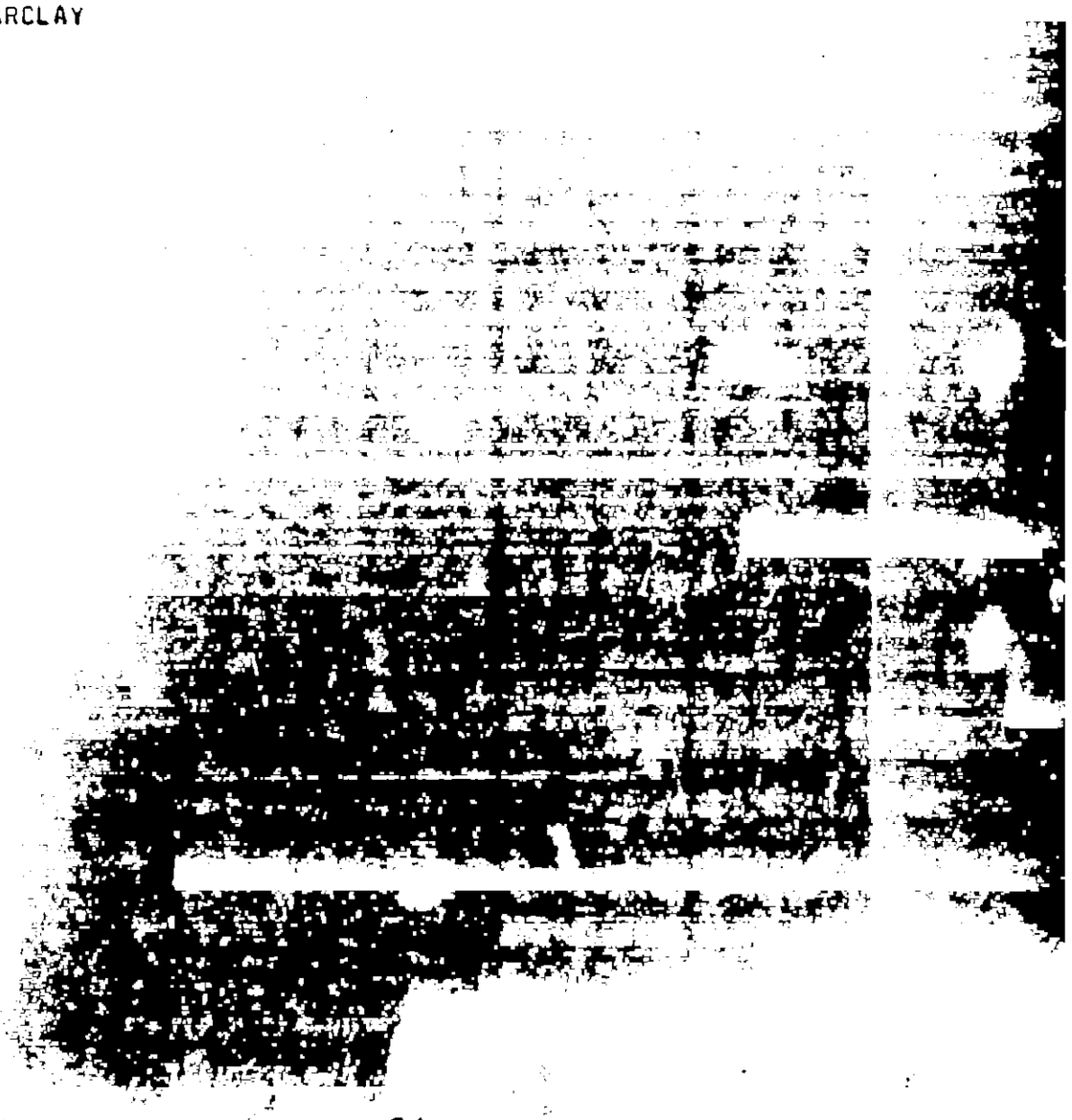
Proc Soc Antiq Scot, 115 (1985)

