HOUSE 18 AND THE MIDDLE PHASE OF OCCUPATION AT PHILLIP'S GARDEN (EeBi-1)

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House 18 and the Middle Phase of Occupation at Phillip's Garden (EeBi-1)

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Abstract

Recent archaeological investigations at the site known as Phillip's Garden (EeBi-1) have indicated that dwellings which date to the middle phase of site occupation are larger and differently constructed than once thought. Further testing at the site, as reported in this thesis, indicate that these large dwellings are not anomalous and may be characteristic of middle phase dwellings. The purpose of analyses presented in this thesis is to determine more about the architecture and the range of activities that occurred at the site to aid in the interpretation of the middle phase of site occupation.

Acknowledgements

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Archaeological field research is a very expensive undertaking and research for this thesis could not have been conducted without the financial support of several agencies. First I would like to thank the Provincial Archaeology Office, Government of Newfoundland and Labrador and the Institute of Social and Economic Research (ISER) for providing me with research grants. I would also like to thank Parks Canada, the Social Sciences and Humanities Research Council and the Canada Research Chairs program for their ongoing support of the Port au Choix Archaeology Project. I also wish to thank the 2005 field crew: site supervisor Patty Wells, Hannah

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Chapter 1: Introduction

1.1 Introduction and Research Objectives

This thesis is the product of current research interests of the Port au Choix Archaeology Project. During the 2004 field season at the Dorset Palaeoeskimo site Phillip's Garden two middle phase dwellings were partially re-excavated, Houses 2 and 10. It was discovered that dwellings from the middle phase of occupation at the site were larger and differently constructed than once thought. Phillip's Garden was occupied for a period of approximately 800 years, and this has been divided into three phases of occupation; an early, middle and late. The early phase of the site has been designated as approximately 1950 to 1550 cal BP, the middle phase as approximately 1550 to 1350 cal BP and the late phase as approximately 1350 to 1170 cal BP (Renouf 2006).

The overall goal of this thesis is to contribute to the understanding of the middle phase of occupation at Phillip's Garden through the examination of architectural remains and the analysis of artifact assemblages. These analyses will clarify and add to the interpretation of the middle phase of occupation at the site. Recent excavations at the site have revealed that dwellings were larger and differently constructed than once thought and this new information (Renouf 2006) differs from a previous interpretation of middle phase dwellings (Erwin 1995). In order to determine if middle phase architecture was different than previously thought further excavations were carried out to determine if the results from the previous field season were anomalous or characteristic of the middle phase. During the 2005 field season

the house pit designated as House 18 and partially tested by Harp (n.d.) was excavated. Through the excavation of this dwelling it was determined that it too was a large dwelling, similar to other recently excavated dwellings.

The primary objective of this research is to describe how House 18 was constructed and to determine if it underwent any episodes of reconstruction during its use. Through the use of observations, in the form of field notes, survey data and photographs I will describe the major structural elements of House 18 and how they may have been altered through time. Topographic contour maps created from survey data and photographs will be used to illustrate individual structural elements and how they were arranged in relation to one another.

The second major objective is to determine the range of activities which occurred within the boundaries of House 18 and in other fully excavated middle phase dwellings. In addition to the range of activities I wish to determine if any of the dwellings may have been dominated by a particular type or class of artifact which could indicate that a dwelling may have had a specialized function. It was subsequently noted during the excavation of House 18 that there seemed to be an unusually large number of skin processing tools recovered. To determine if there were more skin processing tools than other artifacts I employ the use of correspondence analysis. Correspondence analysis is a statistical method used to graphically display the relationship between variables, such as houses and artifact types and has been used to determine the function of dwellings at Phillip's Garden (Erwin 1995).

The third and final objective of this research is to compare House 18 to other middle phase dwellings excavated at the site in terms of its architecture and artifact assemblage.

This thesis will begin with an examination of six dwellings that have been excavated at Phillip's Garden and include Houses 2, 5, and 10, and Features 1, 14, and 55. These dwellings were chosen because they represent dwellings from each of the three phases of occupation and information concerning these dwellings is widely available elsewhere (Harp 1976; Renouf 1986, 1987, 1993, 1999, 2006; Renouf and Murray 1999). The dwellings are described in detail and compared in Chapter 2. The purpose of the description and comparison is to establish the range of architecture at the site during its occupation and what, if anything can be determined about the architecture of the middle phase. Chapter 3 is devoted to the excavation of House 18 and its interpretation. First information concerning Harp's test excavations is summarized, followed by a description of the excavation of House 18, then the dwelling is summarized and information concerning the history of construction is presented, the chapter is concluded with a comparison of the dwelling to House 2 and 10. Chapter 4 presents data generated through the statistical analysis of artifact assemblages from six fully excavated dwellings which date to the middle phase. The data generated provides information about the activities that occurred during the middle phase and indicates that dwellings during this phase may have had a particular activity focus. Chapter 5 brings together past and present research concerning the middle phase of occupation at the site. The chapter begins with a synthesis of the current interpretation of the middle phase and is followed by a discussion of the most

up to date information concerning middle phase architecture and artifact analysis. The chapter concludes with a re-interpretation of the middle phase based on the data generated during the 2004 field research and the data generated by research conducted for this thesis. Chapter 6 provides a summary and conclusion to this research. The remainder of this chapter will introduce the reader to the Dorset Palaeoeskimo and the site known as Phillip's Garden.

1.2 Phillip's Garden

Phillip's Garden is the largest known Dorset Palaeoeskimo site on the island of Newfoundland and one of the richest Dorset sites in the eastern Canadian Arctic. Phillip's Garden is located on the Great Northern Peninsula within the boundaries of the Port au Choix National Historic Site (Figure 1.1).

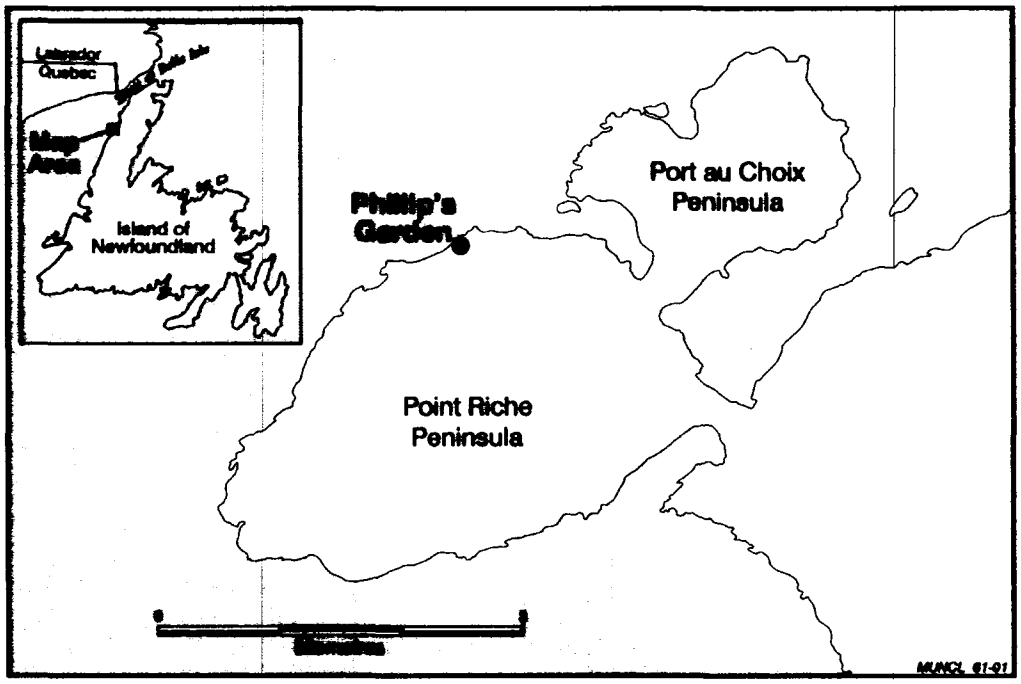


Figure 1.1 Location of Phillip's Garden. (Drafted by the Port au Choix Archaeology Project PACAP)

Figure 1.2 Aerial photograph of Phillip's Garden. (Photo: PACAP)

The site is situated in a grassy meadow encircled by tuckamore (stunted spruce trees). It is two hectares and faces the Atlantic Ocean. Figure 1.2 is an aerial photograph of the site. The meadow overlies a series of three raised beach terraces, with cultural material found extensively throughout the upper two which are located at eight and eleven meters above sea level. The remains of at least 63 dwellings can be seen as shallow depressions along the upper two terraces (Renouf 2006), while more dwellings have been detected underground through magnetometry and resistivity testing (Eastaugh 2002).

Radiocarbon dates indicate that the site was occupied for 800 years and this time span has been divided into three phases; an early, a middle and a late (Renouf 2006). The site has been divided into three phases as the nature of occupation at the site changed through time; the changing nature of site occupation is discussed in Chapter 5.

The primary economic focus of Phillip's Garden throughout the early, middle and late phase of occupation was harp seal hunting (Hodgetts 2005a). The site is ideally located for the procurement of large numbers of harp seals as it is located along the harp seal migration route. Harp seals migrate southwards along the Labrador coast during the fall and upon reaching Newfoundland they separate into two groups: the Front herd and the Gulf herd (Renouf 2000). The Gulf heard continues their migration southwards to their breeding grounds in the Gulf of St. Lawrence through the Straight of Belle Isle and pass Port au Choix sometime in December (Renouf 2000). Harp seals give birth in late February/early March with

adults passing the site in March/April and juveniles following in April/May (Renouf 2000).

It has been repeatedly demonstrated that harp seals were the primary economic focus of the Dorset at Phillip's Garden (Harp 1976; Murray 1992; Renouf 2000; Hodgetts *et al* 2003; Hodgetts 2005a, 2005b). Middens dating to the early and middle phase of site occupation are made up of 96-99% harp seal remains while middens dating to the late phase contain between 70% harp seal remains. Based on the overwhelming number of hap seal remains the site has been interpreted as a prime hunting location which would have been occupied during the late fall, throughout the winter and into the spring in order to take advantage of the migrating herds of harp seals (Harp 1976; Murray 1992; Renouf 2000; Hodgetts *et al* 2003; Hodgetts 2005a, 2005b).

In addition to being considered an important hunting locale it has been suggested that Phillip's Garden would have also served an important social function as an important aggregation site (Renouf 1994, 1999). The presence of large structures and the availability of a food source that could support a large group of people is indicative of aggregation sites. An aggregation site like Phillip's Garden provided an opportunity for Dorset groups to come together and engage in their defining cultural traditions.

1.3 The Dorset Palaeoeskimo

The Dorset were an arctic-adapted group of hunter-gatherers who occupied large portions of the Canadian Arctic, Greenland, Labrador and Newfoundland from approximately 2500 BP to 600 BP (Maxwell 1985). The Dorset were descendants of a Siberian population which crossed the Bering Strait between 4000-5000 years ago (Renouf 1999). The Dorset occupation of the Arctic lasted for approximately 2000 years and this time span can be divided into three periods of occupation; Early, Middle and Late Dorset. Early Dorset is dated to 2500-2000 BP, Middle Dorset is dated to 2000-1000 BP, and Late Dorset is dated to 1000-600 BP (Maxwell 1985). The Dorset were first noted as a distinct cultural group by Diamond Jenness in the 1920s (Jenness 1925). In archaeological collections which he examined from Coats Island and Cape Dorset, Baffin Island he recognized new lithic artifact forms, and that certain organic artifacts were more deeply patinated and that the holes in the artifacts had been gouged and not drilled as in later Thule artifacts (Jenness 1925).

The Dorset were different from earlier Palaeoeskimos as they had new types of technology, lived in larger groups and built permanent winter dwellings that were heated by burning sea mammal oil in soapstone lamps (McGhee 1996). The Dorset toolkit is characterized by triangular concave-based endblades, microblades, ground burin-like tools, a wide range of scraper and knife forms and chipped and ground adzes (Wright 1995). The Dorset culture is also characterized by the absence of certain technologies including the bow drill, and the bow and arrow. It is believed that the Dorset also had boats and archaeological evidence suggests that they were small kayak-like boats. McGhee (1996) suggested that the Dorset were so well

adapted to hunting seals from the ice that it was this ability that allowed them to expand into Newfoundland.

The only expression of Dorset culture on the island of Newfoundland is that of the Middle Dorset while sites belonging to the Early and Late Dorset period have been found in Labrador. The Middle Dorset arrived in Newfoundland at approximately 2000 cal BP at the beginning of a period of climatic warming (Rosenberg *et al* 2005). It was initially thought that the Dorset material recovered from Newfoundland represented a single variant of the parent culture (Harp 1964; Linnamae 1975). More recent research has revealed that at least three regional variants of Dorset culture existed in Newfoundland; a west coast variant, a northeast coast variant, and a south coast variant (Robbins 1986; LeBlanc 2000; Erwin 2001). The Dorset occupied Newfoundland for approximately 800 years and they disappeared from the archaeological record approximately 1000 years ago. It is unknown why the Dorset left the island but it has been suggested that they left in response to continued climatic warming. This continued warming would have led to unpredictable ice conditions which in turn would have led to instability in harp seal populations. It is possible that Dorset populations retreated to parts of Labrador where they could have received support from related or connected Dorset groups in Labrador (Renouf 1999a).

1.4 Past Research

Archaeological investigations began at Phillip's Garden in the 1920s when the area was surveyed by Wintemberg (1939). The area was later re-investigated by Dr. Elmer Harp, Jr., of Dartmouth College, during 1949-1950 and 1961-1963 (Harp 1951; 1964; 1976). After a twenty-one year hiatus excavations were resumed in 1984 by Dr. M. A. P. Renouf, of Memorial University of Newfoundland, in conjunction with Parks Canada.

In 1927 and 1929 Wintemberg conducted archaeological reconnaissance work along the northwest coast of Newfoundland (Wintemberg 1939). He had set out to discover Beothuk habitation and burial sites but instead found the remains of the Dorset Eskimos at Phillip's Garden (Wintemberg 1939). Wintemberg (1939) excavated several test pits in the northern portion of the site and recovered 43 stone and organic artifacts. Based on his finds he concluded Phillip's Garden to be a very rich site (Wintemberg 1939). He also determined, based on the artifacts and faunal remains, that the Dorset of Phillip's Garden hunted seals and exploited other locally available resources (Wintemberg 1940).

Excavations resumed at Phillip's Garden in 1949 and 1950 when Elmer Harp Jr. began archaeological survey work in southern Labrador and along the northwest coast of Newfoundland (Harp 1951). Harp's early work at the site was limited but he agreed that the site was Dorset and extremely important (Harp 1951).

In 1961 Harp returned to Phillip's Garden to conduct the first large scale excavations at the site. Between 1961 and 1963 he excavated fully or partially tested twenty large house depressions. From these excavations he defined two types of

dwellings, a winter and a summer house (Harp 1976). Harp's typical summer house was based on his interpretation of the architectural remains of House 5 and the typical winter house was based on his interpretation of architectural remains of House 2 (Harp 1976).

In addition to architectural studies Harp (1964) also studied the artifacts recovered from Phillip's Garden in terms of material, manufacture, function and form. Artifact types recovered from the site frequently recurred, were uniform in size, were similar in workmanship and made from the same raw materials (Harp 1964). In addition to lithic tools, and due to the outstanding nature of organic preservation at the site, many bone, ivory and antler tools were recovered. Small carvings, usually animals, were interpreted as amulets which were spiritually important to the users and according to Harp (1969/70) indicated that the Dorset practiced a form of individual hunting magic. Harp's (1969/70) conclusions were based on ethnographic analogy and the idea that there has always been an important relationship between the hunter and the hunted. All of the pieces had at least one or more gouged holes in them which indicated that they were worn, sewn to clothing or lashed to hunting equipment. Other organic artifacts were decorated with incised lines and were also considered spiritually significant by Harp (1969/70).

Harp was also interested in the faunal material recovered from the site. During his excavations Harp (1964) found a large amount of faunal material in excellent condition. An overwhelming 98% of the faunal material was identified as harp seal (Harp 1976). The predominance of harp seal remains and the site's location

led Harp to conclude that harp seal hunting was the primary economic focus of the site (Harp 1976).

While much has been determined about the material culture remains of the Dorset at Phillip's Garden little is known about physical characteristics of these people. A single human burial has been found at the site and included the remains of a twenty-one month old individual, grave goods, an adult human mandible and loose adult teeth (Harp and Hughes 1968). Based on the age of the skeleton little information could be gained about "the morphological characteristics of the local breeding population" (Harp and Hughes 1968). However, it has been suggested that the Dorset were of the Eskimo physical type; skulls were long compared to breadth, the malar or cheek bones were pronounced, and the people were short and robust (Tuck 1976).

Harp concluded excavations at Phillip's Garden in 1963. Twenty-one years later, in 1984 with the support of Parks Canada, Dr. M. A. P. Renouf of Memorial University of Newfoundland resumed archaeological investigations at the site as the Port au Choix Archaeology Project. One of the initial objectives of the project was to assess the potential of Phillips Garden for future research; testing during the 1984 season determined that future excavations at the site would be prosperous (Renouf 1985).

Since 1984 the Port au Choix Archaeology Project has excavated four dwellings, Features 1, 14, 42 and 55, and re-excavated Harp's Houses 2, 10 and 18. It has been determined from this research that architectural styles varied through time

and that dwellings were subject to episodes of structural renovation (Renouf 2003; 2006).

Renouf was also interested in excavating areas outside dwellings and portions of middens have also been excavated. The analysis of the faunal material recovered has revealed that harp seal hunting was the primary economic focus during the entire occupation of the site. However, during the late phase of occupation, an increase in the range of species exploited occurred (Hodgetts *et al* 2003; Hodgetts 2005a; 2005b). Metric analysis of harp seal humeri and femora indicated that seals were hunted during both their fall and spring migrations past Phillip's Garden indicating that the site was occupied for a extended periods throughout the year (Hodgetts 2005a; 2005b).

The work conducted by Wintemberg, Harp and Renouf has been invaluable. Their work at Phillip's Garden has revealed much about the Dorset occupation of Newfoundland and has provided new researchers with wealth of knowledge from which new discoveries can be made. Investigation of architecture by Harp (1976) and subsequent work by Renouf (2006) has provided a framework within which this most recent research was conducted.

Chapter 2: Dorset Architecture

2.1 Introduction

The primary objective of this chapter is to provide an in-depth look at the dwellings excavated at Phillip's Garden. The chapter begins with a general overview of Middle Dorset architecture, which is followed by the description of Houses 2 and 5 excavated by Harp (1976) and Features 1, 14, and 55 excavated by Renouf (1986; 1987; 1993). A description of the re-excavation of Houses 2 and 10 is also provided and the chapter concludes with a comparison of the dwellings.

2.2 Dorset Architecture

The study of Dorset architecture began in 1951 when O'Bryan excavated a dwelling on Mill Island (O'Bryan 1953). Since that time many more Dorset dwellings have been excavated across the Canadian Arctic, Labrador, Newfoundland and Greenland. Our current understanding of Dorset architecture comes from descriptions of dwellings published in archaeological journals and monographs and in unpublished site reports and theses. However, a recent publication brings together the latest research on and regional syntheses of Dorset dwellings from these regions (LeBlanc and Nagy 2003).

The excavation of Dorset structural remains has indicated variation across time and space due to individual innovations and available raw materials (McGhee 1996). Common forms of Dorset dwellings that have been excavated include semi-subterranean winter houses, tent rings and longhouses (McGhee 1996). This chapter

focuses on the study of semi-subterranean winter dwellings from the Middle Dorset site of Phillip's Garden.

Throughout the Arctic during the Dorset period winter houses were substantial rectangular structures with stone walls and had a central depression dug into the ground (McGhee 1996). An axial feature ran through the centre of the house. Normally, the axial feature was a stone pavement that served as a central area for cooking, heating and lighting. The presence of this architectural feature remains constant throughout the Dorset realm although the exact nature of construction of the feature varies throughout time and space (Odgaard 2003). For example, some axial features in Dorset dwellings are formal stone pavements with hearths (Odgaard 2003), while others are informal pits aligned along the axis of the dwelling (Renouf 1986; 1987). McGhee (1996) suggests that the roofs were skins placed over a frame of driftwood poles and insulted with snow. It is likely that McGhee (1996) reached this conclusion as these materials were some of the few available building materials available to the Dorset.

2.3 Dorset Architecture at Phillip's Garden

Dwellings that have been excavated at Phillip's Garden exhibit variation in the construction of specific structural elements. However, all dwellings at the site fall within a generalized pattern of construction. As the site is situated on a series of three raised beach terraces, the dwellings were built on limestone shingle and sand beaches. The limestone cobbles were removed from what would eventually be the centre of the dwelling and then stacked around the edge of the central depression forming low

perimeters (Renouf 1999b). Depending on their width these perimeters of stone are interpreted as sleeping platforms, benches for sitting and working on, or walls. Sand was then excavated from the centre of the dwelling forming a central depression in which an axial feature was built (Renouf 1999b). The front entrance faced north-east, looking directly out onto the ocean and was thus oriented away from the prevailing northwesterly winds (Renouf 1994; 2003). A secondary rear entrance was often noted in the dwellings and was commonly located in the southeast of the rear perimeter. The superstructure of the dwellings likely consisted of a framework of wood and bone over which skins were stretched (Renouf 1999b).

During preliminary work at the site during the summers of 1949 and 1950 Harp (1964) identified 16 house depressions located on the middle and upper terraces. Figure 2.1 indicates the location of dwellings at the site.

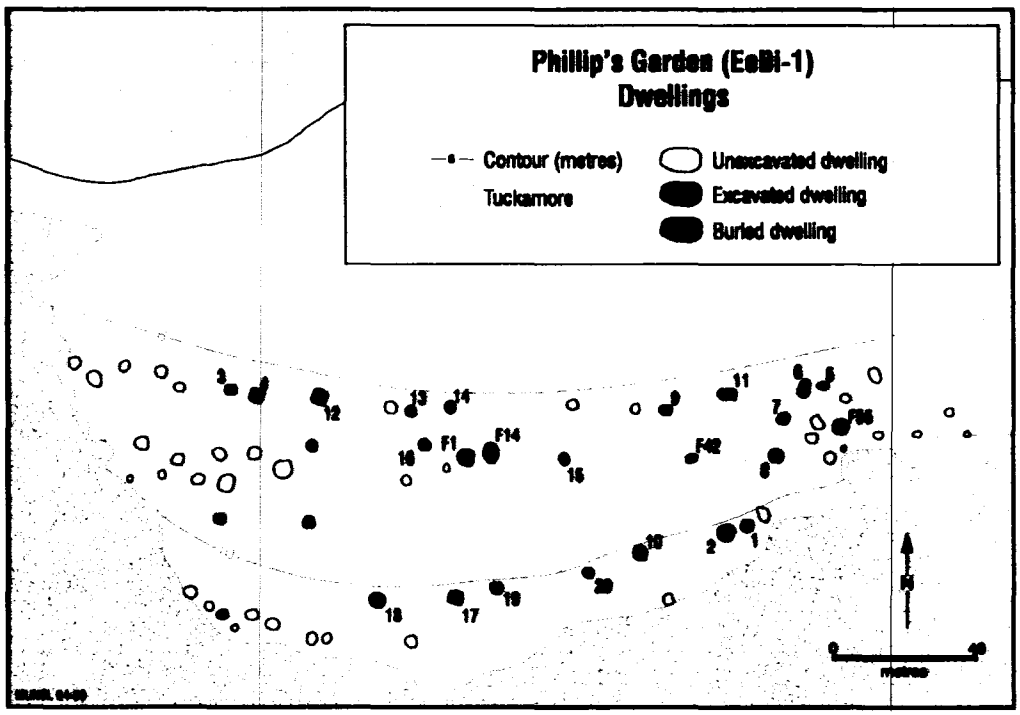


Figure 2.1 Distribution of dwellings at Phillip's Garden (Drafted by the PACAP)

On the ground surface dwellings appeared as round or rectangular depressions outlined by ridges 12-18 inches (30.5-46 cm) above the ground surface and 3-8 feet (91-244 cm) thick (Harp 1964). Possible dwelling entrances were indicated as a break in the ridge facing north, looking toward the ocean. The interior living space was 6-12 inches (15-30 cm) below the surface and up to 15 ft^2 (1.39 m^2) in size (Harp 1964).

During initial testing at the site in 1949 and 1950 several test trenches were excavated through Houses 1 and 3; these excavations formed the basis of Harp's initial interpretation of dwellings (Harp 1964). His initial interpretation of dwellings at the site was based on their physical characteristics discovered through excavation (Harp 1964).

Test trenches through House 1 at the eastern edge of the upper terrace in 1949 and through House 3 at the western edge of the middle terrace in 1950 revealed that the ridges were not intentionally built walls of stone, but instead represented larger concentrations of limestone slabs than there were in other areas of the site (Harp 1964). Harp (1964) hypothesized that the depressions were likely the remains of skin tents that had been anchored in place by the concentrations of limestone slabs.

Harp's initial interpretation of dwellings was based on limited testing during 1949 and 1950. Further excavations at the site between 1961 and 1963 led to an evolution in dwelling interpretation at the site (Harp 1976). Based on the excavation and testing of twenty dwellings two types, a winter and a summer dwelling were defined (Harp 1976).

Harp's model of a typical winter house was based on his interpretation of House 2. This dwelling was located at the eastern end of the upper terrace and appeared as a deep, well-defined depression on the ground surface (Figure 2.1). Excavations revealed that the house consisted of a central depression and low walls built of limestone (Harp 1976). A series of stone-lined pits, twelve inches (30.5 cm) deep, ran along the central north-south axis of the house. Harp (1976) believed this area to be the central hearth area that divided the dwelling in half.

