

SOIL REPORT ON PRINCESS ST, CHESTER

R.1 Macphail, July 1982

Introduction During the summer of 1981 a Roman, Saxon and Medieval site at Princess St was excavated by the Grosvenor Museum Excavation Unit (Tim Strickland, Field Officer). Of particular interest was a small road-way, in use during the 2nd and 3rd Centuries which buried a freely-drained sandy (Permo-Triassic) soil. This road-way was later itself cut across and sealed by a 4th Century wall (of a building). The road-way, and this wall were buried beneath a "Dark Earth" deposit in which was placed a Saxon grubben house. The "Dark Earth" itself merges upwards with 13th Century deposits and soil of 17th Century to modern origin (Profile Description and Plate 1).

Questions posed were i) the nature of the buried soil, ii) the origin of the organic layer around and beneath the sandstone blocks of the road-way, and iii) how does the post 4th Century "Dark Earth" deposit relate to the site as a whole, and to the 13th Century material, which from documentary evidence was present under open fields (Tim Strickland, pers comm).

Methods The soil was described, sampled for pH, loss on ignition, organic carbon and grain-size analyses. Samples of the "Dark Earth" and road-bed were also taken for potential pollen analysis (Rob Scaife).

Results The site occurs on an interfluvium, on sands of presumed permo-Triassic origin, and is consequently freely drained. Soils are neutral, and have evidence of earthworm activity and thus pollen may be poorly preserved - as is commonly the case in "Dark Earth" sites (Macphail, 1981). The parent material of the buried soil is a fine (55%) and medium (31%) sand. The buried soil which is truncated can be classed as a Brown Sand - although it appears that organic matter in the road-bed (which could be mistaken as the original soil A horizon) may have led to slight leaching of the exposed B horizon surface.

The evidence suggests the soil was truncated and a much more organic and more finely grained (See Analytical Data) soil was laid down for a road-bed - as a foundation for the sandstone blocks. The finer character of the road-bed material - especially silts suggests a source other than the local sands.

The "Dark Earth" which buries the road-way and 4th Century building, although fundamentally similar to the parent material of the buried soil, differs by containing more silt and clay, and by including abundant stones. Much of this coarsest fraction is of anthropogenic origin. Thus the "Dark Earth" appears to be of dumped character. Its homogeneous nature and organic characteristics may suggest it has been dug-over (notwithstanding earthworm activity), and used as a garden soil. The properties of the 13th Century deposit also suggest this was anthropogenically mixed. A grassland regime may have produced a stone-free zone as a result of earthworm action, ^(see Plate 1) but of course any later cultivation may have affected such evidence.

Summary The local sandy soil was truncated, and an organic finer soil was brought in for use as a road-bed. After the 4th Century dumping of finer and coarser materials produced a "Dark Earth" deposit which was most probably used as a garden soil. These practices possibly continued through the 13th Century.

MACPHAIL, R.I. 1981. Soil and botanical studies of the "Dark Earth". In (eds. Jones, M. and Dimbleby, G.) The Environment of Man: the Iron Age to the Anglo-Saxon Period. B.A.R. British Series 87, 309-331.

ANALYTICAL DATA

CHEMISTRY

SOIL	PH	% LOSS ON IGNITION	% ORGANIC CARBON
C13th	6.7	3.98	1.25
"Dark Earth"	6.7	4.90	1.54
"Road Bed"	6.9	4.22	1.78
B	6.8	1.89	-
B2	6.9	1.00	-

Particle Size

Soil	Clay	Silt			Sand			
	Cl 0.002	F.Z 0.002	M.Z 0.006	C.Z 0.02	F.S 0.06	M.S 0.2	C.S 0.2	mm.
C13th	14	6	5	10	31	31	3	
"Dark Earth"	16	6	4	7	29	35	3	
"Road Bed"	14	3	4	6	36	35	2	
B	9	1	1	1	55	31	1	
B2	7	0	3	3	55	31	1	

PROFILE DESCRIPTION

Soil Subgroup: Typical Brown Sand (buried soil)

Site: Interfluvial - 0°

Plate: 1

Parent Material: Presumably Permo-Triassic Sand Horizon, depth cms.

C17 Mixed soil, anthropogenic debris.
0-25

C13 Dark brown (7.5YR3/2) moderately weak
25-53 loamy sand; coarse blocky to prismatic; 1% porosity; common (old)
medium roots; many large stones; earthworm channels; gradual, wavy
boundary.

"Dark Earth" Very dark grey to very dark greyish brown
53-80 (10YR3/1-3/2) moderately weak sandy loam; medium prisms; 1% porosity;
common (old) medium roots; abundant small to large stones; earthworm
channels; clear, irregular boundary.

(Roadway (Sandstone blocks)
(80-106)

Road-Bed Discontinuous very dark grey to black (10YR)
100-111 3/1-2/1 very weak loamy sand; medium blocky; 1.5% porosity;
stoneless; earthworm channels; humose; clear irregular boundary.

B Reddish brown (5YR 4/4)
111-123 Moderately weak fine sand; light reddish brown when dry; large
prisms; 0.2% porosity; stoneless; rare manganese nodules; gradual,
wavy boundary

B2 Reddish brown to dark reddish brown
123-156+ (5YR 4/4-3/4) moderately weak fine sand; large prisms; 0.2% porosity;
stoneless; rare manganese nodules.



Plate 1.