

Construction, Use, and Abandonment of a Thule Whale Bone House, Somerset Island, Arctic Canada

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In 1991, the authors excavated a Thule (ca. A. D. 1000-1600) whale bone house on Somerset Island, Arctic Canada. Several characteristics of the house structure and the associated artifact assemblage indicate that this house probably functioned as a *karigi*, or ceremonial house. It is argued that detailed analyses of house stratigraphy provide useful data for the study of formation processes of the house. Based on our analyses, five stages are recognized: 1) house construction, 2) house use and maintenance, 3) house abandonment, 4) dismantling of superstructure, and 5) post-occupation. It is also argued that such analyses can be extremely beneficial in understanding the nature of associated artifacts.

Key Words : formation processes, Thule culture, whale bone house, behavioral analysis, stratigraphy

I. Introduction

The purpose of this paper is to interpret various stages in the formation of a prehistoric Thule whale bone house excavated in 1991. In so doing we demonstrate the importance of collecting structural and stratigraphic data in such archaeological contexts. At the same time, we provide information on one of a very few probable *karigi* (ceremonial house) reported from Thule sites in the eastern North American Arctic.

From the pioneering studies of Mathiassen (1927) to the present, houses constructed from bowhead whale (*Balaena mysticetus*) bones have figured prominently in the investigation of Thule culture (ca. A. D. 1000-1600) of the eastern North American Arctic. These features have traditionally provided the vast majority of Thule period artifacts and faunal remains. Furthermore, their construction characteristics have been used to infer cultural and historical relationships to ancestral and derivative arctic societies, and to interpret

temporal and geographic diversity and change in subsistence-settlement systems and corresponding social and logistical organization (see e. g. Taylor, 1960; McGhee, 1972, 1984; Schledermann, 1976; McCartney, 1977, 1979a; Maxwell, 1981, 1985; Savelle, 1987; Savelle and McCartney, 1988; McCullough, 1989; see also Park, 1989 for a critique of such studies).

Despite the importance of these features, however, we do not as yet have a comprehensive assessment of the variation in formal construction techniques, nor, as noted by McCartney (1979a), of the dynamics of construction, use and abandonment. Most excavation reports of Thule whale bone houses do not provide the stratigraphic information necessary for such studies. This is partly because, until recently, Thule archaeology has focused primarily upon the development of culture-historical frameworks through the description and classification of artifacts. Additional reasons for the lack of detailed stratigraphic data are time and environmental constraints. Arctic

field seasons are relatively short and archaeological excavations are conducted as expeditiously as possible, while permafrost often inhibits the ability to recognize and map individual strata.

While we fully appreciate these constraints, we nevertheless feel that structural and stratigraphic information can contribute significantly to the study of whale bone houses, and is often indispensable in the evaluation of the artifact assemblages recovered from these features. Schiffer (1976, 1987) has emphasized the importance of such information in his development of "behavioral archaeology", whereby the context of cultural remains, and the various formation processes which affected them, are considered.

Accordingly, this paper presents detailed stratigraphic and structural information on the house, and demonstrates how these data can contribute to the interpretation of various cultural and non-cultural processes relating to the house. First, the geographical and cultural setting and excavation results are described. Second, our interpretation regarding the various stages of house construction, use and abandonment is presented. Finally, we summarize the results of our study and discuss the significance of structural and stratigraphic information in such a study.

II. Geographical and Cultural Setting

The Thule house reported here, House 5, is one of 11 semisubterranean houses at PaJs-13, a Thule site located immediately north of Hazard Inlet, southeast Somerset Island (Figure 1). This house group occurs at the north end of an 8-kilometre-long series of Thule features, including pit and boulder caches, tent rings, *qarmang* (shallow semisubterranean dwellings), burials, and Thule-derived bowhead whale bones and fragments. The distribution and characteristics of these features and whale elements suggest intensive year-round occupations within the context of an overall whale-based subsistence economy (McCartney and Savelle, 1985; Savelle, 1987; Savelle and McCartney, 1988, 1990).

Previous studies of the Thule culture on south-

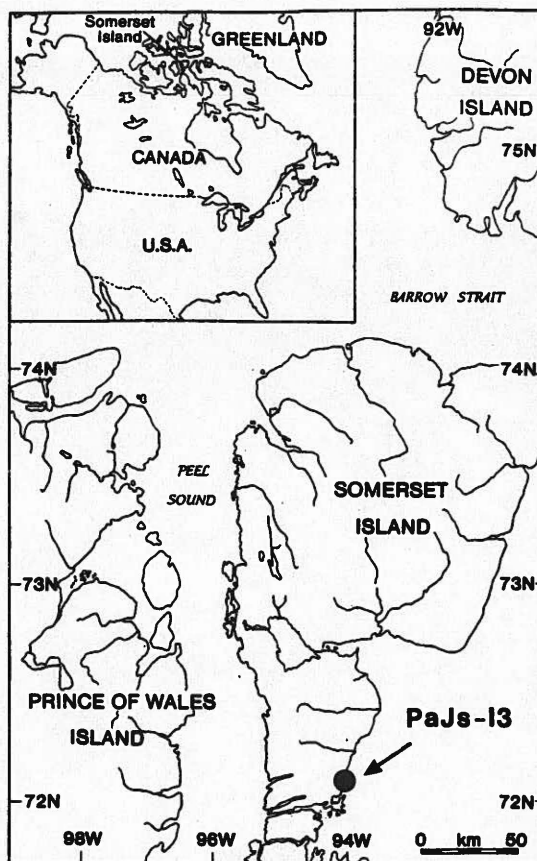


Fig. 1 Location of PaJs-13 on Somerset Island in the central Canadian Arctic

eastern Somerset Island indicate primarily Classic Thule occupations (*sensu* McCartney, 1977; Morrison, 1989) in the area (McCartney, 1979b; Taylor and McGhee, 1979). Artifacts recovered from the excavated houses are consistent with this designation, and perhaps can be included within the Learmonth Phase (McGhee, 1984). Typical or diagnostic artifacts from the house are illustrated in Figure 2.

