

# Meddelelser om Grønland

**Narsaq - a Norse *landnáma* farm**

*C. L. Vebæk*



**Man &  
Society  
18 · 1993**

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# Narsaq – a Norse *landnáma* farm

*C. L. Vebæk*

with contributions by

*M. Stoklund, P. Walton Rogers, E. Østergård, Th. H.  
McGovern, G. F. Bigelow, Th. Amorosi, J. Woollett &  
S. Perdikaris*

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# Preface

As I have mentioned in my publications in *Man & Society* (*Meddelelser om Grønland*) in past years, I had planned to publish four books in this scientific (historical-archaeological) series, so I could present to my colleagues in Denmark, Greenland and other countries the main results of the four major projects I carried out in Greenland many years ago (from 1945 to 1962, with some breaks). So far I have produced two of the planned books (Vebæk 1991a, 1992). My third book deals exclusively with my excavations of the Norse farm Ø 17a at Narsaq in the Eastern Settlement in the years 1954, 1958 and 1962. I greatly regret that so many years have passed before this final work on what I believe to be a very important excavation has been written and published. There were many reasons for this – especially lack of time, as I had other duties at the Danish National Museum dealing with prehistoric Danish finds (I was for many years an assistant keeper at the Department of the Danish Prehistory); so for a number of years I could not concentrate on my Greenland material. But thanks to my notebooks, drawings and photos, and what I can still remember from the excavations – and of course with the aid of the many objects found – I succeeded in finishing this book at the beginning of the nineties.

It will easily be understood, however, that such a large-scale project, and what was in many ways a very difficult task, could only be achieved with the cooperation of many others. So I asked colleagues here in Denmark and in other countries to give me some help, and they did so most willingly, as will be seen in the various chapters of this book. I have a number of people and institutions to thank for important aid, but let me start by thanking the young Greenlanders from Narsaq and elsewhere who assisted me in the field. Then I must thank the young historian who helped me then – Henrik Jansen, now a museum curator in Svendborg – for his valuable assistance in the last summer we worked at Narsaq (1962). In the other years I was actually the only archaeologist – and the only scientific researcher – on the project, which of course made it difficult to obtain the best results. And then of course I must thank the Commission for Scientific Research in Greenland for entrusting me with this important project; in this connection I want to thank the editor of *Man & Society*, H.C. Gulløv, for excellent, frictionless cooperation. I am also most grateful to my old friend Professor Olaf Olsen, State Antiquary and Director of the Danish National Museum, for all his support, not least financial, when the finds were to be published. I am also most

grateful to the Carlsberg Foundation for a personal grant, and to the Velux Foundation, which helped me (through the Commission for Scientific Research in Greenland) with a grant to have the book printed at a time when we were short of financial support.

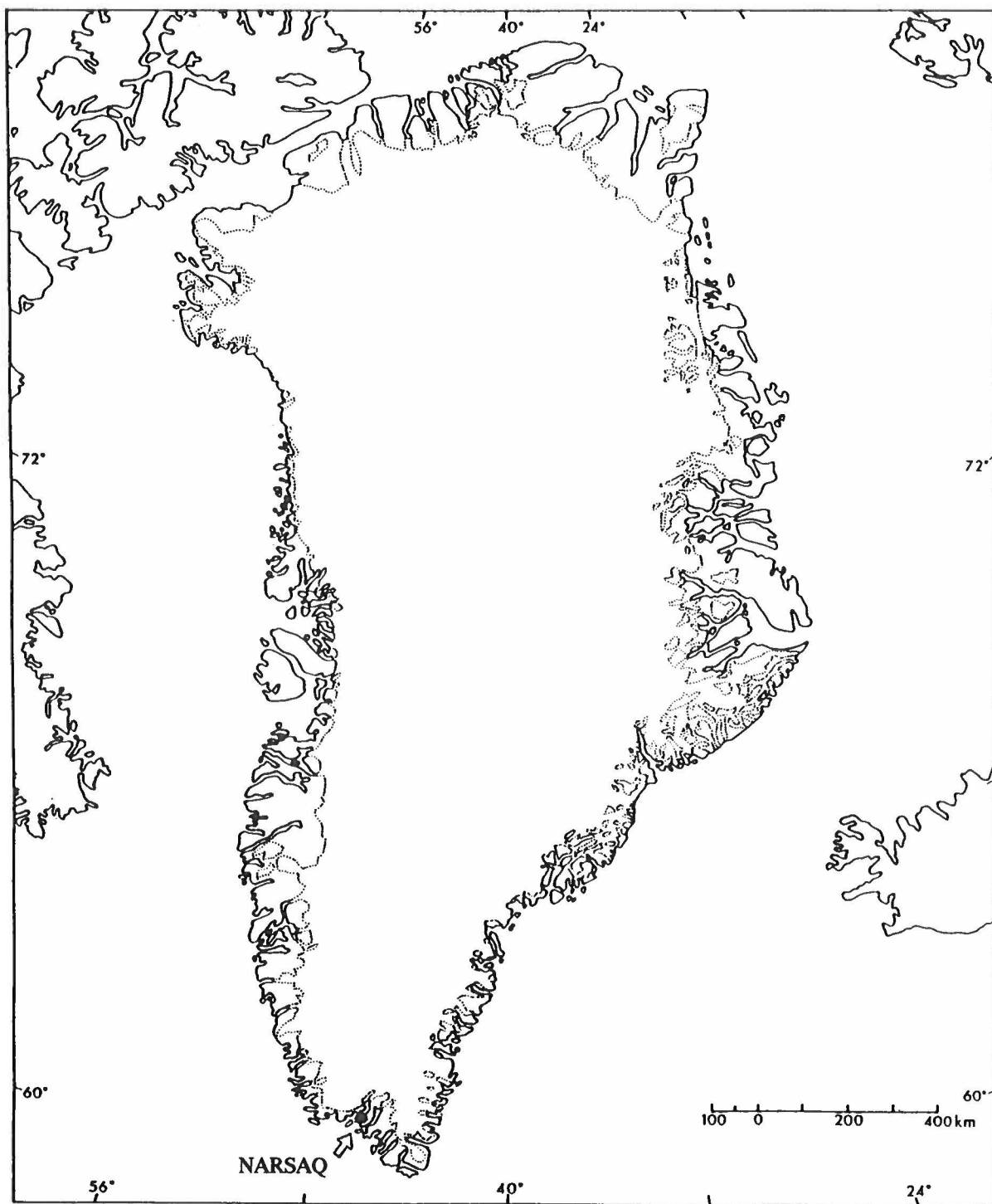
Many individuals as well as institutions have given me (and my collaborators) most valuable help. Among the many I can mention are the staff of the local museum in Narsaq who gave me much-needed help with some important field measurements, and the Radiocarbon Laboratory of the Danish National Museum, which gave me the information on the results of the radiocarbon datings of the lower, oldest cultural layers in Narsaq. I have published this most important material in a special chapter. As in my previous publications in *Man & Society*, Helga Schütze, Assistant at the Danish National Museum, has made the fair copy of my manuscript.

I must not forget to mention – and warmly thank – the whole team that has contributed directly to this book by producing special chapters – no less than eight persons: the Danish runologist Marie Stoklund, the English textile expert Penelope Walton Rogers, the Danish textile specialist Else Østergård, and the five American zoologists Thomas H. McGovern, Gerald F. Bigelow, Thomas Amorosi, James Woollett and Sophia Perdikaris. The names of my collaborators are mentioned in the appropriate chapters of the book. Where nothing else is indicated, the text was written by C.L. Vebæk.

All the photos and drawings taken and done in the field are the work of C. L. Vebæk. The photos of objects taken at the National Museum are by Kit Weiss, Roberto Fortuno, and the late Lennart Larsen. The drawings of the textiles were done by Irene Skals, and the map of the Narsaq area by Henning Ørsnes. I would like to take this opportunity to thank all those who have contributed to the illustrations in this book – this work is just as important to the final publication as is the text.

Finally – but not least – I want to express my warmest thanks to my dear wife, Mâliâraq, for her invaluable contribution to this book, for all her care and inspiration over the years.

The National Museum  
November 1992  
C. L. Vebæk





# Narsaq – a Norse *landnáma* farm

C. L. VEBÆK

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This publication only deals with the archaeological results of the excavations which the author carried out at the Norse farm registered as Ø 17a, Narsaq, in the Norse Eastern Settlement. The excavations took place in the years 1954, 1958 and 1962, and although three expeditions were devoted to this farm alone, we actually only succeeded in excavating the dwelling of the farm. The author very much regrets that the whole farm was not investigated. But it gives me some satisfaction to be able to say that the results of the excavation of the dwelling can be considered very important and interesting. We were able to ascertain that the dwelling was a long-house with rooms in one single row, and that it represented (at least) two building periods, and very possibly more. Furthermore, we found in the house a quite unique combined water-supply and draining system for the rooms, representing two or three building periods. Among the many finds of objects of all kinds there were a number made of wood and stone with runic inscriptions – among them a unique, very long rune-stick. Besides the objects with runic inscriptions there were quite a number of fragments of textiles – some of them never seen before in Greenland – and there were many ornamented objects of bone, tusk and wood. Among the tools and weapons there was a fine series of arrowheads of caribou antler. A considerable number of the objects found permit a dating in the late Viking/very early medieval age – in other words the *landnáma* period. And this dating (c. 1000 AD) is confirmed by radiocarbon analyses. Finally it must be mentioned that there were also a great many animal bones.

It will easily be understood that this comprehensive material needed the cooperation of several specialists, so there will be separate sections in this book: on runic inscriptions, on textiles, on radiocarbon datings and on animal bones. My collaborators have been Marie Stoklund and Else Østergård from Denmark, Penelope Walton Rogers from England, and Thomas H. McGovern, Thomas Amorosi, Gerald Bigelow, James Woollett, and Sophia Perdikaris from the United States.

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## The topography of Ø 17a, and the history of the locality

In 1894 Captain Daniel Bruun carried out an intensive topographical survey of the Julianehaab District – the medieval Norse Eastern Settlement in South West Greenland – combined with a number of minor and major excavations in the same area. Of course Daniel Bruun based his work on the results obtained by others

before him – especially Gustav Holm, who worked here in 1880 (Holm 1893) – but also on information from *Grønlands Historiske Mindesmærker* (1838ff). Daniel Bruun published his finds and observations in *Meddelelser om Grønland* (Bruun 1895). He registered all the Norse ruins known until then in the Julianehaab District, including those found by himself. Although the map material at his disposal was not the very best he worked out an archaeological-topographical map of the Eastern Settlement (except for the southernmost part from Nanortalik southwards). Each locality was marked



Fig. 1. View from the SW towards Narsaq. – The ruins of the Norse *landnåma* farm Ø 17a are situated near the middle of the photo, just below the Mt. Qaqqarsuaq and very close to the sea (photo, C. L. Vebæk, 1962).

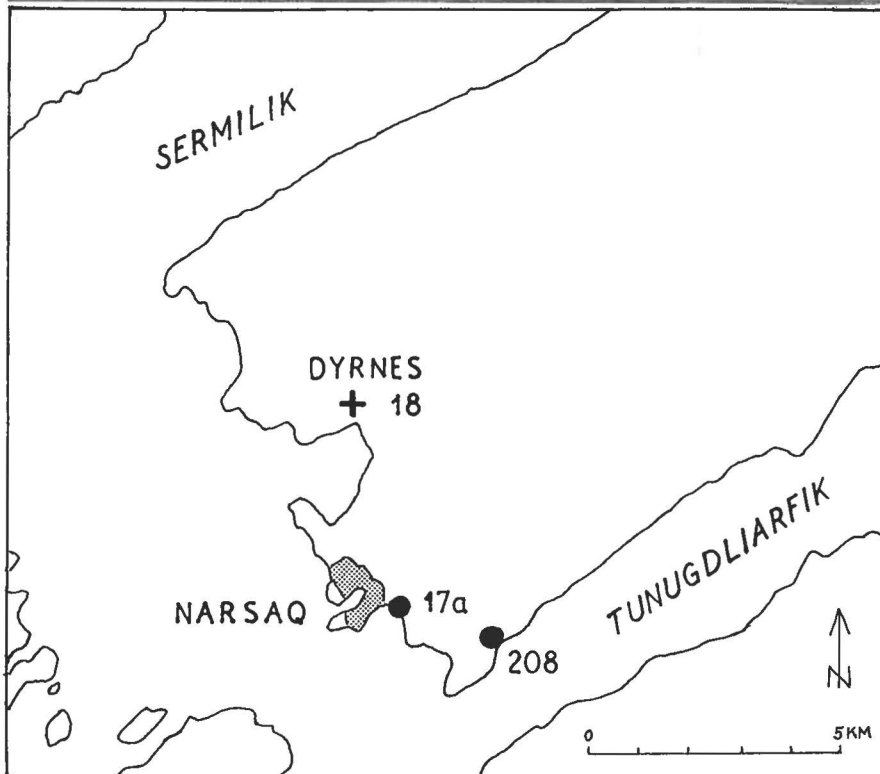
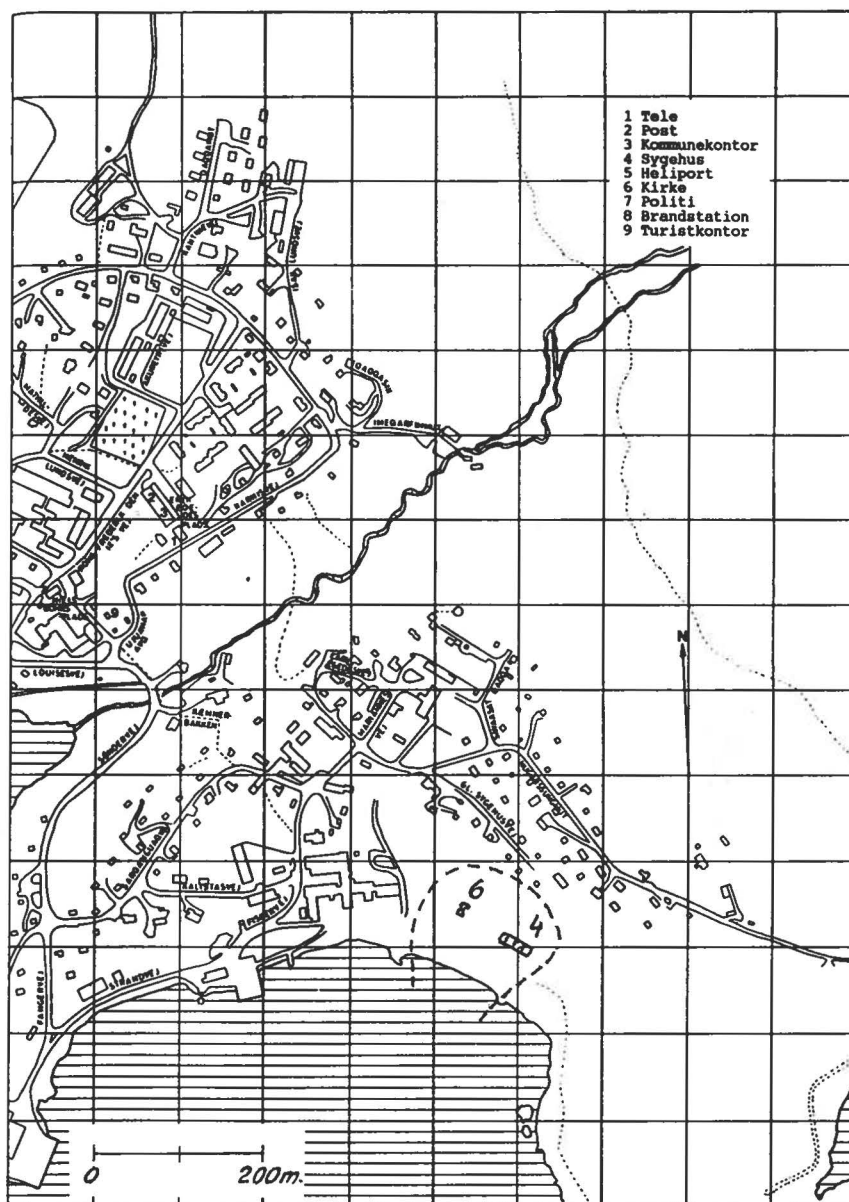


Fig. 2. Map showing the western part of the peninsular between the fjords Tunulliarfik and Sermilik, with Narsaq and the Norse ruins known in this area (drawing by Henning Ørsnes based on a map produced by the Danish Geodetic Institute).

Fig. 3. Map of the southern and eastern part of Narsaq. The *landnáma* farm is on the plain of Saqqaaq, south of the factory and west of some (recent) private houses. (Information from the local telephone book, 1985.) The approximate limits of the farm are indicated by broken lines.



with a dot, or – if it was a farm with a church – with a cross. The register started with Ø 1 (Eastern Settlement), and this method of numbering the Norse ruins continued to be used until a few years ago, when a new system was adopted (cf. the published concordance of Norse site designations in Berglund 1986: 129–133).

In 1903 Daniel Bruun carried out a similar registration of the Norse ruins in the Western Settlement (marked V 1, V 2 etc.), and in what was later called the “Middle Settlement” (around Arsuk-Ivittuut), where the sites were numbered M 1, M 2 etc. Daniel Bruun

published the results of these surveys carried out in 1903 in *Meddelelser om Grønland* (Bruun 1917).

After Daniel Bruun’s archaeological-topographical activity in the medieval Norse settlements in Greenland, the work was continued in 1910 by Mogens Clemmensen, who concentrated on the churches, first and foremost Hvalsey Church (Clemmensen 1911), and in the twenties and thirties by Poul Nørlund and Aage Rousell, who added greatly to our knowledge of the medieval Norse settlements in Greenland – especially by carrying out a number of large-scale systematic excavations at the “classical” sites: “Herjolfsnes”, “Gardar”, “Brat-



Fig. 4. A view from the NW over the ruins of the *landnáma* farm. Behind the tents lies the dwelling (Ruin No. 4). In the foreground, to the left, part of the factory (photo, C. L. Vebæk, 1958).



Fig. 5. A view, roughly from the south, of the *landnáma* farm. The dwelling of the farm is just in front of the tents. In the background, the factory (photo, C. L. Vebæk, 1958).



tahlið", "Sandnes" and "Hvalsey", and the farms excavated by Roussell in the Austmannadalur (in the Western Settlement) (Nørlund 1924, 1929; Nørlund & Steenberger 1934; Roussell 1936, 1941). The work on medieval Norse Greenland was later continued by C. L. Vebæk, Knud Krogh, Ove Bak, Jørgen Meldgaard, S. E. Albrethsen, Jette Arneborg, Hans Kapel and others (Vebæk 1940, 1941, 1943, 1952, 1953a, b, c, 1956, 1958a, b, 1964, 1965a, b, 1966, 1982, 1991a, b, 1992; Krogh 1965, 1976, 1982; Albrethsen 1972, 1982; Arneborg 1991). Yet there are undoubtedly still Norse ruins to be found in the fjords and valleys, and by the lakes and rivers in Greenland – including some churches. There are certainly good prospects for coming generations of Norse archaeologists in Greenland!

But let us return to Daniel Bruun, and to a special part of Greenland: the region around Narsaq, just north of Julianehaab (Qaqortoq). Narsaq is situated at the westernmost end of the big peninsula projecting between Tunulliarfik (the Norsemen's Eiriksfiord/Skovfjord) and Sermilik (the Norsemen's Ísafjord) to the north. In Daniel Bruun's time Narsaq was a fair-sized trading out-post. Now it is a biggish town with a population of about 1800, and with a large factory (a combination of a caribou and sheep slaughterhouse and fish and shrimp cannery) (Fig. 1).

In this area Daniel Bruun only registered two Norse farms (Ø 17 and Ø 18 – both incidentally known before). Later – in 1932 – Poul Nørlund visited Ø 18, because the then leader of the agricultural experiments in Greenland, K. Christensen, had told Nørlund that he thought there might be a church there. Nørlund did some sample excavations at the spot and was able to state that Christensen was quite right: there is a church at this farm. According to the written sources there was a parish-church (Dyrnes Church) in this neighbourhood, and Nørlund was convinced that the church found at Ø 18 is Dyrnes. This identification was long unquestioned (Jonsson 1898; Nørlund & Steenberger 1934) (Fig. 2).

But in 1933 Aage Roussell was in Narsaq to survey the Norse ruins here. Like all other Norse ruins, these were protected sites. At that time protected ruins were marked by painting broad bands of red and white on a stone or two in each ruin. This method of marking protected ruins, however, turned out to be a failure, as wind and weather soon erased the marks, and after some years the system was abandoned. In Narsaq Roussell searched for the Norse farm Ø 17 – but nobody there knew of any Norse ruins. Some people, however, knew of some Norse ruins at a place called Saqqaq, just south of Narsaq. Accordingly Roussell went there, and on a small plain near the beach he found and registered a previously unknown Norse farm; it was given the number Ø 17a. The ruins were marked in what was then still the usual way. Aage Roussell drew up a short report on Ø 17a for the National Museum. According to this report there appeared to be some seven or eight

Norse ruins on the site, one of them apparently the dwelling. Roussell noticed that there were later Eskimo houses and some graves in some of the Norse ruins (Fig. 3).

In the years after World War II Greenland developed very rapidly in many ways. A number of smaller settlements were abandoned, while others – like Narsaq – grew up, and many sheep-farmers settled around what had been the medieval Norse Eastern Settlement. Substantial areas of land were also cultivated. All these developments influenced the protection of the old ruins. In some cases the ruins were undeniably an obstacle for those who wanted to cultivate and build. Accordingly the archaeologists and other officials responsible for the administration of the law on the protection of the old monuments, including myself, felt they could not be too restrictive, and in some cases, where they considered it reasonable – and where the ruins in question were not the most important, best-preserved ones – they revoked the protection of the ruins. One of these places was Ø 17a at Narsaq. The manager of the factory wanted to use the area on which the Norse farm in question was situated, which belonged to the factory, and after I had visited the place in 1950 and found the ruins rather poor – not exactly an inviting prospect for an excavation – we discontinued the protection of Ø 17a.

After a few years, however, something happened to change this. The above-mentioned K. Christensen (former head of the agricultural experiments and sheep-farming in Greenland) was now the manager of the factory at Narsaq. Christensen knew that there was a lot of fine soil in the old Norse ruins, and in the middens in front of the dwelling houses. As he needed some soil for his garden in Narsaq, he thought he might take some from Ø 17a, so he started to dig there, in 1953, at a place which looked very promising for his purposes. This was a large, completely overgrown site at the southern end of the farm – the building which later proved to have been the dwelling. Mr. Christensen was not disappointed – there was plenty of fine soil here, but to his surprise there were also a large number of Norse objects, especially wooden ones, among them a very long, four-sided stick with runic inscriptions on three of the sides. Mr. Christensen immediately understood the importance of these finds. He at once stopped further digging and he sent what he had found, carefully wrapped to the National Museum, accompanied by a short report on his digging at the site. It was immediately clear to the National Museum that these finds demanded further, systematic archaeological investigation. This task was given to me, but for many reasons (including excavations already planned at the "Middle Settlement" in 1954) I was not able to start the excavations at Narsaq until late in the summer of 1954. In fact the excavations at Ø 17a were not finished in 1954. There was a break until 1958, and even then we were not able to finish our work there – the excavation turned out to be very difficult and more complicated than ex-

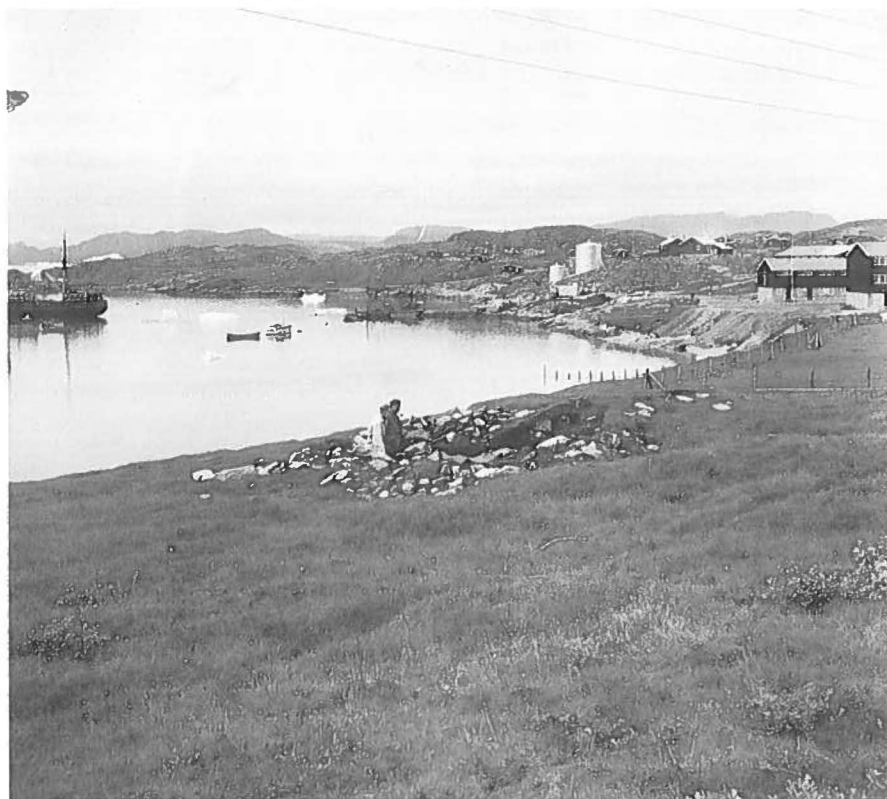


Fig. 6. A view from about SE of Ruin 4, the dwelling of Ø 17a, as it looked 1953–54, before the systematic excavation started (photo, C. L. Vebæk, 1954).

pected, and a lack of money and assisting personnel made it impossible for us to finish before 1962. And in my view the results were not as satisfactory as we had expected and wanted. We had to concentrate on the excavation of one single building: the dwelling. And since there have been no later excavations at Ø 17a, we must regrettably admit that the work there is still not complete. A temporary report published in Danish (Vebæk 1964) also appeared in Swedish, and was later translated into Greenlandic.

## The farm and its buildings

The locality where the farm is situated is a small plain with gravel subsoil, completely covered with grass – there is no bush vegetation. The plain is orientated approximately NS, following the coastline for over 3–400 m, and is here delimited by a rather steep cliff about 9 m high, partly without any vegetation. Below the cliff there is a fairly wide, completely flat beach (Figs. 4 & 5).

On this plain stands the farm consisting of about ten buildings spread over an area of some 240 × 55–70 m. Near the SE end of the plain is the main building, the dwelling (registered as Ruin No. 4). Nearly all the

ruins at Ø 17a are more or less destroyed, and in some cases it is even difficult to identify the ruin at all. In some of the ruins Eskimo houses were later built, or eskimo graves were placed. There were also traces of Eskimo activity in the dwelling – i.e. several Eskimo objects and some concentrations of seal bones – but no actual Eskimo houses were found. The plain of Saqqaq, as it is today, undoubtedly differs much from the plain that existed when the Norsemen settled here some 1000 years ago. Over the centuries much of the cliff has been broken down by weather and sea – a process which goes on to this very day. It is impossible to say with any certainty how much land has disappeared since 1000 AD, but a conservative estimate would be 50–150 m. One thing is sure: in the *landnåma* period the plain was much bigger, which means that the area was then a more inviting prospect for farming settlement than it is today. We must assume that a number of buildings have disappeared over the centuries. At present there are about ten Norse ruins at Ø 17a. These ruins are registered as Nos. 1–10 (from S to N); No. 4 is the dwelling. At the end of the excavations late in 1962 I had begun to make a complete, accurate map of all the ruins, but regrettably I did not have time to finish it. I have a sketch covering the whole farm and a description of the locality as a whole, along with the photographic material.

As mentioned above, our archaeological activities at

Ø 17a mainly concentrated on the excavation of the large dwelling (No. 4). This building was so interesting, however, and yielded such good results that the efforts expended on this excavation cannot be wasted. It was a very difficult excavation, and allowances may perhaps be made for this when judging the mistakes we certainly made. There were also very few people working on this project – for several weeks I was actually the only person working here, and although Henrik Jansen (who assisted me in 1962), and the very few local Greenlanders, who took part in the excavation, really did their best, it was very difficult to carry out this excavation quite satisfactorily (cf. Jansen 1972: 81ff). In spite of all the deficiencies I have found it necessary to mention here I hope and believe that the positive results obtained here may be of interest, and may even be viewed as a not wholly unimportant contribution to our knowledge of the Norse archaeology of Greenland as compared with going studies in the Norse North Atlantic (cf. Arge 1991; Sveinbjarnardóttir 1992) (Fig. 6).

## The excavation of the dwelling

The ruin registered as No. 4 is situated near the southern end of the small plain, now not far from the edge of the sea cliff. Just behind this building to the south the

terrain rises considerably to what is already the lower slopes of the large mountain Qaqqarsuaq. Before the authorized excavation took place here, the site appeared in the terrain as an uneven elevation about  $45\text{--}50 \times 15\text{--}20$  m in area and 1–2 m high, almost completely covered with grass. The orientation of this mound was roughly NS. Mr. K. Christensen started digging for soil here near the middle of the site, where – during our excavation in 1954 – a large hole about  $6 \times 8$  m could be seen, and two smaller ones, all dug down to the original surface. At the sides of these holes were scattered heaps of stones and earth – and the holes themselves were partly filled with stones and earth. It all looked rather confused. To get some impression of the object we started by digging out two square holes,  $2 \times 8$  m and  $2.5 \times 3$  m as well as an area directly adjacent to the hole dug by Mr. Christensen. This actually ended our archaeological activity at Ø 17a for that year. But it was already then quite clear that we had been excavating the dwelling of the farm (Fig. 7).

In the summer of 1958 we were again able to concentrate on Ø 17a to excavate the very complex Ruin 4 consisting of four rooms all in a single row. In writing of Ruin 4 I will refer partly to the drawings, partly to the photos of different phases of the excavation. I should add that besides the published material, there are in the archives in the National Museum a number of smaller and more specialized drawings, and a great many pho-



Fig. 7. From the beginning of the excavation in 1954. The photo gives an impression of the thick, rather confused cultural layers (photo, C. L. Vebæk, 1954).



Fig. 8. From the excavation of the dwelling. In the foreground, part of Room I. The photo gives an impression of the very confused ruin, which was difficult to excavate satisfactorily (photo, C. L. Vebæk, 1962).



Fig. 9. The dwelling (mostly excavated), from the north (photo, C. L. Vebæk, 1962).



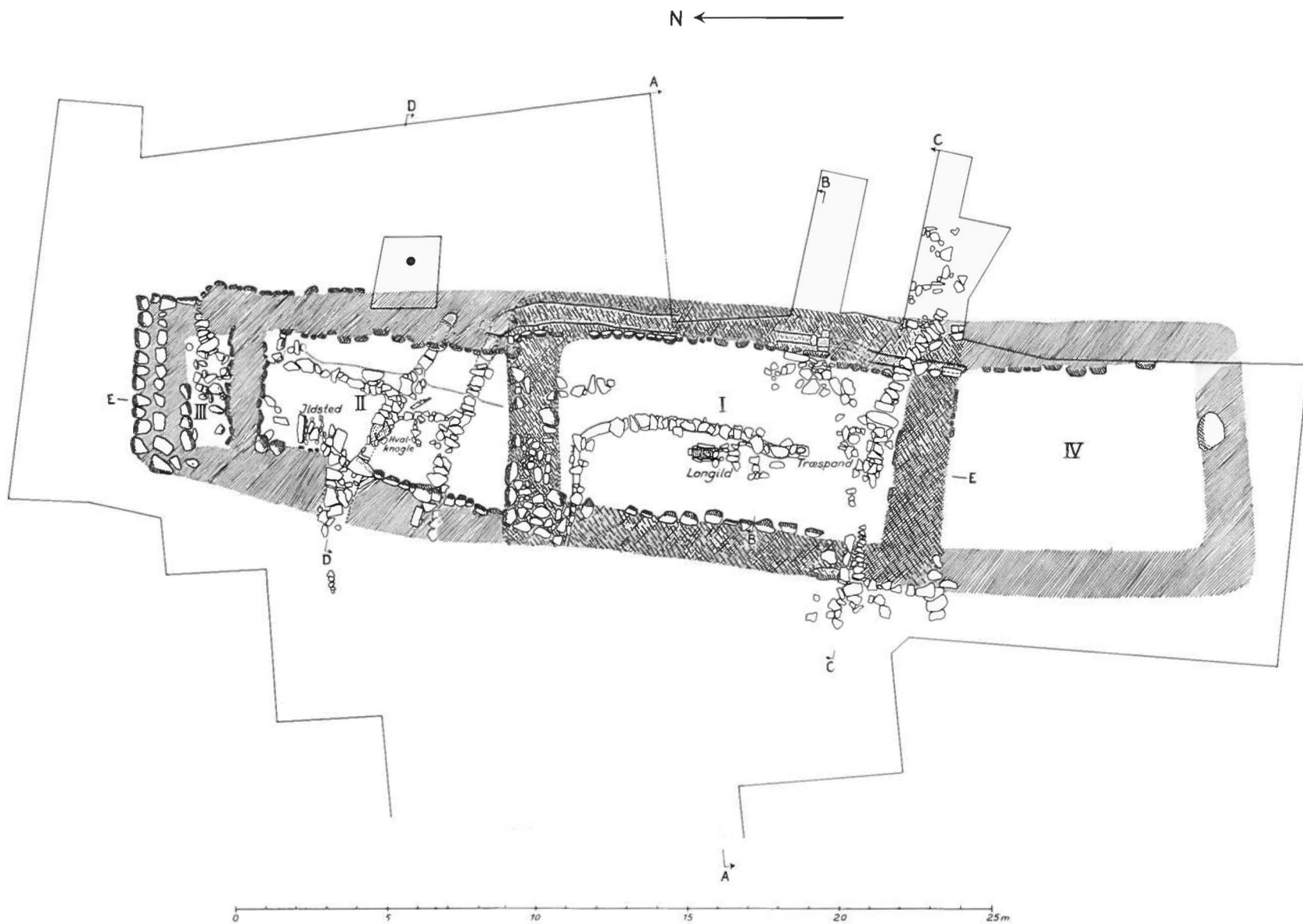


Fig. 10 .Plan A (drawing) of the dwelling (mainly the older parts of the building) (C. L. Vebæk, *del.*, 1954, 1958 and 1962).

