# ANCIENT MONUMENTS LABORATORY

# REPORT

3524

**SERIES/No** CONTRACTORS

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**TITLE** Brandon , Suffolk. Valley-floor peats

Site: Brandon

County: Suffolk

Code: BRD 018

Director: R. Carr

Type of site: Valley peat adjacent to settlement

Period: Settlement: Iron Age - Middle Saxon

Geology: Terrace gravels and blown sands overlain by Flandrian peats

Type of material: Plant macrofossils, sediments

Brandon, Suffolk (BRD 018): Valley-floor peats.

The archaeological site is located on the edge of a terrace of the Little Ouse where surface deposits consist of decalcified blown sand, giving a hummocky local topography. The flood plain is directly adjacent to the site. During the 1980 season a section showing just over 50cm. of peat was exposed in the northern part of the excavation. The section was recorded and samples were taken for C14 dating and the study of plant macrofossils and pollen.

Stratigraphy

At this point the existing ground surface was at +3.55m. OD., although the upper 10cm. of the $A_0$ horizon had previously been stripped off.

| | |
|---|---|
| 0-20cm. | Black well-humified sandy peat; some charcoal fragments; earth worms common. |
| 20-21cm. | Layer of charcoal; some fired clay fragments. (Elsewhere in section up to 5cm. thick). |
| 21-45cm. | Dark reddish brown (5 YR 2.5/2) sandy peat; humified at top 5cm., fibrous plant remains below; very rare small flints up to 10mm.; rare earthworms in top 5cm. |
| 45-53cm. | Dark reddish brown to black very sandy peat with fibrous plant remains; discrete patches of variable grey to greyish brown humose sand; slightly stony with flints up to 23mm. |
| 53cm.+ | Greyish-brown slightly humose sand with rare small flints up to 12mm. |

Dating

A sample from the lowest 5cm. of peat gave a date of 1810 ± 80 b.p. or a.d. 140 (HAR-4087), and a date of 1350 ± 70 b.p. or a.d. 600 (HAR-4086) was obtain for charcoal at 20cm. depth.

Plant macrofossils

In view of humification and earthworm activity in the upper part of the sectio samples were taken only from the lower 33cm. A column of samples was taken. 1kg. sub-samples were disaggregated by soaking and manual agitation in hot wat and then washed out over a 250 micron mesh sieve. Material retained was sorte in a wet state under low power of a binocular microscope, picking out seeds, charcoal fragments, stem fragments etc., except for the charcoal sample at 20-21cm. which was sorted dry. Plant remains extracted were identified using

standard reference works, but all identifications were confirmed by comparison with modern reference material (Table 1). Unprocessed portions of these peat samples have been retained for insect analysis, should this be possible at some future date.

## Discussion

The C-14 date from the base of the section indicates that from 1810 ± 80 b.p. (a.d. 140) mean groundwater levels became sufficiently high for peat formation to begin in this part of the Little Ouse valley. The lowest 8cm. of peat contains a high proportion of sand and also includes discrete patches of humous sand, not as lenses or laminations but in the form of irregular patches up to about 5cm. across. These sandy patches do not appear to indicate inorganic fluviatile deposition within the peat but rather some artificial disturbance of sand on the adjacent terrace, which resulted in movement of soil onto the edge of the floodplain and perhaps exposed the sandy soil of the terrace to wind erosion. Since there is no archaeological evidence for settlement at this period it seems that this disturbance may have resulted from grazing or perhaps ploughing.

Further evidence for human activity in the vicinity at this level is provided by bones seen during mechanical excavation of the section, by small charcoal fragments and by seeds of ruderals (Urtica dioica, Galeopsis tetrahit/speciosa Cirsium sp., Sonchus asper). However, these weed seeds comprise only a small proportion of the total from this lower sandy peat. The majority of seeds are from grassland, marsh and fen plants. Sedge nutlets (Carex spp.) are particularly common in the lowest 3cm., though most of these were not determined to species. C. echinata is a sedge of damp acid meadows and bogs (Clapham, Tutin and Warburg 1968, 515; Petch and Swann 1968, 244). Further species indicating wet acid soils are Montia fontana subsp. chondrosperma (Walters 1953) and Hydrocotyle vulgaris (Petch and Swann 1968, 160). Achenes and seeds Potentilla and Euphrasia are also common between 45-53cm. and these genera include plants found on acid soils. Acid soil conditions would have been maintained in parts of the floodplain by an influx of acidic groundwater from the decalcified sandy terrace soils. Other wetland and damp grassland species at this level include Ranunculus acris/repens, Ranunculus flammula, Ranunculus sceleratus, Lychnis flos-cuculi, Cicuta virosa, Berula erecta, Mentha aquatica/arvensis, Lycopus europaeus, Scutellaria sp., Bidens cernua, Juncus spp., and Eleocharis sp. The seed fragments of Iris pseudacorus and culm nodes of Phragmites may be derived from reedswamp fringing the river channel. Although obligate aquatics are absent some of these species are able to colonise

shallow-water habitats. R. flammula, for example, achenes of which are particularly abundant at 45-50cm. has terrestrial, submerged and floating-leaf forms. (Arber 1920, 203).

