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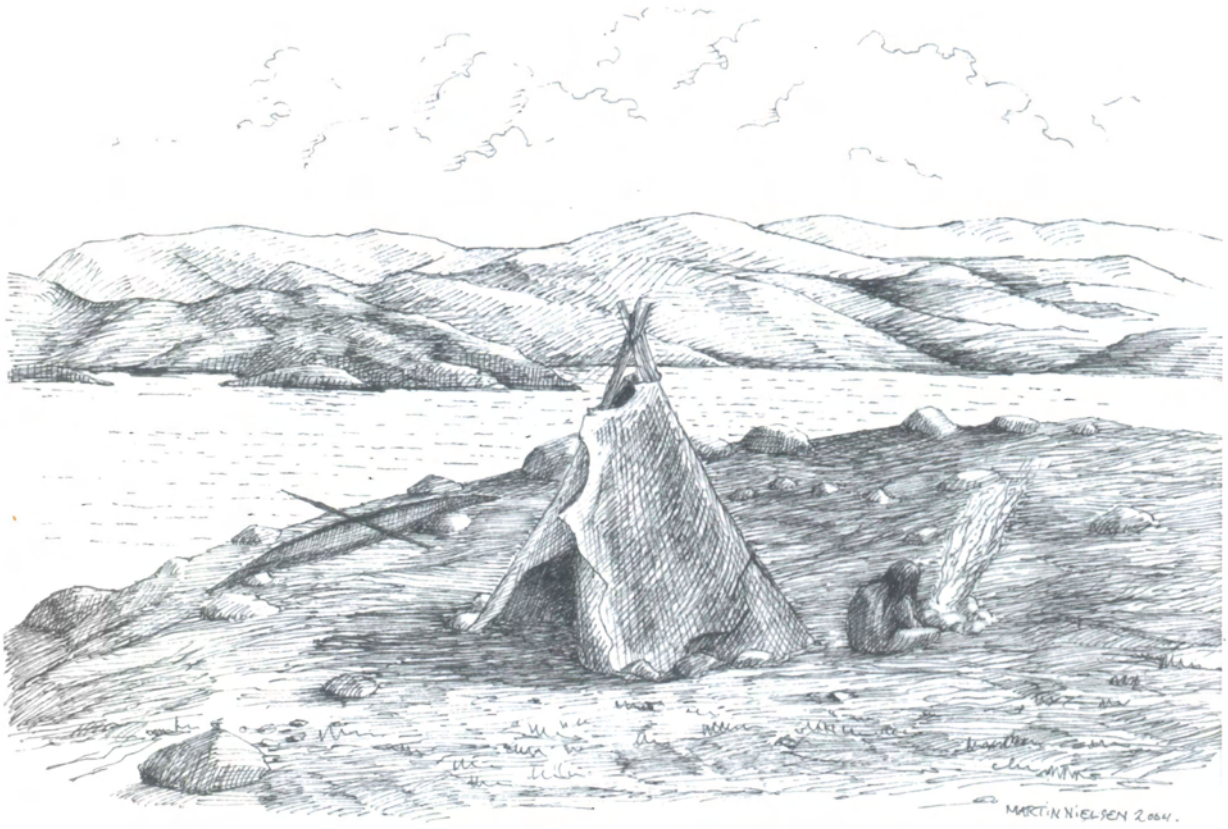
The Stone Age of Qeqertarsuup Tunua (Disko Bugt)

A regional analysis of the Saqqaq and Dorset cultures of Central West Greenland

Jens Fog Jensen



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Front cover: Reconstruction of a single family Saqqaq tent at the Kannala site. Drawing by Martin Antoni Nielsen.

Back cover: Bifaces of chalcedony from Annertusuaqqap Nuaa. Photo Geert Brovad.

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Abstract

Jens Fog Jensen: The Stone Age of Qeqertarsuup Tunua (Disko Bugt). A regional analysis of the Saqqaq and Dorset cultures of Central West Greenland. – Meddelelser om Grønland, Man and Society 32. Copenhagen, The Commission for Scientific Research in Greenland, 2006. 272 pp.

The present text is a revised version of the Ph.D. thesis 'Tent Rings and Stone Tools' defended by the author on March 11th 2005 at the University of Copenhagen.

Saqqaq and Dorset sites excavated by the author in the southern part of Qeqertarsuup Tunua (Disko Bugt) form the empirical basis for a comparison of Saqqaq and Dorset settlement in the area. Earlier reconstructions of the cultural history were based mainly on observations of stratified middens. In contrast to this, the present work focuses on the 'horizontal dimension' within the archaeological record. As a consequence, settlement patterns, dwelling types and the spatial organisation of dwellings are the principal objectives.

Saqqaq and Dorset settlement patterns are broadly similar and it is concluded that there is little evidence to suggest any major difference in economy or adaptation between the two periods. Both Saqqaq and Dorset settlement patterns are characterised by a number of large settlements located strategically near the most productive biotopes. Minor settlements, most often occupied during the warm season, are found within the catchment area, indicating annual recurring dispersal of the population during the warmer months. Only Sydostbugten, in Southeastern Qeqertarsuup Tunua, appears to exhibit significant differences between Saqqaq and Dorset settlement patterns. Large Dorset settlements have not been found in Sydostbugten and it is suggested that this area, probably due to climatic oscillations, was less attractive for settlement during the Dorset period than it was in the Saqqaq. Consequently, the Dorset people seem only to have utilised Sydostbugten for specialised seasonal camps.

Saqqaq and Dorset accommodation comprises distinct summer and winter dwellings. During both periods, the summer dwellings are characterised by what are believed to be single family tents. These occur in two principal varieties: Tent rings, with a central hearth, and mid-passage tent rings, where the interior is divided in two by parallel lines of stones. This difference in architecture is suggested to result from variation in the social composition of the inhabitants. Winter dwellings of both the Saqqaq and Dorset cultures are characterised by more solidly built structures. In the Saqqaq culture there are 'platform dwellings' and mid-passage structures filled with fire-cracked rocks. During the Dorset, the winter dwellings are characterised by 'double-platform dwellings', in which a central floor area divides the interior into two platforms that are often paved. The presence of more than one hearth or lamp stand, as well as 'mirrored' distributions of the most frequent tool categories to the left and right of the central floor area, is interpreted as a result of these dwellings being occupied by two families.

Chapter 7 focuses on Saqqaq raw material distribution from killiaq sources in the vicinity of Qaarsut and Angissat. The raw material distribution from these two sources is

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characterised as a regional and local system. The procurement and subsequent distribution of raw materials from Angissat in Southern Qeqertarsuup Tunua appears thus to have been imbedded in the local resource exploitation. Much of the raw material extraction appears to have been carried out by hunting parties visiting the outcrop during summer hunting trips. In contrast to this, Qaarsut at Nuussuaq shows evidence of a more comprehensive production of preforms, which were distributed through-out Western Greenland.

Economically as well as socially, there appear to be numerous similarities between the Saqqaq and Dorset cultures. However, when evaluating the radiocarbon dates, there appears to be discontinuity between the two periods as is also suggested by earlier excavations of stratified deposits. In Sisimiut District, to the south of Qeqertarsuup Tunua, the latest Saqqaq dates overlap with the oldest Dorset dates. Theoretically, there could be continuity between the two periods outside Qeqertarsuup Tunua, however the archaeological evidence for such a development has yet to be found.

When the cultural history of Qeqertarsuup Tunua is compared with that of Peary Land, the dwelling types and chronological units appear very similar. In the case of Dorset and Independence II, the similarities also extend to include the lithic inventory. As a consequence it is difficult to maintain a division between Dorset in Western and Southern Greenland and Independence II in the High Arctic.

Keywords: Greenland, Saqqaq Culture, Dorset Culture, Arctic Small Tool Tradition, Palaeo-Eskimo, spatial analysis, raw material procurement.

Jens Fog Jensen, Sila – The Greenland Research Centre, The National Museum of Denmark, Frederiksholms Kanal 12, DK-1220 Copenhagen K, Denmark

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Chapter 1

Introduction

The scope of this study comprises a synthesis of the present state of knowledge concerning the Stone Age of Qeqertarsuup Tunua (Disko Bugt) West Greenland, and presentation of new data from the Saqqaq and Dorset sites I have excavated. Almost fifty years have elapsed since this task was attempted for the first and, so far, only time. During my time as head of the museum in Qasigiannguit between 1993 and 1997, it occurred to me that someone ought to summarise the body of new information gathered during the last twenty-five years of archaeological research in this part of the world. However, as there were no other archaeologists around, I had to do this myself.

Although perceived as early as the end of the 19th century, considerable time elapsed before the Stone Age of Greenland and the Eastern Arctic became a scientific reality. This occurred in Greenland in the early 1950s with the parallel publication or, one could say, twin birth of works by Count Eigil Knuth working in Peary Land and Jørgen Meldgaard, then a student of prehistoric archaeology, who analysed a collection of artefacts brought to the National Museum by amateur archaeologist Hans Mosegaard. Intensive excavation and reconnaissance in Qeqertarsuup Tunua followed up Meldgaard's analysis in the summer of 1953 (Larsen & Meldgaard 1958), after which renewed excavations were carried out at Sermermiut in 1955 by Therkel Mathiassen (Mathiassen 1958). Larsen and Meldgaard's publication presents the results of their excavations and then continues, in the analysis section, to discuss these in the light of a synthesis of the prehistory of West Greenland. Their work has remained the only comprehensive study of the entire Stone Age of West Greenland, in spite of many more recent excavations, in particular of sites from the oldest phase, the so-called Saqqaq culture (Appelt & Pind 1996; Grønnow 1994, 1996b; Gulløv & Kapel 1988; Kapel 1996, Kramer 1996a, 1996b; Møbjerg 1986, 1999; Olsen 1998). During recent years, several localities from the Late Stone Age Dorset I or Early Dorset culture have also been excavated (Jensen 1995a-e, 1998; Stapert & Johansen 1996). It is therefore appropriate to attempt a renewed synthesis of the Stone Age of West Greenland. Not so much because of disagreements between my views and those presented by Larsen and Meldgaard, but rather because an understanding of the recently excavated sites needs to be based on the complete picture. It is also useful, now and then, for someone to gather together the loose ends in order to facilitate a broad overview.

The principal works on the Stone Age of Qeqertarsuup Tunua (Grønnow 1994; Larsen & Meldgaard 1958; Mathiassen 1958; Møbjerg 1986) have focused on localities with rich, stratified deposits, and the broad sweep of the cultural history of West Greenland has largely been based on observations of stratigraphy. Human behaviour is, however, mapped into the landscape horizontally and an understanding of human adaptation and changes hereof should, therefore, also be linked to horizontally embedded data. Accordingly, the horizontal dimension is very much in focus in this work.

The aim of the study

Spatial patterning will be investigated at different levels of inference ranging from a regional perspective to the highly localised level of a single dwelling. On a regional level are the settlement patterns and distribution patterns of raw materials which, in combination, can give an idea of the past relationship between *locus* and the *paths* commuting between settlements. Ecological information can also be derived from the settlement patterns, since hunter-gatherers tend to locate themselves in the proximity of principal resources. If major changes occurred in the resource base through time, one would expect such changes to be reflected in similar chronological changes in settlement patterns.

The principal purpose of the present work is, therefore, to explore similarities and differences in the spatial and economic organisation of the Saqqaq and Dorset cultures in Qeqertarsuup Tunua, West Greenland. The method applied in this endeavour will be to

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search for temporal and geographical differences in settlement patterns and dwelling styles, and in the spatial organisation of these dwellings.

Cultural classification, terminology and taxonomy

Three cultural units have so far been identified in West Greenland to the south of Melville Bay; Saqqaq (2500-900 cal B.C.), Dorset (800 cal B.C. – 1 cal A.D.) and Thule (1300 cal A.D. – Historical Times). In Arctic Canada, the Dorset sequence has been divided into Early, Middle and Late Dorset (Hood 1998). The West Greenland Early Dorset variant has been termed Dorset I and the Late Dorset has been termed Dorset II (Meldgaard 1977). However, the suggestion that Late Dorset occurred to the south of Melville Bay was based on stray finds of a wooden figure with carved faces from Upernavik and a harpoon head of the 'Dorset Parallel' type collected by Larsen and Meldgaard (1958:39). Recently, the wooden figure has been radiocarbon dated to the 17th century (Gulløv 2004: 330). This leaves us with the harpoon head from Appat (Ritenbenk) to sustain Late Dorset presence in West Greenland south of Melville Bay. However, Larsen found no Palaeo-Eskimo traces when he investigated the reported find site. The midden contained layers from Inussuk and later periods. If the find site reported to Larsen is correct, then the harpoon head belongs in some kind of Thule or Inussuk context. As such, it cannot in any way be regarded as support for a Late Dorset presence in Qeqertarsuup Tunua. Probably one should interpret the harpoon head from Appat as a rare object of exchange analogous to the way most researchers interpret the Norse objects found in Inussuk contexts. To summarise, the presence of Late Dorset in West Greenland south of Melville Bay is highly questionable and will remain so until Late Dorset settlements or further Late Dorset artefacts have been recovered from well-documented contexts.

In spite of 20 years of relatively intensive reconnaissance in Qeqertarsuup Tunua, evidence of Middle Dorset presence is also lacking from this region. Whenever Dorset sites have been encountered, they have proved to be of relatively uniform typological character comparable to the sequences characterised elsewhere as Independence II, 'transitional' or Early Dorset. Therefore, and for the sake of simplicity, I have chosen through-out the following study to use the short term 'Dorset' to characterise all the sites belonging to the Late Stone Age sequence.

Through-out this study I have attempted to rely on 'common terminology' and all place names will be given in Greenlandic, though often followed by the Danish place names in brackets. Greenlandic place names are written with modern Greenlandic orthography. The Greenlandic orthography was altered in 1973. Readers consulting the older publications must thus expect several examples of deviation in the spelling of placenames between the present work and original literature. When describing the different dwelling types I use the term 'mid-passage' introduced by Knuth (1952) to characterise the parallel axial alignments of stones often seen in Palaeo-Eskimo tent rings. 'Fire-cracked rocks' are soot-blackened and sometimes cracked fist-sized stones deposited in and around hearths. In terms of lithic categories, I use the Greenlandic term killiaq to characterise the grey to blackish hornfels which has a slate-like appearance and is, therefore, often characterised as silicified metamorphosed slate. This raw material was formerly often referred to as angmaq (Meldgaard 1996). Chalcedony characterises fine-grained, more glass-like micro-crystalline quartz minerals, sometimes called agate (Grønnow 1994). Quartz crystal is the clear or occasionally smoky glass-like crystal quartz, and quartzite characterises translucent minerals with visible grains. Occasionally there are quartzites similar to the Ramah chert known from Labrador, but these are very rare. Most commonly the quartzites in Qeqertarsuup Tunua are dull clear to greenish-white or grey.

Radiocarbon dates are presented in uncalibrated radiocarbon years (b.c. or a.d.) or in calibrated calendar years always characterised by 'cal B.C.' or 'cal A.D'. Datings were calibrated by the OxCal ver. 3.5 calibration programme.

The structure of the text

Prior to a discussion of archaeological data, I will set the scene by giving descriptions of the present and past physical environments. These will be dealt with in chapters 2 and 3.

Chapter 4 discusses the history of research within what could be termed the academic sphere. Principal problems addressed include: Why do we ask the ques-

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tions we ask? Are the patterns in the archaeological record representative or do they merely reflect variations in the intensity of research?

Saqqaq and Dorset settlement patterns in Qeqertarsuup Tunua are analysed in chapter 5. This chapter presents a regional survey of all Palaeo-Eskimo sites known from the area. Local and chronological similarities and differences in settlement patterns are outlined.

Chapter 6 presents the results of excavations from three short-term Saqqaq settlements in Southern Qeqertarsuup Tunua and the results are discussed in relation to published data from other Saqqaq sites in the research area. There is special focus on intra- and inter-site analysis.

Chapter 7 deals with the raw material procurement system of the Saqqaq culture. Lithic raw material procurement was based on extensive long-distance exchange systems, ensuring the supply of lithics from Northern Qeqertarsuup Tunua to the whole of West Greenland. However, local lithic resources were also used. The interplay between the different lithic resources and the effect of the common use of exotic raw materials are discussed in this chapter. Thin-section analysis of raw material samples has been conducted in collaboration with Professor Minik Rosing of the Geological Museum, University of Copenhagen. However, I speak purely for myself with respect to the conclusions presented here.

Chapter 8 presents the analysis of four Dorset localities I have excavated and, as with the presentation of Saqqaq sites, emphasis is put on dwelling features and intra-site spatial patterning. The summary includes a discussion of Dorset economy with a presentation of the limited faunal material from West Greenland Dorset sites. The fauna was identified by Ulrik Møhl, Jeppe Møhl, Morten Meldgaard or Tine Nord Andreasen and the data presented here have been retrieved from publications or with the help of Knud Rosenlund from the archives of the Zoological Museum, University of Copenhagen. The analysis of faunal material from the excavations presented here was conducted by Tine Nord Andreasen at the Zoological Museum, where this material is now stored.

Chapter 9 presents a compilation and analysis of all Palaeo-Eskimo radiocarbon dates from West Greenland. Rigid use of radiocarbon dates is crucial to a correct understanding of chronological variations in demographic patterning. However, reconstructions of the cultural history of West Greenland have too often been based on the uncritical use of dates obtained for bulk samples of peat, as well as materials of marine and terrestrial origin. Furthermore, the dates have to no great extent been sorted geographically. Accordingly, the radiocarbon dates are evaluated critically in this chapter.

Chapter 10 is a summary and discussion of the Palaeo-Eskimo cultures in Qeqertarsuup Tunua (Disko Bugt). The first sections of this chapter compare the Saqqaq and the Dorset evidence in order to outline the cultural history of the Stone Age in the study area. In the subsequent sections, the evidence from Qeqertarsuup Tunua is compared with published data from the rest of West Greenland. Finally, the problems of comparing the cultural history of West Greenland Saqqaq and Dorset cultures to the parallel Stone Age cultures of Independence I and II, which Knuth has developed for the northernmost Greenland, are touched upon.

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Chapter 2

Landscape, Seascape and Icescape

Qeqertarsuup Tunua (Disko Bugt) constitutes one of the largest inlets in Greenland (Fig. 2.1). Through-out history this area has supported a relatively large population, subsisting mainly by sealing, whaling and fishing, but also exploiting terrestrial resources and wildfowl. The topography of the area is highly variable, ranging from an archipelago comprising thousands of islets and skerries and characterised by low hills in the southwest, to almost 2000 m high glaciated tablelands on the Nuussuaq Peninsula in the northern part. The following description offers a general introduction to the area, whereas more detailed topographical descriptions introduce each of the geographical sections used for mapping of archaeological sites in chapter 4.

The Precambrian province

The geology of Central West Greenland is dominated by Precambrian gneiss formations shaped by aerial scouring by the Greenland Ice Sheet during the Quaternary glaciations (Sugden 1974). However, there are also Cretaceous and Tertiary formations of sedimentary and volcanic rocks (Henderson *et al.* 1976). In the research area, the Cretaceous and Tertiary formations are confined to the island of Qeqertarsuaq (Disko Ø), Western Nuussuaq and the archipelago of Kitsissunnguit (Grønne Ejland) in the southern part of Qeqertarsuup Tunua (Fig. 2.2). In this province, the exposed bedrock consists of thick columns of sedimentary rock with a few sporadic exposures of gneiss. The variation in geology is strongly reflected in the topography of the two areas. Southern and Eastern Qeqertarsuup Tunua are characterised by low relief gneiss plateaus bisected by east-west or northeast to southwest-oriented troughs. The area around the town of Aasiaat, in the southwestern part of the province, comprises an archipelago with numerous islets and

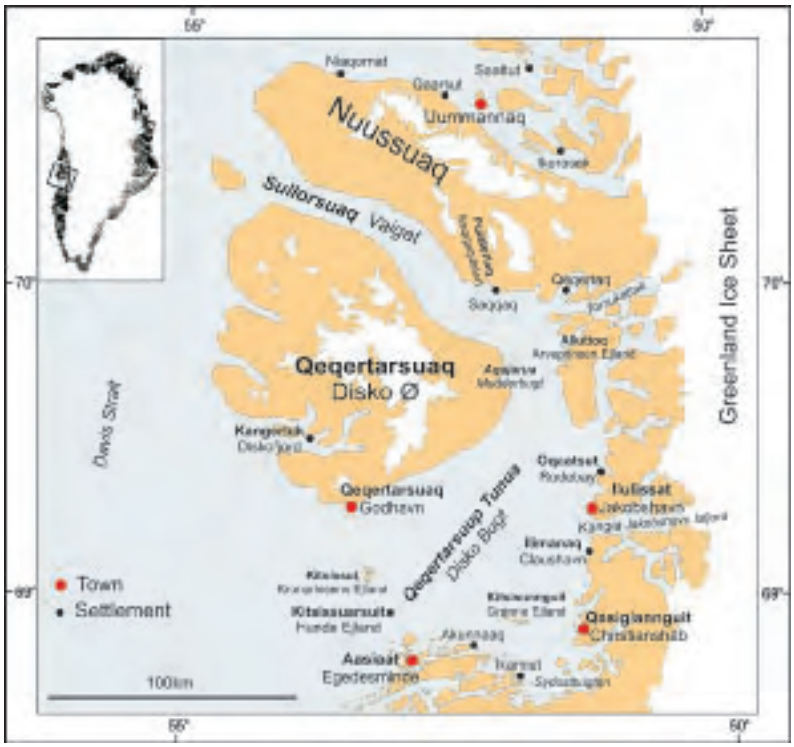

Fig. 2.1. Map of Qeqertarsuup Tunua (Disko Bugt) with place names.

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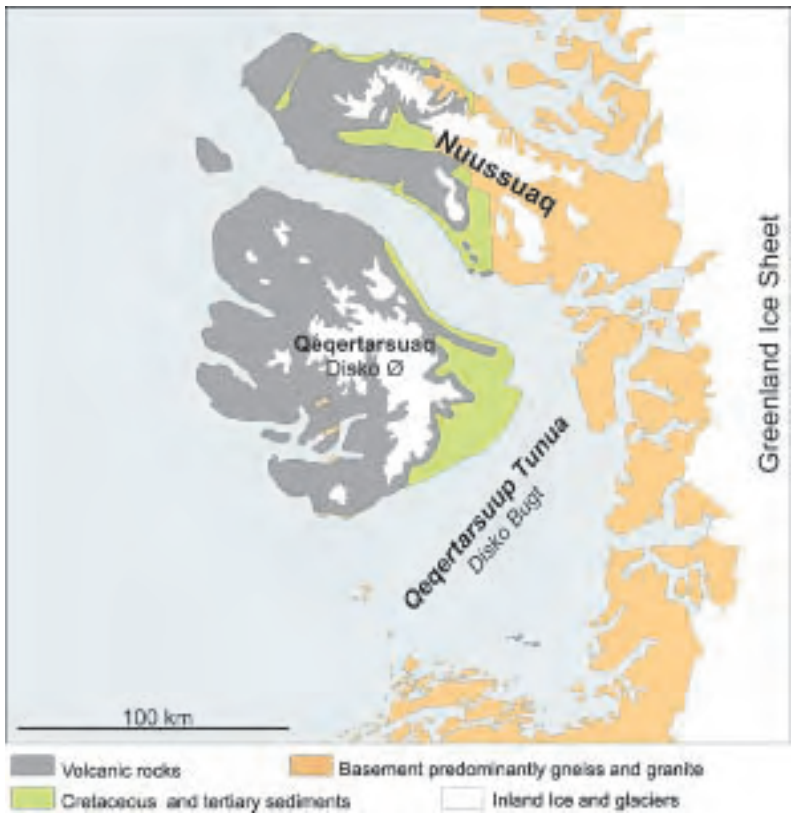

Fig. 2.2. Principal geological provinces of Qeqertarsuup Tunua. Based on Escher and Pulvertaft 1995.

skerries separated by a labyrinthine network of sounds (Fig. 2.3). The undulating ice-scoured hills in this area rarely exceed 500 m. The landmass immediately to the south of Qeqertarsuup Tunua is dominated by Naternaq, a large clay plain of marine origin covering all the lower landscape. Scattered over the plain are

Fig. 2.3. The gneiss formations of Southern Qeqertarsuup Tunua are characterised by low relief hills. View towards the north from an islet in the archipelago of Southwestern Qeqertarsuup Tunua. Photo Erik Brinch Petersen.

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Fig. 2.4. View from the south towards Nuussuaq in the vicinity of Paatuut. Darker volcanic rocks overlie thick columns of sedimentary rocks. The undulating slopes in the left part of photo are land-slipped sedimentary rocks. The shore is formed of alluvial fans deposited below the hills in the hinterland. Photo Jens Fog Jensen.

small hills, rising as 'islands' of igneous rock from the level clay surface.

North of Kangia (Jakobshavn Isfjord) and the town of Ilulissat (Jakobshavn) the hills rise gradually, and around Alluttoq (Arveprinsens Ejland) the landscape becomes more mountainous with peaks reaching 600-800 m a.s.l.. The coastline north of Ilulissat is fairly straight, north-south oriented, and there are only a few minor inlets and islands. At the southern tip of Alluttoq, Ikerasak Sound branches off towards the Torsukattak Icefjord in the northeastern corner of Qeqertarsuup Tunua. The eastern part of the Nuussuaq Peninsula, from the Inland Ice to Pulateriaq (Saqqaqdalen), is dominated by gneiss, but the ice-capped mountains and glacier-filled valleys give the topography around the settlement of Qeqertaq a much more dramatic appearance than one experiences in the southern part of Qeqertarsuup Tunua. In general, the undulating surface of the gneiss and granite formations forms a landscape with thousands of lakes and ponds, some of which offer a good catch of char.

The Cretaceous province

The Nuussuaq Peninsula and island of Qeqertarsuaq are characterised by 1000-2000 m high ice-covered tablelands bisected by numerous troughs and valleys with glaciers, giving these areas an Alpine character. The coastline in the Cretaceous province is very different from that in districts dominated by gneiss. The glacier-covered basaltic plateaus are fringed by scree slopes, rock glaciers and alluvial fans, which often build steep slopes dropping directly to sea level (Figs 2.4 and 2.5). In this environment there are sand, gravel and stone beaches and, apart from the active beach ridge, there are often no, or only few, places suitable for settlement. In southern and western parts of Qeqertarsuaq the basaltic strata often reach present sea level, whereas in the northern and eastern parts, and on the Nuussuaq Peninsula, they rest on top of a thick stratum of sedimentary rocks. Occasionally the sedimentary rocks have been metamorphosed by later volcanic intrusions, and it is these processes that have resulted in the formation of the grey or blackish hornfels used in Palaeo-Eskimo lithic tool production. These topics will be dealt with in detail in chapter 7, where raw material acquisition is described and analysed. However, it should be mentioned already here that both the hornfels (killiaq) and the chalcedony, which dominate in Palaeo-Eskimo lithic tool production, have their natural occurrence in the Cretaceous province. Field surveys have shown, furthermore, that

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Fig. 2.5. Tallus slopes below vertical basalt and tuff cliffs in Kuannersuit, Southern Qeqertarsuaq (Disko Ø). Gneiss islet is seen in foreground. Photo Jens Fog Jensen.

the occurrence of usable raw materials appears to be very localised even within this.

There are only few lakes and ponds in the Cretaceous province. In the valleys, however, there are rivers and highly productive delta zones attracting migrating birds as well as anadromous fish, and in the large valley systems of inland Nuussuaq there are several large lakes.

The seascape and icescape

The Atlantic waters of the West Greenland Current enter the bay through the deep channels around Kitsissuarsuit (Hunde Ejland) and Kitsissut (Kronprinsen Ejland). Further east, the current is deflected north and westwards creating a counter-clockwise flow in the southern part of Qeqertarsuup Tunua.

Tidal changes oscillate between minus 1.5 m and 2.6 m above mean sea level. In the southern archipelago the tidal change produces several strong currents in the narrowest parts of inlets and fjords. Such locations are ecological hotspots, where seals prefer to migrate back and forth, and the current forms open water during seasons when the surrounding sea is still ice-covered. Such polynia may attract sea mammals as well as migrating waterfowl. The coastline of Nuussuaq and Qeqertarsuaq is characterised by more uniform beaches often stretching for kilometres between rocky points or alluvial fans at river outlets. In the large sound of Kullorsuaq (Vaigat), open water occurs at several such points and early melting of the sea ice also occurs around several river outlets (see figs. 2.6 and 2.7). Most recent, as well as prehistoric, settlements in the Cretaceous province are found in areas where archipelago-like environs are created by outcropping igneous bedrock or by basaltic formations.

Swell and wave action is highly variable in the research area with protected low-energy shores in some areas and high swell and wave action along the more exposed coasts. Generally, wave energy decreases eastwards from the western skerries and shores of Qeqertarsuaq and Nuussuaq towards the more protected shores of Eastern and Southern Qeqertarsuup Tunua.

In September the mean air temperature drops below zero, but the formation of sea ice in open waters does not begin before December or January. Protected

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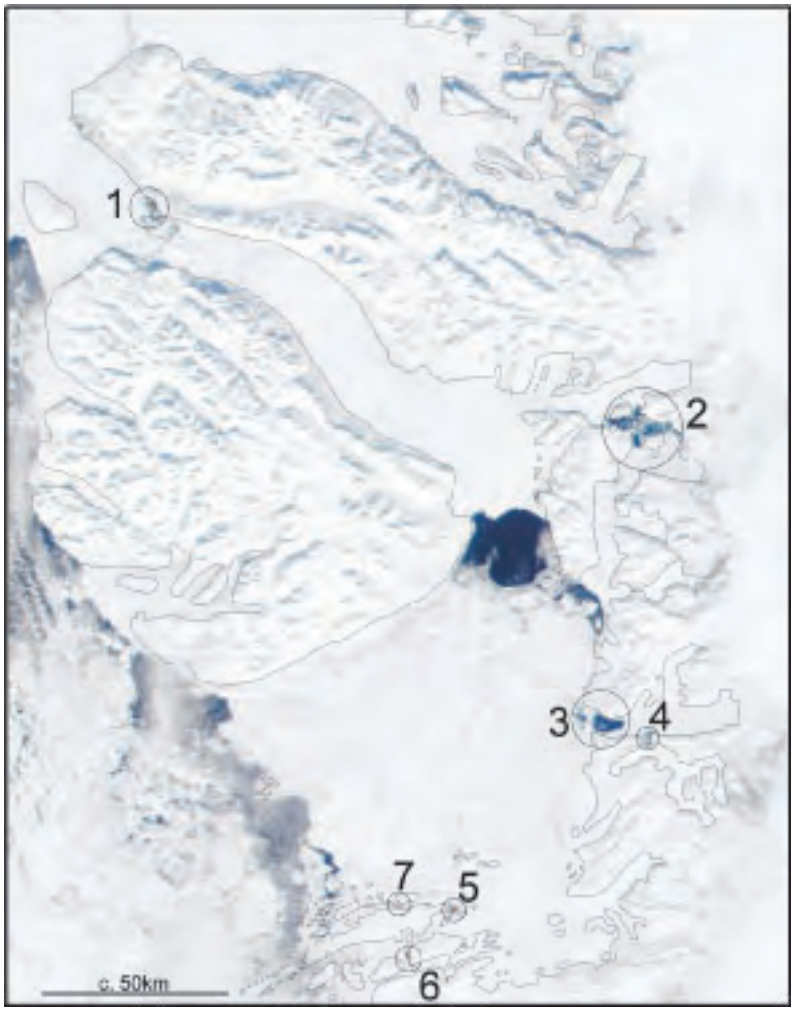

Fig. 2.6. Qeqertarsuup Tunua on March 29th 2002. The southern part of the bay is filled with dense pack ice, whereas the land-fast ice is still present in Sullorsuaq (Vaigat), in Sydostbugten to the south and in the protected bays. Several secondary polynias can be seen. From north to south, the most prominent are: 1) Marrat, 2) Torsukattak icefjord, 3) outlet of Kangia (Jakobshavn Isfjord), 4) confluence of Tasiusaq and Kangia, 5) northern part of Nivaap Paa at the point of Nuuk, 6) the Nerukinnera narrow at the confluence of Amitsuarsuk and Saqqarleq, 7) Ikerasassuaq (Langesund) / Akunnaap Saqqaa. The large ice-free area between Alluttoq (Arveprinsen Ejland) and Qeqertarsuaq (Disko Ø) is not a polynia but an opening created by northerly winds blowing the pack ice southwards. Slightly altered satellite image. Jacques Descloitres, MODIS Land Rapid Response Team, NASA/GSFC. (http://visibleearth.nasa.gov/).

bays and fjords with little wave action and low salinity in the surface water freeze up first, followed later by the open bay area. The formation of land-fast ice constitutes a topographical metamorphosis turning the landscape and seascape into a level frozen plain broken only by the occasional tidal crack and by variously snow-covered hilltops or by icebergs (Fig. 2.8). During winters with stable cold conditions, the entire bay may freeze up enabling traffic on the ice in virtually all directions. However, the ice in the open bay is frequently broken up by strong catabatic winds which may turn the even surface of the land-fast ice into a labyrinthine ice pack. In the channel towards Davis Strait, to the south and southeast of Qeqertarsuaq, the ice often remains unstable and fragmented throughout the winter. Icebergs are produced in very large quantities by the Kangia (Jakobshavn Isfjord), and in lesser quantities by the Torsukattak Icefjord in the northeastern part of Qeqertarsuup Tunua. These icebergs follow the current of the surface waters. As a result, most icebergs produced by Kangia exit the bay in an east-west-oriented flow from the mouth of Kangia, passing quite close to the southern shore of Qeqertarsuaq. Most of the ice from the Torsukattak Icefjord leaves the bay through the Sullorsuaq (Vaigat).

During winter, the ice-covered bay is a plain with few resources. However, of the marine mammals, the ringed seal can be caught at its breathing holes through-out the winter and in the spring it is a favoured prey along the ice margin. The ice conditions are highly variable in different parts of Qeqertarsuup Tunua. The more protected areas, in particular 'Sydostbugten', have the most stable winter ice with no development of pack ice. On the other hand, the many islands and narrow sounds in Sydostbugten, and also

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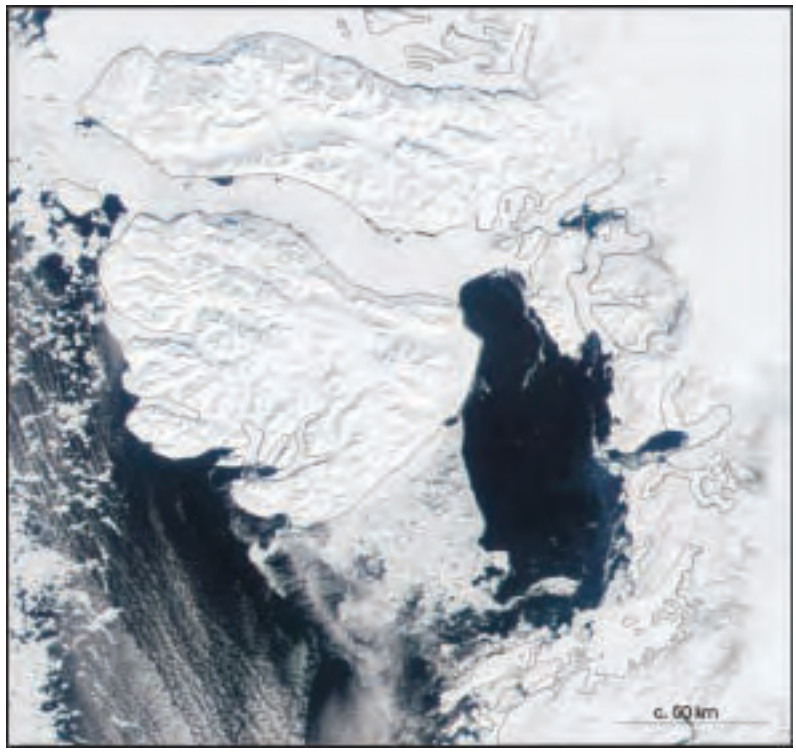

Fig. 2.7. Qeqertarsuup Tunua at April 21st 2002. Heavily broken-up and disintegrated pack ice is still present to the south of Qeqertarsuaq (Disko Ø), but most of the ice has disappeared from the central and southern part of the bay. Land-fast ice is still present in Sullorsuaq (Vaigat), Sydostbugten and in protected fjord systems. Slightly altered satellite image. Jacques Descloitres, MODIS Land Rapid Response Team, NASA/GSFC. (http://visibleearth.nasa.gov/).

in the archipelago to the west of Sydostbugten, have numerous narrows with a strong current, which creates openings with good hunting places in early spring.

Ice break-up starts in April to May, when the sun becomes strong enough to start off the melting process. Sunshine and air temperatures above zero thin the ice cover generally, and along the ice margin the land-fast ice is eroded by the wave action and swell pushing it back from its outermost positions towards the more protected areas. In well-protected inlets ice may stay until mid-July, but usually most ice has already broken up and disappeared by mid-June.

Climate and precipitation

The climate in Qeqertarsuup Tunua is sub-arctic with annual average temperatures in Aasiaat of around –4.9° C and an annual average precipitation of 286 mm. In Ilulissat the corresponding figures are –4.7° C. and around 240 mm. The westerly part of the region has the most oceanic climate, with cold summers and relatively warmer winters, whereas the eastern parts of the region, in particular the district of Qasigiannguit to the southeast, have a more continental climate with relatively warm summers and cold winters. From the end of November to mid-February there is the polar night and from mid-May to mid-July there is the midnight sun supporting a burst of both terrestrial and marine biomass production during the summer months.

Seasonal variation in the prey

The seasonal rhythm of insolation, temperature and ice conditions facilitates a striking seasonal variation in the resource base. In Sydostbugten, in the southeastern corner of Qeqertarsuup Tunua, Meldgaard (2004) has recorded a minimum of just six species hunted by humans during the winter months of January to March. This is contrasted by the 30 to 35 species hunted during the summer months of June to August. The seasonal variation in the quality of available resources is accompanied by a similarly pronounced variation in the quantity of these resources. The spring and summer months offer a burst of, in particular, marine primary production attracting a large number of both large and small game animals. Geographically, the availability of game varies according to changes in the ice cover (Fig. 2.9). Analysing the resources in Sydostbugten, M. Meldgaard (1995, 2004) has identified four distinct resource situ-

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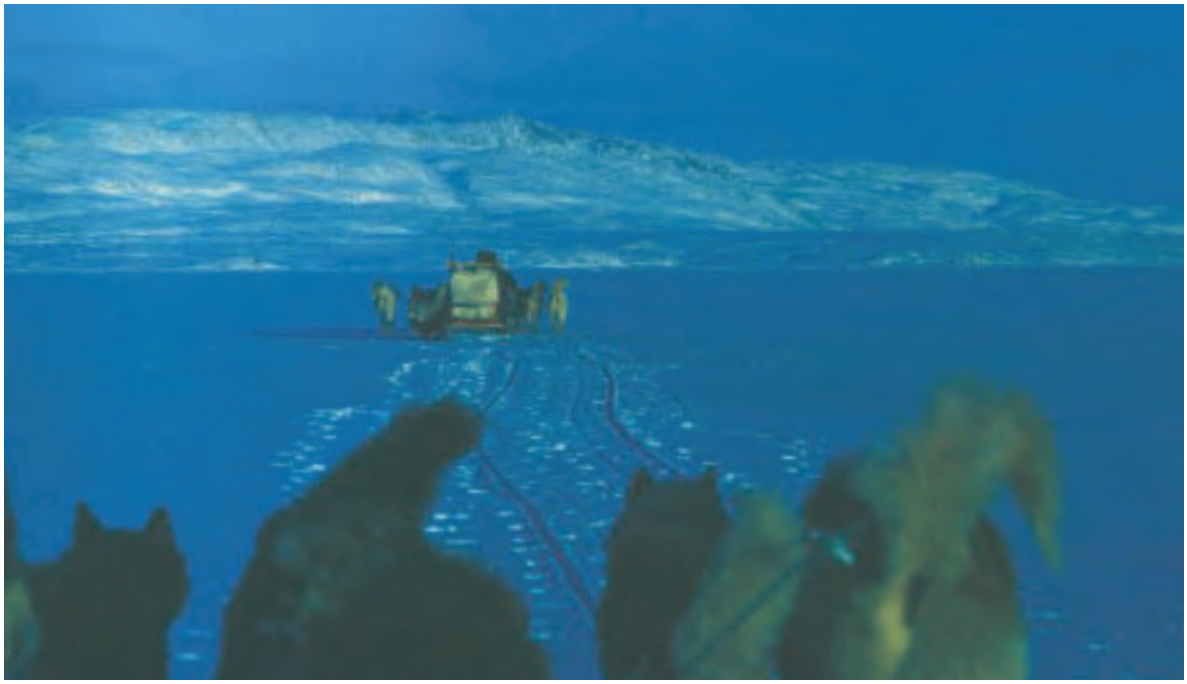

Fig. 2.8. Sledging on the sea ice to the south of Qasigiannguit (Christianshåb). The seasonal cycle of freeze-up and melting of land-fast ice is a recurring topographical metamorphosis which, along the oscillations in the temperature and resource base, heavily affect the whereabouts of humans living in Qeqertarsuup Tunua. Photo Jens Fog Jensen.

ations: *Spring*, lasting from the end of April to the end of June, is characterised by a boom in resources: white whale, ringed seas, capelin, harp seal, nesting birds and their eggs are principal resources. The availability of game is great due to the concentration of marine mammals on ice ledges and along the ice margin and also due to the behaviour of the various species that often move or nest in flocks and colonies. *Summer,* lasting from early July to the end of September, is characterised by abundant but more scattered resources. There are relatively few seals due to the migration of harp seals out of the area, but large whales, cod, salmon and char are common. Char runs represent an important predictable and highly concentrated resource which, geographically, combines well with terrestrial resources such as berries and caribou. *Autumn,* lasting from the beginning of October to the end of December is characterised by a re-occurrence of migratory species such as white whale, harp seal, Brünnich's guillemot, little auk and king eider which increase the resource abundance. The geographical distribution of the migratory species during the autumn migration is, however, much more scattered and thus less predictable than during the spring migration. *Winter* is characterised by a resource minimum since all the migratory species have left the area. Only the ringed seal is of importance and it is evenly dispersed under the sea ice, where it may be pursued at its breathing holes.

The seasonal variation in the resources of Sydostbugten may be extended to the whole of Qeqertarsuup Tunua, but obviously there are local differences in the timing as well as in availability of different species. The seasonal change is guided by the progression of the break-up of winter ice from the southwestern part of the bay towards the east and north. Break-up, and the onset of the spring, occurs accordingly approximately one month earlier in the Aasiaat area than it does in the easternmost part of the bay. The proximity of the westernmost part of the archipelago around Aasiaat to the open waters of Davis Strait, and the heavier wave and swell action of the open sea, also prompts a later formation of sea ice in this area than in the more protected waters of Qeqertarsuup Tunua. As a consequence, there is considerable geographical variability in resources even within the limited geographical area of the bay.

Present settlements

Approximately 20% of the total Greenlandic population of approximately 57.000 lives in Qeqertarsuup Tunua (Disko Bugt). There are five towns and a total of twelve settlements within the research area. Strictly speaking, Uummannaq District is not in Qeqertarsuup Tunua. However the lithic raw materials utilised by Palaeo-Eskimo peoples of West Greenland were largely obtained from sources in this area on the northern side of the Nuussuaq Peninsula. Therefore, the limited but important information on Palaeo-Eskimo settlements in southern part of Uummannaq District have naturally been included. Working clockwise from north to south, the present communities comprise: town and district of Uummannaq with a total of 2.655 inhabitants. Of these, 1.423 live in Uummannaq, 70 in the settlement of Niaqornat, 277 in the settlement of Qaarsut, 268 in the settlement of Saattut and 260 in the settlement of Ikerasak. In addition to these outposts, there are three more settlements in Uummannaq District, however these lie beyond the present research area. In Qeqertarsuup Tunua proper, there are the towns of Ilulissat (Jakobshavn), Qasigiannguit (Christianshåb), Aasiaat (Egedesminde) and Qeqertarsuaq (Godhavn). Ilulissat is a commercial centre with 4.525 inhabitants, an airport for fixed-wing aeroplanes, a large fish-processing plant and a growing tourist industry. Ilulissat District has four settlements: Saqqaq (185), Qeqertaq (184), Oqaatsut (52) and Ilimanaq (Claushavn) with 97 inhabitants. Qasigiannguit is a minor town of 1.342 inhabitants and a single settlement Ikamiut with a further 80. Aasiaat is the second largest town in the research area with a population of 3.142 and a total of 225 living in the two outposts of Kitsissuarsuit (112) and Akunnaaq (113). Aasiaat is an administrative centre with a container port redistributing freight to adjacent areas, a high school and a fish-processing plant, just to mention a few of the larger institutions. Qeqertarsuaq (Godhavn), on the island of Qeqertarsuaq (Disko Ø), is a minor town of 1.005 inhabitants and a single outpost Kangerluk (Diskofjord) with 54 inhabitants. The Arctic Station of the University of Copenhagen is beautifully situated in the town of Qeqertarsuaq. All of the above statistics are from Grønlands Statistik 2003.

Fig. 2.9. Sketch map of annual variability of resources in Qeqertarsuup Tunua (Disko Bugt) during Historical Times. Based on Meldgaard 2004.

The numerous towns and settlements make archaeological investigation relatively easy in this part of Greenland. During the open-water season all the settled places are accessible by boat, and the towns are also served all year round by air traffic. The settled places offer opportunities to obtain provisions and fuel and sometimes accommodation is also available.

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Chapter 3

Environmental Change

Understanding the dynamics of the physical environment is important when evaluating the archaeological record. Even minor fluctuations in the climate or sea temperature may have significant effects on the availability of resources and game. Similarly, sea-level change and dynamic geological processes affect the location and subsequent preservation of campsites. In the following sections I will briefly outline some of the most evident dynamic factors of the physical environment relevant to the Stone Age archaeology of Qeqertarsuup Tunua (Disko Bugt).

Climate change

Environmental change plays a major role in Larsen and Meldgaard's understanding of the cultural history of the Sermermiut site. In their landmark publication from 1958, much effort is expended on reconstructing the past climate as well as in linking the historically documented displacement of the glacier front in Kangia (Jakobshavn Isfjord) to the more recent abandonment of the settlements of Sermermiut and Qajaa (Larsen & Meldgaard 1958). The concept of relating cultural changes to climatic fluctuations has remained central to archaeologists working in Greenland ever since. However, with the exception of the interdisciplinary work on the Qeqertasussuk site (Bøcher & Fredskild 1993; M. Meldgaard 1995, 2004), only little systematic work has been done to link the bulk of palaeo-climatic studies published during recent decades (Dahl-Jensen *et al.* 1998; Dansgaard *et al.* 1971) and to evaluate more closely the ecological consequences of past climatic change relative to human behavioural responses and evidence from the archaeological record. The linking of changes in the archaeological record to climatic changes remain, as a consequence, a working hypothesis rather than an empirically documented fact.

Several studies of both terrestrial and marine climatic records have been published from Qeqertarsuup Tunua. Fredskild (1967, 1984, 1996) and Bøcher and Fredskild (1993) have analysed pollen, the macrofossil flora and arthropod remains in peat bogs and turf stratigraphies from Sermermiut and Qeqertasussuk. In general, these studies agree well in outline on climatic developments during the Holocene as suggested by ice-core data (Fredskild 1996). The first people (Saqqaq in West Greenland and Independence I in Northeast Greenland) arrived, accordingly, at the end of the post-glacial climatic optimum when the average temperatures of the Northern Hemisphere are believed to have been a few degrees warmer than those of today. In Qeqertarsuup Tunua, the climatic optimum resulted in conditions warmer and drier than today in the period from approximately 6400 cal B.C. to 1500 cal B.C. These conditions were followed by a period of continued cooling resulting in conditions colder and moister than today. The onset of the neoglacial around 900 to 800 cal B.C. represented a continued and more dramatic cooling trend which, according to the analysis of the stratigraphy at Sermermiut, appears to have been interrupted by a shorter warm and dry spell during the period of Dorset occupation (Fredskild 1996).

In addition to these studies of sub-aerial climatic records, there are also records of climatic change in the marine environment (Funder 1989; Funder & Weidick 1991; Jensen 2003). Studies of Holocene boreal molluscs now extinct in Greenland indicate that marine conditions were warmer than present in the period between approximately 7500 and 3700 cal B.C. The onset of hypsi-thermal conditions occurs about 1000 years earlier in the marine record than it does in the terrestrial record. This leads Funder and Weidick (1991) to conclude that this warm spell resulted from changes in the North Atlantic circulation rather than heating of the surface of the sea due to increased summer air temperatures.

Recent studies of the diatom flora in seabed cores from Qeqertarsuup Tunua and Kangersuneq (Jensen *et al.* 2003) have added important detailed informa-

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tion on the climatic history of the marine environment. These analyses indicate that the earlier Saqqaq period was characterised by warmer sea surface temperatures, whereas the later part of the Saqqaq culture was probably characterised by an unstable environment with decreasing sea surface temperatures, culminating in a period with continuous cold conditions from 1550 cal B.C. This climatic event coincided with a decline in settlement intensity or perhaps periodical abandonment of Qeqertarsuup Tunua by Saqqaq people some time after about 1550 cal B.C. The earliest Dorset dates (Jensen *et al.* 1999) coincide with a period when Qeqertarsuup Tunua was characterised by cool sea and air temperatures and extended sea-ice cover, as inferred from the diatom and lithological records from seabed cores. Starting in cal A.D. 150, K. G. Jensen *et al.* note an increased in-flow of warmer Atlantic water, although the air temperature seems to have remained low. Such a situation, with warmer seawater and cold air temperatures, may well have caused unstable ice conditions resulting in poor availability of game and hunting failure. Periods of warmer winter temperatures are thus reported to coincide with increased episodes of prolonged poor hunting and famine (Meldgaard 2004).

In general, the Dorset occupation is contemporaneous with a long cold spell identified in numerous records from all over the Northern Hemisphere. Unfortunately, with regard to cultural-historical events linked to this episode, the climatic changes in the period between 800 and 400 cal B.C. were so dramatic that the concentration of atmospheric ^{14}C was also affected. This period is therefore known as the 'Pre-Roman' plateau on the radiocarbon calibration curve. Large error margins for calibrated dates are a direct consequence of this plateau, leading to difficulties in establishing the sequence of events.

In spite of these superficially related changes in the archaeological and climatic records, the causal relationships remain to be documented. Hunter-gatherers and, in particular, Arctic hunter-gatherers are in every aspect of life specially adapted to cope with variations in the resource base. Socially, they are characterised by kin and non-kin networks ensuring the sharing of information and goods when needed. Materially, they master a flexible technology enabling the hunting of virtually every accessible game species, with the possible exception that the early Palaeo-Eskimos probably did not hunt large whales (Savelle 1994). In addition to hunting and trapping gear, the technology also includes the implementation of physical storage strategies and facilities to supplement the risk minimisation guaranteed by the networks. However, the most important adaptive strategy implemented by all hunter-gatherers may be mobility, enabling them to leave when hunting turns bad. Abandonment, in the form of a lack of archaeological evidence, may thus be one of the most direct indicators of environmental change to have affected the life of Palaeo-Eskimo peoples. This highlights the great importance of the detailed dating of large numbers of archaeological localities in all geographical settings, as has recently been carried out for Southwestern Victoria Island (Savelle & Dyke 2002). Unfortunately, many of the older conventional radiocarbon dates are of too poor resolution to demonstrate anything other than long-term abandonment over several centuries. However, when considering the available West Greenland radiocarbon dates in Qeqertarsuup Tunua, a clear decline is seen in the number of Saqqaq dates later than 1400 cal B.C. (see chapter 9). In Sisimiut District, on the other hand, there is a continuous series of dates up into the Dorset culture. This supports the notion that Saqqaq people may have responded to unstable climatic conditions by displacement of the population towards the south. The occurrence of sledge shoes, soapstone vessels and the snow knives during the Dorset period has long been interpreted as an indication of the Dorset culture's better adaptation to ice hunting (Maxwell 1985:167). The Pre-Dorset/Dorset transition may, in the light of this, be seen as a natural consequence of climatic change. However, as has been demonstrated, the synchronous occurrence of climatic and cultural change is far from being a straightforward relationship. Even if we accept that there are links, the climatic variation and behavioural responses of the Saqqaq and Dorset cultures may well be quite different stories.

Relative sea-level change

The dramatic effects of post-glacial rebound are known from many regions of the world (Bjerck 1995; Clark & Fitzhugh 1992; Knuth 1954; Åkerlund 1996) and the combination of archaeological and geogra-

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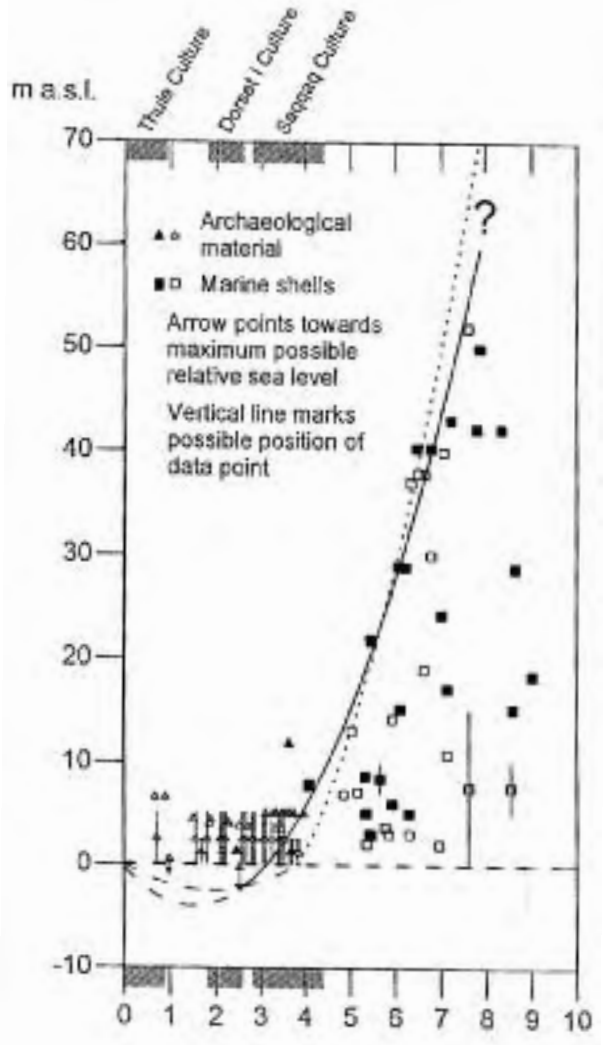

Fig. 3.1. Superimposed curves of relative sea level for Southeastern and Southwestern Qeqertarsuup Tunua. The continuous line marks the sea-level curve based on dates from Southwestern Qeqertarsuup Tunua (marked with solid symbols). The broken line marks the sea-level curve based on dates from Southeastern Qeqertarsuup Tunua (marked with open symbols). The data suggest that Holocene uplift continued 500 to 1000 years longer in Southwestern Qeqertarsuup Tunua than it did in the southeastern part of the bay (Based on Rasch & Jensen 1997).

phical data has often resulted in fruitful palaeo-environmental reconstructions. To the archaeologist, knowledge of relative sea-level change is valuable for the location and tentative dating of campsites in the landscape. In West Greenland most of the post-glacial rebound occurred prior to the arrival of the first humans (Weidick 1996). However, in the 1980s Dorset sites were discovered in large numbers in Sydostbugten (Hansen *et al.*1989, Hansen 1990) as well as in Sisimiut District (Kramer 1996a). In both areas it was noted that the later Dorset sites are often situated at lower altitudes than the Saqqaq sites. Thus, in Qeqertarsuup Tunua, Dorset sites are often located so low that they are heavily eroded and the Dorset artefacts are often found on the shore below the high water mark. In contrast, the Saqqaq sites in the same area are found between 3 and 17 m a.s.l. (Hansen 1990). Most often the elevation of sites has been measured relative to the highest growth of bladder wrack, which is estimated to be approximately 0.5 m above mean sea level. In Sisimiut District, on the other hand, the published elevations were measured from lowest tide (Kramer 1996a:45). Therefore, an estimated 2 m must be subtracted from these to make them comparable with the data from Qeqertarsuup Tunua. This harmonisation of the published site altitudes has been applied through-out the following description. In Sisimiut District, the Dorset sites are thus located at between 2 and 6 m a.s.l., whereas Saqqaq sites are mainly found above 10 m a.s.l. (Kramer 1996a). A further interesting detail is that it has been shown in Sisimiut that there are regional differences between the uplift of Saqqaq sites in the inner fjord system and those along the outer coast. This fits well with the regionally dependent models of relative uplift suggested by Weidick (1992).

In Qeqertarsuup Tunua, local differences in the relative sea-level change have been demonstrated by compiling archaeological and geological data on prehistoric sea levels from two sub-regions in the southwest and southeast (Rasch & Jensen 1997). Detailed studies of sea-level change in relation to isolation basins have also been conducted in the area of Tasiusarsuit to the west of the settlement of Ikamiut and on Alluttoq (Arveprinsens Ejland) in Northern Qeqertarsuup Tunua (Long *et al.* 2003).

These studies have shown that in the southwest, corresponding to the area from the central part of Sydostbugten to the western part of the archipelago around Aasiaat, Holocene land upheaval continued after the onset of the Saqqaq culture. From a level of approximately 10 m a.s.l. during the early Saqqaq culture, the rebound continued but at a decreasing rate. Between cal A.D. 150 and cal A.D. 1150 a minimum relative sea level was reached at an elevation estimated at 3 to 4 m below present sea level. During the last

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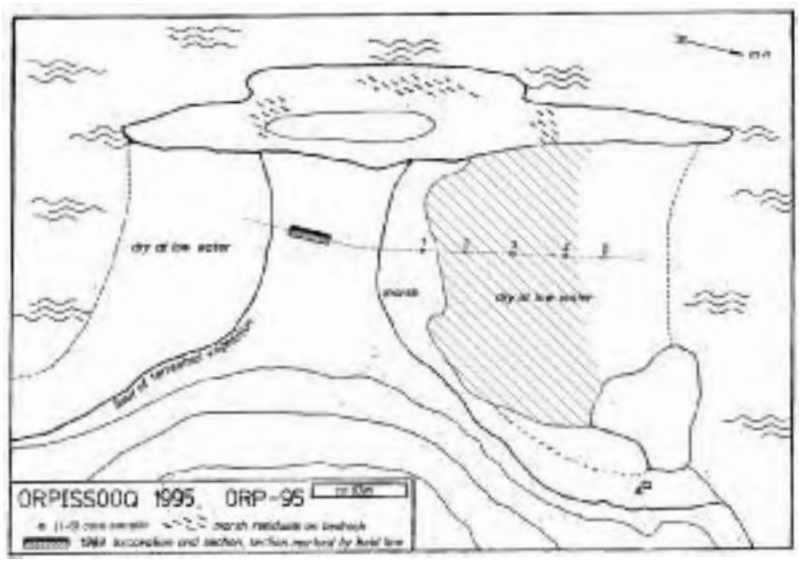

Fig. 3.2. Orpissooq West, the hatched area marks the estimated previous extent of terrestrial vegetation on the present foreshore.

eight hundred years the area has been characterised by transgression (Fig. 3.1).

In the eastern part of Qeqertarsuup Tunua the Holocene rebound slowed down earlier than in the southwest (Rasch & Jensen 1997:107). This resulted in the presence of Saqqaq sites at lower elevations than seen further to the west and south, and it may also account for a lower visibility of Dorset sites in the eastern part of the study area. The Dorset occupation of southeastern Qeqertarsuup Tunua occurred, therefore, when relative sea level was at a minimum, whereas in the southwestern part of the bay the uplift continued until the beginning of the Dorset period around 800 cal B.C.

The local effects of relative sea-level change have been studied at a number of localities where quaternary geologist Morten Rasch and I have recorded the geomorphology and stratigraphy of the foreshore. The localities are Orpissooq (site no. 86) and Annertusuaqqap Nuua (site no. 103) (Rasch & Jensen 1997), 'Submerged Peat Site' (site no. 106) as well as a salt marsh on an island in the archipelago at the mouth of the Tasiusarsuit inlet to the west of the 'Submerged Peat Site'. Evidence of prehistoric settlement is known only from the first three of these localities, whereas the fourth is a purely geological locality. In the following section the observations from the first three localities will be summarised.

Orpissooq West

In 1989 a 4 x 1 m test trench was excavated on the heavily-eroded Dorset locality Orpissooq West. In 1995 the stratigraphy recorded here was extended by a number of cores taken at intervals of approximately 5 m (see fig. 3.2). The sediment on the foreshore consists of well-sorted sand and the cores revealed subsand peat layers extending horizontally for 10-20 m from the present terrestrial vegetation and to an elevation of 0.3 m a.s.l. The peat contains lithic artefacts and charcoal, but a coherent culture layer has not been located, either in the sub-aerial part of the tombolo or in the stratigraphy of the foreshore. Two radiocarbon dates have been obtained for a caribou bone retrieved from the section on the sub-aerial part of the tombolo (AAR-2350; 370-170 cal B.C.) and a bulk sample from the top of the peat on the foreshore (AAR-2554; cal A.D. 900-920, 960-1040, 1100-1120, 1140-1160) respectively. Evidently, the latter is too late to be contemporaneous with the Dorset occupation of the site. However, the stratigraphy clearly demonstrates that peat development continued on the now flooded foreshore long after the Dorset occupation ended, and that the present erosion must have begun subsequent to this.

Annertusuaqqap Nuua

During the excavation of a Dorset dwelling at Annertusuaqqap Nuua (Jensen 1995a) it was noted that the culture layer continued below the cobblestones on the foreshore. In a test pit located approximately 10 m from the present limit of terrestrial vegetation and –0.1 m a.s.l., there was unsorted charcoal, bone and lithic

Fig. 3.3. Transgressed peat layers below sand on the foreshore at 'Submerged Peat Site' (site no. 106). The terrestrial vegetation previously continued several metres on to the shore. Photo Jens Fog Jensen.

artefacts. This indicates that the peat beneath the foreshore represents the eroded but not re-deposited remnants of a formerly more extensive culture layer extending over the flat area now constituting the foreshore. Radiocarbon dates have been obtained for two samples: A caribou bone from the midden accumulation in front of the dwelling (AAR 2343; 760-680, 670-630, 600-570, 560-480 and 470-410 cal B.C.) and a sample of charcoal from the test pit (513/534:1) approximately 10 m from the eroded cliff (AAR-2351; 800-750, 720-520 cal B.C.). The concordance between these two dates indicates that the culture layer at Annertusuaqqap Nuua presumably developed over a relatively short period between 800 and 400 cal B.C. Unfortunately, both dates lie within the plateau on the calibration curve. Within one standard deviation, the date for the charcoal sample has a 54.6% probability of being located between 720 cal B.C and 520 cal B.C and the caribou date has several intervals of probability within the same range.

'Submerged Peat Site'

At the 'Submerged Peat site' (site no. 106) only two artefacts were collected from the sandy shore, so the character of the Dorset presence at this locality is poorly known. During a detailed survey of the area in 1999 a 5 m long section was excavated which extended from the present vegetation of crowberry through a minor sandy beach ridge with dunes and several metres on to the foreshore (Fig. 3.3). As with the profiles from Orpissooq and Annertusuaqqap Nuua, this transect of the foreshore demonstrates once again a transgressive environment with submerged peat deposits. Unfortunately, no artefacts were found in the peat beneath the foreshore so the relationship between the Dorset occupation and the date of the peat layers remains unknown.

Summary of relative sea-level change

The elevation of Palaeo-Eskimo settlements in Qeqertarsuup Tunua reflects the local history of Holocene relative sea-level change due to the tendency of prehistoric peoples to settle near the shore. The post-glacial uplift appears to have continued for a slightly longer period in Southwestern Qeqertarsuup Tunua than it did in the eastern part of the research area. Reduced rates of uplift along a west-east trajectory, and probably also in a south-north direction, have been documented by Weidick (1996), Rasch (2000) and Long *et al.* (2003). Dorset localities in Northern Qeqertarsuup Tunua are few, and in this area there are several sites with mixed components containing both Saqqaq and Dorset remains (Jensen 2001). In the area around the settlements of Qeqertaq and Saqqaq, and probably also along the rest of the Nuussuaq Peninsula, both Saqqaq and Dorset sites thus appear to have been disturbed by erosion. In all parts of the research area, Dorset sites are located at elevations below present sea level and upwards, but again there may be a tendency for Dorset sites in the eastern and northern parts of the area to be situated at lower elevations than in the Southwestern Archipelago. Both Saqqaq and Dorset sites appear more prone to submergence and erosion in the eastern and northern parts of Qeqertarsuup Tunua than they are towards the southwest. Admittedly, one has to consider the regional differences in reconnaissance inten-

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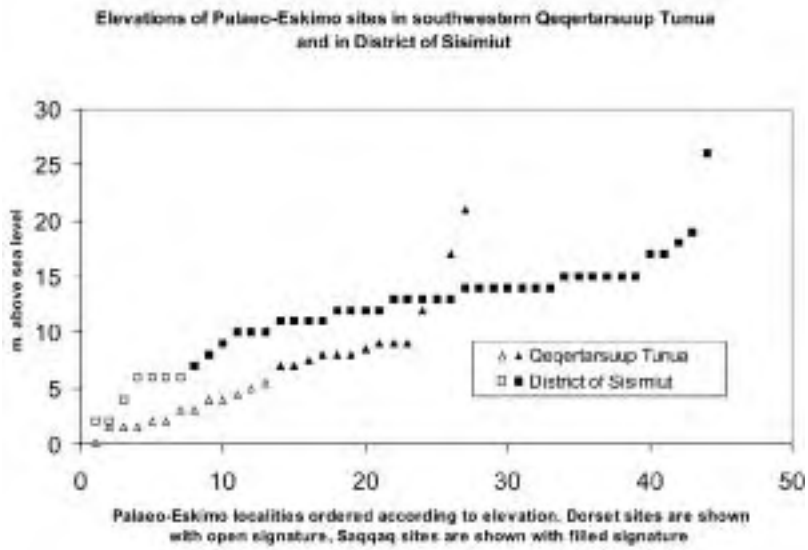

Fig. 3.4. Elevations of Palaeo-Eskimo sites in Southwestern Qeqertarsuup Tunua compared to those of Palaeo-Eskimo sites in the district of Sisimiut. Open symbols mark Dorset sites and Saqqaq sites are denoted by solid symbols. Regional differences in the relative sea-level history result in Palaeo-Eskimo sites being situated at higher average elevations in the district of Sisimiut than in Southwestern Qeqertarsuup Tunua.

sity (Fig. 4.5) but still there is a striking paucity of Dorset sites in the northern part of the area and, in particular, on the Nuussuaq Peninsula. This could well be a result of regional differences in relative sea-level history rather than differences in settlement intensity.

When comparing the elevations of Palaeo-Eskimo sites in Southwestern Qeqertarsuup Tunua to those of Saqqaq and Dorset sites in Sisimiut District (Fig. 3.4), it is evident that Palaeo-Eskimo sites in the latter are located higher than contemporaneous sites in the former. This regional difference fits well with the model for regional differences in the magnitude of post-glacial rebound (Weidick 1992), suggesting that the areas with the highest marine limit are also the areas where the rebound continued for the longest period of time prior to the onset of the present state of submergence.

Submergence of prehistoric shorelines

The sea-level rise during the last millennium has also implications for the configuration of the shoreline and at two sites the change in relative sea level has significantly altered the shoreline and resource potential.

The relative sea-level rise has had profound effects on the local topography everywhere where there are terraces or even platforms near to or below present sea level. Accordingly, all the larger Dorset sites, as well as many Thule sites, seem to be severely affected by erosion (Fig. 3.5) (Gabel-Jørgensen & Ege-

Fig. 3.5. Flooded hearth adjacent to partly eroded entrance passage of Thule dwelling at the site of Illorsuup Nuua. Photo Jens Fog Jensen.

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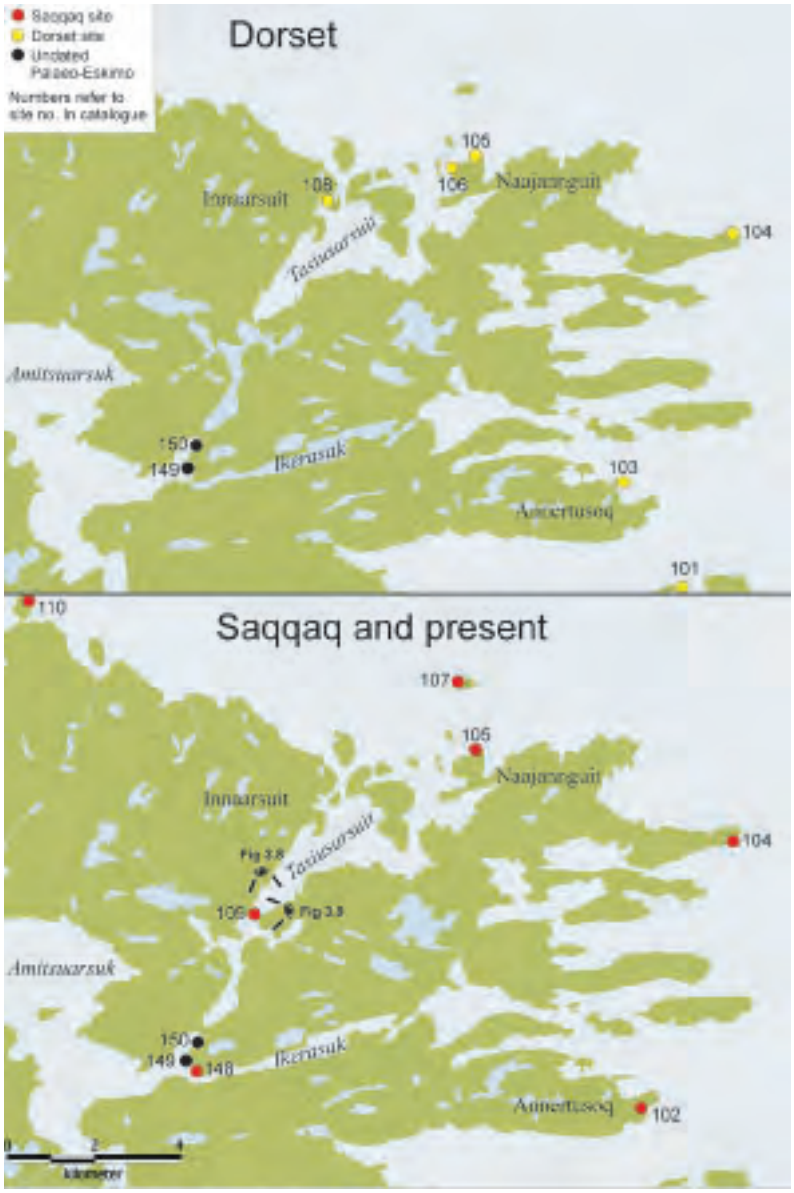

Fig. 3.6. Distribution of fresh and saline bodies of water in the eastern part of Ikamiut Ø in Dorset, Saqqaq and present time. The lower than present sea level during the period of Dorset occupation resulted in the transformation of Ikerasak and innermost part of Tasiusarsuit from saline fjords to freshwater lakes. Graphics by Niels Møller and Jens Fog Jensen.

dal 1940). At Orpissooq and Annertusuaqqap Nuua it has been shown that most of the previously settled areas are now eroded. Judging from observations made during reconnaissance in recent years, these observations apply to several of the larger Dorset sites in Southern Qeqertarsuup Tunua. In addition to the excavated Dorset sites of Annertusuaqqap Nuua (site no. 103) and Umiartorfik (site no. 116), described in chapter 8, heavy erosion has been noted at Nivaaq (site no. 111), Niivertussannguaq North (site no. 114) and Illorsuup Nuua (site no. 115). Little of the Dorset evidence once present is now available for archaeological investigation. Submergence may thus account for significant disturbance of the Dorset record in the sense that there are relatively fewer Dorset than Saqqaq sites preserved. If submergence also accounts for the above-mentioned lower frequency of Dorset sites in Northern Qeqertarsuup Tunua and the general lack of Palaeo-Eskimo settlements in Southwestern Greenland, this phenomenon may pose a serious problem for future analyses of the regional distribution of Palaeo-Eskimo settlements.

Sea-level change has radically changed the configuration of the shore-line in two areas: 1) the Tasiusarsuit inlet to the west of the settlement Ikamiut and 2) the narrow sound of Ikerasak to the southeast

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Fig. 3.7. Core VI 3 (Long *et al.* 2003) from Tasiusarsuit. The sediments deposited during the freshwater phase stand out as brown sediments against the greyish salt-water sediments. Photo Jens Fog Jensen.

of Ikamiut. Both of these bodies of water have very low sills towards the ocean and it can be inferred that both were freshwater lakes during part of the Dorset period (Fig. 3.6). Cores from the Tasiusarsuit inlet have, accordingly, a well-defined freshwater phase (Fig. 3.7), which has been dated to the period between 430 ± 60 b.c (730-690, 540-390 cal B.C.) and a.d. 690 ± 60 (670-810, 840-860 cal A.D.) (Long *et al.* 2003). When looking at the distribution of Saqqaq and Dorset sites in the area of Tasiusarsuit and Ikerasak (Fig. 3.6), it is evident that only Saqqaq sites were located in the innermost part of Tasiusarsuit and along the Ikerasak sound. Both the Sill Site (site no. 109) in the Tasiusarsuit inlet (figs 3.8 and 3.9), and the Ikerasak Site (site no. 148) in the Ikerasak Sound are thus situated adjacent to sills creating strong currents at low tide. During the Early Saqqaq period, when the relative sea level was slightly higher than today, these currents

Fig. 3.8. View from north to south of the innermost part of Tasiusarsuit. During the Dorset period, the inlet to the south of the narrow (in background) became a freshwater lake. Photo Jens Fog Jensen June 1999.

Fig. 3.9. Narrow with torrent in Tasiusarsuit. During the Saqqaq period, the relative sea level was similar or higher than at present. Saqqaq people settled on the point where open-water conditions were created by the torrent in the narrow. Photo Jens Fog Jensen.

could well have created secondary polynias, which attracted settlement during early spring.

Landslides and solifluction

From the geological maps (The Geological Survey of Greenland 1974, 1976, 1987a, 1987b, 1995, 2000 and 2001) it is evident that the geology and topography of the Cretaceous provinces have been shaped to a greater degree by gravitational processes than in the districts dominated by Precambrian gneiss. The difference in geology coincides with a paucity of Stone Age sites in the provinces dominated by Cretaceous rocks (see chapter 5). Therefore, it is relevant to speculate whether site preservation has been significantly altered by geomorphological processes in these regions or whether there is indeed a difference in settlement patterns.

The presence of numerous landslip areas along the shores of the Nuussuaq Peninsula and on the island of Qeqertarsuaq has long been known (Koch 1955) and within Historical Times landslides have been observed on several occasions (Pedersen *et al.* 2001). Some landslides take on the character of debris flows (Fig. 3.10), as did the one described by Steenstrup in 1870. Others may develop rock avalanches or may occur as large unbroken portions of hill slip along a fracture. In any case, wherever such landslides have reached the sea, older shorelines have been completely obliterated.

The southern shore of Nuussuaq is the area most prone to landslides and several of these have reached the sea. A landslide at Paatuut in 2000 resulted in a violent tsunami breaking against adjacent shorelines (Pedersen *et al.* 2001). The maximum height of the tsunami has been estimated at 50 m in the immediate vicinity, whereas more distant localities, such as the abandoned mining town of Qullissat 40 km away on the southern side of Kullorsuaq (Vaigat), was hit and partly devastated by a c. 15 m high wave. Along with the slower processes of widespread soil creep, the occasional occurrence of such catastrophic events may completely have remoulded the shorelines on Qeqer-

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Fig. 3.10. M. Rasch in front of debris flow in Kuannersuit Sulluat at Qeqertarsuaq. Such landforms are common on Qeqertarsuaq and Nuussuaq, but rare in the gneiss regions of Eastern and Southern Qeqertarsuup Tunua. Photo Jens Fog Jensen.

tarsuaq and the Nuussuaq Peninsula resulting in fewer archaeological sites being preserved in these areas.

Summary and discussion of environmental change

The thesis of climatic causality has dominated most writing on the early cultural history of West Greenland. However, in spite of much palaeo-climatic research, also at the local level of inference, the thesis remains weakly supported by empirical evidence. At present we can observe simultaneous periods of change in the climatic and archaeological records. However, it must be stressed time and again that the synchronous cause of events in palaeo-climate and cultural history does not in itself have any explanatory power. It is interesting to note that natural scientists (Humlum 2000; Jensen 2003) often ignore this problem. The requirement for an explanatory force in an argument has a sad tendency to fall close to zero whenever researchers leave their home territory. One way to circumvent this problem could be to regard the archaeological evidence as a proxy record of the human habitat in its own right as has been attempted by Savelle and Dyke (2002).

In Qeqertarsuup Tunua there were only minor sea-level changes during the period of human occupation from approximately 2500 cal B.C. to the present. Even so, the relative sea-level change can be traced in the elevations of Saqqaq and Dorset sites. It has also been demonstrated that, on a local scale, the relative sea-level change probably affected the availability of resources and settlement location by minimising, or bringing to an end, the tidal flow over sills close to present sea level. Post-depositionally, the relative sea-level rise during the past millennium is shown to be a highly destructive factor resulting in the continuous erosion of both Thule and Dorset sites. The regional differences in relative sea-level history, as well as other geological processes such as landslides and solifluction, may further account for considerable geographical variation in the preservation of the archaeological record. This factor renders difficult the straightforward comparison of archaeological evidence between regions.

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Chapter 4

History of Research

Qeqertarsuup Tunua (Disko Bugt) is a key area in the history of Palaeo-Eskimo archaeology in Greenland. The spectacular site of Sermermiut (site no. 61) by the outlet of Kangia (Jakobshavn Isfjord) was the first place where the existence of Palaeo-Eskimo cultures was documented in a stratigraphic context (Larsen & Meldgaard 1958; Mathiassen 1958). However, prior to Larsen, Meldgaard and Mathiassen's investigations in the 1950s, there had been almost a century of archaeological activity in Qeqertarsuup Tunua, which had not resulted in the discovery of Palaeo-Eskimo periods (Meldgaard 1996; Meldgaard & Gulløv 2002). Following Meldgaard (1996) one might divide the history of research into an early period of antiquarianism, covering the 19th century, an intermediate period of early Inuit archaeology, which Meldgaard characterised as the 'Mathiassen period', covering the first half of the 20th century and, finally, the second half of the 20th century, when the Palaeo-Eskimo cultures were fully accepted sequences in the cultural history of Greenland. This division pays little attention to the burst of activity occurring after the establishment of Greenlandic Home Rule (Grønnow 1996a), and therefore I have chosen to balance the following description evenly between the older history of research and that of the last 25 years.

Time of discovery and early archaeology of Qeqertarsuup Tunua

Already in the first half of the 19th century lithic artefacts from the colonies in West Greenland were shipped to the The Royal Society for Northern Antiquities in Copenhagen. Later, medical doctor Pfaff, who lived in Ilulissat (Jakobshavn) from 1854 to 1876, undertook very extensive collection of lithic artefacts from sites such as Sermermiut and Qeqertaq in the northern part of Qeqertarsuup Tunua (Westman & Jakobsen 1989). Today his collection is at the Museum of Ethnography in Stockholm, Sweden (Fig. 4.1). Another portion of Pfaff's collection was purchased by Nordenskiöld (Berggren 1870), and these objects are now stored at Etnografiska Museet in Stockholm (the Swedish Museum of Ethnography). Pfaff's material was important for Solberg's early suggestion of a Greenlandic Stone Age (Solberg 1907). Apart from this, most museum collections of lithic artefacts have remained relatively little studied.

Carl Fleischer (Fig. 4.2) was another resident with a keen antiquarian interest. In 1870 he organised the local transport for A.E. Nordenskiöld's expedition in West Greenland. This included a voyage by some of the expedition members to the large site of Qajaa (site no. 73), where the botanist Berggren and zoologist

Fig. 4.1. Selected plates with lithic artefacts from the Pfaff collection. The collection contains several very rare specimens, such as the large polished blades mounted on the plate to the left. Blades of this size have not yet been recorded from excavations. Photo Jens Fog Jensen.

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Fig. 4.2. Jens (left) and Carl Fleischer (right). Photo Bertelsen Arktisk Institut, photo no. 03496.

Øberg conducted excavations (Nordenskiöld 1872). Later the zoologist Japetus Steenstrup contacted Fleischer for information on the middens in Greenland and upon this request Fleischer re-visited Qajaa in 1871, conducting new excavations. The astonishing results of Fleischer's work were reported to Steenstrup, along with the earliest known accurate description of the stratigraphy (Fleischer 1871 a & b). Later, Fleischer became a close friend of Morten Porsild (Porsild n.d.) and he may thus have inspired Porsild to engage in archaeological excavations.

In 1909 Thomas Thomsen of the National Museum of Denmark excavated at the site of Sermermiut and between 1912 and 1918 M. Porsild and H. Ostermann excavated and recorded a more than 50 m long section of the cliff at the site (Fig. 4.3). Unfortunately, the results of these early excavations were never published and it must be considered an unfortunate coincidence that Porsild, in spite of minute stratigraphical observations, never managed to distinguish the Palaeo-Eskimo layers from the later deposits. One explanation is, however, that Porsild mainly excavated along the eroded midden profile in the northern and westernmost part of the site where the Palaeo-Eskimo layers have often been disturbed by later activities. Larsen and Meldgaard, and later Mathiassen's, successful documentation of sections with stratified deposits from Saqqaq, Dorset and Thule cultures was mainly based on sections from the eastern and southernmost part of the site (Nielsen 1997).

After having participated in the 5th Thule Expedition, Therkel Mathiassen became engaged in very extensive archaeological reconnaissance covering

Fig. 4.3. Excavations at Sermermiut. Porsild's unpublished excavations had their focus in the northwestern part of the cliff, whereas the sections with well preserved Palaeo-Eskimo layers are situated in the southern part of the site. Based on Nielsen 1997.

almost all of Greenland. During these efforts Qeqertarsuup Tunua was investigated in 1933 (Mathiassen 1934). Mathiassen encountered Palaeo-Eskimo artefacts in many of the excavated Thule houses, but these were believed to be part of the Thule inventory (de Laguna 1979:22; Mathiassen 1931). Mathiassen concentrated his excavations on the easily visible remains of peat houses, and this may have hindered his discovery of undisturbed Palaeo-Eskimo deposits. During his visit to the already then well known site of Qeqertaq, Mathiassen thus appear to have avoided the southwestern spit of the island (Qeqertap Qarsorsaa), where Palaeo-Eskimo settlements occur scattered all over. Instead he chose to excavate the peat houses to the northeast of the present settlement.

Mathiassen's resistance towards the acceptance of an Arctic Stone Age, and his dispute with Birket-Smith on the origin of the Eskimo culture (Mathiassen 1929, 1930a, 1930b; Birket-Smith 1929, 1930a, 1930b), stand today as an interlude in the progress of scientific discovery in the Arctic. Although Solberg, in 1907, suggested its existence in "Beiträge zur Vorgeschichte der Osteskimo", the presence of Palaeo-Eskimo cultures, the term introduced by Steensby in 1916, was only accepted by the scientific community after the Second World War. The reason for this long delay was not only a reluctance to accept that indigenous peoples could have a long cultural history, which may have been mental ballast from the teachings of the *kulturkreis* theory and evolutionary diffusionism. Neither was it purely due to Therkel Mathiassen's resistance. There were also serious problems with dating. The Norse sagas constituted the chronological baseline prior to the development of scientific dating methods. With reference to the huge collections of lithic artefacts from West Greenland, Solberg (1907) argued for the existence of an Eskimo Stone Age in Northern Greenland simultaneous with the Norse settlements in Southern West Greenland. However, to maintain this point of view, the Norse summer hunting grounds, *Nordrsétur*, *Greypar* and *Króksfjardarheidi*, had to be located south of Aasiaat (Egedesminde) rather than in Qeqertarsuup Tunua and Baffin Bay, as most people believe. Thalbitzer (1910) criticised Solberg's argument, yet in his meticulous publication of ethnographical collections from East Greenland he noted that some Palaeo-Eskimo specimens belong to a long-gone Neolithic period (Thalbitzer 1914:497). Reliance solely on written sources was a problem as the sagas prevented the right archaeological questions from being asked. In the case of the Pre-Norse settlements in Greenland, it was generally assumed that no Eskimos lived in Southern Greenland at the time of the arrival of Eric the Red. Since the early encounters between Skraellings and Norse were very rare, the two populations were believed to have arrived approximately at the same time but at either end of the island. Prior to the 1950s no one believed that other peoples could have lived in West Greenland and vanished again before the arrival of the Norse or Neo-Eskimos.

In 1952, Meldgaard published the finds collected by amateur archaeologist Hans Mosegaard during a visit to Saqqaq in 1948. This publication, and the development of radiocarbon dating, provided the combination that released the deadlock. In 1953, the National Museum undertook new surveys and excavations in Qeqertarsuup Tunua. Jørgen Meldgaard and George Nellemann recorded the stratigraphy at Sermermiut, while Helge Larsen and P.V. Glob surveyed and excavated Palaeo-Eskimo sites in the adjacent parts of Qeqertarsuup Tunua. For the first time the stratigraphy at Sermermiut was shown to contain a sequence with three cultural horizons separated by sterile peat layers. Saqqaq dwellings were documented at a number of sites and the characteristic use of fire-cracked rocks in the hearths was recognised as a new trait in the material culture of the Eskimos (Larsen & Meldgaard 1958; Mathiassen 1958).

Larsen's and Meldgaard's account of the 'Palaeo-Eskimo Cultures in Disko Bugt, West Greenland' became the classic reference on the early cultural history of West Greenland. Several later publications added new details to the general picture of Palaeo-Eskimo settlement in Qeqertarsuup Tunua, but within the cultural-historical and typological approach adopted by Larsen and Meldgaard. They relied heavily on climate change as a prime factor in the explanation of long-term cultural-historical changes and, in this respect, they set the fashion with respect to theory as well as methodology (Dekin 1978).

During the 1960s and 1970s, the focus of Palaeo-Eskimo archaeology in West Greenland was re-directed towards the large fjord systems around the Greenlandic capital of Nuuk (Gulløv 1986, Meldgaard 1961). However, in the 1980s archaeological activity in Qeqertarsuup Tunua led to a breakthrough. The estab-

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Fig. 4.4. Torben Simonsen (back left), Egon Geisler (back right) from Qasigiannguit and Helge Larsen (foreground) relaxing in the midnight sun at the Qajaa site. The Qajaa excavations in1982 were Helge Larsen's last visit to the Arctic. Photo by courtesy of Jørgen Meldgaard.

lishment of Greenlandic Home Rule in 1979, and the transfer of the administration of prehistoric monuments to the Greenlandic authorities, nourished this development. In 1981, Greenland acquired its own legislation for conservation, preservation of historical monuments and museums (Andreasen 1986). Part of the legislation comprised a law detailing the obligations of the Greenland National Museum & Archives. However, the legislation also provided a strong incentive for the establishment of local museums, since a 40% reimbursement of expenses was granted to local museums approved by the central authorities. This enabled many communities to start museums and, in some cases, these became manned by academics undertaking archaeological fieldwork.

Archaeology after the establishment of Home Rule

In Qeqertarsuup Tunua the fortunate coincidence in the research interests of Greenlandic and Danish institutions and of eager local people became the main reason for the subsequent developments (Grønnow 1996a). A museum had existed in Ilulissat since 1973, and in 1981 the National Museum of Greenland and Ilulissani Katersugaasivik initiated both renewed reconnaissance and excavation in Eastern Qeqertarsuup Tunua. This work was conducted by Tinna Møbjerg, Bjarne Grønnow and Morten Meldgaard. Møbjerg had surveyed the southern part of Qeqertarsuaq in 1977 and this fieldwork, in combination with the results of reconnaissance in Ammassalik, formed the basis for her studies of settlements patterns and resource utilization (Møbjerg 1977, 1986).

In 1978, a museum was established in Aasiaat, followed in 1982 by one in Qasigiannguit and in 1992 at Qeqertarsuaq. In Qasigiannguit, Torben Simonsen, then accountant for master carpenter Egon Geisler, became part-time curator of the museum. Torben Simonsen had maintained a keen interest in archaeology since having, years before, studied archaeology in Copenhagen and participated in Mesolithic excavations. Therefore, it was natural for him to assist when excavations were undertaken at Qajaa in 1982 (Meldgaard 1983, 1991) (Fig. 4.4).

Torben Simonsen subsequently initiated reconnaissance in Qasigiannguit District (Møhl 1982). This was continued in 1983 when the survey team made a lucky find, localising the permanently frozen Saqqaq midden at Qeqertasussuk (Grønnow & Meldgaard 1991). Upon this discovery, an interdisciplinary research project was initiated in order to carry out a thorough excavation of the site. Between 1984 and 1990, the Qeqertasussuk site became the focus of tremendous efforts by archaeologists, zoologists, entomologists and pollen analysts together with several students and local people who became engaged in the excavation. With excellent conditions for the preservation of organic materials, Qeqertasussuk opened a

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window to hitherto unknown aspects of the material culture of the earliest inhabitants of West Greenland. Hafted knives, wooden spoons and ladles, harpoon heads, bird darts and dozens of arrow shafts, wooden lance shafts as well as fragments of clothing were among the spectacular finds from the perma-frozen layers (Grønnow 1994, 1996b, 1996c, 1997). In addition to these finds, the rich osteological material has enabled detailed studies of economy and human ecology at the site (Meldgaard 2004). An interdisciplinary team of archaeologists and scientists conducted the Qeqertasussuk excavation. As such, this investigation stands out as a shining example and a modern representative of the Danish tradition of Mesolithic research, focussing on human ecology.

Qeqertasussuk made headlines in Greenland as well as abroad, and in this way the excavations inspired renewed reconnaissance in the Qasigiannguit District, as well as in the neighbouring district of Aasiaat (Hansen & Brinch Petersen 1989; Hansen *et al.* 1989; Hansen 1990)

Torben Simonsen left Qasigiannguit Museum in 1989 but archaeological activities continued under the new curator Troels Romby Larsen. New surveys were carried out in the areas of the district that had not yet been investigated and in 1989 a Saqqaq summer camp (site no. 87) was excavated at the head of the fjord of Oorpissoq (Hansen & Jensen 1991).

The positive outcome of the archaeological work in Qasigiannguit District inspired Svend Rask, then curator of the museum in Aasiaat, to initiate survey work in the Aasiaat District in 1990 (Hansen 1990). In the same summer, a well-preserved Saqqaq tent ring (site no. 133) was excavated a few kilometres east of Aasiaat (Brinch Petersen 1992). During the following years, Brinch Petersen continued archaeological work in the district, in co-operation with Elisa Evaldsen, the first Greenlandic archaeologist, who became curator of Aasiaat museum in 1992. In 1993, excavations were carried out on the Dorset site of Ikkarlussuup Timaa (site no. 118) (Stapert & Johansen 1996), and these excavations marked a change in focus from the Saqqaq culture to the later, and then poorly known, Dorset culture.

In 1993 I became curator at the museum in Qasigiannguit, and the Dorset site of Annertusuaqqap Nuua (site no. 103) was excavated in the following summer. This was the second Dorset site with well-preserved dwelling remains to be investigated in Qeqertarsuup Tunua and the results inspired an initiative focussing on the investigation of the spatial dimensions of the archaeological record. Funded by the Joint Committee of the Nordic Research Councils for the Humanities, the museums of Qasigiannguit and Aasiaat and the Universities of Copenhagen (Denmark) and Tromsø (Norway), a research project: 'Changes in House Form and Social Structures in Prehistoric Time in Sydostbugten, West Greenland' was set up (Jensen 1998; Jensen *et al.* 1995; Jensen & Brinch Petersen 1998; Mikalsen 2001; Olsen 1998). The excavations carried out as part of this project have contributed the major part of the primary data for this present work. In 1997 I moved back to Denmark in order to collate the results of the work, but additional reconnaissance was conducted in 1999 and 2000, when portions of Southern Qeqertarsuup Tunua, Qeqertarsuaq and Nuussuaq Peninsula were surveyed (Jensen 2000a, 2000d, 2001).

Changes in archaeological methods

A characteristic of all of the reconnaissance carried out in Qeqertarsuup Tunua (Fig. 4.5) is the chronological trend towards more Palaeo-Eskimo sites being located during recent surveys than were detected prior to 1985. This development is due to an ever-increasing knowledge of the topographical features favoured by Palaeo-Eskimo peoples. But it also results from the implementation during recent years of more intensive survey methods such as extensive test-pitting. Furthermore, the low-lying situation of Dorset sites was only realised during reconnaissance in 1988 (Hansen *et al.* 1989). Relatively few Dorset localities were thus located during all of the surveys prior to this date. When comparing the different maps of Palaeo-Eskimo sites in chapter 5, one must therefore keep in mind that there are pronounced differences between regions in the intensity of research.

Methods of reconnaissance have also been altered in other ways. Previously, it was common to collect artefacts from surface scatters, whereas the collection of artefacts during latter years has been minimised to include objects found only in a secondary position, such as specimens washed out on the shore. A greater number of artefacts has therefore been recorded from sites registered prior to the mid-1980s than from later

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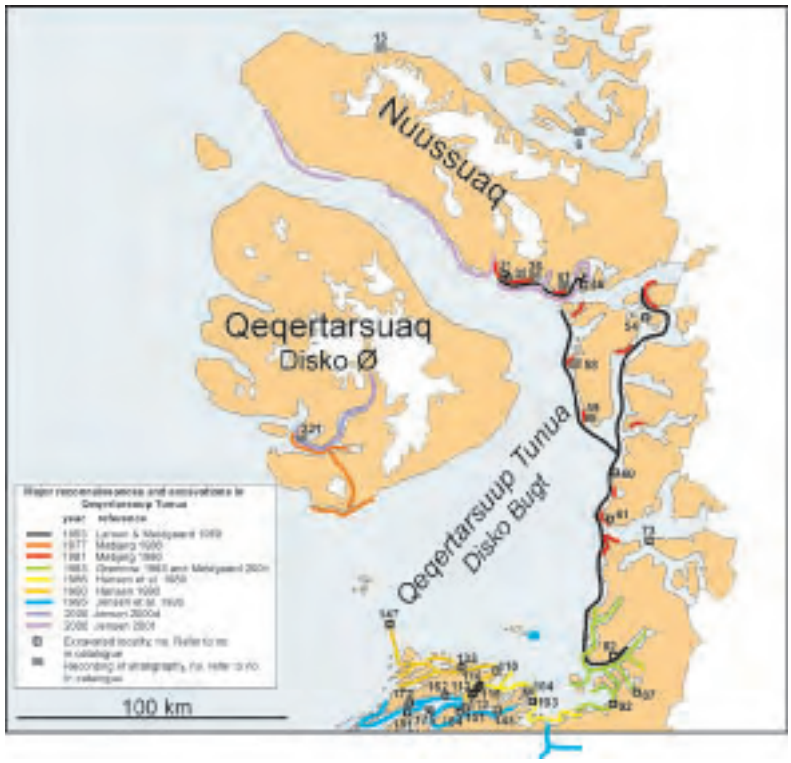

Fig. 4.5. Principal surveys and excavations of Palaeo-Eskimo sites in Qeqertarsuup Tunua after the Second World War.

investigations. During the survey in 2000 this was compensated for by a detailed description of all artefact scatters, so that information on artefact types and raw materials was registered when the objects were left *in situ*. Similar differences exist between the methods employed during Larsen and Meldgaard's excavations in 1953 and those of the 1980s and 1990s. Meldgaard and Larsen collected artefacts according to feature, without recording them on a grid system. Excavations in the 1980s and 1990s used a variety of recording methods based on two- or three-dimensional plotting and recording of finds on grid systems of 1 m^2 or 0.25 m^2 units. Detailed information on the distribution of artefacts within specific features is thus only available from excavations post-dating the 1980s.

Summary and discussion of the history of research

The change of paradigm that resulted from Larsen and Meldgaard's publications may be seen as the fruits of research carried out during the early half of the 20th century. Upon completion of the successful Sermermiut excavations, Meldgaard continued with fieldwork in the Igloolik region (Meldgaard 1955), and in the 1960s he conducted excavations in the vicinity of Nuuk (Meldgaard 1961).

During this period, archaeology in Greenland was characterised by Knuth's work in Peary Land and Northeast Greenland (Grønnow & Jensen 2003) and Meldgaard's work in West Greenland. Knuth (1952, 1954, 1967a, 1967b, 1983) formulated a literally independent cultural history of the High Arctic regions and unfortunately there was little debate between the two scholars. Thus, the ideas expressed in their publications were only rarely challenged, and never so by people with access to primary data, for example from other parts of Greenland.

The last 25 years of research have seen a period of renewed dynamics in the archaeology of Greenland. Reconnaissance and excavation has been conducted in many different parts of the country both by Greenlandic and Danish institutions. Researchers from Canadian and Norwegian institutions have also participated. People with a university education are employed at Greenlandic institutions and several students of archaeology from Denmark have used Greenlandic data in their theses.

Multi-disciplinary approaches have characterised

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the larger excavations since Mathiassen included pollen botanists in the excavations of Sermermiut in 1955. The Qeqertasussuk excavations in the 1980s included a broad range of disciplines from the natural sciences, resulting in scientific contributions ranging from palaeo-climatology to human ecology and cultural history. The interdisciplinary approaches engaged by the present author include the fields of geography and geology, as can be seen from chapter 3 and 7. Previously, raw material studies were actively applied to cultural-historical reconstruction in Gulløv and Kapel's (1988) analysis of Palaeo-Eskimo settlements in the Nuuk area, and in Kramer's (1996a), analysis of the chronology and relative sea-level history of the Sisimiut area. The present work contains raw material analysis similar to the geographical (inter site) and chronological studies conducted by Gulløv and Kramer. In addition, raw material identification and analysis is applied at the intra-site level in order to study optimal solutions for behavioural reconstruction at the described campsites.

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Chapter 5

Palaeo-Eskimo Settlements in Qeqertarsuup Tunua (Disko Bugt)

A total of 225 Palaeo-Eskimo sites have been catalogued (appendix 1). These settlements have been mapped in four regions covering the entire area of Qeqertarsuup Tunua: 1) Nuussuaq, 2) Eastern Qeqertarsuup Tunua, 3) Southwestern Archipelago and 4) Qeqertarsuaq (Disko Ø) (Fig. 5.1). In the following, each of these areas will be described briefly and the Palaeo-Eskimo settlement pattern evaluated. Finally, the chapter will be summarised with a discussion of chronological change in the settlement patterns of the Saqqaq and Dorset cultures. The regional differences in site density revealed by the plotting of locations for Palaeo-Eskimo sites (Figs 5.4, 5.8, 5.10 and 5.11) may, to some degree, result from regional variation in site preservation and research intensity, as described in the previous chapters. However, there are also considerable chronological and qualitative differences between sites and settlement patterns in different areas. In the following sections, I will argue that these differences result from temporal and geographical variability in the geological and ecological resource base.

Nuussuaq Peninsula

The bedrock of Eastern Nuussuaq is part of the Precambrian complex dominated by gneiss. To the west of Pulateriaq (Saqqaqdalen) the basement drops along a series of NNW-SSE-oriented faults (Rosenkrantz 1943) and Western Nuussuaq is entirely dominated by Cretaceous and Tertiary formations of sedimentary rocks overlain by volcanic accumulations (Fig. 5.2). In the central part of Nuussuaq, the basaltic plateau reaches a height of more than 1800 m a.s.l. and large portions

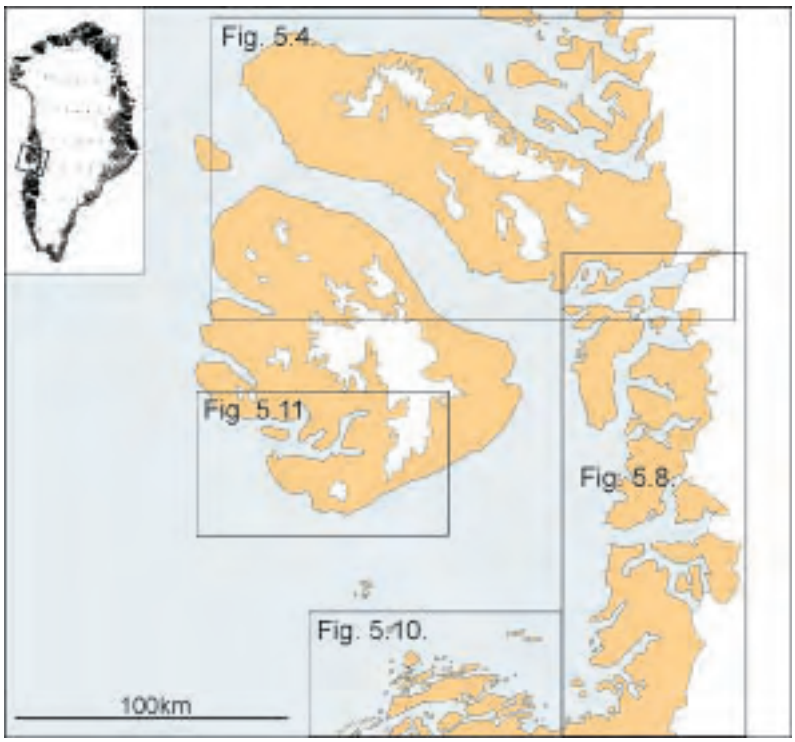

Fig. 5.1. Sections shown on local maps, the figure number of each section is marked in the frames.

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Fig. 5.2. Cretaceous sedimentary rocks in a gorge created by Ataa Elv, Southern Nuussuaq. The peak at the top of the photo is of volcanic rock. For scale, note the person (1.76 m excluding footwear) standing at the base of the cliff. Photo Jens Fog Jensen.

are covered by local glaciers (Fig. 5.3). In the interior, a more than 100 km long east-west-oriented valley, with several large lakes, extends for almost the entire length of the Nuussuaq Peninsula. Caribou hunting once took place in this area and today there is a breeding population of caribou which may be dominated by stock introduced after the local population became extinct, or near extinct, in the late 1960s (Meldgaard 1986).

Archaeology at Nuussuaq

A total of 47 Palaeo-Eskimo localities are known from the Nuussuaq Peninsula (Table 5.1 and Fig. 5.4). Apart from Larsen and Glob's and later Møbjerg's (Larsen & Meldgaard 1958; Møbjerg 1986) investigations at Palaeo-Eskimo sites around the eponymous Saqqaq site Saqqaq Niaqornaarsuk (site no. 20), in the eastern part of the southern shore of Nuussuaq, little is published on the archaeology of the Nuussuaq Peninsula. The interdisciplinary investigation of mummies from Qilakitsoq (Hansen & Gulløv 1989) and various authors' reference to the supposed Norse feature named 'Bjørnefælden' on the westernmost point of the Nuussuaq Peninsula (J. Meldgaard 1995), are all that is commonly known in the archaeological literature. The Palaeo-Eskimo settlements on the western part of the Nuussuaq Peninsula, as well as the few localities known along the northern shore of Nuussuaq, have,

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Fig. 5.3. Southern shore of Nuussuaq seen looking from west to east. In the background, the Torsukattak icefjord branches off towards the Inland Ice. In the upper left part of the photo, Pulateriaq (Saqqaqdalen) extends towards the interior of Nuussuaq. The coastline is dominated by long sand and gravel beaches and there are few sheltered waters. Photo National Survey and Cadastre, Copenhagen.

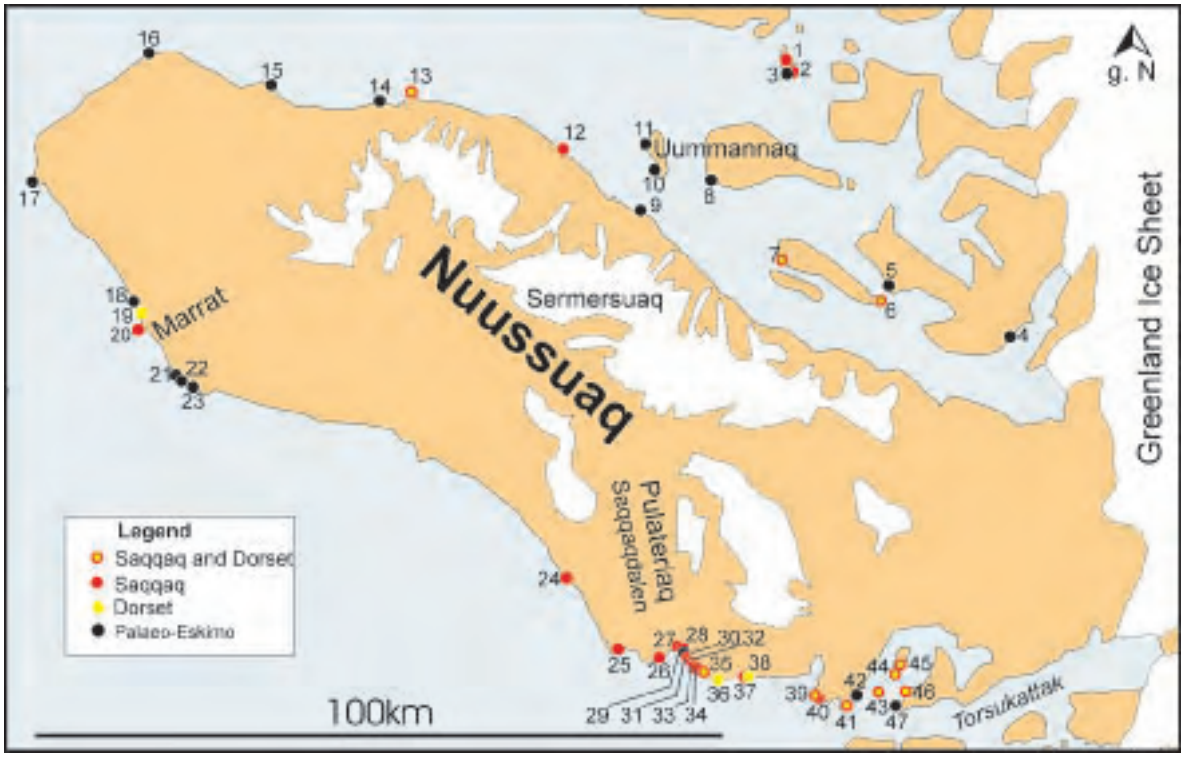

Fig. 5.4. Palaeo-Eskimo sites on Nuussuaq. Most archaeology has been concentrated around the cluster of sites in the vicinity of Saqqaq on the southeastern shore of Nuussuaq. However, the recent survey of the south-western shore suggests that the settlement pattern also reflects the fact that Palaeo-Eskimo occupations were more durable and numerous in the area around Torsukattak than further to the west.

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Table 5.1. Palaeo-Eskimo localities at Nuussuaq.

No	Site name	Dating	Reference
1	Iparalik	Saqqaq	
2	Ammaat	Saqqaq	
3	Ammaarmiut	Palaeo-Eskimo	
4	Qaratsap Illui	Palaeo-Eskimo	
5	Qaarsorsuup Nuua	Palaeo-Eskimo	
6	Uummannatsiaq	Saqqaq and Dorset	Nellemann 1957
7	Uummannatsiaq East	Saqqaq and Dorset	
8	Illunnguaq	Palaeo-Eskimo	
9	Qilakitsoq	Palaeo-Eskimo	
10	Qasigissat	Palaeo-Eskimo	
11	Teqqissat	Palaeo-Eskimo	
12	Qaarsut	Saqqaq	Jensen et al. 1997; Jensen & Brinch Petersen 1998
13	Ikorfat	Saqqaq and Dorset	Rosenkrantz 1958
14	Serfat	Palaeo-Eskimo	
15	Niaqornat	Palaeo-Eskimo	
16	Kanioqqat	Palaeo-Eskimo	
17	Nuussuutaa	Saqqaq	
18	'Dune point'	Palaeo-Eskimo	Jensen 2001
19	Marrat	Dorset	Rosenkrantz 1958; Jensen 2001
20	Niaqornaarsuk	Saqqaq	Rosenkrants1958; Jensen 2001
21	Nuusaq	Palaeo-Eskimo	Jensen 2001
22	Niaqornaq	Palaeo-Eskimo	Jensen 2001
23	Sikilingi	Palaeo-Eskimo	Jensen 2001
24	'Lookout Point'	Saqqaq	Jensen 2001
25	Atanikerluk	Saqqaq	Jensen 2001
26	Paakitsuarsuk	Saqqaq	Jensen 2001
27	'Saqqaq Elv Delta'	Saqqaq	Jensen 2001
28	'Goose Site'	Saqqaq	Møbjerg 1986
29	Ujaqqiukkat	Palaeo-Eskimo	Møbjerg 1986
30	Illuluarsuk West	Saqqaq	Møbjerg 1986
31	Illuluarsuk	Saqqaq	Møbjerg 1986
32	'Karl Thorleifs site'	Saqqaq and Dorset	Møbjerg 1986
33	'Hannibals site'	Saqqaq	Møbjerg 1986
34	'Amalies site'	Saqqaq	Møbjerg 1986
35	Saqqaq Niaqornaarsuk	Saqqaq and Dorset	Meldgaard 1952; Larsen & Meldgaard 1958
36	Saqqaq East	Dorset	Larsen & Meldgaard 1958; Møbjerg 1986
37	Savik West	Saqqaq	Møbjerg 1986
38	Savik East	Dorset	Møbjerg 1986
39	'Marsh Grass site'	Saqqaq and Dorset	Jensen 2001
40	Akunnaaq	Saqqaq and Dorset	Larsen & Meldgaard 1958; Jensen 2001
41	Illutsiaat	Saqqaq and Dorset	Larsen & Meldgaard 1958; Møbjerg 1986
42	Ikorfat	Palaeo-Eskimo	Jensen 2001
43	Qeqertaarsuk	Saqqaq and Dorset	Larsen & Meldgaard 1958; Jensen 2001
44	Qeqertaq	Saqqaq and Dorset	Larsen & Meldgaard 1958; Jensen 2001
45	Qeqertaq North	Saqqaq and Dorset	Larsen & Meldgaard 1958
46	Illorsuit	Saqqaq and Dorset	Larsen & Meldgaard 1958
47	Nuugaaq	Palaeo-Eskimo	Ostermann & Porsild 1921; Larsen & Meldgaard 1958

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on the other hand, remained virtually untouched by archaeologists until recently.

Upon the construction of an airport for fix-winged aeroplanes at the settlement of Qaarsut, a small area was surveyed in 1994 (Jensen 1994b; Jensen *et al.* 1997; Jensen & Brinch Petersen 1998), and the present study involved a survey of the southern shore of the Nuussuaq Peninsula (Jensen 2001). This survey was engaged specifically in locating raw material extraction sites. Prior to these investigations, geologists had registered and collected artefacts from a few localities (Rosenkrantz 1958, 1965), but otherwise there has been little systematic reconnaissance in this part of Greenland. The northern shore of Nuussuaq and the rest of Uummannaq District are, as such, poorly known. Reconnaissance in 2000 was conducted in the same way as recently carried out in other areas, by sailing close to the shore, landing as often as there seemed to be the chance of a settlement and walking along as much of the coastline as possible. During this 2000 survey some new sites were registered, but in general the long sandy shores of Nuussuaq appeared to have fewer localities with Palaeo-Eskimo settlement than are known from other parts of Qeqertarsuup Tunua.

Palaeo-Eskimo settlement patterns at Nuussuaq

There are significant archaeological, geological and topographical differences between Eastern and Western Nuussuaq as defined by the fault running through Pulateriaq (Saqqaqdalen). To the east of Pulateriaq, there are both numerous large Saqqaq and Dorset sites concentrated in the area extending from Pulateriaq to the settlement of Qeqertaq towards east (Fig. 5.4). Clearly this area was favoured for settlement through-out prehistory as well as in Historical Times. The concentration of Palaeo-Eskimo sites around the settlements of Saqqaq and Qeqertaq must be ascribed to the favourable conditions offered by Torsukattak Icefjord. When comparing the settlement cluster around the mouth of Torsukattak to that around the mouth of Kangia (Jakobshavn Isfjord) further south, it is evident that both icefjords are ecological hot spots where the largest and most continuously occupied sites tend to be located. Palaeo-Eskimo sites are more scattered to the west of Pulateriaq (Saqqaqdalen), as well as along the northern shore of Nuussuaq. No sites have, however, been thoroughly excavated in this area, so the discussion of the character of these localities is based on scant evidence. Although, when looking at the artefacts collected from the sites rich in finds in the western part of Nuussuaq, such as Ikorfat (site no.13), Niaqornaarsuk (site no. 20) and Paakitsuarsuk (site no. 26), it is evident that these are all remarkable poor in tools. At the same time there are numerous large flakes from the production of rough-outs and preforms and it seems possible that these localities are all specialised camps which were frequented mainly by people *en route* to and from the primary areas for the acquisition of killiaq. Qaarsut (site no. 12), on the northern shore of Nuussuaq, appears to have more ordinary campsites, in addition to massive evidence of raw material procurement provided by numerous preforms (Fig. 5.5). Ikorfat may also have more ordinary Saqqaq settlements, not least because the stratigraphic accumulation (Fig. 5.6), documented by Rosenkrantz, indicates long-term stability in the use of this site. However, both the Saqqaq and Dorset components from Ikorfat are dominated by primary lithic reduction of killiaq nodules and, therefore, the function of this seemingly much favoured settlement remains obscure. The evidence for both Saqqaq and Dorset settlement in the western and northern parts of Nuussuaq leaves an impression of it being dominated by specialised camps, with no permanently settled sites on the entire western part of the peninsula. Holocene changes in relative sea level, landslides, tsunamis and solifluction may have obliterated more localities here than elsewhere, but the artefact inventories from the better documented Saqqaq sites indicate that the few Palaeo-Eskimo settlements in this area are different from those in the eastern part of the southern shore of Nuussuaq. The Palaeo-Eskimo sites around Saqqaq are thus diversified with respect to topographical situation, size and lithic assemblage. This suggests that Southeastern Nuussuaq, and the area around Torsukattak Icefjord, had a diversified settlement pattern with large base camps as well smaller seasonal camps. Several intensively used Saqqaq sites are known from the area around Torsukattak Icefjord, and long-term Dorset occupations must have been present on Qeqertaq (site no. 44) and probably also at the locality of Saqqaq East (site no. 36). Short-term occupations by small social units have been docu-

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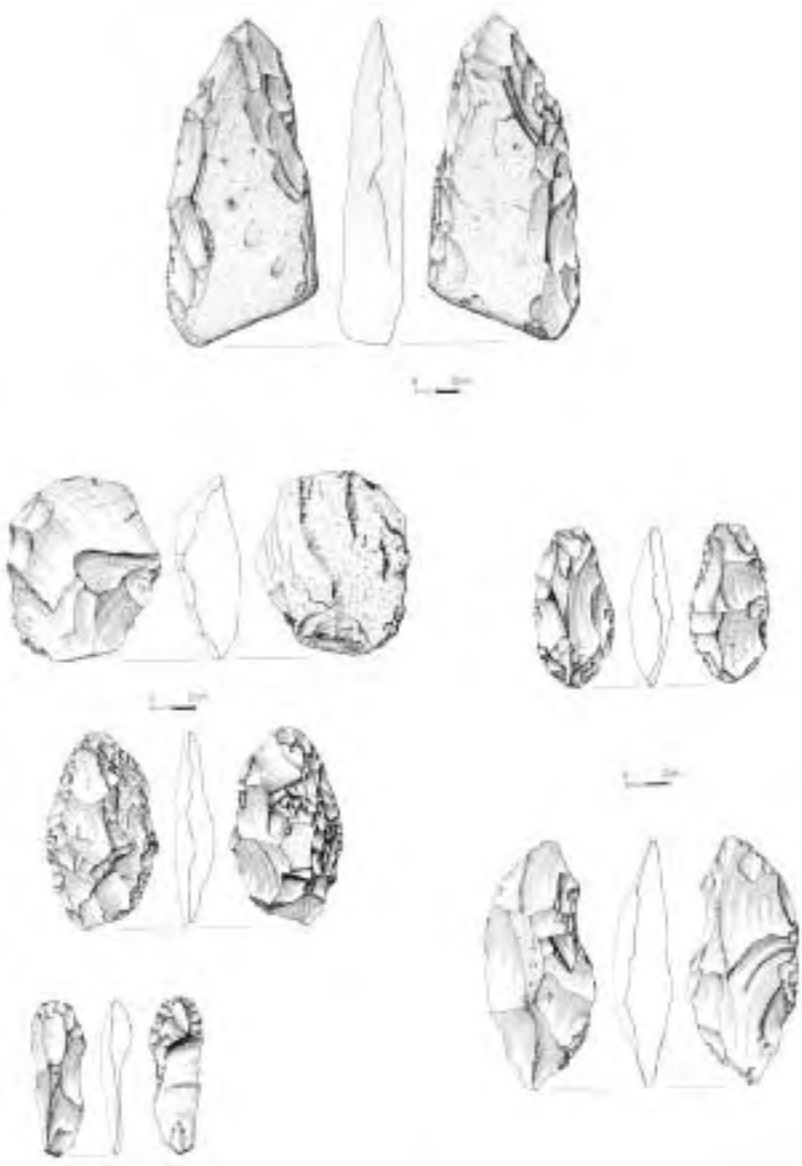

Fig. 5.5. Preforms of killiaq from Qaarsut (site no. 12) on the northern shore of Nuussuaq. Similar finds are common at several localities at the Nuussuaq Peninsula, but rare on Palaeo-Eskimo sites in other parts of Qeqertarsuup Tunua. Drawing Lykke Johansen.