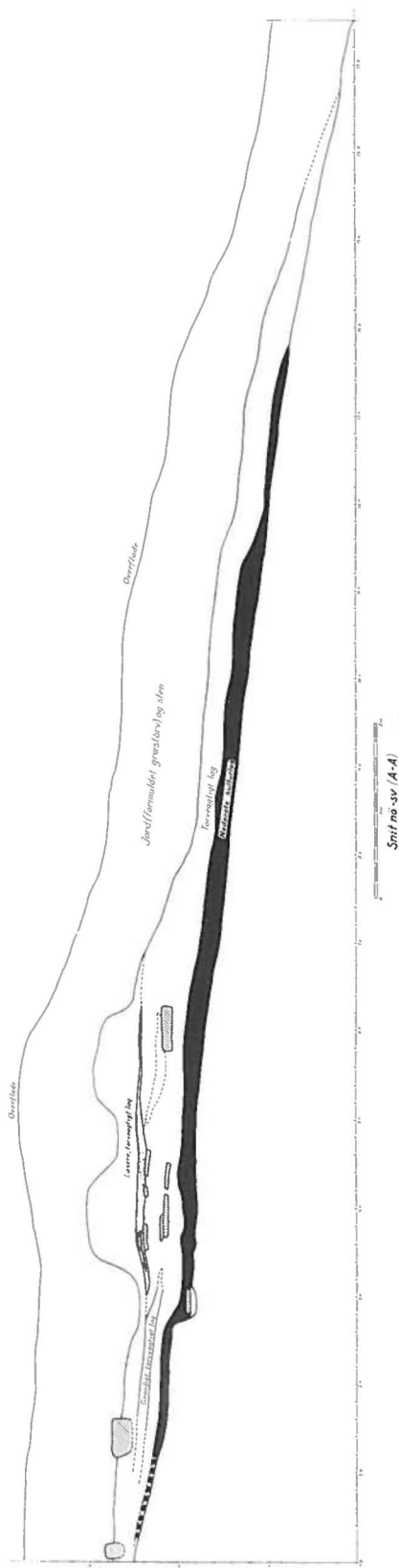


Fig. 10a. A cross-section through the dwelling (A-A). The lower, black, very rich cultural layer is clearly marked on the drawing (C. L. Vebæk, del., 1954).

tos (colour and black-and-white) for further documentation. Although the building was very poorly preserved it was possible to make some very important observations as regards the building itself and its history. Last but not least, the many finds of objects of every kind – including the animal bones – have made a very important contribution to our knowledge of early Norse settlement in Greenland. In brief, we can say that at some point the building – orientated NS – had a total outside length of 36–37 m (the thick turf cladding of the walls is not counted). The building was 6–9 m across. Although the building was very dilapidated, these measurements are relatively reliable, since the lower layers of stones – the sill – are mostly in their original position, as least in the central and western parts of the building, while the walls in the southernmost parts of the building were so dilapidated that only a few stones seemed to be in their original position – so here the measurements are not quite so reliable. This latter room – numbered IV – is most certainly a later addition to the older part of the building. The use of Room IV is uncertain. As there were no traces of any fireplace, it does not seem to have been an actual living-room, as there is generally a fireplace in such a room. But Room IV must have had a close connection with Rooms I-III.

We are in quite another situation with the definition of Rooms I and II. Not only can these rooms be safely identified, they are also relatively well-preserved in the lower courses. There were also interesting constructional details to be observed here, and we found many Norse objects; but it was also possible – from details in the walls and the whole construction – to establish that the building originally consisted of *one* single room (Room I) (Figs. 8 & 9).

Room I – the oldest part of the dwelling – and no doubt the first dwelling of the *landnámamenn* – was a comparatively big room with inside measurements of 11–12 × 5–5.5 m (Figs. 10, 10a & 11). The walls (to the outside and to the other rooms) were built in the usual way, with alternate layers of stone and turf, and were 1.5–2.0 m thick. As will be evident from the photos, it is only intermittently that more than 2–3 courses of the wall remained in situ (Figs. 12, 13, 14, 15 & 16). It was difficult to find any door in Room I, but there must have been one in the front wall, most certainly near the SW corner, in the same place where one of the water supply/drainage channels passes the front wall to disappear into the terrain west of the house (Fig. 17). Near the middle of the room there was a very fine, rather complicated fireplace, about 2.5 × 0.5 m in size, built with large flat stones at the bottom, and surrounded with smaller flat stones set on edge. The fireplace undoubtedly underwent several changes – apparently at least four – in its form and construction during the years the room was in use (Fig. 18). The floor was partly covered with slabs of different sizes – but a number of these slabs were actually covering-stones over the complicated drainage and water-supply system (described below). The slabs

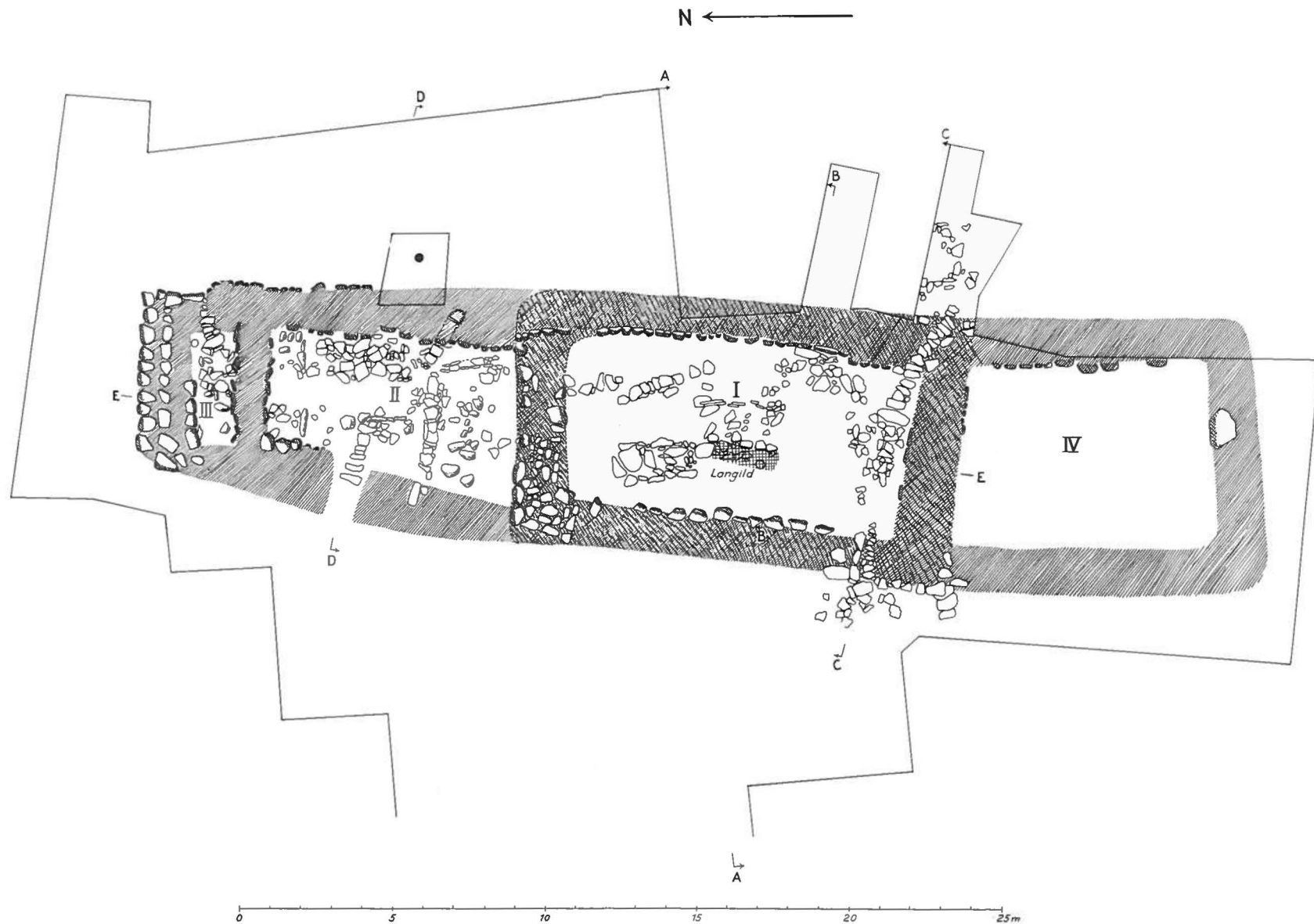


Fig. 11. Plan B (drawing) of the dwelling (a slightly later stage than plan A) (C. L. Vebæk, *del.*, 1954, 1958 and 1962).



Fig. 12. A view of the dwelling during excavation, seen from the south (photo, C. L. Vebæk, 1958).



Fig. 13. A view through most of the dwelling during excavation, seen from the north (photo, C. L. Vebæk, 1958).



Fig. 14. A view through part of the dwelling during excavation, seen from the north (photo, C. L. Vebæk, 1958).



Fig. 15. An Eskimo house built on top of a Norse ruin, situated just south of the dwelling, seen from the north (photo, C. L. Vebæk, 1962).





Fig. 16. From the southern part of Ruin 4, the dwelling, at the beginning of the excavation. Seen from the north (photo, C. L. Vebæk, 1958).



Fig. 17. A view of some of the oldest parts of the house, Room I, seen from the west. In the foreground, to the left, the outlet of the large, angled water channel can be seen; in the middle of the photo, the NS-running part of the same channel. In the background, the very dilapidated back wall. Seen from the west (photo, C. L. Vebæk, 1958).

Fig. 18. Part of Room I, the oldest part of the building. To the left, the water channel, still covered with slabs. To the right, the fireplace. Seen from the north (photo, C. L. Vebæk, 1962).



Fig. 19. The outlet of the EW drainage channel in the southern part of Room I. Seen from the west (photo, C. L. Vebæk, 1958).

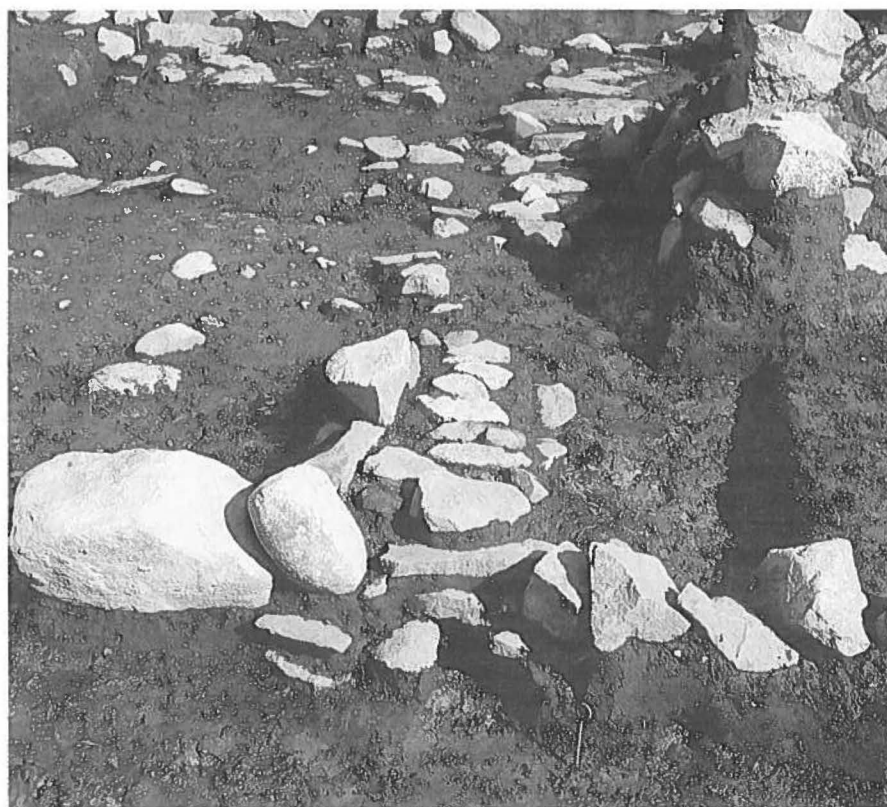




Fig. 20. The northern part of the dwelling, with Room III and the well-preserved sill (foundation stones), seen from the NE (photo, C. L. Vebæk, 1958).

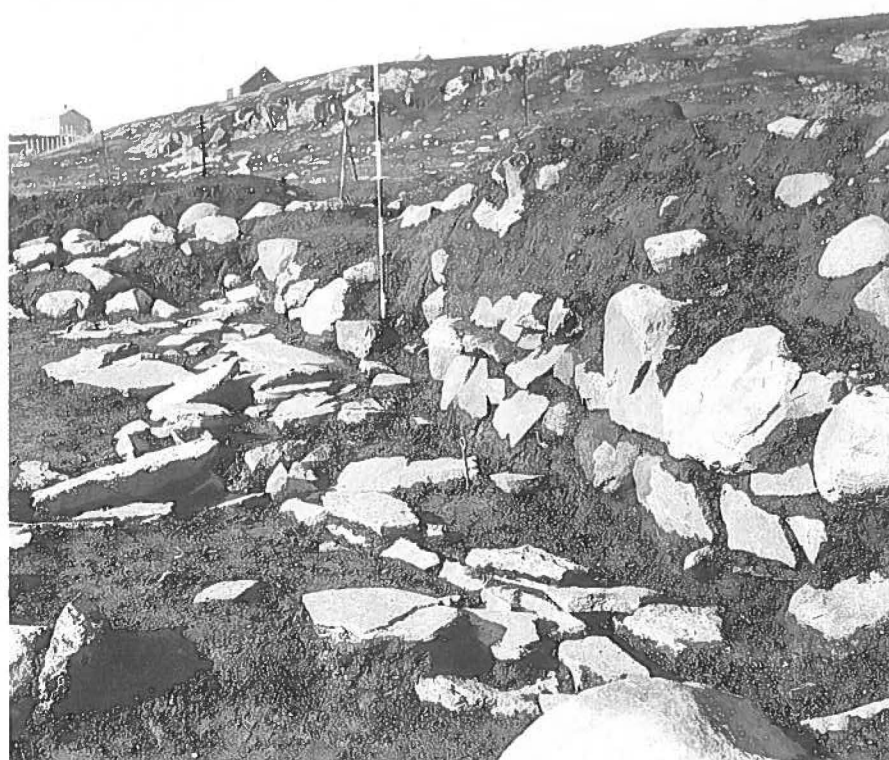


Fig. 21. Part of Room II, with the back wall to the right, seen from the SW (photo, C. L. Vebæk, 1958).



Fig. 22. The doorway to Room II, covered with slabs. To the left, one of the water channels, to the right (of the entrance) the fireplace (photo, C. L. Vebæk, 1962).



Fig. 23. The drainage channel under the back wall of the oldest part of the dwelling, Room I, seen from the south. The channel runs through the wall to the (then) outside of the dwelling (to the north), where it continues west through the later Room II, (now) covered with slabs (photo, C. L. Vebæk, 1962).



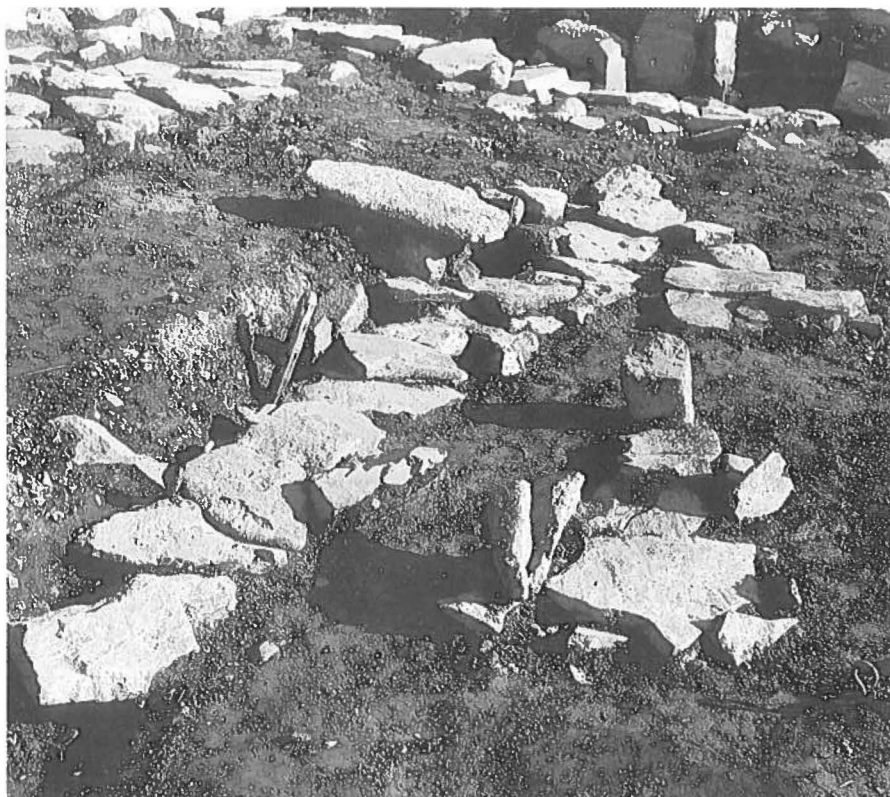


Fig. 24. The southern part of the large water channel in the oldest part of the dwelling of the *landnåma* farm. Most of the covering slabs are still in situ. To the right, in the foreground, the long-fire. Seen roughly from the north (photo, C. L. Vebæk, 1958).



Fig. 25. The northern part of the water channel in Room I, covered with slabs. Seen from the SW (photo, C. L. Vebæk, 1962).



Fig. 26. The same part of the water channel as in Fig. 25, but after the covering slabs have been removed (photo, C. L. Vebæk, 1962).

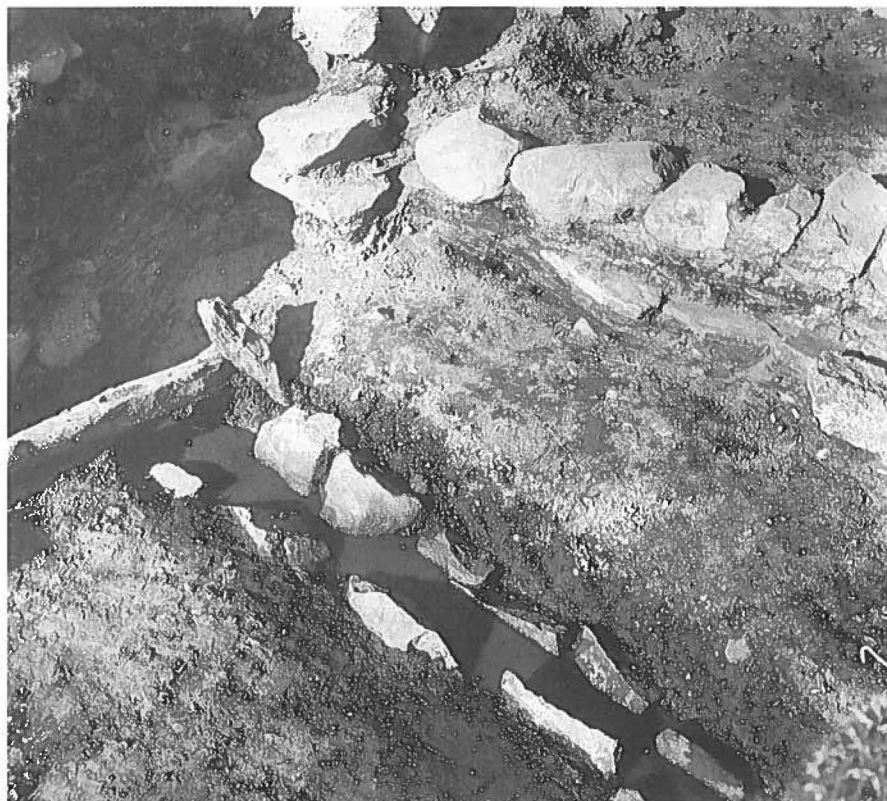


Fig. 27. The south end of the main water channel in Room I, with the traces of an oval wooden tub presumed to have been a water reservoir. Seen from the south (photo, C. L. Vebæk, 1962).





Fig. 28. The eastern part of the drainage channel in the southern part of Room II, seen from the west (photo, C. L. Vebæk, 1962).



Fig. 29. The lower, western part of the southernmost drainage channel in Room II. To the right, the channel with the large whale bone. Seen from the east (photo, C. L. Vebæk, 1962).

on the floor lay rather irregularly, and partly at different levels because of all kinds had remained and accumulated throughout the time the room was in use. Personally I think at least 2–3 centuries. The floor level slowly rose, and to make a comparatively even floor new slabs were placed now and then (Fig. 19).

At some point – perhaps only a short time after the *landnám*, but some years may have passed – the building was prolonged towards the west with two rooms which seem to have been built simultaneously. These two rooms – II and III – lie as a direct extension of Room I (and IV) and increase the length of the whole building by about 12 m. It will be observed from the plan drawings that at the same time the building narrows from about 8 m to about 6 m. This part of the building consists of two rooms: II (inside measurements  $8 \times 4\text{--}5$  m) and III ( $4 \times 1.5$  m). As the plan and photos show, the sill at the western end of the building is very well preserved; the large stones used here all seem to be in situ, and the western gable wall is thick, about 2 m.

Returning to the building itself, the walls were almost completely gone, especially the front wall, but they can be identified with certainty. Looking at the photos, the back (eastern) wall appears to have remained comparatively high, but this is actually an illusion – most of this wall is turf in various degrees of decomposition, with only a few stones in their original position. The door from Room II to the outside was undoubtedly near the middle of the front wall, where we found a row of slabs leading into the room, but some of the stones in the wall itself are missing. Strangely enough, there seems to have been no door connection between Rooms I and II, nor between II and III. It is actually something of a mystery how there was access at all to Room III (Fig. 20 & 21). There seems to be no opening in the wall for a door. Room III only measures about  $4 \times 1.5$  m inside. There are stones in the floor, but they only partly have the character of slabs. There is no fireplace or any other installation – and no objects were found that indicate the use of Room III.

Returning to Room II, this is of the same nature as Room I (Fig. 22). It was a dwelling with a fireplace and a large number of slabs on the floor, with the drainage and water-supply systems to be described below. The fireplace in Room II is of another type than the one in Room I, and was not, as in Room I, placed near the middle of the room, but just inside the door, built up against the front wall immediately north of the door. This fireplace too had undergone changes during the time the room was in use. The fireplace in Room II was square, about  $0.8\text{--}0.9 \times 0.70\text{--}0.75$  m, and made of slabs. One very big slab ( $0.8\text{--}0.9 \times 0.40\text{--}0.45 \times 0.12$  m) had been stood on edge to make a frame towards the north.

In conclusion the whole building was most certainly surrounded by a heavy turf cladding to isolate the rooms. This cladding could not be observed on the front

wall – which was greatly dilapidated – but it was clear at the back of the house, where it seems to have been several metres thick.

## The drainage and water-supply systems in the dwelling

It has been mentioned that among the most important and interesting elements of the building are the very complicated – and ingenious – combined drainage and water-supply systems we found in three of the four rooms of the house. Regrettably nothing can be said about any such installations in Room IV, as this room was completely demolished. But in Room I – the oldest part of the building – and in Rooms II and III, we found excellent arrangements for supplying water and for drainage. A short account of these systems based on the drawings (plans) and on a number of photos follows.

The dwelling was built in an area with a slight gradient from east to west; just behind the building the terrain rises fairly steeply – this is the lower ridges of the mountain Qaqqarsuaq. From these foothills of the mountain – especially in the spring – fairly large amounts of water constantly flow down. It was thus necessary for those who wanted to build a dwelling here to take measures to ensure that the rooms of the house would not be flooded. The *landnámamenn* found an excellent solution to the problem. Through and partly under the back walls, they dug small channels which continued through the rooms, then up to and through the front wall. The channels were all covered with slabs (Fig. 23). Under the back wall of Room I, a channel was dug which turned rather abruptly just outside the NE corner to continue a little oblique to the west. At first it was outside the house (Room I), but presumably very soon the house was extended with Room II, which left the channel inside the house, running out through the front wall.

In Room I we have a channel dug out under the back wall and continuing EW through the whole room, almost parallel to the south wall of Room I, and very close to it. This channel runs out through the front wall, and is covered with slabs almost throughout its length – also under the walls. It has been suggested above that the door giving access to Room I was at the SW corner at the same place where the long drainage channel runs out – if so, the slabs here had the double function of covering stones over the drainage channel and threshold stones in the doorway (Figs. 24 & 25). This at the same time indirectly suggests that there was a doorway at the NW corner of the room (where we have slabs under the wall) – but I want to let that stand as a theory. A water channel which seems to have had the double function of drain and water supply – is situated near the middle of the room, running at first roughly SN for 7–8 m, chang-



Fig. 30. The drainage and water-supply channel with the whale bone in Room II. The upper (eastern) part, seen from the west (photo, C. L. Vebæk, 1962).



Fig. 31. The same channel as Fig. 30, but showing the lower, western part, with the outlet through the front wall. Seen from the east (photo, C. L. Vebæk, 1962).



Fig. 32. The central part of the channel (Figs. 30 & 31), with the water basin, centre foreground, seen from the west (photo, C. L. Vebæk, 1962).



Fig. 33. Close-up photo of the whale bone, with the natural hole, covering the water basin, in the central part of Room II (photo, C. L. Vebæk, 1962).

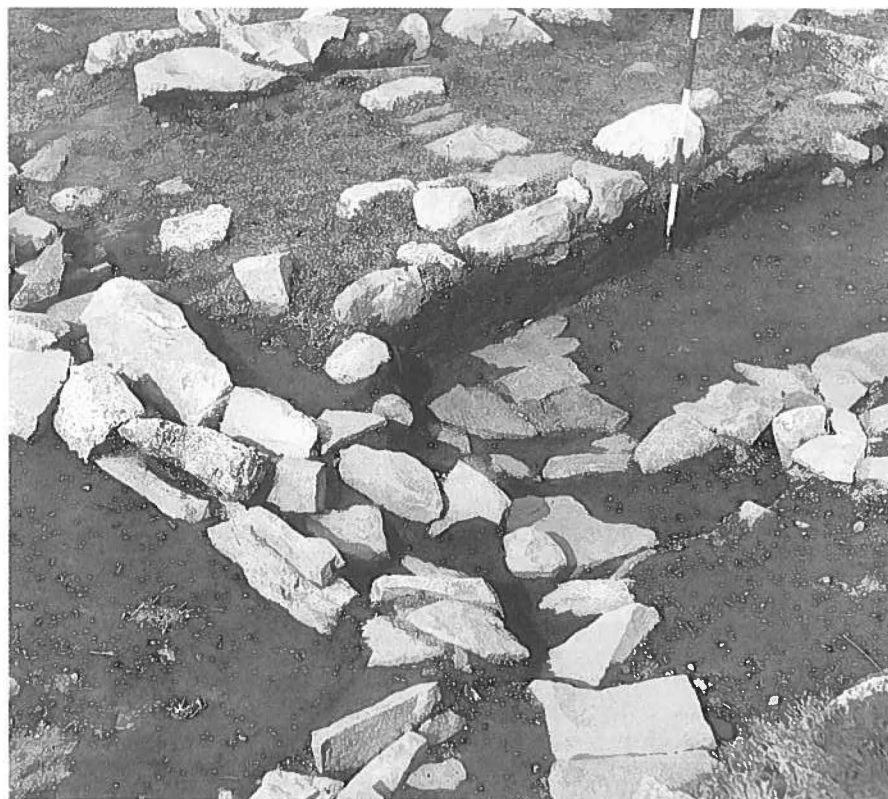


Fig. 34. Part of the drainage/water-supply system in Room II. To the left, part of one of the upper (later) channels. Seen from the SE (photo, C. L. Vebæk, 1962).



Fig. 35. The dwelling during excavation. Left, part of the later system of water channels, seen from the east (photo, C. L. Vebæk, 1962).



ing rather abruptly – deviating EW over about 4 m – and finally running out through the front wall close to the NW corner of the room. This channel was partly framed in by slabs standing on edge, and was very carefully covered with fine slabs. At the southernmost end of this channel (about 3 m from the south wall) we made an interesting find – the traces of a small, oval wooden barrel, undoubtedly placed here to function as a water reservoir, to make direct use of some of the water coming into the house from the terrain behind (Figs. 26 & 27).

In Room II we find similar, but even more complicated arrangements, partly for draining the room, partly to make direct use of some of the inflowing water. The channel which comes out from under the wall at the NE corner of the first-built Room I can be followed across the southern part of Room II, running out (and coming to an end) through the front wall. 1.5–2.0 m north of this channel we find a similar one which starts under the back wall, and which runs, covered by slabs, through the whole room, almost parallel to the above-mentioned channel, exiting through the front wall side by side with the door entrance. Like the other channels, this one was covered with slabs. However, in this channel, at about the middle of the room, a circular depression had been dug out, 0.60–0.65 m across at the top, and about 0.35 m deep; the bottom was about 0.35 m below the level of the channel. There can be no doubt that this was a sort of water basin. While the main part of the channel was covered with stone slabs, a very large whale bone was placed here as a cover and enclosure for the basin, 0.75 × 0.55 m in area and up to 0.10 m thick, with a natural hole in the middle (about 0.15 m in diameter), through which water could be drawn up (Figs. 28 & 29). In this room there was also a long channel through which the water from the SE part of the room could be transported to the channel with the reservoir covered with a whale bone, making the connection with that channel 1.5–2.0 m east of the water basin (Figs. 30 & 31). – Moreover, a short channel across the whole room connected the two long channels. The cross-channel was constructed to drain into both channels (Figs. 32 & 33).

All this sounds rather complicated, but not as much as the system of drainage channels which was observed in some parts of the house (Room II) at a slightly higher level. Over the years the floor level had gradually risen because refuse of all kinds was not removed, but left in the room; so to get an acceptable floor it was necessary now and then to raise the floor level by laying new stone slabs. At the same time the level of the fireplaces was raised considerably – in Room I we could distinguish 4–5 phases, in all raising the floor about 0.5 m. And at the same time the original system of channels for drainage and water-supply stopped functioning – it was necessary to build some new ones, as we could see in Room II. Across the room, nearly at the middle, there is now a channel carefully covered with slabs. This

channel can be followed from under the back wall, throughout the room and out through the front wall. It had at least one, very possibly two affluxes, from SE and NW respectively. Where these side-channels meet the main channel there seems to have been a water reservoir, but this cannot be stated with absolute certainty (Fig. 34).

These drainage and water-supply systems in the *landnáma* farm are without parallel, the most comprehensive found so far to my knowledge in any Norse farm in Greenland (Fig. 35). There seem to be only two (partial) parallels: one at the North farm at Brattahlíð (Nørlund & Steenberger 1934: 50ff); the other at Hvalsey (Roussell 1941: 146–147). The difference is, however, that the water arrangements at Brattahlíð only seem to be for water supply purposes, while there are only a few draining channels at Hvalsey (cf. Jansen's discussion on the subject (1972: 85–86)).

## The outhouses at Ø 17a

As mentioned we discovered about ten buildings in all at the *landnáma* farm. Besides the dwelling, we found nine smaller buildings, all of which must have belonged to the farm, scattered over a terrain about 240–270 m NS, and 50–70 m EW. These buildings have been registered as Nos. 1–10 (the dwelling is No. 4). All the buildings had collapsed over the centuries. Later (after the time of the Norsemen) Eskimo houses and graves had been placed in some of the buildings. In 1949 I excavated some Eskimo graves at a Norse site here (No. 10). Like the other ruins they held out no interesting prospects for excavation at the site itself. I only noticed that it was an indistinct site about 9.5 × 9.0 m. It was situated a little more to the east than the other buildings, and at a higher level.

### Description of the ruins

- |        |  |
|--------|--|
| Ruin 1 | A small, rectangular, very damaged, but clear building, built in dry-masonry technique. Outside measurements about 8.0 × 3.5 m. At the western end of the building, an Eskimo grave. Overgrown. Ruin 1 is situated about 60 m ESE of the dwelling, and estimated 70–75 m from the cliff. |
| Ruin 2 | Very diffuse site, 14–15 × 11–12 m, but partly collapsed into the sea. In this site there is undoubtedly at least one Eskimo house. Ruin 2 is situated immediately on the cliff, about 30 m NW of the dwelling.  |
| Ruin 3 | A very indistinct site, apparently rectangular, about 7.0–7.5 × 12.0–12.5 m. Almost completely covered by a large Eskimo house of circular form. Ruin 3 is situated 20–25 m south of the dwelling, about 17–20 m from the cliff.   |

- Ruin 4 The dwelling.
- Ruin 5 No description of this site, which is situated about 15 m east of the dwelling and 40–45 m from the cliff.
- Ruin 6 No description of this ruin. However, in the unpublished ground plan it has been given the designation “the byre” – this suggests that I must have thought there was evidence of its use. Ruin 6 was excavated (as the only outhouse), and we have a few objects found there, among them an iron knife. There is no drawing of Ruin 6, but there are a small number of photos. None of these photos, however, seems to me to be informative enough (e.g. no stalling-stones can be seen to back up the assumption that this is a byre), so I publishing no photos from Ruin 6 here. Ruin 6 is situated about 70 m north of the dwelling, and about 30 m from the cliff.
- Ruin 7 Rectangular ruin, very diffuse and disturbed, about 14.0–14.5 × 6.0–6.5 m. Up towards the southern side a circular, very distinct Eskimo house has been built, diam. 7–8 m. Just north of this, in the Norse site, there are traces of a similar house. Ruin 7 is situated about 120 m north of the dwelling, about 50 m from the cliff.
- Ruin 8 This is a small, rectangular, dry-stone building, about 7–8 × 3–4 m. Very dilapidated. Ruin 8 is situated on the rocky plateau behind the dwelling, 55–60 m ENE of No. 4 and about 90 m from the cliff.
- Ruin 9 On the top of a rock far to the north is the much damaged ruin of a rectangular building, built with dry-masonry technique. It measured about 7.5 × 4.3 m, with very thick walls. It is possible that this building had two rooms. Ruin 9 – which might have been a *skemma* – is situated about 180 m north of the dwelling, and about 50 m from the cliff.
- Ruin 10 This building (which no longer exists) was situated farthest to the ENE in the farm, at a higher level, about 105 m from the cliff. It cannot have been far from Ruin 9, but today it does not seem possible to say anything more specific about this. This building was very dilapidated and about 9.5 × 9.0 m in area. The site itself was not excavated, but in it – and adjacent to it – there were some Eskimo graves, which I excavated in 1949, because there were plans to build new family residences on the terrain.

