South East Research Framework resource assessment seminar

Environment and landscape during the Neolithic and Early Bronze Age

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Introduction

The South East region can be divided into several main geo-topographic units in which preservation or reservoirs of palaeo-environmental data can be predicted and characterised (similar to those in Hampshire: Allen 1996). There are preservation biases which make for uneven courage and potentially biased or skewed interpretation: chalk downland deposits, for example, contain snails but are poor in terms of pollen preservation, while in the Weald and on the Coastal Plain the opposite is true. We can also divide the palaeo-environmental information into two sources: i) palaeo-environmental sequences and ii) environmental information derived from archaeological sites: both of which are of value and importance.

Summary of the evidence

Weald and Coastal Plain

There is a lack of stratified deposits in these areas, both colluvial and in the form of buried soils under Neolithic monuments, but some alluvial deposits are present. Deep alluvial sequences from the Ouse Valley (including the Vale of Brooks), Rother valley and Pett Levels, provide significant but relatively poorly dated general palynological information (eg Scaife & Burrin 1983; 1985; 1992/Burrin & Scaife 1984; 1988;Thorley 1971; 1981/Waller & Hamilton 2000 etc). Limited palaeo-environmental and proxy palaeoenvironmental data is potentially available from sites such as that at Westhampentt (Fitzpatrick *et al.* unpublished; in preparation).

Chalk downlands

There are surprisingly few good environmental *sequences* from the chalk downlands, and relatively few good charred plant assemblages. Although there are some good colluvial sequences, especially with regard to molluscan evidence, these are geographically well separated and few relate to well-dated Neolithic phases.

Intertidal zones

While intertidal locations in the South East are, potentially, extremely important for palaeo-environmental study (such as Langstone Harbour: Allen & Gardiner 2000), very few have been investigated. There is no question, however, that areas such as the Chichester–Havant harbours and many parts of the Kent coast have very significant stratified intertidal deposits containing both buried archaeological sites and palaeo-environmental data.

Submarine Zones

Recent offshore work in the palaeo-Arun has shown the presence of potentially occupiable terrestrial Mesolithic land surfaces at depths of up to –36m (Wessex Archaeology 2006), and there may well be buried Neolithic landscapes in similar off shore locations.

What do we think we know?

Work by Evans (1972), Dimbleby (1976; 1894), and Godwin (1940; 1975) etc., have provided a schematic sequence for the UK for both chalklands and acid soils (see Figure 1).

This provides a very useful, but highly *general* scheme, which is now of little value when examining individual sites or locations of activity. It has made us complacent in believing we have a full understanding and appreciation of the development of the land-use history of the area or site we are investigating.

Period	*Environment*
Medieval/Romano-British/ Iron Age	Intermittent cultivation and grassland. Formation of ploughwash deposits.
Bronze Age	Open environment of grassland or arable. Cultivation/ grazing intermittent. Formation of wind-lain material
Late Neolithic	Woodland regeneration.
Late Neolithic	Construction of henge monuments
Neolithic	Long period of grassland, probably maintained by grazing.
Neolithic	Woodland clearance. Ploughing and possibly other forms of tillage.
(Mesolithic) Atlantic (?)	Dense woodland. Recorded only at a few locations, but probably at most sites.
Mesolithic Boreal (?)	Open woodland. Evidence of fire and possible influence of Mesolithic man (Evans 1972, 219, 256).
(Upper Palaeolithic) Late-glacial	Subarctic environment, probably tundra. Formation of periglacial structures and wind-lain material.

Figure 1: Schematic environmental and land use record for southern England (after Evans & Jones 1979; Entwistle & Bowden 1991; Allen 2000a)

However, it is now clear that we *cannot* make these assumptions. We cannot, for example, assume that there was post-glacial woodland in every location. The absence of post-glacial woodland (or the differing nature of post-glacial woodlands) may have a profound effect upon the history of human activity. Further, we need not only to look at intra-region comparisons but also extra-regional comparisons.

Key research themes

Defining the woodlands

There are some key research questions that are central to palaeo-environmental studies of Neolithic and Early Bronze Age woodlands in south east England: what was the nature of the woodland, and how wooded, for example, were the Downs; were there natural clearings (i.e., the Vera hypothesis; (Vera 2000) and how large and/or extensive were these; and to what extent and how were they exploited by Neolithic communities?

