# Cereal cultivation in Mykines, Faroe Islands AD 600

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This paper deals with investigations made by the author on some old, now abandoned fields in Mykines, The Faroe Islands. The results show that corn has grown in these fields – first *oat (Avena)*, later *barley (Hordeum)*. The beginning of the cultivation is radiocarbon dated to about AD 600. It is concluded that it was started by Irish hermits who according to the literature are said to have lived on the Faroes. It is assumed that the later cultivation of *barley* was done by Nordic settlers, but this layer cannot be dated.

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In many remote and more or less inaccessible places in the Faroe Islands are areas which evidently are former cultivated fields. They appear as strips of land separated by low ridges. In some places the ridges consist of rows of stones covered with soil, in other places of soil only. The present author has studied some of them. The results of the investigation of one of them, namely Lambi, Mykines, are presented in the following article.

## Description of the locality Lambi and the fields

Most of Lambi is a scree – rocks and stones having fallen down from the mountain to the north of the locality. The eastern area, where the fields in question are situated, is, however, covered by soil – 118 cm at the investigation site – and has a vigorous vegetation. The whole Lambi area is the habitat for a very large colony of puffins *(Fratercula arctica)*. These birds strongly affect the character of the landscape, partly by digging holes in which they live and nest, and partly by manuring the soil. The vegetation is, as mentioned, vigorous but it is poor in the number of species. The most important plants are *Festuca rubra, Stellaria media, Rumex acetosa, Montia rivularis, Poa pratensis, Agrostis stolonifera* and *Tripleurospermum maritimum*.

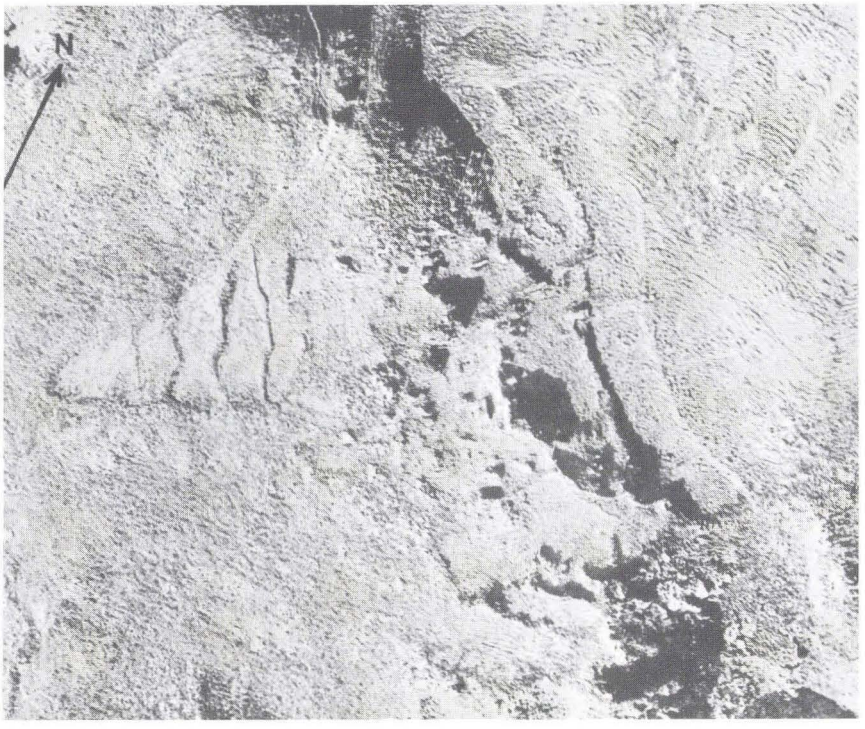


*Fig. 1.* Aerial photo of the fields. To the right is seen an oblong structure which looks man-made. It has not been investigated as far as I know. Photo Widerøe AS. Reproduced with the permission of Matrikulstovan, Tórshavn.

The fields are situated on a south east facing slope with an average inclination of $50^0$, the lowermost part being almost flat. Figs. 1-3.

