

AEA ONE DAY MEETING

Sea Changes: Environmental Archaeology in the Marine Zone, From Coast to Continental Shelf.

Tuesday 26th September 2006 at the University of Portsmouth

Presentation and poster abstracts:

Martin Bell

Changing coastal environments in Mesolithic Wales and Western Britain

Recent surveys of intertidal and coastal sites in Wales and Western Britain provide a new perspective on the Mesolithic period. These contexts preserve forms of artifactual and ecofactual evidence which are very infrequently encountered on dryland sites including faunal assemblages, organic artifacts, plant remains, human and animal footprint tracks. Submerged forests also provide evidence for the composition of the wildwood and the role within it of human agency and natural disturbance factors. It will be argued that coastal and intertidal sites can transform our understanding of this period in terms of the range of material culture, the use of faunal and plant resources, issues of seasonality, the age structure and composition of human groups and the identification of activity areas and settlements of a range of types and durations.

Greg Campbell

Beyond means to meaning: using distributions of shell shapes to reconstruct past collecting strategies

It has been regular practice in archaeology to interpret shell assemblages by comparing the average size of a given shell species between contexts, with smaller average sizes taken as indicating greater human exploitation. However, this is simplistic, since the average size of a given intertidal or shallow sub-tidal species of shellfish naturally varies considerably across any given shore at any one time. This distribution of shell size, shape and density for a given species varies systematically across a shore, according to a predictable pattern. Ancient shellfish collecting strategies can be reconstructed by comparing distributions of size, shape and age of archaeological shells to this systematic pattern. Interpretations for three species (the limpets, the sea urchins and the cockles) from a multi-period French Atlantic coastal site are presented as examples.

Virginia Dellino-Musgrave

Going beyond shipwrecks: marine aggregate dredging and submerged prehistoric landscapes

Recent research has recognised that archaeological remains of prehistoric human habitation are also present on, and in, the seabed. This paper presents the advancements gained through the Aggregates Levy Sustainability Fund (ALSF) scheme in enhancing our knowledge about the submerged prehistoric environment in England's Territorial Waters as well as the UK Continental Shelf. I will particularly stress projects focused on understanding sea level change and identifying areas of potential human occupation, the different methodologies applied to achieve these goals and the contributions to both the aggregates industry and the archaeological discipline as a whole.

From an academic perspective, this paper demonstrates that maritime archaeology goes beyond shipwrecks, thus challenging traditional approaches. From an industry perspective, it highlights the promotion of responsible mineral extraction, thereby reducing impact on the historic environment. More importantly, it shows that collaboration between industry, government agencies and academic institutions is possible and beneficial, contributing to a sustainable management of the historic environment for present and future generations.

Frank Green

Plants: foods and packaging on the Mary Rose

From 1977 onwards the wreck was sampled and a specific programme of processing was commenced in 1979 that ultimately led to a formal assessment and publication. Expectations of what the plant materials might tell us about Tudor life, the living conditions of the crew and contrasts with evidence from land based sites of the period were perhaps greater than what has emerged in reality. Much of the evidence is tantalising as the material alone does not establish how it might have been used and therefore its real significance in the daily lives of those on board, most likely for very mundane but essential purposes, can only be suggested.

The presence of abundant quantities of rye straw in a south coast context where rye is rarely encountered on Tudor period sites raises questions of the sources of supply and usage. Similarly the abundance of broom may be multi-purpose, a packaging material or for cleaning down decks.

Again questions have to be asked about the identified foodstuffs recovered, in terms of their being representative of what was on board when the vessel sank. The absence of concentrations of cereal bran, that might have been expected if flour or biscuit had been stored on board, may be significant in terms of the methods of provisioning. Similarly the absence of edible pulses is significant given the historical evidence that they were a significant element of maritime diet.

The range and nature of the botanical evidence from the wreck of the Mary Rose will be reviewed and lines of further research suggested.

Sheila Hamilton-Dyer
The Mary Rose 20 years on

The Mary Rose 20 years on; a resume of work on the faunal material from the Mary Rose and news of further work now being carried out on the fish bones as part of investigations on the origin of commercial sea fishing in medieval Europe.

Zoë Hazell
Offshore peat deposits – a resource assessment

Intertidal peat deposits have been documented since the 1700s and their potential as palaeoenvironmental and sea-level change indicators has long been recognised. Such deposits are widespread around the coast of England, but to date, no comprehensive dataset exists detailing their locations and nature. This work aims to help resolve this, by producing an electronic database of not only coastal intertidal peat deposits, but also of fully submerged deposits in English waters, sourcing data from a variety of sources including published literature and borehole log records.

