

Session title: RE-VISITING PANDORA'S HOPE. TECHNOLOGICAL CHOICE AND RE-CONSTRUCTING PLURALITY OF HUMAN EXPERTISE AND ASPIRATIONS

Organizers: Stephanie Koerner, University of Manchester, UK
Laurent Olivier, MAN, Saint-Germain-en-Laye, France

Discussant: Tim Darvill, Bournemouth University, UK

Time: Thursday afternoon

Venue:

Session abstract:

Until rather recently, few archaeologists are likely to have envisaged evidence of the plurality of technological choices, which have shaped the extraordinary diversity of past and present day human life ways, as bearing very directly upon such immediately pressing challenges as:

- facilitating sustainable development under pressures of climate change, techno-science (nuclear, chemical biological) hazard, and of the problematic ethics and politics motivating much competition between powerful agencies of today's 'global' knowledge-based political economies
- exploring the social embeddedness of technological choices in deeper comparative historical perspectives
- challenging the narrow ways in which many local, national and international expert policy advisory agencies frame 'public issues'
- promoting public participation in such 'upstream' policy processes as deliberating commitments to social ends and accountabilities

Amongst other things, this session will:

- contextualise archaeology's changing roles in relation to such processes as those summarised by such expressions as 'globalisation of techno-science knowledge based political economies,' 'risk society,' and 'reflexive modernisation'
- consider the bearing upon the above listed challenges of recent approaches to the extraordinary variety of ways in which technological innovations and employments are embedded in historically contingent social relationships.
- relate to themes of the session organised by Sheila Kohring and Rebecca Farbstein, "Representation, Image and the Materiality of Technology"

Thus, together the two sessions address such themes as the following:

- contextualising change in approaches
- technology' roles in archaeological classification and periodisation
- practical methodological issues (e.g., integrating analytic scale, diverse materials)
- style-function, technological choice and communication
- cultural responses to environmental change
- specialisation and socio-cultural complexity
- production, consumption, and social boundaries
- technological choices, chains of operation, and social agencies.
- plurality of cultural understandings of the environment
- social and symbolic aspects of technological innovation and expertise

Selected references:

- Appadurai, A. (ed.) (1986) *The Social Life of Things. Commodities in Cultural Perspective*. Cambridge: Cambridge University Press.
- Beck, U. 1992 *Risk Society: Towards a New Modernity*, Sage Publications, London.
- Halstead, P. and O'Shea, J. (eds.) 1982. *Bad Year Economics: Cultural Responses to Risk and Uncertainty*. Cambridge: Cambridge University Press.
- Latour, B. (1999). *Pandora's Hope: Essays on the Reality of Science Studies*. Cambridge, MA.: Harvard University Press.
- Lemonnier, P. (ed.) (1993) *Technological Choices: Transformation in Material Culture since the Neolithic*. London: Routledge.

Paper abstracts:

INTRODUCTION: ARCHAEOLOGIES OF SOCIAL ENDS AND ACCOUNTABILITIES, AND CHALLENGES OF AN AGE OF 'GLOBALISATION'

Lorna Singleton, University of Manchester, UK

Technology has played key roles throughout the history of anthropology as a methodological and as theoretical principle. Until quite recently, the most influentially opposed paradigms have been variously rooted in some of the paradoxically most historicized and least historicized images of the importance of technology to the so-called Scientific Revolution and Birth of Modernity. Today the situation is changing, as researchers are developing increasingly sophisticated approaches to the intrinsically socially embedded nature of the technological innovations and implementations, as well as to the implications of such paradoxical images for illuminating some of the most contradictory dimensions of processes being summarized by expressions like 'globalisation,' 'risk society' and 'reflexive modernity.'

This introduction describes something of the session's backgrounds and general objectives. It concludes by illustrating, with examples from research in northwest England's Lake District, some suggestions about the bearing archaeological research into the diversity of forms, which

social ends and accountabilities of technology have taken, may have upon problems that many of the orientations towards 'expert competence in risk management' pose for developing democratic and practically effective approaches to the above outlined challenges.