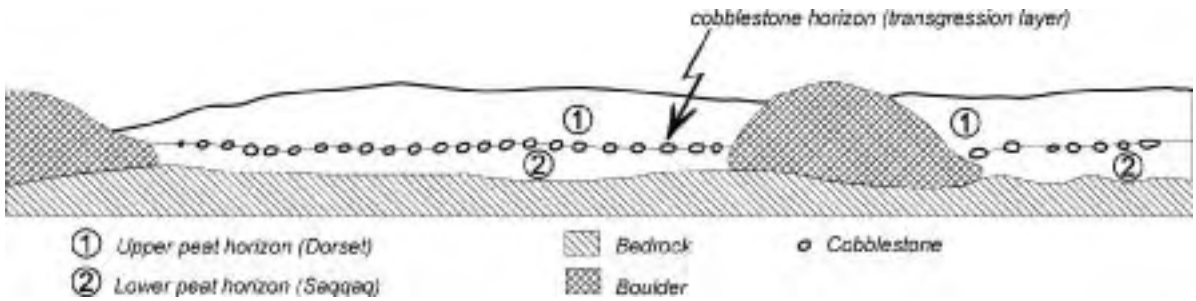

Fig. 5.6. Section at Ikorfat. Based on an original sketch by A. Rosenkrantz (Nationalmuseet ES 423/58). The Saqqaq layer at the base is separated from the overlying Dorset layers by a cobblestone horizon which Rosenkrantz suggests is a transgression layer.

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Fig. 5.7. View from west to east over Kangia (Jakobshavn Isfjord) in the central part of Eastern Qeqertarsuup Tunua. The large settlements of Sermermiut and Qajaa are marked with circles. Photo National Survey and Cadastre, Copenhagen.

mented at localities such as the 'Lookout Point' (site no. 24), Saqqaq Elv Delta (site no. 27) and the islets of Qeqertaarsuk (site no. 43) to the south of Qeqertaq.

Eastern Qeqertarsuup Tunua

The eastern shore of Qeqertarsuup Tunua is characterised by gneiss and granite plateaus dissected by east-west-oriented fjords and troughs. The ice-free land is less than 50 km wide, and the highest hills reach 500 to 600 m a.s.l. in the southern part, delineating Sydostbugten to the east, and 600 to 800 m a.s.l. in the northern part towards Torsukattak Icefjord and on Alluttoq (Arveprinsens Ejland). Kangia (Jakobshavn Isfjord) (Fig. 5.7) in the central part, and Torsukattak in the northernmost part of Qeqertarsuup Tunua, are prominent icefjords with a large production of icebergs. The highly productive icefjords, and their side arms, are rich marine environments that have attracted human settlement through-out the millennia.

Archaeology of Eastern Qeqertarsuup Tunua

The archipelago to the east of Alluttoq and the area around the mouth of Kangia, have been the focus of research since the late 19th century. Most Palaeo-Eskimo sites here were discovered during the surveys conducted by Larsen and Glob in 1953 and Møbjerg in 1981 (Møbjerg 1986). However, in the early 1980s the low level at which the Dorset sites lay was not yet realised, so these are likely to be under-represented in this area. Furthermore, the area to the north of Kangia is generally less intensively mapped than that to the south. Both the reconnaissance in 1953 (Larsen & Meldgaard 1958), and that in 1981, focused on specific areas and a thorough systematic reconnaissance has never been carried out in the areas to the north of Ilulissat (Jakobshavn). The area around Sydostbugten is characterised by much more intensive research during the 1980s and 1990s than seen anywhere else in Qeqertarsuup Tunua (Grønnow 1994, 1996b; Hansen & Brinch Petersen 1989; Hansen et al. 1989; Jensen 1998; Meldgaard 2004). As a result, a significantly higher proportion of Palaeo-Eskimo sites can be expected to have been found in this area.

Palaeo-Eskimo settlement patterns in Eastern Qeqertarsuup Tunua.

A total of 52 Palaeo-Eskimo sites are registered in Eastern Qeqertarsuup Tunua (Table 5.2 and Fig. 5.8). The settlements are clustered in three areas 1) The

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Table 5.2. Palaeo-Eskimo localities in Eastern Qeqertarsuupp Tunua.

No	Site name	Dating	Reference
48	Niaqornaq	Palaeo-Eskimo	Larsen & Meldgaard 1958
49	Ikerasannguaq	Palaeo-Eskimo	Larsen & Meldgaard 1958
50	Anillagiaa (Smallesund II)	Saqqaq	Møbjerg 1986
51	Ilerfit	Saqqaq and Dorset	Larsen & Meldgaard 1958
52	Pisissarfik	Palaeo-Eskimo	Larsen & Meldgaard 1958; Møbjerg 1986
53	Tasilik	Dorset	Larsen & Meldgaard 1958
54	Illuluarsuup Talerua	Saqqaq and Dorset	Larsen & Meldgaard 1958
55	Illuluarsuup North	Saqqaq	Larsen & Meldgaard 1958
56	Illuluarsuit	Palaeo-Eskimo	Larsen & Meldgaard 1958
57	Appat (Ritenbenk)	Palaeo-Eskimo	Larsen & Meldgaard 1958
58	Aarlungavik South	Saqqaq and Dorset	Møbjerg 1986
59	Alluttoq (Klokkerhuk)	Saqqaq	Møbjerg 1986
60	Tupersuit	Saqqaq	Larsen & Meldgaard 1958
61	Sermermiut	Saqqaq and Dorset	Larsen & Meldgaard 1958; Mathiassen 1958; Møbjerg 1986
62	Eqi 12	Saqqaq and Dorset	Møbjerg 1986
63	Eqi 30	Saqqaq	Møbjerg 1986
64	Eqi 31	Saqqaq	Møbjerg 1986
65	Eqi 32	Palaeo-Eskimo	Møbjerg 1986
66	Eqi 33	Palaeo-Eskimo	Møbjerg 1986
67	Qaarsormiut (Nordre Huse)	Dorset	Møbjerg 1986
68	Illumiut	Palaeo-Eskimo	Møbjerg 1986
69	Illunnguaq	Palaeo-Eskimo	Møbjerg 1986
70	Inussuup Nuua	Palaeo-Eskimo	Meldgaard 1981
71	Illorsuatsiaat	Dorset	Meldgaard 1981
72	Upernavik	Saqqaq	Meldgaard 1981
73	Qajaa	Saqqaq and Dorset	Larsen & Meldgaard 1958; Meldgaard 1983; 1991
74	Eqaluit Nuuat (Lakse Bugt)	Saqqaq	Jensen 1995c
75	Oqaatsuarsuit (Rypeholm Sundet)	Saqqaq	Jensen 1995d
76	Savik	Dorset	Jensen 1995b
77	Nuuk	Saqqaq	Jensen 1995e
78	Niisat	Saqqaq	Meldgaard 2004
79	'Marias Site'	Saqqaq	Meldgaard 2004
80	Niaqornaarsuk Ilorleq	Saqqaq	Meldgaard 2004
81	Niaqornaarsuk Qiterleq	Saqqaq	Meldgaard 2004
82	Illorsuatsiaat	Saqqaq	Larsen & Meldgaard 1958
83	Umiartorfik	Dorset	Meldgaard 2004
84	Serfarsuit Nuuat	Saqqaq	Meldgaard 2004
85	Tupersui	Saqqaq	Meldgaard 2004
86	Orpissooq West	Dorset	Hansen & Jensen 1991
87	Orpissooq East	Saqqaq	Hansen & Jensen 1991; Rasch & Jensen 1997
88	Tunutta Imaa North	Saqqaq	Meldgaard 2004
89	Tunutta Imaa East	Saqqaq	Meldgaard 2004
90	Tunutta Imaa West	Saqqaq	Meldgaard 2004
91	Saattuatsiaat	Dorset	Meldgaard 2004
92	Qeqertasussuk	Saqqaq	Grønnow 1994, 1996b; Meldgaard 2004
93	Appannguit	Saqqaq	Meldgaard 2004
94	Saattut North	Saqqaq	Meldgaard 2004
95	Saattut South	Dorset	Meldgaard 2004
96	Akulliit	Palaeo-Eskimo	
97	Uigorleq	Saqqaq	Meldgaard 2004
98	Tussaaq	Saqqaq	Meldgaard 2004
99	Qeqertasussuk West	Dorset	Meldgaard 2004

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area to the south of the Torsukattak Icefjord, 2) Kangia and 3) the eastern part of Sydostbugten. Research intensity differs greatly between these areas, and the many localities to the south of Qasigiannguit should be considered in the light of the intense reconnaissance carried out in this particular area. The sites in the vicinity of Torsukattak in the North are, on the other hand, equivalent to the extreme density of sites around Kangia. The area immediately to the south of Torsukattak has only been superficially surveyed. It is likely that the number of sites in this area would be multiplied by further systematic reconnaissance. The density of large sites rich in finds around Kangia is well known. However, the many sites to the south of Eqi on the southern side of the outlet of Kangia are probably also the result of topographical factors. This coastline is characterised by low slopes which offer more suitable places for settlement than the steeper cliffs around Sermermiut on the northern side of the icefjord. The concentration of settlements to the south of Kangia may, therefore, be the result of an occupational history similar to that at Sermermiut, but dispersed over a larger area. In the eastern part of Sydostbugten, to the south of Qasigiannguit, there is only one single major site, Qeqertasussuk (site no. 92). No large Dorset sites are known from this area, and most of the Saqqaq and Dorset sites in Sydostbugten appear to have had short-term seasonal occupation. The many and widely-dispersed Saqqaq sites in Sydostbugten support the notion of an 'all-ecotone exploitation' as has been proposed in M. Meldgaard's (1995) analysis of the Saqqaq settlements and human ecology of this particular area. However, they also underline the unique character of Qeqertasussuk. No Dorset sites in the eastern part of Sydostbugten even approach Qeqertasussuk in magnitude, and none of them here is a candidate for a base camp or winter settlement. This lack of large Dorset settlements in the eastern part of Sydostbugten may be understood in the light of the chronological changes at the Qeqertasussuk site. Meldgaard (2004) suggests that the settlement at Qeqertasussuk changed from a base-camp type of occupation prior to about 1900 cal B.C. to more sporadic specialised seasonal occupation after this date. He believes that this shift was related to climatic changes making it unfavourable to have base camps in the inner part of the embayment. This scenario is indeed compelling, since the climatic changes docu-

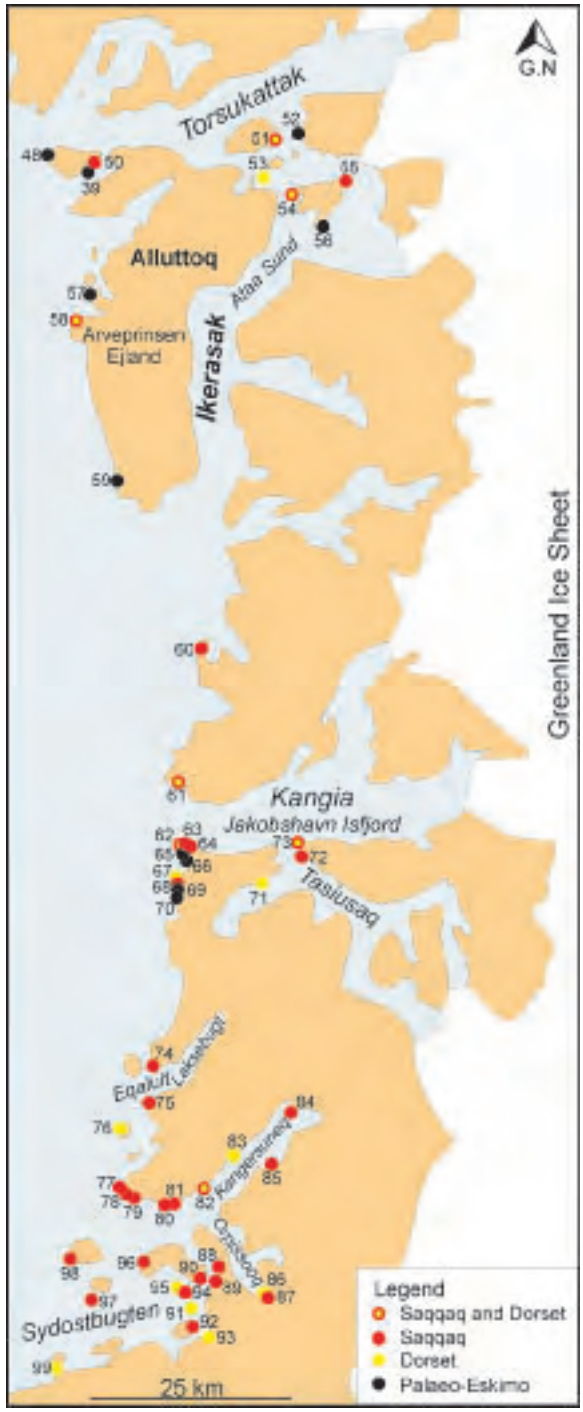

Fig. 5.8. Palaeo-Eskimo settlements in Eastern Qeqertarsuup Tunua. Settlement clusters are seen in the rich environments of the icefjords Torsukattak and Kangia, as well as in Sydostbugten to the south. The concentration of sites seen in the area of Sydostbugten may, however, primarily result from intensive reconnaissance.

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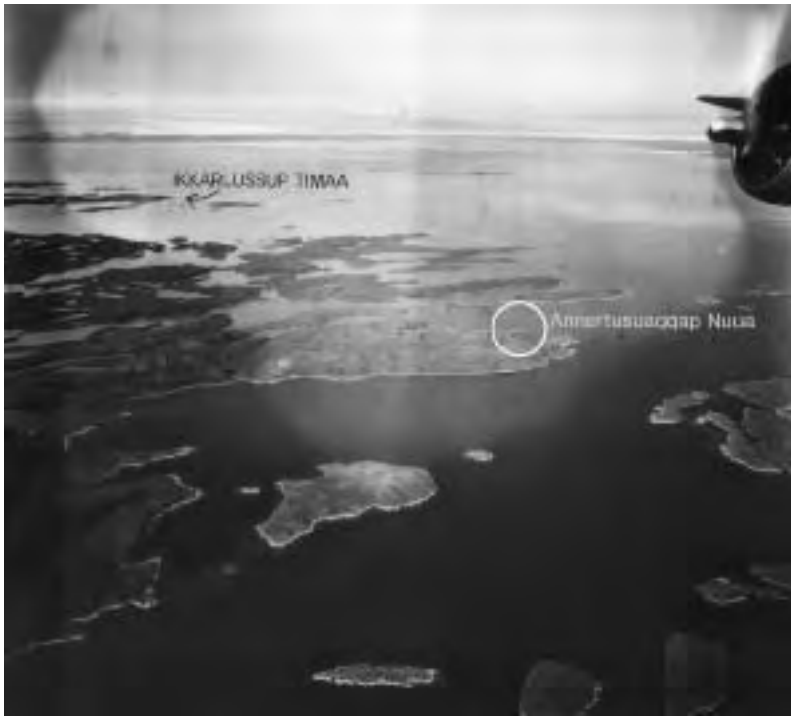

Fig. 5.9. View westwards from Sydostbugten. This part of Qeqertarsuup Tunua is an archipelago characterised by numerous points of low relief, islets and skerries. Photo National Survey and Cadastre, Copenhagen.

mented by recent cores from Disko Bugt (Jensen 2003), coincide with the changes registered in the midden at Qeqertasussuk. Similarly, the data from the bay sediments indicate continued cooling and unstable climatic conditions through-out the Dorset period. These are likely to have 'shut down' Sydostbugten as an area suitable for base-camp location for centuries.

The Southwestern Archipelago

Southwestern Qeqertarsuup Tunua is an archipelago where the bedrock consists mainly of Precambrian gneiss (Fig. 5.9). To the west, around the town of Aasiaat and the settlements of Akunnaaq and Ikamiut, the landscape comprises an archipelago with only a few hilltops approaching 200 m a.s.l. The interior south of Sydostbugten is dominated by the clay plain of 'Naternaq', where elevated marine clay sediments form a lowland bisected by several rivers meandering in narrow gullies. To the east, the Precambrian bedrock rises to form a high plain more than 500 m a.s.l. in the area bordering the Inland Ice. The geology of the islands of Kitsissunnguit (Grønne Ejland) differs from all other areas in this part of Qeqertarsuup Tunua. As the southernmost extent of the volcanic provinces of Northern Qeqertarsuup Tunua, they are made up of plateau basalt. But along a short part of the southern shore of Angissat, the easternmost of the larger islands, part of the cliffs are of metamorphosed Cretaceous sediments. Here there is killiaq which was used for tool manufacture in Saqqaq and Dorset times (see chapter 7).

Archaeology of the Southwestern Archipelago

In addition to Sydostbugten, the archipelago in the southwestern part of Qeqertarsuup Tunua is probably the most thoroughly surveyed part of Qeqertarsuup Tunua, as it was only during the 1988 reconnaissance (Hansen *et al.* 1989) that the low elevation of Dorset sites was realised. Similarly, consequent test-pitting has become a common practice during reconnaissance in this area. A larger proportion of the Palaeo-Eskimo localities can, therefore, be expected to have been recorded in this area than in other parts of Qeqertarsuup Tunua.

Upon conclusion of the comprehensive excavations at Qeqertasussuk at the end of the 1980s, it was decided to continue reconnaissance of the Qasigiannguit District in order to obtain a complete picture of Palaeo-Eskimo settlement. However, in spite of the recent systematic mapping of Qasigiannguit and

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Fig. 5.10. Palaeo-Eskimo settlements in the archipelago of Southwestern Qeqertarsuup Tunua. Numerous Palaeo-Eskimo settlements are scattered across this area offering large tracts of protected marine environments.

Aasiaat Districts, there are still lacunae. In the westernmost part of Aasiaat District, the off-shore archipelago of Killiit (Vester Ejland) has never been surveyed, and there are also several of the more exposed islets which, due usually to difficult weather conditions, have not been visited during recent surveys. The inland regions of the larger islands, as well as of the mainland, are similarly poorly known, since only a single inland reconnaissance has been conducted in this area (Jensen *et al.* 1995). In general, however, the Southwestern Archipelago must be considered well covered, and it is unlikely that major sites have been overlooked.

Palaeo-Eskimo settlement patterns of the Southwestern Archipelago

With a total of 106 Palaeo-Eskimo sites, the Southwestern Archipelago has a higher density of Stone-Age sites than the other regions (Table 5.3 and Fig. 5.10), yet there are no localities with well-defined stratification of both Saqqaq and Dorset layers. Sites with thick, well-preserved midden accumulations are also absent. This may, to some extent, be a consequence of the local topography not allowing the development of permafrozen cultural layers. But it is also likely that it is the result of resources being more scattered with no focussed ecological 'hot spots' as seen at the outlets of the icefjords in the eastern part of Qeqertarsuup Tunua. On a local scale, the protected waters of Nivaap Paa, and the tidal current at the narrow towards Saqqarleq, can be considered ecological hot spots which have attracted settlement through-out history, but which appear to have been particularly attractive places to live during the Dorset period. Large Dorset settlements were located at the abandoned outpost of Nivaaq (site no. 111), at Niivertussannguaq North (site no. 114), at Illorsuup Nuua (site no. 115) and at Umiartorfik (site no. 116), in addition to Ikkarlussuup Timaa (site no. 118) at the point of Nuuk, which delineates Nivaap Paa towards the north. The largest Saqqaq sites in the Southwestern Archipelago are Niivertussannguaq (site no. 112), Tupersui (site no. 181) and site no. 144 on the island of Maniitsoq. Excavations on the two former of these (Olsen 1998) have shown that they comprise dwelling structures believed to be winter dwellings with large quantities of fire-cracked rocks and numerous finds. Other Saqqaq sites, such as Ujarattarfik North (site no. 120) and Akullinnguaq I (site no. 186), have several features indicating that they were used extensively during the Saqqaq period. Both of these have, however, only few finds and are therefore believed to be summer settlements.

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Table 5.3. Palaeo-Eskimo sites in Southwestern Qeqertarsuup Tunua.

No	Site name	Dating	Reference
100	Tulugartaliussaq	Dorset	Hansen et al. 1989
101	'Narrow Sound Site'	Dorset	Hansen et al. 1989
102	Annertusoq	Saqqaq	
103	Annertusuaqqap Nuua	Dorset	Hansen et al. 1989; Jensen 1995a, 1998
104	Ikamiut	Saqqaq and Dorset	Hansen et al. 1989; Hansen & Brinch Petersen 1989
105	Naajannguit	Saqqaq and Dorset	Hansen et al. 1989
106	'Submerged Peat site'	Dorset	Jensen 2000a
107	Uingasoq	Saqqaq	Jensen 2000a
108	'Single malt site'	Dorset	Jensen 2000a
109	'Sill site'	Saqqaq	Jensen 2000a
110	Nuugaarsuk North	Saqqaq	Hansen et al. 1989
111	Nivaaq	Dorset	Hansen 1990
112	Niivertussannguaq	Saqqaq	Hansen 1990
113	Abri site	Dorset	
114	Niivertussannguaq North	Dorset	Hansen 1990
115	Illorsuup Nuua	Saqqaq and Dorset	Hansen 1990
116	Umiartorfik	Dorset	
117	Qaarsup Nuua	Saqqaq	Hansen 1990
118	Ikkarlussuup Timaa	Saqqaq and Dorset	Hansen 1990
119	Ujarattarfik South	Dorset	
120	Ujarattarfik North	Saqqaq	Hansen 1990
121	Qeqertarmiut I	Saqqaq	Hansen et al. 1989
122	Qeqertarmiut II	Saqqaq	Hansen et al. 1989
123	Qeqertarmiut III	Saqqaq	Hansen et al. 1989
124	Qeqertarmiut IV	Dorset	Hansen et al. 1989
125	Qeqertarmiut V	Saqqaq	Hansen et al. 1989
126	Qeqertarmiut VI	Saqqaq	Hansen et al. 1989
127	'Little Island'	Dorset	Hansen et al. 1989
128	Angissat	Palaeo-Eskimo	Jensen 1996b, 1998
129	Tulugartalik	Dorset	Hansen 1990
130	Akunnaap Nunaa	Dorset	Hansen 1990
131	Sallersuaq	Saqqaq	Hansen 1990
132	Kangiusaq	Palaeo-Eskimo	Hansen 1990
133	Brinchip Tupeqarfikuutaa	Saqqaq	Brinch Petersen 1992
134	Kaakaq	Saqqaq	Hansen 1990
135	Saattukujooq	Saqqaq	Hansen 1990
136	Taleruusarsuaq	Saqqaq	Hansen 1990
137	Qilalugaasaq	Dorset	Hansen 1990
138	Tupilak 1	Saqqaq	Hansen 1990
139	Tupilak 2	Saqqaq	Hansen 1990
140	Tupilak 3	Saqqaq	Hansen 1990
141	Iginniarfik	Saqqaq	Hansen 1990
142	Natassat I and II	Dorset	Hansen 1990
143	Upernavissuaq	Dorset	Hansen 1990
144	Ikerasannguup Illukui	Saqqaq	Hansen 1990
145	Ikkarlunnguaq	Saqqaq	Hansen 1990
146	Illulukasiit	Dorset	Hansen 1990
147	Oqaatsut	Dorset	Brinch Petersen pers. com.
148	Ikerasak	Saqqaq	Jensen et al. 1995
149	Eqaluliata Qulaa 1	Palaeo-Eskimo	Jensen et al. 1995
150	Eqaluliata Qulaa 2	Palaeo-Eskimo	Jensen 1996b
151	Nerukinnera I	Dorset	Jensen et al. 1995
152	Nerukinnera II	Dorset	Jensen et al. 1995

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Table 5.3. Continued.

No	Site name	Dating	Reference
153	Nerukinnera III	Dorset	Jensen et al. 1995
154	Kannala	Saqqaq	Jensen et al. 1995
155	Kannalap Itinnera	Saqqaq	Jensen et al. 1995
156	Kannalap Karrata Avannaatungaa	Dorset	Jensen et al. 1995
157	Ulussat Nuuat	Saqqaq	Jensen et al. 1995
158	Nuukullassua	Saqqaq	Jensen et al. 1995
159	Inussuernerit I	Saqqaq	Jensen et al. 1995
160	Inussuernerit II	Saqqaq	Jensen et al. 1995
161	Qungasiusakasia	Palaeo-Eskimo	Jensen et al. 1995
162	Kuup Qalorsaa	Saqqaq	Olsen 1998
163	Kangerlussuaq	Saqqaq	Jensen et al. 1995
164	Nuggorissoq	Palaeo-Eskimo	Jensen et al. 1995
165	Nulorsuit Nuuat I	Saqqaq	Jensen et al. 1995
166	Nulorsuit Nuuat II	Dorset	Jensen et al. 1995
167	Nulorsuit Kangerluat	Saqqaq	Jensen et al. 1995
168	Nulorsuit Qeqertaat	Saqqaq	Jensen et al. 1995
169	Nulorsuit Qeqertaata Kitaa	Dorset	Jensen et al. 1995
170	Qiterleq I	Palaeo-Eskimo	Jensen et al. 1995
171	Qiterliup Kitaatungaa	Dorset	Jensen et al. 1995
172	Kangerlussorissunnguup Kangia	Dorset	Jensen et al. 1995
173	Seersinnerup Kangerlua South	Saqqaq	
174	Seersinnerup Kangerlua	Saqqaq	Jensen et al. 1995
175	Innartalik I	Dorset	Jensen 1998
176	Innartalik II	Saqqaq	Jensen et al. 1995
177	Innartalik III	Saqqaq	Jensen et al. 1995
178	Tinussaraartaa	Saqqaq	Jensen et al. 1995
179	Tinussaraalissuaq	Saqqaq	Jensen et al. 1995
181	Tupersui	Saqqaq and Dorset	Jensen et al. 1995; Olsen 1998
182	Iliversuaq	Dorset	Jensen et al. 1995
183	Tinussaraap Kangiani	Saqqaq	Jensen et al. 1995
184	Malik	Saqqaq	Jensen et al. 1995
185	Taleruusaa	Palaeo-Eskimo	Jensen et al. 1995
186	Akullinnguaq I	Saqqaq	Jensen et al. 1995
187	Qimatulivik East	Dorset	Jensen et al. 1995
188	Qimatulivik West	Saqqaq	Jensen et al. 1995
189	Eestat	Saqqaq	Jensen et al. 1995
190	Kangimut Sammisoq	Saqqaq	Jensen et al. 1995
191	Itissaarsuaq I	Saqqaq	Jensen et al. 1995
192	Alanngorlia	Dorset	Jensen et al. 1995
193	Erlusuk I	Palaeo-Eskimo	Jensen et al. 1995
194	Erlusuk II	Saqqaq	Jensen et al. 1995
195	Milak	Saqqaq/Dorset	Jensen et al. 1995
196	Tupertalik	Saqqaq	Jensen et al. 1995
197	Tunuarsuup Nuua I	Saqqaq	Jensen et al. 1995
198	Tunuarsuup Nuua II	Saqqaq	Jensen et al. 1995
199	Usuttalik	Saqqaq	Jensen et al. 1995
200	Sarfannguaq	Saqqaq	Jensen et al. 1995
201	Saattuarsuit (Susanne ¯er)	Saqqaq	Elisa Evaldsen pers. com.
202	Unarrat	Saqqaq	Elisa Evaldsen pers. com.
203	Anarsuit	Dorset	Brinch Petersen pers. com.
204	Umiivik	Palaeo-Eskimo	
205	Avannaamiut Nuuat	Saqqaq	

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Table 5.4. Palaeo-Eskimo settlements at Qeqertarsuaq.

No	Site name	Dating	Reference
206	Østerlien	Saqqaq	Møbjerg 1986
207	Saqqaq	Dorset	Møbjerg 1986
208	Kangaarsuk I	Saqqaq	Møbjerg 1986
209	Kangaarsuk II	Palaeo-Eskimo	Møbjerg 1986
210	Ikineq 1	Palaeo-Eskimo	Jensen 2000d
211	Ikineq 2	Dorset	Jensen 2000d
212	'Two Flakes Site'	Palaeo-Eskimo	Jensen 2000d
213	Naanngisat 1-5	Saqqaq	Møbjerg 1986
214	Naanngisat 6	Dorset	Jensen 2000d
215	Naanngisat 7	Dorset	Jensen 2000d
216	Quinnguaq South-East 1	Dorset	Jensen 2000d
217	Quinnguaq South-East 2	Dorset	Jensen 2000d
218	Quinnguaq South-East 3	Dorset	Jensen 2000d
219	Quinnguaq South-East 4	Saqqaq	Jensen 2000d
220	Quinnguaq North	Dorset	Jensen 2000d
221	Upernavik	Saqqaq and Dorset	Nellemann 1957; Møbjerg 1986
222	Diskofjord (Kangerluk) 1-3	Saqqaq	Møbjerg 1986
223	Diskofjord (Kangerluk) 4	Dorset	Jensen 2000d
224	Sioraq	Saqqaq	Møbjerg 1986
225	Quasannguaq	Saqqaq	Møbjerg 1986

Qeqertarsuaq (Disko Ø)

The geology of the island of Qeqertarsuaq (Disko Ø) is largely similar to that of Western Nuussuaq. Most of the island comprises a Tertiary basaltic plateau overlying Cretaceous sediments. However, Cretaceous sediments are only exposed in the eastern part of the island, whereas to the west there are basalt and tuff layers extending from sea level to the highest peaks. The ice-capped basaltic plateau in the interior reaches elevations of more than 1800 m a.s.l. and most valleys have rivers fed by melt water from glacier tongues. In the area around the town of Qeqertarsuaq (Godhavn), and in the Kuannersuit Sulluat, there are outcrops of Precambrian bedrock forming small points and islands along the shore. Curiously, most of the Palaeo-Eskimo localities known from Qeqertarsuaq are situated on or around these geological formations, and not along the long stretches of uniform beach characterising the areas dominated by sedimentary and volcanic rocks. Three large fjords extend from the western shore towards the interior of the island. The southernmost, named Disko Fjord, is the largest and, with several smaller side arms branching off it, forms a minor system of fjords with a collective outlet towards Davis Strait. At the outlet of Disko Fjord is the outpost Kangerluk (Diskofjord), which is the only settlement on Qeqertarsuaq apart from the town of Qeqertarsuaq.

Archaeology at Qeqertarsuaq

Qeqertarsuaq (Disko Ø) has been surveyed by Nellemann (1957), Møbjerg (1977) and Jensen (2000d). All of these surveys have focussed on the area around Qeqertarsuaq (Godhavn) and the area of Kangerdluk (Diskofjord). This is where most Thule and recent settlements are located and these parts of the island are also the most accessible. Møbjerg's reconnaissance included the inland area of Itinneq Kangilleq (Blæsedalen) (Møbjerg 1986:23), and I have surveyed the western side of the valley of Kuannersuit. Apart from these activities in the southern part of Qeqertarsuaq, the remainder of the island remains virtually unknown with regard to Palaeo-Eskimo settlements (Fig. 5.11). It can be argued that there presumably are no major settlement areas in the northern and western part of Qeqertarsuaq, but specialised camps, such as walrus-hunting camps or raw material extraction sites, could well be located in areas of the island not yet visited by archaeologists. Chalcedony nodules

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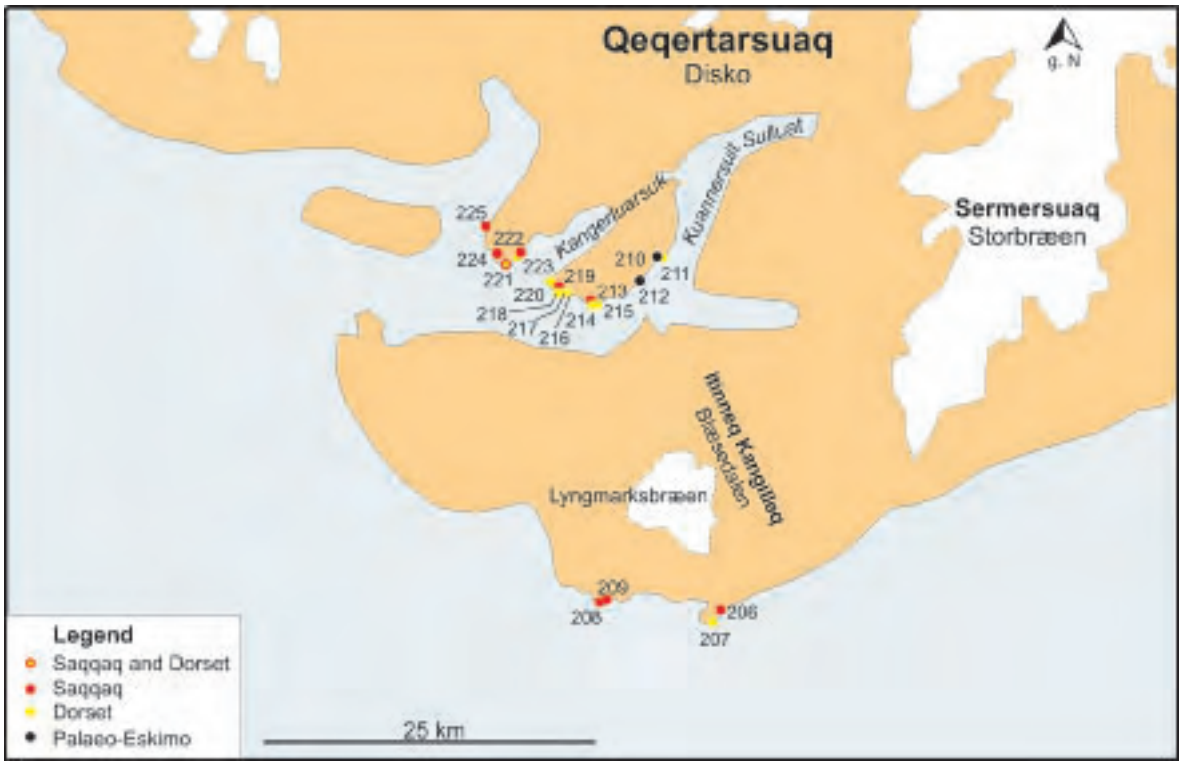

Fig. 5.11. Palaeo-Eskimo sites on the island of Qeqertarsuaq. Saqqaq and Dorset sites are clustered around the presently settled places of Qeqertarsuaq and Kangerluk. However, reconnaissance has not been carried out in other parts of the island and the distribution of settlements may thus reflect the focus of research as much as Palaeo-Eskimo settlement patterns.

are known to be washed out by the river emptying into Aqajarua (Mudderbugt) on the eastern shore of Qeqertarsuaq, although Palaeo-Eskimo use of this lithic resource has not been documented.

Palaeo-Eskimo settlement patterns at Qeqertarsuaq

A total of just 20 Palaeo-Eskimo settlements are known from the southern part of Qeqertarsuaq (Table 5.4 and Fig. 5.11). The isolated position of Qeqertarsuaq makes this area the most simple of systems (Fig. 5.12). Møbjerg (1986) has suggested that only the sites of Østerlien (site no. 206) and Kangaarsuk (site no. 208) should be considered as base camps, whereas the remainder were more temporary settlements or were not grouped according to function. I suggest, on the other hand, that only Upernavik (site no. 221) and, perhaps, Kangaarsuk (site no. 208) should be considered to be base camps. It is suggested that the localities at Østerlien are an aggregation of seasonal camps, which, to some extent, may be contemporaneous. They could also result from consecutive settlement episodes over a long period of time. The same argument could also be applied to the Kangaarsuk I site. But when comparing the tool type frequencies from Østerlien (site no. 206) to those at Kangaarsuk (site no. 208), it is evident that the latter has significantly more bifaces than the former, which is dominated by burin spalls. Kangaarsuk has a more diversified inventory indicating a broader range of activities, which may result from more permanently settled base camps.

The central location and rich stratified deposits at Upernavik (site no. 221) indicate that these may result from recurring base-camp settlements. Møbjerg (1986) has, conversely, more ambiguous data from this locality, leading her to estimate that Upernavik covers an area of less than 100 m^2. I think this is far too small. First of all, the eroding artefact-bearing profile stretches for at least 20 m, so if the settlement area extends 10 m inland from the eroding profile, the site

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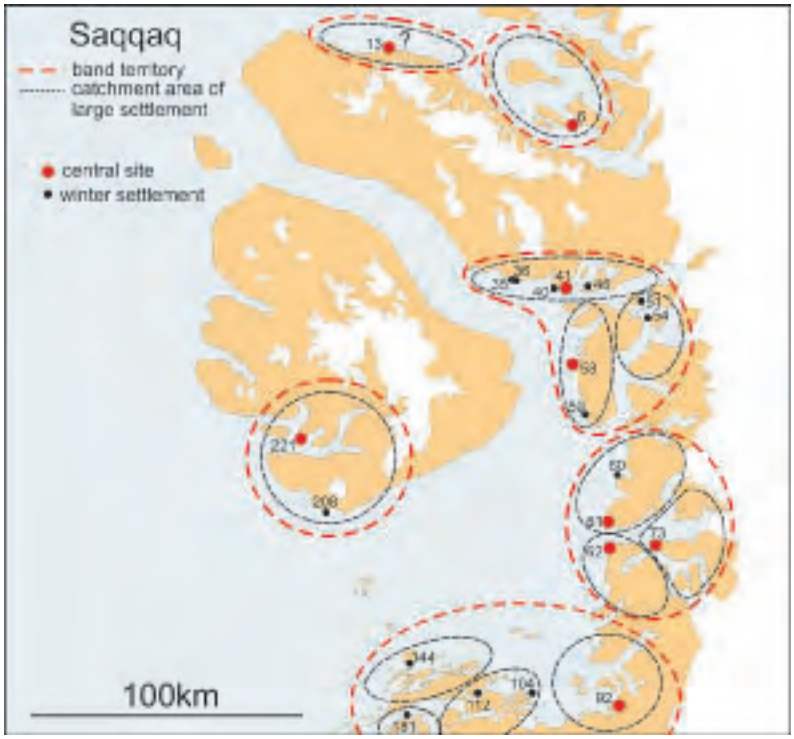

Fig. 5.12. Saqqaq settlement systems in Qeqertarsuup Tunua. Central sites are very large settlements with stratified deposits. Suggested winter settlements are based on evaluations of the number of finds, features and general character of sites listed in appendix 1. Numbers refer to those used in appendix 1. Suggested territories are based on settlement clusters, topographical characteristics of catchment areas and distribution of raw materials and preforms from raw material sources at Angissat and on Nuussuaq, see chapter 7 for details of raw material distribution.

must cover at least 200 m². In addition, there are finds and presumably also features scattered over nearby areas, making it difficult to delineate the settlement area. A minute inspection of the site could well reveal that the Upernavik settlement covers more than 1000 m². I believe that Upernavik was used as base camp both in Saqqaq and Dorset times. This also fits the historical use of the locality better than an interpretation as a temporary special purpose camp. Supplementing this argument is the fact that no other locality in the Kangerluk area has features or finds suggesting that they are base camps. On the contrary, and in spite of the superficial examination of the area, most other localities are characterised by positive indicators of short-term occupations such as very few finds and tent-ring dwellings with a limited associated lithic inventory (Jensen 2000d).

Palaeo-Eskimo settlement systems in Qeqertarsuup Tunua

In spite of geographical differences in sampling intensity and site preservation, the distribution of the 225 Palaeo-Eskimo sites shown in figs. 5.4, 5.8, 5.10 and 5.11 appears to reflect true patterns in the archaeological record. In the western part of Nuussuaq, the striking features are the general paucity of sites and the fact that many, if not all, of the Saqqaq sites here appear to be specialised camps related to raw material procurement from lithic sources on the northern shore of Nuussuaq. The eastern shore of Qeqertarsuup Tunua is characterised by a different settlement pattern. Here, there are two focal points of Palaeo-Eskimo settlement: 1) The concentration of settlements around Torsukattak and 2) the concentration of settlements around Kangia. These areas are both characterised by having several very large sites rich in finds and sometimes with thick midden accumulations. In places such as Illutsiaat (site no. 41), Aarlungavik (site no. 58), Sermermiut (site no. 61) and Qajaa (site no. 73), the middens have formed stratified deposits comprising both Saqqaq and Dorset layers. The clustered settlements can be conceptualised to reflect the core areas of groups monopolising the rich resources around the icefjords. In this system, the largest sites and, perhaps, in particular, the localities with stratified Saqqaq and Dorset deposits, can be regarded as centres within an annual cycle. Smaller units dispersed from these centres into the surrounding landscape or moved from one centre to a neighbouring one. Since there are no visible differences in the way the Saqqaq and Dorset sites map onto the landscape, this system is suggested to have been in operation

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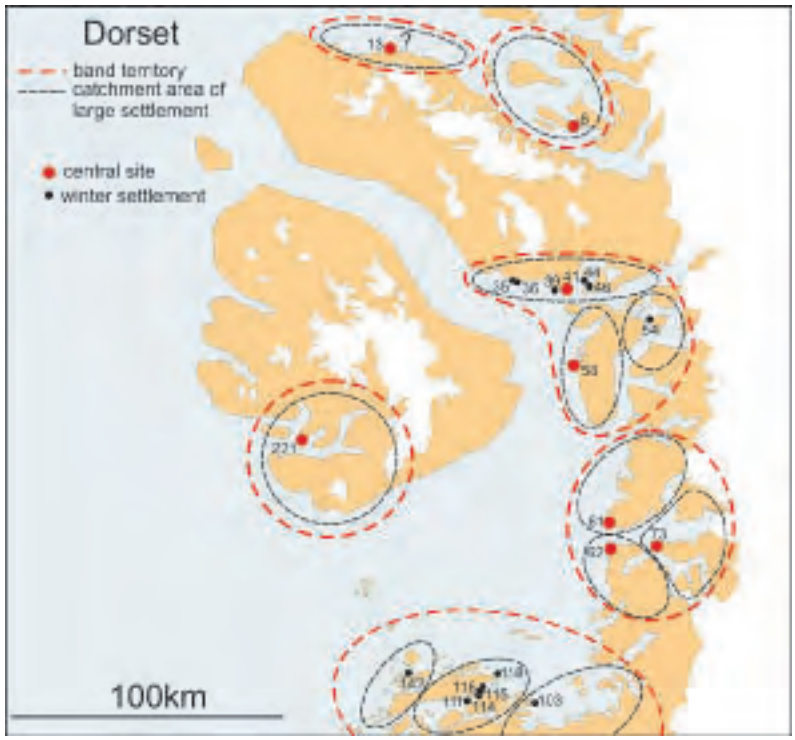

Fig. 5.13. Dorset settlement systems in Qeqertarsuup Tunua. Central sites are very large settlements with stratified deposits. Suggested winter settlements are based on evaluations of the number of finds, features and general character of sites listed in appendix 1. Numbers refer to those used in appendix 1.

during both Saqqaq and Dorset times. In the south-eastern part of Qeqertarsuup Tunua, the Qeqertasussuk site seems likely to have played a similar role during the early phases of occupation between 2400 cal B.C. and 1900 cal B.C. (Meldgaard 2004). This area has no major Dorset settlements, suggesting that during both the later Saqqaq phases and during the Dorset, Sydostbugten was too poor in resources to be the 'homeland' of a viable population. Instead, Sydostbugten was occupied seasonally during the later Saqqaq phases and in the Dorset period by people moving in either from the North or from the larger winter settlements in the archipelago in southwest.

The archipelago in Southwestern Qeqertarsuup Tunua is characterised by a slightly different settlement pattern because the ecological hot spots here are less well-defined. The large settlements constitute a body of habitation sites that are more dispersed than the concentrations of base camps seen at the outlets of the icefjords Torsukattak and Kangia. However, Nivaap Paa does have several large Saqqaq and Dorset sites with winter-type dwellings, showing that this area was a focal point for habitation in both periods. In addition to the Nivaap Paa settlements, the Dorset period also has large camps such as Annertusuaqqap Nuua (site no. 103) and Ikkarlussuup Timaa (site no. 118) located on the south-west/north-east-oriented points jutting into Sydostbugten to the north and south of Nivaap Paa. In all areas, the settlement system appears to have comprised large more permanently settled base camps combined with numerous smaller seasonal camps situated in more distant niches of the catchment area.

The resulting model of the Saqqaq and Dorset settlement systems through-out Qeqertarsuup Tunua (see figs. 5.12 and 5.13) comprises central sites and winter settlements located adjacent to large and highly productive resource areas. The formation of these sites may have resulted from simultaneous occupations by different groups sharing the rich localised resources, but each having their own range dispersal to more specialised and temporary seasonal camps. The stability of the occupation of the most permanently settled places such as Illutsiaat (site no. 41), Aarlungavik (site no. 58), Sermermiut (site no. 61), Qajaa (site no. 73), Qeqertasussuk (site no. 92) and Upernavik (site no. 221) is believed to have enforced the role of the settlements beyond that of these general semi-permanent winter settlements. Much later, this was demonstrated

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during Poul Egede's visit in 1737 by the people of Sermermiut who had a special pride in their large settlement: "Here I found the greatest accumulation of people I have seen in Greenland, about 20 quite large houses, like a farm village. This they were proud of and therefore asked me whether I had seen so many people in one place. I could tell immediately from their speech and demeanour that they were proud of their numbers and of the good catch they had made" (Egede 1788, translated quote from Møbjerg 1983). I believe that such sites were human landmarks in the vast wilderness inhabited by small and scattered groups of hunter-gatherers. As such, these localities had significance far beyond their material and ecological importance. One can also turn the argument around by saying that the material and ecological conditions at these places had connotations of an ideological and probably spiritual character. In this way, the permanence of settlement could well have sustained ownership to the most productive ecotones by local groups (Burch 1988; Petersen 2003). In the minds of the Palaeo-Eskimo, the largest settlements would thus have been points of reference similar to the capital of a modern nation state. This is a common point of reference for every citizen of the nation, and also the principal point of reference for citizens of other nations. If this were so, and if the stability of these settlements is not exaggerated, then the semi-permanent character of some Saqqaq and Dorset settlements may explain why it is so difficult to locate Palaeo-Eskimo aggregation camps in the archaeological record of West Greenland. They might quite simply not be there. Or, more correctly, the particular social and economic activities, which in many ethnographic examples (Grønnow *et al.* 1983) are executed at aggregation sites, may well have been integrated into the activities at the semi-permanent winter (and summer) settlements through-out the early Palaeo-Eskimo period. During the Saqqaq period, the exchange of lithic raw materials from Nuussuaq seems, accordingly, mainly to have been organised as traffic in preforms moving around between the large settlements. Unfortunately, the Dorset raw material procurement system is much less well known but, as will be shown in the following chapters, the restricted occurrence of more bulky stone artefacts such as axes, oblong soapstone objects, whetstones and, to some degree, also soapstone lamps, indicates that the Dorset system of distribution was largely similar to that adopted by the Saqqaq people.

Møbjerg (1986) divides the Palaeo-Eskimo settlements up into 1) base camps 2) seasonal camps and 3) hunting stands, and in Qeqertarsuup Tunua she further identifies a group of 'large base camps'. The definitions of these site types are based on topographic criteria, numbers of finds and estimated size of settlement. The settlement categories defined by Møbjerg can be readily identified, but the problem really is that the distinction is based merely on a measure of surface sampled sites along a yardstick of size. Only the differences in topographical position appear to be associated directly with differences in function and behaviour. Measures of size and number of finds could just as well result from post-depositional factors of preservation or from the fact that some locations have been occupied more often than others. In order to elaborate further on this the arguments must be based on excavated sites, and the site locations have to be evaluated in relation to a careful reconstruction of the local ecology. In the area of Sydostbugten, M. Meldgaard (1995, 2004) has shown that virtually all the known Palaeo-Eskimo sites can be related to the seasonal use of specific resources. With reference to Sydostbugten and the archipelago around Aasiaat, one can add several types of topographic position not included in Møbjerg's distinction: Sites located on narrows with a strong current (Sill Site (site no. 109), Nivaaq (site no. 111), Ikerasak (site no. 148) and Nerukinnera I (site no. 151) to mention a few), sites located on river outlets at the head of a fjord or bay (Saqqaq Elv Delta (site no. 27)), Orpissooq East and West (sites no. 86 and 87) and sites located on small off-shore islands (Oqaatsut (site no. 147)). Functionally, one can also identify raw material extraction sites such as Qaarsut (site no. 12), Angissat (site no. 128) and probably also Ikorfat (site no. 13). The broad categories of large sites *versus* small sites are thus a simplification covering over a mosaic of local variation. Looking carefully at the site location in relation to artefact inventories and features it appears that the smaller site types include localities with well-built dwellings as well as sites where there are no evident structures at all. This variation is likely to result from differences in social composition and group size, whereas the location in the landscape may be more closely related to site function. These differences will,

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however, be analysed in greater detail in the following chapters.

Chronological changes in settlement patterns

There are only few differences between the Saqqaq and Dorset settlement patterns. Generally though, there are more Saqqaq than Dorset sites. This situation has been attributed to a supposedly smaller population during Dorset times (Meldgaard 1983:95; Møbjerg 1986:51). However, the lower number of Dorset sites, and the thinner culture layers at the stratified sites, could largely be due to the combined effects of relative sea-level rise and the Dorset period being shorter than the Saqqaq. In terms of spatial distribution of Saqqaq and Dorset settlements, they generally tend to occupy the same areas and locations (Meldgaard 1977; Møbjerg 1986). However, as can be seen from the territorial models (Figs 5.12 and 5.13), Sydostbugten does not appear to have been as permanently settled during the Dorset as it was during the Saqqaq period. Similarly, in the Southwestern Archipelago there are indications that the Dorset settlement was slightly more oriented towards the outer coast than the Saqqaq settlement. Accordingly, only Dorset remains have been found on the archipelago of Kitsissuarsuit (Hunde Ejland) (site no. 147), whereas only Saqqaq sites are found dispersed to the heads of fjords and sounds in the interior ('Sill Site' (site no. 109) and Ikerasak (site no.148)). While the lack of Dorset base camps in Sydostbugten may well be related to climatic factors, one should be cautious when suggesting that this also applies to the differences seen in the Southwestern Archipelago. As was demonstrated in the section on relative sea-level changes, the situation of both the 'Sill Site' and Ikerasak, is heavily influenced by sea-level change. The latter may have made these places less attractive for Dorset settlement due to the disappearance of early openings in the sea ice and inner fjord areas becoming freshwater lakes.

The Pre-Dorset – Dorset transition has often been portrayed as an evolution from simple towards more complex hunter-gatherers. The emergence of the Dorset culture is claimed to represent a more complete adaption to the marine arctic environment than in the earlier Pre-Dorset and Independence I periods (Fitzhugh 2002; Maxwell 1985; McGhee 1996). Indeed, the widespread use of soapstone vessels and first occurrence of sledge shoes and snow knives during the Dorset indicate a firmer adaption to a treeless environment. But otherwise the evidence from Qeqertarsuup Tunua is difficult to use in support of such a general statement on the cultural evolution. The Saqqaq settlement at Qeqertasussuk is thus characterised by a very focused economy based on the utilization of harp and ringed seal from the earliest settlement around 2400 cal B.C. (Meldgaard 2004).

Binford (1980) remoulded the old model of simple and complex hunter-gatherers to a forager/collector trajectory, and several authors of arctic archaeology have identified chronological changes of this nature in Foxe Basin (Murray 1999), Ivuivik (Nagy 2000), Labrador (Fitzhugh 2002:160) and Newfoundland (Renouf 1993, 1999:408). In High Arctic regions such as Ellesmere Island (Schlederman 1990) and Devon Island (Helmer 1991), external contacts and principles of diffusion often play a more prominent role in the theorising of cultural change. When comparing the West Greenland Saqqaq and Dorset settlement patterns it is difficult to recognise an increase in sedentariness, specialisation, storage or size of settlements. On the contrary, in Qeqertarsuup Tunua the settlement patterns, and the adaptive strategies reflected herein, appear to be largely similar in the Saqqaq and Dorset. Indeed, as has been shown, there are differences in some areas, but the main characteristic of Saqqaq and Dorset settlement patterns in Qeqertarsuup Tunua appears to be stable occupation of key localities overlooking resources of prime interest, such as polynia or narrows, supplemented by a network of more specialised seasonal camps in the upland.

Unfortunately we only have sporadic evidence for the use of storage on Palaeo-Eskimo sites in Qeqertarsuup Tunua. Similarly, only Saqqaq sites have yielded substantial faunal remains, which makes more specific chronological studies of changes in economy very difficult. The similarities in settlement patterns might mask technological differences. However, the lesson from Qeqertarsuup Tunua must be that people in this area have, through-out the millennia, adapted their technologies to the particular situation of more than 90% reliance on hunting ringed and harp seal. This situation strongly supports Helmer's (1991:316) call to abandon broad regional models in favour of more specific local reconstructions.

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Chapter 6

Saqqaq Settlements in Southern Qeqertarsuup Tunua

The following sections focus on archaeological sites I have excavated or analysed in the southern part of Qeqertarsuup Tunua (Disko Bugt). The Saqqaq site of Orpissooq East (site no. 87) was excavated in 1989 together with Keld Møller Hansen under the auspices of Qasigiannguit Katersugaasiviat (Christianshåb Lokalmuseum). The Orpissooq sites had been discovered during reconnaissance the previous summer and the excavation aimed to retrieve data from a short-term Saqqaq occupation for comparison with evidence from the nearby Qeqertasussuk site. The Dorset site of Annertusuaqqap Nuua (site no. 103) was excavated in 1994 when I was curator of Qasigiannguit Katersugaasiviat. The purpose of this excavation was to supplement knowledge on Saqqaq settlements with comparable data from Dorset sites, the first attempt of this kind in the district of Qasigiannguit. The successful excavation at Annertusuaqqap Nuua inspired a larger project running from 1994 to 1995: 'Changes in House Form and Social Structures in Prehistoric Time in Sydostbugten, West Greenland'. The remainder of the localities presented (Ikerasak (site no. 148), Kannala (site no. 154), Innartalik (site no. 175), Kangerlussorissunnguup Kangia (site no. 172) and Umiartorfik (site no. 116)) were excavated as part of this initiative, where temporal and geographical variation in the spatial organisation of Palaeo-Eskimo campsites was in focus. The project had participants from the museums of Aasiaat and Qasigiannguit and the Universities of Copenhagen and Tromsø. It was financed by the Joint Committee of the Nordic Research Councils.

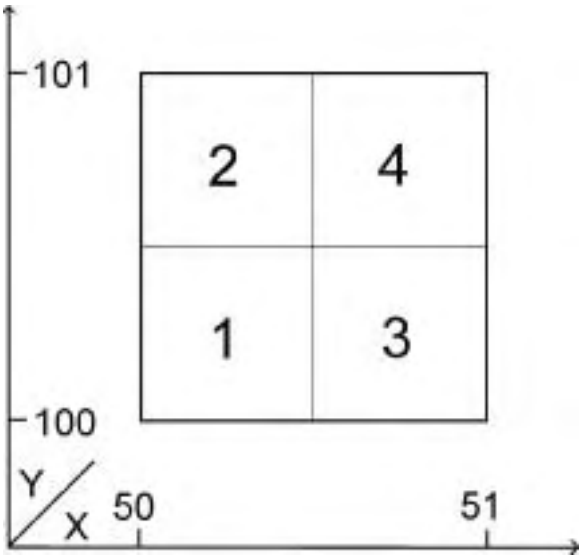

Fig. 6.1. The method of mapping and presenting artefact distributions is based on square metre grid systems, where each square metre is divided into four quadrants.

As a consequence of the focus on spatial organisation, the 1995 and 1996 field seasons employed horizontal excavation on sites which, during reconnaissance (Jensen *et al.* 1995), had proved promising with respect to the possible preservation of dwelling structures. During all of these excavations, artefacts were mapped in 0.25 m² units and/or individually plotted to facilitate analysis of their spatial distribution relative to dwelling features. The method of mapping used is based on a square metre grid system where each square metre is designated by the co-ordinates of its lower left corner. The four 50 x 50 cm units within each square metre are subsequently designated by numbers from 1 to 4 beginning with the lower left quadrant numbered '1', followed by the upper left quadrant numbered '2', '3' is the lower right quadrant, and '4' is the upper right quadrant (Fig. 6.1). Designation of quadrant no. 3 on fig. 6.1 will thus take the following form: x50/y100:3.

Lithic distributions are represented by a combination of circles of increasing size denoting increasing concentrations within each 0.25 m² or by the plotting of symbols showing individual tools. The use of circles to illustrate debitage or total lithic distributions represents a graphical manipulation of the data (Cziesla 1990). It has been decided here to use 'peripheral mapping' (Cziesla 1990), implementing count units of increasing size. Peripheral mapping plays down high concentrations and accentuates intermediate ones. It

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has the advantage that minor changes in density within the medium range values are highlighted graphically. This enables the visualisation of wall lines, whereas the equidistant mapping with implement count units increased by constant numbers of objects per 0.25 m² has a tendency to be dominated by extreme concentrations (Jensen 1993, 1994a). The exact size and rate of increase of the count units have been varied between the different localities. On sites with low numbers of lithics, the count units have minimum categories of one to three objects and usually the number of artefacts increases by a factor 2 when the size of the circle increases. This means that the maximum number of artefacts per count unit is doubled when the size of the circle increases by one notch. On sites with dense and very rich lithic scatters the count units are increased to allow for larger increases in the number of artefacts for each increase in circle size. In the case of Annertusuaqqap Nuua, there are rich midden deposits in front of the dwelling, so here the count units have been increased by a factor of 3, which triples the maximum number of artefacts each time the size of the circle is increased by one notch.

The artefact distributions have been superimposed on line drawings of the dwelling and hearth features mapped in the field, in order to facilitate visual inspection.

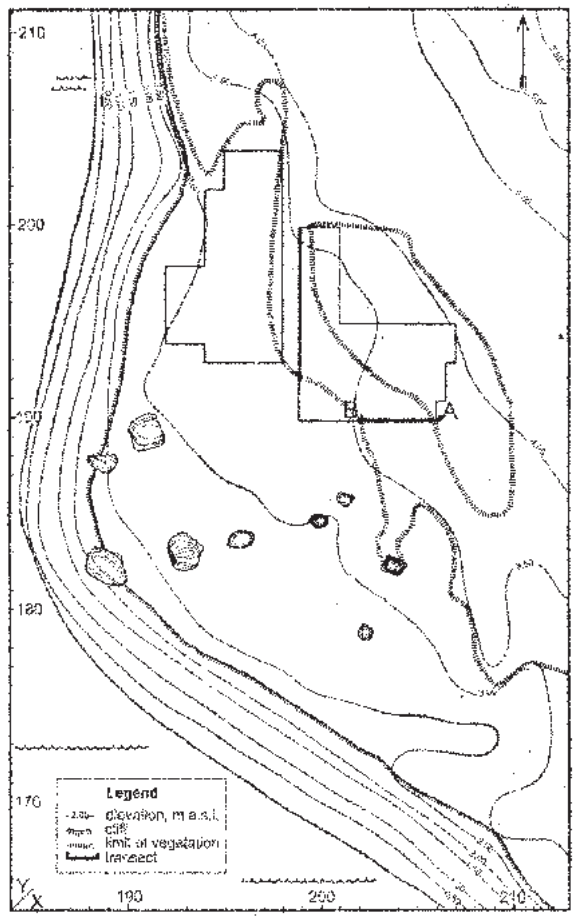

Fig. 6.2. Excavated units at the Saqqaq site Orpissooq East. The site is situated on deflated gravel terraces adjacent to a river outlet at the head of the fjord Orpissooq.

Orpissooq East

Orpissooq East (site no. 87) is a Saqqaq site situated on partially-deflated gravel terraces on the northern shore of the river outlet at the head of Orpissooq Fjord. A few hundred metres to the west lies the Dorset site of Orpissooq West (site no. 86). Earlier publications (Hansen & Jensen 1991; Jensen 1993) suggest that Orpissooq East is a Saqqaq summer camp focussed on the exploitation of char and with access to caribou in the hinterland. When analysing the finds and features, Jensen (1993) suggested that the site could be divided into three zones: 1) domestic activities centred around a hearth (feature A), apparently a rudimentary mid-passage hearth or box hearth with adjacent working platform and cleared-out fire-cracked rocks, 2) specialised activities around a large circular hearth with fire-cracked rocks but no adjacent finds (feature B), and 3) an area of generalised tool repair and retooling characterised by small open-air hearths made of fire-cracked rocks with adjacent lithic tools.

Initially all of the excavated features and finds were believed to be of Saqqaq origin, but a radiocarbon date (AAR- 2709) for one of the caribou bones excavated from the culture layer indicates that Dorset people also frequented the site. The following sections will discuss the Orpissooq West site in the light of a Dorset intrusion, and the former conclusions will be re-evaluated.

The site was investigated by Qasigiannguit Katersugaasiviat in 1989 (Hansen & Jensen 1991), and a total area of 98 m² was excavated (Fig. 6.2). Eleven stone-set features, designated A to K (Fig. 6.3), and a total of 28 tools and 507 flakes were registered from the excavated area. Apart from two bone fragments, identified as caribou, no organic material was preserved.

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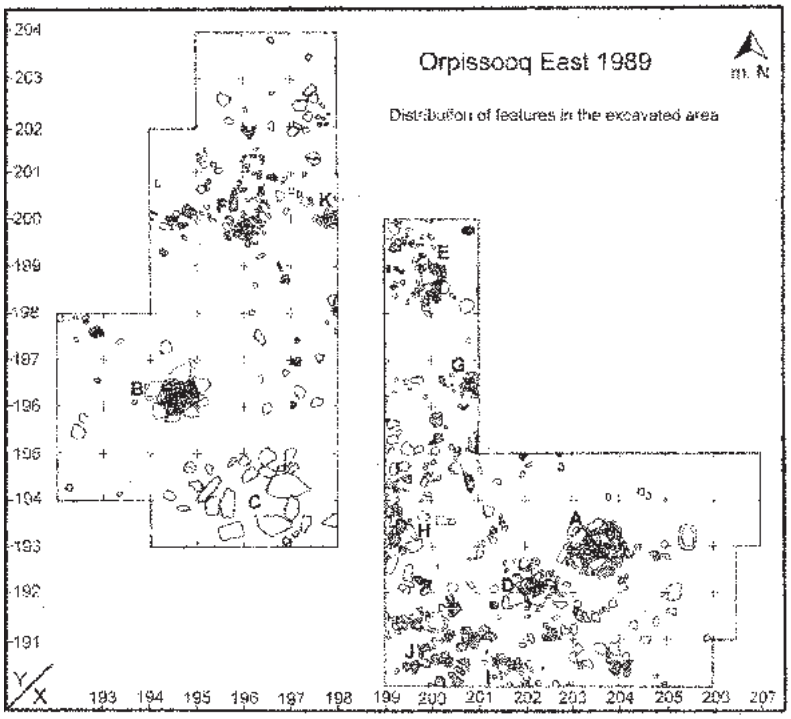

Fig. 6.3. Location of features in the excavated area.

Site location

Orpissooq East is the only excavated Palaeo-Eskimo site from Qeqertarsuup Tunua located on a river outlet at the head of a fjord. Orpissooq Fjord is surrounded by hills of relatively low relief with a thin cover of vegetation on the lower slopes. The site is situated on the southernmost tip of a promontory dominated by gravel and sand deposits in former delta terraces. The point separates the head of Orpissooq Fjord from a large broad expanse of water created at the confluence of Akullinnguup Kuua and another large river flowing from ice-dammed lakes to the northeast. The head of Orpissooq Fjord is characterised by a large delta where numerous waterfowl forage. Further to this resource, the locality should be viewed as a gateway to the hinterland with a small herd of caribou. Today, the river outlet is a popular locality for netting arctic char, and there are several smoking chambers of recent origin in the vicinity of the Palaeo-Eskimo sites.

Stratigraphy

Most of the excavated area was heavily deflated and lithic artefacts rested directly on the exposed natural sands and gravels. In places, the cultural deposit was protected by up to about 50 cm of aeolian sand consolidated by the growth of willow. In these areas it could be seen that the Saqqaq horizon rested directly on the gravel natural. On top of the brown to black stratum with Palaeo-Eskimo artefacts was up to 5 cm of grey to light-brown silt. Over this there was aeolean sand. The sand deposits covering the site are characterised by numerous thin lenses of alternatively pale white and darker brown sand with a higher organic content (Fig. 6.4).

Feature descriptions

Feature A is a 140 x 100 cm hearth which could have belonged to a mid-passage dwelling but which could also be an open-air hearth with an associated dump of fire-cracked rocks. The stone-set hearth box was filled with fire-cracked rocks embedded in a thick layer blackened by ash. The northeastern section of the feature comprised a flagstone platform (Fig. 6.5).

Feature B is a 140 x 120 cm stone-set circular hearth built of large boulders measuring up to 40 x 50 cm (Fig. 6.6). Within the boulder frame there were fire-cracked rocks partially embedded in a sandy layer blackened by ash.

Feature C is an approximately 250 x 180 m large oval arrangement of boulders believed to be a cache. No finds were made here.

Feature D is a 180 x 80 cm aggregation of fire-

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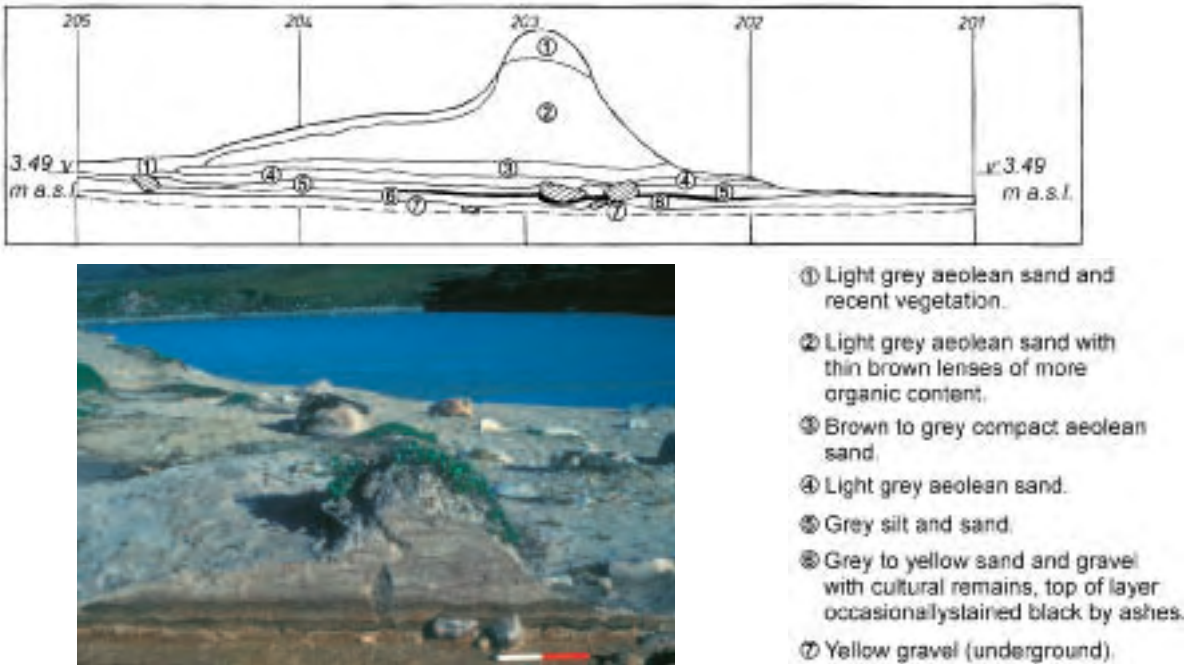

Fig. 6.4. Section x201/y190 – x205/y201. Artefacts have only been located in layer 6. In some areas the top of layer 6 was stained black by ash.

cracked rocks, flagstones and boulders imbedded in an ash-filled deposit (Fig. 6.7). Feature D is located just 50 cm to the southwest of feature A and it has been suggested that originally it may have been part of a mid-passage which included feature A (Jensen 1993).

Feature E is a 90 x 60 cm concentration of fire-cracked rocks (Fig. 6.8). A few small flagstones lay among these, and a single 25 x 30 cm flat rock had been placed in the centre of the arrangement.

Feature F is an irregular concentration of fire-cracked rocks, flagstones and patches of ash centred around x196/y200, and extending approximately 2 m towards the north. A frost heave running from x196/y200.5 towards the north may have disturbed part of the feature.

Feature G is an almost circular 40 x 50 cm concentration of fire-cracked rocks embedded in a thin lens of black ash. In the centre of the feature there was a flagstone measuring approximately 20 x 20 cm (Fig. 6.9).

Feature H is a c. 50 x 50 cm square box of rocks and flagstones (Fig. 6.10). One of the flagstones may be a fallen capstone. Inside the box was a well-defined, almost square deposit of sand and ashes, which also contained numerous small chalcedony retouch flakes and fragments of burnt bone. A tooth has been identified as caribou. The well-defined outline of the deposit within the box led the excavators to the conclusion that the flagstone box could have been built around a small square container holding burned and smashed caribou bones, which had been placed as a sort of offering (Hansen & Jensen 1991). However, an alternative functional interpretation has been offered by Jensen (1993), where the feature is thought to be a specialised hearth. Both of these possibilities remain open. However, in light of the Dorset date for a piece of caribou bone from the nearby square x197/y196:4, combined with the fact that many retouch flakes of chalcedony were found in relation to feature H, this may indicate that feature H is a younger intrusion left by Dorset occupants.

Feature I is a 75 x 50 concentration of fire-cracked rocks with no larger construction stones.

Feature J is a concentration of flagstones located in squares x199/y190, x200/y190, x199/y191 and x200/y191. In addition to flagstones, the entire area was characterised by large amounts of ash.

Feature K is a 40 x 40 cm heap of fire-cracked rocks located around x198/y200. A single slab lay among the stones, but only a little ash was associated with the feature.

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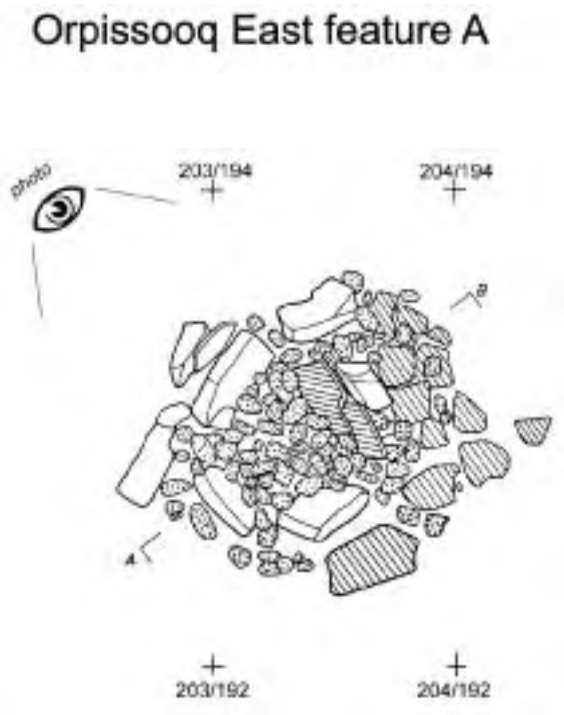

Fig. 6.5. Orpissooq East feature A box hearth with adjacent flagstones. The hearth may be a partially disturbed mid-passage feature. Photo and drawing Jens Fog Jensen.

Lithic finds from Orpissooq East

28 of the 713 artefacts represent tools, whereas the remainder comprises debitage (Table 6.1). Considering the number of features, there are few tools at the Orpissooq site and only a small number of these are complete specimens. The lithics clearly indicate that the Saqqaq occupation at Orpissooq East was of short duration. Retouched flakes constitute the most numerous tool type, but apart from these no specific tool category stands out as being particularly dominant.

Lithic raw materials

The lithic assemblage is dominated by a large number of flakes of the locally available Angissat killiaq, which make up 80% of the total (Fig. 6.11). However, chalcedony comprises more than 30% of the tools and microblades. Several of the tools could, however, be of Dorset origin, making it difficult to evaluate the true composition of the Saqqaq inventory.

Spatial distribution of artefacts

Spatial analysis of the artefacts and debitage has shown that most of the tools are related to one of the open-air hearths (Fig. 6.12). Most hearths have three to five tools deposited nearby in what has been characterised as a tool-hearth concentration (Jensen 1993).

Adjacent to feature A there are five to six retouched flakes and a single unidentified tool frag-

Table 6.1. Lithic artefacts at Orpissooq East.

	No.	%	All artefacts	%
Bifaces, all fragments included	5	17.9		
Microblades	3	10.7		
Burins	1	3.6		
Burin spalls	1	3.6		
Side-blades	1	3.6	28	3.9
End-scrapers	3	10.7		
Retouched flakes	9	32.1		
Core/nodule	1	3.6		
Tool fragment	4	14.3		
All flakes			685	96.1
Total	28	100.1	713	100

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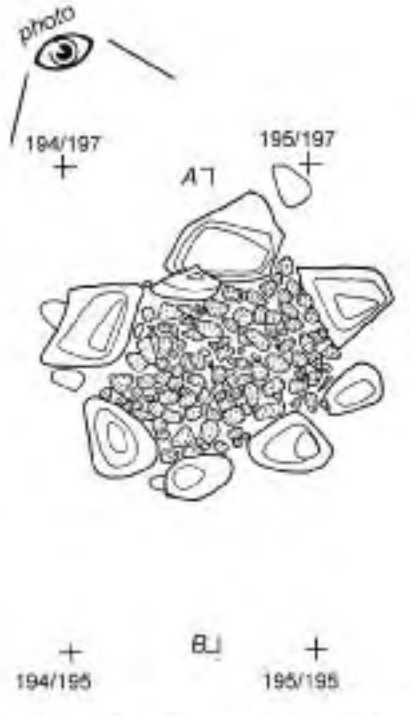

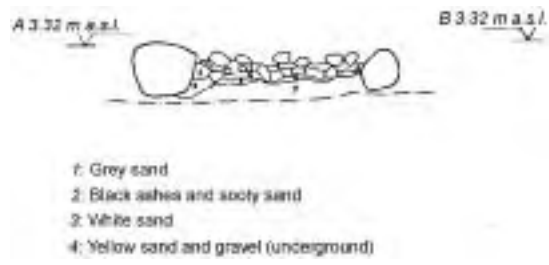

Fig. 6.6. Orpissooq East feature B is a relatively large circular stone-set hearth filled with fire-cracked rocks. It is situated in an area virtually devoid of artefacts. Total length of scale: 40 cm. Photo and drawing Jens Fog Jensen.

ment. In the vicinity of feature B there is just a single unidentified tool fragment. The two most prominent features are remarkable in being related to exceptionally few artefacts and this applies to both tools and debitage. In the first analysis of Orpissooq East (Jensen 1993), it was suggested that feature A could have been located in a tent, whereas feature B more likely should be seen as a hearth within a specialised activity area also encompassing cache feature C. The remainder of the hearths, as well as the lithic scatters, were believed to result from several open-air activities carried out in the vicinity of small expediently-built hearths with fire-cracked rocks. The killiaq and the chalcedony can both be divided into sub-categories according to colour. Several of these have similar distributions, suggesting that they are lithic varieties within the same tool or nodule rather than discrete episodes of napping. It is possible to separate three different general distributions of debitage: 1) patinated yellow killiaq of the Angissat type, 2) grey killiaq varieties, 3) chalcedony.

1) The patinated killiaq of Angissat-type forms two major clusters centred on x196/y203 and x199/y199 (Fig. 6.13). The only obvious cluster further to these two knapping sites is located in and just around unit x201/y193. However, this concentration has only between one and seven flakes per 0.25 m^2, which is much less than the concentrations in the two main clusters in the northern part of the excavation.

2) The grey killiaq is scattered in the same broad band as the patinated killiaq of Angissat-type with the important exception that virtually no grey killiaq flakes are found in the 0.25 m^2 grids containing the densest scatters of Angissat killiaq (Fig. 6.14). The debitage of grey killiaq clearly relates to the area where the open-air hearths and tools were deposited, but not to the exact locations where heavy reduction of Angissat killiaq occurred.

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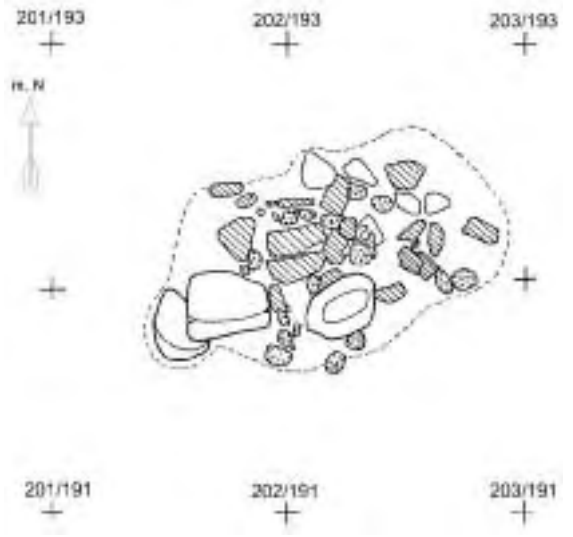

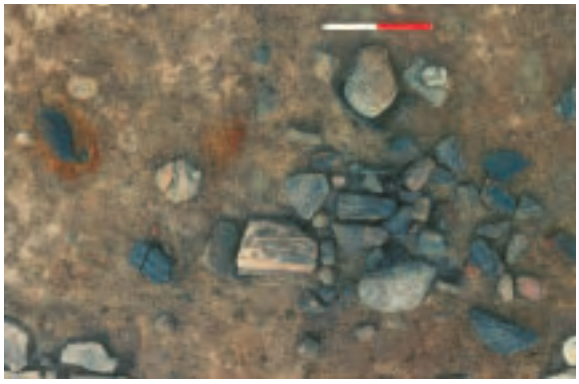

Fig. 6.7. Orpissooq East feature D. This feature comprises an irregular aggregation of boulders, fire-cracked rocks and flagstones surrounded by ash. The feature is situated just 50 cm to the southwest of feature A and it may originally have been part of a mid-passage feature encompassing features A and D. However, it is equally possible that feature D is an expedient hearth similar to features G, E and K. Total length of scale: 40 cm. Photo and drawing Jens Fog Jensen.

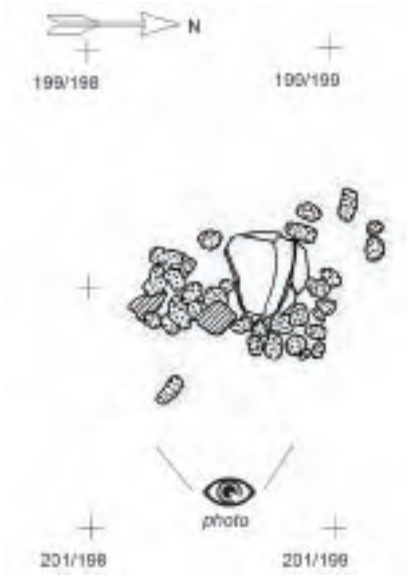

Fig. 6.8. Orpissooq East feature E is an aggregation of fire-cracked rocks with a single flat stone placed at the centre. There are several tools nearby. This feature is believed to be an expedient open-air hearth. People may have enjoyed a snack and carried out retooling and repair of tools while seated around the fire. Total length of scale: 40 cm. Photo and drawing Jens Fog Jensen.

3) Debitage of chalcedony has a more restricted distribution than that of killiaq (Fig. 6.13). The largest concentration lies in x199/y196 and a minor cluster is seen in x199/y193, adjacent to feature H, where many retouched flakes were found in the sediment within the slab box. Apart from these two clusters, there are only isolated occurrences of one to three chalcedony flakes per m². It is possible that many of the chalcedony flakes, as well as some of the chalcedony tools, are of Dorset origin and not part of the Saqqaq inventory. The caribou bone which gave the Dorset date (AAR-2709) was recovered from x197/y196:4, which is close to the main concentration of chalcedony flakes, but on the western side of the baulk.

Radiocarbon date

A caribou bone from x197/y196:4 has been radiocarbon dated to 225±55 b.c. (AAR-2709). Within one standard deviation, the calibrated values for this date fall into the intervals between 360-270, 260-160 and 130-120 cal B.C. The caribou bone appears, therefore, to be of Dorset origin. The location of the dated sample in the central part of the site, where artefacts of chal-

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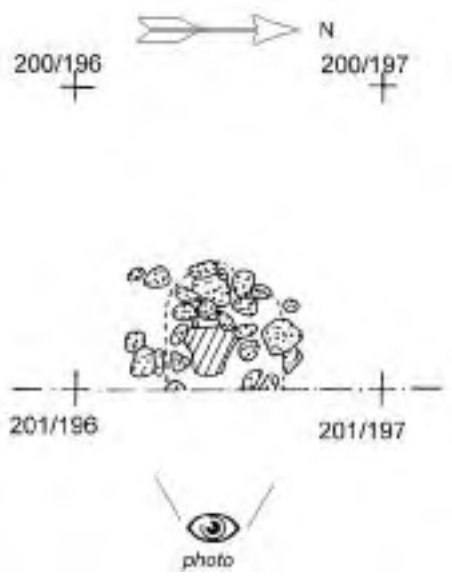

Fig. 6.9. Orpissooq East feature G is smaller than feature E but comprises, similarly, an aggregation of fire-cracked rocks with a single flat stone at the centre. Several tools were also found in the vicinity of this hearth. Total length of scale: 40 cm. Photo and drawing Jens Fog Jensen.

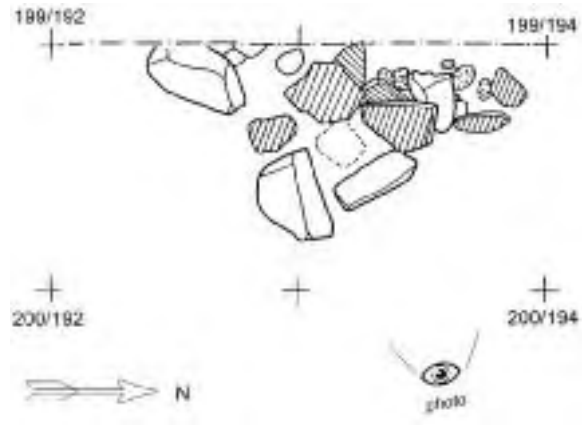

Fig. 6.10. Orpissooq East feature H is different than all other features on the site. No fire-cracked rocks were associated with this little box of flat stones. Inside the box was sediment stained black by ash and containing fragments of burnt bone and enamel. This feature is believed to be of Dorset origin. Total length of scale: 40 cm. Photo and drawing Jens Fog Jensen.

cedony are concentrated, indicates that there probably is a Dorset component in addition to the dominant Saqqaq relics.

Summary of the Orpissooq East Site

The majority of the lithics appear to have been deposited in an open-air environment unconstrained by walls or architecture but with a clear tendency for tools to be aggregated around the hearths. The earlier suggestion of a possible tent around feature A remains unresolved, since no tent ring was registered. All features, with the exception of feature A, are believed to be open-air features left during one or maybe two episodes of temporary settlement by Saqqaq people. This interpretation is largely similar to the one offered previously (Jensen 1993). Taking the Dorset date into account, one could suggest that many of the chalcedony artefacts, as well as the somewhat odd feature H, comprise a Dorset component that should not be considered part of the Saqqaq settlement. Following the same line of argument, the disturbed appearance of features F and parts of the lithic scatters may be the result of Dorset trampling rather than re-occupation by Saqqaq people as previously suggested (Jensen 1993). These possibilities do not, however, alter significantly the initial interpretation of a short-term settlement divided into three different zones of activity: 1) a domestic area, 2) a generalised activity area and 3) a specialised activity area (Fig. 6.15). If the initial sug-

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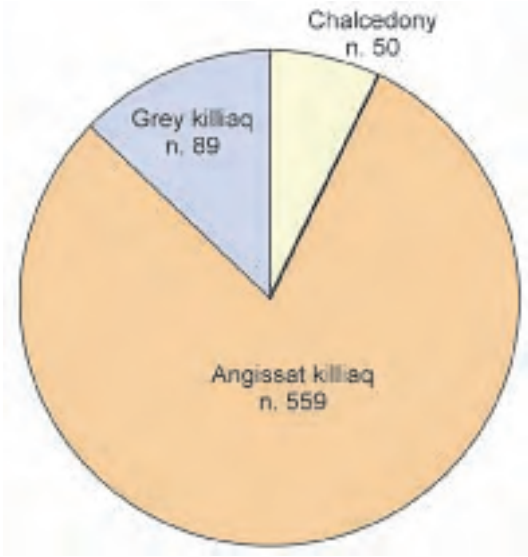

Fig. 6.11. Orpissooq East. Raw material frequencies. Primary knapping of one or maybe two nodules of Angissat killiaq make this raw material dominant.

gestion of a tent in the domestic area is omitted, one can instead imagine a gender-specific division of the occupation area. The domestic area could have been the hearth and seating area preferred by females, whereas the 'generalised activity area', with the less well-built hearths, may be the result of male activities.

Ikerasak

'Ikerasak' (site no. 148) is the Saqqaq site located furthest from the open sea in the study area. The lack of evident dwelling structures, the limited lithic inventory and its situation on a narrow with a strong current have led me to conclude that Ikerasak was a spring or warm season settlement of very short duration, and that a tent was probably never erected at the site. As with the Orpissooq site, it is suggested that Ikerasak was left by a task-specific group of adult, probably male, hunters, who did not bother to erect any kind of formal dwelling structures.

Ikerasak was recognised as a Palaeo-Eskimo site in 1995 during a survey of Amitsuarsuk and Ikerasak Sounds (Jensen *et al.* 1995). During the 1996 field season the site was selected for excavation due to its location far from the outer coast. The landscape in this area is characterised by gently sloping hills with grasses, crowberry and scattered willow as the dominant vegetation. Between the hills there are widespread sedimentary deposits of gravel and clay often with patterned ground. The Saqqaq camp is located on a little gravel ridge in an area of patterned ground close to Ikerasak Sound. The vegetation on the patch of gravel is dominated by lichens, whereas the sur-

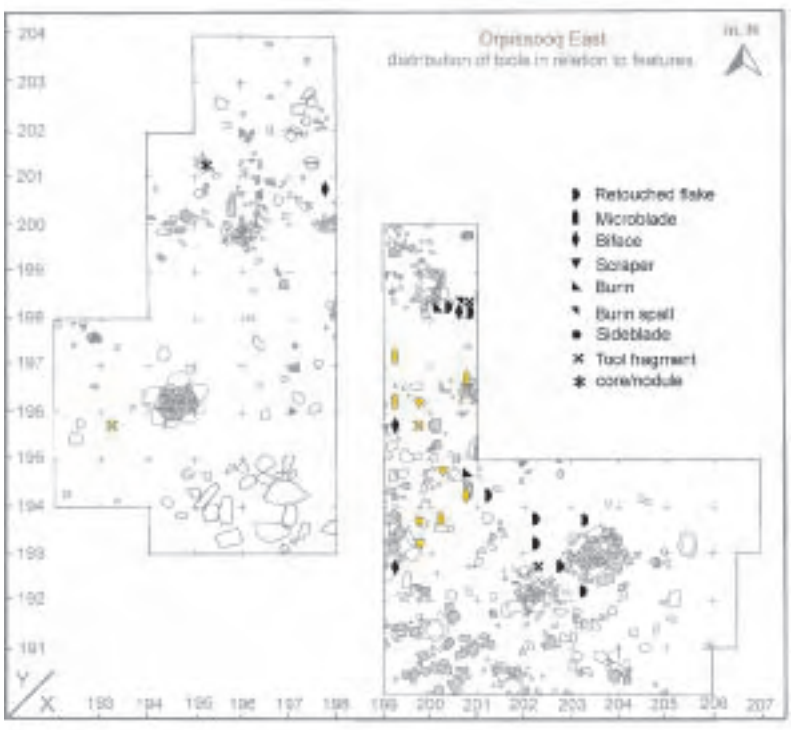

Fig. 6.12. Distribution of tools in relation to features. Tools of killiaq are marked with black symbols whereas tools of chalcedony are marked with yellow.

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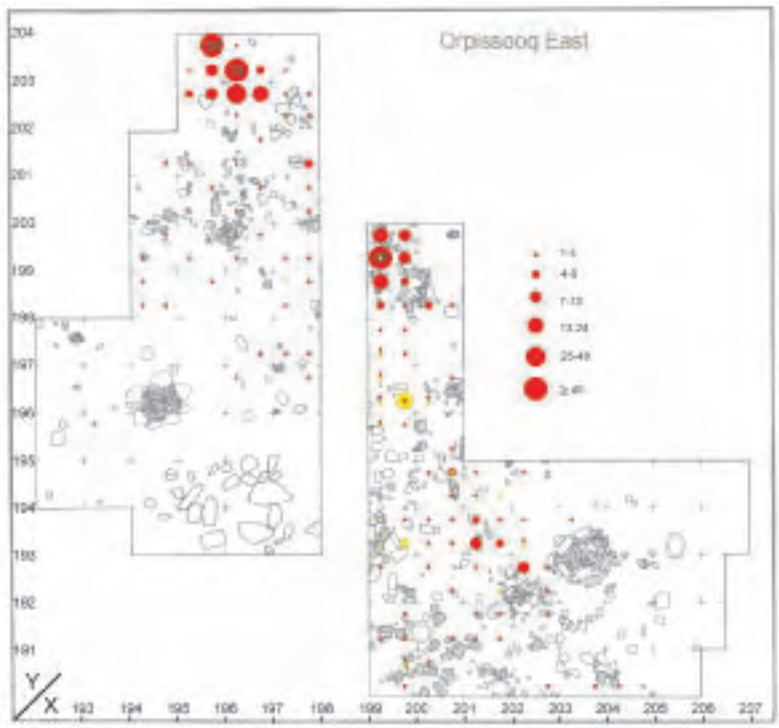

Fig. 6.13. Distribution of Angissat killiaq and chalcedony at Orpissooq. Primary killiaq knapping sites are located adjacent to open-air hearths in the northern part of the excavated area. Chalcedony is concentrated around and to the north of feature H in the central part.

rounding patterned soil is covered by grasses, willow and dwarf birch. During the survey, a flake was found under a flagstone in the central part of the structure, and a number of stones forming a crescent were believed to be the remains of a dwelling. However, during excavation the structure appeared much less clear as the covering lichens were removed.

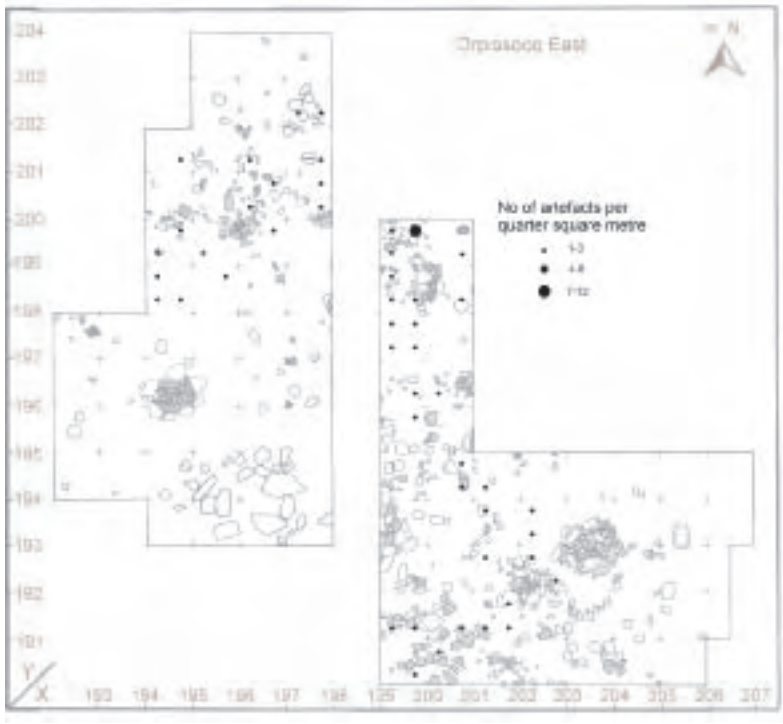

Fig. 6.14. Distribution of grey killiaq. Tools and debitage of grey killiaq lie scattered throughout the general area of lithic distribution with no major clusters.

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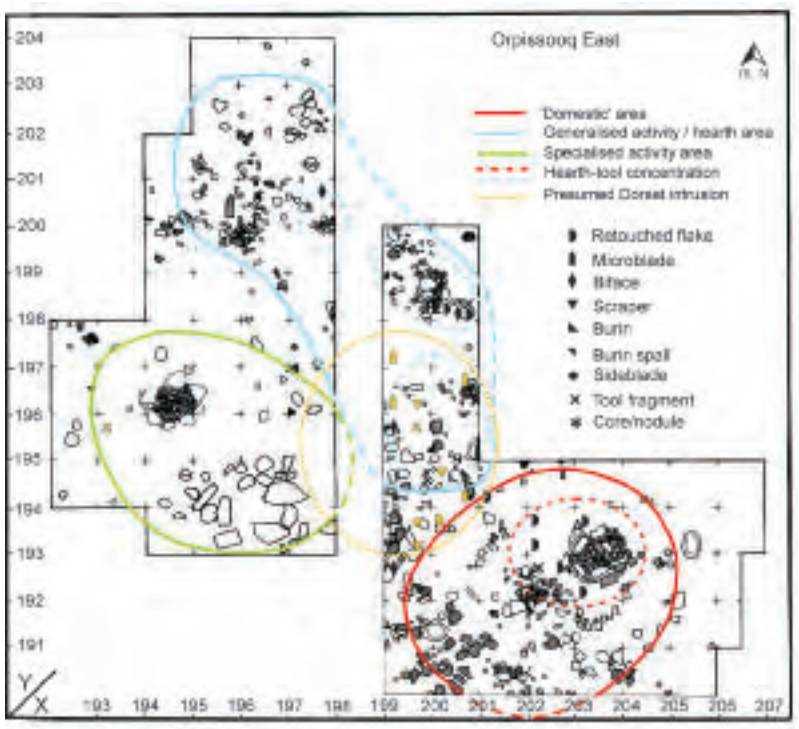

Fig. 6.15. Interpretation of the lay-out at Orpissooq East. Tools of killiaq are marked with black symbols, tools of chalcedony with orange. The cluster of tools of chalcedony in the vicinity of feature H is believed to result from a later Dorset component.

Site location

The site is situated at an elevation of 9 m a.s.l. and approximately 80 m from the shore, and there is a good view of the narrow and the surrounding hills (Figs 6.16 and 6.17). It is difficult to judge whether specific resources such as mussels, waterfowl in an early opening in the ice, or migrating caribou prompted the site location, but it seems likely that the topography was decisive. Arriving by water, the narrow in Ikerasak Sound, at most times of the day, constitutes an obstacle necessitating the carrying of craft over a few hundred metres of land. Alternatively, if one is hiking in an east-west direction, the narrow is a natural fording place. In both cases, the locality is a natural place to rest, so the camp may also have been constructed simply for the purpose of resting during a longer journey.

Excavation took place from 21st to 23rd July 1996. A grid was laid out to cover the entire structure discov-

Fig. 6.16. View of narrow in Ikerasak Sound at low tide. The location of the Saqqaq feature is marked with a circle. Photo Jens Fog Jensen.

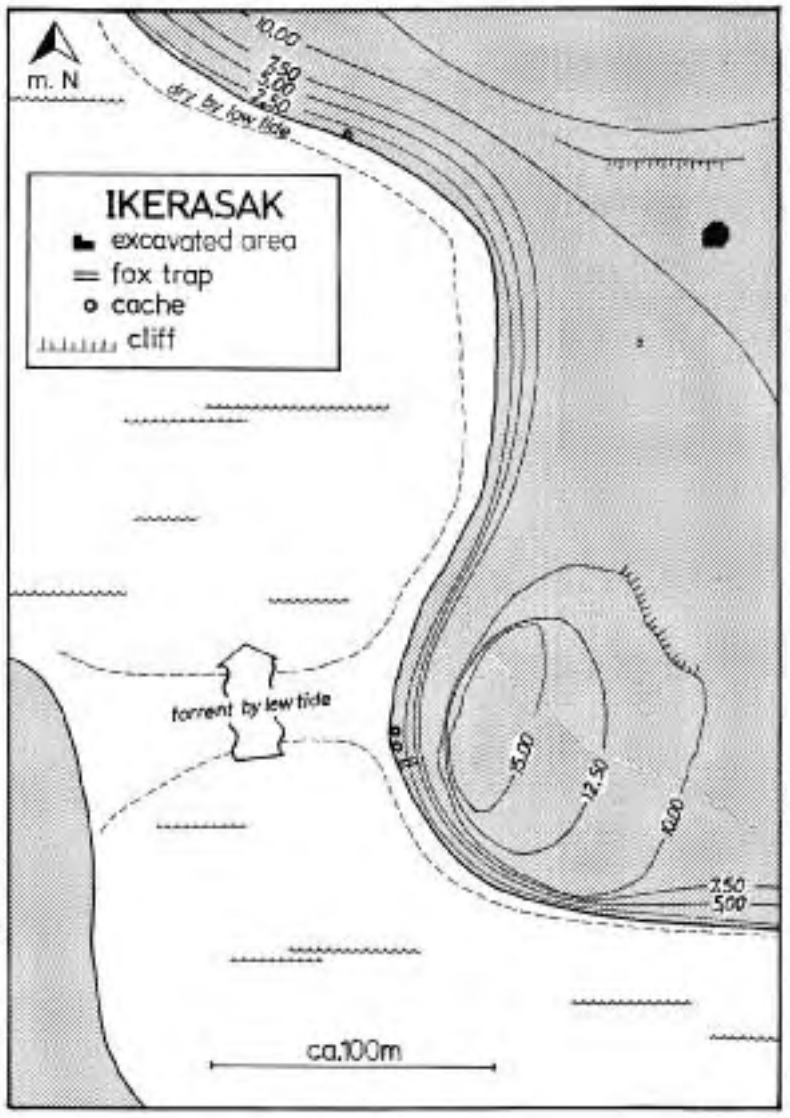

Fig. 6.17. The Ikerasak site is situated adjacent to a narrow where a strong current flows in and out of Ikerasak Sound as the tide turns.

ered during survey, and a total area of 30.75 m² was excavated.

Feature description

At the centre of the excavated area there was a hearth with fire-cracked rocks scattered around a diffuse aggregation of boulders (Fig. 6.18). No definite periphery could be seen, but in the northwestern part of the excavated area there were six stones forming a crescent. The position of these is consistent with them being part of a boulder tent ring with a diameter of 3-4 m and with the hearth located in the south-facing opening. The locality had evidently only been used for a short period of time during a single episode of occupation. It is therefore unlikely that the feature had been disturbed by later occupations, and its temporary character seems to result directly from the character of the dwelling.

Artefacts

Only lithic artefacts have been recovered from Ikerasak, and the inventory comprises a total of 454 flakes and eight tools (Table 6.2). Three raw materials are represented at Ikerasak: 1) patinated yellow killiaq of the type known from the island of Angissat, 2) grey killiaq believed to originate from the Nuussuaq Peninsula, and 3) white translucent chalcedony. The Angissat killiaq constitutes 98% of the lithics due to the primary reduction of a nodule of this raw material (Fig. 6.19).

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Table 6.2. Lithic artefacts at Ikerasak.

	No.	%	All artefacts	%
Harpoon blade	2	25	8	1.7
Burins	1	12.5		
Burin spalls	1	12.5		
Retouched flakes	4	50		
Flakes			454	98.3
Total	8	100	462	100

Bifacial blades are represented by two proximal fragments of straight-based end-blades both produced from flakes of patinated killiaq of Angissat type (Fig. 6.20: 2 and 3). The width of the two basal fragments is 1.7 and 1.3 cm respectively. The smaller blade could be a large harpoon end-blade, but it is more likely that both are points for light spears of the type shown by Grønnow (1994:224).

Burins are represented by a complete specimen and a burin spall. The former is made of clear, slightly greenish chalcedony with darker inclusions. This burin shows a typological resemblance to Independence I burins, since it had been produced from a bifacially chipped flake with a tapering stem shaped by retouch at the proximal end. Distally, only a single burin spall had been removed from the lateral edge. The 11 x 3 x 1 mm burin spall is of grey killiaq with bilateral polish indicating that it had been struck from a burin of common Saqqaq type.

Flakes: most are of the patinated type of killiaq known from the outcrop on the island of Angissat. Only four are of white chalcedony and two of grey killiaq, presumably from the outcrops on the northern shore of Nuussuaq. The majority of the flakes of the Angissat killiaq were recovered from a 10 cm deep pit dug into the sub-soil on the southwestern side of the hearth. This concentration of buried flakes is seen on the distribution map (Fig. 6.22) as the maximum occurrence of 383 flakes in 97/50:2. The remainder of the flakes lie scattered from the pit to the south and east. However, in most units there are only between one and three flakes, of which all are centred on the hearth. Re-fitting of the flakes from the pit has shown

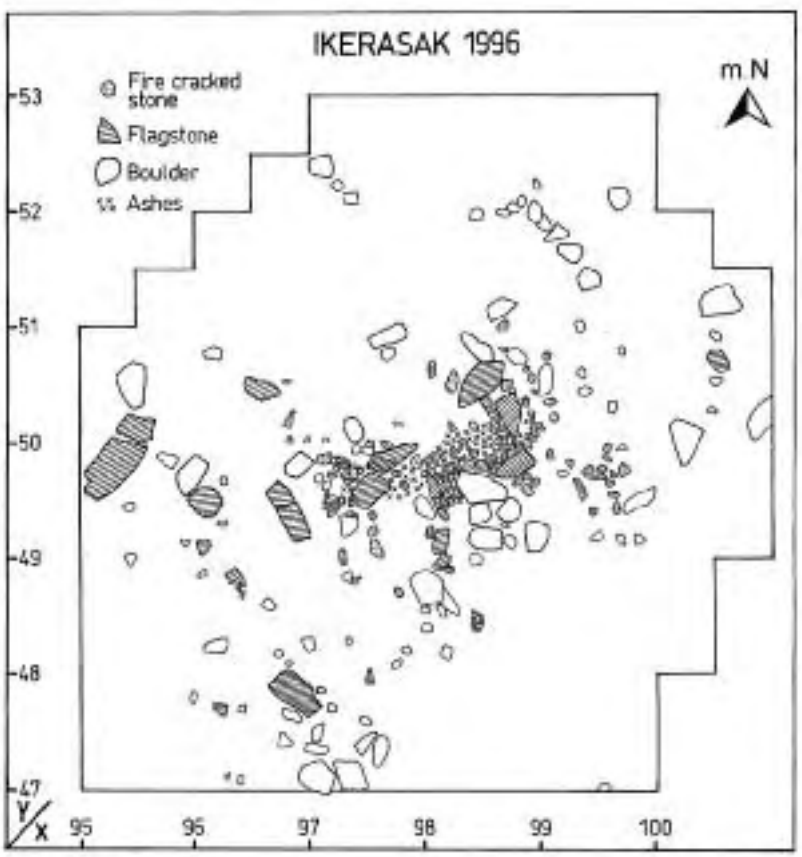

Fig. 6.18. Hearth with fire-cracked rocks at Ikerasak. There is no well-preserved tent ring, but several stones at a distance from the hearth may be the rudimentary remnants of one.

that they all apparently originate from the reduction of a single nodule, which apparently was only slightly reduced prior to the knapping that occurred at Ikerasak. The refitted flakes indicate that reduction aimed at the production of a biface, but it has not been possible to join the four series of refitted flakes, each of which forms a curved series of flakes, like the segment of an onion ring. Several large flakes were presumably taken away, in addition to the preformt or finished blade. The origin of the four flakes of white chalcedony is difficult to evaluate, since none fit together and they have no particular characteristics apart from the fact that two of them are too large (>1 and 2 cm) to be retouch flakes. The two flakes of grey killiaq could be specimens that, for some reason, have not developed patina. However, all other flakes are patinated, apart from a burin spall from 98/50:2, which has also kept its original appearance. This indicates that the 3 cm and 2 cm flakes of grey killiaq were carried to the site as expedient knives.

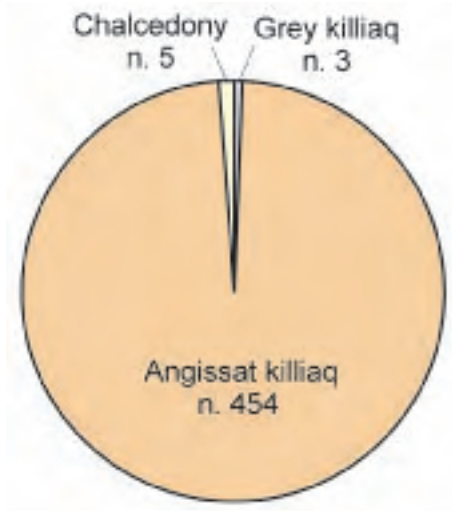

Fig. 6.19. The lithic assemblage at Ikerasak is dominated by patinated killiaq of the type known from Angissat. Most, if not all, of the flakes of this raw material result from the primary reduction of a nodule.

Fig. 6.20. Selected lithic artefacts from Ikerasak. 1) burin of clear to greenish translucent chalcedony with dark inclusions from x98/y50:2; 2) basal fragment of small triangular end-blade of Angissat killiaq from x97/y50:2; 3) basal fragment of small triangular end-blade of Angissat killiaq from x96/y50:3; 4) flake of white translucent chalcedony from x98/y48:2; 5) flake of white translucent chalcedony from x97/y49:1; 6) flake of grey killiaq from x98/y49:2; 7) flake of grey killiaq from x100/y51:2; 8) bilaterally retouched flake of Angissat killiaq refitted from proximal fragment from x98/y50:4 and distal fragment from x97/y49:3; 9) retouched flake of Angissat killiaq refitted from two fragments from x97/y50:4. Photo Geert Brovad.

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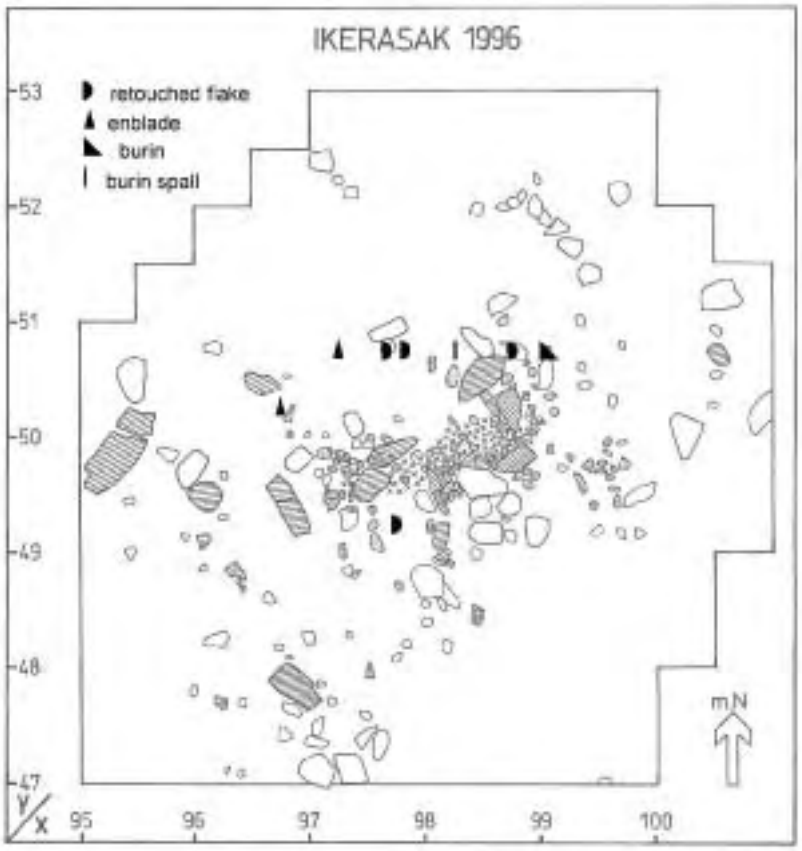

Fig. 6.21. Distribution of tools in relation to the hearth.

Spatial distribution of artefacts

Apart from a single retouched flake, all the tools lay scattered on the northwestern side of the hearth where the pit with flakes was also located (Figs 6.21 and 6.22). This distribution indicates that probably only a few individuals camped at the site, and that when activities were carried out around the fire they were seated on the northwestern side of the hearth.

Radiocarbon date

A charcoal sample from locally grown wood (Ka-6990) has been dated to 2030±70 b.c. giving a calibrated date within one standard deviation of between 2570 and 2410 cal B.C. (see chapter 9). This is a relatively early Saqqaq date (the oldest known from Qeqertarsuup Tunua) and perhaps the somewhat unusual chalcedony burin should be viewed in the light of this. Grønnow (1994) noted the presence of higher portions of chalcedony in the oldest layers at the Qeqertasussuk Site.

Summary of the Ikerasak Site

The lack of other settlements in the vicinity, combined with the limited number of tools, makes it seem probable that the Ikerasak Site has remained undisturbed since the original inhabitants abandoned it. The diffuse character of the feature reflects that there was no dwelling here or that this dwelling was of a relatively light and flimsy nature, for example a wind break. Taking the early date for Ikerasak into consideration, the inhabitants could well have belonged to the first generation of Saqqaq people in West Greenland. The presence of the unpolished burin of chalcedony may, in this respect, be seen as an early trait in the lithic technology comparable to the use of unpolished burins by Independence I, and related to the slightly more prominent use of chalcedony during the earliest Saqqaq phases, as was noted by Grønnow (1994). The Ikerasak Site should then be perceived as a short-term specialised camp used by a travelling party of just a few individuals *en route* to the interior or passing through the Ikerasak Waterway. The location of the site in the innermost part of the archipelago, and adjacent to the inland plain of Naternaq, need not result from the exploitation of inland resources. It

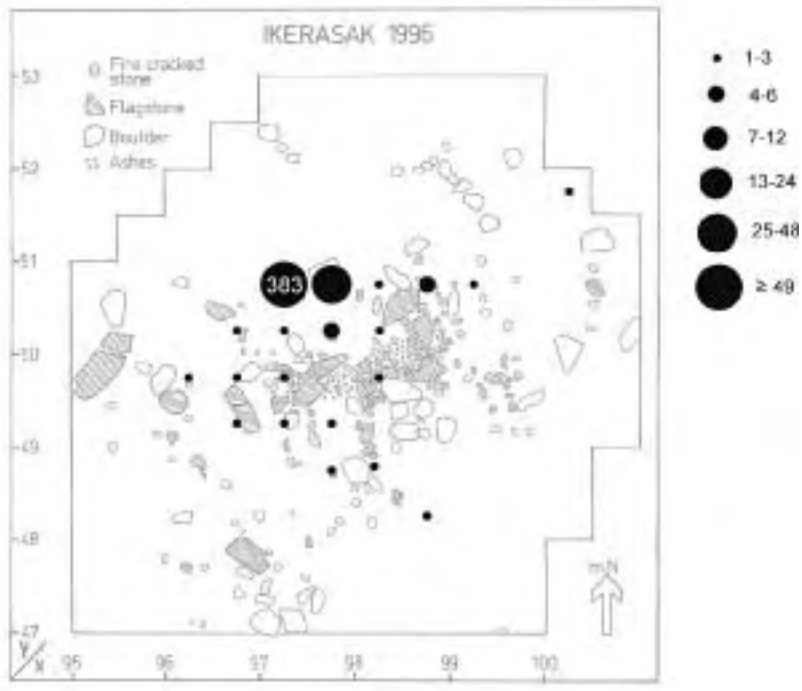

Fig. 6.22. Distribution of all lithic artefacts at Ikerasak. The high concentration of debitage in x97/y50:2 results from a heap of flakes buried in a little pit.

could also be a consequence of the fact that the direct route from the district to the south of Aasiaat to Sydostbugten in Southeastern Qeqertarsuup Tunua passes through Ikerasak Sound. Or the situation could be related to the current creating an early opening in the winter ice on the narrow. The diminutive character of the features and the lithic deposits places Ikerasak among the most temporary of Palaeo-Eskimo localities, at which dwelling structures other than *ad hoc* wind breaks or minor shelters are believed to have been absent.

Kannala

Similar to the localities of Orpissooq and Ikerasak, the Kannala Site (site no. 154) has a limited lithic inventory, but in contrast to these there is a well-preserved mid-passage tent ring. On the basis of this I will argue that Kannala was a short-term occupation, and that the 'overall morphology' of the Kannala Site results from a social composition, which probably was different from that on Ikerasak and Orpissooq. The people at Kannala required the establishment of a much more well-defined domestic space than was needed at the short-term camps of Orpissooq and Ikerasak. However, attention should be drawn from the start to the fact that there are inconsistent dates and an 'unusual' polished point which could result from in-mixing of later materials.

Site location

The Kannala Site is situated on a small point on the northern shore of the island of Kannala. The point juts into the Nerukinnera Narrow just opposite the points on which a couple of Dorset sites are located (Fig. 6.23). The sub-soil here consists of gravel and sand mixed with many larger boulders, which are also strewn over the surface. The ruin is located approximately 7.5 m a.s.l. on a level gravel terrace facing a small bay to the north of the point (Fig. 6.24).

Excavation

The mid-passage dwelling was located by chance during the 1996 excavation of the Dorset site of Nerukinnera located on the northeastern side of the narrow. A few tent-ring stones and portions of a mid-passage protruded from the thin vegetation cover consisting of lichen and scattered grasses. Closer inspection indicated that the mid-passage tent ring was well preserved, and it was decided to excavate the feature when the excavation on the Dorset site of Nerukinnera had been completed in mid-July. The thin cover of vegetation and limited finds made excavation rapid and a

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Fig. 6.23. View of the Kannala site seen from the northwest during excavation. The excavated area is marked with circle. The Nerukinnera sites (site nos. 151, 152 and 153) are situated on the point at the other side of the narrow. Photo Jens Fog Jensen.

