A Palaeobotanical Study Indicating a Previking Settlement in Tjørnuvík, Faroe Islands

Gróðrafrøðiligar kanningar, sum vísa á eitt eldri landnám enn norrønt í Tjørnuvík

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Introduction. This paper deals with some investigations involving pollenanalysis the author has made in Tjørnuvík during the last three years. Tjørnuvík became prominent in 1955—56, when a number of graves which could be dated back to the viking age were found there (Dahl & Rasmussen 1956). No traditions had indicated that Tjørnuvík was such an old village — on the contrary, it was generally supposed to date back to late medieval times.

The investigations were made in order to determine the vegetational development of this site during the last ca. 2.000 years. From radiocarbon — dated pollen diagrams, it should be possible to find out when Tjørnuvík was first colonised. The viking age graves of course gave only the minimum age of the village. The result of my work, which I present here, was unexpected. It showed that Tjørnuvík was colonised about 600—650 A.D.

The locality. Tjørnuvík is a little village in the northernmost part of Streymoy (fig. 1). It is situated on a short fjord which faces the open ocean. As can be seen from the photographs (figs. 3, 4, 5), Tjørnuvík is surrounded by high, extremely steep mountains. Only in the bottom of the fjord is there a

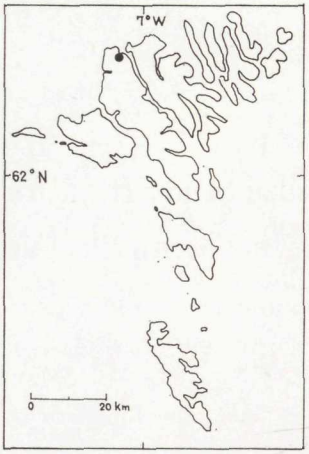

Fig. 1. *The Faroe Islands. Tjørnuvík is indicated by a black dot.*
1. mynd. *Tjørnuvík avmerkt á Føroyakorti.*

flat area, where the village and the hayfields lie. Diggings were made at different places in the fields and the profiles consisted of peat with layers of sand and gravel. These gravel layers were deposited by the rivers, which have now and then flooded and spread their material over the lower areas. The depth of the peat in the middle of the flat area is not known — my diggings stopped at ca. 2.5 m. Seeds of Menyanthes among others, showed that the lower part of the peat was formed in open shallow water — a "tjørn". In landnam and later times Tjørnuvík has had many small lakes. This explains the name of the village, where there are no "tjørn"s today.

The sampling site is seen in fig. 2. The surface is situated ca 5.5 m above sea level. The depth of the landnam horizon varied between 160 and 195 cm in different places.

Methods. The material was collected partly with a Hiller peat sampler in 1968 and partly from open profiles in 1970 and '71.

The samples for pollen analysis were treated according to

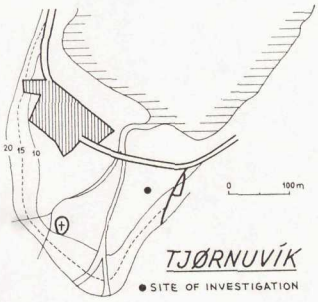

Fig. 2. *Site of investigations.*
2. mynd. *Kanningarstaðið.*

Fægri and Iversen's textbook, with some modifications. Instead of boiling the samples directly over a gas flame, a waterbath was used. The samples were kept the whole time in a "polyallomer" centrifuge tube, which could take all the liquids that were nessesary: KOH, HF, HCl, CH_3COOH, $(CH_3CO)_2O$, H_2SO_4, alcohol and benzol. The samples were mounted in silicone oil.

Samples for macrofossil analysis were put into HNO_3 for about two days and then washed.

Diagram 1 (Plate 1). The material is peat with much sand. It consists mostly of remains of Cyperaceae and Pteridophyta. From 162 to 166 cm. there is a layer of gravel. This layer is the result of a flood — although a small one. Its effect is seen in the local vegetation: Sedum — no doubt villosum, which favours sandy and gravelly ground, has a large maximum, but disappears when humus again covers the gravel. Bottom was reached at 250 cm. — probably solid rock.