TECHNOLOGICAL CHOICE AND ARCHAEOLOGY: MIRRORS AND 'HOPEFUL MONSTERS'

Geoff Carver, Germany

This paper adopts an historical, multi-cultural, multi-disciplinary – and reflexive – stance to critically examine the “socially embedded nature of technological choice.” The example used is the complex web of relationships linking archaeological theory, excavation methodologies, and the technologies available to document our excavations. The starting point is the observation that – despite the role interactions between technology and other aspects of culture play in archaeology generally – archaeologists as a whole tend to be somewhat technophobic, at least to the extent of not recognising similar interactions within our own discipline. The example used is stratigraphic documentation. It will be argued archaeology has continued to use a static, geological model of stratigraphy partly because traditional documentation methods (drawing and photography) are not suited to recording evidence for post-depositional transformations of the archaeological assemblage. Excavation methods therefore evolved which enabled the production of surfaces suitable for recording three-dimensional entities (contexts/strata) on two-dimensional media (paper). This problem has been compounded by on-site divisions of labour which have traditionally separated “method” from “theory,” and bestowed more prestige upon the latter.

The paper concludes by exploring the potential digital recording technologies have for changing not only the recording process itself (keywords: efficiency, accuracy, precision), enable more detailed intra- and inter-site comparison, empower workers (reflexivity), but also to change basic (in this case stratigraphic) archaeological theory.

CHALLENGES OF INTERPRETING PLURALITY OF SOCIO-CULTURAL LANDSCAPES IN RELATION TO MALTESE ENVIRONMENTAL IMPACT ASSESSMENT POLICY PROCESSES

Steven Vella, SIA Consultant, Malta

Marlene Borg and Daniel Borg, Archaeology Cultural Heritage Assessments Consultants, Malta

This paper shall focus on the practical and ethical problems and dilemmas encountered by social scientists, with backgrounds in anthropology and archaeologists, who are employed as expert consultants in relation to the corporate structures of Environmental Impact Assessment (EIA) policy agencies in Malta. EIA agencies have long had a biophysical and technocratic emphasis. Even though Social Impact Assessments (SIAs) are part of EIA processes, they are often seen as forming a peripheral section - with findings that are considered less tangible and therefore less finite on the effects of projects. SIA practitioners stress research strategies, which do not

overtly use technology - with pen and paper to gather qualitative materials as their main research “tools” rather than computer models and other instruments for collecting and analysing quantitative data. For some, this contrast means that the former amount to “soft” science, with implications for SIA practitioners often relegated to roles of subconsultants (Dale et al, 1997). Since Cultural Heritage Assessments make use of quantitative data and technologies such as GIS, at first glance they may be considered more “scientific”. However this is not the case. Archaeologists carrying out Cultural Heritage Assessments face the same or similar difficulties to the anthropologists carrying a Social Impact Assessments.

This paper will explore the EIA scenario in Malta as experienced by anthropologists and archaeologists while tackling the impact assessments of a number of proposed developments. Past human perceptions of a particular landscape proposed for development and the current values attributed to it present some common ground for anthropologists and archaeologists involved in impact studies. These may include access to local knowledge, gaining trust from the locals, communication with the rest of the interdisciplinary team and the use of technology or lack of it.

IMPACTS AND RESPONSES TO CLIMATE CHANGE IN THE PREHISTORIC MEDITERRANEAN AND CENTRAL EUROPE

Jan Bouzek, Mararyk University, Czech Republic

The last decade has seen remarkable shifts in foci away from goals to make global predictions about climate change on the basis of a very small range of factors, towards the advantages of local cultural adaptations to variability of climate change impacts. This paper illustrates a comparative approach to diversity among adaptive cultural responses of societies of prehistoric and protohistoric Mediterranean and Central Europe to climate change. The rhythm of climatic variations had strong impact on the prehistoric economy and was at least partly responsible for changes from one prehistoric culture into another, with new tactics of use of available resources. The warmer climate caused difficulties in the Mediterranean, but it had favourable impact in the north, while the colder climate with more rains in the Mediterranean favoured civilisations in this region and was less favourable in the north.