III. Excavation Results

1. Methods

The surface profile of the house and excavation unit layout are shown in Figure 3. The house and periphery were divided into 1 × 1 metre excavation units. Units A1 to A15 extend approximately north to south, while A1 to O1 lie approx-

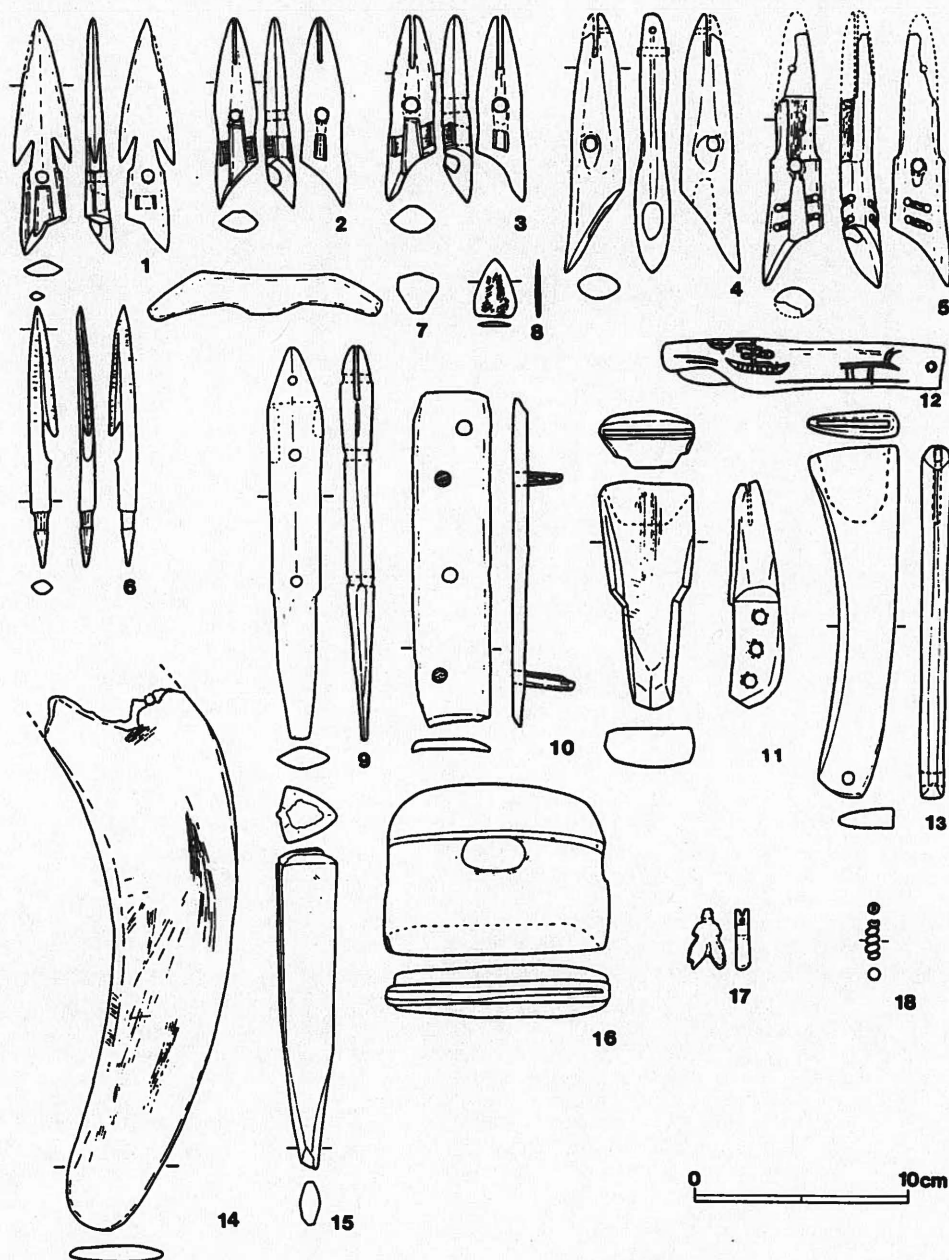


Fig. 2 Representative artifacts recovered from House 5

1-5. harpoon heads, 6. arrowhead, 7. drag-line handle, 8. slate endblade, 9. lance head, 10. sled shoe, 11. adze head, 12-13. knife handles, 14. snow knife, 15. wedge, 16 : ulu (woman's knife) handle, 17. stone pendant, 18. ivory pendant

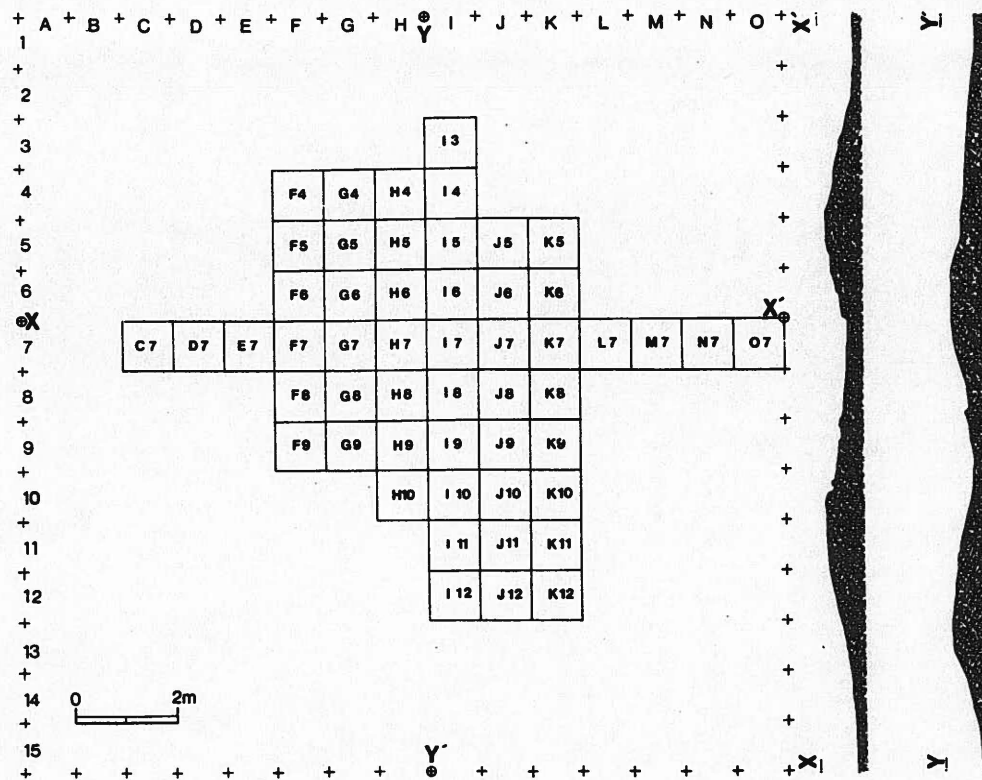


Fig. 3 House surface profiles and excavation unit layout

imately east to west. A total of 52 units within and adjacent to the house were excavated. These include a 13 × 1 m trench (units C7-O7) that bisected the house.

We began our excavation in the centre part of the house. It soon became apparent that the house had a neatly flagged floor of flat limestone and dolomite slabs (Figure 4), but no apparent sleeping platforms. The flagstones were removed after mapping and/or photographing, and the entire flagged area was excavated to a basal sterile layer (layer 12 in Figure 7). The remainder of the house interior was excavated out to the sod wall (layers 9a and 9b) or a grease, baleen and skin layer (layer 10) which lay directly on and adjacent to the flagstones at the edge of the house interior. In addition, all trench units were excavated to the basal sterile layer. The interior of the entrance was excavated to the bottom of the entrance "well" (depressed floor in entrance) with

the exception of units I/J9-10 (see entrance deposit [excavation incomplete] in Figures 6 and 7). Time constraints and permafrost prevented the complete excavation of these latter units. The midden, which extends to the southeast of the entrance, was only partially excavated and its total extent is unknown.