In the 1000 years or so since the place was inhabited by the Norse *landnámamenn*, the terrain has simply

changed very much. In fact the plain on which the farm is situated, has been diminished year by year. Storms, rain and snow have meant that every year some part of the cliff has fallen down on to the beach, as many buildings originally belonging to the farm, and later Eskimo habitations, must also undoubtedly have done over the years. It may not be an overstatement to say that the originally rather large plain has been reduced by as much as 100–150 m, and perhaps even more. It is quite natural that the Norse *landnámamenn* found the site very favourable – just the place to settle – so one of them must have come ashore here and was among those who started the exciting Norse era in Greenland.

## Who settled at Narsaq?

We have no certain knowledge either of this or of the name of the farm. The farm is situated just where the “Eiriks fjord” begins – that fjord which took its name from the most prominent of all the *landnámamenn*, Eric the Red.

When we combine the written sources with topographical and archaeological studies, it seems clear – after Poul Nørlund’s and Mårten Stenberger’s work at Qassiarsuk in 1932 (1934) – that Eric the Red’s farm Brattahlíð was the very one excavated by Nørlund and Stenberger at the locality high up the fjord – Tunulliarfik – which is now known as Qassiarsuk. Since that time this interpretation has not been questioned: the *landnáma* farm Brattahlíð was at Qassiarsuk. Now, however, Ø 17a comes into the picture and must be considered in this context. The Greenlandic artist Jens Rosing, a knowledgeable student of the cultures of Greenland through the ages, has proposed (in a private communication to me) the daring, indeed revolutionary theory that Eric the Red’s Brattahlíð – at first – was the very *landnáma* farm we excavated at Narsaq! Here – as we have seen – we have a place which about 1000 years ago must have looked most inviting for settlement by the Norse Vikings; and just behind the dwelling of the farm we have a steep mountain, which may have immediately suggested the name Brattahlíð (“steep slope or mountainside”). Besides this, we found here a comparatively large number of objects of several kinds which can be dated with certainty to late Viking/very early medieval age. This is certainly a *landnáma* farm of some importance. Jens Rosing believes Eric the Red only started here, but that some years later, when he knew the district better, he moved to Qassiarsuk and built a new farm there, taking the name Brattahlíð with him and giving it to his new farm. This is a fascinating hypothesis; but I must admit that I still think the interpretation current so far is the right one: Brattahlíð is – and was from the beginning – the farm at Qassiarsuk which Nørlund and Stenberger excavated in 1932. So

the question of identity of the Norse *landnámamaðr* and his farm at Narsaq must remain open.

## Objects found at Ø 17a

It will be remembered that the work at Narsaq was actually started off by the finding in 1953 by Mr. K. Christensen of some unknown, or at least very rare, Norse objects, especially of wood. So it was with some anticipation that the Danish National Museum embarked on closer studies here in 1954 – and we were not disappointed. We soon found that Mr. Christensen had begun to dig at about the middle of the dwelling, especially in the part of the building later registered by us as Rooms I and II (the oldest part of the dwelling). Here

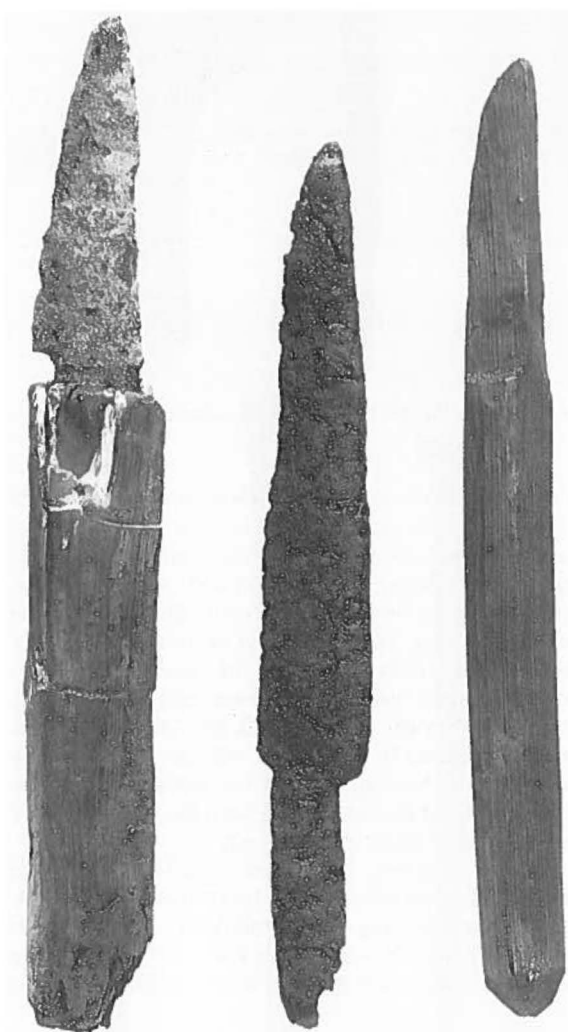


Fig. 36. Three knives. Left, an iron knife, with the handle of wood preserved; centre, an iron knife; and right, a (presumed) knife of wood, cut in one piece. (Length of knife with handle 13.4 cm).

we noticed cultural layers up to 2 m high (see the drawing of the section A-A in Fig. 10a), and we found many objects of all kinds and animal bones, especially in the lower cultural stratum, which stood out rather distinctly as a dark, slightly moist layer 10–20 cm thick. The conditions for the preservation of wooden objects, textiles and bones were the best possible here, and it is from these lower layers that we have all the oldest finds from the site, such as they will be described in the following. Above the dark layers at the bottom came some loose layers of earth, decomposed turf and scattered stones. It all seemed rather confused, and I must admit that I found it most difficult to excavate and to separate the different elements of the younger parts of the site. Besides the Norse objects, a number of Eskimo objects were scattered here and there.

The objects which must be considered of most particular interest are those with *runic inscriptions*, and another group of finds, certainly rare in the Norse farms in Greenland, i.e. *textiles*. Each of these groups of finds has been given a special chapter, written by the runologist Marie Stoklund and the textiles experts Else Østergård and Penelope Walton Rogers respectively. There is also a group of objects from Narsaq of a type which has never before been found in Norse material from Greenland, and whose use is partly unknown. These finds will of course be described in detail and illustrated by photos. Quite a few objects of Eskimo origin, representing different cultures, will also be given special mention.

There are hundreds of *fragments of objects of steatite* of different kinds, mostly from pots, pans and lamps, but only a few of these are of any special interest, either for their form or ornamentation.

Another group which is generally well represented in Norse finds in Greenland is *whetstones* of different forms, sizes and materials. The most common material is Igaliiko sandstone, but quartzite, porphyrite and some other stones were also used for this purpose. Most of the whetstones found at Narsaq are undoubtedly of Norse origin, but the possibility cannot be excluded that some of them are of Eskimo origin. This is often most difficult to establish.

Another material used for tools and implements and many other things is *bones* and *tusks* of different animals; and examples will also be given in the following also of the use of *wood*, of Greenlandic origin or more often driftwood. One material is – if not missing – at least comparatively rare, i.e. *iron*. We found relatively few objects of iron at the *landnáma* farm at Narsaq. We have a few iron knives, which cannot be called a rarity. However, one of the knives found is complete, with the wooden handle well-preserved – and that is unusual (Fig. 36). It must be mentioned that we registered only one single iron nail from Narsaq (while there were a great number of wooden nails). And while we have nearly a dozen arrowheads of Viking types from the farm, only a single one (and even this doubtful) is made

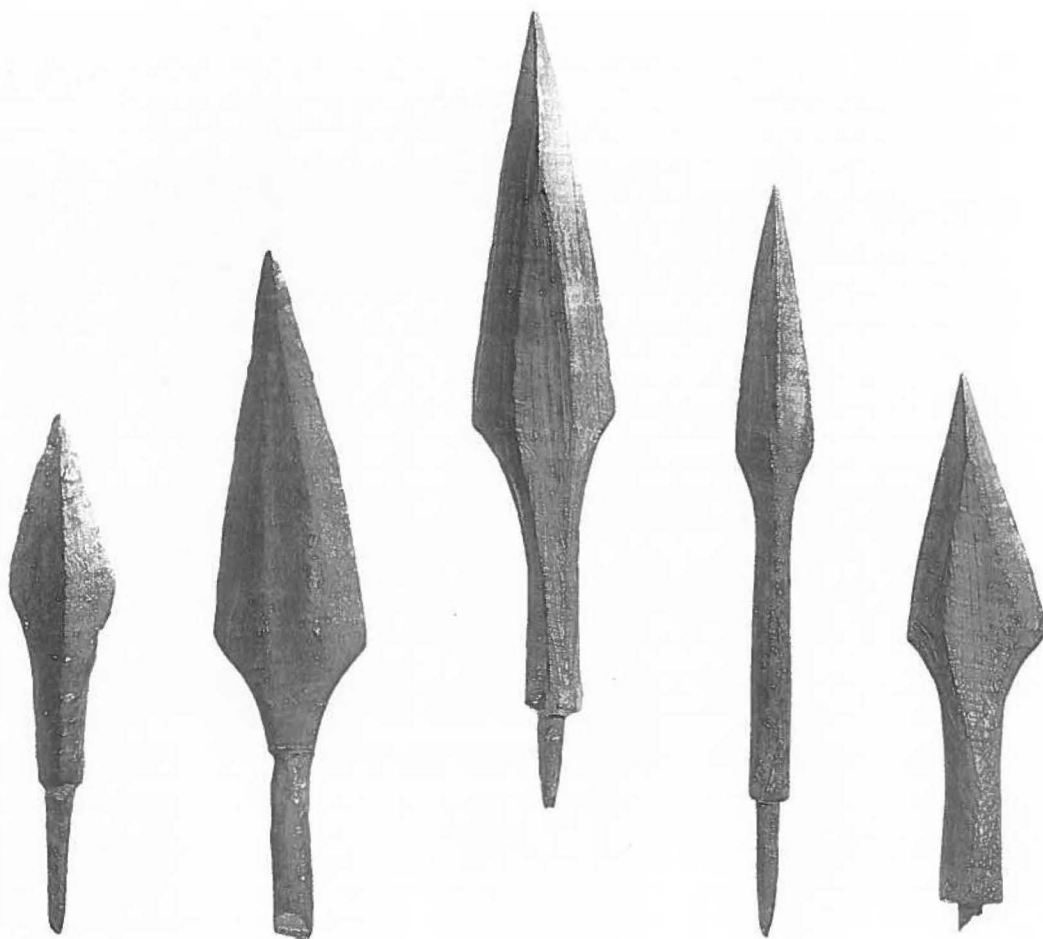
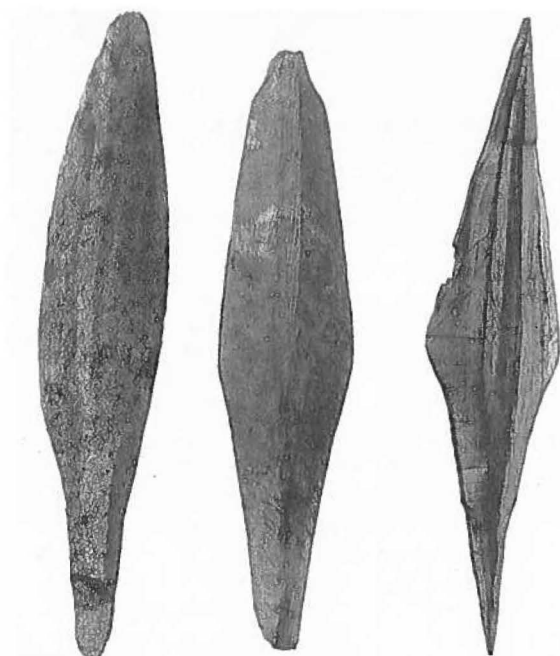


Fig. 37. Five arrowheads of caribou antler, all from the lower cultural layers in the dwelling. (Longest arrowhead 10.6 cm).



of iron – the others are of *caribou antler* (Fig. 37). I believe that soon after the *landnám* the settlers started making arrowheads (and other tools and weapons generally made of iron) from the bones of various animals, and from antler, and that they had to do so because of lack of iron (Fig. 38). That these arrowheads of antler from Narsaq really are from the *landnáma* time is proved by many similar finds from Iceland, the Faroe Islands and Norway (Jansen 1972: 84) – all of which are however of iron. In connection with the fact that iron was scarce at Narsaq, it must be mentioned that the Norsemen tried to extract iron from the ore here – we have some iron slags from Narsaq.

*Personal garments.* We found a single tooth (polar bear) which must be considered an ornament (trinket), but we found nothing else of that kind – i.e. no beads (of glass or other material), no jewels, necklaces, arm and finger rings, and nothing at all made of gold or

Fig. 38. Three arrowheads of caribou antler (of a distinctive type) from the bottom cultural layers of the dwelling. (Length of the double pointed arrowhead 8.5 cm).



Fig. 39. The tooth of a polar bear, with a cut at the root-end suggesting that it was worn hanging on a chain. (Length 8.1 cm).



Fig. 40. Comb of bone, one-sided (Viking type). (Length 7.8 cm).

silver – which we might perhaps expect, since this was the later Viking Age, a period rich in silver objects in particular (Fig. 39). The lack of costly things suggests that the *landnámamenn* were simple farmers, and not especially wealthy. A nice personal object is a rather well-preserved comb of the early type (one-sided) (Fig. 40); but besides this comb the whole site produced only one small fragment of what seems to have been a later (double-sided) comb. Perhaps a small number of bodkins (pins) of bone may be considered as belonging to personal garments. There are several types (some are shown in Figs. 41 & 42).

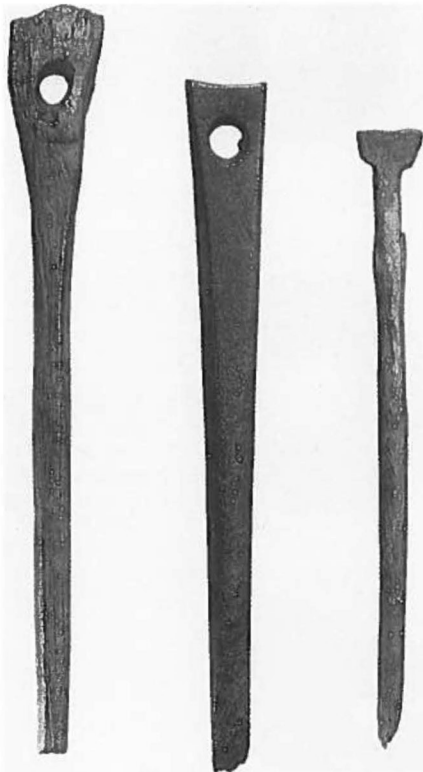


Fig. 41. Three bodkins (pins) of bone, two of them with perforations. (Longest bodkin 9.9 cm).

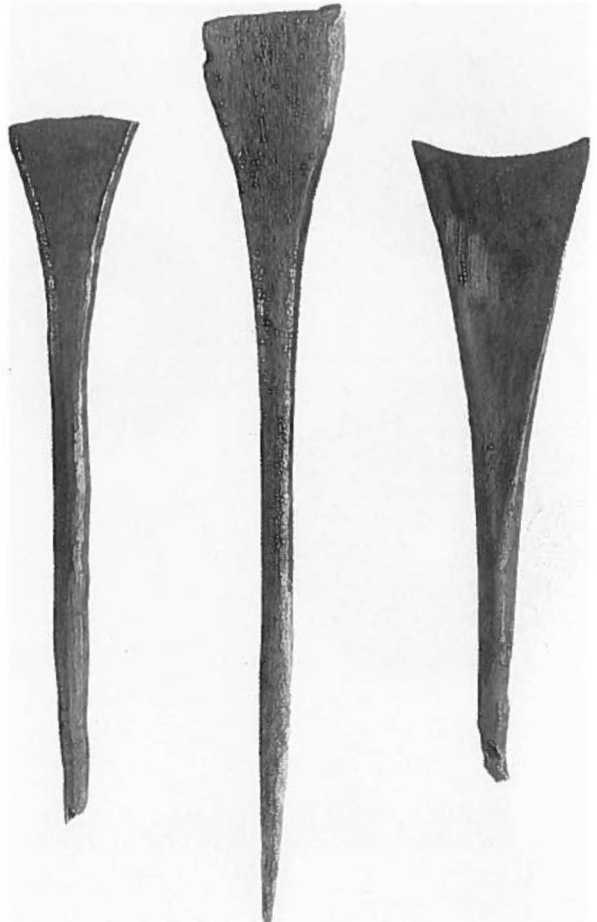


Fig. 42. Three bodkins (pins) of bone, all with broad, flat heads. (Longest bodkin 12.8 cm).





Fig. 43. Game-pieces. Right, one worked from bone, with a pointed top; centre, an almost circular, thick piece of wood; and left, a game-piece made of a large tooth (of a sea mammal). (Width of mid-piece 4.3 cm).

As a small group of objects which may be said to have been personally associated with the inhabitants is made up of the very few pieces of animal bones or wood which may be regarded as *game pieces*. Three of the supposed game pieces are shown in Fig. 43, three others (out of a total of five) are shown in Fig. 44. This last group

Fig. 44. Three top-shaped game-pieces. The small one to the right is of wood, the others of bone. (Height of mid-piece 6.6 cm).



Fig. 45. Five spindle-whorls of steatite, some of them with incised decorations. (Diameter of greatest whorl 4.0 cm).



Fig. 45a. A sort of a wool card (?) made of wood. (Length 26.0 cm).



consists of rather roughly cut "tops", some of them in bone, some in wood.

**Textile work.** Comprises fragments of cloth and few fragments of leather footwear. In connection with textile production many *spindle-whorls* (all of steatite) were found inside and outside the dwelling (whole and fragmented). Five of these are shown in the photo, Fig. 45; some of them have incised decorations. More rare are the spindles (of wood); only three were found at Ø 17a. As something else perhaps connected with textile production I can mention a very strange object of wood (juniper), looking like a sort of a comb with about ten "notches". I suggest that it could have been used as a kind of wool-card (Fig. 45a).



Fig. 46. A weavers sword-stick of whalebone, slightly fragmented, and a chisel of bone. (Length of sword-stick 36.5 cm).

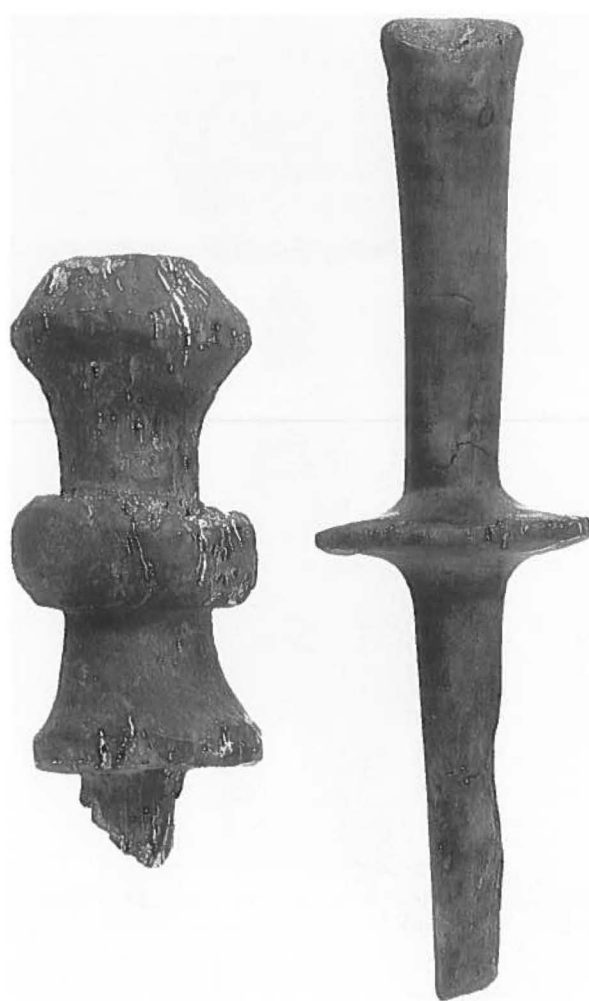


Fig. 47. Two cut handles of presumed weavers' sword-sticks, both of wood. (Longest handle 19.5 cm).

There were also many fragments of steatite vessels (with a perforation), and some naturally-formed heavy, clumsy pieces, also of steatite (and also with one perforation). Such pieces of steatite may have been used as *loom-weights*, but some may also have served as *net-sinkers* (for fishing nets). But nothing can be said with certainty about the actual use of such objects.

Other objects associated with textile production are the so-called *sword-sticks*. From Narsaq we have at least one piece, made of whalebone, almost complete (Fig. 46), and three of wood, which are perhaps fragments, the upper end (the handle) of such an object (Figs. 47 and 48); but the piece in Fig. 48 may have been a toy. This piece is of special interest, as it has undoubtedly been modelled on a real sword, and the type represented here is most certainly of the 11th century (cf. Jansen 1972: 84).

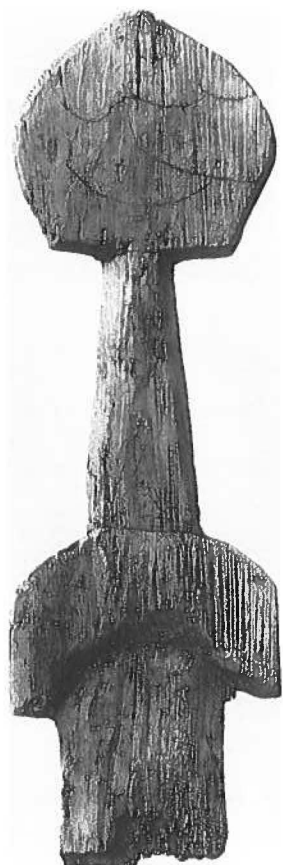


Fig. 48. Fragment – the handle – of a “sword” of wood (a weaver’s sword-stick or a toy). (Length ca. 15 cm).



Fig. 50. Awl (?) of bone, with a broad hand-grip. (Length 10.3 cm).

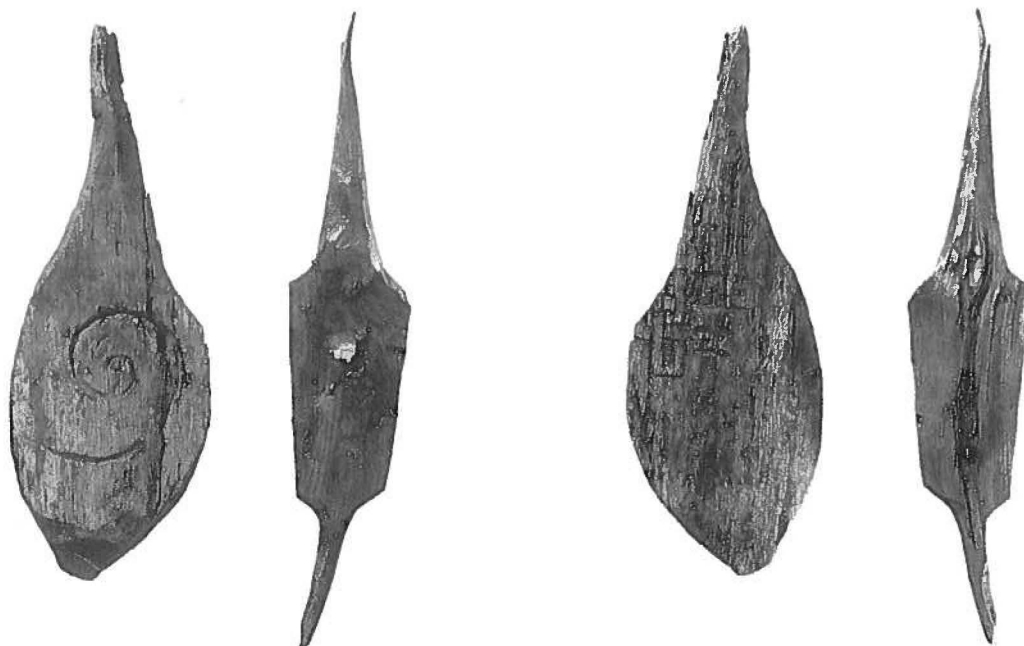


Fig. 49a-b. Two awls of wood, with points at both ends. On one of them, one of the points is broken off, and there is ornamentation on both sides in a style of 10th/11th century. (Length of longest awl 8.5 cm).

*Various tools and implements.* The conditions for preserving wood were especially good in the lower cultural layers. So from here we also have a number of wooden tools and implements, some not previously found, or at least rare. Among these we have two small *awls*; one of them is pointed in both ends, the other seems originally also to have had a point at each end, but one of the points has been broken off. On the other hand the latter piece is ornamented on both sides, with some ornamental elements pointing back to the 10th/11th century.

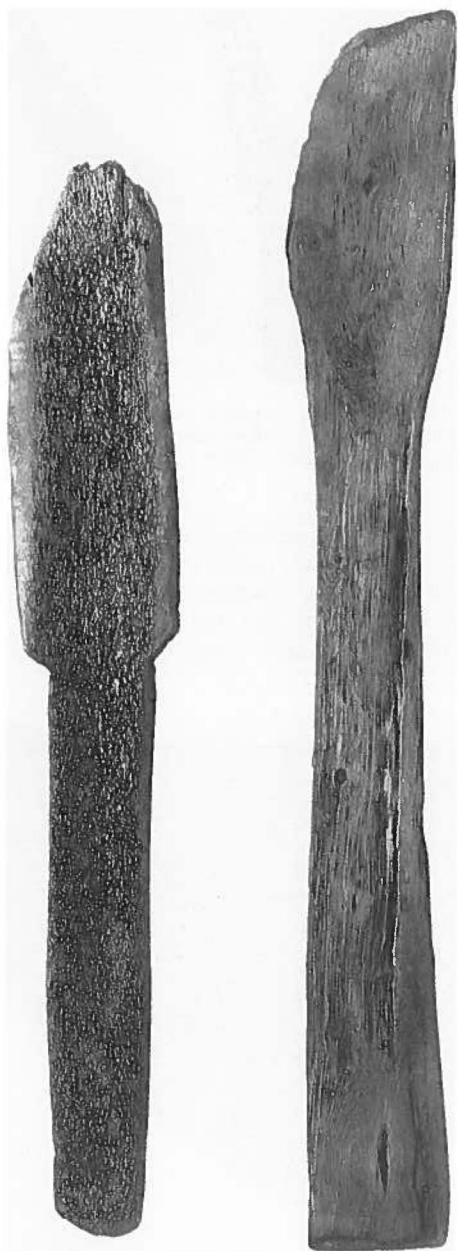


Fig. 51. Two ladles, one of whalebone (left), the other of wood. (Longest ladle 20.4 cm).



Fig. 52. Fragment of a board (a spade ?), ornamented in the Ringerike style. (Greatest width 11.4 cm).

ries (Fig. 49a-b). Another tool – a sort of awl with a broad, flat handle – is shown in Fig. 50; there are three pieces of this type in the whole find. There are two pieces which seem to be *ladles* (or *spoons*), one made of wood, the other of whalebone (Fig. 51). In the Norse farms excavated in Greenland one nearly always finds quite a few *spades*, generally made of whalebone, in a few cases of wood. At Ø 17a there were fragments of two spades of whalebone, and one very big, slightly fragmented wooden spade, besides one fragment of a presumed spade, also of wood. This latter object is, however, of the greatest importance, as it has fine carved ornamentation, which we are able to identify as being in the late Viking/early medieval Ringerike style (cf. Fuglesang 1980), and it is among the objects found here which can be safely dated to about 1000 AD – to the *landnåma* time. Referring to the photos (Figs. 52 & 52a) I will give a short description of this interesting piece here. It is a cut-out, partly fragmented part of a board (the wood is undoubtedly pine). It is preserved to a length of about 12 cm (the original size is unknown). From one edge to the other the board measures about 7.5 cm on the undamaged side, while it measures about 12 cm across where it has been broken. The board is up to 0.6–0.7 cm thick. The edges are rather sharp. As will be seen from the photos, ornamentation has been scratched in, covering an area of 4–6 × 4–6 cm. The original area of the ornamentation is not known. The ornamentation comprises several elements, most strikingly some double circles and at least three oblong



Fig. 52a. The ornamented part of the board shown in Fig. 52.

figures (tendrils), each “curled up” at the one end. The last-mentioned ornamental elements are placed side by side, a little like parts of a fan with their source in one of the circles. They are about the same length (about 4 cm). We are in the fortunate position of being able to refer to other finds in the Viking world of almost the same character. One of the best parallels is the so-called “St. Paul’s Stone”, a richly-ornamented tombstone with a runic inscription found in 1852 in St. Paul’s Churchyard in London. A large, fabulous animal of very fine workmanship is carved on one side of this stone. In fact there are two animals, and both exhibit ornamental elements exactly like those on the wooden board from Narsaq – the only difference is that there are no less than 18–20 oblong figures with curves at the ends on the British find (Wilson 1974). Amazingly, at the same place in Narsaq (the dwelling of the *landnáma* farm) we found three figures carved in wood of exactly the form seen in the decoration on the board. Two of these carved figures are slightly fragmented, but there can be no doubt that they belonged together (perhaps in the same configuration as on the board). They are made of the same piece of wood (pine driftwood), and they are of the same shape and almost the same size. The longest – complete – piece is about 11 cm long, and the thickness varies from 0.5 to 0.7 cm (Fig. 53). The original use



Fig. 53. Three tendrils, carved in wood – undoubtedly fragments which belonged together as part of an ornamental object. (Length of mid-piece 10.8 cm).

of these remarkable carved wooden pieces is unknown, but they were no doubt part of a single object, and must have had a decorative purpose.

Besides the objects just described, there are a few others of different kinds – some in wood and some in



Fig. 54. Fragment of a disc (?) of wood. On one side, deeply carved ornamentation in Viking style. (Greatest width 7.3 cm).

Fig. 55. Fragment of a wooden object with an incised ornament, Viking style. (Length ca. 12 cm).

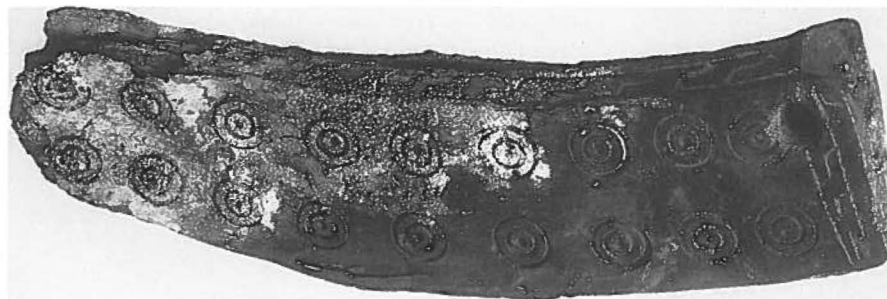


Fig. 56. Object (use unknown) of bone, perhaps a shaft for a shearing implement with a (now lost) iron blade. Richly ornamented with a pattern mainly consisting of circles with small dots inside. Viking style. (Length ca. 11 cm).

bone – which are ornamented; all are in a style pointing back to the late Viking Age (cf. Wilson & Klindt-Jensen 1980). Among these objects there are two objects of wood and one of bone shown in the photos. Fig. 54 shows a fragment of a (presumably) circular wooden disc with deeply-carved ornamentation on one side. The object (the use of which is unknown) measures about  $7.5 \times 6.0$  cm and is about 1 cm thick. Fig. 55 shows a fragment of another wooden object (use unknown). On one side an ornament in typical Viking style is incised. Fig. 56 shows a quite unusual ornamented object of bone, for which I know of no parallel. It is slightly broken at one end. Along the middle of one of the narrow sides there is a broad groove, measuring about 0.5 cm in width at the top, and a little more than 1 cm deep. Undoubtedly there was originally some kind of iron blade of some kind in the groove. The object is richly ornamented on both sides, with a double row of concentric circles and a dot in the centre, which also occurs at the one well-preserved end. Besides this, there is some linear ornamentation. There seems to be no doubt that this object (which was found in one of the water channels in Room I) belongs stylistically to the late Viking/early medieval period (cf. Wilson & Klindt-Jensen 1980).

We have now discussed most of the ornamented objects in wood and bone from Narsaq, and have seen that the find – unlike most other finds from the Eastern Settlement – is rich in wooden objects, thanks to the very good preservation conditions for wood, especially in the lower, oldest layers. Let us continue the presentation of wooden objects by looking at fragments of *boats*. There are actually quite a number of pieces of wood which could be parts of ships, but only a few can be identified with certainty. Among these is a fragment of a thick rib (Fig. 57), a fragment of a board (with two



Fig. 57. A fragment of a rather heavy rib from a ship. The material is larch (*Larix*). (Length ca. 53 cm, breadth 10.5 cm).



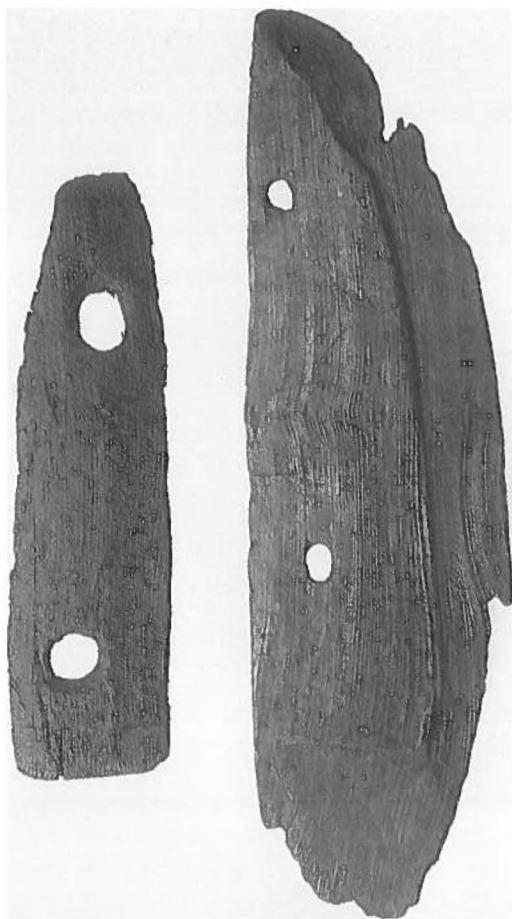


Fig. 58. Two fragments (boards) of ships. Greatest piece of fir (*Picea*). (Length of greatest piece ca. 45 cm).

perforations for nails), and a presumed patch for a board (also with two nail holes); both shown in Fig. 58 (cf. Andersen & Malmros 1992: 121–122).