An open park-woodland with grass and light is a completely different environment to a woodland forest with sub-canopy flora. We must distinguish more clearly the various types of woodland that existed to define the potential for human activities and events within them, or action needed to modify or clear them It is certainly apparent that Neolithic and Early Bronze Age woodlands did not have a uniform composition, but we need to define and map this variation through space and time.

The presence of natural openings (perhaps as big as a parish) would encourage animals to browse and graze, and enable soft fruits and berries to grow and fruit. It is no coincidence that areas that have been defined with these natural characteristics in the early post-glacial era

became centres of Mesolithic activity, and later on monumentalised Neolithic landscapes (e.g. Cranborne Chase, Dorchester environs, Stonehenge environs: see Allen 1997a; 1997b, 2002; French *et al.* 2003, 2007).

Distinguishing woodland clearances & openings
Given the comments above, it is clearly important that we define clearances (as opposed to natural openings), and not only define the extent of these (as Thomas did at Offham: 1977; 1982), but also the changing extents of clearings with evidence for development and building within the Neolithic landscape.

Horticulture & farming
The Neolithic is defined as a period of farming, yet we still have poor and scant evidence for precisely how this was conducted. It is clear that Neolithic communities were indeed farming, but it is less certain to what extent they can be characterised as 'farmers'. Where, for instance are the fields? It may be more appropriate to think of early agriculture more in terms of horticultural practices (Allen 1997b).

Soil degradation
We have evidence of soil change, soil degradation, but little evidence of the actual soil types existing in the Neolithic: e.g. there are, unfortunately, pitifully few studies of soils under barrows (either Neolithic or Bronze Age). There was undoubtedly a mosaic of soils even within a single lithology, which would have had significant effects on the local vegetational maxima and regimes, yet these remain little understood.

Geoarchaeology
Many sites may be buried or sealed by alluvium (riverine and marine) and colluvium (Downs and Weald) and are thus not immediately evident to us (e.g. Beaker settlements in downland valleys; Allen 2005). Erosion creates increased artefact densities on hilltops and decreased densities in valley bottoms, which are constantly re-informed by archaeologist examining only known locations of finds (Allen 1991). There is a real need, in this context, to examine areas with no current archaeological evidence.

Resolution in time and space
The level of resolution in time and space is no longer that of the regional level once required in the 1970s. We need to gather data and interrogate data appropriately to enable more detailed site by site reconstruction of landscape and land-use histories. We need to be clear about defining times and locales of change.

Study area	No of data sets	Km^2 study area	data-sets ÷ Km^2	Confidence Factor
ALLEN VALLEY 2001	62+	25	2.48	248
DORCHESTER 1987	12	35	0.343	34.3
STONEHENGE 1990	13	54	0.240	24.1
STONEHENGE 1997	19	80	0.238	23.8
WINCHESTER 1989	3	16	0.187	18.7
AVEBURY 1985	20	130	0.154	15.4
CRANBORNE 1991	22	150	0.147	14.7
ISLE OF WIGHT 1994	9	64	0.140	14.1
STRAWBERRY HILL 1994	1	10	0.100	10.0
LEWES 1995	9	106	0.085	8.5
STRAWBERRY HILL 1988	1	10	0.100	10.0
KENT 2004	3	1500	0.0002	0.2

Figure 2: Comparison of density of environmental data-sets in studied landscapes providing a 'confidence factor' for landscape interpretation (Allen 2000b)

Some key points

1. There is a general lack of knowledge about Neolithic and Early Bronze Age environments and land use through space and time.

2. There is a particular absence of data in the Weald, but we still need to define the palaeo-environment and the resource potential of this area.

3. The Neolithic and Early Bronze Age landscapes currently offshore played an important role in these societies; these are currently blanks on our physical and social maps.

4. The considerable research potential of the intertidal zone remains largely un-tapped.

5. We now operate in an interpretative environment which needs significantly more resolution in time and space: our data, data collection and data interrogation methods must reflect this.

6. Environmental archaeological summaries for the region have been very generic (e.g. Sheldon 1978; Somerville 2003), and this type of summary is of little value in advancing our understanding of the either environmental conditions or land use at a local level.

7. There have been few key palaeo-environmental studies in the past 10 years despite the increase in site by site studies generated by developer funded work. Sometime this is weak and myopic in outlook.

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