The age of the introduction of *Plantago lanceolata* to the Shetland Islands

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Three radiocarbon datings corresponding to a previously published diagram from the Shetland Islands are presented. The recorded depths correspond closely to the depths in the published diagram, so the dates can be transferred directly to that diagram. It is concluded that *Plantago lanceolata* was local and that its appearance dates the immigration of man to the Shetland Islands at 3400 BC.

In 1975 I published a pollen diagram from a peat bog on the Shetland Islands (Jóhansen 1975), reproduced as plate 1. The diagram was the result of a visit to the islands in 1970. Because a Hiller sampler was used for most part of the profile no radiocarbon datings were possible. Only the lowermost one metre which was taken with a Livingstone corer gave material for datings. As better equipment for peat sampling – a modified Jousey sampler (Tolonen 1967) – became available I found it worth making a new visit to the locality. Of special interest to me was the horizon where the *Plantago lanceolata* curve became continuous because I supposed it to indicate the first human settlement in the islands. In February 1976 I had an opportunity to do supplementary work and the uppermost three metres were sampled. It was checked by pollen analysis that the levels of the two corings corresponded. Hence, the dates listed below could be correlated with the previously published diagram.

The radiocarbon datings

Three samples were chosen for dating. Ages are given in C-14 years bp (T ½ = 5568) and in calibrated calendar years (Damon et al. 1972).

K-2704. Material: humus matter extracted from peat. Depth: 5–10 cm. Age: 520 ± 70 bp. Calibrated age: 1510 ± 75 AD. Thus the last 500 years are lacking in the profile, no doubt because of peat digging.

K-2705. Material: peat. Depth: 202–210 cm. Age: 4680 ± 95 bp. Calibrated age: 3410 ± 130 BC. This horizon marks the beginning of the continous *Plantago lanceolata* curve and is discussed below.

