the method helps to tackle the complexity of the system enabling researchers to move beyond simple conceptual models. Finally, the formalisation of the proposed hypotheses, necessary for the code development, helps to identify key entities and variables of the system in question and opens a window for the application of other quantitative methods.

Nevertheless, despite a significant increase in the number of applications of computational modelling to archaeological case studies, there has been little discussion on the theoretical framework of the method, its reliability, validation issues and its place within our discipline. This paper aims to bridge that gap for a common research theme of long distance human movement.

**Slade, Alan: Clovis points and the earliest settlement of North America**

Clovis fluted projectile points were long regarded as the hallmark of the first humans to occupy the Americas). Finding a new rich and open environment, these groups of hunter gatherers spread rapidly leaving Clovis and similar fluted points throughout North America. The last two decades however have witnessed a serious challenge to this long-held and cherished belief about how, when and from where people first came to occupy the New World, there has been redating of established sites, environmental reconstructions and proposals of new or revived entry theories. It is now generally accepted that the so called Clovis people were not the first to set foot in the Americas and the issue of Clovis origins is currently a focus of intense investigation and re-evaluation. Hopefully this work can add to the understanding of the Clovis stone tool technology and in particular the fluted projectile points.

**Standen, Tyra: Mesolithic human-environment relations in the Severn Estuary region**

During the Mesolithic period, hunter-gatherer communities in Britain would have experienced the variable environmental changes associated with the early Holocene. Our ability to model some of these changes, such as relative sea-level rise, has progressed greatly over the years with the development of higher resolution models and improved computing capabilities. However, in addition to understanding the broad scale evolution of coastlines and environments though time, recent works have stressed that archaeological investigations also need to address how such changes would have been encountered at a human level. This research will therefore explore the nature of Mesolithic human-environment relations within the Severn Estuary region and consider how they may have been affected by changes within the local environment. In doing so, it looks to demonstrate how the adoption of more interpretive approaches can help produce more humanistic narratives of the changes experienced by Mesolithic communities, rather than environmentally deterministic accounts of the past.

**Tyler-Jones, Matthew: The Engines of Emotion**

Recently computer based adventures games like Red Dead Redemption, Skyrim and Dear Esther have achieved emotionally engaging stories in an “open world” virtual environment. Are such games actually “Engines of Emotion” (Sylvester, T. *Designing Games*, O’Reilly Media, 2013-01-03. ePub.) ? What can real-world cultural heritage sites learn from the video games industry about presenting a coherent story while giving visitors freedom to explore and allowing them to become participants in the story making?

A project is being planned to experiment with game-play mechanics and narrative applied to the interpretation of cultural heritage sites. In preparation for the development phase of this project, over 200 gamers responded to a survey about how they play games, and what motivates their gameplay. A focus group collected further evidence from the intended target audience for the game. Both research methods test an emotional model for gameplay set out by Nicole Lazzarro (Understand Emotions, in Bateman, C. *Beyond Game Design: Nine Steps Towards Creating Better Videogames* Boston, Course Technology/Cengage Learning, 2009).

This presentation offers the first public look at the data, and explores what it tells us about how game mechanics might be used to tell better stories around cultural heritage sites.

**Valdez-Tullett, Joana: Questioning Atlantic rock art: defining study areas and a methodology**

In the previous year I presented the outline of the research project I am developing, discussing the nature of the study object, objectives and methodology. I have also started to define the study areas I will be looking at, although this proved to be a difficult task.

As research progressed, I have refined some aspects of the project, mainly related to methodology and study areas. As a result, in this year’s presentation I will discuss some of the issues I had with the definition of my study areas and how I overcame those problems, as well as the definition of a methodology that should be coherent and that will be applied in geographically and geomorphologically diverse study areas.

Some preliminary results will also be presented.

**Varouhakis, Vassilis: “Ignorant peasants, patriot antiquarians & national benefactors from the West: Crypto-colonial and nationalist archaeologies as identity politics in the Cretan State”**

This paper deals with the parallel threads of colonial politics, nationalism and archaeology in the Cretan State (1898 – 1913), a semi-autonomous regime, established on the island of Crete by the “Great Powers” (Great Britain, France, Russia and Italy). This polity ends 250 years of direct Ottoman rule, on a region inhabited by both Christians – the majority – and Muslims. The most significant archaeological projects begin during that period. However, the excavations are mainly directed by western archaeological missions. At the same time, a local elite of intermediaries emerges. It incorporates members with multiple attributes, such as former revolutionaries, politicians, clergymen, self-taught archaeologists and collectors of antiquities, who develop a Janus-faced attitude: on the one hand, through Greek irredentism directed to the Christian community, they demand national independence and a nationally “pure” present, heir of an equally “pure” past; on the other hand, an obedient stance towards the occupying forces and their archaeological demands secures their individual and collective interests. Ironically, both approaches above lead them to clash with the local peasantry, whose behaviour towards antiquities they consider ignorant and non-patriotic. In this paper, I explore the legacy of a prominent local archaeologist, Joseph Hatzidakis. Through this process, I trace how archaeological practice affected local elites, the rest of the population, the occupiers, and the relationships amongst all the above. Therefore, I argue that Cretan State archaeology is a rather disguised case of both colonial and, in a peculiar way, conflict archaeology, born amid intercommunal violence, international military occupation and a nationalist struggle.