The number of wooden objects found at Ø 17a is almost endless – and in many cases the use of the object is unknown. I shall end this account of the wooden objects with a small group of photos of some of the more interesting ones, with a short description of each one.

Fig. 59 shows a worked piece of wood about 19 cm long. It is perhaps a model boat (a toy?).



Fig. 59. Model boat (?) of wood. (Length 19.5 cm).

Fig. 60 shows three small pieces of worked wood (fir) of unknown use.

Fig. 61 shows two highly wrought objects of wood, and one of bone (the one to the right). It may be noticed that the pointed object in the middle is made from a tub stave. The Narsaq find incidentally includes fragments of several – at least 8–10 – coopered vessels. There are seven complete tub staves (two of which are undoubt-



Fig. 59a. Three toggles of wood. (Longest toggle 13.7 cm).



Fig. 60. Three small objects of wood (fir). Use unknown. (Longest object 12.0 cm).

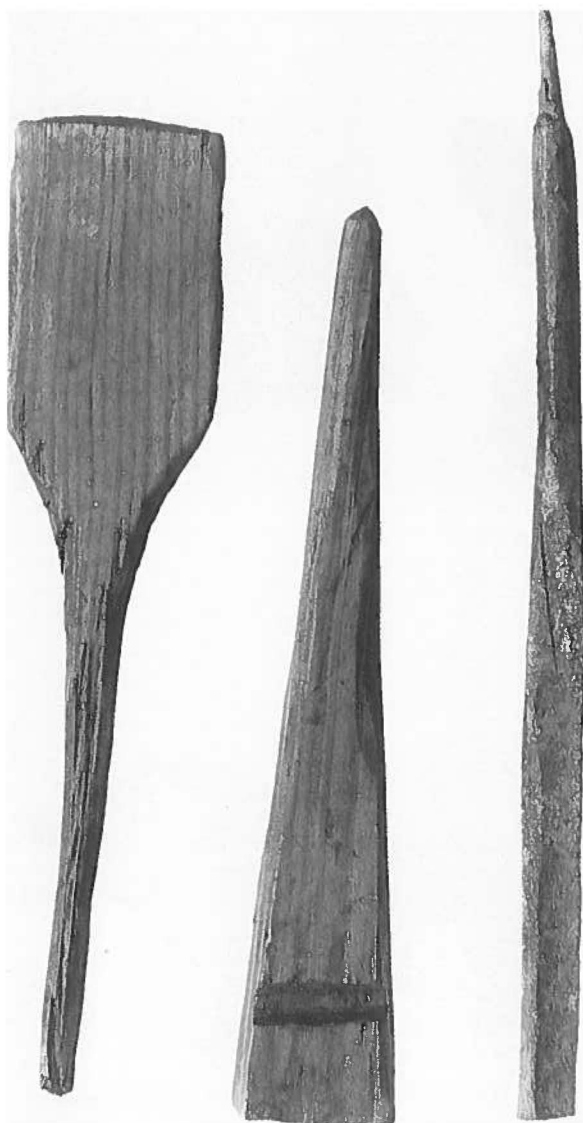
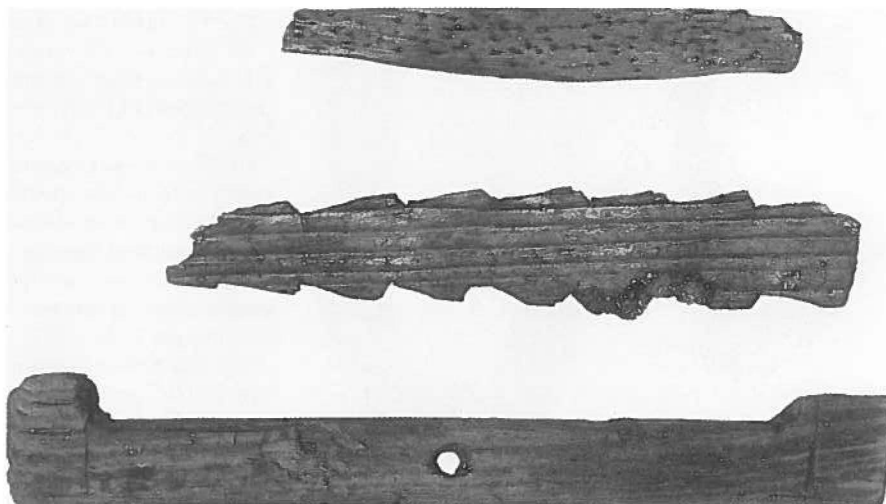


Fig. 61. Three pointed objects, one of bone (right), the others of wood; one of them made of a tub stave. (Length of bone point 15.9 cm).

edly from the same tub) and several fragments, from five different bottoms.

Fig. 62 shows an object made of twisted strips of willows of unknown use.



Fig. 62. A fragment of an almost circular, slightly oblong object of twisted willow (?), round which are wound very thin slices of willow. Use unknown. (Width 6.5 cm).

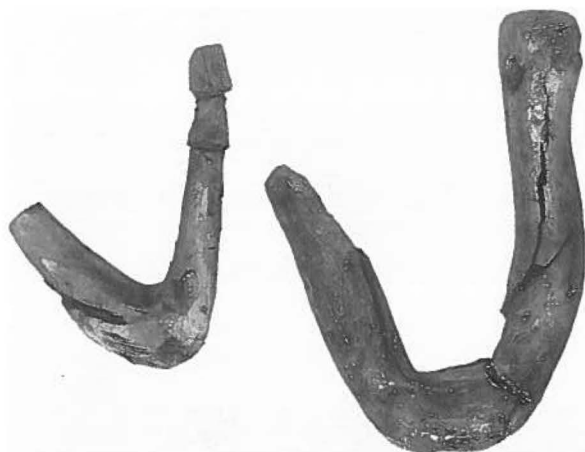


Fig. 63. Two hooks of wood. (Lengths 10.7 cm and 14.6 cm from top to convex side).

Fig. 63 shows two wooden hooks.

To conclude this enumeration of wooden objects I will mention four extremely small cups of slightly varying shapes (Fig. 64); we do not know their exact function.

I will end my description of objects found by briefly mentioning a few special objects of metal, a few of steatite, some of wood and bone, and finally the Eskimo objects found at the site.

Fig. 65 shows a well-preserved iron ice-spur. A very similar piece is known from Brattahlíð (Nørlund & Steenberger 1934: 134).

Fig. 66 shows a tiny object of bronze, only about 4 cm long and 0.5 cm thick. I am unable to say what it is – but to me the small figure bears a slight resemblance to a horse.



Fig. 64. Four quite small cups of wood. (Width of smallest cup 3.8 cm).

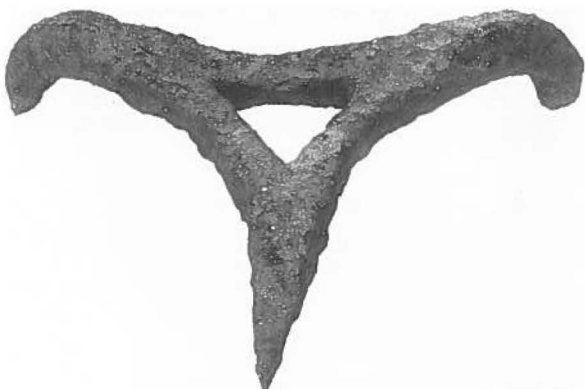


Fig. 65. Ice-spur of iron. (Distance between the hindmost spikes 5.3 cm).

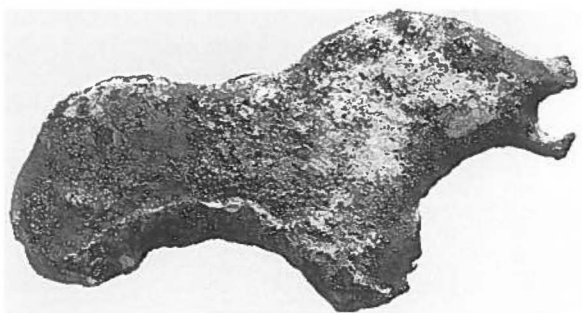


Fig. 66. Tiny object of bronze (figure of a horse?). (Length 3.7 cm).

Fig. 67. Three small objects of bone. Use unknown. (Length of mid-piece 6.8 cm).

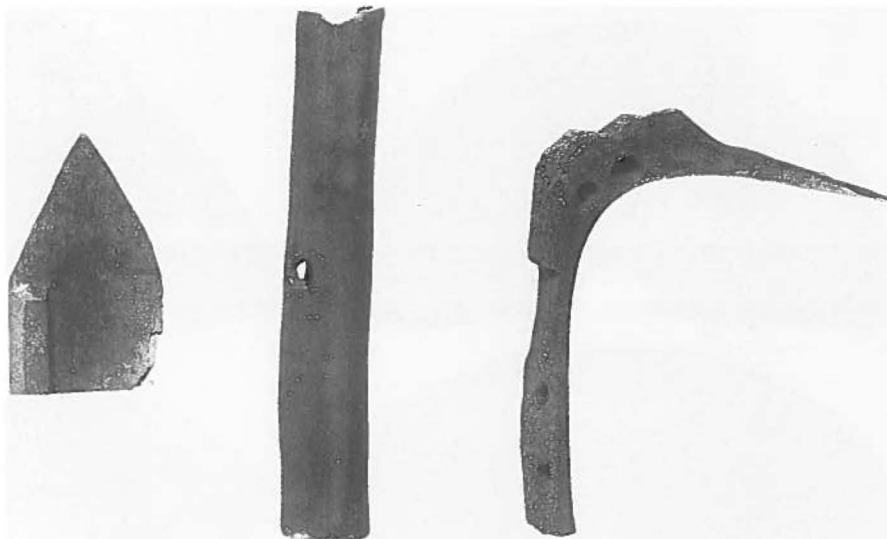


Fig. 67 shows three small objects of bone – use unknown. In Fig. 68 we have two small pieces of bone – perhaps fragments of combs – and two small, very thin carved pieces of wood; the smallest may have been used for winding thread.



Fig. 68. Two small pieces of bone, perhaps fragments of combs, and two small, very thin cut pieces of wood; the smallest may have been used for winding thread. (Longest piece 9.1 cm).

Some special objects of steatite must be mentioned. Fig. 69 shows a fragment (perhaps about half) of a square slab of steatite. The object (the use of which is not known) has two perforations at the corners, and one (broken) about the middle. Two crosses are incised in it. Steatite objects exactly like this are known, e.g. from Gardar (Nørlund 1929: 159).

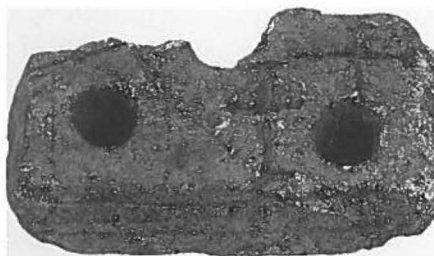


Fig. 69. Fragment of a square object of steatite, with two perforations at the corners, and one in the middle. Two crosses are also incised. (Length 5.6 cm).

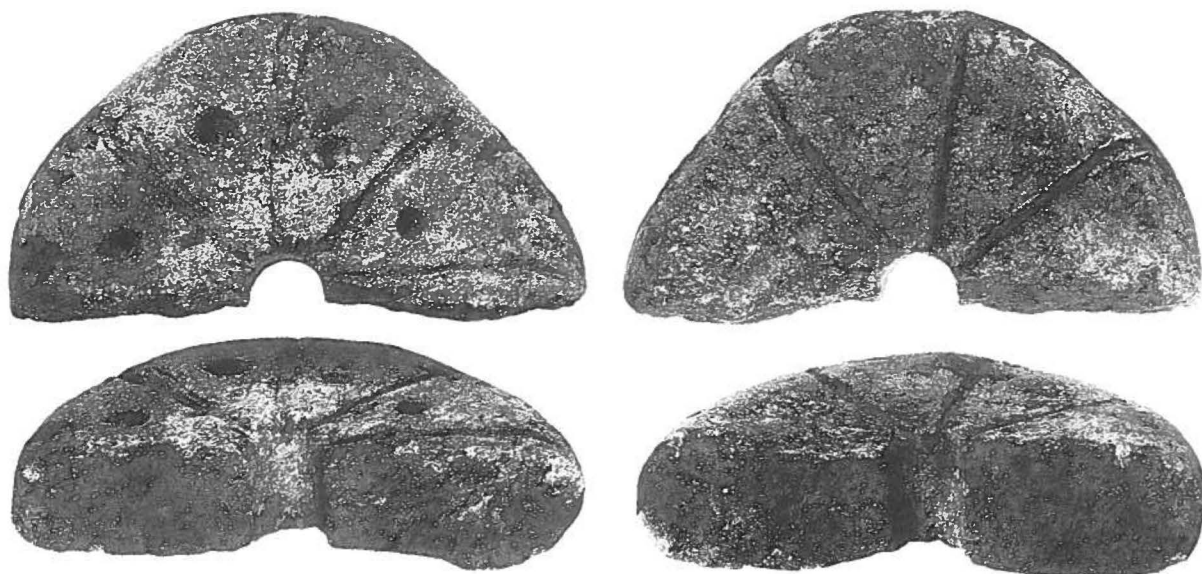


Fig. 70a-d. Fragment (estimated to be about half) of a round slab of steatite, with one perforation in the middle. On both sides, sharply scratched radial lines, on one side also drilled holes. A navigation instrument ? Two of the photos show the stone from each side; in the other two part of the object is seen in cross-section. (Diameter 9.5 cm).

Among the Narsaq material there is a fragment (apparently about half) of a rounded, perhaps almost circular disc of steatite. This stone (shown in Fig. 70a-d) is about 9.5 cm in diameter and 2.5 cm thick. Near the middle there is a perforation. On one side radial, sharply-scratched lines can be seen, extending from the central perforation to the rim, and beside these lines are small drilled holes, four of which are preserved. On the other side there are only radial lines. The use of this object is unknown; the navigation specialist Captain Søren Thirslund has put forward the theory that it might

have been used for navigation, but that it is very uncertain. Captain Thirslund and I have mentioned it in our book *The Viking Compass* (1992), where the same four photos can be seen on p. 55 with a short description (by Captain Thirslund). We hope that further studies in early navigation may one day answer this question.

Fig. 71 shows three objects of steatite, the exact use of which is unknown; but they may have something to do with textile-making and/or fishing – most likely fishing. (Height of mid-piece 5.8 cm).

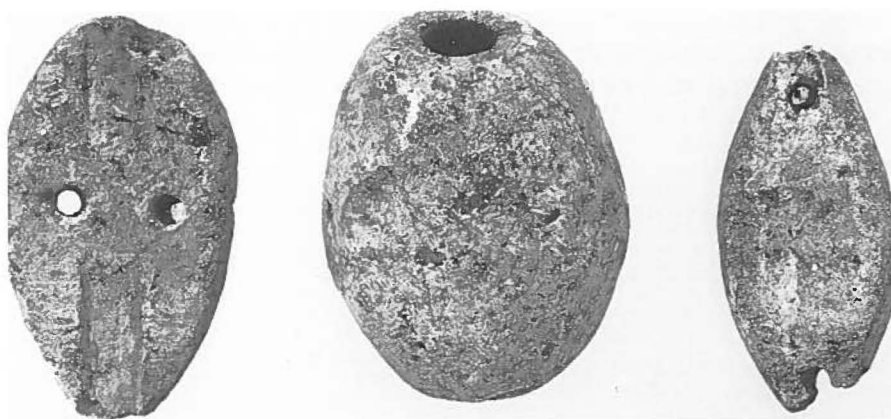


Fig. 71. Three objects of steatite, exact use unknown, but they may have something to do with textile-making and/or fishing – most likely fishing. (Height of mid-piece 5.8 cm).

Fig. 72. Three objects, two of them of wood, the third (with three large perforations) of bone. Use unknown. (Length of mid-piece 17.2 cm).

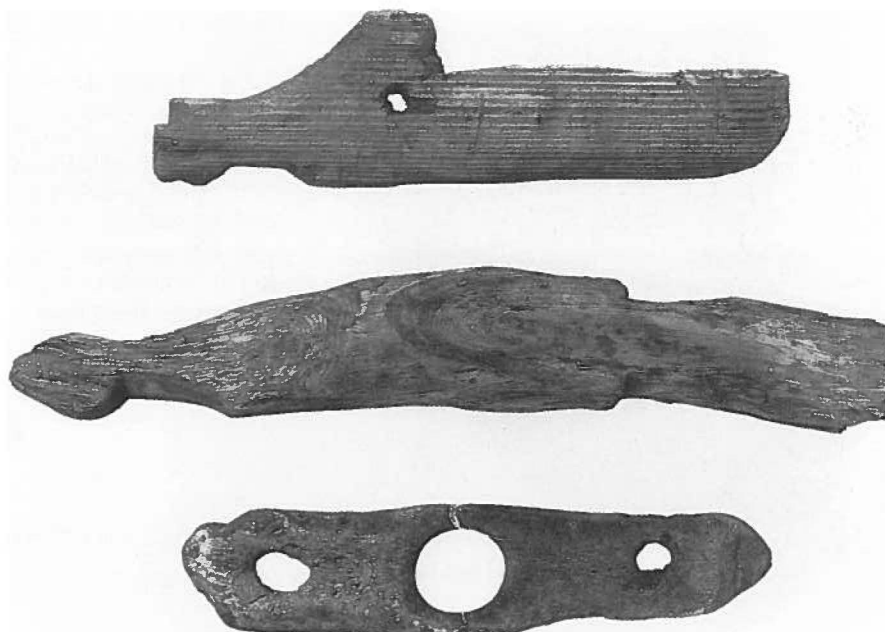


Fig. 72. Finally there are three objects, two carved in wood and the third – with three large perforations – of bone. Use unknown.

Fig. 73a-c shows a most remarkable object. It is a small oblong piece of bone, flat on one side, slightly curved on the other. On the carefully smoothed surface

of the curved side there is ornamentation consisting of very lightly-incised patterns of fine lines, and a large number of very small drilled holes. The object has one perforation. The use of this object is unknown, but the ornamentation suggests the late Viking Age. The Nar-saq find also includes some repair patches for steatite

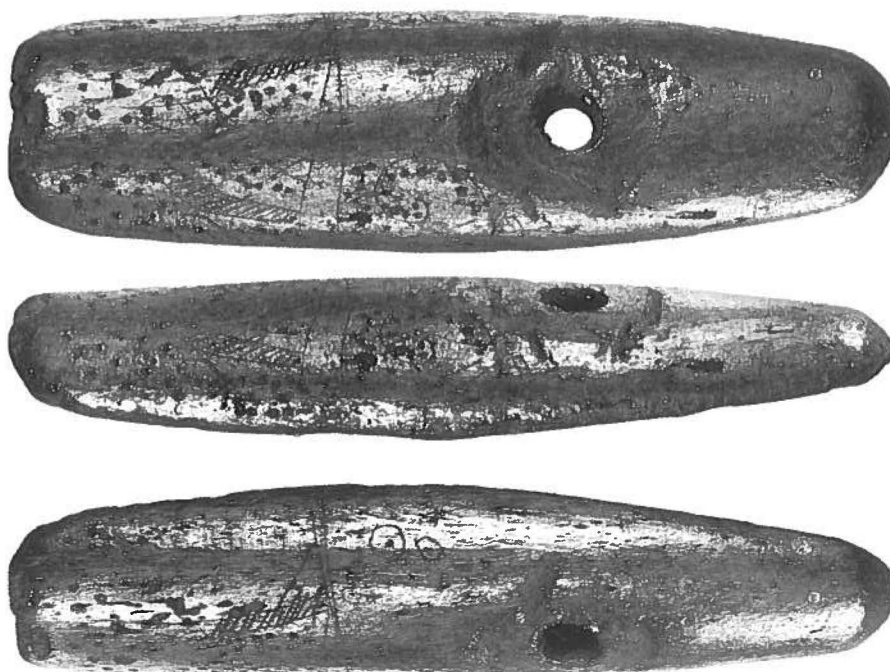


Fig. 73a-c. Object of bone, with fine ornamentation (Viking Age ?). Use unknown. (Length 9.0 cm).





Fig. 74. Repair patch for a vessel of steatite, with one iron-nail.  
(Breadth 6.7 cm).

vessels. One of them, with one iron nail, is shown in Fig. 74.

Fig. 75 shows three quite small “vessels” of steatite. The smallest of the three may be called “very tiny”, as it only measures  $2.6 \times 2.3$  cm, and is about 1 cm deep. The use of these very small “vessels” is unknown.

To conclude the description of Norse objects from the dwelling at Ø 17a, the photo in Fig. 76 shows one of the very few complete larger vessels (pots, lamps etc.) of steatite – a rather well-preserved lamp of the type with a very broad, flat handle.

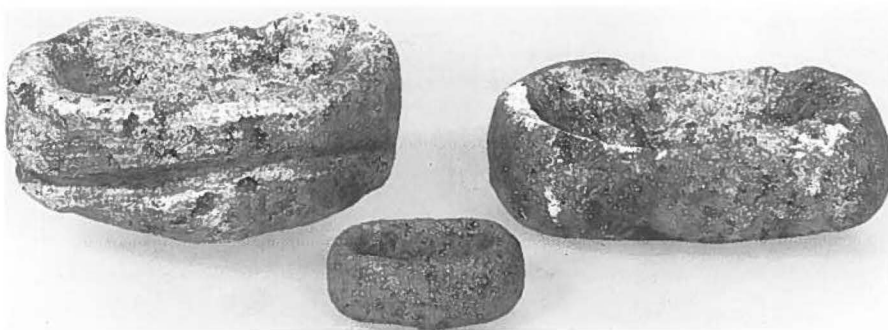


Fig. 75. Three quite small vessels of steatite. (Breadth of vessel in front 2.7 cm).



Fig. 76. Heavy lamp of steatite, with a very broad, flat handle. (Length 17.7 cm).

### Eskimo objects from Ø 17a

In excavations of Norse ruins in Greenland it is not unusual to find objects of Eskimo origin. These can be divided into three groups: those that derive from pre-Norse settlement; those considered to be from the period of Norse settlement, whether they have been stolen from the Eskimos or are perhaps proof of some trade between the Eskimos and the Norsemen; and finally objects which derive from Eskimo habitation at the site after the Norsemen had left. The last group is the most common, but not the most interesting one in this context. Finds from before the Norse settlement are not so common, while the third group – Eskimo objects in the Norse material from the time of the Norse settlement – is of course of special interest for the study of the intercourse between the Eskimos and the medieval Norsemen. From the whole period when I carried out archaeological excavations of Norse ruins in Greenland (1939–62) I can only remember two finds of the last type, both from the inland farm Ø 64c in Vatnahverfi: a towing-line handle of walrus tusk and an ice pick of whalebone (Vebæk 1943: 89–90).

At the *landnáma* farm Ø 17a there were no finds (in the Norse material), which are of Eskimo origin. But a

few finds in the lowest layers were evidence of Eskimo habitation before the Norsemen came here (about 1000 AD); and there were a small number of objects deriving from Eskimo habitation there after the Norsemen had left. To the oldest group belong a few fragments of implements of rock crystal, and a knife (?) of grey slate. These objects are no doubt from a Palaeo-Eskimo culture, but it is hard to say whether they belong to the Saqqaq or Dorset culture (list of objects, Nos. 406–8). From the time after the Norsemen we have a rather well-preserved lamp of steatite (of a Thule type, No. 418), a large fragment of a vessel of steatite (No. 417), six hammer-stones in different kinds of stone (Nos. 419–24), and a small group of fragments of different implements in bone (and antler); four of these are shown in Fig. 77. All these Eskimo finds are from the dwelling.

From one of the outhouses comes an iron knife (presumed European import, 17th/18th century) and a single, quite small bead of green glass (17th century).

## Objects with runic inscriptions from Ø 17a

By Marie Stoklund

The fortuitous discovery of the Narsaq stick in 1953 brought new runological material of far-reaching importance to light. The previous runic finds from Greenland had been mediaeval, but the Narsaq 1 inscription provided evidence of an earlier use of runes in Greenland. The find led to archaeological investigations of Ø 17a in the following years, and the excavations revealed three other inscriptions on wood and two rune or rune-like markings on steatite loom-weights or net-sinkers. Erik Moltke's runological, relative dating of the inscription on the first Narsaq stick to the *landnáma* period, c. 985–1025, which has been a main argument for an early dating of the site, has now been confirmed by the radiocarbon datings.

*The Narsaq 1 inscription.* No. D5/1992–1. The natural, only slightly worked stick of pine was broken in two pieces when it was found, but luckily this has caused very little damage of the runes; photographs taken by Professor C.A.Jørgensen on July 2 1953, document the original state immediately after the discovery. After being glued together, the stick measures 42.6 × max. 3 cm across the snake-head-like knot in one end; it narrows towards the other end, which has been somewhat damaged, so a few runes could be missing; but generally the runes are very well preserved (Figs. 78 and 79). On the two broader sides (A and C) the runes are cut from edge to edge (and into the edges). The runes on the A-side measure from 2.1 to 1.6 cm, the runes on the C-side from 1.5 to 2.4 cm, and one or two runes may have split off at the knot-end. In the middle of side B –

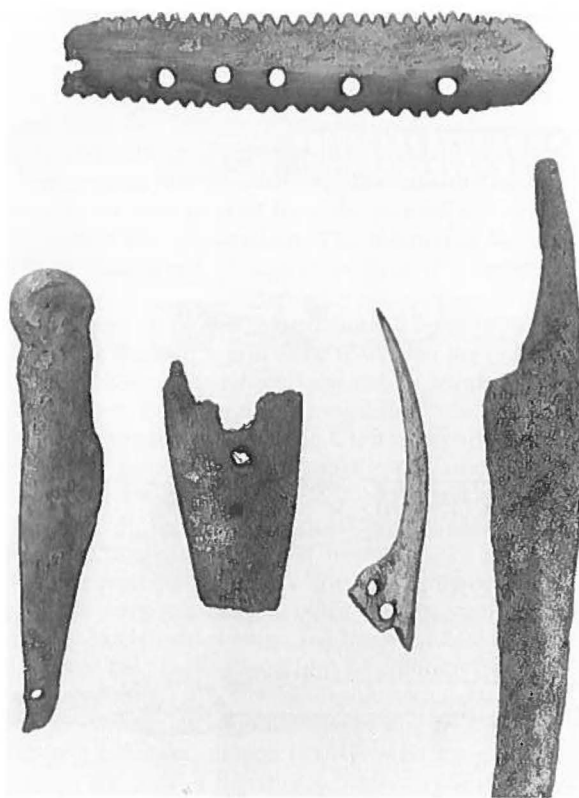


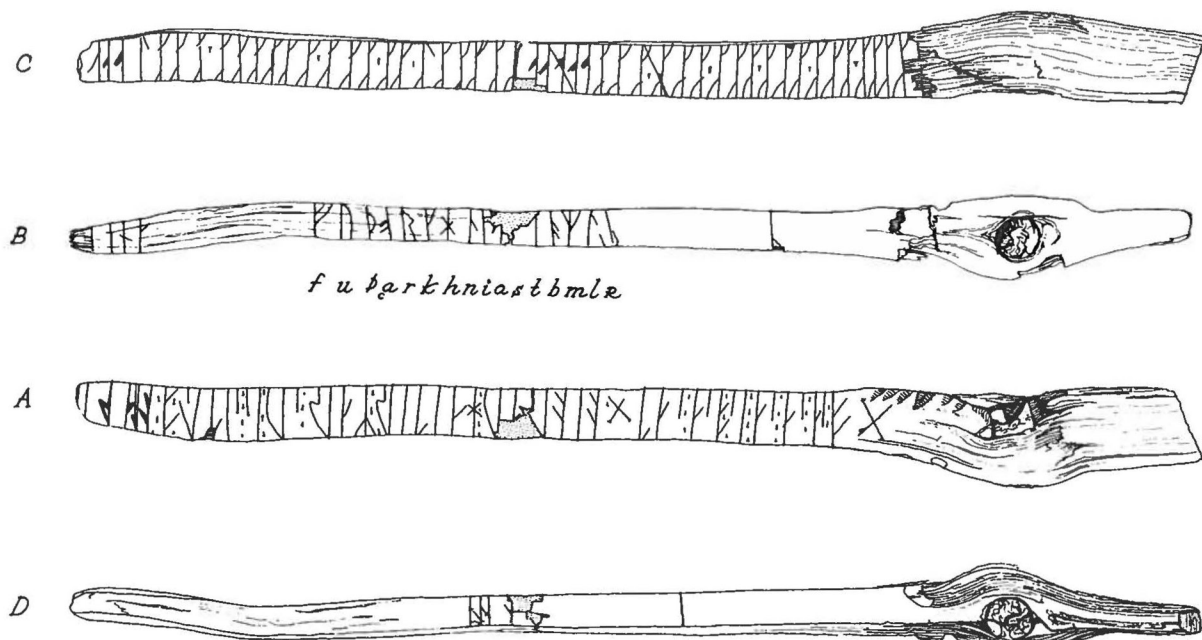
Fig. 77. Five Neo-Eskimo implements (complete and fragments) of bone (and antler?). Found with three small cut fragments of caribou antler, Nos. 409–13. (Length of top-piece 6.2 cm).



Fig. 78a-d. The Narsaq 1 inscription. Top to bottom, the four sides named A, B, C, D by Erik Moltke, after the gluing on of the broken piece, measuring 42.6 by 3.0 cm across the knot. The runes on the A-side measure from 2.1 to 1.6 cm, on the C-side from 1.5 to 2.4 cm.

beginning with a 1.2 cm tall f-rune – the 16 runes of the fupark (the runic alphabet) has been cut. They belong to the same type of short-twig runes as were used for the inscription, though they were perhaps cut by another,

less skilled hand, since the fupark runes differ from the very elegantly cut runes of A and C. On sides B and C a few more runes have been cut, but they seem to be nothing but a scribble.



*E.M. del.*

*H.W. Schmidt del. 1961*

Fig. 79. The Narsaq 1 inscription, drawing by Holger W. Schmidt under the supervision of Erik Moltke, 1961. The repair of the break is clearly marked, and it is evident that the fracture has caused very little damage to the runes apart from the 11th rune in the fupark (rune-alphabet) on Side B, of which only a small trace can be recognized.

I have followed Erik Moltke in naming the four sides. He was the first to publish a reading and – though with some hesitation – an interpretation of the inscription (Moltke in Vebæk 1958b: 121f; Moltke 1961). As the runes are generally very clearly cut and well preserved, there can be little discussion of the reading, and though the interpretation is far from safe, the main conclusions drawn by Moltke with regard of the dating must still be considered convincing.

The inscription on the A-side must be read:

A: × ā : sa : sa : sa : is : āsa : sat × bibrau : haitir : mar :  
su : is : sitr : ā : blani?

Moltke read **blanu[m]**. Two vertical strokes can be distinguished, the top of the last one is damaged so the reading as **u** instead of **i**? is possible. For linguistic reasons a dative – singular or plural – is expected after the preposition *ā*, but probably a singular dative, **blani**, “on the blue one” should be preferred. Two crosses frame the first part of the inscription, otherwise the division-marks consist of two, three, or four points.

The inscription on the C-side consists of 49 signs, presumably according to some cipher system. It starts with **aaal** (a couple of runes might be missing at the beginning) followed by bind-rune-like signs with two branches, in groups of 3, 6, 3, 2, 1, 5, **aaaaa**, 3, 3, 3, 3, 3, 4 or 5, mostly divided by one-point division-marks, different from the two, three, or four points of the A-inscription. Otherwise the cutting technique seems to be the same, for instance in the division-marks with a characteristic trace of a triangular, rather long knife-stick, the point downwards. This also tells us that the C-inscription must be read from the pointed end of the stick, unlike the A-inscription. The inscription has not yet been deciphered, though it looks as if it ought to make sense.

The fupark on Side B, which starts 6.5 cm from the scribbles at the end, is also to be read from the pointed end of the stick. Though perhaps cut by another, less skilled carver, since the rune-forms differ rather a lot in detail from the runes of A (and C), it is important that the fupark runes show the same type-variants: the fourth rune, a (nasal) **ā**, with left-sided twigs as opposed to the thirteenth rune with right-sided twigs for **b**, i.e. rectograde compared with the normal usage in early short-twig inscriptions. In the later inscriptions, where the fourth rune normally denotes **o** (with variants) it generally has left-sided twigs, but the **b**-rune takes over the normal long-branch look (not so different from the Roman capital B). This is significant because it shows that the Narsaq inscription must belong to the early short-twig tradition, though perhaps with some uncertainty on the part of the carver, further confirmed by the use of what is normally the sign for the **R**-rune for **s**. In the A-inscription, **r** is also obviously used for the original **R**, in accordance with normal practice in West Norse inscriptions as early as the 9th-10th century,

when we would still find **R** in East Norse inscriptions. The short-twig **R** is found in one of the inscriptions from the Isle of Man (Andreas IV), and in the early short-twig inscriptions from Hedeby, for instance in the important fupark inscription, while in the few other known short-twig fuparks this last rune has often not been preserved. This is also the case with the fupark found by an archaeological excavation in Eiði on the Faroe Islands, probably from Viking-age layers (Andreassen 1980:28). The obviously uncertain and ill-shaped last rune in the Narsaq fupark is evidently a long-branch type which came to be used to represent **y** instead of **R** because of the initial sound in the rune-name: \**yR*. It is questionable whether in the Narsaq inscription this is a **y**- or an **R**-rune. In the inscription on side A, the **r**-rune is clearly used where we might have expected (original) **R** (**haitir**, **mar**, **sitr**). However, the variation in the rune-forms found in the short-twig inscriptions is considerable. The Narsaq fupark has also “normal” (or long-branch) variants of **h** and **m**, whereas Eiði has the short-twig variants.