The ridges consist of rows of stones covered with soil and vegetation. As can be seen from figs. 1 and 2, they are undulating. This is probably due to solifluction. Because of the activity of the puffins, the soil is very loose, and this has caused the stone walls to move irregularly down the slope. The puffins have, however, not been digging in the fields as can be seen in the photograph, fig. 3. There are 5 ridges; the distance between them varies from 1 to 7 m. The longest field is 27 m, the shortest 10 m. This difference in length could be caused by the vigorous plant growth which might conceal some parts of the fields. This can, however, only be known after excavation. The height of the ridges is about 40 cm.

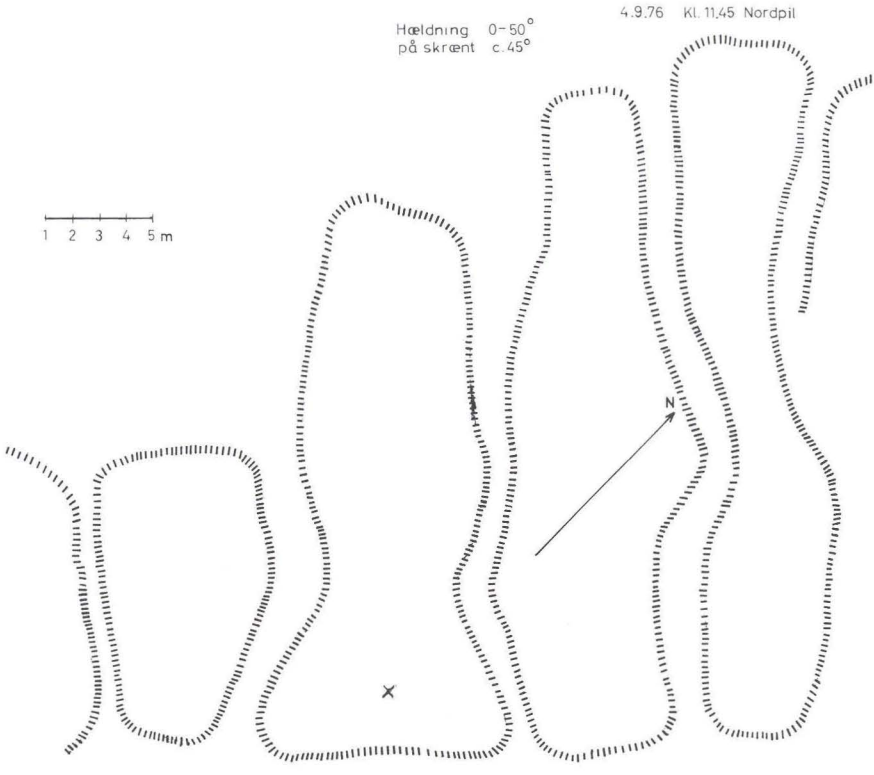


*Fig. 2.* A sketch plan of the fields. After P.V. Glob.

## The profile

The excavation was made at the point marked X in fig. 2. The depth down to solid rock was 118 cm. The material was a homogenous, brown soil containing gravel and small stones without macroscopic plant remains. After treatment with KOH, HF, HC1, and acetolysis, only pollen grains were left – in large quantities, but very poorly preserved. The amount of corroded pollen grains varied between 40 and 100%.

## The radiocarbon datings and the pollen diagram

When preparing samples for radiocarbon datings, precautions were taken so as not to dissolve small plant remains but only to remove the humic acids. The samples were treated with cold 5% KOH for one hour and then washed in distil-