Very few societies could produce and conserve reserves for more successive years of bad crops, as Egypt did in the story of Pharaoh's dream of seven fat and thin cows explained by Joseph in the Old Testament; the survival of reserves for seven years mentioned in the story was considered a kind of miracle. The situation with one cause and one effect only rarely happens in normal life, but every prehistoric culture optimized its use of available resources, and e.g. long lasting bad crops forced entities either to emigrate or to solve the crisis by change of tactics of land use. The paper should bring examples of interrelations between the prehistoric and protohistoric societies and the climatic variations in specific cases.

SOCIO-CULTURAL ASPECTS OF PREHISTORIC TECHNO-KNOWLEDGE IN THE LATE MIDDLE PALAEO-LITHIC LITHIC ASSEMBLAGES IN CENTRAL EUROPE

Mieko Matsumoto, University of Oslo, Norway

The key issue in this presentation is an investigation of the socio-cultural aspects of lithic techno-knowledge that assumedly acts as a social agency in alliance networks of prehistoric hunter-gatherer societies. Technology is in general terms not only the material means of making artefacts, but also dynamic cultural and social phenomena embedded in social action and social reproduction. On the assumption that technology is an essential issue to conceptualise prehistoric material culture, lithic artefacts shall not be interpreted just as objects to be described and classified, but be regarded as evidence of human behaviour in its technical, economic, and even social dimensions. Although the know-how of making stone tools is an individual matter, this can further be interpreted as a socially established practice on a site-by-site or region-by-region basis. In this regard the role of techno-knowledge as a backbone of cultural exchange or social contact in the Stone Age context may well be discussed through any evidence of technology remaining in archaeological materials.

The case study focuses on the edge-shaping/re-sharpening Prądnik technique, which is commonly identified in the Late Middle Palaeolithic assemblages, mostly in Central Europe. The technique emerged when the climate in the North European Plain declined towards glacial conditions, and it disappeared sometime during the following climatic amelioration, at around the first Glacial Maximum (ca 67-59 000 BP) of the early last Glacial. This lithic technique presumably had a twofold social function: a technique for economising raw materials, and a medium for moderation of social stress and a communication device in refugial environments. The latter indicates that the techno-knowledge could work as a social agency among the local Late Neanderthal populations. Furthermore, detailed study on the contemporary assemblages in two regions, NW Germany and S Poland, allows me to envisage knapping practice as action upon an established domain of mental template and rigid “physical (object) template”.

EARLY CYCLADIC METALLURGICAL PRACTICES: AN ESSAY ON TECHNOLOGY, CHOICE AND ARCHAEOLOGICAL (MIS)UNDERSTANDING

Athena Hadji, University of Patras, Greece

The culture which ‘emerged’ in the Aegean archipelagos of the Cyclades at the dawn of the 3rd millennium BC and ‘flourished’ throughout the millennium is archaeologically designated as Early Cycladic (EC). A major part was played by the advances in metallurgical technology; indeed, a brief glimpse through the relevant literature indicates that metal finds are prominent in any analysis of EC society and culture. However, most analyses limit themselves to metal finds as signifiers of social status, neglecting for the most part the operational chain of metal procurement and production. Here, an alternative approach to EC metallurgy is attempted, according to which technology is not a mere carrier of social and cultural traits and signification, but an integral part and signifier of a culture. The issue of technological choice is explored and applied to the practice of EC metallurgy. Indeed, the emerging picture is rather striking: detaching oneself from deterministic interpretations, one discovers that the inhabitants of the Cyclades in the 3rd millennium BC possessed both a know-how and a determination to make the most satisfactory choice for each situation, that they could set an example for the present technological dead-ends.