Though the fracture makes it difficult to judge, the **s**-rune in the fupark is placed at the top unlike **s** in the inscription. Diverging **s**-forms have been found not only on the grave-slab from Thurso, Caithness (Olsen 1954:179f), but also in a graffiti-like medieval inscription from Nidaros Cathedral, No. XXXVII (N505) (Olsen 1960:65). A similar distribution of (retrograde) **o**- and **b**-variants appears on the Cunningsburgh stone II, Shetland (Olsen 1954:158f; Sanness Johnsen 1968:214f). The mixing of types and variants seems to be characteristic for the period around 1000 AD in all the North Atlantic rune-writing communities – in Norway, the Isle of Man, the Scottish Isles or the Faroes, Greenland and probably also in Iceland, though safe evidence of this is lacking.

In my opinion there are no specifically Greenlandic features in the Narsaq 1 inscription: the **r**-rune is quite normal for this period, and is not necessarily the precursor of the so-called Greenland **r**, as asserted by Moltke (1961:402).

In the inscription on the A-side, the fourth rune of the fupark seems to denote an *a*- not an *o*-sound. This was stressed from the outset by Erik Moltke, and has been generally accepted, though other interpretations have appeared. It places the inscription in the period before c. 1020 according to the traditional West Norse relative runological chronology.

Moltke normalized the inscription to Old Icelandic verse:

*á sæ, sæ, sæ,  
es āsa sāt.  
Bifrau heitir mærsú,  
es sitr á Blánum.*

That is: “In the sea, sea sea is the place where the āsa-gods are on their watch. **bibrau** is the name of the virgin who is sitting in the blue sky” or, perhaps better,

“the vault of heaven”. The reference is to a mythical woman or perhaps a star constellation. *Bláinn* is the name of the giant from whose skull the vault of heaven was formed. “The sense of these obscure words might be the following: the sea is deceitful; the asa-gods (whom you cannot always trust, or who are not always friendly towards you) are on their watch with stormy weather and rough sea. But Bibrau (except for this inscription the name is unknown), that virgin who is sitting in the blue sky, will take care that we reach our destination safely. Furthermore, to emphasize the power of the stick, the rune-alphabet has been carved in one of the sides. The fuþark was the most powerful magic factor to defend and protect one” (Moltke, quoted in Vebæk 1965a:116).

Incidentally, the fuþark might well represent a sort of key for the secret runes, but the Narsaq stick was probably meant for some magical purpose. Aslak Liestøl has compared the Narsaq inscription with a couple of spells from Bergen (B524), which combine a quotation in Old Norse translation from *Passio sancti Andreæ apostoli* with a similar version:

sesesæssesekonouena:seþu:huar:sitter:

and:

sese·se·sese·snot·uliota

(B404 but cf. also N628, Knirk 1990:236). According to Liestøl these (medieval) formulae, besides unintelligible “s-syllables” probably contain pagan elements: --- *kunu vena, é þú hvar sitr*, “---beautiful woman, see you where she sits”; --- *snót úljóta*, “---lovely lady”; and Narsaq’s “--- *bibrau* is the name of the girl who sits on ---” (Liestøl 1974:26f, cf. 1980:46; Knirk 1990:236). This name is otherwise unknown, and it is doubtful how it should be explained. If it is the name of the girl mentioned, this supports the interpretation of *ása* as a gen-

itive of the *Æsir* rather than a woman’s name, *Ása*. But the German runologist Wolfgang Krause preferred to interpret it as a woman’s name (Krause 1970:119f). It seems very likely that the inscription has reminiscences of mythological, now mostly lost, knowledge, cf. also Ingrid Sanness Johnsen (1968:211f). After close analysis and consideration of other alternatives, Helgi Guðmundsson (1975) largely accepted Moltke’s interpretation, though he read *blani*, *Bláni*, instead of *blanum*.

However, quite different interpretations of the Narsaq inscription as a riddle or joke have proposed: *á sæ sá sá es á sæ sáat*, “on the sea that seemed to be, which (you) did not see on the sea” – referring to a mirage (*bi-brá*) (Ólafur Halldórsson 1979); or *á sá sá sá es á sá sat*, “on (a) vessel (*sár*) saw the one who sat on (a) *sár*” (Jón Helgason 1977).

Though the interpretation thus is far from safe, the Narsaq 1 inscription belongs to an older period than the majority of runic inscriptions in Greenland, because it still uses the fourth rune in the fuþark as an *ā*-rune, and because of its short-twig *b*-rune, which must be seen as an old feature. Linguistically it seems very likely that the second *b* in *bibrau* denotes a bilabial b-sound or voiced f-sound, which is otherwise mostly rendered with *f*. This feature is also old, but rather common in the inscriptions around the North Atlantic (cf. Olsen 1949: 59; Sanness Johnsen 1968: 34f; Liestøl 1980:25): e.g. *ubir*, *yfir*, Iona-slab (Liestøl 1983:85f); *ubirlag*, *yfirlag*, *abt ikulb*, *eft Igulf*, Thurso-slab (Olsen 1954:179f); *āulaibr:liutulbsunr*, *Ólaifr (Áleifr) Ljótolfssonr*, Ballaugh, Isle of Man (Page 1983:140; Sanness Johnsen 1968:226); *olabr*, *Ólafr*, Cell of St. Molaise, Holy Island, Arran (Olsen 1954:169, 1960:230f), *ulab*, *Ólaf*, N614 Bergen, before 1198 (Liestøl 1980:24f); *þurlibr*, *Þorleifr*, Bradan IV, Isle of Man (Page 1983:140); *koplibar*, *Goðleifar*, Ikigaat/Hérjólfsnes cross II (Stoklund, in press).

The Narsaq 2 inscription, D5/1992–2, is a fragment of



Fig. 80. The Narsaq 2 inscription on a small, smoothed spoon-like piece of wood, Side A. About 9.0 × 2.2 cm. So little was left of the runes that no interpretation could be given.



Fig. 81. The Narsaq 2 inscription, Side B. The first three runes might be a man’s name, *Kárr*.



Fig. 82. The inscription on Narsaq 3, a small, smoothed piece of wood, 9.4 × 2.5 cm. Side A with the runes reading *snimtisatulask*.

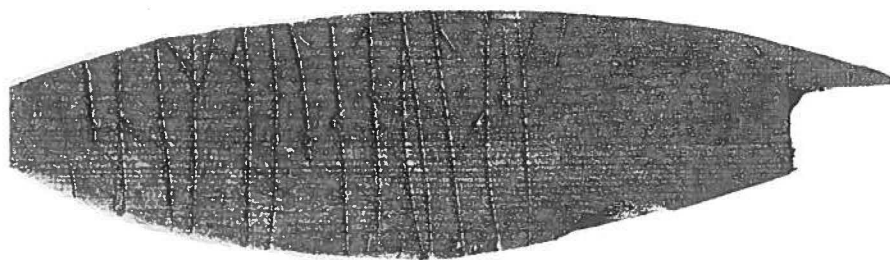


Fig. 83. The B-side of Narsaq 3 with the inscription *aulslutkusi*.



a flat, thin wooden artefact (pine), which looks like a small knife or flat spoon with a broken handle. It has split at one end and is somewhat damaged at the other. It measures c. 9 cm in length, 2.2 cm across, and is c. 0.5 cm thick, with faint runic traces on front and back. It was found during the excavations of the site and was examined by Erik Moltke in 1967. The A-side (Fig. 80) is slightly concave, the *ᚱ*-rune is c. 2 cm tall:

????s ᚱ ?t??(?)

The slightly convex B-side (Fig.81) has:

kar??lū??

Establishing the number of the signs and distinguishing runes from division-marks are problematical. Rune 5 on the A-side is seen as the distinct trace of the upper part of a stave, and must probably be read *s*. The possible *u*-rune on the B-side could also be an *r*-rune.

So little is left of the runes that no interpretation can be given, although *kar* could be a man's name *Kárr* or *Kárr*- "curl". The open form of the *r*-rune could be very old, and we cannot tell whether the *ᚱ*-rune should be read *a*, *b*, or perhaps as a late bind-rune, *ᚱᚱ*, or a retrograde *o* (cf. Stoklund 1991:65). This little artefact

might date back to the beginning of the Norse settlement or it could belong to the later phases.

The *Narsaq 3* inscription is cut on a small, smoothed, flat, oval piece of wood (pine ?), D5/1992-3, and is slightly damaged at one end. It measures 9.4 × max. 2.6 × 0.5 cm. The runes are cut from edge to edge on both sides, they are rather well preserved. Both inscriptions are complete, since there is space left over.

A. *snimtisatulask*  
B. *aulslutkusi*

On the A-side (Fig. 82) a damage to Rune 3 looks superficially like a point. One could discuss whether Rune 9 should be read *t* or *d* with a rather highly placed point or dot. It is, however, very different from the points found on the *s*-runes, and probably accidental. Though the very narrow Rune 10 seems almost closed at the bottom it is most likely to be *u*.

On the B-side (Fig.83) the top of Rune 6 is somewhat damaged, but no doubt the reading *l* is correct. A little scratch crossing the *u*-branch of Rune 7 is incidental. The *t*-twig of Rune 8 reaches the preceding *u*-rune, but the reading *ut* must be preferred to a ligatured *uki*.

There are no clear indications for a dating of this

Fig. 84. The inscription on Narsaq 4, a small, irregular piece of wood, 10.3 × 2.6 cm: *ᚱariara*.



inscription. It could belong to any time in the period of the Norse settlement. The orthography is difficult to place, and there are no division marks, so the interpretation becomes very problematical; but the inscription was probably intended to make semantic sense. Moltke proposed *snimmt es at ulask* "It is too early to..." (Ve-bæk 1965a:117). However, no safe interpretation can be given.

*The Narsaq 4 inscription, D5/1992-4.* This inscription was cut in a small irregular piece of wood, 10.3 cm long, 2.6 cm across, max. 1.2 cm thick, and somewhat tapered towards the ends (Fig. 84). The runes are written from edge to edge on the broad part of the smoothed, flat side where the grain now makes the dry surface quite ribbed.

A small vertical stroke before the inscription seems to be an initial mark, but this is not certain. The runes are rather well-shaped, the *r*-runes are open. On the photograph a small damage could be mistaken for an *a*-twig on Rune 6. The inscription seems to be complete and can easily be read:

.iariara

It seems most likely that the inscription was not meant to make linguistic sense, though it could be read *í Ari á rá* "in that Ari owns the *rá*", i.e. a sail-yard/ pole/ nook/ cabin (on board a ship) (?).

*Steatite loom-weight or net-sinker, D5/1992-5.* This piece was found in 1958 and measures c. 10 × 7 × 4 cm. On one side the (medieval) runes *io* or *oi* have been cut as a marking (Fig. 85); on the other side there is a non-runic marking.

*Steatite fragment of a loom-weight or net-sinker, D5/1992-6, found in 1958.* Part of the suspension hole can be seen in the broken edge of this triangular fragment, which measures c. 7.5 × 6.5 cm and is c. 2.5 cm thick. It has been marked with a pair of rune-like signs combined



Fig. 85. Steatite loom-weight or net-sinker, 10 × 7 cm, with the (medieval) runes for *io* or *oi*.

with a cross about 2 cm tall. There were also cross-markings on other steatite pieces from the site.

## Landnáma textiles from Ø 17a

By Else Østergård

Textile and leather fragments excavated from the lower strata of a *landnáma* farm in the Eastern Settlement, the largest Norse settlement in Greenland, are an extraordinarily exciting find which increases our knowledge of the craftsmanship of these people. There are few places where such a rich body of textile material from the early Middle Ages is preserved as here in South West Greenland.

The textile find from the *landnáma* farm in Narsaq comprises only 24 woven fragments, yet it provides a wealth of information (Table 1: The Textiles). Several of the woven materials are so well-preserved that they seem unaffected by a thousand years in the Greenland soil.

They can be dated to the end of the 900s (confirmed by radiocarbon dating). Given this early dating, it is likely that we are here dealing with the remains of clothing or fragments of utility textiles that belonged, if not to Eric the Red himself, then perhaps to his travelling companions – people who came to live at the Eastern Settlement in the same decades. *Landnáma* (settler) families with children, servants and domestic animals came from Iceland, where their clothes, sails and other goods they took with them were undoubtedly made or bought. The emigrants would have brought the essentials with them to the new country, presumably warm clothing and blankets in particular, so they could survive until they all had a roof over their heads. On the voyage over sometimes ice-packed water it would also have been essential to be warmly clothed. If we compare the *landnáma* fragments with the cloth of which the Herjolfsnes garments (Nørlund 1924) are made, or with the other analysed Norse textiles (Østergård 1982a, 1987), which are a couple of centuries younger, there is, with few exceptions, a striking uniformity in both sewing and weaving. The textile tradition remained strong.

Since we must assume that the *landnáma* fragments come from Iceland, it is appropriate to look for analogous material there. However, we have few archaeological textile finds from Iceland (Hoffmann 1964; Guð-jónsson 1991, 1992). But what we lack in find material is amply compensated by the written information found for example in *Grágás*, a legal codex of which the oldest part is from 1030 AD. This gives regulations for the weaving of wadmál, i.e. a twill-woven cloth in wool made on a warp-weighted loom. The Icelandic term for wadmál was *vaðmál*, a name originally designating a measure (*mál*) of cloth 20 ells long and 2 ells wide (the Icelandic *alin* or ell was about half a yard). It was woven

Cat. no.	Dimensions (cm)	Spin dir.	Angle of twist	Yarn diameter (mm)	Thread count pr. cm <sup>2</sup>	Binding system	Other details
7	10×10	Z/S	60°–65°/20°	$\frac{1}{2}$ –1/1–2	9/7	2/2 twill	Decorative stitching Starting border – the weaving seems uneven
8	14×11.5	Z/S	43°/3°	$\frac{1}{2}$ /1	14/11	2/2 twill	
9	31×16	Z/Z	50°/50°	1/1	14/6–10/5	plain tabby	
10	34×14	Z/S	45°–50°/25°	1/2	5×2/4	half-basket weave	Selvedge
11	3×12	Z/S	40°–45°/10°–20°	1/ $\frac{1}{2}$	8/7	2/2 twill	
12	5×22	Z/S	45°/20°	1/1 $\frac{1}{2}$	10/7	2/2 twill	
13	6.5×9	Z/S	30°–40°/20°	1/1 $\frac{1}{2}$	10/5	2/2 twill	Uneven weft
14	8.5×8	Z/S	40°/20°	1/1 $\frac{1}{2}$	10/5	2/2 twill	
15	20×18	Z/S	50°/20°	1 $\frac{1}{2}$ /1 $\frac{1}{2}$ –2	8/7	2/2 twill	
16	13×21	Z/S	40°–50°/20°	1 $\frac{1}{2}$ /2–3	9/4	2/2 twill	
17	16×10	Z/S	50°/10°	1–2/2–3	6/5	2/2 twill	
18	15×3	Z/S	40°–50°/25°	1/1–1 $\frac{1}{2}$	10/8	2/2	
19	6×8	Z/S	55°/20°–25°	1/1	12/11	2/2	
20	8×4.5	Z/S	40°/20°–25°	$\frac{3}{4}$ /1	15/9	2/2	
21	8.5×10	Z/S	50°/30°	$\frac{1}{2}$ –1/2	10/6	2/2	
22	8×13	Z/S	55°/35°	$\frac{1}{2}$ /1	14/12	2/2	
23	17×4	Z/S	45°–50°/30°	1/ $\frac{1}{2}$	7/7	2/2	Selvedge
24	4×10	Z/S	45°–50°/30°	1/1 $\frac{1}{2}$	8/7	2/2	
25	5×12	Z/S	40°/25°	1–1 $\frac{1}{2}$ /1 $\frac{1}{2}$ –2	7/6	2/2	Selvedge
26	7×15	Z/S	45°–50°/25°	$\frac{1}{2}$ –1/1	12/10	2/2	
27	10×5.5	Z/S	55°/35°	1/1	12/12	2/2	Selvedge
28	13×17	Z/S	50°/30°–35°	1 $\frac{1}{2}$ /2	8/4–5	2/2	
29	7×7	Z/S	50°/20°	1/2	8/6	2/2	Bundle of wool yarn, all S-spun except for two Z-spun threads knotted together
30	7×9	Z/S	45°/10°–20°	1/1 $\frac{1}{2}$	8/8	2/2 twill	
31	5×22	Z/S	20°–30°	1–2			
	length: 2–4	S					

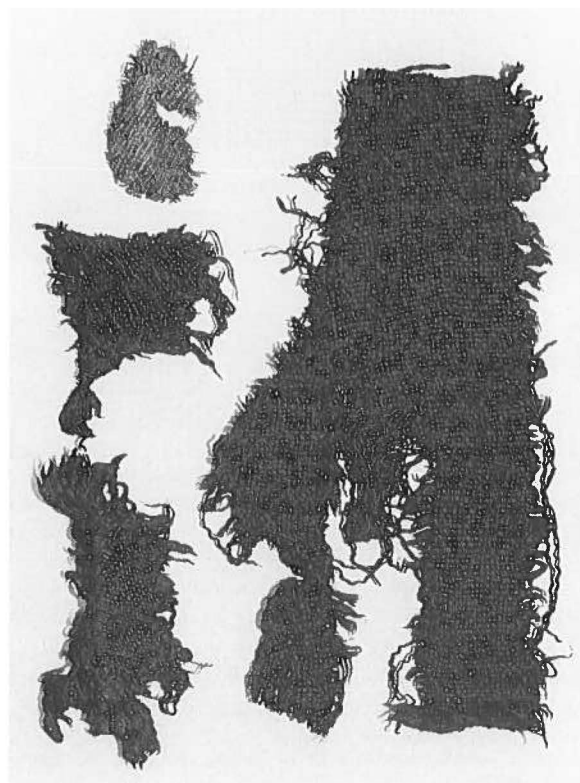
*briskept* (three-shaft) on the warp-weighted loom. In present-day terminology four-shaft, i.e. 2/2 twill (Guðjónsson 1985).

Wadmal was highly prized and was used as a means of payment, where six ells corresponded to one *eyrir* or ounce of silver. Other Icelandic sources mention that the weight too was fixed (Hoffmann 1964). If a product is to be used as a means of payment, this necessarily involves standardization.

The analysis charts for the weaves from the *landnáma* farm in Narsaq show that 22 of the 24 pieces were woven in 2/2 twill. All warp threads are Z-spun and all weft threads are S-spun. The thread count per cm<sup>2</sup> varies, but does exhibit some uniformity – considering the very modest number.

Wadmal was produced in several grades with different names. There were also colour specifications, but

Fig. 86. Four fragments of the textiles found at Narsaq. Top left, Reg. No. 19. It is now light brown in colour, but seems to have been made of white wool. 2/2 twill. On the right, No. 10, a large piece of half-basket weave, never registered before in the Norse textile material. The cloth was dyed dark mottled purple. Left, No. 28 and No. 25 (below), two pieces of woollen cloth, 2/2 twill, typical of the Norse settlers in Greenland. Vadmal from Iceland ?



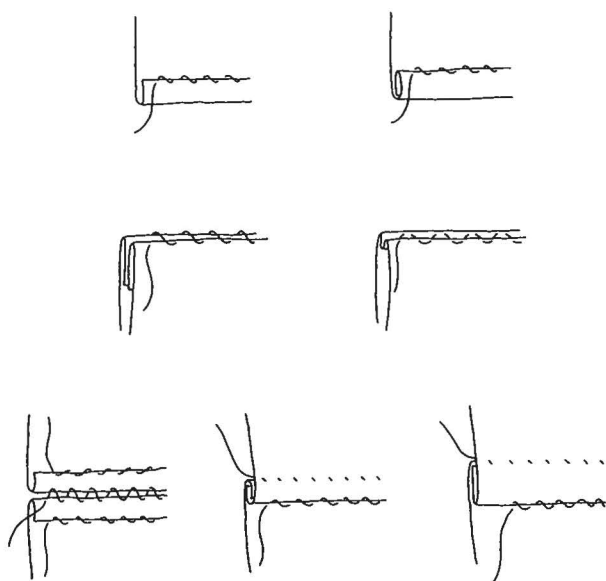


Fig. 87. Drawings of seams in the Norse textiles (Reg. Nos. 6, 7, 9, 20, 6, 18, 1–19). (Irene Skals, del.).

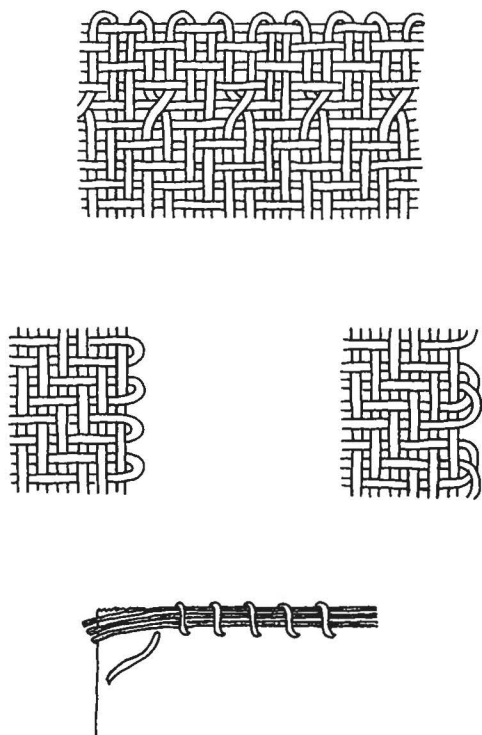


Fig. 88. At the top a starting border from No. 9. In the middle two selvages from No. 12 and No. 27. At the bottom a decorated edging seen on the blue-dyed cloth No. 8. (Irene Skals, del.).

only for natural colours such as white, brown iron-grey, sea-grey and black. The twill-woven wadmál cloth and shaggy weaves, *vararfeldir*, for cloaks, were the most important export articles from Iceland in the early Middle Ages. The production of *vararfeldir* ceased, however, before the end of the 1100s (Guðjónsson 1980, 1985).

As the weave analyses show, two of the fragments are different: No. 9 is in plain weave and No. 10 is in half-basket weave (Fig. 86). The plain weaves occur very rarely in Greenland, and half-basket weave is recorded here for the first time. The related full-basket weave, called *tvistur* in Iceland (Guðjónsson 1983), occurs as a base material in several medieval church textiles, for example in a *refill* of the end of the 1500s from Hvammur Church, now at the National Museum in Copenhagen. This is a large tapestry, 65 × 255 cm, with pictures embroidered in *refilsámur* (NM Dept. II, Mus. No. CLII), a technique also known from the Bayeux Tapestry (Guðjónsson 1983a). However, there are no traces of embroidery on the *tvistur* (No. 10) from the Greenland find.

The woven fragments from the *landnáma* farm show, besides the correlated facts in the analytical charts, that this was high-quality cloth with beautifully executed stitching (Figs. 87 & 88).

The biggest surprise in the analytical work was, however, the “decorative stitching”, No. 8 (Figs. 89 & 90). This piece measures only 14 × 11 cm, but as shown most clearly in the diagram (Fig. 91), there are traces of couching. One or more twisted threads were laid over the weave and sewn on to it. No actual pattern can be identified – perhaps it was just a practice piece. The stitches, and in particular the couched threads, are in the process of decomposition. So it was with some reservations that samples were taken for colour analysis (see the following chapter).

Thread samples were also taken from another four fragments which turned out to have been well-chosen. The samples were taken from the plain weave piece No. 9 and the *tvistur* No. 10, and finally from the fragments No. 19 and No. 22, both of which are twill-woven in a relatively close texture. Besides the woven fragments there was a bundle of yarn (No. 31). A few threads were tied together, and some look reddish-brown, but no pigment analysis was done.

Along with the textile fragments there were some pieces of leather. As can be seen in Fig. 92, these are a sole and an couple of fragments of the leather uppers of a shoe.

As will be evident from Penelope Walton Rogers’ pigment analyses in the next chapter, four of the samples contained dyes. The decorative stitching was done with two red threads, one darker than the other, on a blue-dyed piece of cloth. The other three were red, all coloured with *korkje*, a lichen dye.

Textile research of the future may be able to tell us whether the Icelandic emigrants brought knowledge of

Fig. 89. Textile fragment  
No. 8, front view.  
Decorative stitching can be  
seen, as illustrated in the  
diagram, Fig. 91. The cloth  
is dyed blue and the  
stitching is in light and dark  
red.

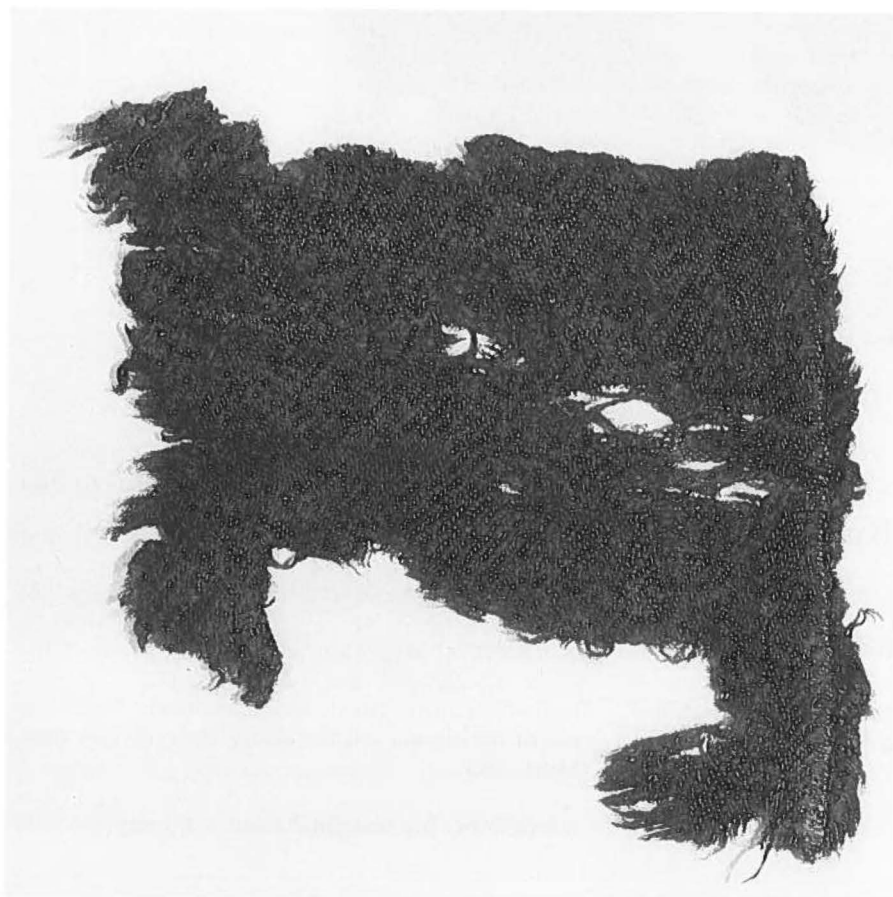


Fig. 90. The reverse of No.  
8. On the right a nicely  
made seam, joining two  
pieces of cloth together. At  
the top the edging illustrated  
in Fig. 88.



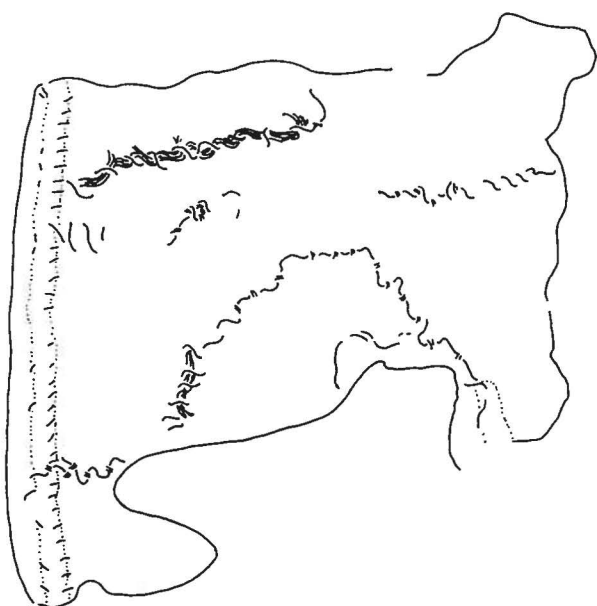


Fig. 91. Diagram of the decorative stitching (Reg. No. 8).  
(Irene Skals, del.).

dyeing with them to Norse Greenland as red-dyed cloth was a valuable item bartered for furs with the *Skraelings* (Eskimos or Indians) of Vinland (cf. Grönlands Historiske Mindesmærker 1838: 425).

The *landnáma* pioneers were not small farmers who left Iceland out of general dissatisfaction. They were big farmers with an urge to travel, who like their peers in Norway and many other countries dressed in costly and colourful clothing. The small pieces of cloth preserved from Ø 17a in Narsaq may be the remnants of a magnificently embroidered cloak sewn from the legendary Icelandic wadmál – or perhaps clothes from somewhere quite different.

The textiles from the *landnáma* farm make up only a small part of the overall Norse material, but it is a textile find which contributes important new information on the Norse settlers' textile culture.

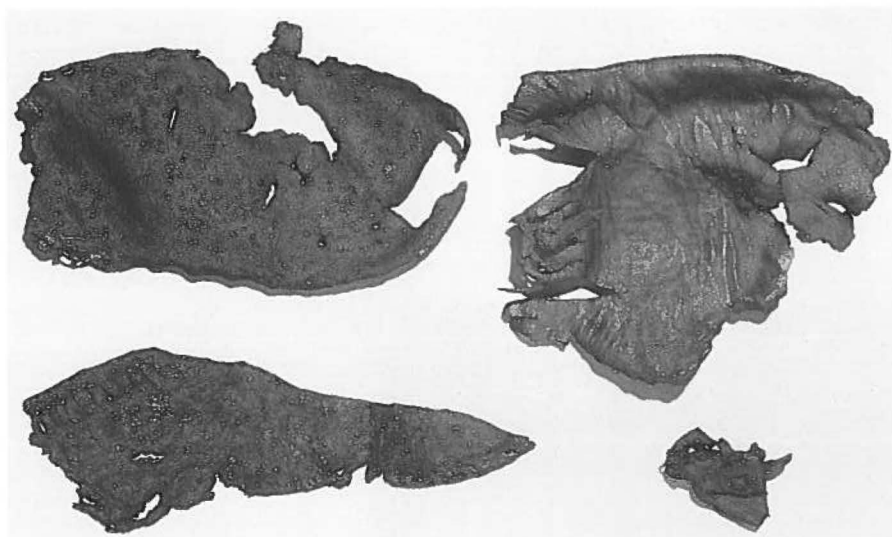


Fig. 92. Four fragments of leather footwear. A sole (max. 16 × 8 cm) and three pieces of upper leather with cut eyelet holes.

## Dyes and wools in Norse textiles from Ø 17a

By Penelope Walton Rogers

Samples of five textiles from an early Norse farm at Narsaq were provided for analysis by Else Østergård of the *Nationalmuseets Bevaringssektion*. The samples were as follows:

No. 8: ZS textile with decorative stitching; warp (Z); weft (S); light stitching; dark stitching.

No. 9: ZZ tabby with starting border; warp (Z); weft (Z).

No. 10: Half-basket-weave in glossy wool; warp (Z); weft (S).

No. 19: ZS 2/2 twill; warp (Z); weft (S).

No. 22: ZS 2/2 twill; warp (Z); weft (S).

To the naked eye, No.19 was light brown, No.22 was reddish brown and the remainder were all very dark, almost black.

Table 1: Fleece-types in textiles from Narsaq  
Statistics for each sample are based on the measurement of the diameters of fibres  
Measurements in microns (1 micron = 0.001mm)

Textile	Yarn	Range	Mode(S)	Mean $\pm$ S.D.	Pearson coeff. of skew, distribution	Medullas	Pigment	Fleece-type
No. 8	warp (Z)	24-78	39	44.5 $\pm$ 11.4	+1.07, positive skew	7%	1%	Hairy
	weft (S)	15-87	25	29.1 $\pm$ 10.1	+0.59, positive skew	3%	none	Hairy Medium
No. 9	warp (Z)	16-73, 109, 124	32, 37	40.4 $\pm$ 20.1	+0.65, positive skew	?*	moderate on all	Hairy
	weft (Z)	12-70	29	33.5 $\pm$ 12.0	+1.08, positive skew	?*	moderate on all	Hairy Medium
No. 10	warp (Z)	14-107	25, 47	45.0 $\pm$ 22.0	+0.12, continuous	?*	dense on approx 50%	Hairy
	weft (S)	12-91	21	33.4 $\pm$ 19.0	+1.15, positive skew	?*	dense on approx 50%	Hairy Medium
No. 19	warp (Z)	20-87	35	42.0 $\pm$ 13.4	+0.38, continuous	13%	3%	Hairy
	weft (S)	12-80, 94, 107	20	33.6 $\pm$ 18.7	+0.98, positive skew	7%	7%	Hairy Medium
No. 22	warp (Z)	24-80, 132	32, 52	49.2 $\pm$ 18.7	-0.17, continuous	7%	3%	Hairy
	weft (S)	16-40, 62-87	24	27.9 $\pm$ 10.3	+0.60, discontinuous/positive skew	4%	none	Hairy Medium

\*Medullas were obscured by the combination of pigment and particularly deep dyeing

### The wool

In order to identify the type of wool from which the textiles had been made, the diameters of fibres from the warp and weft of each textile were measured with a high-power transmitted-light microscope (x400 magnification) fitted with a measuring graticule. The measurements were plotted on a histogram and the fleece-types identified according to the guidelines laid down by Dr. M.L.Ryder (Ryder 1969). A summary of each set of measurements is given in Table 1 (Fleece-types in textiles from Narsaq).

The results were remarkably consistent from textile to textile. In each case the wool of the warp proved to be much coarser than that in the weft (refer to Table 1 and compare the means for warp and weft of each textile). In terms of fleece-types, the warp in all five is Hairy and the weft Hairy Medium. The Hairy fleece is distinguished by relatively little underwool, with a large number of 'hairs' – that is, coarse fibres over 60 microns diameter, with a central channel called a medulla. The Hairy Medium fleece-type has more, and finer, underwool, with only a few hairs.