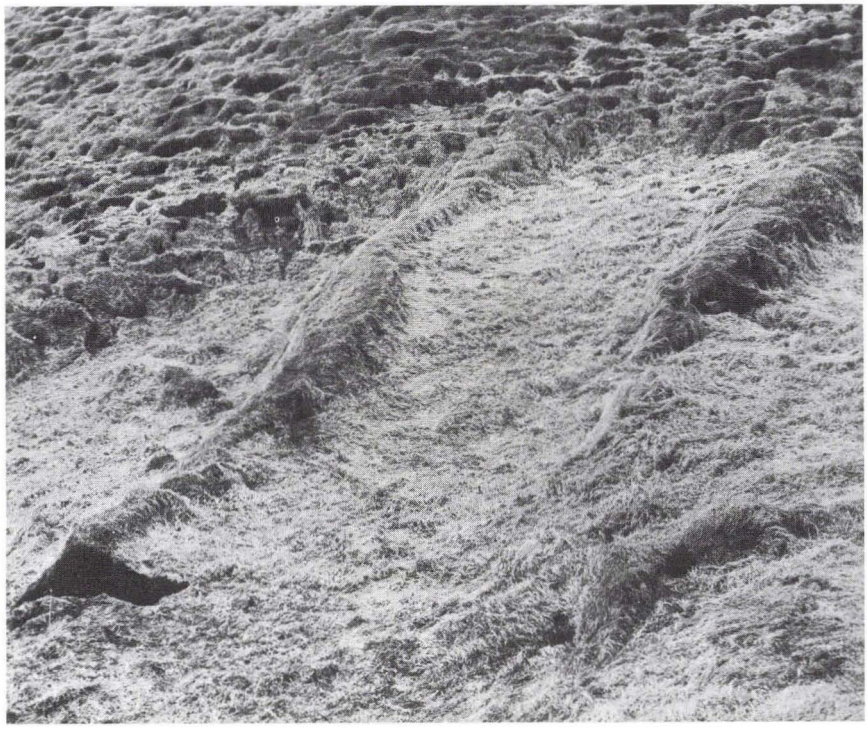

*Fig. 3.* The upper part of 3 fields. The appearance of the surrounding area is the result of the activity of the puffins. They always dig upwards as they would otherwise get water into their holes. Photo P.V. Glob.

led water until the fluid was clear. The samples were left in 10% HC1 for one night and then dried at 100°C.

The datings proved to be highly irregular as seen below. The corrections follow Clark (1975).

| | | | | |
|---|---|---|---|---|
| K-3046 | Depth | 20- 30 cm. | $C^{13} = \div 24.5‰$ | 2720 ± 80 BP<br>Cal. 945 BC |
| K-3047 | Depth | 30- 40 cm. | $C^{13} = \div 28.0‰$ | 1350 ± 70 BP<br>Cal. 640 AD |
| K-3048 | Depth | 75- 80 cm. | $C^{13} = \div 25.1‰$ | 1680 ± 75 BP<br>Cal. 305 AD |
| K-3049 | Depth | 95-100 cm. | $C^{13} = \div 27.8‰$ | 1290 ± 55 BP<br>Cal. 690 AD |
| K-3050 | Depth | 100-105 cm. | $C^{13} = \div 26.2‰$ | 2330 ± 75 BP<br>Cal. 440 BC |
| K-3051 | Depth | 105-110 cm. | $C^{13} = \div 24.6‰$ | 1500 ± 75 BP<br>Cal. 470 AD |

| | | | | |
|---|---|---|---|---|
| K-3052 | Depth | 110-115 cm. | $C^{13} = \div 26.6‰$ | 3050 ± 80 BP<br>Cal. 1385 BC |

The irregular datings are due to the solifluction referred to above. It is obvious that when the C-14 datings turned out as they did, it is useless to draw any conclusions from the trend of the different curves in the pollen diagram shown in fig. 4. It will, however, be described in brief. As can be seen, there are great fluctuations in the curves as is to be expected in a diagram reflecting a very local vegetation. At the bottom *Poaceae, Rumux acetosa* and *Tubuliflorae (Tripleurospermum*?) each are about 30%. Apart from the next spectrum, where *Poaceae* lie at 50%, *Rumex acetosa* becomes the dominant plant. At a depth of 80 cm there is an abrupt rise of *Poaceae* and a fall of *Rumex acetosa* and *Tubuliflorae*, which were about 30% in 4 spectra. The grasses dominate up to the present day, however, with much *Rumex acetosa* in the three uppermost samples.