2. Structural Components

The distribution of all structural whale bones and stones in the excavated area is shown in Figure 5, while only those interpreted as primary *in situ* structural elements are shown in Figure 6. Profiles and cross-sections are shown in Figure 7.

Most of the primary *in situ* structural whale bones and stones are arranged in a roughly circular pattern inside the house adjacent to the sod wall (layers 9a and 9b). Many of these were placed at floor level and embedded in layer 10, a thin layer of grease, baleen and skin just above the flagstone floor. Adjacent to, or placed on top of



Fig. 4 Field photograph of House 5 flagstone floor; view southeast

these bones and stones, were several large flat stone slabs, which probably functioned as benches. In addition, seven complete or almost complete crania were placed on the upper part of the sod wall. The flagstones were loosely interlocked (see Figure 4), save for a small unpaved area in the centre of the floor, approximately 30×25 cm, beneath which was a possible pit that extended into layer 12.

The entrance consisted of a primary framework of six whale crania (SB1-SB6 in Figure 6) over an entrance "well". These six whale crania appeared to be *in situ*, since SB3 was firmly supported by several large stones (Figure 9), thus resulting in an essentially vertical exit. The entrance "well" measures 4.7×1.2 m, and was depressed at least 50 cm below the house floor level and 35 cm below the contemporaneous ground level (profile C-C' in Figure 7).

Upon and adjacent to the wall and primary

structural members were a large number of obviously disturbed secondary structural members. These included whale ribs, whale vertebrae, smaller whale bone elements and fragments, and stone slabs. In addition, several whale maxillae, mandibles and rib fragments were lying directly on the surface over layer 1.

3. Stratigraphy

A total of 12 stratigraphic layers, together with lenses of various organic and inorganic materials, were differentiated. These layers are indicated in Figure 7, and described below according to our interpretation of the history of the house.

a) Pre-Occupational

Layer 12 : grey marine beach gravel with minor interstitial sand. Cultural material absent.

b) Structural

Layer 11 : brownish-grey gravel layer, forming a platform upon which the flagstone floor was constructed. Cultural material rare.

Layer 10 : extremely greasy, black organic material containing abundant baleen and skin fragments. This layer formed a circular rim adjacent to, and partly overlying, the flagstone floor. Cultural material abundant.

Layers 9a and 9b : sod wall, consisting of horizontal, and locally imbricated, large cut sod pieces. Cultural material rare.

c) Occupational

Layer 8 : dark brown mud ; occurs as lowest unit adjacent to, and within, the entrance "well". Cultural material rare.

Layer 7 : grey gravel, similar to layer 12. Possibly intentionally deposited to keep the entrance area dry. Cultural material rare.

Layer 6 : brownish-grey organic layer containing abundant baleen and skin fragments, sod and sand. This layer forms the major part of the entrance midden. Cultural material abundant.

Layer 5 : brown organic layer with baleen, skin and sod, defined in the eastern and western ends of the trench only (see cross-section A-A') ; strong odour of decomposing organic material. Cultural material abundant.