One other example of a wool textile from Greenland has already been studied by Dr. Ryder. This was from Herjolfsnes and dated to c. 1300 AD, some three centuries later than the Narsaq find (Ryder 1974: 106). It, too, had a Hairy fleece-type in the warp, with a mean of 50 microns, and a Hairy Medium wool in the weft, with a mean of 30 microns. This combination of Hairy warp and Hairy Medium weft is not at all common in those textiles from Viking-Age Norway and Denmark which

have been studied so far (Bender Jørgensen & Walton 1986; Walton 1988a, 1991). It therefore seems likely that the consistent use of these two fleece-types was the Greenland weavers' response to a rather limited range of available wool.

The early Greenland settlers probably brought with them Icelandic sheep, which had in turn reached Iceland with Norse settlers (Ryder 1978: 543). Present-day descendants of these Norse Icelandic sheep have a soft, fine undercoat with a few hairs (*ibid.*) – in other words a Hairy Medium type, much like that in the weft of the Greenland textiles. Sheep bones from Narsaq, however, have been reported to be like those of the primitive feral sheep which survived until the 19th century on the island of Lille Dimon in the Faroes (Ryder 1983: 548, citing Degerbøl 1936). Two stuffed examples of Lille Dimon sheep studied by Ryder proved to be hairy in the back, breech and belly, although more woolly in the flank; present-day Faroese sheep are also relatively hairy (Ryder *op.cit.*, p.540). Wool of this sort would have been appropriate for the warp yarn of the Greenland textiles.

### Colour

All samples were examined for natural pigment, which may be identified by microscopy from pigment granules in the fibre. Dyes were extracted into solvents and the extracts examined by absorption spectrophotometry (Walton & Taylor 1991). The findings may be summarised as follows:

Sample	Natural wool colour	Dye	Likely original colour
No. 8	white	woad/indigo (indigotin)	blue
Stitching light dark	white	lichen purple	purple
No. 9	mottled white & brown/black	lichen purple ?	dark, mottled purple
No. 10	brown or grey	lichen purple	deep purple
	mottled white & brown/black	lichen purple	dark mottled purple, almost black
No. 19	white	no dye detected	white ?
No. 22	white	lichen purple	deep purple

Three of the samples were worked from naturally coloured wools, one a uniform brown or grey (No. 9), the other two mottled, from a combination of white and dark brown or black fibres (No. 8 dark stitching & No. 10).

In the Herjolfsnes sample examined by Ryder, the warp was moderately pigmented throughout and the weft pigmented only in the coarser fibres. Some further samples from Herjolfsnes, from a dress (D10581) and hood (D10597), have been studied from the point of view of colour and have also proved to be in one instance white and in the other mottled white/brown in the warp and white in the weft (Walton, unpublished report to the National Museum). The range of colours in the Greenland textiles corresponds with the wools of present-day Iceland sheep, which, although mainly white, are 10%-20% coloured, black, brown, grey, brown/grey and even piebald (Ryder 1978: 543); the Lille Dimon sheep were brown all over, although present-day Faroese sheep show the same range of colours as Icelandic sheep (Ryder 1983: 540).

The most significant finding of the present study is the dyes in the textiles. Neither the blue indigotin nor the lichen-derived purple has been previously identified in Greenland textiles. (Yet it must be mentioned that the blue indigotin has been found by Else Østergård on V51, Sandnes, Kilaarsarfik, in the Western Settlement). The indigotin, most probably derived from woad, is not entirely surprising, as it is common in Viking-Age textiles from Norway and Denmark (Bender Jørgensen & Walton 1986; Walton 1988a, 1988b). The lichen purple, on the other hand, especially in such deep, rich dyeings as here, is quite remarkable. Lichen purple has been found in a scattering of textiles from Britain, Scandinavia and northern Germany, from the Roman period to the medieval, generally in the finer, better quality textiles (Taylor & Walton 1983; Walton 1991). The only collection of textiles with any number of lichen purples dyeings in textiles of lesser quality is that from Viking-Age (Hiberno-Norse) Dublin (Walton 1988b).

There are several lichens which can yield the purple dye of the Greenland textiles. Those growing on Mediterranean coasts went into the famous medieval dye, orchil, traded by Florentine merchants (Kok 1966: 252f). In the northern world, native lichens were used for an orchil equivalent, variously known as cork, lacmus, or, in more recent times, cudbear. The northern lichens which can yield these purple dyes are species of *Evernia*, *Ochrolechia*, *Parmelia* and *Umbilicaria* (Bolton 1982: 15–18). *Ochrolechia tartarea* (L.) Massal. (formerly *Lecanora tartarea* Ach.) seems to have been the most commonly exploited and is relatively widespread in northern latitudes (Brunello 1973: 350). It was collected from rocks and trees when it was at least five years old and prepared with stale urine (Grierson 1986: 170ff, 180ff; Bolton 1982: 16–17). Bolton describes the addition of lime, chalk or burned shells – presumably to give the dye a blue tone, as these lichen dyes, like their

relative litmus, move towards blue in alkali and towards red in acid. A mordant is not necessary (Grierson *ibid.*), which means that all the ingredients required to prepare the dye would be readily available in Greenland.

In Norway the dye was certainly known by the 14th century, when it was an article of trade (Lunde 1975: 119), but there is as yet little archaeological evidence for the dye's use in Scandinavia in the Viking Age (Walton 1988a: 156f). The Narsaq findings from ca. 1000 AD are therefore vital in establishing that the Norse *landnámenn* in Greenland did know how to recognise, prepare and dye with purple-bearing lichens. Moreover, the depth of dye on textiles such as Narsaq No. 10 indicates that the Greenlanders possessed considerable skill in the technique.

## The zooarchaeology of Ø 17a

By Thomas H. McGovern, Gerald F. Bigelow, Thomas Amorosi, James Woollett & Sophia Perdikaris

### Abstract

Excavations carried out in 1954, 1958 and 1962 by Dr. C.L. Vebæk at the Norse site Ø 17a at Narsaq produced substantial amounts of animal bone. Most of this archaeofauna could be separated into lowest and upper strata, providing stratigraphically separated evidence for the development of the Norse economy in Greenland. This important collection is fully reported and some broad comparisons are drawn with contemporary North Atlantic archaeofauna in Iceland.

### Dedication

We would like to respectfully dedicate this paper to the memory of Dr. Scient. h.c. Ulrik Møhl, a pioneer in North Atlantic zooarchaeology whose many contributions to Greenland's past and generous spirit towards present researchers will be long remembered.

## Animal bones from Narsaq

The excavations carried out by Dr. Vebæk at Narsaq on the site Ø 17a produced one of the most important archaeofauna yet collected from the Eastern Settlement. Stratigraphic separation is not easily achieved in the excavation of North Atlantic Scandinavian structures, especially in Greenland where "twig layer" flooring was often removed and spread on the midden out-

Table 1. Listing of species present (scientific and common names) by location for lower layers. Soil matrix pH ca. 6.25, unsieved.

Distribution of Bone Fragments		LOWER LAYERS NISP by Room			Interior Total	Exterior Deposits	LOWER LAYERS TOTAL
		I	II	III			
<b>DOMESTICATES</b>							
<i>Bos taurus</i>	cattle	51	37	2	90	37	127
<i>Canis familiaris</i>	dog				0	1	1
<i>Sus scrofa</i>	pig		4		4	6	10
<i>Ovis aries</i>	sheep	4	6		10	8	18
<i>Capra hircus</i>	goat	4	1		5	1	6
<i>Ovis/Capra</i> sp.	caprine	84	48		132	87	219
<b>CARIBOU</b>							
<i>Rangifer tarandus</i>	caribou bone	47	8		55	31	86
	antler fragment	55	26		81	76	157
<b>SEALS</b>							
<i>Pagophilus groenlandicus</i>	harp	15	2		17	2	19
<i>Phoca vitulina</i>	common	24	1		25	12	37
<i>Phoca hispida</i>	ringed		1		1		1
<i>Cystophora cristata</i>	hooded	1	3		4		4
<i>Erignatus barbatus</i>	bearded	2			2	1	3
<i>Phocid</i> sp.	seal sp.	301	62		363	77	440
<b>WHALES</b>							
	Great whale		1		1	25	26
<i>Delphinapterus leucas</i>	beluga		1		1	2	3
<i>Cetacea</i> sp.	whale sp.		4		4	1	5
<b>BIRDS</b>							
<i>Alle alle</i>	dovkie					1	1
<i>Uria</i> sp.	murre sp.	13			13	5	18
<i>Somateria mollissima</i>	eider duck		1		1		1
<i>Haliaeetus albicilla</i>	sea eagle				0	1	1
<i>Lagopus mutus</i>	rock ptarmigan				0	2	2
<i>Cygnus</i> sp.	swan sp.	3			3		3
<i>Alca torda</i>	razorbill	1			1		1
<i>Larus glaucoideus</i>	Iceland gull	3			3		3
	Bird sp.				0	1	1
<b>OTHER MAMMALS</b>							
<i>Odobenus rosmarus</i>	walrus	5	10		15	10	25
<i>Alopex lagopus</i>	arctic fox	2	2		4		4
<i>Ursus maritimus</i>	polar bear	6	1		7	1	8
<b>TOTAL NISP (including antler) =</b>		621	219	2	842	388	1230
<b>Unidentified fragments</b>		369	53	0	422	142	564
<b>% identified</b>		62.73	80.52	100.00	66.61	73.21	68.56

side (Buckland, Sadler & Smith in press; McGovern 1992a). The damp building site at Ø 17a apparently promoted the accumulation of stratified floor layers, and Dr. Vebæk's systematic excavation allowed the separation of the bone collection into upper, lower, and mixed deposits.

Only the remains clearly identified with upper and lowest deposits have been used for comparison (Tables 1 & 2), the remaining fragments are presented in Table 3. A small collection of animal bones was associated with the later Eskimo occupation of the site and is also presented in Table 3. The Narsaq collection has been partially reported in McGovern & Bigelow (1984). The

current paper presents a partial revision of the 1984 publication and provides additional data not previously reported. It also attempts to place the early settlement period collection from Ø 17a in the context of other known archaeofauna of the same period from Iceland.

The initial analysis was carried out with the kind permission of Dr. Vebæk and with the generous assistance of the Quaternary Department of the University Zoological Museum in Copenhagen. Jeppe Møhl of the Zoological Museum very kindly carried out the identification of a stray sample of Ø 17a bone that was discovered after the initial identifications. The authors would also like to thank Claus Andreasen, Jette Arneborg,

Table 2. Listing of species present (scientific and common names) by location for upper layers. Soil matrix pH ca. 6.25, unsieved.

Distribution of Bone Fragments Taxon		UPPER LAYERS				UPPER LAYERS TOTAL
		Context Room I	Room II	Interior Total	Exterior	
DOMESTIC MAMMALS						
Bos taurus	cattle	43	16	59	17	76
Equus caballus	horse	2		2		2
Canis familiaris	dog	1		1		1
Sus scrofa	pig	1	2	3		3
Ovis aries	sheep	10		10		10
Capra hircus	goat	1		1		1
Ovis/Capra sp.	caprine	85	2	87	10	97
CARIBOU						
Rangifer tarandus	caribou bone	7	3	10	12	22
	antler fragment	2	2	4		4
SEALS						
Pagophilus groenlandicus	harp	21	12	33	6	39
Phoca vitulina	common	5		5		5
Cystophora cristata	hooded	9		9		9
Erignatus barbatus	bearded	1		1		1
Phocid sp.	seal sp.	194	5	199		199
WHALES						
	great whale	2		2		2
	small whale/porpoise	1		1		1
	whale sp.	16	2	18		18
BIRDS						
Uria sp.	murre sp.	3		3		3
Alle alle	dovkie	2		2		2
	Bird sp.	1		1		1
FISH						
	Fish sp.	1		1		1
OTHER MAMMALS						
Odobenus rosmarus	walrus	2	1	3		3
Alopex lagopus	arctic fox			0	2	2
Ursus maritimus	polar bear			0	1	1
Homo sapiens	human	5		5		5
TOTAL NISP (including antler) =		415	45	460	48	508
Unidentified fragments		468	4	472	2	474
% identified		47.00	91.84	49.36	96.00	51.73

Margret Hermanns-Audardottir, Bjarni Einarsson, Christian Keller, Morten Meldgaard, Aevor Petersen, and Gudmundur Olafsson for use of data and valuable comments on earlier versions of this report. All bone materials and original data are archived at the Zoological Museum in Copenhagen.

## Methods of quantification

Zooarchaeological analyses have used a range of quantitative techniques during the past twenty years (Grayson 1984), including bone weight, Minimum Number of Individuals (MNI, MIND), Most Common Element

Count, Relative and Adjusted Relative Frequency measures (RF ARF), Density Dependent ratios (DD) and the simple count of identified specimens (NISP, TNB, E). While analysts today agree that there is no single, universally appropriate quantitative measure, the most commonly used techniques at present are MNI and NISP counts. These measures have somewhat different basic assumptions and applications. The MNI count is most suitable for a "catastrophic" or "precipitate" deposition of a number of animals over a short time period (Amorosi 1991; Grayson 1984), in which many nearly complete individual skeletons are jumbled together and deposited on a clean floor (such as a mass bison kill or natural tar pit trap, cf. Speth 1983; Stock 1953). The NISP count has proven more effective for more gradual,



Table 3. Listing of species present (scientific and common names) by location for both Norse collections from mixed layers or unlocated contexts and Eskimo collection. Note that Eskimo collection is probably too small to further quantify. Soil matrix pH ca. 6.25, unsieved.

Distribution on Bone Fragments Taxon		NORSE CONTEXTS BONES NOT LOCATED TO LAYER			NORSE UNLOCA- TED TOTAL	INUIT CONTEXTS LOCALITIES 1&2
		Room II	Rooms III&IV	Exterior		
DOMESTIC MAMMALS						
Bos taurus	cattle		7	14	21	
Equus caballus	horse		1		1	
Canis familiaris	dog				0	2
Sus scrofa	pig				0	
Ovis aries	sheep			1	1	
Capra hircus	goat		1		1	
Ovis/Capra sp.	caprine		4		4	
CARIBOU						
Rangifer tarandus	caribou bone		1	3	4	7
	antler fragment			1	1	
SEALS						
Pagophilus groenlandicus	harp		2	5	7	4
Phoca vitulina	common		1	2	3	
Cystophora cristata	hooded		2	3	5	1
Erignatus barbatus	bearded			3	3	
Phocid sp.	seal sp.		25	64	89	131
WHALES						
	great whale	1		1	2	
	Small whale/porpoise		2		2	
	whale sp.			2	2	
BIRDS						
Uria sp.	murre sp.					15
Alle alle	dovkie					5
Falco sp.	medium raptor					1
Aves sp.	bird sp.					12
OTHER MAMMALS						
Odobenus rosmarus	walrus		1	11	12	
Alopex lagopus	arctic fox				0	1
Ursus maritimus	polar bear			1	1	
Lepus arcticus	arctic hare				0	1
Homo sapiens	human			1	1	
FISH						
pisces sp.	fish sp.					3
TOTAL NISP (including antler) =		1	47	112	160	183
Scrap		0	3	19	22	31
% ID		100.00	94.00	85.50	87.91	85.51

accretional accumulations (such as domestic refuse building up over months and years). In such contexts the disjointed, partially consumed fragments of a great many individual animals are deposited (and sometimes reworked) over a long period.

Since the great majority of Norse collections are gradual accumulations of domestic refuse, NISP counts seem more appropriate for most portions of these ar-

chaeofauna (see McGovern 1985b for discussion). NISP counts have also proven more effective in dealing with smaller collections (Gilbert & Singer 1982), and are most suited to the integration of the work of Dr. Magnus Degerbøl and Ulrik Møl with more recent North Atlantic studies. Both current theory and Greenlandic zooarchaeological tradition thus favor the use of NISP fragment counts as the basic quantitative measure.

## Data quality

As noted in prior publication (McGovern in Vebæk 1992), any zooarchaeological analysis must address questions of data quality, especially when presenting older collections. When the last Narsaq excavation season was taking place, zooarchaeology was barely a part of medieval archaeology in most parts of the world. The strong Danish zooarchaeological tradition established in Greenland by the work of Winge (Winge in Bruun 1895, 1917, 1918) and of Magnus Degerbøl & Ulrik Møhl (Degerbøl 1929, 1934, 1936, 1941, 1943) and the foresight of Dr. Vebæk combine to preserve a stratified archaeofauna that remains unique in the Eastern Settlement region. The Narsaq collections contain a great many fragments 2 cm and smaller, indicating the care that went into their collection in the field.

However, it must be realized that these are hand-recovered, not sieved collections. As numerous experiments demonstrate, unsieved collections are biased towards the larger taxa (in this case seals, caribou, and domestic mammals) and under-represent smaller and rarer taxa (Payne 1972). As argued elsewhere (McGovern 1985b), this "Payne effect" does not render older collections useless, but indicates that only the larger, more numerous taxa should be used for systematic comparison and that small collections (less than 300 NISP) should be excluded from inter-site analyses. Smaller taxa represented by only a few bones per collection are very subject to skewing from many factors, and their quantification here is best considered as a probably incomplete presence/absence measure. The great majority of bones (>80% NISP) in all presently known Norse archaeofauna from Greenland come from cattle, caprines (sheep and goats), caribou, and seals. Even collections that have been sieved and laboratory flo-

tated are dominated by these large-to-medium sized mammals (McGovern 1992b), so it may be reasonable to use these taxa for broad inter-site comparison.

## Species present

Like all other known archaeofauna from Norse Greenland, the Ø 17a collections from both upper and lower layers are dominated by seals, imported domestic mammals (cattle, sheep, goats, pigs, dogs, and horses), and caribou (Fig. 93). Bird bones, whale bones, fox, hare, polar bear, walrus, and a single fishbone make up the rest of the collection but never total more than 5% of the NISP for either lower or upper layers.

## Domestic Mammals

The domestic mammals are mainly cattle (*Bos taurus domesticus*) and sheep (*Ovis aries*) and goat (*Capra hircus*), though some pig (*Sus scrofa*), dog (*Canis familiaris*) and horse (*Equus caballus*) remains were also present (Fig. 94).

While the extreme fragmentation of the collection (also a common characteristic of Norse Greenlandic archaeofauna) severely limits metrical analysis, we can state that the cattle from Ø 17a were of the small medieval type documented elsewhere in Greenland and Atlantic Scandinavia (Russell 1985; Perdikaris 1991). One cranial fragment from the lower layers was from a naturally polled (hornless) individual. This trait seems to have been present in the cattle brought during the Viking Age expansion, as other naturally polled specimens are known from Icelandic early medieval through early modern collections.

Only two cattle tooth rows were present in the upper

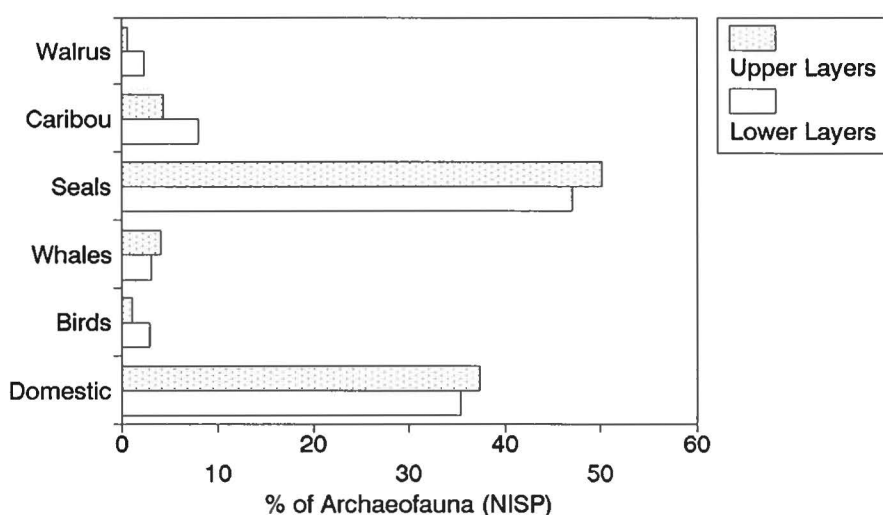
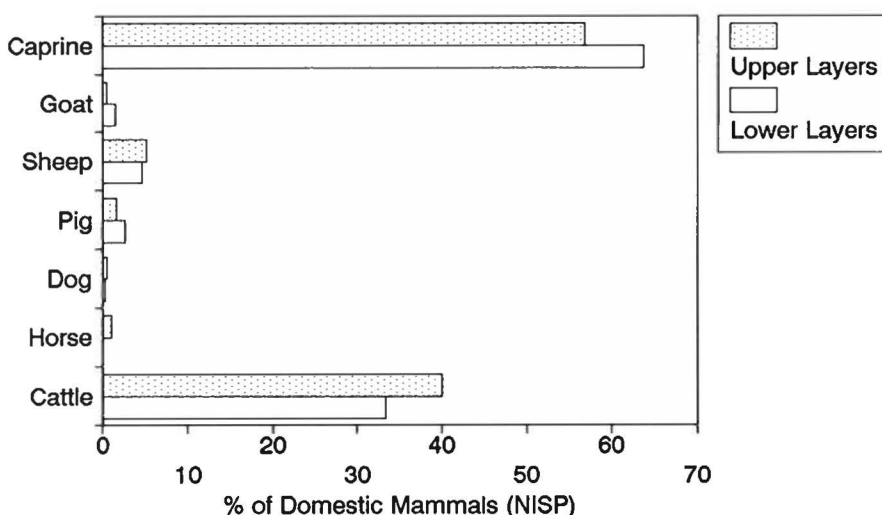


Fig. 93. Major Taxa in Upper and Lower Layers. The archaeofauna is made up almost entirely of seals and domestic mammals. Changes in these major components between layers are probably not meaningful: the general pattern of subsistence seems to have remained fairly stable.

Fig. 94. Domestic Mammals in Upper and Lower Layers. The domestic mammals at Ø 17a, as in all other Norse sites in Greenland, are dominated by cattle and caprines (both sheep and goats). While pigs become less common in the upper layers, overall patterns of domestic mammal exploitation seem fairly stable.



layers of Ø 17a and six from the lower layers, rendering a reliable interpretation of harvest profile in either phase impossible. However, evidence from other collections and architectural and artifactual evidence suggest that the Norse cattle were mainly kept for dairying rather than meat production. The regular recovery of the bones of very young (less than 2 months old, possibly new born) calves suggest the production of calves for meat was commonly foregone in order to maximize human use of the mother's peak milk production (see Rowley-Conwy 1983: 109–110).

Both sheep and goats are well represented in the collections, together making up about 21% of total archaeofauna in the upper layers and about 23% in the lower. These closely related species cannot be distinguished on many bone elements, so an "Ovis/Capra sp." or "caprine" category is included in most zooarchaeological reports. Note that the collective caprine category used in this report for comparative purposes thus includes bones identifiable as sheep, goats, and bone which cannot be assigned to either species but which must belong to one or the other.

Norse Greenlandic collections commonly contain far more identifiable goat bones than is usual in other North Atlantic archaeofauna (Amorosi 1991; Bigelow 1985). It has been hypothesized that this mixture allowed for more complete use of copse and brush vegetation, perhaps contributing to the rapid deforestation and soil erosion recently documented in other parts of the former Eastern Settlement (Jakobsen 1991). As noted by Degerbøl (1936), the sheep are of the Icelandic "goat horned" type and are morphologically very similar to surviving Icelandic sheep.

Horse and dog remains are rare in all levels of the site, again reflecting a common pattern in Norse archaeofauna (Fig. 94). It is likely that these few fragments do not accurately reflect the number of dogs and horses

used by the medieval farmers, and that dog and horse remains were not treated in the same way as domesticates regularly used for food. This is a widespread pattern in the North Atlantic and may not be a simple reflection of christian dietary strictures. The currently known Icelandic archaeofauna definitely dating prior to ca. 950 AD; Tjarnargata 4 in modern Reykjavik (Grimsson & Einarsson 1969; Amorosi 1991) and Herjolfsdalur on Heimey in the Westman Islands (Hermanns-Audardottir 1989; Amorosi 1991); also contain few horse or dog bones (Fig. 95). However, the recently excavated archaeofauna from Granastadir (by Einarsson nd., and Amorosi & McGovern nd.) in the northern interior of Skagafjord shire dated to ca. 950 AD does contain more than a trace amount of horse bones, and these show clear evidence of butchery and consumption. More research in this area is clearly required.

Pig bones are found in small numbers in both early and later levels at Ø 17a, though they are more common in the lower layers than the upper (Tables 1 & 2). Newborn piglet bones account for between a third and a half of the pig taxon at Ø 17a (Table 4), suggesting the active breeding of pigs in Greenland (Degerbøl 1941; McGovern 1985b). Pigs were certainly a significant part

Table 4. Listing of neonatal animal bones by species and layer. Figures in parentheses are the neonatal percent of the total for the taxon and layer.

Taxon	Neonatal (new born) animal remains Layer (% of taxon)	
	Lower	Upper
cattle	5 ( 3.94)	3 ( 3.95)
caprine	11 ( 4.53)	2 ( 1.85)
pig	4 (40.00)	1 (33.33)

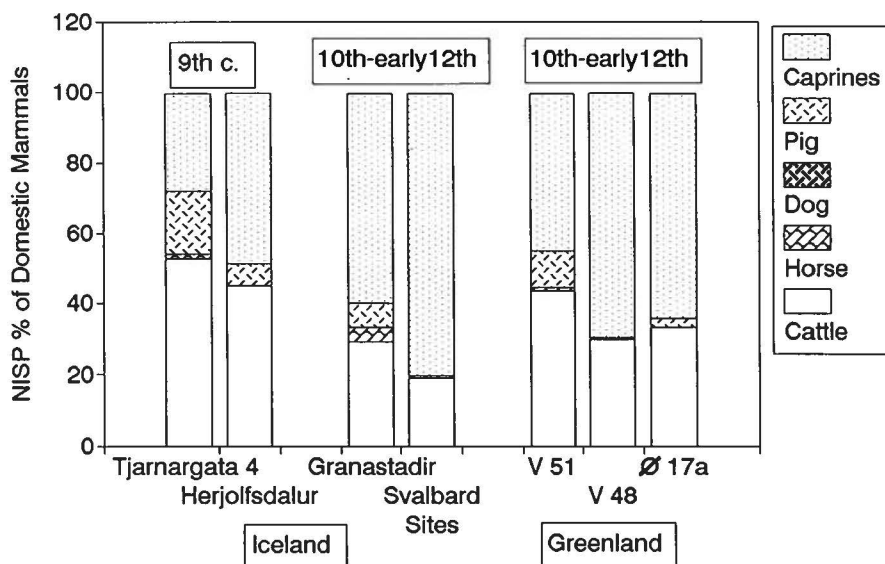


Fig. 95. A comparison of currently documented archaeofauna from Iceland and Greenland probably dating back to the 9th and 10th centuries. The collections from Tjarnargata 4 (in modern Reykjavik: Grimsson & Einarsson 1969) and Herjolfsdalur (on Heimey in the Westman Islands: Hermanns-Audardottir 1989) probably reflect first settlement economies in southern Iceland. Note that the date for Herjolfsdalur remains controversial, but all analysts agree that it is *at least* 9th century in age. The site of Granastadir (northern inland site) is dated by both artifacts and radiocarbon to ca. 950 AD (Einarsson excav.). The site of Svalbard is on the coast of Thistilfjord in northeast Iceland and its lowest levels are dated by both radiocarbon and artifacts to ca. 1050–1150 (Amorosi 1992). The Greenlandic data include all archaeofauna dating to the 10th to early 12th centuries. The V 51 Sandnes Phase 1 materials (collected 1984) are dated by artifacts and radiocarbon to ca. 1000–1175 AD. The V 48 Niaquussat Phase 1 materials are dated to ca. 1000–1100 AD based on both artifacts and radiocarbon (NB: this phasing follows Arneborg (1991) rather than McGovern et al. (1983)). Note the changing role of pigs in the domestic economy and the apparent increase in caprines in some sites. Further research is required to sort out the effects of local environment, time period, and status.

of the mix of domestic animals the Scandinavian settlers brought out into the North Atlantic, and are present in respectable numbers in settlement period Icelandic archaeofauna (Tjarnargata 4, Herjolfsdalur), in the mid-10th century site at Granastadir, and in the lowest layers (ca. 1000–1100) at Sandnes V 51 in the Western Settlement (Fig. 95). While pig keeping seems to have declined rapidly in both Iceland and Greenland (Amorosi 1991; McGovern 1985b) the very few pig bones that turn up in the upper layers of both Eastern Settlement and Western Settlement sites may suggest that a few pigs may have survived to the end of the Greenland colony.

### Caribou

Both caribou bone and antler fragments are present at Ø 17a (Tables 1, 2 & 3). Most of the antler remains are small pieces showing cut marks and sawing, and are clearly the remains of craft work rather than butchery waste. Since shed caribou antlers can be readily collected in Greenland (the absence of indigenous rodents promotes multi-year survival of shed antler), it seems inappropriate to include these fragments in the general bone count of fragments representing at least some number of dead caribou and they have not been in-

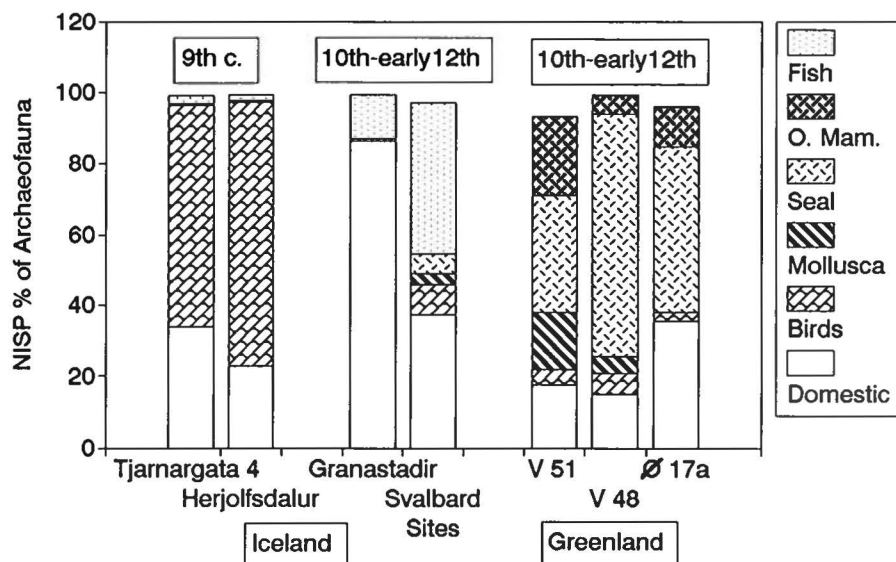
cluded in the graphed relative percentage data (cf. McGovern & Bigelow 1984; McGovern 1985b).

Whether or not antler fragments are excluded, the relative percentage of caribou remains at Ø 17a remains small – under 10 percent of the archaeofauna. This pattern reflects that of all other known Eastern Settlement archaeofauna where caribou remains make up an even smaller part of the collections (Ø 71N = 0.25%, Ø 71S = 1.67%, Ø 167 = 1.72%, Ø 149 = 3.87%). This pattern contrasts with the Western Settlement archaeofauna, whose caribou bone collections range from about 5% to over 25% of total with a mean ( $n=8$ ) of about 18%. The decline in caribou bone and antler between the lower and the upper layers at Ø 17a is suggestive (McGovern & Bigelow 1984), but more stratified archaeofauna from the region are needed to determine if this is a general or site-specific trend.

### Seals

Seals make up approximately 50 percent of the Ø 17a archaeofauna in both upper and lower layers (Eastern Settlement archaeofauna mean is also approximately 50% seal). Seal hunting was certainly part of Scandinavian subsistence strategies far back into prehistory, and Viking age North Atlantic colonists were ready to ex-

Fig. 96. A comparison of both domestic and wild components of the same archaeofauna presented in Fig. 95. The role of birds in the two Icelandic Settlement period sites is notable, as is the important role played by seals from the earliest days of the Greenlandic colony. The "other mammals" (O.Mam.) category mainly comprises caribou and walrus remains in the Greenlandic sites. Whale bone fragments are excluded from this graph, causing some bars to stop short of 100%. While further research is again needed to contextualize these archaeofauna, it is clear that the apparent homogeneity of the domestic mammal economy (Fig. 95) marks great variation in early medieval Scandinavian communities use of wild species – the "gifts of God".



exploit seal populations wherever they found them. However, the Norse Greenlanders evidently developed sealing into a major specialty, and seal meat must have played a far more important role in Greenland than in any other part of Atlantic Scandinavia (Vebæk 1991b). Fig. 96 illustrates the relationship of domesticates to major wild species in our current sample of 9th-12th century Icelandic and Greenlandic sites.

Seal hunting and the distribution of meat after the hunt must have involved the whole community, as seal bone percentages remain high even in farms located far inland (McGovern in Vebæk 1992; McGovern 1985a). In contemporary early medieval Iceland, fish may have

initially played a role roughly comparable to the supplementary role played by seals in Greenland, appearing even on sites like Granastadir some hours from the nearest shore (Fig. 96). In later medieval and early modern Iceland, fishing clearly expanded beyond this supplementary subsistence function (Amorosi 1991).