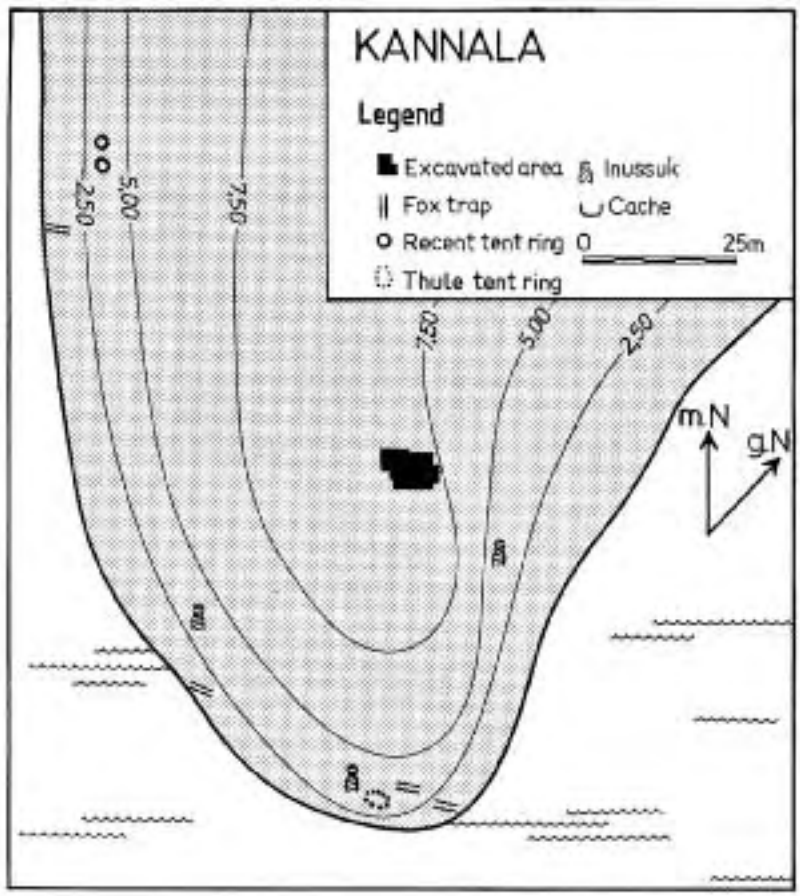

Fig. 6.24. Site map of the excavated area. A few recent tent rings, fox traps and small cairns are situated to the southwest of the mid-passage tent ring and on the tip of the point.

Fig. 6.25. Mid-passage tent ring and open-air hearth seen from the front looking east. Photo Erik Brinch Petersen.

total area of 47.75 m² was excavated within a few days (Figs 6.24, 6.25 and 6.26).

Stratigraphy

As with most of the other short-term occupations there was no stratification. All of the artefacts were found on top of the gravel. Inside the mid-passage, the latter was covered by a layer of grey silt, but otherwise the finds were located in the contact zone between the recent vegetation and the sub-soil (Fig. 6.27).

Feature descriptions

In addition to the mid-passage tent ring (feature A), an open-air hearth (feature B) was uncovered immedi-

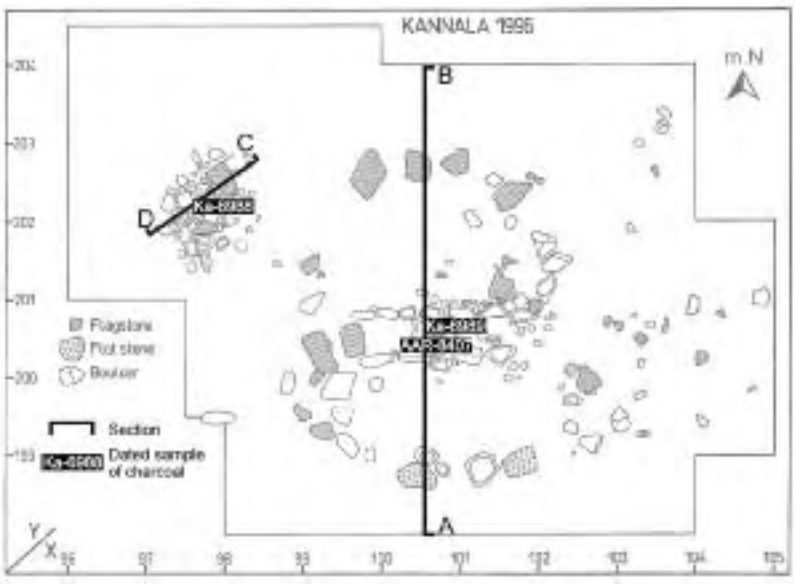

Fig. 6.26. Location of sections and radiocarbon samples at Kannala.

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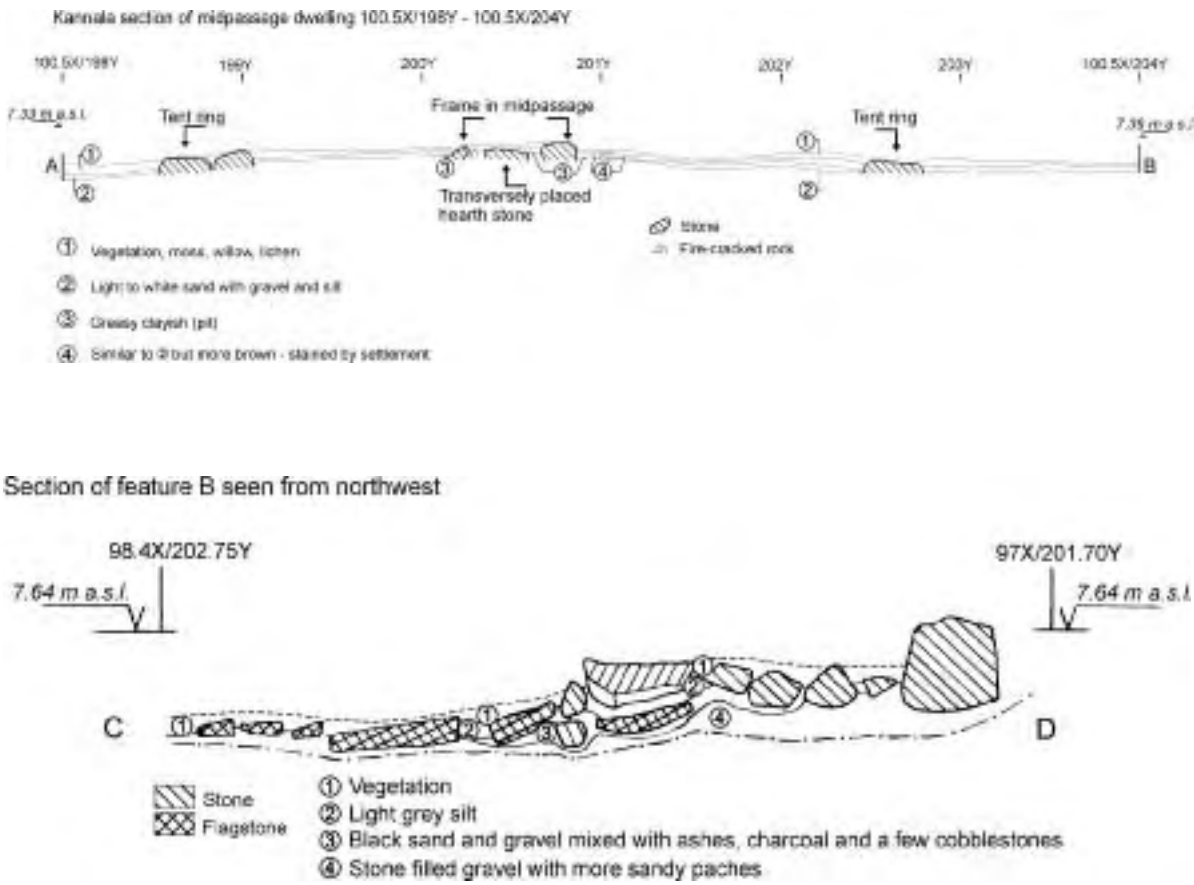

Fig. 6.27. Sections A – B and C – D. Inside the features were thin layers of grey silt, often seen on excavations of Palaeo-Eskimo campsites. Apart from these there is no stratification.

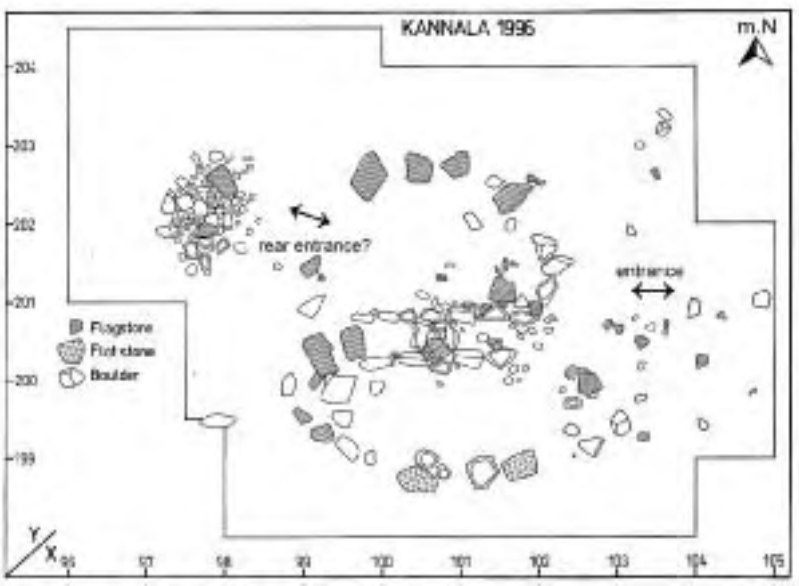

Fig. 6.28. Features at the Kannala site. The entrance is believed to have faced the waterfront to the east, but a west-facing rear entrance towards the open-air hearth is also possible.

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ately to the west or behind the mid-passage tent ring.

Feature A is an ovate boulder and flagstone tent ring with its longitudinal axis running parallel to the shore (Fig. 6.28). Internally the tent ring measures 3.6 x 2.8 m, externally 4.4 x 4 m. Along the central short axis there is a 2.6 x 0.8 m mid-passage of rounded boulders. At the western end of the mid-passage there are two large flagstones, although the westernmost of these may have been part of the tent ring and not the pavement of the mid-passage. The hearth is located in the centre of the mid-passage, where two transversely placed boulders define a 40 x 40 cm compartment. Both have flat sides, which originally faced the hearth box. The hearth box is paved with a single flagstone, and there were 11 fist-sized fire-cracked rocks situated in the hearth and in its immediate vicinity. Only a little charcoal was recovered from the hearth. Facing the water's edge, the entrance lay at the eastern end of the mid-passage, where tent-ring stones were absent in the southeastern part of the periphery. The southern portion of the tent ring is made up of rounded boulders and large flat stones, whereas the northern periphery almost exclusively comprises large flat stones. In the northwestern part of the tent ring, one or more stones were missing from the periphery in the area towards the open-air hearth. The large flagstone seen in feature B may then originally have been placed in the tent ring, but it is also possible that the missing tent-ring stone marks a genuine secondary entrance facing the open-air hearth.

Feature B is an approximately 1 x 1 m, somewhat disturbed, open-air hearth filled with fire-cracked rocks. Unfortunately this feature was too disturbed for its original appearance to be ascertained, but the presence of several boulders in between the many fire-cracked rocks suggests that the hearth was probably of the circular or box-shaped boulder-outlined type as also seen at other Saqqaq sites.

Artefacts

Despite the meticulously built mid-passage tent ring, the lithic inventory of the Kannala Site proved to be surprisingly poor. A total of just 20 flakes and 13 tools and microblades were recovered from the excavated area (Table 6.3 and Fig. 6.29).

Débitage: Eight to ten of the flakes are large specimens measuring between 2 and 5 cm. All of these flakes are unique in their raw material, and they have no matching counterparts. They must have been brought to the site from elsewhere, and they should be seen as raw materials or nodules rather than waste products. This leaves just ten retouch flakes less than 1 cm in size, which result from on-site production of tools. The six retouch flakes deposited in x100/y200:4 are of grey killiaq, three of the remaining four retouch flakes are also of grey killiaq, whereas the final one is a tiny splinter of chalcedony.

Table 6.3. Lithic artefacts at Kannala.

	No.	%	All artefacts	%
Bifaces, all fragments included	2	15.4	13	39.4
Microblades	8	61.5		
Burins	2	15.4		
Burin spalls	1	7.7		
All flakes			20	60.6
Total	13	100	33	100

Microblades: A total of eight microblades were recorded at Kannala. The microblades have been produced from three distinct types of raw material indicating that they are from three different cores. The first series comprises three proximal and one distal fragment of dark brown translucent chalcedony (x98/y203:1, x99/y203:1, x97/y201:4 and x98/y203:1). The three proximal fragments can be refitted, revealing that they comprise a set of three microblades, produced in the order in which they are mentioned. The microblades found in x 97/y202:1 and x97/y202:3 are both of white translucent chalcedony with a yellowish area on the former and brown inclusions in the latter. Both are complete small microblades measuring 22 x 5 x 2 mm and 20 x 7 x 1 mm respectively. Presumably they are from the same microblade core, but it is unlikely that they were produced on the Kannala Site since there are no other tools or debitage of this material. The last two microblades are distal fragments of microblades of quartz crystal from x99/y202:3 and x101/y201. A common feature of all the microblades is that they presumably were produced elsewhere, since retouch flakes or other lithics of similar raw materials are absent from Kannala. All of the microblades are then examples of tools that were produced at another camp, and subse-

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Fig. 6.29. Selected artefacts from Kannala. 1) arrow point of green translucent chalcedony from x102/y200:3; 2) burin preform of grey killiaq from x100/y200:4; 3) Burin of grey killiaq from x97/y203:3; 4) polished tanged biface of light grey killiaq from x104/y200:2; 5) imported flake of grey killiaq from x98/y202:2; 6) imported flake of grey killiaq from x96/y202:3; 7) imported flake of brown chalcedony from x98/y202:2; 8) microblade of white to yellow translucent chalcedony x97/y202:1; 9) microblade of white to brown translucent chalcedony x97/y202:3. Photo Geert Brovad.

quently carried around in the landscape before being deposited at Kannala.

Arrowhead: A 22 x 8.5 x 2 mm biface with a tapering stem was found at the southern side of the entrance to the mid-passage tent ring. The diminutive size of the point suggests that it is an arrowhead. It is made of a beautiful green chalcedony and it is the only object of this raw material (Fig. 6.29:1).

Lance head: A complete 50 x 23 x 5 mm fully-ground, tanged point of light grey killiaq (Fig. 6.29:4). It is of a type rarely seen at Saqqaq sites and, until the recovery of this specimen, it was thought that such types were of Dorset origin. However, its presence in the limited inventory of the Kannala Site suggests that it may also have occurred in the Saqqaq tool kit

Burins are represented by a 33 x 12 x 3 mm complete specimen (Fig. 6.29:3) as well as by a 32 x 16 x 5 mm preform (Fig. 6.29:2) and a 12 x 4 x 1 mm burin spall – all of grey killiaq. The burin is made from a chipped and polished flake, but there is only slight modification to the ventral surface. The burin bears the scars of three former detachments.

Spatial distribution of artefacts

Fig. 6.30 shows the total distribution of tools and flakes. The maximum concentration is seen in 100/200:4, where six flakes and a complete burin preform were found. The small number of artefacts renders superfluous the graphic depictions used in other distribution maps. Instead it has been decided to present

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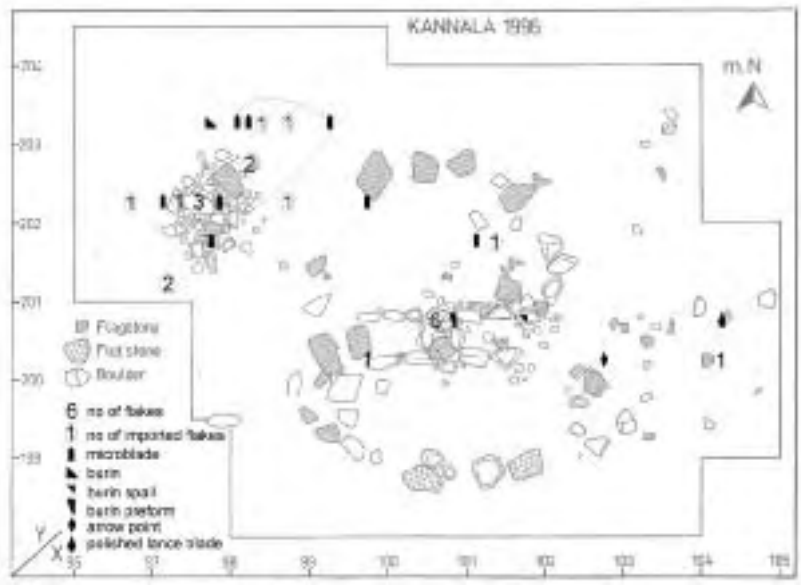

Fig. 6.30. Distribution of artefacts at the Kannala site. Most tools are deposited around the open air hearth with only a minor fraction deposited inside the dwelling and two items in front of the entrance. Refitted microblades are shown joined by lines.

all flakes and tools in a single chart. From the distribution it can be seen that only a few objects were left inside the dwelling and in front of the entrance facing northeast. The majority of the microblades and large flakes were deposited around the open-air hearth, indicating that most activities were carried out in this part of the excavated area, where the large flakes may have been used as expedient knives. Three refitted proximal ends of microblades, as well at the fourth distal end of a microblade of the same colour, were also deposited around the open-air hearth. The distribution of artefacts and the amount of ash in the indoor and open-air hearths is consistent with most activities being carried out around the open-air hearth to the northwest or behind the dwelling. Furthermore, judging from the limited number of tools, the activities carried out around the open-air hearth appear to have been of a diverse character, involving both cutting and work with burins.

Radiocarbon dates

Radiocarbon dates have been obtained for three samples of locally-grown wood collected from the open-air hearth and from the hearth in the mid-passage (Fig. 6.26). Ka-6988, from feature B, has been dated to 1860±40 b.c., giving calibrated dates within one standard deviation of between 2310-2190 and 2170-2140 cal B.C. Sample AAR-8407, from the hearth in the mid-passage, was dated to 1410±45 b.c., resulting in calibrated dates which within one standard deviation have intervals of between 1740-1710, 1690-1600 and 1560-1530 cal B.C. These two dates are both within the range of other Saqqaq dates but they do not overlap! The third date, Ka-6989, also from the mid-passage feature, is even more problematic. This sample resulted in a date of 85±40 b.c, which within one standard deviation results in a calibrated date of between 100 cal B.C. and 30 cal A.D. This date is at the end of the known range for the Dorset culture in Western Greenland.

One is inclined to suggest that something odd is happening. Is this site disturbed? Has Dorset material been mixed in? It is impossible to rule out such a possibility, but it seems hard to accept due to the fact that, apart from the microblades, only the polished point could be of Dorset origin. If the place had been re-occupied by Dorset people, one would have to envisage a situation where Saqqaq people, during a short period of occupation, left a burin preform, a burin, a burin spall, an arrowhead and several flakes intended for tool manufacture. Two thousand years later the place was re-occupied by Dorset people who left nothing but microblades, a polished point and a few retouch flakes. Furthermore, the Dorset people did not disturb the dwelling left by the Saqqaq. And, even more oddly, they must have re-used the hearth in the mid-passage. In other words, the Dorset people would have to have mapped directly on to the Saqqaq features without adding much of their own. This scenario is unlikely, and consequently the entire material from the excavated area at the Kannala Site is believed to

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represent a single Saqqaq settlement. The variation in the dates may, accordingly, be a warning against relying too heavily on radiocarbon analyses of samples from topsoil deposits.

Summary of the Kannala Site

The most striking characteristic of the Kannala site is the combination of a meticulously built mid-passage dwelling and an extremely limited lithic inventory. If the lithics hint at the length of stay, then certainly the short period of occupation seems to have had a positive effect on the preservation of the features. The sparse lithics leave little opportunity for spatial analysis because there are too few artefacts to enable repeated activity patterns to be detected. However, the single episode character of the deposit opens up for a better understanding of 'what people carried around in the landscape' and for a description of the flow of artefacts between sites. The many imported flakes represent an artefact type which can hardly be detected in larger deposits because large imported flakes are virtually impossible to separate from locally manufactured examples. At Kannala only retouch flaking occurred, and the concentration of larger flakes around the open-air hearth indicates that numerous such flakes must have been carried around for use as expedient knives or for use as cores in the manufacture of new tools. Another characteristic of the inventory is that both the bifaces and burins are complete. Why were a burin preform and three fully functional tools left behind during such a short occupation?

Kannala may be understood as a temporary station situated at the end of a string of temporary camps used prior to returning to a larger camp-site. Fresh provisions of raw materials were anticipated at the next stop and some tools may have been left intentionally. The burin preform was located in the central part of the mid-passage and this specimen may have been cached for possible later retrieval. The two bifaces in the eastern part of the excavated area appear, in contrast, to be more randomly located or to have been discarded through the entrance. The seasonality of the settlement is indirectly hinted at by its location on a narrow in the inner part of the archipelago, and by the presence of an open-air hearth, both of which suggest a summer occupation. On boulders nearby, there are recent marks from the drying of ammassat (capelin) (Fig. 6.31), which clearly indicate that the many well-protected coves are good places for the exploitation of this summer resource.

The contrast between the limited lithic inventory and the nature of the dwelling indicates that, in spite of a short duration of stay, there was a need for a well-defined domestic space. The sites of Orpissooq and Ikerasak are believed to have been left by task-specific, perhaps male, groups of hunters who may not have brought along a bulky tent. In contrast, the Kannala Site is likely to have been left by a travelling family, probably with small children, needing the protection of a tent as shown in fig. 6.32.

Summary of Saqqaq settlements in Southern Qeqertarsuup Tunua

The previous sections deal only with small temporarily-settled Saqqaq sites. These sites display only a few of the feature types known from the Saqqaq period. Dwellings of a more substantial character, and much richer in finds, are known from several other localities excavated by Larsen and Meldgaard (1958), from the Qeqertasussuk Site (Grønnow 1994, 1996b), from localities in Nivaap Paa and Saqqarleq (Olsen 1998) as well as from sites in districts of Sisimiut (Kramer 1996b; Møbjerg 1997) and Nuuk (Appelt & Pind 1996).

Based on the investigations of the Saqqaq sites of Niivertussannguaq, Kuup Qalorsaa and Tupersui, Olsen (1998) defines three Saqqaq dwelling types: 1) axial features, 2) tent rings with a central hearth and 3) platform dwellings. Olsen elaborates on the term mid-passage. He identifies a clear difference in the structure and, presumably, function of the large mid-passages filled with fire-cracked rocks, which have been excavated at Qeqertasussuk (site no. 92), Tupersui (site no. 181) and, probably, Nipisat (see Olsen 1998:103ff for a discussion of the latter) and the slab- or boulder-lined mid-passages typical of the Independence I sites of Peary Land (Knuth 1967b). Referring to the Kannala Site described earlier, we can now characterise this difference in greater detail by suggesting that the 'classical' slab- and boulder-lined mid-passages with a central hearth, and with only a few fire-cracked rocks and a limited number of associated finds, are probably temporary dwellings used during the warm season. In contrast to these are the boulder-lined mid-passages filled with fire-cracked rocks and

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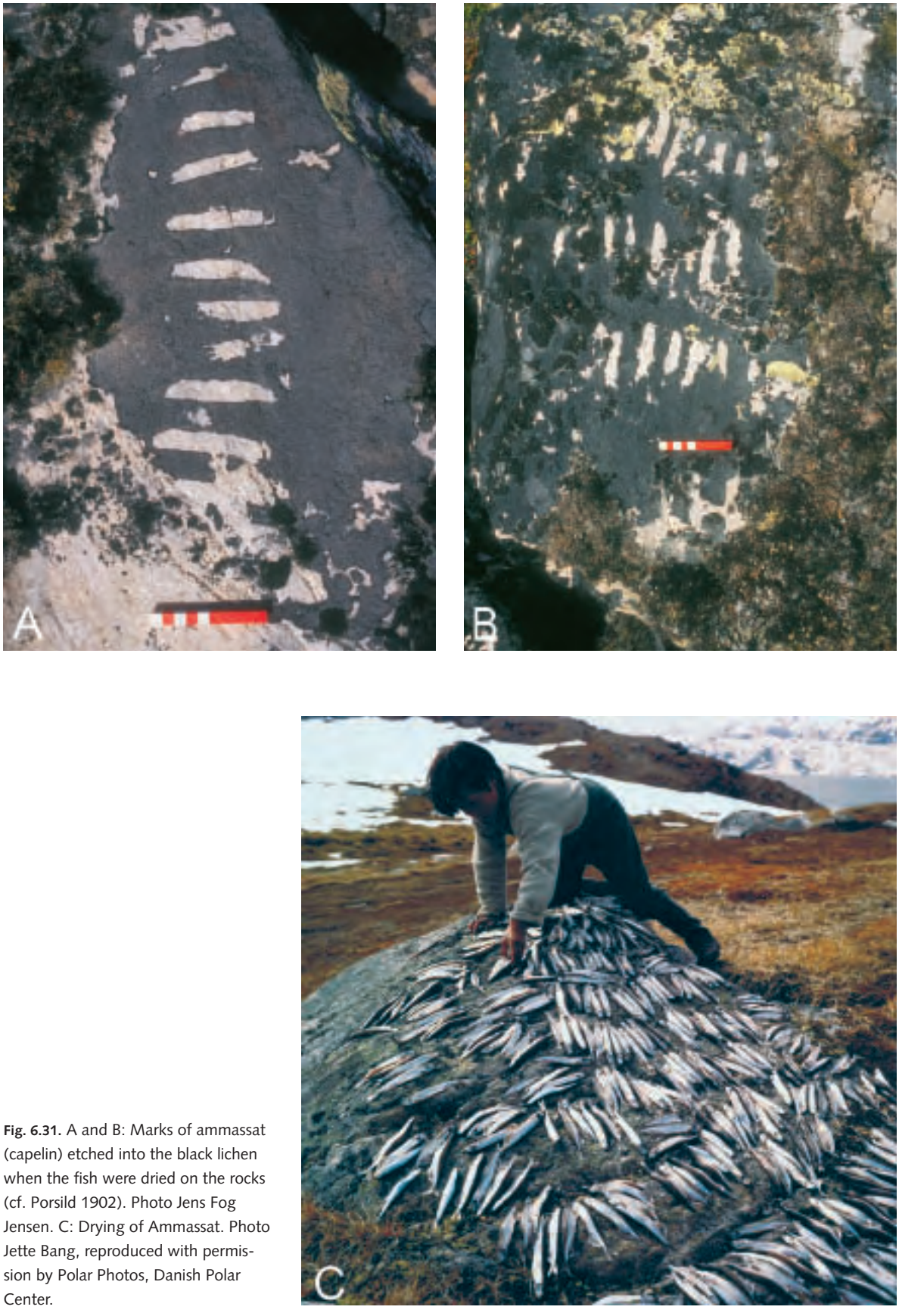

Fig. 6.31. A and B: Marks of ammassat (capelin) etched into the black lichen when the fish were dried on the rocks (cf. Porsild 1902). Photo Jens Fog Jensen. C: Drying of Ammassat. Photo Jette Bang, reproduced with permission by Polar Photos, Danish Polar Center.

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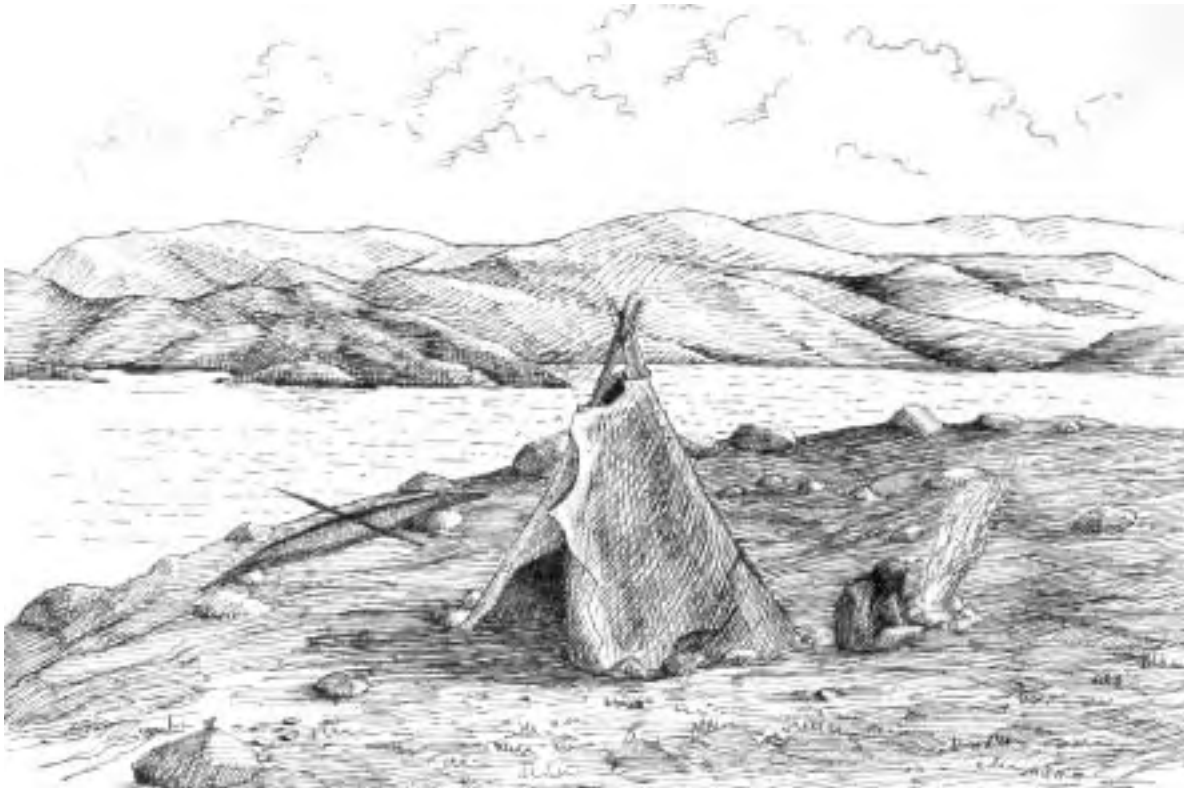

Fig. 6.32. Reconstruction of the Kannala site as it could have appeared during settlement in the Saqqaq period. Drawing by Martin Antoni Nielsen.

cobblestones, which are associated with substantial numbers of lithic artefacts. Based on the evidence from Southern Qeqertarsuup Tunua, these two representatives are believed to be summer and winter manifestations of the mid-passage phenomenon. This interpretation is based mainly on the quantitative characteristics of the lithic inventory and the amount of fire-cracked rocks associated with the different mid-passage types. However, settlement location and ethnohistorical comparisons also support this inference. The rich faunal remains from Qeqertasussuk further indicate that mid-passage features rich in fire-cracked rocks (A8) are from a period of time when the site was used during all seasons as a base camp.

In order of total magnitude, Saqqaq features can be characterised as open-air features, tent-ring dwellings and winter dwellings. The occurrence of these features is associated with site function but not in a one-to-one relationship. The large Saqqaq sites with 'winter dwellings' often have a broad spectrum of open-air hearths, in addition to the more solidly built dwellings (Grønnow 1994; Olsen 1998:115).

The smaller temporary camps, on the other hand, have only a limited selection of feature types. When dwellings are present here they are often characterised by a single isolated tent ring. Orpissooq East does though have a broad range of Saqqaq hearth types, and several of these appear to be expedient open-air hearths constructed of fist-sized stones topped by a flat stone, where a snack could be roasted. The box-shaped feature A at Orpissooq East represents a hearth form that is seen at numerous Saqqaq sites. The localities of Qeqertasussuk and Tupersui have similar hearths, in addition to the larger mid-passage features also found at these sites. The large feature B on Orpissooq East (site no. 87) is a rare Saqqaq hearth type. Formally, it may be compared to the circular stone-set hearth known from the interior of the tent at Brinchip Tupeqarfikuutaa (site no. 133). However, neither tent ring nor artefacts were associated with feature B at Orpissooq East. As a consequence, it has been suggested that the feature is related to the processing of arctic char (Jensen 1993). This theory is difficult to test, but it is interesting that a similar, apparently isolated circular hearth filled with fire-cracked rocks has been located at the site at Seersinnerup Kangerlua (site no. 174).

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This locality is also situated at the head of a minor fjord where a creek flows in from a lake in the hinterland. So perhaps this site too was a favoured spot for fishing for arctic char. Strictly formal similarities between different features may thus not necessarily result from similar functions. To understand their function, each feature or hearth must be analysed in its context.

Temporary camps

These are small camps left by highly mobile task groups often operating off the beaten track and sometimes with specific objectives such as caribou hunting or char fishing. These sites are characterised by their limited size, open-air hearths with limited quantities of fire-cracked rocks, minimal lithic inventories and the absence of well built dwellings. Orpissoq East (site no. 87) and Ikerasak (site no. 149) are typical representatives of this type of settlement. The absence of tent rings and solid dwellings on these localities indicates that they probably were left by people who, for a period of time, had left behind all bulky belongings such as tents. However, one could also speculate that their basic function and the social composition of the inhabitants is similar to that of 'summer camps', but that occasionally, during periods with stable dry weather, they did not bother to erect a tent, or that the tent structures may have been secured to the ground with pegs, such as it was indicated at Qeqertasussuk (Grønnow 1994).

Summer camps

Summer camps characterise settlements which, in their location and artefact material, are similar to 'temporary camps'. However, at summer camps such as Brinchip Tupeqarfikuutaa (site no. 133), Kuup Qalorsaa (site no. 162) and Kannala (site no. 154) there are more substantial remains of dwellings. The dwellings at these localities all lie isolated and they represent at least two varieties, the circular to oval tent ring with a central hearth as seen on Brinchip Tupeqarfikuutaa and Kuup Qalorsaa and the mid-passage tent ring such as the one excavated at Kannala. There is no evident divergence in site location, neither are there other observations to suggest that these differences in dwelling style are related to economic or functional differences. The similarity in architecture between Kuup Qalorsaa and Brinchip Tupeqarfikuutaa is echoed by similarities in relative frequencies of several tool categories and comparable distributions of tools. There were considerably more tools at Kuup Qalorsaa than at Brinchip Tupeqarfikuutaa, yet in terms of debitage the two inventories are similar with 908 and 616 flakes respectively. Presumably both sites experienced the reduction of a single larger core or implement, in addition to a variety of minor retouch episodes. At Kuup Qalorsaa, knapping occurred inside the dwelling to the left of the hearth, whereas at Brinchip Tupeqarfikuutaa it was carried out outside the tent to the right of the entrance. When comparing the tool frequencies from the two localities, it can be seen that both are dominated by bifaces and both localities have very low frequencies of scrapers. No scrapers were recovered from Brinchip Tupeqarfikuutaa and just one was found at Kuup Qalorsaa. Both Kuup Qalorsaa and Brinchip Tupeqarfikuutaa show clear segregation of artefact types inside the tent, and both dwellings have the majority of the tools scattered to the right of the hearth when looking from inside through the entrance towards the sea (Olsen 1998:116; Brinch Petersen 1992). Kuup Qalorsaa has a dense scatter of debitage on the left side of the hearth as opposed to the tools to the right, whereas at Brinchip Tupeqarfikuutaa the left side of the tent floor was emptier of lithics, though with a concentration of imported flakes scattered to the rear of the left side.

The size of the tent rings at Kannala, Kuup Qalorsaa and Brinchip Tupeqarfikuutaa is roughly the same, ranging from 4 to 5 m in diameter. But the hearth and associated architecture along the central axis of the tent ring at Kannala stands out as a well-preserved mid-passage. Unfortunately, the lithic inventory is so scant that neither tool frequencies nor distributions can, in any significant manner, be compared to the distributions in the two former summer camps. In terms of tool types, Kannala may have similarities in the absence of scrapers, but of most significance is the relative abundance of microblades. Microblades are few in number at most Saqqaq localities in Qeqertarsuup Tunua. Yet in the tent ring at Kannala there are eight of them, produced from at least three different microblade cores. McGhee (1979) suggests that microblades were probably mainly used in activities carried out by women. If this suggestion is correct, then the scatter of microblades at the northern (left) side of the mid-passage and around the open-air hearth to the rear of the dwelling at Kannala, may result from women being part of the group at this

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site. As a consequence of this one can envisage the mid-passage as a materialised division of the male and female segments of the interior (Jensen 1994a, 1996a).

Winter dwellings

Two types of winter dwelling have been identified: mid-passage dwellings with numerous fire-cracked rocks and platform dwellings (Olsen 1998) which, at least in the two examples excavated in Qeqertarsuup Tunua, also contained large quantities of fire-cracked rocks. The mid-passage winter dwellings are characterised by structures such as feature III at Tupersui and A8 at the Qeqertasussuk. Analysis of feature III at Tupersui indicates some internal division of the living space (Olsen 1998), but the main characteristics of the winter mid-passage dwellings are the magnitude of fire-cracked rocks and associated number of finds. An estimated 685 flakes and 86 tools are believed to belong to feature III at Tupersui, even though it is impossible to separate the lithics belonging to feature III from those belonging to feature II (Mikalsen 2001:71ff). Olsen weighed a total of 570 kg of fire-cracked rocks associated with features II and III, which is similar to the amount associated with feature A8 at Qeqertasussuk. The quantity of fire-cracked rocks is not the only difference between the 'winter' mid-passages from Tupersui and Qeqertasussuk and the 'summer' mid-passage from Kannala. There are also architectural differences. The stone-framed hearth in the mid-passage at Kannala is located at the centre of the two parallel rows of framing stones, whereas the hearth in feature III at Tupersui, and that in feature A8 at Qeqertasussuk, are drawn back towards the rear of the dwelling. In the latter feature, the hearth is situated in the part of the mid-passage furthest from the entrance. In addition to these structural differences, there may also have been different utilisation of the individual mid-passages. At Qeqertasussuk the front section of feature A8 was filled with pebbles that are not fire-cracked, and one of the large flat stones placed on top of the mid-passage is a whetstone (Grønnow & Meldgaard 1991:113). Such working platforms or chopping board-like features were not found in the mid-passage at Tupersui. Unfortunately none of the suggested 'winter mid-passages' is associated with a well-preserved periphery defining the outline of the dwelling. However, at Qeqertasussuk the mid-passage is surrounded by a narrow floor with compact (trodden) brushwood and heather. At either side there are slightly raised sleeping platforms of alternating turf and heather. Grønnow (1994:204ff) estimates the dwelling to have measured approximately 7 x 4 m with the entrance along the long axis facing the shore. Feature A8 at Qeqertasussuk belongs to the early phase of occupation at the site, and the fauna material from this phase indicates a multi-seasonal use of the locality with the main focus on summer catch of harp seal, and winter and spring hunting of ringed seal (Meldgaard 2004).

The structure of the platform dwellings is very different from that of the mid-passage dwellings. Basically, platform dwellings are circular with a diameter of 4.6 to 5 m and a central stone-set hearth. Instead of a mid-passage, the interior of the dwelling is dominated by a platform of flat stones and slabs and stones with their even surfaces turned upwards. This dwelling type has only been documented at Niivertussannguaq (feature II) and Tupersui (feature V), but the striking similarities between the two features is a convincing argument for them representing a standardised dwelling type (Olsen 1998:106). A total of 3560 flakes and 138 tools is associated with feature II at Niivertussannguaq, whereas about 830 flakes and 60 tools are linked with feature V at Tupersui. Furthermore, it is noted (Mikalsen 2001:106) that most of the flakes from Tupersui V are small, and that only a minor fraction of less than 5% are larger flakes representing the more primary stages of lithic reduction. As a consequence, feature V at Tupersui does not have all of the lithic sequence and all of the major tool categories in large quantities which otherwise is said to be typical for winter settlements. Accordingly, it can be argued that variables other than function and season account for the observed variation in Saqqaq dwelling style. Mikalsen suggests that feature V at Tupersui is a summer dwelling, whereas Olsen (1998) regards the platform dwellings to be winter dwellings on more continuously settled base camps. On the basis of the composition of tool types and the large quantity of fire-cracked rocks, I am inclined to regard the platform dwellings as winter dwellings. But the abovementioned differences underline the care one must take when categorising dwelling remains into rigid dichotomies of summer and winter. After all, many dwellings may have been used during different seasons such as winter and spring, spring and summer or, for example, summer and autumn.

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Chapter 7

Saqqaq Raw Material Procurement Systems

Palaeo-Eskimo lithic tool manufacture in Qeqertarsuup Tunua (Disko Bugt) is predominantly based on the use of killiaq, a metamorphosed vulcano-clastic sediment formerly called *angmaq* or *ammaaq* (Meldgaard 1996:14) and a fine-grained more glass-like chalcedony or agate. During the Saqqaq period most lithic tools were manufactured of killiaq, whereas the Dorset culture preferred the chalcedony types of raw materials (Fig. 7.1). Quartz crystal and quartzite constitute minor fractions of the lithic industries in both Saqqaq and Dorset. Quartz crystal is though more common on Dorset than on Saqqaq sites. The crystals were most commonly used for the production of microblades. The natural occurrence of killiaq and chalcedony is restricted to the Cretaceous and Tertiary geological provinces on Nuussuaq and Qeqertarsuaq (Disko Ø), whereas quartz crystal also has local occurrences in the gneiss regions.

Prehistoric extraction sites are only known in relation to outcrops of killiaq, whereas the mode of extraction of other raw materials remains poorly understood. The following sections focus on the Saqqaq exploitation of killiaq from two sources. One is situated on the northern shore of Nuussuaq and the other on the island of Angissat in the southern part of Qeqertarsuup Tunua.

Fig. 7.1. Left: Shattered nodule of white chalcedony from Aqajarua (Mudderbugt) on Qeqertarsuaq. To the left, quartz crystals have developed in the centre of the nodule. Chalcedony is the dominant raw material in most Dorset inventories and most often the white variety shown here makes up the largest proportion. Right: Axe of grey killiaq. Killiaq is the dominant raw material in Saqqaq lithic tool production. During the Dorset, killiaq was used mainly for the production of axes, burin-like tools and polished bifaces. The axe to the right is 9 cm long. Photo Geert Brovad.

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It has been suggested that both a regional and a local raw material procurement system were in operation in relation to the two known raw material extraction sites in the vicinity of Qaarsut (site no. 12) and Angissat (site no. 128) (Jensen *et al.* 1997; Jensen & Brinch Petersen 1998; Jensen 2000c). The Qaarsut site provides the more resistant and, presumably, harder killiaq variety and is believed to be part of a large procurement system intended for 'export purposes'. In contrast, the Angissat Site provided a patina-developing, and presumably softer, killiaq variety believed to be imbedded in a local resource system, whereby the outcrop was exploited in a more opportunistic manner.

This model is, however, based only on a preliminary inspection of the evidence and a number of questions were ignored: 1) The possibility of there being more than the two known lithic resources. Is it possible that other raw material resources have the same characteristics as the two known sites? 2) How sure can we be that the Angissat variety always develops patina?

In the following, this model will be assessed more carefully on the basis of the available evidence from the extraction sites and thin-section analysis, and in relation to the mapping of killiaq on Saqqaq sites in West Greenland.

Qaarsut – large-scale production of preforms

Already in the 19th century it was known (Rink 1855; Steenstrup 1893:57) that the lithic raw materials used in prehistoric tool manufacture originated from the Cretaceous provinces of West Greenland. However, no specific effort was ever made to locate quarry sites before I, by chance, happened to survey the area around the settlement of Qaarsut, where the geologist A. Rosenkrantz had discovered Saqqaq camp-sites as early as the 1950s.

A few kilometres to the west of Qaarsut, the river Qaarsut Kussinersua flows through a gorge in the coastal hills of gneiss and granite. As the river leaves this gorge it has formed a large alluvial fan extending towards Uummannaq Fjord. Several Palaeo-Eskimo, and probably mostly Saqqaq, campsites are scattered along the lower parts of these cliffs. In protected places there are culture layers with charcoal stains, bones and artefacts. To the west of the outlet of Qaarsut Kussinersua, a minor lagoon has formed behind the active beach ridge. Behind this beach ridge there is an older stone and gravel terrace lying approximately 1.8 m a.s.l. Some flakes and possible boulder features have been documented on this terrace, which may indicate that this was the active shore during the period of Saqqaq settlement. Most of the deposits with Palaeo-Eskimo material have been located in eroded areas immediately to the south or behind this terrace.

In his report to The National Museum of Denmark, Rosenkrantz (1965) mentions that most of the objects collected by members of the 'Nuussuaq Expedition' came from a more than one metre thick peat layer exposed in a cliff. During the 1994 survey, no Palaeo-Eskimo deposits were seen to have been eroded by the sea, and therefore it is likely that the campsites found by Rosenkrantz are different from those that I located. Unfortunately, it has not been possible to find the maps which accompanied Rosenkrantz's letter to the National Museum, so the exact location of his site remains unknown. However, the presence of numerous fire-cracked rocks, probably forming a hearth, a soapstone object and bones, indicates that the site found by Rosenkrantz in 1964 is a genuine Palaeo-Eskimo campsite.

Knapping sites in the hinterland

In addition to the coastal sites, there are knapping sites dispersed several kilometres inland along the river Qaarsut Kussinersua (Jensen 1994b). A few kilometres inland there are concentrations of flakes as well as more isolated nodules of killiaq scattered along the river and adjacent to large boulders distributed over a sandy plain to the west of the river. Several large flakes and nodules located in this area were found to have been tested by the removal of a single flake. The large boulders must have given shelter while collected nodules were tested for their properties. After the initial testing of nodules, the raw material is believed to have been transported to near-shore campsites, where the production of blanks occurred. No preforms have been found at the inland knapping sites.

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Fig. 7.2. Model of raw material procurement in the vicinity of Qaarsut on the northern shore of Nuussuaq. 1) Nodules collected from the river bed and alluvial fans were carried on to 'dry land' where 2) the flaking properties were tested. 3) accepted nodules were then taken to the settlements near the shore where they were reduced to blanks and preforms. 4) Many bifacial preforms have been left on the coastal settlements, indicating that the production was organised in an industrial manner driven by more than local needs.

Summary of raw material procurement at Qaarsut

The distribution of flakes and tested but discarded nodules in the hinterland, combined with the massive presence of preforms as well as more 'normal' mixed settlement deposits along the shore, has been interpreted as a result of the different reduction steps involved in raw material procurement (Fig. 7.2). Nodules collected from the riverbed and alluvial fans were carried on to 'dry land' where their flaking properties were tested. Accepted nodules were then taken to the settlements near the shore, where they were reduced to blanks and preforms. When considering the many bifacial preforms left at the coastal settlements, this production appears to have been organised in an industrial manner driven by something greater than local needs.

Raw material extraction at Angissat

The rediscovery of the raw material procurement sites around Qaarsut inspired more focussed research into this particular aspect of Palaeo-Eskimo life in Qeqertarsuup Tunua. Upon inspection of geological maps, another extraction site was discovered in 1995 on the island of Angissat (site no. 128). These two localities remain the only known Palaeo-Eskimo raw material extraction sites, and as such they are fixed points against which we will have to monitor the distribution of killiaq.

The islands of Kitsissunnguit (Grønne Ejland) consist of low dolerite hills rarely exceeding 20 m a.s.l. All over the islands there are grasses and heather and large areas are covered by peat. Along the southern shore of the eastern island of Angissat, there are 10 to 20 m-high vertical cliffs rising directly from the sea; in places though there is a narrow foreshore. Facing a boulder beach, there is an approximately 10 m long cliff with exposed layers of killiaq (Fig. 7.3). To the west of this cliff there is an area of approximately equal size with exposed sandstone deposits. No prehistoric remains have been discovered in direct association with the exposure, but raw materials can be extracted directly from the exposed cliff or they can be

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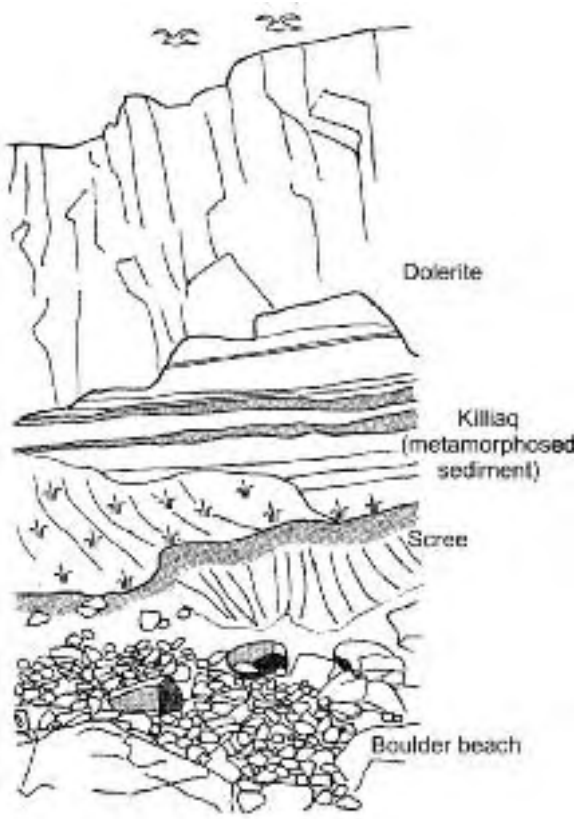

Fig. 7.3. Sketch from photo of the killiaq outcrop at Angissat.

Fig. 7.4. Nodule of killiaq from boulder beach below the outcrop at Angissat. Photo Jens Fog Jensen.

collected as loose boulders from the beach in front of it (Fig. 7.4). On nearby blow-outs, there are tent rings and knapping sites with debitage from the primary reduction of nodules (Fig. 7.5). No bifacial preforms have been found at Angissat, and when compared to the remains in the vicinity of Qaarsut, the magnitude of the raw material extraction at the site appears to be more restricted.

The lithics from Angissat indicate that nodules were only slightly reduced on-site, without the industrial production of preforms seen at Qaarsut. Flakes of Angissat killiaq are seen at several localities in the southern part of Qeqertarsuup Tunua, but larger quantities only occur on a few Saqqaq sites such as Ikamiut (site no. 104), Ikerasak (site no. 148), Orpissooq East (site no. 87) and Brinchip Tupeqarfikuutaa (site no. 133). The debitage at the Ikerasak

Fig. 7.5. Slightly reduced nodule of patinated killiaq from blow-out near the outcrop at Angissat. Scars from prehistoric testing of the nodule are seen at the top of the photo. A large flake has been detached from left side of the nodule to expose an unpatinated surface. Photo Geert Brovad.

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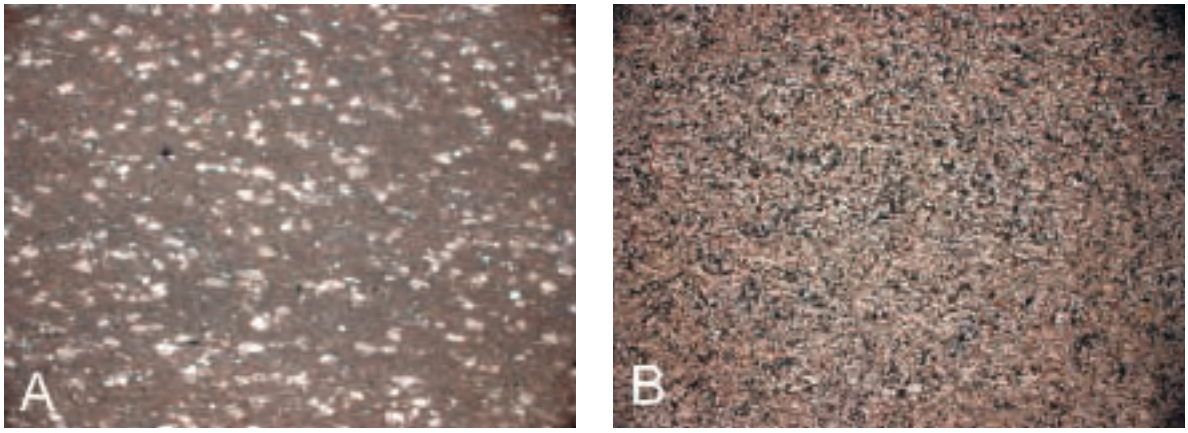

Fig. 7.6. Thin sections of killiaq from Qaarsut on the northern shore of Nuussuaq (A) and of sample from the island of Angissat in the southern part of Qeqertarsuup Tunua (B). The Qaarsut variety is characterised by white inclusions, whereas the patinated variety from Angissat is characterised by a more homogenous grained structure. Photo Minik Rosing.

site consists almost exclusively of heavily patinated flakes from the reduction of a nodule of Angissat killiaq. Several of the primary flakes have large angular facets stemming from natural fractures, so the nodule was brought in largely unmodified and not as a bifacial preform. This reduction at Ikerasak appears to have resulted in the production of a biface which was taken away from the site. The large flake concentrations at Orpissooq appear to be the result of a broadly similar reduction sequence or sequences even though only a few large, thick flakes, with the surface of the original boulder, have been preserved at this locality.

In a regional context, it is interesting to note that both Orpissooq East and Ikerasak are specialised and, presumably, warm season settlements. Three of the four Saqqaq localities where the Angissat variety is dominant are minor summer sites. This may be due to the fact that raw material procurement from Angissat was embedded in the local resource system, and contributed to a lesser degree to the long distance exchange occurring between the larger and more permanently occupied settlements.

Thin-section analysis

In order to address the question of patina development on different killiaq varieties, thin-section analysis has been carried out on a total of 97 killiaq samples. Firstly, geological and prehistorically worked pieces of killiaq from each of the two outcrops at Qaarsut and Angissat respectively were selected in order to check variation at each of the two localities. This test showed that thin-sections from the Qaarsut outcrop have crystals or inclusions apparent under the microscope as angular white spots (Fig. 7.6:A). These are not seen in the samples from Angissat (Fig. 7.6:B). The next step was then to analyse a total of 93 thin-sections, mainly from archaeological localities, but also including a few geological samples collected as stray finds during the survey of Southern Nuussuaq in 2000.

The selected specimens are mainly from Saqqaq localities, but a few flakes from Dorset sites have also been included. Furthermore, samples were included from Palaeo-Eskimo sites in the district of Sisimiut (Asummiut (SIK 901) and Nipisat) 200 km to the south of Qeqertarsuup Tunua and from the locality of Aarngit (Marianes Pynt) in the district of Nuuk, 500 km to the south of Qeqertarsuup Tunua. The two former are excavated Saqqaq sites (Kramer 1996b; Møbjerg 1997; Møbjerg & Grummesgaard 1997), whereas the samples from Aarngit (Berglund 2000) were collected from a beach. Priority was given to geographical distribution over control of exact dating when selecting specimens for thin-section analysis. In all cases, attempts were made to select flakes with different characteristics in order to cover as much variability as possible. Accordingly, the number of different raw materials represented in the flakes selected for thin-sections *does not* necessarily match the relative frequency of raw materials in the inventories they were selected from. The thin-section analysis had two

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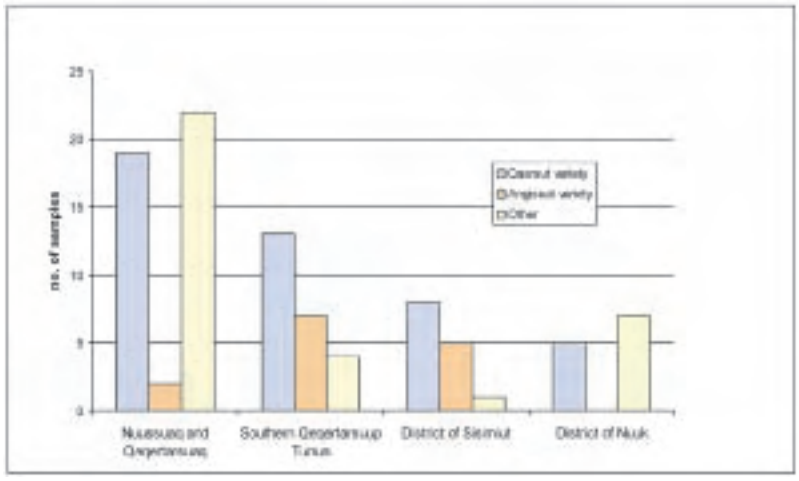

Fig. 7.7. Geographical distribution of raw material types when samples are categorised according to the morphology of thin sections. Thin sections with characteristics similar to those known from Angissat are concentrated in the vicinity of the source at the island of Angissat, and in the area of Sisimiut to the south of Qeqertarsuup Tunua. This distribution indicates that the Angissat source was mainly exploited locally in Southern Qeqertarsuup Tunua and that killiaq of the Angissat variety was redistributed southwards from Southern Qeqertarsuup Tunua.

mainly qualitative objectives: 1) to establish the extent to which one can rely on yellow-patinated killiaq having originated from the Angissat source, 2) to document the extent of the distribution of killiaq from the Angissat source in comparison to killiaq from Nuussuaq

Results of the thin-section analysis

When comparing the thin-sections to the surface characteristics (Table 7.1), it evident that only 12 out of a total of 25 specimens with yellow patina have crystalline characteristics similar to the specimens from Angissat. Yellow patina appears, therefore, to develop on other raw material varieties in addition to that from Angissat. This was also indicated by the finding of patinated killiaq during the survey of Nuussuaq in 2000. However, most of the yellow-patinated specimens possessing crystalline characteristics different from those from Angissat are from areas other than Southern Qeqertarsuup Tunua. Fig. 7.7 shows the distribution of raw materials based solely on the crystalline characteristics of the thin-sections (Table 7.1). For a full list of thin-sections see appendix 2. Fig. 7.7 indicates that the Angissat variety has its most common distribution in Southern Qeqertarsuup Tunua and the Sisimiut District. The Qaarsut variety, on the other hand, appears to show a steady decline as one moves south and away from the source area. Varieties that neither fit the characteristics of the Angissat nor the Qaarsut variety are most dominant on Nuussuaq, but they also appear to make up a relative high proportion at the distant locality of Aarngit (Marianes Pynt) in the district of Nuuk. This is likely to indicate that there are raw material extraction sites other than the ones known from Qaarsut (site no. 12) and Angissat (site no. 128).

Exotic goods as common wares

When looking at the raw material frequencies in relation to the distance from their sources, as shown in fig. 7.8 and table 7.2, it is striking that killiaq was transported in massive quantities to sites as far away as 650 km as the crow flies from the source area. Indeed, there is a significant drop-off in the relative frequency of killiaq on some of the Saqqaq localities in the Nuuk region, but there are also sites with as much as 80 to 90% killiaq this far from the source area. In Sisimiut District, at a distance of approximately 350 km from the source area, the killiaq frequency is only slightly lower than in the assemblages from Qeqertarsuup Tunua. This dependency on exotic raw materials is rare, but similar situations are known from Labrador where some prehistoric periods are characterised by a similar dependence on Ramah chert, which has a limited natural occurrence in Northern Labrador (Fitzhugh 1980; Nagle 1984). As expected, the killiaq frequencies fall as one moves away from the source area. On the other hand, the drop-off rate is much less than one would expect. When the Saqqaq distribution of killiaq is compared to the distribution of lithics among other Stone Age hunter-gatherers some differences are seen. The oft-quoted negative exponential fall-off rates seen in the distribution of obsidian in, for example, the Near East (Hodder 1978; Renfrew *et al.* 1968)

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Table 7.1. Results of thin-section analysis. Characterisations based on the thin sections are listed to the right.

Sample no.	Site name and no. in catalogue	District	Surface morphology	Crystalline characteristics
1	Ikkarlussuup Timaa (118)	Southern Qeqertarsuup Tunua	'Angissat-like' brownish cortified	Angissat
2	Ikkarlussuup Timaa (118)	Southern Qeqertarsuup Tunua	Angissat variant, brownish- yellow	Angissat
3	Orpissooq East (87)	Southern Qeqertarsuup Tunua	Angissat variant	Angissat
4	Orpissooq East (87)	Southern Qeqertarsuup Tunua	'Angissat -like' greyish -yellow	Other
5	Qeqertasussuk (92)	Southern Qeqertarsuup Tunua	'Angissat -like' brownish -yellow	Qaarsut
6	Qeqertasussuk (92)	Southern Qeqertarsuup Tunua	Angissat variant	Angissat
7	Qeqertasussuk (92)	Southern Qeqertarsuup Tunua	Angissat variant	Angissat
8	Brinchip Tupeqarfikuutaa (133)	Southern Qeqertarsuup Tunua	Angissat variant	Angissat
9	Qeqertarmiut I (121)	Southern Qeqertarsuup Tunua	'Angissat- like' honey yellow	Qaarsut
10	Ikamiut (104)	Southern Qeqertarsuup Tunua	'Angissat- like' yellow -brownish	Angissat
11	Nipisat	Sisimiut	'Angissat -like' yellow	Angissat
12	Nipisat	Sisimiut	Angissat variant	Angissat
13	Nipisat	Sisimiut	Angissat variant	Angissat
14	Nipisat	Sisimiut	Angissat variant	Angissat
15	Nipisat	Sisimiut	Angissat variant	Qaarsut
16	SIK 901	Sisimiut	Angissat variant	Angissat
17	SIK 901	Sisimiut	'Angissat-like' yellow	Qaarsut
18	Qeqertasussuk (92)	Southern Qeqertarsuup Tunua	'Angissat-like' yellow	Qaarsut
19	Marianes pynt, Bjørneø	Nuuk	'Angissat-like' honey yellow	Qaarsut
20	Marianes pynt, Bjørneø	Nuuk	'Angissat-like' honey yellow	Qaarsut
21	Marianes pynt, Bjørneø	Nuuk	'Angissat-like' honey yellow	Qaarsut
22	Marianes pynt, Bjørneø	Nuuk	'Angissat-like' honey yellow	Qaarsut
23	Paakitsuarsuk (26)	Nuussuaq	Striped dark grey and light yellow patinated	Angissat
24	Saqqaq Niaqornaarsuk (35)	Nuussuaq	'Angissat-like' light yellow	Qaarsut
25	Saqqaq Niaqornaarsuk (35)	Nuussuaq	'Angissat-like' light yellow	Qaarsut
26	Saqqaq Niaqornaarsuk (35)	Nuussuaq	'Angissat-like' light yellow	Qaarsut
27	Saqqaq Niaqornaarsuk (35)	Nuussuaq	Striped grey and light yellow	Other
28	Paakitsuarsuk (26)	Nuussuaq	Striped grey and light yellow	Qaarsut
29	Akunnaaq (40)	Nuussuaq	Light grey to yellow	Other
30	Akunnaaq (40)	Nuussuaq	Striped yellow and grey	Qaarsut
31	Paakitsuarsuk (26)	Nuussuaq	Striped dark grey	Other
32	Paakitsuarsuk (26)	Nuussuaq	Dark grey almost black	Qaarsut
33	Marianes pynt, Bjørneø	Nuuk	Grey, slightly striped	Qaarsut
34	Marianes pynt, Bjørneø	Nuuk	Grey, with white inclusions	Other
35	Marianes pynt, Bjørneø	Nuuk	Grey, with small white inclusions	Other
36	Marianes pynt, Bjørneø	Nuuk	Light grey	Other
37	Marianes pynt, Bjørneø	Nuuk	Grey, with white inclusions	Other
38	Marianes pynt, Bjørneø	Nuuk	Grey	Other
39	Marianes pynt, Bjørneø	Nuuk	Grey, with white inclusions	Other
40	Marianes pynt, Bjørneø	Nuuk	Light chalk coloured	Other
41	Annertusuaqqap Nuua (103)	Southern Qeqertarsuup Tunua	Dark grey	Qaarsut
42	Akunnaaq (40)	Nuussuaq	Grey with white inclusions	Other
43	Brinchip Tupeqarfikuutaa (133)	Southern Qeqertarsuup Tunua	Grey	Qaarsut
44	Ikkarlussuup Timaa (118)	Southern Qeqertarsuup Tunua	Grey chalky coloured	Other
45	Ikkarlussuup Timaa (118)	Southern Qeqertarsuup Tunua	Dark grey	Qaarsut
46	Ikkarlussuup Timaa (118)	Southern Qeqertarsuup Tunua	Light grey, slightly marbled	Qaarsut
47	Qeqertasussuk (92)	Southern Qeqertarsuup Tunua	Grey	Other
48	Qeqertasussuk (92)	Southern Qeqertarsuup Tunua	Grey coarse-grained	Qaarsut

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Table 7.1. Continued.

Sample no.	Site name and no. in catalogue	District	Surface morphology	Crystalline characteristics
49	Qeqertasussuk (92)	Southern Qeqertarsuup Tunua	Grey	Other
50	Nipisat	Sisimiut	Dark grey	Qaarsut
51	Nipisat	Sisimiut	Light grey	Qaarsut
52	Nipisat	Sisimiut	Grey	Other
53	Nipisat	Sisimiut	Grey, coarse-grained	Qaarsut
54	SIK 901	Sisimiut	Grey, coarse-grained	Qaarsut
55	SIK 901	Sisimiut	Light grey	Qaarsut
56	SIK 901	Sisimiut	Grey	Qaarsut
57	Qeqertarmiut I (121)	Southern Qeqertarsuup Tunua	Grey with white inclusions	Other
58	Qeqertarmiut I (121)	Southern Qeqertarsuup Tunua	White to ash grey	Qaarsut
59	Qeqertarmiut I (121)	Southern Qeqertarsuup Tunua	Grey with white inclusions	Qaarsut
60	Ikamiut (104)	Southern Qeqertarsuup Tunua	Light grey	Qaarsut
61	Ikamiut (104)	Southern Qeqertarsuup Tunua	Dark grey	Qaarsut
62	Paakitsuarsuk (26)	Nuussuaq	Grey	Qaarsut
63	Paakitsuarsuk (26)	Nuussuaq	Light grey patinated	Qaarsut
64	Paakitsuarsuk (26)	Nuussuaq	Light grey patinated	Qaarsut
65	Paakitsuarsuk (26)	Nuussuaq	Dark grey striped	Other
66	Paakitsuarsuk (26)	Nuussuaq	Dark grey	Angissat
67	'Look-out point' (24)	Nuussuaq	Dark grey to black	Qaarsut
68	Atanikerluk	Nuussuaq	Light grey	Other
69	Qeqertap Qarsorsaa (44)	Nuussuaq	Light grey	Qaarsut
70	Qeqertap Qarsorsaa (44)	Nuussuaq	Grey	Qaarsut
71	Qeqertap Qarsorsaa (44)	Nuussuaq	Grey with white inclusions	Other
72	Qeqertap Qarsorsaa (44)	Nuussuaq	Grey with white stripes	Other
73	Saqqaq Niaqornaarsuk (35)	Nuussuaq	Light grey	Other
74	Saqqaq Niaqornaarsuk (35)	Nuussuaq	Grey with dark inclusions	Other
75	Saqqaq Niaqornaarsuk (35)	Nuussuaq	Dark grey striped	Qaarsut
76	Saqqaq Niaqornaarsuk (35)	Nuussuaq	Dark grey striped	Qaarsut
77	Saqqaq Niaqornaarsuk (35)	Nuussuaq	Grey striped	Other
78	Sioraq (224)	Qeqertarsuaq	Grey	Qaarsut
79	Sioraq (224)	Qeqertarsuaq	Light grey with dark inclusions	Other
80	Sioraq (224)	Qeqertarsuaq	Grey with white stripes	Other
81	Ataa Elv delta	Nuussuaq	(unworked stone) dark grey to black with visible grains	Qaarsut
82	Sioraq (224)	Qeqertarsuaq	Grey striped	Other
83	Sioraq (224)	Qeqertarsuaq	Dark grey	Other
84	Niaqornaarsuk (20)	Nuussuaq	Light grey with dark inclusions	Qaarsut
85	Niaqornaarsuk (20)	Nuussuaq	Light grey with dark inclusions	Qaarsut
86	Niaqornaarsuk (20)	Nuussuaq	Dark grey almost black	Other
87	Niaqornaarsuk (20)	Nuussuaq	Light and dark grey	Other
88	Saqqaq Valley	Nuussuaq	(unworked stone) black killiaq	Other
89	East of Atanikerluk	Nuussuaq	(unworked stone) dark grey	Other
90	West of Saqqaq Elv delta	Nuussuaq	(unworked stone) dark grey	Qaarsut
91	West of Atanikerluk	Nuussuaq	(unworked stone) black	Other
92	Ataa Elv delta	Nuussuaq	(unworked stone) black	Other
93	Ataa Elv delta	Nuussuaq	(unworked stone) black and grey striped	Other
94	Angissat (128)	Southern Qeqertarsuup Tunua	Patinated yellow killiaq	Angissat
95	Qaarsut (12)	Nuussuaq	Grey killiaq	Qaarsut

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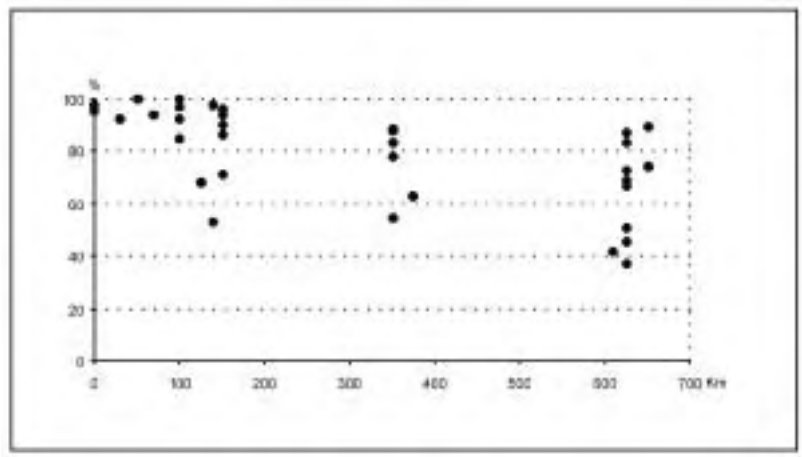

Fig. 7.8. Percentage of killiaq in different Saqqaq inventories from West Greenland mapped in relation to distance to source area in Northern Qeqertarsuup Tunua (Disko Bugt).

Table 7.2. Killiaq percentages in Saqqaq inventories in West Greenland.

No.	Site name	Percent killiaq	Distance in km rom Nuussuaq	Reference	Comments
1	Østerlien	97	100	Møbjerg 1986	Flakes only
2	Naanngisat	84.7	100	Møbjerg 1986	Flakes only
3	Kangaarsuk	68.2	125	Møbjerg 1986	Flakes only
4	Illusiat	95.5	0	Møbjerg 1986	Flakes only
5	Illuluarsuk I	98	0	Larsen & Meldgaard 1958	Flakes only
6	Iluluarsuk II	98	0	Larsen & Meldgaard 1958	Flakes only
7	Aarlungavik	92.5	30	Møbjerg 1986	Flakes only
8	Klokkerhuk	100	50	Møbjerg 1986	Flakes only
9	Tupersuit	94	70	Larsen & Meldgaard 1958	Flakes only
10	Sermermiut	92.8	100	Møbjerg 1986	Flakes only
11	Sermermiut A	97	100	Larsen & Meldgaard 1958	Flakes only
12	Sermermiut B	100	100	Larsen & Meldgaard 1958	Flakes only
13	Illorsuatsiaat I	53	140	Larsen & Meldgaard 1958	Flakes only
14	Illorsuatsiaat II	98	140	Larsen & Meldgaard 1958	Flakes only
15	Qeqertasussuk Comp 1	90.3	150	Grønnow 1994	Flakes and tools
16	Qeqertasussuk Comp 2	95.9	150	Grønnow 1994	Flakes and tools
17	Qeqertasussuk Comp 3	93.8	150	Grønnow 1994	Flakes and tools
18	Qeqertasussuk Comp 4	71	150	Grønnow 1994	Flakes and tools
19	Qeqertasussuk Comp 5	86.6	150	Grønnow 1994	Flakes and tools
20	SiK 173	88	350	Møbjerg 1986	Flakes only
21	SIK 899	83	350	Møbjerg 1986	Flakes only
22	SIK 901	78	350	Møbjerg 1986	Flakes only
23	SIK 900	54.2	350	Møbjerg 1986	Flakes only
24	Akia	89	350	Kramer 1996b	Flakes and tools
25	Nipisat	63	375	Kramer 1996b	Flakes and tools
26	Tuapassuit	41.6	610	Gulløv & Kapel 1988	Flakes and tools
27	Itinnera 1958	37	625	Gulløv & Kapel 1988	Flakes and tools
28	Itinnera 1960	51.1	625	Gulløv & Kapel 1988	Flakes and tools
29	Nuunnguaq 1	66.8	625	Appelt & Pind 1996	Flakes only
30	Nuunnguaq 7	45.6	625	Appelt & Pind 1996	Flakes only
31	Nuunnguaq A	83.3	625	Appelt & Pind 1996	Flakes only
32	Nuunnguaq B1	73.1	625	Appelt & Pind 1996	Flakes only
33	Nuunnguaq B2	69.1	625	Appelt & Pind 1996	Flakes only
34	Nuunnguaq B3	87.1	625	Appelt & Pind 1996	Flakes only
35	Kilaarsarfik	89.3	650	Gulløv & Kapel 1988	Flakes and tools
36	Itissalik	74	650	Gulløv & Kapel 1988	Flakes and tools

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Fig. 7.9. Preform of killiaq. Stray find from boulder beach at Niisat (site no 78). Length of key 5.4 cm. Photo Lykke Johansen.

do not fit the more linear fall-off rates seen in Saqqaq use of killiaq. The maritime archaic and Middle Dorset reliance on Ramah chert in Labrador, on the other hand, constitutes a better parallel for the Saqqaq raw material procurement systems in West Greenland, since settlements through-out Labrador during these periods appear to be similarly dominated by raw materials supplied from a single well-defined source area (Loring 2002; Nagle 1984).

Fig. 7.10. Preform of killiaq from Sermermiut. Total length of the biface is c. 15 cm. Archives of Ilulissat Museum. Photo Jens Fog Jensen.

The larger preforms are extremely rare in Southern Qeqertarsuup Tunua, but the stray find of a large example on Niisat (Fig. 7.9), as well as a few other specimens (Fig. 7.10), indicates that they did reach here. On Nuussuaq, and at the sites in the vicinity of Torsukattak, they are more common. In contrast to the linear drop-off rates seen in the frequency of killiaq in relation to other raw materials (Fig. 7.8), the occurrence of preforms appears to be highly restricted to the area in the immediate vicinity of Nuussuaq. Most of the killiaq preforms found on the Nuussuaq Peninsula seem to have been discarded due to breakage or irregularities in their flaking properties. Whenever preforms were transported out of the production area, they were always of high quality and normally completely worn out. As a consequence, the transported preforms rarely appear in the archaeological record. Only a few fragments are known from Qeqertasussuk in Sydostbugten, and Th. Mathiassen lists five examples from his excavations at Sermermiut. Unfortunately, earlier inventories rarely separate preforms from the category of general bifaces, and it is therefore difficult to assess their exact quantities at the different Saqqaq sites. However, large preforms are strikingly few as one moves away from the Nuussuaq Peninsula. The quantities of debitage at the larger Saqqaq sites, on the other hand, indicate that preforms must have circulated between the larger settlements through-out the Saqqaq period. This circulation is virtually invisible in the archaeological record.

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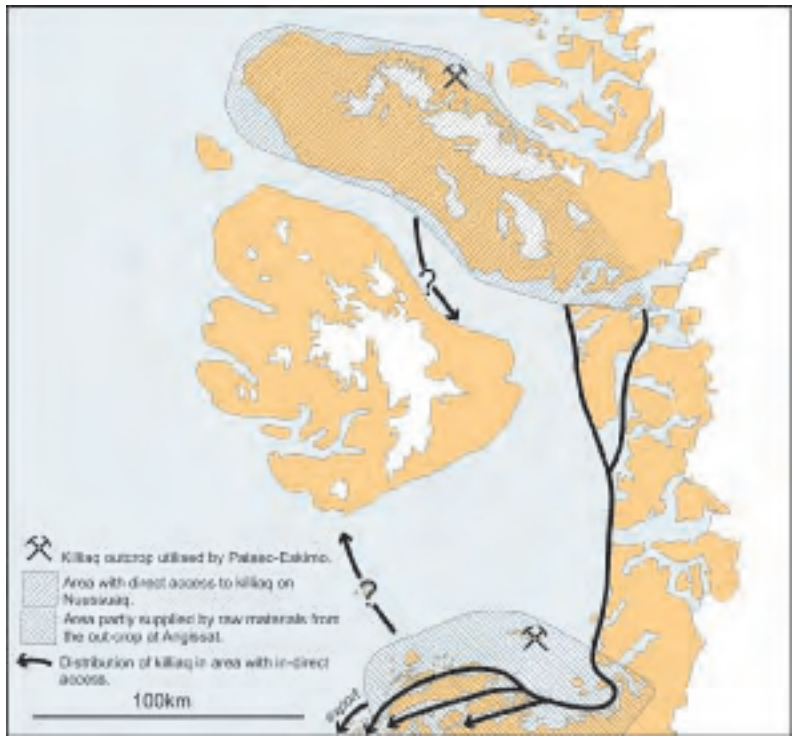

Fig. 7.11. Model of raw material distribution in Qeqertarsuup Tunua. Nuussuaq Peninsula and adjacent areas comprise a zone of direct access. People living in these areas had easy access to large quantities of high quality killiaq and preforms are often seen on Saqqaq sites. Eastern Qeqertarsuup Tunua, and maybe also the island of Qeqertarsuaq, are areas of indirect access, where people acquired killiaq through middlemen. Preforms are rare on Saqqaq sites in these regions. Presumably, the handing over of the raw materials can be seen as a social and qualitative filter adding value to the raw materials and also resulting in a sorting of lithic quality. Most of the killiaq entering these areas was thus of a high quality and preforms were most often exhausted completely. Southern Qeqertarsuup Tunua is an area with direct access to the local raw material source on the island of Angissat. At the same time, high quality killiaq from Nuussuaq was acquired through middlemen. The local source at Angissat was never used for industrial production of preforms similar to the one known from Qaarsut. Thus, in Southern Qeqertarsuup Tunua, preforms are equally as rare as in Eastern Qeqertarsuup Tunua.

The industrial production of preforms known from Nuussuaq is not matched at Angissat. Here, it appears that the nodules were taken away after only minor initial testing and reduction, supporting the impression of a resource used mainly for local needs, and not so much for export.

The model proposed for the distribution of killiaq in West Greenland (Fig. 7.11) is thus one of a far-reaching distribution of blanks and bifacial preforms produced on the Nuussuaq Peninsula, and a local system of direct access to sources on Angissat which probably were exploited in a more opportunistic manner. The rarity of blanks as one move away from the Nuussuaq Peninsula may indicate that Saqqaq people on Nuussuaq had the production of blanks and bifacial preforms for export as an important side-line.

The Saqqaq distribution of killiaq in Qeqertarsuup Tunua can be characterised by the definition of three different geographical zones: 1) Nuussuaq, where there is direct access to outcrops, and where large quantities of preforms were easily obtainable everywhere. 2) The central zone, including the eastern shore of Qeqertarsuup Tunua from the Torsukattak Icefjord to the town of Qasigiannguit, and the known areas of Qeqertarsuaq, which only cover the southern part of the island. Here, there are very few blanks and all of the killiaq is seen as having been imported, having passed through at least one pair of hands. 3) Southern Qeqertarsuup Tunua, characterised by locally-obtained killiaq from the source at Angissat as well as by imported materials from Nuussuaq. From this zone, killiaq was redistributed further south towards the district of Sisimiut, and in this process of redistribution Southern Qeqertarsuup Tunua acted as a filter, replacing some of the raw materials passed on to those from the south with the locally-acquired killiaq variety obtained on the island of Angissat.

Summary and discussion of Saqqaq raw material procurement

During the Saqqaq period killiaq was circulated from two source areas: 1) the principal outcrops between

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Qaarsut and Ikorfat on the northern shore of Nuussuaq, 2) from the smaller outcrop on the island of Angissat in Southern Qeqertarsuup Tunua. The raw material procurement systems related to these two lithic sources vary greatly. Massive blank production for export purposes is documented on the Nuussuaq Peninsula, whereas the Angissat source was apparently used in a more *ad hoc* manner. The latter was primarily based on the transport of nodules directly from the source and, to a lesser extent, on the production of blanks in the direct vicinity of the outcrop. At Brinchip Tupeqarfikuutaa (site no. 133), Ikerasak (site no. 148) and Orpissooq East (site no. 87) there is debitage from primary lithic reduction indicating that nodules or blanks, obtained more-or-less directly from Angissat, were reduced at these temporary camps. This could indicate that Saqqaq hunters often obtained killiaq from the Angissat source during their summer journeys as embedded procurement (Binford 1979). The long distance distribution of killiaq from the source at Nuussuaq was, on the other hand, based on the production of blanks at the 'mining localities' as well as at other localities in the area of direct access. Judging from the frequency of blanks and preforms throughout Qeqertarsuup Tunua, this exchange appears to have been organised as transport between the larger base camps, and the permanence of the settlements at these sites may also be related to the fact that the large base camp settlements were meeting places for the maintenance of exchange and social networks.

The principles of energy minimisation or distance-decay (Nagle 1984; Renfrew 1977) constitute the common framework for analysis of the distribution of lithic raw materials on a regional scale. However, the distance-decay model does little to illuminate the degree to which the raw materials were obtained by direct procurement or whether they were exchanged (Nagle 1984:20). This question may be better addressed by looking at the occurrence of bifacial preforms of grey killiaq, which are mainly found on sites on, and in the immediate vicinity of, the Nuussuaq Peninsula.

When comparing the model of raw material supply zones to the settlement clusters depicted in fig. 5.12, it is seen that the settlement cluster in the area around Torsukattak is within the zone of direct access to killiaq on the Nuussuaq Peninsula. The cluster of settlements around Kangia (Jakobshavn Isfjord), as well as the sites on the island of Qeqertarsuaq, lies outside the zones of direct access to any of the two lithic resources. This is reflected in a general absence of large preforms of killiaq both of the grey variety and of the patinated variety known from the island of Angissat. Saqqaq sites in Sydostbugten, and in the Southwestern Archipelago, are also beyond the area of direct access to the Nuussuaq sources. However, they lie within the area of direct access to the Angissat source, as indicated by general absence of bifacial preforms of grey killiaq. Evidence for the primary reduction of nodules of the Angissat variety is seen at several small seasonal sites in Southern Qeqertarsuup Tunua.

Patterns in the distribution of lithic raw materials support, to some degree, the suggestion that the settlement clusters in key resource areas represent band or group territories. The long distance distribution of killiaq is believed to have been organised as exchange between the larger campsites in the different settlement clusters. Inter-site connections within one and the same settlement cluster were probably more common and of an informal character, whereas contact beyond the area covered by the settlement cluster was probably more sporadic and of a more formal nature. The dynamic aspects of prehistoric life, elucidated by patterns in the raw material distribution, may also help us to understand the differentiation of settlement types described in chapter ten. Seasonal migration may have been of very varying character, ranging from small task-specific groups of a few people who just left a larger camp for a few days, to larger groups of people or families on long-distance excursions to neighbouring bands. Evidently such differences in the composition of travelling parties must be expected to result in variation in the size and configuration of settlement remains even within the category of 'short-term settlements'.

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Chapter 8

Dorset Settlements in Southern Qeqertarsuup Tunua

Innartalik I

Innartalik I (site no. 175) is a Dorset camp with an isolated mid-passage tent ring and a limited lithic inventory. The site has been characterised as a Dorset representative of short-term summer camps (Jensen 1998), and in the following this interpretation will be maintained by suggesting that Innartalik was probably the short-term camp of a single family. Excluding the burned lithics, there are at least ten different raw materials representing the rejuvenation or re-tooling of at least 11 different tools. Many of the flakes represent unknown tools passing through the site, and the tools are in the final stages of reduction, being in the form of worn-out and often broken items. The lithic inventory is thus lacking in traces of the primary stages of lithic reduction and all the finds represent a highly selected spectrum of tools and raw materials, which were in circulation for a long time prior to their deposition.

Site location

Innartalik is the second largest island in the archipelago of Saattut Kangilliit, located centrally in the Saqqarleq inlet (Fig. 8.1). The highest point on the 1.5 x 0.75 km island lies around 75 m a.s.l and it consists

Fig. 8.1. Saqqarleq seen from the southwest. To the right of the propeller are the inlets of Nivaap Paa and Amitsuarsuk. Sydostbugten can be seen furthest to the east in the background. Photo National Survey and Cadastre, Copenhagen.

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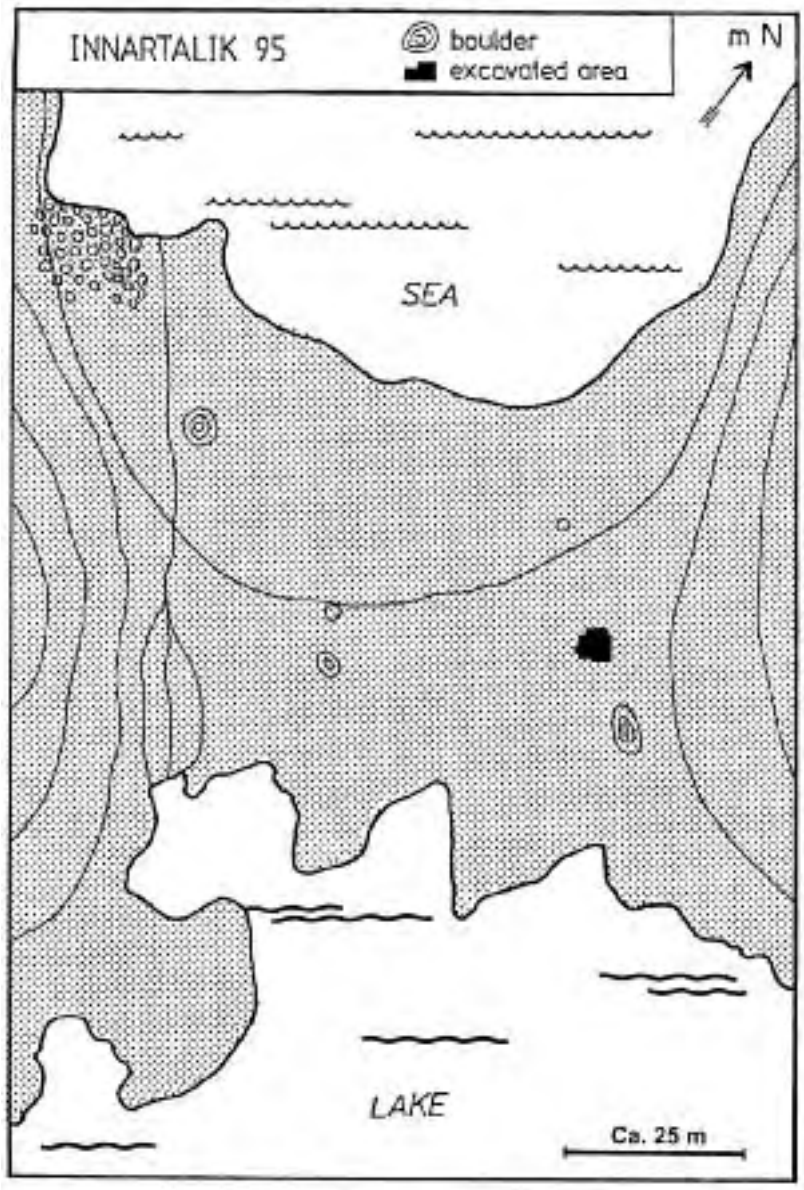

Fig. 8.2. Local setting of the Innartalik site. The excavated area is situated on an isthmus separating a lake from the sea.

generally of low, rounded bedrock outcrops intersected by areas of gravel and clay. At the centre of the island is a lake separated from the sea by a low, approximately 50 m wide ridge on which the Innartalik I site is located (Fig. 8.2). The site was discovered during survey in 1995 and excavated the same year. The location gives the dwelling a front door view of the sea and a back door view of the lake, where a loon roamed during excavation of the site. There are only few signs of human presence on the island. Two small Saqqaq sites were located along the northwestern shores of the island (sites no. 177 and 178) and a sub-recent tent ring which partly covered the excavated Dorset tent ring named Innartalik I (Jensen *et al.* 1995). The vegetation is sparse, consisting of grasses, moss, crowberry and scattered willow and birch, growing on a substrate of stone, sand and gravel. The site was discovered due to stones from the mid-passage and tent ring jutting through the vegetation, and the excavation grid was laid out relative to the mid-passage. A total area of 28.25 m² was excavated uncovering a tent ring with mid-passage (Fig. 8.3). The thin stratigraphy was documented in two transects and a radiocarbon sample was extracted from the hearth (Fig. 8.4.)

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Fig. 8.3. Mid-passage tent ring at Innartalik I seen from the rear looking towards the sea. The floor area at the rear of the mid passage is made up by a flat area of bedrock protruding through the vegetation. Photo Lykke Johansen.

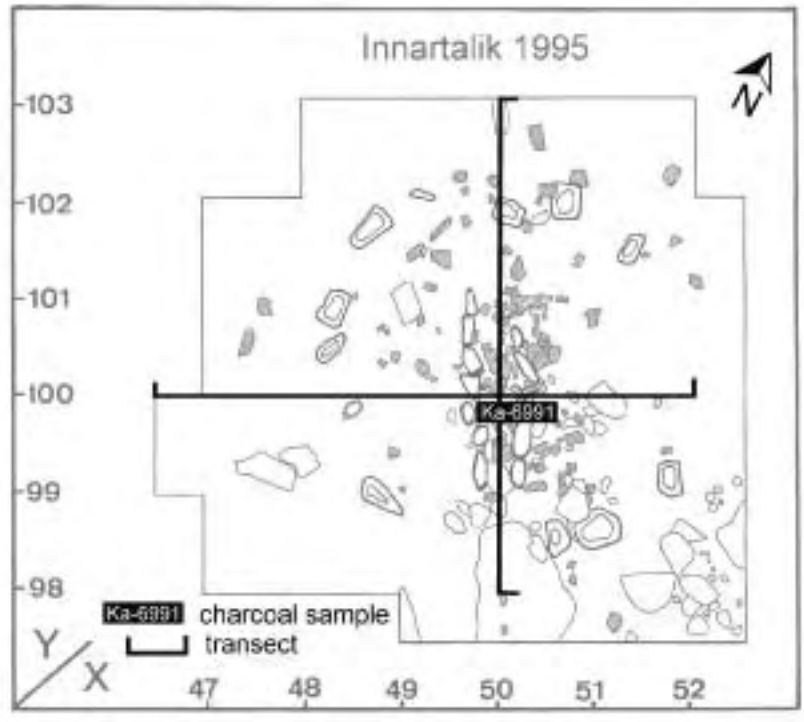

Fig. 8.4. Sections and samples from Innartalik I.

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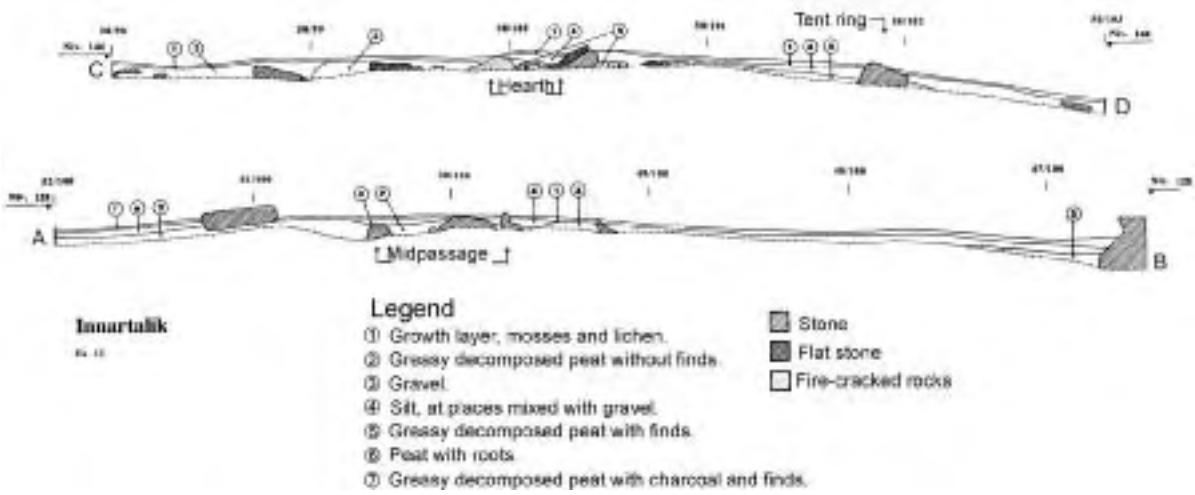

Fig. 8.5. Sections at Innartalik I. Most artefacts were found in the gravel immediately below the vegetation. In places there is a thin layer of grey silt between the vegetation and the gravel natural. Drawing Lykke Johansen / Erik Brinch Petersen.

Stratigraphy

In most parts of the site the recent vegetation rests directly on top of the sub-stratum of sandy gravel. However, within and immediately around the mid-passage there were thin deposits of silt covering the artefact-bearing horizon. All artefacts were found in the top of the gravel immediately under the recent vegetation (Fig. 8.5).

Feature description

The circular boulder tent ring has a diameter of 3.6 m internally and 4.2 m externally. Some of the boulders in the eastern half had been removed and re-used in a sub-recent tent ring located on top of the vegetation and partly overlapping the eastern part of the feature. The mid-passage consists of two parallel rows of boulders, 2 m long and spaced approximately 0.7 m apart.

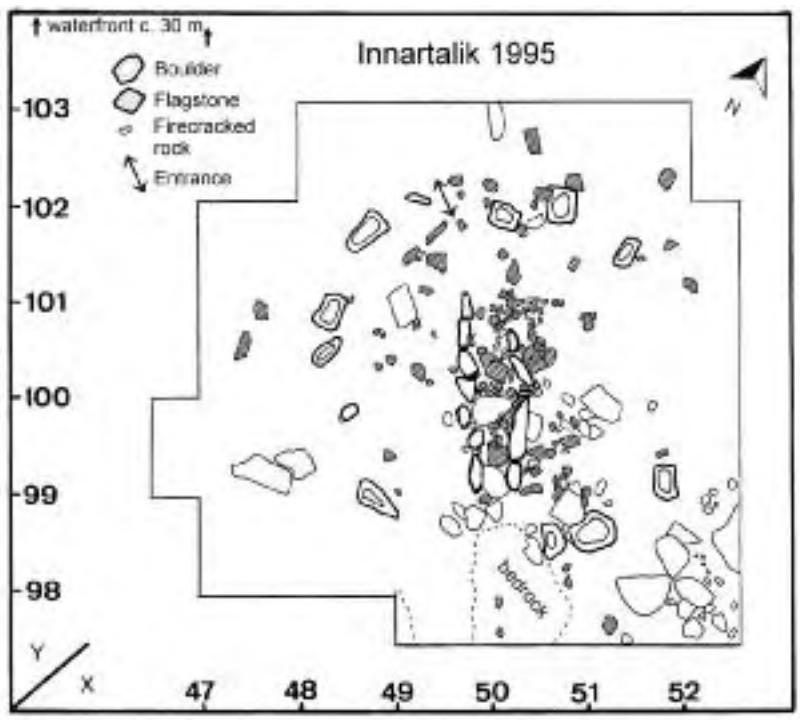

Fig. 8.6. Ground plan of mid-passage tent ring at Innartalik I. Drawing Lykke Johansen with additions by Jens Fog Jensen.

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Inside, and along the eastern side of the mid-passage, there is a flagstone pavement. Centrally in the passage, two transversely-placed boulders mark out a box containing a few fire-cracked rocks (Fig. 8.6). A few pieces of charcoal and flecks of ash indicate the presence of a hearth here as well as in the rear part of the mid-passage.

Artefacts

Only lithics were preserved, and the limited material amount to 134 flakes and tools. Retouch flakes are the most numerous and the tool inventory is limited, with 20 microblades and just two scrapers, a burin-like tool, and a few fragments of bifaces (Table 8.1, Fig. 8.7).

Table 8.1. Lithic artefacts at Innartalik.

	No.	%	All artefacts	%
Bifacially ground blade (fragments only)	2	6.9		
Side-notched biface (fragment only)	2	6.9		
Burin-like tools	1	3.4		
End-scrapers	2	6.9	29	21.6
Retouched flakes	1	3.4		
Nodules	1	3.4		
Microblade (all fragments included)	20	69.0		
Flakes > 1 cm			21	
Flakes < 1 cm			82	78.4
Other debitage			2	
Total	29	99.9	134	100

Fig. 8.7. Selected artefacts from Innartalik. 1) refitted fragments of polished biface of light grey killiaq (raw material type 11) from x52/y99:2 and x99/y100:1; 2) burin-like tool of grey killiaq (raw material type 4) from x49/y98:2; 3) scraper of white chalcedony (raw material type 1) from x49/y99:1; 4) scraper of raw material type 1 from x49/y99:2; 5) scraper preform of smoky grey chalcedony (raw material type 2) from x49/y99:4; 6) refitted proximal and distal fragments of microblade of grey charred chalcedony (raw material type 10) from x50/y98:1; 7) refitted distal and mid fragment of white chalcedony from x50/y99:3; 8 mid fragment of microblade of yellow-reddish chalcedony (raw material type 8) from x49/y101:2; 9) proximal end of microblade of quartz crystal (raw material type 6) from x50/y99:1; 10) proximal end of microblade of quartz crystal x49/y99:4; 11) proximal fragment of microblade of grey charred chalcedony from x50/y99:1; 12) proximal fragment of side-notched biface of white chalcedony from x51/y101:1. Photo Geert Brovad.

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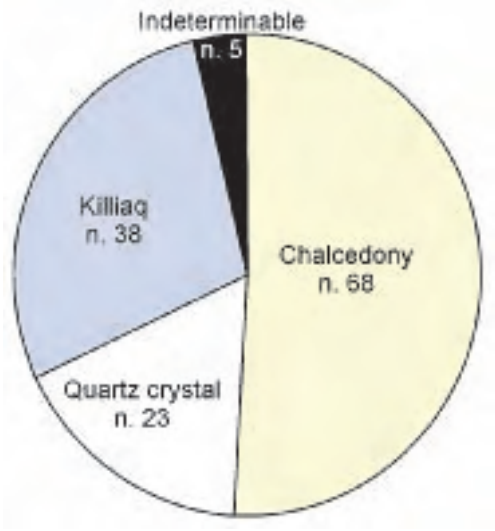

Fig. 8.8. Raw material frequencies at Innartalik I. Chalcedony is most frequent, but there is also grey killiaq and microblades of quartz crystal.

Raw material frequencies

The raw material composition at Innartalik includes a large proportion of quartz crystal (17%), whereas the relative proportions of chalcedony and killiaq are typical for Dorset sites in this part of Greenland (Fig. 8.8). The quartz crystal debitage may be related to the production of microblades, as indicated by its overlapping distribution with that of quartz crystal microblades, whereas the remaining flakes are believed to have been detached from the tools found on site, or from other artefacts of similar raw materials. The large flake from x49/y99:4 is a good example of a scraper preform, which had been brought to the site and left there apparently with no on-site reduction. Pre-forms of this type were carried around from one camp to the next, and they may also have changed hands during this process of transport. A similar pattern of circulation can be inferred for most of the tools from the Innartalik site, where the chalcedony microblades also appear to have been brought in. The quartz crystal microblades appear, conversely, to have been produced on-site.

Re-fits

Some flakes and tool fragments have been re-fitted. The largest series comprises three flakes of grey killiaq with dorsal/ventral refits. The three flakes are all from the concentration of grey killiaq flakes found scattered around the hearth. They are from x49/y99:4, x50/y99:1 and x50/y99:2 and all have polished surfaces. The remaining re-fitted items include: two flakes of raw material category 11 (x50/y102:2 on x50/y102:4), two fragments of a polished biface of the same material (x52/y100:1 and 52/99:2), a distal and a proximal fragment of a quartz crystal microblade (both from x50/y100:1), but this break may well be post-depositional, and a mid-fragment and a distal fragment of white chalcedony from x50/y99:3. All of these artefacts represent short refits between closely-spaced objects and, as such, they do not confirm generalised traffic patterns. However, they do indicate that the concentrations of flakes and artefacts are likely to represent coherent clusters of artefacts from specific episodes of reduction.

Spatial distribution of artefacts

As is typical of this kind of dwelling, the tools are concentrated towards the mid-passage. In the mid-passage at Innartalik, the hearth is retracted towards the rear. Consequently, most tools are clustered at the back of the tent (Fig. 8.9) as well as along the axially-aligned stones. Knuth (1967b:200) regarded this pattern of distribution as being a consequence of the use of a skin covering on the sleeping platforms. This practice allowed objects to slip down in the chink between the skins and the stone walls in the mid-passage. However the distribution seems also to reflect general behavioural patterns in the dwelling where most activities were concentrated around the hearth in the rear part of the interior (Fig. 8.10). Towards the sea (north-west), the artefact scatter fans out through the door, and a 'door dump' has been formed at either side of the entrance. At the opposite end of the mid-passage, towards the lake (south-east), there was a smaller, but similar scatter of artefacts outside the tent ring, indicating the presence of a 'back door'. The distribution of different raw materials (Fig. 8.11) indicates that the general distribution reflects specific activities resulting in the deposition of microblades and bifaces to the right of the mid-passage, whereas the scrapers and a burin-like tool are located to the left of the mid-passage. This spatial separation of different tool categories is probably a product of the fixed seating places for different individuals which may well represent a gender-specific division of the interior.

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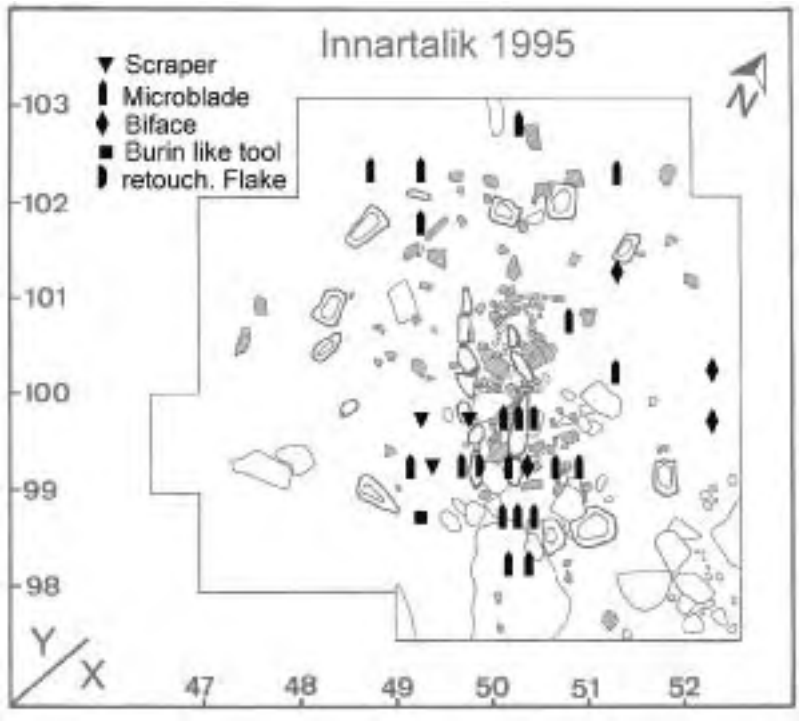

Fig. 8.9. Distribution of all tools and microblades from Innartalik I. The majority of the tools are centred around the hearth in the rear of the mid passage. There is a predominance of microblades on the right side of the mid passage and scrapers are found on the left side. Some microblades have been deposited in the entrance towards the west, and a few also fan out though the rear part of the tent where there may have been a back door.

Ten different raw materials are represented and at least 12 sequences of reduction occurred at the site. In the following sections the artefacts and the distributions of each raw material category are presented.

White chalcedony (raw material type 1): The most frequent raw material with ten tools and 41 flakes. 60% of the white chalcedony is scattered to the left and approximately 40% to the right of the mid-pas-

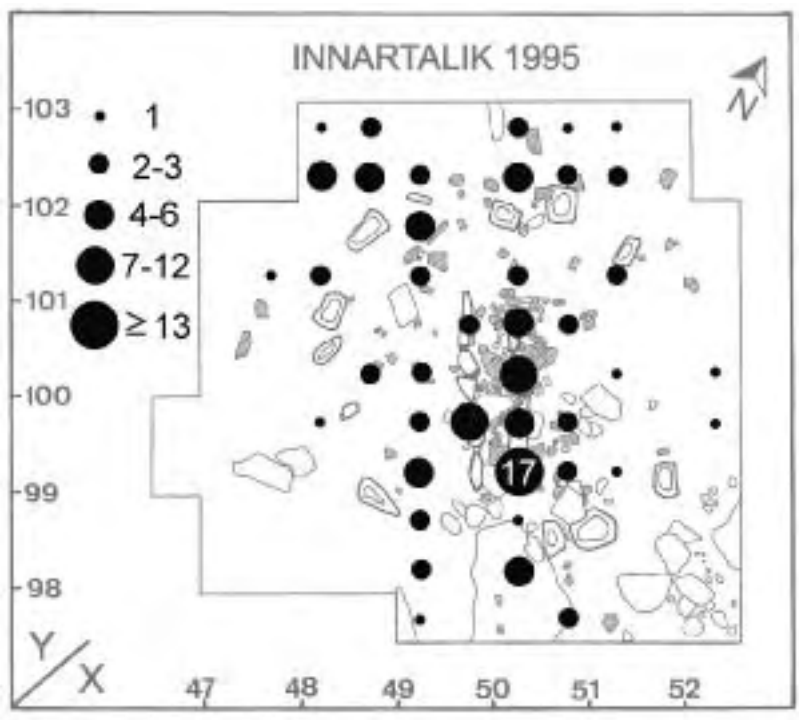

Fig. 8.10. Total distribution of lithics at Innartalik I. Most artefacts are centred around the mid passage. Door dumps are situated to the left and right of the front entrance and at the rear of the dwelling lithics also appear to fan out through a rear entrance.

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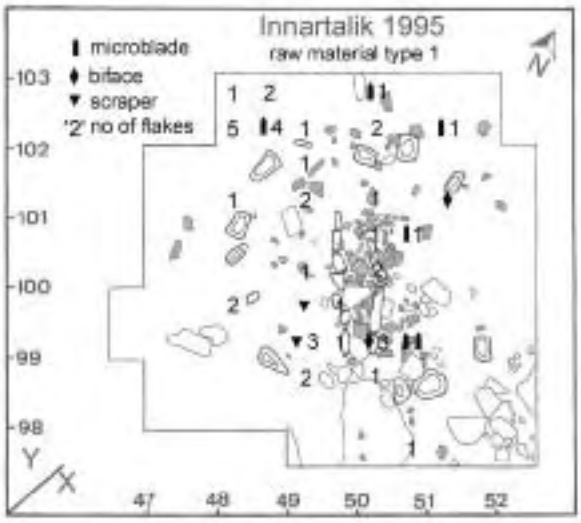

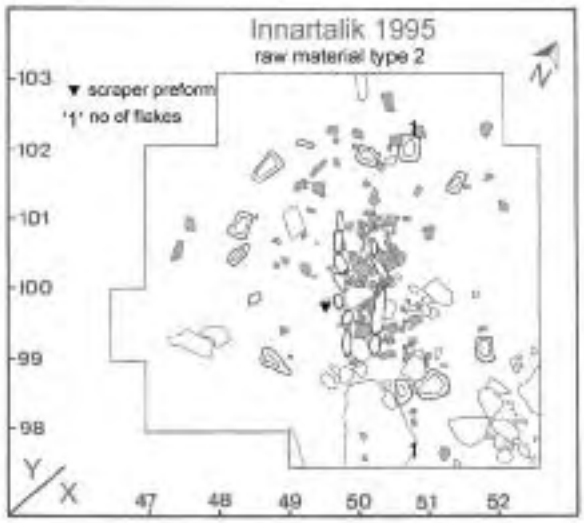

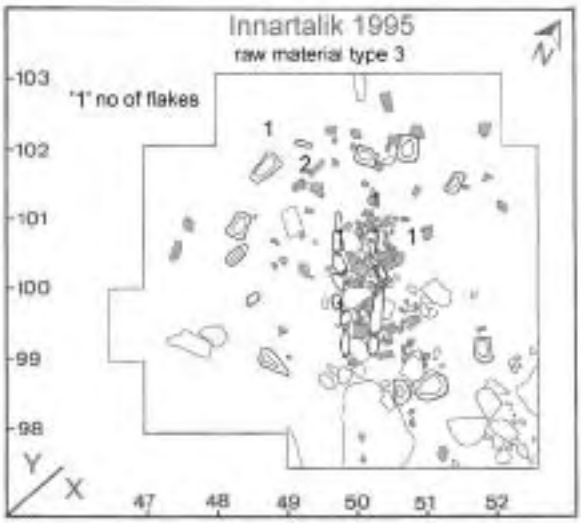

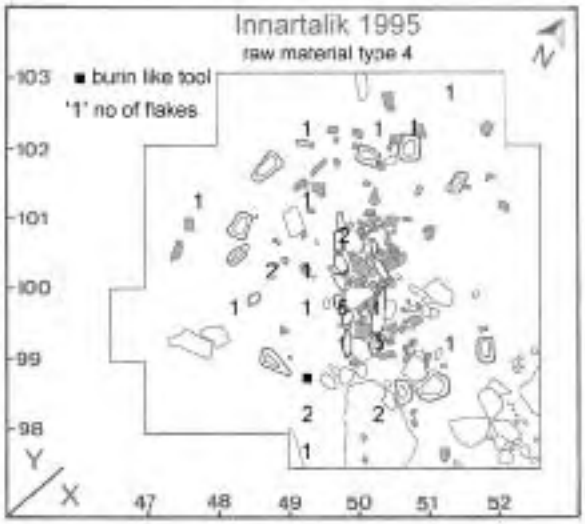

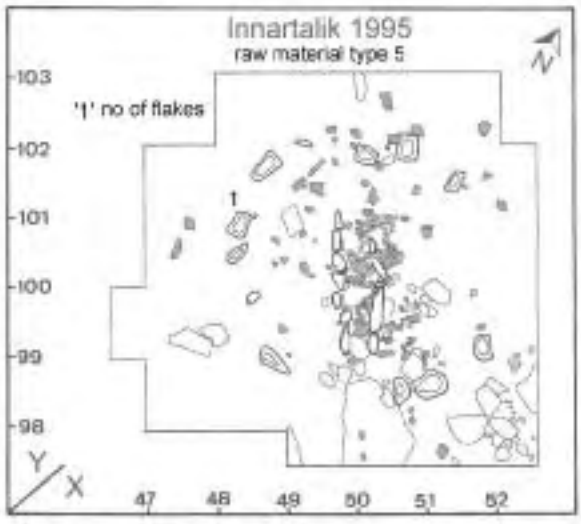

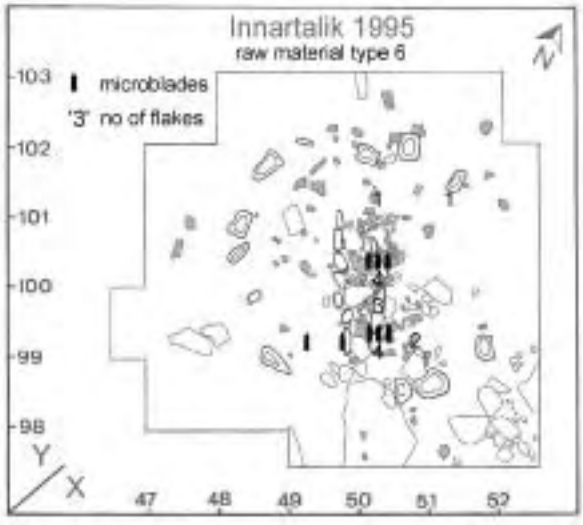

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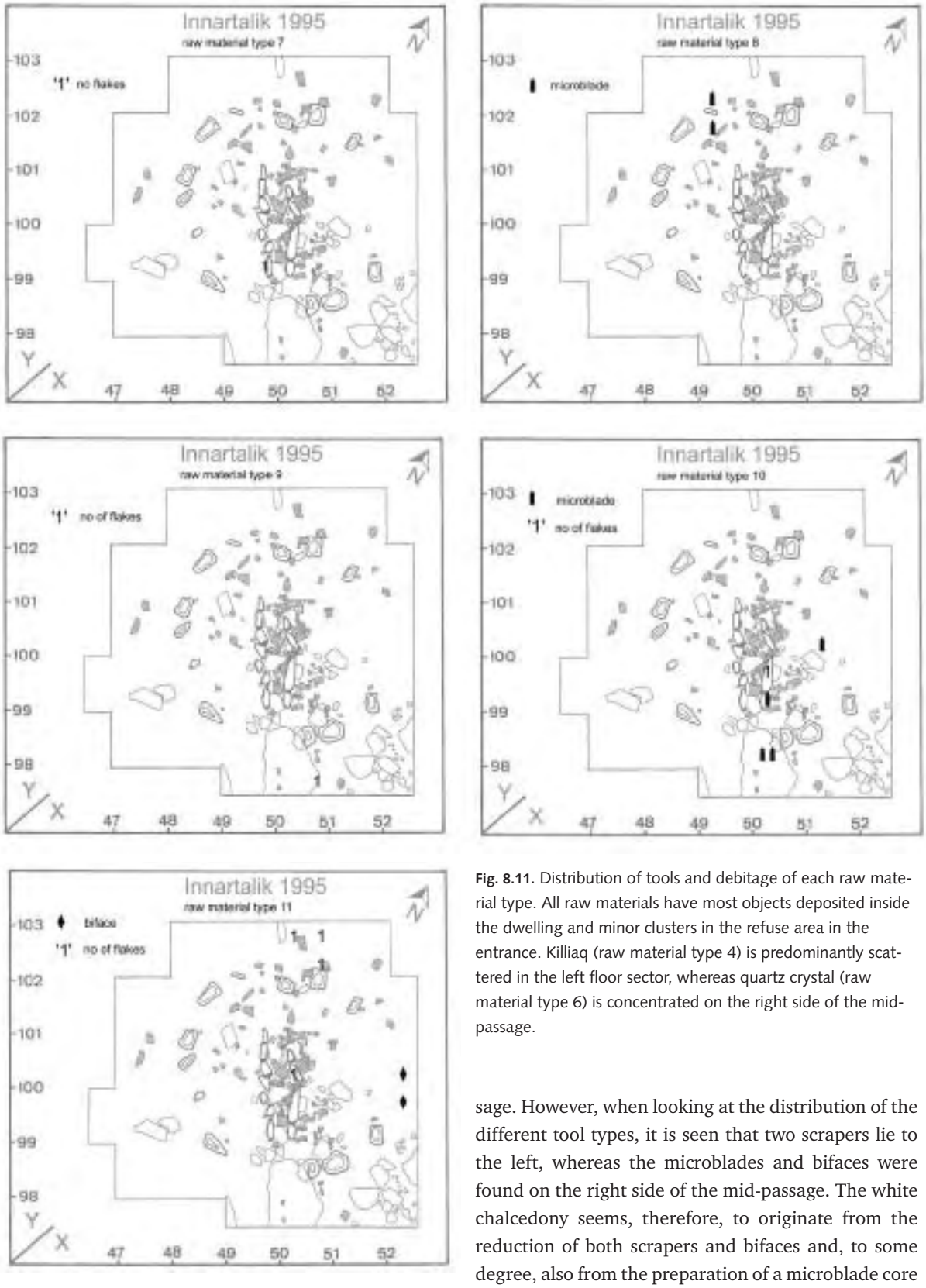

Fig. 8.11. Distribution of tools and debitage of each raw material type. All raw materials have most objects deposited inside the dwelling and minor clusters in the refuse area in the entrance. Killiaq (raw material type 4) is predominantly scattered in the left floor sector, whereas quartz crystal (raw material type 6) is concentrated on the right side of the mid-passage.

sage. However, when looking at the distribution of the different tool types, it is seen that two scrapers lie to the left, whereas the microblades and bifaces were found on the right side of the mid-passage. The white chalcedony seems, therefore, to originate from the reduction of both scrapers and bifaces and, to some degree, also from the preparation of a microblade core during the production of microblades.

