AHk Report 3499

91.

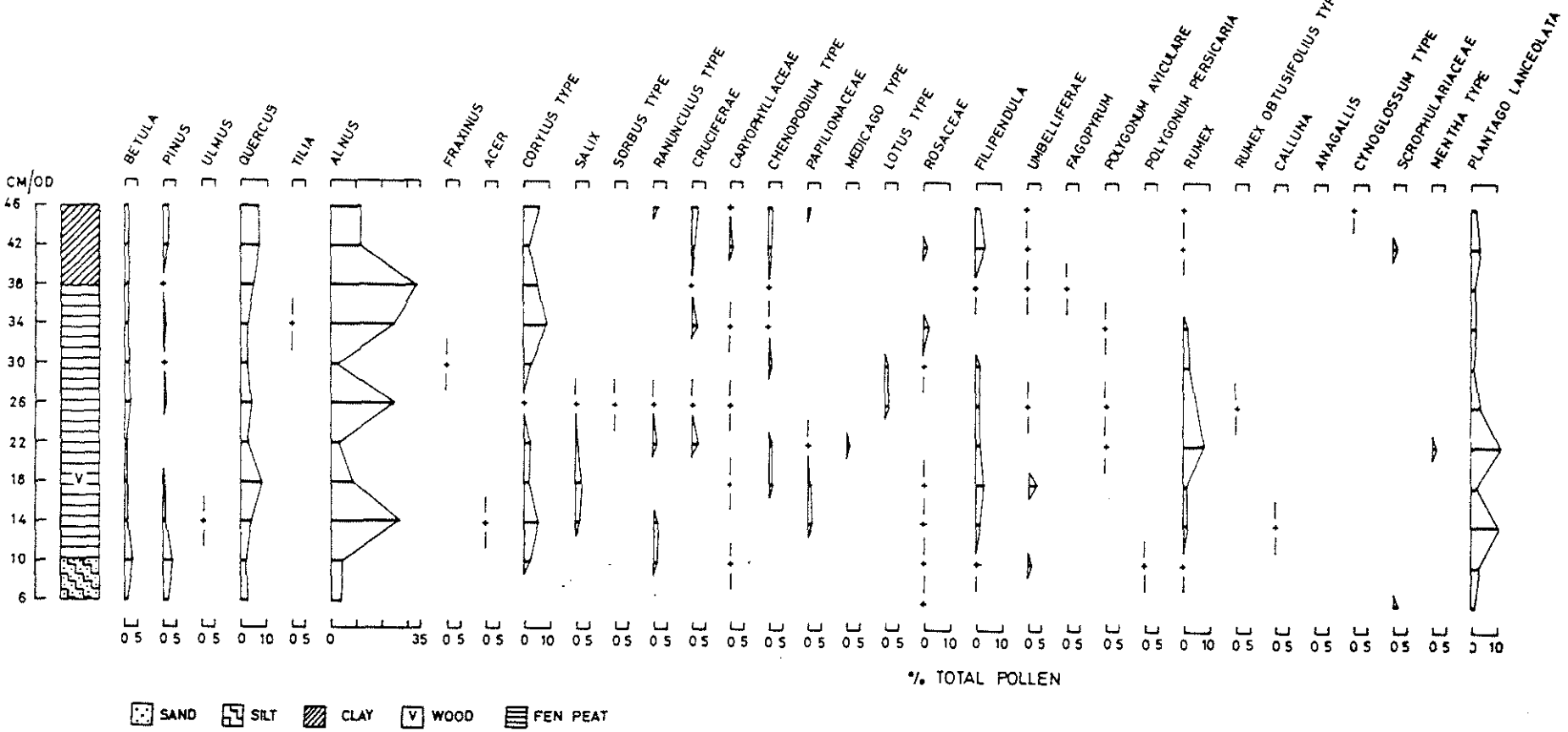
LOCATION : Willson's Wharf , Southwark.
N. G. R. T. Q. 33198028.