The diagram in general. The pollen diagram shows the vegetational changes which have taken place in Tjørnuvík during the last ca. 2.000 years. The most common plants before the settlement are ferns. The different species of Filicales are not separated in this diagram, but Dryopteris filix-mas and Athyrium filix-femina are supposed to predominate. Con-

Fig. 3. *Aerial photograph of Tjørnuvík.*
3. mynd. *Loftmynd av Tjørnuvík.*
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ditions in the moist and stony terrain are ideal for these plants and they are still very common in the uncultivated areas in Tjørnuvík. Gramineae and Cyperaceae are important as well. The Juniperus curve is noteworthy — there is about 2—4 % of it before the settlement.

At the settlement horizon many changes occur. The grass curve is rising and grasses soon become the largest pollen producers, no doubt because the inhabitants laid out hayfields; consequently the Cyperaceae decline because of drainage. Some other plants which were growing in Tjørnuvík but were rare

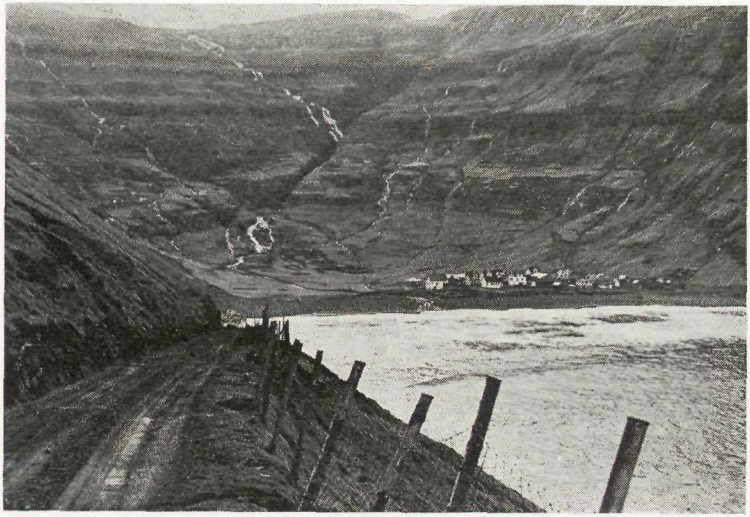

Fig. 4. *Tjørnuvík.*

before the settlement, become very common. This is especially the case with Rumex acetosa, but also with Plantago lanceolata and Tubuliflorae (probably Bellis perennis). New are Rumex sp. (R. longifolius and R. obtusifolius). Important is Cerealia pollen, which occurs at the same level (see below). Juniperus disappears, no doubt having been used for fuel. Today Juniperus is absent from the northern parts of Streymoy and Eysturoy (Hansen 1966).

Whether some other plants were affected by the settlement is not easy to say, though it is very probable. The abovementioned plants seem to be the most reliable landnam indicators (See also Macrofossil analysis). When investigations are made in other places, and a larger body of material obtained, we will perhaps have some more "settlement plants".

Diagram 2 (Plate 2). The material for this diagram was taken from an open profile. This was made in order to get samples for radiocarbon datings. Once again the material is peat with much sand. At 170—175 cm there was a layer of

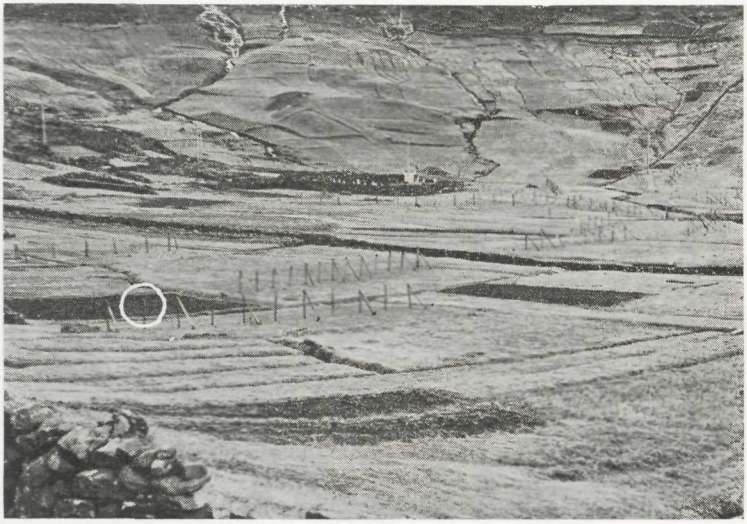

Fig. 5. *The hayfields of Tjørnuvík. The site of investigations is indicated by a white circle.*
5. mynd. *Bøurin í Tjørnuvík. Kanningarstaðið er víst við einum hvítum ringi.*

almost pure moss. The moss has kindly been identified by Mr. Kell Damsholt of the Botanical Institute, Copenhagen as Calliergon giganteum. Seeds of Menyanthes among others, show that there has been open shallow water at this place — a "tjørn".