Layer 4 : brown sod pieces within sandy ma-

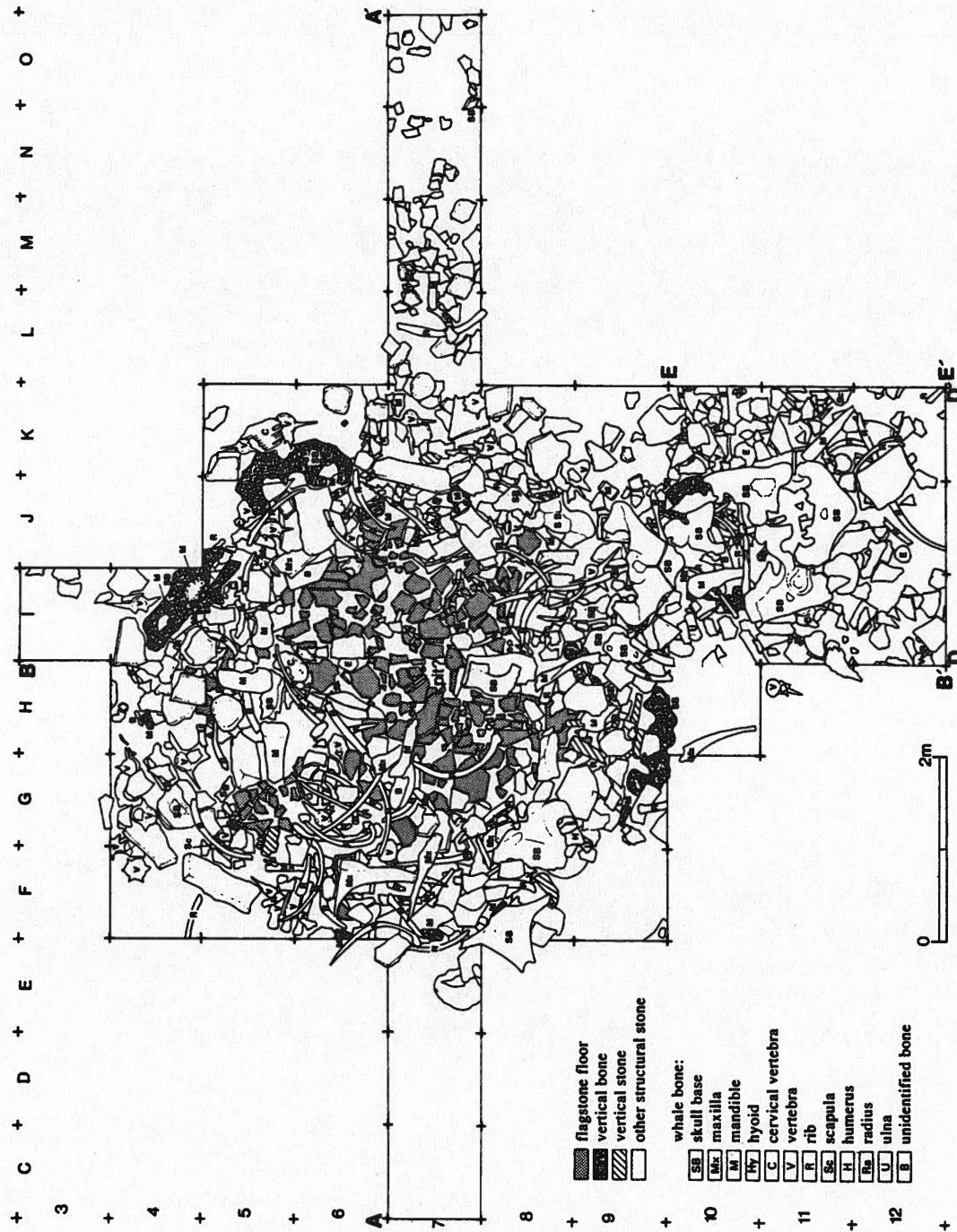


Fig. 5 House plan prior to removal of any structural elements

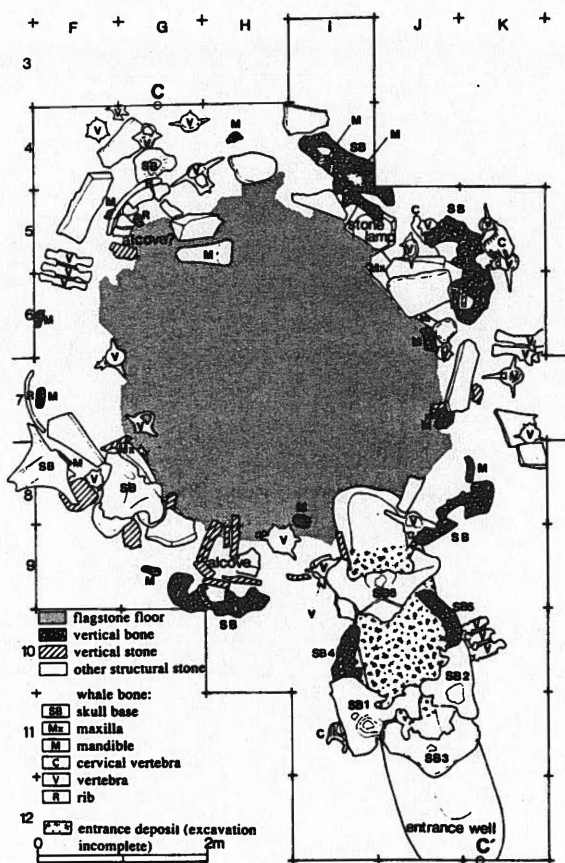


Fig. 6 House plan showing principal structural supports

trix.

Layer 3 : slightly sandy brown humus. Cultural material abundant. Stone slabs in upper part.

Layer 2 : loosely compressed sandy brown humus, occupying interstices between whale bones and vertical stones in the house interior. Cultural material abundant. Stone slabs in upper part.

d) Post-Occupational

Layer 1 : modern active sod and associated humus, covering the entire structure with the exception of several crania at the entrance and around or on top of the wall. Cultural material present, primarily bone shaving concentrations.

4. Artifact Assemblage and Distribution

Artifacts made from bone (including antler and sea mammal ivory), stone, wood, skin, baleen and feathers were recovered from the house. Detailed

analyses of the excavated materials are presently in progress, and the following results are based on preliminary observations only.

Table 1 lists the numbers of artifacts excavated from the house. The "tool" category represents the numbers of artifacts in the conventional sense : i. e., tools and other identifiable artifacts. The "debris" category shows the numbers of other types of artifacts including manufacturing debris, such as cut bones, cut or charred wood, stone flakes, cut skin, and cut or knotted baleen. Table 2 lists the numbers of artifacts according to their provenience and conventional functional classification (modified from Mathiassen, 1927). Table 3 lists the numbers of bone "tool" artifacts by provenience and their condition (i. e., complete vs. broken).

Figures 10 and 11 show the overall distributions of "tool" artifacts and "debris" according to excavation units. These figures indicate that the vast majority of both categories was concentrated within a) the interior periphery, b) the entrance area and associated midden (units I/J/K10-12) and c) the midden adjacent to east wall (units L7-N7).

The vertical distribution of "tool" artifacts from the trench (units C7-O7) according to stratigraphic layer is shown in Figure 8. Although the trench was one metre wide, the cross-section shows the stratigraphic characteristics at the north wall only. Thus, the provenience of each artifact does not necessarily correspond to the stratigraphic layer in the diagram, but the correspondence is close enough to examine the general distribution patterns. Taking this into account, the figures confirm the overall horizontal distributions noted above. They illustrate, furthermore, that the artifacts are mainly concentrated within layers 2, 3, 5 and 10, and occur in relatively low frequencies within other layers.

The distribution of faunal remains (primarily seal, secondarily wildfowl, fox, caribou, bear, wolf and/or dog, fish and small whale present in smaller amounts) also generally conforms to the overall distributional pattern described above

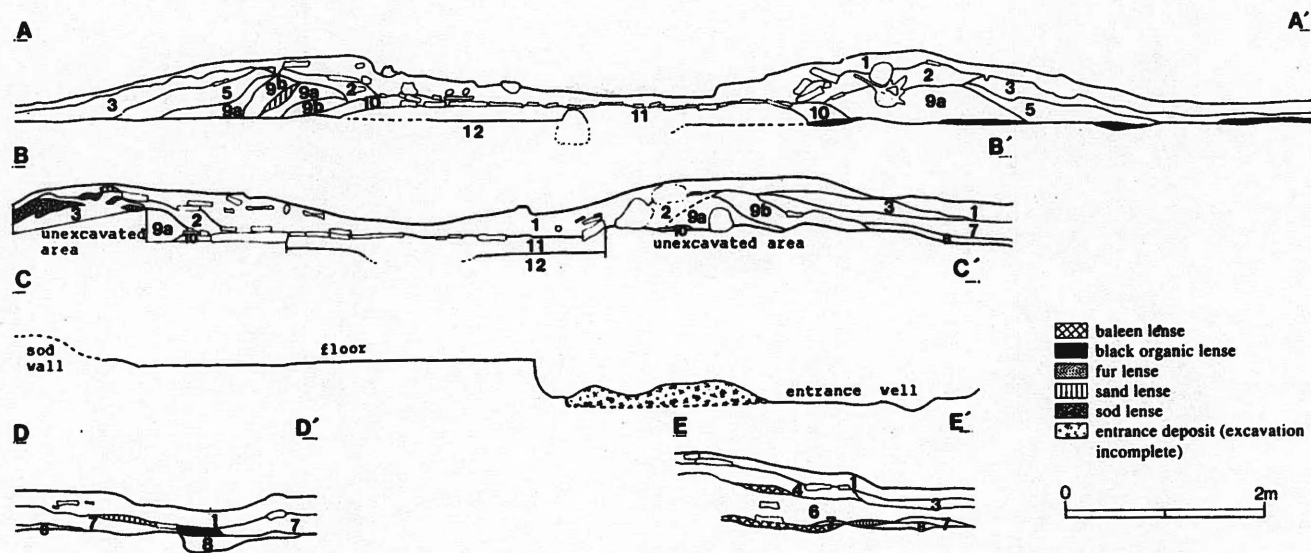


Fig. 7 Stratigraphic profiles of House 5 (see Figures 5 and 6 for orientation and location)