GLASS PRODUCTION IN MEDIEVAL WESTERN SWEDEN

Anna Ihr, University of Gothenburg, Sweden

This paper will explore the production technique of glass in Scandinavia in the Middle Ages. Not far from Gothenburg in Sweden, there is a glass furnace that produced typical Middle Aged glass, i.e. potash glass, during the 13th and 14th century. In the Fall of 2007 we surveyed the area and conducted few trenches, where we found a possible square structure. The technique of glass production in northern Europe is said to be done in such square furnaces, while in the Mediterranean area rounded glass furnaces were preferred.

This glass furnace is so far the very earliest glass production site in Scandinavia, for primary glass. Earlier excavated sites in Scandinavia are either from earlier periods or much later. Therefore the one outside of Gothenburg makes out the first of its kind in primary glass production. It is here and now we will be able to investigate mediaeval production technique and gain valuable information by the excavation conducted in August 2008. Late Iron Age glass was manufactured by transferable workers, who re-melted imported raw glass as to produce jewellery items especially, why we can say this to be a typical Iron Aged custom of production technique. The above mentioned furnace, though, has an altered chain of operation, thus the production technique had within few centuries changed into a rigid and established manufacturing site located in a Monastery environment.

BODIES IN CRISIS? POSSIBILITIES FOR RETHINKING BODY-PRESENTS THROUGH BODY-PASTS

Oliver Harris, University of Cambridge, UK

In the western world today the body is omnipresent. We are surrounded by bodies we are told are perfect or imperfect, beautiful or ugly, suitable for the beach or requiring work (either physical or medical). The body has become the expression of health and wellbeing, something that is no longer private but rather a matter for public discourse. A simple glance at magazine covers, advertising or television tells us that. At the same time the body, we are told, is at risk as never before. It is at risk from terrorism, violence, WMD and biohazards like bird flu, AIDS, CJD and SARS. The body is also under threat from our own technologies, from stem cell research, cloning, so called animal-human hybrids and from genetic engineering. Despite its ubiquity, these technologies, along with organ donation, prosthetics and pacemakers also make the body much harder to define. Where do bodies start and finish? Do we require still further technologies (finger printing / retinal scanning/ medical imaging) to ascertain the truth about bodies - that they are what they claim to be?

Yet are these threats as potent and as new as they seem? Haven't people always been playing with the boundaries of their bodies? This paper will suggest that it may be specifically within a western ideology of biologically determined, bounded individuals and a modernist distinction between the ideal and the material that these technologies can be constituted as absolute threats to the integrity of the human body. Through studying the material human past,

archaeology can reveal how the human body often forms a site of negotiation and interaction with technologies within widely differing societies in the past. Furthermore, this may reveal how the current 'threats' to the body are not absolute, but rather in themselves contextual. The paper will thus suggest that it is through a reconsideration of body-pasts that we can situate and comprehend our body-present.

INCLUSION IN AND EXCLUSION FROM CIRCULATING REFERENCE – ASPECTS OF THE DYNAMICS OF TECHNOLOGICAL EXPERTISE AND SOCIAL RELATIONS

Diane Roege, University of Manchester, UK

Few have contributed more influentially to the current state of research on technology and cultural evolution than Leroi-Gourhan (1943, 1945), especially through his theoretical reflections and empirical inquiries into technology as a socially and culturally constructed means of action upon the physical world. Levi-Strauss (1960: 16) remarked that “only the observer able to understand its use” can decipher the “meaning” of an artefact in a given context. Yet it bears stressing that envisaging technology as an ordered ‘chain’ (sequence) of actions, gestures, instruments, agents – leading the transformation of a given materials towards a more or less predictable product – is likely to relate more to processes of ‘standardisation’ (or to the ways in which technological styles express commitments to some sense of ‘collective representation’) than to questions about discrepant experiences of such representations of social order.

This presentation highlights the historical contingency of connections between specialisation, cultural complexity, and and social boundaries. I show, with examples from my research on visualisation technologies in late medieval and present day medicine, something of the usefulness of bringing Leroi-Gourhan’s insights together with Bruno Latour’s notion of ‘circulating reference’ for comparative studies of the dynamics of technological expertise and patterns of social inclusion and exclusion.