FICHE 1: CONTENTS

Proc Soc Antiq Scot, 115 (1985), fiche 1:C1-D4

EXCAVATIONS AT UPPER SUISGILL, SUTHERLAND

G J BARCLAY



SUISGILL, SUTHERLAND

G J BARCLAY

CONTENTS

A radiocarbon-dated vegetational history of the Suisgill area of Sutherland

M V Andrews, A M Plackham and D D Gilbertson*

SUMMARY

This paper summarizes pollen analytical studies from the blanket bog on Cnoc Bad na h-Eirig, at 183 m OD, 2 km from the Suisgill site. Two pollen diagrams are described with the aid of three radiocarbon dates and a series of local pollen assemblage zones recognized in the profiles. Peat formation began approximately 6700 years ago. From this time until shortly before 4450 bp, the vegetation of the area comprised open woodland dominated by pine and birch with smaller frequencies of oak and elm. This was interspersed with open heather moorland and wet acid bog. Alder expanded rapidly in this period, reaching a maximum abundance at a time estimated to be approximately 5600 bp.

Shortly before 4450 bp the forest cover declined notably, with the complete elimination of elm and reduced frequencies of birch, pine and alder. This change was associated with the spread of taxa characteristic of open and disturbed habitats and acid bogs. The cause of these changes cannot be identified with certainty: they may be due to a combination of factors, including Neolithic clearances and hydrologically or climatically induced variations in the wetness of blanket bog at the coring site.

Subsequently, a significant regeneration of the forest cover occurred, with pine and birch becoming almost totally dominant; heathland continued to be important. Shortly before 1700 bp, a notable reduction in the pine-birch forest took place/

*Department of Prehistory and Archaeology, University of Sheffield, Sheffield S10 2TN

place, with heath-covered moorland becoming more widespread and this typified the vegetation from this point until the present day. However, minor changes are recorded in the uppermost parts of the pollen diagram, where small-scale regeneration of woodland species might be attributable to the Highland Clearances.

The vegetation of the area at the time of the Suisgill settlement (at approximately 630 bc) was dominated by open pine-birch woodland, interspersed with open heathland. This occupation might be associated with the clearance episode recorded in the pollen diagram.

The vegetational changes recorded are very broadly similar to those noted elsewhere in north-eastern Scotland.

INTRODUCTION

The diagrams illustrated in illus 30 and 31 were prepared from two cores taken approximately 2 km NNE of the excavation at about 183 m (600 ft) OD (illus 32), the other side of Cnoc Bad na h-Eirig, since the peat in the valley, nearer to the site, was only 50 cm deep. The information therefore relates to the area in general, rather than to the site in particular. It was hoped that the samples would contain details of the crops grown, and the vegetation of the area during the major occupation phase of the site.

METHODS

The shorter core was taken using an Eijkelkamp 6 cm gauge auger, but when this proved unsatisfactory after the first section, a Russian corer was used to obtain the Suisgill A core. Both were sampled at 10 cm intervals in the laboratory. The samples were prepared by boiling in 5% KOH, sieving, acetolysis, and mounting in silicon oil. The count/

count was conducted by Anne Blackham; the relative percent of each species was calculated from the total number of pollen grains and spores. 500 per level on Suisgill A and 150 on Suisgill B. The zones are defined with reference only to the local vegetational changes, in particular the abundance and type of forest taxa, since a regional zonation has not yet been established.

Table 5

The radiocarbon datings of the Suisgill A core

Depth (metres)	Sediment (type)	Radiocarbon (date)	Laboratory (code)
1.00	Dark brown, well humified, fibrous peat	1710±90 bp	GU 1674
1.90	Orange-brown peat with plant fragments	4425±105 bp	GU 1673
2.60	Brown peat with plant fragments and wood	6675±75 bp	GU 1672

