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STRATIGRAPHY AND PRELIMINARY PALYNOLOGICAL RESULTS OF PEATS FROM PENINSULAR HOUSE, CITY OF LONDON.

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A substantial block of peat 50 cm square x 20 - 30 cm thick with underlying and overlying deposits was obtained from the Peninsular House excavations in 1979. This has remained in storage at the Museum of London until 1983 when it was re-examined.

STRATIGRAPHY

The overall thickness of this section comprises 35 cm of peat and sediment which can be divided into three broad minerogenic and biogenic stratigraphical divisions. Figure I illustrates these, which have been described as follows.

1) 8-9 cm comprising rounded - sub-angular pebbles of up to 3-4 cm diameter set within a medium sand matrix. These sandy gravels also contained some small 'reworked'? organic lenses or inclusions and comminuted freshwater shells. Areas of the sand displayed ferruginous staining. Some larger pebbles appear to have been compressed into the upper peat layers. Similarly, a large wood fragment was present at the peat/gravel interface. The deposit overall exhibits a poorly consolidated character and is possibly the result of river deposition or may be a dumped freshwater gravel?

II) 16 cm maximum thickness of peats. These are of highly compacted dark-brown to grey colour and are highly oxidised and humified. The peats were, however, strongly laminated in places, fissile along the line of horizontally bedded monocotyledonous plant macro-remains. Phragmites and a small number of wood fragments of up to 15 cm length x 2 - 3 cm diameter were also present. The lower 7 - 8 cm of peat also contained compressed leaves (Salix sp.) seen along the horizontal cleaves. White specks in the peat maybe precipitated calcium or dissolved and/or comminuted shell fragments. The peats contained little or no mineral constituents, resulting in extreme compaction/reduction of this section of the sequence consequent on dehydration.

III) 2 - 3 cm of dark grey, fine to medium sands containing freshwater molluscs, again highly comminuted. The latter formed a layer 1 cm thick just below the interface with the peats. Below this and at the base of the section occurs a thin band of grey peaty sand. This might be adhering contaminant.

PALYNOLOGY

The total section was sampled at 1 cm contiguous intervals for pollen analysis at a later date. Samples of 1 - 2 cc (more for less organic levels) were taken. Three samples of 2 - 3 cm thickness and c. 30 grams weight were obtained

for C14 assay and also a further sample of wood from a depth of 7 - 8 cm (Level II) in the peat. A single 'spot' sample was taken for pollen analysis and was subjected to standard techniques for the extraction of pollen and spores. The results of this count have been calculated as a percentage of total pollen and spores as a percentage of pollen plus spores. These data are given in Table 1.

The arboreal pollen spectrum is dominated by Pinus attaining high pollen percentages (88% of AP, 24% of total pollen). Betula (10%AP) and single pollen grain occurrences of Alnus and Quercus are noted. Shrubs were represented by Corylus (18 %TP) and Salix pollen. Herbaceous pollen formed a predominant group with a moderate diversity of types present. Gramineae (15%TP) and Cyperaceae (30%TP) are the dominant herbaceous taxa present and associated with a range of marginal aquatic herbs (Filipendula, Caltha, Lysimachia, Alisma type and Mentha type). The remaining groups are of less diagnostic use for habitat reconstruction (Rubiaceae, Ranunculaceae, Rumex, Lathyrus type, Bidens type. Monolete spores of Dryopteris type were extremely abundant forming the single most important taxon percentage in the spectrum 64 %TP + spores).

DISCUSSION

Attempts at ecological reconstruction and certainly dating from the analysis of a single spot sample can be highly problematical. A single sample must necessarily represent a single point/period of time (plus any secondary derivatives in the spectrum), and as such it is impossible to account for temporal changes from such a sample. Similarly, being only a single occurrence, no check is available as to the overall reliability of that individual sample in relation to the overall homogeneity/heterogeneity of the sequence from which it is drawn.

The sample obtained is apparently in discord with the archaeologically expected date. Its position immediately underlying the Roman wood layers might have been used as evidence for its late Iron Age or Romano-British date. This peat section appears to be a classic case of a latest/post-quem date for a deposit which in reality is apparently of much greater antiquity and therefore separated by a considerable time hiatus.

From the Arboreal pollen spectrum, a terrestrial vegetation dominated by Pinus is indicated by its high percentage. Such domination may be the result of one of a number of possibilities.

i) that Pinus was growing at the time of peat accumulation. Because Pinus woodland has not been shown in the area of southern England in the immediate pre-Roman period it seems more likely to suggest an earlier date for these peats. High values/domination of Pinus is well in accord with an early Flandrian/Boreal date (Godwins pollen Zone V). The almost total absence of other deciduous trees supports this hypothesis although the Boreal period is generally also accompanied by higher values of Corylus than present here.

ii) secondly, it is well known that Pinus pollen is readily fluvially transported. Estuarine water conditions or input could be responsible for deposition of Pinus pollen which remains afloat for substantial periods of time and can travel considerable distances. Further pollen work and/or C14 dating should clarify the above.

