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Examination of sediments and geological specimens  
from Uley Bury, Gloucestershire.

By  
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Excavations took place during 1976 at the Iron Age hillfort at Uley Bury under the direction of Alan Saville for C.R.A.A.G.S. Four soil samples were submitted to the writer in order to examine problems relating to the nature and origin of the sediments.

Sample 1 was from layer 9a, On the section drawing (Fig.1) and coloured slides this layer appears to represent a stabilization horizon within the filling of an earlier quarry scoop or feature which was subsequently buried below the 'artificial terrace make-up' (layer 9), and then by the complex of layers (3-8) forming the tail of the hillfort rampart. Sample 1 was yellowish brown (10 YR 5/4 - all Munsell colours are dry) clay loam with dark grey (10 YR 4/1) and reddish yellow (7.5 YR 6/8) mottles. It is presumed that this mottling is the result of anaerobic conditions at some stage which have given rise to a degree of gleying in this layer, buried as it is below almost three metres of sediment. There is some evidence of secondary iron or clay deposition on the ped faces and this may be partly responsible for the bands of 'dark material' noted in the field and visible on the slides. It could not, however, be described as a fully developed 'iron pan'. During the preparation of a sub-sample for particle size analysis a good deal of charcoal floated and this probably also helps to account for the dark bands of material near the surface of layer 9a. It may represent the burning of vegetation on the surface of the stabilization horizon immediately prior to its burial by layer 9. The particle size analysis (Fig.2) used a modified form of the British Standards Institute (1977: BS,1377) method and showed that the sample consisted of 29% sand, 52% silt and 19% clay.

Sample 2 was not analysed.

Sample 3 was from layer 9. It was pale brown (10 YR 6/3) with light yellowish brown (2.5 Y 6/4) mottles and inclusions of charcoal. Particle size analysis showed that it consisted of 13% sand, 51% silt

and 36% clay. From the appearance of this layer the excavator wondered if it represented sediment from some source away from the hill. Certainly the samples contain very little calcareous material which is surprising because Uley Bury is on Inferior Oolite surrounded on the slopes by exposures of Cotswold Sands (Geological Survey sheet 251). This need not necessarily mean that the terrace make-up is of non-local sediment; it may represent partly decalcified sediment, perhaps of pedogenic origin.

Sample 4 from the rampart core <sup>(layer 7)</sup> was quite different. It was a very pale brown (10 YR 7/4) clay loam which particle size analysis showed to consist of 45% sand, 34% silt and 21% clay (Fig.2). Examination of the sand fractions under a low power binocular microscope showed that they consisted almost entirely of calcareous particles, basically Oolite fragments and fossils. The excavator wondered whether this sample also might be derived from some other source but in view of the abundance of Oolites a local origin does seem <sup>very</sup> likely.

The conclusion from all three samples is that the variation between them and the differences <sup>From</sup> with other sediments in the section, is largely the result of pedological factors e.g. decalcification and gleying. They may also, to some extent, reflect derivation from different lithologies on the hill, since the Inferior Oolite of this area is quite sandy in places (Cave 1977, p.122). There do not appear to be strong reasons for suspecting the importation of sediment to the site.

Also submitted for examination were four hand geological specimens. Stone 3 appeared to be a natural pebble. It has been examined by Prof. F.W. Shotton who reports that it is a hard, very fine grained sandstone, almost certainly of Lower Palaeozoic origin. The stone could have arrived here by trade, or more probably, since it is waterworn, as a glacial erratic. On one surface of the pebble are faint linear scratch-marks; these probably indicate the utilization of the pebble as a whetstone, although it is just possible that they were originally acquired during glacial transportation. On another face of the pebble are traces of red, possibly iron, staining. It

is impossible to decide whether these are a natural weathering product of the pebble, a secondary deposit formed on its surface, or an artifact of utilization, e.g. for burnishing pottery.

Stone 6 is a saddle quern made from quartz conglomerate. It has kindly been examined by Dr. R. Bradshaw of the Geology Department, Bristol, who confirms that it is from the Old Red Sandstone. There are small exposures of this just west of the Cotswold edge, e.g. in the Buckover/Tortworth area (Geological Survey Sheet 251, Cave 1977, p.43), but perhaps the most likely sources are the major exposures on the eastern margin of the Forest of Dean.

Stone 7 is part of a rotary quern in what Dr. Bradshaw describes as a pale quartzitic calcareous sandstone. He points out that calcareous sandstones of this kind are found in the Carboniferous deposits north of Bristol, for instance at Cattybrock, near Almondsbury.