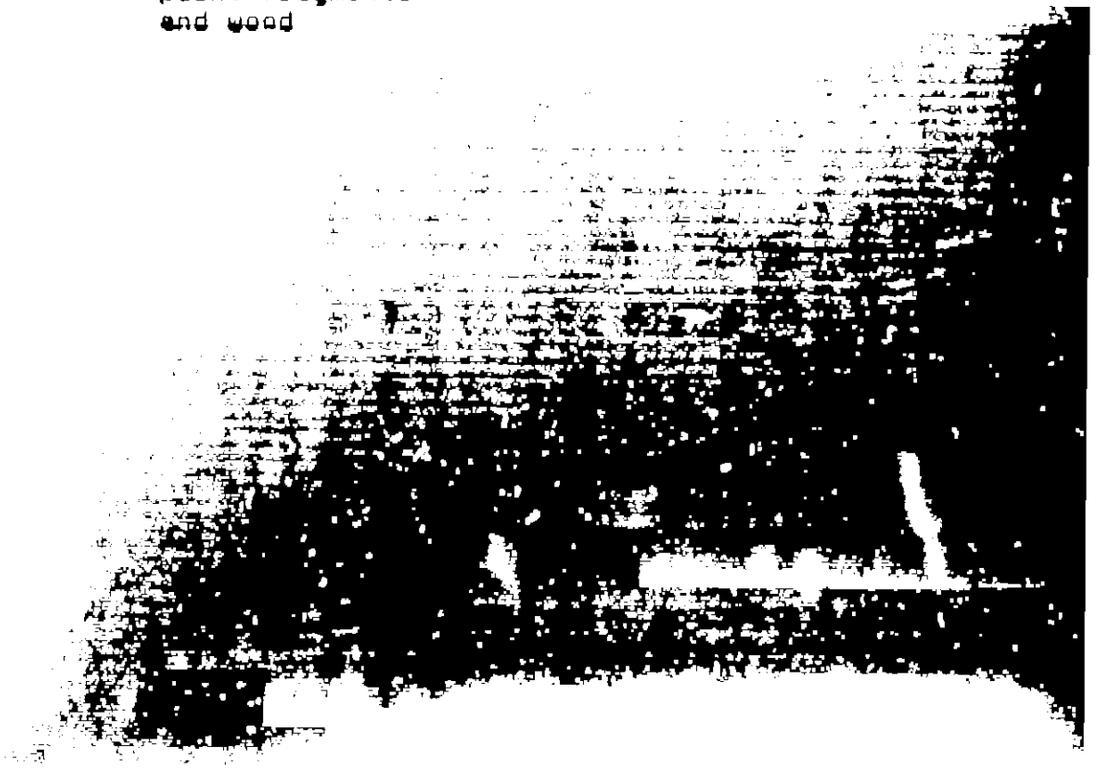


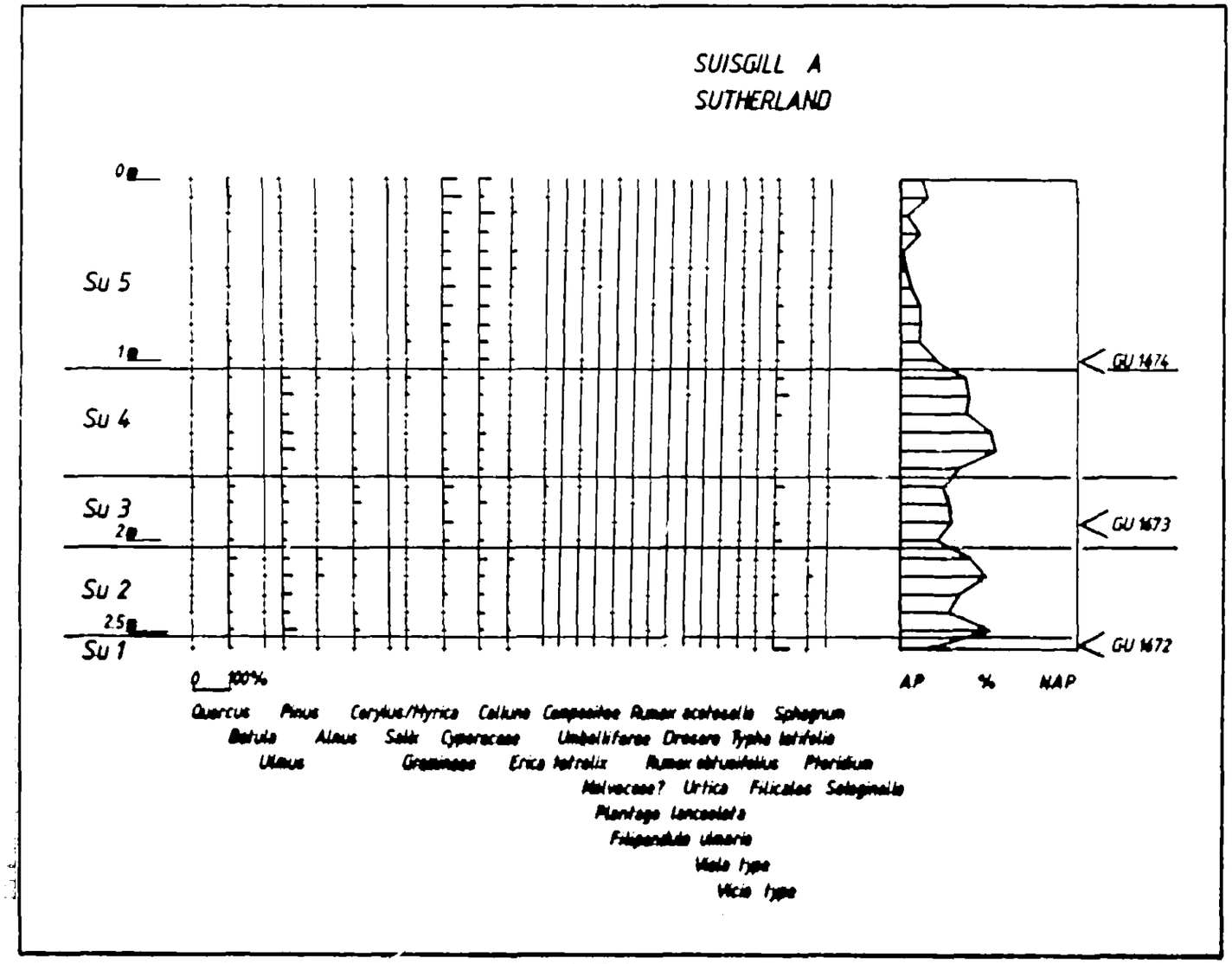
Table 6

The zonation of Suisgill core A

Zone	Depth (cm)	Thickness (cm)	Description
Su5	0-105	105	Tree pollen rapidly decreases importance to reach less than 2% at 40 cm; all the arboreal species are recorded in this zone. Open ground pollen types abound, with Calluna (ling), Erica (heather), Cyperaceae (sedges), and Gramineae (grasses) present.
Su4	105-165	60	Arboreal pollen percentage is high - with the maximum for the core (54%) at 150 cm, largely made up of Pinus (pine) with some Betula (birch) and as little Quercus (oak); Alnus (alder) is present throughout and increases at the top of the zone. Non-tree species gain in importance through the zone.
Su3	165-205	40	Lower values for tree pollen were recorded, with Ulmus (elm) absent. Cyperaceae and Compositae (daisy family) values rise.
Su2	205-255	50	Arboreal species are well represented, over 50% at 230 cm, Pinus is dominant, with Betula, Alnus, Quercus, and Ulmus recorded. Calluna and Erica are present.

cont/

C8



C 7-8

Illus 30 Suisgill pollen core A

Zone	Depth (cm)	Thickness (cm)	Description
Sul	255-260	5	Very low tree pollen values, with Betula only reaching 4%. Pinus, Quercus, and Alnus present. Sphagnum forms 50% of the pollen counted.

Table 7

The stratigraphy of Suisgill core A

Depth (cm)	Description
0-13	'Turf': modern peat soil with heather
13-37	Dark brown peat with roots penetrating from the soil surface above
37-150	Dark brown, well humified peat, with some plant fibres
150-200	Orange brown peat, with plant fragments
200-262	Brown peat with plant fragments and wood

DISCUSSION OF THE ZONATION OF SUISGILL CORE A (Illus 30, tables 5 & 6)

Zone Sul (255-260 cm)

This zone, which has only one sample, appears to be a period of open mixed woodland, with tracts of heathland represented by Calluna, Erica, and the Cyperaceae, and acid bog indicated by the high values of Sphagnum, 50% of the total pollen and spore/

spore count, which distorts the importance of the other species. Since it is only one sample it is not possible to determine any patterns. The base of the core and, therefore, the onset of peat formation in this area has been dated to 6675±75 bp (GU-1672).