Smokey grey chalcedony (raw material type 2): A

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large scraper preform was located on the left side of the mid-passage and a single flake was found in the door dump to the right of the entrance. Another lay in the exterior dump zone to the south of the mid-passage. It has not been possible to refit any of the artefacts of this raw material and it is therefore uncertain whether the three artefacts stem from the same object.

Reddish-brown chalcedony (raw material type 3): Nine flakes are of reddish-brown chalcedony. These were deposited inside the dwelling in the mid-passage, a little to the right of it, and outside to the left of the entrance.

Grey killiaq (raw material type 4): 31 flakes of dark grey killiaq were scattered inside the dwelling, mainly on the left side of the mid-passage as well as outside, where the distribution fans out to the right of the doorway. Several of these flakes show polishing and the concentration on the left side of the mid-passage, in the vicinity of a burin-like tool of the same raw material, could indicate that some of the flakes result from the reduction and rejuvenation of this tool. However, several of the flakes are relatively large and with a very flat appearance indicating that they probably arose from the rejuvenation of a larger polished implement. The flakes include three refitted specimens from x49/y99:4, x50/y99:1 and x50/y99:2.

Grey opaque chalcedony (raw material type 5): A single retouch flake of grey opaque chalcedony was located in x48/y101:1. This is the only flake of this material.

Quartz crystal (raw material type 6): Fifteen flakes and eight microblades are of quartz crystal. They were concentrated around the hearth inside the dwelling, where they were mainly found along the right side of the mid-passage, together with the majority of the quartz crystal flakes. Two quartz crystal flakes were deposited at the right side of the entrance.

Beige chalcedony (raw material type 7): A single flake of beige chalcedony was located on the left side of the mid-passage near the hearth. This flake belongs to the group of items greater than 1 cm. In contrast to the isolated flakes of grey opaque and green chalcedony this is not an isolated retouch flake. On the other hand, the total length of the flake, at just 2.5 cm, makes it too small to be raw material or a preform. Since no other flakes of same raw material are present it is presumably an expedient knife.

Yellow–reddish chalcedony (raw material type 8): Two microblade fragments are of a yellow–reddish chalcedony. One is a proximal fragment, the other a mid-fragment. Both lay in the left side door dump. No other flakes or tools are of this raw material category and the microblades must, therefore, have been brought to the site in a complete state.

Green chalcedony (raw material type 9): Green chalcedony is present in the form of a single flake found outside the back of the tent.

Burned lithics (raw material type 10): A single flake and four chalcedony microblades have been affected by fire making the classification of the raw material sub-type difficult. Two of the microblades were, however, situated at the right side of the mid-passage and two were found in the 'back-door' dump to the south-southeast of the mid-passage. The situation of the burned microblades thus resembles the distribution of microblades of white chalcedony, as well as that of microblades of quartz crystal.

Light grey killiaq (raw material category 11): Four flakes are of a light grey killiaq similar to the raw material used for a fragmented polished blade found in x52/y99:2 and x52/y100:1. It is likely that the flake found inside the dwelling on the right side of the mid-passage is from the same polished blade since it has two polished facets on its dorsal side. Two flakes from x50/y102:4 and x50/y102:2 respectively, of a similarly coloured raw material found outside the dwelling must, on the other hand, be from the reduction of another nodule. When refitted, they form a 32 x 22 mm body which exceeds the dimensions of the polished blade.

Radiocarbon date

A sample of locally-grown charcoal has been dated to 540 b.c. (Ka-6991), which lies within the 'Pre-Roman' plateau on the calibration curve. Within one standard deviation this gives a relatively broad calibrated date spanning the period from 770 to 510 cal B.C. (Table 9.1).

Summary of the Innartalik Site

Similar to the localities described in the previous sections, the Innartalik Site is an isolated temporary campsite presumably inhabited by a single family. The overall spatial distribution of lithics suggests that the rear of the tent probably had an extra exit of some sort, similar to the suggestion of a 'back door' in a Gros-

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Fig. 8.12. Artists reconstruction of the Innartalik I site c. 600 BC. It is a quiet but chill summer night with calm water. The family is gathered around the hearth in the tent. Watercolour by Martin Antoni Nielsen.

water mid-passage tent ring at Nukasusutok 2 in Labrador (Fitzhugh 2002:145). Furthermore, the concentration of microblades on the right side of the mid-passage, and their contrast to scrapers on the left side, suggests that the dwelling interior may have been organised into gender- or age-specific seating and working areas. One can only guess as to the season of occupation, but the site location on a minor island adjacent to the lake in an area where there are no Thule winter houses suggests that this was a summer camp with a well-ordered tent (Fig. 8.12).

Kangerlussorissunnguup Kangia

Initially it was thought that Kangerlussorissunnguup Kangia (site no. 172) was a site with three tent rings lined up parallel to the shore. However, upon excavation it was seen that there was just a single mid-passage tent ring, an open-air hearth, lithic scatters and a third boulder structure, believed to be a rudimentary tent ring with a central hearth, but which also could be an open-air hearth. The lithic inventory is limited and only retouch flakes are present, in addition to tools. Different tool types and raw materials are associated with the mid-passage dwelling and the two other features. But there are also similarities in the raw materials from the dwelling and open-air activity areas, suggesting that they are contemporaneous features left by one or two families camping here for a short period of time during the warm season.

Site location

Kangerlussorissunnguup is a little bay on the southern shore of Saqqarliup Nunaa (Fig. 8.13). The site is located a few hundred metres to the east of this bay. The features are situated approximately 50 m from the sea on a well-drained crowberry-covered gravel ridge protected from the shore by low rocky knolls (Fig. 8.14). Surrounding the site are areas with water-saturated patterned soil and several small pools. There is a good view of the Saqqarleq Inlet from the rocks around the site. 75 m east of the site is a small beach, and in front or south of the site the irregular coastline forms a good landing place with a small stone and sand beach. Close to the east-facing beach there is a 4 x 3 m rectangular tent foundation of peat and a cache, both of recent origin.

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Fig. 8.13. Oblique aerial photograph of Saqqarleq and the island of Saqqarliup Nunaa. In the background is the archipelago around the town of Aasiaat and on the horizon are the ice-capped hills on Qeqertarsuaq. Photo National Survey and Cadastre, Copenhagen.

Fig. 8.14. Sketch drawing of Kangerlussorissunnguup Kangia during excavation. Mid-passage tent ring in excavation area A to the right. To the left excavation area B-C. Watercolour by Martin Antoni Nielsen.

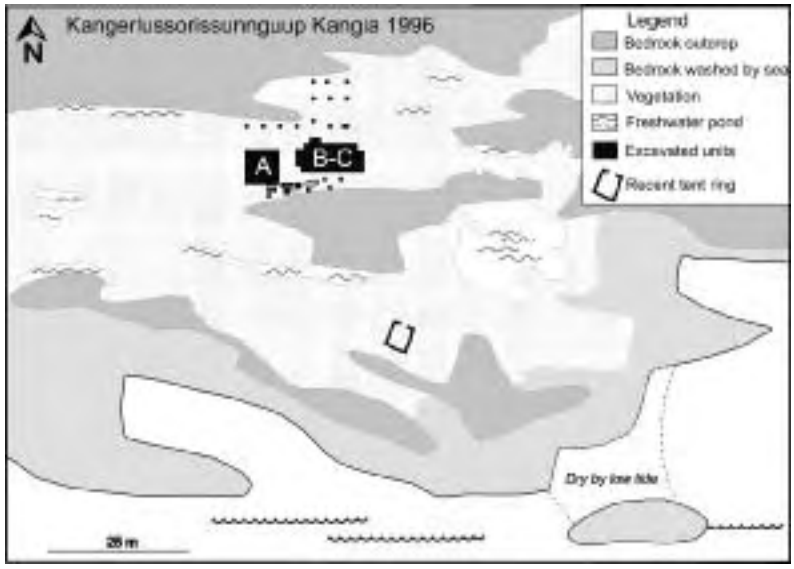

Fig. 8.15. The Kangerlussorissunnguup Kangia site is situated on an even terrace located between low rocky knolls. The mid-passage tent ring (feature A) is located in excavation area A, and more diffuse features B and C are located in excavation areas B-C.

The site was discovered during the 1995 survey of the archipelago south of Aasiaat (Jensen *et al.* 1995). Stones in the well-preserved mid-passage and tent ring named feature A protruded through the vegetation. Approximately 10 and 15 m to the east of this respectively, the more rudimentary structures B and C were also seen (Jensen *et al.* 1995).

A few hundred metres to the west there is a Saqqaq site. This comprises at least one mid-passage and several other features located on gravel ridges between rocky knolls on the southeastern corner of the little bay of Kangerlussorissunnguup. This site was located by chance during the excavation of Kangerlussorissunnguup Kangia.

Excavation

Excavation proceeded from June 27th to July 7th 1996. An area of 36 m² was excavated around the well-preserved feature A, and 66 m² was excavated around features B and C. Excavations around features B and C were extended until the two excavation fields merged into one (Fig. 8.15). In addition to these excavations, test pits were laid out on the flat area surrounding the excavated area in order to ensure that no ruins had been missed. In all of the areas excavated, the vegetation consisted of an up to about 10 cm thick layer of crowberry, grasses and lichen. Below the thin humus, the sub-soil consisted of sand and gravel with only a few larger natural boulders.

Finds in test pits: Only a few test pits contained finds: x97/y56:1 one microblade of white translucent chalcedony, x103/y45:4 one retouch flake of white translucent chalcedony, x105/y45:2 one side-blade of white translucent chalcedony, x112/y45:1 one retouch flake of white chalcedony, x114/y46:2 one retouch flake of white chalcedony, x115/y56:1+3 four retouch flakes of white chalcedony.

These scattered artefacts demonstrate that minor activity areas lie scattered in the vicinity of the dwelling but, on the other hand, the low density indicates that no major components have been missed in the immediate vicinity of the dwelling.

A 50 cm wide baulk was left during the excavation of the mid-passage tent ring. The area cleared of vegetation had the shape of four quadrants. The stratigraphy was registered along an east-west oriented transect perpendicular to the mid-passage and running approximately through the centre of the dwelling (Fig. 8.16) as well along a north-south-oriented transect along the entire length of the mid-passage. All stones were left *in situ*, and upon registration of the stratigraphy, the baulks were also excavated. The excavation proceeded from the centre of the dwelling and continued in all directions until the periphery had been revealed. Outside the periphery, excavation proceeded until finds ceased to occur in any significant numbers. The excavation resulted in the complete uncovering of a circular mid-passage dwelling within a 6 x 6 m excavation. It was quickly realised that neither well-preserved features nor stratification were present in area B-C.

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Table 8.2. Lithic artefacts at Kangerlussorissunnguup Kangia, feature A.

	No.	%	All artefacts	%
Bifaces, all fragments included	9	60	15	4.9
Microblades	5	33.3		
End-scrapers	1	6.7		
Soapstone vessel fragments			3	1.0
All flakes			291	94.2
Total	15	100	309	100.1

Table 8.3. Lithic artefacts at Kangerlussorissunnguup Kangia, areas B-C.

	No.	%	All artefacts	%
Bifaces, all fragments included	5	20	25	12.8
Microblades	16	64		
Burin-like tools	3	12		
Side-blades	1	4		
Soapstone vessel fragments			many	
All flakes			170	87.2
Total	25	100	195	100

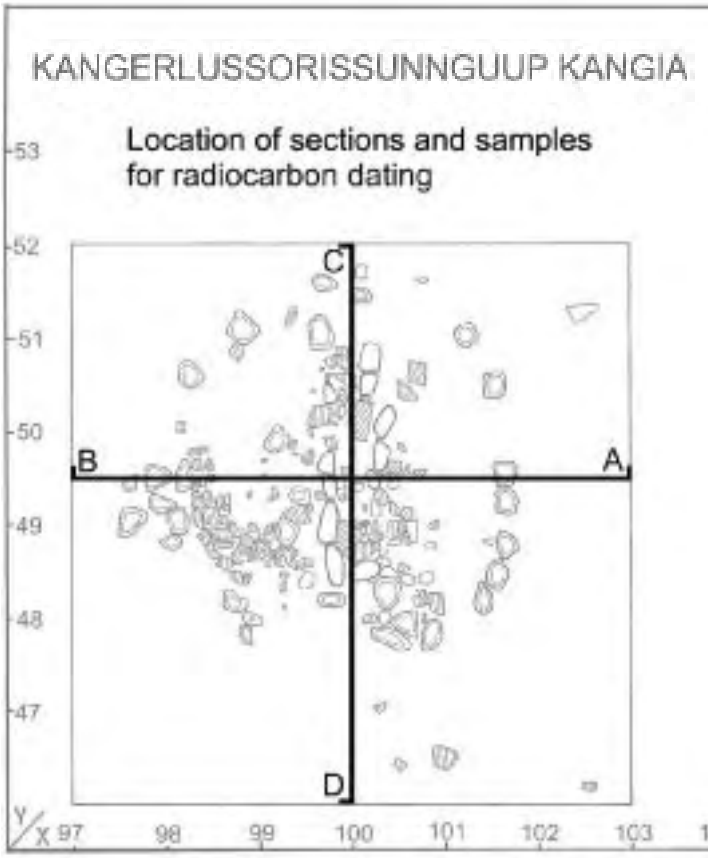
Table 8.4. Total list of lithic artefacts Kangerlussorissunnguup Kangia, areas A and B-C.

	No.	%	All artefacts	%
Bifaces, all fragments included	15	36.6	41	8.1
Microblades	21	51.2		
Burin-like tools	3	7.3		
Side-blades	1	2.4		
End-scrapers	1	2.4		
Soapstone vessel fragments			3+	0,6+
All flakes			461	91.3
Total	41	99.9	505	100

Baulks were therefore not left, and no sections were registered in this area where the excavation proceeded along a straight line as if rolling back a carpet.

Stratigraphy

Similar to the short-term occupations described in the previous sections, Kangerlussorisunnguup Kangia has



no stratification (Fig. 8.17). All the artefacts lie deposited on top of, or just a few centimetres below, the surface of the sub-soil. All over the excavated area there are just a few centimetres of vegetation mainly consisting of crowberry and lichen.

Feature descriptions

Feature A: An almost circular boulder tent ring with an internal diameter of about 3.5 m. Externally, the diameter of the tent ring is 4 to 4.5 m, depending on where it is measured. From the south-facing entrance, the central axis of the dwelling is bisected by a north-south oriented approximately 3 m long and 0.8 m wide mid-passage of elongated rounded boulders (Fig. 8.18). At the rear, the mid-passage interior is paved with flagstones, and flagstones were also seen in the southern front part. Only some of the latter flagstones are, however, used as pavement, since the excavation revealed that flagstones 'a' and 'b', seen in the front part of the mid-passage on the drawing (Fig. 8.19), covered two other flagstones, which are believed to be

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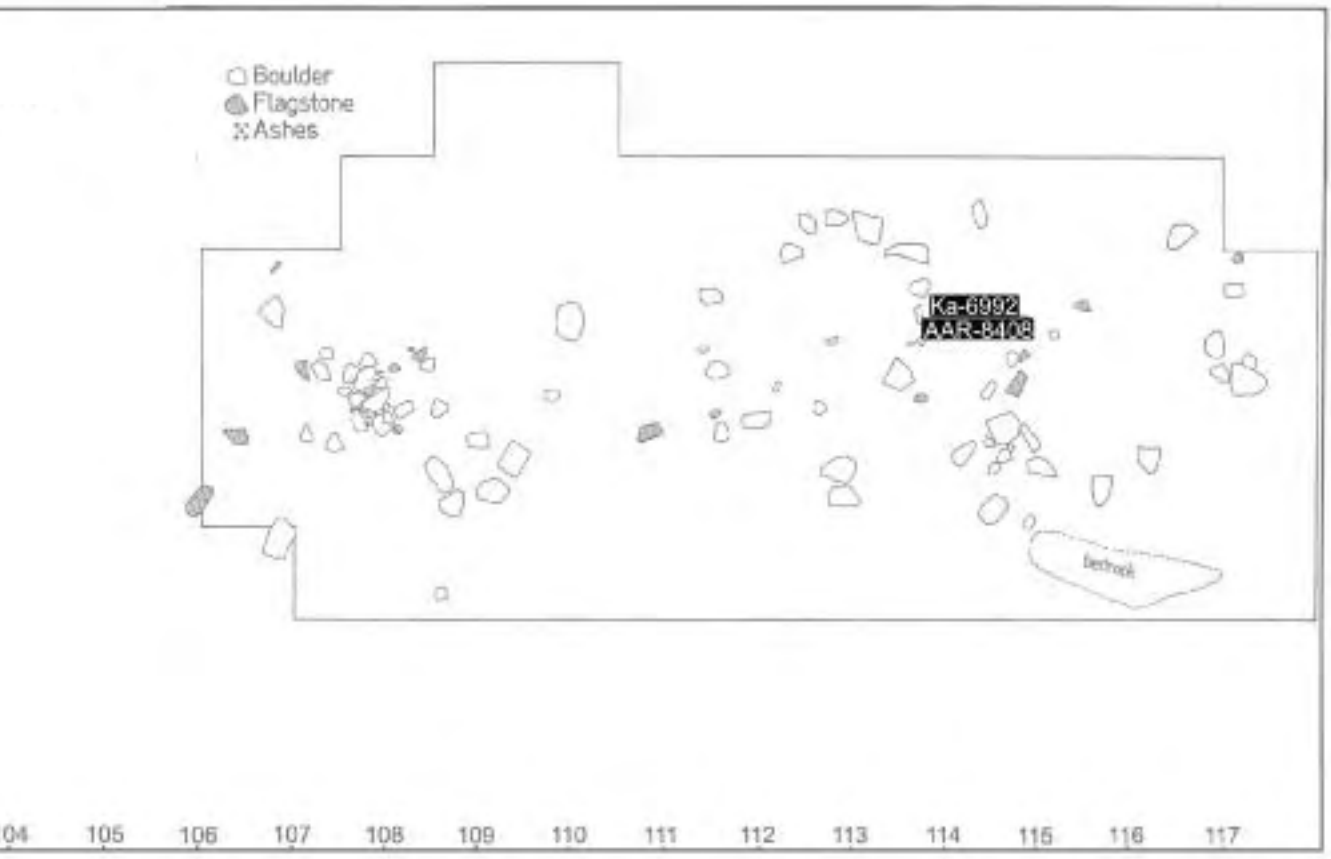

Fig. 8.16. Situation of baulks and sections in mid-passage tent ring (feature A) and location of radiocarbon samples in excavation areas B-C.

the original flooring of the hearth. Transversely in the mid-passage, and just at the end of the lower flagstones, there was a blackish trace in the sub-soil, indicating that flagstones 'a' and 'b' may originally have been placed in an upright position around the hearth (Fig. 8.20). A little ash and charcoal was found in the hearth, and seven fire-cracked rocks also lay scattered in the vicinity. The eastern part of the periphery is better preserved than the western. A heap of boulders around co-ordinates x98/y49 may be tent-ring stones that had been moved from their original positions. The periphery is absent in the southwestern quadrant, where a pavement is situated towards the south-facing entrance.

Features B-C: Upon excavation it was realised that boulder features B and C did not form well-defined dwellings as initially believed. Feature B is an aggregation of amorphous rocks centred on an area stained by ash (Fig. 8.19). There are only a few flagstones associated with feature B. At a distance of a few metres there are four to five larger stones, which could have been part of a periphery. However, no additional stone traces were seen during excavation and the rudimentary hearth gives the impression of having been an open-air feature. Feature C is more difficult to evaluate. In this area, there are a few nondescript stones and two flagstones scattered around a hearth where the soil was stained by ash and charcoal. However, in addition to this diffuse hearth there was an oval periphery of rounded stones situated at a distance of 2 to 2.5 m from the hearth. These stones could well be the remains of a tent ring. If feature C really is a tent ring dwelling, then it seems almost certain that it never had a formal stone-set mid-passage. Feature C may, accordingly, be an oval tent ring with a central hearth.

Artefacts

A total of 461 lithic objects were recorded from units A and B-C. Most debitage had been deposited in feature A, whereas a relatively higher proportion of tools was asso-

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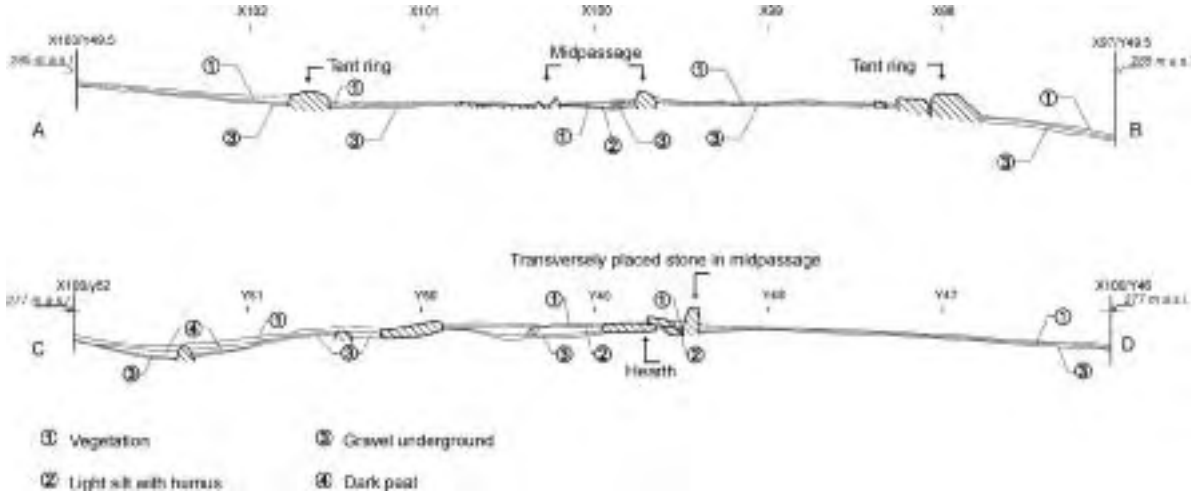

Fig. 8.17. Sections at Kangerlussorissunnguup Kangia. There is no stratification. Artefacts are deposited on top of layer ③. Within the mid-passage feature there is a layer of grey silt.

ciated with features B and C (Tables 8.2, 8.3 and 8.4). The most characteristic tools are depicted in fig. 8.22.

Raw material frequencies

The lithic inventory is completely dominated by chalcedony, which constitutes 97% of the total inventory, whereas grey killiaq and quartz crystal constitute minute fractions of 2% and 1% respectively (Fig. 8.23). The burin-like tools of grey killiaq, or perhaps other implements passing through the site, were thus only slightly reduced at Kangerlussorissunnguup Kangia. The dominance of chalcedony retouch flakes corresponds well with the dominance of fragmented bifaces of chalcedony and microblades among the tools.

Spatial distribution of artefacts

The total lithic distribution in area A comprises an indoor deposit and a separate outdoor refuse deposit, located at the eastern side of the entrance in the south-eastern corner of excavation area A. The highest concentrations of debitage are located around the hearth in the southern part of the mid-passage and in unit x98/y50:4 in the northwestern part of the dwelling. But significant concentrations of debitage are also located in the vicinity of feature C (Fig. 8.25). Inside the dwelling, more than 75% of all finds are situated on the western (right) side of the mid-passage, and this pattern is echoed by the tools (Figs 8.24 and 8.25). The majority of the tools and microblades are located in excavation area B-C, indicating that most re-tooling and most activities involving lithic tools probably were conducted here. There are significant differences in relative tool frequencies between the two excavation areas (Table 8.2 and 8.3). No burin-like tools, and a relatively small proportion of the microblades, were found in, or adjacent to, the dwelling in area A, whereas all of the burin-like tools were found in area B-C where most microblades were located.

White translucent chalcedony (raw material type 1) is the most common raw material with a total of 15 tools and 254 flakes. Most of these (ten tools and 199 flakes) were scattered in the dwelling, whereas just five tools and 55 flakes lay in the open-air activity areas to the east of the dwelling (Fig. 8.26). Tool fragments and retouch flakes of white chalcedony form several sub-concentrations indicating that the debitage results from the reduction of several tools in different parts of the settlement. Only three microblades are of white translucent chalcedony whereas ten biface fragments and one side-blade are of white chalcedony, indicating that most of the debitage is probably related to the reduction and retooling of bifaces. The most prominent concentrations of debitage were located in x98/y50:4, x99/y49:3 and x100/y48:4 inside the dwelling, whereas the scatters of white chalcedony in area B-C were more diffuse.

Yellow chalcedony (raw material type 2): Three retouch flakes of yellow chalcedony lay scattered in unit x100/y48, in the left front section of the mid-passage dwelling (Fig. 8.27). There are no corresponding

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tools, so these retouch flakes mark the use or rejuvenation of an implement passing through the site.

Brownish-grey chalcedony (raw material type 3): Six retouch flakes of a smoky brownish-grey chalcedony were scattered in and around the hearth in the southern part of the mid-passage (Fig. 8.28). As with the yellow chalcedony, the flakes of raw material type 3 result from an unknown implement passing through the site. However, the distribution of this variety of raw material closely resembles that of the burned lithics inside the dwelling. It is possible that the brownish-grey chalcedony is a variety of charred chalcedony, which has not been heated to the same extent as the remainder of the burned lithics.

Reddish-brown chalcedony (raw material type 4) is a very characteristic opaque reddish-brown material, which was used for the production of three microblades (Fig. 8.21). One of these was recovered from x99/y46:2 in the refuse area to the south of the mid-passage dwelling. Another was recovered from x108/y48:4 to the south of feature B and a third was found in x111/y50:1 in the area midway between feature B and feature C. Three retouch flakes were located in x115/y50:1 (Fig. 8.29). Raw material type 4 is so distinctive, and the length, width and curvature of the three microblades so similar, that it seems likely they were produced at the *locus* where the three retouch flakes were found. Afterwards, the microblades were used in different areas, probably as a result of them being distributed among different individuals. Unfortunately, it has not been possible to refit them, which indicates that other microblades must have been taken away.

Burned lithics (raw material type 5): The majority of the burned lithics have been heated to such an extent that they have become white and opaque with numerous cracks. There are also some charred black examples. The change in colour which occurs during heating renders it difficult, or even impossible, to determine the original colour of these items and, therefore, they have been mapped separately. Some flakes from feature A have only been partially affected by fire and these appear to be of white translucent chalcedony, whereas many from the area around feature C appear to have been of a grey-bluish chalcedony. 15 tools and 163 retouch flakes are charred or fire-cracked (Fig. 8.30). Approximately half of the specimens lay scattered to the northwest of the hearth in the mid-passage feature and the remainder were located around the feature C. Charred microblade fragments were, however, much more common around feature C than they were in the dwelling.

Grey killiaq (raw material type 6): Three burin-like

Fig. 8.18. View of excavation area A with mid-passage tent ring seen from the north (rear). Top: Close-up of mid-passage tent ring. In the front part of the right floor section there is a pavement, and there is a gap in the tent ring, presumably the entrance. Photo Jens Fog Jensen.

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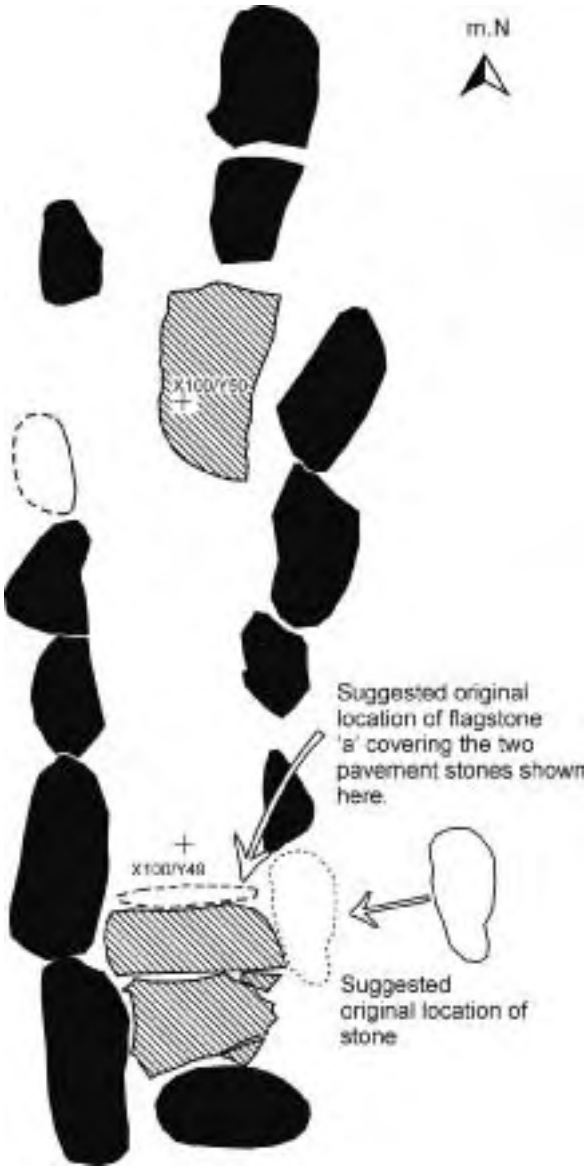

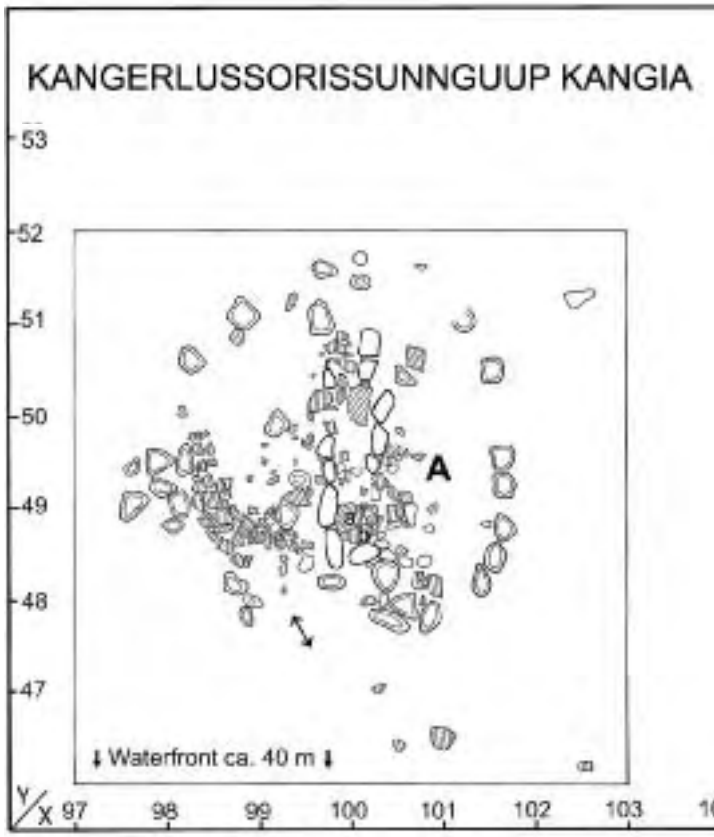

Fig. 8.20. Detail of mid-passage in feature A. Stone traces in the subsoil are shown with broken lines. To the south of x100/y49 there is the trace of an upright flagstone demarcating the hearth towards the north.

tools and nine retouch flakes are of dark grey killiaq. Two retouch flakes were located at the right side of the southern part of the mid-passage in area A. Six retouch flakes and a distal fragment of a burin-like tool were scattered around feature B, a proximal fragment of a burin-like tool was located in x112/y51:3, and a third burin-like tool was found in x147/y49:4 to the south of feature C (Fig. 8.31). Since no other tools are of grey killiaq it seems probable that the two retouch flakes inside the dwelling originated from one of the burin-like tools. This indicates that at least one of the burin-like tools must have been in use inside the dwelling prior to its deposition in the open-air activity areas.

Black to clear chalcedony (raw material type 7): 19 retouch flakes and a proximal fragment of a microblade are of heterogeneous black to translucent clear chalcedony. All were located around feature C (Fig. 8.32). It is difficult to judge whether these flakes result from the preparation of a microblade core, or whether they are retouch flakes from the preparation of bifacial tools. The distal fragment of the microblade could have been left elsewhere and the microblade core, as well as other microblades, was probably taken away.

Quartz crystal (raw material type 8): A small series of six retouch flakes was located in x114/y51:1 (Fig. 8.33). There are no tools of quartz crystal, so the quartz crystal flakes testify to the passage of an unknown implement.

Beige chalcedony (raw material type 9): Two flakes of beige chalcedony were located in x115/y50:1 (Fig.

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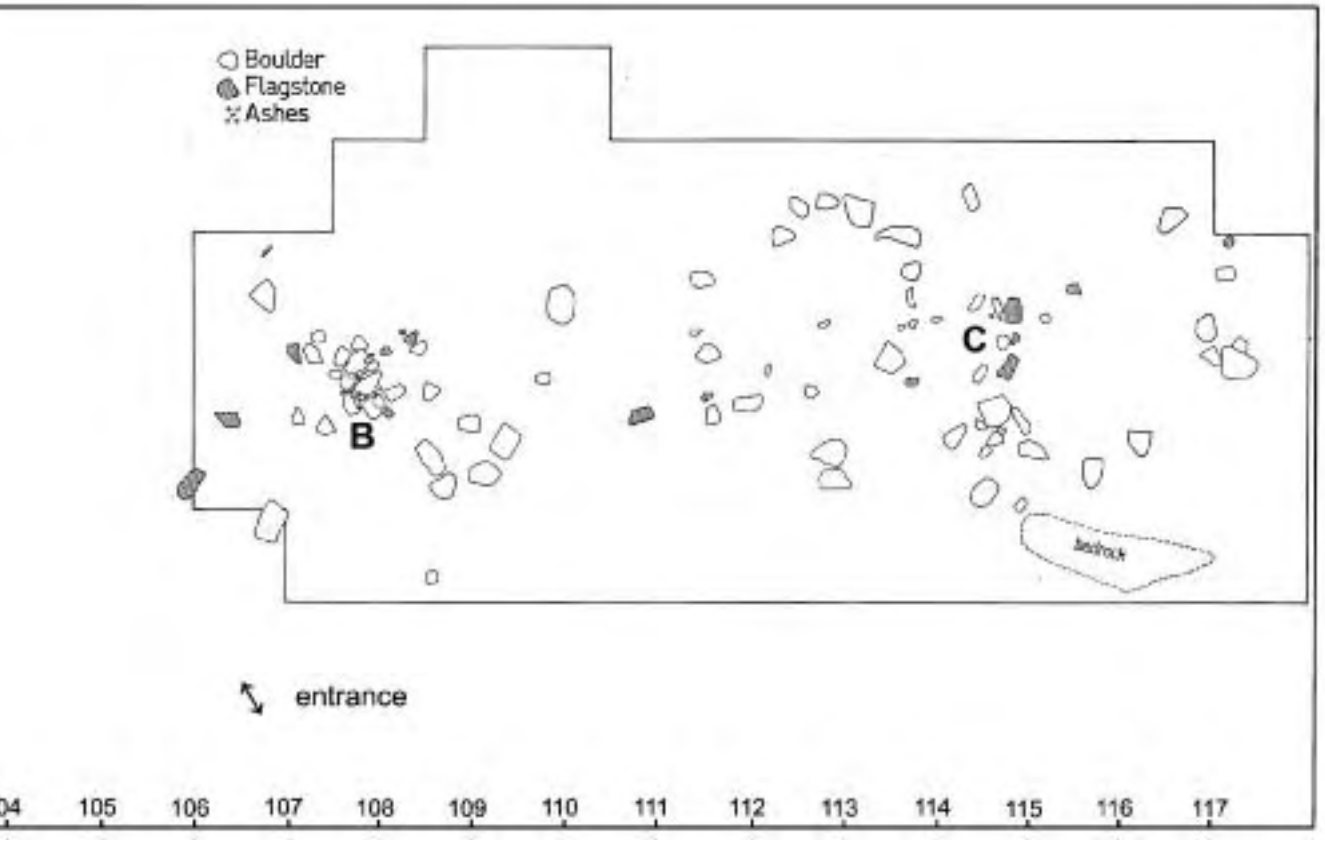

Fig. 8.19. Mid-passage tent ring (feature A), open-air hearth (feature B) and disturbed tent-ring (feature C) at Kangerlussorissunnguup Kangia.

8.33). No other artefacts are of a similar raw material and, consequently, the flakes are from an unknown implement passing through the site.

Bluish-grey chalcedony (raw material type 10): A proximal fragment of a microblade from x114/y50:1 and a fragmented bifacial preform from x116/y48:1 are of a bluish-grey chalcedony (Fig. 8.34). These two resemble the colour of many of the charred finds from around feature C. Presumably many of the fire-cracked flakes and microblades x115/y50:1 were made of this raw material, but the colour change occurring in the heated and fire-cracked examples makes it difficult to establish this connection with any certainty.

Reddish-clear multi-coloured chalcedony (raw material type 11): A bifacial knife from x99/y50:4 is made of a reddish-clear to black variety with inclusions. Three flakes of a similar raw material were also located in the vicinity of feature C. However, it has not been possible to fit the retouch flakes to the knife. It is therefore uncertain whether the flakes are from the knife or from another tool of a similar raw material which passed through the site (Fig. 8.35).

Discussion of lithic distributions

The lithic distributions at Kangerlussorissunnguup Kangia are relatively well-defined as three debitage scatters related to dwelling feature A and to the hearths B and C lying to the east of the mid-passage dwelling. The total lithic distribution in excavation area A has the typical form with major concentrations around the mid-passage inside the dwelling and a refuse area to the southeast of the entrance. This pattern is not replicated in the lithic distribution around feature B. The theoretical presence of a dismantled dwelling around hearth feature B can therefore be rejected due the lack of both stone-built structures and supporting evidence from the lithic distribution. Feature C is more difficult to evaluate because in this area there were several larger stones forming an oval around the hearth. These stones could well be tent-

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Fig. 8.21. Three microblades of similar reddish brown chalcedony (raw material type 4). 1) bilaterally and distally transversely retouched microblade from x99/y46:2, 2) microblade from x108/y48:4, 3) fragmented microblade from x111/y50:1. Photo Geert Brovad.

ring stones. To the southeast of the main concentration of lithics around feature C there was a scatter of tools and debitage resembling the refuse scatter to the southeast of the entrance to feature A. The lithics in the area around x115/y48 may thus be interpreted as a door dump. The distribution of debitage and, in particular, tools around feature C, does not have the tendency to form an elongated concentration as is typically seen in relation to mid-passage features. Presumably, feature C never had a well-built mid-passage. Feature C may, conversely, be a tent dwelling with a central hearth marked by stones, as well as by charcoal and soapstone vessel fragments in x114/y51. If this interpretation is correct, then feature C represents a less well-built dwelling than feature A to the west. Indeed the evidence in support of simultaneous use of all the features is scant, but the occurrence of a few artefacts of the highly characteristic reddish-brown chalcedony (raw material type 4) in relation to both features A, B and C supports this interpretation. Similarly, the distribution of raw material category 11 may also support the fact that there was traffic between features A and C. Another argument supporting the idea that all of the units are part of the same settlement episode is that the site is divided into different activity areas, with the sole presence of burin-like tools in area B-C, and a relatively low frequency of microblades relative to the dwelling. Considering the artefact tables from areas A and B-C separately, it appears that the artefact frequencies are abnormal compared to average Dorset tool frequen-

Fig. 8.22. Selected artefacts from Kangerlussorissunnguup Kangia.1) microblade with lateral retouch (raw material type 10) from x115/y50:1; 2) microblade with distal transversal retouch (raw material type 1) x100/y47:2; 3) biface fragment of raw material type 1 from x100/y47:4; 4) biface fragment (knife) of raw material type 1 from x115/y48:1; 5) basal fragment of side-notched biface of charred chalcedony (raw material type 5) from x115/y50:2; 6) side-blade of raw material type 1 from x114/y51:4; 7) fragment of biface preform of raw material type 10 from x116/y48:1; 8) burin-like tool of grey killiaq (raw material type 6) from x114/y49:4, note the distal end is laterally and transversely spalled, presumably as a result of use fracturing; 9) fragment of burin-like tool of grey killiaq from x112/y51:3; 10) distal fragment of burin-like tool of grey killiaq from x108/y49:2; 11) burin-like tool of small narrow type from test pit near feature C; 12) asymmetrical biface (knife) of raw material type 11 from x99/y50:2; 13) scraper preform of raw material type 1 from x100/y48:2. Photo Geert Brovad.

cies. When all of the lithics are amalgamated into a single table (Table 8.4), the relative tool frequencies take on more normal values closer to the averages known from other Dorset sites.

Radiocarbon dates

Samples of charcoal were collected from features A, B and C. However, it has only been possible to locate locally grown wood from the sample collected from feature C. Two AMS dates were obtained, Ka-6992 gave a radiocarbon date of 730±40 b.c., and a calibrated date within one standard deviation of between 900 and 800 cal B.C. AAR-8408 resulted in a radiocarbon date of 585±30 b.c., giving a calibrated date of between 800 and 550 cal B.C. The narrow overlap between the two suggests that at least feature C was probably inhabited in the period around 800 cal B.C.

Summary of Kangerlussorissunnguup Kangia

A central problem in the interpretation of the site of Kangerlussorissunnguup Kangia is whether the three features are contemporaneous or whether they represent palimpsests arising from three successive occupations. The artefacts indicate that there probably was just a single occupation episode (Fig. 8.36). The three microblades of reddish-brown chalcedony, and the few flakes of same raw material, indicate that these were produced on-site, and that they were later distributed among individuals who used them in different activity areas. The distribution of lithics indicates that different activities took place in relation to features A, B and C, as well as in the open space between the hearths and dwelling structures. Accepting that both features A and C are tent dwellings, Kangerlussorissunnguup Kangia was a site used by two probably closely related families or social units. The meticulously built mid-passage in feature A, and the use of a less well-built central hearth in feature C, may be related to differences in the social composition or status of individuals in the two 'families'. Such differences are also indicated by the lithic inventory where numerous microblades are associated with feature C, whereas only a few were found in feature A. The most skilled flint knapper may thus have been an older person living in feature C, whereas a younger couple could have occupied feature A.

The three, or rather four, burin-like tools entered the site in a complete state before being left in the open-air activity area. A minute reworking of burin-like tools is indicated by a few flakes of killiaq, but only retouch flakes were present. If the two killiaq flakes found within the feature A tent ring (one of which shows polishing) are from one of the burin-like tools, then it can be noted that these tools were used or re-tooled on the eastern side of the mid-passage where the scraper preform was also deposited. The distribution of the different raw materials indicates indirectly that the scraper preform and the burin-like tools are mainly associated with the left side of the mid-passage. This association is comparable to the association of scrapers and a burin-like tool on the left side of the mid-passage seen at Innartalik I. In both cases the scrapers and burin-like tools to the left contrast the microblades concentrated on the right of the mid-passage.

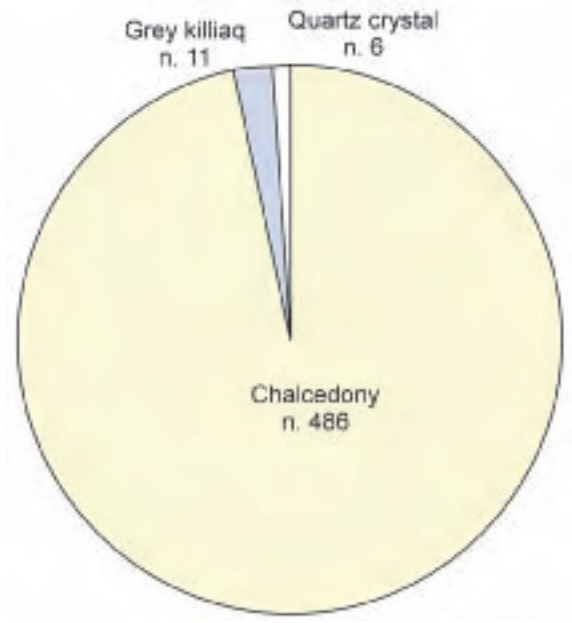

Fig. 8.23. Raw material frequencies at Kangerlussorissunnguup Kangia. Mostly tools of chalcedony have been reduced at this locality.

Annertusuaqqap Nuua

The Dorset site of Annertusuaqqap Nuua (site no. 103) is characterised by find conditions and a dwelling structure very different from the ones already described at the former site. Two flagstone pavements formed a 5 x 2.5-3 m level floor and platform area cov-

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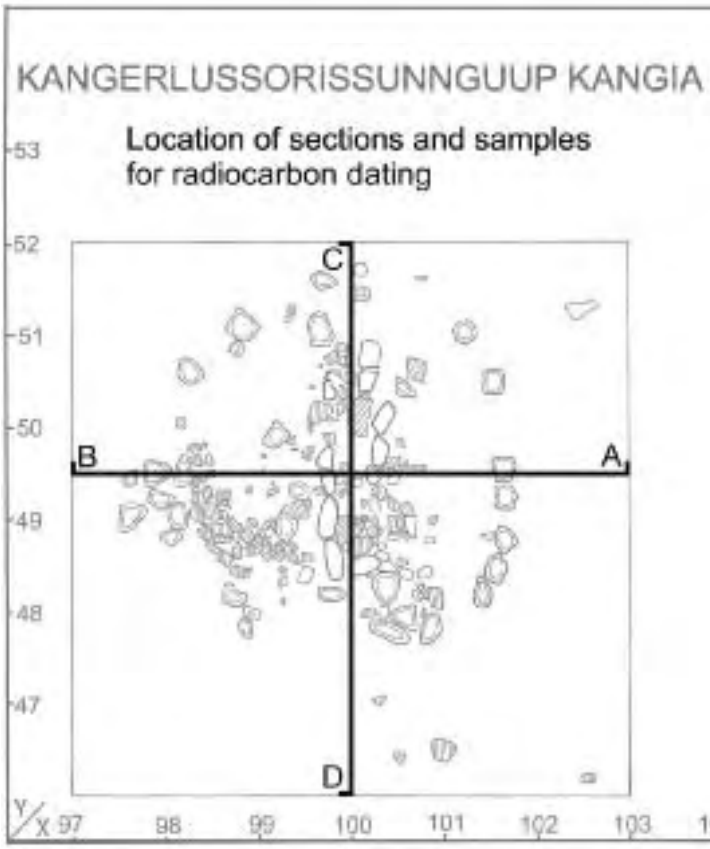

Fig 8.24. A total of 40 lithic tools and fragments of two different soapstone vessels lie along the mid-passage in the dwelling in excavation units A and in excavation units B-C. The tools are relatively evenly distributed over the two areas, but there are significant differences in the distribution of specific tool types. Microblades are thus relatively more frequent in areas B-C, where the burin-like tools are also found.

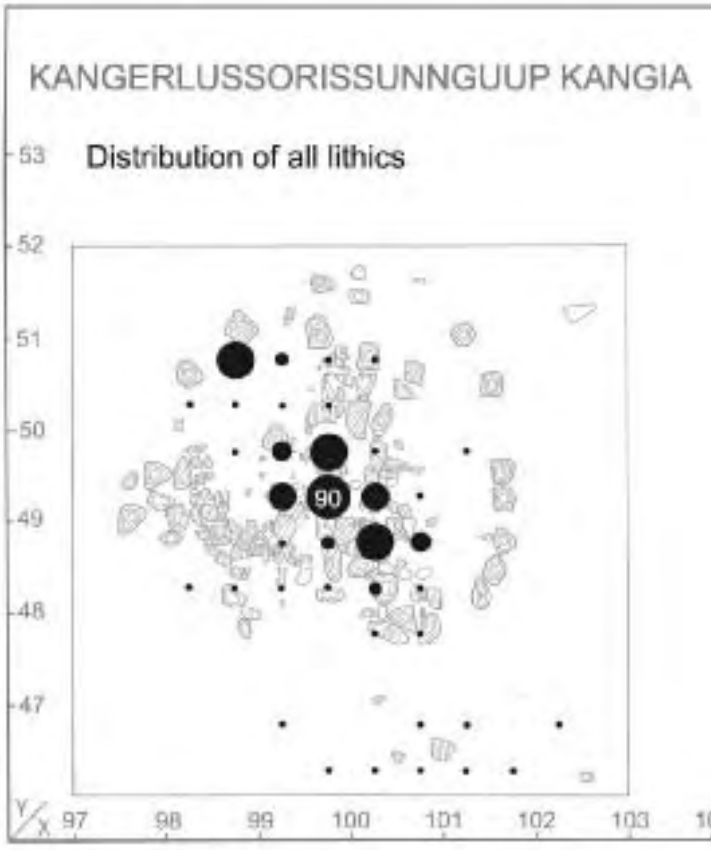

Fig. 8.25. Total distribution of lithics at Kangerlussorissunnguup Kangia. The number of finds in each 0.25 m^2 is shown by 'periphery mapping' with count units multiplying the number of finds by a factor of two for each time the size of the circle is enlarged.

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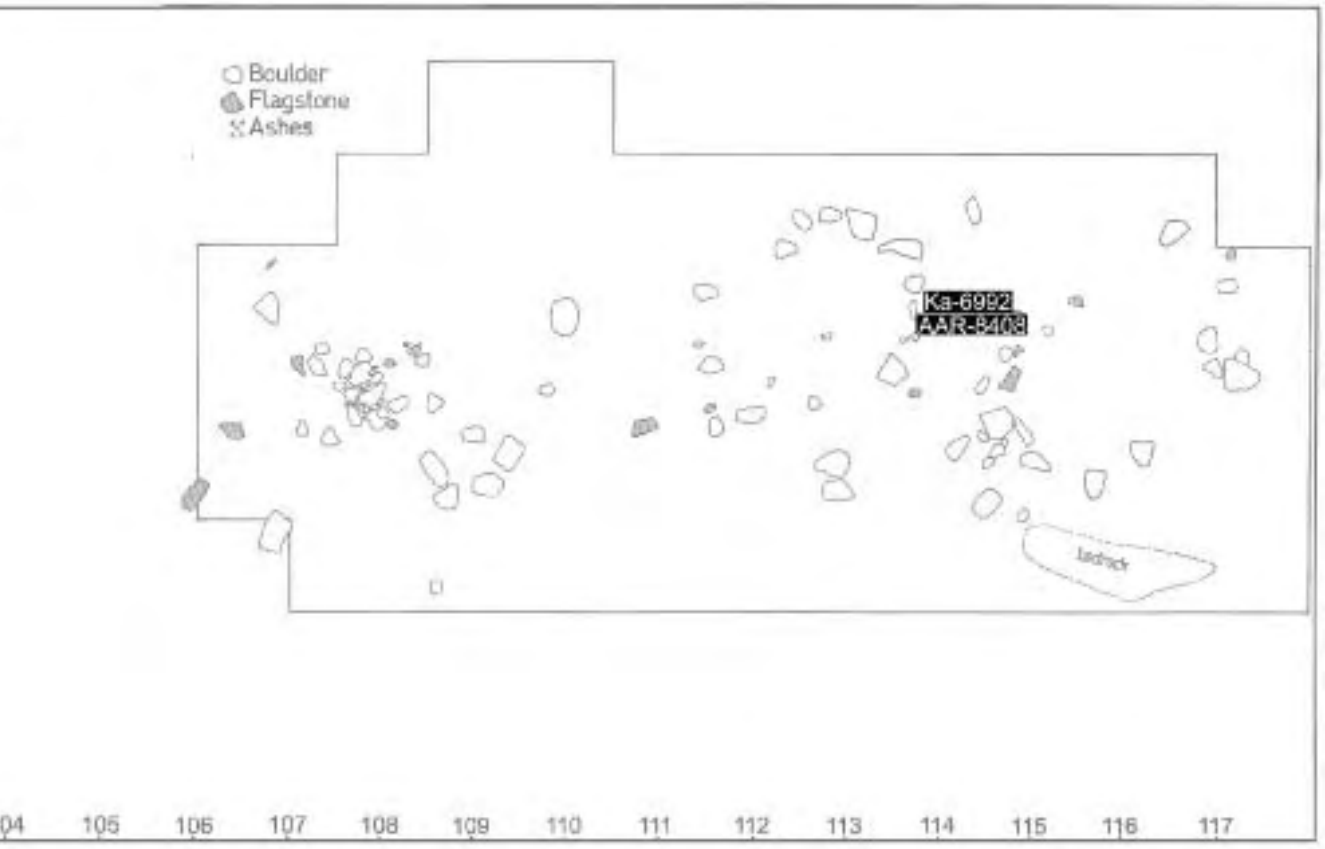

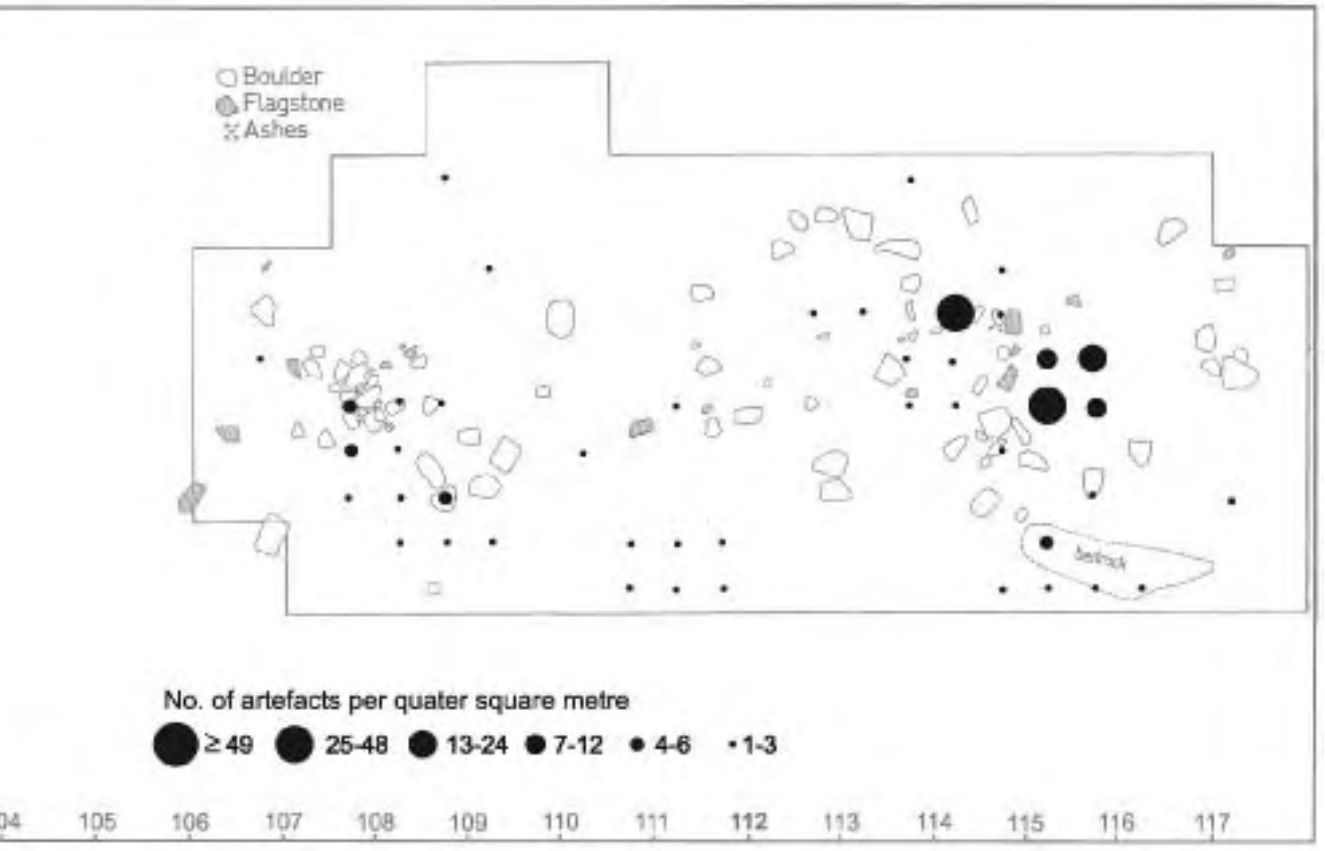

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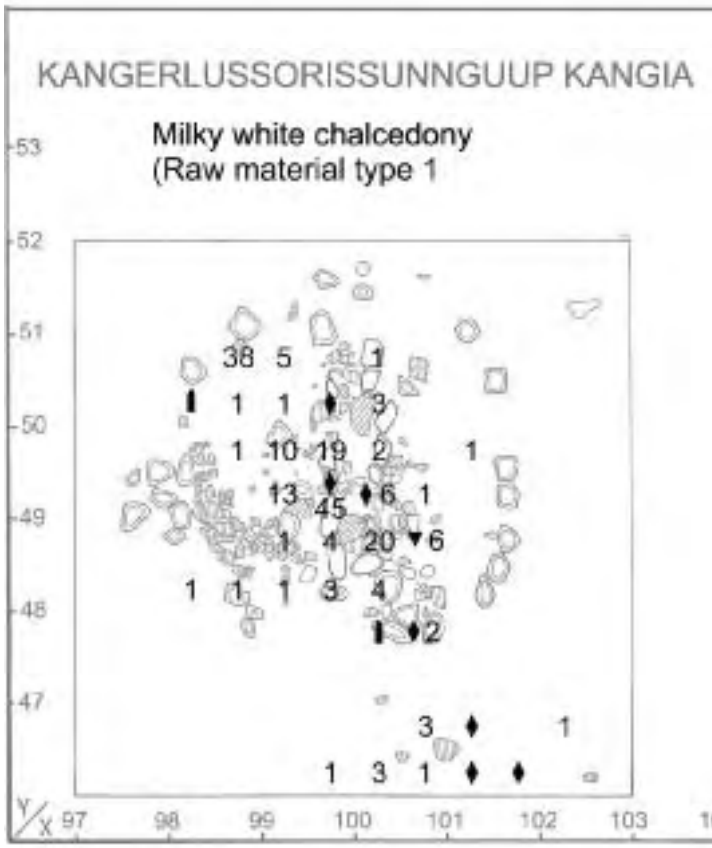

Fig. 8.26. White translucent chalcedony is the most common raw material type at Kangerlussorissunnguup Kangia. Major concentrations of debitage are located inside the dwelling in excavation area A, whereas excavation areas B-C are characterised by more dispersed scatters of debitage.

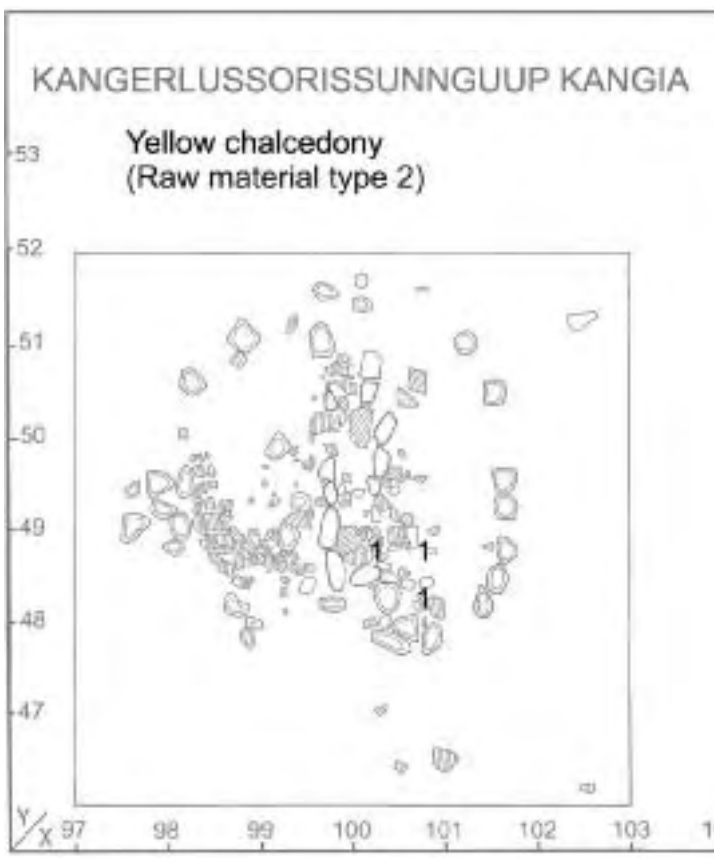

Fig. 8.27. Distribution of yellow translucent chalcedony (raw material category 2). This raw material is only known from the dwelling in excavation area A.

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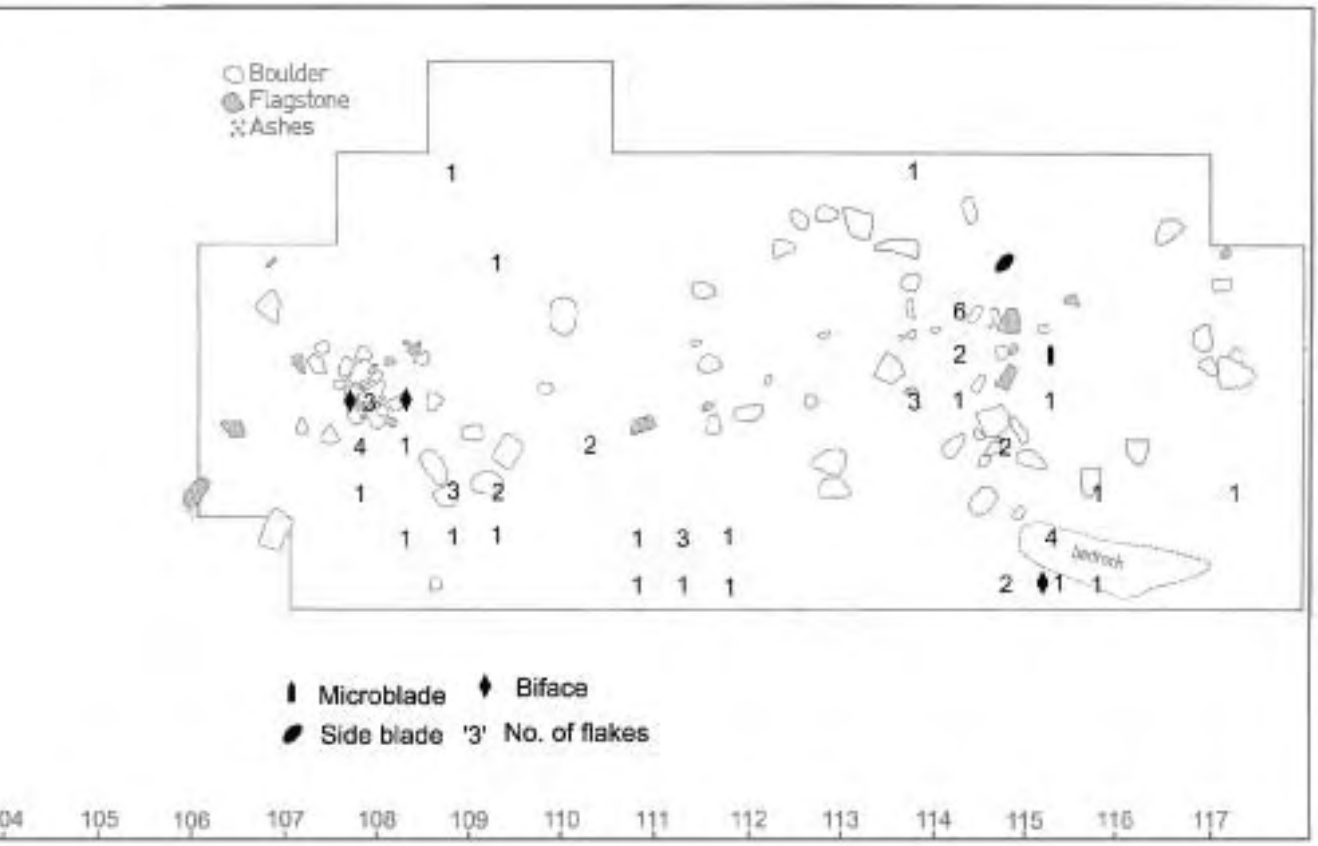

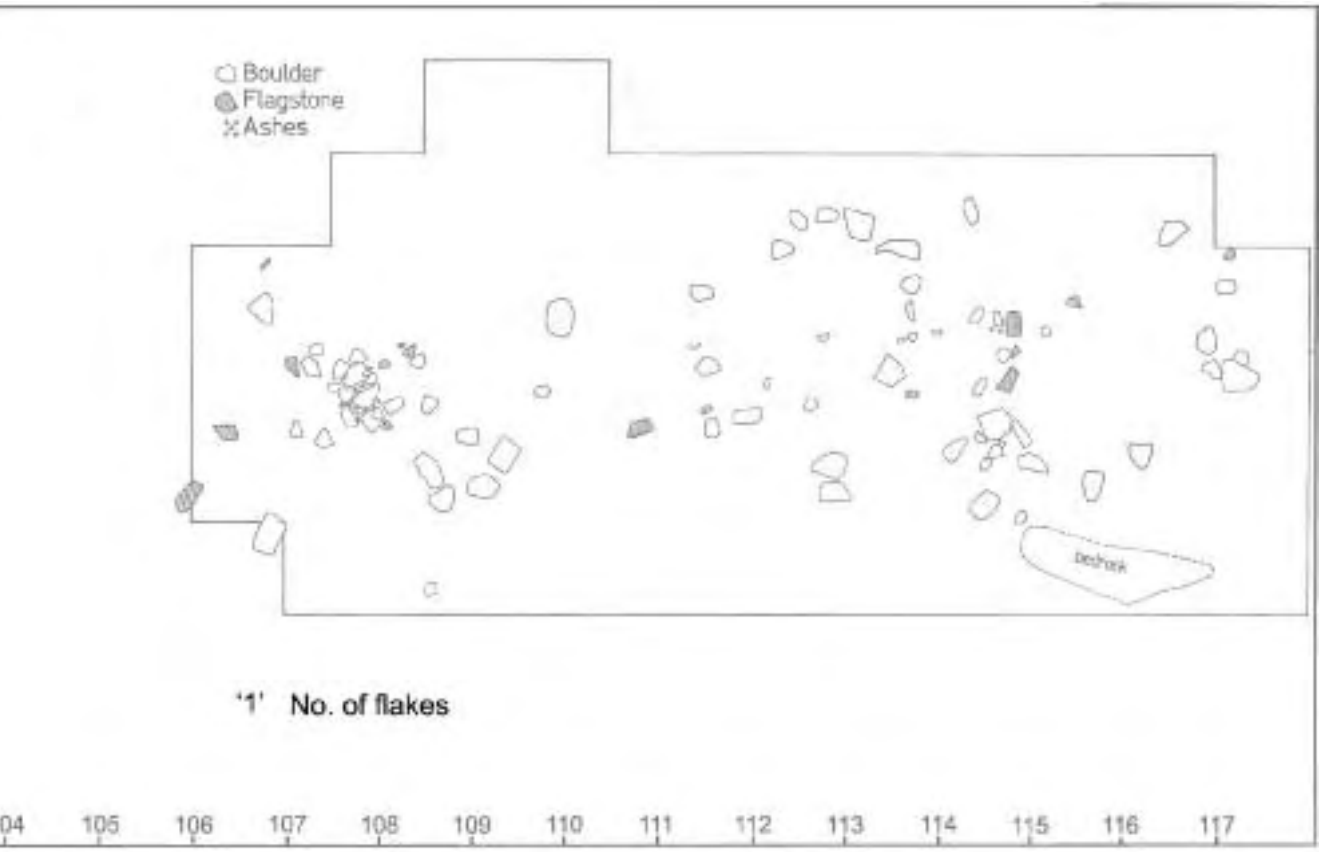

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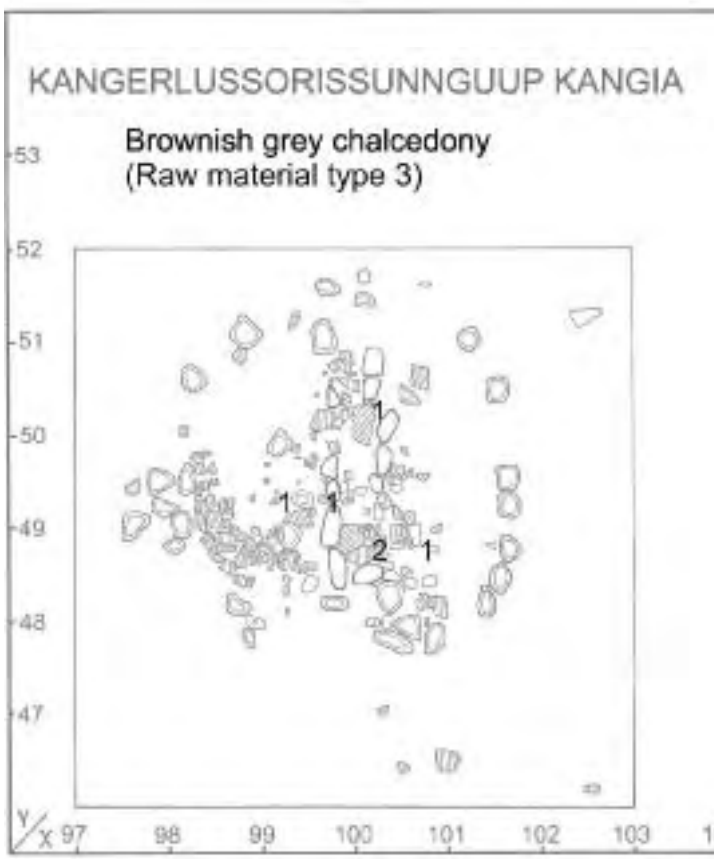

Fig. 8.28. Flakes of brownish grey chalcedony (raw material type 3) are scattered around the hearth in the southern part of the mid passage in feature A.

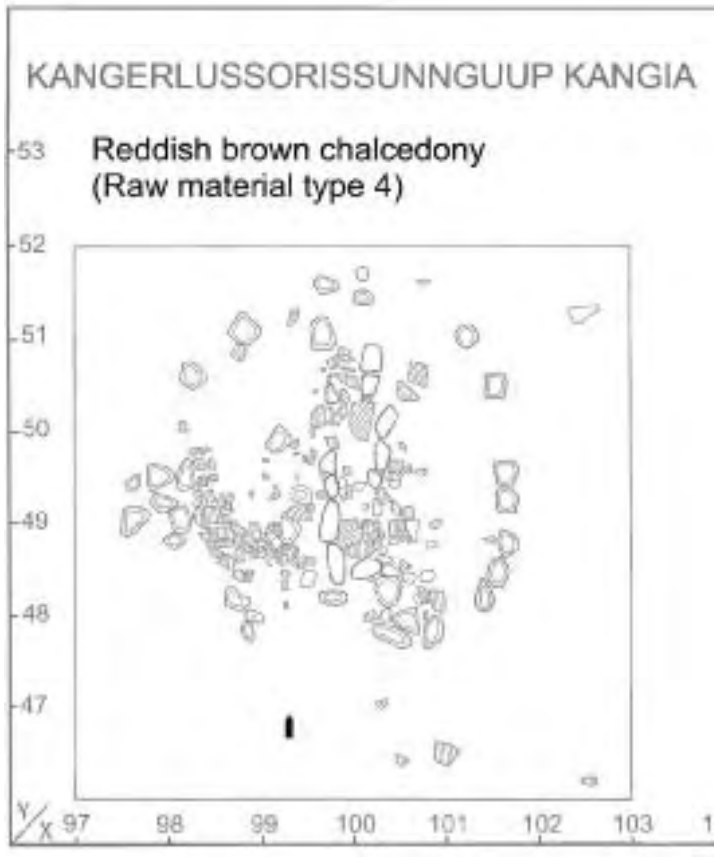

Fig. 8.29. Microblades of a similar reddish brown chalcedony (raw material type 4) have been found in the refuse area in front of the dwelling in excavation area A as well as in excavation unit B-C see also fig. 8.21.

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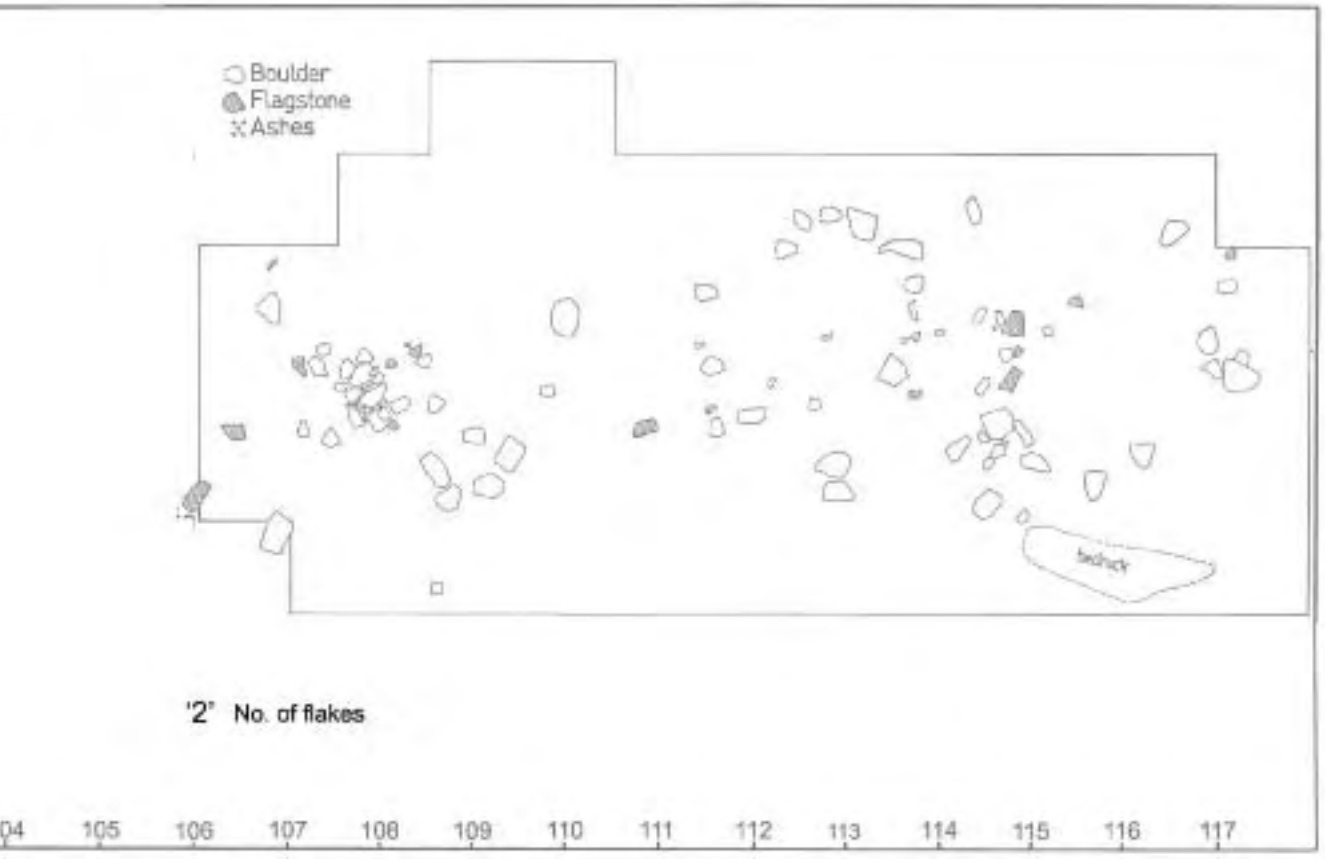

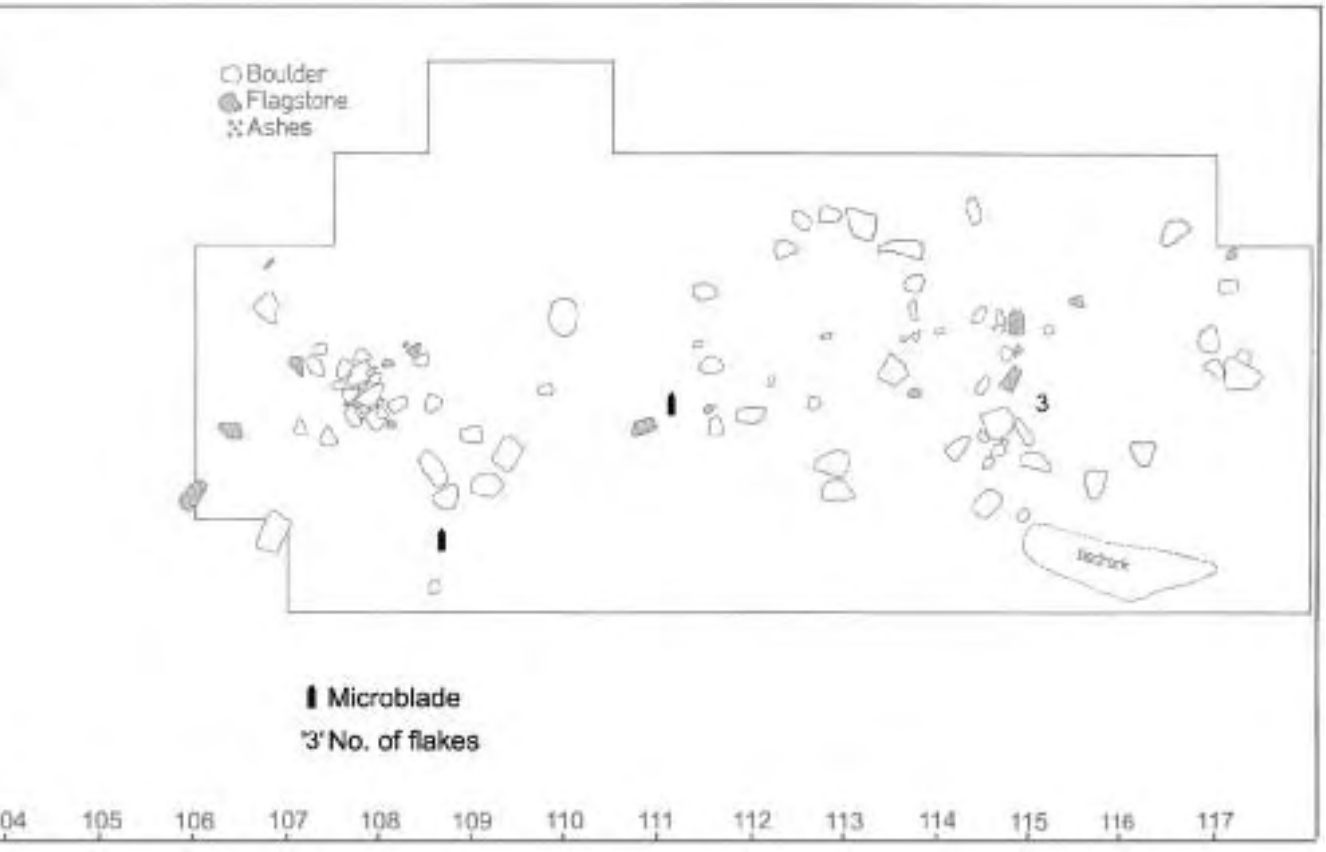

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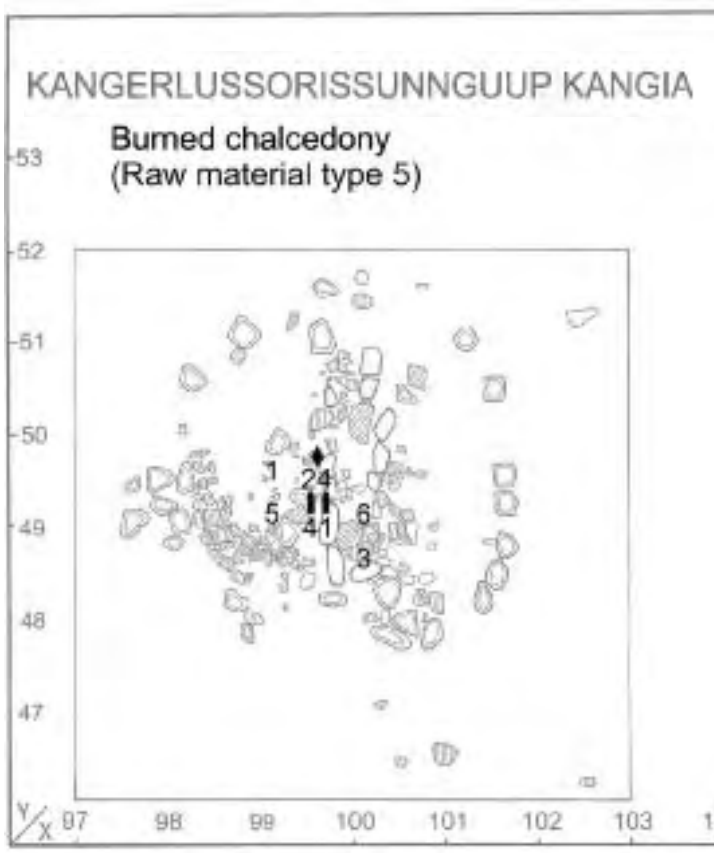

Fig. 8.30. Distribution of charred lithics (raw material type 5) around hearths at Kangerlussorissunnguup Kangia.

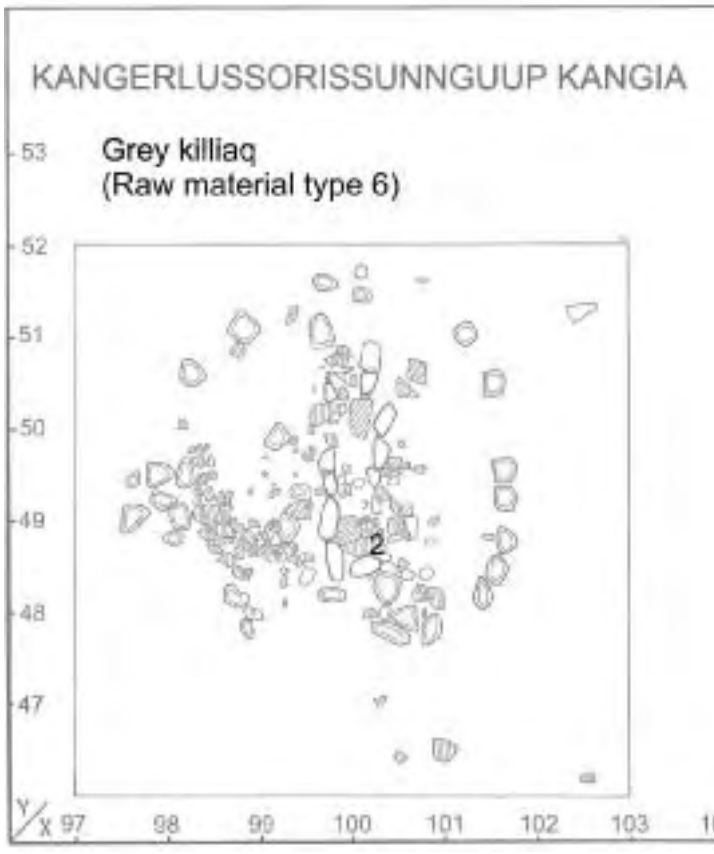

Fig. 8.31. Two flakes of grey killiaq (raw material type 6) are located inside the dwelling in excavation area A. In excavation areas B-C there are three burin-like tools as well as scattered retouch flakes.

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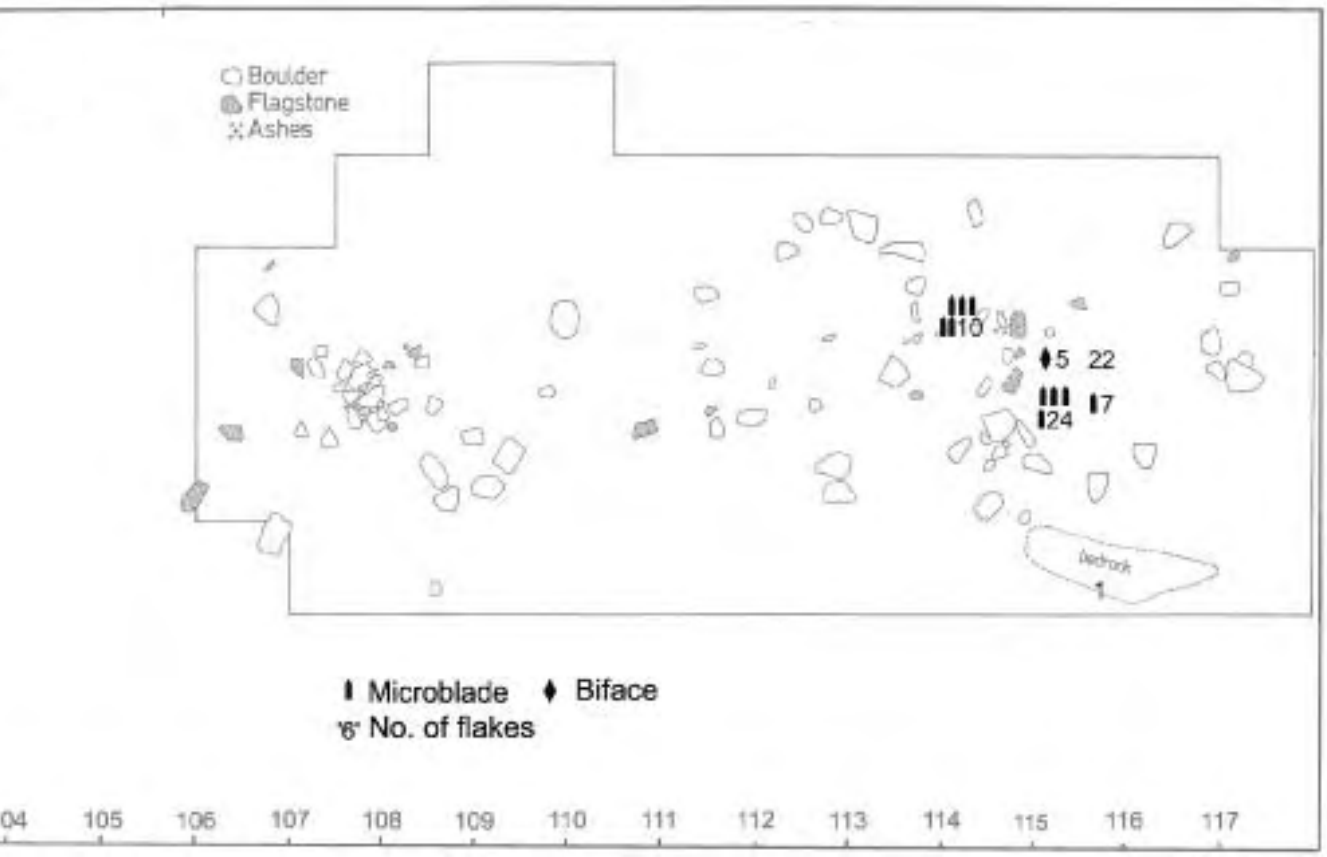

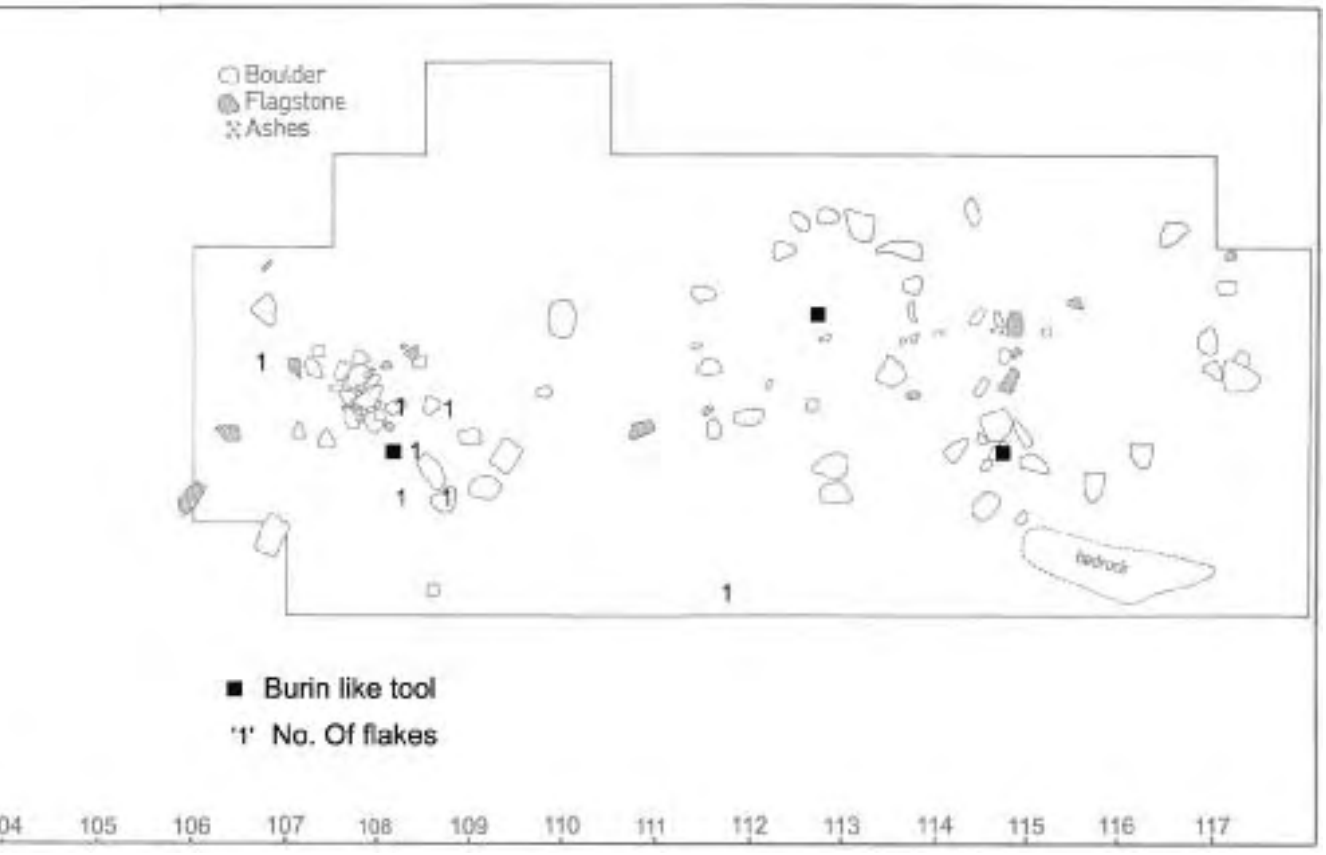

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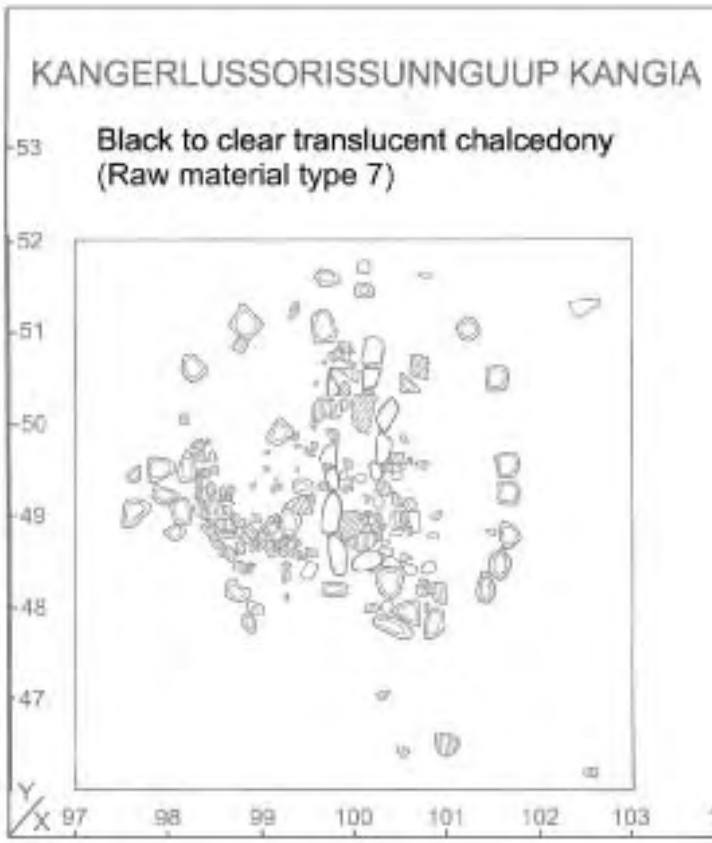

Fig. 8.32. Debitage and a single fragmented microblade of multi-coloured black to clear translucent chalcedony (raw material type 7) lie scattered around feature C.

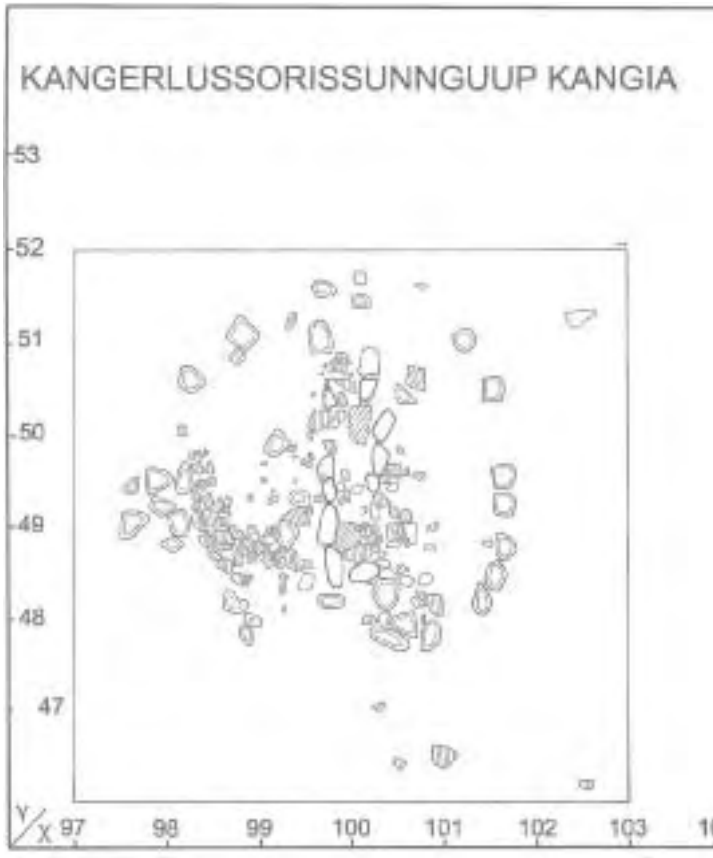

Fig. 8.33. Six retouch flakes of quartz crystal (raw material type 8) and two retouch flakes of beige chalcedony (raw material type 9) are scattered around feature C. No tools of these raw materials have been found on the site. Tools passing through the site have thus left flakes of both raw materials.

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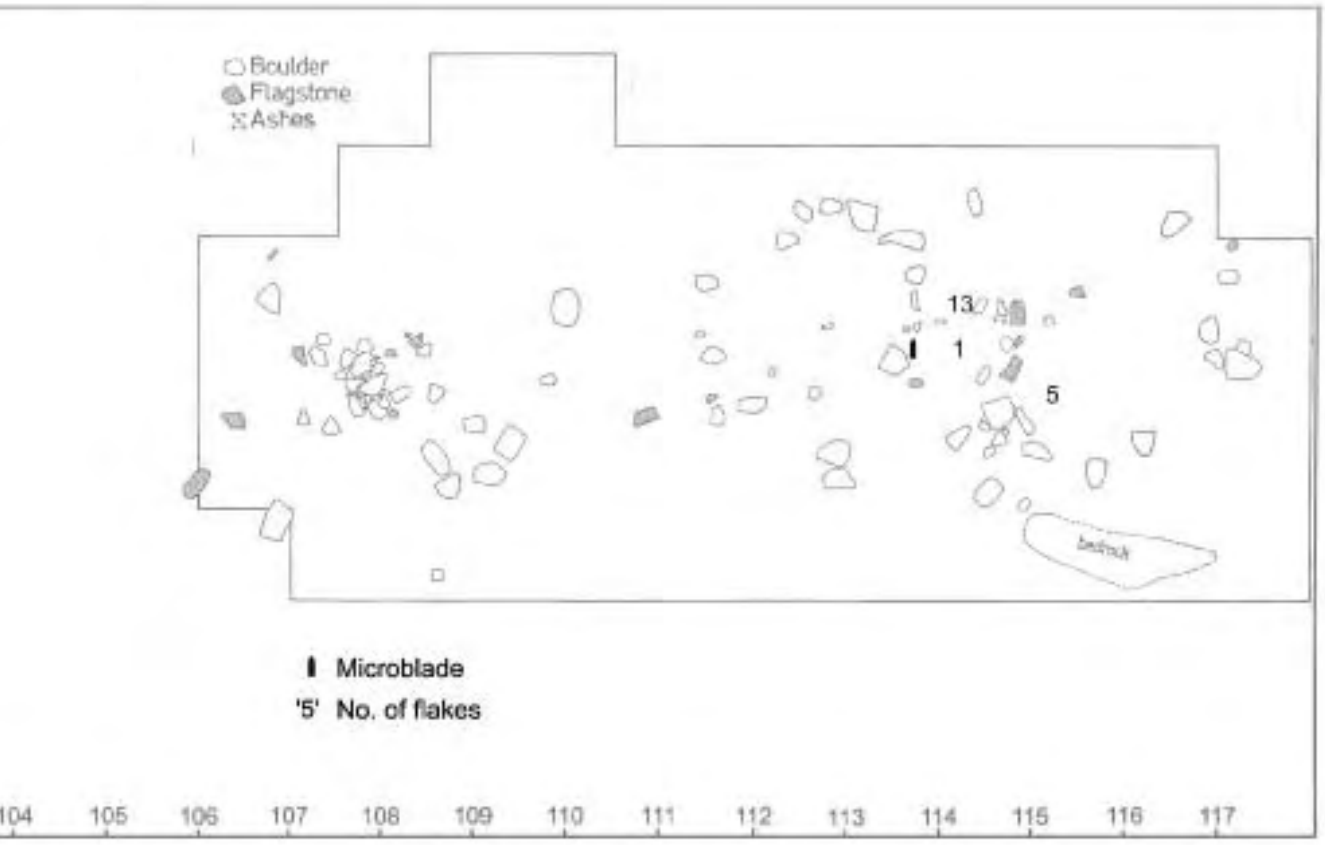

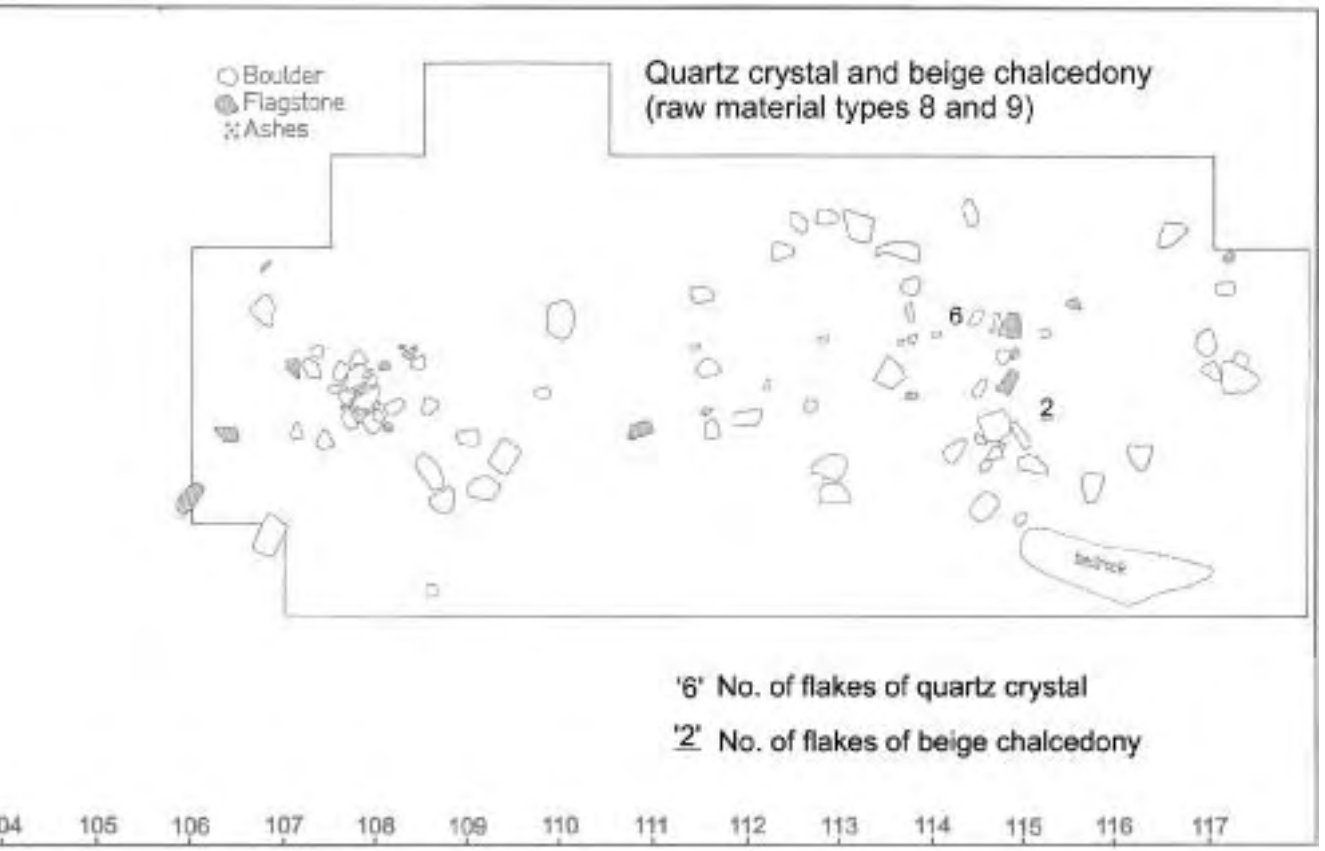

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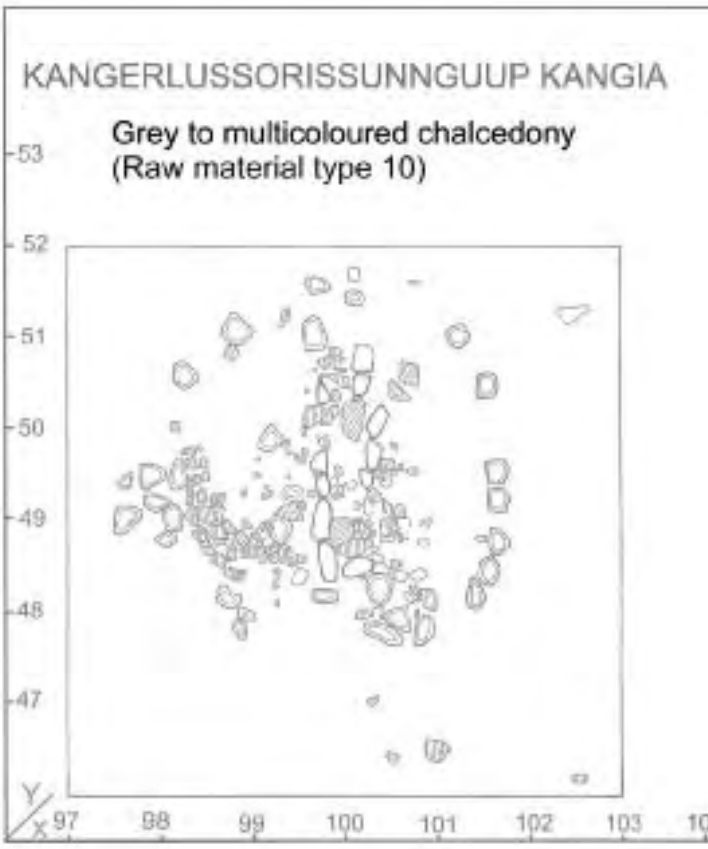

Fig. 8.34. Two microblades and a fragmented biface preform of a grey to multi-coloured chalcedony (raw material type 10) have been located in the vicinity of feature C.

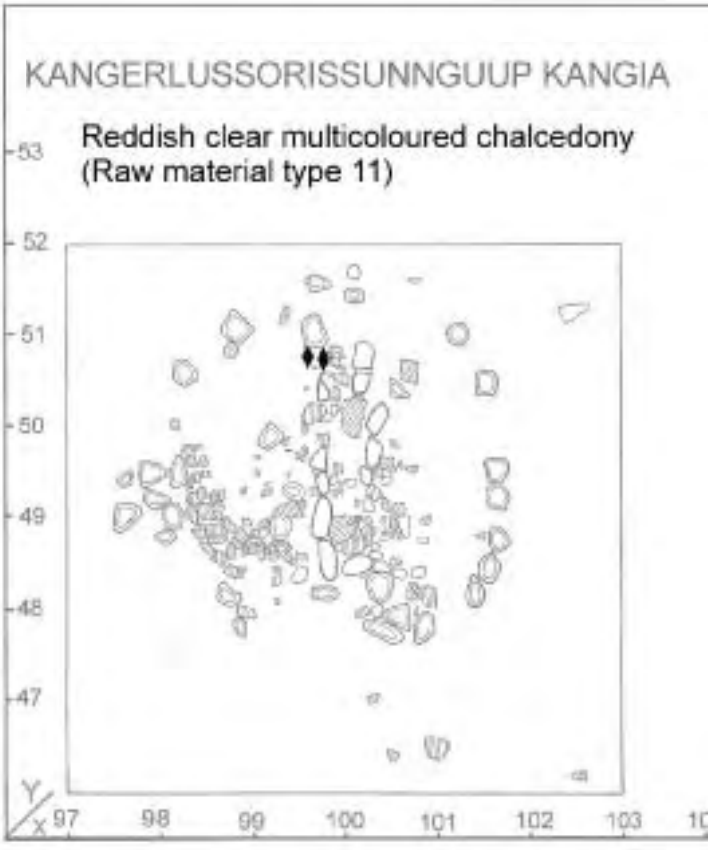

Fig. 8.35. A bifacial knife from the rear part of the mid-passage dwelling is made of a reddish clear multi-coloured chalcedony (raw material type 11). Three retouch flakes of a similar raw material were found in the area around feature C.

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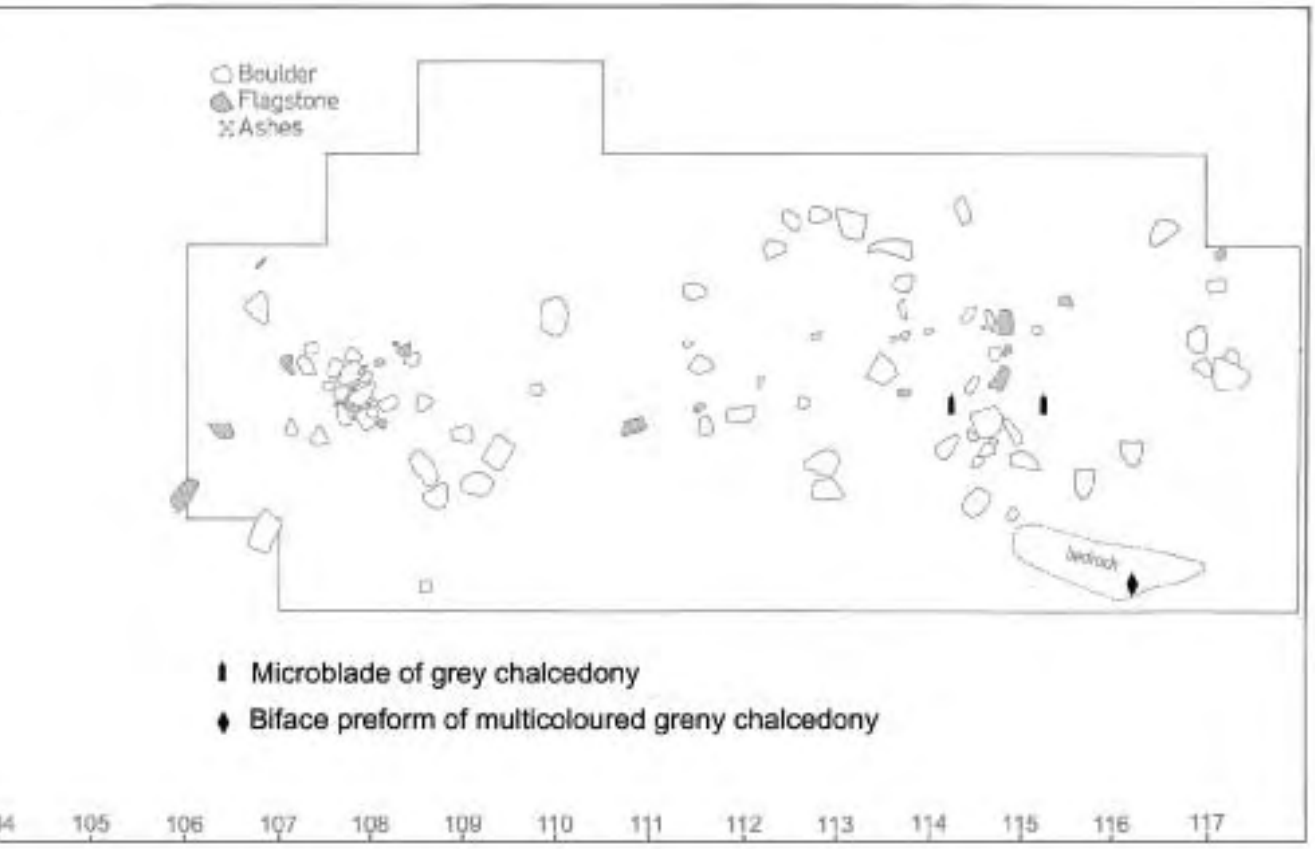

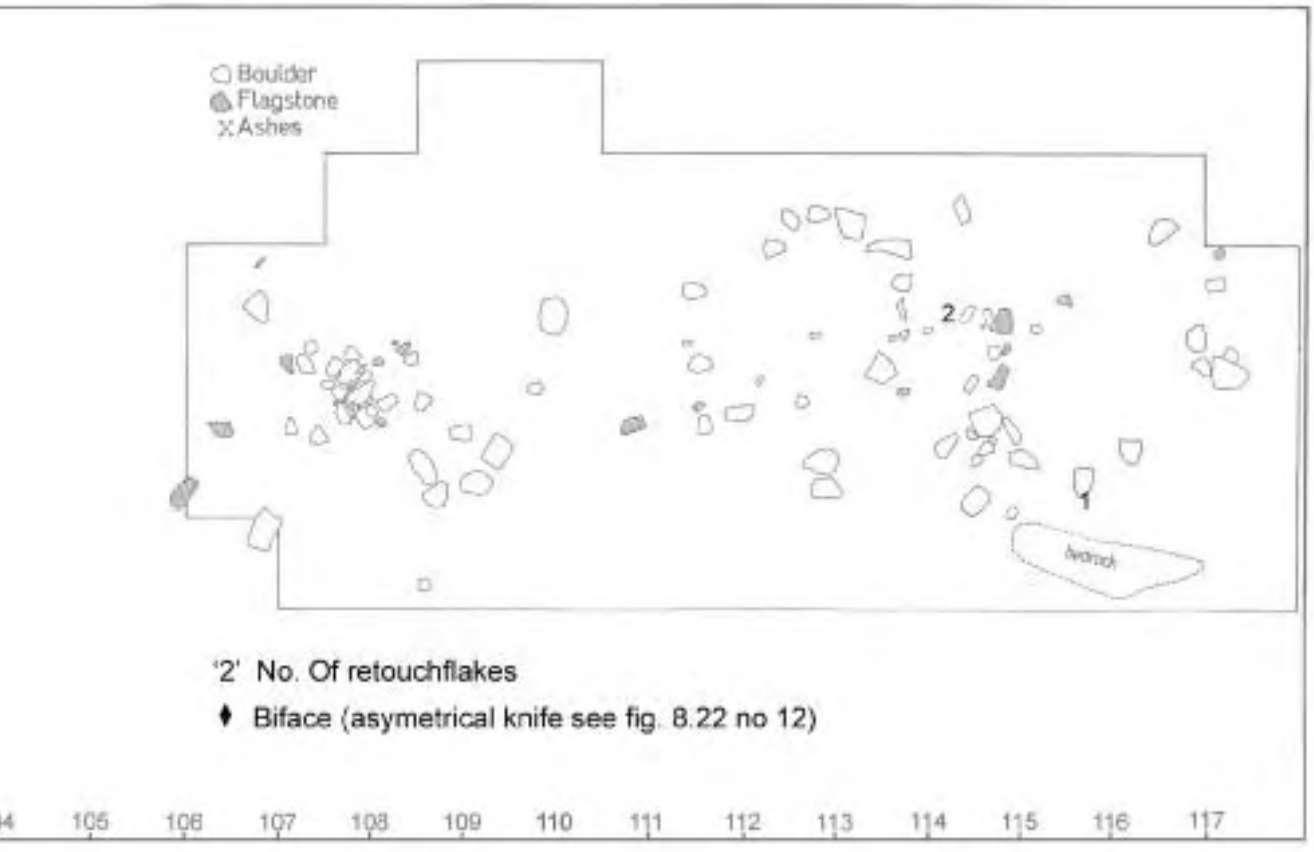

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Fig. 8.36. Reconstruction of the Kagerlussorissunnguup Kangia site as it could have appeared during the period of settlement by Dorset people. A person is seated by an open-air hearth to the left while a hunter is scouting for game from the cliffs near the shore. Watercolour by Martin Antoni Nielsen.

ered by up to about 50 cm thick deposits of peat and stones. This feature has been interpreted as a winter dwelling recessed slightly into the sub-soil (Jensen 1998). The stones and peat covering the flagstone pavement are believed to have been stacked as a low wall around the perimeter and probably also on top of the dwelling. The rich lithic inventory found both inside and in front of the dwelling is interpreted as evidence of prolonged occupation lasting at least several months. Furthermore, a limited number of bones of ringed seal, combined with a sledge shoe of whalebone, indicate that at least part of the occupation period fell during winter or spring when hunting was conducted from the sea ice.

Site location

The site is located 0-1.5 m a.s.l. on an isthmus near the tip of a ca 500 m east-west oriented peninsula jutting into Sydostbugten (Figs 8.37 and 8.38). A minor Saqqaq site (site no. 102) was discovered on a nearby point to the southeast of Annertusuaqqap Nuua and the nearest Thule settlement is situated on the nearby island of Qeqertarmiut to the northeast.

Site discovery and excavation

Annertusuaqqap Nuua was discovered in 1988 during Qasigiannguit Museum's reconnaissance of the western part of Sydostbugten (Hansen *et al.* 1989). Numerous artefacts were picked up from the shingle beach, where the culture layer is still eroding. Annertusuaqqap Nuua was the first of a series of low-lying Dorset sites to be discovered. From this point onwards, surveyors paid more attention to low-lying beaches than they had in previous years. In 1994 the site was chosen for excavation because of the many finds which, together with the topography, made it appear a promising place for the discovery of a dwelling (Jensen 1995a, 1998). In 1995, additional geophysical survey was carried out in order to verify the effects of shoreline displacement (Rasch & Jensen 1997).

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Fig. 8.37. Annertusuaqqap Nuua seen from the west. A) Summer, the point juts out into the protected waters of Sydostbugten and schools of harp seal pass by. B) Winter, Sydostbugten is covered by solid land-fast ice as far as the eye can see.