A-A' : West-east cross-section through house along north side of trench, B-B' : North-south cross-section through house, C-C' : North-south profile of floor and entrance "well" after excavation, D-D' : West-east cross-section at beginning of entrance "well", E-E' : North-south cross-section adjacent to east side of entrance

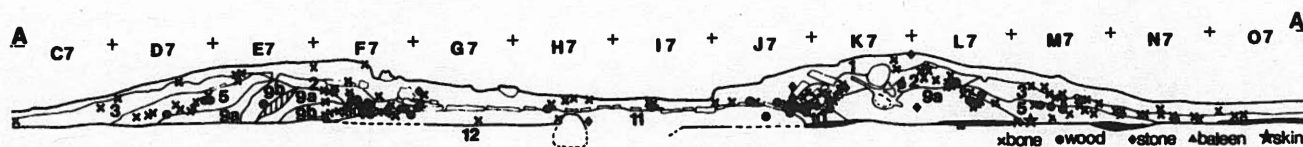


Fig. 8 Vertical distribution of "tool" artifacts within trench



Fig. 9 House 5 entrance framework of whale crania ; view north

Table 1 Numbers of artifacts recovered from House 5 (%)

Category	Bone	Wood	Stone	Baleen	Skin	Feather	Total
Tool	525	228	173	109	3	4	1042 (31.8)
Debris	1602	262	121	66	188	0	2239 (68.2)
Total	2127	490	294	175	191	4	3281 (64.8) (14.9) (9.0) (5.3) (5.8) (0.1) (100.0)

Table 3 Conditions of bone "tool" artifacts recovered from House 5 (%)

Condition	House Interior	House Exterior*	Provenience Unknown	Total
Complete	121 (33.9)	30 (18.0)	0	151 (28.8)
Broken	236 (66.1)	137 (82.0)	1	374 (71.2)
Total	357 (100.0)	167 (100.0)	1	525 (100.0)

* Mainly entrance and midden.

for the artifacts. Analyses of faunal remains are incomplete, but it should be noted that the amount of faunal remains from House 5 was relatively small in comparison to other excavated semisubterranean houses at the site.

In addition to the artifacts and faunal remains

Table 2 Artifact assemblages from house interior and house exterior (%)

Artifact Category	House Interior	House Exterior*	Provenience Unknown	Total
Hunting Equipment	216 (11.2)	87 (6.9)	3	306 (9.3)
Transportation Equipment	38 (2.0)	29 (2.3)	0	67 (2.0)
Men's Tools	92 (4.8)	28 (2.2)	0	120 (3.7)
Stone Picks, Cores and Hammer Stones	96 (5.0)	19 (1.5)	30	145 (4.4)
Women's Tools	6 (0.3)	2 (0.2)	0	8 (0.2)
Other Tools and Household Utensils	78 (4.0)	48 (3.8)	4	130 (4.0)
Skin Artifacts	2 (0.1)	1 (0.1)	0	3 (0.1)
Ornaments, Carvings and Toys	13 (0.7)	13 (1.0)	0	26 (0.8)
Miscellaneous Items	47 (2.4)	44 (3.5)	0	91 (2.8)
Unidentified Objects	104 (5.4)	42 (3.3)	0	146 (4.4)
Debris	1243 (64.2)	956 (75.3)	40	2239 (68.2)
Total	1935 (100.0)	1269 (100.0)	77	3281 (100.0)

* Mainly entrance and midden.

as described above, 18 bone shaving concentrations, which were probably debitage from tool making, were recorded, mainly from layer 1. Each concentration was distributed within a relatively small area, and appears to have been in primary context, the result of tool-manufacturing or other bone modification carried out there. This pattern contrasts with the distribution of scattered small bone debris from other layers, which showed no such locally dense concentrations and appear to represent swept secondary deposits.

IV. Construction, Use and Abandonment

The structural and stratigraphic information which we presented above is directly relevant to the interpretation of the construction, use and abandonment of the house. Following McCartney (1979a), we suggest that, using this information, several major stages in the "life history" of the

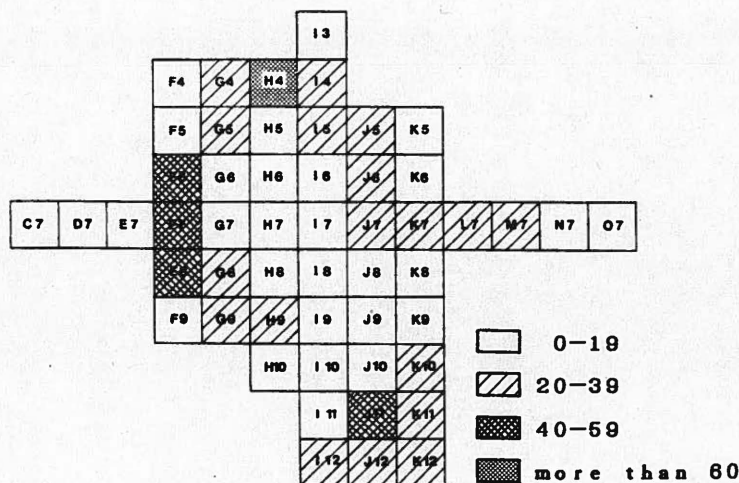


Fig. 10 Horizontal distribution of "tool" artifacts

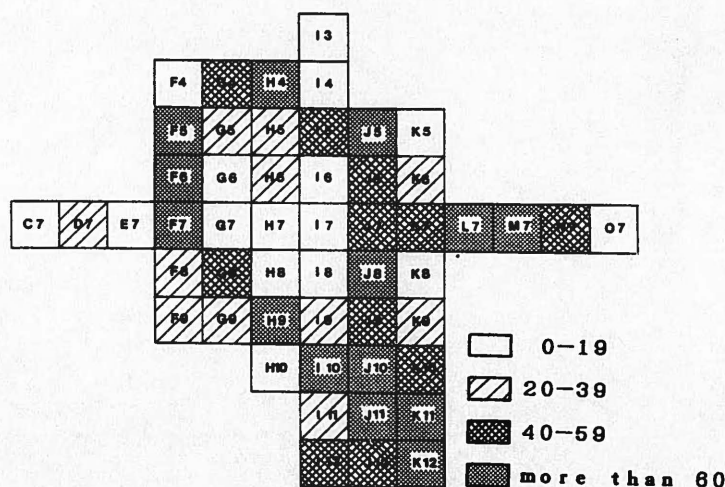


Fig. 11 Horizontal distribution of "debris"

house can be distinguished, as outlined below.