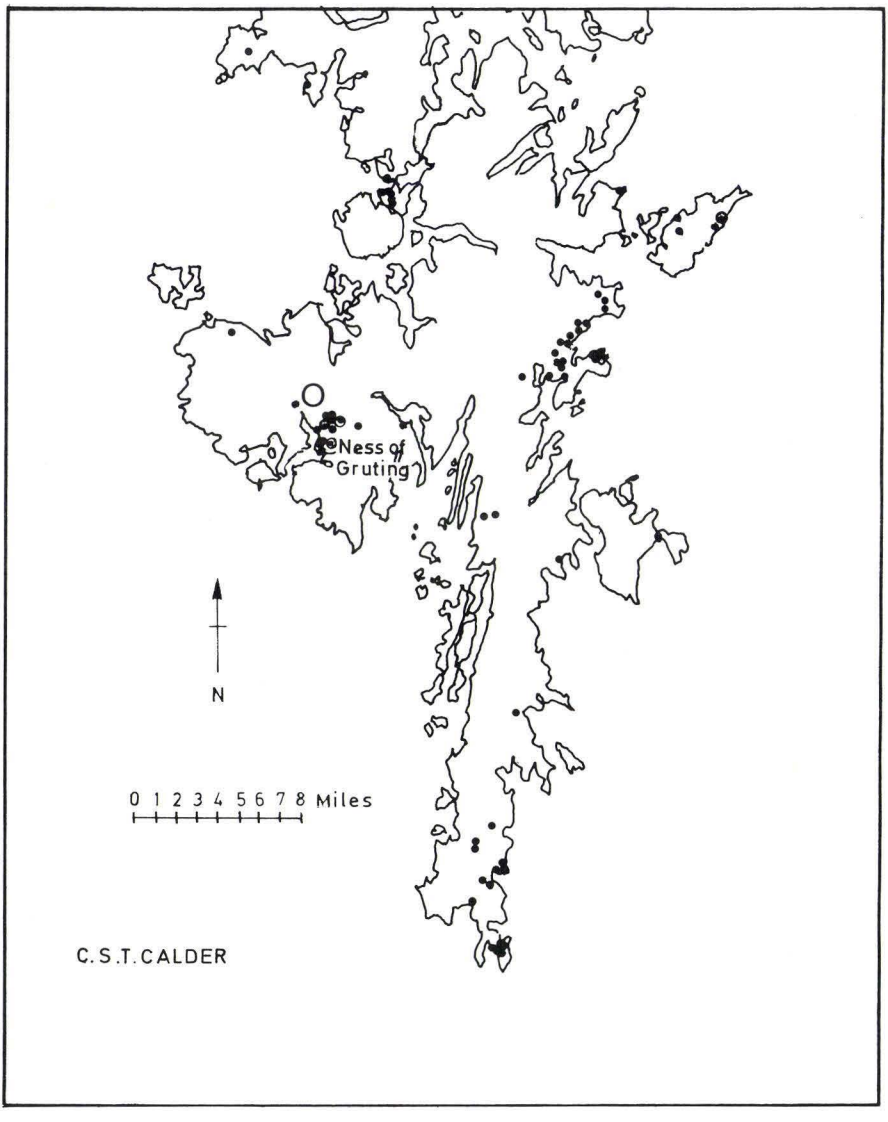

Fig. 1. Distribution map of Neolithic houses in Shetland (Calder 1964). The circle shows the position of my sampling site. Reproduced with the permission of Thomas Nelson and Sons, Ltd., London.

K-2706. Material: peat. Depth: 292–300 cm. Age: 7850 ± 120 bp. This horizon marks the transition to the Atlantic. The *Corylus* maximum noticed below this level, see plate 1, thus falls in the Boreal.

The *Plantago lanceolata* curve

As already mentioned the main purpose of my second trip to Shetland was to collect material for dating of the horizon where the *P. lanceolata* curve becomes continuous with steadily increasing percentages.

The question naturally arises whether the *Plantago lanceolata* pollen grains have been transported from outside Shetland. Four pollen grains found scattered below the continuous *Plantago* curve are clearly long distance transported. The plant has been growing in Scotland and Isle of Skye in Late Weichselian and Flandrian times (Birks 1973, Godwin 1975). The pollen grains appearing at the depth of 206 cm and upwards can not be regarded far distance transported. This can be seen by comparing the *Plantago* curve with the curves of the trees, the pollen grains of which are certainly long distance transported. These curves are falling at the same time as the *Plantago* curve is rising. The *Plantago* pollen source thus must be local.

The next question is: did the plant immigrate spontaneously by the natural agents: wind, birds, sea currents or was it introduced by man? The first possibility can of course not quite be ruled out, but judging from archaeological evidence the second explanation is the most likely one.

Archaeological evidence

Chambered tombs and long mounds in Scotland were built in the 4th millenium BC (Henshall 1974). Passage graves are very numerous in Scotland, the Hebrides and Orkney (about 300, Henshall l.c.). This shows that a population spread over not only the Scottish mainland but also on the mentioned islands at Neolithic times. Calder (1964) has mapped the distribution in Shetland of houses which he considers Neolithic, fig. 1. A group of them are concentrated in an area close to my sampling site. From Shetland I do only know about one C-14 dating related to human settlement apart from my own. It is from Ness of Gruting (fig. 1) where a barley cache has been dated to about 2000 BC (Henshall l.c.), but this date does of course not say anything about the *first* colonization.

It should be borne in mind, as pointed out by for instance V. G. Childe (1964) that the Orkney Islands are clearly visible from the Scottish mainland. From those islands you can see Fair Isle and from Fair Isle Sumburgh Head of Shetland can be seen. This will make a step by step immigration almost inevitable. From the Shetland Islands and northwards no land can be seen and the Faroe Islands were not colonized at this time.

Conclusion

In this study I have exclusively used the curve of *Plantago lanceolata* as an indicator of man's arrival to the Shetland Islands. A decline of *Salix* and rise of *Calluna* may point at land clearings. In light of the archaeological evidence I feel confident that the *Plantago* curve really is a consequence of human activity and unlike buildings and tombs it gives us the *time* of immigration: about 3400 BC.

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Dansk sammendrag

Tre C-14 dateringer af et tidligere publiceret pollendiagram fra Shetlandsøerne (her reproduceret som plate 1) præsenteres. Dybderne i den boring, der gav materiale til dateringerne er de samme som i det publicerede diagram, så de kan overføres direkte til diagrammet. Det konkluderes, at *Plantago lanceolata* er lokal og at den daterer de første menneskers bosættelse på Shetlandsøerne til omkring 3400 f.Kr.