Based on the bilateral symmetry of the dwelling Harp (1976) suggested that either two families or an extended family unit occupied the dwelling. At the rear of the house was a raised area free of rocks that contained three deep storage pits which he defined as a rear sleeping platform (Harp 1976). Although there was no evidence found concerning the nature of the dwelling's superstructure, Harp (1976)

hypothesized that it likely had a peaked or ridged wooden roof with a skin covering. He concluded that such a substantial dwelling required a large investment of time and could not have occurred when the Dorset arrived at Phillip's Garden for the spring seal hunt (Harp 1976). Thus, he suggested that the site may have been a semi-permanent base camp from which hunting parties could stage expeditions into nearby areas to exploit other resources (Harp 1976). Large quantities of faunal material and artifacts, along with radiocarbon dates that indicated that the house was occupied for approximately 200 years suggest that winter dwellings were intended for re-use over a long period of time (Harp 1976).

Harp's model for the typical summer dwelling was based on his interpretation of the architectural remains of House 5. House 5 was located at the eastern end of the middle terrace and appeared as a shallow, ill-defined depression on the ground surface that became oval-shaped after excavation (Figure 2.1) (Harp 1976). This depression was not surrounded by a substantial stone perimeter and lacked an internal hearth area and other obvious architectural features (Harp 1976). The house contained only a few artifacts suggesting that the dwelling was only briefly occupied (Harp 1976). Based on Harp's interpretation of House 5 it is possible that Houses 1 and 3 may represent other summer dwellings at the site.

After a hiatus in excavation at the site Renouf excavated a house depression at Phillip's Garden in 1985 (Renouf 1986). This dwelling was designated as Feature 1 and was located in the centre of the site on the middle terrace (Figure 2.1). Prior to excavation, on the ground surface, the house appeared as a shallow depression with a break in the northern wall (Renouf 1986). Excavations revealed that the house

consisted of a central depression, relatively clear of rocks, surrounded by a perimeter of beach cobbles, raised 25-35 cm above the depression (Renouf 1986). The central depression measured 4.2 x 4.2 m, and contained two stone-lined and bone-filled pits interpreted as an axial feature (Renouf and Murray 1999). These pits were irregularly shaped and oriented east to west (Renouf and Murray 1999). The rear sleeping platform, in the south, was elevated 28-35 cm above the central depression and was 4 m wide by 2 m deep (Renouf 1986). A third bone filled pit was located within the rear sleeping platform. The break in the north wall was interpreted as the entrance which contained a number of large flat rocks and large flat, board-like pieces of worked whalebone (Renouf 1986). A secondary rear entrance was located in the southeast of the perimeter (Renouf 2003). Further investigation during the 1986 field season revealed a box-like structure on east wall. This feature consisted of a rectangular arrangement of an upright slab and a number of large flat limestone rocks that measured 59 x 55 cm and was 15 cm deep (Renouf 1987). The dwelling measured 9.2 m east-west and 7 m north-south, which resulted in an exterior footprint of 52 m^2 (Renouf 1986; 2003). Feature 1 has been interpreted as a winter dwelling (Figure 2.2) (Renouf 1986; 2003).

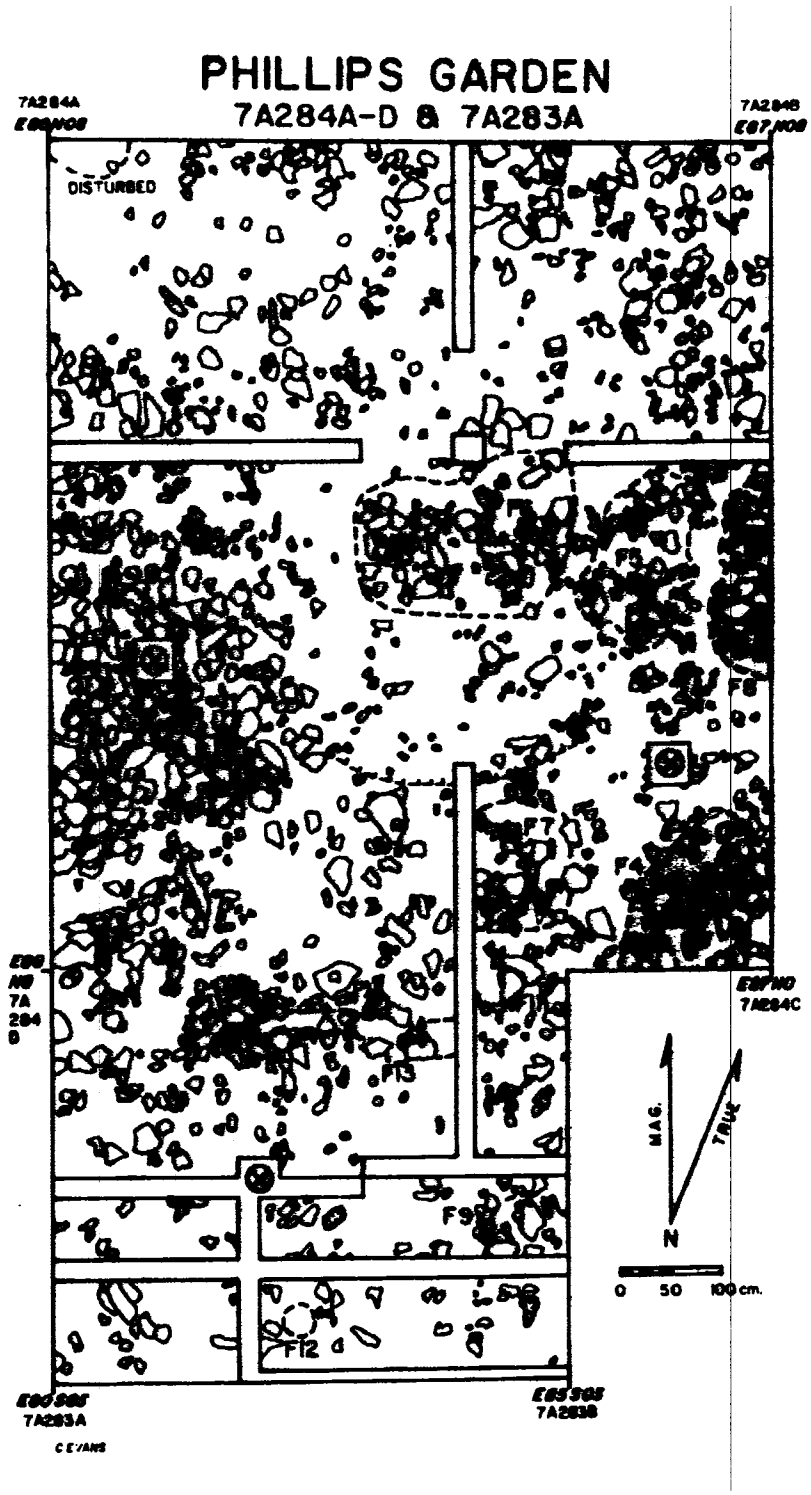


Figure 2.2 Feature 1

A second, similar house depression was excavated in 1986, Feature 14. Feature 14 was located in the centre of the middle terrace (Figure 2.1) and appeared as a large and somewhat deep depression on the ground surface (Renouf 1987). Excavation revealed that the house consisted of a central depression, relatively clear of rocks, surrounded by a perimeter of beach cobbles raised 20-25 cm above the depression (Renouf 1987). The central depression measured 3 m north-south and 4 m east-west and contained three bone filled pits. These pits aligned along the north-south axis of the dwelling were interpreted to be an axial feature. A single pit occurred in the rear sleeping platform, one in the central depression and one in the entrance passage. The rear sleeping platform, in the north of the dwelling, was elevated 20-25 cm above the central depression and was 3.5-4 m wide by 2.5 m deep (Renouf 1987). A second, smaller platform to the south measured 1 m deep and spanned the width of the house (Renouf 1987). Prior to excavation an entrance tunnel was visible in the southern region of the house (Renouf 1987). The entrance of Feature 14 was different in that it faced southeast and it was a 3 m long entrance passage recessed 30 cm into the ground (Renouf 2003). A secondary entrance was also noted in Feature 14 and was located in the northeast of the perimeter (Renouf 2003). Like Feature 1, excavation revealed a box-like hearth or storage box on the west wall of Feature 14. The feature consisted of several limestone rocks arranged in a rectangle, 75 x 35 cm and 13 cm high (Renouf 1987). Upon having completed many more seasons of excavation similar features have been noted and it is likely that these features were likely a lamp stand or support (Renouf pers. comm.). The house

measured 7.5 m east-west and 12 m north-south, and the exterior footprint was calculated to be 74.6 m^2 (Renouf 2003). Feature 14 is illustrated in Figure 2.3.

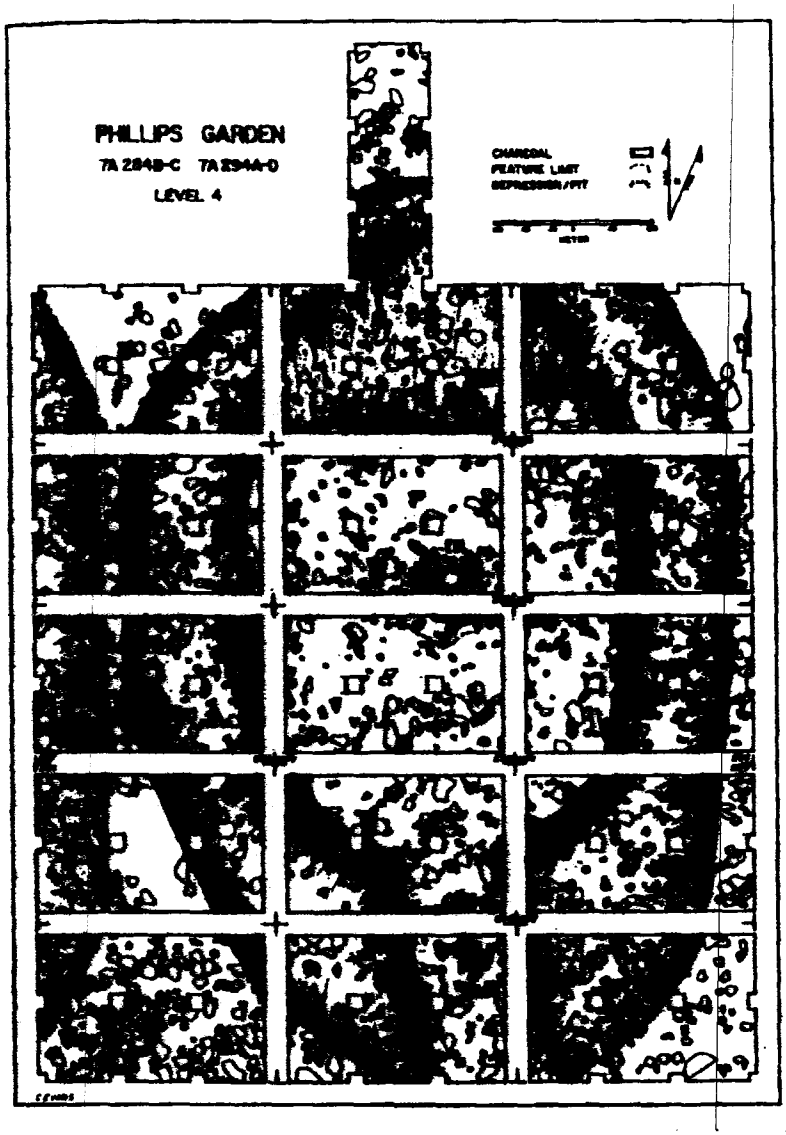


Figure 2.3 Feature 14

A third dwelling, Feature 55, was excavated at Phillip's Garden in 1992 (Renouf 1993). Feature 55 was located on the eastern edge of the site on the middle terrace (Figure 2.1). On the ground surface, it appeared as a very deep depression

with a break in the northeast section of the wall that was recognized as an entrance (Renouf 1993). This front entrance faced northeast, while a secondary rear entrance faced the southeast (Renouf 1993; 2003). Excavation revealed that the dwelling consisted of a central depression recessed 25 cm into the sand and surrounded by a 1 m wide perimeter of beach cobbles (Renouf 1993). The central depression measured 3.5 x 4 m and contained an axial feature made up of a rough limestone pavement 75-100 cm wide oriented east-west (Renouf 1993). The dwelling diameter measured 6 m wide, giving it an exterior footprint of 28.2 m^2 (Renouf 2003). Unlike other dwellings at the site it was ringed by a series of 12 large postholes (Renouf 1993). This series of postholes was an important discovery as they provided the first concrete evidence of potential superstructures at the site. These postholes were 10-32 cm deep, lined with stones and would have held a major structural support. Five of the 12 postholes were slanted away from the centre of the dwelling which indicated that they were designed for curved supports. From this information it has been interpreted that Feature 55 was a dome-shaped dwelling likely covered in skins. After having investigated dwellings from the early and late phases of occupation Renouf was interested in excavating a middle phase dwelling. Feature 55 is illustrated in Figure 2.4.

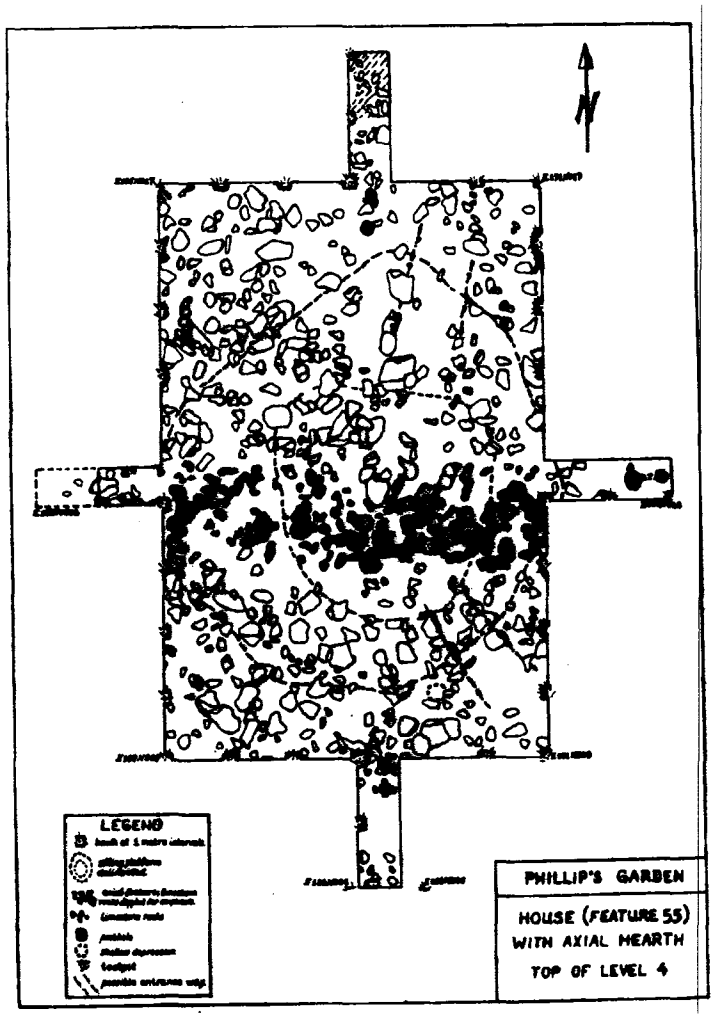


Figure 2.4 Feature 55

The primary objective of the 2004 field season at Phillip's Garden was to re-investigate Harp's winter houses and gain first-hand information about middle phase dwellings (Renouf 2006). Data generated from the excavation of two test trenches through House 2 and one through House 10 indicated that the dwellings were larger and differently constructed than previously thought (Figure 2.5 and Figure 2.6) (Renouf *et al.* 2005).

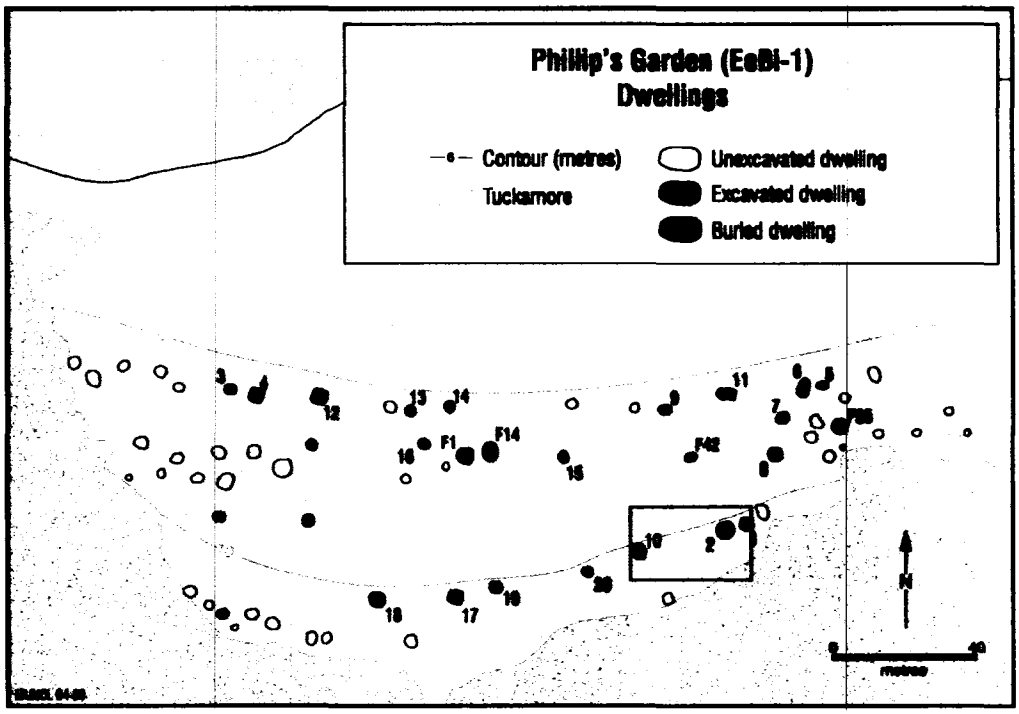


Figure 2.5 Site map indicating location of Figure 2.6. (Drafted by the PACAP)

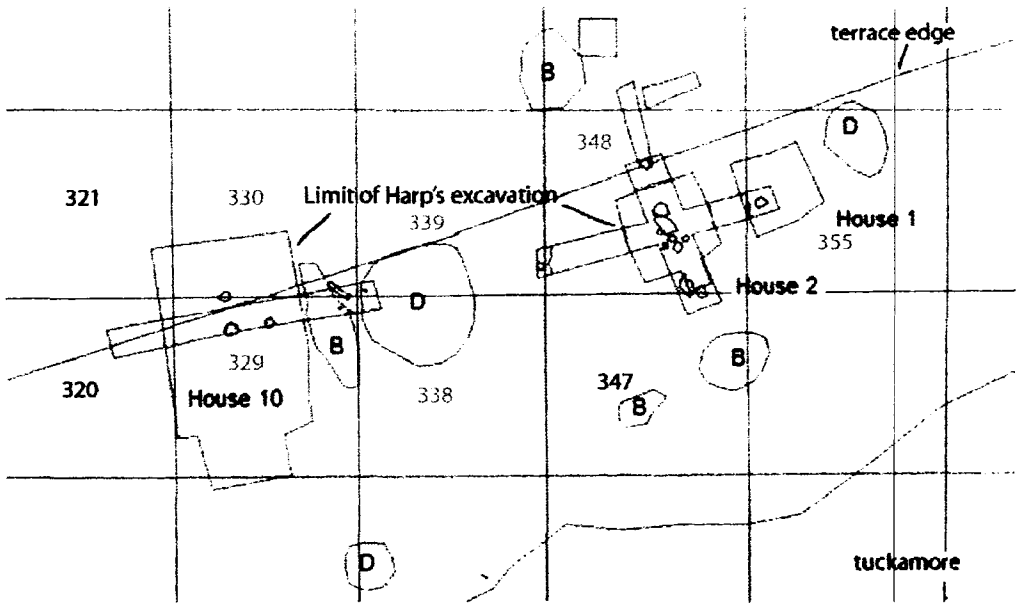


Figure 2.6 Cross-trenches through House 2 and 10. (Drafted by the PACAP)

Re-excavation of House 2 confirmed that the dwelling consisted of a central depression surrounded by a perimeter of beach cobbles. The stone perimeter, revealed by an excavation trench oriented east-west, consisted of five layers of limestone cobbles. In the eastern section of the trench the perimeter measured 1.34 m wide and was interpreted as a wall or bench (Renouf 2006). In the western section of the trench the perimeter measured 4.19 m wide and was interpreted as a platform (Renouf 2006). The central depression, revealed by an excavation trench oriented north-south, contained an axial feature made of a stone-lined trough and series of pits (Renouf 2006). The trough was neatly paved with 4-5 layers of small cobbles and rocks (Renouf 2006). At the northern end of the trough was one pit and at the southern end of the trough were two more pits. Within each of the two southern pits were 3-4 upright or slanted rocks enclosing a small aperture, 5-8 cm wide and 25-28 cm deep, in which a small post would have fit (Renouf 2006). Similarly, the north pit contained two upright slabs that could have supported a similar post (Renouf 2006). When the three pits were dismantled, a period of earlier use was revealed (Renouf 2006).

It was determined that the northern pit and the southern pit nearest the trough were postholes (Renouf 2006). These postholes had straight sides which had been lined with cobbles and had flat bottoms (Renouf 2006). During the initial construction of the dwelling three large pits were built, two for substantial upright posts and one for storage (Renouf 2006). The post holes were 2.29 m apart and could have accommodated two load-bearing posts between which would have likely been a stringer that formed the ridge of a peaked roof (Renouf 2006). The depth of the

postholes, which ranged from 55- 81 cm, and the cobble facing would have offset lateral movement in the sand, suggesting that the roof was substantial and possibly made of wood (Renouf 2006). The large postholes and storage pit were filled with material after they had fallen into disuse. This allowed for a set of small postholes to be constructed for narrow posts that would have borne a lighter load (Renouf 2006). The front entrance of House 2 faced northeast, while a secondary rear entrance faced the southeast (Renouf 2006). It was calculated that House 2 had an exterior footprint of 94.1 m^2 (Renouf 2006) making it the largest dwelling excavated at the site. Interior space was estimated to be 78.4 m^2 if the eastern perimeter was a wall or 87.7 m^2 if it was a bench (Renouf 2006).

Renouf (2006) suggested that the initial investment of time and effort in the construction of House 2 was large, as evidenced by the presence of central support required for a likely substantial roof and superstructure. This suggests that the dwelling was to be reused over a long period of time. The renovation of House 2 indicated that the dwelling was worth repairing but the changing nature of the post holes, large to small, indicates that the dwelling was rebuilt on a smaller scale (Renouf 2006). This latest research reaffirms Harp's (1976) hypotheses concerning the nature of House 2's possible superstructure but shows the dwelling to be considerably larger.

When the size of House 2 was compared to other Dorset dwellings, and to the dwellings of other arctic adapted hunter-gatherers, it was determined that the dwelling was one of the largest identified (Renouf 2006). The very large size prompted the question: how many people could be housed in such a structure? It was known

ethnographically that large winter houses of the Labrador Inuit could accommodate up to 11 families, and so it is highly probable that several families occupied House 2 (Renouf 2006). The presence of large dwellings that could accommodate several families reinforces Renouf's (1994) hypothesis that Phillip's Garden was a seasonally permanent social gathering site.

A single trench, oriented east-west, through House 10 revealed that it was similar in nature to House 2 (Renouf *et al* 2005). The trench revealed a portion of the axial feature and the eastern and western perimeters. The eastern perimeter was 3.3 m wide and was interpreted as a platform (Renouf *et al* 2005). The western perimeter was 1.3 m wide and was interpreted as a wall or a bench (Renouf *et al* 2005). The axial feature in House 10 was also similar to the one found in House 2 and consisted of 1 m x 2.5 m pavement of limestone slabs and beach cobbles abutted at each end by a pit (Renouf *et al* 2005). From this information House 10 has been interpreted as being much larger than once thought and it is likely that the pits associated with the axial feature represent postholes (Renouf *et al* 2005).

2.4 A Comparison of Dwellings at Phillip's Garden

In this section I compare the dwellings discussed above in terms of their architectural features including shape, size, axial feature, perimeters and postholes. Most of the dwellings were constructed in a similar manner; that is they were all semi-subterranean and were surrounded by low stone perimeters.

Features 1, 14, and 55 were oval to circular in shape, while House 2 was rectangular. Dwellings at the site range in size from 28.3 m^2 to 94.1 m^2. House 2

was the largest dwelling and measured 9.21 m x 10.46 m. Feature 14 was the second largest dwelling and measured 12 m x 7.5 m. Feature 1 was the third largest dwelling, slightly smaller than Feature 14, and measured 9.2 m x 7 m. Feature 55 was the smallest dwelling and measured 6 m in diameter. The size of the dwellings was determined by the presence of stone perimeters.

All of the dwellings were surrounded by low stone perimeters, although the combination of walls, benches and platforms varied for each. The stone perimeter that surrounded House 2 has been interpreted as a rear platform in the south, a side platform in the west and a wall or bench in the east (Renouf 2006). The stone perimeter that surrounded House 10 has been interpreted as wall or bench in the west and a platform in the east (Renouf *et* al 2005). The stone perimeter that surrounded Feature 55 has been interpreted as a bench (Renouf 1993). The stone perimeter that surrounded Feature 1 has been interpreted as rear sleeping platform in the south (Renouf 1986). Similarly, in Feature 14, the stone perimeter has been interpreted as a rear sleeping platform in the north of the dwelling with a second, smaller platform to the south that spanned the width of the house (Renouf 1987).