1. Construction Stage

Raw construction materials were obtained from a variety of local sources. Wall stones and flagstones were extracted from nearby bedrock outcrops or were collected loose from scree or beaches. Gravel was taken from the beach ridges within or adjacent to the site. Pond edges adjacent to the site provided sod. Whale bone was acquired from previously flensed whale carcasses or possibly from any nearby houses which may

have been abandoned prior to the construction of House 5. Although Freeman (1979) suggested that many Thule-derived whale bones were the result of scavenging of naturally-beached carcasses, recent detailed investigations suggest almost all were derived from active hunting (McCartney and Savelle, 1985, 1993; Savelle and McCartney, 1990, 1991). Given the severe winter conditions, it is probable that construction of this and other major semisubterranean houses took place during the summer or early fall.

The initial construction sequence entailed, first, building a low gravel platform (layer 11) over the natural beach ridge to the approximate area of the planned house interior. The flagstone floor was then placed directly on the gravel platform, with a pit possibly left in the centre. Layer 10, a bed of grease with baleen and skin fragments, may have been purposefully laid down immediately adjacent to the gravel platform. The shallow entrance "well" may also have been excavated at this time. Sod walls (layers 9a and 9b) were then constructed on the outer margin of layer 10. These consisted primarily of cut sod pieces although several articulated whale vertebrae were also included in the basal portion.

The next step involved the placement of the primary whale bone structural members to form the framework for the roof and entrance. The whale bone structural members used for the roof consisted principally of mandibles positioned vertically, but canted inward, on layer 10, and crania placed vertically on the upper part of the sod wall. We excavated a minimum of 22 mandibles, 25 maxillae and premaxillae, and seven crania. Although the premaxillae and maxillae were found detached from the crania, these would probably originally have been attached to them at the time of house construction (cf. McCartney, 1979a). We suggest that these relatively fragile bones fell, over time, into the house interior from their original position within the roof framework. In contrast, the entrance whale bone framework consists of six crania, none of which would have had maxillae attached, with the possible exception of SB6. The main structural whale bone members were, when necessary, braced with smaller bones (primarily vertebrae) and stones, and were probably lashed together near the roof apex. The stone and whale bone bench supports and stone bench seats were probably added at this stage in the house construction.

Following the construction of the floor, superstructure and benches, the remaining roof members (cross-pieces of ribs) would have been added and lashed to the main support beams. A skin

cover may then have been placed over the entire roof dome and entrance. These, in turn, were probably covered by sod lumps (Maxwell, 1985, p. 248) and stone, although the amount of such material used in the construction of House 5 is difficult to determine. During winter, the season when the house was probably occupied (Maxwell, 1985, p. 283), the permanent roof and entrance may have been covered with an insulating layer of snow. It should be noted that some researchers (e. g., Park, 1988) have suggested that many Thule whale bone houses incorporated only skin or skin and snow roofs. However, it seems to us unlikely that such massive whale bone superstructures were intended to support only light roofing materials.

2. Use and Maintenance Stage

a) House Use - Function

House 5 may have functioned as a *karigi*, or ceremonial house, in which various dances and games, feasting, meetings, and tool manufacture and maintenance took place. Although a characteristic of essentially all traditional Inuit groups, *karigi* were especially important amongst whaling societies, serving as a focal location for the entire whaling crew. Descriptions of historic *karigi* construction and activities in northern Alaska are given in Rainey (1947), Spencer (1959), and Sheehan (1990). Historic *karigi* in the eastern Canadian Arctic are described by Boas (1907) and Taylor (1990). For the purposes of the discussion of House 5, ethnographic descriptions of northern Alaskan *karigi* and *karigi*-related activities provide the most appropriate analogies, since Canadian Thule culture and historic North Alaskan Inuit cultures are derived from a common ancestral culture (see e. g., Maxwell, 1985).

There is considerable evidence that House 5 functioned as a *karigi*. First, there are no apparent sleeping platforms or remnants thereof. Instead, remnants of side seating benches (primarily supports, but occasionally seat stones as well; see large horizontal stone slabs in Figure 6) are located adjacent to the inner wall. Such benches are usually recognized as one of the most distinguishing features of *karigi* (e. g., Spencer, 1959;

McCullough, 1989).

Second, the artifact assemblage from House 5 suggests *karigi*-related activities. The manufacturing debris of all material types comprise approximately two thirds (68.2 %) of the entire assemblage (Table 1), strongly suggesting tool manufacture and maintenance as primary activities. Furthermore, a total of 19 adze heads, which were traditionally used for tool-manufacturing, were recovered from House 5. This number is much higher than in other winter houses excavated at the site.

b) Reuse and Maintenance

McCartney (1979a) has suggested that Thule whale bone houses were "reused" or repeatedly cleaned. This involved sweeping, chopping summer melt-water ice and discarding the ice with enclosed debris outside the house. Our excavation results suggest that much of the dislodged or swept material from House 5 was either deposited outside the house (primarily adjacent to the entrance or to the east side of the house exterior), or swept under benches or wedged against the whale bone roof supports. Similar middens adjacent to the entrance are typical of Thule winter house sites (e. g., Mathiassen, 1927, I, p. 7; McCartney, 1979a, p. 307).

Within the house interior the swept material resulted in artifact concentrations being deposited in the uppermost part of layer 10 and the lower part of layer 2. In the exterior midden, this material is represented in layers 5 and 3. The relatively small proportion of artifacts and debris not swept aside remained on the house floor. Both interior and exterior layers would, of course, also contain directly deposited as well as swept materials (i. e. primary as well as secondary refuse *sensu* Schiffer, 1972). Throughout the use and reuse episodes, we can anticipate considerable vegetation development (at least in the exterior midden) resulting from the high nutrient input. This resulted in much of the organic matrix of layers 2, 3, 5 and 6.

3. Abandonment Stage

As noted by Schiffer (1987, p. 89-90), abandonment typically involves two related processes; the

deposition of *de facto* refuse (still-useable materials left behind) and curate behaviour (removal and transport of still-useable materials). The quantity and characteristics of *de facto* refuse tends to be related to the mode of abandonment, that is, gradual and planned vs. rapid and unplanned (Stevenson, 1982, 1985; Schiffer, 1987).

One method of determining the amount of *de facto* refuse is to examine the ratio of complete vs. broken artifacts recovered from the house. Table 3 indicates that 28.8 % of the bone "tool" artifacts were complete, while the remaining 71.2 % were broken. However, we cannot assume that all complete artifacts are *de facto* refuse; some of the "complete" artifacts may in fact have been considered beyond their use-life by Thule people.

Comparing ratios of complete vs. broken artifacts between the house interior and the house exterior (mainly entrance and midden) areas will be instructive in this instance. The percentage of complete artifacts within the house is 33.9 %, while it is only 18.0 % in the house exterior area. Assuming that artifacts in the house exterior area are almost exclusively refuse, and therefore represent the expected ratio of complete vs. broken artifacts in refuse contexts, the difference in ratios (15.9 %) may be interpreted as an indication of the relative amount of *de facto* refuse. This figure seems to us relatively high, suggesting comparatively rapid and unplanned abandonment. Our attempt to interpret these figures is complicated, however, by the fact that we have no other published comparative archaeological or ethnographic data from the Arctic. Until such data are available, this suggestion must be considered tentative.

