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Mr. D. Collins,
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Your reference

Our reference

Date 29th Mar 77

Dear Mr Collins

Please find enclosed your Preliminary report(s) for the site(s) of West Heath Spa.

I would be most grateful if you could send me a draft copy of any proposed publication which includes the report(s) or extracts from the report(s).

Please acknowledge receipt of this communication.

Yours sincerely,

M. Anne Gibbs

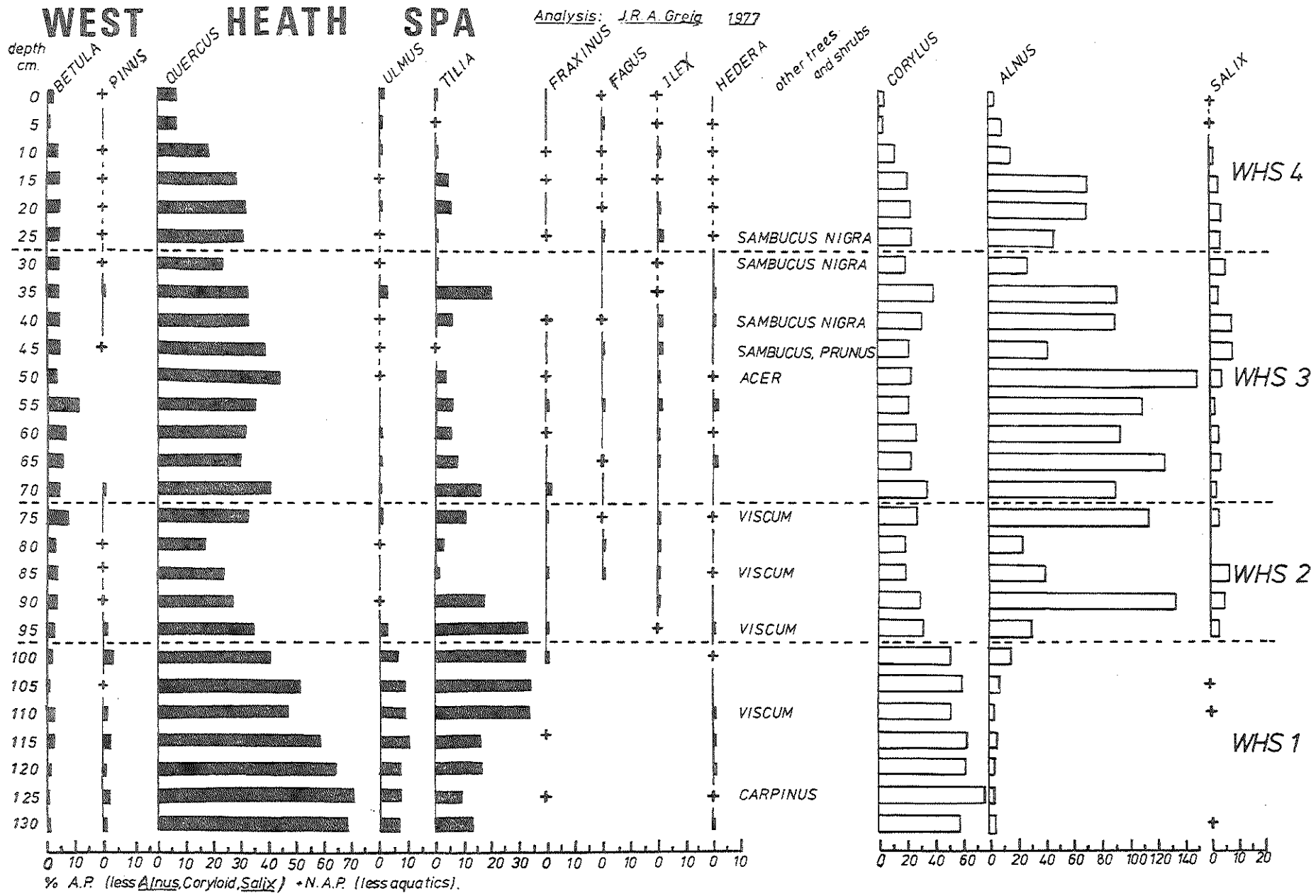
PALAEOECOLOGICAL INVESTIGATIONS OF A SITE AT HAMPSTEAD HEATH, LONDON.