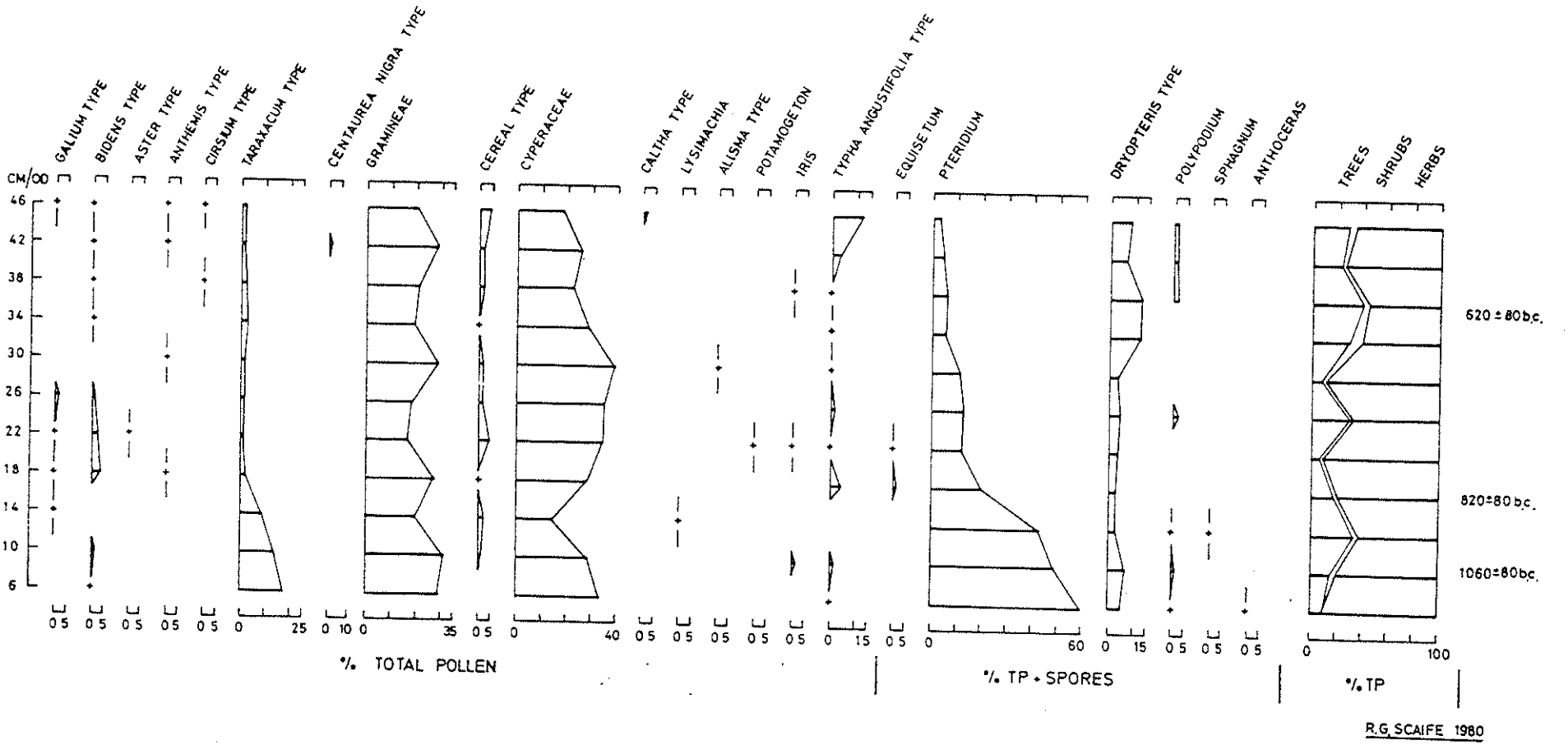
SEDIMENTS : Fen peats and alluvial silts and clays.

DATE : Late Bronze Age to early Iron Age.

SITE EXCAVATOR : Brian Yule,
Southwark Unit.

POLLEN ANALYSIS : ROBERT G. SCAIFE


CM/OD
46
42
38
34
30
26
22
18
14
10
6
BETULA
PINUS
ULMUS
QUERCUS
TILIA
ALNUS
FRAXINUS
ACER
CORYLUS TYPE
SALIX
SORBUS TYPE
RANUNCULUS TYPE
CRUCIFERAE
CARYOPHYLLACEAE
CHENOPODIUM TYPE
PAPILIONACEAE
MEDICAGO TYPE
LOTUS TYPE
ROSACEAE
FILIPENDULA
UMBELLIFERAE
FAGOPYRUM
POLYGONUM AVICULARE
POLYGONUM PERSICARIA TYPE
RUMEX
RUMEX OBTUSIFOLIUS TYPE
CALLUNA
ANAGALLIS
CYNOGLOSSUM TYPE
SCROPHULARIACEAE
MENTHA TYPE
PLANTAGO LANCEOLATA
0 5
0 10
0 35
% TOTAL POLLEN
SAND
SILT
CLAY
WOOD
FEN PEAT



R.G. SCAIFE 1980

Willson's Wharf : Pollen Analysis. The vegetation of Southwark in the Later Bronze Age.