Cluny Johnstone
Exploring the origins of intensive sea fishing in Britain

This paper will introduce a new interdisciplinary and collaborative research project that aims to explore the chronology, causes and implications of the rise of intensive sea fishing in the North Sea, Baltic Sea and North Atlantic from AD 600 to 1600. The project as a whole will conduct detailed studies of time-series from long-lived towns and from other key collections likely to represent traded material from across Northern Europe. This present paper will concentrate on the results so far from Britain.

The methods used in this project include traditional zooarchaeological and new biomolecular techniques for detecting the broad origin of traded fish. The primary focus of the research so far has been on establishing an isotope 'base map'. Control samples were collected from across the study area to establish the isotopic signatures of cod from the North Sea, Baltic Sea and North Atlantic. This will allow the identification of the area of origin for cod bones from archaeological sites. Archaeological sites, with a chronology covering the study period, are now being targeted to establish whether cod were locally caught or traded, whether the proportions of traded cod changed through time, and whether the source of traded cod differs through time.

Whilst the initial focus of the research is on cod, herring will also be considered in due course. Together, the extraction, processing and trade of these two species had major impacts on European social organisation and political-economy. The history of their exploitation also acts as a 'barometer' of social and economic change. Finally, it must be asked if the intensive exploitation of cod and herring resulted from, and in turn caused, early human impact on aquatic ecosystems.

The research is funded by the Leverhulme Trust and forms a project of HMAP, the historical branch of the Census of Marine Life.

Simon Mays

Human remains in maritime archaeology: an overview

This paper deals with human remains in maritime contexts, both from the intertidal zone and from below low water mark. Some of the legal aspects pertaining to human remains are discussed, with an emphasis on the English experience. Aspects of the recovery of skeletal material, the preservation and nature of marine human skeletal assemblages, and post-excavation processing of bone from maritime contexts, will then be considered. Finally, drawing upon work from Britain and from other parts of Europe, particularly on remains from wreck sites, attempts are made to discern some of the more important directions for research on maritime human remains.

Benjamin Morris

Coastal Erosion and the Poetics of Forgetting

This poster will present the results of my MPhil dissertation submitted in the Archaeology Department at Cambridge. Over the past six months I have been investigating the way that the Suffolk town of Dunwich has evolved—or rather, devolved—via coastal erosion over the course of its existence, and the way that this can be read as a form of ecological or environmental forgetting (my theoretical work in heritage studies focuses on memory). Having completed a photographic study there in March and with another upcoming in July, images of which would show up on the poster, I'm interested in the way that the town markets itself as not existing anymore, as having "fallen into the sea," and how that has come to form its new cultural identity—in short, how the town's interpretive logic is grounded on absence, not presence. Certainly erosion is a serious issue for many of the coastal towns around the UK (as organisations such as Coastwatch will attest), and threatens a great deal of archaeology which may not be recovered in time, but it's the three-way interaction between the archaeology and the landscape and the people that will be the core subject of this poster.

Peter Murphy

Something rich and strange? Some puzzles and some inconsistencies between the maritime and terrestrial archaeological record

There are curious inconsistencies between the archaeology of terrestrial and adjacent maritime areas. Sites of some periods are much better represented in one ecological zone than in the other. The exploitation of certain essential resources is very archaeologically visible at some periods, but apparently unrepresented at others. During some periods coastal and marine resources appear to have been entirely ignored. In this paper some of these puzzles will be explored, to assess the relative importance of environmental, taphonomic and cultural factors in producing the archaeological record.

Aleks Pluskowski

Exploiting aquatic environments around medieval Venice: the state of knowledge and directions for future research

The lagoon of the Veneto was first settled in the 6th century, and Cassiodorus' brief account of a community existing on fish and salt-production is becoming increasingly complicated by an archaeological understanding of its origins as a loose agglomeration of small settlements scattered across islands. These outcrops of land were gradually knitted into an urban fabric that became the symbolic centre of the lagoon – Venice, with the Rialto settlement at its heart. The relationship between land and sea was continually changing as the built-up area expanded, old canals were drained, new canals created, landuse transformed and urban fabric renewed and developed. But surprisingly little is known about the relationship between the city and its local aquatic resources before the early modern era. Faunal assemblages from medieval contexts have been recovered at the sites of Torcello, Ca'Zusto, San Giacomo and Lazzaretto Nuovo, although the only animal remains recovered from the heart of Venice itself, during the excavations under the campanile following its collapse in 1902, have no contextual information associated with them. Nonetheless, the existing data contributes an important snapshot of faunal exploitation within a lagoon environment, and in particular the introduction of sieving during the San Giacomo excavations carried out by the Insegnamento di archeologia medievale dell'Università Ca' Foscari, has prompted a re-evaluation of the potential contribution of environmental archaeology to furthering our understanding of Venetian reliance on local aquatic resources. This paper surveys the state of knowledge concerning environmental exploitation in medieval Venice, complementing and contrasting archaeological data with written and artistic sources, and outlines potential trajectories for future research, within the context of the Ca' Foscari's comprehensive archaeological survey of the city.