In addition to stone perimeters, all of the dwellings contained an axial feature. The axial features found in Features 1 and 14 were similarly constructed. In each of the dwellings the axial feature consisted of a series of stone-lined bone-filled pits. In Feature 1 the axial feature was oriented along the east-west axis of the dwelling while in Feature 14 the axial feature was oriented along the north-south axis of the dwelling. In Houses 2 and 10 the axial features differed from Features 1 and 14; they consisted of a pit abutting the north and south end of a stone paved area. In House 2 it was

determined that these pits were postholes and it is possible that the pits in House 10 were also postholes. Like Feature 14, the axial features in House 2 and 10 were oriented along the north-south axis of the house and aligned perpendicular to the water's edge. The axial feature in Feature 55 consisted of a limestone pavement that was about a meter wide and was oriented east-west, parallel to the water's edge. The east-west orientation of the axial feature in Feature 55 is similar to the orientation of the axial feature in Feature 1. While this type of axial feature construction is unique to Feature 55 at Phillip's Garden, they have been identified at other Middle Dorset sites in Newfoundland and Labrador including St. John Island 3, L-4 (HeCf-1), Cape Ray (CjBt-1), Dildo Island (CjAj-2) and Rose Island, Site Q, Band 1 (IdCr-6) (Renouf 2003).

In addition to axial features, postholes were associated with some of the dwellings. Postholes were identified in Feature 55 and House 2 and possibly in House 10. Surrounding Feature 55 was a series of postholes, and House 2 contained two centrally located postholes for load-bearing posts. Two pits identified in House 10 were likely postholes similar to the ones in House 2. These three dwellings contain the only examples of postholes at the site.

While it is apparent that the dwellings discussed above are somewhat similar in their general construction, there are some cases where the dwellings are drastically different. What accounts for these differences? There are many factors that could be responsible for the variation in architectural features at the site and these factors will be addressed over the next few pages. Renouf and Murray (1999) compared two winter dwellings from the site, House 2 and Feature 1, using six factors: post-

depositional disturbance, seasonality, function, social group or groups inhabiting the dwelling, re-occupation and chronology (Renouf and Murray 1999). The same factors will be examined in this current comparison.

It is unlikely that any of the dwellings underwent any major episodes of post-depositional disturbance, as site reports, publications and field notes related to the dwellings indicated no major disturbances in stratigraphy (Harp 1976 and n. d.; Renouf 1986, 1987 and 1993).

Faunal material recovered from a midden associated with Feature 14 indicated that the dwelling was occupied during the December and spring seal hunts (Hodgetts *et al* 2003). This was determined through the metric analysis of the humeri and femora found in the midden (Hodgetts *et al* 2003). Based on faunal data, it was determined that House 2 and Feature 1 were occupied during the late winter (Renouf and Murray 1999). Faunal material was also recovered from a midden associated with Feature 55 and included seal remains and large variety of fish and bird remains (Renouf 2002; Hodgetts *et al* 2003). Metric analysis of the seal remains from the Feature 55 midden indicated that the Dorset were involved in the December hunt as well as the spring hunt (Hodgetts *et* al 2003). However, based on the presence of a large variety of fish and bird remains Hodgetts *et al* (2003) suggest that it indicated an occupation at the site during a non-seal hunting time of year or it indicated that the dwelling occupants were exploiting a wider range of resources during the late phase of occupation at the site. These faunal analyses indicated that the dwellings discussed above were likely occupied during the same season and that seasonality does not account for structural variation.

Upon examining the artifact classes recovered from the dwellings, it seems unlikely that architectural differences were the result of function. The artifact totals and relative frequencies from House 2 and Features 1, 14, and 55 are presented in Table 2.1. Artifacts recovered from all four dwellings indicate that a wide array of activities occurred in each of the dwellings. The relative frequencies of artifacts indicate that the tools occur in the dwelling in relatively similar proportions. The relatively large totals for House 2 are likely due to the fact that the dwelling is much larger than others, and that it was reoccupied over a substantial period of time. The artifact types listed below have been named according to the Port au Choix Archaeology Project artifact cataloguing protocol. Two of the artifact type names listed below, whalebone 2x4 and cats tongue, have been named based on their physical appearance (Renouf pers. comm.). A whalebone 2x4 is piece of whalebone that resembles a wooden 2x4 and a cats tongue is a slate tool that resembles a cat tongue.

Table 2.1: Artifact Totals and Relative Frequencies for House 2 and Features 1, 14, and 55

Artifact	H2 Total	H2 Frequency	F1	Frequency	F14	Frequency	F55	Frequency
Abrader	40	0.97	5	0.86	10	1.3	0	0
Whetstone	2	0.05	0	0	0	0	0	0
Biface	251	6.1	18	3.1	42	5.5	36	5.6
Dart	1	0.02	1	0.17	2	0.26	4	0.62
Endblade	391	9.4	61	10.5	79	10.4	47	7.3
Blade-like Flake	7	0.17	0	0	0	0	0	0
Microblade	782	18.9	182	31.3	88	11.6	164	26
Core Microblade	55	1.3	9	1.5	9	1.2	5	0.78
Core Flake	141	3.4	19	3.3	55	7.2	30	4.7
Core Frag/Primary Flake	224	5.4	20	3.4	76	10	60	9.3
Shatter/Raw Material	193	4.7	4	0.67	10	1.3	0	0
Hammerstone	17	0.41	1	0.17	4	0.53	0	0
Burin-like Tool	48	1.1	13	2.2	13	1.7	7	1.1
Amulet	9	0.22	0	0	3	0.4	0	0
Awl	16	0.39	1	0.17	0	0	0	0
Barbed Organic Point	6	0.14	1	0.17	0	0	0	0
Blunt Organic Point	5	0.12	4	0.67	4	0.53	10	1.6
Bodkin	1	0.02	0	0	0	0	0	0
Cube	3	0.07	1	0.17	4	0.53	4	0.62
Foreshaft	11	0.26	0	0	4	0.53	0	0
Handle	3	0.07	0	0	0	0	3	0.47
Harpoon Head	8	0.19	1	0.17	2	0.26	1	0.16
Lance	1	0.02	0	0	3	0.4	0	0
Lancehead Foreshaft	0	0	0	0	3	0.4	1	0.16
Needle	2	0.05	0	0	2	0.26	5	0.78
Sharp Organic Point	7	0.17	1	0.17	1	0.13	5	0.78
Sled Runner	37	0.89	31	5.3	30	4	13	2

Toy Sled Runner	12	0.29	0	0	0	0	0	0
Organic Core	8	0.19	15	2.6	15	2	12	1.9
Organic Other	3	0.07	1	0.17	1	0.13	1	0.16
Organic Tool Preform	10	0.24	0	0	0	0	2	0.31
Unidentified Organic Tool	195	4.7	10	1.7	37	4.9	4	0.62
Whalebone 2x4	2	0.05	12	2.1	10	1.3	2	0.31
Organic Non-tool	1	0.02	0	0	0	0	0	0
End Scraper	582	14	59	10.2	56	7.4	19	3
Side Scraper	15	0.36	5	0.86	7	0.92	4	0.62
Bevelled Slate Tool	42	1	8	1.4	3	0.4	4	0.62
Cats Tongue	17	0.41	3	0.52	2	0.26	1	0.16
Slate Pendant	2	0.05	0	0	0	0	0	0
Slate Point	2	0.05	0	0	0	0	0	0
Slate Scraper	2	0.05	0	0	0	0	0	0
Unidentified Ground Slate Fragment	74	1.8	17	2.9	7	0.92	6	0.93
Unidentified Ground Slate Tool	36	0.87	3	0.52	7	0.92	4	0.62
Schist Bevelled Tool	2	0.05	0	0	0	0	0	0
Soapstone Bevelled Tool	2	0.05	0	0	0	0	0	0
Soapstone Lamp	11	0.26	0	0	0	0	0	0
Soapstone Pot	12	0.29	0	0	0	0	0	0
Soapstone Slab	6	0.14	0	0	0	0	0	0
Schist Unknown	58	1.4	4	0.69	8	1.1	3	0.47
Soapstone Unknown	332	8	26	4.5	106	14	107	17
Preform (bifacially worked)	98	2.4	12	2.1	17	2.2	28	4.2
Preform (biface)	111	2.7	3	0.52	6	0.8	5	0.78
Preform (endblade)	171	4.1	30	5.2	33	4.3	45	7
Preform (scraper)	9	0.22	0	0	0	0	0	0
Preform (slate tool)	1	0.02	0	0	0	0	0	0
Preform (unknown)	22	0.53	0	0	0	0	0	0

Unidentified Artifacts	40	0.97	0	0	0	0	0	0
Total	4139	100%	581	100%	759	100%	642	100%

The variability in the size of dwellings may reflect the number of people that occupied the dwellings. Dwellings were of various sizes, ranging from small, 28.3 m^2, to quite large, 94.1 m^2. The size differences noted at Phillip's Garden may indicate that different numbers of people could have occupied different houses. Ethnographic data suggests that Labrador Inuit winter dwellings, within the size range at Phillip's Garden, housed between two and eleven families (Lee and Reinhardt 2003).

Architectural variability at the site may also reflect reoccupation of dwellings. This is particularly true in the case of House 2 where it has been demonstrated that this dwelling underwent at least one phase of structural renovation (Renouf 2006). The enormous volume of artifacts recovered from House 2 also suggests that it was repeatedly occupied. Features 1, 14 and 55 did not exhibit any signs of structural renovation and contained fewer artifacts indicating that these dwellings were less likely to have been reoccupied over a substantial period of time.

Finally, architectural variability at the site may be attributed to change over time. As discussed earlier, Phillip's Garden has been divided into three phases of occupation: early, middle and late. Dwellings dating from each time phase have been excavated at the site and this may account for architectural variability. Table 2.2 is a list of radiocarbon dates for the dwellings under discussion.

Table 2.2: Radiocarbon Dates for Houses 2 and 10 and Features 1, 14 and 55

Radiocarbon Years BP	Context	Lab No	Calibrated median age	Source
1850±110	Feature 1	Beta-15379	1778	PAC Project
1593±49	House 2 SW quadrant	P-683	1476	Harp 1976
1600±40	House 2 west platform under RL1	Beta-211272	1478	PAC Project
1510±40	House 2 storage pit F87b fill	Beta-211271	1394	PAC Project
1550±40	House 2 posthole F87d fill	Beta-211270	1451	PAC Project
1640±70	House 2 midden	Beta-160975	1538	PAC Project
1659±48	House 2 midden	P-693	1562	Harp 1976
1736±48	House 2 midden	P-692	1645	Harp 1976
1970±60	Feature 14	Beta-23977	1919	PAC Project
1480±40	Feature 55	Beta-160976	1366	PAC Project
1410±100	Feature 55 level 2, central area of house	Beta-66435	1322	PAC Project
1370±90	Feature 55 midden	Beta-66436	1280	PAC Project

It can be determined from this table that Features 1 and 14 were occupied during the early period while Houses 2 and 10 were occupied during the middle period and Feature 55 was occupied during the late period.

It is difficult to determine which factor played the most important role in variations in architecture at the site. However, I would suggest that time is the most likely cause of variation. Information available concerning architecture from the early phase of occupation at the site comes from Features 1 and 14. These dwellings

had the same shape and had central depressions of similar dimensions. The axial feature in each dwelling consisted of a line of pits, with one in the rear platform and one in the centre of the dwelling. Each dwelling also had a rear platform, a box-shaped stone feature on one of their walls, and a secondary rear entrance. Feature 14 was slightly larger than Feature 1, contained a second pit in the axial feature, had an additional platform, and had a south facing cold trap entrance.

During the middle phase of occupation dwellings at the site are larger and differently constructed. The footprint of House 2 is the largest at the site and two very large, well constructed postholes in the centre of the dwelling indicate that a substantial roof was supported by two central load bearing posts. An alteration in the axial feature also occurs. The axial feature which occurred as a series of pits aligned along the north-south axis of Feature 14 and along the east-west axis of Feature 1 became a series of pits and a paved trough in the centre of House 2. This change in the nature of the axial feature was also visible in House 10.

Finally, during the late phase of occupation dwellings at the site become smaller and differently constructed. For example, Feature 55 did not have a platform but instead a perimeter bench that was surrounded by a ring of posts that provided support for a dome-shaped structure. Feature 55 exhibits another differently constructed axial feature. In this dwelling the axial feature was aligned along the east-west axis and consisted of a flagstone pavement. Other Dorset dwellings in Newfoundland that contained a flagstone pavement, such as House 2 on Dildo Island, have been dated to 1310 cal B.P. and 1300 cal B.P. (Leblanc 2003). This seems to suggest that a trend towards flagstone pavement axial features occurred during the

late phase of occupation at Phillip's Garden and during the terminal period of Dorset occupation of Newfoundland in general.

2.5 Summary

This chapter provided an overview of the architecture of dwelling features at Phillip's Garden. This information was then compared to reveal a trend of architectural development at the site over time. Based on currently available data, the overall trend in dwelling structures at the site began with medium-sized dwellings, followed by very large dwellings, and ended with small dwellings. During the early period of occupation at the site dwellings were similarly constructed and ranged in size between 51.5 m^2 and 74.7 m^2. During the middle period of occupation dwellings were at their largest and measured 94.1 m^2. Dwellings during this period were differently constructed and required centrally located, load-bearing posts to support a substantial roof. Dwellings were also reused during this period as evidenced by two separate periods of construction. During the late period of occupation at the site dwellings became quite small, 28.3 m^2. Dwellings during this period were also differently constructed based on the interpretation of the remains of Feature 55.

Chapter 3: House 18

3.1 Introduction

This chapter presents information about House 18 gathered through excavation. House 18 was initially tested by Harp in 1963 and later excavated by the Port au Choix Archaeology Project in 2005 (Cogswell *et al* 2006). The purpose of the 2005 excavations was to generate data which could be compared to existing data concerning Houses 2 and 10 to determine if they were anomalous or characteristic of middle phase dwellings. First, extant information gathered from Harp's field notes will be presented. This information was limited to plan and profile drawings, a list of artifacts found in each square and the individual excavator's notes on the unit excavations. This will be followed by a discussion of field methodology and the 2005 excavations, and the interpretation of the dwelling. The chapter will conclude with a comparison of recently excavated middle phase dwellings, Houses 2, 10 and 18 and a discussion of why these large dwellings developed at the site.

3.2 Harp's House 18

In 1961 Harp returned to Phillip's Garden to initiate the first large scale excavations at the site, having conducted limited testing there in 1949 and 1950 (Harp 1964). Between 1961 and 1963 he fully excavated or partially tested twenty large house depressions at the site. For five days in July 1963 Harp excavated nine test squares within the limits of the structure he designated as House 18: D4-52, D4-54,

E4-51, E4-53, E4-55, F4-53, F4-54, F4-56, and G4-52 (Harp n.d.) (Figure 3.1). These test squares were 1.52 m^2 and divided into four quadrants: A, B, C, and D (See Appendix A for more details concerning Harp's excavation system).

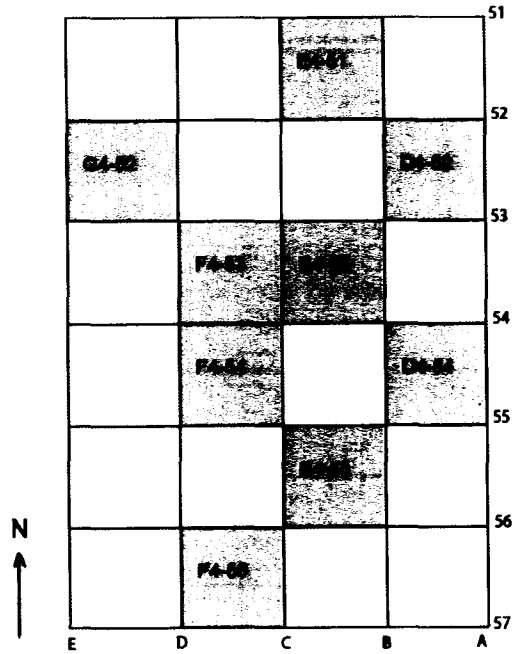


Figure 3.1 Harp's Excavation Grid for House 18. (Drafted by PACAP)

The stratigraphy was uniform throughout the squares beginning with Level A, a layer of sod (= our Level 1), followed by Level B, the black cultural level (= our Level 2), and Level C, sterile beach sand (= our Level 4). In a single square, F4-56, Harp designated a mixed layer of brown and black oily soil as Level C. In this square the sterile sand was found beneath Level C and referred to as Level D. Level A was usually about 5 cm thick, Level B ranged in depth between 10 cm and 36 cm, Level

C, when present as a layer of brown and black oily soil, ranged in depth between 2.5 cm and 20 cm.

Square D4-52 was located in the southeastern area of the house. Upon completion of excavation it was noted that several large stones were set into level C, sterile sand. A total of 95 artifacts was found and there was no mention of any faunal material recovered. D4-54 was located within the southeast corner of the house depression on what was determined to be a wall portion of the structure raised 30.5 cm above the surrounding area. A total of 79 artifacts was found and there was no mention of any faunal material recovered. E4-51 was located in the northern end of the house depression and was interpreted as the house entrance. A total of 63 artifacts was found and there was no mention of any faunal material recovered. E4-53 was located in the centre of the house depression and two large pits and a trench-like depression were found within this square. The pits and trench-like depression were aligned along the north-south axis of the structure with the pits separated by a rock wall. According to the excavator's field notes, the pits were relatively free of rocks with few faunal remains or artifacts. While few artifacts were found in the pits, a total of 195 artifacts was found. E4-55 was located in the southern end of the house depression inside the raised wall area and contained a moderate amount of faunal material and 65 artifacts. F4-53 was located in the northwestern corner of the house depression and 64 artifacts were found. F4-54 was located in the middle of the house depression and contained much faunal material and 75 artifacts. F4-56 was located in the southern end of the house depression on the raised wall area. Harp defined the square as a wall area based on high concentrations of rocks. Within this square were

two large pits. The northern pit measured 63.5 cm deep while the pit in the southern portion of the square was 30.5 cm deep. A total of 50 artifacts was recovered. G4-52 was located at the edge of the raised wall area with quadrants A and C sloping towards the centre of the house depression. A total of 53 artifacts was found along with an average amount of faunal material

Harp had one charcoal sample radiocarbon dated to 1683±49 BP (Table 3.1).

3.3 Methodology

The fieldwork protocols followed during the 2005 field season were established by the Port au Choix Archaeology Project in 1984 (Renouf 1985) and revised in 1998 (Renouf and Bell 1999). We began by marking out the four operations in which we conducted our excavations; the Parks Canada provenience system is explained in Appendix B.

We then removed the overlying layer of sod, Level 1 (L1), and divided the operations into 1 m^2 units. Once the area was prepared for excavation we began removing from the units any remaining pockets of L1 soil. Next, Level 2 (L2) was removed. This was the cultural level, and it consisted of a very dark greasy soil. It was this level from which most of the artifacts and faunal material was recovered. Level 3 (L3), where present, was a thin lens of mottled black-brown soil and contained some artifacts and faunal material. Level 4 (L4) was a layer of sterile sand, although an occasional artifact or bone was found in the first few centimeters of the sand. When layers of rocks were encountered within L2, they were called rock level 1, 2, 3 etc., (e.g. RL1, RL2, RL 3). When L2 soil was encountered under these rock

layers it was called lower level 2 (LL2). Throughout the course of the excavation all the soil removed was screened through ¼-inch mesh and artifacts found *in situ* were recorded electronically with a total station. In addition, features and the surface contours of the excavation area were surveyed using a total station. These data have been stored and analyzed using a customized version of ArcMap (Excavation Manager).

3.4 Description of House 18 Excavations 2005

(7A249A-C; 7A259A-B; D)

The following section consists of a description of the excavation of House 18 in 2005 and has been adapted from Cogswell *et al* (2006). A total of 76 m^2 of area was excavated in association with House 18. The house feature was contained within four operations over which a grid was established and 60 m^2 in the immediate vicinity of the house depression was excavated. As the sod was removed a small number of artifacts, flakes and faunal material was recovered. The area excavated was undisturbed, with the exception of Harp's previously excavated squares. Areas of disturbance were recognized as differences in normal site stratigraphy and the presence of non-Dorset artifacts.

The initial 60 m^2 consisted of a 3 x 5 m area in each of the four sub-operations: 7A249B, 7A249C, 7A259A, and 7A259D (Figure 3.2).

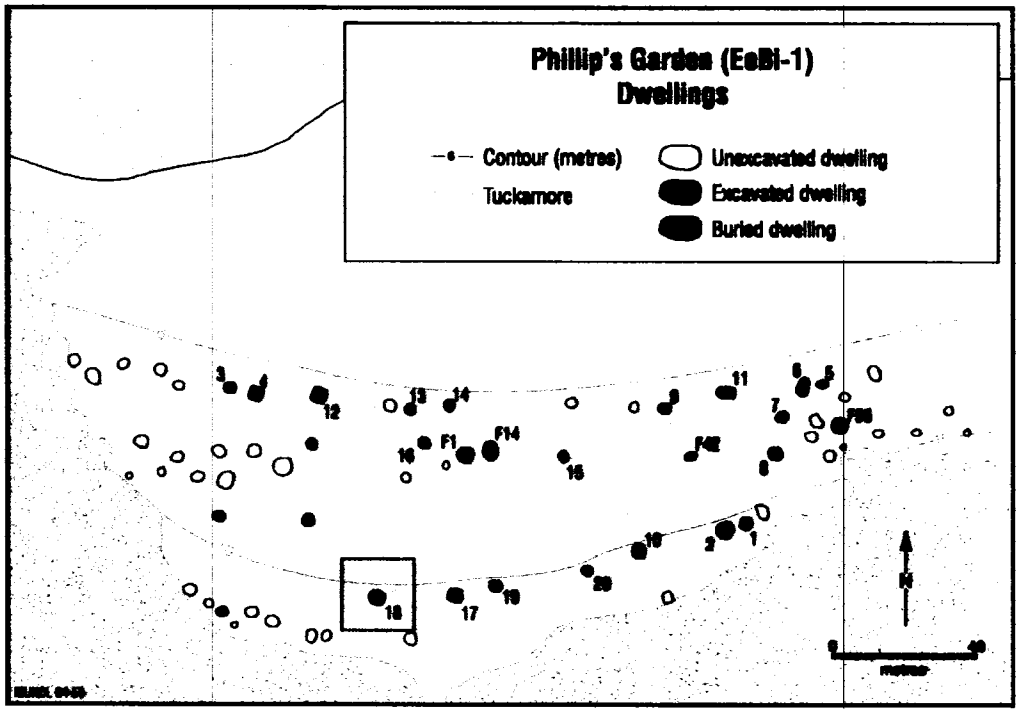


Figure 3.2 Location of House 18 at Phillip's Garden. (Drafted by PACAP)

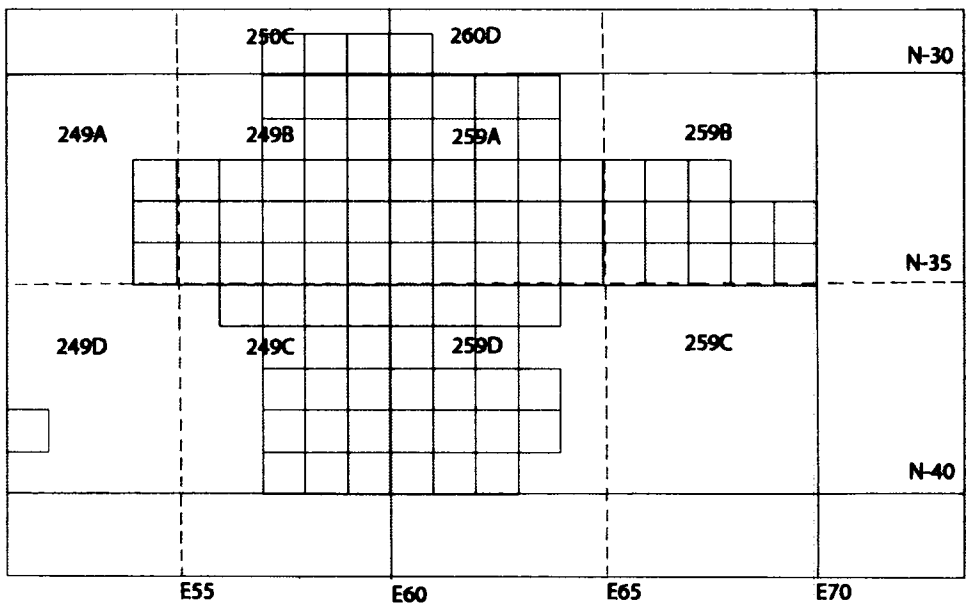


Figure 3.3 Outline of the 2005 excavation of House 18 shown within the Parks Canada provenience system (see Appendix B). (Drafted by the PACAP)

As excavations progressed, possible wall areas were indicated by the presence of a greater number of rocks and a change in elevation in the southern, eastern and western extents of the initial excavation area. Concentrations of stones in the south and southeast were also identified as wall areas by Harp in his 1963 field notes.

Excavations were extended in two areas where possible walls were found. A 3 x 2 m trench was extended westward into 7A249B and 7A249A. A 4 x 2 m, trench was extended eastward into 7A259A and 7A259B. Feature 140, the eastern perimeter, was uncovered in the trench that extended into 7A259A and 7A259B. Feature 152, the western perimeter, was uncovered in the trench that extended into 7A249B and 7A249A. This feature consisted of two layers of rocks found resting on L4.

A total of 33 features was designated within the excavation area (Figure 3.4), and are described in detail in Appendix C. Some of these features are related to the structure of the dwelling, such as postholes. Other features, such as midden deposits and flake concentrations are related to activities that occurred within the dwelling. Large areas of burning present in the house indicate an unexplained burning episode.