This pollen diagram is a little different, because of the much wetter conditions. The Cyperaceae are more predominant than in the first diagram, while ferns — here separated into Dryopteris and Athyrium — are more moderately represented.

The settlement indicators are, however, the same. Juniperus disappears, Cerealia, Rumex longifolius and R. obtusifolius are introduced. Rumex acetosa and grasses become more prevalent while Cyperaceae become less common. Some other settlement indicators are mentioned under macrofossil analysis.

Comments on some of the plants. Cerealia. The cereal pollen types are identified mainly by their size, which is about 37—

45 my. Among these large pollen grains there is a certain degree of variation, which might be due to occurrence of Elymus arenarius. If this is so, Elymus would also have been introduced by man, because the large pollen grains are not found earlier. The corn which has been cultivated in the Faroes up to the present time is Hordeum vulgare. Elymus, which in Iceland has been grown as a corn plant (see e. g. Grøntved 1942), has not been cultivated in the Faroes as far as we know. It is only present in a few places and is absent in Tjørnuvík today.

Urtica. Urtica dioica has in an earlier work (Jóhansen 1968) been demonstrated to be a native member of the Faroese flora. It is much favoured by man and is today found only in inhabited areas.

Geranium (sylvaticum). Pollen of this plant is found under the settlement horizon, and it is probably native to the islands.

Plantago lanceolata. Pollen grains of this plant are found long before the settlement that is demonstrated here. Up to now it has not been found in the Faroes in deposits older than ca. 1000 B.C. The history of this plant and its relationship to a possible older settlement will be treated in a future work.

Not all the plants which have been included in the pollen sum have been included in the diagram, for instance arboreal pollen which originated outside the Faroes, and plants which are represented only by some scattered pollen grains with no affinity to the settlement. Examples of this group are Empetrum, Thalictrum, Polypodium, Selaginella and others. Excluded from both the pollen sum and the diagram are Menyanthes, Potamogeton and Sphagnum. They occur only in small quantities.

Macrofossil analysis. From the open profile, samples were taken for macrofossil analysis. It has not been possible to make any systematic studies to present in this publication; only a few — not unimportant — facts have been obtained. As mentioned above, it has been possible to identify Rumex

longifolius and R. obtusifolius from their fruits, which are numerous from the landnam horizon up to present day. Interesting also is the large amount of Montia seeds, which are found starting from just above the settlement level. Their presence is another proof of the landnam, as it is an indicator of contamination. It clearly favours wet places which are manured by animals or people. Strangely enough, only a few pollen grains are encountered.

Other local plants which are represented by their seeds are Menyanthes, Caltha, Ranunculus flammula, Carex sp. These plants are also found under the settlement horizon.

Apart from seeds, small pieces of peat, either burnt or often only dried, are found regularly after the landnam and indicate how important peat was as fuel. No charcoal layers are found.

Several operculi of some marine snails are found above the settlement horizon. Whether they were thrown there by people or have blown from the beach, we cannot know.

The macrofossil analyses will be continued; they are of great importance in this area, where the number of plants which can be identified specifically by their pollen is so small.

The radiocarbon datings. In the second profile (Plate 2), two samples were radiocarbon — dated: the above-mentioned moss layer and the landnam horizon. The result is seen in the pollen diagram. The earliness of the landnam was unexpected; it was a priori supposed to be viking age, as the graves are. Two new samples were therefore taken as a control. The landnam horizon was found by pollen analysis, and the two samples were taken a few metres away from the two previously dated. The result was: 650 A.D. $\pm$ 100 years and 620 A.D. $\pm$ 100 years.