Mark Staniforth

In situ site stabilization for historic period wooden shipwrecks: the William Salthouse case study

The UNESCO Convention on the Protection of the Underwater Cultural Heritage (2001) suggests that "The preservation *in situ* of underwater cultural heritage shall be considered as the first option" (Article 2). Apart from the "do nothing" option, what site stabilization methods might be available for historic period wooden shipwrecks? This paper considers the case study of the *William Salthouse* (1841) in Port Phillip Bay, Australia. Relocated in 1982, the site is believed to have reached a state of relative equilibrium with its environment over the 140 years since wrecking with only a very small part of the remaining wooden hull structure and organic cargo material protruding above the seabed. During the 1980s the site was threatened by loss of sediment cover as a result of environmental change exacerbated by human influences. Several site stabilization methods were tried and the most successful proved to be artificial sea-grass matting made from closed-cell foamed polypropylene (Cegrass Erosion Control System).

Fraser Sturt

Modelling submergence

Much current work on understanding, investigating and protecting submerged landscapes relies on the application of models. Too frequently these approaches rely on simplistic intersection of projected sea-levels on current bathymetry to derive land/sea boundaries. This paper presents recent work on dynamic GIS based modelling of the processes of submergence, floodplain aggradation and associated environmental change in the coastal zone. Examples will be given from work on both the Solent and Fenland regions.

Emma Tetlow, Henry Chapman and Ben Gearey
Intertidal Intrigue? Geoarchaeological and palaeoenvironmental prospection at Llyn Cerrig Bach

The Iron Age Hoard from Llyn Cerrig Bach is widely recognised as one of the most significant finds from North Wales from the last century. The hoard itself has experienced significant reanalysis since the work of Sir Cyril Fox in the 1940s (Fox 1945, 1946, Macdonald 2000, 2006). Despite the importance of the artefactual evidence, work exploring landscape and palaeoenvironmental evolution at Llanfairyrneubwll has been limited (Macdonald and Young 1995, Roberts 2002). One of the most interesting concepts to arise from desk based work was the possibility that the low lying wetlands surrounding Llyn Cerrig Bach were once subject to tidal influence and that deposition of the hoard may have occurred in an intertidal environment. During 2006, a team of investigators from the University of Birmingham, with significant assistance from the Royal Air Force aimed to redress this lack of knowledge of the landscape context with environmental survey and analysis. The prime objective of this assessment was to establish a general stratigraphic framework for the archaeological remains and to ascertain the potential for further more detailed study. This paper is an overview of the findings of the initial survey and a discussion of recent theories about the possible intertidal nature of the site.

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Ingrid Ward and Piers Larcombe
A geomorphological approach to archaeological prospecting in the southern North Sea: case studies of the Dogger Bank, Brown Bank and the Norfolk Bank

The investigation of submerged Palaeolithic and Mesolithic archaeology is in its infancy and there is a need for a framework for management of marine

archaeological heritage in the North Sea. Existing data indicates that over timescales of decades to centuries, the possible loss of archaeological and palaeoenvironmental evidence through hydrodynamic and sedimentary processes is less significant than that from anthropogenic processes, including impacts of the fishing and oil industries and from the development of offshore windfarms. We present a draft conceptual Indicative Map of Archaeological Values (IMAV) that demarcates zones of risk or expectation regarding archaeological sites, which considers the potential impact of both natural and cultural processes on the preservation of archaeological remains. Rather than focusing on the 'site', the IMAV focuses on the 'deposit' as the essential context in which primary and secondary archaeological deposits may be preserved. We describe information from the Dogger Bank, Brown Bank and the Norfolk Banks, at which Mesolithic archaeological finds have previously been found. The IMAV maps are presented to stimulate discussion. It is hoped that from this conceptual background, more strategic multi-disciplinary research as well as fundamental and applied research may be negotiated.