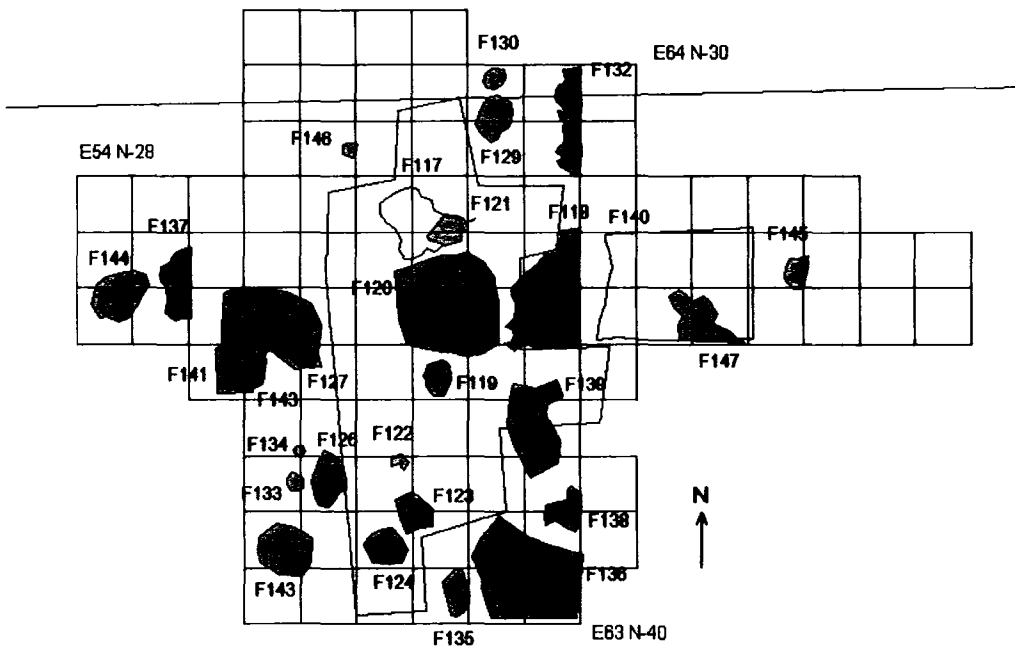


Figure 3.4 House 18 features. (Drafted by the PACAP)

3.5 Summary of House 18

The following summary of House 18 has been adapted from Cogswell *et al* (2006). House 18 is defined by an interior depression oriented NE-SW that measured 5.6 E-W x 7.6 m N-S. This depression was surrounded by two distinct perimeters, with one larger than the other (Figure 3.5).

Figure 3.5 Contour map of House 18. The approximate boundary of the small perimeter is indicated by the circle and the approximate boundary of the large perimeter is indicated by the two lines. (Drafted by the PACAP)

The large perimeter is defined by two berms which have been interpreted as platforms (Features 140 and 152). Feature 140 is pictured in Figure 3.6 and Feature 152 is pictured in Figure 3.7. Based on maps produced with the GIS software ArcView, the large perimeter measured 11.6 E-W by at least 8.9 m N-S. It is likely that the southern perimeter extended beyond the excavation area.

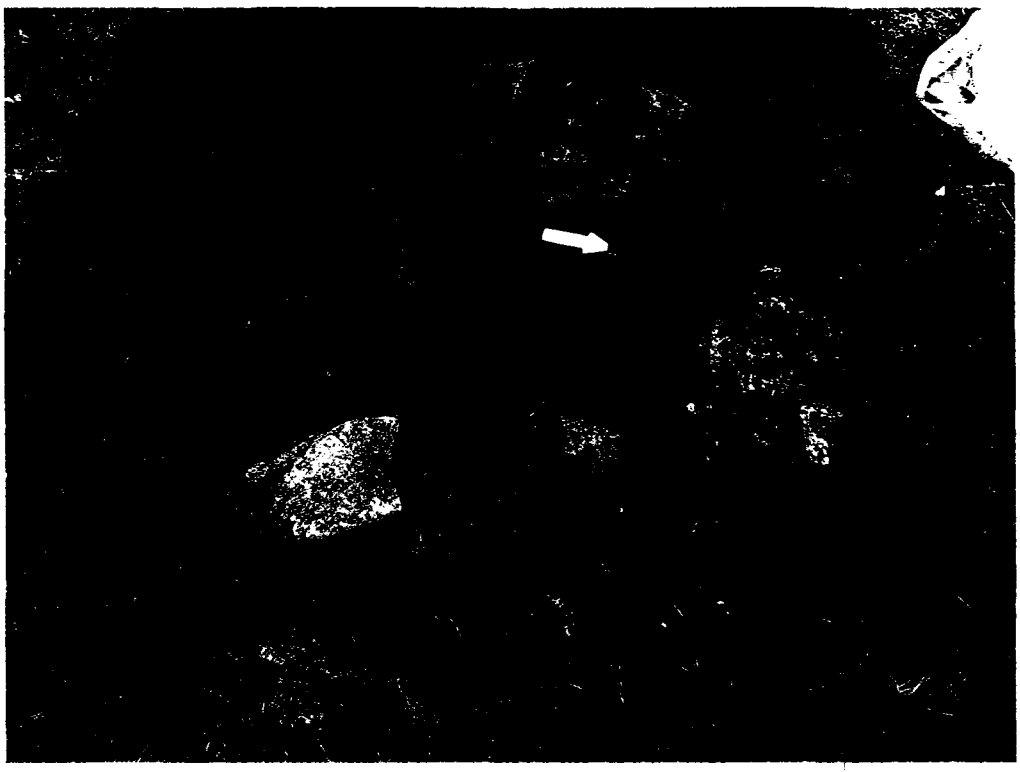


Figure 3.6 Feature 140. (Photo: PACAP)

Figure 3.7 Feature 152. (Photo: PACAP)

The small perimeter is defined by ring of small pits that have been interpreted as postholes (Feature 153) (Figure 3.8). The small perimeter measured 5.2 E-W by 7.7 m N-S.

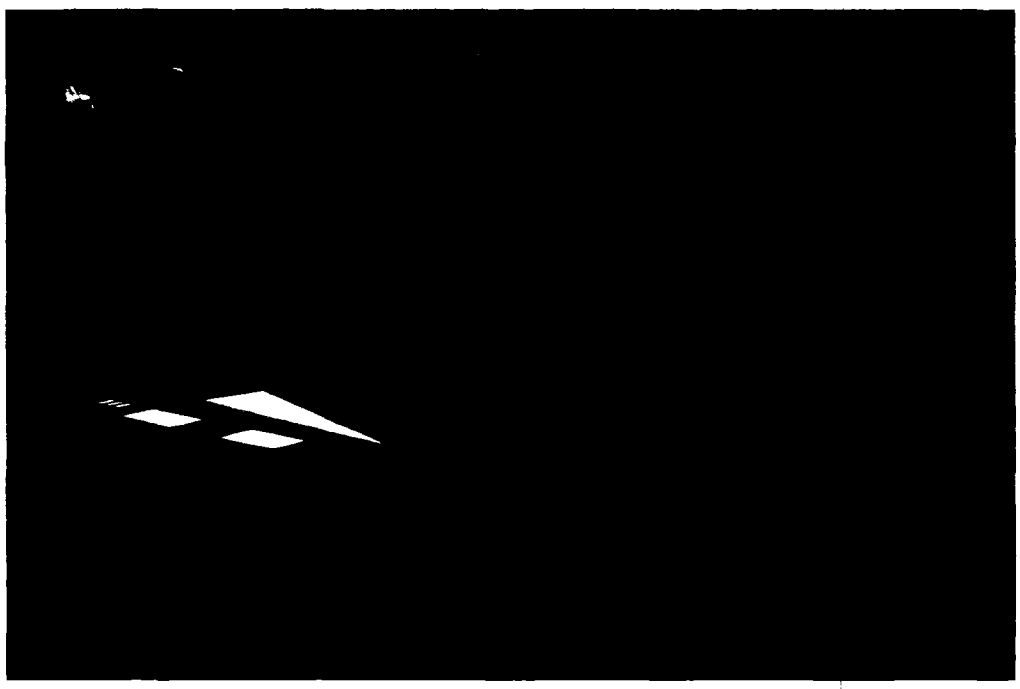


Figure 3.8 Pits along northwest perimeter. (Photo: PACAP)

To the north (the front) of the dwelling this perimeter was defined primarily by a berm of sand (Feature 128) contrasted by a rockier interior (Figure 3.9). A dip along this perimeter has been interpreted as an entrance.

Figure 3.9 Feature 128, sand berm at northern end of dwelling with pit features 129 and 130 cutting through the berm. (Photo: PACAP)

In the central area of the depression was an axial feature oriented NE-SW. The axial feature consisted of slabs and cobbles that formed a paved trough (Feature 120) and two central postholes (Features 119 and 121). This arrangement was very similar to that of House 2 in that the trough was abutted at each end by a posthole. The paved trough was a shallow depression and was lined with large rocks that measured 1.3 x 1.9 m (Figure 3.10). After removing the top layer of rocks and lower level 2 (LL2) soil, the feature became key-hole shaped with slab rocks lining the bottom and rocks and small cobbles lining the sides. A posthole was identified to the north and south of this feature.

Figure 3.10 Axial arrangement of Features 119, 120 and 121. (Photo: PACAP)

The northern posthole, Feature 121, was identified in L2, surrounded by fist-sized cobbles and filled with a flake-filled soil (Feature 117). The inner diameter of the posthole was 26-28 cm and it was 16 cm deep with a flat rock lining the bottom. Feature 121 has been interpreted as a posthole because it was carefully constructed and circular in shape, and relatively deep when compared to the depth of postholes identified in Feature 55 (Renouf 1993) (Figure 3.11).

Figure 3.11 Feature 121. (Photo: PACAP)

The southern posthole, Feature 119, was identified in L2 and appeared as a circular arrangement of stones. As the black midden-like fill was removed the posthole retained its circular shape, and measured 30 cm in diameter at the top and 15 cm in diameter at the bottom. The posthole was 50 cm deep with straight walls lined with rocks (Figure 3.12). Some small slabs of rock were found within this feature on a steep slant suggesting they could have been used as supports for a post.

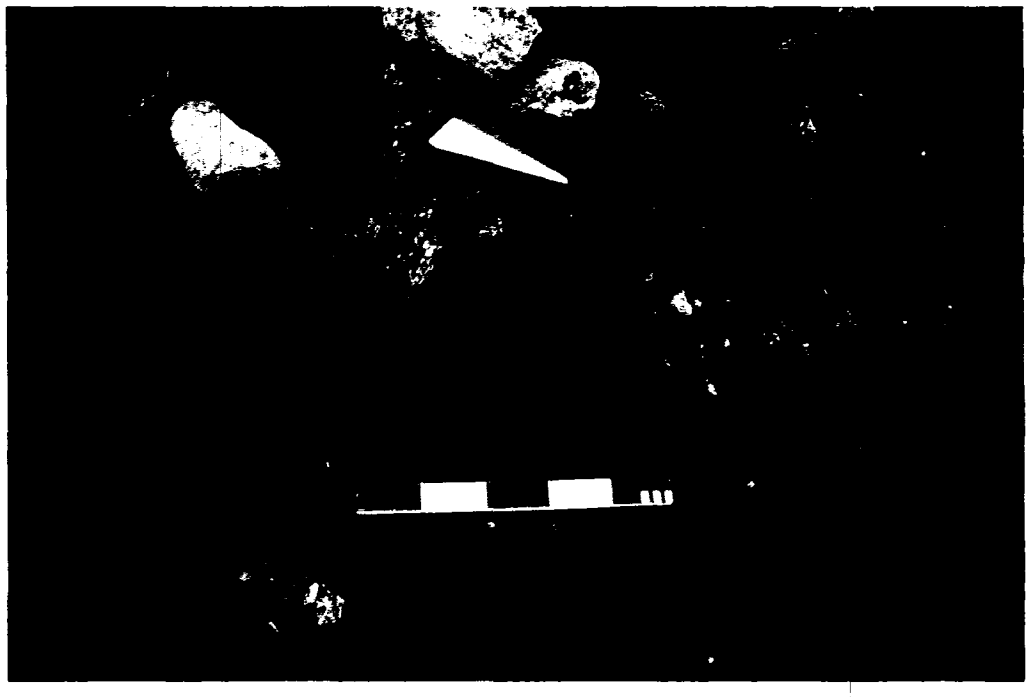


Figure 3.12 Feature 119. (Photo: PACAP)

These postholes, Features 119 and 121, were oriented like those in House 2 and could have provided central support for the dwelling's superstructure (Renouf 2006).

South of the axial feature, at the back of the dwelling on the raised perimeter, was a large and well constructed storage pit, Feature 123 (Figure 3.13). This feature was first noted by Harp in 1963 as one of two pits in square F4-56. At first it appeared as a depression in the southern region of the excavation area in L2. It turned out to be a large, square, stone-lined pit. It was constructed with large boulders forming the floor and large rocks and small cobbles forming the walls. Several large, flat stones were found slumping into the pit and these have been interpreted as displaced cap stones. The pit was filled with black L2 soil that contained numerous

artifacts, flakes and bone. Mid-way through the fill were several large pieces of whalebone under which a layer of rocks was found. The opening of the feature measured 56 x 60 cm and the bottom 49 x 22 cm and was 60 cm deep.

Figure 3.13 Feature 123. (Photo: PACAP)

A second smaller stone-lined pit, Feature 124, was also found in the raised perimeter at the rear of the dwelling. This pit was adjacent to the larger storage pit (Feature 123) and they shared a wall. The pit was circular, lined with stones and filled with L2 soil (Figure 3.14). The pit measured 65 cm in diameter and was 45 cm deep with a large rock at the bottom. Based on the size and shape of the pit, it was thought that it could have been a posthole. If the feature was indeed a posthole, it would not have accommodated a straight post but a whale rib as in dwelling Feature 55 (Renouf

1993). This is because F124 sloped towards F123 in such a way that a straight post would have been oriented away from the centre of the dwelling.

Figure 3.14 Features 123 and 124 during initial stages of excavation. (Photo: PACAP)

As mentioned above, House 18 consisted of two distinct perimeters. The large perimeter was defined by two berms, Features 140 and 152, which have been interpreted as platforms. Feature 140, the eastern platform, was a 2.94 m-wide, raised and flattened area. The area was defined by a distinct rise in topography associated with a level area of a few flat stones, few artifacts and no midden material. As it was raised, level and contained few rocks rather than being constructed from them, it was interpreted as a sitting platform rather than a wall. Feature 152, the western platform, was 2.96 m wide, raised and flattened area that was constructed from two layers of L4 rocks. The area was defined by a rise in topography associated with two layers of

rocks. This area has been interpreted as a platform comparable in size and function to Feature 140 but differently constructed.

A series of 42 small pits discovered along the perimeter of the central depression of the dwelling has been identified as Feature 153 (Figure 3.15). These pits were small and round and most were rock-lined. They were found along the northeastern (n=6), eastern (n=8), southern (n=9), and western (n=14) perimeter of the central depression. They were approximately 10-15 cm in diameter and 10-15 cm deep. They were filled with L2 soil and were dug into L4. They have been interpreted as small postholes that outline a later phase of dwelling occupation.

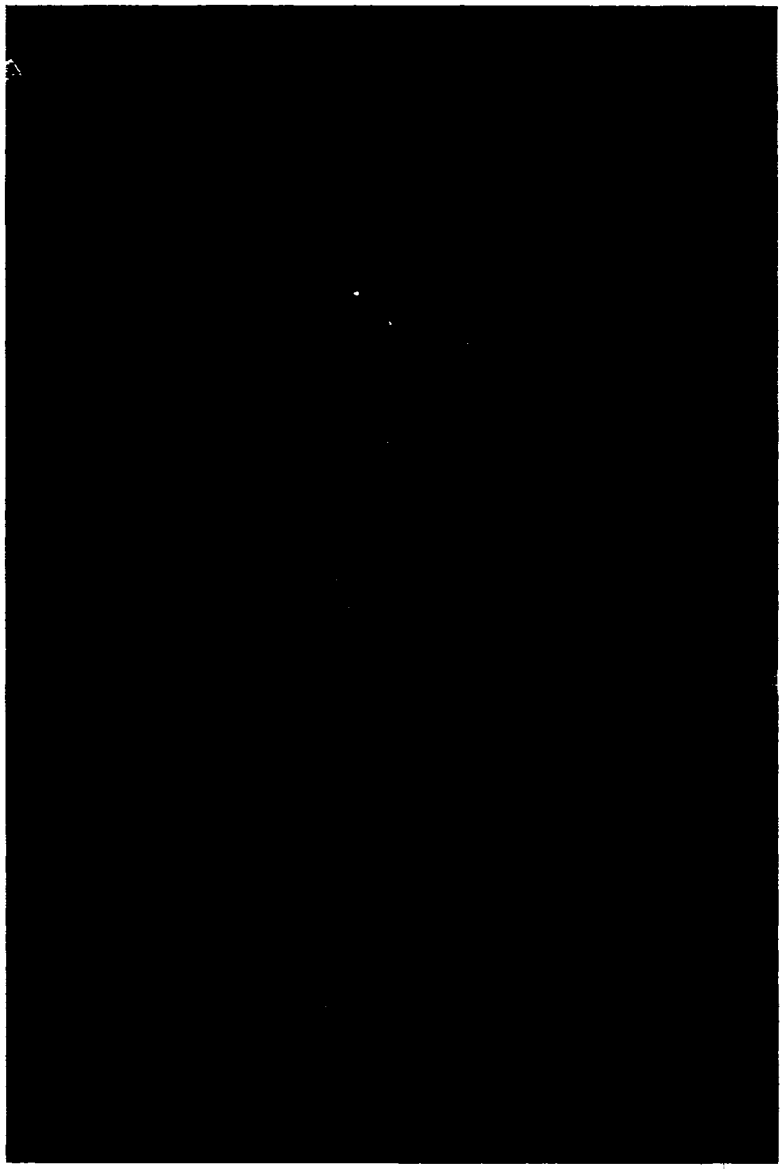


Figure 3.15 Feature 153 pits along western perimeter postholes are highlighted by pink flagging tape. (Photo: PACAP)

Large areas of burning were noted in several areas of the excavation area. One such area was discovered in the southeastern region of the dwelling. Here Features 135, 136 and 138 represent a large area of burning within L3. Feature 135 was partially contained within an oval arrangement of rocks that showed no signs of being heat altered. However, within the feature itself, a fire cracked rock and a heat

altered tip flute spall were found. Feature 136 was a large area of ash, charcoal and black soil that contained no cultural or heat altered material. Feature 138 was a lens of greasy black soil and burned gravel. The presence of a tip flute spall within Feature 135 indicates that the area of burning was of Dorset origin and may represent an outdoor hearth area associated with the small perimeter and a later phase of occupation.

A second area of burning, Feature 141, was found along the western extent of the excavation area slightly south of the centre of the dwelling. This feature consisted of an ashy, grey lens of soil with pieces of charcoal. Underlying this layer was a layer of brown sterile soil. It is likely that this feature represents a hearth area with the change in colour attributed to the heat of the fire.

3.6 Construction and Interpretation

It was apparent during excavation that House 18 had existed in two forms; a large dwelling and then a smaller dwelling. In the following pages I illustrate how House 18 was initially constructed and reconstructed through time.

House 18 was initially a large rectangular dwelling that measured 11.6 m E-W by no less than 8.9 m N-S (Cogswell *et al* 2006). Like other dwellings excavated at Phillip's Garden the initial step in the construction of House 18 was to remove limestone rocks from what would become the central depression. The central depression of the dwelling measured 5.6 m E-W x 7.3 m N-S (Cogswell *et al* 2006). Some of the rocks which were removed were likely discarded as only the western portion of the perimeter of House 18 was defined by a berm constructed from two

layers of rocks; the remaining perimeter was an earthen berm. To the east the perimeter was a raised, flattened area designated as Feature 140 and defined by a distinct rise in topography associated with a level area that consisted of a few flat stones. To the west the perimeter, Feature 152, consisted of two layers of rocks that was 2.96 m-wide and was designated as Feature 152 (Cogswell *et al* 2006). Both of these areas have been interpreted as platforms but differently constructed. The northern perimeter was defined as a berm of sand, Feature 128.

Once the area was cleared by the Dorset the central depression was excavated into the sand, L4. Within the central depression the axial feature was constructed by creating a shallow, key-hole shaped depression which was lined with rocks and small cobles forming a paved trough.

To the north and south of the paved trough postholes were constructed. These features were created when builders dug circular pits into L4. The walls were straight and lined with stones and the bottom of each of the postholes was lined with a flat rock. These features were identified as postholes due to their careful nature of construction and because the depth of each falls within the range of known depths of postholes at the site. These postholes, like those found in House 2 and possibly in House 10 would have provided central support to the dwelling during its initial period of use.

The storage pit, Feature 123, which was constructed in the raised perimeter area at the rear of the dwelling, would also have been built during the initial construction event. A large square pit was excavated deep into the sand and then several large boulders were used to line the bottom of the pit, while the walls were

lined with cobbles. The pit was filled with black L2 soil and divided into two possible episodes of use. Part way through the fill many large pieces of whalebone were found. Underneath the whalebone pieces was a layer of rocks. It is possible that this layer of rocks may represent two episodes of use. During the initial period of use the pit would have been square and deep with boulders lining the bottom and large rocks and cobbles lining the walls. Later this pit was filled in with debris and made shallower. After the pit was filled in to the desired level a layer of rocks was place on top forming the new bottom of the pit. An alternate possibility was that the fill in the pit was placed there when the feature had fallen into disuse and needed to be filled in.

South of and adjacent to Feature 123 was a second, smaller pit, Feature 124. It was in the rear area of the dwelling and was likely built during the initial construction episode. A circular pit was excavated into L4 and lined with stones; several large rocks formed part of a wall shared by both features. It was noted while dismantling the feature that the pit (Feature 124) sloped towards the storage pit (Feature 123). Based on the size and shape of the pit it could have been a posthole. If this feature had been a posthole it would have supported a curved support like a whale rib as in dwelling Feature 55 (Renouf 1993).

To summarize House 18 during its initial period of occupation was rectangular and measured 11.6 m E-W by 8.9 m N-S. The dwelling was oriented NE-SW based on the orientation of features along the central axis. Major structural support was provided by two central load-bearing posts indicated by two large postholes, Features 119 and 121. In addition to central support it is possible that Feature 124, found in

the rear of the dwelling, may have acted as a posthole that provided support along the perimeter of the dwelling. The central depression was surrounded by two differently constructed berms, Features 140 and 152, which have been interpreted as platforms.

Over time, as such a sizeable dwelling became unnecessary or when the structure could no longer be reconstructed to its previous size the dwelling was rebuilt on a much smaller scale. It is suggested that the dwelling became smaller over time as the platforms of the larger dwelling had been covered with midden deposits. This second, smaller dwelling was much different in size and shape and built over the central depression of the larger dwelling. It was circular-oval in shape and measured 5.2 m E-W by 7.7 m N-S. The central depression and axial feature were reused and it is likely that the smaller dwelling retained the NE-SW orientation. It is possible that one or both of the postholes may have been used to provide central support to the dwelling although there does not appear to be any evidence to suggest that either of the central postholes was altered to support a smaller post, as was the case with House 2 (Renouf 2006).

The perimeter of this dwelling was defined by a series of 42 small pits that ringed the central depression. These pits, collectively called Feature 153, were small and round and the majority were lined with rocks. These postholes would have held small posts and formed a framework that could be covered in skins.

The area on the outside of the ring of postholes and surrounding the structure was a mix of midden material and large stones. The large stones were likely rocks that would have been used to hold down the edges of skins that had been stretched over a framework of posts. The use of skins to form a tent-like structure over the

frame work of posts can be further supported by the nature of stratigraphy in the northwestern region of the dwelling. In this area there were two linear depressions or gullies, Features 142 and 150, and a mixed layer of sand and soil along the western edge of the excavation, Feature 151. Feature 142 was a narrow linear gully along the perimeter of the central depression parallel to a berm, Feature 151. On the other side of the berm there was a second wider gully, Feature 150. Together these three features form the western perimeter in addition to the perimeter pits, Feature 153. Between the two gullies was a berm of sand (L4) mixed with black soil (L2), Feature 151. Feature 151 did not contain any L3 as this was an area of disturbance. It was 35-50 cm wide and was 3.5 m long. This feature has been interpreted as a disturbed area and it is possible that it represents an area where sand and earth was piled on the top of the edge of tent skins as a buffer between the large rocks to hold them down. Possibly this layer of sand and soil would have protected the edges of the skins from becoming worn too quickly. When the skins were removed the soil and sand could have become mixed together forming a mound.

When House 18 was reconstructed as a smaller dwelling the storage pit, Feature 123, and pit, Feature 124 were outside the dwelling. It is possible that the storage pit was used as an external storage feature or it may have fallen into disuse and filled with debris. It is also likely that during this stage of occupation that the areas of burning, Features 135, 136 and 138 were formed. It is quite possible that these were outdoor hearths used during a later period of occupation when the dwelling was smaller.

In summary, during a later period of occupation House 18 underwent an episode of renovation that resulted in a smaller dwelling. This smaller dwelling can be described as circular to oval in shape as defined by a series of postholes. In the western portion of the dwelling the perimeter was further outlined by a combination of features including two gullies, Features 142 and 150 and a berm of mixed sand and soil, Feature 151. The dwelling measured 5.2 E-W by 7.7 m N-S and the footprint of the dwelling was 21.3 m^2. The footprint of the smaller dwelling was calculated using the east-west measurement and the formula for calculating the area of a circle (Area=πr^2). It is likely that the axial feature was reused and it is possible that either one or both of the central postholes could have been reused if the dwelling required central support. When central support was no longer necessary the postholes were filled with debris. When the dwelling was reduced in size the storage pit, Feature 123, was located outside of the dwelling. The occupants could have used this pit as an external storage pit or it could have fallen into disuse and filled with debris. Features 135, 136 and 138 were also located outside of the smaller dwelling. It is likely that these features represent hearths located behind the dwelling where they were sheltered from the wind. It is likely that subsequent occupants retained the NE-SW orientation of the dwelling and the entrance in the northern perimeter. As suggested earlier the later smaller dwelling was likely a circular tent-like structure that consisted of skins over a framework of posts held in place with a layer of sand and rocks.

3.7 A Comparison of Middle Phase Dwellings

The following section focuses on a comparison of House 18 with two middle phase dwellings at Phillip's Garden. The comparison will be made between Houses 2, 10 and 18. In general it appears that dwellings in the middle phase were large, centrally supported structures that were remodeled to suit the needs of later occupants. The comparison of the two dwellings is based on the size and shape, presence or absence of particular architectural features and the nature of construction of these features.