LAMBI, MYKINES, FAROE ISLANDS

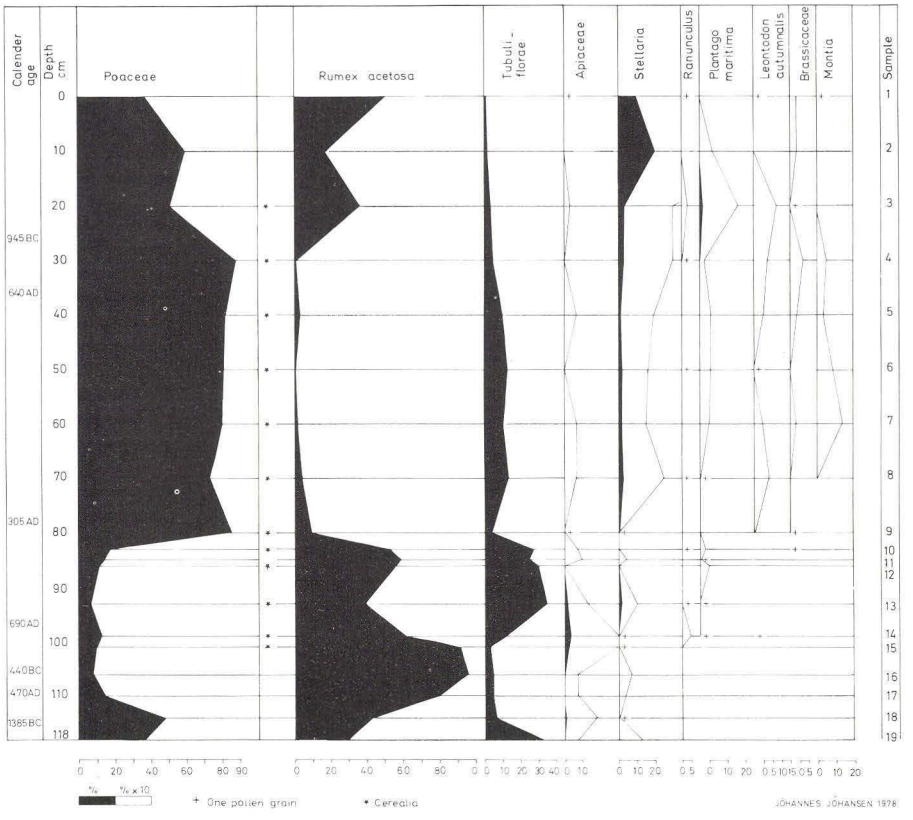


*Fig. 4.* The pollen diagram from Lambi.

Instead of trying to explain these changes, I shall discuss the curves of Cerealia and *Plantage maritima*.

## *Cerealia*

In pollen analysis, there have been great difficulties in, and discussion about, separating cereals from wild grasses and distinguishing among the different species of cereals. Andersen (1979) has taken up the whole problem and dealt with it very thoroughly. The criteria in question are pollen grain size, annulus diameter, and surface sculpture.

As previously mentioned, the pollen grains from Lambi are very badly preserved, and in the case of the cereals, which are large, they are also very much crumpled. Under such circumstances, measuring the annulus diameter is the most reliable way of separating wild grasses from cereals, as well as the species of cereals from each other. The annulus does not crumple and is highly resistant to corrosion. This means that it can nearly always be measured.

The annulus of 50 pollen grains of *Poaceae* was measured in 9 samples. The size class was 0.98 µm. Size frequency distribution curves are shown in fig. 5.

Using Andersen's results, it is concluded that wild grasses, *Hordeum* and *Avena* are represented in Lambi.

Most wild grasses have an average annulus diameter of 6-7 µm, *Hordeum* 8 µm and *Avena* 10-11 µm (Andersen 1979).

Some wild grasses such as *Glyceria fluitans, Elymus arenarius,* and *Ammophila arenaria*, which are all members of the present Faroese flora, also have large annulus diameters (Andersen 1.c.). They can, however, all be excluded here as none of them can grow at or near a place like Lambi.

Out of cereals, *Secale cereale* can be recognized; it has not been observed in the material. *Triticum* can be eliminated for climatic reasons – it has a more southerly distribution (Bacon et al. 1948).

Bearing these facts in mind, I will interpret the size frequency distribution curves in the following way, starting from the bottom. Samples no. 19 and no. 16 contained only wild grasses.

Sample no. 15 also contained wild grasses – as did all the samples, however *Avena sativa* was also present.

Sample no. 13 was similar to no. 15 with probably some *Hordeum* mixed in.

Samples no. 11, 9, 8 (?) and 3; *Hordeum* was the only cereal.

Sample no. 1, which represents the recent surface, only contained wild grasses.

The sizes of the grass pollen grains were also measured but as they were very crumpled, the result is of limited value and is excluded here. An exception is sample no. 1 which had well preserved pollen grains. In that sample 12% of the grass pollen grains had an annulus diameter of 8 µm.