Firstly, a 3 x 4 m area next to the shore was deturfed simultaneously with the excavation of 28 0.25 m^2 test pits, which were dug in order to determine the general lithic distribution over the isthmus. A flagstone platform was met at a depth of 30 to 40 cm below the present vegetation and the excavation was extended in all directions as far as the pavement and finds could be followed. A total of 50 m^2 was excavated, revealing a 5 x 2.5-3 m paved platform consisting of two circular to oval flagstone pavements separated by a 2.5 x 0.7 m floor area (Figs 8.39 and 8.40). As the excavation proceeded it was realised that parts of a now eroded, but originally more extensive, culture layer remained *in situ* underneath the beach cobbles. As a consequence, the excavation was extended on to the shore to the north. Excavation area B covered 12 m^2 and was located 60 m to the west of excavation area A (Figs 8.38 and 8.41) and was situated at a slightly higher elevation than area A. The find concentration in area B was associated with patches of charcoal and ash, but there were no stone-built hearths or other structures here.

The size of the site

The major concentration of finds was restricted to the excavated area and to a large portion of the beach where there were also remnants of a once more extensive culture layer. Only a few artefacts were located in the test pits to the south of the excavated area. In contrast, there were many finds on the shingle beach to the north of excavation area A, where artefacts were

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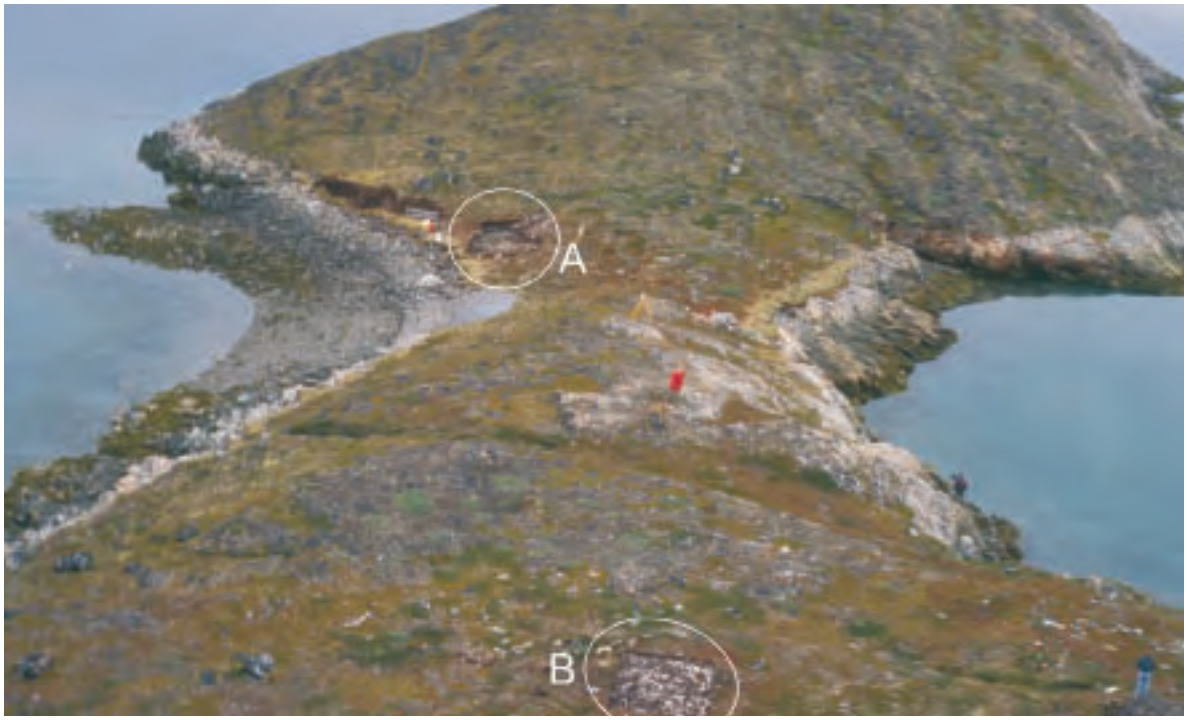

Fig. 8.38. Isthmus at Annertusuaqqap Nuua seen from the west. Excavation areas A and B are marked by circles. For scale, see the tripod for the theodolite and person standing in a red jacket (1.76 m excluding footwear) in centre of photo. Photo Jens Fog Jensen.

Fig. 8.39. Excavation area A prior to the removal of stones covering the flagstone pavements in the dwelling. Photo Jens Fog Jensen.

Fig. 8.40. Dwelling feature at Annertusuaqqap Nuua seen from the west. Metres in the grid system are marked by white labels. Photo Jens Fog Jensen.

collected several metres onto the skerry protruding to the north (Fig. 8.38, 8.41). Only a single test pit (x506/y498:2), in the eroding bank 17 m to the south of excavation area A, produced a substantial number of flakes. But since the nearby test pits produced only very few flakes this concentration must represent an isolated knapping site and not a living area. The many finds from the foreshore to the north of area A, and the finding of remnants of a culture layer with unsorted deposits containing charcoal, a soapstone fragment and burned bone in unit x513/y534:1, 8 m from the present shore, indicate that the culture layer must once have extended onto the skerry now appearing as a boulder strewn shore. Consequently, area A must be a fraction of a once larger settlement area. It is very possible that more dwellings were present on the relatively level area occupied by the skerry and foreshore. There are only a few places along the eroding cliff to the east of area A which have enough level space to allow the possible location of further dwellings. However, test pitting was not conducted in this area, due to the position of the excavation spoil heaps. The finds from the test pits are listed in table 8.5.

Stratigraphy

Transects were documented by two sections through the dwelling, drawn after removal of the topsoil (sections A-B, and C-D), and one section recorded outside the dwelling (section E-F) (Figs 8.42 , 8.43 and 8.44). In addition, a foreshore profile was recorded together with M. Rasch in 1995 with the specific purpose of describing the relative sea-level history (Rasch & Jensen 1997). In the excavated area, the substrate beneath the recent vegetation consisted of peat mixed with a large number of stones and boulders. A few artefacts were found in the topsoil but the number increased as the excavation proceeded. A flagstone pavement, laid directly over a cobblestone beach, was met at a depth of 40 to 50 cm. Permafrost occurred in the areas covered by the thickest peat layers and sometimes organic material was preserved. When comparing sections A-B and C-D through the central part of the dwelling (Fig. 8.42 and 8.43) with section E-F just to the west of the dwelling (Fig. 8.44), it was evident that the latter is dominated by several natural boulders. The stones filling the interior of the dwelling were much smaller and of a manageable size. The

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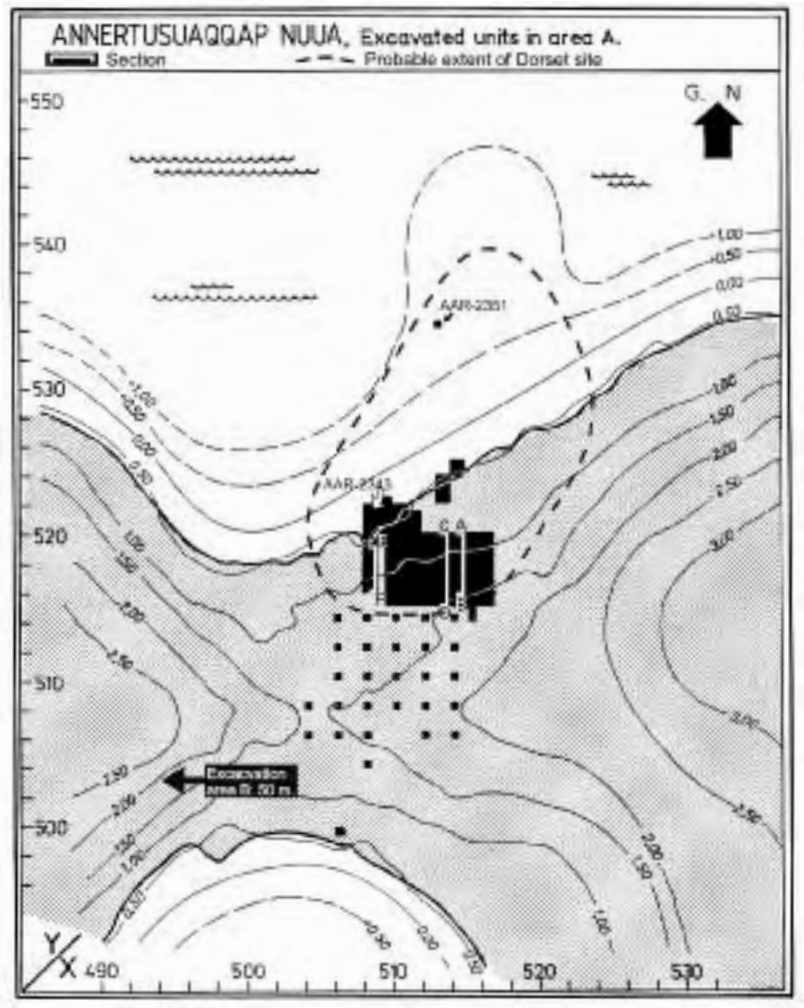

Fig. 8.41. Excavation area A and test pits at Annertusuaqqap Nuua. Sections A-B, C-D, E-F and location of radiocarbon-dated samples are marked on the map. Many artefacts have been collected from the foreshore and the probable former extent of the culture layer is marked with a broken line.

Table 8.5. Finds from test pits

504/508:1	2 artefacts, 1 microblade and 1 flake, both chalcedony.
506/498:2	115 artefacts, 114 flakes, 1 microblade, all chalcedony.
506/498:2 (on beach)	46 flakes, chalcedony.
506/508:1	1 flake, chalcedony.
506/510:1	6 flakes, chalcedony.
506/512:1	12 flakes, chalcedony.
508/506:1	1 flake, chalcedony.
508/512:1	3 flakes, chalcedony
508/514:1	1 microblade, chalcedony.
512/510:1	1 flake, chalcedony.
514/506:1	1 fragmented microblade, chalcedony.
514/512:1	2 flakes, chalcedony.
514/514:1	1 flake, chalcedony
515/517.1	1 biface and 2 microblades of chalcedony, 1 microblade of killiaq and 1microblade of quartz crystal.
515/517:2	1 microblade of chalcedony.

dwelling thus appears to have been intentionally located on a short beach ridge of cobblestones, which might have constituted the only relatively level and well drained spot on the site. In the northernmost part of section E-F (Fig. 8.44) the culture layer was seen as a thin black layer below the more recent peat deposits. Towards the north, this layer extends right onto the present beach where it could be followed for several metres below a layer of sand, gravel and stones.

Feature descriptions

The dwelling (feature A) was defined by two flagstone pavements separated by an open floor along the central axis. The floor space was covered by gravel at the centre and towards the entrance, whereas there were flagstones towards the rear. In places, the pavement was imbedded in a thin blackish culture layer and sometimes several layers of flags indicated that sunken floor areas had been repaired.

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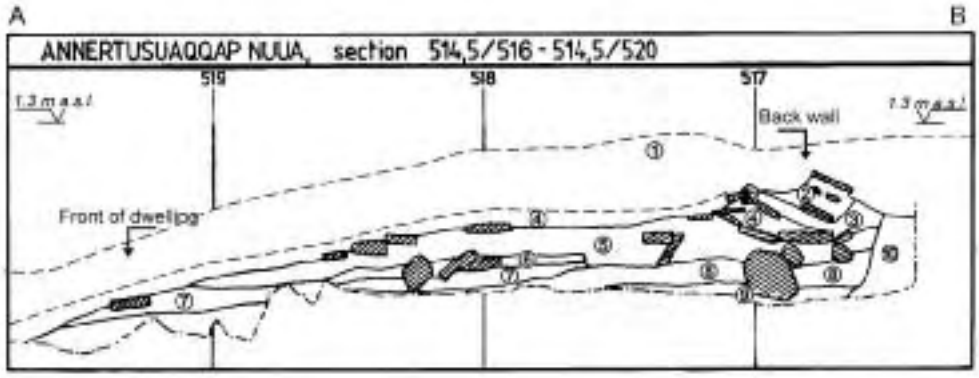
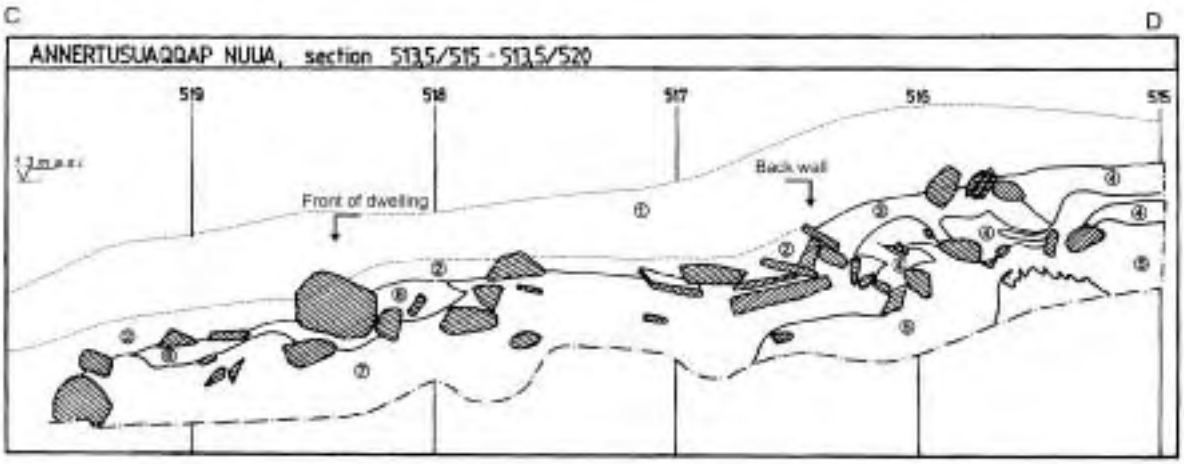


Description of layers in section 514.5/516-514.5/520

① Recent vegetation and peat mixed with large stones.
② Homogenous brown slightly greasy soil.
③ Grey sandy clay with some minor stones.
④ Brown to dark brown or black greasy soil (cultural layer).
⑤ Cobblestones of chicken to dove egg size often with air between the stones.
⑥ Cobblestones slightly smaller than those in , but in a brown greasy organic matrix. The diameter of the stones range from pea to dove egg size and with a few larger stones.
⑦ Cobblestones of similar size as those in ⑥.
⑧ Brown organic clayey and sandy greasy fill densely packed with pea sized stones
⑨ Grey sandy clay.
⑩ Bedrock.

Fig. 8.42. Section A-B showing the flattened floor of the dwelling.



Description of layers in section 513.5/515 – 513.5/520

① Recent vegetation and peat.
② Dark brown to black greasy cultural layer.
③ Homogenous dark brown slightly greasy.
④ Rust brown to yellow brown sand with clay and many stones.
⑤ Grey clayey sand with many stones.
⑥ Golf ball to doves egg large cobbles.
⑦ Heterogeneous brown to dark brown organic substance with a characteristic crummy appearance. This fill is mixed with cobblestones of chicken and dove egg size.

Fig. 8.43. Section C-D showing the flattened floor of the dwelling.

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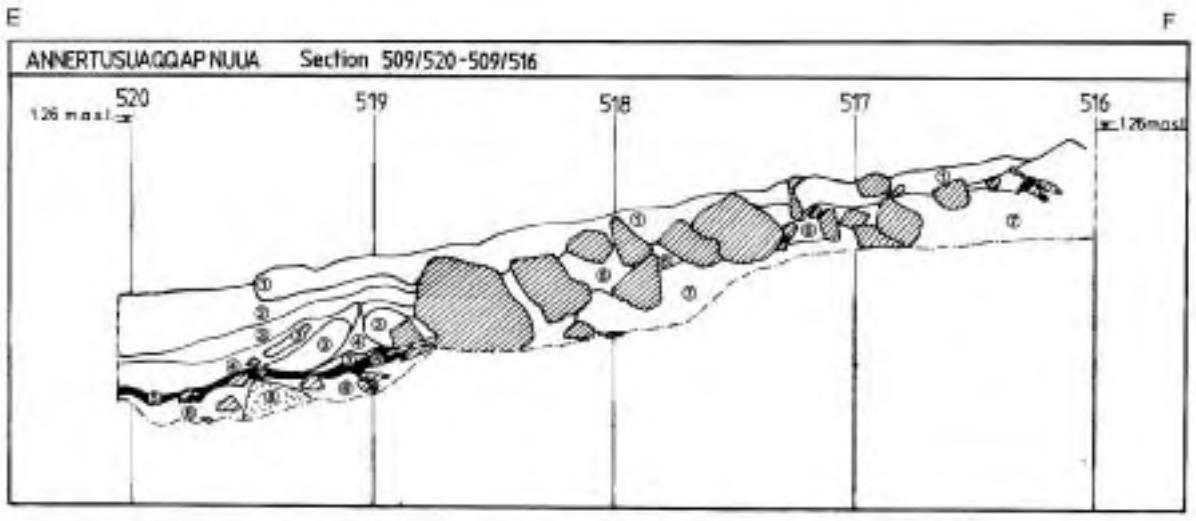

Descriptions of layers in section 509/520-509/516.

① Brown grass turf containing many beach cobbles north of y519 where waves wash on to the turf during hightide.
② Brown turf with many roots and stones but only a few artefacts.
③ Dark brown to almost black greasy peat with many roots.
④ This sediment is similar to the sediment in layer , but with a slightly lighter colour. At places the layer is disturbed by cryoturbation.
⑤ Cultural layer consisting of black ashes and greasy decomposed organic material with charcoal.
⑥ Subsoil of gravel and stones, occasionally the cultural layer have seeped into empty spaces between the larger stones.
⑦ Sterile subsoil of gravel and stones mixed with sand and clay.
⑧ Bedrock

Fig. 8.44. Section E-F to the west of the Dorset dwelling at Annertusuaqqap Nuua.

The dwelling did not have any definite periphery but the find distribution drops significantly to the east, south and west of the pavement. In front of the habitation, the sub-stratum drops approximately 50 cm, and here there were very find-rich 10-20 cm thick midden deposits. Towards the back, the dwelling had been slightly cut into the gently sloping soil, and in some areas supporting flagstones were stacked against the earth wall (Fig. 8.42 and fig. 8.43). Two lamp stands (features B and C) were marked by charred blubber deposited on stones in units x514/y517:3 and x515/y517:1 at the rear of the eastern sleeping platform and on a large natural stone located in x513/y518:2 (Fig. 8.45). The charred deposits in the latter area were the thickest, indicating that this was probably the cooking place, whereas the former may be a lamp stand. Formal constructions such as lamp support stones were not located.

One can only guess as to the nature of the superstructure of the dwelling, but the slightly sunken floor, combined with the many stones covering the ruin prior to excavation, indicate that a peat and stone wall supported a skin-covered frame of driftwood or whalebone. The entire structure could have been stabilised further by blocks of peat and stones piled on top, as known from Inuit houses. Two post holes (features D and E) were recorded at the western end of the dwelling in quadrants x510/y516:3 and x510/y517:3 (Figs 8.46 and 8.47). The former of these was located directly within the inferred wall, whereas E seemed to be located in the interior. However, there is some doubt about the exact position of the wall in this part of the dwelling. The postholes were only seen upon clearance of the floor area so it is unlikely that they are later intrusions.

A cache (feature F) was located in unit x512/y518:2 in the western sleeping platform (Fig. 8.48). Here, three tools were stored below one of the flat pavement stones. These comprise a broken rough out of killiaq, a biface of Angissat killiaq and a burin-like tool of grey killiaq (Fig. 8.49).

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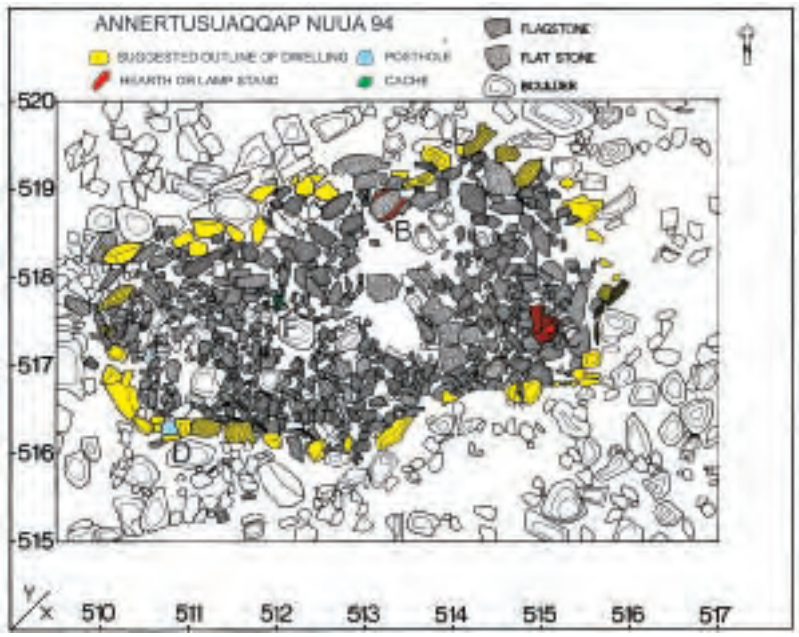

Fig. 8.45. Ground plan of dwelling at Annertusuaqqap Nuua. The hearths (B and C), marked in red, were seen as black deposits of charred blubber. The flagstone pavement and a marked decrease in artefact number define the suggested outline of the wall marked in yellow. Two postholes (D and E) were seen upon the clearing the floor as dark brown greasy deposits against the lighter yellow gravel natural.

Artefacts from area A

A total of 11.591 flakes and tools were excavated in area A (Table 8.6).

The inventory contains virtually all lithic types known from Dorset sites in West Greenland, but some are much more common than others. Bifaces (Fig. 8.50) and microblades (Fig. 8.51) are the most common, whereas only three polished blades are known from Annertusuaqqap Nuua (see fig. 8.55). These were collected as single finds from the shore, and none was found in context. End-scrapers (Fig. 8.52) are most common as worn out specimens, but preforms occur as well. Sideblades (Fig. 8.53) are less common, but not unusual. Accordingly, polished bifaces, along with axes (Fig. 8.56), side-scrapers, and hexagonal soapstone objects, are rare types, as are disc-shaped bifacial knives and banana-shaped polished knives. It is a characteristic of the inventory from Annertusuaqqap Nuua that artefacts are present in virtually all stages of preparation and use; from preforms to complete and totally broken or worn-out specimens. This can be illustrated by the complete burin-like tools that, in terms of size, range from complete 63 mm long examples to 26 mm long specimens that have been completely worn-out (Fig. 8.54:1-14). However the broad burin- like tool type shown as fig 8.54:16 and the slender and fully polished types shown at fig 8.54:17 and 18 indicate, that functional or typological differences also influence the shape of the edge at the burin-like tools.

Whetstone: A single whetstone was recovered from the rear part of the central floor area in the dwelling (Fig. 8.57). It is made of banded sandstone which must have been obtained from outcrops on the island of Angissat or from the Cretaceous provinces on the

Table 8.6. Lithic artefacts Annertusuaqqap Nuua, area A

	Tools No.	%	All artefacts	%
Bifaces, all fragments included	89	14.7		
Microblades	362	59.9		
Burin-like tools	40	6.6		
Side-blades	6	1		
End-scrapers	25	4.1		
Side-scrapers	3	0.5	604	5.2
Retouched flakes	6	1		
Axes	7	1.2		
Microblade cores	19	3.1		
Large flake/rough-out	47	7.8		
Grindstone			1	
Soapstone vessel fragments			7	0.1
Other soapstone fragments			5	
All flakes			10.980	94.7
Total	604	99.9	11.597	100

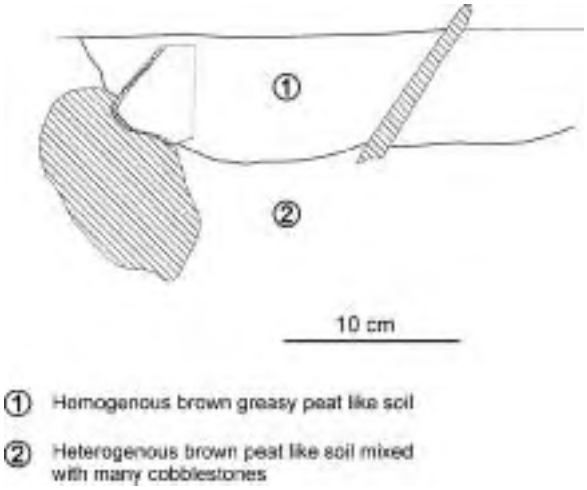

Fig. 8.46. Section through feature D.

Nuussuaq Peninsula. The whetstone is broken but the recovered fragment measures 98 x 53 x 38 mm and there are two working faces. One side is heavily used, with a slightly concave smooth surface. The opposite side is slightly convex with a smooth but more coarsely-grained surface which has the appearance of having been pecked. Maybe this surface was used differently from the polishing surface, or perhaps it had merely been prepared for use in polishing.

Soapstone: In addition to the fragments of soapstone vessels found in the excavated area, two larger fragments were also recovered from the foreshore. Unfortunately, the fragments cannot be fitted together so it is difficult to judge the original shape of the vessels. Most fragments have a curved shape, indicating that they are from oval lamps similar to those published by Gynther and Meldgaard (1983). However, one fragment has a sharper corner indicating a triangular or rectangular shape with rounded corners (Fig. 8.58). Several fragments have charred blubber on their interior surface, indicating that they are from lamps rather than pots.

Two fragments of soapstone vessels were found in the interior of the dwelling, and four fragments were recovered from the refuse area to the northwest (Fig. 8.69). Only the fragment from x513/y518:2 was located adjacent to a hearth. In addition to the vessel fragments, there were also one large and several smaller fragments of an oblong soapstone object in the western flagstone pavement (Fig. 8.59).

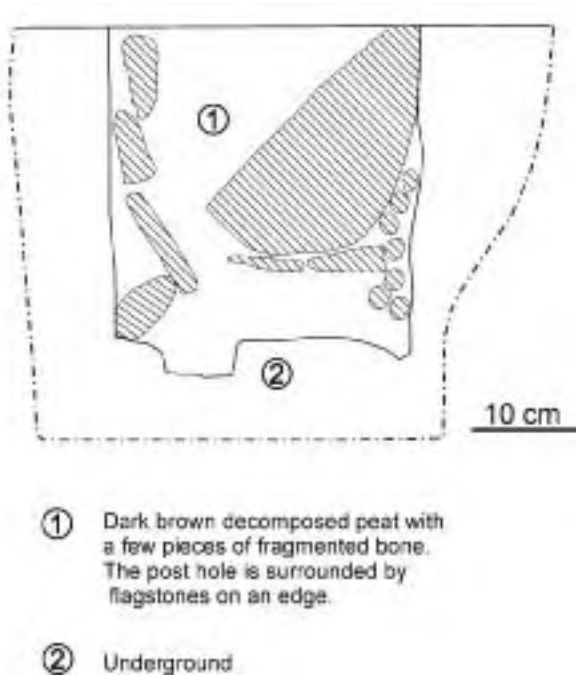

Fig. 8.47. Section through feature E.

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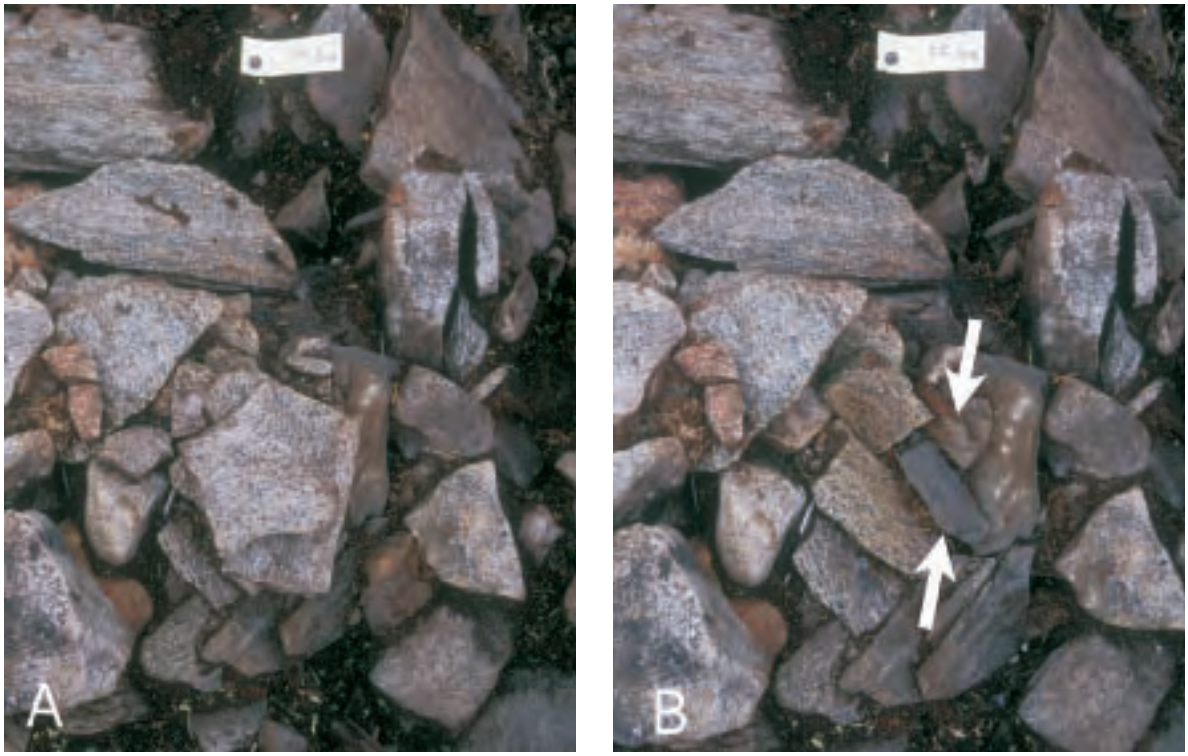

Fig. 8.48. Feature F is a cache in the western platform inside the dwelling. An asymmetrical bifacial knife of Angissat killiaq, a preform and a burin-like tool were hidden in a hollow below a flagstone. A) prior to removal of the capstone, B) capstone removed – preform and biface can be seen. The burin-like tool is hidden below the two other artefacts. Photo Jens Fog Jensen.

Artefacts of organic material

Among the few organic artefacts are a sledge shoe of whalebone (Fig. 8.60) and an almost complete harpoon head of typical early Dorset type (Fig. 8.61A). The basal fragment of a similar harpoon head was found in excavation area B (Fig. 8.61B). In West Greenland, harpoon heads of this type are also known from the Malmqvist Site in the Sisimiut District, from specimens collected by A. Rosenkrantz on the Nuussuaq Peninsula. Specimens with similar open sockets,

Fig. 8.49. Artefacts found in cache (feature F) in the western flagstone pavement in the dwelling. 1) preform of grey killiaq, 2) asymmetrical biface of Angissat killiaq, 3) burin-like tool of grey killiaq, all from x511/y517:4. Scale 5 cm. Photo Geert Brovad.

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Fig. 8.50. Bifaces from excavation area A and B. 1-6) symmetrical side-notched bifaces. 1) biface of black chalcedony x447/y501:3; 2) grey chalcedony x513/y518:2; 3) white translucent chalcedony x515/y517:1; 4) multi-coloured white, red to brownish translucent chalcedony from x551/y520:1; 5) green translucent chalcedony x446/y501:3; 6) white chalcedony x509/y517:2; 7) biface preform of grey to brown chalcedony x510/y519:1. 8-15 asymmetrical rounded side-notched bifaces (knives). 8) clear to white translucent chalcedony from x510/y519:1; 9) white chalcedony x511/y518:3; 10) brown to clear chalcedony with inclusions from x448/y501:3; 11) homogenous brown translucent chalcedony x513/y518:4; 12) light brown chalcedony from x510/y519:1; 13) proximal fragment from x508/y520:1 and distal fragment x509/y520:1 refitted to complete biface of white chalcedony. 14) clear to white chalcedony from x511/y516:3; 15) white to brownish red chalcedony from x511/y519:2. Scale: 5 cm. Photo Geert Brovad.

but with lateral barbs, are known from Sermermiut and from specimens in the Pfaff collection (Westman & Jakobsen 1989). One of the harpoon heads in the Pfaff collection has been AMS-dated to 485±100 b.c. (760-680, 670-630, 600-570, 560-400 cal B.C.) (Westman 1991). This type of harpoon head has close parallels with specimens from an Early Dorset / Independence II context in Northeast Greenland (Knuth 1968). In the Igloolik material, similar types are seen among the harpoon heads from the 22-24 m levels.

Spatial distribution of lithic artefacts in area A

All raw material types appear to show the same general pattern as seen in the overall lithic distribution (Fig. 8.62). However, there are some differences, most notably between the lithics in the refuse area and those in the interior.

When analysing the distribution of different tool types, the excavated area has been divided into indoor and outdoor deposits, as depicted in fig. 8.63 and 8.64. The dwelling covers a total of 17 m², whereas the area defined as being open-air is, in contrast, almost twice as large, covering 35 m².

When looking at the total lithic distribution, it is evident that less than 10% of all lithics were found inside the dwelling, whereas more than 90% were recovered from the refuse area to the north. Inside the dwelling there are almost twice as many artefacts in the western side as there are in the eastern floor section. If all artefact categories had similar patterns of

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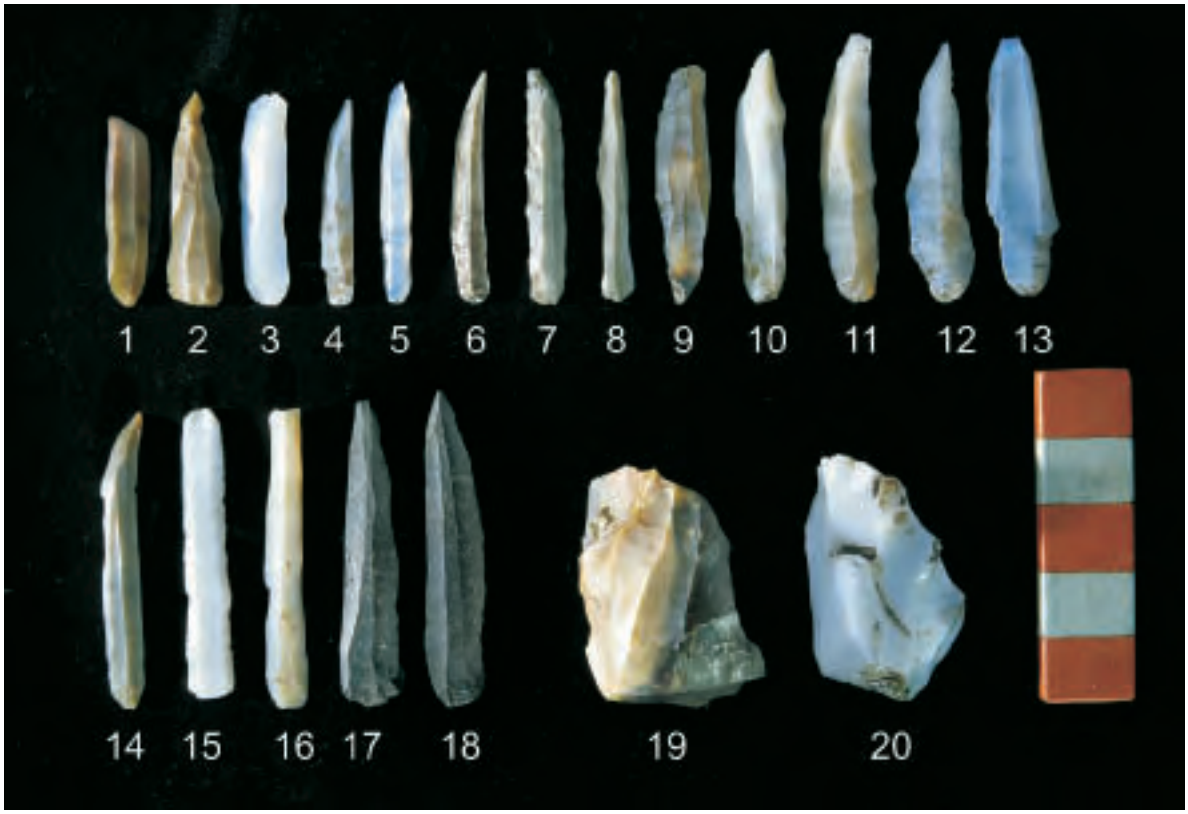

Fig. 8.51. Complete microblades and microblade cores from Annertusuaqqap Nuua. 1) proximally laterally retouched light brown to red chalcedony from x513/y517: 3; 2) light brown chalcedony from x511/y519:4; 3) proximally laterally retouched in particular at the lower right edge from x514/y519:4; 4) proximally laterally retouched white chalcedony from x512/y516:2; 5) white to clear chalcedony x511/y520:2; 6) proximally laterally retouched of grey chalcedony from x510/y520:4; 7) proximally laterally retouched of grey chalcedony from x510/y521:1+3; 8) grey chalcedony from x513/y515:1; 9) multi-coloured clear to black chalcedony from x508/y521:4; 10) proximally laterally retouched of white chalcedony from x510/y520:3; 11) proximally laterally retouched of white chalcedony from x513/y516:4; 27) clear to white translucent chalcedony from x512/y515:1; 12) proximally laterally retouched of clear chalcedony from x510/y520:3; 13) proximally laterally retouched of grey to brown translucent chalcedony from x509/y521:4; 14) white translucent chalcedony from x510/y519:2; 15) white translucent chalcedony with small red inclusions from x509/y520:3; 16) black chalcedony with white inclusions from x509/y519:3; 17) black chalcedony with white inclusions x510/y521:1+3; 18) microblade core of multi-coloured beige to brown chalcedony from x514/y517:3; 19) microblade core of white translucent chalcedony from x511/y518:20. Scale: 5 cm. Photo Geert Brovad.

distribution, one would thus expect 90% of each lithic type to be found in the outdoor area and, inside the dwelling, twice as many specimens to be found in the western part of the dwelling as in the eastern. This, however, is not the case. On the contrary, there are profound differences in the distribution of the different artefact categories. Killiaq makes up a much larger proportion (46%) of the objects in the exterior than it does in the interior, where it comprises only 19% (Fig. 8.63). Killiaq was mainly used for the manufacture of burin-like tools and axes. In this particular case it is likely that axe production and rejuvenation of killiaq axes occurred in front of the dwelling, where the debitage would not be a nuisance.

Tools versus debitage: The variation in the distribution of tools *versus* debitage is also significant. It can be seen that 201 (33%), out of a total of 618 tools, were found inside the dwelling, whereas only 542 (6%), out of a total of 9687 flakes, were located here. In relative terms, tools (including all microblades) are thus much more abundant inside the dwelling than outside. This difference in distribution can be demonstrated by introducing a flake/tool ratio expressing the tool percentage of all lithics for each 0.25 m² (Fig. 8.64). When this is

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Fig. 8.52. End-scrapers, 1) grey chalcedony from x512/y518:3; 2) grey chalcedony from x512/y519:3; 3) clear to white translucent chalcedony from x510/y518:4; 4) clear to white translucent chalcedony from x512/y516:4; 5) white translucent chalcedony from x510/y518:2; 6) light brown translucent chalcedony from x509/y522:3; 7) grey to black chalcedony with small white inclusions from x510/y521:1+3; 8) scraper preform of grey to black chalcedony with small white inclusions from x509/y520:4, note the scraper edge to the right has not yet been shaped. Scale 5 cm. Photo Geert Brovad.

calculated, it is evident that there are many quadrants inside the dwelling in which tools and microblades dominate the inventory, and where there are hardly any flakes present. In contrast, flakes heavily dominate the open-air deposits to the north of the dwelling. This difference in lithic composition demonstrates that the accumulations in front of the dwelling constitute more than a mere multiplication of the deposits inside. The behaviour resulting in the deposition of lithics in front of the dwelling was selective towards debitage. This was either as a result of primary reduction being executed in the open in front of the dwelling or of dumping of debitage from knapping episodes occurring elsewhere, or perhaps a combination of the two.

Distribution of the different tool types: All tool and raw material categories tend to be twice as numerous in the western part of the dwelling. This is also reflected in the total lithic distribution. However, there are significant differences between the relative indoor and outdoor frequencies of specific tool categories. Burin-like tools (Fig. 8.65) are relatively evenly distributed, with 21 specimens from outside and 20 specimens from within the dwelling. Scrapers, on the other hand, are more than twice as numerous in the open-air deposits (n=16) as they are indoors (n=7) (Fig. 8.66). Retouched microblades (Fig. 8.67) are similar to the burin-like tools evenly distributed inside and outside the dwelling, whereas the bifaces are almost three times as numerous in the open-air deposits (n=63) as they are in the indoor deposits (n=23) (Fig. 8.68). This difference between the indoor and outdoor deposits could be purely coincidental in the sense that the site was abandoned at a time when specific tool categories happened to being used or repaired in particularly great numbers at one of the two places. However, it may also result from a contrast in function between the internal domestic space and the exterior, similar to the difference seen in relative tool frequencies between area A and area B. The latter area is dominated, in particular, by bifaces (see below). When looking at the indoor distribution of the most common tool types (retouched microblades, bifaces, burin-like tools and scrapers), it is evident that there are many examples of these scattered along the rear wall. There are also many retouched microblades here, but these tend to be scattered a little further out onto the floor than the other tool categories. This tendency for the tools to be scattered along the wall is also

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Fig. 8.53. 1 and 2: Disk-shaped knives of white translucent chalcedony from x512/y519:3 and x511/y520:1; 3-5: side-scrapers, 3) of white translucent chalcedony from x510/y519:3; 4) clear translucent chalcedony from x513/y517:4 and 5) of clear translucent chalcedony from x510/y521: 1+3. 6 to 10: side-blades, 6) green translucent chalcedony from x508/y521:2; 7) grey translucent chalcedony from x512/y519:4; 8) clear translucent chalcedony from x512/y518:3; 9) white translucent chalcedony from x510/y521:1+3. Scale 5 cm. Photo Geert Brovad.

seen in fig. 8.64, showing the flake/tool ratio in each 0.25 m². The rear wall and the western and easternmost quadrants of the interior are, therefore, characterised by units where a single or a few tools were found with hardly any flakes present. This distribution of tools resembles a 'wall effect', which apparently has only acted upon the tools and not the debitage. The tool distribution presumably results from deliberate positioning and throwing of tools towards the wall, and not from sweeping and cleaning which would have given the flakes a similar distribution. The general tendency of tools to be found along the wall in both the western and eastern part of the interior has implications for the understanding of the dwelling as a whole, because the selective or discriminating forces which created the pattern appear to have been similar in the eastern and western halves of the interior.

Radiocarbon dates

Annertusuaqqap Nuua has been dated by way of two AMS dates. AAR- 2351 was conducted on charcoal collected from remnants of an eroded culture layer on the foreshore. This sample was dated to 580 ± 75 b.c., resulting in calibrated values within one standard deviation

Table 8.7. Lithic artefacts Annertusuaqqap Nuua, area B

	No.	%	All artefacts	%
Bifaces, all fragments included	12	41.4	29	5.5
Microblades	15	51.7		
Side-blades	1	3.4		
Axes	1	3.4		
All flakes			503	94.5
Total	29	99.9	532	100

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Fig. 8.54. Burin-like tools from Annertusuaqqap Nuua. 4, 5, 8 and 10 are made of chalcedony whereas the remainder are of grey killiaq. 1) x508/y520:1; 2) x508/y519; 3) x512/y516:2; 4) x513/y517:1; 5) x513/y518:1; 6) x510/y516:3; 7) x510/516:1; 8) x513/y519:4; 9) x512/y515:4; 10) x509/y520:1; 11) x509/y521:4; 12) x511/y518:3; 13) x512/y516:3; 14) refitted specimen of proximal fragment from x511/y520:4 and distal fragment from x510/y521:1+3; 15) a preform from the site of Umiartorfik; 16) a broad burin-like tool from x513/y518:2; 17) slender pointed type from x512/y518:1; 18) slender pointed type from x511/y518:3. Scale: 5.cm. Photo Geert Brovad.

Fig. 8.55. Polished blades from Annertusuaqqap Nuua. These were all found in a secondary position on the beach in front of excavation area A; they are the only polished blades from Annertusuaqqap Nuua. The banana-shaped knife (2) is a rare hybrid between a burin-like tool and a polished biface. Similar specimens are known from Ikkarlussuup Timaa, and Mathiassen (1958) has depicted one from Sermermiut. Scale 5 cm. Photo Geert Brovad.

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Fig. 8.56. Axes (or adzes) from Annertusuaqqap Nuua. 1) broken and distally reworked flake axe x510/y518:4; 2) distally broken axe from x511/y520:2; 3) axe from x514/y516:2; 4) axe with slightly polished edge from x512/y516:3; 5) rear fragment of axe from x511/y518:3. Scale 5. cm. Photo Geert Brovad.

tion of between 800-750 and 720-520 cal B.C. The other date, AAR-2343, is for a caribou bone from the refuse area near the entrance to the dwelling (Fig. 8.41). This sample has been dated to 510±70 b.c., giving calibrated values within one standard deviation of between 760-680, 670-630, 600-570, 560-480 and 470-410 cal B.C. As with most other Dorset sites in West Greenland, it is virtually impossible to date the occupation at Annertusuaqqap Nuua more specifically than within about 750-400 cal B.C.

Faunal material

Organic material was preserved in the refuse area in front of the dwelling and in the eastern part of the dwelling, where the covering peat was slightly thicker than it was in the western compartment. Only 42 specimens have been identified to species, whereas 124 have been identified to *genus* as seal (*Phoca sp.),* two as ringed seal (*Phoca hispida)* or Harp Seal (*groenlandica)*, two as ringed seal (*Phoca hispida) or* harbour seal *(vitulina),* and nine as bird bones (*Aves sp.)* (see table 8.11). This limited number of identified bones gives no opportunity for statistical analysis of the data. However, the presence of migratory birds, caribou, ringed seal and polar bear indicate that the site could have been used both in winter and summer.

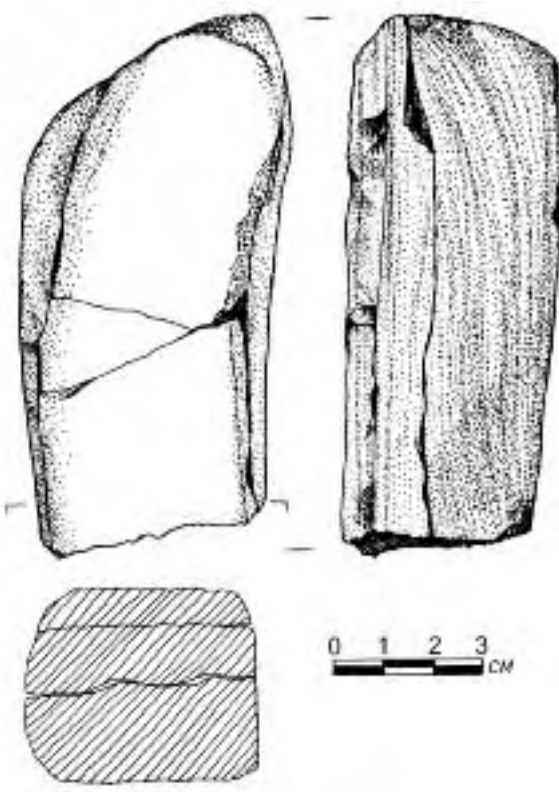

Fig. 8.57. A single whetstone was recovered from the central floor area in the dwelling. Drawing Martin Antoni Nielsen.

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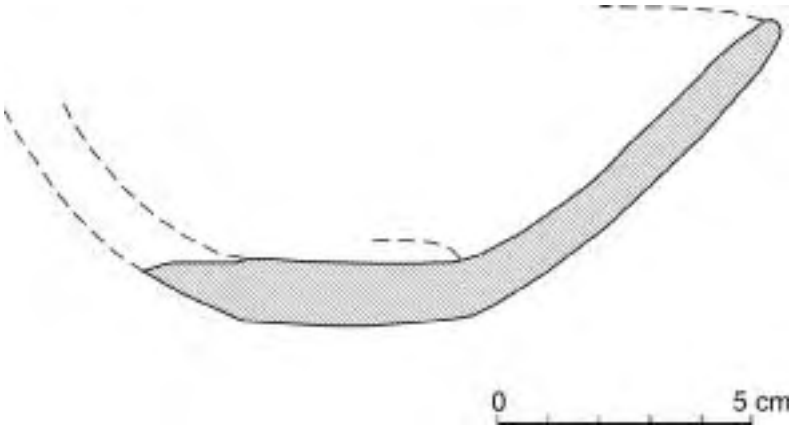

Fig. 8.58. Cross-section of fragment of soapstone vessel. Stray find from the foreshore.

Excavation of area B, an open-air activity area

In addition to the excavation area A, a smaller area of 12 m² was excavated at a slightly higher elevation of 4.5 m a.s.l. and approximately 50 m to the west. Area B is a level area covered by an up to10 cm thick layer of crowberry and gravel resting on bedrock. Prior to the siting of our kitchen tent, a variety of well-suited places were tried, and at this particular place several microblades and numerous flakes of white chalcedony were registered immediately below the vegetation. The kitchen tent was subsequently moved further away, and the lithic concentration was excavated in order to clarify whether there were additional dwelling remains in this area. Several rounded and angular stones were seen in the gravel below the vegetation but in most cases these were relatively small and formed no pattern. In many instances there were flakes or tools below the stones indicating that there are, presumably, no Dorset structures in this area. In between, there were patches of ash but again there were no indications of hearth structures.

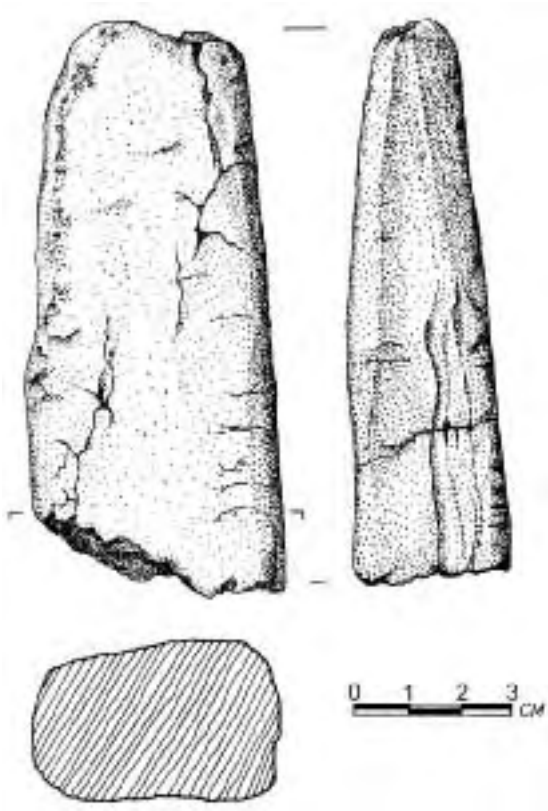

Fig. 8.59. Soapstone object found in the left platform area of the dwelling. A fragment of an octagonal variant has been collected as a stray find from the foreshore. Similar objects have been found on several other Dorset sites. Often they are found in the hearth zone of dwellings rich in finds. Drawing Martin Antoni Nielsen.

Artefacts from area B

Chalcedony of the milky-white translucent variety makes up the largest portion of tools and debitage in area B, where 91% of all lithics are of chalcedony and 9% are of killiaq. A total of 29 tools and 503 flakes were recovered.

Apart from a single side-blade and a fragmented axe, the tools are completely dominated by bifacial blades and microblades of chalcedony. The bifaces are not of any uniform type but include specimens with a triangular symmetrical point and an asymmetrical rounded knife. The many bifaces and the microblades indicate that people conducted a variety of retooling and maintenance activities in area B.

Organic artefacts: The proximal end of a harpoon head similar to the one found in the dwelling was recovered from x445/y503:1 (Fig. 8.61B).

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Summary of area B

Combining the character of the lithics and their distribution with the lack of formal boulder structures in area B, the Dorset evidence from this part of Annertusuaqqap Nuua leaves the impression of an open-air activity area where hunters maintained and repaired hunting gear while the slightly elevated location allowed for scouting for game in between.

Summary of Annertusuaqqap Nuua

Both the dwelling structures and activities at Annertusuaqqap Nuua differ from those at Innartalik and Kangerlussorissunnguup Kangia. The most striking aspect of this is the voluminous lithic inventory but the dwelling in excavation area A is also markedly different from those at Innartalik and Kangerlussorissunnguup Kangia. Annertusuaqqap Nuua is, therefore, considered to be a base camp settlement with a slightly sunken-floored dwelling that was inhabited throughout the winter (Fig. 8.70). Occupation during the warm seasons may also have occurred, as indicated by both the fauna material and the open-air activities in excavation area B. The superstructure of the dwelling may have been a type of skin-covered tent, but there are also signs of the use of peat and stones, since the interior of the feature was filled with large stones prior to excavation. Presumably, the dwelling had a low peat and stone wall along the perimeter, or blocks of peat and stones may have been stacked on the roofing to weigh down the skin. The distribution of artefacts in and around the dwelling may result from a combination of continuous sweeping and dumping of objects from the interior on the area in front of the entrance and from *in situ* lithic reduction in the same place. Inside the dwelling, most lithics were concentrated in the western part where the fragmented soapstone vessels were also found. The combination of features and artefact distributions leaves a somewhat ambiguous overall impression, open to alternative interpretations. The distribution of soapstone vessel fragments and heavy dominance of lithics in the western part of the interior indicate that perhaps the western pavement was a floor area, whereas the eastern pavement was a sleeping platform. Such a 'one-sided' location for a sleeping platform has been suggested for a Groswater dwelling at Port au Choir, Newfoundland (Renouf 1994), where most artefacts were found on a sunken floor. Contrary evidence is provided by the fact that similar discrete patterns in tool distribution operated in both the western and eastern part of the dwelling. Presumably, the concentration of tools along the wall resulted from a

Fig. 8.60. Sledge shoe of whalebone. Recovered from the refuse area in front of the dwelling (x110/y119:3). The fragmented sledge shoe is 16.7 cm long. Drawing Lars Davidsen.

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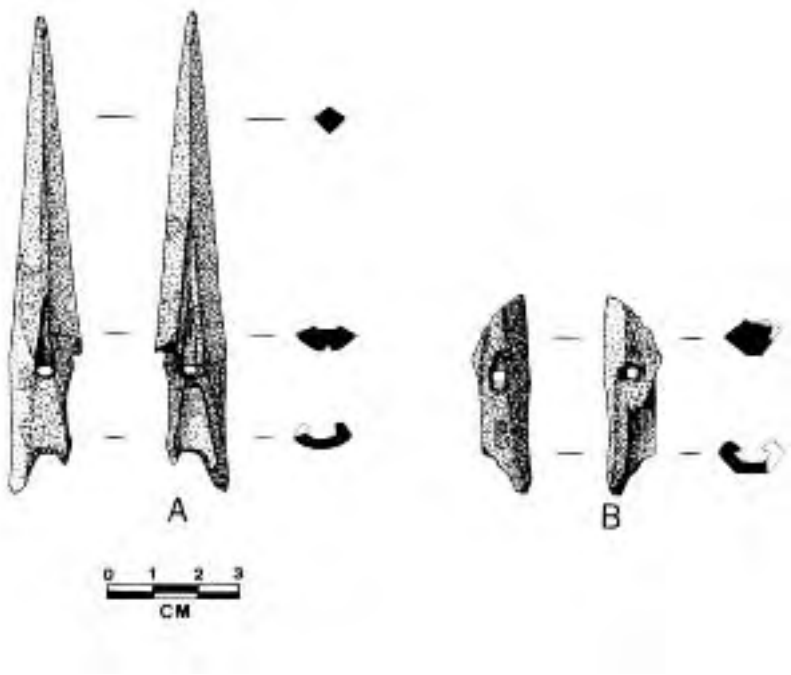

Fig. 8.61. Harpoon heads from Annertusuaqqap Nuua. A: Almost complete specimen from the dwelling, B: basal fragment of harpoon head from excavation area B. Both fragments are open socket varieties comparable to 'transitional' harpoon types from the 22-24 m levels in the Igloolik region.

combination of these having been placed along the wall and the presence of a skin-covered platform, which may have promoted a tendency for the tools to hide along its edges. If the western pavement were an open floor and activity area, then there is little evidence to explain the recorded distribution of tools. Instead, it is suggested that the dwelling was a two-family dwelling, with each family occupying a platform either to the right or left of the central floor area.

Umiartorfik

Umiartorfik (site no. 116) shows numerous similarities to Annertusuaqqap Nuua. Site location, dwelling structures and richness of the finds are broadly similar at these two localities. Umiartorfik is believed, accordingly, to be a Dorset base camp with at least one winter dwelling as well as areas of open-air activity. The locality was also settled during the early Historical

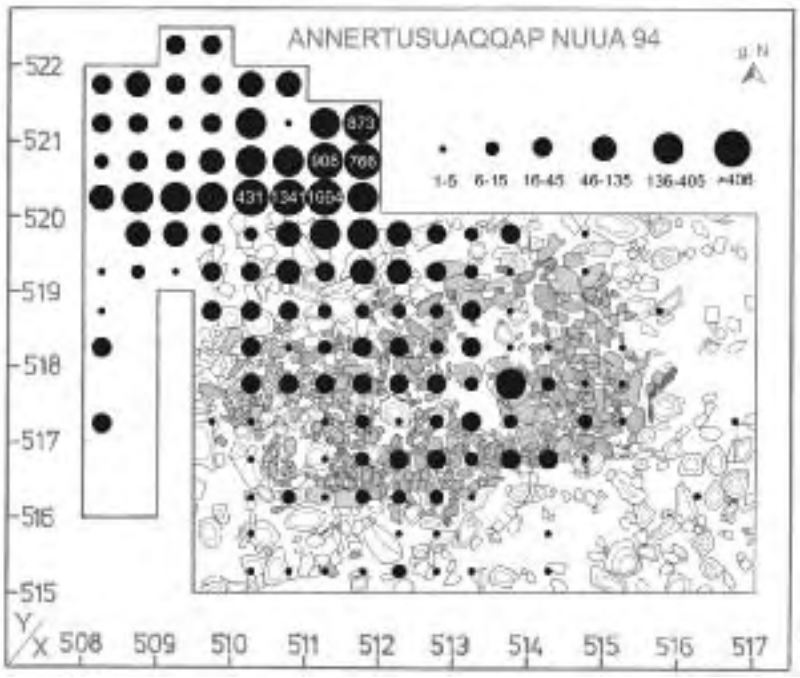

Fig. 8.62. Total distribution of lithic artefacts in excavation area A.

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Fig. 8.63. Raw material frequencies inside and outside the dwelling at Annertusuaqqap Nuua. Only 10 percent of the lithics are from the interior and tools are relatively more frequent inside than outside the dwelling. The 'inside – outside' dichotomy mainly results from the accumulation of killiaq debitage in the refuse area outside the dwelling. The massive accumulation of killiaq debitage in the exterior is believed to result from primary lithic reduction of axes in the area in front of the dwelling, but dumping of debitage from knapping episodes inside the dwelling may be equally relevant.

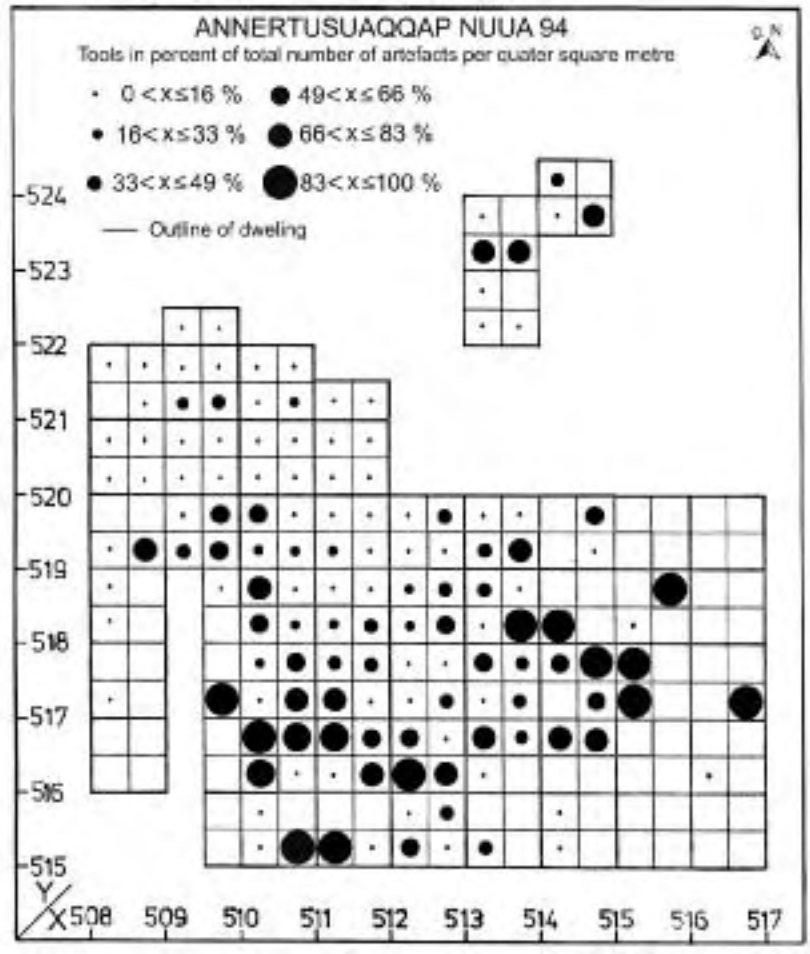

Fig. 8.64. Relative frequency of tools and microblades in relation to flakes. The outline of the dwelling is marked with a red line. Inside the dwelling, tools are relatively abundant. Tools and microblades are thus the sole finds in many grids inside the dwelling, whereas flakes dominate the deposits in the exterior. As with the difference seen in the distribution of killiaq, the 'interior – exterior' dichotomy in the distribution of tools and microblades in relation to flakes indicates that the exterior deposits are more than just a multiplication of the interior deposits resulting from continuous sweeping out and cleaning. The primary stages of flint knapping producing large flakes appear thus to have been conducted in the open more often than in the interior. Note the manipulative nature of the graphics, some of the large black circles showing 83 to 100% tools in the lithic inventory, result from the presence of a single tool or microblade and the absence of flakes in that particular grid.

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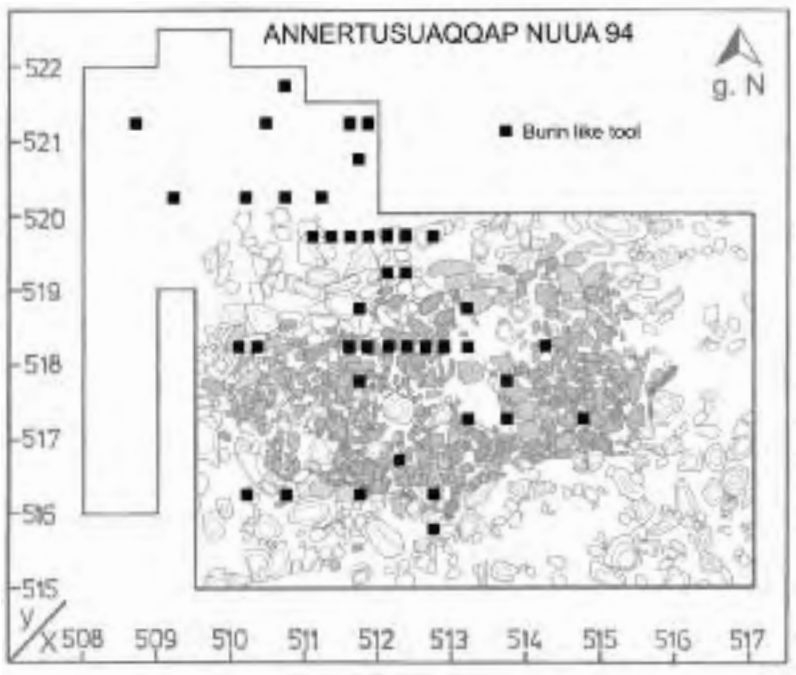

Fig. 8.65. Distribution of burin-like tools in and around the dwelling in area A.

period, which may have resulted in disturbance of the older Dorset deposits.

Site location

The Dorset site of Umiartorfik was found during the 1995 survey of Nivaap Paa (Jensen *et al.* 1995). Umiartorfik is typical as a 'low-lying Dorset site rich in finds'. It is situated on a 12 m wide and 14 m long point (Fig. 8.71) jutting into the Nivaap Paa inlet. The most exposed part of the point is covered with marsh grasses, whereas grasses, which include patches of lyme-grass, dominate the central section. The base of the point is slightly higher and the vegetation is dominated by grass and willow and here there is a well-preserved

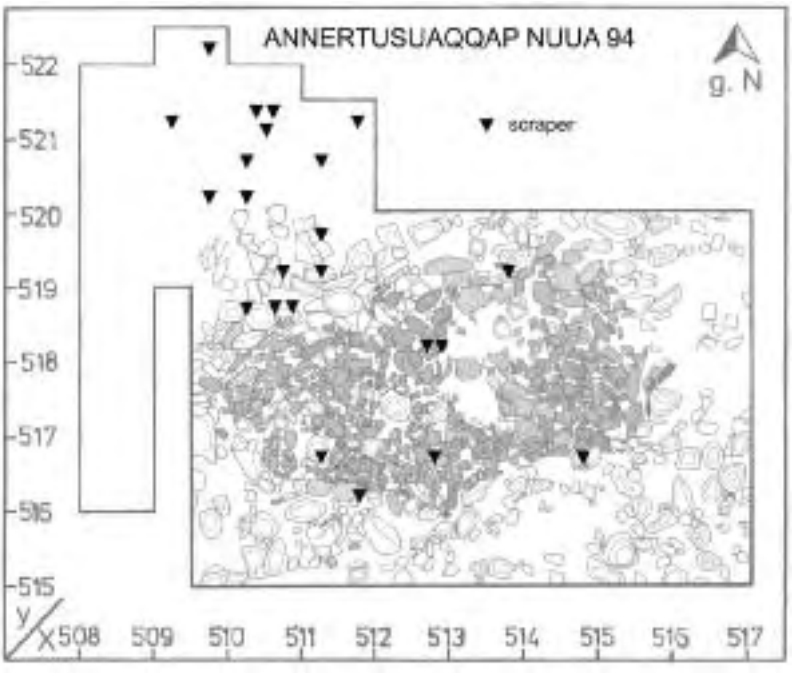

Fig. 8.66. Distribution of scrapers in and around the dwelling in area A.

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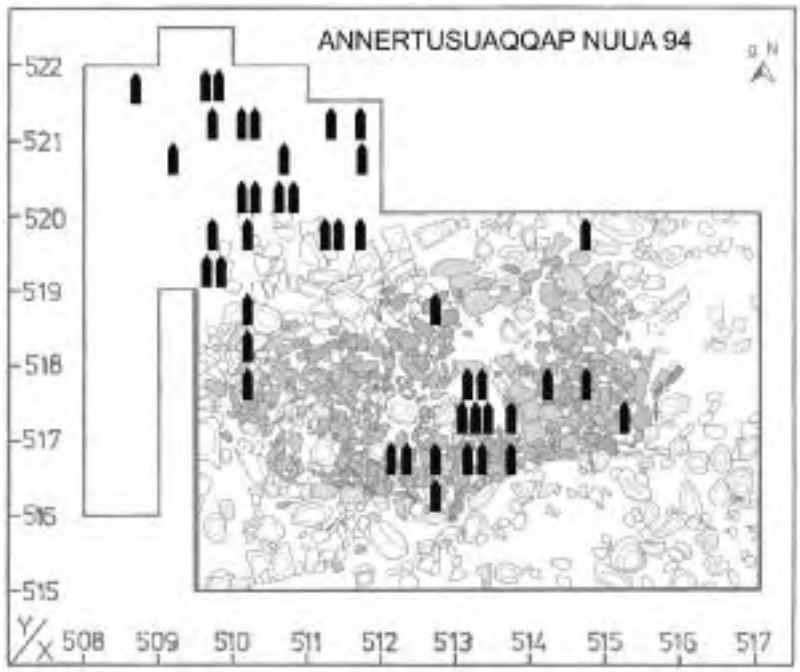

Fig. 8.67. Distribution of retouched microblades in and around the dwelling.

trapezoid Thule house (feature A). Another more rudimentary ovate structure, consisting of a depression open towards the eroding bank, was seen further towards the tip of the point. However, on further examination, this depression proved to be a hollow in the uppermost peat layers that cannot be related to prehistoric activity. Large numbers of lithic artefacts were found on the southeast-facing beach as well as in a test pit in front of feature A and in another inside the Thule house. The find distribution located during the survey suggests that the peat cover could be obscuring a Palaeo-Eskimo culture layer extending over large parts of the promontory. In addition to the many finds on the beach, several flagstones were seen in the eroding

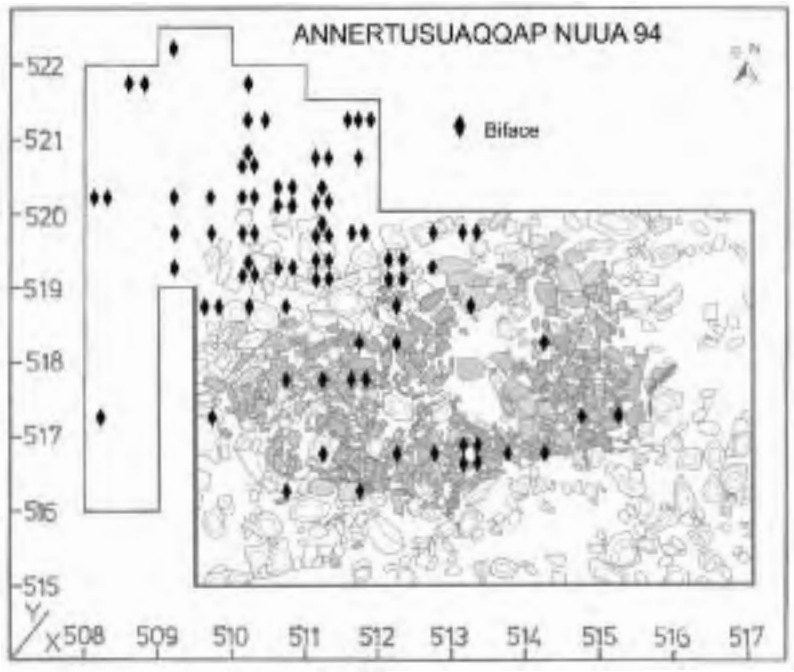

Fig. 8.68. Distribution of bifaces (all fragments included) in and around the dwelling.

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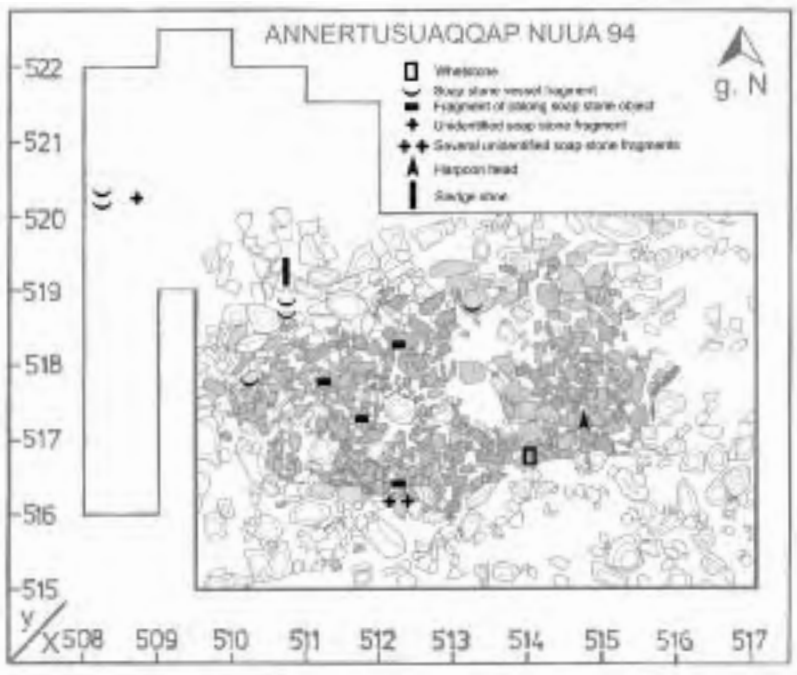

Fig. 8.69. Distribution of miscellaneous artefacts in excavation area A.

cliff immediately to the northeast of the place where the depression in the surface was seen. The flagstones indicate the possible presence of a dwelling and the site was thus chosen for a kind of rescue excavation.

During the following two weeks, excavations were carried out in three different areas: A) the trapezoid Thule house, B) the Dorset dwelling partly exposed in the eroding cliff, and C) extended test pits in a find-

Fig. 8.70. Artist's reconstruction of Annertussuaqqap Nuua as it could have looked like around 600 cal B.C. The distribution of artefacts on the foreshore suggests that originally the occupation also covered an area to the northeast of the excavated dwelling. Watercolour Martin Antoni Nielsen.

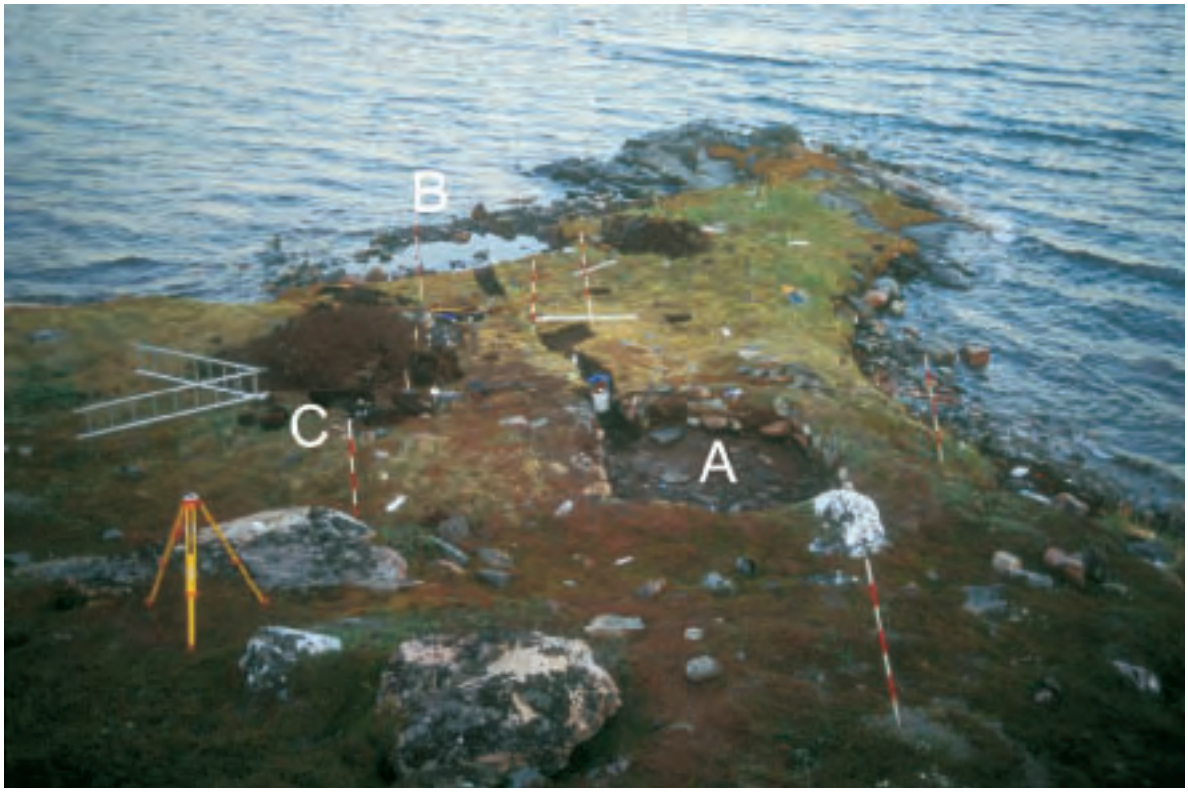

Fig. 8.71. The Umiartorfik site seen from the north. The excavated Dorset dwelling in unit B is flooded at high tide. Photo Jens Fog Jensen.

rich area a few metres east of Thule house 'A'. A total area of more than 35 m² was excavated, approximately 13.5 m² in area A, 14.25 m² in area B, 6.5 m² in area C, plus 6 test pits of 0.25 m² (Fig. 8.72).

Feature A, the trapezoid Thule house

Prior to excavation, the outline of a 2.60 x 3.0 m (internal dimensions) well-defined Thule house was seen on this part of the point. The walls stood approximately 75 cm high with several courses of peat and greater than head-sized stones (see fig. 8.73). Quite clearly this was a Thule house, but the relationship between the lithic artefacts and the semi-subterranean dwelling was intriguing. Therefore, it was decided to excavate the interior of the dwelling and the adjoining entrance passage. The excavation was conducted under the supervision of John Pind from 27th June to 6th July 1995.

A grid was established with a northerly-oriented Y-axis running through the entrance passage. Finds were collected from 0.25 m² grids and Palaeo-Eskimo artefacts showed up in all of those in the interior of the dwelling. The lithic assemblage only contains artefacts of Dorset type. Permafrost was met at only 20 cm below the surface. But the frozen layer extended for just 5-10 cm, and it would probably have melted over the summer if it had been left exposed. Below the recent vegetation there was a layer of pebbles and an irregular flagstone pavement. Along the northern wall was a c.60 cm wide space lacking the pavement but with large (head-sized) boulders. These probably supported the sleeping platform. The entrance passage was connected to the southeastern corner of the trapezoid interior. A scattered flagstone pavement could be followed into the 2.5-3 m long entrance passage. Flagstones were also irregularly scattered south of the entrance passage, where a decomposed refuse area formed a peat dome.

Stratigraphy

When the floor had been excavated, the eastern wall was cleaned up from the inside and drawn. In this transect it was evident that the walls of the dwelling had been built on top of an about 5 cm layer of thick

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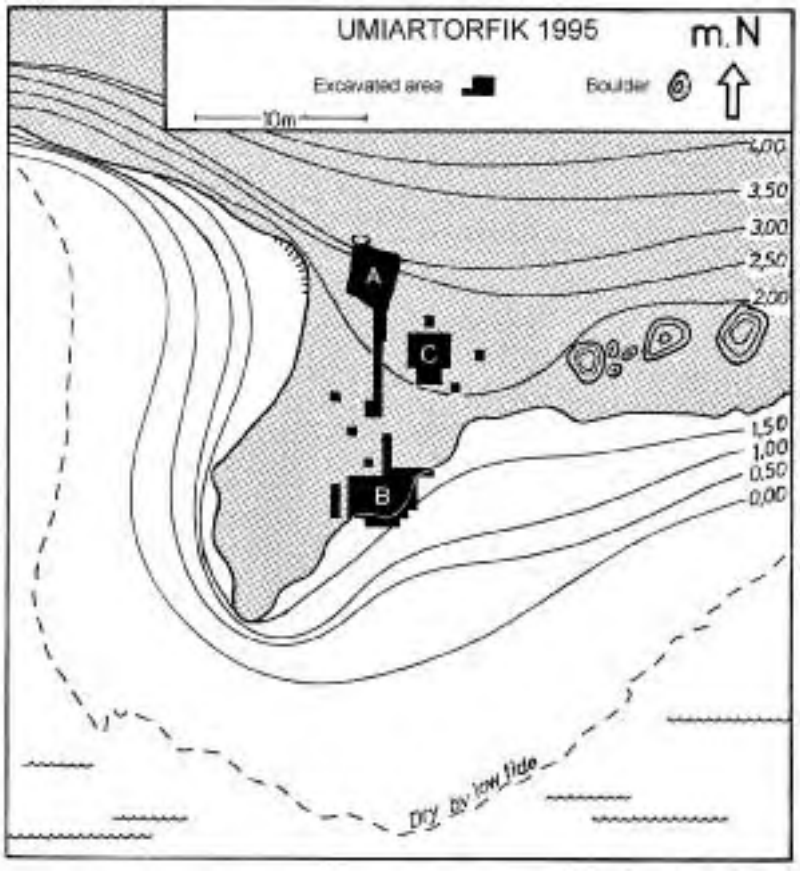

Fig. 8.72. Site map of Umiartorfik. Excavation unit A is a Thule house. In area B were the remains of a Dorset dwelling, C is an enlarged test pit in an area rich in finds.

blackish peat containing many Dorset artefacts (Fig. 8.74). Presumably the Thule house was built on top of a Dorset culture layer. However, lithic artefacts may also have entered the Thule house along with gravel used to level the floor.

Artefacts

The inventory is completely dominated by lithic artefacts (see table 8.8), however finds of glazed ware, gunflint, a fragmented clay pipe and a fragmented and a whole foreshaft of bone dates the dwelling to the end of the 18th or the beginning of the 19th century.

Inside the dwelling, the lithic artefacts appear to be scattered with no apparent single centre of distribution and with no apparent accumulation along the walls. When considering the total lithic distribution, it is evident that, in addition to the scatter inside the dwelling, there is a concentration in the refuse area in units x99/y98:3 and 4 and x99/y99:3 and 4 in front of the entrance passage. This pattern resembles what one would expect if the people living in the Thule house had left the lithics, and it accentuates the problem of establishing securely the context of artefacts and dwelling features. There is little contextual data to either support or disprove a relationship between the Thule house and the lithic material. However, it was evident in the stratigraphy that the Thule house had been built on top of an older culture layer containing lithic artefacts. The majority of the finds from area A may come from this layer but they may also have been carried into the dwelling along with beach gravel that had been spread on the floor.

The Dorset inventory

The Dorset inventory from feature A comprises 94 tools and 946 flakes (Table 8.8). The composition of tool types shows the same trend as seen at Annertusuaqqap Nuua, with microblades more abundant than bifaces, burin-like tools and end-scrapers. Side-scrapers were not located and larger objects, such as axes, grindstones and objects of soapstone, were also absent. Microblade cores stand out as being more frequent than in other Early Dorset inventories, since nine of these were recovered from area A.

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Raw material frequencies

The lithic inventory in area A is dominated by chalcedony (62%). Grey killiaq is the second most frequent raw material, comprising 27%. In addition to these raw materials, there are also relative large quantities of quartz crystal (7%) and Angissat killiaq (3%) (Fig. 8.75).

Finds from Historical Times

The complete and a fragmented foreshafts (Fig. 8.76) are typical Thule specimens, but fragments of clay pipe are particularly suitable for dating the historic component. The channelled pipe bowl (Fig. 8.77) shows close parallels with finds from a Danish clay-pipe factory in Stubbekøbing on the island of Falster, to the south of Zealand. Similar specimens are known from the Inussuk site excavated by Therkel Mathiassen in the Upernavik District (Linde 1952). The factory is mentioned in historical sources from 1767 and 1816 (Linde 1952:53), and it is probably no coincidence that clay pipes from this particular factory reached Greenland. Niels Egede, who established the colony of Egedesminde (Aasiaat) in 1759, had a sister living in Stubbekøbing, so the link from Umiartorfik to Aasiaat (as Egedesminde is called in Greenlandic) appears to be quite obvious. The stoneware, the clay pipe and the harpoon foreshafts are the only artefacts definitely belonging to the Historical phase, but a number of wood shavings, fragmented pegs and limited bone material are also believed to be from this period.

Distribution of Dorset artefacts in area A

Major lithic concentrations were located inside the Thule dwelling as well as in the refuse area in front of the entrance passage. The distribution in area A closely resembles that expected had the lithics been deposited by the dwellers in the Thule house or, alternatively, a house left by Dorset people prior the more recent use of the site by Thule inhabitants. If this suggestion is correct, then the Thule dwelling can be seen as a more recent replacement of a former Dorset dwelling. The lithic distribution from within the Thule dwelling can be characterised as an indoor lithic scatter, whereas the finds from the x99/y97, x99/y98, x99/y99, x99/y100 are dumped objects characterised as open-air deposits. However, no signs of a Dorset dwelling were noted during the excavation and, as a consequence, the origin of the Dorset material from

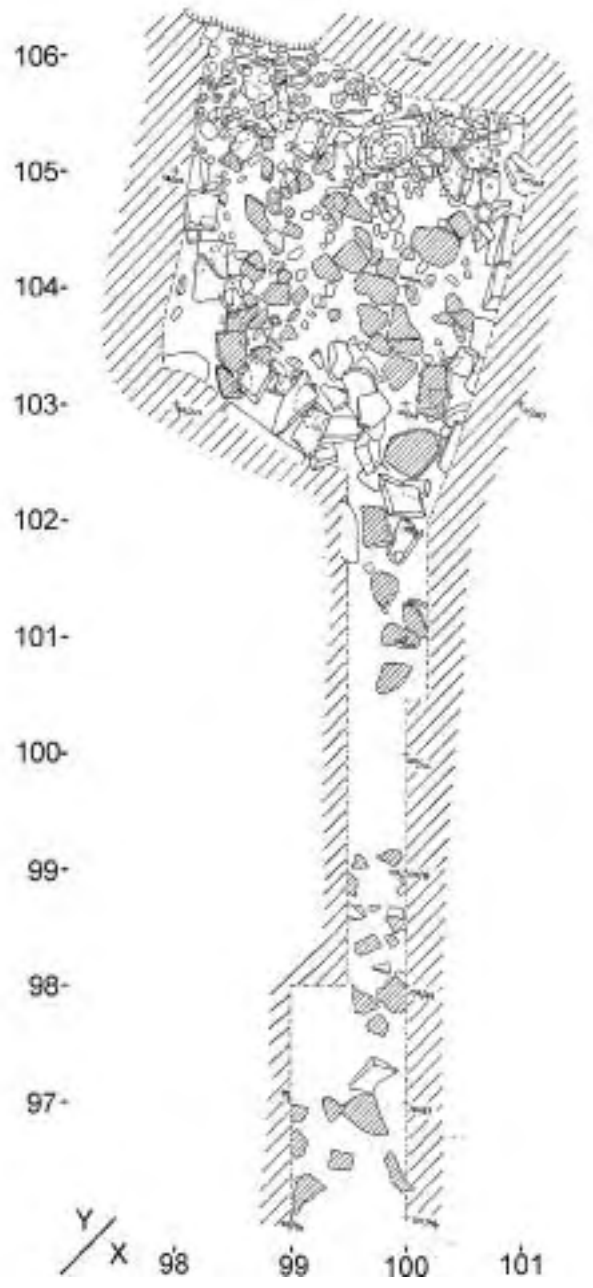

Fig. 8.73. Ground plan of trapezoid Thule house. Drawing John Pind.

area A has to be inferred from an analysis of the lithics. The composition of the 'outdoor' deposits has been compared to that of the 'indoor' deposits. This shows that neither specific artefact types nor particular raw materials are significantly more frequent in any particular place. 68.1% (n=64) of the artefacts are from the 'indoor' area and 31.9% (n=30) are from the 'out-

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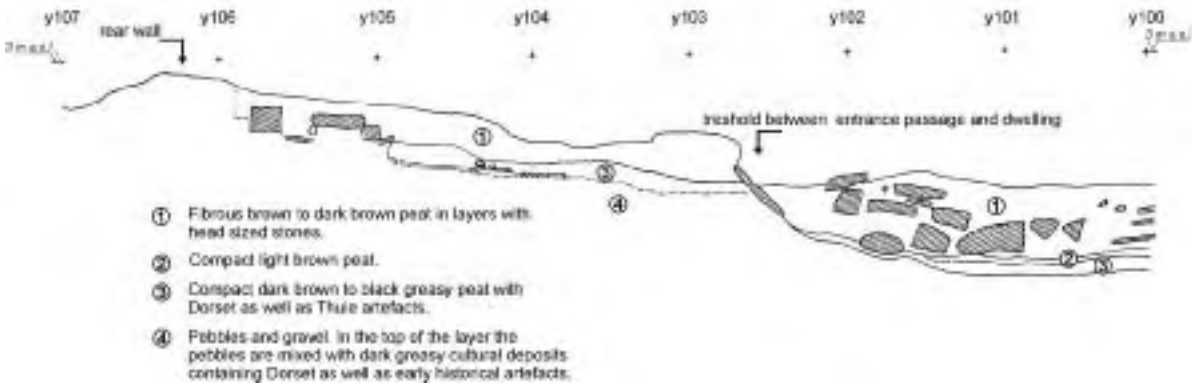

Fig. 8.74. Section of eastern wall in a trapezoid Thule house.

door' area. For flakes, the figures are 60.9% (n=576) in the 'indoor' area and 39.1% (n=370) in the 'outdoor' area. The spatial distribution of the different raw materials is also largely similar (Fig. 8.78). The three most common raw materials all have dense scatters in the same four quadrants (x98/y103:3, x98/y104:4, x100/y104:3 and x100/y105:1) indicating that similar (secondary) depositional processes have shaped the deposition of all the lithics in area A. Presumably, the Dorset artefacts in area A result from the existence of a culture layer on the site prior to the building of the Thule house, combined with Thule people's use of gravel with mixed-in Dorset artefacts to level off the surface and create a well-drained floor in the house.

Summary of area A

The distribution patterns of the Palaeo-Eskimo component in area A suggest that both the 'indoor' and the 'outdoor' deposits result from more recent activities related to the building and subsequent use of the Thule house, rather than from original patterns related to behavioural patterns of the Dorset people.

Stratigraphic evidence suggests that, upon arrival of the Inuit during the late 18th or early 19th century, the site looked very much as it does today. Apart from the location giving direct access to Nivaap Paa, the Inuit were probably attracted by luxuriant vegetation in the form of grass growing on thick peat, which covered a well-developed culture layer from the

Table 8.8. Lithic artefacts Umiartorfik, area A.

	No.	%	All artefacts	%
Bifaces, all fragments included	13	13.8		
Microblades	50	53.2		
Burin-like tools	7	7.4		
Side-blades	4	4.3	94	9
End-scrapers	9	9.6		
Retouched flakes	2	2.1		
Microblade cores	9	9.6		
All flakes			946	91
Total	94	100	1040	100

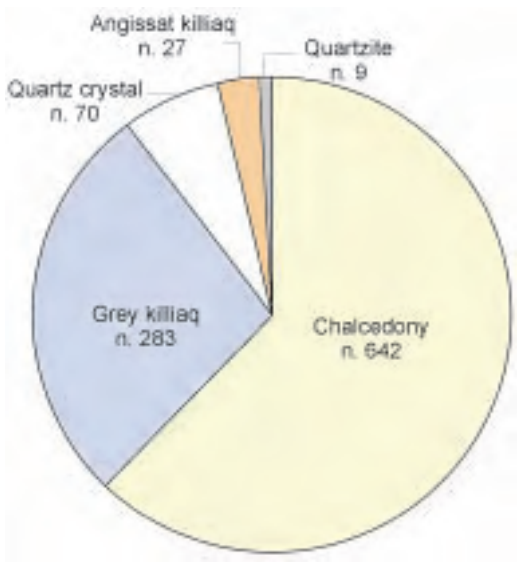

Fig. 8.75. Raw material frequencies in lithic material from area A. Lithic raw materials in area A is dominated by varieties of chalcedony (62%) and killiaq (27%), but quartz crystal (7%), killiaq of the local Angissat variety (3%) and quartzite (1%) also represented.

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Dorset period. Building materials were thus readily available. Presumably the grass was removed where the house was built, but the peat was not stripped off completely and the culture layer from the Dorset period may have been left relatively undisturbed. Flagstones and pebbles were added to the floor in order to stabilise the uneven surface. As a result, the Inuit of Umiartorfik came to live in a house where they literally walked upon the relics of their ancestors. Artefacts may have been picked up and re-deposited, and the horizontal distribution of Palaeo-Eskimo artefacts inside the Thule dwelling may well have been heavily disturbed by later activity.

Area B – a Dorset dwelling

Systematic collection of artefacts on the south-facing shore revealed that most of them appeared to have been washed out along a 3-4 m section in the central part of the eroding peat cover. This indicates the probable presence of a Dorset dwelling close to the eroding cliff, a suggestion, which was further, substantiated by the presence under the beach gravel of a somewhat disturbed flagstone pavement with a thin culture layer. It was, therefore, decided to de-turf and excavate the area adjacent to the find-rich section on the beach. The grid system already established in the Thule house was extended, and excavation proceeded from the eroding cliff into the peat cover around grids centred on x=100. Flagstones were encountered from the very beginning of excavation, and it was immediately realised that these were part of the same structure exposed on the beach. Ten days of excavation revealed an approximately 3.5 x 2.5 m pavement believed to be a dwelling floor similar to that known from Annertusuaqqap Nuua. The similarities between site location in relation to sea level, depositional circumstances, richness in finds and structural remains at the two localities are so convincing that there seems to be a good case for comparing the structure excavated at Umiartorfik with that of Annertusuaqqap Nuua. Unfortunately, however, the front of the dwelling has been eroded by the sea (Fig. 8.79), so a full comparison with Annertusuaqqap Nuua is not possible.

Stratigraphy

The stratigraphy at Umiartorfik area B consists of peat layers up to 40 cm thick lying over bedrock or natural

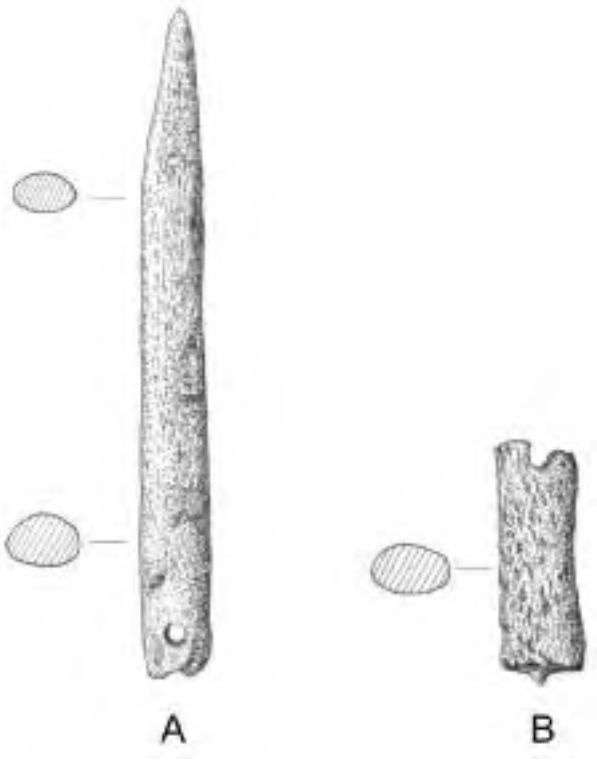

Fig. 8.76. Artefacts from the early Historical occupation of a winter house. Complete and fragmented foreshaft. Length of A: 14.4 cm, B at same scale. Drawing Martin Antoni Nielsen.

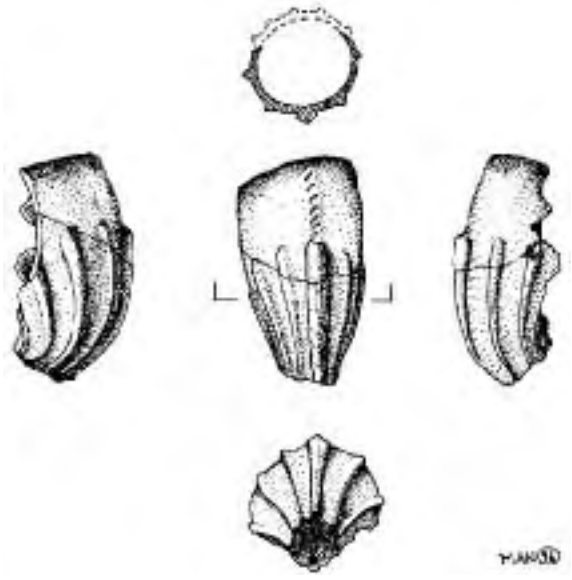

Fig. 8.77. Fragmented clay pipe, probably manufactured at a factory in Stubbekøbing, Denmark. Height of pipe bowl: 3.8 cm. Drawing Martin Antoni Nielsen.

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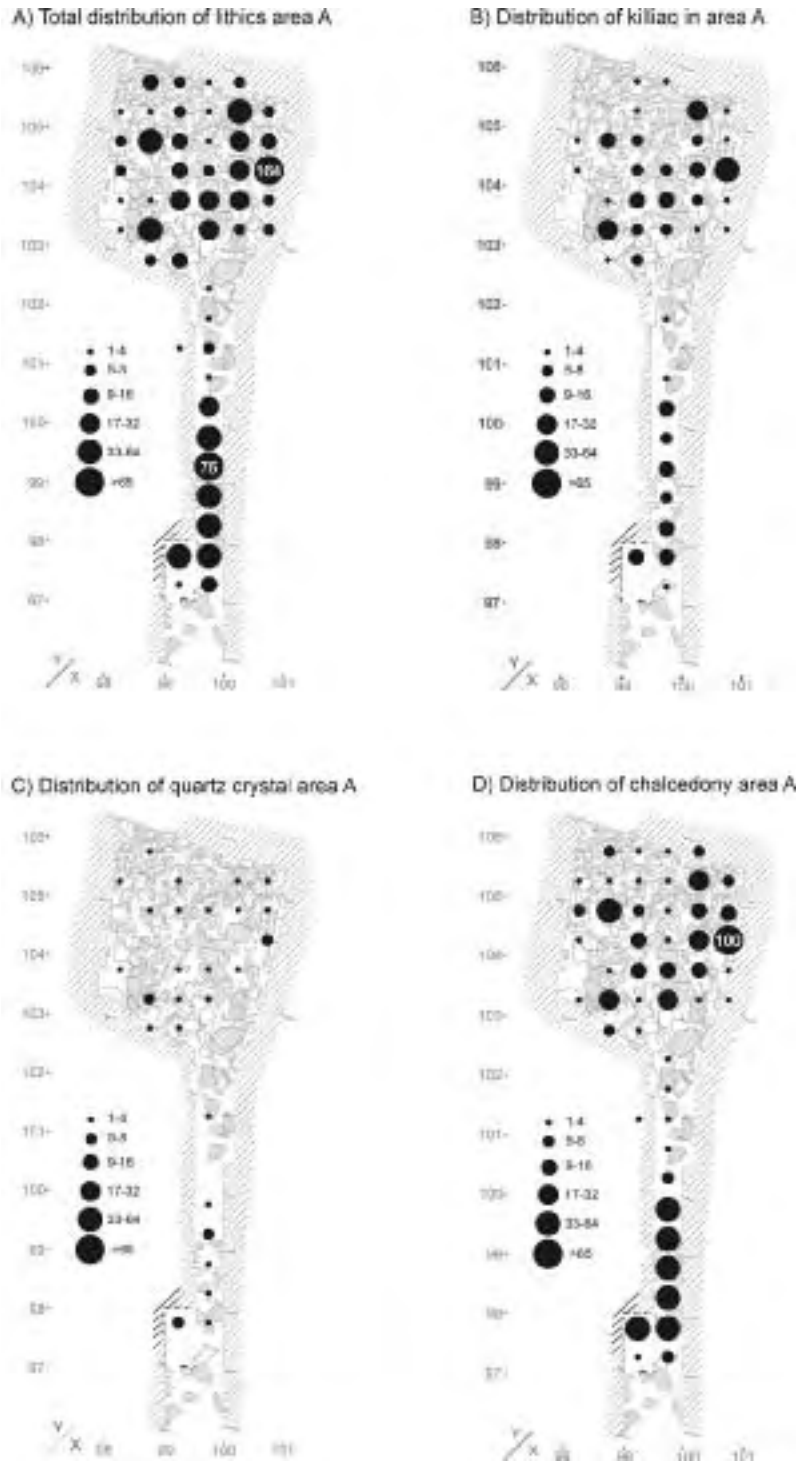

Fig. 8.78. Distribution of different raw material categories in excavation area A.

gravel. Dorset artefacts have been located in the lowest peat layers resting directly on the bedrock, and the cultural horizon (layer ④) extends as a 10-20 cm thick, dark greasy peat layer overlain by less decomposed peat and recent vegetation (Fig. 8.80).

Feature description

There was no well-defined perimeter to the dwelling, but as at Annertusuaqqap Nuua the concentration of lithic artefacts is confined to the outline of the flagstone pavement. The perimeter of the dwelling could

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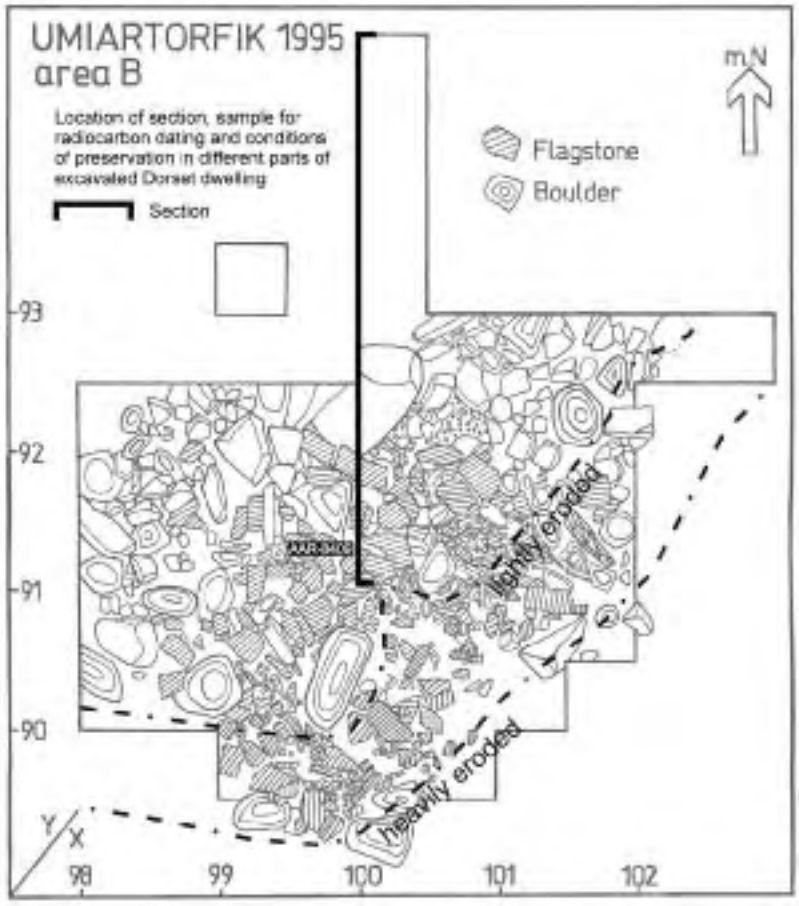

Fig. 8.79. Location of section and radiocarbon dated sample in excavation area B. The front of the dwelling is eroded by the sea.

not be seen during excavation but the flagstone pavement, combined with the total lithic distribution, (Fig. 8.81.) indicates that the pavement outline delimits the interior (Fig. 8.82). However, the accumulation of lithics inside the Umiartorfik dwelling was much greater than that found inside the dwelling at Annertusuaqqap Nuua. Similarly, there were also higher concentrations of lithics outside the paved area than were seen at the latter site. At the centre of the pavement floor there was a large boulder-framed hearth area, measuring about 1 x 1 m, and two areas showed the effects of fire (Fig. 8.82). Between the two hearths lay a rectangular soapstone object indicating that this had been used in relation to the hearths.

Lithic artefacts in area B

A total of 4565 finds were retrieved from excavation area B (Table 8.9). The relative frequency of different tool types is broadly similar to that from Annertusuaqqap Nuua and Ikkarlussuup Timaa. Polished blades (Figs 8.83:4, 5 and 6) were, however, much more common at Umiartorfik than at Annertusuaqqap Nuua. Microblades constitute 25% of the total, bifaces 27%, burin-like tools 11% and scrapers (Fig 8.84) 15%. The remaining types are present at values of only a few percent, though with a relatively high proportion of microblade cores (8%).

Raw material frequencies

The relative frequency of killiaq and chalcedony is broadly similar to that seen at Annertusuaqqap Nuua (Fig. 8.85), but Umiartorfik also has relative large proportions of quartz crystal and Angissat killiaq.

Spatial distribution of lithic artefacts in area B

Virtually all lithic categories have major concentrations on either side of the hearth area in the centre of the dwelling. The artefact cluster at the right side (seen from within the dwelling) contains the most artefacts, since the densest lithic scatters are located here. This dominance of lithics to the right is replicated in the distribution of most tool types and raw mate-

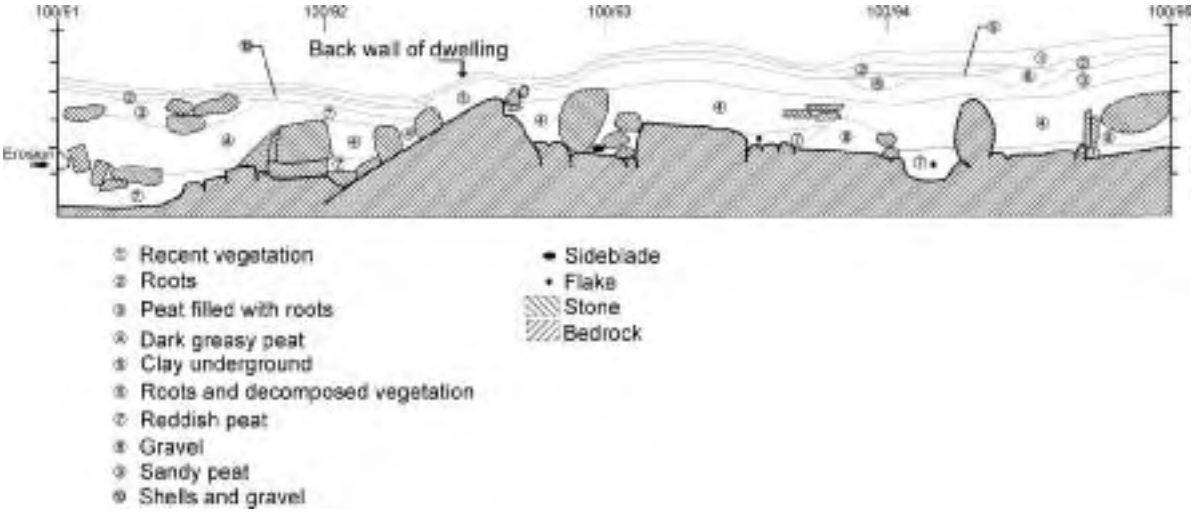

Fig. 8.80. Section x100/y91 – x100/y95 seen from the east. The cultural horizon (layer 4) extends outside the dwelling, making it reasonable to suggest that most, but not all, of the artefacts are related to the flagstone platform.

rial categories. Only the polished bifaces and artefacts of green and white-banded chalcedony are more numerous to the northeast of the central hearth area. The bipartite distribution is most distinct for the different tool categories (Fig. 8.86) but it is also replicated in the distribution of the debitage of different raw materials. The two hearths, along with the distribution of the lithics, indicate that similar activities occurred on either side of the hearth area. The dwelling is, therefore, believed to be a two-family dwelling with a sleeping platform at either side of a central hearth and floor area.

Radiocarbon date

A single radiocarbon date (AAR-8409) has been obtained for charcoal from locally-grown wood extracted from the hearth in the centre of the dwelling. The sample was dated to 220 ± 30 b.c. which, within one standard deviation, gives a calibrated date of between 360-290 or 240-170 cal B.C. Umiartorfik appears, therefore, to be slightly younger than the settlement at Annertusuaqqap Nuua.

Area C – an open-air activity area

A find-rich test pit in this area encountered a few flagstones. Subsequently, the adjoining quadrants were also excavated. However, the flagstones did not constitute a coherent structure and the artefact scatter was rather patchy. Some flagstones, as well as manuport and large natural boulders, were met with at a depth of 25-40 cm; most artefacts were found at the same level. The lack of pavement limited the excavation to the find-rich grids encountered in the test pit. A total of 1463 artefacts were excavated from area C, which covered an area of 6.5 m².

Raw material frequencies

Like the raw material frequencies of areas A and B, those in area C are dominated by chalcedony, which comprises 56% of the lithics (Fig. 8.87). Angissat killiaq constitutes 7% and quartz crystal 6% of the artefacts. The relative frequency of different raw materials in area C resembles, therefore, that of area B, even though area B has a higher proportion of grey killiaq.

Summary of area C

When comparing the artefact tables for areas A and C, it is evident that both of these have relatively high proportions of microblades, i.e. more than 50%, whereas the dwelling in area B has only 28.9%. In contrast, area B has relatively more bifaces, burin-like tools and scrapers than found in areas A and C. In spite of the possible disturbance inflicted by the Thule occupation, the artefacts recovered from area C are believed to be in a primary position since there is no evidence of beach shingle having been added, as was the case in feature A. Area C is thus believed to be an open-air

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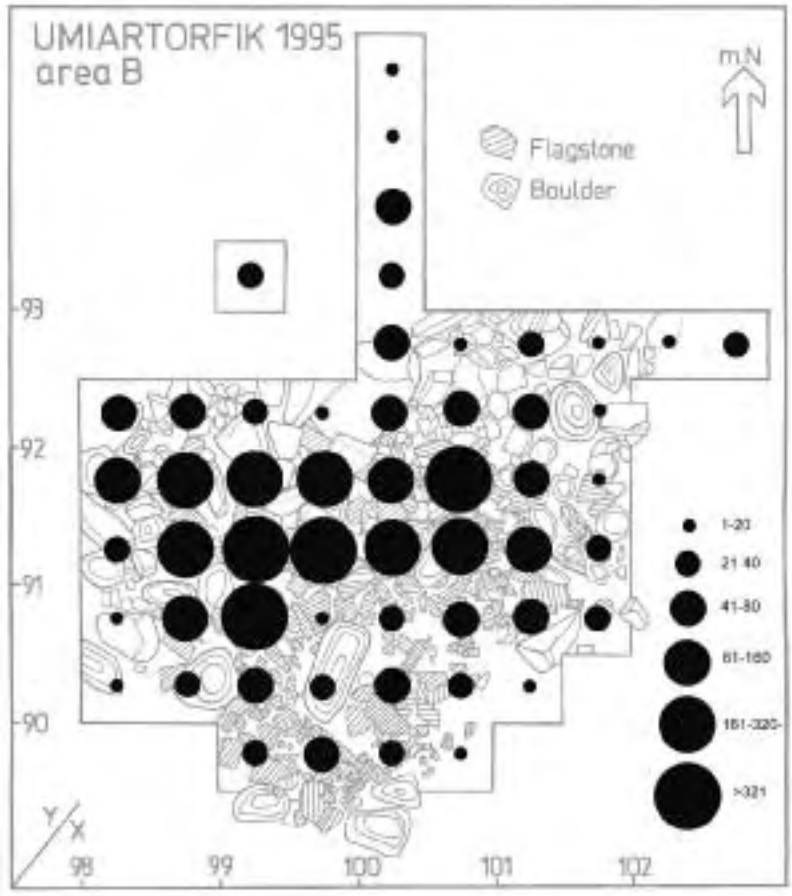

Fig. 8.81. Total lithic distribution in excavation area B. Main concentrations of artefacts are clustered on the eastern and western sides of the central hearth.

activity area

Summary of Umiartorfik

Umiartorfik is a multi-component site with settlement traces from Dorset and early Historical Inuit occupation. The older Dorset traces may have been disturbed by the activities of the Inuit. This was most clearly seen in feature A, where Dorset tools and debitage were recovered from the floor and entrance passage of a trapezoid Thule house. The Dorset dwelling in area B had remained undisturbed by later settlement activities but had been heavily exposed to erosion by the sea. The flagstone pavement in area B and the many finds show similarities with the floor pavement and richness of the dwelling at Annertusuaqqap Nuua. Similarly, the covering peat was mixed with larger stones resembling the deposits covering the feature at the latter site. Accordingly, the Dorset occupation at Umiartorfik is believed to be a base camp settlement which could have been occupied during both cold and warm seasons. The widespread occurrence of a Dorset

Table 8.9. Lithic artefacts Umiartorfik, area B.

	No.	%	All artefacts	%
Bifaces, all fragments included	51	22.6		
Bifaces, polished	6	2.7		
Microblades	63	27.9		
Burin-like tools	25	11.1		
Side-blades	2	0.9		
End-scrapers	34	15.0	226	5
Side-scrapers	9	4.0		
Retouched flakes	9	4.0		
Axes	2	0.9		
Microblade cores	18	8.3		
Large flake/rough-out	7	3.1		
Grindstone			1	
Soapstone vessel fragments			14	0.5
Other soapstone fragments			7	
All flakes			4317	94.6
Total	226	100.5	4565	100.1

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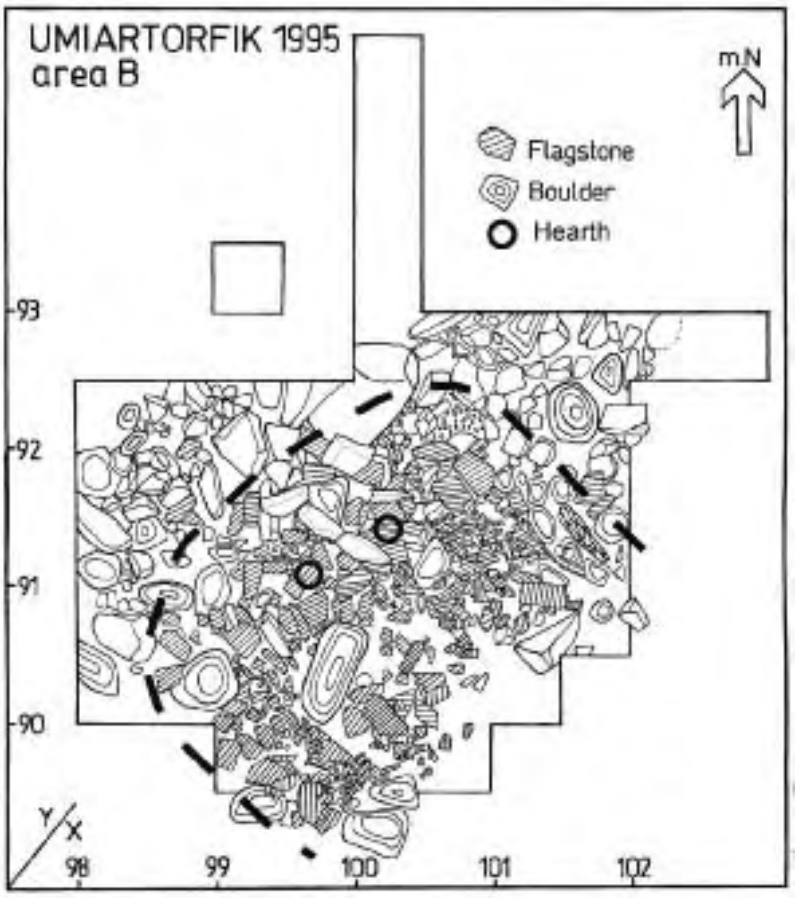

Fig. 8.82. Ground plan of dwelling with hearth box. Towards the front, the feature is eroded by the sea and there are no visible tent ring or wall. The suggested outline of the dwelling is thus based on the extent of the flagstone pavement, combined with the lithic distribution.

culture layer indicates that more Dorset dwelling features could be preserved even though it is difficult to judge the extent to which the site has been disturbed by Thule activities.

Table 8.10. Lithic artefacts from Umiartorfik, area C.

	No.	%	All artefacts	%
Bifaces, all fragments included	17	14.5		
Microblades	68	58.1		
Burin-like tools	9	7.7		
Side-blades	3	2.6		
End-scrapers	6	5.2	117	8.0
Side-scrapers	1	0.9		
Retouched flakes	4	3.4		
Microblade cores	8	6.8		
Large flake/rough-out	1	0.9		
Soapstone vessel fragments			2	0.1
All flakes			1344	91.9
Total	117	100.1	1463	100

Summary of Dorset sites in Qeqertarsuup Tunua

The excavated Dorset dwellings appear to conform to categories of temporarily and more permanently used dwellings. This also applies to the Saqqaq dwellings.