All five species of seals found in Greenlandic waters are represented in the Ø 17a collection (Fig. 97). The identified fragments are dominated by harp seal (*Pagophilus groenlandicus*), hooded seal (*Cystophora cristata*), common or harbor seal (*Phoca vitulina*), a few bearded seal (*Erignathus barbatus*) and a single bone of ringed seal (*Phoca hispida*). While the relative percen-

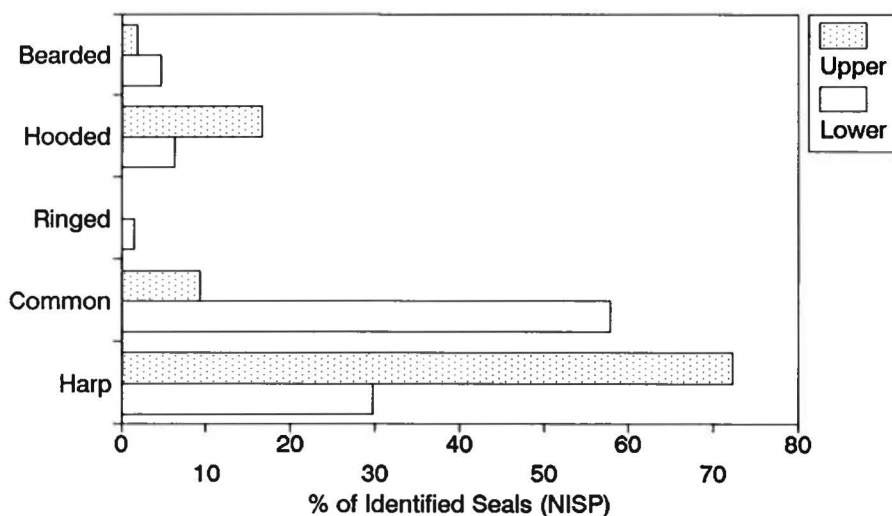


Fig. 97. A comparison of the identified seal species in the two phases of the Ø 17a archaeofauna. In this case, considerable variation is apparent in the mix of seal species taken at different time periods.



tage of all seal bones in the Ø 17a archaeofauna remains essentially the same between layers (ratio of seal bones to domesticated bones in the upper layers = 1.34, in the lower layers = 1.32) the mix of species changes markedly. There are far more common seal bones in the lower layers both absolutely and in relation to the other identified seal taxa.

## Birds

The avian fauna is represented by two groups of sea birds (Auks and Gulls) waterfowl (Ducks and Geese), raptor and grouse (ptarmigan) species. Tables 1, 2 & 3 presents the NISP counts of bird remains recovered from Ø 17a. The most numerous set of bird taxa are the Auks (alcidae), represented by a Murre/Guillemot species, *Uria sp.*, the Razor bill, *Alca torda* and the Dovekie, *Alle alle*. Only one gull was recovered from Ø 17a, the Iceland Gull, *Larus glaucoideus*. The ducks and geese are identified in the collection as the common eider, *Somateria mollissima* and a Swan species, *Cygnus sp.* Also found in this collection are the sea eagle, *Haliaeetus albicilla* and a rock ptarmigan, *Lagopus mutus*. No bones of domestic fowl have been identified at Ø 17a or any other Norse site in Greenland thus far.

While it is somewhat traditional to use migratory birds as seasonality indicators, the problem of inter-seasonal storage (Grayson 1983) and small sample size make such observations problematical for this site. Auks, especially the murre and Guillemots (*Uria sp.*) make up the majority of bird remains on all Norse sites in Greenland. All three auk species identified at Ø 17a

are known to breed in Greenland, where egg dates occur between May to August, and juveniles depart the nest by early fall (Freethy 1987; Harrison 1983: 392–395; Nettleship & Birkhead 1985). Since these species also dominate archaeofauna from inland sites (McGovern 1985b), it is possible that a communal hunt of auks in the autumn (followed by a community-wide sharing out) might have been part of the regular seasonal Norse round.

Sample size is also too small to allow any reasonable discussion of change through time in this collection, though sea birds may eventually prove important indicators of ecological change (see Goodwin (1978: 3–46) for a discussion of bird and habitat interaction).

## Walrus and Polar Bear

Walrus and polar bear bones are found in small numbers on almost every Norse site investigated, in both settlement areas, and on both inland and coastal farms (McGovern 1985a). This unexpected distribution, like the distribution of seal and sea bird bones, suggests the working of a social rather than a biological mechanism. While some walrus and polar bear are found in virtually all portions of Greenland, they are most common far to the north of the Eastern Settlement. The well documented medieval voyages to the Norðrsetur probably supplied best access to both species.

Both “Norðrsetur species” decline in the upper layers, just as we would expect if the Norse access to the Norðrsetur declined following the fall of the Western Settlement. However the nature of these specialized

Table 5. Walrus and Polar Bear elements recovered at Narsaq, by layer and location. Most of the fragments seem to relate to final finishing tusk and hide butchery units brought back from the Norðrsetur, but also note the presence of some walrus post-cranial bones.

WALRUS BONE ELEMENTS	UPPER LAYERS				LOWER LAYERS				NOT PHASED				UN- PHASED TOTAL	ST TOTAL
	Room I	Room II	Total Interior	exter- ior	UPPER TOTAL	Room I	Room II	Total Interior	exter- ior	LOWER TOTAL	Rooms III&IV	exter- ior		
Maxillary	1		1		1	2	2	4	2	6			0	7
Bulla			0		0	1		1		1		1	1	2
Post-canine			0		0	3	5	8	5	13	1	7	8	21
Tusk fragment			0		0			0		0		2	2	2
scapula			0		0		1	1		1			0	1
rib	1	1	2		2		2	2	2	4			0	6
WALRUS TOTAL	2	1	3	0	3	6	10	16	9	25	1	10	11	36
POLAR BEAR ELEMENTS														
Mandible					0	1		1		1		1	1	2
canine					0		1	1		1			0	1
Metatarsus					0	1		1		1			0	1
Metacarpus					0	1		1		1			0	1
Phalanxi				1	1	1		1	1	2			0	3
Humerus					0	1		1		1			0	1
Innominate					0	1		1		1			0	1
POLAR BEAR TOTAL	0	0	0	1	1	6	1	7	1	8	0	1	1	10

butchery units and their highly fragmentary deposition cautions against premature generalization: more stratified site collections are needed to clarify this issue.

As in the Vatnahverfi (McGovern in Vebæk 1992) the most common walrus bone elements come from the skull around the tusk (maxilla) or the peg-like post-canine teeth behind the tusk (Table 5). The baculum (penis bone) fragments common on the inland Vatnahverfi farms are absent from the Ø 17a collection, though this may be simply an accident of sampling. Scapula and rib fragments suggest that while most of the walrus bone brought back was associated with tusk butchery units, some meat bearing elements also reached some farms participating in the hunt.

The polar bear elements are mainly those associated with final finishing of raw skins removed elsewhere. The metapodials and phalanges all show diagonal slice marks indicating that they were carefully cut from the skin. The mandible and innominate fragments are very partial, and likewise could have made their journey as part of a hide butchery unit (McGovern 1985a).

Whales

Whale bone in archaeological contexts presents problems both in identification and in interpretation. While its characteristic vascular texture allows recognition even on small fragments, whale bone is often so cut up and modified in Norse contexts as to make species or even genus level identification impossible. Economic interpretation of whale bone fragments is equally challenging. It is certainly possible both to butcher a great whale without bringing home a single bone and to bring home fleshless bone collected from a long-stranded carcass without gaining any meat. Active, open water pursuit of great whales is probably a late medieval innovation in the Scandinavian North Atlantic, but stranded great whales were certainly exploited and small whales and porpoises were certainly driven ashore long before the Viking period. The beluga whale (*Del-*

*phinapteris leucas*; identified from its teeth) may have been taken in a boat drive or the teeth may represent another sort of Norðrsetur trophy.

As in Vatnahverfi archaeofauna, whale bones were used as furniture and structural elements as well as raw material for craft work. A great whale vertebral costa with "chopping block" cut marks was recovered from Room I upper layers, and most of the cranium of a small baleen whale (probably rorqual group) was used as the lid of one of the water channels in Room II lower layers. Similar use of a great whale skull as the lid to a medieval spring was recently reported from the Snaefellsnes peninsula in Iceland (Gudmundur Olafsson, pers. comm.).

Other Species

A few fragments of arctic fox (*Alopex lagopus*) are present in both upper and lower layers. These probably represent animals taken locally. Fish bones are extremely rare on Norse sites in Greenland, in contrast to their abundance in contemporary contexts in Iceland (Fig. 96). The single specimen from Ø 17a upper is a gadid (cod family) vertebra. The human remains consist of a left humerus and ulna (probably articulated) a left distal tibia, an atlas, and two fused cervical vertebrae. These were all in the Ø 17a upper collections. It is possible that they relate to the later Inuit occupation (McGovern & Bigelow 1984). All could have come from a single mature individual whose sex and cultural affiliation we could not determine.

Ageing and metrical data

Tables 6 & 7 present what little aging and metrical data are available for Ø 17a and are included for the potential use of other analysts with larger data sets. The highly fragmented nature of the collections precludes any statistical manipulation of these data at present.

Table 6. Dental eruption and wear assessments by taxon and layer. Eruption states (1–4) are graded as follows: 1 = all deciduous dentition, 2 = first adult molar in wear, 3 = second adult molar in wear, 4 = third adult molar in wear (young adult). The wear states (5–7) are graded as follows: 5 = adult with light tooth wear, 6 = adult with moderate tooth wear, 7 = adult with heavy tooth wear. Tooth rows are not numerous enough for a reasonable reconstruction of harvest profile.

Dental Eruption and Wear Taxon	Layer	Element	Eruption or Wear State						
			1	2	3	4	5	6	7
cattle	upper	mandible				1	1		
caprine	lower	mandible			3	4	1	5	1
cattle	lower	mandible		5			1		
pig	lower	mandible		1			2		
caprine	lower	maxilla							2

Table 7. Due to the extremely fragmented state of the collection, few bone measurements could be made. This table presents the measurement Bd on the distal humerus following Von den Dreisch (1976).

Von den Dreisch 1976:76-77 measurement "Bd"			
Osteometric data			
Taxon	Layer	Element	Maximum Breadth (cm)
Ovis aries	upper	Distal Humerus	3.95
Capra hircus	upper	Distal Humerus	3.94
Bos taurus	upper	Distal Humerus	6.90
Ovis aries	lower	Distal Humerus	2.63

## Butchery pattern and worked bone

The highly fragmented and multiply processed nature of the Ø 17a remains also precludes a systematic butchery analysis, but a few comments may be recorded. The Ø 17a collections provided many examples of the use of bone, antler, and horn working by the Norse settlers. Caribou antler fragments were particularly common in the lower layers, and many showed marks of sawing as well as working with knives and a heavy cleaver or light axe. Virtually all the cattle and caprine horn cores had been cut from the crania during butchery, and several sawn segments (approximately 2-4 cm long) of both sheep and goat horn cores were found in both phases. Three cattle metatarsi from the upper layers show a groove and splinter technique applied with saw and possibly a burin to extract a long strip of dense bone. A single sheep astragalus was found to be decorated with a simple cross cut into the smooth distal articular facet. A similar, but more elaborate cross cut into a cattle astragalus

was recovered from Ø 71N in the Vatnahverfi (McGovern in Vebæk 1992).

## Distribution of bone fragments

The field notes kindly supplied by the excavator allow the collections to be located within the structure in both layers. Tables 1-3 present the distribution of taxa by location. As in other Norse farms, the contents of the floor deposits are quite similar to the distribution of bones in the exterior middens (Buckland, Sveinbjarnardottir et al. 1983). This is probably a result of the characteristic Greenlandic use of a thick twig layer flooring which seems to have absorbed a good deal of bone material (perhaps during winter ?) before being thrown onto the midden (Buckland, Sadler & Smith in press).

Fig. 98 presents the distribution of taxa (as percent of the total for the structure) within Ø 17a, lower layers, Rooms I-III. Most bone debris was concentrated in Room I. The major taxa (cattle, caprine, caribou, seals) and caribou antler fragments are found in roughly uniform distribution within the structure, though caribou bone and seal bone is somewhat more concentrated in Room I than are those of the other taxa.

Fig. 99 presents the distribution of taxa (as percent of the total for the structure) within Ø 17a, upper layers, Rooms I-II. Most bone debris was again concentrated in Room I. The major taxa (cattle, caprine, caribou, seals) again are found in approximately uniform distribution within the structure. In this phase, cattle and seal bones are somewhat more concentrated in Room I than the other taxa. Antler fragments were too few in this phase to reasonably graph.

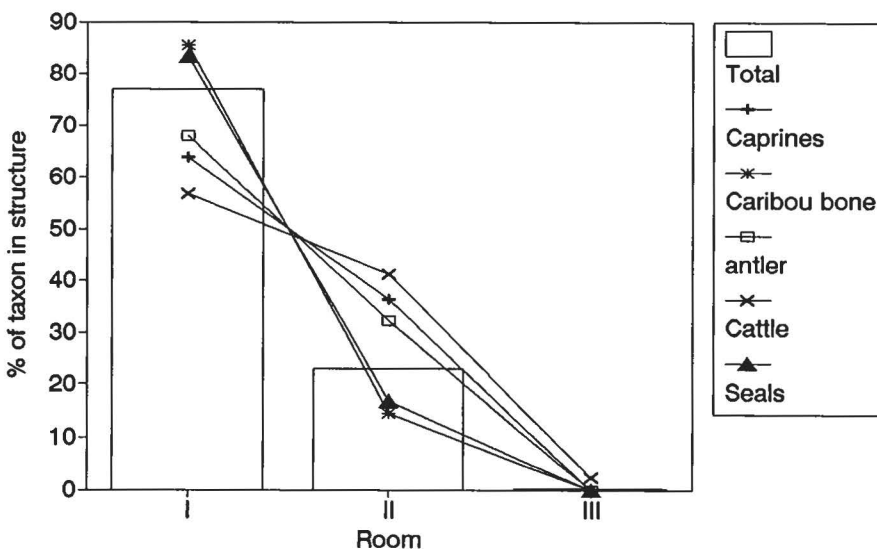
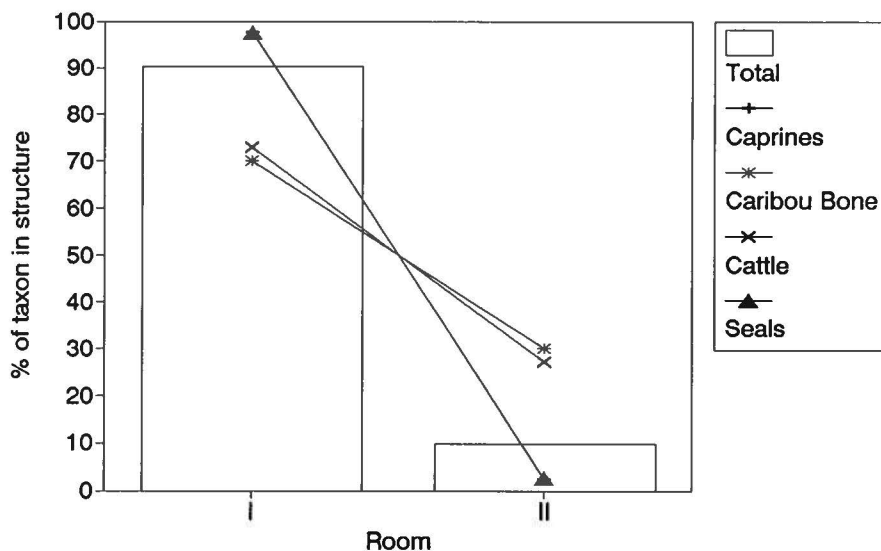


Fig. 98. The distribution of major taxa and caribou antler fragments in Rooms I-III at Ø 17a in the lower layers. The bar represents the percent of the total collection concentrated in the rooms, while the lines and symbols represent the percent of each taxon in each room. In this phase, antler and seal bones share a common concentration in Room I, while caprine bones, caribou bones, and cattle bones are somewhat more evenly distributed.

Fig. 99. The distribution of major taxa fragments in Rooms I & II at Ø 17a upper layers. In this case caprine and seal bones share a common concentration in Room I, while caribou bones and cattle bones are more evenly spread. Caribou antler is too rare in the upper levels to reasonably graph.



## Changes through time

The stratified archaeofauna of Ø 17a allows a rare indication of changes through time in the Norse economy, and remains the only stratified deposit reported from the Eastern Settlement. Changes in the mix of domestic mammals between layers appear minor and may reflect sampling error as much as any past change in farming

strategy. The ratio of cattle to caprines (who together make up over 90 percent of the domesticate category in both phases) changes from 1.91 caprine bones per cattle bone in the lower layers to 1.42 caprine bones per cattle bone in the upper layers. In contrast, the very small farm of V 48 Niaquussat produced cattle to caprine bone ratios of about 1 : 2 in the lowest layers and 1 : 8 in the uppermost layers (McGovern, Buckland et al. 1983;

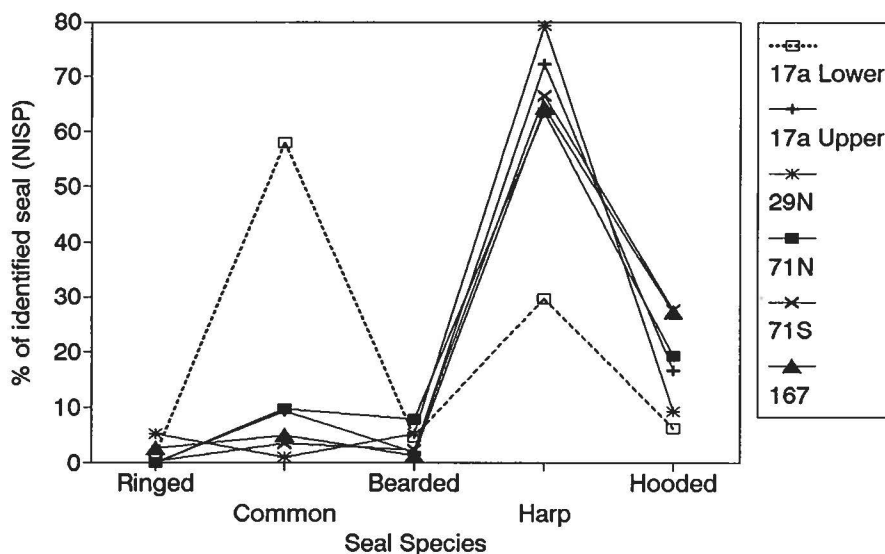


Fig. 100. A comparison of the patterning of identified seal bone remains from Ø 17a and other Eastern Settlement archaeofauna. The collections from Ø 29N (Brattahlíð), Ø 71N and Ø 71S (Vatnahverfi) and Ø 167 (Vatnahverfi) are all probably mainly from the later phases of the settlement and *roughly* contemporary with the upper layers of Ø 17a (see McGovern 1985b for discussion). The collection from Ø 149 far to the south shows more hooded seal, but is in a different ecological zone (Vebæk 1992) and has been omitted from this comparison. While the neighboring collections from Brattahlíð and the Vatnahverfi group closely with the pattern of seal exploitation of the upper layers at Narsaq, the lower layers show a different pattern.

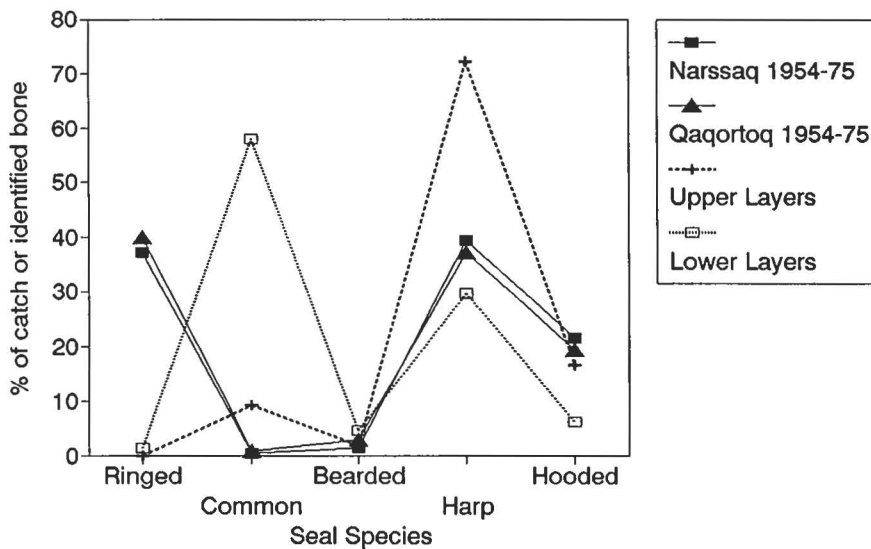


Fig. 101. A comparison of the pattern of seal hunting documented in the period 1954-1975 (mean catch per species) to the zooarchaeological data from the two phases at Ø 17a. The two modern mean catch figures group closely (and document a significant harvest of ringed seals absent from the Norse archaeofauna). Note that common seals were very rarely taken in the former central Eastern Settlement in 1954-75 by modern Greenlandic hunters.

Arneborg 1991). No such dramatic alteration in the major domesticates seems to have occurred at Ø 17a (Fig. 94).

Caribou bones (about 8 percent of collection in the lower layers and about 4 percent in the upper), walrus bones (about 2 percent in the lower layers and less than 1 percent in the upper), and bird bones (about 3 percent in the lower layers and about 1 percent in the upper) all show declines from early to late periods (Fig. 93). However, fluctuations in taxa which make up such a minor part of the archaeofauna should be suspect on sampling grounds alone (see discussion in McGovern 1985b). Further work with future stratified collections from the region may help resolve the reality and apparent directionality of these observed trends.

Changes in the pattern of seal bone distribution appear somewhat more firmly based in the collection (Fig. 97). If we compare the pattern of recovered and identified seal bones in the Eastern Settlement, setting the mainly later phase collections from Ø 29 north (Brattahlíð), Ø 71N & S (Vatnahverfi) and Ø 167 (Vatnahverfi) next to the pattern of Ø 17a upper and lower levels, only the lower levels at Ø 17a stand out as distinctive (Fig. 100). The lowest layers at Ø 17a have a good deal more common or harbor seal (*Phoca vitulina*) bones than would be normally expected from an Eastern Settlement site.

Common seals are today rare in the districts of Qaqortoq and Narssaq (which comprise most of the former Eastern Settlement), making up less than 5% of the

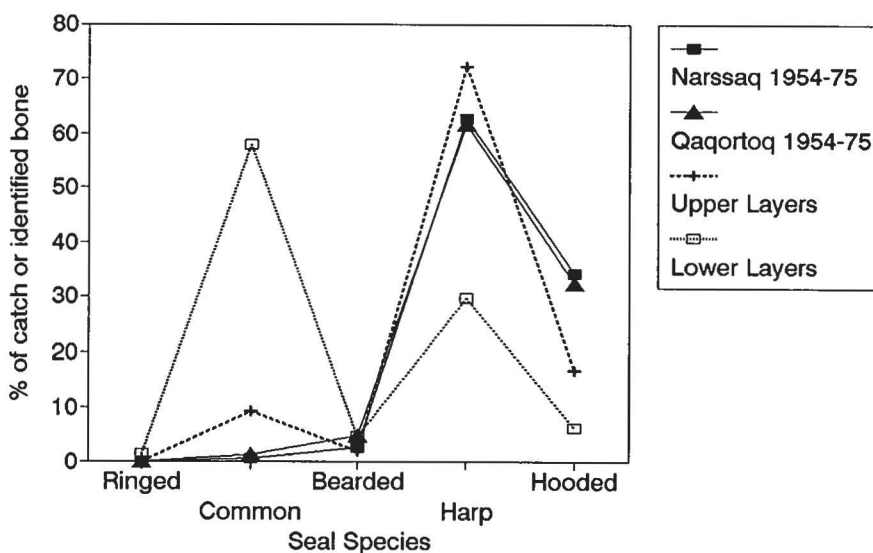


Fig. 102. This figure presents a manipulation of the modern catch data to attempt to adjust for the absence of ringed seals in the Norse collection. If ringed seals caught by modern hunters between 1954-75 are subtracted from the catch figures and the remaining species proportions recalculated, the pattern resulting has some notable similarities to that of the later Norse archaeofauna. Note that this "adjusted" modern pattern still contrasts strongly with the earlier phase collections at Ø 17a.



yearly catch in either district (cf. Summary of Catch Statistics, Ministry for Greenland 1954–75). The recollections of experienced hunters in the Narsaq district serve to confirm the catch records on this point: few common seals were encountered locally (pers. comm. Mr. Tage Schjøtt 1982). Fig. 101 compares the mean catch statistics from 1954–1974 for the two districts with the excavated Norse bone collections from the two phases at Ø 17a.

This figure demonstrates a major difference between medieval Norse sealing and that of Greenlanders of the mid 20th century. Ringed seals make up a major part of the modern subsistence catch, and only a negligible amount of the Norse collections. Ringed seal bones are very rare in all Norse archaeofauna known to date (McGovern 1985b). This pattern probably reflects significant differences in sealing technology and the organization of marine hunting (discussion in Vebæk 1992).

If we do assume that the lack of ringed seals in the Norse collection is caused by culture rather than nature, and artificially factor out the modern ringed seal catch for the two districts, we produce the patterns in Fig. 102. Fig. 102 presents a recalculation of the modern catch statistics, with the ringed seal catch omitted, compared to the two phases at Ø 17a. This “culturally adjusted” comparison, artificial though it is, serves to illustrate the similarity of the modern catch (less ringed seal) with the pattern of later deposits of Ø 17a and the rest of the Eastern Settlement collections and to underline the discontinuity with the earlier collections at Ø 17a.

In Figs. 100, 101 and 102 it is the unusually high percentage of common seals that makes the lower layer collections at Ø 17a stand out from both later period Norse collections and modern Greenlandic catch statistics. What explanation can account for this observed pattern?

While McGovern & Bigelow (1984) previously argued that this pattern was probably the result of climate related changes in drift ice and marine ecology associated with the end of the Medieval Warm Period, there are actually several possible alternative explanations for the observed pattern:

1. Sampling error. The bone pattern as deposited, preserved, recovered, and analyzed does not accurately reflect the actual pattern of seals caught at the site. There is thus no reliable connection between the zooarchaeological data and the past ecology and economy of Norse Greenland.
2. Site specific changes. Changes in legal or economic status of the farm cut off access to common seals in the later time period. Site-specific social change, not regional ecological change, is reflected in the bone patterns.
3. Human impact on seals. Intensive exploitation of non-migratory common seals in the Narsaq hunting district reduced their numbers dramatically. Human

hunting pressure on larger populations of migratory harp and hooded seals had little impact on these species. Hunting impacts, not regional ecological change, is reflected in the bone patterns.

4. Climate change. Changes in marine ecosystems associated with the end of the Medieval Warm Period and the onset of Little Ice Age conditions, and particularly the regular appearance of the summer drift ice from East Greenland (*Storisen*), adversely affected common seal populations in the whole Eastern Settlement region. These changes made common seals comparatively rare and their populations vulnerable to hunting pressure and random events. Large scale environmental changes thus would make common seals locally rare, leading Norse and modern hunters to concentrate on other species.

The first possibility cannot be ignored in any zooarchaeological analysis, and one always wishes for a larger sample size to partially overcome the manifold taphonomic effects of non-random deposition, attrition and recovery. However, while the identified seal bones at Ø 17a are not an overwhelming number (total NISP is 136 fragments identified to species level, MNI is about 22), they are well within the frequency that has been accepted as quantifiable by a wide range of analysts (see McGovern 1985b for discussion). Larger collections from more sites will of course be welcome, but at the moment we still need to explain the patterns we do see in the data we now have.

Site specific changes in legal access to particular sealing grounds are well documented in other portions of the North Atlantic, and sites with apparently open access to modern sealing grounds do not always have high percentages of seal bones in the archaeofauna (Bigelow 1985; Holm-Olsen 1981). While our other evidence suggests that migratory seals (and at least a few common and bearded seals) were widely distributed over the community (McGovern in Vebæk 1992), it is certainly possible that migratory seals might have been a different sort of legal property than resident common seals in Norse Greenland. Only a larger sample of stratified archaeofauna from more Eastern Settlement sites will reveal whether this is a special case or a general pattern.

Human impact on North Atlantic ecosystems was certainly severe, even in medieval times. The impact of Norse settlers on marine mammals in Iceland, including both walrus and common seals, is suggested by recent zooarchaeological research (Amorosi 1991, 1992). Recent paleobotanical, paleoentomological, and geomorphological research in both Greenland (Fredskild 1988, 1992; Jakobsen 1991; Hansen 1991) and Iceland (Buckland, Dugmore, Perry et al. 1991; Buckland, Dugmore & Sadler 1991; Buckland, Sadler & Smith in press; Dugmore & Buckland 1991; Hallsdóttir 1987) indicates widespread Norse impact on vegetation, soils, and whole landforms. It is thus quite possible to imagine that Norse hunters in the Narsaq region had a signifi-

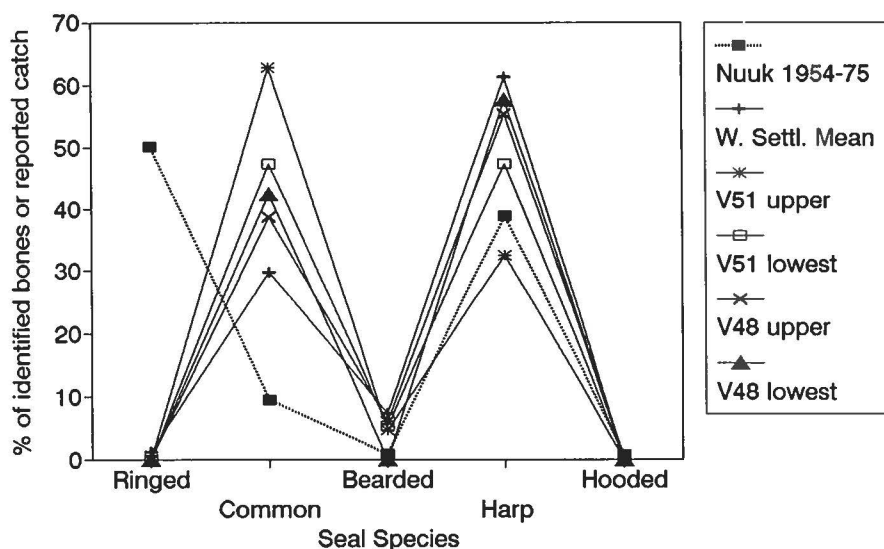


Fig. 103. A comparison of modern seal harvest patterns in Nuuk (Godthaab) district 1954-75 with the two deeply stratified Norse collections at V 51 Sandnes and V 48 Niaquussat (note that at V 48 the phasing for the lowest layers follows Arneborg (1991) but for the upper layers follows McGovern et al. (1983)). The mean for all Western Settlement archaeofauna is included for reference. Note that common seals are taken in some numbers by modern hunters in this region, and that all the Norse archaeofauna (both early and late) show substantial numbers of common seal bones. In neither stratified archaeofauna do common seals show the same decline as in the later Eastern Settlement collections.

cant impact on non-migratory common seal colonies, driving them to near extinction by later medieval times. Common seal populations then might recover (like the vegetation of southwest Greenland) after the Norse extinction – only to be again impacted by Eskimo hunting prior to the beginning of the catch records cited above. The low numbers of common seals in both the later Norse bone collections and in the modern catch records would thus be the product of human over-hunting (both Norse and Eskimo) rather than climate change.

However, Norse and Eskimo hunters in other parts of Greenland did not have this hypothesized impact on this species. Fig. 103 compares the 1954-75 seal catch records for Nuuk (Godthaab) district (which encompasses all of the former Norse Western Settlement) with the identified seal bones from the two stratified Western Settlement archaeofauna (V 51 Sandnes and V 48 Niaquussat) and the mean of all the currently known Western Settlement archaeofauna (n=8). Again, ringed seals play a far more important role in modern subsistence sealing than in the Norse archaeofauna. Hooded seals are rare in Nuuk District today, and seem to have been rare in Norse times as well.

Note also the consistently high percentage of common seal bones in all phases of the stratified archaeofauna and in the mean of the other known Western Settlement bone collections (mainly later phase). Had Norse sealing alone been fatally destructive to common seal populations, we might well expect a drop in common seal bones in the upper deposits in the Western Settlement sites. Such a reduction is certainly not visible in the present data set.

Modern seal hunting (particularly intense in the heavily populated Nuuk region) has not driven common seals to extinction in this region, or even lowered their catch figures to the levels of Qaqortoq and Narssaq districts. Following Vibe (1967) and more recently Meldgaard (1986), we would tend to interpret such large scale, regionally synchronous differences in the catch records as having an ecological and probably climatic basis. Hunting pressure would certainly affect local populations differently under different local conditions, and may have contributed to declines in populations already under environmental stress.

While more quantifiable archaeofauna from datable contexts are needed to effectively test these competing hypothetical explanations for the changing seal bone patterns documented at Ø 17a, we feel that the most likely explanation remains climatic. The Nuuk region was certainly not under-hunted by either Norse or more recent Eskimo sealers, but it is beyond the influence of the summer drift ice from East Greenland.

Changes in marine ecology associated with the arrival of the summer *Storis* in southern Greenland at the end of the Medieval Warm Period would have been profound (McGovern 1991). Living in the Medieval Warm Period, Eric the Red and his contemporaries certainly never saw the *Storis* that so shapes navigation and subsistence in southern Greenland today. Modern scientific evidence also indicates that Greenlandic pastures and woods were indeed greener then than now. How many other differences existed between the Greenland of the Settlement period and of the Little Ice Age?

## Radiocarbon datings of objects from Ø 17a

Not so many years ago, archaeological finds could only be dated by archaeological methods (the character of the ruins, the types and forms of objects found, ornamentation etc.), and to some extent with the aid of geological-botanical and zoological observations. But this way we could only achieve a relatively safe indirect dating. Since radiocarbon dating has appeared, however, all this has changed radically. Now, when the find contains objects made of wood and/or bone, it is possible to obtain direct datings expressed in years, yet still within certain limits.

In recent years in Eskimo and Norse archaeology we have been able to base many of our datings on C-14 analyses. I can refer to the two very important datings of bone material from two farms in Vatnahverfi (Ø 167 and Ø 70) – in one case the bones of the fragmented skeleton of a man, found in the passage in a large building at Ø 167, presumed to be the last inhabitant on the farm (and in the vicinity), since no one had buried him in a churchyard; the other find was no less than 110 mice found at the bottom of a large tub; we presumed then (and still do now) that these mice were the last “inhabitants” at that farm. In other words, a radiocarbon dating of these two finds from Vatnahverfi would at the same time give us information on when these farms were abandoned by the Norsemen. The results of these datings were rather surprising, as they appeared to show that the farms were abandoned as early as the 13th century! We – the archaeologists – had expected some later dating, so we had to revise our opinion (Vebæk 1992: 107ff).