From these datings of the landnam horizon we must conclude that Tjørnuvík was colonised sometime between 600 and 650 A.D.

Archaeological aspects. The Faroe Islands are mentioned for the first time by the Irish clergyman Dicuil, who in 825 A.D. wrote a geography: DE MENSURIS ORBIS TERRAE (On 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 munks, but they are full of innumerable sheep and many different kinds of sea birds. I have never seen these islands mentioned in the books of other authors."

Historians and geographers agree that the islands Dicuil here mentions must be the Faroes. A natural assumption would then be that the settlement in Tjørnuvík was made by these men. In that case, however, they must have come about 100 years earlier than Dicuil says, or alternatively, the radiocarbon datings are too early.

Of course, radiocarbon datings cannot be regarded as historical dates. I am, however, not inclined to believe that the datings are too early, since the material which was used for dating was peat. Investigations will now be instigated at other sites in the Faroes.

It now remains to find some objects left by these inhabitants. This is a job for the archaeologists, but I would like to stress again that Montia seeds are abundant just above the settlement horizon. It might indicate, in my opinion, that buildings of some sort — for animals or people — were located not far

from the sampling site. The other macrofossils point in the same direction.

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ÚRTAK

Hesi seinastu árini (1968—71) hava gróðrafrøðiligar kanningar verið gjørdar í Tjørnuvík. Endamálið við kanningunum var at vita, hvussu gróðurin hevur tikið seg upp har á staðnum seinastu 2000 árini og at vísa á eina møguliga ávirkan av fornari búseting. Rannsóknarstaðið, sum sæst á myndunum, var upprunaliga tjørn.

Úrslitið av kanningunum var óvæntað og vísir, at fólk hevur búsett seg í Tjørnuvík longu 600—650 e. Kr.

Rannsóknirnar vóru gjørdar lutvís sum sáðgreining (pollenanalysa) t. e. kanningar av sáði ella flogi (pollen), sum er fokið út í tjørnina og lutvís sum kanning av fræi og øðrum plantuleivdum.

Tvær sáðstrikumyndir (pollendiagram) eru vístar á 1. talvu og 2. talvu. Á teimum sæst, hvørjar broytingar í gróðrinum eru farnar fram frá elsta gróðrinum á staðnum til dagin í dag. Serliga er at leggja til merkis landnámsstrikuna (landnam horizon). Á hesum dýpi fer tann broyting fram gróðrinum viðvíkjandi, sum ger, at vit kunnu siga, at fólk tá er komið á staðið. Broytingarnar eru í stuttum hesar: korn sæst fyrstu ferð, sama er við ókrúti sum hømliu. Leggsýra (sýruleggur) og jóansøkugøtubrá gerast sera vanlig. Grasmongdin økist nógv av tí, at bøur verður veltur; av somu orsøk fækkast vátlendisplanturnar. Baraldur hvørvur — hevur óivað verið nýttur til at brenna.

Væl av fræi er eisini funnið, men hesar kanningar eru ikki loknar enn.

Við C-14 aldursmáting er gjørligt at siga, nær umleið henda búseting er farin fram. Tríggjar mátingar av landnámsflánni góvu hesi úrslit: 600 e. Kr. ± 100 ár, 650 e. Kr. ± 100 ár og 620 e. Kr. ± 100 ár.

Dicuil nevnir, at írskir munkar hava búð í Føroyum frá umleið 725—750 og til okkurt um 800 e. Kr. Búsetingin í Tjørnuvík kann kortini hava verið gjørd av hesum monnum, men um so er, hava teir verið her eini 100 ár undan tí tíð, sum Dicuil nevnir.

Tann møguleiki er eisini til staðar, at C-14 mátingarnar vísa ov høgan aldur, men hetta er minni trúligt, tí vit hava tríggjar og tilfarið til mátingarnar var mógvur, ið vanliga gevur ein eitt sindur ov lágan aldur.

Nú er eftir at ynskja, at fornfrøðiligar leivdir eftir hesi eldri búseting verða funnar. Í hesum sambandi kann eg vísa á, at týðulig dálking er hend av tjørnini (vatnsarvi, torvmold o. a.). Tí er tað trúligt, at búplássið hevur ligið tætt við kanningarstaðið.

