Preliminary analysis of sediment samples from Narrow Quay, Bristol

By

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The excavation of a waterfront site at Narrow Quay in Bristol, was carried out by G.L. Good of the City of Bristol Museum in 1978. A number of the archaeological deposits were sampled and three of these were selected for analysis of biological evidence.

Sub-samples of 500 grams were removed, and the sediment washed through a graded bank of sieves: 5.6mm, 2mm, 1mm and 0.5mm. The residue from samples BAC SS4 and AAD SS1 was allowed to dry slowly, and examined under X10 magnification. Although the soil samples had dried to some extent since the excavation, the degree of preservation was found to be good, and it was decided to examine the sediment from BAC SS5 wet. The plant remains and fish-scales extracted from this sample only were stored in a preserving mixture of alcohol-glycerine-formalin, and the insect remains in alcohol. The bones and shells were allowed to dry.

Context BAC

2 samples were examined from Context BAC, a large pit measuring 19 x 4 x 0.6 metres. The fill of this pit was described by the excavator as a mainly black ashy soil with many patches and spreads of pinkish and buff mortary soils, brown sandy soil, and pale grey ash. The area occupied by this pit is thought to represent St.Clements Dock, which was backfilled in a short period between 1581 and 1600.

BAC Soil Sample 5

This sediment was a very dark grey (10YR 3/1) clay loam. (All Munsell colours are described moist). It contained 25% anthropogenic inclusions (debris relating to human activity), with large and small, and many very small angular (gravel grade) inclusions. (Particle size definitions follow Hodgson 1976). These included animal bone, oyster and mussel shells, wood, coal, charcoal, mortar, slate, tile and clinker/slag. The organic matter content was about 50%. The unsorted nature of the sediment and mass of anthropogenic inclusions give this the appearance of dumped material.

The sediment was sorted wet, 100% of all fractions being examined under X10 magnification. Bird bones and egg shells were present as were mammal bones. Fish appeared to be well represented with fish-scales as well as bones being recovered. Also present were small fragments of mussel (Mytilus edulis), oyster (Ostrea edulis) and land molluscs (Limacidae and Helix aspersa). Beetles and other arthropods were abundant, over 100 fragments being recovered, and about 48 species of seed with fragments of nuts and moss.

BAC Soil Sample 4

This sediment was very similar to BAC SS5, a very dark grey (10 YR 3/1) clay loam. It contained 35% anthropogenic inclusions with large, medium and very small angular to sub-angular anthropogenic inclusions. These included animal bone, oyster, a little wood, coal, mortar, slag/clinker, and some small lumps of grey clay. The organic matter content was about 50%. The unsorted nature and many anthropogenic inclusions in this sediment again suggest dumped material.

This sediment was sorted dry. 100% of the 5.6mm and 2mm fractions, and 50% (using a sample divider) of the 1mm and 0.5mm fractions. Bird bones and egg shell and mammal bones were recovered, with fish bones and scales again well represented. Mussel (Mytilus edulis) and oyster (Ostrea edulis) fragments were present. Over 70 fragments of beetles and other arthropods were extracted, including 2 beetles heads and a possible mite, with about 10 examples of fly pupae. Only about 12 species and 30 individual seeds were recovered, with 2 fruit stalks and a grape pip.

Context AAD Soil Sample 1

This sample came from Context AAD, a 1450-1500 pit described by the excavator as having a fill of black organic peaty soil.

This sediment was a dark greyish brown (10 YR 4/2) silty clay with some very dark grey (10 YR 3/1) bands and some reddish brown flecks (2.5 YR 4/6), possibly iron mottling. Only 10% anthropogenic inclusions were noted, mainly twigs and shells, with 25-50% organic inclusions. Although containing few stones and inclusions the markedly mottled nature of the sediment again suggests dumped material.

A considerable number of bones was recovered, both mammal and bird including starling identified by E.Levitan. Egg shell fragments were present, and fish-bones and scales were well represented. Five land molluscs were present Trichia striolata (2), Limacidae (2) and Cochlicopa (1). There were also two freshwater species Bithynia tentaculata (1), which is generally found in quiet rivers with hard water and Theodoxus fluviatis (1) which is found under stones or wood in fresh and estuarine conditions where salinity does not exceed 6‰ (Graham 1971, p.52). Marine molluscs were represented by shell fragments of cockle (Cerastoderma edule), mussel (Mytilus edulis) and oyster (Ostrea edulis). Fourteen plates of acorn barnacles were also present. Beetles and other arthropods were abundant with over 300 fragments including fly pupae. Over 1275 seeds from 30 or more different species were extracted with fragments of cherry and other fruit stones.

BAR Soil Samples 6 and 7

Both samples came from the foundation trench of a wall but are quite different from the sort of deposit one might expect to find in that situation. The sediment is of a fairly uniform olive to pale olive colour (5Y 5/3 to 5Y 6/4). Its composition is very pure and consists of clay grade particles, the overall texture being similar to soap. Under low power (X10) magnification it appears closely comparable to, though less pure than, a sample of Fullers Earth provided by Mr. Geoffrey Egar from a 14th-15th century context in London.

This preliminary examination has shown that, despite some drying out of the samples since the excavation, biological remains are well preserved. The above descriptions of the sediment and molluscan content can be regarded as final but further specialist work is required to realize the full potential of these samples. Fish and bird bones recovered by sieving will obviously be an important addition to those recovered during the excavation. It is also hoped to arrange for specialist identification of the seeds and beetles as a prelude to much more detailed work on the major water front sites of Bristol Bridge and Dundas Wharf.

References

Graham, A. (1971) : British Prosobranchs. (London: Academic Press, Synopses of the British Fauna No.2)

Hodgson, J.M. (1976) : Soil Survey Field Handbook, (Harpenden: Soil Survey).