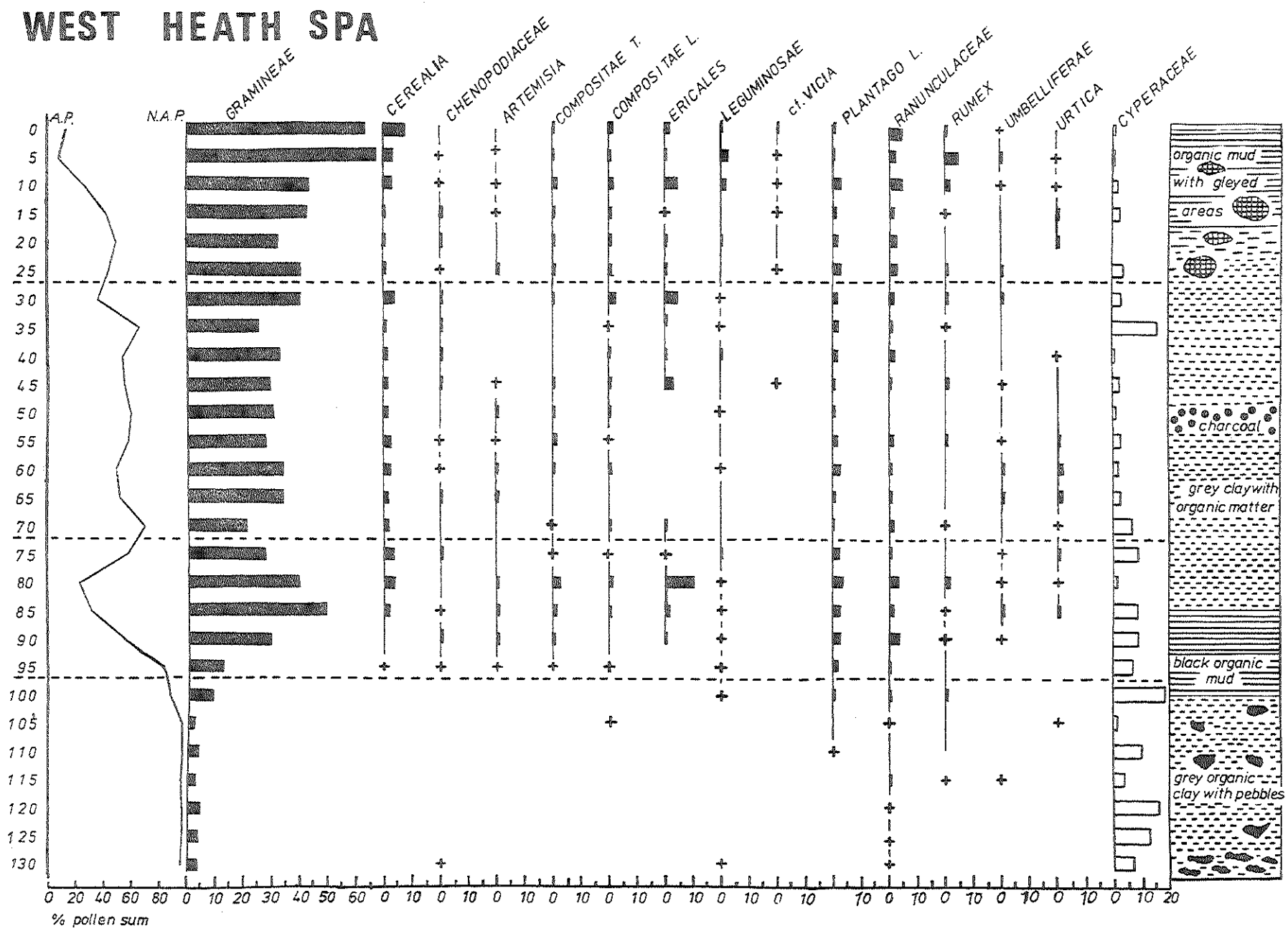
Maureen Girling and James Greig

Our understanding of the vegetational history of Britain is based mainly upon studies of peat-bogs, lake and kettlehole infills[1] and away from areas where such deposits exist, there is a paucity of information[2]. A current multidisciplinary investigation of a deposit associated with a Mesolithic site on Hampstead Heath, North London, is providing rare evidence about man's effect on the vegetational succession of south-east England. The pollen spectrum indicates that Tilia rich forest existed until the elm decline, followed by continuing clearance episodes and heath formation. Seeds and beetle remains, which provide more precise information on local conditions, confirm the overall pattern of change from natural forest to cleared areas used for cultivation and grazing.

The Mesolithic site of West Heath, Hampstead, (TQ2566 8676) is being excavated by the Hendon and District Archaeological Society under the direction of Mr. D. Collins[3]. The site stands on dry, acid Bagshot Sands, but environmental investigations have been carried out at West Heath Spa, a boggy area about 450 m. to the south east, where permanent waterlogging is maintained by a chalybeate spring. At this spot, samples for pollen, seed and insect analyses were collected at 5 cms. intervals