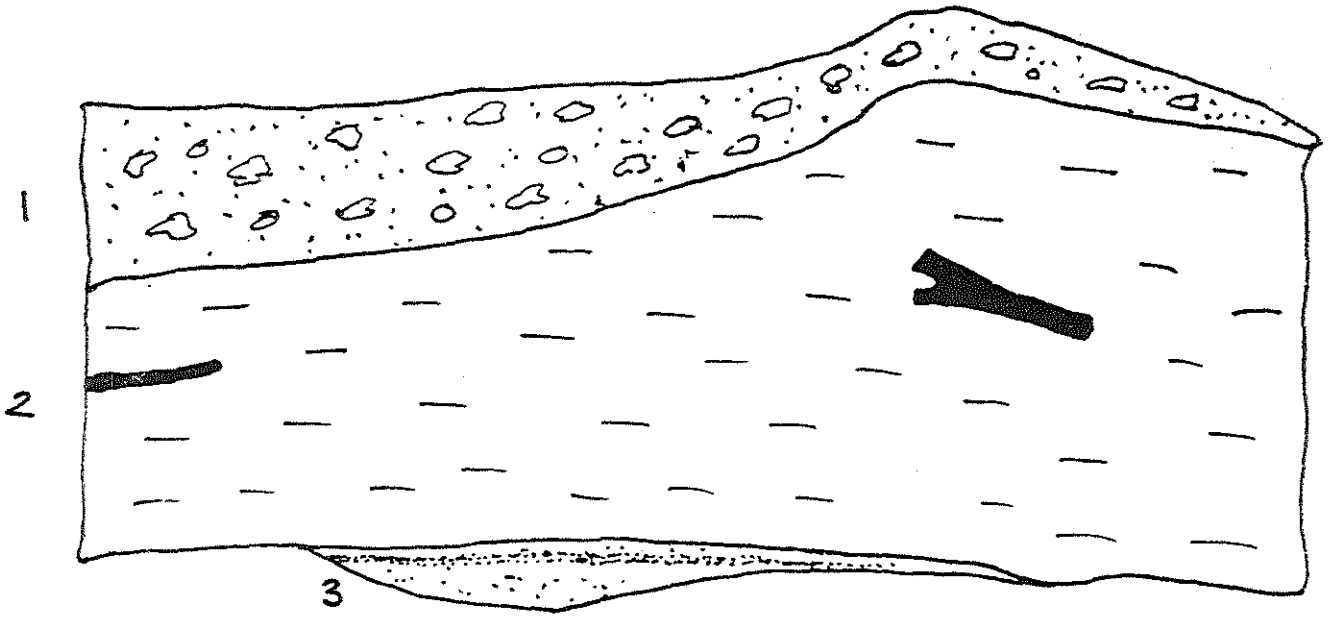
The majority of herbs present possibly represent the autochthonous vegetation component of the plant community forming the peat. Greater taxonomic separation by macro-fossil analyses should allow greater resolution of the pollen spectrum in terms of its local components. The local to site growth of Salix is attested by the pollen values for this usually underepresented taxon, and by the occurrence of leaf impressions in the peat.

CONCLUSION

Although highly humified and oxidised, the peat sampled are extremely rich in good to moderately preservated pollen. The overall spectrum indicates Pinus dominated vegetation in the vicinity of the site (accepting the possibility of fluvial derivation noted above) and a diverse range of herbs of autochthonous origin.

		% Total pollen
Betula	10	2.8 (10.4% AP)
Pinus	84	23.9 (88.9% AP)
Alnus	1	+
Quercus	1	+
Corylus	18	5.1 (18% AP)
Salix	29	8.2
Prunus type	1	+
RANUNCULACEAE	2	0.6
Caltha type	5	1.4
cf. Elatine	2	0.6
Lathyrus type	1	+
ROSACEAE	7	2.0
Filipendula	10	2.8
Rumex	2	0.6
Lysimachia	1	+
Mentha type	1	+
RUBIACEAE	1	+
Bidens	7	2.0
Artemisia	2	0.6
LIGULIFLORAE	3	0.9
Alisma plantago-aquatica	1	+
CYPERACEAE	107	30.5
GRAMINEAE	53	15.1
Dropteris type	406	53.6% TP + Spores
Unidentified/degraded	2	
Total pollen	= 351	
Total spores	= 406	

TABLE 1 Pollen and spores recovered from Peninsular House peats



1 SAND, GRAVEL AND SHELL.

2 HUMIFIED BLACK PEAT.

WOOD.

3 SAND WITH SHELL.