EXPERIMENTALITY AND EMERGENT NOVELTIES OF TECHNOLOGICAL CHOICE AND COMMUNICATION

Stephanie Koerner, University of Manchester, UK

Growth of interest in themes of technological choice and social agency has occurred in interesting tandem with remarkable change in conceptions of the nature of the objects of ‘experiments’ (for instance, Galison 1996; Rheinberger 1997). Hitherto predominant notions of experiments stressed repeatability (on the basis of highly presuppositions that science is above all concerned with regularities. Alternative approaches stress, for instance, (1) that the emergence of novelty is an inherent property of perhaps the most salient of human life worlds, and that (2) human capacities for communication make them especially able to understand, precisely: things subject to change (emergent novelty) and the inherent relationality of things that endure (Koerner 2008).

This contribution illustrates, with examples from some of the earliest European societies (Gamble 2000), an approach to the dynamics of technological choice and

communication centring on a conception of experimental objects, which stresses: (a) the relationality of representation and intervention (style – function), (b) the importance of the partiality of experimental objects to the dynamics of technological choices and social relationships, (c) that reduction of materials through sequences of technological choices to experimental objects **adds** to their communication complexity, as well as their potential as sites for further emergent novelty.

STEIGLER'S NOTIONS OF TECHNIQUE ET LE TEMPS AND THE INDETERMINACY OF SOCIAL AND SYMBOLIC ASPECTS OF TECHNOLOGICAL INNOVATION

Laurent Olivier, MAN, Saint-Germain-en-Laye, France

The last decades have seen remarkable change in approaches to novelty amongst life forms and technologies. For instance, several recent developments in molecular biology undermine such presuppositions of the 'Central Dogma' (Watson and Crick 1953; Crick 1970) as that: (1) all hereditary information resides in DNA, (2) information is transferred from DNA to RNA to protein or 'downstream' (3) and never reversed. (4) Assumption (3), explains (at the molecular level) why acquired characteristics cannot be inherited, as well as why (5) most, if not all, behavior of organisms is determined by their DNA sequences.

Analogous changes have built upon insights of André Leroi-Gourhan, Bertrand Gill and Gilbert Simondon's conceptions of technological processes of concretisation. Bernard Stiegler's (1998) conception of technology as 'organised inorganic matter', which itself evolves, goes against the grain of dualist presuppositions about nature and culture. A remarkable feature of these developments is how deeply they call into question the normative roles of models that have envisaged difference as defect. This presentation considers the relevance for several themes of the session of Steigler's notions of *technique et le temps*.

IT IS NOT THE END OF THE WORLD - RISK AS IDEOLOGICAL NARRATIVE AND SHAGGY DOG-ARCHAEOLOGIES AS CRITICAL STRATEGY

Bo Jensen, Sydvestjyske Museer, Denmark

Many archaeologists have called for archaeology to become more active in contributing to risk management, especially by drawing lessons from the past in order to manage demographic and environmental crises. In this contribution, I explore the reverse of such a strategy. I argue that risk is being used for an ideological project mis-represented as beyond ideology. Risk society theory has become a strong and disturbingly unopposed force in political discourse. There seems to be no valid position from which to challenge the privilege granted to risk management, and arguments based in risk have been used to limit civil rights severely.

This is not good for democracy. Quite besides the dubious uses risk arguments are being put to, democracy does not benefit from any position going unchallenged. I submit that we, as citizens, have a responsibility to question any consensus. Moreover, within the ideological narratives used to legitimise and popularise risk thinking, claims to archaeological

knowledge play a significant role. These narratives are modern myths, deriving their credibility from claims to archaeological veracity. Like older, religious myths, these focus heavily on origins and eschatology. I submit that we, as archaeologists, have a special duty to provide credible alternatives to such myths. Finally, I sketch a ideas for how to do this.