R.G. SCAIFE

Samples for pollen analysis were taken at four centimetre intervals from a depth of 6 cm. O.D. up to 46 cm O.D. This sequence embraced three major lithostratigraphic divisions. A basal grey silty sand to 10 cm O.D. beginning below the base of the trench; a middle layer of peat 28 cm in thickness consisting of fen peat with occasional Alnus wood present; and an upper layer of clay resting on the peat at 38 cm. O.D. This latter upper division had been truncated by occupational activity. Stratigraphical division between these units was sharply defined and possibly therefore indicative of some hiatus in sediment aggradation.

Samples for radiometric dating were taken from the base, middle and upper sections of the peat. The results of ^{14}C assay were:

- .38 M. 2570 $\pm$ 80 bp HAR - 3927
- .18 M.O.D. 2770 $\pm$ 80 bp HAR - 3926
- .10 M.O.D. 3010 $\pm$ 70 bp HAR - 3925

Standard extraction techniques were used for the concentration of the sub-fossil pollen and spores. This included NaOh, H.f., acetolysis (Ertdmans), staining with safranin and mounting in glycerol jelly (see Faegri and Iversen 1974, Moore and Webb 1978). Pollen preservation was somewhat poor with many grains showing some exine degradation. Consequently totals of only 200 pollen grains were counted at each level. The taxa recorded have been calculated as a percentage of total pollen (TP) and spores as a percentage of total pollen (TP) plus spores. Pollen diagrams 1 and 2 show this graphically.

The pollen spectra are dominated by herbaceous types throughout (av. 74% TP). Arboreal pollen is in contrast present but in diminutive frequencies. Alnus is the only exception reaching peaks of up to 35% TP and may be viewed as a more local Constituent of the Vegetation. Alnus is, however, a high pollen producer and is often over represented in pollen spectra (Jansson 1959). It is difficult to ascertain whether that recorded represents sporadic, very local growth, or more extensive alder Carr type Communities at greater distance from the site. The remaining

arboreal taxa present are in relatively low frequencies. Quercus (2.5 - 7% TP) is the main type which along with Corylus (2.0 - 8.0% TP) is probably representative of remaining woodland within the region. Low frequencies of Pinus and Betula are present but as these genera are enemophilous, it is likely that the pollen originated from non-local growth.

Herbaceous taxa are diverse, possibly representing a number of different habitats. Fen type herbs are dominant - Caltha, Lysimachia Alisma, Filipendula, Iris, Typha Cyperaceae and species or genera included within broader pollen morphological categories. Ranunculus, for example has been identified from macrofossil remains (Slack pers. comm.). Higher values of these types are the result of their being the peat forming constituents, that is primarily sedge fen. Dry land taxa are present and high valves of Pteridium along with Taraxacum type (Liguliflorae) and Plantago lanceolata indicate the presence of waste ground in the vicinity of the fen. This is commensurate with the idea of local upstanding islands above the flood-plain in the area. The waste ground was evidently taken over for agriculture as indicated by the declining frequencies of the above and the increasing numbers and frequencies of cultigens and ruderals. These include cereal type, Cruciferae, Chenopodium, Polygonum aviculare, Rumex and compositae spp.

Radiocarbon dating places the initiation of peat accumulation in the Later Bronze Age period and extending through to the earlier Iron Age. The stratigraphical junction between the peat and the under and over-lying sediments is sharp and therefore the dates outlined can only be taken to indicate the development of the peat. It can be noted, however, that the junction at 10 cm O.D. between sandy silts and the peat shows little evidence of any marked hiatus in the pollen profile. This possibly indicates a more even change in aggradation from sediments to peats consequent upon hydrological/base level changes. Devoy (1977-78, 1979) working on sea level change in the lower Thames estuary has shown that a rapid rise in sea level took place between 4000 bp and 3400 BP (Thames III). Although this transgressive phase pre-dates the initiation of peat at Willson's Wharf , it is probable that rising sea level initiated fen peat accumulation as a result of a 'ponding back' effect of the Thames.

Conclusions

Pollen analysis and radiocarbon dating of the peat at Willson's Wharf have shown that between 1060 $\pm$ 80 bc and 620 $\pm$ 80 bc the area was composed largely of sedge fen with a typically rich fen flora. Terrestrial areas are seen to be relatively treeless at least in the vicinity of the site. The vegetation was composed largely of waste ground species which during the period of peat formation were replaced by arable agriculture activity, as shown by evidence of cereal pollen and associated weeds.

References

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