ANCIENT MONUMENTS LABORATORY

REPORT

3388

SERIES/No	CONTRACTOR
AUTHOR	Martin Bell May 1981
TITLE	Preliminary report on the study of valley sediments at Bullock Bown, East Sussex

PRELIMINARY REPORT ON THE STUDY OF VALLEY SEDIMENTS

AT BULLOCK DOWN, EAST SUSSEX.

By

Martin Bell.

Between 1976 and 1980 the Sussex Archaeological Field Unit conducted a multi-period settlement survey on Bullock Down, East Sussex under the direction of Mr P.L. Drewett. Like many areas of the chalkland the excavated settlement sites were somewhat eroded and with few contexts for the preservation of environmental evidence. For this reason the valley sediments were examined as part of a wider survey of valley sediments as evidence of prehistoric land-use. The wider survey was based on detailed fieldwork in three archaeologically well known areas of the South Downs: these were Bullock Down, Itford Bottom, near Lewes, and the Chalton area of Hampshire. This preliminary report draws together some of the main points of archaeological relevance from the Bullock Down area. Fuller accounts of the research as a whole are in press (Bell 1981a) or in preparation (Bell 1981b).

Dry valley sediments are of largely colluvial origin: that is to say they moved downslope under the force of gravity as a result of processes such as rainsplash, seasonal soil creep, activities of animals and tillage. All these processes occur on a very much increased scale on devegetated and cultivated slopes. The colluvial sediments also contain large amounts of artifactual material, much of it apparently spread with manure or eroded from settlement sites upslope. To some extent, therefore, the land-use sequence represented by the sediments can be dated and tied into the archaeological sequence from neighbouring sites.

At the outset a methodology was evolved which could be applied to each of the study areas. A spot was selected for a main trench which was dug using a mechanical excavator to provide a section of the sediments. This was recorded on the scale 1:10 and column samples taken for land mollusc and sedimentalogical analysis. An adjoining strip to this trench was excavated carefully by hand and the threedimensional co-ordinates of all the artifacts were recorded in order to date the stratigraphy. During subsequent analysis the artifacts were grouped into types and the pottery into fabric groupings; these latter were dated within broad margins by comparison with fabrics on neighbouring sites and on the basis of diagnostic sherds, that is to say_rim forms, bases, decorated sherds, glazed pieces, etc. The detailed sequence from this trench could then be compared to evidence both from chance exposures and a small number of soil pits dug elsewhere in the study areas.

Valley floors in the Bullock Down area are shown by the Geological Survey (Sheet 334) as covered by Valley Gravel but this provides little indication of their date. Birling Gap and the amphitheatre-like embayments east of Beachy Head, like Cow Gap, contain a good sequence of Pleistocene deposits and the Late Glacial sequence in Cow Gap has been studied by Kerney (1963, p.221). Field investigation shows that above this is nearly 2m of Postglacial colluvium near the base of which are artifacts including a sherd of finger impressed, and probably Beaker, pottery.

The main valley trench was on the floor of Kiln Combe at TV57339649, a spot very close to the excavated Medieval settlement. When the valley trench was dug in September 1977 the settlement excavations were confined to the group of buildings on a terraced area some 70m north of the valley centre. Subsequently, over Easter 1979, excavations were extended to the valley floor, where further Medieval buildings were found and where the excavations came within 10m of the valley trench. The trench was laid out from the valley centre up the south slope in approximately the direction of valley side slope. The area excavated mechanically was 30m long by 3m wide and an adjoining strip 10m long by 2m wide was excavated at the lower end by hand (Plate I).

The stratigraphy revealed by the hand dug portion is shown in Figure 1a. At the base, below about 3m, were Pleistocene chalk meltwater deposits (1) with an irregular surface created by involution structures. Then there was 50cm, or more, of non-calcareous clay loam with numerous flints (2) which must partly represent material soliflucted into the valley later in the Pleistocene. In one small area this deposit was overlain by a lens of silty material with very few stones (3) this would seem to be a silt stripe comparable to those recently described at Newhaven (Bell 1976). Stratigraphically the earliest Postglacial feature was a subsoil hollow (4-upslope from the area shown on Fig.1a) 80 cm across and 20 cm deep. Similar features have been interpreted elsewhere as fossil tree holes (Evans 1972, p.219). In the valley centre these earlier layers were blanketed by what are interpreted as two superimposed earthworm-sorted soils which consisted of alternating stone accumulation horizons (5 and 8) and stone free horizons (6 and 9). These sorting phases are presumed to represent periods of fairly stable conditions but interleaved within them were two lenses containing small chalk pieces (7 and 10) which presumably represent short episodes of cultivation and erosion of chalky material from the slopes. In plan and section the upper of these lenses showed slight traces of cultivation marks which might have been created by an ard.