Houses 2, 10 and 18 were large, rectangular dwellings. House 2 was 94.1 m^2 and House 18 was somewhat larger at 103.2 m^2. House 2 was oriented N-S while House 18 was oriented NE-SW. Houses 2, 10 and 18 had similar axial features. The axial features in Houses 2 and 18 consisted of a paved trough and a posthole which abutted the north and south end of the trough. These postholes were of varying depths but all were circular in shape, had straight walls and were lined with cobbles. The axial feature of House 10 consisted of a stone paved area which was abutted at the north and south end by a pit (Renouf *et al* 2005). It is likely that these pits were postholes. Evidence of additional structural support can be found in House 18 in the form of a posthole at the back of the dwelling, Feature 124.

House 2 and 18 each contained internal features in addition to the axial feature and postholes. Each dwelling contained a storage pit and House 2 contained an arrangement of three small postholes that may have supported a tripod. In House 2 a storage pit was discovered along the central axis, just south of the southern posthole

and was small compared to the storage pit in House 18. House 18 lacked a tripod arrangement of postholes.

Houses 2 and 10 were surrounded by a substantial stone perimeter that has been interpreted as a wall or bench in the east of House 2 and the west of House 10 and a platform in the west of House 2 and the east of House 10 (Renouf *et al* 2005). House 18 was surrounded by two differently constructed berms that have been interpreted as platforms (Cogswell *et al* 2006). Each berm was approximately 3 m-wide. In the east the berm was a raised, flat area that consisted of a few flat stones while in the west the berm consisted of two layers of stones.

Houses 2 and 18 underwent episodes of major reconstruction. At some point during the use of each dwelling they were reconstructed on a smaller scale. Evidence for reconstruction of House 2 can be seen in the changing nature of the postholes over time. In this dwelling the two central postholes were altered to accommodate smaller posts through time. Evidence for reconstruction of House 18 can be seen in the changing nature of the perimeter of the dwelling. The perimeter of House 18 became smaller over time and the shape of the dwelling changed from rectangular to oval. This change in shape also illustrates a change in the nature of support for the dwelling. Initially the dwelling was supported by two centrally located load bearing posts and later the dwelling was supported by a network of posts which ringed the central depression.

In summary it can be said that House 2, 10 and 18 were quite similar in shape and size; while the axial feature and structural support in House 10 may have been slightly different. All three were rectangular, very large, and had a similar

arrangement of features aligned along the central axis of the dwelling. The three dwellings also differed and these differences included the orientation of the dwelling, the construction material of the perimeters and the arrangement of internal features.

This comparison of dwellings indicates that dwellings from the middle phase were similar in basic shape, size and method of construction that indicates a possible standardization of architecture amongst the Dorset who occupied Phillip's Garden during the middle phase of occupation.

3.8 The Development of Large Dwellings at Phillip's Garden

In this section I discuss why large structures, such as Houses 2, 10 and 18, developed at Phillip's Garden during the middle phase. Coupland and Banning (1996) suggest that the development of large dwellings reflects the need to house large groups of people. If this suggestion is correct, then the development of large dwellings at Phillip's Garden reflects a change in the demographic structure of the groups occupying the site. In fact, the development of large dwellings relates to both practical and social factors. Practical reasons for building large dwellings are discussed in relation to the concept of expected use-life and theories of architectural design (McGuire and Schiffer 1983; Deihl 1997). Social reasons for building large dwellings are discussed in relation to the increased importance of Phillip's Garden as an aggregation site. I suggest that while the development of large multi-family dwellings resulted from both practical and social reasons, in the middle phase this change specifically reflects the increase in the site's importance as an aggregation site.

One of the primary reasons for the shift in dwelling size at the site may be related to the length of time for which the structures were intended to be occupied. It is likely that by the middle phase the Dorset had established the site as a reliable hunting location and important seasonal aggregation site. Under these circumstances, it is likely that the Dorset began building larger dwellings with low maintenance costs as they planned to return yearly to the site. McGuire and Schiffer (1983) argue that production and maintenance costs are the two most important but conflicting goals of dwelling construction. With production, they suggest that the primary goal is to construct a dwelling which requires limited upfront investment of time and energy (McGuire and Schiffer 1983). As for maintenance the primary goal is a structure that requires little time and energy to repair during its use-life (McGuire and Schiffer 1983). These two goals conflict with one another, and McGuire and Schiffer (1983) suggest that the most important variable to be considered when deciding to build any structure is use-life. Use-life, as defined by Diehl (1997), is the anticipated period during which a dwelling will be occupied. A substantial structure with low maintenance costs can be expected to have a long use-life.

Radiocarbon dates for Houses 2, 10 and 18 indicate that these dwellings were occupied for extended periods of time. It should be noted that the radiocarbon dates do not always fall within the established dates for the middle phase. However, this is not considered to be a major concern as these dates are considered as guidelines. A series of four radiocarbon dates indicates that House 18 was occupied for approximately 50 years from approximately 1550-1500 cal BP (Figure 3.16).

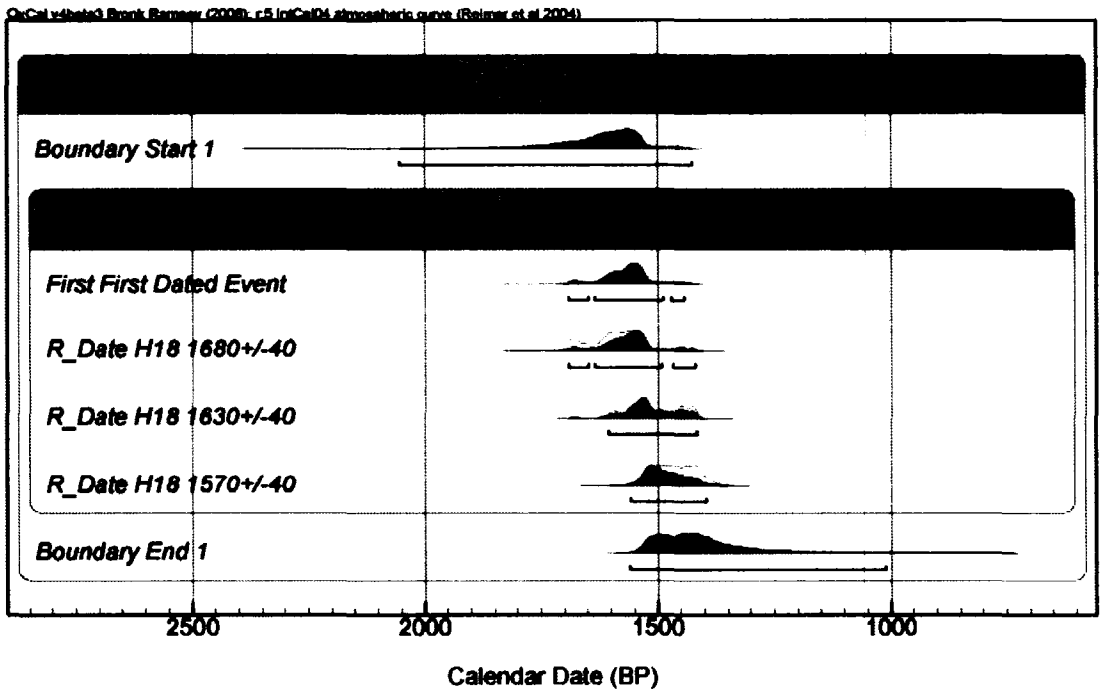


Figure 3.16: Calibration of House 18 Dates

House 2 was also occupied for an extended period of time, although not all of the radiocarbon dates overlap. If the oldest date,1736±48, is not considered than it appears that the dwelling was occupied for approximately 115 years between 1525-1410 cal BP (Figure 3.17). House 10 was also occupied for an extended period of time, approximately 100 years between 1625-1525 cal BP (Figure 3.18). The radiocarbon dates for Houses 2, 10 and 18 are listed in Table 3.1. Extended occupation periods of large multi-family dwellings should not be surprising if the site had been established as an important social aggregation site.

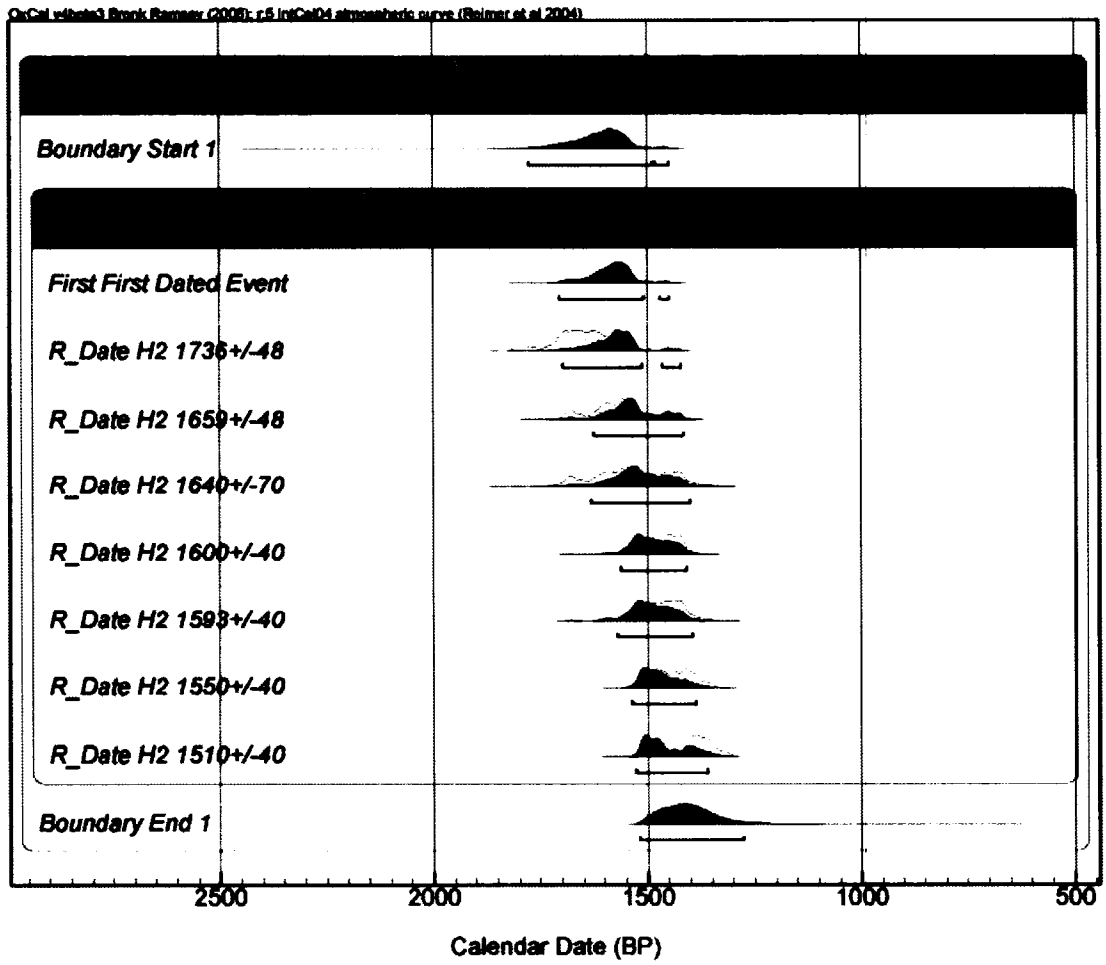


Figure 3.17: Calibration of House 2 Dates

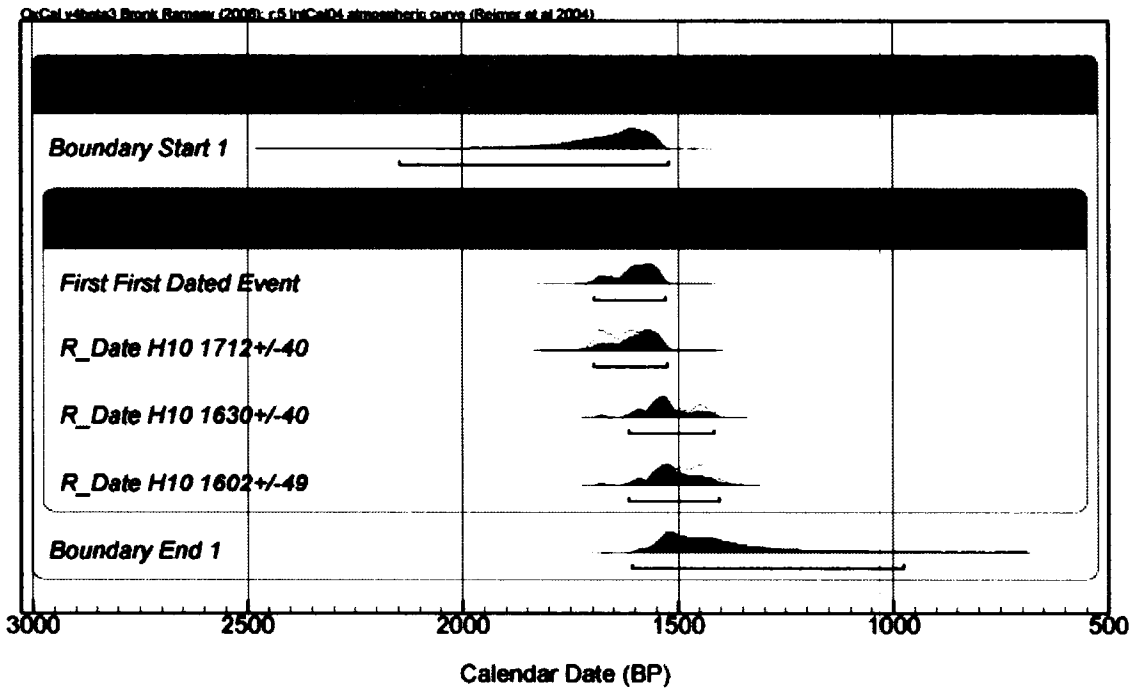


Figure 3.18: Calibration of House 10 Dates

Table 3.1: Radiocarbon Dates for Selected Middle Phase Dwellings, Houses 2, 10 and 18

Context	Radiocarbon Years BP	Lab No	Source
House 2 SW quadrant	1593±49	P-683	Harp 1976
House 2 west platform under RL1	1600±40	Beta-211272	PAC Project
House 2 storage pit F87b fill	1510±40	Beta-211271	PAC Project
House 2 posthole F87d fill	1550±40	Beta-211270	PAC Project
House 2 midden	1640±70	Beta-160975	PAC Project
House 2 midden	1659±48	P-693	Harp 1976
House 2 midden	1736±48	P-692	Harp 1976
House 18	1683±49	P-736	Harp 1976
House 18 F123 storage pit	1680±40	Beta-211266	PAC Project
House 18 F118 midden	1630±40	Beta-211267	PAC Project
House 18 F119 posthole	1570±40	Beta-211268	PAC Project
House 10 centre	1602±49	P-694	Harp 1976
House 10	1712±40	P-695	Harp 1976
House 10 east platform	1630±40	Beta-211269	PAC Project

It is a difficult task to assign, with certainty, the social reasons for change in dwelling size over time at Phillip's Garden. However, it can be said that this change reflects the changing nature of Dorset households that occupied the dwellings. It has been argued that the need for large dwellings simply reflects the need to house larger groups of people (Coupland and Banning 1996). Limited information is available about the social make-up of Dorset households and this information has been gleaned from the physical layout of dwellings and ethnographic analogy with the Inuit (LeMoine 2003). It has been suggested that Dorset households consisted of two or more nuclear families made up of a husband and wife and their dependents (LeMoine 2003). When multiple nuclear families were occupying a single dwelling the nuclear families which were more closely related shared one half of the dwelling (LeMoine 2003). It will be argued here that the need for large dwelling structures arose in order to house multiple, closely related nuclear families as the site increased in importance as an aggregation site.

The most common form of multi-family dwelling known from Dorset society is the Late Dorset longhouse. Longhouses were normally rectangaloid in shape with parallel sidewalls and rounded or slightly narrowed ends, and generally occur at locations where a seasonally abundant resource was available (Damkjar 2000).

While this dwelling form developed during the Late Dorset period, it has been suggested that it developed from Early or Middle Dorset multi-family dwellings in the Foxe Basin area (Damkjar 2000, Ryan 2003). Damkjar (2000) suggests that that the development of Middle Dorset semi-subterranean communal dwellings in this area may have been a strategy for sharing resources within an expanded household as

a means of reducing resource risk. Longhouse sites have been interpreted as having served a primarily social function, as these structures involved a significant investment of labour and the creation of a single, large, enclosed structure which demonstrates the importance of extended family groups coming together and reaffirming their role within the group (Damkjar 2000). Living and eating together in a communal structure indicated that all present were part of a single community and each person present would have borne all of the responsibilities of that community, including obligations to aid neighbors in times of hardship (Damkjar 2000). If this interpretation is considered reasonable, then it could be suggested that the act of coming together as a single community allowed for the interaction and flow of people and ideas between Dorset local groups and regions (Damkjar 2000).

I suggest that multi-family dwellings at Phillip's Garden may have served a similar role. It is likely that these dwellings provided the opportunity for normally dispersed families to come together and live under a single roof reinforcing the importance of the larger extended family. Coming together as an extended family group would allow members to reconnect and reinforce family ties which could be called upon in times of crisis. Phillip's Garden provides the ideal location for such social gatherings to occur as it has been established as a reliable location for procuring a very valuable resource, the harp seal. Once the site had been established as an excellent and reliable location for hunting these seals, the Dorset returned to the location every year and it became reasonable to build substantial structures. As the reliability of the harp seal was established, the site's importance as an aggregation was also established.

It can be seen that the largest dwellings at Phillip's Garden occur during the middle phase. The shift in dwelling size seems reasonable at this time because the site has been established as an aggregation site where many nuclear families came to live together. At such a site it is not unreasonable to build substantial structures which would only require minimal repairs if the occupants planned to return on a yearly basis. Based on the extended use-lives of the structures it appears as though the Dorset planned to return to the site each winter to participate in the harp seal hunt. By constructing large substantial structures with central support, the Dorset could return to the site on a yearly basis and would only need to repair the dwellings requiring a minimum amount of effort. This required an initial investment of time and energy that seems to have paid off based on the radiocarbon dates from which extended use-lives were calculated for Houses 2, 10 and 18.

3.9 Summary

This chapter presented information concerning the excavation of House 18 in 1963 and 2005. The purpose of presenting this information was to describe the nature of the dwelling, House 18 and compare it to two other middle phase dwellings. House 18 was a large dwelling which required central support as indicated by the presence of two centrally located load-bearing posts very much like Houses 2 and 10. The comparison of the dwellings, Houses 2, 10 and 18 indicated that dwellings which were constructed and occupied during the middle period were substantial structures that were reused over time as indicated by evidence of episodes of reconstruction in the dwellings and radiocarbon data.

Chapter 4: Middle Phase Dwelling Function

4.1 Introduction

This chapter determines if middle period dwellings at Phillip's Garden may have had specialized functions. During the excavation of House 18, it seemed that an unusually large number of needles and other artifacts related to sewing were recovered. To determine if middle phase dwellings may have had specialized functions, the range of activities that occurred within House 18 and other middle phase dwellings must first be established. This will be accomplished by sorting the artifacts into categories. Using correspondence analysis, the artifact assemblage from House 18 and the assemblages from five other fully excavated dwellings from the middle phase will be analyzed to determine if distinct sets of functions occurred in middle phase dwellings. Correspondence analysis is a statistical method used to graphically display the relationship between variables, such as houses and artifact types, and has been used to determine the function of dwellings at Phillip's Garden (Erwin 1995). This chapter begins with a discussion of the difficulties in determining dwelling function from artifacts, followed by a discussion of the range of activities that occurred in the dwellings, and ending with the presentation of results from the correspondence analyses.

4.2 Interpretation of Dwelling Function

In this analysis dwelling function is interpreted from the artifact assemblage found within a particular dwelling. The interpretation of dwelling function from artifact assemblages can be difficult. It is considered difficult as cultural and natural formation processes affect the development of the artifact assemblages recovered from dwellings. One of the cultural formation processes that plays an important role in the development of an assemblage is the re-use of structures. The re-use of a dwelling over time means that there may not be a direct relationship between the occupation of a dwelling and the deposition of artifacts as an assemblage may be compiled from multiple occupations (Schiffer 1987). In addition, post-abandonment activities, such as the depositing of refuse in abandoned houses, may also affect the formation of an assemblage (Schiffer 1987). As formation processes occur at all sites it is possible that the artifact assemblages from dwellings at Phillip's Garden have been affected by re-use and post-abandonment activities. While the re-use of dwellings must be taken into consideration as a likely factor in the formation of artifact assemblages it has been argued that the last occupation of a dwelling will have contributed the most material to the assemblage (Erwin 1995). At Phillip's Garden, it has been recognized that the simple stratigraphy of dwellings does not allow for the identification of individual occupations, although the presence of large external middens suggest that debris was removed from the living area before reoccupation, and that post abandonment activities, such as the filling of a dwelling depression with midden material, are recognizable (Erwin 1995). Based on these

arguments the artifact assemblages examined here are considered to be representative of the last occupation of the dwelling.

4.3 Artifact Assemblages from Dwellings at Phillip's Garden

The interpretation of dwelling function from the associated artifact assemblage is based on the interpretation of artifact function. The function of Dorset artifacts has most often been determined by comparing the artifacts to what is known ethnographically of Inuit artifacts. A total of 83 artifact categories has been identified at Phillip's Garden based on the Port au Choix Archaeology Project cataloguing and classification protocol. The protocol uses many of the conventional terms for identifying Dorset artifacts however, when new artifacts are identified at the site they are often identified based on non-functional characteristics. Within the artifact assemblages analyzed in this thesis, 54 of the artifact categories were identified (Table 4.1).

The artifact assemblages analyzed here are all from fully excavated dwellings dating to the middle phase of site occupation. The artifact assemblages used in the following analysis are presented in Table 4.1. The first correspondence analysis conducted in this thesis is based on the data from Table 4.1.

Table 4.1: Artifact Totals from Houses 2, 4, 6, 10, 11 and 18

Artifact	H2	H4	H6	H10	H11	H18	Total
Abrader	40	48	6	18	31	39	182
Whetstone	2	6	1	0	2	16	27
Pumice	0	0	2	0	0	1	3
Axe	0	0	1	0	1	0	2
Biface	253	199	85	152	77	70	836
Dart	1	15	12	1	8	2	39
Endblade	398	268	227	204	301	356	1754
Projectile Point	0	0	0	0	0	1	1
Sideblade	1	1	0	1	4	0	7
Blade-like Flake	7	0	0	0	0	1	8
Microblade	782	408	588	526	585	804	3693
Core	428	382	128	187	260	352	1737
Hammerstone	17	6	1	1	3	13	41
Burin-like Tool	50	48	37	20	37	41	233
Amulet	9	5	18	7	8	27	74
Awl	16	2	2	8	14	11	53
Barbed Organic Point	6	8	10	2	3	13	42
Blunt Organic Point	5	2	10	7	2	8	34
Bodkin	1	0	1	0	0	2	4
Cube	0	0	31	0	0	21	52
Foreshaft	11	5	7	3	0	1	27
Handle	3	3	13	2	1	12	34
Harpoon Head	8	4	10	10	4	12	48
Ice Pick	0	1	0	0	0	0	1
Lance	1	0	1	0	2	4	8
Lancehead Foreshaft	0	1	1	0	0	0	2
Needle	2	1	35	5	7	17	67
Sharp Organic Point	7	5	17	4	7	5	45
Sled Runner	37	38	46	46	21	150	338
Toy Sled Runner	12	3	0	6	3	7	31
Whalebone 2x4	2	1	0	0	0	6	9
Organic Nontool	1	2	3	1	2	28	37
Preform	422	306	156	176	237	325	1622
End Scraper	582	276	194	283	344	338	2017
Side Scraper	15	13	9	11	18	11	77
Bevelled Slate Tool	42	33	22	39	5	11	152
Cats Tongue	17	7	8	4	10	3	49
Slate Pendant	2	0	1	0	0	1	4
Slate Point	2	2	6	0	2	4	16
Slate Scraper	2	0	0	1	3	17	23
Lamp Stand	0	0	0	0	0	16	16
Schist Bevelled Tool	2	4	4	1	1	1	13
Soapstone Bevelled Tool	2	1	1	2	0	1	7
Soapstone Lamp	11	2	23	2	25	45	108

Soapstone Pot	12	5	49	50	23	20	162
Soapstone Slab	6	0	1	1	1	0	9
Unidentified Artifacts	742	235	454	320	360	512	2623
Shatter/Raw Material	193	43	93	102	42	145	618
Total	4152	2389	2314	2203	2454	3470	16985

For the purpose of the second correspondence analysis conducted in this thesis nine activity categories were designated from the artifact types that were present in the dwelling assemblages. These categories are hunting, butchering, cooking/light, skin processing, sewing, lithic tool making, organic tool making, transportation, and games/toys.

The hunting category includes: endblades, harpoon heads, foreshafts, lances, lance head foreshafts, projectile points, darts, barbed organic points, blunt organic points, sharp organic points and slate points. These tools were used for hunting harp seals and other prey species.

The butchering category includes bifaces and microblades. These tools were quite sharp and would have been used for butchering. While microblades would have been used for other tasks it would be extremely difficult to differentiate those used for butchering from those used for cutting hides or other tasks. Therefore, for this analysis microblades have been included in a single category

The cooking and light category includes soapstone lamps and pots, lampstands and abraders. Abraders are included in the cooking/light category as they were interpreted by Harp (1964) as pot scrubbers. Based on their size and shape, and the fact that they are often covered in burned fat, it is believed that they were used to clean pots and lamps.

The skin processing category includes beveled slate tools, cats tongues, slate scrapers, end scrapers, side scrapers and awls. They have been included in this category as these tools would have been used to process seal skins. Awls have been included in this category as they may have been used to make holes in seal skins so they could be attached to a frame and stretched.