Zone Su2 (205-255 cm)

This is a period of woodland, but with Pinus and Betula forming the major component, with Quercus and Ulmus present in the area. Alnus peaks at 220 cm and, if a relatively constant rate of peat growth between 260 cm and 190 cm is assumed, then its rise can be dated to approximately 5600 bp, and is thus broadly comparable with other dated diagrams from Scotland. At Loch Clair in the west (illus 33) the empirical Alnus limit (the first appearance of the species in the core) occurs at 6520±145 bp (Pennington et al 1972); in the east at Loch Pityoulish, the empirical Alnus limit occurs at 6633±57 bp (O'Sullivan 1974; 1976). Loch Garten to the north of the last site records the rise in Alnus pollen at 5860±100 bp (O'Sullivan 1974; 1976). The canopy is not closed and Calluna and Erica indicate areas of heathland bordering the stands.

This zone ends before 4425±105 bp (GU 1673)

Zone Su3 (165-205 cm)

The arboreal component has fallen in this zone with Ulmus completely absent as small scale clearance occurs. The Compositae, an open ground family indicating disturbance are present, and Vicia, (vetch family) recorded at 200 cm, may either be a weed of arable land or a cultivar, a type of bean. The heathland of Ericaceae and Cyperaceae increases, its major component alternating between the sedges and Calluna, indicating fluctuating degrees of surface wetness. The increased frequency of sphagnum spores recorded may account for some of the reduction in tree pollen, again indicating wetter/

wetter conditions, reflected in the peat characteristics (table 7).

The centre of this zone is dated to 4425±105 bp (GU 1673) suggesting the clearance to be Neolithic in origin, and slightly earlier than that recorded from Loch Pityoulish (2990±60 bp) or Loch Garten (3635±205 bp) (O'Sullivan, 1974 1976; 1977) to the south (illus 33).

Zone Su4 (105-165 cm)

The woodland now regenerates, although dominated by Betula and Pinus, as O'Sullivan (1977) suggests is to be expected with secondary succession. The canopy does not become fully closed and species indicative of heathland are still present The end of this zone is provisionally dated to 1725±90 bp (GU 1674), and it may be possible to suggest that the minor phase of clearance at 130 cm is associated with the settlem excavated and dated to 630±60 bc, and that the increased wetness recorded by the rise in Alnus and Sphagnum at 120 cm may be related to changes causing the gravel flow recorded in excavation. Gramineae (grasses) increase and Urtica (nettle) and Compositae, the latter often being associated with clearance and agricultural activity, especially pastoralism, are present in the top 20 cm of this zone.

Zone Su5 (0-105 cm)

This dates from slightly before 1710±90 bp (GU 1674) and extends to the present day. The heathland plants increase, as the woodland is cleared, to form the plagioclimax vegetation similar to that of other sites in eastern Scotland such as Loch Pityoulish, although that area was not finally cleared until 1034±55 bp (O'Sullivan 1976; 1977), 700 years later than Suisgill. The number of species associated with agriculture increase with Plantago lanceolata (plantain) and Umbelliferae recorded for the first time, while Urtica is more frequently noted.

It/

It is possible that the slight rise in Betula, and the reappearance of Quercus - though only minimal - represents the growth of scrub after the land was abandoned following the Highland Clearances, but the associated increases in sheep-grazing intensities may have cancelled out this effect in many cases.

Table 8

The zonation of Suisgill core B

Depth (cm)	Thickness (cm)	Description
0-82	82	Arboreal pollen forms a small proportion of this zone, which is dominated by the Ericaceae, Cyperaceae, and herb species.