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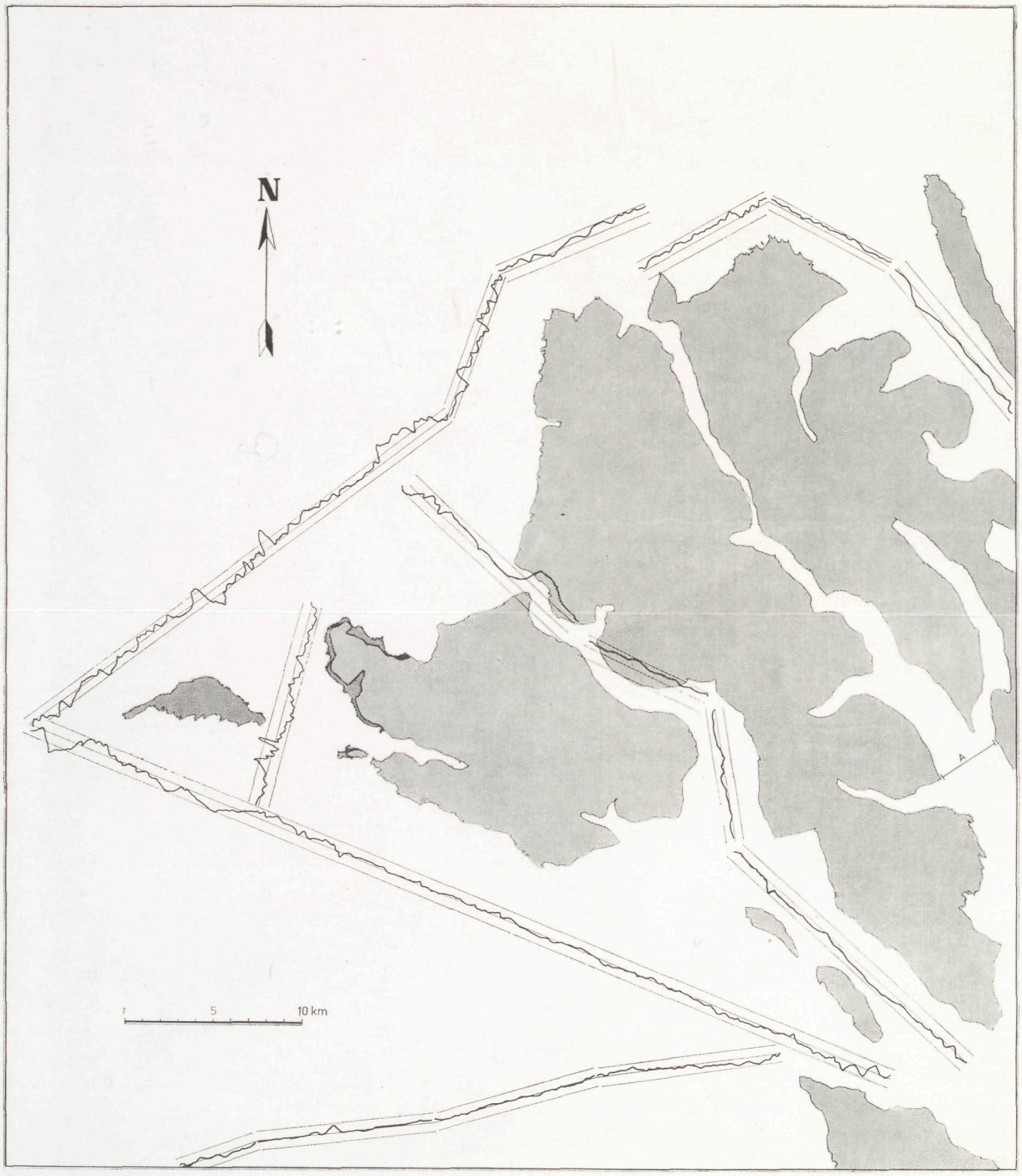

Plate 1. *Some of the magnetic profiles in the northwest. The three thin lines enveloping the anomaly profiles are the levels of 50000, 50500 and 51000 gammas. The contrasting of the anomaly pattern over the lower and middle series show up clearly.*