The sewing category includes needles, bodkins and certain amulets. Needles would have been for sewing and bodkins would have been used to pierce small holes in the skins being sewn. The amulets that have been included in this category had small holes gouged into them allowing them to be seen to items of clothing. Bodkins have been included in this category as they are often considered to be a special type of needle or used for making very fine holes in material.

The lithic tool making category includes hammerstones, cores, shatter and other pieces of raw material, preforms, whetstones and pumice. All of the artifacts included in this category were used to make stone tools or represent some stage of stone tool production.

The organic tool making category includes burin-like tools and concave side scrapers for working organic materials such as bone, ivory, antler and wood. A small number of amulets are included in this category as well. These amulets are generally three dimensional and have a slot grooved into them indicating that they were mounted on other hard artifacts.

The transportation category consists solely of sled runners. It is possible that sleds would have been used to transport goods from one site to another or they could

have been used to transport large numbers of seals back to the site during the spring seal hunt.

The final category, games/toys, includes toy sled runners and ivory cubes. It is believed that ivory and bone cubes found at the site were used as gaming pieces (Renouf pers. comm.) The categories and the tools included in each category are listed below in Table 4.2.

Table 4.2: Artifact Categories

1. Hunting	H2	H4	H6	H10	H11	H18	Total
Endblades	391	232	220	200	294	340	1677
Harpoon Heads	8	4	10	10	4	12	48
Foreshafts	11	5	7	3	0	1	27
Lances	1	0	1	0	2	4	8
Lance Head Foreshafts	0	1	1	0	0	0	2
Projectile Points	0	0	0	0	0	1	1
Darts	1	15	12	1	8	2	39
Barbed Organic Points	6	8	10	2	3	13	42
Blunt Organic Points	5	2	10	7	2	8	34
Sharp Organic Points	7	5	17	4	7	5	45
Slate Points	2	2	6	0	2	4	16
Total	432	274	294	227	322	390	1939
2. Butchering							
Bifaces	251	138	78	151	72	69	759
Microblades	782	408	588	526	585	804	3693
Total	1033	546	666	677	657	873	4452
3. Cooking and Light							
Soapstone Lamps	11	2	23	2	25	45	108
Soapstone Pots	12	5	49	50	23	20	159
Lampstands	0	0	0	0	0	16	16
Abraders	22	14	5	9	13	26	89
Total	45	21	77	61	61	107	372
4. Skin Processing							
Beveled Slate Tools	42	33	22	39	5	11	152
Cats Tongue	17	7	8	4	10	3	49
Slate Scrapers	2	0	0	1	3	17	23
End Scrapers	582	274	193	282	344	330	2005

Side Scrapers	11	12	9	9	2	2	45
Awls	16	2	2	8	14	11	53
Total	670	328	234	343	378	374	2327
5. Sewing							
Needles	2	1	35	5	7	17	67
Bodkins	1	0	1	0	0	2	4
Amulets	6	4	13	4	5	18	50
Total	9	5	49	9	12	37	121
6. Lithic Tool Making							
Hammerstones	17	6	1	1	3	13	41
Cores	428	382	128	187	260	352	1737
Shatter/Raw Material	193	43	93	102	42	145	618
Preforms	422	306	156	176	237	325	1622
Whetstones	2	6	1	0	2	16	27
Pumice	0	0	2	0	0	1	3
Total	1062	743	381	466	544	852	4048
7. Organic Tool Making/ Carving							
Burin-like Tools	48	41	31	20	36	41	217
Concave Side Scrapers	4	1	0	2	16	9	32
Amulets	1	1	1	2	3	5	13
Total	53	43	32	24	55	55	262
8. Transportation							
Sled Runners	37	38	46	46	21	150	338
9. Games/Toys							
Ivory Cubes	3	0	33	0	0	21	57
Toy Sled Runners	12	3	0	6	3	7	31
Total	15	3	33	6	3	28	88

4.4 Correspondence Analysis

Correspondence analysis was developed during the 1930s by Hirschfeld (1935). However, it only came to be used by archaeologists in the 1970s. Initially, it was popular amongst French archaeologists and had little influence outside France or Monaco (Baxter 1994). While Hill (1974) is the earliest English language publication

featuring correspondence analysis, it is the Scandinavian paper by Bølviken *et al* (1982) that popularized this statistical method in archaeology. Language barriers and the absence of the appropriate statistical software are cited as the primary reasons for the sluggish development of correspondence analysis in the archaeological literature (Baxter 1994).

Correspondence analysis is a graphical method of data analysis that displays the relationship between the rows and columns of a contingency table by deriving coordinates that represent the row and column categories (Greenacre 1993; Everitt and Dunn 1991). This technique takes any two variables (in this case artifact type and house) and plots them on a graph in a way that houses which contain 'more than expected' numbers of artifacts are plotted in the same part of the graph as that artifact, while ones with 'fewer than expected' are plotted in the opposite part of the graph providing an immediate impression of the data (Orton 1996). The following pages will describe how correspondence analysis is carried out and how the results are interpreted.

The chi-square statistic forms the basis of correspondence analysis. The chi-square statistic operates on the hypothesis of no association, that is, that there is no association between artifact types and the dwelling and that assemblages are not significantly distinct (Baxter 1994). Specifically, it compares the difference between the observed and the expected frequencies of artifacts in an assemblage (Baxter 1994). Observed frequencies are actual frequencies observed in an assemblage while expected frequencies are those calculated by the chi-square statistic under the hypothesis of no association (Baxter 1994). To calculate the expected frequencies (E)

the row total is multiplied by the column total and then divided by the overall total of the contingency table: E= (row total x column total)/overall total.

To conduct a correspondence analysis, one must first compile a contingency table. A contingency table consists of rows and columns, and in this case the columns are the houses, while the rows are the artifact types. The number in the cell indicates how many of each artifact type were found in each dwelling. Table 4.3 is an example of a contingency table; this table is analyzed using correspondence analysis and the results are presented below as an example of how the analysis is conducted and interpreted.

Table 4.3: Contingency Table

Artifact	H2	H4	H6	H10	H11	H18
Endblades	391	232	220	200	294	340
Amulets	9	5	18	7	8	27
Needles	2	1	35	5	7	17
End Scraper	582	274	193	282	344	330

The next step is to convert rows and columns to row profiles and column profiles. This is accomplished by dividing individual row or column values by the total value of the row or column (Baxter 1994). The purpose of calculating the row and column profiles is to make data comparable. For example, to calculate the row profile for amulets, the number of amulets per house is divided by the total number of amulets for all of the houses (Table 4.4). The column profile is calculated in the same manner with the number of each artifact type per house being divided by the total number of artifacts per house.

Table 4.4: Row Profiles for Amulets

Artifact	H2	H4	H6	H10	H11	H18	Total
Amulet	9	5	18	7	8	27	74
Row Profile	0.12	0.07	0.24	0.09	0.11	0.36	1

Once the profiles have been calculated and rows and columns have been made more comparable, the distance between rows and columns is defined through the use of the chi-square statistic. The chi-square statistic measures the discrepancy between the observed frequencies in a contingency table and the expected frequencies calculated under a hypothesis of homogeneity of the row profiles (Greenacre 1993). Therefore if the function of each dwelling was the same it would be expected that the artifact (row) profile for each dwelling would be the same (Erwin 1995). Because each dwelling has a unique artifact profile, the chi-square statistic is used to determine the actual difference in the artifact profiles. This is achieved by the chi-square statistic measuring how different an individual artifact profile is from the average artifact profile (Greenacre 1993).

The results of correspondence analysis are displayed in bi-plots which illustrate the differences between artifact profiles. In correspondence analysis, the artifact profiles are multi-dimensional but are represented in two-dimensions. For example, when the frequencies of six types of artifacts are compared for any number of dwellings, there are six dimensions. Therefore the number of rows in a contingency table is equal to the number of dimensions. A reduction in the number of dimensions is required and can be described as a flattening of the multi-dimensional

profile in order to fit into two-dimensions (the bi-plot) (Greenacre 1993). This reduction in dimensions also results in a reduction of information and inaccuracy in the bi-plot, but is necessary in order to compare artifacts and houses in a comprehensible manner. This loss of information is measured according to the amount of information contained within the components or axes that are displayed in the bi-plot (Greenacre 1993). This information contained within the axes is called inertia and it is what accounts for how rows differ from the average artifact profile (Baxter 1994). Inertia is calculated from the mass of rows and columns. Row and column masses are calculated from row and column profile. Essentially, mass represents how much a row or column contributes to the assemblage as a whole (Shennan 1997). A bi-plot is considered a good representation of the data if the total inertia from the first two axes make up a high percentage of the total inertia. In the following analyses, accuracy is expressed as the percentage of information contained within the first two components or axes. In the bi-plot below (Figure 4.3) the first component or axis accounts for 89.7% of the inertia while the second component or axis accounts for 7.7% of the inertia. In total the bi-plot represents 97.4% of the inertia resulting in a high degree of accuracy.

In addition to bi-plots, correspondence analysis also produces row plots and column plots. Row plots compare artifacts, while column plots compare dwellings. Row plots illustrate which rows differ the most from the average profile and what the nature of this difference is. Rows that differ from the average profile in a comparable fashion should appear in similar locations on the plot. Figure 4.1 is the row plot generated from Table 4.3. It can be seen from the position of the artifact types that

endblades and end scrapers do not differ much from the average profile while amulets differ somewhat from the average profile and needles differ greatly. The position of an artifact class on the row plot in relation to the positions of the dwellings on the column plot (Figure 4.2) identifies which variables and in which direction the observed values differ from those to be expected if rows (artifacts) did not differ significantly. The column plot indicates that Houses 2, 4, 10 and 11 have similar artifact profiles and this is determined due to their clustering in the same region of the plot. However, Houses 6 and 18 appear as outliers with House 6 in the same area of the column plot as needles are in the row plot and House 18 is in the same area of the column plot as amulets are in the row plot. This indicates that the number of needles in House 6 and the number of amulets in House 18 differ significantly from the average profile.

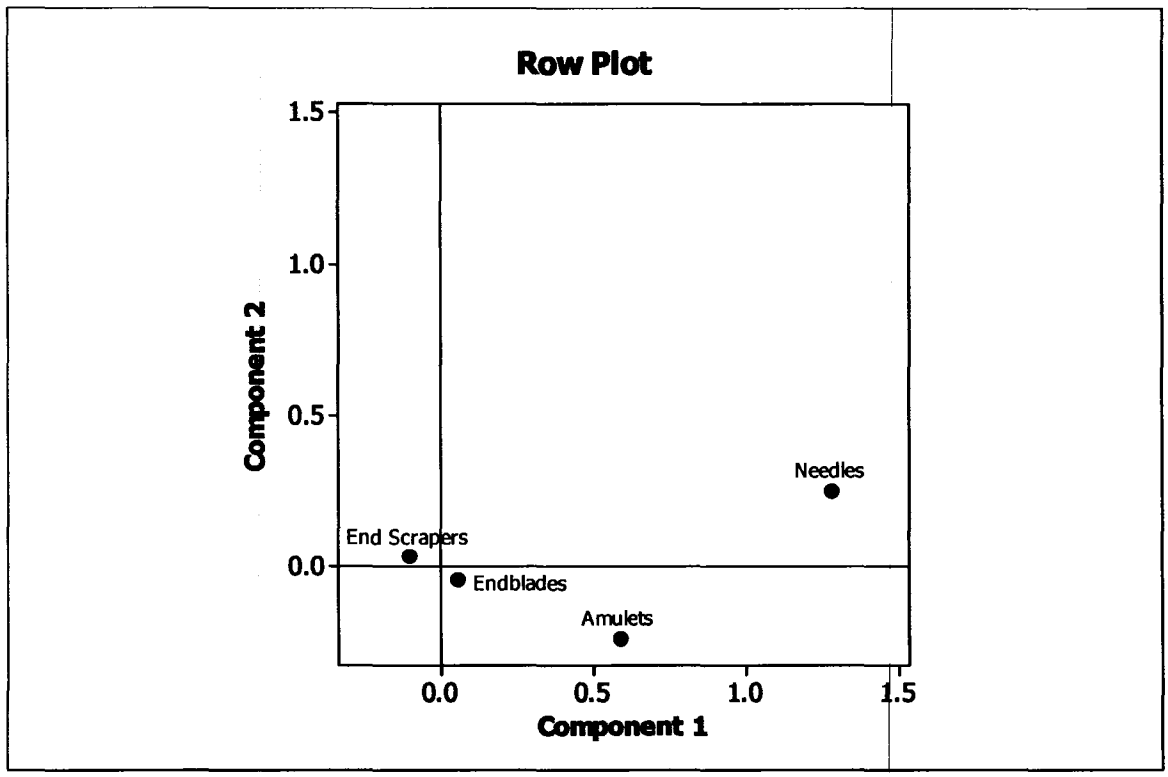


Figure 4.1 Example Row Plot

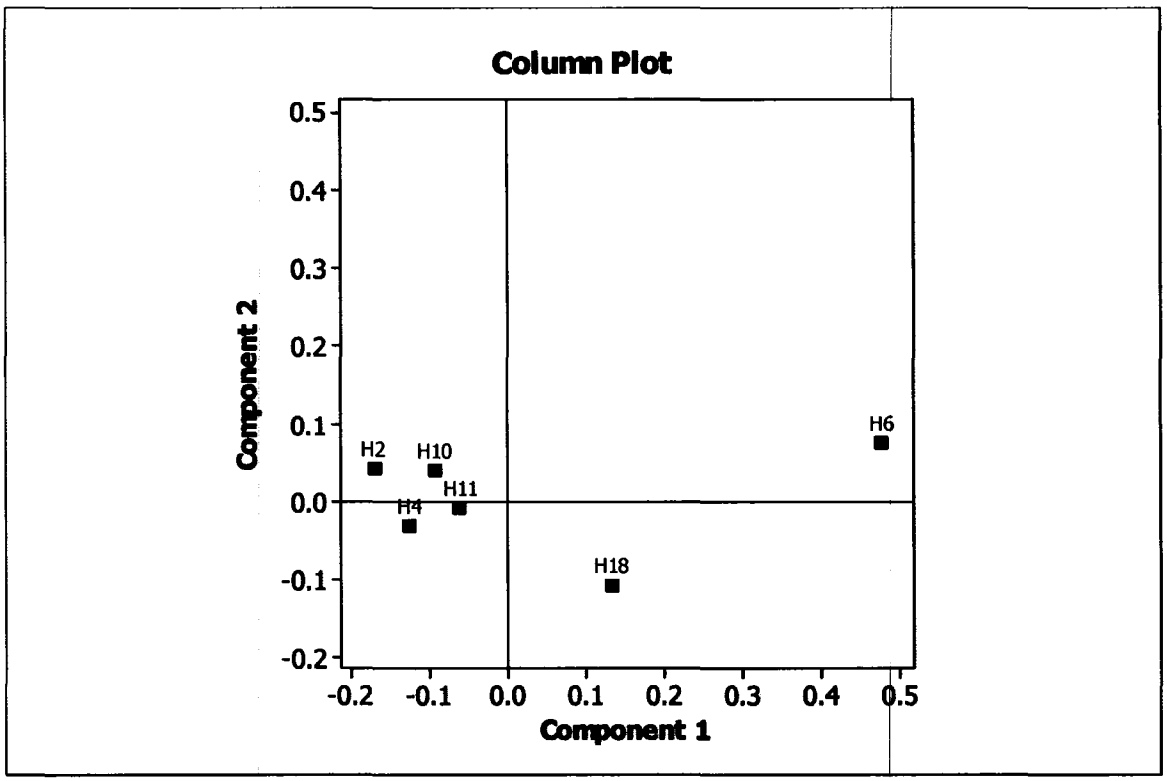


Figure 4.2 Example Column Plot

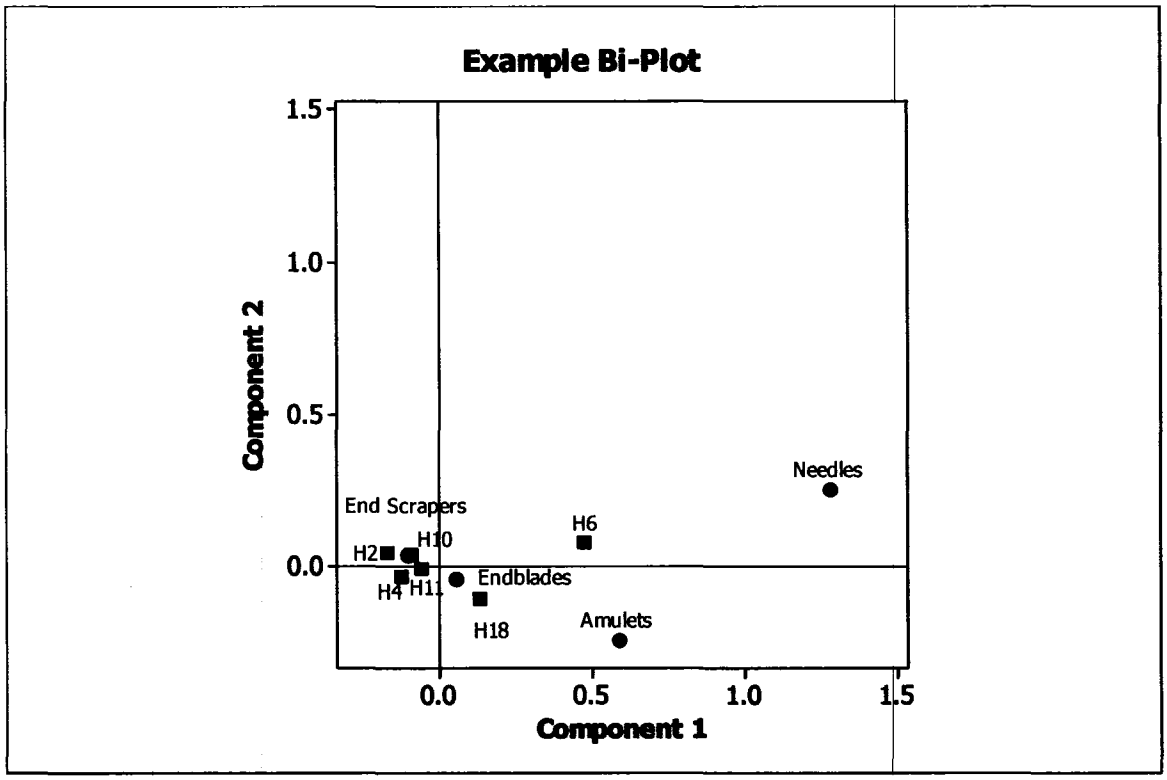


Figure 4.3 Example Bi-Plot

Figure 4.3 is a bi-plot created from Table 4.3. The interpretation of bi-plots is based on the distance of both row and column profiles from the origin; the farther a point is from the origin, the more different that artifact (row profile) is from the average artifact profile. The distance between artifact types indicates how different artifact types, or row profiles, are from each other. The interpretation of houses, or column profiles, is based on the same principles of distance from the origin. Therefore, when interpreting the relationship between houses (column profiles) and artifacts (row profiles), it is based on comparing their relative distance from the bi-plot's origin. Houses 2, 4, 10, and 11 all cluster between endblades and end scrapers indicating that these dwellings are similar. House 6 appears as an outlier and is different from the other dwellings. In correspondence analysis, outliers are artifacts

which have significantly different row profiles from the average profile. Dwellings which appear close to artifact outliers are considered to be pulled towards the point indicating a strong attraction between the artifact and the dwelling. House 6 contained 35 needles, the most needles of any dwelling, and is closer to needles on the bi-plot because of this. The position of House 18 on the bi-plot, close to endblades (n=340) but with some pull towards amulets (n=27), indicates that while the dwelling is most closely associated with endblades, the number of amulets is large enough to produce a weak pull or attraction.

In the following analysis of middle phase dwellings at Phillip's Garden, correspondence analysis is used to simplify the artifact assemblages and determine if any meaningful patterns exist between the dwellings. This analysis will indicate the range of activities occurring at the site during the middle period and whether or not there may have been dwellings with specialized functions. Dwellings which had similar functions will have similar artifact assemblages and will cluster in the same area of a bi-plot. When the row plot and column plot are merged together forming a bi-plot, the function of dwellings is interpreted from the position of dwellings relative to the artifact types they are associated with.

The artifact assemblages chosen for this analysis are from Houses 2, 4, 6, 10, 11, and 18; these are fully excavated, middle phase dwellings. Two correspondence analyses were conducted using MINITAB 14.2. The first analysis was conducted using all 54 artifact categories while the second was conducted using functional groupings of artifacts. The assemblages were divided into nine groups including

hunting, butchering, cooking/light, hide processing, sewing, lithic tool making, organic tool making, transportation, and games/toys.

The first analysis was conducted using the 54 artifact types identified in the assemblages and the results are presented in Figures 4.4-4.6. Figure 4.4 is the symmetric plot, also known as a bi-plot. At first glance the bi-plot appears to be rather jumbled making interpretation difficult. The reason for the bi-plot's jumbled appearance is due to the fact that the first two axes accounted for only 65.4% of the total inertia. This percentage is relatively low as the remaining 34.6% of the inertia comes from three other axes. Therefore, in this analysis a large proportion of information is lost and the plot should be considered with caution.

When examining the bi-plot it should be noted that it seems to indicate limited variation between the artifact assemblages as most of the points are concentrated around the origin. However, as can be seen in Figure 4.4, a number of points have been placed in the outlying areas of the bi-plot; list. As there are no dwellings associated with these points in the outlying areas the "pull" or "attraction" is interpreted as being weak. This weakness results from the low frequencies in relation to other artifact categories which have higher frequencies; endblades, scrapers and microblades (see Table 4.1). This is an indication of CA and its associated bi-plots being biased towards cells in a contingency table with higher frequencies. Therefore, dwellings are pulled towards the centre of the plot as the differences between the "expected" and "observed" frequencies are normally small within artifact categories with high frequencies. This diminishes the relative significance of artifact categories which appear in the outlying areas of the bi-plot. Such a bias toward high frequency

artifact categories can be problematic if an artifact category with a low frequency is relevant to the interpretation of dwelling function.

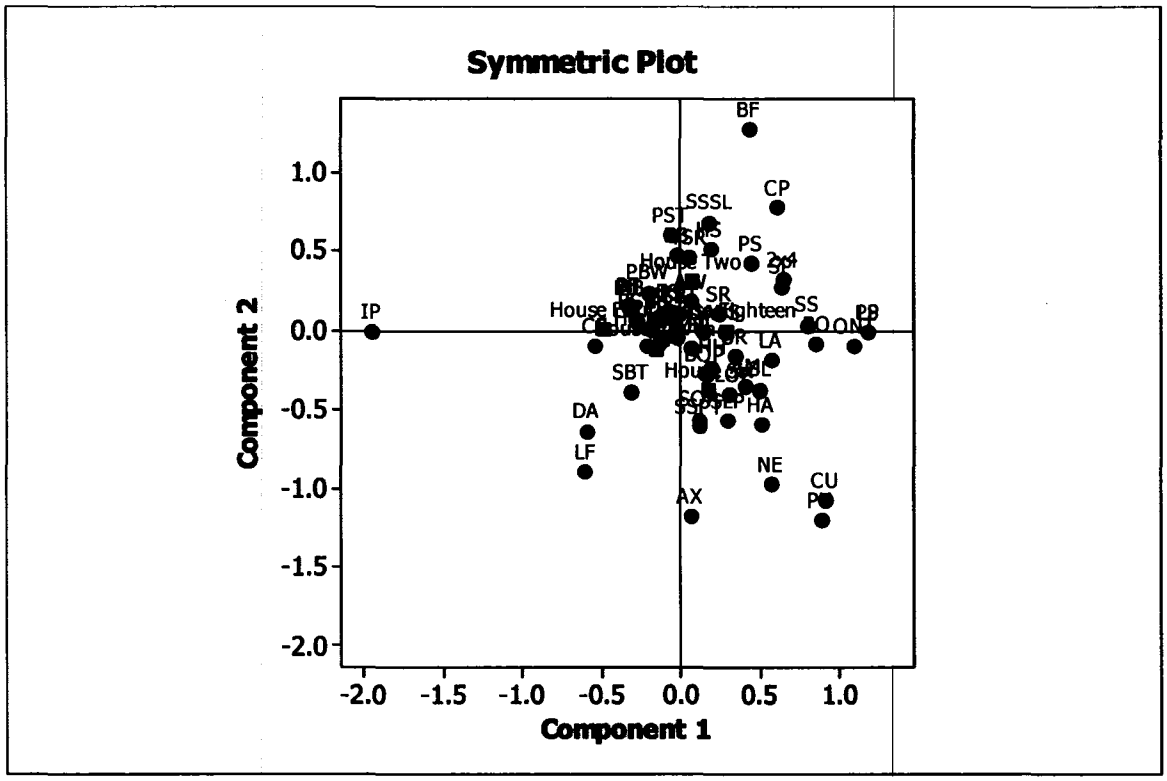


Figure 4.4 Bi-plot results for 54 artifact types

Legend

AB- abrader
WS- whetstone
PU- pumice
AX- axe
BF- biface
tool
DA- dart
EB- endblade
PP- projectile point
BLF- blade-like flake
MB- microblade
CM- core microblade
BLOP- blunt organic point
CU- cube
FS- foreshaft
HA- handle
HH- harpoon head
IP- ice pick
LA- lance
LF- lance head foreshaft
NE- needle
SOP- sharp organic point
SR- sled runner
SP- slate pendant
SLP- slate point
SSC- slate scraper
LS- lamp stand
SBT- soapstone beveled
SSBT- schist beveled tool
SL- soapstone lamp
SPT-soapstone pot
SSL- soapstone slab
PB- preform biface
PEB- preform endblade

CF- core flake
CP- core frag/primary flake
SR- shatter/raw material
HS- hammerstone
BLT- burin-like tool
AM- amulet
AW-awl
BOP- barbed organic point
TSR- toy sled runner
2x4- whalebone 2 x 4
BO- bodkin
ONT- organic non-tool
ES- end scraper
SS- side scraper
BST- beveled slate tool
CT- cats tongue
PS- preform scraper
PST- preform slate tool
PU- preform unknown
UA- unidentified artifact
PBW- preform bifacially worked

To begin my interpretation, I will first look at the artifacts (row profiles). In the bi-plot in Figure 4.4, many artifact types cluster around the origin but several artifact types appear as outliers. Those artifact types which are close to the origin are considered to have a row profile similar to the average profile. Dwellings that cluster near the origin do so because the differences between expected and observed frequencies of artifact types are normally small (Cool and Baxter 1999). However, artifact types (row profiles) which are outliers have a row profile dissimilar to the average profile. These outliers are often artifact types that have low frequencies and appear on the bi-plot in contrast to artifact types that have a higher frequency and are close to the origin (Cool and Baxter 1999). When a correspondence analysis is conducted using many categories with low frequencies the large number of outliers which occur are interpreted as "noise" (Bølviken *et al* 1982). This noise can be reduced and the results of the analysis made clearer by conducting the analysis using artifact categories (Bølviken *et al* 1982). Noise can often disguise the relative importance of outliers to the interpretation of dwelling function. Figure 4.5 is the row plot and illustrates the concept of noise.