from below the modern root layer to a depth of 130 cms. Results of these studies are briefly described here. In 1977, in conjunction with continued excavation of the Mesolithic site, further investigation of this deposit will be combined with radiocarbon dating of critical layers and identification by Mrs. A. Locker of wood and charcoal which is preserved in the deposit.

The pollen diagram (Fig. 1) has been drawn up from counts of 400 - 900 pollen grains for each 5 cms. layer. It can be divided into four zones of


WEST HEATH SPA
Analysis: J.R.A. Greig 1977
depth cm.
BETULA
PINUS
QUERCUS
ULMUS
TILIA
FRAXINUS
FAGUS
ILEX
HEDERA
other trees and shrubs
CORYLUS
ALNUS
SALIX
SAMBUCUS NIGRA
SAMBUCUS NIGRA
SAMBUCUS NIGRA
SAMBUCUS, PRUNUS
ACER
VISCUM
VISCUM
VISCUM
VISCUM
CARPINUS
WHS 4
WHS 3
WHS 2
WHS 1
% A.P. (less Alnus, Coryloid, Salix) + N.A.P. (less aquatics).


WEST HEATH SPA
A.P.
N.A.P.
GRAMINEAE
CEREALIA
CHENOPODIACEAE
ARTEMISIA
COMPOSITAE T.
COMPOSITAE L.
ERICALES
LEGUMINOSAE
ct. VICIA
PLANTAGO L.
RANUNCULACEAE
RUMEX
UMBELLIFERAE
URTICA
CYPERACEAE
organic mud with gleyed areas
charcoal
grey clay with organic matter
black organic mud
grey organic clay with pebbles
% pollen sum

which one corresponds to VIIa, two to VIIb and one to VIII. These changes in pollen values are reflected by the seed and beetle assemblages.