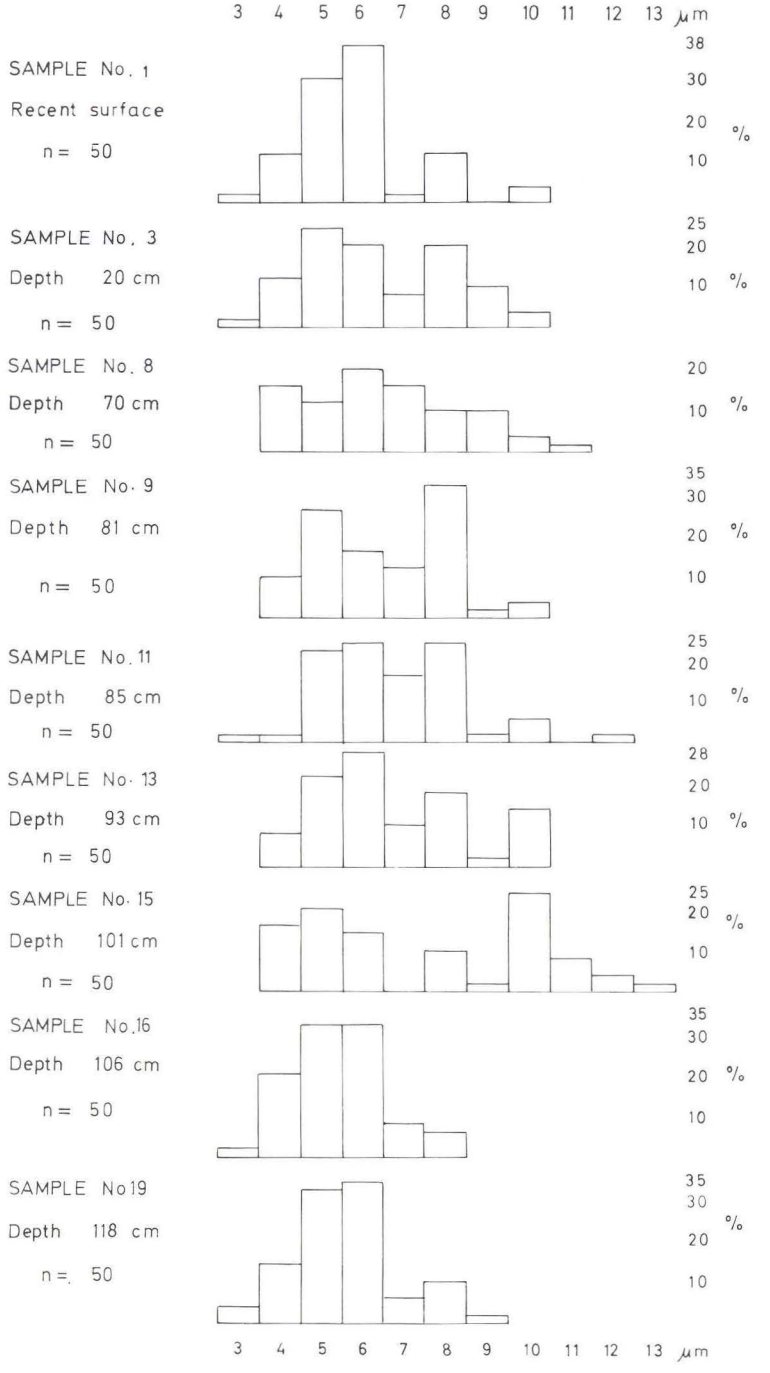


*Fig. 5.* The size frequency distribution curves of the annulus diameter of grass pollen.

Pollen grains of grass species which are common at Lambi today include pollen with an annulus diameter more than 8 μm (Andersen 1.c.). They are *Poa pratensis*, average size 25.7 μm, 7% have an annulus diameter more than 8 μm; *Festuca rubra*, average size 29.6 μm, 13% have an annulus diameter more than 8 μm; and *Agrostis stolonifera,* average size 23.6 μm, 24% have an annulus diameter more than 8 μm.

In sample no. 1, no grass pollen grain had a size exceeding 30 μm. It is, therefore, concluded that the grass pollen in sample 1 with annulus diameter of 8 μm derive from one of the above mentioned species or a mixture of all the three of them.