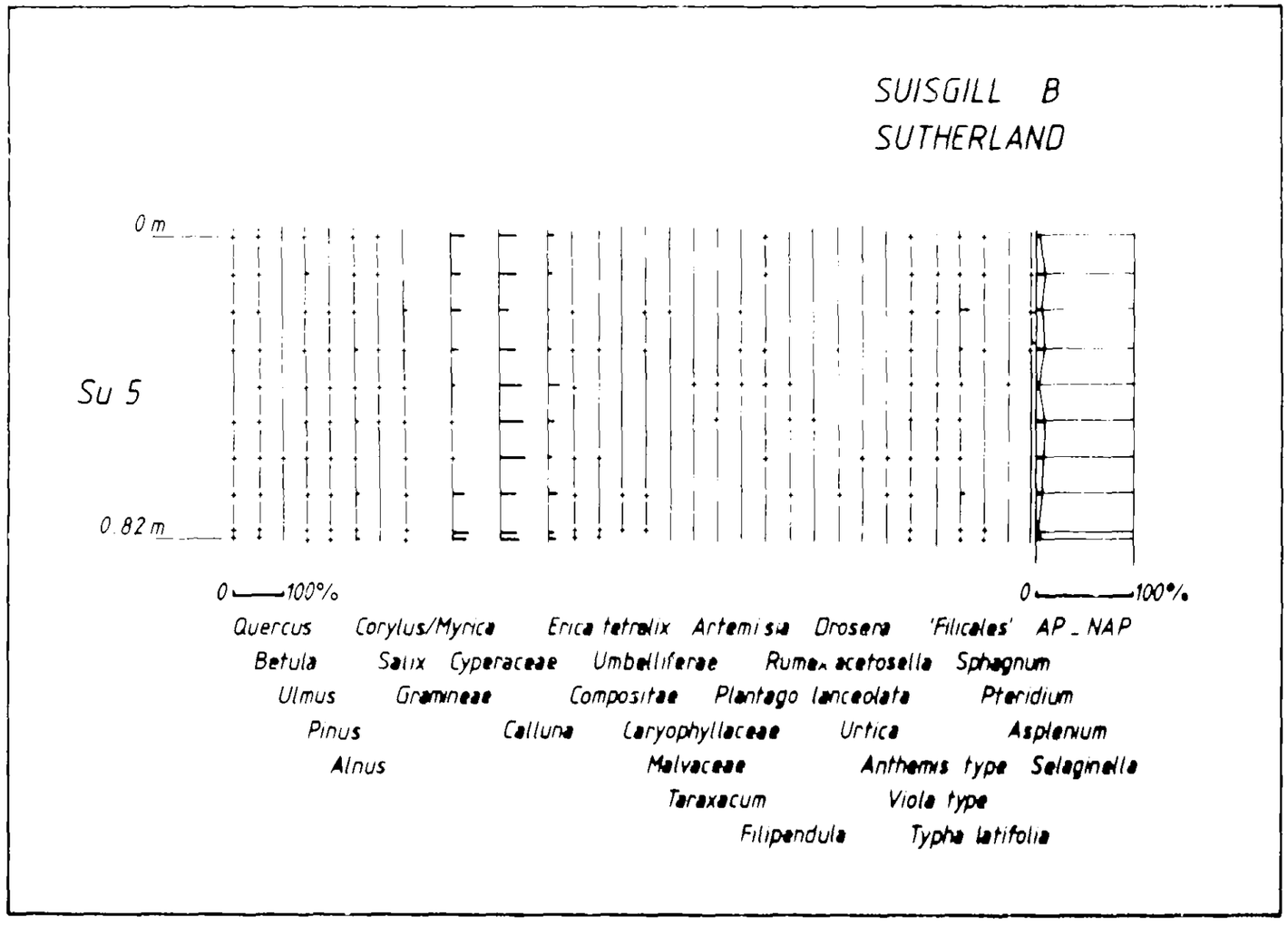
DISCUSSION OF SUISGILL CORE B (illus 31, table 8)

This core shows a very similar pollen flora and pattern of change to those of zone Su5 from core A, suggesting a correlation. There is very little pollen from tree or shrub taxa, and the landscape was dominated by heathland of Ericaceae, and Cyperaceae, and herb species associated with man's agricultural activities.

GENERAL POINTS

All the zones record the presence of acid bog represented by Sphagnum. Typha, the bull-rush, was most likely growing around the spring and burn near the sampling site (illus 32).