130 - 100 cms. WHS I - Zone VIIa

Although Quercus (oak) is the most commonly represented pollen type in the lowest samples, Tilia (lime), an insect pollinated tree, is believed to be under-represented in the pollen rain[1], and at West Heath Spa, its substantial pollen record would appear to indicate a forest composed predominantly of lime. The abundance of lime pollen, seen also at Shustoke, Warks.[4], Butterbump :, Lincs. (Greig unpublished), and Epping Forest (Moxey and Oxford, unpublished), shows that contrary to earlier concepts of mixed oak forest during the Atlantic, lime was probably the dominant forest tree in the Midlands, southern and eastern England. The high values of oak and Corylus (hazel) compared with Alnus (alder) are probably due to the Spa's situation, an isolated marsh rather than a large wetland with surrounding alder carr. The appearance of Ericales pollen denotes the start of heath formation. Amongst wood-dependent beetles, the commonest is Ernoporus caucasicus Lind. a small lime-feeder which has been found in numbers in deposits of this age[4], but was first captured in Britain as recently as 1964[5]. Other scolytids include Kissophagus hederae (Schmidt.), an ivy feeder, and the only host specific species in this country[6], and Xyleborus xylegraphus (Say) which is found on pines as well as several deciduous trees. Also present are the oak leaf-miner Rhynchaenus quercus (L.), the holly-feeding cerambycid Pogonocherus hispidus (L.) and the small anobiid Gastrallus immarginatus (Mull.) a typical old forest species.

100 - 75 cms. WHS 2 - Zone VIIb

Delineating the boundary between Zone VIIa/VIIb, the pollen values for elm decrease dramatically and appearing for the first time are Cerealia and ruderals such as Plantago lanceolata L. (ribwort plantain), which are

associated with the activities of man. Accompanying this classic elm decline are falls in the level of oak and lime and Corylus (hazel) pollen The appearance of Fagus (beech) in WHS 2 and maximum frequencies of Ilex (holly) in WHS 3 might indicate their expansion into areas of previously closed forest. The insect fauna of WHS 2 contains a smaller percentage of tree obligate species than lower samples, although records of decaying wood inhabitants such as Eremotes ater (L.) are noteworthy, particularly if, as Rackham suggests, primitive man was unable to clear away large stumps and trunks of felled trees[7]. Both seeds and beetles reflect increased wetness leading to pond formation. Aquatic Ranunculaceae including Ranunculus flammula L. and R. (Batrachium) spp. are present together with Isolepis setacea (L.) R.Br. (bristle scirpus) and Lycopus europeaus L. (gypsywort). Seeds of Pedicularis sylvatica L. (lousewort) have been recorded for the first time in a Zone VIIb deposit. The beetle fauna is dominated by aquatic species of Helophorus, Hydrochus and Hydraena.

75 - 100 cms. WHS 3 - Zone VIIb (continued)

After the elm decline, a semi-stable state is maintained perhaps by a succession of clearance episodes, the concentration of charcoal suggesting the use of fire. Renewed heath formation is inferred from the reappearance of Ericales. A new faunal element, dung beetles of the Aphodius, Onthophagus and Geotrupes genera, which appears at 80 cms., probably indicates grazing by herbivorous animals in the grasslands.

75 - 0 cms. WHS 4 - Zone VIII

This final pollen zone, defined by a further steep fall in tree pollen, including Corylus and Alnus, with a corresponding rise in herbaceous pollen, is characteristic of pollen diagrams from the Iron age onwards. A similar pollen diagram has been drawn up from New Palace Yard, a London site dated to the Iron age, (Greig and Limbrey, unpublished). The continuing record

of Gramineae, Cerealia, Leguminosae, Plantago and Rumex (dock) indicate further cultivation, and Ericales are present throughout. Sinodendron cylindricum (L.) is one of the very scarce wood-dependent beetles from these upper samples, most of the species require open land or waterside habitats, such as Hydrothassa marginella (L.) and Plateumaris discolor (Panz.), a cottongrass-feeder which favours acidic habitats.

Further investigation of all the organic remains at West Heath Spa should provide important evidence on several aspects of the prehistory of the area. It should be possible to determine closely the environment of the Mesolithic habitation site, to investigate man's increasing modification of the landscape after the elm decline and finally, to evaluate the anthropogenic factor in the formation of Hampstead Heath.

We thank Mr. D. Collins for useful discussion.

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2 Birks, H. J. B., Deacon, Joy and Peglar, Sylvia, Proc. R. Soc Lond. B. 189, 87 - 105 (1975).

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