Stone 4 is a small muller probably in the same stone as Stone 7.

#### References

British Standards Institute, 1967, Methods of testing soil for civil engineering purposes, BS 1377-1967.

Cave, R. 1977, Geology of the Malmesbury district (London: Institute of Geological Sciences).



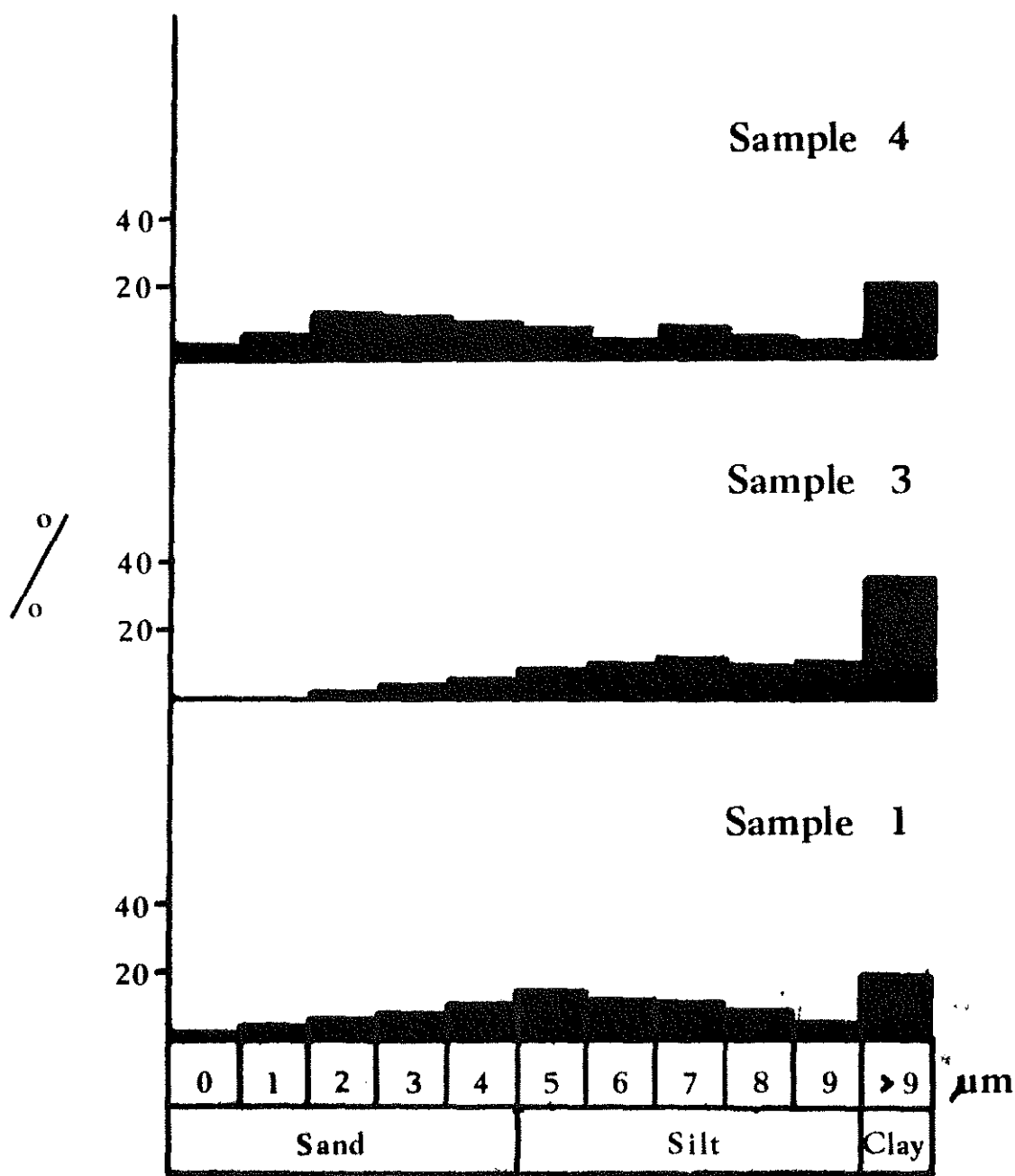


Fig.2. Particle size analysis of Uley Bury Soil Samples 1,3 and 4, histograms in µm units.