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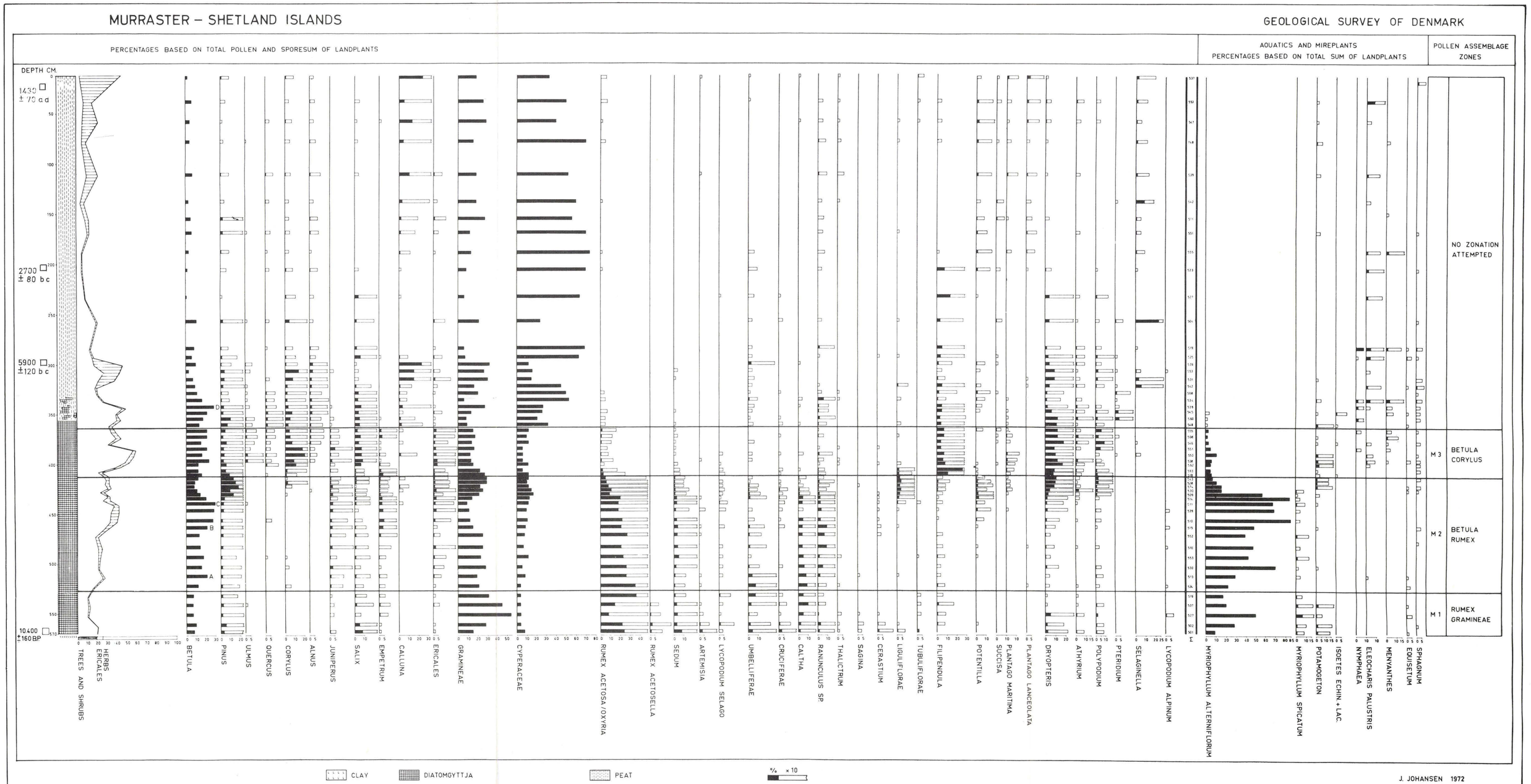

Plate 1. Pollen diagram from Murraster, Shetland Islands, (from Jóhansen 1975), with the new radiocarbon datings.