From sample no. 15 and up to no. 3, it could be observed that many grass pollen grains, even if crumpled, were clearly of cereal size: 38-45 μm. In the samples below, no grass pollen grains exceeded 30 μm. It is, therefore, concluded that the proportion of grass pollen grains in samples no. 19 and no. 16 with an annulus diameter 8 μm are wild grasses, cfr. sample 1.

It should be added that observations of the sculpture of some fairly well preserved exines confirm the above mentioned conclusions.

Finally, the finding of cereals sticking together in clumps proves the strictly local source of them. These fields have been used for growing corn: at first *Avena*, later *Hordeum*, and later again the fields were abandoned.

When the solifluction did not distrub the *Avena-Hordeum* relationship, it is because the slipped down material contained wild grasses only.

*Plantago maritima*

The question is now when cereal growing at Lambi started. The C-14 datings listed above cannot give the answer. In fact, I expected difficulties with the C-14 datings when taking the nature of the soil and the sloping into consideration. I, therefore, took a continuous series of samples from a flat blanket bog at another place in Mykines, in order to try to find a horizon which could be correlated with the Lambi profile.

In the pollen diagram from Lambi, it can be seen that *Plantago maritima* does not occur until sample no. 14, i.e. 2 cm above the first occurrence of cereals. *P. maritima* has immigrated to the Faroes in the Preboreal (Jóhansen 1975) but it did not come to Mykines until the cereal growing had started. Pollen slides containing thousands of pollen grains were examined, and not a single pollen grain of *Plantago maritima* was observed until sample no. 14. The purpose was then to get a reliable date for the first occurrence of *P. maritima*, and I shall describe the result of this work briefly.

## The locality North of Uldalíð, the profile, pollen diagram and radiocarbon datings

North of a place called Uldalíð, there is a flat area which is covered with blanket peat. From an open section in this bog, I took a series of samples for pollen analysis and radiocarbon datings. The profile was 121 cm consisting of uniform brown peat. There was much gravel in the uppermost 85 cm. The pollen diagram in fig. 6 shows the local vegetation with the usual dominance of *Poaceae* and *Cyperaceae*. The curve of the greatest interest is the *Plantago maritima*. I could be ascertained that *Plantago maritima* did not occur below a depth of 83 cm. The radiocarbon datings are listed below, and the depth of 83 cm lies between the ages AD 740 and AD 460. From this we must conclude that *Plantago maritima* was introduced to Mykines at about AD 600. This ought to be the approximate age of the first appearance of cereals at Lambi because there can be no doubt that *Plantage maritima* spread over this little island (10 km²) in a very short time, when first introduced.

| | | | | |
|---|---|---|---|---|
| K-2935 | Depth | 11- 14 cm. | $C^{13} = \div 25.4‰$ | 180 ± 65 BP<br>Cal. 1660 AD |
| K-2936 | Depth | 39- 42 cm. | $C^{13} = \div 25.8‰$ | 480 ± 70 BP<br>Cal. 1430 AD |
| K-2937 | Depth | 79- 82 cm. | $C^{13} = \div 26.3‰$ | 1230 ± 70 BP<br>Cal. 740 AD |
| K-3066 | Depth | 83- 86 cm. | $C^{13} = \div 25.4‰$ | 1510 ± 70 BP<br>Cal. 460 AD |
| K-2938 | Depth | 100-103 cm. | $C^{13} = \div 25.9‰$ | 2430 ± 75 BP<br>Cal. 560 BC |
| K-2939 | Depth | 116-119 cm. | $C^{13} = \div 26.2‰$ | 3550 ± 85 BP<br>Cal. 1975 BC |