Tent rings with a central hearth

Circular or oval tent rings with a central hearth have been excavated at Ikkarlussuup Timaa (site no. 118), Nerukinnera I (site no. 151) and Kangerlussorissunnguup Kangia feature C (site no. 172). Presumably these features were short-term settlements occupied during the warm season. Feature C at Kangerlussorissunnguup Kangia is the only one of the three features where the spatial distribution of artefacts has been analysed in detail. The limited hearth-centred artefact distribution in this feature shows no signs of internal division of the living space. On the contrary, there are clusters of microblades both to the west and east of the hearth, which indicates that microblade re-tooling or production occurred on both sides of the hearth. The

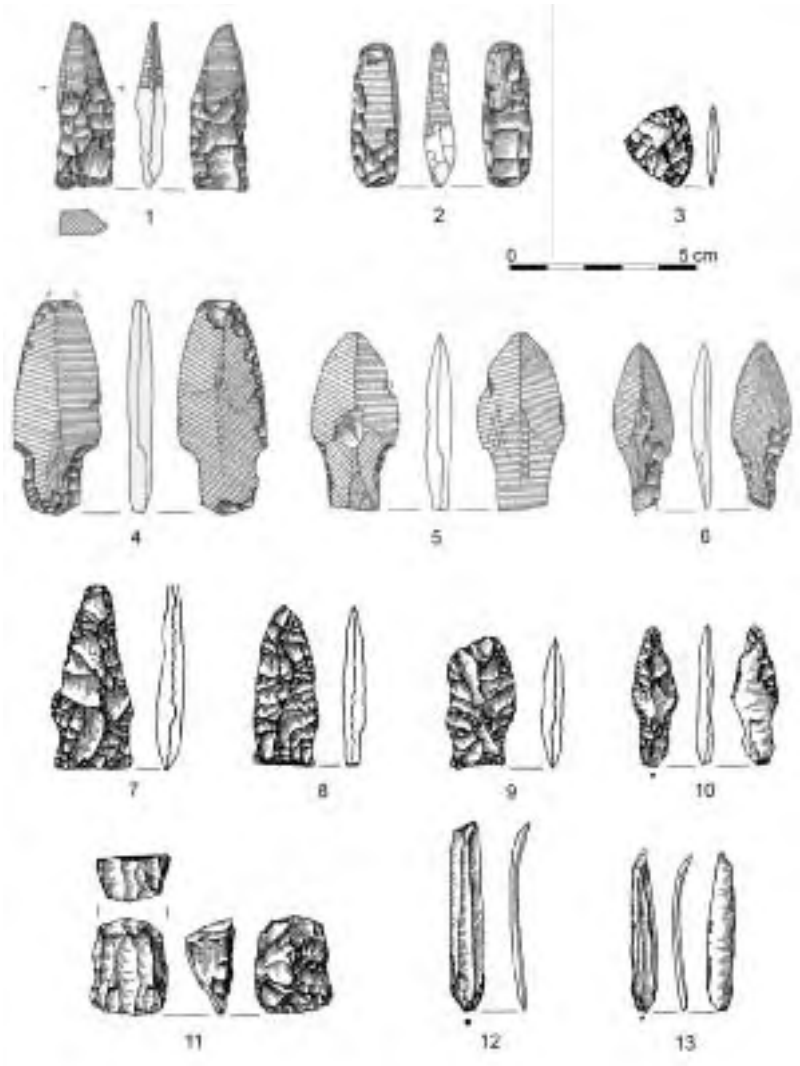

Fig. 8.83. Tools from Umiartorfik.1) Burin-like tool x100/y91:2, 2) strike-a-light x98/91:2, 3) side-blade x100/y92:2, 4) polished tanged end-blade x99/y104:2, 5) polished tanged end-blade x99/y101:3, 6) polished tanged end-blade x100/y91:3, 7) side-notched biface x98/y91:2, 8) side-notched end-blade, stray find from foreshore, 9) asymmetrical biface (knife) x99/y91:3, 10) atypical end-blade x100/y90:4, 11) microblade core stray find from foreshore. 12) microblade x101/y91:2, 13) microblade stray find from foreshore. Tools of killiaq are depicted with a soft line whereas tools of chalcedony are shown in black and white. Drawing Lykke Johansen.

lack of internal architecture appears to reflect the fact that, functionally, these dwellings were little divided into specific zones. Ikkarlussuup Timaa is a settlement rich in finds and, in addition to the circular tent ring with a central hearth, there are remains of a more permanently occupied winter dwelling, as well as of a third structure (Stapert & Johansen 1996). At Nerukinnera I, the tent ring appears to have stood alone with no further features in the immediate vicinity. At Kangerlussorissunnguup Kangia, the circular tent ring with a central hearth appears to have been in use at the same time as the nearby mid-passage tent ring (feature A). Circular tent rings with a central hearth occur, therefore, in combination with several other dwelling types. At Ikkarlussuup Timaa, the circular tent ring may not have been inhabited at the same time as the nearby winter dwelling, but the use of a common midden area indicates that this structure was inhabited by closely related, if not the same, people as those living in the winter dwelling. The artefact distribution at Kangerlussorissunnguup Kangia suggests that the circular tent ring is contemporaneous with the nearby mid-passage dwelling. Both seasonal and social factors seem, therefore, to be decisive for the construction of circular tent rings with a central hearth. At a general level, the tent rings with a central hearth belong to the 'warm-season type' of dwellings, but in contrast to the mid-passage tent rings they are believed to have been occupied by social units different from those in the mid-passage dwellings. Tent rings with a central hearth may thus belong to older couples or constellations of people who are not family units in the strict sense of the word.

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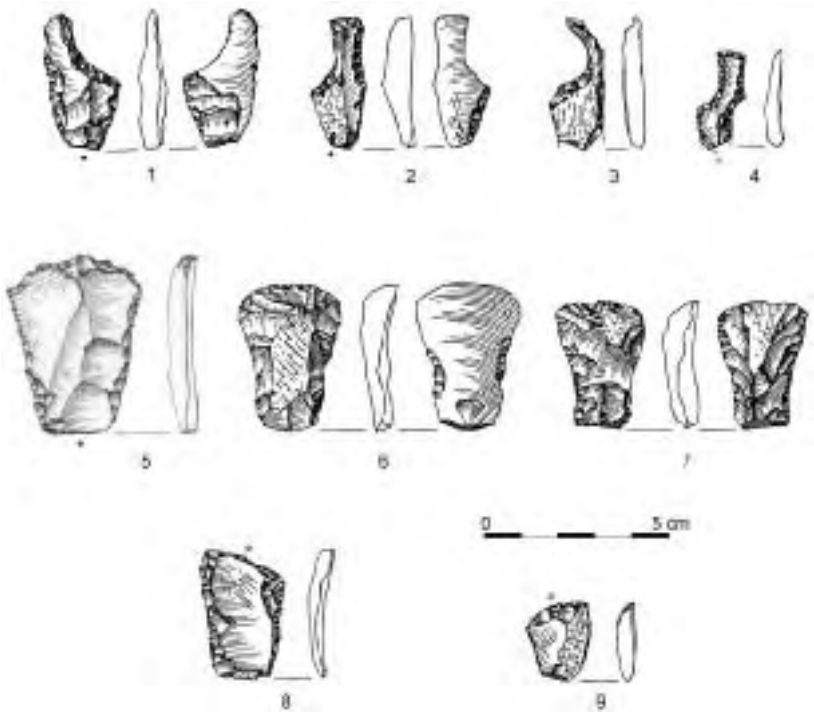

Fig. 8.84. Side-scrapers and end-scrapers from Umiartorfik. 1) Side-scraper x100/y91:3, 2) side-scraper x100/y92:2, 3) side-scraper x100/y92:2, 4) fragmented double-sided scraper x100/y92:3, 5) scraper preform of killiaq x99/y90:2, 6) scraper x100/y104:1, 7) scraper with ventral retouch, stray find from shore, 8) scraper made from reversed flake (bulb of percussion at distal end) x98/y91:4, 9) scraper made from reversed flake (bulb of percussion at distal end) x99/y90:2. Tools of killiaq are depicted with a soft line whereas tools of chalcedony are shown in black and white. Drawing Lykke Johansen.

Mid-passage tent rings

Well-preserved mid-passage tent rings have been excavated at the localities of Innartalik I and Kangerlussorissunnguup Kangia. Both have a roughly circular boulder periphery of 3.5 to 4 m in diameter. In the right front half of the tent ring at Kangerlussorissunnguup Kangia there is a flagstone pavement. In the same area the entrance is indicated by an opening in the boulder periphery to the right of the mid-passage. The total distribution of lithics at Innartalik indicates, furthermore, that this dwelling may have had an entrance at the back of the tent. Both Innartalik I and Kangerlussorissunnguup Kangia A have discrete distributions of tools and minor deposits of retouched flakes. No primary lithic reduction occurred on the sites and all of the tools appear to have been imported as complete examples. The activity areas represented by the segregated deposition of microblades opposed to scrapers may primarily result from the short periods of occupation which never allowed the patterns to be blurred by more massive accumulations of lithics. However, the repeated tendency of microblades to be concentrated in the right floor sector and scrapers in the left sector may result from more general norms of behaviour bound by tradition or ideology. The left-right pattern observed at Innartalik I and Kangerlussorissunnguup Kangia A is, however, the opposite of the distribution of microblades registered in an early Dorset dwelling at Skjoldungen in Southeast Greenland (Jensen 1996a), and of the pattern McGhee (1979:52) noted in Independence I dwellings at Port Refuge. This difference could be argued to be a culturally- or chronologically-derived difference in behaviour. But this argument does not stand up when applied to the Dorset feature from Skjoldungen. The differentiated activity areas could well result from a gender-specific division of the interior, where males and females were seated on either side of the mid-passage. However, the exact location of male and female seating places does not appear to have been dictated by culturally-rooted norms since, at least during the Dorset period, there appear to be opposing examples of the observed left-right patterns. Sometimes the microblades dominate in the right half of the dwelling, as was seen at Innartalik I and Kangerlussorissunnguup Kangia A. In other examples the microblades dominate on the left side of the mid-passage, as in the dwelling from Skjoldungen in Southeast Greenland.

Winter dwellings

Winter dwellings are exemplified by the localities of Annertusuaqqap Nuua and Umiartorfik, but a pre-

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Table 8.11. Identified faunal remains from West Greenlandic Dorset sites. Saqqaq East data are published in Møbjerg 1986, whereas data for the other sites have been retrieved from identification lists at Zoological Museum, University of Copenhagen. Ulrik Møhl and Morten Meldgaard have identified the fauna from Sermermiut, Saqqaq East and Malmqvist Site. Fauna from Orpissooq was identified by Jeppe Møhl. Ikkarlussuup Timaa, Annertusuaqqap Nuua and Umiartorfik was identified by Tine Nord Andreasen, however any errors in table 8.11 should be blamed on the present author who composed the list from the raw counts on identification lists.

	Sermermiut Site no. 61	Saqqaq East Site no.36	Ikkarlussuup Timaa Site no. 118	Annertusuaqqap Nuua Site no. 103	Umiartorfik Site no. 116	Orpissooq West Site no. 86	Malmqvist Site
Seal, *Phoca spp.*	112	116	218	124	10	1	34
Harp seal, *Phoca groenlandica*	20	4		7			2
Ringed seal, *Phoca hispida*	15	3	6	6			
Harbour seal, *Phoca vitulina*							1
Ringed seal or harp seal, *Phoca hispida / groenlandica*			9	2			
Ringed seal or harbour seal, *Phoca hispida / vitulina*			5	2			
Bearded seal, *Erignathus barbatus*	2				1		
Walrus, *Odobenus rosmarus*			4		1		
Polar bear, *Ursus maritimus*			2	3			
Baleen whale, *Mysticeti*		1	4	3			
Toothed whale, *Odontoceti*		1*					
Whale, Mysticeti / Odontoceti		1		1			
Caribou, *Rangifer tarandus*		8		13	1	4	726
Bird, *Aves spp.*		1	1	9			56
Rock ptarmigan, *Lagopus mutus*							1
Black guillemot, *Cepphus grylle*		1		1			
Gull, *Laridae*							7
Iceland gull, *Larus glaucoides*				3			
Razorbill or Brünnichís guillemot, *Alca torda / Uria lomvia*				5			
Brünnich's guillemot or common guillemot, *Uria lomvia / aalgae*				1			
Swan, *Cygnus sp.*							4
Goose, *Anser/Branta sp.*							5
White-fronted goose, *Anser albifrons*							2
White-fronted goose or brent goose, *Anser albifrons / Branta bernicla*			1				
Eider or king eider, *Somateria mollissima / spectabilis*							9
Mallard, *Anas platyrhynchos*		1					2
Fulmar, *Fulmarus glacialis*			1				

* Narwhal or white whale.

sumed winter dwelling has also been excavated at Ikkarlussuup Timaa. Annertusuaqqap Nuua and Umiartorfik have dwelling remains of a similar type, characterised by sunken floors. They have deposits very rich in artefacts and both are located at elevations below 2 m a.s.l. There are also similarities in the lithic distributions inside the dwellings. In each case there are dual scatters where most tool categories are found on both sides of the central hearth/floor area. This pattern of 'mirrored' distributions on either side of the dwellings

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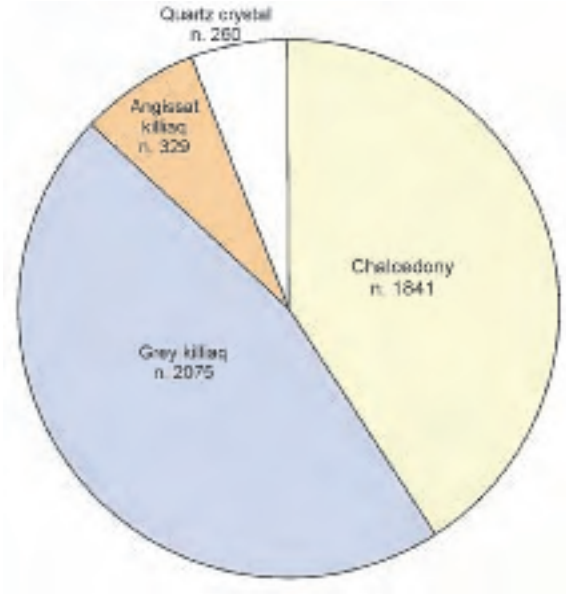

Fig. 8.85. Raw material frequencies in excavation area B. Chalcedony and grey killiaq make up 41% and 46%, respectively, whereas Angissat killiaq and quartz crystal constitute 7% and 6%, respectively. Killiaq of the local variety from the island of Angissat and quartz crystal are thus relatively more abundant on Umiartorfik than they are at Annertusuaqqap Nuua, where these locally available raw materials only constitute a diminutive fraction.

is believed to result form the activities of two families, living on opposite sides of the central hearth and floor area. At least two hearths or lamp stands were identified in the dwelling at Annertusuaqqap Nuua, and the example at Umiartorfik has two hearths in the centre of the dwelling. This could well result from several episodes of occupation but it may also support the notion of a two-family occupation. The central floor area at Annertusuaqqap Nuua is characterised by the absence of stone-built features, whereas the hearth area at Umiartorfik has a frame of larger stones. The construction of the different elements of the winter dwelling shows, therefore, variation from one site to another. But the general layout, with two opposed sleeping platforms separated by a central floor and hearth are, appears to have been followed in most winter dwellings.

Chronological trends

The limited number of excavated Dorset sites, and the relatively few radiocarbon dates combined with the plateau on the calibration curve, makes it difficult to support suggestions of chronological change throughout the Dorset period. Similarly, systematic stylistic or typological studies have not yet been conducted on Dorset artefacts from Greenland. It is, therefore, problematic to separate chronological from geographical variation. However, at Qeqertarsuup Tunua, the Dorset radiocarbon dates fall into an early group around 800 to 400 cal B.C and a late group between 400 to 200 cal B.C (Fig. 9.1). Annertusuaqqap Nuua has been dated to the early sequence whereas Umiartorfik belongs to the later (Table 9.1). The rich inventories from these two localities may, therefore, represent the characteristics of each of these two sequences. When comparing the lithics from these localities, it is evident that quartz crystal and locally-available killiaq from Angissat were more frequently used at Umiartorfik than at Annertusuaqqap Nuua. In terms of typology, polished end-blades are rare at Annertusuaqqap Nuua, where only two specimens have been collected from the beach in front of the excavated area. Umiartorfik, in contrast, has 11 polished end-blades (Fig. 8.83 and 8.88) in a lithic assemblage numbering

Table 8.12. Variation in camp type, dwelling, social constellation and lithic technologies at Dorset sites in Qeqertarsuup Tunua.

	Base camp	Summer camp
Dwelling type	Excavated double-platform dwelling	Tent dwelling
Heating	Oil lamp	Open fire
Social constellation	Extended family	Single family
Lithic technologies	More primary stages of reduction executed on imported sometimes cached preforms	Retooling by replacement of broken points with complete transported specimens
	Production of blanks for later use	Tertiary reduction of blanks mainly by means of retouch and pressure flaking
	Production of finished tools for later use	

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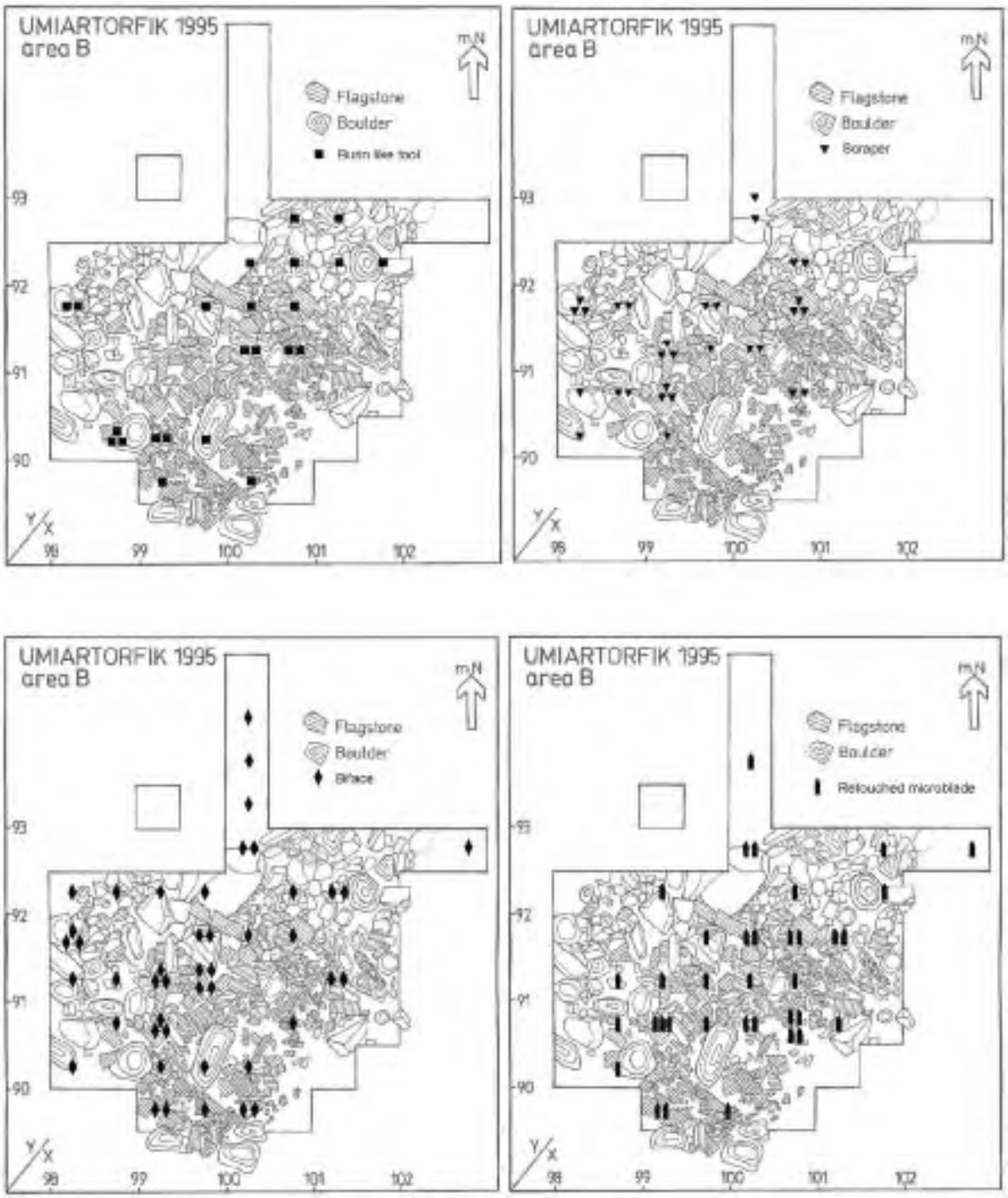

Fig. 8.86. Distribution of burin-like tools, scrapers, bifaces and retouched microblades in excavation area B.

only two thirds of that from Annertusuaqqap Nuua. This difference could well be chronological, at least on a local scale, and it is therefore suggested that in Southern Qeqertarsuup Tunua there was a heavier reliance on locally-available raw materials during the later Dorset period. This change in raw material procurement may be functionally linked to the increased use of polished blades, since the polishing of killiaq is a more economical use of lithic raw materials than reduction by means of flaking.

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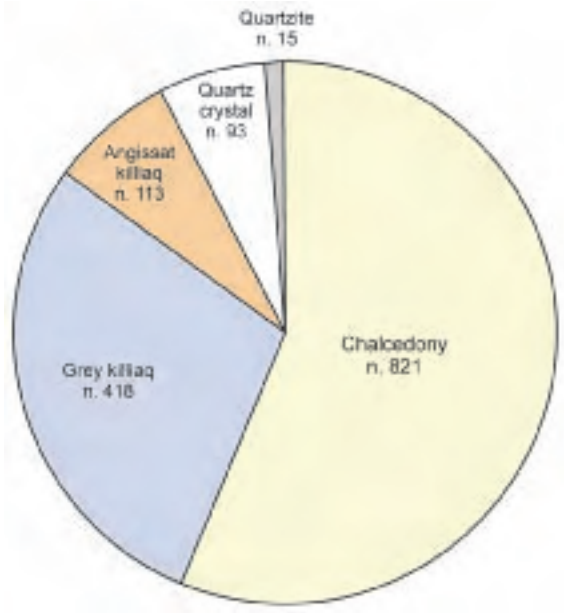

Fig. 8.87. Raw material frequencies in Umiartorfik area C.

Fig. 8.88. Polished end-blades from excavation area C. 1) reworked point that initially may have been similar to fig. 8.55,1 (x109/y99:2); 2) specimen with impact fracture similar to that seen on fig. 8.83,4 (x103/y99:2); 3) bipointed polished end-blade with similarities to the polished bevelled points from the latest Saqqaq phases in Sisimiut District (x103/y100:4). Photo Geert Brovad.

Dorset economy

Very little faunal material is preserved on the West Greenland Dorset sites. Therefore it is difficult to make general comparisons between the Dorset and the Saqqaq economies. The location of Dorset sites in virtually all the ecotones exploited by the Saqqaq (see chapter 5) may, therefore, be the most direct evidence of a highly diversified economy exploiting both marine mammals and caribou in the interior, or seasonally and geographically more localised resources such as arctic char. Table 8.11 shows the identified fauna from West Greenland Dorset sites. Sermermiut (site no. 61), Saqqaq East (site no. 38), Ikkarlussuup Timaa (site no. 118), Annertusuaqqap Nuua (site no. 103), Umiartorfik (site no. 116) and Orpissooq West (site no. 86) are located in Qeqertarsuup Tunua, whereas the Malmqvist Site (Bundgaard 1977) is located in the large fjord of Kangerlussuaq (Sdr. Strømfjord) in the Sisimiut District. Apart from the latter locality, the Dorset fauna materials are limited and impossible to treat statistically.

The massive dominance of caribou at the Malmqvist Site is a strong hint of significant regional variation in the resource base. Historically, the large inland regions of Sisimiut are known as the most important caribou hunting grounds in West Greenland. In addition to the evidence from the Malmqvist Site, a caribou bone from the large interior caribou hunting camp of Aasivissuit has also been dated to the Dorset period (Grønnow *et al.* 1983:63). In Qeqertarsuup Tunua, the ice-free land is more restricted, caribou populations are smaller and more dispersed and, consequently, the inland resources are less important here. Key resources in Qeqertarsuup Tunua comprised the combination of harp and ringed seal, well known both from Saqqaq and Historical settlements (Meldgaard 2004; Møbjerg 1983).

In spite of the limited size of the faunal samples, they appear to support the notion that Sermermiut, Saqqaq East, Ikkarlussuup Timaa and Annertusuaqqap Nuua were winter settlements or base camps, since they all contain relative large quantities of ringed seal remains. Furthermore, Ikkarlussuup Timaa and Annertusuaqqap Nuua have remains of polar bear and the former also has walrus bone. The presence of these species in such limited samples underpins the suggestion of winter occupation. Saqqaq East and Annertusuaqqap Nuua have relative large proportions of

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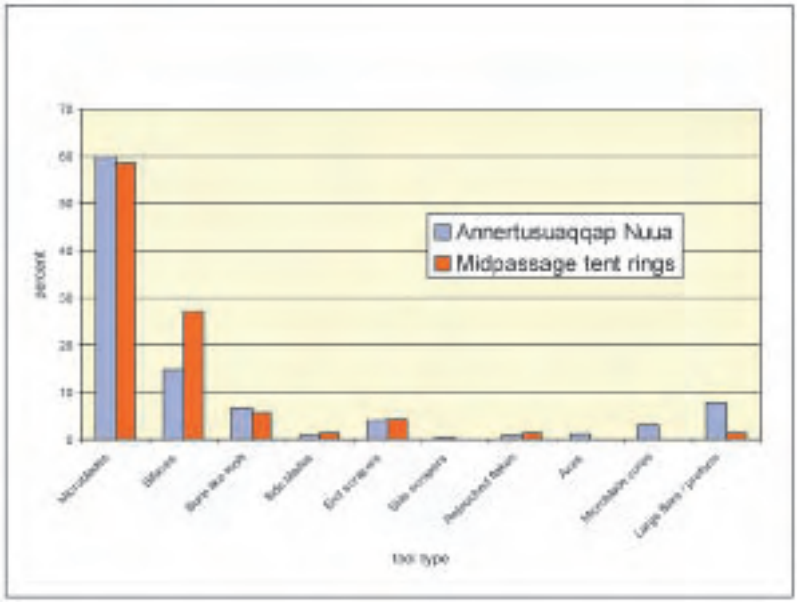

Fig. 8.89. Relative frequencies of most common tool types on Dorset winter and summer sites.

caribou that may result from both sites being located near caribou hunting grounds. These could, however, also result from autumn occupation, in addition to that in winter or spring, as indicated by the remains of ringed seal. In the case of Annertusuaqqap Nuua, the suggestion of autumn occupation also makes sense in relation to the open-air activity area excavated in the vicinity of the proposed winter dwelling.

Lithics in the landscape

From the descriptions of archaeological sites and raw material procurement systems it can be seen that there is significant temporal and geographical variation in the raw material frequencies and the size and typological composition of the lithic inventories in different parts of Qeqertarsuup Tunua. In addition to the two Saqqaq supply systems of killiaq already described in chapter 7, there are significant differences between the character of the lithic industries on the larger sites and on the small temporary localities. In Dorset, the large localities characterised as winter settlements have more primary reduction than seen on the temporarily used localities. Dwellings rich in finds are also characterised by the presence of tools in virtually all stages of production, from preforms to finished and broken tools. In contrast, the short-term dwellings have tools, flakes and preforms that were produced elsewhere.

Unfortunately, we are not yet able to reconstruct the raw material supply system of the Dorset culture due to lack of positively identified lithic sources of chalcedony. During this period we can, therefore, only document the secondary and tertiary stages of lithic reduction as inferred from the finds from Southern Qeqertarsuup Tunua. However, the Dorset inventories are sufficiently different from Saqqaq inventories to suggest that there were considerable differences in the raw material procurement systems of the two periods.

On the Dorset sites there are even fewer preforms than seen on the Saqqaq sites, and this also applies to the few Dorset sites on the Nuussuaq Peninsula. The Dorset preforms are, furthermore, often smaller than those of the Saqqaq. The distribution of killiaq during the Dorset period appears, accordingly, to be organised differently to that during the Saqqaq period. Finished axes and more advanced preforms may, therefore, have constituted the major part of the killiaq entering Southern Qeqertarsuup Tunua during the Dorset period. In any case, killiaq was only used for a few tool types such as axes, burin-like tools and polished end-blades at this time. The Dorset people were, accordingly, much less dependent on steady supplies of killiaq. Instead, their lithic industries relied on chalcedony. The use of chalcedony was very economical through the production of microblades from uniform microblade cores, whereas scrapers and bifaces were produced from large flakes. The Dorset lithic industry relied much more on the use of micro-

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blades and flakes than the 'core-based industries' of the Saqqaq. This difference in lithic industries has had profound effects on the lithics found at the different sites, and Saqqaq sites have generally much more killiaq debitage from the more primary stages of reduction. In the Dorset period, the blanks for most artefacts appear to have circulated as preforms and flakes which were finished by retouch flaking whenever there was need for a new implement. The temporary Dorset sites clearly illustrate that, during the summer season, the Dorset people must have travelled the landscape with a load of microblades and biface preforms or blanks in the form of large flakes. Presumably, most of these implements were prepared prior to break-up from the base camp settlements, otherwise there would be more signs of primary reduction at the short-term occupations. On the basis of the lithic inventories, it can be inferred that the base camp settlements were behaviourally linked to the short-term occupations through being the *locus* for 'birth' and 'death' of lithic artefacts. The base camps show all stages of lithic reduction, partly as a result of the length of stay but also due to the occurrence of several episodes of occupation of these sites. This is not true for the short-term occupations characterised by tent-ring dwellings. These are dominated by lithics in their last stages of reduction. It is obvious then to ask to what degree this geographical 'flow of lithics' has influenced the inventories we find on the sites proposed as base camps? The use of flakes for tool manufacture during the Dorset period may mean that all the larger usable flakes of both killiaq and chalcedony have been removed from the base camp sites, making the remains of primary lithic reduction appear more scarce than they really were. To stay in the 'birth-death' metaphor, this problem could be more closely investigated by moving on to the sites of 'lithic tool conception'. But such sites are not yet known from the Dorset period. Running parallel with this geographical difference in the lithic industries is the fact that artefacts such as soapstone objects and, to some degree, vessels, axes and microblade cores, appear to be restricted to the base camps. These larger and heavier objects may, accordingly, often have been left behind at the base-camp where they could be retrieved during a later visit. Conversely, the warm-season sites appear to have higher relative frequencies of bifaces than the winter settlements (Fig. 8.89).

The concept of the *chaîne opératoire* (Karlin & Julien 1994; Pelegrin 1990) has proved to be a powerful tool in the analysis of lithic industries. Contrary to traditional typologies, *chaîne opératoire* analysis operates on the level of prehistoric decision making and, as such, the method offers valuable insights into the dynamic aspects of material culture. However, the graphic representations of most schemes of reduction (Karlin *et al.* 1992: 1110) ignore the geographical context, giving the schemes a tendency to be 'sophisticated typologies' more than depictions of what actually has happened.

In Qeqertarsuup Tunua, raw material acquisition and most primary stages of lithic reduction often occurred hundreds of kilometres from the places where the worn-out tools were discarded. At the same time, the settlement patterns and lack of preforms in places distant from the raw material sources indicate that the lithics were passed on, probably several times, prior to their arrival at settlements in, for example, Southern Qeqertarsuup Tunua. When a preform or nodule had reached Southern Qeqertarsuup Tunua it could be in circulation for a considerable period of time, indicating that 'handing over' also occurred locally. In relation to the *chaîne opératoire* this mean that the different stages of the process were often conducted in different geographical settings, during different seasons and probably due to the actions of different decision makers. This has implications for the understanding of cognitive aspects of the lithic reduction systems. Many of the prehistoric actors in Southern Qeqertarsuup Tunua probably never, or only rarely, took part in the shaping of a lithic implement from the acquisition of the raw material to the final disposal of the worn-out implement. Yet there is minimal stylistic variability within the different tool categories. The Palaeo-Eskimo 'flint' knappers of Qeqertarsuup Tunua must, therefore, have shared the norms and knowledge of how to manufacture tools at the different stages of lithic reduction. On a purely cognitive level, the *schema opératoire* becomes a reality of a shared mental template, where the different stages of reduction are readily executed by different people in different places, but resulting in virtually identical tools. This mode of production is typical of specialised craftsmanship similar to that which can be experienced in modern highly-specialised societies. In the Palaeo-Eskimo or Inuit societies this specialisation

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can be compared to that which can be observed in the division of labour between male and female. In most, if not all, traditional Inuit societies, the production of clothes was in the hands of women despite the fact that raw material acquisition, in this case the hunting of game for the provision of skin and sinew, most often was conducted by male hunters. Furthermore, in the perspective of a *schema opératoire* for the production of clothing, the preparation of the hide may well have been performed by one woman whereas the final production of a pair of boots well may have been done by another person in a completely different setting after the hide had been traded or exchanged.

Following this line of thought, settlements and archaeological sites can be conceptualised as nodes of entangled *chaîne opératoires*, resulting in area-specific associations of various actions and decisions. Accordingly, the lithic reduction systems are mapped on to, and woven into, multiple geographically-variable systems of decision making relating to variations in game animals, topography and neighbouring bands. All of these systems of decision-making operated in a highly variable environment oscillating between open-water conditions during the summer and solid land-fast ice during the winter months.

To gain an idea of mental templates of prehistoric people one must, therefore, try to outline a variety of operational schemes in order to envisage which stages actually were executed at the different locations occupied by prehistoric people. The evidence suggests that for most people living in Southern Qeqertarsuup Tunua, the early stages of lithic acquisition and primary reduction may have been a peripheral part of their mental template – much in the same way as it is for me to know about how and where the cow was milked when I buy a bottle of milk in the supermarket. However, what is of principal importance in the latter example is how the buying of milk is combined with the travelling route from work and the dumping of books at the library.

Different technologies characterise the summer and winter time Dorset occupations in Southern Qeqertarsuup Tunua. Obviously these technologies were largely dependent on seasonality and availability of game animals. However, the lithic inventories *per se* were probably more dependent on the specific way the system of lithic supply and reduction was mapped on to the landscape. The specific associations of different lithic technologies with various Dorset site types are exemplified in table 8.12 below.

The combination of settlement and lithic systems indicates that the Dorset people in Qeqertarsuup Tunua mapped onto the local setting by means of a seasonally-oscillating collector and forager strategy; living in larger family camps through-out the winter, and dispersing into smaller single family units during the warmer months.

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Chapter 9

Radiocarbon Dates

Table 9.1 presents a total of 115 radiocarbon dates from Palaeo-Eskimo localities in West Greenland. In most reconstructions of the cultural history, this evidence has been adopted uncritically with no evaluation of the context of the dated material and without the implementation of more detailed sub-regional resolution. On several occasions, McGhee (McGhee 2000; McGhee & Tuck 1976) has demonstrated the problems encountered when relying too heavily on the face values of radiocarbon dates. To gain a more reliable picture, radiocarbon dates must be sorted to exclude those where it cannot be confirmed that the radiocarbon event (Nelson 1998) is contemporaneous with the archaeological event. In practice this means that one should exclude dates for driftwood and for bulk samples of peat, of which there are plenty from excavations of stratified midden deposits. In the High Arctic, one should rely solely on dates for remains of terrestrial mammals. However, in West Greenland organic material is rarely preserved in large quantities on the Palaeo-Eskimo sites, and since there is plenty of local brushwood it is reasonable to accept dates for locally available species such as arctic willow or dwarf birch. Dead branches of locally grown wood may indeed lie on the surface for several years, causing the dates to be slightly too old relative to the archaeological events. It is, however, unlikely that such branches were used for heating in substantial quantities. With the uncertainties of up to ±100 years on older dates it is acceptable to operate with an additional margin of 10 to 20 years to allow for the period of time which elapsed between the growth of the wood and the archaeological event when it was burned in a hearth. However, as shown in the dates for the Kannala site, even AMS dating of locally grown wood may be problematic.

According to these criteria, the calibrated results for all 72 dates on locally grown wood or terrestrial mammals are shown in fig. 9.1. These dates originate from Palaeo-Eskimo localities in Qeqertarsuup Tunua (Disko Bugt) and the districts of Sisimiut and Nuuk. Accordingly, the calibrated dates are shown in three diagrams displaying the sequences for each region separately.

The latest Saqqaq dates, covering the range from 1400 cal B.C. to 800 cal B.C, are from the site of Nipisat in Sisimiut District south of Qeqertarsuup Tunua (Kramer 1996b, Møbjerg 1997). In Qeqertarsuup Tunua the majority of Saqqaq dates cluster in the first two thirds of the Saqqaq period (Grønnow 1994; Olsen 1998). Some late Saqqaq dates of around 900 cal B.C. have been obtained on material from Qajaa (site no. 73) (Meldgaard 1983, 1991), Sermermiut (site no. 61) (Larsen & Meldgaard 1958; Mathiassen 1958) and the eponymous Saqqaq site Saqqaq Niaqornaarsuk (site no. 35) (Mathiassen 1958). However, the dates from Qajaa and Sermermiut are for samples of peat; these are neither reliable (Fredskild 1996:246) nor comparable to dates for anthropogenic material. When looking at the published diagram of the Qajaa section (Meldgaard 1983:95, 1991:205) it is evident that there are several decimetres of peat containing very few finds on top of the massive Saqqaq accumulation. It seems fair to question whether the recent date relates to a Saqqaq presence or whether it relates to peat growth on the site after the Saqqaq people abandoned it. In Qeqertarsuup Tunua this leaves us with few reliable Saqqaq dates from around 900 cal B.C.

Dorset dates are still few and, unfortunately, almost all of these fall within the region of the calibration curve known as the 'Pre-Roman plateau' between 800 and 400 cal B.C. This makes more precise dates more difficult to obtain over an almost 400-year time span.

Summary of radiocarbon dates

Early Dorset dates are less numerous than Saqqaq dates, but there are enough to confirm that the Dorset culture was well established in Southern Qeqertarsuup Tunua around 800 cal B.C. (Jensen *et al.* 1999). The radiocarbon dates from Qeqertarsuup Tunua support the suggestion of discontinuity between Saqqaq and Dorset peoples, which has also been registered on

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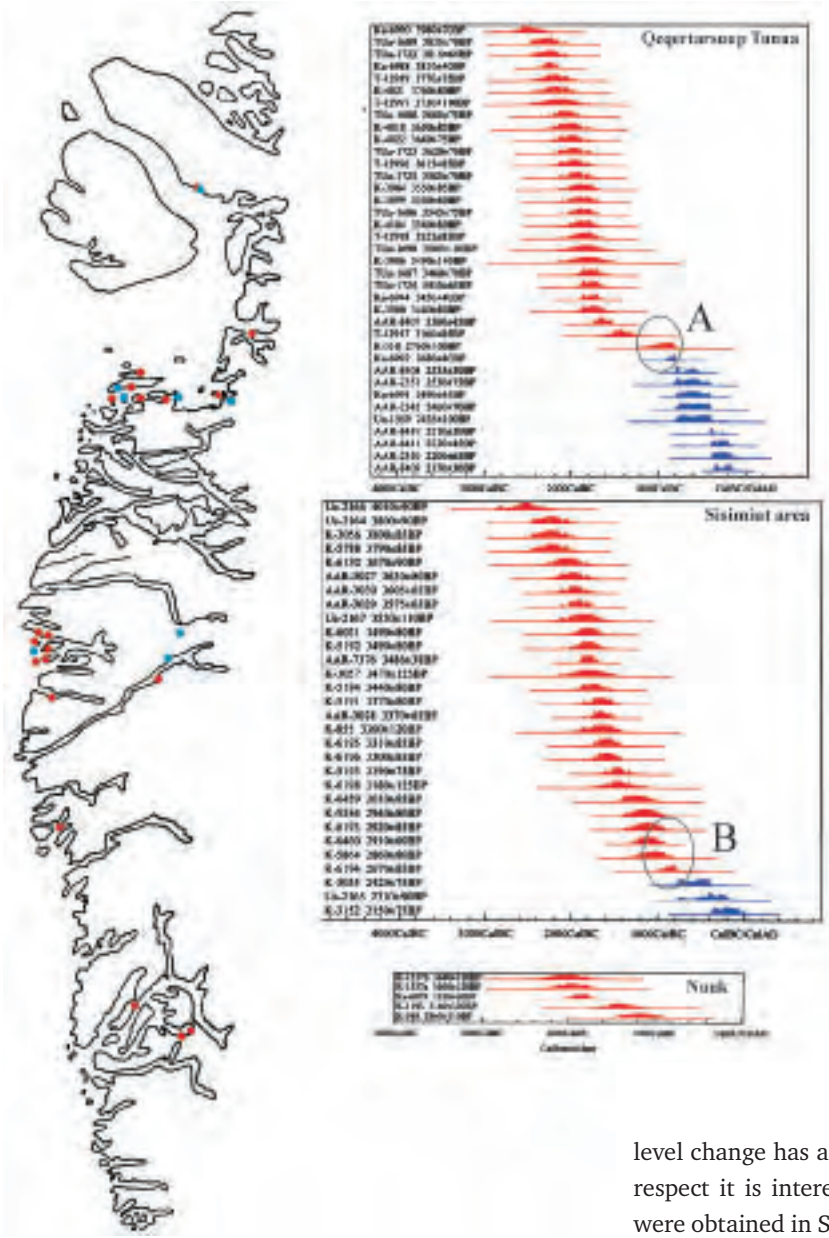

Fig. 9.1. West Greenland radiocarbon dates for remains of terrestrial mammals and locally grown wood arranged according to region. In Qeqertarsuup Tunua, the dates indicate a gap between Saqqaq and Dorset, whereas those from Sisimiut District indicate that there could have been contact between the two cultures. The OxCal ver. 3.5 calibration programme calibrated all datings.

the sites with stratified deposits. In Qeqertarsuup Tunua, the radiocarbon dates indicate that settlement intensity declined already during the later Saqqaq period (marked with A on fig. 9.1) before being resumed at the onset of the Dorset period. In Sisimiut District, to the south of Qeqertarsuup Tunua, the Saqqaq culture apparently continued through-out the period from 2400 cal B.C. to 800 cal B.C. (marked with B on fig. 9.1). Sisimiut District may then have been more continuously occupied by Palaeo-Eskimo than Qeqertarsuup Tunua, but a local development from Saqqaq to Dorset has not been demonstrated in the archaeological record. The destructive effect of sea-level change has already been mentioned, and in this respect it is interesting that the latest Saqqaq dates were obtained in Sisimiut District, which is the part of West Greenland where the isostatic uplift has been most dramatic (Weidick 1992). The latest Saqqaq sites and earliest Dorset sites may thus have had better chances of survival in this region than they have had in Qeqertarsuup Tunua. On the other hand, all the recent Saqqaq dates from Sisimiut originate from a single locality, so caution should be observed in basing sweeping cultural conclusions on these dates alone. However, for the moment it must be concluded that in Qeqertarsuup Tunua there is a gap in settlement between Saqqaq and Dorset. Whereas in Sisimiut District, there appears to have been continued presence of the Saqqaq culture right up until the beginning of the Dorset culture.

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Table 9.1. List of radiocarbon dates from Palaeo-Eskimo sites in Greenland. References: 1) Grønnow 1994, 2) Rasch & Jensen 1997, 3) List of radiocarbon dates compiled at SILA, The National Museum of Denmark, 4) Olsen 1998, 5) Kramer 1996a, 6) Møbjerg 1986, 7) Gulløv 1986, 8) Larsen & Meldgaard 1958, 9) Appelt & Pind 1996, 10) Kapel 1996, 11) Møbjerg 1997, 12) R. Petersen 1988, 13) Jensen *et al.* 1999, 14) Meldgaard 2004, 15) Westman 1991, 16) Grønnow pers. comm., 17) Grønnow et al. 1983. The OxCal ver. 3.5 calibration programme calibrated all datings.

Lab.no	Site name	Material	Species	14C b.c.	±	δ13C	Cal BC± standard deviation	Ref. no.
Ua-2166	Qivittup Nuua	charcoal	*Betula nana*	2060	90		2840-2810, 2670-2400, 2380-2350	5
Ka-6990	Ikerasak	charcoal	*Betula nana, Salix sp.*	2030	70	–25.4	2580-2400, 2380-2350	
K-4823	Qeqertasussuk	turf		2030	85	–25.5	2630-2340, 2320-2310	1
K-4566	Qeqertasussuk	turf		1930	85	–22.5	2470-2270, 2260-2200	14
TUa-1689	Tupersui feature III	charcoal	*Betula, Salix*	1885	70	–26.1	2460-2420, 2410-2190, 2160-2140	4
K-5125	Qeqertasussuk	bone	*Phoca sp.*	1870	60	–14.6		14
TUa-1722	Tupersui feature III	charcoal	*Salix sp., Betula nana*	1865	65	–26.1	2400-2370, 2350-2190, 2180-2140	4
Ka-6988	Kannala	charcoal	*Betula nana*	1860	40	–26,0	2310-2190, 2170-2140	
Ua-2164	Maniitsorsuaq	charcoal	*Salix sp.*	1850	90		2410-2370, 2360-2130, 2090-2040	5
K-3056	Tingit square B	charcoal	*Salix, Betula nana*	1850	85	–24.4	2410-2370, 2350-2130, 2080-2050	5
K-5788	Akia area A	charcoal/	*Salix sp., Betula nana*	1840	85		2400-2380, 2350-2130, 2090-2040	5
K-4819	Qeqertasussuk	herbaceous turf		1830	85	–25.6	2400-2380, 2340-2120, 2100-2030	1
T-12919	Tupersui feature III	charcoal	*Betula, Salix*	1820	75	–26.1	2300- 2110, 2100-2030	4
K-4821	Qeqertasussuk	heather		1810	80	–27.3	2300-2030	1
K-4565	Qeqertasussuk	peat		1800	80	–22.4	2290-2030	14
T-12997	Tupersui feature II	charcoal	*Betula, Salix*	1780	110	–26.1	2300-1950	4
K-4564	Qeqertasussuk	peat		1780	80	–24.3	2290-2250, 2240-2220, 2000-1970	14
K-4563	Qeqertasussuk	peat		1770	80	–24.2	2280-2250, 2230-2220, 2210-2010, 2000-1970	14
K-4562	Qeqertasussuk	peat		1740	80	–22.5	2200-2160, 2150-1950	14
K-3768	Sermermiut section 13H layer 5	peat		1740	80	–23.3	2200-2160, 2150-1950	6
Tua-1688	Niivertussannguaq feature III	charcoal	*Betula, Salix*	1735	75	–26.1	2200-2160, 2150-1950	4
K-4817	Qeqertasussuk	herbaceous turf		1730	85	–26.6	2200-2160, 2150-1940	1
K-6192	Nipisat	bone	*Rangifer tarandus*	1720	90		2200-2160, 2150-1920	12
K-4818	Qeqertasussuk	heather		1700	85	–27.3	2140-1910, 1900-1890	1
K-4822	Qeqertasussuk	heather		1690	75	–26.7	2140-1910, 1900-1890	1
AAR-3027	Asummiut	charcoal	*Salix glauca*	1680	80		2140-2070, 2050-1880	11
AAR-2957	Kuup Qalorsaa	bone	*Phoca sp.*	1680	60	–14	2130-2080, 2040-1880	2
K-1537	Tuapassuit	charcoal	*Salix sp. Betula sp.*	1670	100		2140-1870, 1840-1820, 1800-1780	7
Tua-1723	Tupersui feature 4	charcoal	*Salix sp., Betula nana*	1670	70	–26.1	2130-2080, 2040-1880	4
T-12996	Niivertussannguaq feature II	charcoal		1665	85	–26.1	2140-2070, 2050-1870, 1840-1820	4
AAR-3030	Asummiut	charcoal	*Betula nana*	1655	65		2120-2090, 2040-1870, 1840-1820	11
TUa-1725	Kuup Qalorsaa	charcoal	*Ericales, Betula nana*	1635	70	–26.1	2040-1870, 1850-1810, 1800-1770	4
AAR-3029	Asummiut	charcoal	*Betula nana*	1625	65		2030-1870, 1850-1810, 1800-1770	12
K-144	Illorsuit I	charcoal		1620	150		2140-1730, 1710-1690	8
K-5127	Qeqertasussuk	bone	*Phoca sp.*	1620	80	–14.0		1
K-3904	Qajaa, C	twigs		1600	85	–26.7	2020-1990, 1980-1740	3

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Lab.no	Site name	Material	Species	14C b.c.	±	δ13C	Cal BC± standard deviation	Ref. no.
K-3899	Qajaa, E	twigs		1600	80	–25.6	2020-1990, 1980-1750	3
TUa-1686	Niivertussannguaq feature II	charcoal	*Betula, Ericales, Salix*	1595	75	–26.1	2010-2000, 1980-1740	4
K-4104,	Qajaa, D	twig		1590	80	–23.6	2010-2000, 1960-1740	3
Ua-2167	Amitsuarsuk	charcoal	*Salix sp.*	1580	110		2030-1990, 1980-1730, 1720-1690	5
Ka-6079	Nuunguaq, Structure 1	charcoal twigs		1580	60	–24.0	1940-1740	9
T-12918	Tupersui feature I	charcoal	*Betula, Salix*	1575	85	–26.1	1960-1730	4
K-806	Sermermiut B, section I	sand with humus		1560	120		2020-1990, 1980-1680	3
TUa-1690	Tupersui feature V	charcoal	*Betula, Salix*	1555	105	–26.1	1960-1680	4
K-5126	Qeqertasussuk	bone	*Phoca sp.*	1550	80	–14.1	1920-1730, 1720-1690	1
K-3906	Qajaa, F	twig, modified		1540	140	–26.7	2020-1990, 1980-1620	3
K-6031	Nipisat I area B, layer 1	bone	*Rangifer tarandus*	1540	80		1920-1730, 1720-1690	5
K-5192	Angujaartorfik	bone	*Rangifer tarandus*	1540	80	–17.8	1920-1730, 1720-1690	10
AAR-7376	Siorartalik	charcoal	*local*	1536	38	–25.69	1880-1840, 1830-1740	16
K-3057	Tingit square A	charcoal	*Salix, Betula nana*	1520	125	–26.4	1950-1620	5
K-5124	Qeqertasussuk	bone	*Phoca sp.*	1510	80	–14.4		14
TUa-1687	Niivertussannguaq feature I	charcoal,	*Betula, Ericales, Salix*	1510	70	–26.1	1880-1680	4
TUa-1724	Tupersui feature V	charcoal,	*Salix, Betula nana*	1505	65	–26.1	1880-1680	4
Ka-6944	Brinchip tupegarfikuutaa	charcoal	*Betula nana*	1500	40	–26,5	1880-1840, 1810-1790, 1780-1730, 1720-1680	
K-3900	Qajaa, E	twigs		1490	80	–25.9	1880-1680, 1670-1630	3
K-5194	Angujaartorfik	bone	*Rangifer tarandus*	1490	80	–18.0	1880-1680, 1670-1630	10
K-5128	Qeqertasussuk	bone	*Phoca sp.*	1450	80	–14.9	1870-1840, 1780-1600	1
K-4561	Qeqertasussuk	peat		1440	80	–24.8	1660-1840, 1770-1600, 1570-1520	14
AAR-3028	Asummiut	charcoal	*Salix sp.*	1420	65		1740-1600, 1570-1530	11
K-5191	Angujaartorfik	bone	*Rangifer tarandus*	1420	80	–17.6	1750-1520	10
K-807	Sermermiut B, section I	peat		1410	120		1870-1840, 1810-1800, 1780-1510	3
K-855	Ikka	chacoal	*Picea sp.*	1410	120		1870-1840, 1810-1800, 1780-1510	12
AAR-8407	Kannala	charcoal	*Betula nana*	1410	45	25.44	1740-1710, 1690-1600, 1560-1530	
K-146	Illorsuit I	chacoal		1390	140		1860-1840, 1780-1440	8
K-6195	Nipisat	bone	*Rangifer tarandus*	1360	85		1690-1490	11
K-4816	Qeqertasussuk	herbaceous turf		1360	80	–26.2	1690-1500	1
K-6196	Nipisat	bone	*Rangifer tarandus*	1350	85		1690-1490	11
K-5193	Angujaartorfik	bone	*Rangifer tarandus*	1240	75	–17.6	1600-1580, 1530-1380, 1340-1320	10
K-6198	Nipisat	charcoal	*Salix sp., Betula nana*	1230	125		1620-1310, 1280-1260	11
T-12917	Niivertussannguaq feature II	charcoal	*Salix, Ericales*	1210	85	–26.1	1530-1310	4
K-4820	Qeqertasussuk	herbaceous turf		1200	80	–27.9	1520-1370, 1360-1310	1
K-1193	Itinnera	charcoal	*Betula sp. and Salix sp.*	1190	120		1520-1370, 1360-1310	3
K-6459	Nipisat	bone	*Rangifer tarandus*	1060	95		1400-1120	11
K-588	Itinnera, House 1	wood	*Juniperus sp*	1010	110		1370-1360, 1320-1010	3
K-5584	Nipisat I area A	bone	*Rangifer tarandus*	990	80	–18,8	1260-1010	5
K-6193	Nipisat	bone	*Rangifer tarandus*	970	85		1260-990	11

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Lab.no	Site name	Material	Species	14C b.c./a.d.	±	δ13C	Cal BC± standard deviation	Ref. no.
K-3905	Qajaa, C	peat		960	75	–25.6	1260-1230, 1220-990	3
K-6460	Nipisat	bone	*Rangifer tarandus*	960	60		1220-1000	11
K-5864	Nipisat I area A	bone	*Rangifer tarandus*	910	80		1190-1180, 1150-1140, 1130-910	5
K-808	Sermermiut B, section I	peat		880	120		1190-1180, 1130-890, 880-830	3
K-3901	Qajaa, E	peat		880	80	–24.2	1130-890	3
K-518	Saqqaq Niaqornaarsuk	charcoal	*Betula nana*	810	100		1010-800	3
K-3894	Qajaa, A	peat		750	75	–25.5	920-790	3
Ka-6992	Kangerlussorissunnguup Kangia C	charcoal	*Salix sp.*	730	40	–25.4	900-875, 860-850, 840-800	
K-6194	Nipisat, layer 2	bone	*Rangifer tarandus*	720	85		970-950, 930-760	11
K-3895	Qajaa, A	peat		690	75	–25.4	910-760, 680-660, 610-590	3
AAR-8408	Kangerlussorissunnguup Kangia	charcoal	*Betula nana*	585	30	–24.50	800-750, 690-660, 640-590, 580-550	
AAR-2351	Annertusuaqqap Nuua	charcoal	*Betula nana, Salix sp.*	580	75	–23.4	800-750, 720-520	2
Ka-6991	Innartalik	charcoal	*Salix sp.*	540	45	–25.8	770-520	13
AAR-2343	Annertusuaqqap Nuua	bone	*Rangifer tarandus*	510	70	–18.7	760-680, 670-630, 600-570, 560-480, 470-410	2
Ua-1559	Qeqertarsuup tunua	antler	*Rangifer tarandus*	485	100		760-680, 670-630, 600-570, 560-400	15
K-3055	Saattorsuaq square B	charcoal	*Salix sp. , Betula nana*	470	75	–23.7	760-680, 670-640, 590-580, 550-400	5
K-3770	Saqqaq East section 70v2-III	peat		420	70	–24.1	760-690, 550-380	6
AAR-8410	Nerukinnera 52/205:2	charcoal	*Betula nana*	360	30	–25.66	410-370, 270-260	
Ua-2165	Tasilik	charcoal	*Salix sp.*	360	90		520-340, 330-200	5
K-3896	Qajaa, A	peat		330	75	–25.5	410-340, 330-200	3
K-3769	Sermermiut section 13 H layer 4	peat		310	70	–25.0	400-350, 320-200	6
K-3772	Saqqaq East	bone	*Phoca, sp.*	300	70	–14,7	400-340, 320-200	6
AAR-8411	Nerukinnera 50/200:3	charcoal	*Betula nana*	280	45	–26.91	380-350, 320-200	
K-3902	Qajaa, E	peat		260	70	–24.4	380-190,	3
AAR-2350	Orpissooq West	bone	*Rangifer tarandus*	250	65	–18.0	370-170	2
K-3897	Qajaa, A	peat		250	75	–24.7	380-170	3
AAR-2709	Orpissoq East 197/196:4	bone	*Rangifer tarandus*	225	55	–17.8	360-270, 260-160, 130-120	2
AAR-8409	Umiartorfik 99/91:3	charcoal	*Betula nana*	220	30	–26.79	360-290, 240-170	
K-3771	Saqqaq East section 70v2-III	peat		210	70	–23.8	360-280, 260-90	6
K-3152	Aasivissuit	bone	*Rangifer tarandus*	200	75	–18.7	360-290, 260-250, 240-90, 80-60	17
K-3898	Qajaa, A	peat		200	75	–25.1	360-290, 260-250, 240-90, 80-60	3
Ka-6989	Kannala 100/200:4	charcoal	*Betula nana*	85	45	–25.44	100 BC - 30 AD	
K-515	Sermermiut B, section I	peat		a.d. 40	100		20 BC-10 BC, AD-240 AD	3
K-3903	Qajaa, E	peat		a.d. 90	70	–24.7	AD: 70-240	3
T-12998	Tupersui feature III	charcoal		a.d. 750	55	–26.1	AD:720-740, 770-900, 920-940	4
K-145	Illorsuit 100 m from group 12-18	ash		a.d. 900	120		AD: 780-790, 830-840, 870-1160	8
AAR-2554	Orpissooq West (Geol. Sample)	peat		a.d. 925	55	–27.7	AD: 900 -920, 960-1040, 1100-1120, 1140-1160	2
K-4102	Qajaa, D	twig		a.d. 1530	65	–20.6	AD: 1420-1530, 1590-1630	3
K-4103	Qajaa, D	twigs		a.d. 1670	65	–26.1	AD: 1490-1670, 1780-1800	3

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Chapter 10

Discussion and Conclusions

In the previous chapters I have described the dwelling types of the Saqqaq and Dorset cultures in Southern Qeqertarsuup Tunua, as well as a variety of other aspects of the Palaeo-Eskimo settlement of the area. In this chapter, the Palaeo-Eskimo evidence from Qeqertarsuup Tunua will be summarised in order to reconstruct the cultural history on a larger scale. Subsequently, the situation in West Greenland will be compared to that of Peary Land in northernmost Greenland.

Similarity and variability in Saqqaq and Dorset dwelling styles

The overview of Palaeo-Eskimo dwelling styles from Qeqertarsuup Tunua (Fig. 10.1) makes evident similarities and differences between Saqqaq and Dorset dwelling styles. Both periods have tents as well as more solid structures, presumably winter dwellings, which may have been characterised by a tent-like superstructure, but which also appear to have been partly turf-built.

In the Saqqaq period, temporary sites are characterised by circular to ovate tent rings with central hearths, such as those excavated at Brinchip Tupeqarfikuutaa (site no. 133) (Brinch Petersen 1992) and Kuup Qalorsaa (site no. 162). A tent ring with a mid-passage from the Saqqaq culture has been documented at the Kannala site (site no. 154). Saqqaq winter dwellings have been documented at Niivertussannguaq (site no. 112) and Tupersui (site no. 181) (Olsen 1998) and a mid-passage dwelling, comparable to feature III at Tupersui, is also known from Qeqertasussuk (site no. 92) feature A8.

In the Dorset culture, tent rings with a central hearth exemplify summer dwellings. Such features are known from Ikkarlussuup Timaa (site no. 118), Kangerlussorissunnguup Kangia C (site no. 172) and from the site of Nerukinnera I (site no. 151). More permanent Dorset dwellings are known from Ikkarlussuup Timaa, Annertusuaqqap Nuua (site no. 103) and Umiartorfik (site no. 116).

In addition, there are also sites that lack dwelling structures. These are exemplified by sites such as Orpissooq East (site no. 87) and Ikerasak (site no. 148) from the Saqqaq culture and Oqaatsut (site no. 147) from the Dorset culture.

When analysing the spatial distribution of artefacts, it is evident that there are similarities between sites. For example, the Saqqaq tent rings with a central hearth known from Kuup Qalorsaa and Brinchip Tupeqarfikuutaa have low frequencies of scrapers and a relative high proportion of bifaces. Both dwellings also have the tools concentrated on the right side of the central hearth, indicating that this was the preferred *locus* for the maintenance of hunting gear and re-tooling.

Saqqaq winter dwellings conform to at least two types of internal organisation: 1) The platform dwelling exemplified by feature II at Niivertussannguaq and by feature V at the site of Tupersui. These dwellings have a central stone-set hearth. Towards the rear and at one side of the interior there is a stone-set platform. 2) mid-passage features filled with fire-cracked rocks are known from Qeqertasussuk feature A8 (Grønnow 1994) and Tupersui feature III. These dwellings have stone-set mid-passage features dividing the interior into two. The mid-passages are filled with massive quantities of fire-cracked rocks and they show clear indications of having been used continuously over a long period of time or during several episodes of habitation (Odgaard 2001:94 ff). Olsen (1998) suggests that the platform dwelling might be a slightly later development related to the introduction of turf-walled house forms between 2000 and 1700 cal B.C. So far this idea is based on scant evidence (Mikalsen 2001:131). Alternatively, it could be suggested that differences in the social composition of the inhabitants are decisive for the choice of dwelling style. When analysing dwelling features on Adam C. Knuth Site in Peary Land, Jensen & Pedersen (2002) noted

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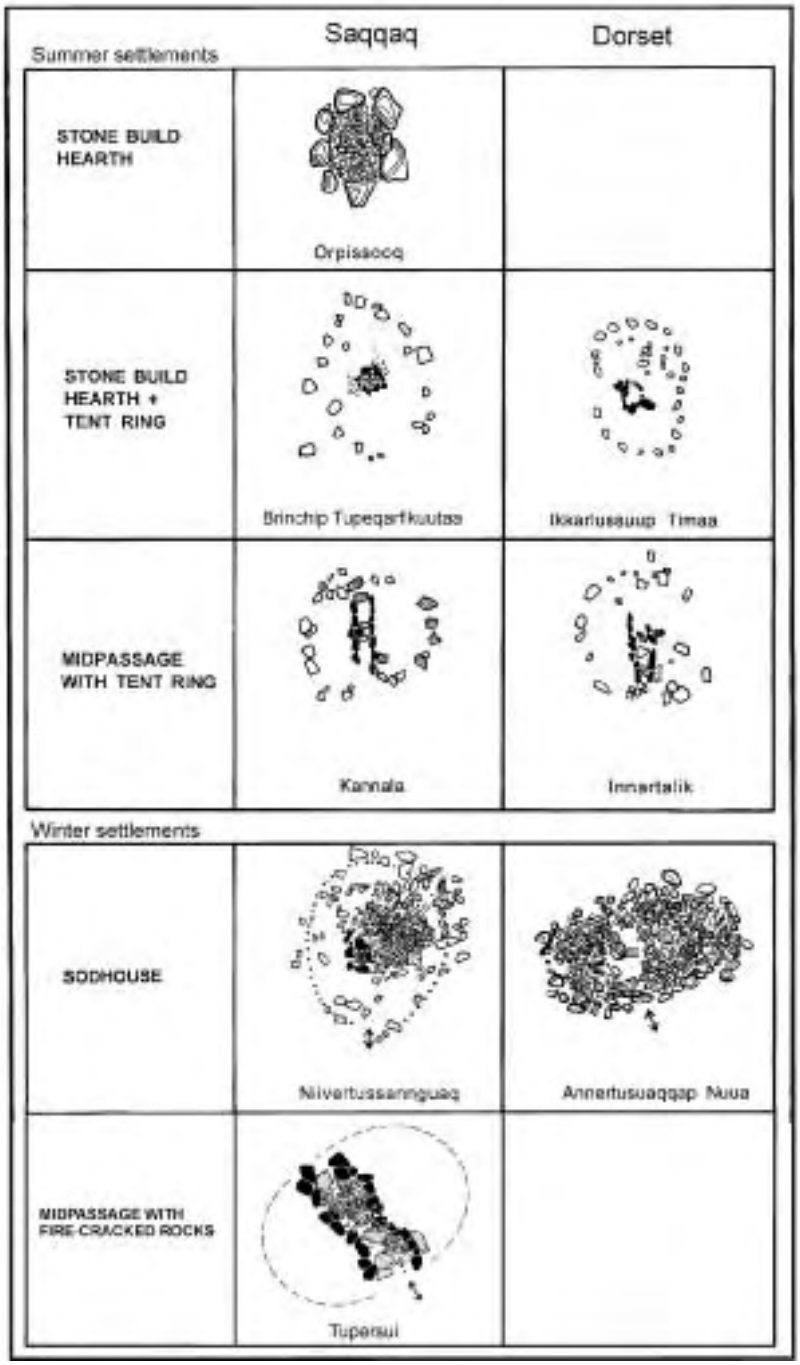

Fig. 10.1. Palaeo-Eskimo dwelling types in Qeqertarsuup Tunua, West Greenland. During both Saqqaq and Dorset periods there are tent-ring dwellings associated with only limited quantities of artefacts as well as more complicated dwelling types with numerous tools and large quantities of debitage.

similar differences between large circular dwellings with a central hearth and mid-passage structures rich in finds. This difference was suggested to result from the mid-passage structure being a single-family dwelling, whereas the large tent ring with a central hearth is believed to be a multi-family winter dwelling similar to platform dwellings in Qeqertarsuup Tunua.

The artefact distributions in Saqqaq dwellings rich in finds are difficult to evaluate but so far the analysis of features at Tupersui (Mikalsen 2001) has shown but few patterns in the deposition of specific artefact types. This lack of spatial patterning in these may, however, result from sweeping and clearing out of the interior. In the case of the platform feature V at Tupersui, it is evident that the tools are concentrated in an arc located about 2 m from the central hearth

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and along the perimeter of the platform. This indicates that most tools in this dwelling probably were deposited, tossed or swept against the wall or to the edge of the platform in such a manner that they would not hinder other activities carried out on the sleeping platform.

In the Dorset period there are categories of dwelling types comparable to those known from the Saqqaq culture. The mid-passage tent rings with few finds are believed to be short-term summer occupations by single families in which males and females were seated at either side of the mid-passage. The occupation of these sites during the warm season is indicated by the limited signs of open fire inside the dwellings, as well as by the presence of open-air hearths and by their situation in localities that are historically known as 'summer hunting grounds'.

Dorset winter dwellings are oval, up to 5 x 3.5 m, slightly sunken structures with double platform areas and a central hearth and cooking area. This dwelling style shows a close resemblance to Dorset dwellings known from Newfoundland (Renouf 1993, 1999) and Quebec (Badgley 1980). In the case of Annertusuaqqap and Umiartorfik, the artefact distributions inside these dwellings have a tendency to be divided in two with equal relative frequencies of artefacts at either side of the central hearth and floor area. This bipartition of the artefact distribution is believed to result from the use of these dwellings by two families.

The most conspicuous difference between Saqqaq and Dorset sites lies in the occurrence of fire-cracked rocks. These are common on Saqqaq sites but rarely occur in great numbers on those from the Dorset culture. It is therefore reasonable to suggest that the widespread use of soapstone vessels during the Dorset period brought to an end the Saqqaq technology of heating stones. Inside the winter dwellings, the handling of hot rocks was a Saqqaq and not a Dorset activity. Therefore, the Dorset people did not need the mid-passage architecture in their winter dwellings. During the Dorset culture, the heating of winter dwellings relied on the use of soapstone lamps.

The many similarities and few differences between Saqqaq and Dorset settlement patterns imply that there was little economic difference between the two periods. In Arctic Canada there are opposing views concerning the Pre-Dorset/Dorset transition. In a regional study of Ivujivik in Arctic Québec, Nagy (2000) suggests that the transition was associated with a cultural change from a 'foraging' mode of production during the Pre-Dorset period to a 'collector' mode of production implemented by the Dorset people (Binford 1980). Ramsden and Tuck (2001), on the other hand, suggest that there was little economic and cultural change during the transitional period from Pre-Dorset to Dorset. In terms of economy and general behaviour, the evidence from Qeqertarsuup Tunua appears to be in line with the latter of these two points of view. How then, can one envisage the Saqqaq-Dorset succession in West Greenland? On the one hand, discontinuity is demonstrated by direct evidence from the stratigraphy and radiocarbon dates and indirect evidence from the lack of sites with inventories indicating changes from the Saqqaq to the Dorset lithic traditions. On the other hand, there is a continuous series of radiocarbon dates from Sisimiut District, as well a high degree of similarity in settlement pattern, economy and dwelling type.

Since there is only one example of stratified deposits where Saqqaq and Dorset layers are not separated by sterile peat, and since there are no known examples of 'transitional' lithic inventories, I prefer to think of the Dorset culture in Qeqertarsuup Tunua in terms of an immigration of people around 800 cal B.C. The Dorset newcomers may well have reached North Greenland from High Arctic Canada via Smith Sound. According to most models for the cultural history of Greenland (Meldgaard 1977; Gulløv 1999), the area was uninhabited at this time. Speculating on the wider issues of the cultural history of Greenland, one must realise that only Peary Land and adjacent Northeast and Central West Greenland have been well investigated. In between these regions are vast territories from where there is no, or only scant, evidence from Early Palaeo-Eskimo sequences. Regional comparisons also suffer from tremendous temporal lack of evidence. For example, in West Greenland, only a few Dorset sites have been excavated to the south of Qeqertarsuup Tunua (Petersen 1988). It is therefore impossible to judge whether the Dorset culture developed *in situ* in Southern Greenland, whether it represents the immigration of new peoples from Arctic Canada, or whether it arose from a combination of migrations and local development. It is, however, almost certain that neither Peary Land, Northeast Greenland nor Qeqertarsuup Tunua were settled

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during the transitional period from the Saqqaq to Dorset cultures. Møbjerg (1999) perceives the later Saqqaq phases at Nipisat as early stages in a cultural transformation, which ultimately resulted in the development of the Dorset culture. Indeed, the early use of soapstone lamps and polishing of bifacial end-blades makes this suggestion compelling because it is exactly this kind of development in the material culture one would expect to find in the initial stages of cultural transition. However, in order to propose *in situ* development we need to find the next stages of cultural transformation exemplified by the introduction of burin-like tools and side-notched end-blades. Such evidence remains unknown in Greenland. Brinch Petersen (1999) has suggested that the co-occurrence of Saqqaq and Dorset implements on the site of Nerukinnera I indicates that this locality may well be a transitional site left by people having both Saqqaq and Dorset types in their lithic inventory. However, recent radiocarbon dates (AAR-8410 and AAR-8411) from the indoor and outdoor hearths at Nerukinnera I suggest that the site belongs to the later part of the Dorset phase, dated to around 380-200 cal B.C. Considering these dates, it appears more reasonable to suggest that the occurrence of the Saqqaq implements at this locality represents an older phase of occupation left by Saqqaq peoples prior to the onset of the Dorset culture.

The Saqqaq–Dorset transition in Qeqertarsuup Tunua

In the previous sections I have demonstrated similarities and differences in Palaeo-Eskimo dwelling types and in their associated lithic inventories. The most striking feature of both the Saqqaq and Dorset lithic inventories is the limited temporal and geographical change that has been so far demonstrated within these two phases. In the faunal material from Qeqertasussuk Meldgaard (2004) found a narrowing of the resource base and change of seasonality in site use. He believes this is related to climatic changes which made Sydostbugten unsuitable for permanent settlement. This ides is supported by the radiocarbon evidence which suggests that not only Qeqertasussuk, but probably all of Qeqertarsuup Tunua, experienced a heavy decline or near abandonment during the later Saqqaq phases. The Saqqaq culture appears, accordingly, to have been subject to some degree of ecological stress in the period subsequent to 1900 cal B.C. However, through-out the 1000 years of occupation at Qeqertasussuk, Grønnow (1994) discovered only minimal changes in raw material frequencies and lithic typology. In the first instance, the Saqqaq peoples of Qeqertarsuup Tunua responded to environmental and ecological change by measures that were already part of their material and behavioural spectrum. Mobility seems to have been the principal option. Qeqertarsuup Tunua was abandoned as the larder became empty. This episode of abandonment may well have been more dramatic than indicated by the archaeological record, but the archaeological evidence for this must be sought in the areas to the north and south of Qeqertarsuup Tunua. To the north the data are insufficient, but in Sisimiut District to the south the later Saqqaq phases from 1400 cal B.C. to 900 cal B.C. have been investigated at the sites of Nipisat and (Møbjerg 1999). Soapstone vessels characteristic of the later Saqqaq phases at Nipisat in Sisimiut District are known from a few localities in Qeqertarsuup Tunua. Larsen and Meldgaard (1958) have published a complete soapstone lamp found at Tupersuit (site no. 60), and they also mention fragments of vessels from Saqqaq Niaqornaarsuk (site no. 35) and Illorsuatsiaat (site no. 71). A few specimens of polished bevelled points are also known from Qeqertarsuup Tunua. This sporadic occurrence of types from the Later Saqqaq period indicates that Saqqaq people from Sisimiut District must occasionally have visited Qeqertarsuup Tunua in the years from about 1400 cal B.C to 800 cal B.C. The occurrence of Later Saqqaq settlements in Qeqertarsuup Tunua is also indicated indirectly by the fact that the Saqqaq people in Sisimiut maintained raw material supplies from Qeqertarsuup Tunua through-out the Later Saqqaq phase. In contrast to Qeqertarsuup Tunua, Sisimiut District has a large caribou population. The Sisimiut area, and also the fjord systems around the capital, Nuuk, enabled an economic dichotomy based on both terrestrial and marine resources. This may have been attractive in a period of scarcity of the marine resource base.

At the onset of the Dorset culture around 800 cal B.C. there appears to have been a new expansion into Qeqertarsuup Tunua. All the major resource areas, with the exception of Sydostbugten, were once again occupied. The similarity in settlement patterns

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between the Saqqaq and Dorset cultures indicates that the Dorset settlement system and economy was only slightly different from that of the Saqqaq. Sydostbugten stands out as the sole area where there are significant differences in the Saqqaq and Dorset presence. Qeqertasussuk housed a continuously settled base camp during the earlier Saqqaq phases but through-out the Dorset period there are only traces of more temporary camps in this part of Qeqertarsuup Tunua, and there are no traces of the Dorset culture at the Qeqertasussuk site itself. Further reconnaissance, aimed specifically at the location of Dorset sites, may change this picture. However, it seems unlikely that major Dorset settlements could have escaped our attention.

The discontinuous stratigraphies at sites such as Sermermiut and Qajaa support the notion that there was no local development from the Saqqaq to Dorset cultures. And there are no examples in Qeqertarsuup Tunua of archaeological inventories showing elements of being 'transitional'. The replacement of the polished and struck Saqqaq burin with the fully-ground burin-like tool is, accordingly, not a gradual change but a complete replacement, similar to the replacement of bifaces with a tapering stem with side-notched examples. However, there are also lithic implements which appear to have been in use during both the Saqqaq and Dorset cultures. A polished bevelled point characteristic for the Later Saqqaq phases in Sisimiut is also known from the site of Umiartorfik (Fig. 8.88). The finding of a polished tanged point at the Saqqaq site of Kannala also indicates that the use of this type may have a broader chronological range than previously thought.

Variability in the use and seasonality of different dwelling types

At the Memnon Site in Hall Land (Grønnow & Jensen 2003) Knuth recorded an Independence I platform dwelling (feature B) very similar to the Saqqaq platform dwellings known from Qeqertarsuup Tunua. The dwelling at the Memnon Site appears to be slightly smaller than those from Qeqertarsuup Tunua, but structurally it is similar to the platform dwellings known from West Greenland. However, only a single artefact was found in the Independence I feature, whereas the Saqqaq platform dwellings from Qeqertarsuup Tunua are rich in finds. The platform dwelling at the Memnon Site appears then to represent a short-term occupation by migrating people. This similarity in dwelling style, but difference in associated artefacts, supports the notion that the choice of architecture is probably more dependent on the social composition of the dwellers than it is related to seasonal or functional factors. Following this argument, it is striking that in Qeqertarsuup Tunua there appears to be a relatively robust division between winter sites rich in finds, mid-passage dwellings with many fire-cracked rocks, as well as platform dwellings and summer tent-ring dwellings with a central or mid-passage hearth associated with just a few finds and limited amounts of fire-cracked rocks. However, when considering the interlocked nature of seasonal rhythms, social morphology and material culture (Mauss 1979), it is only natural that long-term human presence in an area such as Qeqertarsuup Tunua quickly results in the formation of cyclical repetitive behavioural systems. Within this, the different dwelling styles are tied to seasonal variations in game and the social composition at the settlements. Such systems may not have been in place in all areas occupied by Palaeo-Eskimo people.

The suggested functions and seasonality of the different dwelling types are thus to be understood as local adaptations. Such adaptations always have their exceptions, and the further one moves into ecological settings different from those of Qeqertarsuup Tunua, the more exceptions one will encounter.

Qeqertarsuup Tunua and Peary Land

The division of the Palaeo-Eskimo settlements of Peary Land and West Greenland into regional entities of Independence I, Saqqaq and Independence II and Dorset cultures has been debated (Appelt 1997; Elling 1996; Knuth 1983; Meldgaard 1977; Schledermann 1990), and there are strongly opposing views on how the regional sub-groups should be perceived. Elling (1996) argues that Saqqaq and Independence I should be considered to be members of the same culture, and that there are no arguments in favour of maintaining a division between the two. I agree with Elling in that the Independence I and Saqqaq people were probably

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members of the same culture, spoke the same language etc. However, I also accept that Independence I and Saqqaq were maintained as regional sub-groups living largely in isolation from each other. This point of view rests on the fact that Saqqaq and Independence I lithic inventories differ in a number of ways with respect to typology, raw material preferences and the magnitude and quality of microblade production.

Independence I and Saqqaq

In accordance with the radiocarbon evidence, Elling states that Independence I and Saqqaq are contemporaneous. It is also noted that all reliable Independence I dates lie within the first 400 years of the Saqqaq period (Grønnow & Jensen 2003). The Independence I occupation of Peary Land was, accordingly, a relatively brief incident of human presence in the High North.

Elling also identified the fact that Saqqaq typology is heavily conditioned by the use of killiaq, which is a raw material well suited to polishing but poor for the production of microblades. Killiaq is not available in Peary Land. However, harder and more glass-like raw materials are present in the Cretaceous provinces of West Greenland, where the chalcedony was widely utilised in Dorset microblade production. These raw materials were also exploited by the Saqqaq people (Grønnow 1994) though much less frequently than killiaq. The diminutive Saqqaq microblade production is therefore a distinct regional evolution, which cannot be entirely accounted for by the availability of different raw materials.

Dwelling styles and implements are largely identical. For the latter, this is true in the sense that both Saqqaq and Independence I cultures produced tanged bifaces, scrapers from flakes and burins with the removal of burin spalls. With respect to dwelling types, it is evident that there are many similarities between Saqqaq and Independence I dwellings. Jensen and Pedersen (2002) suggest, accordingly, that dwellings rich in finds at Adam C. Knuth Site (Knuth 1983) are similar to the basic architectural forms of mid-passages filled with fire-cracked rocks and platform dwellings known from Qeqertarsuup Tunua. Similarly, it is suggested that the many circular to oval tent rings with a central hearth and few artefacts, known from Peary Land, are similar to the summer tent-ring dwellings from Qeqertarsuup Tunua.

When comparing the Saqqaq with the Independence I culture, it is evident that Saqqaq, at least in terms of lithic industries, has the largest number of local adaptations. Consequently, the debate should be moved from Independence I to the Saqqaq arena because it is the Saqqaq people who appear to have developed a highly distinct material culture.

The Saqqaq and Independence I division may thus be conceptualised as local developments occurring after the separation of the two populations on Ellesmere Island or in the Smith Sound region. If this were the case, then one would expect Independence I-like characteristics (such as the occurrence of unpolished burins on the site of Ikerasak) to occur on the earliest Saqqaq sites.

However, it is equally possible to maintain a more traditional point of view resting on the concepts of Steensby's theories. Disregarding the similarities between Independence I and Saqqaq, one can perceive Saqqaq as a regional variant of a more southerly Pre-Dorset complex entering Greenland via the Bache Peninsula and the Smith Sound corridor (Schledermann 1990), whereas Independence I is an independent High Arctic variant entering Greenland via Lake Hazen and the Kennedy Channel/Robeson Channel in the northernmost part of the Nares Strait. If this position is taken, then the evolution of the two, and their possible common ancestry, must be sought in Arctic Canada, or perhaps even further to the west.

Dorset and Independence II

Separating Independence II from that which has been termed Dorset I or Early Dorset is much more difficult.

Radiocarbon dates for Independence II/Dorset sites in Peary Land (Grønnow & Jensen 2003) and Northeast Greenland indicate that these settlements were occupied in the period between 800 and 400 cal B.C when the Dorset culture also flourished in West Greenland. Suggestions of early Independence II dates in the range around 1000 cal B.C. (Knuth 1984) are either based on samples of driftwood or should be omitted due to problems with the context from which they originate.

Typologically, there are minimal differences between the material culture of Independence II and West Greenland Dorset. The burin-like tools display the same variation of broad and narrower specimens and the bifaces are dominated by virtually identical side-notched examples. Microblades are dominant in

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both Independence II and Dorset material, and both cultures show a preference for often colourful chalcedony as a raw material, in addition to quartz crystal. However, fully polished end-blades are absent or rare in Independence II/Dorset inventories from Northeast Greenland. However, only few Dorset sites are known from the districts where the softer killiaq-like raw materials are available (Sandell & Sandell 1999). As a consequence, it may also be possible to see the absence of such specimens as being due to the range of raw materials available in Peary Land and in Northeast Greenland.

Soapstone vessels and objects are also unknown from Northeast Greenland. But yet again, the finding of the bottom of a circular sandstone vessel at Kap St. Jacques (Grønnow & Jensen 2003) indicates that this absence is more likely to result from the difficulty of acquiring soapstone in Northeast Greenland than from the lack of use of such objects.

The limited number of organic artefacts from Dorset sites in West Greenland makes it difficult to compare Dorset and Independence II tools made from organic materials. However, the sockets in the harpoon heads from Annertusuaqqap Nuua, as well as other Dorset harpoon heads from West Greenland, are largely similar to the open-socket types Knuth (1968) recovered in Peary Land.

Comparing the dwelling types known from West Greenland Dorset sites to those from contemporaneous sites in Peary Land and Northeast Greenland, it is evident that in both areas there are circular tent rings with a central hearth as well as meticulously built mid-passage dwellings. In both cases the latter are associated with very few finds. Similarly, on sites such as the Independence II site of Hvalterrasserne (Knuth 1983), there are also open-air activity areas similar to those seen on Kangerlussorissunnguup Kangia in Qeqertarsuup Tunua. This could well indicate that the mid-passage ruins represent warm season habitations for single families in both places. It is more difficult to document the presence of more permanently occupied dwellings in Northeast Greenland and Peary Land. However, Andreasen (1996) has described features similar to the double platform dwellings seen on Dorset winter settlements in Qeqertarsuup Tunua. And on the extensive locality of Kap St. Jacques, feature 243 is a flagstone structure rich in finds which appears to be similar to the double platform dwellings of Qeqertarsuup Tunua (Grønnow & Jensen 2003). In his record, Knuth described feature 243 as a mid-passage dwelling. However, there is no solid evidence for a mid-passage in the interior. Judging from the sketch drawing (Grønnow & Jensen 2003:fig. 10.30), feature 243 appears to be characterised by two flagstone platforms separated by an open floor area. In addition, there are larger boulders strewn on top of the flagstones. Knuth presumably thought that these boulders were the rudimentary remains of a mid-passage. However, the disorderly distribution of the boulders on top of the flagstone pavement is similar to that of large boulders seen in the interior of the platform dwellings from Qeqertarsuup Tunua. Feature 243 at Kap St. Jacques is, therefore, believed to be a double platform dwelling with the dismantled remains of the periphery scattered around the interior. With a total of 46 tools associated with this feature, it is one of the Kap St. Jacques ruins richest in finds, although this 'richness' is far from being as great as that of the double platform dwellings from Qeqertarsuup Tunua. In addition to these types of dwellings, Andreasen (1996) also mentions the presence of a variety of more amorphous platform structures. Such features are not known from Qeqertarsuup Tunua. However, this difference may well be a matter of visibility, since in Northeast Greenland all features can be observed on the surface, whereas in Qeqertarsuup Tunua most localities are covered by vegetation.

In conclusion of this summary comparison of Independence II and Dorset it is evident that there are very few characteristics separating the two material cultures. In most cases Independence II objects from Peary Land or Northeast Greenland would go unnoticed if they were mixed with a Dorset inventory from West Greenland. Therefore it is difficult to maintain a cultural distinction between the two phenomena.

Models of human dispersal

Screening the available radiocarbon dates from Peary Land (Grønnow & Jensen 2003) and West Greenland (chapter 9) enables a more careful modelling of the whereabouts of Palaeo-Eskimo peoples to be undertaken (Fig. 10.2). In the period from 2500 to 1900 cal B.C., early Palaeo-Eskimo peoples established themselves in West Greenland and in the High Arctic, where

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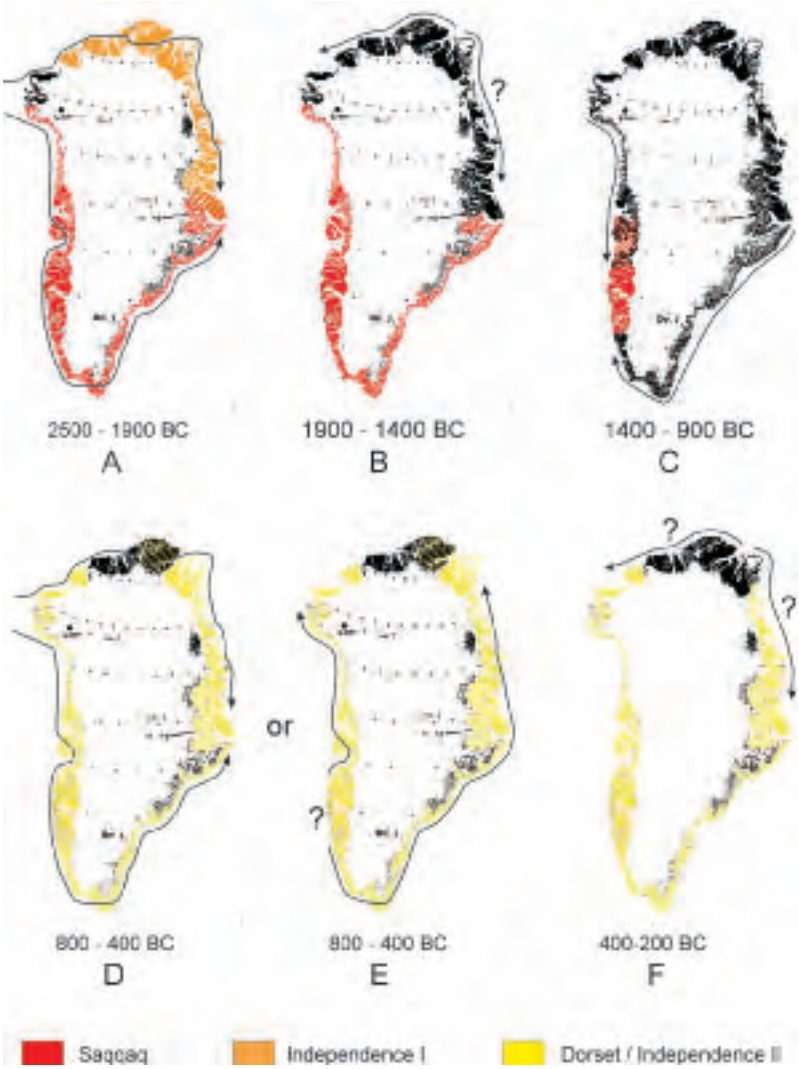

Fig. 10.2. Models of human dispersal in Greenland in the period from 2500 cal B.C. to cal 1 A.D.

settlements were clustered in the Wandel Dal/Jørgen Brønlund Fjord region (Grønnow & Jensen 2003) (Fig. 10.2A). Whether these peoples constituted two separate populations upon arrival or whether they essentially were one group who later developing regional characteristics when they became isolated from each other remains unknown. In the period from 1900 to 1400 cal B.C. Peary Land was depopulated (Fig. 10.2B). Independence I people may have retreated back to High Arctic Canada, or they may have moved south along the shores of East Greenland. If so, they could have encountered Saqqaq people in the regions of Kejser Franz Joseph Fjord and Kangertittivaq (Scoresbysund). However, as noted by Sandell and Sandell (1999:145), it is really a matter of belief as to whether one prefers to think of the peopling of this area as a process occurring from the north or from the south. In any case, early Palaeo-Eskimo inventories from this area display both typical Saqqaq and Independence I features. Detailed studies of sites in this region may, accordingly, reveal whether this mixing of traits resulted from multiple occupations or whether at some point of time Independence I people from the north mixed with Saqqaq people coming from the south.

In the period from 1400 to 900 cal B.C. the Palaeo-Eskimo occupations of Greenland appear to have continued the contraction process which began with the depopulation of Peary Land and the disappearance of Independence I. Sisimiut District, and probably also the area around the capital of Nuuk may have been areas of retreat. So far, Nipisat in Sisimiut District is the only site with reliable radiocarbon dates from this period, making it highly desirable to obtain more data

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on the latest Saqqaq settlements in Western Greenland (Fig. 10.2C).

In the period between 800 and 400 cal B.C., the Dorset culture flourished in all parts of Greenland formerly occupied by Independence I and Saqqaq peoples (Fig. 10.2D). The settlements in Peary Land have, however, proven to be very few and scattered. This suggests that the Independence II/Dorset occupation of this area was much more sporadic than Independence I settlement (Grønnow & Jensen 2003).

Unfortunately, the plateau on the calibration curve makes more detailed modelling of this event impossible. However, the lack of evidence of local development from the relict Saqqaq population in Sisimiut District seems to support the notion of a new immigration from Arctic Canada. When tracing the relicts of the Dorset newcomers from Nares Strait to Peary Land, it is odd to note that no Dorset or Independence II sites have been found in the area from Hall Land to Peary Land. Indeed, only little archaeology has been carried out in this area, but both Independence I and Thule sites are well known along the same stretch of shore. Focusing on Peary Land, it is evident that the pivot of the Dorset/Independence II occupation lies towards the coastal regions of Northeast Greenland. It does not, however, favour the interior regions of Wandel Dal and Jørgen Brønlund Fjord where the Independence I settlements are clustered. The swift migration of Dorset people to Northeast Greenland may well have occurred over the sea ice, leaving little or no archaeological evidence of the actual event. However, pushing this argument to the limit, one could suggest that the peopling of Northeast Greenland by the Dorset culture occurred from the south and not from the west! Obviously, this suggestion would gain momentum if a local development from Saqqaq to Dorset could be demonstrated in West Greenland. Then one could argue in favour of a northward dispersal from relict populations in Southwestern Greenland as depicted in fig. 10.2 E. For the moment, the model shown here is likely to be deemed premature since there is no evidence of a local development from Saqqaq to Dorset cultures. The only way, however, to prove or disprove such alternative models is to test them against data. For the moment there are no data but only common sense to support one model in preference to the other. True and false are thus separated by belief and not by archaeology. It must be a principal challenge for the future of archaeology in Greenland to fill in the gaps between the intensively surveyed regions of West and Northeast Greenland.

Only a single Dorset / Independence II date from Peary Land (K-3864) has a minor probability of post-dating 400 cal B.C., whereas the remainder lie in the early sequence between 800 and 400 cal B.C. In contrast to this evidently short duration of Dorset occupation, the coastal areas of Northeast Greenland have several samples which post-date 400 cal B.C. (Andreasen 2004). This tendency in the radiocarbon dates may result from a course of events during the Dorset culture similar to that which occurred during the Independence I and Saqqaq periods 1500 years earlier. It is apparent, therefore, that during the initial Dorset phases between 800 and 400 cal B.C., the whole of Greenland was occupied. In subsequent phases this settlement seems to have contracted southwards (Fig. 10.2 F).

The parallel occurrence of initial Saqqaq/Independence I and Dorset/Independence II settlements in West and High Arctic Greenland may support the idea that climatic and ecological fluctuations play a major role in the distribution of humans in this part of the world, since only climatic fluctuations could influence living conditions on such a large geographical scale. Similarly, the tendency of the settlement episodes in the High Arctic regions to be shorter than those in more southerly regions could result from the fragile nature of the High Arctic life-form relying on a very narrow resource base with the musk ox as the principal game animal.

The dichotomy of the Saqqaq/Independence I *versus* Dorset and Independence II cultures in West and Northeast Greenland contrasts with the cultural development seen in the Thule District in Northwestern Greenland. Meldgaard (1977) characterises the Nares Strait region as a bottleneck, which enabled migrations into Greenland only during the most favourable periods. When considering the Late Dorset settlements in Northwest Greenland (Appelt & Gulløv 1999; Mathiassen 1928), and the more continuous (but fluctuating) Palaeo-Eskimo settlements of Ellesmere Island (Schledermann 1990) and adjacent High Arctic regions (Helmer 1991), it can be seen that the main obstacles or areas of difficult passage are located in Melville Bay and along the North Greenland shore

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Fig. 10.3. 'Transitional' or Late Pre-Dorset burin types from the Winstedt site in Washington Land. Similar burin types are known from Ellesmere Island and Arctic Canada, but they unknown in other parts of Greenland. This indicates that the cultural history of Thule district is significantly different from that of the rest of Greenland.

towards the Polar Sea. These block migrations into Southwestern Greenland and also hinder the traffic towards Peary Land and Northeast Greenland. Recently, Andreasen (2000) has published finds of burins at the Windstedt Site in Washington Land (Fig. 10.3), which are similar to the burin types, Schlederman (1990: appendix C) found to be typical on 'transitional' sites on Ellesmere Island.

In terms of human geography, this means that the settlement history of Thule District is different from that of the rest of Greenland. Northwestern Greenland, north of Melville Bay, has been visited by hunting peoples from the archipelago of High Arctic Canada through-out history, but on only a few occasions have these visits resulted in deep ventures along the Greenlandic shores. The degree to which the fluctuations in Greenlandic Palaeo-Eskimo populations have 'spilled' back into Arctic Canada remains unknown, but Schledermann's (1990:56ff) identification of Saqqaq sites on Ellesmere Island may be related to population movements in Greenland.

The unique topography and geology of Greenland, as well as the excellent conditions for preservation, have given us a spectacular record of Stone Age hunter/gatherer societies. Without doubt much more can be learned from the Palaeo-Eskimo settlements of Greenland. Investigations of hitherto poorly known regions may alter our perceptions of the prehistory of Greenland. However, the spectacular co-occurrence of well-preserved dwelling remains with associated lithic scatters holds huge potential for methodological studies of site formation on Stone Age settlements. Accordingly, the boulder architecture of Palaeo-Eskimo camp-sites often answers many of the questions concerning the size and location of dwellings, which in other parts of the world have to be investigated by indirect methods such as studies of spatial distributions of artefacts. Palaeo-Eskimo camp-sites offer an abundance of different distribution patterns on localities where the spatial constraints in the form of dwellings and hearths are also known. Whitelaw's (1994) '*Order without architecture*' acutely circumscribes the situation for most students of Stone Age hunter-gatherer societies interested in spatial organisation of human dwelling places. In Palaeo-Eskimo societies, however, we are often dealing with architecture as well as order. This should enable us more easily to investigate the degree to which the recorded patterns in artefact distributions result from functional, cultural or even post-depositional factors. In the present study I have focussed on a single well-investigated area in West Greenland. Hopefully in the future more detailed accounts from other regions will ease the comparison of local adaptations from one region to another.

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Appendix 1

Catalogue of Palaeo-Eskimo sites in Qeqertarsuup Tunua

The following catalogue has been compiled from a combination of published and unpublished sources. Editing ended in spring 2005. Most sites are described in publications and survey reports and the brief summaries presented here are extracts from the sources listed in the lists presented in chapter 5 or from the register of monuments at the National Museum of Greenland in Nuuk. Localities described in the main text are only mentioned briefly, whereas other sites are listed with feature descriptions and artefact tables if such have been presented in the literature or reports referred to. Several dates are qualified suggestions based on a combination of height above sea level and raw material frequencies. However, many sites are also dated typologically on the basis of chronologically significant artefacts. Localities with very few and undatable artefacts and no, or unreliable, data on their elevation are listed simply as Palaeo-Eskimo. Beginning in the north, the catalogue is divided up into four sections according to the maps and sections used in chapter 5: Nuussuaq, Eastern Qeqertarsuup Tunua, the Southwestern Archipelago and Qeqertarsuaq. Each site has been given a site no. (my numbering) which also is used on the site maps in chapter 5. This is followed by the site name, which in most cases is the nearest topographical place name. Localities with purely archaeological site names are denoted by inverted commas. Below the heading giving the site number and site name is the dating of the site. This is followed by the number used in the register of monuments at the National Museum of Greenland. Sometimes reference is made to artefact numbers such as (L6.4633). These numbers are the identifiers used in the inventory list at the National Museum of Denmark. Reference to files and archives in the Zoological Museum, University of Copenhagen are marked by the initials of the Zoological Museum University of Copenhagen, for example: ZMK 92/1981.

Definitions

In the catalogue, the chronology is indicated by the use of four different categories: Saqqaq, Dorset, Saqqaq and Dorset or Palaeo-Eskimo. These terms are used according to the dating of sites as described by other authors, as indicated in the archive at the Greenland National Museum and Archives or according to a dating provided by the present author. The latter can be based on typology, site elevation, dominant raw materials or a combination of such indicators. Numerous sites are multicomponent sites where Thule or more recent settlements are present as well. However, no systematic survey of Thule and recent settlements have been conducted in the present study, and therefore the presence of Thule and more recent settlement traces have been omitted from the dating headers

Saqqaq	Locality positively identified as a Saqqaq site
Dorset	Locality positively identified as a Dorset site
Saqqaq and Dorset	Locality where both Saqqaq and Dorset settlements have been identified.
Palaeo-Eskimo	This term is used for localities where indeterminable Palaeo-Eskimo remains have been located. Often such sites are localities where only very little investigation has been carried out, or where limited remains have been found, making a more accurate dating difficult. Upon closer inspection, localities characterised as Palaeo-Eskimo may thus prove to be either Saqqaq, Dorset or Saqqaq and Dorset.

Nuussuaq

1 Iparalik
70V2-0IV-037
Saqqaq
Iparalik is a Saqqaq site located on the northern side of the island Saattut in the archipelago to the north of the Nuussuaq Peninsula. Artefacts have been collected

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on several occasions, but no systematic investigation has been carried out.

2 Ammaat
70V2-0IV-036
Saqqaq
Ammaat is a Saqqaq site located on the southern side of the island Saattut. Artefacts have been collected at several locations, but no systematic investigation has been carried out.

3 Ammaarmiut
70V2-0IV-048
Palaeo-Eskimo
Ammaarmiut is a Palaeo-Eskimo site located on the southern side of the island Saattut. Numerous flakes and tools have been collected on several occasions, but no systematic investigation has been carried out.

4 Qaratsap Illui
70V2-0II-008
Palaeo-Eskimo
Qaratsap Illui is a Thule site where Palaeo-Eskimo artefacts have also been found. The site is located near the confluence of the minor fjord Qaratsap Imaa and the larger icefjord Ikerasaap Sullua to the southeast of Uummannaq.

5 Qaarsorsuup Nuua
70V2-001-027
Palaeo-Eskimo
Qaarsorsuup Nuua is a Palaeo-Eskimo site with numerous lithic concentrations located at the eastern side of the narrow Ikerasassuaq, which separates the island of Ikerasak, with the outpost Ikerasak, from the mainland to the east.

6 Uummannatsiaq
70V2-00I-001
Saqqaq and Dorset
The settlement at the locality of Uummannatsiaq, lying a short distance to the north of the outpost Ikerasak, was described by Nellemann already in 1957. Nellemann noticed that the entire site had been heavily eroded by the sea, yet in the remaining peat deposits he managed to locate a stratigraphy with Saqqaq layers separated from overlying Dorset deposits by a layer lacking artefacts. Uummannatsiaq is thus among the few sites with stratified deposits containing both Saqqaq and Dorset layers. And as is the case with most sites with comparable stratigraphies located in Qeqertarsuup Tunua (Disko Bugt) to the south, the stratigraphy indicates that the Saqqaq and Dorset periods were separated by a period without human presence. Apart from Nellemann's description and record of the stratigraphy no further investigations have been carried out on the site.

7 Uummannatsiaq East
70V2-0IV-039
Saqqaq and Dorset
Uummannatsiaq East is a large site located in the northwestern corner of the island Ikerasak. Artefacts are found over an area of at least 1500 m^2 where tools and debitage from both Saqqaq and Dorset have been collected.

8 Illunnguaq
70V2-0IV-015
Palaeo-Eskimo
Illunnguaq is a Thule settlement where Palaeo-Eskimo artefacts have also been collected. The site is located on the southwestern side of the large island Salliaruseq (Storøen) to the east of Uummannaq.

9 Qilakitsoq
70V2-0IV-004
Palaeo-Eskimo
Several Palaeo-Eskimo artefacts have been collected from the beach in front of the Thule settlement at the well known locality Qilakitsoq (33-112, 33-189, 33-330), but systematic scrutiny of the Palaeo-Eskimo component has not been carried out.

10 Qasigissat
70V2-0IV-031
Palaeo-Eskimo
Qasigissat is an area with Thule and more recent peat houses dwellings where stray finds of Palaeo-Eskimo artefacts have also been made. The site is located on the bay Qasigissat to the northwest of the town of Uummannaq.

11 Teqqissat
70V2-0IV-033
Palaeo-Eskimo

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Teqqissat is an area where flakes have been collected. The site is located on the northwestern side of the island of Uummannaq.

12 Qaarsut
70V2-0IV-002
Saqqaq

Qaarsut is not a single locality but an aggregation of sites in the vicinity of the present settlement of Qaarsut. The area was surveyed by archaeologists in 1994 and 2003 (Jensen 1994b; Sørensen & Pedersen 2004, 2005), but excavations have not been conducted in the area. Raw material extraction sites are scattered through-out the landscape in this particular area. The localities are located in areas where there is no covering vegetation and, therefore, it is possible to characterise and differentiate the Qaarsut settlements from other Palaeo-Eskimo settlements on the basis of survey and surface finds alone. A more detailed account of the locality is presented in chapter 7.

Finds. During reconnaissance in 1994, a few artefacts were collected from the exposed culture layers near the shore as well as from knapping sites in the hinterland (see table below). However, as early as 1958 Professor Rosenkrantz and his assistants collected a large amount of material comprising almost one thousand lithic objects from culture layers on the settlements near the shore (Li.366-Li.380). These finds include 87 preforms and more than 800 flakes of killiaq, as well as bones of large and small seals, birds and caribou. The importance of the Qaarsut area as a principal resource for the extraction of killiaq thus appears to be well supported by the finds.

Finds from Qaarsut settlements along the shore, 1994

Artefact category	All artefacts
Bifaces, all fragments included	2
Harpoon blades	1
End-scrapers	1
Axes	1
Large flake / preform	8
Total	13

Finds from Qaarsut, hinterland napping sites, 1994

Artefact category	All artefacts
Large flake /preform	3
All flakes	>100
Total	>103

13 Ikorfat
70V1-00I-003
Saqqaq and Dorset

Ikorfat is a multi-component site located approximately 20 km to west of Qaarsut. The site has a Thule settlement and in 1958 A. Rosenkrantz (1958) reported a well-preserved stratigraphy with Saqqaq and Dorset layers. In 2004 the site was inspected by Sørensen and Pedersen (2004). According to Rosenkrantz, there were widespread culture layers on a prominent point where the geologists recorded the stratigraphy. Part of the section was sampled and taken back to Copenhagen, where it was described by Svend Jørgensen and Bent Fredskild at the The National Museum of Denmark (NM VIII j.nr. A4181). Unfortunately, the portion inspected by Jørgensen and Fredskild only has artefacts in the upper layers 6 to 10; the layers containing material from the Dorset culture. The lower layers containing Saqqaq material were found to be devoid of finds in the section carefully described by Jørgensen and Fredskild. Therefore, Rosenkrantz's more general description of the stratigraphy has been presented in chapter 5 (fig 5.6) .

At the base are peat layers containing Saqqaq artefacts which rest directly on the bedrock. From Jørgensen and Fredskild's drawing of the stratigraphy it can be deduced that this layer is approximately 20 cm thick. Then there is a 2-8 cm-thick horizon comprising rounded cobblestones and lacking artefacts. Finally, on top of this horizon, there is an approximately 16 cm-thick horizon comprising peat layers containing Dorset artefacts and also some bones. During Rosenkrantz's excavation at the Ikorfat site, the artefacts were kept separate according to the stratigraphy enabling a division of the Saqqaq and Dorset components.

This stratigraphy is one of just seven which are known where Saqqaq layers are overlain by deposits from the Dorset culture. This alone makes this poorly known locality interesting. The presence of the cobblestone layer between the Saqqaq and the Dorset hori-

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zons may have implications of interest beyond that of an archaeological audience. Rosenkrantz described the cobblestone layer as a transgression layer. If this interpretation is correct then the culture layers on Ikorfat represent the only known locality where Saqqaq and Dorset layers are separated by a layer indicating a transgressive environment prior to the onset of the Dorset culture. Of course, the layer with cobblestones could have been deposited by a single catastrophic storm or tsunami event. But the relative dating of the layer to the transitional period between Saqqaq and Dorset could also suggest that the formation of the cobblestone layer is related to the general climatic events of that period. When the site was inspected by Sørensen and Pedersen (2004), it was seen, that 20 m of the midden recorded by Rosenkrantz had been eroded away.

Finds. The finds from Saqqaq and Dorset layers at Ikorfat are stored under respectively L5.171 and L5.191 at The National Museum of Denmark. From the Saqqaq layers, there are 231 flakes and a single preform, whereas there are 514 flakes, six preforms and a single biface from the Dorset layers. The abundance of preforms indicates that raw material procurement might have been an important activity during the Saqqaq as well as during the Dorset period. In any case, the presence of performs and numerous large flakes shows that the debitage results from primary stages of the reduction sequence typically found on localities close to the source. Rosenkrantz mentions that the metamorphosed slates of the Kome Formation are the best suited for the production of tools and that these can be found from Kuuk in the east to Ikorfat in the west. Ikorfat might thus have remains of raw material procurement systems similar to those documented around Qaarsut.

Fauna. The fauna is stored at Zoological Museum, University of Copenhagen (ZMK 121/1958).

Lithic artefacts from Saqqaq horizon Ikorfat

Artefact category	No.	%
Burin preforms	1	0.9
Large flake / preform	1	
All flakes	231	99.1
Total	233	100

Lithic artefacts from Dorset horizon Ikorfat

Artefact category	All artefacts	%
Bifaces, all fragments included	1	1.4
Large flake / preform	6	
All flakes	515	98.7
Total	522	100.1

14 Serfat
70V1-001-004
Palaeo-Eskimo
Flakes of killiaq have been located at this locality, but there are no further descriptions of the character or location of the finds.

15 Niaqornat
70V1-001-002
Palaeo-Eskimo
In Solberg (1907:13), Niaqornat is marked as one of the localities where Palaeo-Eskimo artefacts have been recovered, but no further descriptions of the finds are available.

16 Kanioqqat
70V1-0IV-007
Palaeo-Eskimo
In the diaries from Meldgaard's 1953 reconnaissance it is mentioned that flakes have been found on the locality of Kanioqqat.

17 Nuussuutaa
70V1-0IV-003
Saqqaq
The outpost of Nuussuutaa was settled until the first half of the 20th century J. Meldgaard has collected lithics from the basal layers of an eroded midden (Meldgaard 1981).

Lithic artefacts from Nuussuutaa

Artefact category	All artefacts
Microblades	2
Burins	1
All flakes	50
Total	53

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18 'Dune point'
70V1-0IV-011
Palaeo-Eskimo
The locality here named Dune Point has no official name. It is a low rocky point covered by dunes and lyme grass located on the southern shore of the Nuussuaq Peninsula, approximately 5 km to the northwest of the geologists cabin on the western side of the Marrat Delta. The site is characterised by scattered occurrences of chalcedony flakes in blow outs in the dunes, and a single microblade was also found in the peat of an eroding cliff. The sole occurrence of chalcedony among the artefacts indicates that this is a minor Dorset site, but the lack of tools offers little chance of a typological dating for the settlement. None of the flakes were retained.

19 Marrat
70V1-0IV-009
Dorset
In the terrain surrounding the 'geologists cabin' on the western side of the Marrat Delta, flakes of grey killiaq and a core fragment of green chalcedony were found. Flakes of both killiaq and chalcedony were also found in deflated areas between two rocky ridges to the west of the cabin; Rosenkrantz has also found a harpoon head of Dorset type in the same area (L6.4633). Even though the evidence is somewhat scattered there must then have been a Dorset site on or near the locality where the 'geologists cabin' sits today.

20 Niaqornaarsuk
70V1-III-011
Saqqaq
The site of Niaqornaarsuk was located by geologists in 1958 (Rosenkrantz 1958) and revisited in 2000 (Jensen 2001). This a Saqqaq site located on the eastern side of a basalt hill, which is connected to the mainland by a several kilometre long tombolo formed by sediments deposited by the River Kuussuaq. Presumably this tombolo had not formed during Saqqaq times, so when Saqqaq people lived here the site would have been situated a couple of kilometres off-shore on the easternmost point of a minor island in front of the large river outlet to the north.

The material collected by Rosenkrantz is kept at The National Museum of Denmark under L6.4632. In this material, there is an abundance of large flakes of killiaq as well as several fragments of preforms. Tools are, on the contrary, sparse and even though the assemblage collected in 2000 is much more limited than that gathered by Rosenkrantz, the composition of artefact types is similar (se below).

The easternmost part of the rocky hill at the tip of the Niaqornaarsuk Peninsula comprises two small rocky points separated by an approximately 30 m-wide boulder beach. The site sits on the northern of these points where the surface is covered by an up to 1 m-thick peat accumulation. A few killiaq flakes have been found on the even peat surface in the vicinity of a possible tent ring. The latter consists of a series of larger boulders in an irregular circular formation. No central hearth or fire-cracked stones were present to suggest a relationship between the lithic artefacts and the possible dwelling feature, so the latter may well be younger than the Palaeo-Eskimo component. Immediately to the north of the point is the outlet of one of the channels from the Kuussuaq river. In between the protruding rocks along the river outlet there are several small aggregations of stones and boulders where flakes and a few preforms have been collected. No artefacts have been found on the larger boulder beach to the south of the point, so presumably the eroding cliff towards north is also the area where Rosenkrantz found most of the 86 artefacts he collected back in 1958. During reconnaissance in 2000, the hills and shores around the Marrat Delta were meticulously searched for raw material outcrops as well as for signs of raw material procurement, but all of the preforms worked at Niaqornaarsuk appear to have been brought in from more distant sources. Therefore, the site is interpreted preliminarily as a 'temporary' camp used by Saqqaq peoples *en route* to or from the killiaq sources on the northern side of the Nuussuaq Peninsula. The basaltic rocks making up the point at Niaqornaarsuk are interspersed by up to 30 cm thick veins of white chalcedony. And all over the point there are concentrations of naturally decayed white chalcedony scattered as white marble between the otherwise dark brown to black basaltic rocks. However, this possible source of white chalcedony was only used sporadically by the Saqqaq people, as indicated by the presence of 15 flakes of white chalcedony among the material collected by Rosenkrantz. During inspection of the site in 2000 we did not detect any signs of prehistoric use of this resource (Jensen 2001).

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Lithic artefacts from Niaqornaarsuk at Marrat, 1958 and 2000

Artefact category	No.
Biface preforms	5
Side-scrapers	1
Retouched flakes	1
Large flake / preform	2
All flakes	130
Total	139

21 Nuusaq
70V1-III-007
Palaeo-Eskimo
Approximately 5 km to the east of the Marrat Delta there is a large Thule and early Historical settlement named Nuusaq. At least nine trapezoid Thule winter houses, as well as a number of other peat-walled houses, lie scattered on a grass-covered plain. A few killiaq flakes were collected along the west-facing cliffs, but a Palaeo-Eskimo horizon was not encountered. So it cannot be ruled out that the lithic artefacts were brought in by Thule or Historical period people cutting peat on nearby Palaeo-Eskimo localities.

22 Niaqornaq
70V1-III-006
Palaeo-Eskimo
A few kilometres to the south east of the Nuusaq settlement there is a prominent rocky point with several sheltered bays. At least one common house, three trapezoid Thule houses and several solid stone-set caches are located here. A microblade and a few killiaq flakes were collected from the eroding midden deposits in front of one of the houses. As was the case with the Palaeo-Eskimo finds from Nuusaq, a Palaeo-Eskimo horizon was not encountered so again peat cutting during later periods of settlement may well account for the few lithic artefacts.

23 Sikilingi
70V1-III-005
Palaeo-Eskimo
A few kilometres to the east of Niaqornaq is another Thule locality with two winter houses located on an east-facing beach. At the southern end of the beach thick peat layers are eroding towards the sea. Occasionally there are bones in these deposits, indicating that refuse or culture layers may have nourished the rich vegetation in this part of the site. A few flakes of killiaq were seen in the eroding cliff, possibly indicating that the locality also has a Palaeo-Eskimo component. However, as was the case with Nuusaq and Niaqornaq, it could not be ascertained whether the flakes were in a primary or secondary position.

24 'Lookout Point'
70V2-III-038
Saqqaq
To the east of Sikilingi, there is an approximately 50 km long stretch of coast where the shore is made up by sandy beaches. Occasionally, there are narrow strips of coastal foreland well suited for camping and there are also several river outlets where the alluvial fans have created points. However, during the survey in 2000 we did not manage to locate a single Palaeo-Eskimo site in this extended terrain. The largest of the rivers on this part of the shore is the Ataa Elv which has deposited a huge alluvial fan with several old delta terraces towards east. But the only settlement remains known from the Ataa Elv Delta comprise a Thule winter house and associated graves located in the westernmost part of the alluvial fan. This house is known to have been inhabited by the hunter Pavia Jensen from Saqqaq (Dahl 2000; Petersen, H.C. 1986) who, with six other hunters, moved to Ataa in 1904 and stayed there for some years. In 1912, Pavia Jensen became trading manager in Saqqaq, so presumably Ataa was abandoned at this point in time or shortly afterwards.

Approximately 25 km to the southeast of the Ataa Elv delta, and 2.5 km west of a cabin named Qallu or c. 8 km to the west of Atanikerluk, there is a minor but prominent point where a basalt dyke cuts the sandy shore. At 6 to 8 m a.s.l there is a flat area covered by rich grassy vegetation. The most exposed outer sections of the grass turf are deflated, and in this area a total of 50 flakes and a fragment of a preform were collected in 2000. All, apart from one of the flakes, are of killiaq. Two flakes show retouch and several have been scoured around the platform, a technique commonly seen in Saqqaq inventories with debitage from more primary stages of lithic reduction. It is therefore likely that the lithic material is of Saqqaq origin.