4. Dismantling Stage

As noted by McCartney (1979a), Canadian Arctic whale bone houses rarely escaped human-related post-abandonment disturbance, and House 5 is no exception. If House 5 had not been disturbed by humans after abandonment, we would have expected it to resemble the Izembak Lagoon, Alaska feature illustrated by McCartney (1979a, p. 317), or the house at the Deblicquy site (Taylor and McGhee, 1981) illustrated in Figure 12. In



Fig. 12 Naturally collapsed whale bone house at the Debliquy Thule site, southeast Bathurst Island

both of these cases, the centre of the house has collapsed, resulting in a spoke-wheel arrangement of bones and a fill of smaller structural bone cross-pieces, sod, and stone slabs. This pattern is absent from House 5. Instead, the house seems to have been intentionally dismantled for whale bone and other architectural materials, such as stone benches. This process involved, first, the removal of the uppermost roofing materials (sod and stone slabs). We infer this from the lack of these roofing materials within the remains of the house structure. Many sod and stone slabs which are found on the east and north side of the house in the upper part of layer 3 may well represent the dismantled roof remnants.

The vast majority of the disturbed cross-piece bone elements (primarily ribs) occur on the inner periphery and on top of the sod wall layers. This suggests that the rib cross-pieces slid or were

thrown down to the base of the primary supports.

Since all of the 22 mandibles associated with the house consisted of distal ends only, we suggest that individual shaft and mesial ends were removed at this stage. Removal of mandible shafts and mesial ends from Thule houses was a common practice (McCartney, 1979a, p. 307), these bone sections being ideal for the construction of sled runners.

However, our excavation results suggest that there was no significant removal of *complete* mandibles or any other major structural whale bones. We infer this because, according to McCartney (1979a), a typical Canadian Arctic Thule house constructed in the manner described above would have required approximately 30 (minimum 20) main structural supports. Since the total number of mandible ends (22) plus the estimated number of complete crania-maxillae (7) for House 5 is 29, it would appear that essentially all major bone

structural elements are accounted for. Furthermore, there are no noticeable crania-shaped depressions within the house which would indicate the removal of additional crania. Although several of the remaining bone types (vertebrae, ribs and others) may have been removed for the manufacture of tools or as support pieces for other houses, the numbers of these elements remaining in and around the house (77 vertebrae, 71 ribs, 19 other) suggests it was probably minimal.

A practice common with abandoned Thule houses was the removal of the original sleeping platform or bench seating stones (McCartney, 1977; McCullough, 1989; Park, 1989). In the case of the House 5, many of the bench seating stones similarly appear to have been removed since very few are present.

Several lines of evidence indicate that the removal and modification of most of the materials noted above probably took place shortly after the house was abandoned. First, most of the disturbed materials lie directly on the surface of layers 2 and 3, the last occupational layers. Second, the overlying post-occupational sod and humus layer (layer 1) does not appear to have been significantly disturbed. Finally, the majority of *in situ* bone "stumps" (primarily mandible distal ends) exhibited patterns relating to chopping with adzes as opposed to sawing, the latter being characteristic of later historic modifications.

5. Post-Occupational Stage

There is no archaeological evidence to suggest that the house was modified into other types of structures after it was dismantled. The final development stage is represented by layer 1, the upper recent sod and humus layer. It is worth noting that most of the 18 bone shaving concentrations were recovered from this layer. These may post-date the dismantling stage. If so, the abandoned house mound was probably used as a tool-manufacturing and perhaps game observation station. Finally, the whale bone fragments lying directly on top of layer 1 almost certainly result from recent whale bone collecting by Inuit carvers (see McCartney, 1979b).

V. Discussion

From the analysis presented above, it is clear that stratigraphic information from a whale bone house can contribute to the interpretation of various natural and cultural processes related to the house, as well as to understanding its architectural structure. Several features of house construction were clarified by the careful analysis of the house stratigraphy. A case in point is the structure of the sod wall (layers 9a and 9b). When we began our excavation, we assumed that many of the structural whale bones were embedded within the sod wall. The excavated trench cross-section, however, showed clearly that these elements were not embedded but were interior to the wall proper. Locating the sod wall was crucial in our collection of a relatively complete artifact inventory. After observing the stratigraphy of the house and determining the precise location of the sod wall, we decided to continue the excavation of the house interior beyond the limits of the whale bone. Eventually, we reached layer 2 from which we recovered more than half of the tool artifacts excavated from the house. If we had not defined layer 2, the artifact assemblage from the house would have been quite different.

A careful analysis of house stratigraphy also assisted in the recognition of layer 10, the thin layer of grease, baleen and skin immediately above the flagstone floor. Layer 10 was overlain by the sod wall (layers 9a and 9b). Therefore, there is no doubt that it was laid down as the house was constructed; it was not refuse accumulated while the house was in use. Holtved (1944) and McCullough (1989) both describe baleen layers in *karigi*. Holtved (1944) interpreted these layers as having been a floor mat, while McCullough (1989) suggested they might have originally served as roofing materials. Neither of these explanations would adequately explain the distribution of layer 10, which was restricted to the perimeter of the flagstones. Since many of the whale bone structural beams and bench supports were embedded in layer 10, and since this layer was extremely hard

and compact, we believe that this layer might have served as a support holding the bones and stones in place on the floor surface. Alternatively, this layer might have had symbolic meaning. Lantis (1947) and Huntsman (1963), among others, have discussed the many taboos associated with whaling ceremonialism. One of these taboos stipulated that "the whale dislikes things that are associated with or come from the land" (Huntsman, 1963, p. 107). Since layer 10 lies between the whale bone structure and the flagstones or gravel pad (layer 11), it might have served symbolically to separate the whale from the land. However, we are not aware of any descriptions of similar structural layers in this context in archaeological or ethnographically-documented *karigi*.

The results of our artifact analysis suggest that bone tool manufacturing was one of the principal activities conducted in the house. Because ethnographically-documented *karigi* were typically used for such activities, we hypothesize that House 5 was used as a *karigi*. To define the general characteristics of *karigi* artifact assemblages we should, ideally, compare artifact assemblages from *karigi* at other Thule sites. Unfortunately, complete lists of excavated items from such structures are rare. One of the exceptions is McCullough's excavation report for the Skraeling Island site. She includes a list of artifacts from four *karigi* (or possible *karigi*) and 19 other houses (McCullough, 1989, p. 84-87). Two of the *karigi* contained very few artifacts and are, therefore, not useful for such a comparison. Artifact assemblages from the other two *karigi* (Houses 4 and 8) are both characterized by an abundance of bone debitage. Furthermore, five of the seven adze heads excavated from the site were recovered from these two *karigi*. Thus, artifact assemblages from the Skraeling Island *karigi* conform with the pattern recognized in the artifact assemblage from House 5. With additional comparative data we will be able to further define the characteristics of artifact assemblages associated with *karigi*.