The presence of the Malvaceae (mallow) type is somewhat dubious since it has not previously been recorded in the British Flandrian/



C 13-14

Illus 31 Suisgill pollen core B

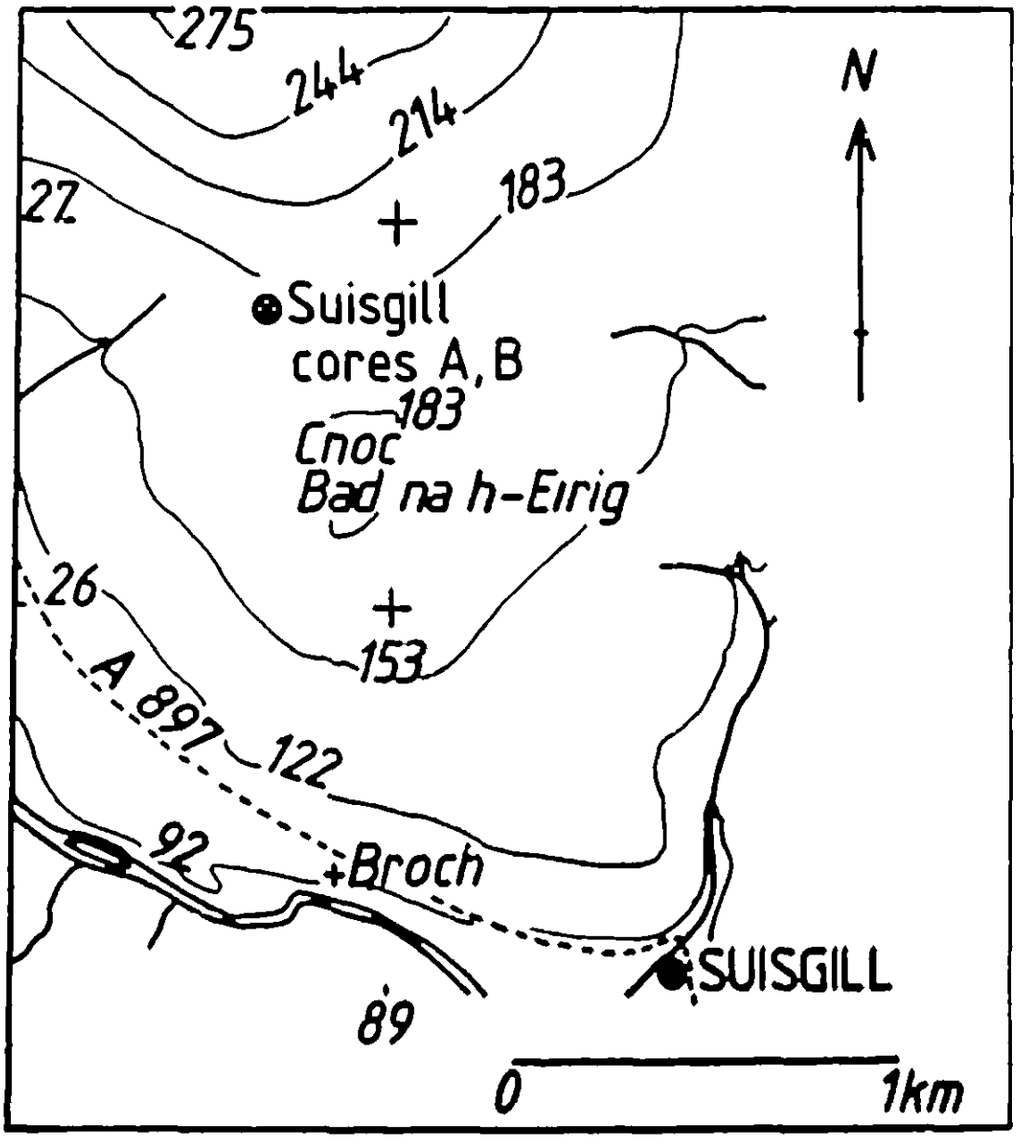
Flandrian before the Roman period (Godwin 1975).

The pattern of vegetational change recorded is very broadly similar to that noted elsewhere in northern Scotland (Birks 1977; O'Sullivan 1977).