2+

Up to this point in the valley's Postglacial history deposition had been in the form of rather thin layers of colluvium but what follows represents a major acceleration and change in the pattern of sedimentation. A metre of very flinty sediment (11) was laid down, but under quite what land-use conditions is still unclear. One possibility seems to be a regime of alternating pastoral and arable (bell 1981b, p 135) episodes At the surface of this layer evidence was found for a truncated soil (12). What truncated and buried it was a phase of cultivation which resulted in the deposition of 1.5m of unsorted colluvial deposit (13) above which was the present day topsoil (14).

A chronological framework for the stratigraphy was provided by the three-dimensional recording of 3278 artifacts found in the hand excavated part of the trench. Earliest and most interesting of this material was a group of Beaker sherds of which 43 carried decoration of comb, fingernail and circular impressions and finger pinching. When the distribution of these is plotted out (Fig. 1b) it can be seen that they form a clear line corresponding to the lower buried soil (layers 5 and 6). A large, and little abraded, flint assemblage from the same layer included a number of tool types paralleled in Beaker contexts elsewhere. The fact that the Beaker artifacts formed a distinctive line and were little damaged sugests that fortuitously the trench hit upon a spot within, or close to, a Beaker settlement. It should, however, be emphasized that in the small 10 by 2m area excavated by hand no features were located. As Fig.1b clearly shows this site would not have been identified by surface fieldwalking since it is totally blanketed by later colluvial sediments.

The next datable horizon was the 'upper buried soil' (9) which contained a small number of Iron Age sherds again forming a distinct line. An absence of these sherds from any of the later deposits, derived from the valley sides, may mean that at this particular spot only the deeper valley bottom soils were cultivated and manured during the Iron Age. In contrast to the earlier patterns, Romano-British sherds showed a marked absence of horizonation. The vast majority came from the exceedingly flinty layer (11) and the overlying calcareous colluvium (13); the latter alone contained later material so we can conclude that whatever the process responsible for the extremely flinty layer they operated during the Romano-British period. The calcareous colluvium (13) contained 872 Medieval artifacts and clearly represents the eroded material from arable land associated with the nearby Medieval farmstead (Freke, 1980). The bulk of the diagnostic sherds were twelfth to fifteenth century in date but although the settlement itself continued into the sixteenth century, there was a noticeable paucity of material of this date, indicating that this particular field had gone out of arable use rather earlier. No Post-Medieval artifacts were found and in all probability the field was out of use until the present century since the Tithe Award of 1842 shows a strip of uncultivated land (Drewett 1977, Fig.8) probably corresponding to the Medieval site.

Two columns of samples were taken for analytical study: column 1, from the valley centre; column 2, 17.2m upslope. Particle size analysis of the basal silt lens (3) showed that it consisted very largely of course silt and the hypothesis that this was of loessic origin was further supported by a mineralogical examination made by Dr.J. Catt at

Rothamsted Experimental Station. This was particularly interesting because a high proportion of the overlying Postglacial colluvium also consisted of coarse silt, i.e. loessic material eroded from the neighbouring slopes.

The earliest land mollusc evidence (Fig.2) was from the subsoil hollow (4); the fauna consisted largely of Discus rotundatus; Pomatias Trichia hispida; and Clausilia bidentata. In terms of Evans' elegans; (1972, p.194) ecological groups 47% were shade-loving species, there was only one individual in the open country group and the remainder had fairly catholic ecological preferences. The fauna seems to confirm that the feature is a fossil tree hole, the only remnant of former woodland conditions found in the trench. From the chalky lenses, one of which (7) was only just above the heaker level, there came a fauna largely of open country species with only 5% which prefer more shady conditions. Although molluscs were not present in the non-calcareous buried soil horizons tnemselves, we can deduce from the fauna in layer 7 and from the horizontal nature of the layers in the Beaker soil, that this area was cleared of woodland prior to the Beaker occupation, probably therefore during the Neolithic. Many of the prehistoric layers in the valley centre were non-calcareous and accordingly molluscs were not preserved. They were, however, present in the thinner sediments in column 2 on the valley side. Here the basal deposits contained a proportion of shade-loving species but Iron Age and later sediments had an almost entirely open country fauna. By the time the Medieval colluvium was laid down in the valley centre the fauna was a very restricted one, largely Trichia hispida; Vallonia costata; and Vallonia excentrica. This fauna is indicative of dry open conditions, presumably an intensively utilised arable environment.