The location of the artefacts is unusual, with 6 to 8 m high vertical cliffs bordering the site to the east, south and west. The topographical setting indicates

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that this is a specialised camp and not a permanent settlement. Today the area is known as seal-netting area used, in particular, during the month of March (Dahl 2000). The point may have been, and still is, used as a lookout for spotting seals on the ice.

In spite of the character of the site as a specialised camp, the limited lithic material shows the influence of the proximity of the primary lithic sources in the same way, albeit less pronounced, as was seen in the material collected from the site on Niaqornaarsuk (Site no. 20). One of the flakes collected from 'Lookout Point' is, accordingly, almost 7 cm in length; among the remainder there are many flakes of 3 to 4 cm in size. Flakes of this size must either result from reduction of performs on site or they were brought to the site as preforms themselves. Unfortunately, the limited number of artefacts makes it impossible to choose between these two options.

Lithic artefacts from 'Lookout Point', 2000

Artefact category	All artefacts
Retouched flakes	2
Large flake /preform	1
All flakes	49
Total	52

25 Atanikerluk
70V2-III-007
Saqqaq

Approximately 10 km to the southeast of 'Lookout Point' there is an area with several basaltic points jutting into the sound of Sullorsuaq (Vajgat). Palaeo-Eskimo finds have been located at two sites: Atanikerluk A and Atanikerluk B. Atanikerluk A is a large Thule/Early Historical site located on the middle of three points. In 2000, flakes and a Saqqaq burin were collected from the eroding midden at the Early Historical locality. As was the case with other Palaeo-Eskimo finds from later middens, it is impossible to determine whether the Palaeo-Eskimo component is from the particular site in question or whether it has been carried onto the site as a result of peat cutting on Palaeo-Eskimo localities nearby. Several lithic artefacts were, however, located at the base of the thick midden suggesting that there might be culture layers of Palaeo-Eskimo origin below the more recent accumulations.

Lithic artefacts collected at Atanikerluk A, 2000

Artefact category	All artefacts
Burin	1
Retouched flakes	1
Large flake / preform	1
All flakes	13
Total	16

A few hundred metres to the south of Atanikerluk A, and near the tip of the point, is the locality named Atanikerluk B. This site is located on an approximately 70 m wide boulder beach running along a flat area covered by crowberry. Several recent tent rings suggest that this is a favoured camping ground. And it may also have been so during Palaeo-Eskimo times, because a few flakes of killiaq were found between the stones on the shore.

Lithic artefacts collected at Atanikerluk B, 2000

Artefact category	All artefacts
Flakes	3

The limited material and lack of knowledge regarding the features on the Atanikerluk sites makes it difficult to make any conclusive statements about these localities. Atanikerluk B could well be a more permanently settled site, whereas Atanikerluk B, due to the relatively few finds and present day use of the locality, must be considered to be a minor camp.

26 Paakitsuarsuk
70V2-III-036
Saqqaq

Paakitsuarsuk is a small, shallow, almost circular bay with a very narrow south-facing opening towards Sullorsuaq (Vajgat). At low tide most of the bay becomes almost dry, but for minor dingies or kayak-like vessels the outer part towards the 'narrow' remain navigable. From Atanikerluk to the Saqqaq Elv Delta, steep cliffs drop directly into the sea and Paakitsuarsuk constitutes the only sheltered harbour on this stretch of coast. When entering the narrow there is a boulder beach to the east (right), whereas the opening

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towards the bay is on the western (left) hand side. Towards the beach on the eastern side of the narrow, there is a trapezoid Thule winter house with a large meat cache nearby and a grave on the rocks to the northwest of the house. Several large pieces of killiaq were found on the boulder beach, some of which could be natural rocks, others have been modified by humans. There was a dense flake scatter in the eroding peat layers sliding down onto the beach approximately 50 metres to the west of the Thule house. In this area, the flakes were located at 2.62 m above sea level The locality is typologically dated by a single burin of Saqqaq type.

On the western side of Paakitsuarsuk there is a low ice-scoured rock immediately to the south of a little creek. Here, several large flakes and a few preforms of killiaq were collected among the beach cobbles. No features were visible, but tent rings are located on a flat area covered by crowberry 50 to 100 m to the west of the find spot. These tent rings do not, however, have the characteristics of Palaeo-Eskimo features, even though they are overgrown. No datable artefacts were found, so the cultural affinity of the lithics remains difficult to judge. However, many of the flakes have a scoured flaking front which appear to be a practice typical of primary reduction during the Saqqaq. In addition, the preforms are similar to many from the Saqqaq localities on the western and northern shores of Nuussuaq. Accordingly, all of the Palaeo-Eskimo components from Paakitsuarsuk are believed to be of Saqqaq origin.

Lithic artefacts from Paakitsuarsuk A and B

Artefact category	No.	%	All artefacts	%
Burins	1	16.7		
Burin preform	1	16.7	6	0.7
Large flake / preform	4	66.7		
All flakes			878	99.3
Total	6	100.1	884	100

Lithic artefacts from Paakitsuarsuk C

Artefact category	All artefacts
Large flake / preform	3
All flakes	49
Total	52

27 'Saqqaq Elv Delta'
70V2-III-037
Saqqaq

The 'Saqqaq Elv Delta' site is a minor Saqqaq site consisting of an amorphous flagstone platform with flakes and a few tools scattered around. The feature is located on a little basaltic rock knoll jutting into Kuussuaq (Saqqaq Elv) from the northern side of a larger hill. The hill, along with similar hills on the northern side of the river, are part of a large volcanic dyke system extending through-out the length of Pulateriaq (Saqqaqdalen). The ruin is located with direct access to the river as it has cut its way through the dyke just before it fans out and creates a large delta. If the river delta had not yet developed during the time of occupation then the ruin might well have been located by the river outlet much closer to the sea than it is today. In any case, the hills to the north and south of the river course create a relatively narrow passage which is also the last place where the river flows in a single channel. To the south of the narrow, Kuussuaq (Saqqaq Elv) splits into several delta channels. The feature has no evident hearth, but among the flagstones there are several boulders indicating that it presumably is a slightly disturbed dwelling with a damages tent ring. Finds: A total of 172 flakes and a single tanged point were registered on the deflated surface; 164 of the artefacts are of killiaq, whereas nine flakes are of chalcedony varying in colour from white to beige and multi-coloured white to brown.

The tanged point is of a typical Saqqaq type and the dominance of killiaq among the flakes also seems to indicate that the site is of Saqqaq origin. Apart from the arrow point and two flakes, all the artefacts were left *in situ* and the table below therefore lists the objects that were recorded on the surface.

Lithic artefacts registered at deflated surface at Saqqaq Elv Delta, 2000

Artefact category	All artefacts	%
Bifaces, all fragments included	1	0.6
All flakes	172	99.4
Total	173	100

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28 'Gåsepladsen'
70V2-III-034
Saqqaq
To the east of Kuussuaq (Saqqaq Elv), the long stretches of sandy beaches dominating the western part of Nuussuaq are supplanted by a winding mosaic of cobblestone beaches separated by low relief gneiss points and rocks. The coast in this area is largely comparable to the rest of the Eastern and Southern Disko Bugt. There are Stone Age and Thule sites on virtually all of the small points and protected bays to the west of the settlement of Saqqaq, so this stretch of shore is densely marked with records in the archive at the National Museum of Greenland.

Most of the Palaeo-Eskimo sites in the vicinity of Saqqaq have been located due to the erosion of cultural layers, but test pitting and systematic excavation have also been carried out on some localities (Larsen & Meldgaard 1958; Møbjerg 1986). In the following section the cluster of sites located in the vicinity of the outpost of Saqqaq is listed in sequence from west to east.

'Gåsepladsen' (Goose Site) is a minor site located near the present outlet of a river flowing from the mountains in the east and into a combined estuary with the Saqqaq Elv. Lithic artefacts have been collected from deflated areas on a little point 2 to 3 m a.s.l. Among 34 collected flakes 79.4% are said to be of killiaq, 11.8% of 'flint', 2.9% of quartzite and 5.9% of chalcedony. Møbjerg (1986) lists the site as a Saqqaq site, presumably due to the dominance of killiaq in the collected artefacts.

Lithic artefacts from Gåsepladsen (Møbjerg 1986)

Artefact category	All artefacts
All flakes	34

29 Ujaqqiukkat
70V2-III-005
Palaeo-Eskimo
Slightly to the southeast of the Goose site is the locality of Ujaqqiukkat, where three flakes have been collected from an eroded profile. One flake is of chalcedony and two are of killiaq.

Lithic artefacts from Ujaqqiukkat

All flakes	3

30 Illuluarsuk West
70V2-III-031
Saqqaq
Illuluarsuk West is a minor Saqqaq site from where Møbjerg (1986) lists the finding of a biface, a side-scraper and tenflakes. Of the flakes, eight are of killiaq and two are of chalcedony.

Lithic artefacts from Illuluarsuk West

Artefact category	All artefacts
Bifaces, all fragments included	1
Side-scraper	1
All flakes	10
Total	12

31 Illuluarsuk
70V2-III-004
Saqqaq
Illuluarsuk is a Thule settlement located on a rocky point between two small coves. On a flat area to the east of the Thule settlement, Glob and Larsen excavated two well preserved Saqqaq dwellings (Larsen & Meldgaard 1958).

Feature I is a tent ring with a central hearth of head-sized stones placed on edge and with many fire-cracked rocks scattered around. The internal diameter is c. 3 m and externally it measures c. 4 m. To the southwest of the dwelling there is another hearth with fire-cracked rocks.

Lithic artefacts excavated from Illuluarsuk feature I (Larsen & Meldgaard 1958)

Artefact category	No.	%	All artefacts	%
Bifaces, all fragments included	3	42.9		
Burins	3	42.9	7	1.7
Burin spalls	1	14.3		
All flakes			402	98.3
Total	7	100.1		100

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Feature II is similar to feature I, but along large portions of the eastern, southern and western outline the wall is marked by a double row of boulders.

Lithic artefacts excavated from Illuluarsuk feature II (Larsen & Meldgaard 1958)

Artefact category	All artefacts	%
Bifaces, all fragments included	1	0.8
All flakes	119	99.2
Total	120	100

The two dwellings are so closely spaced that the peripheries almost overlap, but it is impossible to judge whether they are contemporaneous. Møbjerg lists the site as being a 'large base camp' characterised by its topographical situation, size of more than 1000 m² and many finds. Among the sites excavated by Larsen and Glob, Illuluarsuk is the locality with the best-preserved dwellings.

32 'Karl Thorleifs site'
70V2-I-030
Saqqaq and Dorset
Karl Thorleif's site is situated on a point to the south-east of Illuluarsuk and it is mentioned that the site was initially discovered by local people from Saqqaq. A total of six tools and 100 flakes have been collected from this locality. Of the flakes, 50% are of killiaq, 1% of flint and 49% are of chalcedony. The site is estimated to cover an area of less than 100 m² and Møbjerg (1986) categorises it as a seasonal camp.

Lithic artefacts from I 'Karl Thorleifs site' (Møbjerg 1986)

Artefact category	No.	%	All artefacts	%
Bifaces, all fragments included	1	16.7	6	5.7
Microblades	1	16.7		
Burins	1	16.7		
End-scrapers	1	16.7		
Retouched flakes	1	16.7		
Microblade cores	1	16.7		
All flakes			100	94.3
Total	6	100.2	106	100

33 'Hannibals site'
70V2-III-029
Saqqaq
'Hannibals site' is situated at the eastern side of the same point that 'Karl Thorleif's site' is located on. At this locality, a total of four tools and 59 flakes have been collected from the surface as well as from the gravel on the beach below the eroded cliff. Of the flakes, 42.7% are of killiaq and 57.6% are of 'flint. Møbjerg estimates the site to cover less than 100 m² and the site is accordingly listed as a seasonal camp.

Lithic artefacts from 'Hannibals site' (Møbjerg 1986)

Artefact category	All artefacts
Microblades	1
Burins	1
Burin spalls	1
Retouched flakes	1
All flakes	59
Total	63

34 'Amalies site'
70V2-III-028
Saqqaq
To the east of the point on which the two previous sites are situated there is a little cove with a river outlet. On the eastern side of the river there is an area with Palaeo-Eskimo artefacts scattered in a badly defined culture layer. A single burin and ten flakes have been collected from this locality; all of the flakes are of killiaq. The site is estimated to cover less than 100 m² and Møbjerg suggests it is a seasonal camp. This interpretation is supported not only by its limited size and few finds, but also by its location at the river outlet, which might indicate an economy focussed on waterfowl and char.

Lithic artefacts from 'Amalies site' (Møbjerg 1986)

Artefact category	All artefacts
Microblades	1
Burins	1
Burin spalls	1
Retouched flakes	1
All flakes	59
Total	63

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35 Saqqaq Niaqornaarsuk
70V2-III-003
Saqqaq and Dorset

Saqqaq Niaqornaarsuk is the eponymous Saqqaq site where amateur archaeologist Hans Mosegaard, during a visit in 1948, excavated an area of 12 m² with a culture layer approximately 30 cm thick. The collection of artefacts from this excavation comprise a total of 182 tools and 304 flakes (Meldgaard 1952). Of the debitage, 139 pieces (45.7%) are of killiaq, 64 (21.1%) are of chalcedony, 35 (11.2%) are rough pieces of quartz and 67 (22.0%) are of quartz crystal. In 1953, the site was revisited but the inspection revealed that the locality, already at this time, was heavily disturbed mainly as a result of peat cutting. Test pits and a few selected areas were excavated in the search for better preserved deposits, but neither features nor well preserved cultural layers were encountered. However, the excavation added 228 tools and 252 flakes to Hans Mosegaard's collection. In addition to these collections the present author collected 86 lithic specimens from the beach and from a number of unauthorised amateur excavations in 2000. The following table only includes the artefacts listed by Larsen and Meldgaard and those collected by the present author in 2000.

In Mosegaard's collection published by Meldgaard (1952), there are relatively high frequencies of chalcedony and quartz crystal, and Larsen and Meldgaard also mention that the site, in addition to the dominant Saqqaq component, also has a Dorset component. A side-notched biface, as well as a polished biface both believed to be of Dorset origin, are thus included in the table below. Of the debitage collected in 1953, 238 pieces (94.4%) are of killiaq and 14 (5.6%) are of chalcedony and quartz. This is closely resembled by the figures of 79 flakes of killiaq (97.5%), a single flake of chalcedony (1.2%) and one of quartz (1.2%) collected in 2000.

The massive concentration of Palaeo-Eskimo artefacts on Saqqaq Niaqornaarsuk makes it reasonable to suggest that his locality is a base camp (Møbjerg 1986).

Saqqaq Niaqornaarsuk, Saqqaq and Dorset (Larsen & Meldgaard 1958; Jensen 2000)

Artefact category	No.	%	All artefacts	%
Bifaces, with tapering stem	13	24.5		
Bifaces, side-notched	1	1.9		
Bifaces, polished	1	1.9		
Burins	20	37.7		
Burin spalls	5	9.4	53	13.7
End-scrapers, triangular	3	5.7		
Side-scrapers	6	11.3		
Axes	1	1.9		
Rough-outs	3	5.7		
Soapstone vessel fragments			1	0.3
Pumice			1	0.3
All flakes			333	85.8
Total		100	388	100.1

A radiocarbon date has been obtained for charcoal from locally grown wood from Saqqaq Niaqornaarsuk (K-518) of 810 ± 100 b.c. (1010-800 cal B.C.) This is one of the youngest Saqqaq dates from Qeqertarsuup Tunua. However, the charcoal was collected from cultural layers containing both Saqqaq and Dorset artefacts. The dated sample might thus contain mixed charcoal of both Saqqaq and Dorset origin.

36 Saqqaq East
70V2-III-001
Dorset

The Saqqaq East site is situated in a cove immediately to the west (!) of the outpost of Saqqaq – but to the east of the eponymous Saqqaq Niaqornaarsuk.

Saqqaq East is a Dorset site, which was first investigated by Meldgaard and Nellemann in 1953 (Larsen & Meldgaard 1958:22 and 43) who recorded a 2.1 m deep stratigraphy. This begins with a Dorset layer resting directly on beach gravel at an elevation just above the present high water mark. On top of this layer is a 35 cm thick sterile peat layer, followed by a Neo-Eskimo midden extending up to the present surface. This stratigraphy was also registered by Møbjerg, and an interesting detail is seen in that the Dorset culture layer extends several metres on to the beach to the south of the eroded cliff (Møbjerg 1986). The profile thus illustrates the effect of the present status of coastal submergence. The published tables of lithic

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artefacts from the 1953 and 1981 are merged into a single table below. Larsen and Meldgaard (1958) report that 766 (88.5%) of the collected flakes are of chalcedony whereas the raw material percentages among the 154 flakes collected by Møbjerg are 31.2% killiaq, 57.2% chalcedony, 3.2% quartz crystal, 2.6% quartzite and 5.8% of 'flint'.

The rich Dorset accumulations at Saqqaq East, as well as the situation of present day Saqqaq nearby, supports the suggestion that Saqqaq East is a base camp type of settlement (Møbjerg 1986).

Three bulk samples of peat from layers with Dorset artefacts exposed in section towards the eroded cliff have been radiocarbon dated (K-3770, K-3771, K-3772), producing dates of 420±70 b.c. (760-690, 550-380 cal B.C.), 210±70 b.c. (360-280, 260-90 cal B.C.) and 300±70 b.c. (400-340, 320-200 cal B.C.).

Fauna. A limited Dorset faunal assemblage identified by Morten Meldgaard is presented in Table 8.11. The material itself, as well as identification lists etc. are stored at the Zoological Museum, University of Copenhagen (ZMK 92/1981 + 113/1993).

Saqqaq East, excavated finds and scattered finds (Saqqaq and Dorset, Larsen & Meldgaard 1958)

Artefact category	No.	%	All artefacts	%
Bifaces, tapering stem	23	23.2		
Bifaces, polished	4			
Bifaces, side-notched	3	3		
Microblades	21	21.2		
Burins	14	14.1		
Burin spalls	5	5.1		
Burin-like tools	3	3	99	10.5
End-scrapers, triangular	4	4		
End-scrapers, flared edge and trapezoid	3	3		
Side-scrapers	10	10.1		
Axes	1	1		
Microblade cores	4	4		
Retouched flakes	4	4		
Soapstone vessel fragments				3
All flakes			866	89.5
Total	99	99.7		100

37 Savik West
70V2-III-021
Saqqaq

Savik, to the east of Saqqaq, is the name of a large settlement area with Thule winter houses, caches, graves, fox traps as well as Palaeo-Eskimo components located in an area with several minor points separated by small coves.

Savik West is situated on the westernmost of a series of small points to the west of Savik. The point has a midden eroded by the sea and a few killiaq flakes have been collected here from the eroding cliff.

Lithic artefacts collected from Savik West

Artefact category	All artefacts
All flakes	3

38 Savik East
70V2-III-027
Dorset

Savik East is located on gravel and stone terraces lying at 10 to 15 m a.s.l between the Savik settlement and a river c. 300 m further east. There are several ancient looking boulder structures covered by dense lichen growth located on the terraces. Four well preserved boulder structures are described below.

Features I and III are 1.5 to 2 m long and 0.5 to 0.75 m wide frames of angular boulders set on edge. Inside there are a few flagstones and towards north there are several stones placed transversely as roofing for the frames.

Feature II consists of two frames similar to I and III, but closely placed and with a heap of stones stacked between the two frames; these are partly covered by heather.

Feature IV is situated to the west and adjacent to feature II. It comprises a horseshoe-shaped frame of approximately 30 cm high stones connected to feature II by another line of boulders.

No finds were made on the gravel terraces, but nearby there was a stray find of a burin-like tool, and it has been speculated whether the boulder features are of Palaeo-Eskimo origin. In Møbjerg's site list no specific function has been assigned to Savik East.

Lithic artefacts collected from Savik East

Artefact category	All artefacts
Burin-like tools	1

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39 – 40 'Marsh Grass Site' and Akunnaaq
69V2-0IV-020
Saqqaq and Dorset

Akunnaaq is an outpost which was abandoned in 1930. Prior to this, the locality have been discontinuously settled through-out Historical Times (Mathiassen 1934:32). Solberg (1907) depicts a Saqqaq end-blade from the locality and Mathiassen also acquired lithic artefacts that had been collected there. Ruins of Thule and early Historical dwellings are situated along several low rocky points, the easternmost of which is connected to the mainland by a 26 m long isthmus which is flooded at high tide. This particular part of the site is most easily recognised and it is also described by Larsen and Meldgaard (1958) as a location with Palaeo-Eskimo settlement. In accordance with Larsen and Meldgaard, this point is therefore named Akunnaq, whereas the low points c. 300 m further west are named 'Marsh Grass Site'.

39 'Marsh Grass Site'. The marsh grass site comprises a series of low ice-scoured rocky points separated by boulder and gravel beaches and with large flat areas covered by marsh grass. On the more elevated land at the base of the points there are several Thule and/or Historical winter houses and subterranean caches covered by a thick layer of grass. In 2000, a total of 88 lithic artefacts were collected from the most exposed beaches on the rocky points as well as from a large partly eroded flat area covered by marsh grass towards the base of the point. The chronologically significant types include both Saqqaq and Dorset types.

In the artefact table below no distinction has been made between the Saqqaq and Dorset types, since only the burins are diagnostic. 67 objects are of killiaq (75.3%), 19 (21,3%) are of chalcedony, two artefacts (a microblade core and a single flake) are of quartz crystal (2.2%) and a single piece is a fragment of a soapstone vessel (1.1%).

Lithic artefacts (Saqqaq and Dorset) collected from the Marsh Grass Site, 2000

Artefact category	No.	All artefacts
Bifaces, all fragments included	7	24
Polished biface	1	
Burins	3	
Burin-like tools	5	
Side-blades	1	
End-scrapers	1	
Side-scrapers	1	
Drill	1	
Microblade cores	3	
Flake core	1	
Soapstone vessel fragment		1
All flakes		64
Total	24	89

40 Akunnaaq. Two winter houses and two large subterranean caches are located approximately 300 m to the east of the 'Marsh Grass Site', where a 26 m long isthmus connects a rocky point to the mainland. This is the site of Akunnaaq. At high tide the isthmus is flooded. On the mainland, the rich vegetation, mainly grasses, covers Thule features along with a 1 – 2 m thick midden deposit. Most of this midden is of Thule origin, but during inspection of the site in 2000, fire-cracked rocks were seen being eroded from the part of the midden to the east of the isthmus. Palaeo-Eskimo objects were also found in several places along the south-facing eroded section of the midden. Therefore, the Thule layers presumably overly culture layers from the Saqqaq culture. Larsen and Meldgaard (1958:42) mention the presence of both Saqqaq and Dorset types but apart from a single microblade, and a microblade core of quartz crystal, no Dorset types were found during the visit in 2000.

Larsen and Meldgaard, as well as the present author, found artefacts scattered on the isthmus connecting the rocky point to the mainland. The concentration of artefacts on the central part of the 26 m long isthmus indicates that they are not just objects which have fallen down from the eroding cliff on the mainland, but that there are also objects from a now eroded culture layer. One may thus envision the isthmus as being covered by grasses and cultural deposits during a period when the relative sea level must have been several metres lower than present. The base of the

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midden on the mainland was measured with a hand level to be located at 1.6 m a.s.l. and the finding of Saqqaq types such as a burin on the central part of the isthmus indicates that Saqqaq sites in this area may be found at lower elevations than in Southern Disko Bugt.

Finds. In 2000, a total of 226 lithic objects were collected from the gravel below the eroding midden and from the isthmus connecting the rocky point to the mainland. 218 of these are flakes and just ten are tools. Of the tools, a single burin is of typical Saqqaq type. 22 flakes, two fragmented bifaces and a microblade are of chalcedony (11.1%). The microblade core is of quartz crystal (0.4%) and a single flake is of micro-crystalline quartz similar to the Rahma chert known from Labrador (0.4%). Occasionally, this raw material occurs on Stone Age sites in Greenland where there may be local veins. The remaining 199 objects are of light to dark grey killiaq (88.1%) and a single flake is of undetermined burnt raw material.

Akunnaaq, Saqqaq and Dorset finds (Larsen & Meldgaard 1958; Jensen 2000)

Artefact category	No.	%	All artefacts	%
Bifaces tapering stem	7	36.8	19	8
Microblades	2	10.5		
Burins	2	10.5		
End-scrapers	2	10.5		
Side-scrapers	1	5.3		
End-scrapers flared edges and trapezoid	1	5.3		
Side-scrapers	1	5.3		
Microblade cores	2	10.5		
Large flake / preform	1	5.3		
All flakes			218	92
Total	19	100	237	100

41 Illutsiaat
69V2-0IV-019
Saqqaq and Dorset

The locality of Illutsiaat, situated to the west of the now abandoned outpost of Ikorfat, is mentioned by Mathiassen (1934) and was also visited by Larsen and Glob who collected a total of 67 Palaeo-Eskimo artefacts from the eroded midden (Larsen and Meldgaard 1958:42). In 1981, Møbjerg registered three sections of the midden, and in one of these (profile 19G, Møbjerg 1986) it was possible to document the entire cultural-historical sequence. Directly over the bedrock there are Saqqaq layers and on top of these are Dorset followed by Neo-Eskimo layers. The different cultural layers do not appear to be separated by sterile peat as seen at several other localities with stratified deposits. Møbjerg lists a total of 8 Saqqaq tools and 219 flakes (see table below). 95.5% of the flakes from the Saqqaq layer are killiaq, 1.8% are of chalcedony, and 2.3% are listed as being 'flint'.

Illutsiaat Saqqaq and Dorset finds (Larsen & Meldgaard 1958; surface finds Møbjerg 1986)

Artefact category	All artefacts
Bifaces, tapering stem	10
Bifaces polished	2
Microblades	13
Burins	17
End-scrapers, triangular	4
End-scrapers, flared edge and trapezoid	3
Side-scrapers	8
Microblade cores	1
Rough-outs	1
Soapstone vessel fragments	11
Pumice	1
Stone sinkers	1
Total	59

One tool and five flakes are listed from the Dorset layer. Of the flakes, one is of chalcedony and four are listed as being of 'flint'. In addition to these finds Møbjerg (1986: 43) also lists a burin, a microblade core, a biface fragment, a biface preform and a polished knife collected from the surface.

Saqqaq finds from Illutsiaat (Møbjerg 1986)

Artefact category	No.	%	All artefacts	%
Bifaces, all fragments included	1	12.5	8	3.5
Harpoon blades	1	12.5		
Burins	1	12.5		
Burin spalls	3	37.5		
Side-scrapers	1	12.5		
Axes	1	12.5		
All flakes			219	96.5
Total	8	100	227	100

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Dorset finds from Illutsiaat (Møbjerg 1986)

Artefact category	All artefacts
Bifaces, polished	1
All flakes	5
Total	6

Møbjerg categorises the settlement on Illutsiaat site as a 'base camp', which may be supported by the abundance of both Saqqaq and Dorset artefacts. At least the presence of stratified cultural layers indicates that this locality experienced numerous episodes of occupation through-out prehistory.

42 Ikorfat
69VII-0IV-017
Palaeo-Eskimo

Moving further east, the next locality with Palaeo-Eskimo components is the outpost of Ikorfat, which was abandoned in the middle of the 20th century after Mathiassen had visited in 1933. During inspection in 2000 a few killiaq flakes were recorded on an eroding sandy spit 150 m to the northeast of the settlement. Another flake was collected from eroding cliffs in the western part of the cove where several winter houses are located towards the sea.

43 Qeqertaarsuk I and II
69V2-0IV-027
Saqqaq and Dorset

To the south of the outpost of Qeqertaq are two islets where Larsen and Glob collected Saqqaq and Dorset artefacts. Only one islet is mentioned in Larsen and Meldgaard's publication, but in the inventory list at the National Museum of Denmark (L6.4772-4790) it is stated that artefacts were collected from both islets. Artefacts were also registered at both during the inspection in 2000 (Jensen 2001). For convenience, the northern of the two islets is named Qeqertaarsuk I and the southern, Qeqertaarsuk II. Meldgaard and Larsen mention that in 1953 the islet was a favoured place for the people of Qeqertaq to gather turf and that no undisturbed features or cultural layers could be seen.

Larsen and Meldgaard's mention of a burin from one of the two islets indicates that at least the one has a Saqqaq component. During reconnaissance in 2000, only Dorset types were found; Larsen and Meldgaard's finding of a burin indicates that the artefacts may be of mixed origin. In 2000, only 12 specimens were collected from the gravel along the eroded cliff. The remaining objects were left *in situ* in partly deflated peat layers on more elevated ground. Larsen and Meldgaard mention that 58% of the flakes are of killiaq. Of the objects registered in 2000, the raw material frequencies are as follows: Killiaq: 29.9%, chalcedony: 67.2% and quartz crystal: 2.9%.

Qeqertaarsuk Saqqaq and Dorset finds (L6.4772-4790) (Larsen & Meldgaard 1958)

Artefact category	All artefacts
Bifaces, side-notched	1
Bifaces, polished	1
Microblades	1
Burins	1
Burin-like tools	1
End-scrapers, flared edges	4
Side-scrapers	1
Microblade cores	4
All flakes	79
Total	93

Lithic artefacts from Qeqertaarsuk I (Jensen 2000)

Artefact category	All artefacts
Microblades	4
Burin-like tools	1
End-scrapers	1
Retouched / polished flakes	2
Microblade cores	1
All flakes	67
Total	76

Lithic artefacts from Qeqertaarsuk II (Jensen 2000)

Artefact category	All artefacts
Bifaces, all fragments included	1
All flakes	1
Total	2

44 Qeqertaq and Qeqertap Qarsorsaa
69V2-0IV-016
Saqqaq and Dorset

The site of Qeqertaq has been known since the earliest antiquarian interest brought about the collection of artefacts from prehistoric dwelling sites in Greenland.

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Solberg (1907:8) mentions the site of Qeqertaq and hundreds of artefacts in the Pfaff and Nordenskiöld collections at Etnografiska Museet in Stockholm were collected here. Mathiassen was the first, and so far only, archaeologist to conduct excavations on the site. Unfortunately, his efforts were concentrated on the eroded middens, within and to the northeast of the outpost, and not on the low point named Qarsorsaa to the south of the outpost, which here have been named Qeqertap Qarsorsaa. Larsen and Meldgaard (1958) point out that most of the Dorset objects appear to be washed out from eroding cultural layers at the latter locality and are not from the midden layers in the outpost itself. Larsen and Glob collected a couple of hundred tools and 894 flakes during a visit lasting just a few hours, but they did not find it worth conducting any systematic excavation due to the heavy disturbance resulting from peat cutting and occasional flooding of the site. Artefacts from Larsen and Meldgaard's investigation are stored at the National Museum of Denmark under L6.4375-4446 (Qeqertap Qarsorsaa) and L6.4461-4471 (the harbour in the outpost).

Qeqertap Qarsorsa Saqqaq types (Larsen & Meldgaard 1958)

Artefact category	All artefacts
Bifaces, all fragments included	6
Burins	4
End-scrapers	1
Side-scrapers	1
Total	12

Qeqertap Qarsorsa Dorset types (Larsen & Meldgaard 1958)

Artefact category	No.	%
Bifaces, all fragments included	11	10.9
Microblades	72	71.3
Burin-like tools	3	3
End-scrapers	10	9.9
Axes	1	1
Microblade cores	2	2
Soapstone vessel fragments	2	2
Total	101	100.1

Qeqertaq harbour (Larsen & Meldgaard 1958)

Artefact category	No.
Microblades	15
Burins	1
Burin-like tools	1
End-scrapers, flared edge	2
Total	19

Qeqertap Qarsorsa (Jensen 2000)

Artefact category	No.	%	All artefacts	%
Bifaces, all fragments included	5	20.8		
Polished bifaces	3	12.5		
Microblades	9	37.5		
End-scrapers	1	4.2	24	7.6
Side-scrapers	1	4.2		
Microblade cores	1	4.2		
Large flake / preform	4	16.7		
Soapstone vessel fragments			1	0.3
Other soapstone fragments			2	0.6
Soapstone button			1	0.3
All flakes			286	91.1
Total		100.1	314	99.9

45 Qeqertaq North
70V2-0II-009
Saqqaq and Dorset

In addition to the sites of Qeqertap Qarsorsaa and Qeqertaq harbour, Larsen and Glob also located artefacts on a point a couple of kilometres north of the outpost. This minor locality is named Qeqertaq North. Features are not mentioned in Larsen and Meldgaard's (1958) publication, but in the inventory at the National Museum of Denmark the artefacts collected here are listed as being from hearth I and hearth II (L6.4447-4460), thus indicating that open-air hearths may have been present.

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Qeqertaq North, Saqqaq and Dorset types

Artefact category	All artefacts
Bifaces, tapering stem	1
Microblades	4
End-scrapers	1
End-scrapers, flared edge or trapezoid	2
Side-scrapers	1
Soapstone vessel fragments	1
Total	10

46 Illorsuit
69V2-0IV-015
Saqqaq and Dorset

The large Thule settlement of Illorsuit is situated in a west-facing cove on a point on the mainland to the west of Qeqertaq. Thule ruins were excavated by Mathiassen in1933 (Mathiassen 1934: 127ff), and in 1953 it was the focus of one of the excavations conducted by Larsen and Glob (Larsen & Meldgaard 1958: 39ff).

Illorsuit I. The first site excavated by Larsen and Glob is situated 2.05 m a.s.l. and covered an area of about 20 m^2. Below a sparse vegetation of heather and a 7 to 13 cm thick cover of more recent turf, they found an up to 10 cm thick culture layer resting on gravel or bedrock. In the central part of the excavated area there were a 2 x 1.8 m concentration of ash. but only a few stones from a hearth were found associated with a 1.5 x 1 m area with a thick layer of ash. In addition to this feature there were pavements of scattered, or in places more tightly-packed, flagstones.

Illorsuit I, Saqqaq finds I (Larsen & Meldgaard 1958)

Artefact category	All artefacts
Bifaces, all fragments included	6
Burins	28
Burin spalls	7
End-scrapers	2
Side-scrapers	6
Total	49

Illorsuit I, Dorset finds (Larsen & Meldgaard 1958)

Artefact category	All artefacts
Microblades	21
End-scrapers	1
Microblade cores	2
Soapstone vessel fragments	1
Total	25

Illorsuit II. Lithic artefacts were also found approximately 100 m to the north of Illorsuit I. In an accumulation of stones close to the shore, and just above the high water mark, there were both Saqqaq and Dorset artefacts. Some boulders could be part of a tent ring and two hearths were marked by concentrations of fire-cracked rocks, but on the whole the place was too disturbed to make any systematic investigation worthwhile (Larsen & Meldgaard 1958:40).

Illorsuit II, Saqqaq finds (Larsen & Meldgaard 1958)

Artefact category	All artefacts
Bifaces, all fragments included	3
Harpoon blades	2
Burins	13
End-scrapers	2
Total	20

Illorsuit II, Dorset finds (Larsen & Meldgaard 1958)

Artefact category	All artefacts
Microblades	11
Burin-like tools	3
Soapstone vessel fragments	3
Total	17

Illorsuit, scattered finds Dorset (Larsen & Meldgaard 1958)

Artefact category	All artefacts
Bifaces, side-notched	1
Microblades	10
Burins	1
End-scrapers, flared edge	1
Total	13

Illorsuit I has been dated by two radiocarbon dates (K-144 and K-146) and Illorsuit II has been dated by a single radiocarbon assay (K-145). K-145 is dated to a.d.

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900, which is too young to be considered Palaeo-Eskimo. K-144 and K-146, on the other hand, gave dates of 1620 ± 150 b.c. (2140-1730, 1710-1690 cal B.C.) and 1390 ± 140 b.c. (1860-1840, 1780-1440 cal B.C.) respectively.

Fauna. Fauna material from Mathiassens excavation of the Thule settlement are stored at Zoological Museum, University of Copenhagen (ZMK 20/1933).

47 Nuugaaq
69V2-IV-014
Palaeo-Eskimo
To the south, and on the southern side of the tip of the same point on which Illorsuit is situated, is the settlement of Nuugaaq. In earlier literature, Nuugaaq (Ostermann and Porsild 1921), along with Qeqertaq and Sermermiut, is mentioned as one of the most favourable spots for the collection of artefacts. However Larsen and Glob only found a single biface, and Mathiassen did not consider the site worth excavating due to lack of well preserved dwellings and heavy disturbance by peat cutting.

Lithic artefacts from Nuugaaq

Artefact category	All artefacts
Bifaces, tapering stem	1

48 Niaqornaq
69V2-IV-009
Palaeo-Eskimo
The site of Niaqornaaq was visited by Thomas Thomsen already in 1909 (Thomsen 1909) and later Mathiassen (1934:28) recorded three Thule winter houses situated at the northwestern point of the island of Oqaatsut. Larsen and Meldgaard (1958:38) mention the finding of flakes under a heavy layer of turf. Eight flakes are of killiaq and four of chalcedony. The artefacts are listed under (L6.4576) in the inventory list of the National Museum of Denmark.

Finds collected from Niaqornaq, 1953

Artefact category	All artefacts
All flakes	12

Eastern Qeqertarsuup Tunua

49 Ikerasannguaq
69V2-0IV-011
Palaeo-Eskimo
To the east, the island of Oqaatsut is separated from Alluttoq (Arveprinsens Ejland) by the narrow Ikerasannguaq (Smallesund) and there are several localities with winter houses in this area. Mathiassen records the site of Ikerasannguaq as having been settled in 1859 and Larsen and Meldgaard (1958:39) mention the presence of pavements similar to those excavated at Illorsuatsiaat (site no. 71) in Kangersuneq in the southern part of Disko Bugt and Illuluarsuup Talerua (site no. 54) in the inner part of Torsukattak. A single arrow point is recorded in the register of monuments at the National Museum of Denmark, but it has not been possible to locate this in the inventory list.

50 Anillagiaa ('Smallesund II')
69V2-0IV-022
Saqqaq
A few kilometres to the north of Ikerasannguaq, Møbjerg (1986) has recorded Palaeo-Eskimo remains at the site of Anillagiaa (Smallesund II). The site is characterised as a seasonal camp, where three tools and 42 flakes have been collected. Of the latter, 64.3% are of killiaq, 9.5% are characterised as being of 'flint' and 26.2% are of chalcedony.

Finds from Anillagiaa (Møbjerg 1986)

Artefact category	All artefacts
Biface	1
Harpoon blade	1
Axes	1
All flakes	42
Total	45

51 Ilerfit
69V2-00I-16
Saqqaq and Dorset
On the site of Ilerfit there is a large Thule settlement (Mathiassen 1934:26) with at least eight winter houses facing onto a shallow bay. Adjacent to, and on, the rocky point bordering the bay towards the east Larsen and Meldgaard discovered a large Palaeo-Eskimo component. At the base of the point there is a Palaeo-

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Eskimo cultural layer covered by a later Neo-Eskimo midden. In another place, and at an elevation of just 0.5 m, they found flat stones in a black greasy matrix also containing an abundance of artefacts. In addition to the identified tools listed by Larsen and Meldgaard (1958:48) a few flakes and 11 preforms of killiaq are listed in the inventory list at the National Museum of Denmark (L6.3934-3993). To complete the picture, these have been added to the Saqqaq list below, but the unidentified specimens have been excluded from the table as in the list published by Larsen and Meldgaard.

Ilerfit, Saqqaq finds

Artefact category	All artefacts	%
Bifaces, with tapering stem	16	18.6
Burins	27	31.4
Burin spalls	9	10.5
End-scrapers	3	3.5
Side-scrapers	17	19.8
Awl or drills	1	1.2
Rough-outs	11	12.8
Pumice	1	1.2
Stone sinker	1	1.2
Total	86	100.2

Ilerfit, Dorset finds

Artefact category	No.
Microblades	8
End-scrapers	1
Microblade cores	1
Total	10

52 Pisissarfik
69V2-00I-018
Palaeo-Eskimo

The Pisissarfik site is located on a point on the eastern shore of the strait of Sarfa, which is the eastern of the two channels connecting the Torsukattak Icefjord to Ikerasak (Ata Sund) further south. Apart from Thule dwellings, Mathiassen also found a scraper documenting a possible Palaeo-Eskimo settlement. Møbjerg has categorised the locality as a 'hunting stand', she records the finding of a biface and three flakes. Of the latter, one is of killiaq, one of 'flint' and one of chalcedony. The artefacts from Larsen and Meldgaard's investigation are stored at the National Museum of Denmark under (L6.3994-3998).

Lithic artefacts from Pisissarfik (Larsen & Meldgaard 1958; Møbjerg 1986)

Artefact category	All artefacts
Biface	1
End-scrapers	1
All flakes	14
Total	16

53 Tasilik
69V2-00I-014
Dorset

Larsen and Meldgaard (1958:38) report that Dorset artefacts were found on a low plain located at just 1 m a.s.l on the island Tasilik. In Larsen and Meldgaard's report (Larsen & Meldgaard 1958:38), the locality is named Kangerlluatsiaq, after the surrounding bay, but in the register of protected monuments at the National Museum of Denmark, it is more specifically named Tasilik after the island on which it is situated.

Tasilik Saqqaq finds (Larsen & Meldgaard 1958)

Artefact category	All artefacts
Burins	1
End-scrapers	1
Total	2

Tasilik Dorset finds (Larsen & Meldgaard 1958)

Artefact category	All artefacts
Bifaces, side-notched	1
Microblades	3
End-scrapers	2
Total	6

54 Illuluarsuup Talerua
69V2-00I-013
Saqqaq and Dorset

The almost triangular island of Illuluarsuit is located at the northern end of Ikerasak (Ataa Sund), and here Larsen and Glob located Palaeo-Eskimo settlements at three localities. The site with most finds is Illuluarsuup Talerua located at the northwestern point of the island

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where Mathiassen (1934) has registered a Thule settlement. Three pavement features are described by Larsen and Meldgaard (1958:37ff). These were all situated approximately 2 m apart on a sloping gravel plain which is being eroded by the sea. Prior to excavation the features were covered by a 5-10 cm thick layer of turf. Although different in size, the features are described as being largely similar, irregular in outline and consisting of fist-sized stones, some of which are marked by fire. One measures 3 x 4 m, another 2 x 3.5 m and the third 6 x 6 m.

Illuluarsuup Talerua, Saqqaq artefacts (Larsen & Meldgaard 1958)

Artefact category	All artefacts	%
Bifaces	10	25.6
Harpoon blades	6	15.4
Burins	13	33.3
Burin spalls	3	7.7
End-scrapers	1	2.6
Side-scrapers	4	10.3
Axes	1	2.6
Pumice	1	2.6
Total	39	100.1

Illuluarsuup Talerua, Dorset artefacts (Larsen & Meldgaard 1958)

Artefact category	All artefacts	%
Microblades	16	80
End-scrapers	1	5
Microblade cores	3	15
Total	20	100

55 Illuluarsuup North
69V2-00I-025
Saqqaq
At the northeastern corner of the island of Illuluarsuit, Larsen and Glob collected artefacts around a hearth with fire-cracked rocks. The hearth is situated approximately 4 m a.s.l.

Artefacts from Illuluarsuup North (Larsen & Meldgaard 1958)

Artefact category	All artefacts
End-scraper	1

56 Illuluarsuit
69V2-00I-011
Palaeo-Eskimo
At the southernmost point of the island lies the settlement of Illuluarsuit, which had a trading post from about 1820 to 1890, when it was abandoned (Mathiassen 1934:35). From this locality, Larsen and Meldgaard mention a side-scraper and a few flakes being picked up on a gravel plain about 3 m a.s.l.

Artefacts from Illuluarsuit South (Larsen & Meldgaard 1958)

Artefact category	All artefacts
Side-scraper	1
Flakes	+

57 Appat (Ritenbenk)
69V2-IV-007
Palaeo-Eskimo
Apart from the already mentioned sites of Niaqornaq and Smallesund II, only two other Palaeo-Eskimo sites are known from Alluttoq (Arveprinsens Ejland). However before these sites are described, Larsen and Glob's purchase of a Late Dorset harpoon head in the now abandoned outpost of Appat (Ritenbenk) should be mentioned.

During his visit to Appat, Larsen purchased a Late Dorset harpoon head (L6.4603) of the Dorset parallel type (Larsen & Meldgaard 1958:39). A minor excavation was conducted in the midden where the harpoon head was reported to have been found, but they only found culture layers belonging to the Innussuq phase of the Thule culture. If the find site reported to Larsen is correct, then the Late Dorset harpoon head belongs in some kind of Thule or Inussuk context and, henceforth, it cannot in any way be regarded to support a Late Dorset presence in Disko Bugt. Probably one should regard the harpoon head from Appat (Ritenbenk) as a rare object of exchange analogous to the way most researchers interpret the Norse objects found in an Inussuk context. In addition to the Late Dorset harpoon Head, and Thule finds (L6.4597-4628), Larsen and Glob also collected a few flakes. But as is usually the case when a few flakes are found in Thule middens, it is impossible to judge whether they have been brought onto the site or whether Appat indeed has a Palaeo-Eskimo component.

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Lithic artefacts from Ritenbenk (Larsen & Meldgaard 1958)

Artefact category	All artefacts
Retouched flakes	1
All flakes	4
Total	5

58 Aarlungavik South
69V2-0IV-21
Saqqaq and Dorset

At Aarlungavik there is a Thule winter house and in two of four sections in the associated midden, Møbjerg found stratified deposits with both Saqqaq and Dorset layers. The four sections named 69V2-IV-21A-D were excavated at different places along the eroding cliff.

69V2-IV-21A: In this section Møbjerg found only Saqqaq culture

69V2-IV-21B: In this section there were Saqqaq and Dorset layers separated by a sterile layer.

69V2-IV-21C: In this section the stratigraphy was disturbed by later activities.

69V2-IV-21D: In section D Møbjerg found Dorset layers resting directly on Saqqaq layers but apparently without the separating sterile layer seen in section B (Møbjerg 1986, figure 12).

Profile B appears to confirm the pattern of sterile peat layers separating the Saqqaq and Dorset layers also is seen at most other localities with stratified Saqqaq and Dorset deposits. Section D has, on the other hand, Dorset layers resting directly on top of the Saqqaq layers and the observations from Aarlungavik thus underline the complicated stratigraphy of most middens. If the cultural-historical reconstruction focuses exclusively on the sections where Saqqaq and Dorset layers are separated by sterile deposits, one runs the risk of creating a biased account of prehistory.

Møbjerg collected a total 27 tools and 257 flakes from Aarlungavik, and characterised the site as a 'base camp'. Among the flakes, the raw material frequencies are given as follows:

Aarlungavik Saqqaq: Killiaq: 92.5%; 'flint': 6.1%; quartzite: 0.7% and chalcedony: 0.7

Aalungavik Dorset: Killiaq: 60.4%; 'flint': 14%; chalcedony: 25.6%.

In addition to these frequencies, Møbjerg also reports on the frequencies of raw materials among the artefacts collected from the surface, but these contain both Saqqaq and Dorset types, making it questionable whether these frequencies are of relevance for comparison with other sites.

Lithic artefacts from Aarlungavik Saqqaq (Møbjerg 1986)

Artefact category	No.	%	All artefacts	%
Bifaces, all fragments included	4	26.7	15	9.3
Harpoon blades	1	6.7		
Burins	1	6.7		
Side-scrapers	1	6.7		
Retouched flakes	7	46.7		
Microblade cores	1	6.7		
All flakes			147	90.7
Total	15	100.2		100

Lithic artefacts from Aarlungavik Dorset (Møbjerg 1986)

Artefact category	All artefacts
Bifaces, polished	1
Microblades	1
Side-blades	1
All flakes	43
Total	46

Lithic artefacts from Aarlungavik surface collection (Møbjerg 1986)

Artefact category	All artefacts
Bifaces	2
Microblades	1
Burins	1
Burin spalls	1
Retouched flakes	1
All flakes	67
Total	73

59 Alluttoq (Klokkerhuk)
69V2-0IV-004
Palaeo-Eskimo

On the site of Klokkerhuk, at the southern end of Alluttoq (Arveprinsens Ejland), there is a large Thule settlement where Møbjerg detected a layer with charcoal and flakes of killiaq under the recent vegetation. All of the collected flakes are of killiaq, suggesting that

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this presumably is a Saqqaq site. Møbjerg (1986:26) categorised the locality as a 'base camp'.

Lithic finds from Alluttoq (Møbjerg 1986)

Artefact category	All artefacts
All flakes	143

60 Tupersuit
69V2-0IV-020
Saqqaq

On a point to the north of the outpost of Oqaatsut (Rodebay), there is a Saqqaq locality where Larsen and Meldgaard excavated three hearths. Unfortunately, recent peat digging had destroyed the possible remains of associated dwellings in two of the features. The third, which was located in a shallow depression, had an associated platform of flagstones. Larsen and Meldgaard (1958:35) suggest that large head-sized stones, which were placed on top of the platform, may originally have formed part of a periphery. The hearth was placed in the southwestern corner of the floor, and it was marked by three angular stones set on edge at right angles to each other. The interior of the hearth box was filled with fire-cracked rocks. Heaps of cooking stones were also found in a sooty matrix in the northeast and northwest corners of the suggested dwelling. In addition to 83 tools, it is mentioned that 461 (93.7%) flakes of killiaq, and 32 (6.3%) flakes of other minerals were found in association with the excavated dwelling.

Tupersuit I (Larsen & Meldgaard 1958)

Artefact category	No.	%	All artefacts	%
Bifaces, all fragments included	4	8.5	47	8.7
Harpoon blades	5	10.6		
Burins	20	42.6		
Burin spalls	8	17.2		
End-scrapers	1	2.1		
Side-scrapers	9	19.1		
Soapstone vessel			1	0.2
Pumice			1	0.2
All flakes			492	90.9
Total		100.1	541	100

Tupersuit II (Larsen & Meldgaard 1958)

Artefact category	All artefacts
Bifaces	2
Harpoon blades	3
Burins	5
Burin spalls	1
End-scrapers	2
Side-scrapers	3
Total	16

Tupersuit III (Larsen & Meldgaard 1958)

Artefact category	All artefacts
Bifaces, all fragments included	1
Side-scrapers	1
Total	2

Tupersuit scattered finds (Larsen & Meldgaard 1958)

Artefact category	All artefacts
Harpoon blades	2
Burins	18
End-scrapers	3
Awls or drills	2
Total	25

61 Sermermiut
69V2-0II-013
Saqqaq and Dorset

Sermermiut is probably the most spectacular archaeological site in West Greenland. It is situated on a grass-covered plain where a minor valley leads into a cove on the northern side of the outlet of Kangia (Jakobshavn Icefjord). Towards the south there is a magnificent view of icebergs and a sea extraordinarily rich in seals and sea birds. The earliest account of the settlement on Sermermiut is given by Poul Egede (1788), who counted about 20 inhabited houses during his visit in 1737. During the 1800s Sermermiut was the focus of antiquarian collection of artefacts, and in 1838 stone artefacts from Sermermiut were among the earliest artefacts from Greenland to find their way to the newly established National Museum of Denmark (Meldgaard 1996; Meldgaard and Gulløv 2002). Later, one of the principal collectors was the medical officer of health, Christian Pfaff, who was posted at Jakobs-

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havn from 1854 to 1876 (Westman & Jakobsen 1989). During his many years of duty in Disko Bugt, Pfaff established an impressive collection numbering more than 3000 objects, most of which are Palaeo-Eskimo lithic artefacts.

Prior to Larsen and Meldgaard's systematic excavations in 1953, Thomas Thomsen conducted excavations as early as 1909. And in the years between 1912 and 1918, M. Porsild and H. Ostermann excavated the site (Nielsen 1997). Unfortunately the results of these early excavations were never published and the Greenlandic Stone Age remained unknown until Larsen and Meldgaard's pioneering work on Sermermiut in 1953 (Larsen & Meldgaard 1958).

In 1981, Møbjerg excavated a winter house from the mid-nineteenth century. The house was subject of an ethno-historical analysis (Møbjerg 1983; Møbjerg & Caning 1986). Møbjerg and Canning demonstrate that the settlers at Sermermiut during Historical Times probably had a more sedentary lifestyle than most other Inuit in West Greenland. Møbjerg and Caning (1986:197) expand this conclusion to also include the Palaeo-Eskimo peoples living there. As a consequence, Sermermiut becomes an example of the implementation of ethno-archaeology in West Greenland. In her list of Palaeo-Eskimo camp types, Møbjerg (1986) characterises Sermermiut as a large base camp. There may be some archaeological support for this expansion of the ethno-historical description in the very large amount of material recovered from both the Saqqaq and the Dorset periods. Similarly, in terms of quantity, there appears to be a broadly equal representation of seal species in the Palaeo-Eskimo layers (Møhl 1986), as in those excavated from the mid-nineteenth century (Møbjerg & Caning 1986). In both periods, harp seal is represented by 50-60%, whereas ringed seal constitutes about 40% of the sea mammals and other seals comprise but a few percent. Unfortunately, the fauna material from the Palaeo-Eskimo layers is very limited, rendering it difficult to make any more detailed comparison of the animals hunted by the different components at Sermermiut.

Thousands of finds from Sermermiut are scattered around many different museums in Europe, as well as in Greenland, but it is beyond the scope of the present site list even to attempt to produce a complete inventory from Sermermiut. However, for comparison, the published find lists from Larsen and Meldgaard 1958, Mathiassen 1958 and Møbjerg 1986 have been collated in order to give the reader a more specific measure of the magnitude of the material. Larsen and Meldgaard's list of artefacts does not include the flakes, and it is thus impossible to include the numbers of flakes from the different components. However, from an area of approximately 5 m² adjacent to Profile A, Larsen and Meldgaard excavated 99 (88.4%) flakes of killiaq, eight (7.1%) of quartzite, three (2.7%) of flint and two (1.8%) of quartz crystal. The Dorset layers in the same area yielded a total of 179 (81%) flakes of chalcedony, 32 (14.5%) of killiaq, eight (3.6%) of 'flint' and two (0.9%) of quartz crystal. It is further stated that, from all of the unmixed profiles, 1150 flakes (97%), out of a total of 1190 flakes from the Saqqaq layers, are of killiaq. In total, Larsen and Meldgaard (1958:16) mention that 2773 flakes were collected from the excavated profiles.

In Mathiassen's account of the 1955 excavations the raw material frequencies from the different layers are reported to be as follows. Saqqaq: 3000 (97.6%) flakes are of killiaq, 13 (0.4%) are of chalcedony and 60 (2%) are of other stone types. Dorset: 1511 (52.2%) are of Killiaq, 1156 (39.9%) are of chalcedony and 228 (7.9%) are of other stone types.

In Møbjerg's (1986) account of the excavations in 1981 the raw material frequencies of the flakes are provided as follows. Saqqaq: Killiaq 92.8%, 'flint' 2.6%, quartzite 2.6% and chalcedony 1.8%. Dorset: Killiaq 26.7%, 'flint' 20.0% and chalcedony 53.3%.

Sermermiut A layers A-B Saqqaq (Larsen & Meldgaard 1958)

Artefact category	No.	%	All artefacts	%
Bifaces	8	40		
Harpoon blades	5	25		
Burins	4	20	20	15.2
End-scrapers	2	10		
Side-scrapers	1	5		
All flakes			112	84.8
Total	20	100	132	100

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Sermermiut A layers E-F Dorset (Larsen & Meldgaard 1958)

Artefact category	No.	%	All artefacts	%
Bifaces, all fragments included	4	7.0	57	20.4
Microblades	48	84.2		
Burin-like tools	1	1.8		
End-scrapers	4	7.0		
Soapstone vessel fragments			1	0.4
All flakes			221	79.2
Total	57	100	279	100

Sermermiut A Layers G-H (Larsen & Meldgaard 1958)

Artefact category	All artefacts
Burins	1
End-scrapers, trapezoid	1
Side-scrapers	1
Total	3

Sermermiut B, Saqqaq layer (Larsen & Meldgaard 1958)

Artefact category	All artefacts
Bifaces, all fragments included	1
Burins	2
End-scrapers	1
Side-scrapers	1
Total	5

Sermermiut B, Dorset layer (Larsen & Meldgaard 1958)

Artefact category	No.	%
Bifaces	5	2.5
Microblades	168	84.4
Burin-like tools	5	2.5
End-scrapers	13	6.5
Side-scrapers	1	0.5
Microblade cores	6	3.0
Soapstone vessel fragments	1	0.5
Total	199	99.9

Sermermiut scattered finds (Saqqaq and Dorset)

Artefact category	All artefacts	%
Bifaces, with tapering stem	21	20.8
Bifaces, side-notched	5	5.0
Bifaces polished	2	2.0
Harpoon blades	9	9.2
Microblades	16	15.8
Burins	17	16.8
Burin spalls	1	1.0
Burin-like tools	1	1.0
End-scrapers, triangular, oblong and rounded	8	7.9
End-scrapers, flared edges and trapezoid	4	4.0
Side-scrapers	8	7.9
Awls or drills	1	1.0
Axes	1	1.0
Microblade cores	4	4.0
Soapstone vessel fragments	3	3.0
Total	101	100.4

Sermermiut Saqqaq (Mathiassen 1958)

Artefact category	No.	%	All artefacts	%
Bifaces, all fragments included	120	32.2	372	10.8
Harpoon blades	39	10.5		
Microblades	3	0.8		
Burins	127	34.1		
End-scrapers	44	11.8		
Side-scrapers	26	7.0		
Axes	7	1.9		
Awl or drill (bodkin)	3	0.8		
Large flake / preform	3	0.8		
Whetstone			1	+
Hammer stones			2	0.1
All flakes			3073	89.1
Total	372	99.9	3448	100

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Sermermiut Dorset (Mathiassen 1958)

Artefact category	No.	%	All artefacts	%
Bifaces, side-notched	81	15.9	511	14.9
Polished bifaces	11	2.2		
Microblades	291	56.9		
Burin-like tools	42	8.2		
Side-blades	28	5.5		
End-scrapers	44	8.6		
Side-scrapers	8	1.6		
Retouched flakes	2	0.4		
Axes	2	0.4		
Large flake / preform	2	0.4		
Soapstone vessel fragments			25	0.7
All flakes			2895	84.4
Total	511	100.1	3431	100

Sermermiut 1981 Saqqaq artefacts (Møbjerg 1986)

Artefact category	No.	%	All artefacts	%
Bifaces, all fragments included	3	30	10	6.2
Burins	4	40		
End-scrapers	1	10		
Side-scrapers	1	10		
Retouched flakes	1	10		
All flakes			151	93.8
Total	10	100	161	100

Sermermiut 1981 Dorset artefacts (Møbjerg 1986)

Artefact category	All artefacts
Microblades	2
All flakes	30
Total	32

At the end of Mathiassen's short description of Sermermiut from 1934, he states: "Sermermiut, however, certainly deserves a monograph, supported upon additional extensive excavations; large parts of the midden slip down on to the beach every year and are washed away."(Mathiassen 1934:20). Of course the extensive excavations recommended by Mathiassen may seem superfluous today due to work by Larsen and Meldgaard in 1953 and Mathiassen in 1955. Yet there is still truth in Mathiassen's words because the site has been continuously under erosion ever since, and the large amount of material from Thomsen and Porsild's excavations remains unpublished. There is still not a single publication one can turn to in order to gain an overview of the archaeology of Sermermiut. Until recently, there were even no site maps of Sermermiut other than that produced by Porsild at the beginning of 20th century (see Mikkelsen & Ingerslev 2002; Møbjerg 1983: fig. 2; Nielsen 1997:17). However, maybe there is hope. In 2004 Kangia and the surrounding landscape was added to UNESCO'S World Heritage List. As part of this process, the Greenland National Museum and Archives surveyed the site during the summer of 2003 in order to produce good maps for the assessment of effects of tourism, interpretation facilities etc.

Fauna. In addition to the artefacts, a limited Palaeo-Eskimo faunal assemblage has also been recovered. Ulrik Møhl and Morten Meldgaard have identified these components. Typically for this area, harp seal and ringed seal are the most frequent species. Fauna identified as being of Dorset origin are presented in Table 8.11. The faunal material is stored at the Zoological Museum, University of Copenhagen (ZMK 101/1956 and 94/1981).

The Palaeo-Eskimo settlement at Sermermiut has been dated by several series of radiocarbon dates (K-515, K-516, K-517, K-806, K-807, K-808, K-809, K-811, K-812, K-813, K-3768 and K-3769). All of the dates have been conducted on peat and sand with organic residues.

62 Eqi 12
69V2-oII-012
Saqqaq and Dorset

On the southern side of Kangia (Jakobshavn Isfjord), there are a series of settlements almost as impressive as Sermermiut. Traces of Palaeo-Eskimo presence have been found on several of these localities but, apart from test pits, no systematic excavations have been conducted in this area. Eqi is the northernmost of these localities situated near the point which forms the southern corner between the icefjord and Qeqertarsuup Tunua. Here Larsen and Meldgaard mention the presence of culture layers and in an area eroded by the sea they found fire-cracked rocks and artefacts. Most of these are Dorset types, but a few Saqqaq tools were also recovered. During Møbjerg's inspection in 1981 a total of 14 Dorset tools and 44 flakes were collected from two test pits. Of the flakes, 18.2% are of

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killiaq, 15.9% are of killiaq and 65.9% are of chalcedony.

Eqi 12 Saqqaq and Dorset finds (Larsen & Meldgaard 1958; Møbjerg 1986)

Artefact category	All artefacts
Bifaces, side-notched	8
Bifaces with tapering stem	1
Burins	1
Microblades	21
Bifaces polished	1
Burin-like tools	1
Side-blades	1
End-scrapers	6
Side-scrapers	1
Microblade cores	3
Retouched flakes	2
All flakes	44
Total	90

63 Eqi 30
69V2-0II-030
Saqqaq
There are several Palaeo-Eskimo sites in the adjacent area to the east of Eqi 12. Eqi 30 is the first of these sites and here Møbjerg found a burin and a minor collection of flakes. All of the flakes are of killiaq.

Eqi 30 Saqqaq (Møbjerg 1986)

Artefact category	All artefacts
Burins	1
All flakes	29
Total	30

64 Eqi 31
69V2-0II-031
Saqqaq
Further east is the locality of Eqi 31. Here Møbjerg collected a triangular biface and 11 flakes. Of the flakes, ten are of killiaq and one is of 'flint'. The triangular biface is a Saqqaq type and the predominance of killiaq among the flakes also indicates that this is a Saqqaq site.

Eqi 31 Saqqaq and Dorset (Møbjerg 1986)

Artefact category	All artefacts
Harpoon blade	1
All flakes	11
Total	12

65 Eqi 32
69V2-0II-032
Palaeo-Eskimo
Eqi 32 is a minor locality where just a single flake of killiaq was collected during Møbjerg's 1981 inspection.

Eqi 32 Saqqaq or Dorset (Møbjerg 1986)

Artefact category	All artefacts
All flakes	1

66 Eqi 33
69V2-0II-033
Palaeo-Eskimo
Eqi 33 is a minor locality where two flakes of killiaq and a single side-scraper were collected during Møbjerg's 1981 inspection.

Eqi 33 Palaeo-Eskimo (Møbjerg 1986)

Artefact category	All artefacts
Side-scrapers	1
All flakes	2

67 Qaarsormiut
69V2-0II-010
Dorset
Immediately to the south of the now deserted outpost of Avannarliit (Nordre Huse), there is a single Thule winter house and a thick midden named Qaarsormiut. Mathiassen mentions the finding of a stone blade and later a burin-like tool has also been recovered from the eroding midden (Meldgaard 1981).

Qaarsormiut Dorset finds (Møbjerg 1986)

Artefact category	All artefacts
Biface	1
Burin-like tool	1
All flakes	2

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68 Illumiut
69V2-0II-008
Saqqaq
At Illumiut there are four Thule winter houses and Møbjerg (1986) reports the finding of a single burin and seven flakes, all of killiaq.

Lithic finds from Illumiut (Møbjerg 1986)

Artefact category	All artefacts
Burins	1
Flakes	7
Total	8

69 Illunnguaq
69V2-0II-038
Palaeo-Eskimo
Illunnguaq is a minor Thule locality where flakes of killiaq have also been collected.

Lithic finds from Illunnguaq (Møbjerg 1986)

Flakes	1

70 Inussuup Nuua
69V2-0II-041
Palaeo-Eskimo
The settlement of Inussuup Nuua is situated a few kilometres to the north of the outpost of Ilimanaq (Claushavn). Here there are Thule winter houses and flakes of killiaq have also been found.

71 Illorsuatsiaat
69V2-0II-059
Dorset
Kangia (Jakobshavn Isfjord) has only a few side-fjords, but on the southern side the large, ramified fjord system of Tasiussaq branches off. On a point in the western branch of Tasiusaq, Meldgaard (1981) located tent rings and a microblade and three flakes were found on the tip of the point. Two of the flakes are of chalcedony and one is of killiaq. The Palaeo-Eskimo component is believed to be of Dorset origin.

Lithic finds from Illorsuatsiaat (Meldgaard 1981)

Artefact category	All artefacts
Microblades	1
Flakes	3
Total	4

72 Upernavik
69V2-0II-001
Saqqaq
The site of Upernavik is located on the southern of two points at the eastern side of the confluence between Tasiussaq and Kangia. There are several winter houses at this site and Saqqaq artefacts have also been collected.

73 Qajaa
69V2-0II-001
Saqqaq and Dorset
A few kilometres to the north of Upernavik lies the site of Qajaa, situated at the tip of the point between Kangia and Tasiusaq. This site is probably as spectacular as Sermermiut, but due to difficult access deep within the icebound waters of the icefjord, much less research has been carried out here. Facing the waterfront from the tip of the point on which the site lies, one has the icefjord completely jammed with large icebergs and pack ice to the right, and to the left hand lies the bluish ice-free waters of Tasiusaq. Directly in front of the site, the tide creates a turbulent mix of these two bodies of water.

Qajaa was an important site for the early exploration of Qeqertarsuup Tunua, since members of Nordenskiöld's 1870 expedition to Greenland excavated part of the midden as early as 1870 (Nordenskiöld 1872) (see chapter 4 for more details). While Fleischer's description of the stratigraphy on Qajaa is the earliest known documentation of a stratigraphy, a sketch map of the locality in Nordenskiöld's diary represent an early example of a site map from Greenland.

In spite of these early investigations which, in the case of Fleischer's pioneering observations, were largely forgotten, more than 100 years would elapse before renewed investigations were carried out at Qajaa. This happened in 1982, when Meldgaard took on the task of a systematic stratigraphic excavation of the eroded midden (Meldgaard 1983, 1991). The most important observation from of these excavations is

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that the chronological development seen on the nearby site of Sermermiut is largely repeated. At the base there are layers with unmixed Saqqaq culture, after which there are sterile peat accumulations. Just below the recent vegetation there is a layer with Dorset artefacts.

The limited antiquarian collection of artefacts and lesser extent of excavations may have preserved the scientific potential of Qajaa to a greater degree than is the case at Sermermiut. Qajaa therefore remains one of the few localities where it might be possible to retrieve organic objects from both the Saqqaq and Dorset layers.

Fauna. The fauna material is stored at Zoological Museum, University of Copenhagen (ZMK 350/1982).

The stratigraphy has been dated by a suite of 15 radiocarbon dates conducted mainly on peat, but also on twigs and locally grown wood modified by humans (K-3904, K-3899, K-4104, K-3906, K-3900, K-3905, K-3901, K-3894, K-3895, K-3896, K-3902, K-3897, K-3898, K-3903, K-4102, K-4103).

74 Eqaluit Nuuat (Laksebugt)
68V2-0IV-22
Saqqaq

Over a stretch of approximately 20 km to the south of the outpost of Ilimanaq (Claushavn), the shore is oriented north-south with just a few minor bays and islets offshore. No Palaeo-Eskimo localities are known from this part of the bay. The first protected water is the southwest-northeast-oriented fjord of Eqaluit located just north of the town Qasigiannguit (Christianshåb). Near the westernmost point of the northern shore of Eqaluit there are three concentrations with artefacts. Some of the lithics were found between rounded natural stones where there also are fire-cracked rocks. However, features were not seen (Jensen 1995c). The artefacts are scattered on terraces lying between 5 and 10 m a.s.l. and two burins indicate that at least some of the lithics have been left by Saqqaq people. Twelve of the artefacts (70.6%) are of grey killiaq, one flake (5.9%) is of patinated yellow killiaq of the type known from Angissat and four (23.5%) flakes are of chalcedony. At the head of the fjord there is a river with a good char run. Despite a very careful search, no Palaeo-Eskimo remains have been found at this obvious resource.

Lithic finds from Eqaluit Nuuat (Jensen 1995c)

Artefact category	All artefacts
Bifaces, all fragments included	2
Burins	2
Retouched flakes	2
All flakes	11
Total	17

75 Oqaatsuarsuit (Rypeholm Sundet)
68V2-0IV-021
Saqqaq

At the southwestern corner of Eqaluit (Laksebugt), there is an islet named Oqaatsuarsuit (Rypeholm), which is separated from the mainland by a narrow less than 100 m wide. Mathiassen (1934) mentions a Thule winter house on the islet side of the narrow, and Grønnow has reported another Thule winter house on the eastern, mainland side of the narrow. 30 m to the south of the winter house there is an area at approximately 10 m a.s.l. where a gravel and boulder cliff is being eroded by the sea. A few flakes of killiaq and chalcedony have been registered here. The narrow between Oqaatsuarsuit and the mainland, and the narrow between Qeqertasussuk (Jakobsholm) on the northern shore of Eqaluit, are among the places where the current creates an early opening in the ice.

76 Savik
68V2-0IV-019
Dorset

Mathiassen (1934) recorded two Thule winter houses in a little cove at the northwestern corner of the island of Savik. A few hundred metres to the south there is a low rocky point with marsh grass on the lowest and most exposed western part which floods at high tide. Dorset artefacts have been collected along the eroded parts of the marsh grass, indicating that a now heavily eroded Dorset site is located here.

Lithic artefacts from Savik

Artefact category	All artefacts
Bifaces, all fragments included	2
Microblades	2
Core	1
Total	5

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77 Nuuk
68V2-0IV-018
Saqqaq
To the south of Savik, numerous Palaeo-Eskimo sites have been located in the western part of Sydostbugten, which was surveyed in the 1980s during the excavation of the Qeqertasussuk site (site no. 92). Later, the present author has added a few localities which were found during visits to specific localities. The first site met with is at the place named Nuuk, which actually is a little rocky islet located just offshore. In a little depression on the western side of the island there is a 2 x 2 m area of fire-cracked rocks with an associated concentration of flakes of yellow and grey killiaq. The central part of the island is a low-lying area partly covered by marsh grass, flooded at high tide. Facing this area there are at least three Thule winter houses, and in the peat deposits in front of the dwellings there are bones and a few Palaeo-Eskimo objects have also been found. This latter occurrence of Palaeo-Eskimo finds may, however, be in secondary position, as is well known from numerous other Thule sites in West Greenland.

78 Niisat
68V2-0IV-017
Saqqaq
Niisat is a southwest-facing point a little more than a kilometre to the east of Nuuk. In this area, Morten Meldgaard (2004) located several concentrations of killiaq flakes. Some of the artefact concentrations are associated with fire-cracked rocks, but well defined features have not been recorded. The presumed Saqqaq remains are mainly found on deflated gravel terraces around 6 m a.s.l. but large areas are hidden by the recent vegetation which is dominated by crowberry, willow and grasses. The vegetation and considerable recent spring and summer settlement activity may have hidden or obliterated more substantial elements of the Palaeo-Eskimo camps. Among the more spectacular finds from this area is a large preform of grey killiaq (fig. 7.10), which was collected from a gravel beach.

79 Marias site
68V2-0IV-052
Saqqaq
Marias site is a Saqqaq site similar to Niisat, but situated on another point 300 m to the east. In the register at the Greenland National Museum and Archive it is named Niisat Øst. Here M. Meldgaard (2004) found artefacts scattered over a 175 x 75 m area ranging from approximately 1 to 8 m a.s.l., even though the lithic scatters are smaller in this area than they are on the Niisat site.

80 Niaqornaarsuk Ilorleq
68V2-0IV-051
Saqqaq
Niaqornaarsuk Ilorleq is a c. 500 m long narrow point mostly consisting of ice-scoured gneiss. At the base of the point there are deflated areas where a single flake has been found. On the point itself there is a 2 x 3 m concentration of fire-cracked rocks situated in a depression between ice-scoured bedrock. At the southeastern limit of the fire-cracked rocks, there is a well preserved circular hearth filled with fire-cracked rocks. In between the fire-cracked rocks there were four flakes of patinated yellow killiaq. The feature is located 7 to 10 m a.s.l.

81 Niaqornaarsuk Qiterleq
68V2-0IV-085
Saqqaq
Three hundred metres to the east of Niaqornaarsuk Ilorleq there is another point with an 18 m high rock knoll at its tip. On the saddle connecting the rock knoll to the mainland, there are deflated areas where several artefacts were collected over a 100 x 75 m area located approximately 5 m a.s.l. (M. Meldgaard 2004).

82 Illorsuatsiaat
68V2-0IV-016
Saqqaq
At the site of Illorsuatsiaat, Larsen and Glob located three pavements of fist-sized stones on a gravel terrace at approximately 4.5 m a.s.l.. Some of the stones were broken or soot-blackened by fire (Larsen & Meldgaard 1958:32). The features measured: I: 2 x 1 metre, II: 2.40 x 2.15 m and III: 1.80 x 1.80 m. Associated with features I and II were Saqqaq tools, whereas feature III is reported to be of Dorset origin. The percentage of killiaq among the flakes collected from each feature is given as: 53% for feature I, 97% for feature II, and 33% for feature III.

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Lithic artefacts from Illorsuatsiaat I

Artefact category	All artefacts
Bifaces, all fragments included	1
Soapstone vessel	1
Total	2

Lithic artefacts from Illorsuatsiaat II

Artefact category	All artefacts
Bifaces, all fragments included	1
Harpoon blade	1
Burins	1
End-scrapers	1
All flakes	1
Total	5

Lithic artefacts from Illorsuatsiaat III

Artefact category	All artefacts
Bifaces, all fragments included	1
Microblades	3
Total	4

Illorsuatsiaat scattered finds

Artefact category	All artefacts
Harpoon blades	2
Burins	3
End-scrapers	1
Total	7

83 Umiartorfik
68V2-0IV-064
Dorset
Umiartorfik is a low point to the northeast of Illorsuatsiaat and here Meldgaard (2004) located flakes in an approximately 25 x 25 m deflated area situated at 1.8 m. a.s.l.. There were no typological distinct tools, but the height above sea level indicates that this might be a Dorset site.

84 Serfarsuit Nuuat
68V2-00I-003
Saqqaq
In a little cove at the head of Kangersuneq there is a river outlet with a well known char run. The cove is protected towards the south and east by a rocky point. On the tip of this point, Meldgaard (2004) has located Saqqaq artefacts in two deflated areas measuring respectively 21 x 7 m and 10 x 20 m.

85 Tupersui
68V2-00I-004
Saqqaq
The Saqqaq locality of Tupersui is situated in a bay at the southeastern side of Kangersuneq. Here, Meldgaard (2004) located a midden situated immediately by a little stream. Most of the midden is believed to be of Thule origin. Saqqaq artefacts have been collected along a 20 metres stretch of the eroded midden.

86 Orpissooq West
68V2-00I-005
Dorset
At the head of the c. 10 km long southeast-northwest-oriented Orpissooq Fjord, there is a broad area of water at the confluence of several large rivers draining the glaciers from the Inland Ice further to the east. At the combined outlet of these rivers there is a Dorset site on a low point situated just at the river outlet. Orpissooq East (site no 87) is a Saqqaq site exposed on deflated gravel terraces a few hundred metres further to the east. To avoid confusion, the Dorset site will be called Orpissooq West and the Saqqaq site will be called Orpissooq East. Both of these localities are important as representatives of 'head of fjord' site types, where the economy presumably was focussed on the combined exploitation of char and caribou in the hinterland during the autumn.

Orpissooq West is a Dorset site located on a low heavily eroded point a few hundred metres to the west of the Saqqaq site. During the 1989 excavation of Orpissooq East, 4 m^2 test trench was excavated on Orpissooq West. The trench was situated in the central part of the sandy tombolo connecting the rocky tip of the point to the mainland. The purpose of this minor excavation was to test whether there are culture layers or features preserved on the point. The excavation revealed no apparent features, only a stratigraphy with layers containing Dorset artefacts and a few bones below the recent vegetation.

In 1995, the locality was the subject of renewed investigation by Rasch and Jensen (Rasch & Jensen 1997) in order to establish the history of relative sea-level change and its effects in Southern Qeqertarsuup

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Tunua. During this investigation, a series of cores were drilled at 5 m intervals along a transect across the tombolo. In addition to this, a minor test pit was excavated in a low area with marsh grass on the northwestern side of the tombolo.

Finds. During the various visits, numerous artefacts have been collected from the foreshore on both the western and eastern sides of the tombolo. Among the finds, there are an abundance of flakes and large pieces of the white chalcedony commonly seen on Dorset sites in Qeqertarsuup Tunua. Among the debitage, there are also several large pieces of chalcedony with cortex, indicating that some primary reduction of chalcedony nodules occurred on the site of Orpissooq West. The primary reduction of nodules and complete dominance of white chalcedony among the flakes is unusual for a site presumed to be specialised in the exploitation of arctic char and caribou. This is particularly so when it is considered that Orpissooq is located more than 100 kilometres from the nearest known source area of white chalcedony. Of the many flakes, 1507 (76.9%) are of chalcedony, almost exclusively of the white variety. 448 (22.9%) are of grey killiaq and 4 (0.2%) are of yellow patinated killiaq.

Lithic artefacts from Orpissooq West

Artefact category	No.	%	All artefacts	%
Bifaces, all fragments included	30	36.1		
Microblades	31	37.3		
Burin-like tools	9	10.8		
End-scrapers	2	2.4		
Side-scrapers	3	3.6	83	4
Microblade cores	2	2.4		
Axes	2	2.4		
Large flake / preform	3	3.6		
Strike-a-light	1	1.2		
Soapstone vessel			1	+
All flakes			1970	95.9
Total	83	99.8	2054	99.9

Fauna. A few caribou bones and a single bird bone have been recovered at this locality (see table 8.11). J. Møhl has identified the bones and they are stored at the Zoological Museum, University of Copenhagen (ZMK 149/1989).

Radiocarbon dates. A caribou bone collected from the trench on the tombolo has been radiocarbon dated to 250 ± 65 b.c. (370-170 cal B.C.) (AAR-2350), which is at the later end of Dorset dates in Qeqertarsuup Tunua. Another radiocarbon date (AAR-2554) for a bulk sample of peat from below the foreshore resulted in a date of a.d. 1025 ± 55 (cal A.D. 900-920, 960-1040, 1100-1120, 1140-1160). The peat was mixed with Dorset artefacts, but it is very late when compared to that for the caribou bone from the tombolo. The AAR-2554 date is thus a *post quem* date for the flooding of this particular part of the tombolo and should not be considered as dating the Dorset presence.

87 Orpissooq East
68V2-00I-006
Saqqaq

Orpissooq East is located on a deflated and partly eroded south-facing gravel terrace adjacent to the river. The locality was discovered in 1988, and it was excavated the following year due to the promising presence of several features on the deflated surface (Hansen & Jensen 1991). In total, c. 100 m² were excavated and eleven stone-set features were uncovered. Most of these are open-air hearths but there is also a mid-passage structure and a cache. The artefacts include 24 tools and 800 flakes.

Among the lithics, there are no definite Dorset types. Initially Orpissooq East was, therefore, believed to be a single component deposit. However, a fragment of caribou bone (AAR-2709) have been dated to 225 b.c. (360-270, 260-160, 130-120 cal B.C.), a date which overlaps the dating of the Dorset settlement at Orpissooq West. It is, therefore, likely that there is also a Dorset component in the material from Orpissooq East. This could explain the presence, among the artefacts, of a relative high number of tools and flakes of chalcedony, which are concentrated in the central part of the excavated area. Orpissooq East is dealt with in detail in the main text and, therefore, no further description will be given here.

Fauna. A very limited number of bones have been recovered from Orpissooq East. However, as was described in the previous section, a caribou have proved to be of Dorset age. The preserved bones might thus belong to a Dorset component (ZMK 150/1989).

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88 Tunutta Imaa North
68V2-oIV-086
Saqqaq
Tunutta Imaa is a sound with many coves and points and today it is a popular place for the people of Qasigiannguit to erect cabins. In a cove near the tip of the point is the Thule settlement Niaqornaq where Mathiassen (1934) recorded three winter houses. In the narrower part of the sound to the south of Niaqornaq, Meldgaard (2004) has recorded three Saqqaq sites named Tunutta Imaa North, East and West. Tunutta Imaa North and East are situated on the west-facing coast of the Nuuk Peninsula, whereas Tunutta Imaa West is situated on the western side of the sound on the island of Akulliit.

Tunutta Imaa North is situated at the base of a low point with vegetation of crowberries, willow and grass. Saqqaq tools and flakes of killiaq were found at the site.

89 Tunutta Imaa East
68V2-oIV-087
Saqqaq
A few kilometres to the south of Tunutta Imaa North there is another point where, on a terrace at approximately 4 m a.s.l., there are Saqqaq artefacts scattered along a c. 100 m long stretch with deflated openings in the vegetation.

90 Tunutta Imaa West
68V2-oIV-088
Saqqaq
Tunutta Imaa West is situated on the southeastern tip of the island Akulliit. Saqqaq artefacts were found here along a c. 25 m long eroding cliff facing the sea and in deflated areas up to 20 m from the profile. The site appears to cover more than 400 m² but the artefact densities are relatively low.

91 Saattuatsiaat
68V2-oIV-059
Dorset
Saattuatsiaat is a minor islet located about a kilometre to the north of Qeqertasussuk. The islet consists of low undulating rocky outcrops separated by areas with sand and lyme grass, dwarf shrubs and grass. Lithic artefacts were collected in the central part of the island. The low elevation below approximately 2 m a.s.l. suggest that this is a Dorset site.

92 Qeqertasussuk
68V2-oIV-029
Saqqaq
The well known Saqqaq site of Qeqertasussuk is situated on a point at the eastern side of the island of Qeqertasussuk. The site was located during survey in 1983 (Grønnow & Meldgaard 1991) and subsequently it was the focus of some of the most intensive interdisciplinary excavations in Greenland since Larsen and Meldgaard and later Mathiassen's excavations on Sermermiut in the 1950s. Apart from numerous test pits, excavations focused on three principal areas each documenting different aspects of the settlement (Grønnow 1994).

Area A. On the top of the gravel ridge connecting the rocky point of the island there are partly deflated open-air hearths and tent ring sites situated at an elevation of 11 m a.s.l.

Area B. Area B consists of 10 m² excavated in the midden layers in the northwestern part of the site. The perma-frozen conditions below the living vegetation caused the thousands of bones of game animals to be preserved in this part of the midden accumulations. The excavated material has been the subject of a comprehensive study of human ecology in the Saqqaq society of Sydostbugten (Meldgaard 2004). The midden accumulations have been analysed in three chronological units ranging from 2400 to 2100 cal B.C., 2100 to 1900 cal B.C. and 1900 to 1700 cal B.C. Based on the differences in the relative frequencies of game species and an array of more detailed studies of age and season of death of the animals, Meldgaard (2004) has suggested a chronological and demographic trend in the use of the site developing from an all-year-round base camp type of settlement to a more specialised use of the Qeqertasussuk site as a summer and autumn hunting camp. Accordingly, the settlement periods from 2400 to 2100 cal B.C. and 2100 to 1900 cal B.C. are characterised as 'base camp period I and II', whereas the settlement period from 1900 to 1700 cal B.C. is characterised as the hunting camp period (Meldgaard 2004:169). The difficult task of documenting seasonality has been accomplished not only by evaluating the seasonality of migratory species, but also by the analy-

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sis of sections of teeth from fox, harp and ringed seal. These studies indicate that during the base camp period I and II, the Qeqertasussuk site was occupied in all seasons. During the 'base camp period II', ranging from 2100 to 1900 cal B.C., Meldgaard found evidence of more specialised hunting with increased dependency on harp seal and birds and a relative decrease in ringed seal hunting during winter and spring. The decreased reliance on winter and spring ringed seal hunting may portend the development from year-round base camp towards a site use as a specialised hunting camp, most clearly seen in the bones from a period from 1900 to 1700 cal B.C. Meldgaard also found evidence of harp seal netting, since from base-camp period I to base-camp period II there is a 40% decrease in the frequency of remains of harp seals born that same year, i.e. "young-of-the-year". Meldgaard believes this decrease results from the development of specialised hunting of flocks of migrating harp seals, which probably involved boats and nets. In the 'hunting camp period' Meldgaard also found evidence of more specialised hunting by way of a decrease in species diversity from 32 in the base-camp periods to 24 species documented in the latest portion of the midden. No young-of-the-year harp seals have been found in this period and the bird bone assemblages show a decreased importance in fulmar relative to Brünnich's guillemot and little auk, indicating a shift towards more autumn fowling.

The long term trends seen in the osteological material are in line with some of the results of the palynological and entomological studies (Böcher & Fredskild 1993) showing initial stages of occupation with a heavy pressure on the local vegetation and rapid build up of midden accumulations. The later phases are, in contrast, more sporadic with heavy growth of grasses and herbs in between the periods when the site is occupied.

Area C. In the central part of the sloping terraces there are thick peat layers with midden accumulations as well as dense occupation layers with many features and dwelling remains located at different depths within the deposits. An excavated area of approximately 45 m^2 contains mid-passage dwellings as well as several isolated hearths and activity areas (Grønnow & Meldgaard 1991; Grønnow 1994). The Qeqertasussuk site revealed a multitude of previously unknown organic artefacts, including numerous hafted lithic implements, enabling identification of the specific function of different end-blade varieties. Among the wooden shafts, Grønnow has identified arrow shafts with a diameter of 7 to 10 mm, leisters with a diameter of 12 to 16 mm and lances with a diameter between 12 and 27 mm. This variety of arrows and spears corresponds to the varying sizes of bifaces with tapering stems.

The Qeqertasussuk excavations also multiplied the number of known Saqqaq harpoon heads. With a total of more than 40 bone, antler and tooth harpoon heads, the typological range of Saqqaq harpoon heads was greatly expanded. Grønnow (1997) has divided the Saqqaq harpoon head types in four major type lines A, B, C and D. Type line A comprises open-socket varieties with and without lateral barbs, whereas types B, C and D are male harpoons, sometimes with several lateral barbs. The harpoon heads display great variability but they all are in the maximum size range of 75-100 mm, with an average for the intact harpoon heads of 64.7 mm. Grønnow suggests that the open-socket harpoon heads were used primarily for hunting ringed seals at the breathing hole or for the spring utoq hunt along the ice margin. Whereas the tanged harpoon heads were mounted on lighter shafts used as throwing harpoons when hunting harp seals from kayak-like vessels or from the coastal slope.

Numerous stone-set features were discovered in area C. Some of these, such as feature A8, are large well built mid-passage features filled with fire-cracked rocks, whereas other are box-hearths or heaps of fire-cracked rocks. Meticulous excavation and documentation revealed that the large mid-passage feature A8 was originally situated on the central axis of a dwelling. And the various deposits of fire-cracked rocks, together with the beach pebbles, indicate that the hearth was used over a considerable period of time and/or during several episodes of habitation.

The results of the Qeqertasussuk excavations have been published in a large number of articles (Grønnow 1990, 1994, 1996; Grønnow & Meldgaard 1991; M. Meldgaard 1995, 2004) and it is beyond the scope of the present study to present this multitude of data in detail. The total lithic inventory remains unpublished, but more than 25.000 artefacts have been retrieved from the site (Grønnow 1994). Formerly, the sites of Sermermiut and Qajaa, with their ethno-historic dimensions and Thule components, were most often

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used to illustrate the base-camp type of settlement envisioned for the Saqqaq culture. The detailed studies of the Qeqertasussuk site have added hitherto unknown details concerning material culture, dwelling remains and economy to this picture. The detailed studies of economy and documentation of seasonality of the Qeqertasussuk site are particularly important in this respect, because these studies enable future reconstructions of settlement patterns and site characteristics to be less dependent on analogy with ethnohistorical studies and Thule settlement patterns.

The stratigraphies in area B and C have been dated by numerous radiocarbon dates (K-4823, K-4566, K-5125, K-4819, K-4821, K-4565, K-4564, K-4563, K-4562, K4817, K-4818, K-4822, K-5127, K-5126, K-5124, K-5128, K-4561, K-4816 and K-4820). Unfortunately most of these are conventional radiocarbon dates conducted on peat and only a few samples of heather from sleeping platforms are directly comparable to other dates for terrestrial material. However, the relative stratigraphic order of the layers in the deposits must be considered well dated. It is characteristic that most of the occupations occurred during the early and middle part of the Saqqaq period, from approximately 2500 cal B.C. to 1400 cal B.C. Human presence on Qeqertasussuk during the later Saqqaq sequence, extending from approximately 1400 cal B.C. to 900 cal B.C., is poorly known since no organic materials are preserved in the uppermost layers and no well preserved features were found in the most recent peat layers.

93 Appannguit
68V2-0IV-089
Dorset
On the mainland to the southeast of Qeqertasussuk there is a little cove with the outlet of a brook with running char. To the south of the brook there is an area where Dorset artefacts are being eroded from the peat layers at the coastal cliff. Four flakes of chalcedony have been collected from the site.

Lithic artefacts from Appannguit

Artefact category	All artefacts
All flakes	4

94 Saattut North
68V2-0IV-028
Saqqaq
The island of Saattut is located to the south of Akulliit. Here there are two Palaeo-Eskimo sites located respectively to the north and south of a little cove on the southwestern side of the island.

The northern of these is a Saqqaq site situated on the point to the north of the cove. A Saqqaq tent ring is situated approximately 7 m a.s.l. in an area with willow and mosses. Two flakes of killiaq were found near the tent ring but the vegetation made any further observations difficult.

Lithic artefacts from Saattut North

Artefact category	All artefacts
All flakes	2

95 Saattut South
68V2-0IV-090
Dorset
On the point on the southern side of a cove there is a Dorset site situated on a level gravel terrace at approximately 3 m. a.s.l. A fragment of a core and a biface fragment of quartz crystal have been collected from this locality, which is believed to be a Dorset site due to the elevation and raw material of the collected objects.

Lithic artefacts from Saattut North

Artefact category	All artefacts
Bifaces, all fragments included	1
Microblade cores	1
Total	2

96 Akulliit
68V2-0IV-014
Palaeo-Eskimo
The outpost of Akulliit has now been abandoned for many years, but several houses are still maintained and used as cabins by various families from Qasigiannguit. In the settlement there are extensive midden accumulations overgrown by thick grass cover. A few flakes of killiaq have been collected from the beach gravel on the northern side of the settlement, but it is not known whether these flakes result from Palaeo-

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Eskimo settlement on the site or whether they arrived at the site as a consequence of peat cutting in more recent times.

97 Uigorleq
68V2-0IV-063
Saqqaq
In the central part of Sydostbugten are two larger islands, Tussaaq and Saarlat. To the south of the latter are the two islets of Tinussaraaq and Uigorleq. Saqqaq sites have been discovered on the latter as well as on the island of Tussaaq. The site on Uigorleq is situated approximately 8 m a.s.l., where artefacts have been collected from deflated areas on top of a ridge as well as from an eroding profile 50 m to the south.

98 Tussaaq
68V2-0IV-065
Saqqaq
Near the tip of the point of Niaqornaarsuk on the southern side of Tussaaq, there is a rocky knoll connected to the mainland by a raised beach. Saqqaq artefacts have been collected from an eroded peat layer but the peat cover rendered difficult any further estimation of the size or 'richness' of the site.

The Southwestern Archipelago

99 Qeqertasussuk West
68V2-0IV-091
Dorset
At the narrow run between the island of Qeqertasussuk (not to be confused with the Qeqertasussuk further to the east, where site 92 is situated) and the mainland 'Naternaq' to the south, there is a little skerry where a single Dorset biface was collected near the high water mark.

100 Tulugartaliusaq
68V2-0IV-091
Dorset
Tulugartaliusaq is a Dorset Site situated on the northeastern point of the island of Tulugartaliusaq. Artefacts have been collected from sparsely vegetated peat deposits on a 20 x 20 m plateau estimated to be located at 3 m a.s.l. To the west of the plateau there are large deflated terraces, but no Palaeo-Eskimo finds were seen in this area. A burin-like tool and four flakes are of chalcedony; three flakes are of grey killiaq. The burin-like tool, the raw material composition of the flakes together with the height above sea level suggest that this is a Dorset site.

Lithic artefacts from Tulugartaliusaq

Artefact category	All artefacts
Burin-like tool	1
All flakes	7
Total	8

101 'Narrow Sound site'
68V2-0IV-010
Dorset
To the north of Tulugartaliusaq there is an islet separate from the former by a narrow sound. In the eroding peat cliff facing this sound there are bones and on the shore there was one flake of chalcedony and one of killiaq. The low elevation suggests that the locality is a Dorset site.

102 Annertusoq
68V2-0IV-093
Saqqaq
On the southern side of the tip of the peninsula of Annertusuaqqap, Saqqaq artefacts lie scattered in two concentrations near the edge of an approximately 3 m high cliff facing a minor cove. A few flagstones and fire-cracked rocks are associated with the finds, but no well defined features have been detected.

103 Annertusuaqqap Nuua
68V2-0IV-078
Dorset
Annertusuaqqap Nuua is an Early Dorset site situated near the tip of a west-east-oriented point approximately 6 km to the south of Ikamiut. The site was excavated in 1994 (Jensen 1995a, 1998) and a more detailed account of the results is given in the main text.

Fauna. A limited Dorset faunal assemblage has been identified by Tine Nord Andreasen. Frequencies of identified species are shown in table 8.11. The faunal remains and data sheets are stored at the Zoological Museum, University of Copenhagen (ZMK 145/1988).

A sample of locally grown wood (AAR-2351) and a

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caribou bone (AAR-2343) date the settlement to the early part of the Dorset sequence around 800 to 500 cal B.C.

104 Ikamiut
68V2-0IV-005
Saqqaq and Dorset
The outpost of Ikamiut is situated on the easternmost extremity of a west-east-oriented point in the western part of Sydostbugten. Through-out the settlement there are thick midden deposits and disintegrated ruins of Historical period houses with turf walls. The local shop was enlarged in 1988 and in the process of constructing the foundations Saqqaq midden layers were dug into. A 2 x 1 m area around the foundation posts was excavated leading to the recovery of a total of 387 flakes and tools. In contrast to most other Saqqaq sites in Disko Bugt, the debitage from Ikamiut is dominated by the locally available killiaq from Angissat. 62% of the 369 flakes from Ikamiut are thus of the Angissat variety, whereas the remainder consists of the grey varieties.

Lithic artefacts from rescue excavation Ikamiut, 1988

Artefact category	No.	%	All artefacts	%
Bifaces, all fragments included	8	47.1		
Burins	2	11.8		
End-scrapers	2	11.8	17	4.4
Retouched flakes	4	23.5		
Axes	1	5.9		
Whetstone			1	0.3
All flakes			369	95.3
Total	174	100.1	387	100

Fauna. A limited fauna sample from the excavation of Saqqaq midden layers below the foundation for the shop, is stored at the Zoological Museum, University of Copenhagen (ZMK 147/1988).

105 Naajannguit
68V2-0IV-094
Saqqaq and Dorset
In the mouth of the Tasiusarsuit inlet, c. 6 km to the west of the outpost Ikamiut, there is an archipelago. About 1 km to the east of the inlet mouth there is a little cove with two islets. On the eastern side of this cove there is a beach with prominent gravel beaches below eroding cliffs of clay and gravel. Fossil beach ridges are situated at 5-7 m a.s.l. on the elevated terrain behind the cliffs. Two hearths and a lithic scatter have been located along these beach ridges.

Feature A is a c. 1 x 2 m aggregation of fist- to head-sized stones. The disturbed hearth appears to measure 1 x 1 m and is filled with fire-cracked rocks. Flakes and a harpoon blade of killiaq were found in the vicinity of this feature.

Lithic artefacts from Naajannguit feature A

Artefact category	All artefacts
Harpoon blade	1
Retouched flakes	1
All flakes	5
Total	7

Feature B is similar to Feature A, but built solely of larger head-sized stones and situated on bare rock approximately 20 m to the west of feature A. A burin-like tool and a strike-a-light found in the vicinity of this feature indicate that features A and B are probably not contemporaneous, but rather related, respectively, to Saqqaq and Dorset settlement episodes.

Lithic artefacts from Naajannguit feature B

Artefact category	No.
Burin-like tools	1
Strike-a-light	1
Total	2

106 'Submerged Peat site'
68V2-0IV-095
Dorset
In 1999, the NERC ARCICE thematic program "Late Quaternary Ice Sheet Dynamics in West Greenland" (Long *et al.* 2003) conducted geomorphological research in the Tasiusarsuit inlet to the west of the outpost of Ikamiut. With the support of logistics provided by ARCICE and the Arctic Station, detailed archaeological reconnaissance of the area was also carried out (Jensen 2000a). The reconnaissance resulted in the location of four Palaeo-Eskimo sites of which the 'Submerged Peat site' is the first to be mentioned. This locality is situated on the shore to the east of the archi-

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pelago in the mouth of Tasiusarsuit. The Dorset component consists solely of a burin-like tool and a scraper, both of chalcedony, which were found on the sandy beach at 1.6 m a.s.l. Seven test pits and a 5 m long transect of the foreshore revealed an up to c. 30 cm thick peat layer extending from the present crowberry vegetation and several metres onto the shore. However, no cultural remains were located in this layer so the 'mother deposit' of the Dorset artefacts remains unknown.

Lithic artefacts from 'Submerged Peat site'

Artefact category	All artefacts
Burin-like Tool	1
Scraper	1
Total	2

107 Uingasoq
68V2-0IV-077
Saqqaq
Uingasoq is a minor island lying a few kilometres offshore to the north of the Tasiusarsuit inlet. The entire island is covered by luxuriant grassy vegetation growing on a thick cover of peat. In places, particularly on the western point, this has been extensively exploited for peat cutting. On the southern side of the westernmost point a raised cobblestone beach is exposed in a minor cliff. Here, the peat layers covering the ancient shoreline fall into the sea in large blocks. The cobblestone surface is located 2.5 m a.s.l. and it is covered by 30 to 50 cm thick layers of peat which obscure possible boulder features. Along the eroding cliff, thin patches of charcoal and flakes and tools of killiaq have been located in a narrow horizon on top of the cobblestone surface and overlain by the peat deposits.

Lithic artefacts from Uingasoq

Artefact category	All artefacts
Biface	2
All flakes	2
Total	4

108 'Single malt site'
68V2-0IV-074
Dorset
Towards the west of the island of Palersuaq, a narrow sound separates it from the mainland. On the mainland side there is a 50 m long and 25 m wide point protecting a little cove. At the base of the point there are places with marsh grass and here the sandy deposits on the foreshore cover a 3 to 5 cm thick peat layer containing scattered cultural remains. None of the finds is chronologically significant, but all of the flakes are of chalcedony and they were recovered at elevations of between 0.7 and 1.3 m a.s.l.. The raw material and the low elevation suggest the site is of Dorset date.

Lithic artefacts from 'Single Malt site'

Artefact category	All artefacts
Biface	1
All flakes	4
Total	5

109 'Sill Site'
68V2-0IV-075
Saqqaq
In the inner part of Tasiusarsuit there is an approximately 50 m wide narrow separating the head of the inlet from the outer part. In the narrow, the sea bed is just 1.5 m below sea level and at low tide it is an unnavigable rapid. On the point to the west of the narrow, there are terraces separated by rocky knolls at different elevations. In between these there are recent tent rings and ovens for the smoking of char. On one of the terraces located at 9.6 m a.s.l. there is a level spot with gravel covered by lichen. Here a few flakes of killiaq were found beneath and beside three flagstones. All the flakes were left *in situ*. No tent ring, hearth or other more well defined feature was registered. The elevation and dominance of patinated yellow killiaq among the flakes indicate that the site could be of Saqqaq date.

110 Nuugaarsuk North
68V2-0IV-096
Saqqaq
Nuugaarsuk is an approximately 750 m long and 300 m broad south-north-oriented point located on the southern shore of the inner part of Nivaap Paa. The point consists of low, ice-scoured gneiss hills separated by large level areas with grasses and peat. Recent tent rings are scattered all over the point and there are numerous places that must also have been well suited for camping in prehistoric times. However, Palaeo-

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Eskimo relicts have only been located at a single spot near a cove on the northern shore of the point. Here, eight flakes of grey killiaq and a single flake of white chalcedony have been collected from a deflated area.

Lithic artefacts from Nuugaarsuk North

Artefact category	All artefacts
Flakes	9

111 Nivaaq
68V1-001-013
Dorset

The abandoned outpost of Nivaaq is situated at the narrow separating Nivaap Sullua from Saqqarleq. Artefacts have been collected from the shore below an eroding midden as well as from a boulder beach to the west of the abandoned outpost and from a little cove to the east of the outpost. Thick midden deposits of Historical origin cover the major part of the formerly settled area and towards the narrow the sea is eroding the midden. Dorset artefacts have been collected from the shore towards the narrow, but a Dorset layer have not been distinguished in the nearby midden deposits. Accordingly, it is not known whether the Palaeo-Eskimo artefacts are in a secondary or tertiary position as a result of peat cutting at nearby places or whether there is a Dorset site buried below the more recent deposits.

To the west of the abandoned outpost there is a boulder beach where artefacts have been collected from the shore. The objects collected here include a large polished side-notched slate knife and an axe, indicating that this might be the location of a substantial Dorset settlement since both types are rare and mainly occur on the larger Dorset sites.

Another cove is situated a few hundred metres to the east of Nivaaq and a few flakes have been collected from the beach here. However, this place also has more recent settlements, so again it is uncertain whether the flakes have been transported to the site during more recent episodes of occupation. In addition to the finds listed below, there are also a few lithic implements archived at the museum of Qasigiannguit.

The Dorset settlements at Nivaaq may be more substantial than indicated by the brief investigations conducted so far. The locality appears thus to contain several areas with artefact concentrations, but the potential existence of a well-preserved Dorset midden below the more recent midden accumulations remains to be tested.

Lithic artefacts from Nivaaq

Artefact category	No.	%	All artefacts	%
Bifaces, all fragments included	4	22.2		
Microblades	2	11.1		
Burin-like tools	3	16.7		
Side-blades	1	5.6		
End-scrapers	2	11.1	18	11.7
Side-scrapers	1	5.6		
Axes	2	11.1		
Microblade cores	2	11.1		
Large flake / preform	1	5.6		
Whetstone			1	0.6
All flakes			135	87.7
Total	18	100.1	154	100

112 Niivertussannguaq
68V2-0IV-097
Saqqaq

Niivertussannguaq is a Saqqaq site. The name means 'the little merchant', but the reason for this is unknown The place is topographically typical for a Saqqaq site. A rocky point is connected to the main and by a saddle of raised beach terraces. On top of the saddle there are large deflated areas, and during the survey in 1990 it was noted that there are places with many fire-cracked rocks in the shell-mixed gravel. During the 'Sydostbugt project' from 1994 to 1996 a well-preserved dwelling and two open-air features were excavated. In addition to a rich lithic assemblage the site also yielded limited organic material and all of the excavated features have been dated by radiocarbon dating (Olsen 1998).

Feature I is a complicated hearth structure characterised by a central hearth with some border stones in place. From the centre of the hearth, there are dense concentrations of fire-cracked rocks protruding towards south, east and west. The fire-cracked rocks were deposited in a matrix of dark sand rich in humus, which made the tongues stand out in clear contrast to the natural more white sand and gravel mixed with crushed shells. The southern extension contained numerous bones, but only a limited lithic assemblage was associated with the feature.

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Lithic artefacts from Niivertussannguaq I

Artefact category	No.	%	All artefacts	%
Bifaces, all fragments included	4	19.0		
Microblades	6	28.6		
Burins	3	14.3	21	15.6
Burin spalls	5	23.8		
Retouched flakes	3	14.3		
All flakes			114	84.4
Total	21	100	135	100

Feature I has been dated to 3460±70 b.c., the radiocarbon date for a sample of locally grown wood (TUa-1687)

Feature II is a circular dwelling with a central boulder-framed box hearth filled with fire-cracked rocks. On one side of the hearth there was a platform of flagstones and boulders with a flat surface side turned upwards. In between the larger stones were many fire-cracked rocks as well as smaller stones. The platform had the shape of a quadrant with a radius from the hearth of approximately 2 m. The periphery of the dwelling was marked by a cleared area immediately outside the platform. In a hypothetical extension of the periphery marked by the outline of the platform there were dark brown areas of turf in the gravel subsoil. This was interpreted as traces of a turf wall or a turf foundation (Olsen 1998). To the north of the hearth, and adjacent to he platform, was a cleared floor area. Adjacent to this was a refuse area with concentrations of lithic artefacts and fire-cracked rocks, in addition to osteological material.

Three samples of charcoal of locally grown wood have been dated (T-12996, T-12917, TUa-1686). These dates indicate that the platform dwelling is later than the mid-passage feature (feature 3) at Tupersui (Site no 181). Olsen (1998) suggests, accordingly, that the platform dwellings might be a later development resulting from changes in Saqqaq settlement patterns and residential mobility in the period from approximately 2000-1700 cal B.C.

Niivertussannguaq lithic artefacts feature II

Artefact category	No.	%	All artefacts	%
Bifaces	25	18.4		
Microblades	37	27.2		
Burins	7	5.1		
Burin spalls	25	18.4	136	10.8
Scrapers	9	6.6		
Retouched flakes	25	18.4		
Cores	4	2.9		
Tool fragments	4	2.9		
Pumice			2	+
All flakes			3560	89.1
Total	136	99.9	3698	100

Feature III is a concentration of fire-cracked rocks, lithic artefacts and osteological material located at the base of the point. Olsen (1998) suggests that the deposit is a midden, but no dwelling remains were seen to be directly associated with feature III. Nearby, to the northwest of feature III, there is a hearth, but possible links between the two remain speculative. Olsen concludes, accordingly, that feature III is a midden which may be isolated from other features, but which also could be associated with an unknown dwelling or cooking place.

Niivertussannguaq lithic artefacts feature III

Artefact category	No.	%	All artefacts	%
Bifaces	6	15.4		
Microblades	9	23.1		
Burins	2	5.1		
Burin spalls	17	43.6	39	6.2
Retouched flakes	3	7.7		
Cores	1	2.6		
Tool fragments	1	2.6		
All flakes			589	93.8
Total	39	100.1	628	100

Feature III has been dated (Tua-1688) by a sample of charcoal of locally grown wood resulting in a date of 1735±75 b.c. (2200-2160, 2150-1950 cal B.C.)

Niivertussannguaq was the fist place where a 'platform dwelling' was excavated and, as such, the locality have added important aspects to our knowledge of Saqqaq housing. Furthermore, the excavated features display significant differences in their artefact and osteological contents, supporting Olsen's (1998)

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interpretation of feature I as an open-air hearth used during the warm season, whereas feature II was probably a winter dwelling.

Fauna. The shell-gravel subsoil has assured rather good conditions for the preservation of faunal material and these have been excavated from features I, II and III (Andreasen, T. N. 1998). Olsen (1998:110) speculates that differences in the relative frequencies of fish and bird versus mammal bone fragments may result from differences in seasonality. The relatively high frequencies of bird and fish bones in feature III and, in particular, in feature I, is thus believed to result from summer occupations, whereas the dominance of the stable food sources of harp and ringed seal bones in feature II is believed to result from winter occupation. The fauna is stored at the Zoological Museum, University of Copenhagen (ZMK 50/1995).

113 'Abri site'
68V2-0IV-098
Dorset

Abri site is a flat shore area situated below vertical cliffs a few hundred metres to the northeast of Niivertussannguaq. Along the cliff there is marsh grass growing on approximately 50 cm thick peat deposits, whereas the more exposed part of the site comprises a gravel and boulder beach with peaty sediments buried in the foreshore. Dorset artefacts have been recovered from the foreshore as well as from the peat near the vertical cliff.

In 1996 8 m² was excavated along the vertical cliff delineating the site towards the northwest. Along the vertical and slightly overhanging cliff, thick deposits of charred blubber marked two hearths. Flagstones surrounded the charred deposits but formal stone constructions were not present. Only a few lithic artefacts were found in the excavated area, whereas many were found on the eroded foreshore. Furthermore, Thule artefacts, in the form of a wooden doll, were recovered from the peat layers near the hearths. Consequently, the hearths are believed to be of more recent origin and the Palaeo-Eskimo origins of the lithic artefacts remain poorly known. One option is that the level area in front of the cliff was once the locus of a Dorset occupation, which has now been obliterated by the rising sea level. Another possibility is that the Dorset artefacts have been eroded or thrown on to the shore from nearby localities on the elevated cliffs surrounding the site. However, the latter option seems unlikely since no Dorset remains were discovered on the more elevated terrain surrounding the 'Abri site'.

Lithic artefacts from 'Abri site'

Artefact category	No.	%	All artefacts	%
Bifaces, all fragments included	3	50		
Microblades	2	33.3	6	4.1
End-scrapers	1	16.7		
All flakes			140	95.9
Total	6	100	146	100

114 Niivertussannguaq North
68V2-0IV-099
Dorset

A few hundred metres to the north of Niivertussannguaq there is a rocky point with a level but rather uneven grass-covered area towards the shore. Numerous artefacts have been collected from the gravel on the boulder-strewn foreshore which is divided into different sections by small rocky outcrops. The eroded peat layers stand as up to c. 40 cm thick cliffs towards the shore and bones are occasionally preserved. Artefacts were collected from the foreshore during the initial discovery of the locality in 1990 (Hansen 1990) as well as during the Sydostbugt Project. Artefacts have been collected from six different shore segments, but the correlation of the exact shore segment during the different visits is not certain. Accordingly, the findings have been collated into a single table displaying all of the finds known to have been collected from this locality. In addition to the lithics tabulated, there are also finds of more recent objects such as gunflint, a clay pipe fragment and glass shards.

The rich finds from Niivertussannguaq North indicate that this is a large Dorset site. The site location, as well as the numerous artefacts from the foreshore, resembles the situation on excavated sites such as Annertusuaqqap Nuua and Umiartorfik, where Dorset dwellings have been uncovered below the turf layers.

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Lithic artefacts from Niivertussannguaq North

Artefact category	No.	%	All artefacts	%
Bifaces	19	15.6		
Microblades	51	41.8		
Burin-like tools	6	4.9		
End-scrapers	14	11.5		
Side-scrapers	2	1.6		
Axes or fragmented rough-out	2	1.6		
Microblade cores	13	10.7	122	10.5
Flake with polished edge	5	4.1		
Other tools	2	1.6		
Quartz crystal, unmodified	1	0.8		
Large flake / preform	7	5.7		
Soapstone fragment			1	0.1
All flakes			1044	89.5
Total	122	100	1167	100.1

115 Illorsuup Nuua
68V2-0IV-044
Saqqaq and Dorset

2.5 km to the northwest of Niivertussannguaq, there is another locality with extensive Dorset settlement. Illorsuup Nuua is a minor point protecting a cove, where a little stream runs into Nivaap Sullua. In the cove, there are the ruins of a well-preserved trapezoid Thule house as well as of another much more obliterated Thule winter house. On the point to the east of the cove, there are several small beaches where Dorset artefacts have been collected. And on top of the point there is a quite extensive Saqqaq settlement. During the 1995 field season a depression with a culture layer from the Saqqaq culture was excavated in this area.

The topographical position of Saqqaq and Dorset artefacts, respectively, on the Illorsuup Nuua site illustrates, accordingly, the effect of a fall in relative sea level between 4000 cal B.C. and the onset of the Dorset occupation. Transgression during the last 1000 years or so is, on the other hand, indicated by the fact that many of the Dorset artefacts were picked up from the beaches, in addition to the location of a Thule winter house at such low elevation that the cold-trap entrance is flooded at high tide (Rasch & Jensen 1997).

Dorset artefacts have been collected from five different beaches (called Illorsuup Nuua 192, 193, 194, 195, 196, and 197). Below, the finds are tabulated separately for each beach.

Lithic artefacts from Illorsuup Nuua 192

Artefact category	All artefacts
Bifaces, all fragments included	2
Microblades	1
End-scrapers	1
All flakes	50
Total	51

Lithic artefacts from Illorsuup Nuua 193

Artefact category	All Artefacts
Bifaces, polished	6
Bifacial knives	1
Microblades	1
Burin-like tools	1
Scrapers	2
Side-blades	2
End-scrapers	1
Microblade cores	4
Retouched flake	1
All flakes	73
Total	92

Lithic artefacts from Illorsuup Nuua 194

Artefact category	No.
Bifaces, all fragments included	1
All flakes	2
Total	3

Lithic artefacts from Illorsuup Nuua 195

Artefact category	All artefacts
Large flake / preform	1
All flakes	13
Total	13

Lithic artefacts from Illorsuup Nuua 196

Artefact category	All artefacts
Bifaces, all fragments included	1
End-scrapers	1
All flakes	1
Total	3

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Lithic artefacts from Illorsuup Nuua 197

Artefact category	All artefacts
All flakes	1

Lithic artefacts from Qaarsup Nuua

Artefact category	All artefacts
All flakes	2

116 Umiartorfik
68V2-0IV-066
Dorset

Umiartorfik is situated a few hundred metres north-east of Illorsuup Nuua. During fieldwork in 1995 it was discovered that numerous Dorset artefacts lay scattered in between the gravel and stones on a little boulder beach facing Nivaap Sullua. Subsequently, three areas were excavated in order to delineate and characterise the culture layer buried under the grass-covered peat. A more comprehensive account of these excavations is given in chapter 8. The excavation of the three areas A, B and C resulted in the clearing of a partly disturbed Dorset dwelling with many similarities to the dwelling previously excavated at the site of Annertusuaqqap Nuua (site no 103) in 1994.

A sample of charcoal of locally grown wood (AAR-8409) collected from the hearth in the central part of the dwelling has been radiocarbon dated to 220 ± 30 b.c. (360-290, 240-170 cal B.C.), which is in the later part of the known range of Dorset dates in West Greenland.

Fauna. Several bone fragments were recovered from the hearth area in the centre of the dwelling in excavation unit B. Most fragments remain unidentifiable, but seal bones, bearded seal, walrus and caribou have been positively identified (table 8.11) (ZMK 49/1995).

117 Qaarsup Nuua
68V2-0IV-073
Palaeo-Eskimo

Qaarsup Nuua is a minor rocky point at the southern end of a cove named Sammiarneq. Towards the mainland there are large gravel terraces with deflated areas and a sub-recent tent ring. On the western part of the terrace, two retouch flakes have been collected from a greyish layer approximately 10 cm below the crowberry vegetation. Several stones were found nearby but they did not form any recognisable pattern.

118 Ikkarlussuup Timaa
68V2-0IV-072
Saqqaq and Dorset

Nuuk is a prominent west-east -acing point marking the northeastern limit of Nivaap Paa. The place has a large Thule settlement and in 1993 excavations were conducted at the very tip of the point. The excavation covered more than 110 m^2 and focussed on two principal areas of occupation where there are remains of three dwelling units (Stapert & Johansen 1996). In 1995 and 1996, the excavation was extended so that a total of approximately 128 square metres have now been excavated at this locality. Like the other known Dorset sites rich in finds, the site consists of a grass-covered peat layer at a low elevation of approximately 1.5 m a.s.l. The peat and culture layers lie over an uneven boulder terrace of rounded stones making it difficult to distinguish man-made boulder structures from naturally deposited stones. A few Saqqaq artefacts were found during the excavation, but it is impossible to judge whether these were deposited on site or whether they were brought in as part of peat blocks moved in by the Dorset people.

Feature A is a 3.75 x 2 m oval boulder tent ring with a stone platform and a central stone-set hearth situated in the southern part of the excavated area. The entrance is believed to face the other features towards the north, where there was a door dump.