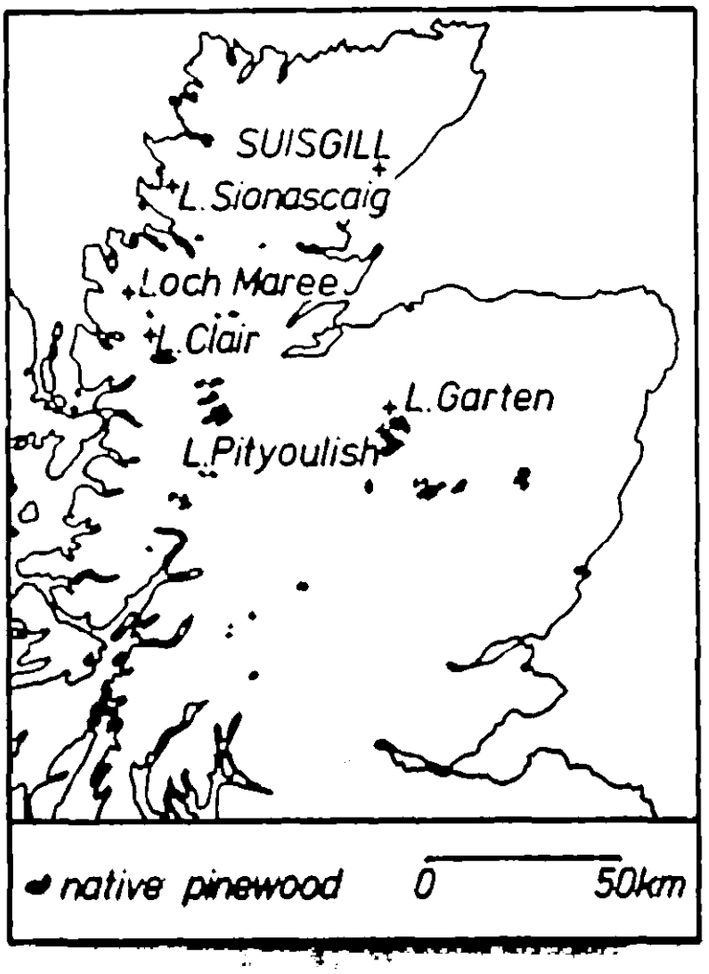
CONCLUSION

The cores record the changes in the vegetation of the area, which broadly coincide with those for the north of Scotland, since the onset of peat accumulation at 6700 bp on Cnoc Bad na h-Eriq. From this period to approximately 4450 bp, the vegetation comprised open woodland of pine and birch, with smaller frequencies of oak and elm, and alder occupying wetter areas: this was interspersed with heathland and acid bogs. Shortly before 4450 bp, the forest cover declined with the complete elimination of elm and greatly reduced frequencies of birch, pine and alder. Some of this change is related to the spread of acid bog, but part is also associated with Neolithic clearance. A significant regeneration of the woodland then occurred, with pine and birch dominant and heath-covered moorland continuing to be important. Clearance episodes possibly associated with the Suisgill settlement are recorded in this period and, shortly before 1700 bp, a further significant reduction in forest cover occurred to produce the type of landscape common in the area today. In the upper parts of the pollen diagrams there is evidence of small-scale regeneration of forest trees. It may be associated with recent abandonment or evictions from this part of the Highlands.

Although the periods of woodland clearance correspond with the appearance of herbaceous species associated with agricultural practices there is no evidence of cultivars (unless Vicia, at 200 cm, is classed as a cultivated bean) and as the sample location is 2 km from the settlement site and cereal pollen travels only short distances this is to be expected. The important point is that until approximately 1725/



Illus 32 Suisgill pollen cores: location map



Illus 33 Native pinewood and pollen sample sites in north Scotland

1725 bp the landscape was never completely open, the tracts of heath and agricultural land being bounded by pine and birch woodland.

ACKNOWLEDGEMENTS

The authors are indebted to Gordon Barclay for much help with the project, to Marijke can der Veen for obtaining the peat cores, and to the Radiocarbon Laboratory of the University of Glasgow for the radiocarbon dates.