The depth of valley sediments revealed by this trench was surprising and two soil pits were dug to see how this compared with other parts of the Bullock Down study area. Pit e was 361m up-valley (TV 57709657) and produced a basically comparable stratigraphy with some 2m of Postglacial deposits. Pit d was in the neighbouring Hod Combe valley (TV 57629593) and had 1.8m of Postglacial sediment with a band of silty, probably loessic, material at the base. In contrast to these, soil pits on the valley sides of Kiln Combe showed that today large areas are covered with shallow soils of Rendzina type, with soils developed on Clay-with-flints being largely confined to the crest of Beachy Head and the spur crests of Bullock Down and Long Down.

The main trench, the soil pits and the cliff exposures indicate that on the valley floors of the Bullock Down survey area there are fairly extensive Postglacial colluvial deposits. They were eroded from the neighbouring slopes and this may mean that the soil types present in prehistory were substantially different from those which appertain today, largely because a high proportion of the eroded material consisted of Pleistocene loess. Some of this material is obviously mixed up in the present day soils but comparatively pure Pleistocene silt deposits seem to be confined to subsoil hollows and stripes. Examples of these have been found in the trench (3), soil pit d, and also during the excavation of site 16 on Bullock Down. It may be that deeper loess soils were partly responsible for originally attracting prehistoric communities to the Bullock Down area and this may also help to account for the long history of relatively intensive occupation and land-use. With time the fertile surface horizons were gradually eroded and early farmers would increasingly have had to contend with intractable subsurface Clay-withflint horizons. Probably it was this trend which led to the need to marl fields on Bullock Down during the Romano-British period (Drewett 1977, p. 16) and necessitated the heavy manuring attested by the numbers of artifacts.

Acknowledgements

The Farmer, Mr.E.D. Williams, gave much help and encouragement to the valley sediment study. Funds were provided by the Central Research Fund of London University, Sussex Archaeological Society, Brighton and Hove Archaeological Society and the I.D. Margary Research Fund of the Sussex Archaeological Society.

References

Bell, M. 1976 'The excavation of an early Romano-British site and Pleistocene landforms at Newhaven' <u>Sussex Archaeological</u> Collections, 114, pp.218-305.

Bell, M. 1981a.'Valley sediments and environmental change' in Jones, M. and Dimbleby, G.W. (eds.) <u>The environment of man: the</u> <u>Iron Age to Anglo-Saxon period</u> (British Archaeological Reports: forthcoming).

Bell, M. 1981b. <u>Valley sediment as evidence of prehistoric land-use;</u> <u>a study based on dry valleys in South East England</u> (London University thesis: in preparation).

Drewett, P.L. 1977. 'Rescue Archaeology in Sussex, 1976'. <u>Bulletin of</u> Institute of Archaeology, London, 14, pp.1-59.

Evans, J.G. 1972. Land snails in archaeology (Seminar Press).

Freke, D.J. 1980. 'Further excavations of a Medieval Farmstead at Kiln Combe, Bullock Down, East Sussex in <u>Bulletin of Institute</u> of Archaeology, London, 17, pp.25-28.

Kerney, M.F. 1963 'Late-glacial deposits on the chalk of south east England' Philosophical Transactions of the Anyal Society B 246 pp.203-254.



Fig.1 . Kiln Combe.(a) Stratigraphic sequence (b) Distribution of Beaker pottery Fabrics 81 in hand excavated and 51-60.

· · · ·



Fig.2. Kiln Combe, mollusc diagram of column 2.

•



Plate 1. Kiln Combe valley trench, view of sediments in the valley centre with work in progress on hand excavation of the Beaker occupation surface.



Kiln Combe

Mollusc column 2

Fig.2. Kiln Combe, mollusc diagram of column 2.



Fig.2. Kiln Combe mollusc diagram of column 2.



ł





Fig.1 . Eiln Combe.(a) Stratigraphic sequence (b) Distribution of Beaker pottery Fabrics 81 in hand excavated area. and 51-60.



Plate 1. Kiln Combe valley trench, view of sediments in the valley centre with work in progress on hand excevation of the Beaker occupation surface.



Plate 1. Kiln Combe valley trench, view of sediments in the valley centre with work in progress on hand excavation of the Beaker occupation surface.