VI. Conclusion

In this paper, we have attempted to demonstrate that stratigraphic and structural information from whale bone houses can prove significant in defining the various stages involved in the construction, use and abandonment of these houses. Such information is also important in understanding the architectural characteristics of these houses and in evaluating the behavioral context of their associated artifact assemblages.

In 1979, McCartney (1979a) proposed that the current generation of researchers should develop analytical and synthetic approaches to understanding various aspects of Thule culture. Citing McGhee (1969-1970), McCartney pinpointed topics such as regional and temporal variation, ecological adaptation, and settlement patterns as worthy of further study. Further, he suggested that the detailed study of the various processes involved in the "life history" of whale bone houses would be a promising avenue of research for arctic archaeologists. Although his article was published 15 years ago, published detailed stratigraphic information from individual house structures is still relatively rare. With more comparative data, we will be able to answer many of the questions which remain unanswered in this paper. We hope that our paper will stimulate the accumulation of similar kinds of data for further comparison.

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カナダ極北地域サマーセット島におけるテューレ文化期の 鯨骨住居址の構築・使用・廃棄

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要 旨

カナダ極北地域東部におけるテューレ文化期の住居は、ホッキョククジラ (*Balaena mysticetus*) の骨と芝土、石をおもな建築材料とすることから、鯨骨住居 (whale bone house) ないしは芝土住居 (sod house) とよばれている。筆者らは、1991 年夏、カナダ・サマーセット島の Pajsl3 遺跡 (Fig. 1) において、テューレ文化期 (ca. A. D. 1,000-1,600) の鯨骨住居址 (5 号住居址) を発掘した。この住居は、a) スリーピング・プラットフォームを持たない、b) 骨角器を製作した痕跡と考えられる骨片が多量に出土した、という 2 点から考えて、カリギとよばれる儀礼的集会所であった可能性が高い。本稿では、発掘の結果にもとづき、この住居が構築されてから現代にいたるまでのプロセスを考察した。分析の結果、以下の 5 段階が認められた。

1) 住居の構築：堆積物の観察結果から、住居の構築にあたっては、厚さ約 15 cm の砂利層 (Fig. 7 の 11 層) を盛った上に床の敷石を置き、敷石部の縁辺には黒色の脂肪の層 (10 層；非常に堅く、移植ごとで掘り進めることは困難であった) をドーナツ状に敷き、その外側に芝土の壁 (9a・9b 層) を積み上げたことがわかった。10 層の一部が、敷石と 9a・9b 層との間にはさまれていることから、この層が、住居の使用中に堆積したものではなく、住居の構築時に形成されたことは明らかである。10 層には、屋根の垂木と考えられる鯨の下顎骨や、壁際のベンチの支柱と推定される鯨骨・石が多数埋め込まれていた。また、9a・9b 層の上部には、7 個の鯨の頭蓋骨が置かれていた。住居の構築時には、これらの頭蓋骨からは上顎骨が突出し、10 層に埋め込まれた下顎骨とともに屋根の垂木を構成していたと推定される。住居内から検出された多数の肋骨は、垂木の間に渡された横木と思われる。この他に、6 個の頭蓋骨 (Fig. 6 の SB1-SB6) が入口部上屋の骨組を形づくるのに用いられた。こうした屋根や入口部の上屋構造は、(場合によっては獣皮をはさんで) 芝土と石で覆われていた可能性が高い。

2) 住居の使用：McCartney (1979a) によれば、テューレ文化期の鯨骨住居は、毎年、秋ごとに清掃されて、再使用されたと推測される。夏の間、他の場所に住んでいた人々は、鯨骨住居に戻ってくると内部を清掃し、ごみを住居の外に捨てる。5 号住居の場合には、このごみ捨て場は、主として入口横東側から住居外東にかけて分布する (Fig. 7 の 6, 5, 3 層)。さらに、住居内の遺物分布が壁際に集中する (Figs. 10 and 11; Fig. 8 の 10 層上部および 2 層下部) ことから考えて、住居内の

ごみの一部は、壁際のベンチの下に掃き寄せられたと思われる。ただし、壁際の遺物の一部はごみではなく、住居内に意図的に残されていた可能性も考えられる。

3) 住居の廃棄：Schiffer (1987, p. 87-98) によれば、*de facto refuse* (使用可能な道具と原材料) の量は、住居の廃棄状況を反映する。すなわち、*de facto refuse* の量が少なければ漸移的・計画的な廃棄、量が多ければ急激で非計画的な廃棄と考えることができる。住居址出土遺物における完形品の割合は、このような問題を考える際のひとつの手がかりとなる。Table 3 によれば、5 号住居址の内側から出土した完形品の割合は 33.9% であるのに対し、住居址外 (主として入口部とごみ捨て場) から出土した完形品は、18.0% にすぎない。ここで、住居址外から出土した遺物はすべてごみである、と仮定した場合、両者の割合の差 (15.9%) は、この住居の *de facto refuse* の割合を示すと考えられる。この相違を重視するならば、5 号住居には比較的多くの *de facto refuse* が残されていたと解釈できるが、比較資料の少ない現段階では断定できない。今後、比較資料の増加を待って、住居廃棄の問題をさらに検討する必要がある。

4) 住居の解体：5 号住居址内から検出された鯨の下顎骨はすべて遠心側のみであり、中央部と近心側は切断されて持ち去られていた。住居内に、芝土や平石などの屋根材がほとんど堆積していなかったことを考えあわせると、この住居は、鯨骨の再利用を目的として意図的に解体された可能性が高い。住居外東側と北側の 3 層上部に堆積していた平石と芝土のブロックは、解体された屋根が住居外に廃棄された結果と解釈できる。

5) 解体後～現代：解体後の 5 号住居は、大きな攪乱や変形を受けることはなく、今日に至ったようである。Fig. 7 の 1 層が、この段階に対応する。この層から、十数ヵ所の骨片集中 (主として直径 1 cm 以下の骨のチップの集中：これらの骨片の数量は、Table 1-3 には含まれていない) が検出されていることから、廃棄された 5 号住居のマウンドは、骨角器の製作場所として一時的に利用されたと推測される。

鯨骨住居の発掘と研究は、テューレ文化の研究史上、重要な位置を占めてきたにもかかわらず、堆積物の観察結果や遺物分布の詳細な報告例は、きわめて少ない。本稿では、比較資料の不足から、遺物組成や遺物分布の特徴については、部分的な考察を行なうことにとどまった。今後、他遺跡の発掘結果でも、同様の資料が公表されていくことを期待している。

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