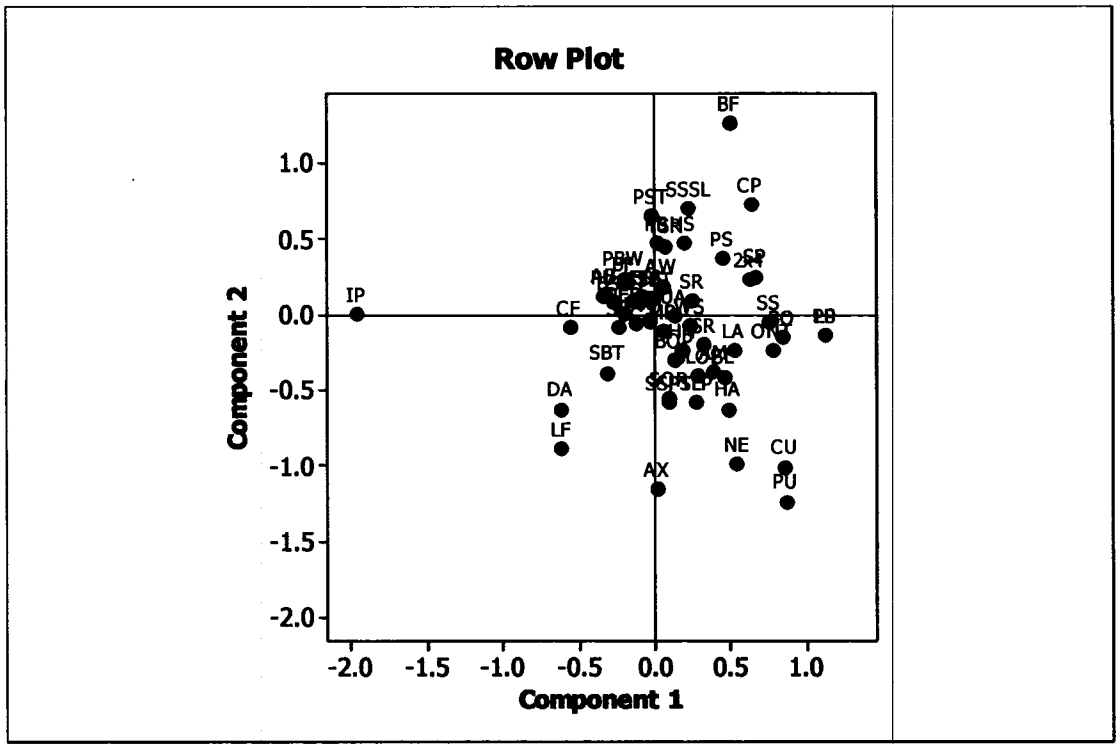


Figure 4.5 Row Plot

When the dwellings (column profiles) are considered, they all seem relatively close to the origin. What is particularly interesting about the position of the dwellings on the bi-plot is that only two of them cluster together while the other four seem to be each in their own area. This is more clearly illustrated by the column plot, when four of the dwellings appear as very distinct outliers.

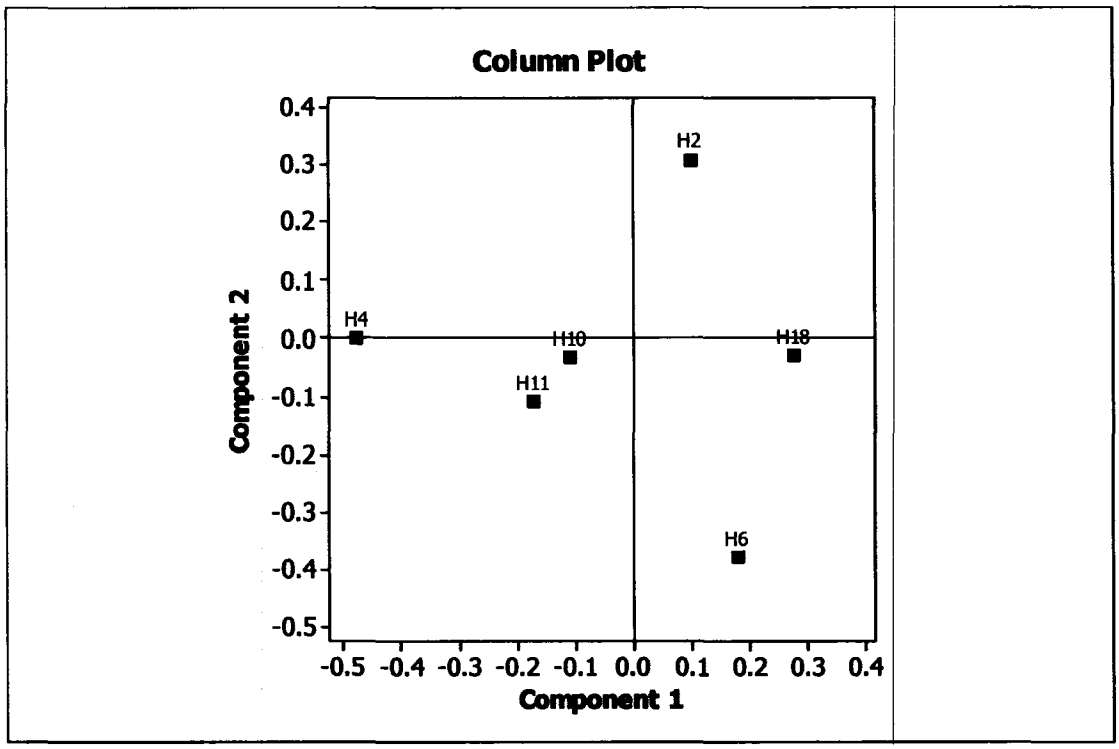


Figure 4.6 Column Plot

This suggests that while two of the dwellings had a similar function, four others possibly had different functions. To refine the analysis, the artifact types were assigned to nine different activity categories and a second correspondence analysis was conducted. The results of the analysis are based on the data presented in Table 4.2 and are displayed in Figure 4.9.

Figure 4.7 is the row plot generated by the second correspondence analysis. This bi-plot reveals that organic tool making is highly similar to the average artifact profile. The categories butchering and hunting are very similar to the average artifact profile, while lithic tool making and skin processing are moderately similar to the average profile. Cooking/light, sewing, games/toys, and transportation all appear as outliers. Upon closer inspection, while sewing and games/toys are outliers based on

their distance from the origin, their relative position to each other indicates that these artifacts are associated with each other. This relationship is clearly visible in Table 4.2, where the dwellings with a large number of sewing artifacts also have a large number of artifacts from the games/toys category.

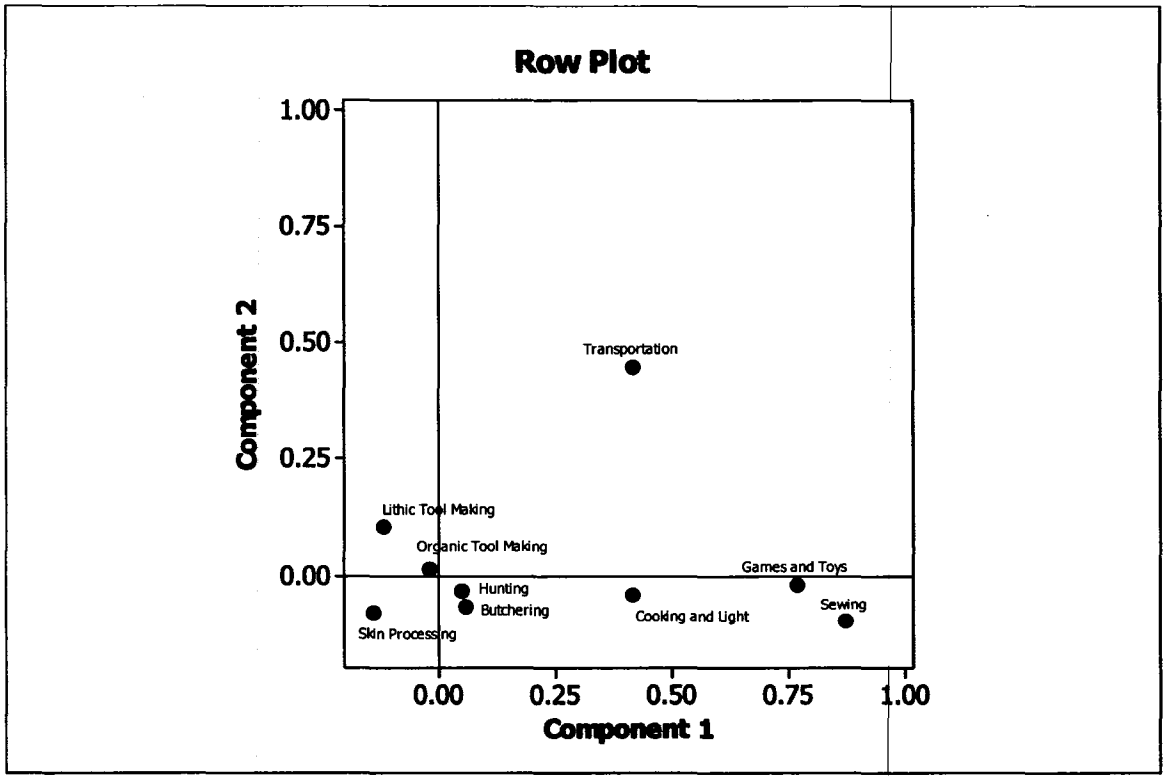


Figure 4.7 Row Plot for 9 Categories of Artifacts.

Figure 4.8 is the column plot for the second correspondence analysis. Houses 10 and 11 lie the closest to the origin indicating that they are the dwellings which most closely resemble the average column profile. Houses 2 and 4 are located farther away from the origin indicating that they differ moderately from the average column profile. Houses 6 and 18 are located the farthest away from the origin indicating that they are the most dissimilar from the average column profile. The results from the second correspondence analysis are presented in Figure 4.9.

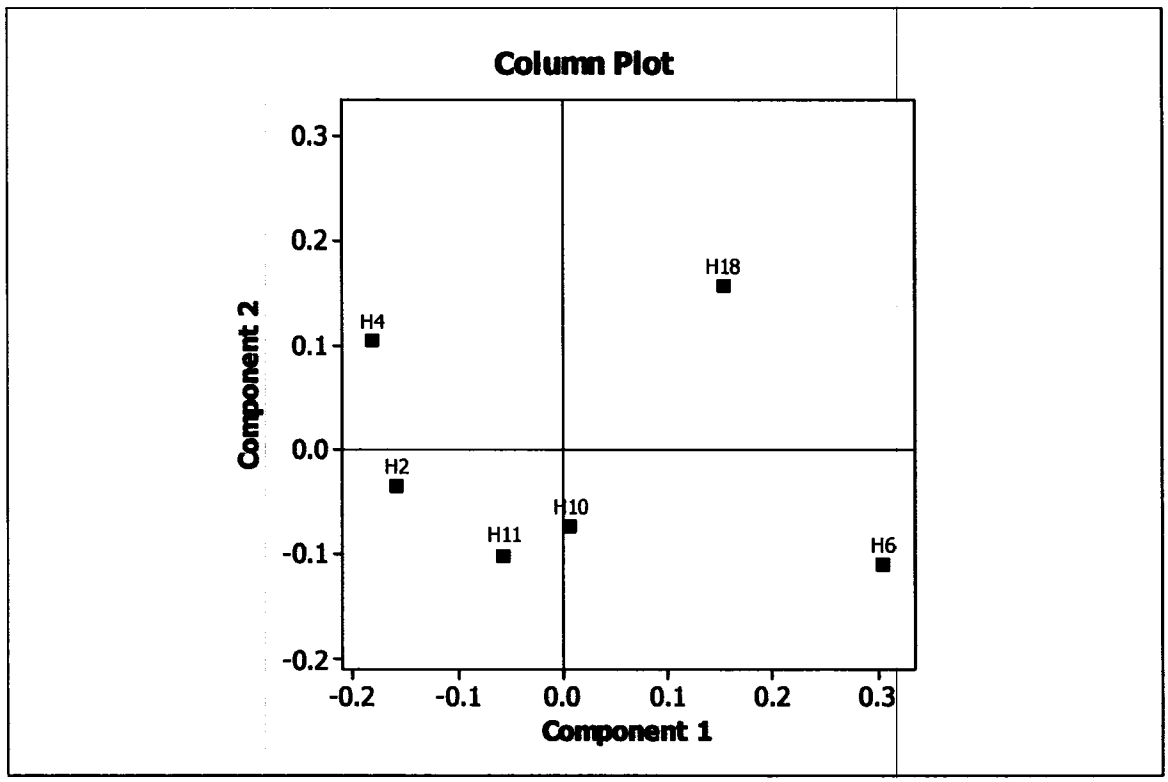


Figure 4.8 Column Plot for 9 Categories of Artifacts.

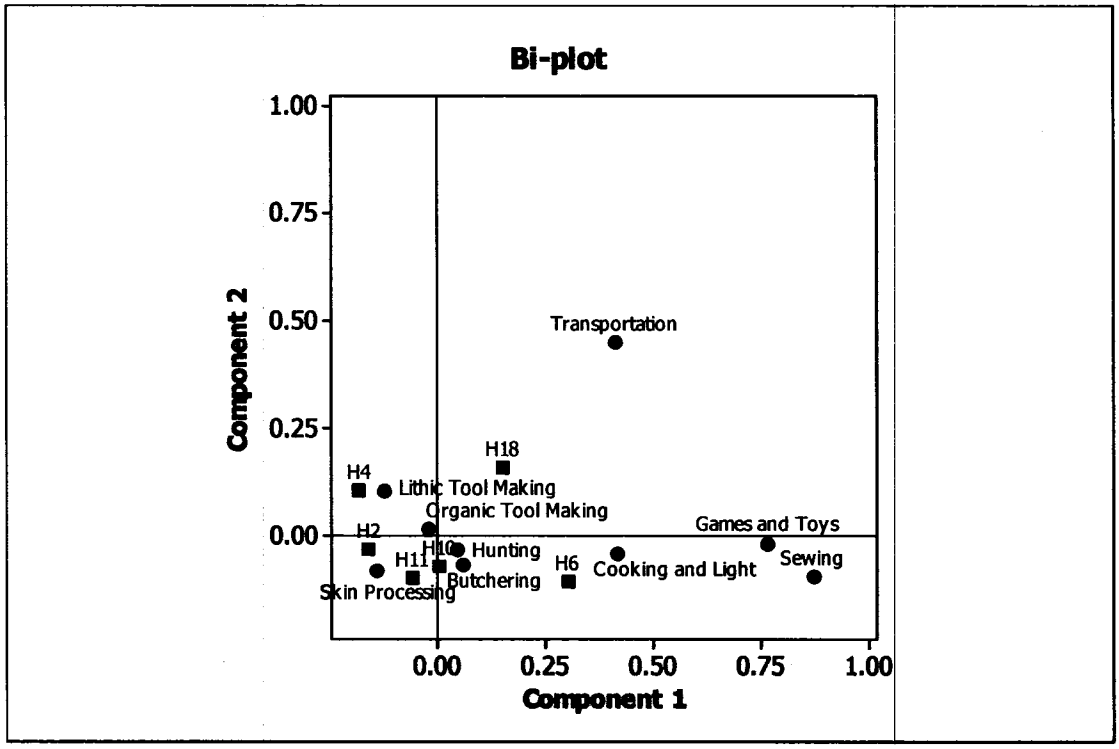


Figure 4.9 Bi-plot for 9 Categories of Artifacts.

When compared to the first plot Figure 4.6, Figure 4.9 is much more accurate as the first two components or axes account for 86% of the variation. The first component or axis accounted for 62% of the inertia while the second accounted for the remaining 24%. The bi-plot also gives a much clearer picture of the relationship between the dwellings and artifact categories allowing for the functional differences and similarities to be seen. In Figure 4.9 a wider range of variation between artifact categories exists and the dwellings are also more spread out.

Five of the artifact categories lie relatively close to the origin indicating that their profiles are more similar to the average artifact profile. The categories which lie close to the origin include lithic and organic tool making, hunting, butchering and skin processing. The remaining four categories, transportation, cooking/light,

games/toys and sewing, all lie at some distance from the origin. Transportation, games/toys, and sewing appear as outliers while cooking/light lies half way between the origin and games and toys. Houses 2, 4, 10 and 11 all lie relatively close to the origin and are closely associated with the artifact categories which are close to the origin. House 10 is most closely associated with the hunting, butchering and organic tool making categories. It is also in close proximity to the skin processing category. Based on its position on the bi-plot and its association with several artifact categories it is possible to interpret House 10 as a dwelling in which the occupants were focused on the hunting and butchering of seals. House 11 is located on the bi-plot mid-way between skin processing and butchering and lies relatively close to hunting. The occupants of this dwelling were conducting a wide range of activities but may have been focused on the butchering and skin processing activities. House 2 is located in the same area of the bi-plot as skin processing, indicating that the occupants of this dwelling may have been more focused on processing skins. House 4 is located in the same area of the bi-plot as lithic tool making, indicating that the occupants of this dwelling may have been more focused on lithic tool making. Houses 6 and 18 lie the farthest of any of the dwellings from the origin and are both located on the bi-plot in areas where they are not particularly associated with any specific artifact category. House 18 appears to be being pulled toward the transportation category. This is not surprising as House 18 had many more sled runners in comparison to the other dwellings, see Table 4.2. House 18 had almost three times as many sled runners as any of the other dwellings and begs the question; why so many sled runners?

To answer this question it must first be determined how sleds were used and, what they were used for. Few archaeological remains of Dorset sleds have been found other than sled shoes and sled runners. It has been suggested by many researchers that Dorset sleds were likely small, and pulled by hand (Harp 1964, Maxwell 1985, McGhee 1996). It is likely that sleds were used by the Dorset to transport items short distances during the winter months, when the ground was snow covered. At Phillip's Garden, sleds would have been particularly useful for transporting seal carcasses from where they had been killed back to the site to be butchered. As this would be the case for all of the dwellings, it is difficult to say why sled runners were so abundant in House 18. Figure 4.10 is a distribution map indicating where sled runner fragments were recovered during the 2005 excavations. From this map it is possible to determine that sled runners were commonly found near the edges of the excavation area. This distribution is not unexpected as sleds would have been kept and repaired outdoors. Broken segments of sled runners should be found either outside or on the very edges of the living area as the debris from repairs would have been left outside. In turn this debris could have become mixed with the debris from the edge of the dwelling deposit when the dwelling was dismantled. While the distribution map is useful in determining why the sled runner fragments are located in such a manner it is not useful in determining why so many sled runner fragments were found in House 18.

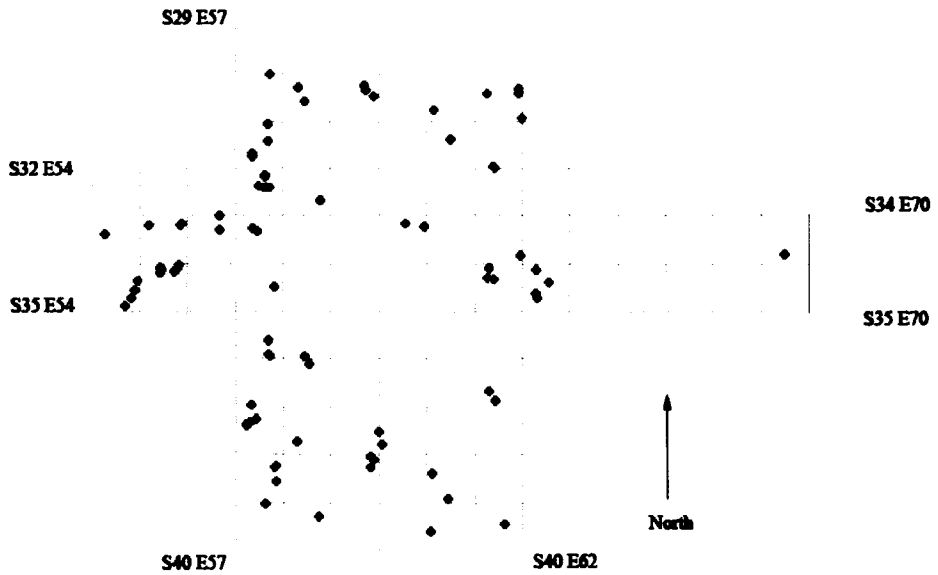


Figure 4.10 Distribution map indicating where sled runners were found. (Drafted by the PACAP)

House 6 is being pulled towards cooking/light, games/toys and sewing and is located on the bi-plot nearest to the cooking/light category. The pull towards games/toys and sewing is not unexpected due to the large number of ivory cubes or gaming pieces and large number of needles (Table 4.2). It is likely that House 6 may have been used by the occupants for mostly sewing purposes. If this is the case then why the proximity of House 6 to the cooking/light category? The logical explanation is that sewing would have required a lot of light and 23 artifacts have been identified as lamps or portions of lamps from this dwelling (Table 4.2).

4.5 Summary

This chapter examined the artifact assemblages of six fully excavated middle phase dwellings to determine if there were dwellings with specialized functions. The raw data presented in Table 4.1 suggests that all of the dwellings contained the same artifact types and thus likely had similar overall functions. Through the use of correspondence analysis, it was demonstrated that some of the dwellings had slightly different functions or they may have each had a particular focus. This idea will be further explored in Chapter 5.

Chapter 5: The Middle Phase

5.1 Introduction

This chapter focuses on the middle phase at Phillip's Garden and how the re-excavation of House 18 and two other middle phase dwellings has added to our interpretation of it. I will begin with an overview of the current interpretation of the middle phase architecture (Harp 1976; Erwin 1995; Renouf 2006) and the analysis of middle phase artifact assemblages (Erwin 1995) and analysis of faunal assemblages (Hodgetts 2005a, 2005b; Hodgetts *et al* 2003). This will be followed by a re-interpretation of the middle phase based on recent data recovered from three middle phase dwellings and an examination of artifact assemblages from six middle phase dwellings.

5.2 The Middle Phase at Phillip's Garden

The middle phase has been defined by Renouf (2006) as approximately 1550 cal BP and1350 cal BP. Much of what has been written about this phase has been based on Harp's publications and field notes. Between 1960 and 1963 he excavated or extensively tested 20 dwellings, many of which dated to the middle phase. Before discussing the middle phase, it is important to address site development through time in order to understand the differences between the occupation phases.

Site development was first addressed by Harp (1976) by analyzing radiocarbon dates from 13 dwellings at the site. Harp (1976) analyzed the dates using a procedure known as line scanning. To conduct the analysis a straight edge was

placed along the graph (Figure 5.1) and moved upwards along the time axis to determine which dwellings could have been occupied at the same time.

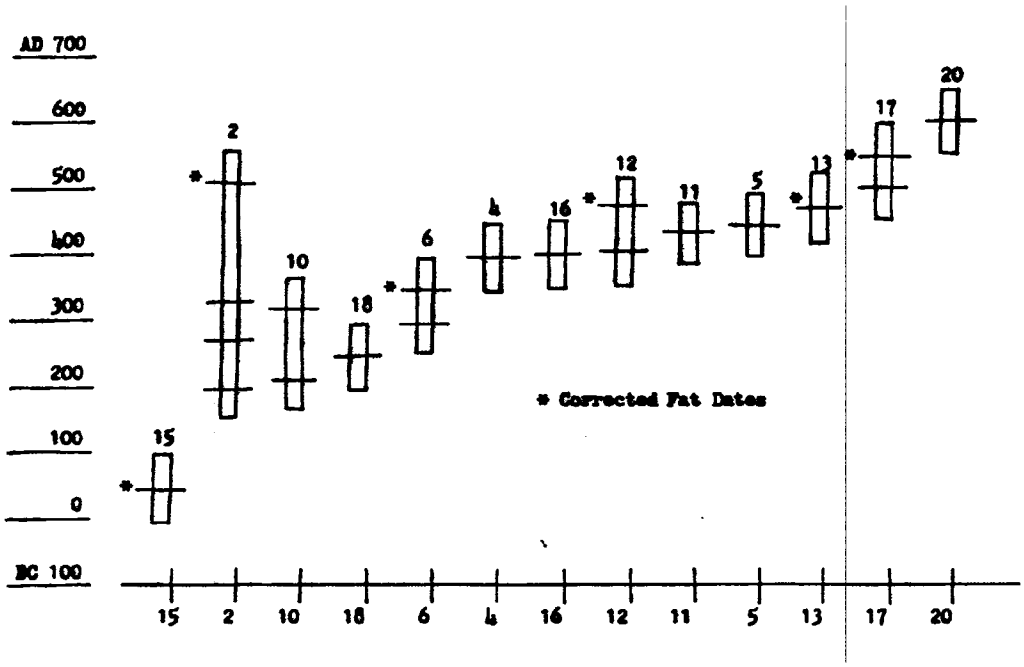


Figure 5.1 Graph used in line scanning analysis (Adapted from Harp 1976)

The results of Harp's (1976) line scanning analysis are presented in Figure 5.2. This analysis indicates that site development was characterized by an initial period of growth, followed by a period of maturation, and finally the site entered a period of decline and eventual abandonment (Harp 1976).