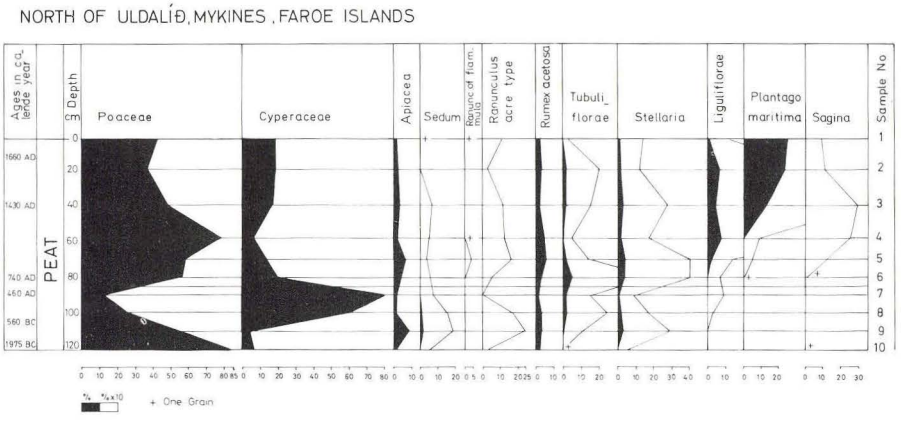


*Fig. 6.* The pollen diagram from North of Uldalíð.

## Archaeological Aspects

In the year AD 825, an Irish clergyman named Dicuil wrote a book called DE MENSURIS ORBIS TERRAE, which means »The dimensions of the earth.« In that book he writes (in translation):

».... There are many other islands in the north British sea. They can be reached from the northern islands of Britain by sailing for two days and two nights on a straight course under full sail if the wind is favourable the whole time. A devout priest has related to me that he navigated this route in two summer days and the intervening night, in a small boat with two thwarts, and landed on one of the islands. These islands are for the most part small, and there are mostly narrow sounds between them, and in these islands hermits, come from our Scotland (i.e. Ireland) by boat, have lived for almost a hundred years. But as they have always been uninhabited from the beginning of the world, so have Norwegian vikings caused them to be devoid of monks, but sheep are abundant and there are different kinds of sea birds. I have never seen these islands mentioned in the books of other authors.«

Researchers (e.g. Brøgger 1937) agree that these islands must be the Faroe Islands. The problem until now has been that no traces of these men have been found.

In 1971, I studied a peat bog in Tjørnuvik, Streymoy, where I found a layer which clearly reflected human influence (Jóhansen 1971). Three C-14 datings were made of the layer, and they were of the age AD 650 $\pm$ 100, AD 620 $\pm$ 100, and AD 600 $\pm$ 100. No old fields were observed.

In Mykines, we have definite evidence of cornfields. I find it important that we can say that these fields were made by the monks. This must be the case when the age is taken into consideration, and it means that for the first time in the Faroes we have a definite proof of these men who were previously known from the book of Dicuil only.

## Summary and Conclusion

The facts mentioned in this paper can be summarized as follows:

1. The areas in question at Lambi, Mykines are former corn fields.
2. The cereal growing started about AD 600.
3. The cereals grown were, first *Avena*, then *Hordeum*, and later the fields were abandoned.
4. It is concluded that Irish hermits started the growing of *Avena*.
5. It is assumed that the growing of *Hordeum* was made by the Nordic settlers but this layer can not be dated.

*Acknowledgements.* The first to recognize these old cornfields was Dr. *Sverri Dahl,* antiquarian in Tórshavn. He found them so much resembling fields he had seen in Ireland that he connected them with the Irish hermits, who the above mentioned Dicuil had written about. Dahl's first observation was in 1947. *Dahl* has written about his theories (1968 and 1970). He later asked me to make a botanical and pollen analytical investigation of these localities and the present paper deals with one of them. I wish to thank *Sverri Dahl* for directing my attention to this problem, for encouragement and many inspiring discussions, on this subject.

I wish to thank Professor *P. V. Glob* for permission to use his material. The C-14 datings were made by Dr. *H. Tauber.*

## Dansk sammendrag

Artiklen omhandler en undersøgelse forfatteren har gjort på Mykines, Færøerne. Det drejer sig om nogle arealer, der tilsyneladende engang har været dyrket. Ved hjælp af pollenanalyse blev det konstateret, at felterne er gamle kornmarker. Målinger af annulus diameteren på et antal græspollen i profilet viste, at der først har været dyrket havre, senere byg og senere igen er al dyrkning ophørt. Alderen på korndyrkningens begyndelse er C-14 dateret til ca 600 e.Kr., hvilket er før nordboernes bosættelse. Det konkluderes derfor, at markerne er anlagt af irske munke, som ifølge en irsk præst, Dicuil, skal have holdt til på øerne, indtil de blev fordrevet af vikinger. Den senere dyrkning af byg formodes at være foretaget af nordboerne, men dette lag kan ikke dateres.

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