Feature B is a better defined tent ring located in the northeastern part of the excavated area. This tent ring has a well-defined oval or sub-rectangular periphery of boulders and in the centre there is a stone-set hearth with internal pavement of slabs. In the northern part of the tent ring there is a raised sleeping platform.

Feature C is a dwelling situated in the middle of the northern part of the excavation. The 3.5 x 4 m periphery is marked by both an outer and an inner ring of stones which may have supported a peat wall. The external periphery is most well defined in the eastern part of the dwelling, whereas the inner periphery is less well defined. The central hearth has been constructed in a low depression and it was filled with fire-

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encrusted blubber and burned rocks. To the north and south of the hearth there are raised sleeping platforms built of tightly-packed stones and with an outer ring of larger stones. To the exterior of the northern periphery there are two stone-set caches and the artefact distributions indicate that the entrance faced east towards the sea.

In addition to the artefacts tabulated in the tables below, additional lithics were also excavated during fieldwork in 1995 and 1996.

Lithic artefacts from Ikkarlussuup Timaa (Stapert and Johansen 1996)

Artefact category	No.	%	All artefacts	%
Bifaces, all fragments included	135	10.5		
Microblades	885	68.8		
Burin-like tools	38	3.0		
Side-blades	28	2.2		
End-scrapers	66	5.1		
Side-scrapers	8	0.6	1287	8.1
Retouched flakes	7	0.5		
Axes	6	0.5		
Microblade cores	27	2.1		
Large flake / preform	64	5.0		
Other implements	23	1.8		
Soapstone vessel fragments			29	
Other soapstone fragments			14	0.3
All flakes			14573	91.6
Total	1287	100.1	15903	100

Lithic artefacts collected from Ikkarlussuup Timaa, 1990

Artefact category	All artefacts
Bifaces, all fragments included	1
End-scrapers	2
All flakes	4
Total	7

Fauna. Tine Nord Andreasen has identified a limited faunal assemblage. The species frequencies are presented in table 8.11, where other faunal materials from the Dorset culture are also presented. The faunal material and data sheets are stored at the Zoological Museum, University of Copenhagen (ZMK 47/1995).

119 Ujarattarfik South
68V2-oIV-100
Dorset

Ujarattarfik is one of the larger islands in the archipelago of the northern part of Nivaap Paa. The southwestern point of the island is a long narrow rocky spit. On the tip of the spit, several Dorset artefacts have been collected from the gravel and stones below a minor eroding cliff.

Lithic artefacts from Ujarattarfik South

Artefact category	All artefacts
Bifaces, all fragments included	1
Microblades	2
Burin-like tools	2
Side-blades	1
End-scrapers	2
All flakes	81
Total	89

120 Ujarattarfik North
68V2-oIV-043
Saqqaq

In the northeastern part of the island of Ujarattarfik, there is a minor valley with gravel terraces extending from the present shore towards a saddle located at approximately 10 m a.s.l. Towards the west, the gravel terraces are delineated by a vertical cliff and towards the sea, in an easterly direction, the terraces are bordered by lower rounded rocks. In the southwestern part of the terrace system there are nine features, most of which are deeply imbedded in the gravel. All of the features are situated in an area with even gravel located 10-20 m from the shore and 7-7.5 m a.s.l. Towards the northeast there is a gravel and boulder beach with a Thule common house.

Feature 1 is an isolated hearth deeply buried in the gravel. Presumably the hearth is of the stone-, set type with fire-cracked rocks. 2 m to the west of the hearth there are some stones, which could be part of a tent ring with a diameter of 3 x 4 m.

Lithic artefacts from Ujarattarfik North feature 1

Artefact category	All artefacts
All flakes	1

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Feature 2 is a circular tent ring with a diameter of c. 4 m. In the central and southern part of the dwelling there is a large number of fire-cracked rocks and larger stones believed to be a disturbed hearth. The feature is difficult to see due to the fact that it is covered by peat.

Lithic artefacts from Ujarattarfik North feature 2

Artefact category	All artefacts
Burin spalls	1
All flakes	1
Total	2

Feature 3 is a 2.75 x 4.5 m tent ring of head-sized or larger stones. Towards the presumed entrance are a heap of fire-cracked rocks stacked against a larger boulder. Both the hearth and the tent ring are buried in peat.

Feature 4 is a hearth of fire-cracked rocks with a few border stones. The hearth is almost completely hidden in peat.

Feature 5 is believed to be a rudimentary tent ring with a hearth. A crescent of flat stones is believed to be the remnants of a tent ring and a nearby is a 1 x 1 m stone-set hearth with a few fire-cracked rocks.

In addition to the Palaeo-Eskimo objects there was a piece of gunflint indicating that the place may also have been used as a camping ground in Historical Times.

Lithic artefacts from Ujarattarfik North feature 5

Artefact category	All artefacts
Burin spall	1
All flakes	1
Total	2

Feature 6 is an overgrown 3 x 4 m large tent ring with central hearth. The hearth measures 1 x 2 m large and is filled with fire-cracked rocks. The entire feature is hidden by vegetation and several of the stones were located by probing with a peg.

Feature 7 is a hearth with a flagstone framed by minor rocks. Hansen (1990) mentions that probably the hearth is situated centrally in a tent ring with a diameter of 4.5 m but the feature is heavily overgrown making observation difficult.

Feature 8 is a 2 x 3.5 m tent ring with a point-formed rear portion. The tent ring is built of head-sized stones. Towards the entrance is a 0.75 x 1.25 m stone-set hearth with fire-cracked rocks. The pointed rear section of the tent ring has similarities with the tent ring Brinch Petersen has excavated at the locality of Brinchip Tupeqarfikuutaa (site no. 133).

Lithic artefacts from Ujarattarfik North feature 8

Artefact category	All artefacts
All flakes	1

Feature 9 is an uncertain structure consisting of stones and flakes which did not, however, form any pattern.

The many features on Ujarattarfik North show that this locality has been the locus of substantial Saqqaq settlement. The limited number of artefacts associated with the features further indicates that most of the features probably represent short-term occupations. The aggregation of tent rings might thus result from several episodes of occupation but it is also possible that Ujarattarfik North is indeed a sort of summer aggregation camp.

121 Qeqertarmiut I
68V2-0IV-101
Saqqaq

The island of Qeqertarmiut is situated in the archipelago of Nivaap Paa. The island is characterised by low, undulating hills with several skerries protecting good landing places between small points and coves along the shore. Today, the island is a popular summer resort for local residents and recent tent rings are scattered along the shores. Thule winter houses are situated in the western- and easternmost parts of the island and Palaeo-Eskimo settlements have also been found in the vicinity of these settlements. Qeqertarmiut I is a Saqqaq site situated on the southwestern point of the island where two hearths and artefacts were located on deflated south-facing gravel terraces.

Feature A is a 2.2 x 0.9 m diffuse aggregation of fire-cracked rocks deeply imbedded in the sand and gravel and with some charcoal present.

Feature B is a circular concentration of fire-cracked rocks located a few metres to the northwest of feature A.

Saqqaq artefacts are scattered on the deflated

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areas around the features but no lithics have been recorded in the archives.

122 Qeqertarmiut II
68V2-0IV-102
Saqqaq
Qeqertarmiut II is a minor Saqqaq site situated on the southern shore of the island a few hundred metres to the east of Qeqertarmiut I. Flakes have been found on a gravel terrace relatively high above a little cove. No features have been recorded at this find spot.

123 Qeqertarmiut III
68V2-0IV-103
Saqqaq
Qeqertarmiut III is a Saqqaq site located on a deflated gravel ridge facing a minor cove on the central part of the southern shore of Qeqertarmiut.

Feature A is a 0.8 x 0.4 m aggregation of fist- to head-sized stones. Flakes were seen adjacent to the hearth but none appear to have been collected.

124 Qeqertarmiut IV
68V2-0IV-104
Dorset
A side-notched biface was collected from the sandy shore below a saddle situated at the eastern end of the island. Flakes were seen in the grassy vegetation above the eroding cliff. The elevation of the artefact-bearing stratum is a maximum of 3 m a.s.l. and the site is assumed to be of Dorset age.

125 Qeqertarmiut V
68V2-0IV-105
Saqqaq
Qeqertarmiut V is a Saqqaq site located on a gravel terrace to the west of Qeqertarmiut IV at approximately 12-15 m a.s.l. Among the 31 finds from this site, there are 17 flakes of the characteristic yellow patinated killiaq from the nearby source on the island of Angissat. The retouched flake and the microblade are made of chalcedony, whereas the preform, one of the two bifaces and nine flakes are of grey killiaq.

Lithic artefacts from Qeqertarmiut V

Artefact category	All artefacts
Bifaces, all fragments included	2
Microblades	1
Retouched flakes	1
Large flake / preform	1
All flakes	26
Total	31

126 Qeqertarmiut VI
68V2-0IV-106
Saqqaq
Qeqertarmiut VI is located on a deflated gravel terrace approximately 6 m. a.s.l. and 15 m from the shore to the north of Qeqertarmiut IV. Two burins and eight flakes, all of grey killiaq, were collected from a 10 x 5 m deflated area where no features were seen.

Lithic artefacts from Qeqertarmiut VI

Artefact category	All artefacts
Burins	2
All flakes	8
Total	10

Summary of Qeqertarmiut
The island of Qeqertarmiut has ample evidence of both Palaeo-Eskimo and more recent occupation. As can be seen from the above descriptions, the settlements are clustered at the eastern and western extremities of the island, with a few Saqqaq sites also located in the central part of the southern shore. The preliminary reconnaissance does not allow any more detailed conclusions to be drawn on the nature of the individual find spots and features. Therefore, we do not know whether some of the localities represent contemporaneous dwellings or whether they are multiple occupations by just a single social unit, but both scenarios could well be the case. The proximity of the sites at the two ends of the island and the different elevations and presence or absence of features indicate that probably there have been numerous episodes of Palaeo-Eskimo occupation. However, considering the topographical situation of the finds, all the different localities should probably be regarded as just two different 'sites': Qeqertarmiut West consisting of find

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spots I – III and Qeqertarmiut East of find spots Qeqertarmiut IV-VI.

127 'Little Island'
68V2-oIV-107
Dorset
Just offshore at the eastern end of Qeqertarmiut, there is an islet where artefacts have been collected from a 2 x 2 m deflated area situated at approximately 2 m a.s.l. A proximal fragment of a side-notched biface of white chalcedony, together with the low elevation, indicate that this is a Dorset site. Nine of the 60 flakes are of white chalcedony, whereas the remainder are of killiaq; one of these is a core fragment of the characteristic patinated yellow killiaq from Angissat.

Lithic artefacts from 'Little Island'

Artefact category	All artefacts
Bifaces, all fragments included	1
All flakes	60
Total	61

128 Angissat
68V2-oIV-083
Palaeo-Eskimo
In clear weather the archipelago of Kitsissunnguit (Grønne Ejland) in the southeastern corner of Qeqertarsuup Tunua can be seen on the horizon from the surrounding shores. In contrast to the mainland to the east and south, the bedrock of Kitsissunnguit consists of basaltic rocks with a little outcrop of Cretaceous sediments on the island of Angissat. This outcrop has been exploited by the Palaeo-Eskimos but only little evidence for the raw material procurement has so far been documented (Jensen 1996b; Jensen & Brinch Petersen 1998).

Thule settlements are located at the eastern point of Angissat as well as on the island of Kitsissunnguit (Basisø) to the west of Angissat. In 1996, the island of Angissat was surveyed with the specific purpose of locating raw material extraction sites. The outcrop of sedimentary rocks was noticed on geological maps and it was speculated that this locality could have raw material extraction sites similar to those on the Nuussuaq Peninsula. The killiaq outcrop is located in the steep cliffs on the southern shore of the island. A few hundred metres to the east of the outcrop there is a little cove also surrounded by steep cliffs. The plateau above the cliffs is characterised by large deflated areas with sand and gravel of disintegrated volcanic rocks. In this area there are numerous flakes and nodules and two features were also registered. In 2003 the head of the Greenland National Museum Emil Rosing and Mikkel Myrup visited the archipelago. During this visit additional debitage clusters were discovered on the island Kitsissunnguit to the west of Angissat (Mikkel Myrup pers. comm.)

Feature A is a 50 x 100 cm frame of fist-sized and larger stones with a few smaller cobblestones inside the frame. The feature is located near the edge of the gravel terrace.

Feature B and C are located in a deflated area to the northeast of feature A and approximately 75 m from the cliff. Feature B is a rectangular 50 x 50 cm boulder structure, but neither charcoal nor flakes were observed in or around the feature.

Feature C is a boulder tent ring located in the western part of the deflated area. In the centre of the periphery there are several stones, which may be a rudimentary hearth. Flakes were associated with this feature.

Lithic artefacts were collected from the southernmost portions of the deflated area where the gravel is washed over the cliff. In contrast to the Qaarsut site on the northern shore of the Nuussuaq peninsula, nodules were only tested at the Angissat site. No specialised production of preforms seems then to have occurred at the locality of Angissat.

Chronologically significant artefacts have not yet been collected from Angissat. However, the Angissat variety of raw material occurs on both Saqqaq and Dorset sites in Southern Qeqertarsuup Tunua, so indirectly we can know of both Saqqaq and Dorset visits to the locality. Several of the flakes collected from knapping sites on Angissat have scouring of the flaking front. This particular technique is well known from Saqqaq contexts and, therefore, at least Saqqaq exploitation of the resource seems to be well established.

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Lithic artefacts from Angissat

Artefact category	All artefacts	%
Nodules	5	1.9
All flakes	255	98.1
Total	260	100

129 Tulugartalik
68V2-0IV-046
Dorset
An oval boulder tent ring and four hearths are located at 1.8 m a.s.l. on an elongated east-west-oriented saddle on the island of Tulugartalik. Towards the west the saddle borders a narrow cove and a low point, whereas the eastern side is bordered by a swampy area. To the north and south there are bedrock outcrops.

Feature 1 is a 3.5 x 5 m large oval boulder tent ring. In the centre of the periphery there is a boulder-framed hearth with fire-cracked stones.

Lithic artefacts from Tulugartalik

Artefact category	All artefacts
All flakes	1

130 Akunnaap Nunaa
68V2-0IV-067
Dorset
A promontory to the east of the outpost of Akunnaaq has a minor rocky point protecting a low saddle with its highest part at approximately 2 m a.s.l. Flakes, but no tools, have been located on the saddle. Due to the low elevation the site is believed to be of Dorset origin (Hansen 1990).

Lithic artefacts from Akunnaap Nunaa

Artefact category	All artefacts
All flakes	1

131 Sallersuaq
68V2-0IV-068
Saqqaq
The harbour to the south of the outpost of Akunnaaq is protected by a minor island named Sallersuaq. In the central part of the island there is a partly deflated saddle located at approximately 4 m a.s.l. A single flake has been found on the saddle and due to the elevation it is suggested that the site is of Saqqaq origin.

Lithic artefacts from Sallersuaq

Artefact category	All artefacts
All flakes	1

132 Kangiusaq
68V1-001-109
Palaeo-Eskimo
At the southwestern point of Akunnaap Nunaa a few flakes have been collected from a beach facing the narrow run connecting Akunnaap Saqqaa to the inlet to the west of Akunnaap Nunaa.

133 'Brinchip Tupeqarfikuutaa'
68V1-001-110
Saqqaq
During the 1990 reconnaissance of the Aasiaat District a well-preserved Saqqaq tent ring was also excavated. The tent ring is located on a gravel terrace approximately 80 m from the present shore and 8 m a.s.l. Towards the narrow low bedrock outcrop protects the site. The entire terrace is covered by vegetation and the tent ring was only detected due to a few stones protruding through the vegetation. Intensive searching for additional stones revealed the presence of the well-preserved tent ring, which it was subsequently decided to excavate (Brinch Petersen 1992). The excavation covered a total of 30.5 m², and all finds have been recorded with reference to 0.25 m² grids.

Feature description. The oval boulder tent ring measures 3 x 4.3 m internally and 3.9 x c. 4.8 m externally. Its long axis runs from front to rear. The entrance is located in the rounded or straight north-facing front of the feature. The back of the tent ring has a characteristic pointed outline. At the centre of the periphery there is circular boulder-framed hearth filled with fire-cracked rocks.

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Lithic artefacts from Brinchip Tupeqarfikuutaa

Artefact category	No.	%	All artefacts	%
Bifaces, all fragments included	7	53.8		
Burins	2	15.4		
Burin spalls	1	7.7	13	2.1
Retouched flakes	2	15.4		
Nodules	1	7.7		
All flakes			616	97.9
Total	13	100	629	100

Lithic distribution. Generally the artefacts are concentrated around the hearth, but also with distinct flake concentrations to the north and south of the entrance. Analysis of the spatial distribution, together with refitting of flakes, has enabled the production of a detailed spatial model of the dwelling (Brinch Petersen 1992). It can be seen that the dense flake scatter to the northeast of the entrance is a knapping area resulting from just one reduction sequence. Another lithic concentration to the northwest of the entrance is a retouch area with flakes of different raw materials, indicating that waste from several episodes of lithic reduction was deposited in this area. Inside the dwelling, retouch flakes were deposited both in front of and behind the hearth. To the east of the hearth, there is a possible activity area characterised by the deposition of five tools (an arrow point, a burin, a fragment of a serrated flake, a preform probably for a burin and a fragment of a lance blade).

'Brinchip Tupeqarfikuutaa' has been dated to 3450±40 b.c using a sample of charcoal of locally grown wood (Ka-6944).

134 Kaakaq
68V1-001-111
Saqqaq
Two tent rings and a third boulder structure are situated approximately 10 m apart and 7 m a.s.l. on the eastern point of Ikerasassuup Nunaa. The features are situated in depressions in the bedrock which is covered by a thin layer of mosses, lichen, grasses and birch.

Feature 1 is a cache comprising a 3.5 x 4 m oval aggregation of head-sized boulders. The stones are lain in several courses and no finds have been made around this feature.

Feature 2 is an oval 3 by 4 m large tent ring of head-sized boulders. In the centre there is a rudimentary circular stone-set hearth with fire-cracked rocks and a little charcoal.

Lithic artefacts from Kaakaq feature 2

Artefact category	All artefacts
All flakes	1

Feature 3 is a 3.5 by 5 m large oval tent ring of head-sized rounded and angular boulders. Towards southeast the periphery has an annexe, but when looking at the sketch drawing made during the survey in 1990, the annex actually have the character of being an additional exterior periphery. In the centre of the periphery, there is a rudimentary hearth marked by a few stones.

Lithic artefacts from Kaakaq feature 3

Artefact category	All artefacts
All flakes	1

Chronological significant artefacts have not been collected from the site, but the elevation suggests the features to be of Saqqaq origin. No lithics were found in association to feature 1, but there are no other settlements in the immediate vicinity, so feature 1 is thought to be of Saqqaq origin as well.

135 Saattukujooq
68V1-001-113
Saqqaq
On the central part of the southern shore of Ikerasassuup Nunaa, there is a point with several Palaeo-Eskimo tent rings situated at different terraces at the base of the point.

Feature 1 is a tent ring partly disturbed by more recent reuse of the stones, making it difficult to establish the exact outline of the feature. All the stones are deeply imbedded in the substratum, and flakes were collected from the holes left by the removal of two of the stones in the periphery. Feature 1 and 3 are located approximately 14 m a.s.l. on an elongated southeast – northwest oriented terrace. Towards northeast a cliff delineates the terrace, and towards southwest it drops off in a slope towards a low tombolo connecting the southern extremity of the point to the mainland.

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Lithic artefacts from Saattukujooq feature 1

Artefact category	All artefacts
All flakes	1

Feature 3 is a tent ring located to the southeast of feature 1. The opening is towards northwest and the seven by four m large oval periphery has a pointed rear section and. Flakes are also associated with this feature.

Lithic artefacts from Saattukujooq feature 3

Artefact category	All artefacts
All flakes	1

Feature 5 is a 2.5 by 2.25 m large oval boulder periphery located c. 9 m a.s.l on a minor terrace below feature 1 and 3. In the eastern part of the periphery there is a stone-set circular hearth filled with fist-sized stones. The dwelling was difficult to detect since all the stones are deeply imbedded in the substratum and partly covered by mosses, birch, lichen and crowberry. No artefacts were seen in connection to this feature, but the character of the construction and the proximity to the other Palaeo-Eskimo tent rings on the site makes reasonable the suggestion that this feature also is of Palaeo-Eskimo origin.

Feature 2 is a well preserved 4.5 by 2.5 m large oval periphery of head-sized rounded and angular boulders with a central hearth. The feature is located approximately 7 m a.s.l. on a minor terrace to the south of feature 5. Angular boulders frame the hearth and it is filled with fire-cracked rocks and charcoal. A single flake was collected from the southern part of the periphery.

Lithic artefacts from Saattukujooq feature 2

Artefact category	All artefacts
All flakes	1

Chronologically significant tools have not been found in any of the tent rings, but taking their height above sea level into consideration, a Saqqaq date is a reasonable guess.

136 Taleruusarsuaq
68V1-001-114
Saqqaq

Three Palaeo-Eskimo features have been located on an east-facing saddle on the southern shore of the western part of Ikerasasssuup Nunaa. The saddle is located at approximately 7 m a.s.l. and towards the north it is delineated by a relatively high hill. An elongated east-west-oriented bedrock outcrop splits the saddle into northern and southern terraces.

Feature 1 is a rudimentary tent ring located on the southernmost terrace close to the elongated bedrock outcrop. The disturbed periphery measures approximately 2 x 4 m and at the centre there is a hearth marked by a few larger stones and fire-cracked rocks.

Feature 2 is an isolated hearth located on the northern side of the bedrock outcrop. The hearth is filled with fire-cracked rocks and no periphery could be seen in spite of the fact that the surrounding terrain is deflated. Flakes lie scattered around the hearth.

Feature 3 is a 2.5 x 4 m oval tent ring of head-sized rounded and angular boulders. At the centre of the periphery there is a boulder-framed hearth with fire-cracked rocks. The feature is situated to the north of feature 2 and chronologically significant tools are absent. The height above sea level indicates the site to be of Saqqaq origin.

137 Qilalugaasaq
68V1-001-119
Dorset

To the west of the town of Aasiaat is the island of Tupilak. The northernmost point of this island is named Qilalugaasaq and here there are three Palaeo-Eskimo sites. The first of these is named Qilalugaasaq and it is located on the point itself. The two other sites have been named Qilalugaasaq East 1 and Qilalugaasaq East 2 and they are located on minor rock ledges to the east of the point.

Lithic artefacts from Qilalugaasaq

Artefact category	All artefacts
All flakes	1

A rocky knoll is connected to the island by a partly deflated gravel saddle. Flakes have been collected from a height of approximately 1.5 m a.s.l. on the de-

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flated gravel terrace. The elevation of the site indicates dating to the Dorset culture.

Qilalugaasaq East 1
68V1-00I-140
Dorset
Shortly to the southeast of the point, there is a rock ledge at approximately 1 m a.s.l. where flakes have been collected directly from the bare bedrock. The elevation of the site indicates a dating to the Dorset culture.

Lithic artefacts from Qilalugaasaq East 1

Artefact category	All artefacts
All flakes	1

Qilalugaasaq East 2
68V1-00I-141
Dorset
Qilalugaasaq East 2 is another rock ledge located close to the present sea level shortly to the southeast of Qilalugaasaq East 1. At this locality, several flakes and a burin-like tool have been found under boulders fallen down from the cliffs to the west of the ledge. The burin-like tool dates the locality to the Dorset culture.

Lithic artefacts from Qilalugaasaq

Artefact category	All artefacts
All flakes	1
Burin-like tools	1
Total	2

138 Tupilak 1
68V1-00I-142
Saqqaq
To the south of Qilalugaasaq there is a saddle at c. 4.5 m a.s.l. where Hansen (1990) discovered a 4 x 5 m tent ring of head-sized or larger stones. At the centre of the periphery there is a boulder-framed hearth filled with fire-cracked rocks. All the stones are deeply embedded in the substratum of fine sand and several stones are covered by vegetation. No artefacts have been found at the locality, but the character of the dwelling and the elevation suggest that it may be of Saqqaq origin.

139 Tupilak 2
68V1-00I-120
Saqqaq
To the south of Qilalugaasaq, but still on the northern part of the island, there is plateau, with a little creek. On the southeastern part of the plateau there is a 0.75 x 2 m mid-passage feature. Fire-cracked rocks fill the interior, but there are no transversely-placed rocks defining a hearth box. Flakes were found adjacent to the mid passage and the elevation of c. 10.5 m a.s.l. indicates that the feature is of Saqqaq origin. No periphery was seen around the mid-passage.

Lithic artefacts from Tupilak 2

Artefact category	All artefacts
All flakes	1

140 Tupilak 3
68V1-00I-118
Saqqaq
To the north of the southwestern point of Tupilak there is a minor north-facing rocky point. The northern extremity of the point is connected to the island by a tombolo where artefacts have been collected at an elevation of approximately 5.5 m a.s.l. Ironically, the place is heavily disturbed by the recent reconstruction of Saqqaq and Dorset dwellings by the community school in Aasiaat. The pupils have certainly chosen an original locality! Several features were identified in spite of the recent disturbance.

Features 1 and 2 are east-west-oriented mid-passages, whereas feature 3, 4 and 5 are unidentified hearths. Artefacts have been collected from features 2, 3 and 4.

Lithic artefacts from Tupilak 3 feature 2

Artefact category	All artefacts
Burins	1
All flakes	1
Total	2

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Lithic artefacts from Tupilak 3 feature 3

Artefact category	All artefacts
Bifaces, all fragments included	2
End-scrapers	1
All flakes	1
Total	4

Lithic artefacts from Tupilak 3 feature 4

Artefact category	All artefacts
Bifaces, all fragments included	2
Burins	1
Burin spalls	1
All flakes	1
Total	5

141 Iginniarfik
68V1-00I-117
Saqqaq

Towards the west, the island of Tupilak is separated from the island of Iginniarfik by a narrow called Iginniarfiup Ikerasangua. Facing this narrow, on the eastern side of the island of Iginniarfik, there is a minor point with a northwest-southeast-oriented saddle. Flakes, a few bones and fire-cracked rocks have been recorded. There are relatively thick peat deposits and, therefore, it was difficult to determine whether the fire-cracked rocks belonged to a hearth. Likewise, the origin of the bones is not known. The site is located at approximately 7 m a.s.l. and the flakes are believed to be of Saqqaq origin.

Lithic artefacts from Iginniarfik

Artefact category	All artefacts
All flakes	2

142 Natassat I and II
68V2-00I-040
Dorset

Natassat I. Lithic artefacts have been collected from two beaches situated at the northeastern point of the island of Natassat to the west of Kaju. Three Thule winter houses and a grave are also located here. A rocky knoll forms the tip of the point, which is connected to the island by a tombolo. The lithic artefacts were collected from the south-facing shore towards the tombolo. A transect in the eroding cliff revealed that the relatively thick peat deposits are probably the remains of a winter house.

Lithic artefacts from Natassat I

Artefact category	All artefacts
Polished biface	1
Microblade	1
Burin-like tools	1
Retouched flakes	1
Microblade core	1
Flakes	1
Total	6

There are lithic artefacts in the peat but no distinct culture layer. It is therefore believed that the Thule settlement probably obliterated the remains left by Palaeo-Eskimo people. Presumably the Dorset artefacts are in secondary position, being incorporated in the peat used for the construction of a Thule house, or as eroded remains found on the shore.

Natassat II. To the west of Natassat I there is a rocky knoll and then another beach with a marshy area and two Thule dwellings nearby. Lithic artefacts were found on the marshy area flooded at high tide, but also between the rocks towards the sea to the south. The abundance of microblade cores from this locality may indicate that there is a more substantial Dorset settlement here.

Lithic artefacts from Natassat II

Artefact category	All artefacts
Bifaces, all fragments included	2
Microblades	1
End-scrapers	2
Microblade cores	4
All flakes	2
Total	11

143 Upernavissuaq
68V1-00I-115
Dorset

To the north of the town of Aasiaat is the large island of Maniitsoq, and immediately to the south is the smaller island of Upernavissuaq. On the southern

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shore of Upernavissuaq there is a little cove where lithic artefacts have been collected from the shore. A side-notched biface dates the site to the Dorset culture

Lithic artefacts from Upernavissuaq

Artefact category	All artefacts
Bifaces, all fragments included	2
Pumice	1
All flakes	1
Total	4

144 Ikerasannguup Illukui, (Maniitsoq)
68V1-00I-028
Saqqaq
Numerous lithic artefacts have been collected in a valley on the southern side of Maniitsoq. The valley faces the narrow separating Maniitsoq from Upernavissuaq. Thule winter houses are located in the valley and on a little point to the west. Artefacts have been collected from eight different localities. Six of the find spots are situated on terraces and rocks in the central part of the valley, whereas two localities lie on the eastern and western shores of the point to the west of the valley. The distribution of artefacts in the valley is unusual. But probably one has to envision the site as being settled at a time with a relatively higher sea level, when the valley was a cove. Remains of features, in the form of a poorly defined hearth, were only seen in one place. Therefore, the finds from the different find spots are listed in a single table.

Lithic artefacts from Ikerasannguup Illukui find spot 1, 2, 3, 4, 5, 8 and 10

Artefact category	No.
Bifaces, all fragments included	7
Burins	2
Burin spalls	1
Pumice	1
All flakes	8
Total	19

145 Ikkarlunnguaq, (Maniitsoq)
68V1-00I-028
Saqqaq
On the eastern point of Maniitsoq there are concrete foundations from a school chapel and numerous turf-walled house ruins from an abandoned outpost. Palaeo-Eskimo finds have been collected between the rocks and at approximately 7 m a.s.l. on the eastern side of a saddle with several winter houses. Among the collected objects is an arrow point of Saqqaq type. Hansen (1990) suggests that the deposition of the finds on the barren cliffs may result from the place having been used as a look-out, whereas the settlement could be hidden or have been destroyed by the more recent settlement.

Lithic artefacts from Ikkarlunnguaq

Artefact category	No.
Bifaces, all fragments included	1
All flakes	1
Total	2

146 Illulukasiit
68V1-00I-017
Saqqaq
In the central part of the island Oqaatsut to the west of Aasiaat (not to be confused with the site below), there is a saddle with a common house. Flakes have been collected from the terrain nearby. The local topography prevents habitation of the parts of the saddle that are below 7 m a.s.l and the Palaeo-Eskimo component is therefore suggested to be of Saqqaq origin (Hansen 1990).

Lithic artefacts from Illulukasiit

Artefact category	All artefacts
All flakes	2

147 Oqaatsut
68V1-00I-031
Dorset
A Dorset site has been located on a little rocky point in the central part of the of Oqaatsut in the archipelago of Kitsissuarsuit (Hunde Ejland). Artefacts have been recorded from a 11 x 3 m flat area at the tip of the point. No chronologically significant artefacts were found on the surface, and it was therefore decided to excavate a 2.5 x 1 m area. At the base of the point the terrain rises abruptly towards the northwest and to the west of the point there is a little beach. The excavation revealed a stratigraphy comprising three layers, the

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uppermost being the recent vegetation layer. There is then a thin black layer and at the base a lighter yellow-greyish homogenous layer resting on the subsoil which consists of disintegrated bedrock. Finds have been made in all layers.

Lithic artefacts from Oqaatsut

Artefact category	All artefacts
Bifaces, all fragments included	2
Microblades	3
Burin-like tools	1
Microblade cores	1
All flakes	16
Total	23

148 Ikerasak
68V1-0IV-110
Saqqaq
The Ikerasak site is situated near the southwestern entrance to the narrow sound of Ikerasak. The site is characterised by rudimentary boulder features and the finding of just a few tools and a concentration of debitage resulting from the reduction of presumably just a single core of the killiaq type originating from the island of Angissat. The site was excavated in 1996 and the results are dealt with in detail in chapter 6.

A sample of locally grown wood (Ka-6990) has been dated to 2030 ± 70 b.c., which is one of the earliest known Saqqaq dates from Qeqertarsuup Tunua.

149 Eqaluliata Qulaa 1
68V1-0IV-111
Palaeo-Eskimo
A few kilometres to the west of Ikerasak there is a point with two recent tent rings at the tip. Nearby, to the east of the tip of the point, there is a fossil beach ridge system approximately 40 m long. The sediment is dominated by minor egg-sized stones and, apart from a thick layer of black lichen, the beach ridges are virtually devoid of vegetation. The lowest of the gravel terraces is located at 1.5-2 m a.s.l. and this terrace is also the broadest being 10-15 m wide. At either end of the fossil beach there are solid caches built between large natural boulders. In the vicinity of the eastern-most cache there is 1.5 x 1 m rectangular feature of fist-sized stones. A single flake of killiaq and a piece of quartz crystal were collected from the fossil shore, but apart from these finds no other remains of Palaeo-Eskimo activities have been located.

Lithic artefacts from Eqaluliata Qulaa 1

Artefact category	No.
All flakes	2

150 Eqaluliata Qulaa 2
68V1-0IV-112
Palaeo-Eskimo
The site of Eqaluliata Qulaa 2 is an even area with flagstones situated a few hundred metres to the west of Eqaluliata Qulaa 1. The site is located on a gravel terrace with steep slopes towards the sea. Below a thin layer of crowberry is a series of very large flagstones in no apparent order. Below one of the flagstones there was a biface of translucent quartzite. The site was searched meticulously but no other artefacts were seen.

151 Nerukinnera I
68V1-001-055
Saqqaq and Dorset
Nerukinnera is a Dorset and, possibly, Saqqaq locality with finds from three different localities. Nerukinnera I, the first of the three localities to be discovered, has been excavated. A few hundred metres to the west of Nerukinnera I there is a little rocky point in a cove, where a few flakes and a soapstone 'button' have been found on the boulder beach. This site is named Nerukinnera II. To the east of Nerukinnera I, there is another point with a flat grass-covered area a few metres above sea level. This site is called Nerukinnera III. Artefacts were found here along the eroding cliff as well as in a number of test pits scattered over the flat area.

The Nerukinnera I site was found during the 1995 survey. Two circular formations of stones were seen jutting through the thin vegetation on a gravel terrace at 4 m a.s.l. The terrace was covered by heather, dwarf birch and grass, but within the two structures a thin layer of lichen dominated the vegetation. A test pit at the centre of one of the tent rings revealed a few flakes and a fragment of a microblade core of quartz crystal. Initially, it was believed that two circular tent rings with central hearths were situated on the terrace. However, during excavation in 1996, it was realised

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that most of the stones seen during reconnaissance were natural boulders and that only one tent ring with a central hearth (feature A) and an open-air hearth (feature B) was present a the site.

Feature A. The tent ring is situated on an even terrace cleared of larger boulders. Numerous large stones lie around the perimeter of the cleared area. Some of these are believed to be tent-ring stones, others are natural boulders. The tent ring is roughly circular and 3.5 m in diameter. At the centre and towards the doorway, an area with ash and charcoal marks the hearth. No construction stones were seen.

Feature B. Approximately 2 m in front of the doorway was another charred area. This is believed to be an open-air hearth.

The lithic assemblage from Nerukinnera I has not yet been summarised. However, the inventory is larger than those from Innartalik and Kangerlussorissunnguup Kangia, but much more limited than those from sites such as Annertusuaqqap Nuua or Ikkarlussuup Timaa.

The artefacts include a limited number of Saqqaq tools, which appear to be concentrated in the same area as the Dorset implements. Brinch Petersen (1999) has suggested that the overlapping distributions of Saqqaq and Dorset types, together with the elevation of the site, might indicate that Nerukinnera I could be from the period of transition from Saqqaq to Dorset. However, radiocarbon dates (AAR-8410 and AAR-8411) from the indoor and outdoor hearths at Nerukinnera I suggest that the site belongs to the later part of the Dorset phase dated to around 380-200 cal B.C. Considering these dates, it appears to be more reasonable to suggest that the Saqqaq implements represent an earlier phase of occupation by Saqqaq people prior to the Dorset.

Fauna. A limited fauna sample of 20 to 30 bones and bonefragments have been recovered as well. Most fragments are unidentified mammal, but among the identified species are caribou and harp seal. The fauna is stored at Zoological Museum, University of Copenhagen (ZMK 58/1996).

152 Nerukinnera II
68V1-001-055
Dorset

At Nerukinnera II, artefacts have been found on a gravel and boulder beach as well as in adjacent low-lying areas with marsh grass situated at the base of a narrow rocky point a few hundred metres to the northeast of Nerukinnera I. At high tide the point almost becomes isolated from the mainland. A few recent tent rings are located at the base of the point, and flakes and a soapstone button have been collected between the stones on the beach in front of the tent rings. No Palaeo-Eskimo features or culture layers have been located *in situ,* and the locality is, therefore, believed to be a Dorset site disturbed by more recent settlement or by erosion.

153 Nerukinnera III
68V1-001-055
Dorset

Nerukinnera III is a minor rocky point located a few hundred metres to the southeast of Nerukinnera I. Between the tip of the point and its rocky base there is an even grass-covered area with three recent tent rings situated between a north- and a south-facing beach. Numerous flakes have been collected from the eroding cliff facing the northern beach, and a few flakes and microblades have also been collected from a series of test pits. The collected artefacts indicate that approximately 10-30 cm beneath the recent vegetation there is a Dorset settlement horizon covering a large portion of the even area. Several flagstones were seen in the eroding cliff towards the sea on the north-facing shore. The complete dominance of chalcedony and the relatively few tools among the collected artefacts indicate that this is a short term occupation probably of type similar to that at the settlement on Nerukinnera I. Most flakes were located in the eroding cliff and on the beach, whereas only a few flakes, microblades and a single biface fragment were recovered from the test pits.

Lithic artefacts from Nerukinnera III

Artefact category	No.	%	All artefacts	%
Bifaces, all fragments included	1	25	4	1.4
Microblades	3	75		
All flakes			288	98.6
Total	4	100	292	100

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154 Kannala
68V1-00I-143
Saqqaq
The Kannala site is a well preserved mid-passage tent ring located on the southern side of the Nerukinnera narrow, just opposite the three Nerukinnera sites. The tent ring was excavated in 1996 and the locality is described in detail in chapter six.

Fauna. Six unidentifien mammal bones and a single seal bone fragment have been recovered from this locality (ZMK 61/1996).

155 Kannalap Itinnera
68V1-00I-061
Saqqaq
Kannalap Itinnera (The Portage of Kannala) is a narrow isthmus of clay and gravel connecting the westernmost point of the island to the main part of Kannala. A rudimentary tent ring with associated flakes has been located on the southern side of the isthmus and at a distance of 30 m from the shore. A single flake of grey chalcedony has been collected.

Lithic artefacts from Kannalap Itinnera

Artefact category	All artefacts
All flakes	1

156 Kannalap Karrata Avannaatungaa
68V1-00I-046
Dorset
Kannalap Karrata Avannaatungaa is a midden accumulation presumably of Dorset origin located 35-30 m to the north of a Thule winter house. The midden faces a little cove where it is being eroded by the sea. Flakes of chalcedony were found in a test pit but other test pits produced no finds.

Lithic artefacts from Kannalap Karrata Avannaatungaa

Artefact category	All artefacts
All flakes	2

157 Ulussat Nuuat
68V1-00I-056
Saqqaq
Ulussat Nuuat is a summer camp with several recent tent rings located on a flat grass-covered area a few metres above sea level. Two Saqqaq features are situated at 7-8 m a.s.l.. The Saqqaq features are named feature K and J. The site located on the westernmost point of Ikamiut Ø, where a rocky knoll is connected to the island by a series of terraces. On the rocky point, there are depressions with gravel and soil and the two features are found in one of these depressions on the southern side of the point.

Feature K is a tent ring with six round boulders preserved in the rear portion. A hearth marked by ash and charcoal stains is situated in the central part of the tent ring.

Feature P is a rudimentary tent ring where several flakes was collected from a test pit. It is located c. 8 m to the north of feature K. Of the flakes, 15 are of grey killiaq and two are of beige chalcedony. Flakes were also seen on deflated areas to the northwest of feature P.

Lithic artefacts from Ulussat Nuuat

Artefact category	All artefacts
Burin spall	1
All flakes	17
Total	18

158 Nuukullassua
68V1-00I-063
Saqqaq
The site of Nuukullassua is located on a rocky point on the western side of the narrow connecting the Tasiusaq inlet to Saqqarliit. Between the undulating rocks there are raised beach ridges of gravel. Two presumed Saqqaq tent rings are located among several recent tent rings on one of these gravel ridges. The two Palaeo-Eskimo tent rings are named feature C and D (Jensen *et al.* 1995); feature C is the best preserved of the two.

Feature C is an oval 5.3 x 4 m tent ring comprising more than 20 boulders deeply imbedded in the gravel. The long axis runs parallel to the prehistoric shoreline and a rudimentary axial structure is located in the central axis of the feature. One flake of Angissat killiaq was found under a tent-ring stone and another in a test pit in the outer part of the central axis.

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Lithic artefacts from Nuukullassua feature C

All flakes	2

159 Inussuernerit I
68V1-00I-065
Saqqaq
Inussuernerit is an islet situated in the northeastern part of Saqqarleq. On the northwestern side, the islet is connected to Saqqarliup Nunaa by a boulder tombolo, flooded at high tide. This is where the locality of Qungasiusakasia (site no. 161) is situated. At the eastern end there are the localities Inussuernerit I and II. Inussuernerit I is a Saqqaq tent ring located on a flat terrace at approximately 8 – 10 m a.s.l. The tent ring is circular and approximately 4 m in diameter. A hearth in the centre of the tent ring is marked by an aggregation of fire-cracked rocks. Flakes and a Saqqaq burin were found on the surface. A little to the west there is a rudimentary feature, which might be a disturbed tent ring. Another burin and charcoal were found in a test pit in this feature. Bones were also registered although these may be a later intrusion.

Lithic artefacts from Inussuernerit I

Artefact category	All artefacts
Burins	1

160 Inussuernerit II
68V1-00I-065
Dorset
Inussuernerit II is a Dorset tent ring situated at 4-5 m a.s.l. on a flat area between rock outcrops approximately 100 m to the east-northeast of Inussuernerit I. The circular tent ring is marked by 10 to 12 boulders and the periphery has a diameter of c. 4 m. A few tent-ring stones are missing on the southeastern side. These may have been used in the construction of a recent tent ring situated a few metres to the south. Test pits at the centre of the tent ring and in the nearby recent ring revealed flakes of chalcedony and a microblade core of quartz crystal.

Lithic artefacts from Inussuernerit II

Artefact category	All artefacts
Microblade cores	1
All flakes	8
Total	9

161 Qungasiusakasia
68V1-00I-066
Palaeo-Eskimo
The locality of Qungasiusakasia is situated on the edge of a 1.5 m high ledge in the cliff facing the boulder tombolo which at low tide connects the island to Saqqarliup Nunaa. The tent ring comprises 27 stones set in a 3 x 2.5 m oval. A few flakes of killiaq and flecks of charcoal were seen in the front part of the ring.

162 Kuup Qalorsaa
68V1-00I-067
Saqqaq
On the Kuup Qalorsaa site there is an isolated Saqqaq tent ring with a stone-set central hearth with fire-cracked rocks (Olsen 1998). The feature is situated similarly to many other Saqqaq sites, on a gravel terrace between a rocky point and the mainland. A total of 33 m² has been excavated around the hearth and a tool inventory dominated by burin spalls has been recovered.

Kuup Qalorsaa has been dated by radiocarbon dates for locally grown wood (Tua-1725) and a seal bone (AAR-2957). The latter was conducted in order to compare dates for terrestrial and marine bone. However, the minute sample of caribou bone with which it was to be compared proved to have too little collagen to be measured. Thus, more reliance should be placed on the date for the wood (Tua-1725) which is 1635±70 b.c. (2040-1870, 1850-1810, 1800-1770 cal B.C.)

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Lithic artefacts from Kuup Qalorsaa (Olsen 1998)

Artefact category	No.	%	All artefacts	%
Bifaces, all fragments included	15	30		
Microblades	6	12		
Burins	3	6		
Burin spalls	18	36	50	5.2
End-scrapers	1	2		
Retouched flakes	6	12		
Microblade cores	1	2		
All flakes			908	94.8
Total	50	100	958	100

Fauna. A limited assemblage of six unidentified mammal bone fragments, one unidentified seal, one harp seal fragment and one fragment og a caribou teeth have been reovered from the excavated area. An attemt have been made to date the caribou teeth, but the fragment proved to have too little preserved collagen for radiocarbon dating (ZMK 48/1995).

163 Kangerlussuaq
68V1-00I-068
Saqqaq
A creek flows into a cove at the eastern side of a little fjord named Kangerlussuaq. To the north of the cove, and at approximately 10 m a.s.l., there is a gravel terrace with a steep slope down towards the sea and the creek. On the edge of the terrace there is a tent ring with a diameter of 3.5 m. Some of the tent ring stones have slid down so only half of the periphery is preserved. A stone-set hearth which might be the remains of a mid-passage is situated in the centre of the tent ring. A retouched flake was found in a test pit to the northwest of the hearth.

Lithic artefacts from Kangerlussuaq

Artefact category	All artefacts
Retouched flakes	1

164 Nuggorissoq
68V1-00I-069
Palaeo-Eskimo
Nuggorissoq is a large point located about 1 km to the west of Kangerlussuaq. At its base, the point is attached to the mainland by a large series of gravel terraces, but apart from a *naanngisat*, (a row of hopping stones) and several recent tent rings there is only one feature presumed to be of Palaeo-Eskimo origin.

Feature A is a 2 x 1 m large aggregation of stones. Under a larger flat stone in the western side of the feature there is a flake of killiaq (left *in situ*).

165 Nulorsuit Nuuat I
68V1-00I-070
Saqqaq
Nulorsuit Nuuat is a point at the southeastern corner of the outlet of the fjord Nulorsuit Kangerluat. The point is characterised by rocky outcrops separated by gravel terraces. On one of these terraces there is a well-preserved Saqqaq tent ring (Nulorsuit Nuuat I), whereas Dorset evidence has been found in a low-lying area at the tip of the point (Nulorsuit Nuuat II).

Nulorsuit Nuuat I is a circular tent ring situated on a gravel terrace at 8-10 m a.s.l. The diameter is c. 3.3 m and at the centre there is a well-preserved box hearth measuring 0.85 x 0.7 m. A flake of killiaq was seen beneath one of the stones in the tent ring. A stone-set enclosure, which could be an open-air hearth or a cache, was seen towards the outcropping rock close to the tent ring.

Lithic artefacts from Nulorsuit Nuuat I

Artefact category	All artefacts
Flakes	1

166 Nulorsuit Nuuat II
68V1-00I-070
Dorset
At the tip of Nulorsuit Nuuat there is a rocky knoll connected to the mainland by a little isthmus with rock outcrops separated by beaches of gravel and sand. A total of six lithic artefacts have been collected from the beach deposits below the eroded parts of the isthmus. A side-notched asymmetrical biface is of typical Dorset origin. The core or axe, the two flakes and one of the two bifaces are of killiaq, the microblade core is of quartz crystal and the side-notched biface is of white chalcedony.

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Lithic artefacts from Nulorsuit Nuuat II

Artefact category	All artefacts
Bifaces, all fragments included	2
Axes	1
Microblade cores	1
All flakes	2
Total	6

167 Nulorsuit Kangerluat
68V1-00I-071
Saqqaq
Nulorsuit Kangerluat is a Palaeo-Eskimo tent ring approximately 3.5 m in diameter, located on a flat gravel surface 7-8 m a.s.l on the eastern side of the fjord. In the centre of the tent ring there is a rudimentary hearth of flagstones and angular stones set on edge. Ash and charcoal stains were seen in the hearth. The diameter of the hearth is c. 0.6 m. Test pits were excavated in the tent ring but no artefacts were found.

168 Nulorsuit Qeqertaat
68V1-00I-072
Saqqaq
Nulorsuit Qeqertaat is the name of an islet located just offshore at the western side of Nulorsuit Kangerluat. The Palaeo-Eskimo locality, however, lies at 6-8 m a.s.l. on a system of gravel terraces located on the mainland but facing the narrow, shallow sound which separate the islet from Saqqarliup Nunaa. Saqqaq finds and several tent rings have been found on the terraces, but all the tent rings appear to be of recent origin.

Lithic artefacts from Nulorsuit Qeqertaat

Artefact category	All artefacts
Harpoon blade	1
Burin spalls	1
Retouched flakes	1
All flakes	3
Total	6

Of the flakes, one is of chalcedony, another is of quartz crystal whereas the remaining objects are of killiaq.

169 Nulorsuit Qeqertaata Kitaa
68V2-00I-073
Dorset
Nulorsuit Qeqertaata Kitaa is a Dorset site comprising a partly eroded culture layer. The site is situated approximately 600 m to the west of Nulorsuit Qeqertaat, where a gently sloping gravel terrace connects a rocky knoll to the mainland. On a little beach there were flakes of killiaq and chalcedony and a concentration of artefacts lay scattered 5-6 m from the shore. The artefacts were located only1 – 2 m a.s.l., suggesting that this is a Dorset site. No features were seen, but on higher ground further to the west there are recent tent rings.

170 Qiterleq I
68V1-00I-074
Palaeo-Eskimo
Qiterleq is a little cove on the southern side of Saqqarliup Nunaa. Several remains of recent and Palaeo-Eskimo settlements are located at the south-western corner of the cove and along the shore towards the west.

Two Palaeo-Eskimo tent rings (feature A and B) and a recent tent ring (feature C) have been recorded on the site. Several stones were missing from the Palaeo-Eskimo features, which are presumed to have been depleted during the construction of the recent tent ring.

Feature A is a circular tent ring with a diameter of approximately 2 m.

Lithic artefacts from Qiterleq 1 feature A

Artefact category	All artefacts
All flakes	1

Feature B is an aggregation of boulders believed to be the rudimentary remains of a tent ring with a diameter of just a few metres. Two of the three flakes found in the tent ring are of chalcedony, and one is of killiaq.

Lithic artefacts from Qiterleq 1 feature B

Artefact category	All artefacts
All flakes	3

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171 Qiterliup Kitaatungaa
68V1-00I-085
Dorset
A little cove is situated a few hundred metres to the west of Qiterleq I. Flakes have been found on the gravel shore, five of these are of chalcedony, whereas one is of killiaq. The low elevation and the chalcedony flakes indicate that the site is of Dorset origin.

Lithic artefacts from Qiterliup Kitaatungaa

Artefact category	No.
All flakes	6

172 Kangerlussorissunnguup Kangia
68V1-00I-086
Dorset
Kangerlussorissunnguup Kangia is a Dorset site situated 3-4 m a.s.l. on a flat gravel terrace with vegetation comprising crowberry and grasses. The westernmost of the three features is a boulder tent ring with a well preserved mid-passage, whereas the two other features proved to be more diffuse when they were excavated. The site has been thoroughly excavated and is described in detail in chapter eight. Feature C has been dated by two radiocarbon dates (Ka-6992 and AAR-8408). Within one standard deviation these dates have a minimal overlap around 800 cal B.C.

Fauna. A very limited sample of four unidentified bone fragments have been recovered from Kangerlussorissunnguup Kangia (ZMK 61/1996).

173 Seersinnerup Kangerlua South
68V1-00I-144
Saqqaq
Seersinnerup Kangerlua South is a Saqqaq locality situated at the southeastern corner of the confluence between Seersinnerup Kangerlua and Saqqareq. The site was discovered during the excavation of the nearby Kangerlussorissunnguup Kangia. A mid-passage structure is situated on a gravel and stone terrace between rocky outcrops. The site is dated by a biface with a tapering stem located in the mid-passage; artefacts were also seen on nearby terraces.

174 Seersinnerup Kangerlua
68V1-00I-086
Saqqaq
A circular stone-set hearth with a diameter of c. 0.6 m lies below a vertical cliff at the head of the little fjord Seersinnerup Kangerlua. The hearth is filled with fire-cracked rocks and there was no visible tent ring. All of the stones are deeply imbedded in the substratum and the construction suggests that the site is of Saqqaq origin. No finds were seen in the vicinity of the hearth.

175 Innartalik I
68V1-00I-078
Dorset
There is an archipelago in the centre of the Saqqarleq inlet. Two Saqqaq sites and one Dorset are located on Innartalik, the easternmost of the islands. Innartalik I is a Dorset mid-passage tent ring with a diameter of 3.5 m. The tent ring lies at c. 4 m a.s.l. and is located centrally on the western shore of the island, where an isthmus separates a lake from the sea. The feature were excavated in 1995 and the results are described in detail in chapter 8. A sample of charcoal from locally grown wood (Ka-6991) collected from the hearth in the mid-passage has been dated to 540 ± 45 b.c. (770-520 cal B.C.)

176 Innartalik II
68V1-00I-079
Saqqaq
Innartalik II is a rudimentary Saqqaq tent ring located at 8-10 m a.s.l. on a gravel terrace between rocky outcrops at the southwestern end of the island. The disturbed tent ring has a diameter of approximately 4 m and the hearth is a 0.5 x 0.5 m relatively well preserved box of vertically-set flat rocks. A test pit to the south of the hearth produced flakes of chalcedony and killiaq (left *in situ*) and some ash was also seen.

177 Innartalik III
68V1-00I-080
Saqqaq
Innartalik III has a similar location to that of Innartalik I, on an isthmus between the lake in the centre of the island and the sea, but on the northern side of the island. At the eastern and western end of the isthmus there are two tent rings (feature A and B) situated approximately 4 m a.s.l.

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Feature A is a 4 x 3 m large periphery of head-sized boulders but it was impossible to confirm its suspected Saqqaq origin.

Feature B is a circular tent ring with a diameter of c. 3 m. located against a bedrock outcrop which delineates the isthmus towards the west. Several flagstones and boulders, which could be the remains of a mid-passage, are seen in the central axis of the tent ring. The vegetation comprises crowberry and mosses and there were no finds to confirm the suspected Palaeo-Eskimo origin of the dwelling.

178 Tinussaraartaa
68V1-00I-081
Saqqaq

Tinnussaraartaa is an islet which at low water is attached to the northeastern corner of the larger island of Tinussaraaliussuaq by a narrow isthmus. To the east of the isthmus there is a flat area at 7-8 m a.s.l. with rocky outcrops separated by gravel deposits. There is a rudimentary tent ring of nine stones forming a crescent, which could originally have formed a tent ring with a diameter of 3.5 m. There are stones in the centre of the tent ring are stones, which might be the remains of a hearth. A fragmented biface was collected from a deflated area within the periphery, and three other lithic objects, all of killiaq, were collected from a deflated area 10 m to the west.

Lithic artefacts from Tinussaraartaa

Artefact category	All artefacts
Bifaces, all fragments included	3
Retouched flakes	1
Total	4

179 Tinussaraaliussuaq
68V1-00I-082
Saqqaq

A Saqqaq tent ring is located on a flat gravel terrace protected from the sea by low rocky outcrops on the southeastern corner of the island of Tinussaraaliussuaq. The periphery measures approximately 5 m in diameter and there are no definite remains of a hearth. A dense cover of lichen hindered the location of artefacts, but flakes of killiaq and quartz crystal were seen.

Lithic artefacts from Tinussaraaliussuaq

Artefact category	All artefacts
Retouched flakes	1

180 Qernertukasiit
68V1-00I-075
Saqqaq

A rudimentary stone-set hearth has been located on a gravel terrace between rocky outcrops on Qernertukasiit, the southern of the two islands named Saattut Killiit. The site is located on a point at the western end of the island. A test pit revealed a fragment of a biface of grey killiaq and a flake of quartz crystal.

Lithic artefacts from Qernertukasiit

Artefact category	All artefacts
Bifaces, all fragments included	1
Flakes	1
Total	2

181 Tupersui
68V1-00I-045
Saqqaq and Dorset

Tupersui is a large point at the northeastern end of the island of Aamat. Recent camps with tent rings are located all over the point and a Thule winter house, which floods at high tide, lies to the west of the point. The Saqqaq locality lies at 7-8 m a.s.l on an even gravel terrace surrounded by bedrock outcrops. During the 'Sydostbugt projekt', the entire area was excavated. Five distinct features were revealed (Olsen 1998; Mikalsen 2001). The excavation covered an area of 89 m^2 and the location of the five features within this limited area posed severe problems regarding the interpretation of the individual features and their associated artefacts. However, Mikalsen (2001) has shown that most of the artefacts appear to be meaningfully associated with features 1, 3, 4, and 5. In contrast, spatial analysis revealed that feature 2 apparently did not have a specific 'attraction' for artefacts. Therefore, it was concluded, that no specific artefacts appear to be related to this feature.

Feature 1 is an approximately 1 x 1 m isolated hearth framed by angular boulders and with the interior filled up with fire-cracked rocks. There might be

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diffuse traces of a tent ring around the hearth, but the question of whether this feature is an open-air hearth or a discrete dwelling remains unclear (Olsen 1998: 95).

Feature 1 has been dated by way of a sample of charcoal from locally grown wood (T-12918). The sample was dated to 3525±85 b.c. (1960-1730 cal B.C.)

Feature 2 is an approximately 1.5 x 1.5 m boulder and flagstone feature situated 3 m to the east of feature 1. Initially, feature 2 was covered by fire-cracked rocks in an ashy matrix mixed, giving it a resemblance to other Saqqaq hearths. However, upon excavation it was revealed that the fire-cracked rocks were probably secondarily deposited on top of the boulder structure. The excavator suggests, therefore, that feature 2 is probably a cache (Olsen 1998).

Feature 3 is a 3.2 x 1.0 m mid-passage feature of angular stones which initially were completely filled and partly covered by fire-cracked rocks. Upon removal of the latter the interior of the mid-passage proved also to be filled with ash and charcoal. Several flagstones had been placed as pavement between the two parallel rows of framing stones. Numerous artefacts were deposited around the mid-passage and flagstones and boulders at either side of the feature may be remains of sleeping platforms. There were no definite periphery for the dwelling.

Feature 3 has been dated by four radiocarbon dates. Three of these (Tua-1689, TUa-1722, T-12919) fall in the earlier part of the Saqqaq sequence, whereas the fourth (T-12998) gave a date of a.d. 750±55. This is beyond the known range of Palaeo-Eskimo presence in Qeqertarsuup Tunua and the date should probably be omitted, since no artefacts have typological characteristics which could support such a late date.

Feature 4 is a box hearth measuring 1.4 x 0.8 m and comprising an approximately square box of flagstones extended by a flagstone pavement towards the north. The interior of the hearth was filled with fire-cracked rocks. Tools and debitage were concentrated around the hearth but there was no tent ring or other indications of a periphery.

Feature 4 has been dated to 1670±70 b.c. (2130-2080, 2040-1880 cal B.C.) by a single radiocarbon date for locally grown wood (Tua-1723).

Feature 5 is a 'platform-dwelling' similar to feature II at Niivertussannguaq. Feature 5 is situated just south of feature 4. A box hearth lacking one of the framing stones to the northeast is located in the central part of the dwelling. The interior of the hearth was filled with fire-cracked rocks and these also form a large heap immediately to the southwest of the hearth. A platform with a diameter of c. 2 m is located in the area lying to the south and southwest of the hearth. The platform comprises flagstones and boulders each placed with a flat surface uppermost. In between the pavement stones there are fire-cracked rocks and stones scattered all over the platform, A tent ring of larger rounded stones curves off from the southwestern part of the platform towards the north at a distance of approximately 2 m from the hearth. Traces of a similar periphery were seen on the eastern side of the hearth. The northern outline of the dwelling is more diffuse.

Fauna. A limited assemblage of fauna material are stored at the at Zoological Museum, University of Copenhagen (ZMK 59/1996): eleven unidentified mammal bone fragments, one fragment of fox bone and two fragments of eider (unspecified).

Two samples of locally grown wood (TUa-1690 and TUa-1724) have been dated to 3505±105 b.c. (1960-1680 cal B.C.) and 3455±65 b.c. (1880-1680 cal B.C.) (Olsen 1998).

182 Iliversuaq
68V1-00I-096
Dorset

Iliversuaq is a minor point a few kilometres to the west of Tupersui. The point has the classical appearance of a Palaeo-Eskimo locality where a rocky point is connected to the mainland by a series of gravel terraces. Dorset artefacts were collected from approximately 3 m a.s.l. on deflated areas along the east-facing shore. Two flakes are of killiaq, the remainder are of chalcedony.

Lithic artefacts from Iliversuaq

Artefact category	No.
Bifaces, all fragments included	3
Microblades	1
All flakes	3
Total	7

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183 Tinussaraap kangiani
68V1-00I-089
Saqqaq
A point with gravel terraces separated by low outcrops of bedrock is situated on the southern side of the narrow sound between Kangaarsutsiaap Nunaa and the island of Tinussaraaq. Two well-preserved box hearths filled with fire-cracked rocks have been discovered on the terraces.

Feature A, the northernmost of the two hearths is a 1 x 0.9 m box hearth lying on a deflated or moss-covered terrace.

Feature B is exposed in a minor erosion feature in the peat. Peripheries were not registered but recent construction of tent rings nearby might have depleted the prehistoric dwellings of their tent ring stones.

184 Malik
68V1-00I-090
Saqqaq
A terrace system extends across the narrow peninsula of Kangaarsutsiaap Nunaa to the north of the cove named Malik. On the top of the terraces there are two rudimentary tent rings.

Feature A is a diffuse aggregation of just four to five stones which might be the remains of a tent ring with a diameter of c. 3 m. A test pit in the central part of the feature revealed charcoal and four flakes of killiaq which were left *in situ*.

Lithic artefacts from Malik feature A (left in situ)

Artefact category	All artefacts
All flakes	4

Feature B is a similarly diffuse but approximately 3 m diameter tent ring located 4 m to the east of feature A.

185 Taleruusaa
68V1-00I-091
Palaeo-Eskimo
A hearth built of flat stones set on edge is located at the site named Taleruusaa. The site is located on a point on the northern side of Kangaarsutsiaap Nunaa. The outer rocky part of the point is attached to the mainland by a series of gravel terraces and the hearth lies on one of these terraces at an elevation of c. 4 m a.s.l. A test pit to the west of the vertically standing stones revealed a single flake of killiaq.

Lithic artefacts from Taleruusaa feature A (left in situ)

Artefact category	All artefacts
All flakes	1

186 Akullinnguaq I
68V1-00I-092
Saqqaq
Akullinnguaq I is a Saqqaq locality on the eastern side of the island of Akullinnguaq. The site lies at 8-10 m a.s.l. on a boulder-strewn terrace between a lake and the sea. Features and artefacts have been located over a large area of several hundred square metres. Seven features believed to be of Saqqaq origin have been recorded. However, most of the features comprise roundish or oval areas which appear to have been cleared of larger boulders and stones. Three find spots of lithic artefacts, apparently with no associated features, and a single rectangular recent tent ring were also recorded. Ironically, a microblade core of quartz crystal was found in a test pit in this tent ring! Most of the lithics were left *in situ*, and only the collected tools are listed below. Three Thule winter houses lie nearby, to the south of where the Palaeo-Eskimo evidence has been located.

Feature A. Recent tent ring. A scraper or fragment of a microblade core was found in a test pit.

Feature B is a diffuse tent ring with a well preserved hearth. The diameter of the tent ring was estimated at c. 2.5 m and flakes were found in the northwestern part of the feature.

Feature C. Find spot.

Feature D is a diffuse tent ring with a diameter of c. 3.5 m and a central hearth. A bifacial blade with the base broken off was found to the south of the hearth and flakes were seen in the vicinity of the hearth and in the northwestern part of the tent ring. The fragmented biface is of brown chalcedony.

Feature E. A circular even area with a few stones that could be part of a tent ring with a diameter of c. 3 m located just 2 m to the west of feature D. Killiaq flakes were seen in the northwestern part of the feature.

Feature F. Similar to J, Feature F is a flattened area

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but without a well defined periphery. In the centre there is charcoal and a few stones that may be part of a hearth. Flakes were seen in the moss vegetation in the area towards the charcoal concentration.

Feature G. Feature G is an aggregation of stones, which might be a hearth. Again, there is no well defined periphery, but an artificially flattened area surrounds the feature. A basal fragment, probably from a burin of grey killiaq, was found near the hearth.

Feature H. Find spot.

Feature I. Feature I is an even area with several stones forming an irregular periphery. A test pit in the centre of the feature revealed some charcoal but no lithic artefacts.

Feature J. Feature J is an artificially flattened area with a diffuse tent ring. Several flat stones were found in the centre of the tent ring. There were flakes of killiaq in a hole from a recently moved stone

Feature K. Feature K is an area where flakes were found in the peat.

The topographical location on an island in the more exposed archipelago, in addition to the widely dispersed traces of Saqqaq artefacts and sparse remains of boulder features is similar to the Saqqaq evidence seen at Ikerasannguup Illukui (site no 144). These localities might represent a type of settlement different from the winter and summer settlements excavated so far. However, the lack of excavations of these localities makes it difficult to pursue this question further.

Lithic artefacts from Akullinnguaq I

Artefact category	All artefacts
Bifaces, all fragments included	1
Burins	2
Microblade core or scraper	1
Total	4

187 Qimatulivik East
68V1-00I-008
Palaeo-Eskimo
A hunter's cabin is situated at Qimatulivik, a little point on the southern side of the island of Tinuteqisaaq Kangilleq. Palaeo-Eskimo tent rings are located near the cabin at an elevation of 1-2 m a.s.l on gravel terraces separated by outcrops of bedrock.

Feature A is a diffuse tent ring with a diameter of 4-4.5 m. Fire-cracked rocks in the centre of the periphery and in a test pit indicate the presence of a hearth. Charcoal, sherds of a soapstone lamp and flakes were also found. The flakes were left *in situ*, whereas the soapstone sherds were collected.

Feature B is a circular tent ring with a diameter of 3 m and a central hearth. There was charcoal in a minor test pit to the east of the hearth, but no artefacts. The tent ring lies 23 m to the north of feature A.

188 Qimatulivik West
68V1-00I-145
Saqqaq
The Palaeo-Eskimo site of Qimatulivik West is situated at approximately 2 m a.s.l. on the western side of the island of Tinuteqisaaq Kangilleq where there are low east-west-oriented rock outcrops separated by gravel terraces.

Feature A is a tent ring with a diameter of c. 3.5 m located on the highest part of the terrace. At the centre of the tent ring there is a diffuse hearth. Flakes of killiaq were found in a test pit to the west of the hearth.

Feature B is a box hearth set against a rocky outcrop 50 m to the north-northeast of feature A. The hearth has a typical 'Saqqaq appearance' with a frame of angular boulders and the interior filled with fire-cracked rocks. A *naanngisat* is situated on the same terrace as feature B.

189 Eestat
68V1-00I-107
Saqqaq
Eestat is a point on the eastern side of the island of Tinuteqisaaq Killeq. The area comprises boulder-strewn low rocky outcrops and gravel terraces covered by crowberry.

Feature A is a circular tent ring with a diameter of approximately 3.5 m and a stone-set hearth with fire-cracked rocks located at its centre. A test pit to the west of the hearth contained some charcoal but no artefacts were seen.

190 Kangimut Sammisoq
68V1-00I-146
Saqqaq
To the southeast of Eestat there is another point with undulating rocky outcrops separated by gravel ter-

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races. One or, perhaps, three hearths, all lacking a clear periphery are located at the eastern end of a *naan-ngisat*. There are flakes of killiaq around the hearths. The height above sea level is approximately 5 m.

191 Itissaarsuaq I
68V1-00I-106
Saqqaq
A well defined 0.8 x 0.6 m box hearth surrounded by a diffuse periphery with a diameter of c. 4 m. The tent ring is situated on a gravel terrace connecting a rocky point to the mainland. At the western end of the same tombolo, approximately 100 m to the west of the Saqqaq tent ring, there is a little beach with several recent tent rings close by. A test pit in this area revealed a 25-30 cm thick peat layer with an imbedded flagstone platform. An awl and some bones were found in the gravel. This feature is presumed to be a Thule tent ring.

192 Alanngorlia
68V1-00I-105
Dorset
At the northwestern point of the island of Alanngorlia there is an area with three gravel terraces between rocky knolls. At the smallest terrace to the south there is an area of c. 3 x 3 m with a lithic scatter dominated by chalcedony. The site is located at 2-3 m a.s.l and recent tent rings of peat are also situated nearby. In addition to the flakes, there is a pavement which might be the remains of a hearth.

Flakes of chalcedony was also located on another terrace 40 m further to the north where deflation has exposed the substratum of gravel mixed with crushed shells. The dominance of chalcedony and the height above sea level suggest that the Palaeo-Eskimo component is of Dorset origin.

193 Erlusuk I
68V1-00I-104
Palaeo-Eskimo
Erluss is a 1.8 m long and 0.5 m wide well preserved mid-passage comprising stones which are c. 20 cm long and 10 cm thick. The site is located on the island of Erlusuk in the western part of the archipelago which shelters the westernmost part of the Saqqarleq inlet. The site is located at the eastern end of the island on a c. 20 m wide beach ridge system between rocky hills. Two transversely placed boulders may delineate a hearth at the centre of the mid-passage. Around this feature there is a flattened area and a few boulders mark a periphery approximately 4 m in diameter. Flakes were recorded under two of the stones in the mid-passage. Towards the northeast there is a man-made aggregation of stones external to the periphery. More recent tent rings also lie close to the mid-passage. Three of the flakes collected are of killiaq and three are of chalcedony.

Lithic artefacts from Erlusuk I

Artefact category	All artefacts
All flakes	6

194 Erlusuk II
68V1-00I-147
Saqqaq
At the western end of the island there is a terrace system with a deflated area measuring approximately 100 x 8 m in the more elevated central part. Flakes and tools lie scattered on the terrace but the deflated area appears to have been disturbed by more recent settlements so no Palaeo-Eskimo features were registered. A complete lanceolate biface and a proximal fragment of a microblade, both of chalcedony, have been collected from the terrace.

Lithic artefacts from Erlusuk II

Artefact category	All artefacts
Bifaces, all fragments included	1
Microblades	1
Total	2

195 Milak
68V1-00I-103
Palaeo-Eskimo
At the northern point of the island of Milak, to the west of Erlusuk, there is a hearth situated in a peat deposit between low outcrops of bedrock. All the stones are deeply embedded in the substratum and are only partly visible. A diffuse periphery with a diameter of 3-3.5 m surrounds the hearth. Flakes and a single piece of bone were seen in the peat 7 m from the hearth.

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196 Tupertalik
68V1-00I-102
Saqqaq
An isolated mid-passage structure and a tent ring or cache of head-sized boulders is situated in an area with a fine-grained sediment lying between two boulder fields on the most elevated part of a beach ridge system at the northern end of the island of Tupertalik. In the nearby boulder fields there are graves of probable Thule origin.

Feature A is a mid-passage structure comprised of up to head-sized boulders and a little more than 2 m long and c. 1 m wide. A fragmented biface of killiaq was found under a flat stone in the central part of the feature. There was no tent ring, but a flattened area, approximately 3 x 4 m, surrounds the feature.

Feature B is an area with charcoal located in the vicinity of feature C.

Feature C is a circular tent ring of head-sized boulders situated 14 m to the northeast of feature A.

197 Tunuarsuup Nuua I
68V1-00I-093
Saqqaq
Tunuarsuup Nuua I is the first of two Saqqaq localities located on a point approximately 5 km to the south of the now abandoned outpost of Manermiut.

Tunuarsuup Nuua I is situated in a 30 x 10 m flat area of small cobblestones surrounded by outcrops of bedrock. The vegetation comprises crowberry and mosses, but with a deflated area towards the north.

Feature A is a diffuse tent ring with a diameter of c. 3 m. A few stones in the centre of the periphery might be the remains of a hearth. Charcoal and a flake of killiaq were registered under a stone in the western part of the periphery.

Feature B is a large stone ring with a diameter of 5-6 m situated 5 m to the north of feature A. In the central part of the western side of the periphery there is hearth partly covered by vegetation. Flakes of chalcedony were found in the western part of the periphery and to the south there is a long row of boulders beginning at the exterior of the periphery and extending several metres to the south. Altogether, the feature is a bit odd and it might not be a dwelling structure.

Feature C is a tent ring situated on a deflated cobblestone surface, 10 m to the north of feature B. Several large stones, which could be the remains of a hearth, were seen in the northern part of the tent ring. Two large flakes of killiaq was found nearby, and to the south of the tent ring there are several angular stones placed against the cliff. These might also be hearths.

198 Tunuarsuup Nuua II
68V1-00I-148
Saqqaq
Tunuarsuup Nuua II is located 80 m to the east of Tunuarsuup Nuua I. The site lies a boulder terrace at approximately 15 m a.s.l. The feature comprises an oval area cleared of larger stones and measuring 2.5 x 3.5-4 m. Several larger stones, which might be the remains of a tent ring are located on in the periphery of the feature. A large retouched flake of killiaq was found below one of the periphery stones and there are many fire-cracked rocks both inside and outside the feature. Jusr to the south of this presumed dwelling there is another similar but more diffuse structure.

199 Usuttalik
68V1-00I-015
Saqqaq
A possible hearth, consisting of a 1.8 x 0.6 m aggregation of fist-sized stones and a few larger boulders, built against the bedrock cliff is situated on a narrow terrace system on the southeastern point of the island of Usuttalik. A tanged Saqqaq point of Angissat killiaq was discovered in a test pit in the vicinity of the feature.

200 Sarfannguaq
68V1-00I-099
Saqqaq
To the south of the abandoned settlement of Manermiut there is a narrow sound called Sarfannguaq. On the west-facing shore towards the sound there is series of terraces with several blow-outs. On the deflated terraces there are three tent rings with central hearths, none of which contains fire-cracked rocks. The tent rings are situated at approximately 20 m a.s.l.

Feature A is a 3 x 3.5 m periphery of head-sized stones. A few stones are missing from the periphery but marks from their original position could be seen. At the centre of the periphery is an aggregation of stones believed to be the remains of a hearth. Within

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the tent ring there were microblades and a single burin spall was collected.

Lithic artefacts Sarfannguaq feature A

Artefact category	All artefacts
Microblades	?
Burin spalls	1

Feature B is a diffuse circular tent ring with a diameter of c. 3 m and a central hearth.

Feature C is an 3.5-4 m circular tent ring of up to head-sized stones. A central aggregation of stones is believed to be the remains of a hearth. Within the periphery there are flakes and pumice.

201 Saattuarsuit (Susanne Øer)
68V1-00I-016
Saqqaq
Saqqaq artefacts have been collected from a site at Saattuarsuit but no detailed information is available about the locality (E. Evaldsen pers. comm.).

202 Unarrat
68V1-00I-136
Saqqaq
A Saqqaq site has been registered on the southwestern point of the island Unarrat (E. Evaldsen pers. comm.).

203 Anarsuit
68V1-00I-025
Dorset
Flakes of chalcedony have been recorded in the eroding cliff in front of a Thule settlement in a cove on the island of Anarsuit. The island lies to the east of the larger island of Maniitsoq, to the north of the town of Aasiaat. The dominance of chalcedony in the lithics, together with the low elevation, suggests that this is a Dorset site (Brinch Petersen pers. comm.).

204 Umiivik
68V1-00I-149
Palaeo-Eskimo
One (and probably more) well preserved mid-passage tent rings is situated on a large tombolo with grassy vegetation on the western side of the island of Umiivik. In the northern part of the terraces there is a well preserved tent ring measuring 4 x 2.8 m. All the stones in the mid-passage and in the tent ring are deeply imbedded in the sandy substratum. Indicators of the cultural origin of the feature are ambiguous: flakes of quartz crystal may indicated a Dorset date, whereas the elevation of c. 7 m a.s.l. leaves open the possibility of Saqqaq occupation.

205 Avannaamiut Nuuat
68V1-00I-150
Saqqaq
Five flakes of killiaq and one retouched flake have been collected from the northernmost point of Umiivik. Presumably this is a Saqqaq site.

Qeqertarsuaq

206 Østerlien
69V1-II-006
Saqqaq
Møbjerg (1977, 1986) has located 14 concentrations of artefacts on sand and gravel terraces a few hundred metres to the east of the Arctic Station. The sites are at 6 and 11 m a.s.l., and on raised shorelines to the west of a lagoon. Occasionally flagstones and boulder structures are associated with the lithic scatters.

Møbjerg collected 47 tools and 494 flakes from these concentrations and she characterised the locality as a base camp. However, there are few spatial constraints on the location of the features and it is equally possible that the artefact clusters result from consecutive occupations. Of the flakes, 97% are of killiaq, 1.8% are of 'flint' and 1.2% are of chalcedony.

Finds from Østerlien, all features (Møbjerg 1986)

Artefact category	No.	%	All artefacts	%
Bifaces, all fragments included	3	6.4	47	8.7
Harpoon blades	2	4.3		
Microblades	1	2.1		
Burins	6	12.8		
Burin spalls	20	42.6		
Retouched flakes	15	31.9		
All flakes			494	91.3
Total	47	100.1	541	100

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207 Saqqaa
69V1-0II-003
Dorset

Several Thule features, in addition to some from more recent times, are located at Saqqaa on the southernmost point of the peninsula on which the town of Qeqertarsuaq is located. Møbjerg (1986) reports that a single burin-like tool has been collected here. The latter could have been brought to the site by more recent peat cutting activity on nearby Palaeo-Eskimo sites. But it is equally possible that Saqqaa is a multicomponent site with both Dorset and Thule settlements.

Finds from Saqqaa, all features (Møbjerg 1986)

Artefact category	All artefacts
Burin-like tools	1

208 Kangaarsuk
69V1-III-002
Saqqaq

Møbjerg located two Saqqaq sites, Kangaarsuk I and Kangaarsuk II, 12 km to the west of Qeqertarsuaq. Kangaarsuk I is situated at 6-10 m a.s.l. on raised gravel terraces in a little cove. The terraces are cut by a creek flowing from a lake a few hundred metres inland and a total of 21 concentrations of lithic artefacts have been recorded on either side of the creek. 85 tools and 631 flakes are listed from Kangaarsuk I. Of these, 69.8% are of killiaq, 30.7% are of 'flint' and 0.5% are of chalcedony.

Lithic artefacts from Kangaarsuk I (Møbjerg 1986)

Artefact category	No.	%	All artefacts	%
Bifaces, all fragments included	13	15.3		
Microblades	1	1.2		
Burins	10	11.8		
Burin spalls	25	29.4		
Side-blades	3	3.5	85	11.9
End-scrapers	3	3.5		
Side-scrapers	1	1.2		
Retouched flakes	28	32.9		
Microblade cores	1	1.2		
All flakes			631	88.1
Total	85	100	716	100

209 Kangaarsuk II
69V1-III-002
Saqqaq

Kangaarsuk II is situated on deflated hills a few hundred metres to the east of Kangaarsuk I. No features and just four tools and nine flakes have been recorded at this locality, which Møbjerg characterises as a hunting stand. 77.8% of the flakes are of killiaq and 22.2% are of 'flint'.

Kangaarsuk, Saqqaa and Østerlien are the only Palaeo-Eskimo sites known on Qeqertarsuaq outside the embayment of Kangerluk.

Lithic artefacts from Kangaarsuk II (Møbjerg 1986)

Artefact category	All artefacts
Bifaces, all fragments included	2
End-scrapers	1
Retouched flakes	1
All flakes	9
Total	13

210 Ikineq 1
69VI-0II-015
Palaeo-Eskimo

Mid-way between the head and mouth of Kuannersuit Sulluat, the fjord bends so that the inner section runs north-south, whereas the outer part runs east to west. In contrast to the straight sandy shores characterising the surrounding areas of sedimentary rock, the central part of the fjord has several gneiss points with a strongly indented coastline. When moving from the head towards the mouth of the fjord, Ikineq is the first of these points one meets along the northern shore. In a south-facing cove, there is a Thule winter house (Nellemann 1957) and flakes have been discovered on the rocky points on the northwestern and southeastern sides of the cove. The sites have been named Ikineq 1 and Ikineq 2.

Two test pits were dug on flat surfaces at Ikineq I, which is situated on the northwestern side of the cove. This place is characterised by 30-50 cm deep peat deposits covered by crowberry. The lowest of the two test pits was measured to be 4.5 m a.s.l. Thirteen flakes were collected from this test pit (test pit 1). Ten flakes (76.9%) are of killiaq and 3 (23.1%) are of chalcedony. In test pit 2, situated on a flat terrace a few metres higher up, there were four flakes, two of killiaq and

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two of chalcedony.

Lithic artefacts from Ikineq 1

Artefact category	All artefacts
All flakes	17

211 Ikineq 2
69VI-0II-015
Dorset

On the southeastern side of the little bay there is a low rocky point. At the tip of this point there is a large flat area covered by peat and marsh grass where a test pit was dug at 0.9 m a.s.l. The stratigraphy in the test pit showed that the marsh grass is growing on a 25-39 cm thick layer of peat. At the bottom of this layer, there were a 1 cm thick black horizon resting directly on the substratum of gravel and stones. Two flakes of killiaq and a few flecks of charcoal were recovered from the test pit (Jensen 2000d). In other parts of Qeqertarsuup Tunua such low-lying areas which flood at high tide have often proven to have traces of Dorset settlement.

Lithic artefacts from Ikineq 2

Artefact category	All artefacts
All flakes	2

212 'Two Flakes Site'
69V1-III-013
Palaeo-Eskimo

Two small retouch flakes of killiaq have been recovered at the first of two gneiss points to the west of Ikineq. The flakes were found among stones and gravel deposited between the cliffs in the area flooded at high tide. The crowberry-covered peat surface higher up was searched meticulously, but no other signs of habitation apart from recent tent rings were seen.

Lithic artefacts from Two Flakes Site

Artefact category	All artefacts
All flakes	2

213 Naanngisat 1-5
69V1-III-007
Saqqaq

Naanngisat is the name of a point located on the northern shore in the outer part of the fjord Kuannersuit Sulluat. A little cove with five Thule winter houses is situated in the western part of the point. Close by, to the northeast, is a Saqqaq site with five lithic concentrations located on sandy terraces, approximately 150 m from the shore and 11-13 m a.s.l. (Møbjerg 1977). No features have been recorded. A total of 36 tools and 157 flakes have been collected from the lithic scatters and the site is thought to be a seasonal camp. Of the flakes, 84.7% are reported to be of killiaq, 13.4% of 'flint' and 1.9% are of chalcedony (Møbjerg 1986).

Lithic artefacts from Naanngisat 1 to 5 (Møbjerg 1986)

Artefact category	No.	%	All artefacts	%
Harpoon blades	4	11.1		
Microblades	6	16.7		
Burins	5	13.9		
Burin spalls	13	36.1	36	18.7
End-scrapers	1	2.8		
Retouched flakes	6	16.7		
Axes	1	2.8		
All flakes			157	81.4
Total	36	100.1	193	100.1

214 Naanngisat 6
69V1-III-014
Dorset

Two additional lithic scatters are situated on lower-lying beach ridges at 4 and 5 m a.s.l. and close to the present shore to the west and south of Naanngisat 1 to 5. In order to avoid confusion with the Saqqaq evidence these have been named Naanngisat 6 and 7. Naanngisat 6, the westernmost of these lithic concentrations, is situated on top of a little beach ridge between two rocks. The gravel terrace is covered by lichen and scattered grass but is otherwise devoid of vegetation. 25 lithic objects were recorded from the surface. All, apart from a complete bifacial knife, were left *in situ* upon description. Of the objects, 8 (32%) are of killiaq, 15 (60%) are of chalcedony, with white specimens dominating but with other colours represented, and 2 (8%) are of quartz crystal (Jensen 2000d).

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Lithic artefacts from Naanngisat 6 (Jensen 2000d)

Artefact category	All artefacts
Bifaces	2
Microblades	3
All flakes	20
Total	25

215 Naanngisat 7
69V1-III-015
Dorset
A few hundred metres to the southeast of Naanngisat 6 there is a similar gravel ridge located 5 m a.s.l. between two rock knolls, from where a total of 64 artefacts has been described; all apart from two were left in situ. 19 artefacts (29.7%) are of killiaq, 38 (59.4%) are of chalcedony, again with white dominating but with other varieties as well. 5 (7.8%) specimens are of quartzite and 2 (3.1%) are of quartz crystal.

Lithic artefacts from Naanngisat 7 (Jensen 2000d)

Artefact category	All artefacts
Microblades	1
Side-scrapers	1
All flakes	62
Total	64

216 Quinnguaq Southeast 1
69V1-III-008
Dorset
A large Thule ruin is situated on the point formed at the confluence of Kuannersuit Sulluat and the smaller Kangerluarsuk. To the southeast and north of the Thule dwelling there are large expanses with raised shorelines between rocky points. To the southeast, evidence of Palaeo-Eskimo settlement was located in four places. Three of these are tent rings, presumably of Dorset origin, and the fourth is a lithic scatter with Saqqaq burins. To the north of the Thule house, there is an area with deflated gravel terraces where numerous chalcedony flakes were located. Accordingly, the Palaeo-Eskimo localities will be named Quinnguaq Southeast 1 to 4.

The four localities recorded at Quinnguaq Southeast are numbered from southeast to northwest, so that the numbers 1 to 4 equal Lb. no 11 to 14 in the survey report (Jensen 2000d). The beach ridge system in this area comprises long parallel gravel berms extending from the present shoreline to approximately 20 m a.s.l. The depressions between the beach ridges are covered by peat and grass which have obliterated any traces of prehistoric remains in these areas. The better drained beach ridges, on the other hand, often only have little vegetation dominated by lichens. Accordingly, tent ring boulders or hearths occasionally protrude above the vegetation on top of the beach ridges. Quinnguaq Southeast 1 is an amorphous aggregation of boulders with a single flake of green chalcedony (left *in situ*) located nearby. The feature is situated at 8.25 m a.s.l.

Lithic artefacts from Quinnguaq Southeast 1 (Jensen 2000d)

Artefact category	All artefacts
All flakes	1

217 Quinnguaq Southeast 2
69V1-III-008
Dorset
Quinnguaq Southeast 2 is a better preserved half circle of five to six head-sized boulders, and with a heap of stones in the eastern part of the feature. If the boulders in the half circle were part of a tent ring, then it would have a diameter of approximately 3.5 m. The feature is situated 9.7 m a.s.l., and a single flake (left *in situ*) of white chalcedony was found near one of the stones.

Lithic artefacts from Quinnguaq Southeast 2 (Jensen 2000d)

All flakes	1

218 Quinnguaq Southeast 3
69V1-III-008
Dorset
Quinnguaq Southeast 3 is a rudimentary mid-passage tent ring with angular stones set in two parallel rows in the centre of a rudimentary tent ring. The mid-passage is 1.5-2.4 m long and 0.5 m wide and it is set perpendicular to the beach ridge. The feature is situated 8.39 m a.s.l. and a scraper and four flakes (left *in situ*) were located under two periphery stones in the eastern part of the feature.

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Lithic artefacts from Quinnguaq Southeast 3 (Jensen 2000d)

Artefact category	All artefacts
Scrapers	1
All flakes	4
Total	5

219 Quinnguaq Southeast 4
69V1-III-008
Saqqaq

Quinnguaq Southeast 4 is the westernmost of the four Palaeo-Eskimo find sites registered during reconnaissance in 2000. This site shows no signs of features located high on the deflated gravel terraces at 10.9 m a.s.l. just to the southeast of the Thule house. Two typical Saqqaq burins of grey killiaq and a few flakes of green chalcedony were recorded from an even area to the north of a rocky knoll. The artefacts were left *in situ*.

Lithic artefacts from Quinnguaq Southeast 4 (Jensen 2000d)

Artefact category	All artefacts
Burins	2
All flakes	+
Total	2

220 Quinnguaq North
69V1-III-016
Dorset

In the area to the north of Quinnguaq, on the eastern shore at the entrance to the fjord Kangerluarsuk, there is series of west-facing gravel terraces. In contrast to the peat-covered terraces to the southeast of Quinnguaq, these are all deflated and virtually devoid of any vegetation. The lowest of the gravel terraces is being eroded by the sea, and along the edge towards the present shore there are numerous flakes scattered along a c. 60 m stretch of the coast. All artefacts were left *in situ* and no features were seen associated with the finds. Of the 124 recorded objects, 121 (97.6%) are of chalcedony and three (2.4%) are of killiaq.

Lithic artefacts from Quinnguaq Southeast 4 (Jensen 2000d)

Artefact category	All artefacts
Microblades	2
Side-scrapers	1
All flakes	127
Total	130

221 Upernavik
69V1-III-010
Saqqaq and Dorset

Several Palaeo-Eskimo localities are situated on the peninsula bearing the present-day settlement of Kangerdluk (Diskofjord). The most prominent of these localities is Upernavik, located a few hundred metres to the south of the existing settlement. Most of the finds here are concentrated in midden accumulations deposited on a bluff at approximately 7 m a.s.l. The stratigraphy has been described as an upper culture layer located approximately 10 cm below the surface, in which chalcedony dominates among the lithics, and a lower culture layer approximately 30 cm below the surface, where killiaq is the dominant raw material. The two culture layers are separated by 20 cm of sterile peat (Møbjerg 1977).

Møbjerg records the collection of a burin spall, a retouched flake and 192 flakes from the site, but all of these were collected from the slopes in front of the eroded midden profile. As a consequence, the raw material frequencies supplied by Møbjerg (1986:38), are poorly suited as a basis for further conclusions, apart from the fact that indeed this assemblage, in terms of raw material frequencies, seems to result from an mix of Saqqaq and Dorset material: Killiaq (38.5%), 'flint' (12.5%), chalcedony (49.0%).

Lithic artefacts Upernavik (Møbjerg 1986; Jensen 2000d)

Artefact category	No.	All artefacts
Bifaces, all fragments included	1	10
Microblades	4	
Burin spalls	3	
Retouched flakes	2	
Other soapstone fragments		1
All flakes		254
Total	10	265

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Scattered artefacts have also been located on more elevated terraces, as well as in lower lying cliffs eroded by the sea in the immediate vicinity of the midden. Presumably there are several settlements or activity areas scattered over the point. Møbjerg chooses not to suggest any site type for this locality, but due to the presence of midden layers and the quite widely scattered find sites, the present author suggests that the site should be categorised as a base camp or central place.

222 Kangerluk (Diskofjord) 1-3
69V1-III-009
Saqqaq
On the eastern fringe of the settlement of Kangerluk, Møbjerg (1977) has recorded three areas with artefacts in the cliff. Four tools and 13 flakes were collected from 5.5-6.5 m a.s.l. and Møbjerg suggest that this is probably a Saqqaq site due to the dominance of killiaq among the flakes. This suggestion may also be supported by the retouched flakes she collected, since retouched flakes are more common in Saqqaq inventories than they are in Dorset. Raw material frequencies among flakes collected at Kangerluk: Killiaq 46.2%, 'flint' 53.8%.

Lithic artefacts from Kangerluk 1-3 (Møbjerg 1986)

Artefact category	All artefacts
Retouched flakes	4
All flakes	13
Total	17

223 Kangerluk (Diskofjord) 4
69V1-III-017
Dorset
The present author found 11 flakes of white chalcedony a little to the south of Diskofjord (Kangerluk) 1-3 described by Møbjerg (1977). The flakes were collected from eroded peat layers at 6 m a.s.l. on the slope running down towards the landing place at the outpost. Continuing the numbering started by Møbjerg, this locality is named Diskofjord 4. The flakes, and all other stray finds from a place with such a long settlement history as Kangerluk, may of course have been brought in as a result of peat cutting during more recent times. But they may also hint that multiple prehistoric settlements are situated in splace that are also settled today.

Lithic artefacts from Kangerluk 4 (Jensen 2000d)

Artefact category	All artefacts
All flakes	11

224 Sioraq
69V1-III-11
Saqqaq
To the west of the outpost of Kangerluk there is only a few hundred metres to the more exposed west-facing shore. There is vertical rock cliff in the northernmost part of the long sandy beach. The Saqqaq site of Sioraq is situated on top of these cliffs where there is a large flat area covered with crowberry. Møbjerg list 64 artefacts, all of which are of killiaq. In addition to these finds, Jensen (2000d) collected 33 flakes from the beach below the eroded cliff. 31 (93.9%) are of killiaq and two (6.1%) are of chalcedony. The artefact-bearing stratum is located at 4 m a.s.l.

Lithic artefacts from Sioraq (Møbjerg 1986; Jensen 2000d)

Artefact category	All artefacts
End-scrapers	1
Retouched flakes	2
All flakes	96
Total	99

225 Quasannguaq
69V1-IV-001
Saqqaq
To the west and north of Sioraq the shore comprises a narrow boulder beach below a vertical cliff extending up to more then 5 m. Accordingly, access to the beach from the sloping hinterland is very difficult. However, at the locality of Quasannguaq there is a small bluff with places nearby where the cliff has been eroded in such a way that it is possible to climb up and down. Here Møbjerg collected 29 flakes, two of which are retouched. 85.2% of the flakes are of killiaq and 14.8% are of 'flint'.

During the present author's inspection of the site in 2000 only a single flake was seen on the deflated surface at the edge of the cliff. However, Møbjerg states the elevation to be 11 m a.s.l whereas we meas-

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ured it to be just 6 m a.s.l., so we may not have searched the exact same places.

Lithic artefacts from Quasannguaq (Møbjerg 1986)

Artefact category	All artefacts
Retouched flakes	2
All flakes	27
Total	29

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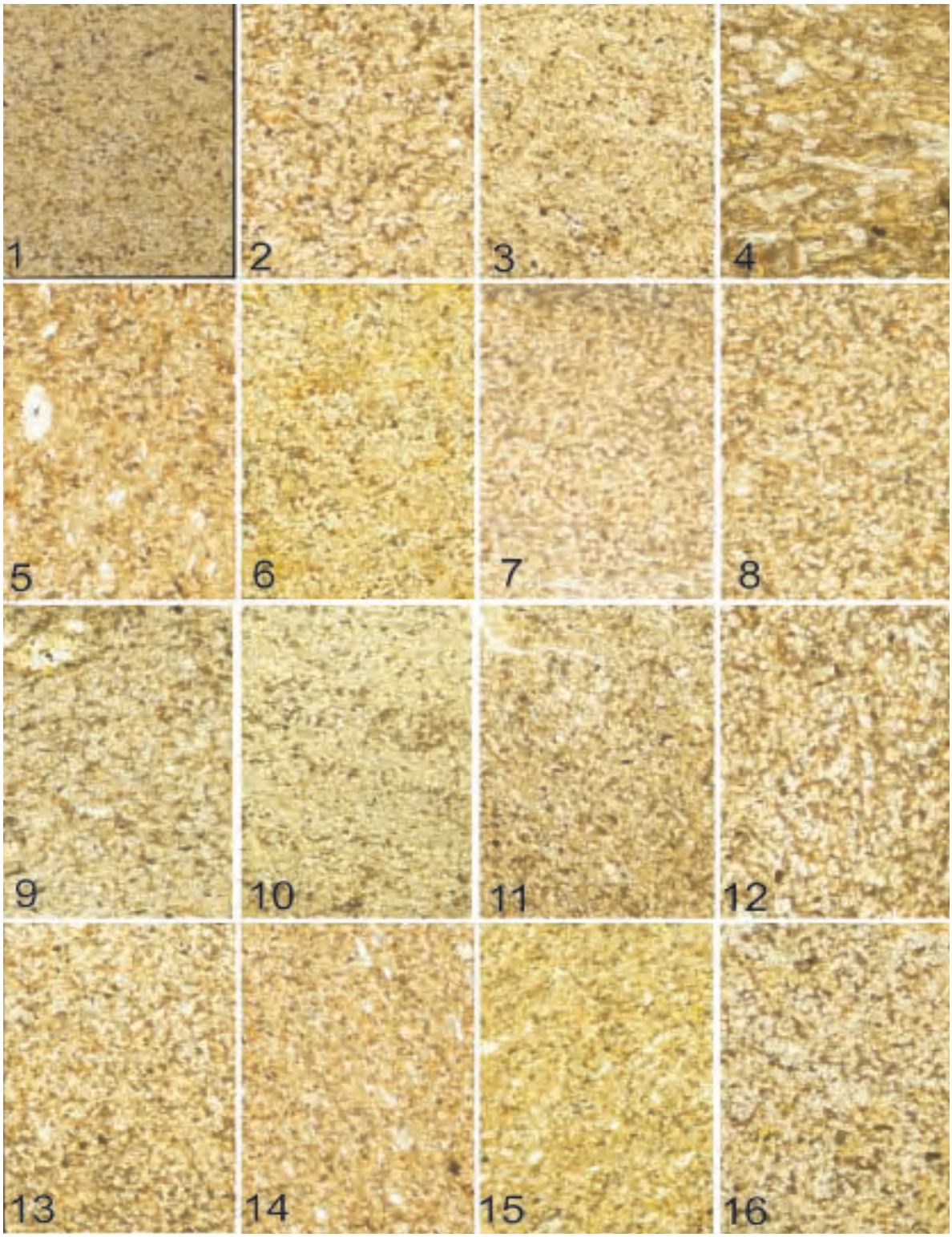
Appendix 2

Thin-sections of killiaq samples



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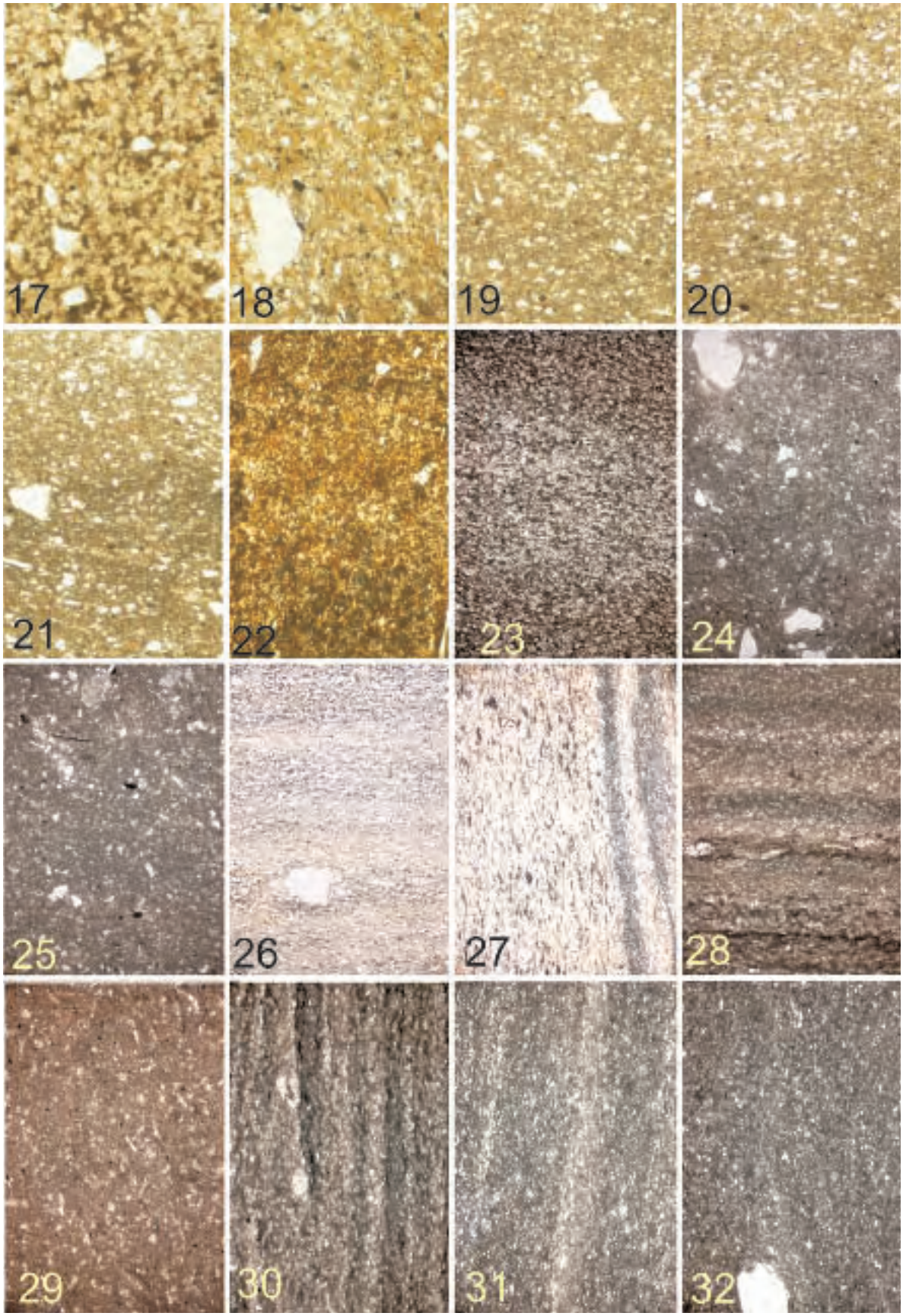

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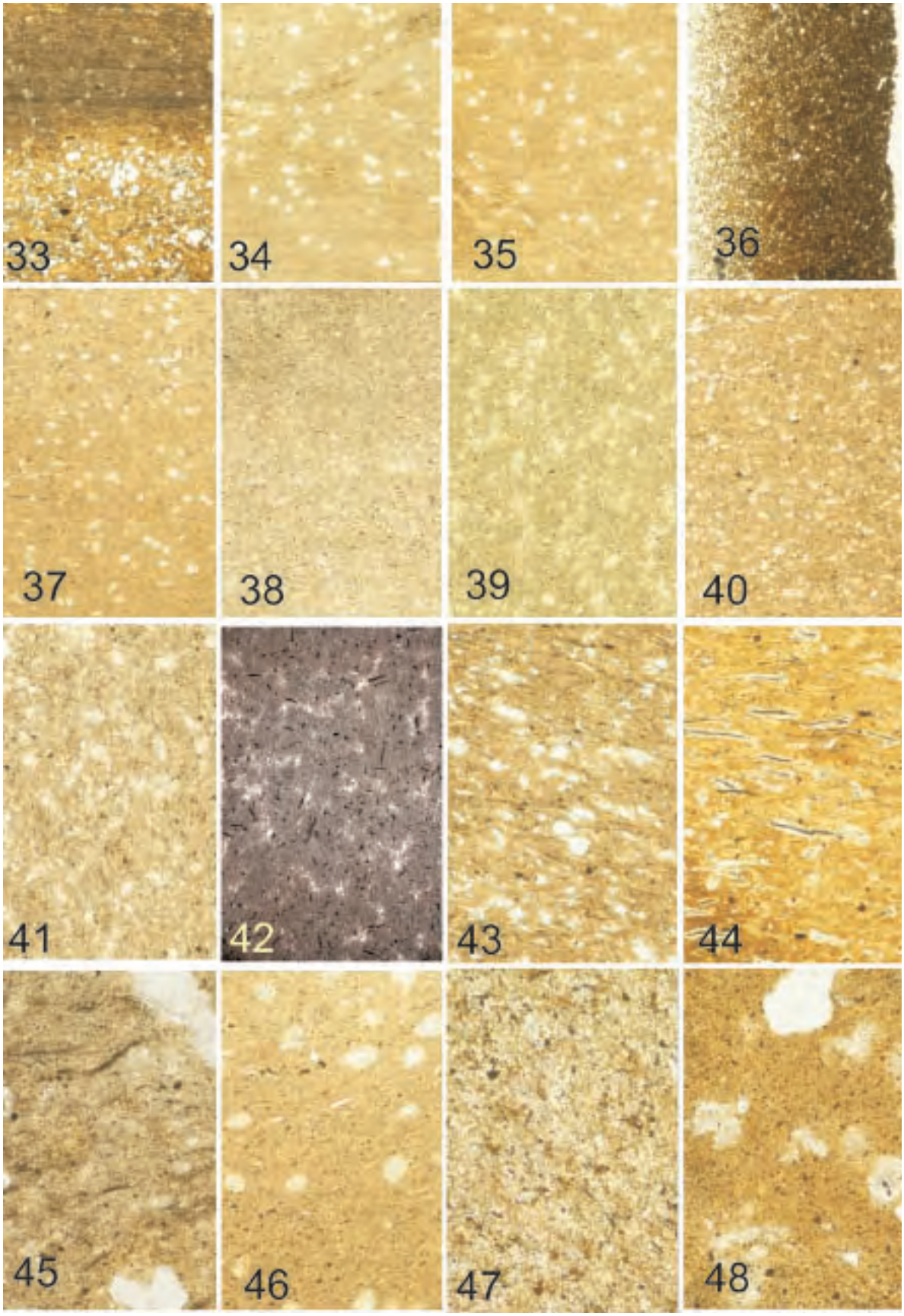

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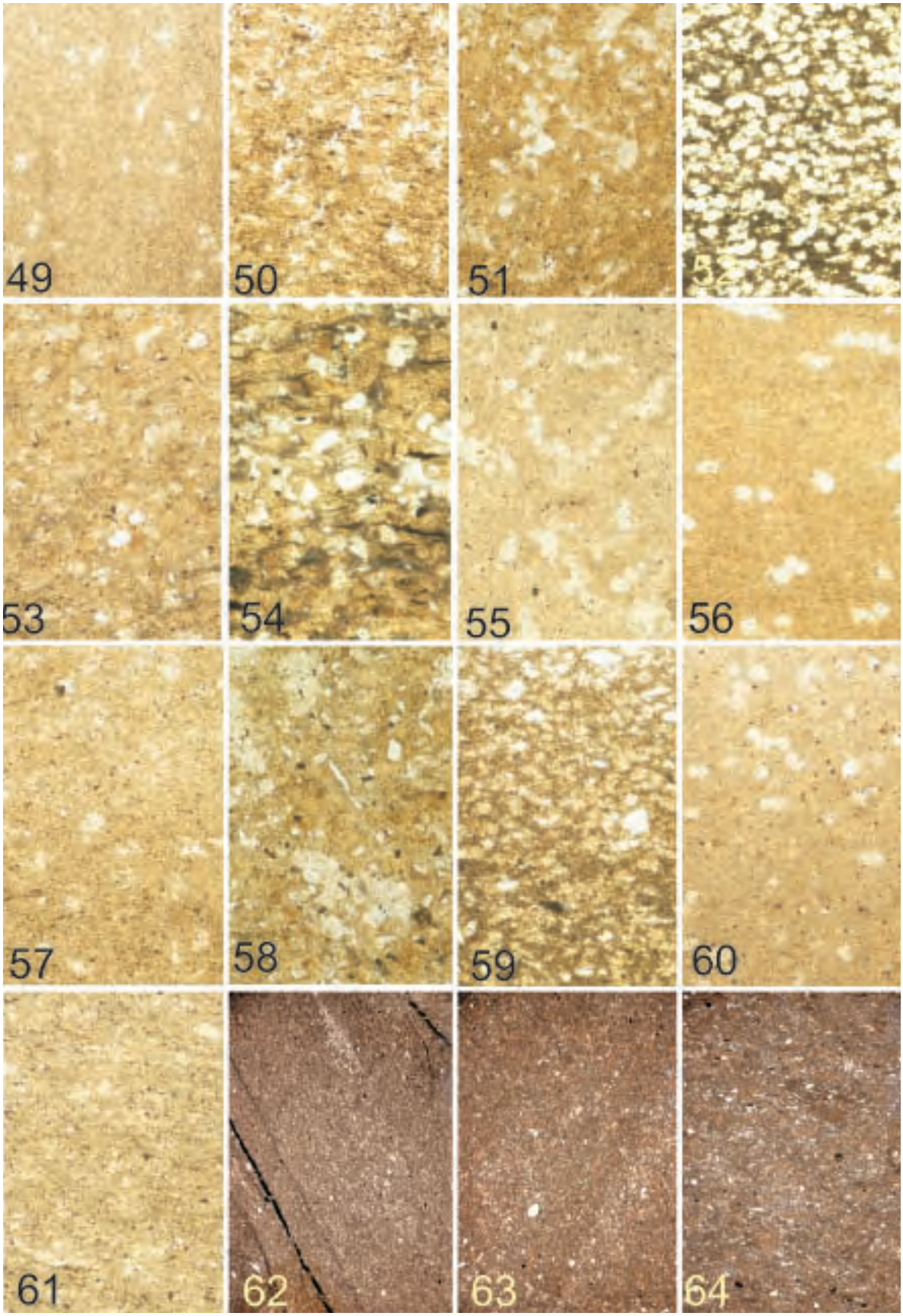

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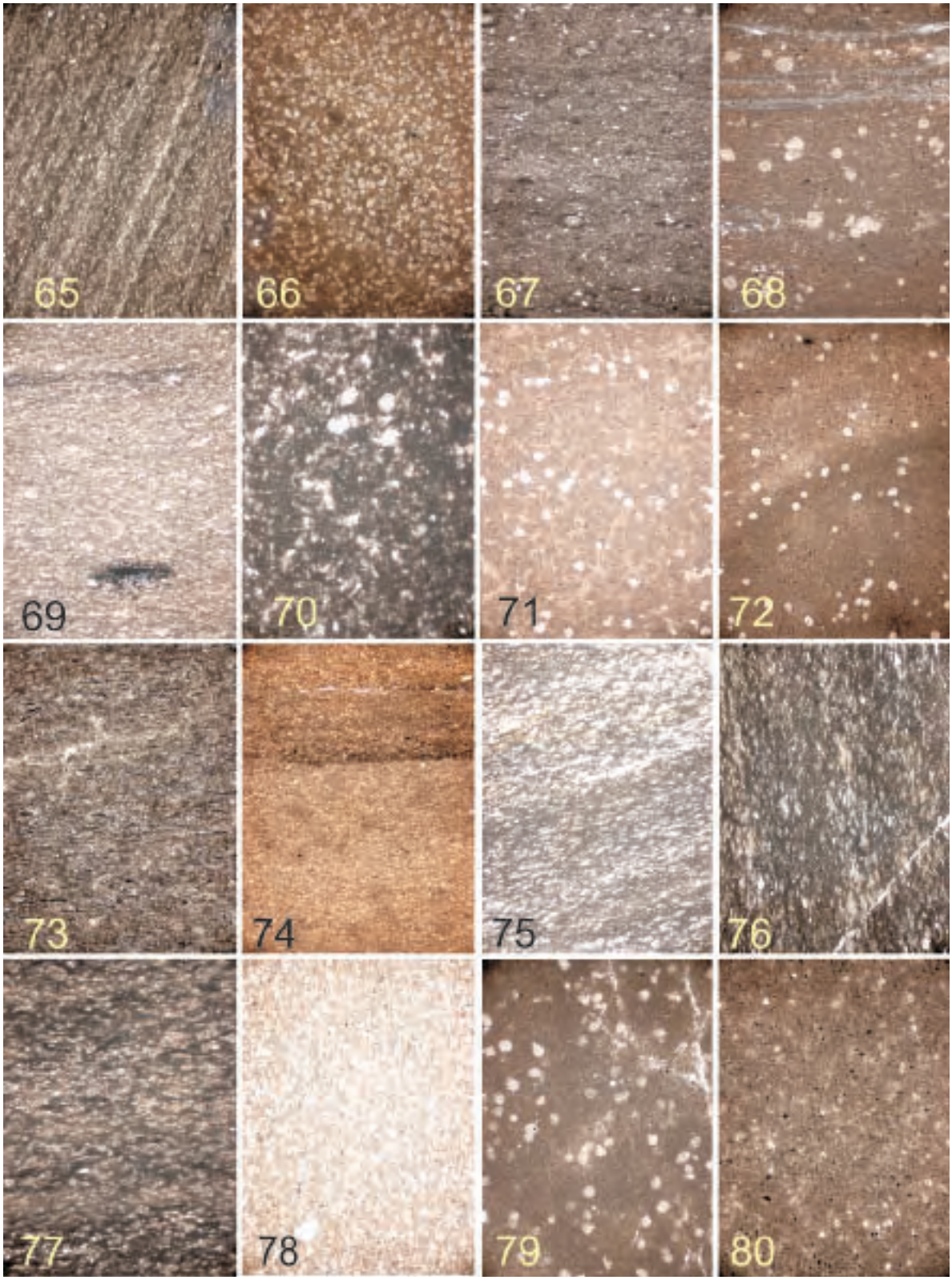

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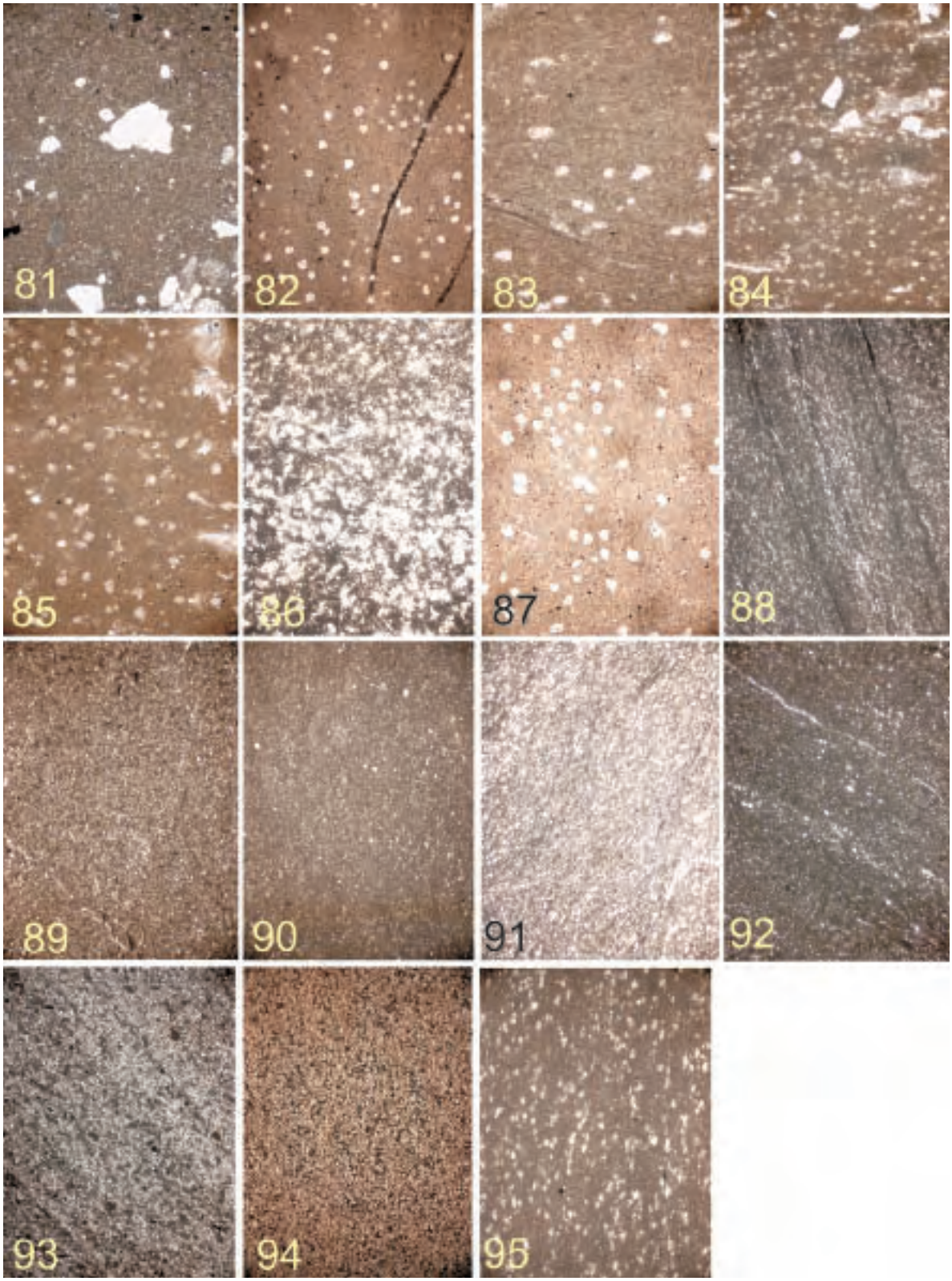

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