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SOIL REPORT ON "DARK EARTH" AT G.P.O. MIDDLE (POM 79), LONDON

During the summer of 1979 the Department of Urban Archaeology (Field Officer, Jennie Norton) extended their excavation of the GPO site northwards. Here again, Medieval "dark earth" and Roman deposits rest on natural brickearth. Samples of the dark brown occupation deposit were taken as a means of extending the study of "dark earth" already being carried out on GPO 75, across the site. The section (78) was described and the samples mentioned above were analysed for soluble alkali humus and loss on ignition.

The lower half of the section is comprised of what could be a poorly developed Eb horizon (C.N. 1360) which is partially disturbed, that rests on the Btg horizon of an argillic brown earth formed in brickearth. This reddish brown (wet 5YR5/3, dry 7.5YR6/4) Eb horizon which is perhaps up to 28 cms. thick has low porosity (0.5%) and weakly formed coarse prismatic structures. It contains 3% very dark grey (10YR3/1) worm or root channels which include obvious organic matter, and fine fragments of "tile" and charcoal which is probably derived from the disturbed horizon above (C.B. 1359).

The reddish brown (wet 5YR4/4, dry 5YR5/4) Btg horizon beneath also displays worm burrows, but exhibits more argillans and manganese than the Eb horizon. The brickearth natural is also characterised by rare argillans and manganese, but has no structure.

Two samples were taken of the dark soil material which overlies the buried profile, and the mixed horizon (C.N. 1359). These are from layers 1363 and 1358 respectively and are slightly alkaline deposits with a Positive response to a rapid phosphate test. They also have a high loss on ignition, which when compared to the alkali soluble humus tends to suggest that this is due to relatively high amounts of charcoal, rather than to intimately mixed organic matter of a soil. The high pH value may be a reflection of the high base status of the local brickearths (pH 8.4), and also reflects the bone and shell material present in the deposit. A

Positive phosphate reading is not unexpected in soils containing bone, but may also indicate original cess material that has been identified in other similarly dated urban deposits. The silt in these deposits undoubtedly derives from the brickearth, while coarse sands and pebbles are introduced material.

Although it is noted that 1363 is Medieval while 1358 is possible "dark earth" sensu stricto it is apparent from their colour and chemical composition that they are very similar deposits, and cannot be separated on this basis alone.

A possible interpretation of the site is truncation of the soil profile and some soil disturbance during the Roman period. Earthworms themselves are likely to have been active at least until the Medieval. Latterly, debris, both organic and inorganic, has accumulated with soil derived from the local brickearth. This debris most probably had a high organic status, as well as containing much comminuted and fine charcoal, but much of the organic matter has since been oxidised off due to possible lowering of the London water table. Still, it may be suggested that mechanisms producing "dark earth" sensu stricto and "dark earth" Medieval can be said at least to be similar, that is until an exhaustive environmental study has been carried out on a wet "dark earth" site.

Some remarks on the "dark earth" relate to findings from GPO 75 and other sites, and these will be synthesised in the near future.

R. I. Macphail

30th January 1980

Analytical data - POM 79

| Sample | pH | Phosphate | % loss on Ign. | Alk. Sol. Humus | Colour Wet | Colour Dry |
|---|---|---|---|---|---|---|
| C.N. | | | | | | |
| 1363 | 7.6 | Pos. | 6.81 | 92.0 | 10YR3/1 | 10YR4/2 |
| 1358 | 7.1 | Pos. | 5.37 | 86.0 | 10YR3/1 | 10YR4/2 |

Note:

a) Phosphate, semi-quantitative, "Pos." equals approx. 0.4-0.8% $P_2O_3$

b) Alk. Sol. Humus - mgs. per 100 gms. dry soil.

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SOIL REPORT ON "DARK EARTH" AT THE ARCADIA BUILDINGS, SOUTHWARK, LONDON

By the summer of 1979 the excavation of the Arcadia Buildings by the Southwark Archaeological Unit (Field Officer, Martin Dean) was nearly complete. This Roman site was of particular interest because it has a substantial cover of "dark earth". Samples were taken of this material resting on the Watling Street (Trench 2) and these were analysed for alkali soluble humus and loss on ignition.

As at most London "dark earth" sites the organic carbon content is rather low, although much higher than in the "natural", through oxidation. Notably the loss of ignition varies, suggesting variations in the "dark earth" of mainly carbonised carbon which tends to bestow the dark colour on this material. Soil colours, pH and rapid phosphate tests reveal this material as comparable with "dark earth" elsewhere, even though it may be of later origin (Medieval).

Generally the "dark earth" can be regarded as a mixture of occupation and destruction material. Most probably it had a far higher organic status originally, as evidenced elsewhere, although this has been lost, and may well have included cess material. It also includes, besides anthropogenic debris, a mineral content, i.e. silt and sand etc. which derives from the local parent material which has become incorporated during its accumulation.

A fuller interpretation of the "dark earth" at this and other sites will be finished shortly, and will perhaps give a greater understanding to this material present at Southwark.

Data

| Sample | pH | Phosphate | Alk. sol. humus | % loss on ignition | Colour Wet | Colour Dry |
|---|---|---|---|---|---|---|
| A | 7.0 | W | 56.0 | 3.96 | 10YR3/1 | 10YR6/2 |
| B | 7.0 | Tr | 56.0 | 4.49 | 10YR3/1 | 10YR6/2 |

N.B. a) Sample B is from approximately level 2.20m and sample A is from level 2.40m (Trench 2, above Watling Street).

b) Alk. sol. humus, mg. per 100 gms. air dry soil.

c) Phosphate, Weak, W - 0.15-0.4% $P_2O_3$. Trace, Tr - 0.08-0.15% $P_2O_3$.