So it was with some apprehension that we looked forward to the radiocarbon datings of the dwelling of the *landnåma* farm (the oldest part of the site). We have so many objects from here whose type, ornamentation or inscriptions (there are several objects with runic inscriptions) all suggest an archaeological dating to about 1000 AD or perhaps a little earlier (the first *landnåma* “wave” was in 986 AD). We sent in two samples from the lower cultural layers, both of charred wood from branches of trees (bushes), which had grown there when the Norsemen arrived. By August 1992 we had received the results.

**K-5904:** Charred branches (*Salix glauca*), Narsaq, South Greenland:  $1010 \pm 55$   $^{14}\text{C}$ -years before 1950. The sample was taken from the lower cultural layer in Room I.

Calibrated age (Stuiver & Pearson 1986): **1015 AD**.  
Calibrated age  $\pm 1$  standard deviation: **980–1035 AD**.  
 $\delta^{13}\text{C} = -26.8\text{‰}$  PDB.

**K-5905:** Charred branches (*Betula pubescens*), Narsaq, South Greenland:  $1090 \pm 85$   $^{14}\text{C}$ -years before 1950. Sample from *stone-set long-fire* in the middle of Room I, oldest phase.

Calibrated age (Stuiver & Pearson 1986): **960 AD**.  
Calibrated age  $\pm 1$  standard deviation: **905–990 AD**.  
 $\delta^{13}\text{C} = -26.7\text{‰}$  PDB.

The radiocarbon datings from the oldest cultural layers at Ø 17a fully back up the archaeological dating of the *landnåma* farm from ca. 1000 AD.

## Summary of results and final remarks

We have at length come to the last chapter in this book on the excavations of the *landnåma* farm. The story has been told of the very beginning (Mr. K. Christensen's digging for soil in 1953), and of how systematic excavations of the dwelling were carried out in three expeditions. The construction of the house and the changes in the building over the years have been described in detail, as far as my observations and my notebook permit, as has the ingenious combined drainage and water-supply systems. Two groups of objects found – those with runic inscriptions, and the textiles – have been dealt with in special chapters, as have the animal bones.

Surveying the results of these excavations, I conclude that the farm as a whole is a *landnåma* farm from the period around 1000 AD, and perhaps even 10–15 years older. This dating is based on the main building and the many objects found, and it is confirmed by the radiocarbon datings. It is difficult to say how long the farm existed. The dwelling was changed (expanded) two or perhaps three times, but it was always a long-house, with all the rooms in one row. That the house stood for some time – at least a century and perhaps even longer – is proved by the changes that took place inside the dwelling, and the rather thick cultural layers. The dwelling is a typical long-house, and is – as we have proved – the oldest dwelling so far excavated in Norse Greenland. The drainage and water-supply arrangements are – without parallel – the largest and most ingenious ever found in Norse Greenland.

The objects found are many, and among them are quite a number which, judging by form and ornamentation, can be dated with certainty to late Viking/early medieval age. Among these objects I can emphasize the long wooden stick with a unique runic inscription, many different ornamented objects of bone and wood, the very fine arrowheads of caribou antler, and also one of the wooden swords (a weaver's sword-stick or a toy).

In his publication *Brattahlíð* Poul Nørlund writes: “The large hall-like building, excavated north of the church (chapter V) is the earliest dwelling house found in Greenland. True, there is no proof that it dates back to the very first days of the settlement, but in any case presumably it was built in the eleventh century...” (Nørlund & Steenberger 1934: 141–142).

Now we know that this no longer holds good – the

oldest known dwelling in Norse Greenland is now the one excavated at the farm Ø 17a at Narsaq; and as there is every reason to believe that this farm was established around 1000 AD and perhaps some years before, there is actually little chance of finding a dwelling anywhere else in Norse Greenland that is earlier than the one excavated at Narsaq. But there may certainly be some of the same age – I am thinking of Brattahlið and the other *landnáma* farms.

But let us return to Brattahlið. Everything (the written sources, the topographical and archaeological investigations) suggests that Eric the Red's Brattahlið was in the place now known by the Greenlandic name Qas-siarsuk. There are, however, some questions in this connection which demand an answer. It is remarkable – in fact astonishing – that there are very few (if any) of the objects found at Brattahlið which are of typical late Viking/early medieval character. Nørlund also points out that “there is no proof that it (the dwelling) dates right back to the very first days of the settlement”. Accordingly I venture to propose the theory that “the hall” in the dwelling of the North farm at Brattahlið was *not* the building that Eric the Red built, when he settled here late in the 980s. But it is possible that Eric the Red's first dwelling was the house *under* the hall; a corner of this older building is seen in the drawing (Nørlund & Stenberger 1934: 50, Fig. 26), and it is directly mentioned by Aage Roussell (1941: 138).

It must be mentioned, however, that in 1964 Knud Krogh carried out limited excavations outside the N(W) corner of the hall (Krogh 1982: 37; Albrethsen 1982: 273–274 and Fig. 6). Here Krogh found parts of a house

with curved walls. Unfortunately there are no objects from this house, but it is certainly older than “the hall”, and – as Krogh puts it – “several things point in the direction that this is the ruin of a dwelling, and it cannot be excluded that this building belongs to the very oldest found at Brattahlið”. I will permit myself to add that this building *might* have been Eric the Red's first dwelling – but we need objects and radiocarbon datings to provide a definitive answer. But if this is *not* the case I venture to claim that Eric the Red's first dwelling has not yet been found.

It should incidentally be noted that so far excavations of some of the farms that are supposed to be *landnáma* farms have given very poor results in terms of objects that can be dated – on the basis of their form and/or ornamentation – to the *landnáma* time. This is true, for example, of Herjolfsnes, Hvalsey, Garðar and (in the Western Settlement) Sandnes. It is difficult to explain this lacuna – but perhaps the explanation is simply that the first *landnáma* dwellings have not yet been found – either in the localities mentioned or elsewhere – or that the conditions for the preservation of objects of wood and bone (and other perishable or fragile material) have not been the best.

To end on a positive note, let us return to Narsaq Ø 17a. Here we really have – for the first time, as has been documented – a farm where the oldest part of the dwelling with certainty permits a dating to ca. 1000 AD (or slightly earlier).

It must be hoped that future work in Norse Greenland will add to these results by excavating more *landnáma* farms.

## List of objects found at Ø 17a

The list comprises all registered finds from the locality, including those found by Mr. K. Christensen in 1953, before the systematic excavations carried out by the Danish National Museum in 1954, 1958 and 1962.

A good deal of the find material is divided into distinct groups, mainly in terms of the use of the objects and the material of which they are made. The first set of groups (1–6) lists objects with runic inscriptions, the second (7–31) lists textiles.

If not otherwise stated, the finds are from the dwelling (Ruin 4). With a few exceptions, the finds are from Rooms I and II (and the midden in front of these

rooms), and (again with a few exceptions) all the wooden objects and presumably also those of bone are from the lower, oldest cultural layer where the conditions for the preservation of wood and bone were best. A number of the most interesting finds have been photographed and/or drawn, and there are references to all illustrations used in this book. Each object has its own number, from 1 to 483. The find as a whole is registered in the Danish National Museum as *D 5/1992*.

However, a number of finds (about 110 small fragments of objects of steatite, 25 fragments of whetstones, about 130 different-sized chips and fragments of worked wood, and about 80 natural twigs) are not numbered separately. Nor are the few iron slags. But all these finds have been kept kept.

Number	Fig.	Object
1	78 & 79	Natural wooden stick, c. 43 cm in length, cut almost square in cross-section, with a long, probably magical inscription on Side A, cryptic runes on Side B, the short-twig futhark on Side C and a few runes on Side D. Found in 1953.
2	80 & 81	Fragment of a flat, thin spoon-like wooden artefact, about 9 cm long with faint runic traces on front and back.
3	82 & 83	A small, thin, flat, oval piece of wood with complete, well-preserved, but uninterpreted runic inscriptions on both sides.
4	84	Wooden fragment, c. 10 cm long, with runes on the flat front.
5	85	Steatite loom-weight or net-sinker. Two runes on one side, a sort of owners' mark on the other.
6		Triangular fragment of steatite, used as a loom-weight, with a cross and some rune-like signs.

(The six objects with runic inscriptions were all found in the dwelling, Ruin 4).

7–31	86–92	Fragments of 24 textiles and one bundle of yarn, all of wool. (For details about the individual pieces, see the texts, tables, drawings and photos in Else Østergård's and Penelope Walton Rogers' chapters).
32–34		Three spindles of wood.
35–64	45	Thirty pieces of spindle-whorls of steatite, some of them fragments. Some are ornamented with incised lines (five of these are shown in Fig. 45). At least four (Nos. 35–38) are from the more recent part of the habitation.
65	45a	A sort of wool card (?), made of juniper wood.
66	46	A weaver's sword-stick of whalebone.
67–68	47	Two cut-out handles, presumed to be of weaver's sword-sticks, both of wood.
69	48	Fragment – the handle – of a "sword" of wood (a weaver's sword-stick or a toy).
70	39	The tooth of a polar bear, with a cut in the root-end suggesting that it was worn hanging on a chain.
71	40	Comb of bone, one-sided (Viking type).
72–74	41	Three bodkins (pins) of bone, two of them with perforations.
75–77	42	Three bodkins (pins) of bone, with broad, flat heads.
78		Slender, rather fragmentary pin of bone, with a perforation at the end.
79–81	43	Presumed game-piece, made from a large tooth (from a sea mammal). Round disc of wood, presumed game-piece, and an undoubted game-piece of bone, small, with a distinctive conical form.
82–84	44	Object of bone, top-shaped. Small object of wood, top-shaped. Large object of bone, top-shaped. Presumed game-pieces.
85		Top-shaped object of bone, presumed game-piece.
86		An object like 85, but the whole surface is very damaged.



87–89	36	Iron knife, with a wooden handle. Iron knife, well-preserved, but without a handle. Wooden knife (?), with handle.
90		Small fragment of an iron knife.
91		Iron knife (or arrowhead??), the surface greatly damaged.
92–96	37	Five arrowheads, made of antler, typical late Viking style.
97–99	38	Three arrowheads, made of caribou antler, of a distinctive type, pointed at both ends.
100	49a-b	Awl of wood, pointed at both ends (but one of the ends is broken off), ornamented on both sides (Viking style).
101	49a-b	Awl of wood, pointed at both ends.
102	50	Awl (?) of bone, with a broad hand-grip.
103–4		Two awls (?) of bone, with broad hand-grips.
105		Fragment – the broad end – of an awl (?) of bone.
105a		A long chisel (?) of walrus tusk (?).
105b		A short chisel (?), of bone (whalebone?).
106–7	51	Ladle made of wood, and ladle made of whalebone.
108	52–52a	Fragment of a board (a spade?), ornamented in the Ringerike style, and close-up photo of the ornamented part of 108.
109a-c	53	Three tendrils (?) carved in wood. Those labelled <i>a</i> and <i>c</i> are slightly fragmented (the curling ends have been broken off). 109a-c as a whole seems to be fragments of an ornamented figure of some kind.
110	54	Fragment of a disc (?) of wood. On one side there is deeply carved ornamentation in the Viking style.
111	55	Fragment of a wooden object, with an incised ornament in the Viking style.
112	56	Object (use unknown) of bone, richly ornamented with a pattern mainly consisting of concentric circles.
113	57	A thick rib from the hull of a ship.
114–15	58	Fragment of a plank from a ship, and a presumed patch for a ship's plank.
116	59	Model boat (?) of wood.
117–20	59a	Four toggles of wood (may have been used on board ships, or in textile-making). Nos. 117–19 are well-preserved. No. 120 is broken – there are three fragments which do not fit properly together.
121		Short, heavy plank with two wooden nails. This – and the next 20 or so items – may (according to maritime specialists) have belonged to ships.
122		Fragment of a big, rather thin, rounded piece of wood.
123		This number appears not to have been used.
124		Small, square, slightly oblong, distinctively-shaped piece of wood (repair-patch?).
125		Fragment of a flat nail (?) of wood (found between the lower and the upper layer).
126–47		22 nails of wood, whole or fragmented (all presumed to be from the lower layer).
148–51		Four fragments of wooden nails (from between the upper and lower layer).
152		One wooden nail (lower layer).
153–55		Three wooden nails of different forms.
156–60		Five fragments of bottoms of vessels (tubs) of wood.
161–62		Two small, complete tub staves, apparently from the same tub.
163–64		Two quite small tub staves, from different vessels. One is apparently complete, the other slightly fragmented.
165–67		Three tub staves, almost complete, from three different tubs, one of them comparatively broad.
168		A (slightly) fragmented tub stave, from a comparatively small vessel.
169–176		Eight fragmented tub staves, some of which may have belonged to the same tub.
177		One small fragment of a tub stave.
178		A very broad spade of wood.
179–80		Two fragments of spades of whalebone.
181–83	60	Three small objects of wood, use unknown.
184–86	61	Two highly-worked pointed objects of wood, and one of bone. No. 185 is made from a tub stave.
187	62	A wreath (?) of twisted strips of willow. Use unknown.

188–89	63	Two hooks of wood (their specific use unknown).
190–93	64	Four very small carved wooden bowls (cups), of different forms.
194	65	Ice-spur of iron.
195	66	Quite small object of bronze (representing a horse ?).
196–98	67	Three different small objects of bone – use unknown.
199–202	68	Two small pieces of bone (perhaps fragments of a comb), and two small, very thin, carved-out pieces of wood; the smallest may have been used for winding thread.
203	69	Fragment of a square stone of steatite, with two perforations at the corners and in the middle, and with two incised crosses.
204	70a-d	Fragment (estimated to be about half) of a round slab of steatite. Diameter 9.5 cm, 2.3–2.4 cm thick. On both sides, sharply scratched radial lines, on one side also a number of drilled holes.
205–7	71	Three objects of steatite, the exact use of which is unknown, but they may have had something to do with textile making and/or fishing.
208–10	72	Three different objects (two of wood and one of bone), use unknown.
211–16		Six small, pointed pegs of bone (one of them fragmented).
217–20		Four fairly heavy pointed sticks (pegs), one pointed in both ends, another slightly fragmented.
221–22		One long, pointed peg of wood, and one small, flat one, fragmented at both ends (from between the lower and the upper cultural layers).
223–32		Ten small, pointed pegs of wood.
233–54		22 pointed wooden pegs (pins), of varying lengths and thicknesses, one of them fragmented.
255–57		One long, slender piece of wood, apparently with a handle, one end fragmented – use unknown. Two smaller, thin, cut pieces of wood – use unknown.
258–59		Two small, distinctively cut pieces of wood. The smaller one may have been used for winding thread.
260		The broken-off end of a narrow spatula of wood.
261		A short, pointed object made of walrus tusk (?).
262		Small, pointed piece of worked bone, with three quite small perforations at the pointed end (which is fragmented). Use unknown.
263–65		Three flat, cut oblong pieces of whalebone, 27–33 cm long, 3.0–4.5 cm wide, with two perforations, of varying sizes. Use unknown.
266		Long, flat, oblong, pointed object of whalebone, fragmented at one end. Use unknown.
267–68		Two fragments of oblong, pointed (?) objects of whalebone.
269	73a-c	Small, oblong piece of bone, flat on one side, slightly curved on the other. Dimensions 9.5 × 2.5 cm, and 1.2 cm thick. On the carefully smoothed surface of the curved side there is ornamentation consisting of very lightly-incised patterns of fine lines, and a large number of very small drilled holes. The object has one perforation. Use unknown.
270		Flat, oblong piece of whalebone with one perforation. Use unknown.
271		An object, very similar to No. 270, but a little longer, and apparently complete. One perforation right in the middle. Use unknown.
272		Angular object of bone. Seems to have been pointed at the one end. Both ends fragmented. Use unknown.
273		Cut, deliberately worked caribou antler. Use unknown.
274–75		Two fragments of objects of bone (or antler).
276–78		Three objects of whalebone. One is a flat, pointed piece, the second (No. 277) is a fragment of some larger object, with three large perforations. The third is a small, crooked, fragmented object. The use of these objects is unknown.
279		Fragment of an object of wood, with one perforation. Use unknown.
280	74	Repair patch for a vessel of steatite. The form is square. With one iron nail. Slightly fragmented.
281a-b		About half of a small repair patch, with a perforation in the middle (No. 281a). Another, slightly larger and oval-shaped, with one perforation.
282–85		Four small, cut pieces of wood, the use of which is unknown. One is a thin, flat piece, with light line ornamentation on one side. The other is a thick, curved piece,

		with square cross-section. The third is a short, flat piece, with two perforations. Finally, the fourth is a very small, distinctively cut piece (two fragments).
286		Worked oblong, of (presumed) antler, fragmented in both ends.
287		Small object of wood, well-preserved.
288–89		Two quite small fragments of ornamented objects of wood.
290		Small, oblong object of wood, slightly pointed at one end, the other end fragmented. Square cross-section. Use unknown.
291		Fragment of an object of wood (originally circular?), with a large perforation. Use unknown.
292		Long, flat, very thin piece of wood, with a strange, very short point at one end. Use unknown.
293–94		Two fragments (about half) of two very small discs of wood, each with one perforation. Use unknown.
295		Strange, small “hook-formed” object of bone. Use unknown.
296		Small fragment (two fragments joined) of an object of bone, richly ornamented on one side in geometric Viking style. The fragment seems to have been burnt, as do two quite small fragments which may come from the same object.
297		Fragment of a piece of wood, around which are twisted narrow strips of split willow branches (?). Use unknown.
298		Short fragment of an object (a tool ?) of iron, perhaps from a chisel.
299		Long, curved, twisted, heavy piece of iron, presumed to be a stage in the making of some tool.
300		A short iron nail.
301a-b		Two large boards of wood (pine), which (when they were found) were fastened to each other with four wooden nails (the boards were overlapped). They were later separated by mistake. The total length of the combined boards was 102.5 cm. Board No. 301a is 60 × 17 cm, and 2 cm thick; it has ten perforations and traces of one more. Board No. 301b is 57 × 15 cm, and also 2 cm thick; it has thirteen perforations and traces of a further 5–6. Both ends are fragmented. The exact use of these boards is unknown, but it may be building material for a ship.
302		Deliberately cut wooden object, square with oblique sides and ends, with a perforation at the middle. 13.0 × 5.5 cm, and 2.5 cm thick. Very light wood. Use unknown.
303		Square, flat piece of very heavy wood. Fragmented at the one end. 12.0 × 4.5 cm and 1.5–2.0 cm thick. Use unknown.
304		Short, clumsy cut object of wood, with a short, pointed end. In the middle, a very large perforation. Very light wood.
305		Flat, short, rather clumsy board of wood, with rounded ends and a very large perforation near the middle. Fragmented.
306		Fragment of an object of wood, slightly pointed towards one end. With one strange, oblong perforation, in which there are two wooden nails. Traces of another perforation at one end.
307		Fragment of a wooden object, with square cross-section. Preserved to a length of 40 cm, 2.5–4.0 cm across and 2 cm thick, with one perforation, in which there is a wooden nail, and traces of another four perforations.
308		Large fragment (end) of a board of wood, up to ca. 12 cm across and 0.8–1.8 cm thick. Three perforations and traces of a further four.
309		Board of wood, 54 × 10 cm and 1 cm thick. Five perforations, in one of which there is a wooden nail.
310		Fragment of a heavy plank of wood, max. dimensions 34 × 7 × 4 cm. The surface greatly damaged.
311		This number have not been used.
312–13	75	Two quite small “vessels” of steatite. No. 312 (5.0 × 3.5 × 2.0 cm) has a broad incised groove most of the way round; No. 313 (5.5 × 3.0 × 2.0 cm) is from the upper cultural layer. There is no information on where No. 312 was found.
314	75	Tiny “vessel” of steatite, only 2.6 × 2.3 cm, and 1 cm high (deep). From the lower cultural layer.
315		“Bead” of steatite.

316		Short "tube" of steatite.
317	76	Heavy lamp of steatite, with a very broad, flat handle. Well-preserved.
318		Quite small "vessel" of steatite. Use unknown.
319–24		Six rim-sherds of vessels of steatite, of various weights. Three of them with ornamentation on the rim (and some beneath it). One with a perforation.
325		Side/rim-sherd of a vessel of steatite, with one perforation.
326–27		Two side-sherds of vessels of steatite, each with a perforation.
328		A fragment (about half) of an object of steatite (like the one shown in Fig. 71, No. 207).
329		Heavy rim-sherd of a vessel of steatite with one perforation.
330–31		Two rim-sherds of vessels of steatite, one of them small, with line ornamentation on the rim, the other larger, very sooty, with one perforation.
332		Fragment (parly glued together) of a rather unusual vessel of steatite, with a completely flat bottom and a very low side (only 2.0–2.5 cm high). There are one larger and three smaller fragments.
333–35		Three fragments of vessels of steatite of the same character, all rim-sherds. The largest of the vessels has a small perforated "handle"; one of the others has a small knob. All three rather sooty.
336		A "lump" of steatite, with one perforation. Loom-weight?
337		A heavy side-sherd of a vessel of steatite, with one perforation and traces of another.
338–40		A "lump" of steatite, with one perforation (loom-weight ?), a rim/side-sherd with two perforations, and a side-sherd with one perforation.
341–45		Four side-sherds, each with one perforation, and one bottom/side-sherd, all of vessels of steatite.
346–352		Four rim-sherds (one with an incised line on the rim, each of the others with a perforation), and three side-sherds (two have one perforation, one has three and the beginning of a fourth), all of vessels of steatite.
353–364		Three rim-sherds (one ornamented on the rim, two with two perforations each), eight side-sherds (all with one or two perforations), and a heavy fragment (about 2.5 cm thick) with one perforation (not finished), all of vessels of steatite.
365–66		Fragment of a vessel of steatite with an oblong handle, and a rim-sherd of a vessel of the same material, with one incised line on the rim.
367–68		Two side-sherds of vessels of steatite, each with one perforation.
369		A side-sherd (with one perforation) of a heavy vessel of steatite.
370–71		Two side-sherds of vessels of steatite, one with a perforation, the other (rather heavy) with two.
372–73		Rim-sherd, with line ornamentation on the outside, and a "lump-formed" piece with one perforation (loom-weight ?), all of steatite.
374		Fragment (bottom and side) of a low, heavy vessel of steatite.
375		Rim-sherd of a vessel of steatite, with line ornamentation on the rim.
376–77		Side-sherd of a vessel of steatite, very sooty, with one perforation, and a piece of unworked steatite, with one perforation.
378		Rim-sherd of a vessel of steatite, with line ornamentation on the rim, and a very flat diminutive handle.
379–81		Rim-sherd of a vessel of steatite, with a deep hollow on the inside (ending in a perforation); a sherd with sharply incised ornamentation; and a broken-off flat handle, with one perforation.
382		A heavy side-sherd of a vessel of steatite, with one perforation, and a cross on one side.
383		Strange, broken-off oblong (presumed) handle of a vessel of steatite, with three perforations and some scratched lines.
384–91		Eight rim-sherds of different vessels of steatite, three of them with line ornamentation on the rim, three with a perforation. One of the pieces has two large borings.
392–94		Three knob-shaped handles of three heavy vessels of steatite.
395–96		Two fragments of vessels of steatite. One is a rim-sherd, with one perforation, the other a side-sherd with a knob and one perforation.

397–398		Heavy “lump” of steatite, with one perforation (loom-weight ?), and a side-shoulder of a vessel of steatite, with an oblong handle.
399–400		Side-shoulder of a heavy vessel of steatite, with one perforation, and a “lump-formed” heavy piece of steatite, with one perforation (loom-weight ?).
401–405		Five side-shoulders of vessels of steatite, all with one perforation. On two of them, crosses have been incised on both sides, and one has a double cross on one side; the two others each have one cross.
		<b>Eskimo objects</b>
406		Fragment of an implement of rock crystal, Palaeo-Eskimo.
407		Fragment of an implement of rock crystal (and a very small piece of the same nature), Palaeo-Eskimo.
408		Small arrowhead of quartzite, Palaeo-Eskimo.
408a		A knife (?) of grey slate (Dorset culture ?).
409		Barb for a jig, of bone. Neo-Eskimo.
410		Small implement of bone, with one perforation (use unknown).
411		Implement (knife ?) of bone (or antler).
412		The back of a foreshaft of bone for a harpoon, with two small perforations. Neo-Eskimo.
413	77	One long, flat piece of bone (about 6 cm long), with many small hacks along the edges, and six perforations (use unknown).
414–16		Three small fragments of cut-off caribou antler. (Nos. 409–16 have been found close together).
417		Large fragment (bottom – side – rim) of a vessel of steatite, with a small handle, perforated inside. Neo-Eskimo.
418		Lamp of steatite, Thule type (14th-16th century), joined from several fragments, but complete.
419–24		Six hammer-stones (of different stone material), all presumed to be (Neo-Eskimo).
425		Quite small, green bead of glass, imported European (18th century).
426		Knife of iron, undoubtedly recent, European (18th century). (Nos. 425–26 were found in one of the outhouses, Ruin no. 6).
		<b>Norse objects (continued)</b>
427		Fragment of a small whetstone of grey quartzite, with one perforation.
428		Small, oblong whetstone of grey quartzite.
429		Heavy fragment (two fragments joined) of a polishing-stone (exact material unknown), red and greyish-red.
430		Small fragment of a whetstone of grey quartzite.
431		Quite small fragment of a whetstone of grey quartzite.
432–37		Six fragments of smallish, oblong whetstones of grey quartzite, one of them (No. 437) with a perforation.
438–41		Four whetstones of grey quartzite, three of them with square cross-section, the fourth more irregular. Found together, stuck into the wall (in Room I).
442		Small whetstone of grey quartzite, square cross-section, with one perforation.
443		Small whetstone or polishing-stone of red porphyrite (?), rather clumsy.
444		This number has not been used.
445–46		Two small whetstones of grey quartzite, one with a long groove on one side, the other with one perforation.
447		Small whetstone of grey quartzite, square cross-section.
448–50		Three small whetstones of grey quartzite, square cross-section.
451–52		Two small whetstones of grey quartzite, one with two grooves on one side.
453–54		Two whetstones of grey quartzite, one short, the other comparatively long and elegant, both with square cross-section.
455–59		Four smallish whetstones of grey quartzite, and one (a fragment) of green quartzite (?).
460–61		Two flat whetstones of Igaliiko sandstone (one joined from two fragments).
462		Flat, rather heavy whetstone of Igaliiko sandstone.
463–64		Two small whetstones of grey quartzite, one with a perforation.
465		Very heavy, square whetstone/polishing-stone of a dark-grey stone.



466-67	Two rather long whetstones/polishing-stones, one of Igaliko sandstone, the other of a very dark stone.
468-73	One polishing-stone (rather heavy), of a reddish stone, and five small whetstones of grey quartzite, all with square cross-section.
474-75	One whetstone of grey quartzite, square cross-section, and a round polishing-stone, of a dark-grey material.
476-77	Two rounded polishing-stones, of a very dark stone.
478-79	One small and one large rounded polishing-stone, the small one of a very dark material, the other of a more greyish stone.
480	A (slightly fragmented) leather sole for footwear (about 16 × 8 cm).
481-83	Two large fragments, and one quite small, of a leather upper for footwear, with eyelet holes.

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## The Church Topography of the Eastern Settlement and the Excavation of the Benedictine Convent at Narsarsuaq in the Uunartoq Fjord

C. L. VEBÆK

Vebæk, C. L. 1991. The Church Topography of the Eastern Settlement and the excavation of the Benedictine Convent at Narsarsuaq in the Uunartoq Fjord. – Meddr Grønland, Man & Soc. 14, 81 pp. Copenhagen 1991-04-30.

Originally, my sole intention with this publication was to give an account of the excavations I carried out in 1945–46 and 1948 on behalf of the Danish National Museum at the presumed Benedictine convent at Narsarsuaq in Uunartoq Fjord (Site No. Ø 149). To prove that this locality (discovered in 1932 by Poul Nørlund, and already then identified by him with certainty as the Benedictine convent known from Ivar Bardarson's fourteenth-century description of Greenland) really is the true site of the convent, I found it necessary to start with a close study of the church topography of the whole Eastern Settlement (including the Middle Settlement), with the emphasis on the area around Uunartoq Fjord. I have attempted to prove that the Benedictine convent actually was established at Narsarsuaq in Uunartoq Fjord, and that the church I found in 1946 at Narsaq in the same fjord is the Vagar Church of the sources. All the Norse churches of the Eastern Settlement identified up to 1946 are enumerated, and I offer some proposals as to where we might find those parish churches that are still unlocated, especially in the Middle Settlement.

Part II is entirely devoted to the initial intentions of this work: the archaeological excavations at Narsarsuaq. The excavation of the church and part of the surrounding churchyard is described in detail on the basis of a very comprehensive body of plan drawings, photos and my notebooks.

I have demonstrated that there were at least two Norse settlements at Narsarsuaq, the oldest of which may date back to the *landnåma* period, and that there existed at least one church before the one excavated, which may be dated about 1300. I have also described the many very interesting finds of all kinds made at the site, especially from the oldest phase of habitation. Marie Stoklund and Søren Thirslund have each contributed with special chapters, the former on runic inscriptions, the latter on a unique wooden artefact thought to be a compass. The skeletal material has been studied by the anthropologists N. Lynnerup, B. Brølich, V. Alexandersen and J. P. Hart Hansen, who will be publishing a separate account of this material; but N. Lynnerup has kindly informed me of the main results of their studies, published here in sections 5 and 5a.

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# Archaeology and environment in the Scoresby Sund fjord

## Ethno-archaeological investigations of the last Thule culture of Northeast Greenland

HANNE TUBORG SANDELL and BIRGER SANDELL

Sandell, Hanne Tuborg and Sandell, Birger. 1991. Archaeology and environment in the Scoresby Sund fjord. Ethno-archaeological investigations of the last Thule culture of Northeast Greenland. – Meddr Grønland, Man & Soc. 14, 150 pp. Copenhagen 1991-4-18.

In 1983, during archaeological investigations of Jameson Land in Northeast Greenland, Kalaallit Nunaata Katersugaasivia (Grønlands Landsmuseum) excavated a winter dwelling from the last Thule Eskimo settlement in that area. The results of the excavation are the subject of this book, where they are analysed and presented from an ethno-archaeological point of view.

The introductory section describes the natural conditions and living resources of the area, and is followed by a short historical/archaeological review of Northeast Greenland. Next, the results of the excavation are presented with a description of the finds, and the archaeological data is evaluated in relation to previous material from Northeast Greenland.

This is followed by a section on the material and cultural development and adjustments made by the present population of the Scoresby Sund area, as regards ecology and resources.

An ethno-archaeological analysis is undertaken on the basis of the ethnological material presented, and theories put forward to describe patterns of resource exploitation, mobility, seasonal movements etc. for the people living in the last Thule culture in the Scoresby Sund area. Opportunities for contact with European Whalers and other cultural developments are also discussed.

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## Chants d'Ammassalik

par PAUL-EMILE VICTOR  
avec CATHERINE ENEL et ELISA MAQE

Victor, Paul-Emile avec Enel, Catherine et Maqe, Elisa. 1991. Chants d'Ammassalik. Medd. Grønland, Man & Soc. 16, 286 pp. Copenhagen 1991-2-4.

In 1935, when collecting ethnographical material in Ammassalik area, in East Greenland, Paul-Emile Victor took down 720 traditional songs, using the international phonetic spelling. Most of those songs have now been transcribed with an orthography largely inspired from official West-Greenlandic and translated by Elisa Maqe and Catherine Enel into both Danish and French.

This volume is the result of that work. It presents a unique collection of extinct traditional East-Greenlandic songs, mainly drumsongs used in song contest, songs for entertainment, religious and ceremonial songs, petting songs for children.

*Paul-Emile Victor, Bora Bora, Polynésie Française.*

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# Vatnahverfi – An inland district of the Eastern Settlement in Greenland

C. L. VEBÆK

Vebæk, C. L. 1992. Vatnahverfi. An inland district of the Eastern Settlement in Greenland. – *Meddr Grønland, Man & Soc.* 17, 132 pp. Copenhagen 1993-1-8.

Vatnahverfi was an inland district of the medieval Norse East Settlement situated in an area between Igaliku Fjord to the north and Agdluitsoq Fjord to the south. The countryside there is beautiful, with many lakes and rivers, and most of the area has rich vegetation with much grass, birch and willow scrub. Vatnahverfi was – and still is – an attractive settlement area for sheep farming, and to some extent for agriculture too. In medieval times there was quite a dense population of Norsemen, who settled practically anywhere they could make a living as farmers, with horses, cattle, sheep, goats and pigs. The Norsemen also lived by land and sea hunting and fishing, as demonstrated by the archaeological excavations.

Vatnahverfi has been known to scholars for more than two hundred years, and at the end of the nineteenth century G. Holm and D. Bruun carried out topographical-archaeological investigations in the area. But it was not until 1939 that the first extensive excavations took place (Vebæk 1943). The work at Vatnahverfi was interrupted by the War, but in 1948 the so-called "Mounted Expedition" to Vatnahverfi carried out comprehensive topographical studies in the area. Thanks to some local sheep farmers in particular, a number of previously unknown Norse farms had been registered, and we selected some which looked promising for excavations. These excavations were then carried out in 1949–50, at the localities Ø 70 – a smallish, remote farm in the mountainous part of Vatnahverfi; Ø 71 (Russip Kuua), comprising two separate farms at the eastern end of one of the very large, long lakes in the northern part of Vatnahverfi; and finally Ø 167, the biggest farm known in Vatnahverfi so far, situated at a small lake in central Vatnahverfi. The archaeological results must be said to have been good. We made some very important observations as regards the layout of farms and construction of buildings, and found many objects – some of them never encountered before. We also found a large number of animal bones (including skeletal parts of 110 mice trapped in a large wooden barrel). The most remarkable find of all was parts of the skeleton of a Norseman found in the passage of the largest building at Ø 167. We must assume that this was the last inhabitant, not only of the farm, but of the whole area, since he had not been buried.

With this publication, I and my colleagues and fellow scholars – the runologist Marie Stoklund, the anthropologists N. Lynnerup, V. Alexandersen and J. P. Hart Hansen, and the zoologist T. H. McGovern – hope to make a contribution to the study of the medieval Norsemen in Greenland.

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