The peats between 21-45cm. have a lower (but still appreciable) sand content than those at 45-53cm. The plant macrofossils from the peat at this level are exclusively of herbaceous species. The peat contains no twigs or other remains of woody plants: there is no sign of Salix or Alnus carr development. Many of the species present at the base of the peat persist at higher levels. Two species, however, show a marked and progressive rise in frequency towards the top of the peat: Ranunculus sceleratus and Bidens cernua. R. sceleratus, which is by far the most abundant species at 21-30cm. occurs in shallow-water and littoral habitats, typically in mineral-rich water with a muddy bottom (Clapham, Tutin and Warburg 1962). Bidens cernua is found by streams, particularly where water stands only in winter (ibid). This is believed to indicate an increased frequency of seasonal flooding by the river resulting in more eutrophic conditions in pools on the floodplain. The fragmentary fruits of Alismataceae and fruits of Lemna in these upper peats may also be related to flooding episodes. If this interpretation is correct, then it seems probable that this increased river flooding should be correlated with deteriorating rates of freshwater drainage and flooding in the southern Fen Basin from the later Roman period onwards (Churchill 1960, 142).

Besides remains of these wetland and aquatic plants there are a few nutlets of Rumex acetosella, derived presumably from the dry sandy soils of the terrace, and some ruderals (Chenopodium album, Urtica dioica, Hyoscyamus niger, Sonchus arvensis).

The sample of the charcoal layer at 20-21cm. (but elsewhere in the section up to 5cm. thick) produced abundant remains of Calluna vulgaris (heather), including charcoal from mature stems, charred young shoots with imbricate leaves, charred capsules and seeds. The deposit is dated to 1350 ± 70 b.p. or a.d. 600. Charred remains of Calluna were very common in refuse pits of Middle Saxon date at the site, where they are thought to represent hearth-sweepings (Murphy, forthcoming) but this extensive and continuous layer of charcoal in the peat cannot be explained convincingly in this way. It does not seem probable that disposal of such refuse on the peat surface throughout the occupation of the site would have produced a homogeneous dense charcoal layer of the type observed: some peat formation between episodes of dumping might be expected. It is therefore thought that this layer is the product of a single large-scale burning of heath vegetation on the river terrace and that

charcoal from this burning was washed, blown or possibly deliberately deposited over a short period onto the peat. Conjecturally this may be related to clearance of the site for building.

Following the deposition of this charcoal layer peat growth continued, but drainage in historical times has lowered local groundwater levels and permitted humification and disturbance by earthworms of these upper peats. It is therefore impossible to determine local conditions in the topmost part of the sequence.

By combining the archaeological evidence for phases of settlement on the terrace with information provided by charred plant material from archaeological features (Murphy, forthcoming) and with the above interpretation of the peat section it is possible to describe a sequence of habitat change and land use in the vicinit of the site. This is subject to the qualifications noted above.

1. There was an Iron Age settlement on the terrace. Groundwater levels on the floodplain were low and the area available for agriculture and occupation was consequently greater than in later periods.

2. Peat formation began about a.d. 140 in this part of the valley. Marsh and damp acid grassland plant communities were present in the valley floor. There was some soil disturbance possibly caused by cattle grazed on the terrace and floodplain.

3. Peat growth continued from a.d. 140 to a.d. 600. There was no development of carr: herbaceous vegetation persisted. There is reason to believe that the valley floor became increasingly subject to river flooding.

4. Calluna heath growing on the terrace was cleared by burning about a.d. 600. In the Middle Saxon period there was a settlement on the terrace, and this was associated with cereal and pulse cultivation. Secale (rye) is particularly common in archaeological features. Flax (Linum usitatissimum) was also grown and because of the moisture requirements of this crop, flax growing must have been confined to the floodplain and terrace margins. Calluna appears to have been an important fuel source, which implies that wood was in short supply in the vicinity.

5. Peat growth continued after a.d. 600 but in historical times the water-table levels were lowered by drainage and embankment.

## References


Arber, A. (1920) Water Plants. A study of Aquatic Angiosperms. Cambridge University Press.

Churchill, D.M. (1960) 'Post Neolithic to Romano-British Sedimentation in the Southern Fenlands of Cambridgeshire and Norfolk', in Phillips, C.W. (ed.): 'The Fenland in Roman Times'. Royal Geographical Society Research Series: No. 5.

Clapham, A.R., Tutin, T.G. and Warburg, E.F. (1962) Flora of the British Isles Cambridge University Press.

Clapham, A.R., Tutin, T.G. and Warburg, E.F. (1968) Excursion Flora of the British Isles (2nd ed.). Cambridge University Press.

Nillson, O. and Hjelmquist, H. (1967) 'Studies on the nutlet structure of South Scandinavian species of Carex'. Botanisker Notiser 120, 460-85.

Petch, C.P. and Swann, E.L. (1968) Flora of Norfolk. Jarrold, Norwich.

Walters, S.M. (1953) 'Montia fontana L.' Watsonia 3, 1-6.

| Depth (cm) | 20-21 | 21-30 | 30-40 | 40-45 | 45-50 | |
|---|---|---|---|---|---|---|
| Ranunculus acris/repens. | - | - | 1 | 6 | 4 | |
| Ranunculus flammula L. | - | 12 | 3 | 99 | 113 | |
| Ranunculus sceleratus L. | - | 161 | 16 | 27 | 4 | |
| Ranunculus sp. | - | - | - | - | 1 | |
| Reseda sp. | - | - | - | 1 | - | |
| Hypericum sp. | - | 1 | - | 3 | - | |
| Lychnis flos-cuculi L. | - | 2 | 10 | 36 | 1 | |
| c.f. Cerastium sp. | - | 9 | 13 | 18 | - | |
| Caryophyllaceae indet. | - | 1 | 1 | - | 3 | |
| Montia fontana L. subsp. chondrosperma | - | - | - | - | - | |
| Chenopodium album L. | - | 1 | - | c.f.1 | - | |
| Chenopodiaceae indet. | - | 1 | - | - | - | |
| Potentilla sp. | - | 6 | - | 27 | 41 | |
| c.f. Fragaria vesca L. (a) | - | - | 1 | - | - | |
| Cicuta virosa L. | - | - | - | 4 | 1 | |
| Hydrocotyle vulgaris L. | - | - | 1 | - | 3 | |
| Berula erecta (Hudson) Colville | - | 7 | 1 | 1 | 1 | |
| Rumex acetosella agg. | - | 2 | - | 3 | - | |
| Polygonum aviculare agg. | - | - | - | - | 1 | |
| Polygonum c.f. hydropiper | - | - | - | 1 | - | |
| Urtica dioica L. | - | 1 | - | 1 | 12 | |
| Calluna vulgaris (L) Hull (b) | + | - | - | - | - | |
| Hyoscyamus niger L. | - | 1 | - | - | - | |
| Euphrasia/Odontites (c) | - | 1 | - | 10 | 9 | 1 |
| Mentha arvensis/aquatica | - | - | - | - | 1 | - |
| Lycopus europaeus L. | - | 4 | 2 | 6 | 9 | - |
| Galeopsis tetrahit/speciosa | - | - | - | - | 1 | - |
| Scutellaria c.f. galericulata L. (d) | - | - | 5 | 2 | 1 | - |
| Bidens cernua L. | - | 33 | 19 | 11 | 17 | 1 |
| Cirsium sp. | - | - | - | - | 1 | - |
| Sonchus arvensis L. | - | 1 | - | - | - | - |
| Sonchus asper (L) Hill | - | - | - | - | 1 | - |
| Alismataceae indet. | - | 2 | 1 | 1 | - | - |
| Juncus spp. | - | + | + | + | + | + |
| Iris pseudacorus L. (e) | - | - | + | + | + | + |
| Lemna sp. | - | - | 1 | 2 | - | - |
| Typha sp. | - | 2 | - | - | - | - |
| Eleocharis sp. | - | 1 | - | 3 | 3 | - |
| Carex rostrata Stokes | - | - | 1 | 5 | - | - |
| Carex echinata Murray | - | - | - | - | 2 | 18 |
| Carex sp. (f) | - | - | - | 23 | 36 | 128 |

| | | | | | | |
|---|---|---|---|---|---|---|
| *Carex* spp. | - | 26 | 36 | 79 | 22 | |
| *Gramineae* | - | - | - | 4 | 15 | |
| *Phragmites australis* (Cav) Steudel (g) | - | - | + | + | + | |
| Charcoal fragments | + | - | - | - | + | |
| Indet. | - | 12 | 30 | 26 | 4 | |
| Totals | - | 287 | 142 | 400 | 307 | 2 |

Table 1: Plant remains from the peat column. (1kg. samples).
All taxa represented by fruits or seeds unless otherwise indicated.

Notes (a) Form + size appropriate for this species, but pattern of ridges obscu

(b) Charcoal, charred leaves, capsules + seeds.

(c) These do not match precisely any specimens in the writer's reference collection, but show the v. distinctive surface pattern of these two genera; 0.7-1.0mm. long.

(d) Intermediate in size between *S. galericulata* and *S. minor*. No refere specimens of the rare Breckland plant *Scutellaria hastifolia* were available.

(e) Seed fragments showing 'spongy' internal tissue.

(f) All one species. Attempts to identify these nutlets using the key of Nillson + Hjelmquist (1967) were unsuccessful + they could not be matched with available reference specimens.

(g) Culm nodes + fragments.