Period	Duration in Years	Houses Excavated	House Numbers	Total Houses Extrapolated
6 B.C.-A.D. 96	102	1	15	1.8
A.D. 96-A.D. 147	43	0		
A.D. 147-A.D. 170	23	1	2	1.8
A.D. 170-A.D. 196	26	2	2, 10	3.6
A.D. 196-A.D. 248	52	3	2, 10, 18	5.4
A.D. 248-A.D. 294	46	4	2, 10, 18, 6	7.2
A.D. 294-A.D. 336	42	3	2, 10, 6	5.4
A.D. 336-A.D. 347	11	4	2, 10, 6, 4	7.2
A.D. 347-A.D. 355	8	5	2, 10, 6, 4, 16	9.0
A.D. 355-A.D. 364	9	6	2, 10, 6, 4, 16, 12	10.8
A.D. 364-A.D. 388	24	5	2, 6, 4, 16, 12	9.0
A.D. 388-A.D. 391	3	6	2, 6, 4, 16, 12, 11	10.8
A.D. 391-A.D. 396	5	5	2, 4, 16, 12, 11	9.0
A.D. 396-A.D. 414	18	6	2, 4, 16, 12, 11, 5	10.8
A.D. 414-A.D. 444	30	7	2, 4, 16, 12, 11, 5, 13	12.6
A.D. 444 A.D. 453	9	6	2, 16, 12, 11, 5, 13	10.8
A.D. 453-A.D. 454	1	5	2, 12, 11, 5, 12	9.0
A.D. 454-A.D. 482	28	6	1, 12, 11, 5, 12, 17	10.8
A.D. 482-A.D. 494	12	5	2, 12, 5, 12, 17	9.0
A.D. 494-A.D. 521	27	4	2, 12, 13, 17	7.2
A.D. 521-A.D. 526	5	3	2, 13, 17	5.4
A.D. 526-A.D. 560	34	2	2, 17	3.6
A.D. 560-A.D. 561	1	1	17	1.8
A.D. 561-A.D. 601	40	2	17, 20	3.6
A.D. 601-A.D. 659	58	1	20	1.8

Figure 5.2 Results of line scanning analysis. (Adapted from Harp 1976)

Harp's (1976) analysis demonstrated that the site may have been initially occupied by a single dwelling, House 15. However, based on radiocarbon dates from Features 1 and 14 it is likely that the occupation at Phillip's Garden initially consisted of a small number of dwellings. An increase in population occurred gradually over time and Phillip's Garden was most intensely occupied during the middle phase (Harp 1976). Dwelling contemporaneity was difficult to determine and Harp (1976: 121) suggested, based on analysis of radiocarbon date overlap, that a "theoretical

maximum" of twelve houses was reached around 1600 BP. Eventually, the site was abandoned for unknown reasons.

Based on Harp's (1976) assessment of architectural remains at the site he concluded that dwellings during the middle phase were large substantial structures. These large dwellings required a large investment of time to construct and that they were built to a cultural standard (Harp 1976).

Research conducted by Erwin (1995) substantiated Harp's hypothesis of site development through time. Erwin (1995) conducted three tests to establish dwelling contemporaneity and site development through time; pair-wise testing, a comparison to fixed age, and a comparison of longevity. The first two tests were based on the t-test and indicated whether or not the differences between the radiocarbon dates were real or the result of a statistical error (Erwin 1995). The results of these tests were useful in determining which dwellings were possibly contemporaneous (Erwin 1995). The third test, a comparison of longevity was based on comparing radiocarbon dates to fixed ages with assumed reoccupation intervals (Erwin 1995). This test was useful in determining the actual number of contemporaneous dwellings at the site (Erwin 1995). These tests identified a general trend in occupation at the site; an initial period of slow growth with an increase in site usage around 1650 BP, followed by a decrease around 1300 BP and eventual abandonment.

Further analyses conducted by Erwin (1995) indicated a change in dwelling architecture through time. In examining dwellings at the site Erwin (1995) employed a method of analysis for assessing architectural change in Iroquoian long houses. This method, developed by Kapches (1990), was based on the identification of

structural elements and a comparison of these elements and over-all dwelling area. Following Kapches (1990), Erwin's (1995) analysis began by categorizing structural elements of dwellings based on their relative permanence. The exterior wall is considered by Kapches (1990) to be the most permanent structural element and within the wall she identified three categories of internal variables: temporary structural variables which include storage and refuse pits; semi-permanent variables which include hearths; and permanent structures including partitions and benches which determine how the dwelling is organized and its function. Changes in semi-permanent and permanent structural elements are considered to be primary indicators of long term social, cultural and economic change as the principle components of a dwelling's design, construction and the interior organization of space (Erwin 1995; Kapches 1990). These changes likely reflect changes in function, technology, the availability of raw materials, social organization and cultural tradition (Erwin 1995; Kapches 1990). From this analysis Erwin (1995) determined that the dwellings from Phillip's Garden underwent change through time. Based on ratios of organized space compared to over-all dwelling area it was determined that dwellings from the early and late phases had a higher ratio of organized space to over-all dwelling area and dwellings from the middle phase had a lower ratio of organized space to over-all dwelling area (Erwin 1995). These ratios led Erwin (1995) to conclude that dwellings during the middle phase of occupation were less permanent and less substantial; that these dwellings had less clearly defined internal structure. Dwellings from the early and late phases of occupation were more permanent. This analysis of dwelling construction differs from Harp's (1976) and Renouf's (2006) interpretation of

dwellings at the site. These differing results are likely due to the application of an inappropriate method of analysis by Erwin (1995).

In his final analysis of dwellings at Phillip's Garden Erwin (1995) determined through the use of correspondence analysis that dwelling function varied through time at the site. Erwin's (1995) correspondence analysis was conducted using five categories of artifacts: procurement, processing, fabrication, tool making and soapstone. The artifact frequencies for Houses 2, 4, 5, 6, 10, 11, 12, and 17 were calculated from Harp's field notes; artifacts were identified by individual excavators in the field. Artifact frequencies for Features 1, 14 and 55 were obtained from the Port au Choix Archaeology Project data base (The artifact frequencies and artifact categories are presented in Figure 5.3).

Frequency of Artefact Types by House and Function

Houses	F1	F14	F55	H10	H11	H6	H5	H17	H2	H4	H12
1. Procurement											
Endblade	53	82	60	236	342	277	42	331	212	342	232
Sideblade	0	0	1	0	0	0	0	0	0	0	0
Sled Runner	34	35	8	54	13	37	15	49	18	56	45
Harpoon Head	0	3	0	33	17	35	3	78	187	60	25
Foreshaft	1	12	0	26	25	31	8	19	27	13	27
Ornamentation	2	6	7	9	5	17	0	17	4	14	17
Point	0	4	0	4	1	0	0	10	0	7	1
Haft	0	1	3	1	0	5	0	0	0	0	3
Lance	0	1	5	0	0	0	0	5	0	6	0
Total	**90**	**144**	**84**	**363**	**403**	**402**	**68**	**509**	**448**	**498**	**350**
2. Processing											
Utilized Flake	46	46	90	180	253	149	28	337	277	174	176
Microblade	75	51	155	561	929	556	45	551	675	390	367
Axe/Adz	0	0	0	1	1	0	0	0	7	0	0
Biface	22	8	88	128	267	62	11	229	241	345	206
Scraper	28	43	18	233	308	162	28	433	404	337	204
Ground Slate	16	14	11	105	108	106	13	160	175	115	124
Total	**187**	**162**	**362**	**1208**	**1866**	**1035**	**125**	**1710**	**1779**	**1361**	**1077**
3. Fabrication											
Burin-like Tool	8	11	7	15	50	24	4	50	29	0	21
Graver/Awl	0	0	1	0	0	0	0	0	0	0	0
Carved Bone	7	33	51	74	118	316	18	343	145	194	167
Plug	1	2	6	0	0	36	0	0	0	0	0
Needle	0	1	0	6	3	39	3	21	2	3	6
Wedge	0	3	0	0	0	0	0	0	0	0	0
Other Tools	2	0	0	2	4	8	2	8	6	12	9
Total	**18**	**50**	**65**	**97**	**175**	**423**	**27**	**422**	**182**	**209**	**203**
4. Toolmaking											
Core	146	68	97	24	67	29	10	47	45	23	28
Hammerstone	0	3	5	2	3	2	0	14	17	5	0
Whetstone	0	0	1	0	0	0	0	1	0	1	0
Total	**146**	**71**	**103**	**26**	**70**	**31**	**10**	**62**	**62**	**29**	**28**
5. Soapstone											
Soapstone	14	83	106	243	181	201	13	413	408	195	165
Abrader	9	11	8	0	0	10	0	19	6	2	1
Total	**23**	**94**	**114**	**181**	**181**	**211**	**13**	**432**	**414**	**197**	**166**

Figure 5.3 Artifact categories and frequencies. (Adapted from Erwin 1995)

This data formed the basis of Erwin's (1995) correspondence analysis and from this specialized dwelling function was illustrated (Figure 5.4).

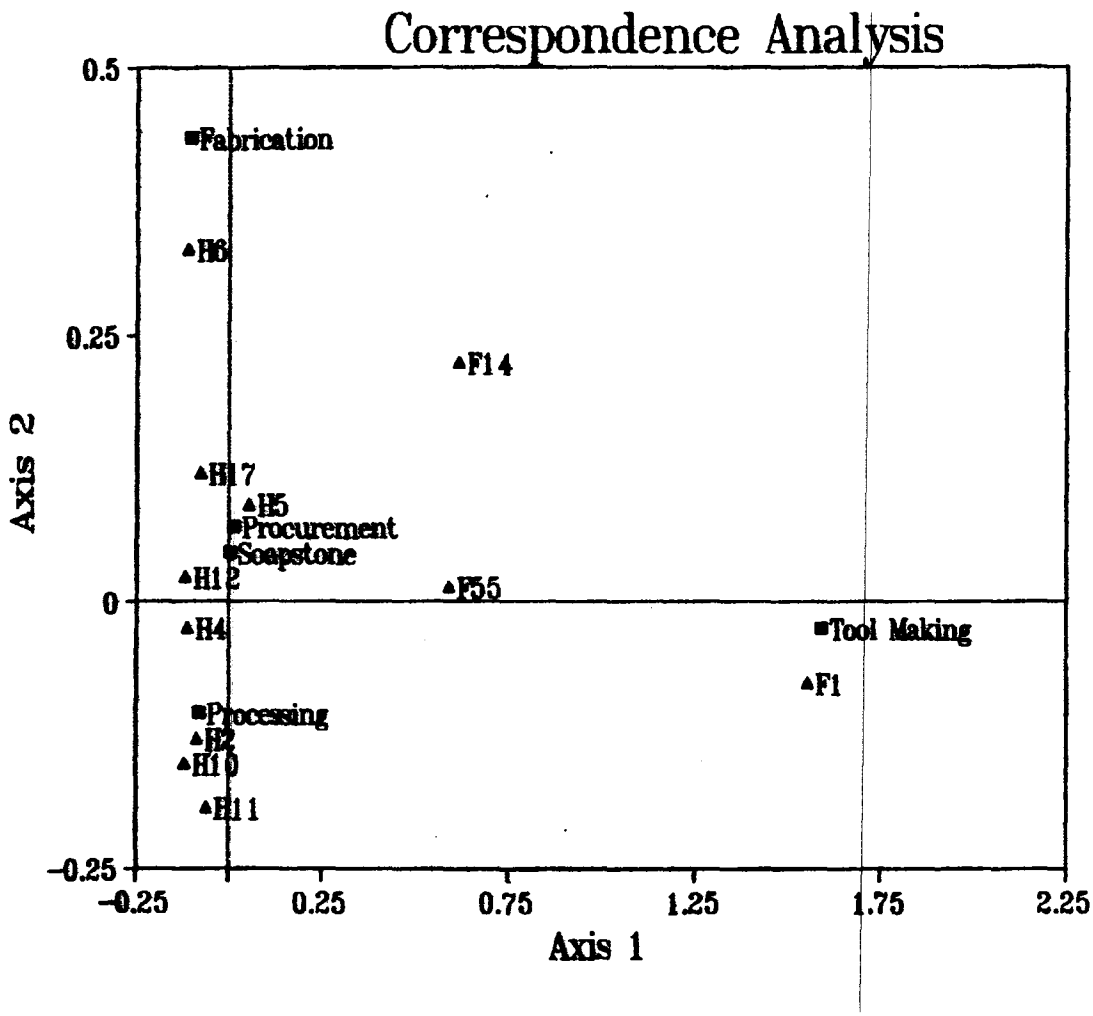


Figure 5.4 Bi-plot of Erwin's correspondence analysis. (Adapted from Erwin 1995)

Erwin (1995) determined that dwellings occupied during the middle phase were focused on procurement and processing activities, while dwellings from the early and late phases exhibited more diverse functions (Figure 5.5).

House Function Over Time

House	Functional Activity	^{14}C Date[1]
F14	Generalized	1942±56
F1	Toolmaking	1753±132
H2	Processing	1612±73
H6	Fabrication	1482±65
H10	Processing	1473±64
H4	Processing/Procurement	1465±65
H11	Processing	1372±41
H12	Processing/Procurement	1427±62
H5	Procurement	1367±44
H17	Procurement/Fabrication	1348±48
F55	Generalized	1327±62

Figure 5.5 Dwelling functions as derived by Erwin's correspondence analysis (Adapted from Erwin 1995).

Based on his analyses he was able to demonstrate that different activities were more predominant during different phases of occupation. He concluded that the initial occupation was characterized by a period of slow growth during which the occupants carried out a wide range of activities (Erwin 1995). This was followed by swift development and growth that resulted in a period of maximum dwelling contemporaneity during which the occupants were primarily involved with procurement and processing activities (Erwin 1995). The final centuries of occupation were similar to the initial centuries in that they were characterized by a decline in dwelling contemporaneity and an increase in the range of activities (Erwin 1995). Overall, Erwin (1995) concluded that during the middle phase dwellings were less permanent and less substantial and site function was specialized.

Erwin's model of site development was reinforced through recent faunal analyses (Hodgetts 2005a, 2005b; Hodgetts *et al* 2003). Hodgetts *et al* (2003) demonstrated that harp seal hunting was the primary economic focus during the site's

entire period of use. Midden deposits dating to the early and middle phases of the site contained between 96 and 99% seal remains compared to the midden deposits dating to the late phase which contained only 71% seal remains and greater proportions of fish (25%) and bird (4%) remains (Hodgetts *et al* 2003). This indicated that during the early and middle phases, the harp seal was a stable and reliable resource. During the late phase, the Dorset may have either occupied the site for longer periods during the year or the harp seal became less reliable (Hodgetts *et al* 2003). The data generated by Hodgetts *et al* (2003) supports Erwin's (1995) argument that site function changed through time, and that a wider range of procurement activities were occurring at different times during the site's occupation, particularly during the late phase.

Hodgetts (2005a, 2005b) also demonstrated that the occupants of the site actively hunted mature harp seals during the middle phase. Hodgetts (2005b) distinguishes mature seals as seals which are older than ten months. This distinction is made as 10 month old seals can be positively identified and indicate that they could only have been killed during the December hunt. Metric and epiphyseal fusion data indicated that during the middle phase the Dorset actively selected mature individuals (Hodgetts 2005a, 2005b). These seals were hunted during their early winter migration to the Gulf of St. Lawrence and again during the spring as the seals were returning northward. These data support Erwin's argument that the site had a specialized procurement/processing function during the middle phase of occupation (Hodgetts 2005a).

In summary, the middle phase has been interpreted as a period of maximum dwelling contemporaneity, and when the primary economic focus was the procurement and processing of mature harp seals (Harp 1976; Erwin 1995; Hodgetts 2005a, 2005b). During the middle phase Harp (1976) and Renouf (2006) have interpreted dwellings to be very substantial and permanent structures which were re-used over long periods of time. However, Erwin's (1995) analysis indicated that dwellings were less substantial and less permanent. It is likely that Erwin's results conflict with past and present interpretations as his method of analysis may have been inappropriate. The following section is concerned with interpreting the middle phase based on current research.

5.3 The Middle Phase: A Re-interpretation

The intent of the following section is to incorporate what is known about the middle phase with new data generated from the past two seasons of re-investigation of middle phase dwellings.

The middle phase of occupation at Phillip's Garden has been identified as approximately 1550-1350 cal BP (Renouf 2006). It was during this period that researchers have suggested that the site was occupied most intensely and the primary economic focus was harp seal hunting (Harp 1976; Erwin 1995). Faunal material from this phase indicates that the Dorset selected mature individuals and that they were hunted during both migrations past the site (Hodgetts 2005). Studies of architectural remains from the middle phase indicated that many dwellings were inhabited contemporaneously (Harp 1976; Erwin 1995). Harp's (1976) and Renouf's

(2006) analyses of middle phase dwellings indicated that they were very substantial and permanent structures whereas Erwin's (1995) analysis indicated that they were less substantial and less permanent.

During the 2004 and 2005 field seasons at Phillip's Garden, much more data was generated about dwellings from the middle phase and the nature of their construction. Much of this information has been presented elsewhere in the text but a brief summary is provided here. It was determined that middle phase dwellings were very large, substantial structures that required central support and underwent episodes of major structural renovation. The re-investigation of Houses 2, 10 and 18 revealed that the axial features were all very similar in nature and consisted of a stone-paved area abutted by two pits. In the case of House 2 and 18 these pits have been interpreted as postholes. The pits abutting the paved area of House 10 were not completely excavated; however it is likely that they were postholes. It is likely that these postholes would have held posts which would have provided central support to the dwellings (Renouf *et al* 2004). This re-interpretation of the pits associated with the axial feature as postholes for major structural support conflicts with the idea presented by Erwin (1995:100) that the dwellings of the middle phase were "less substantial." In fact, the presence of centrally located, load bearing postholes indicates that dwellings were likely at their most substantial and most permanent during the middle phase.

In addition to dwellings being at their most substantial they also reached their peak size during the middle period. House 2 measured 9.21 x 10.46 m, House 18 measured 11.6 m E-W by at least 8.9 m N-S (the southern extent is unknown as the

rear of the dwelling may not have been completely exposed) and House 10 measured 12.5 m E-W (north-south is unknown as time constraints did not allow for a north-south trench through the dwelling) (Renouf *et al* 2005; Cogswell *et al* 2006). The exterior footprint of House 2 was 94.1 m^2, House 18 was 103.2 m^2 and House 10 was likely in the same size range. The large size and the centrally located load bearing posts indicated that Houses 2, 10 and 18 are the most substantial dwellings currently known at the site. House 4, which was also dated to the middle phase and excavated by Harp, was very similar to the aforementioned dwellings (Figure 5.6).

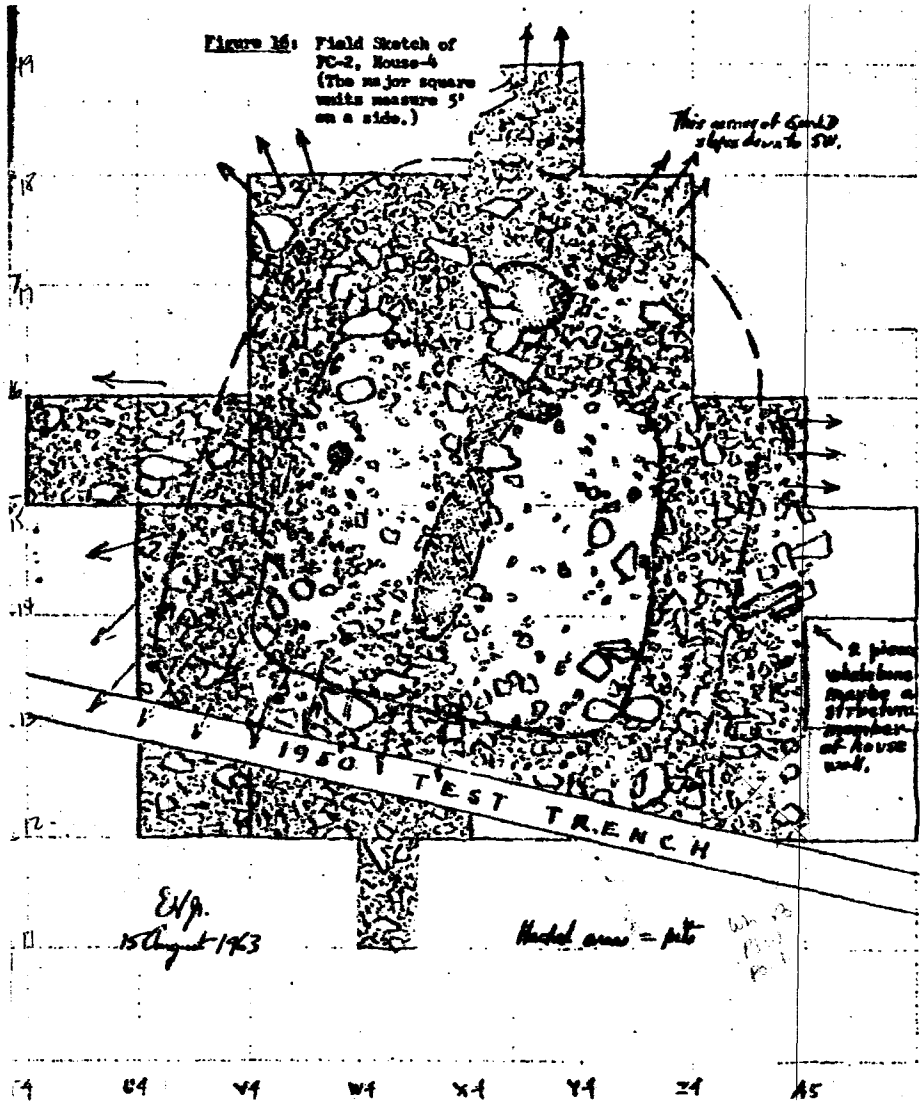


Figure 5.6 Sketch Map of House 4 (Adapted from Harp n.d.)

Figure 5.6 is a sketch map of House 4 indicating that the dwelling was quite large, rectangular in shape and consisted of a central depression surrounded by a limestone perimeter (Harp n.d.). In addition to Harp's sketch, his notes indicate that House 4 had an axial feature that consisted of a series of pits (Harp n.d.). Based on this information there is a possibility that House 4 contained an axial feature similar

to those noted in Houses 2, 10, and 18 and may have been supported by two large, centrally located load-bearing posts.

Based on sketch maps of Houses 6 and 11 it is possible that they deviated architecturally from the other middle phase dwellings. House 6 was oval in shape and the central depression was outlined by a concentration of stones (Harp n.d.). From the sketch (Figure 5.7) of the dwelling it appears that it is smaller than other dwellings excavated at the site and it contained four pits, two of which were confined to the western portion of the dwelling (Harp n.d.).

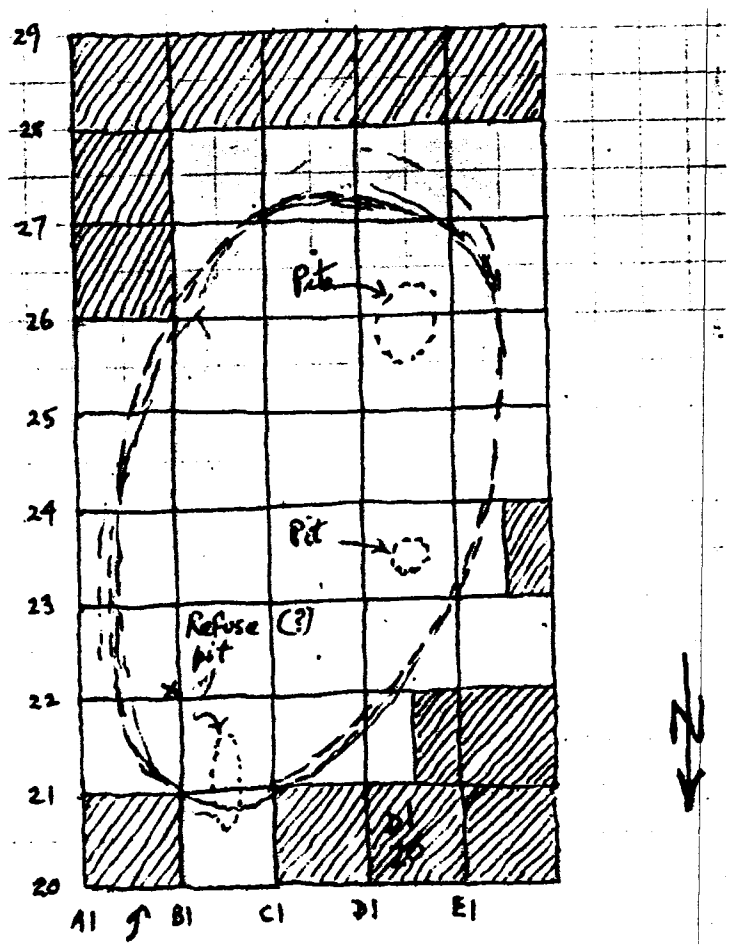


Figure 5.7 Sketch map of House 6 (Adapted from Harp n.d.)

Based on the sketch map (Figure 5.8) and field notes relating to House 11 it is difficult to determine the exact nature of the dwelling. It is likely that the dwelling was rectangular in shape and consisted of a depression that was surrounded by a stone perimeter to the east, south and west (Harp n.d.). In the north the wall area was not clearly defined. It is possible that this dwelling was smaller than others reported from the middle period and contained many pits; at least three along the southern perimeter and one in the centre of the dwelling.

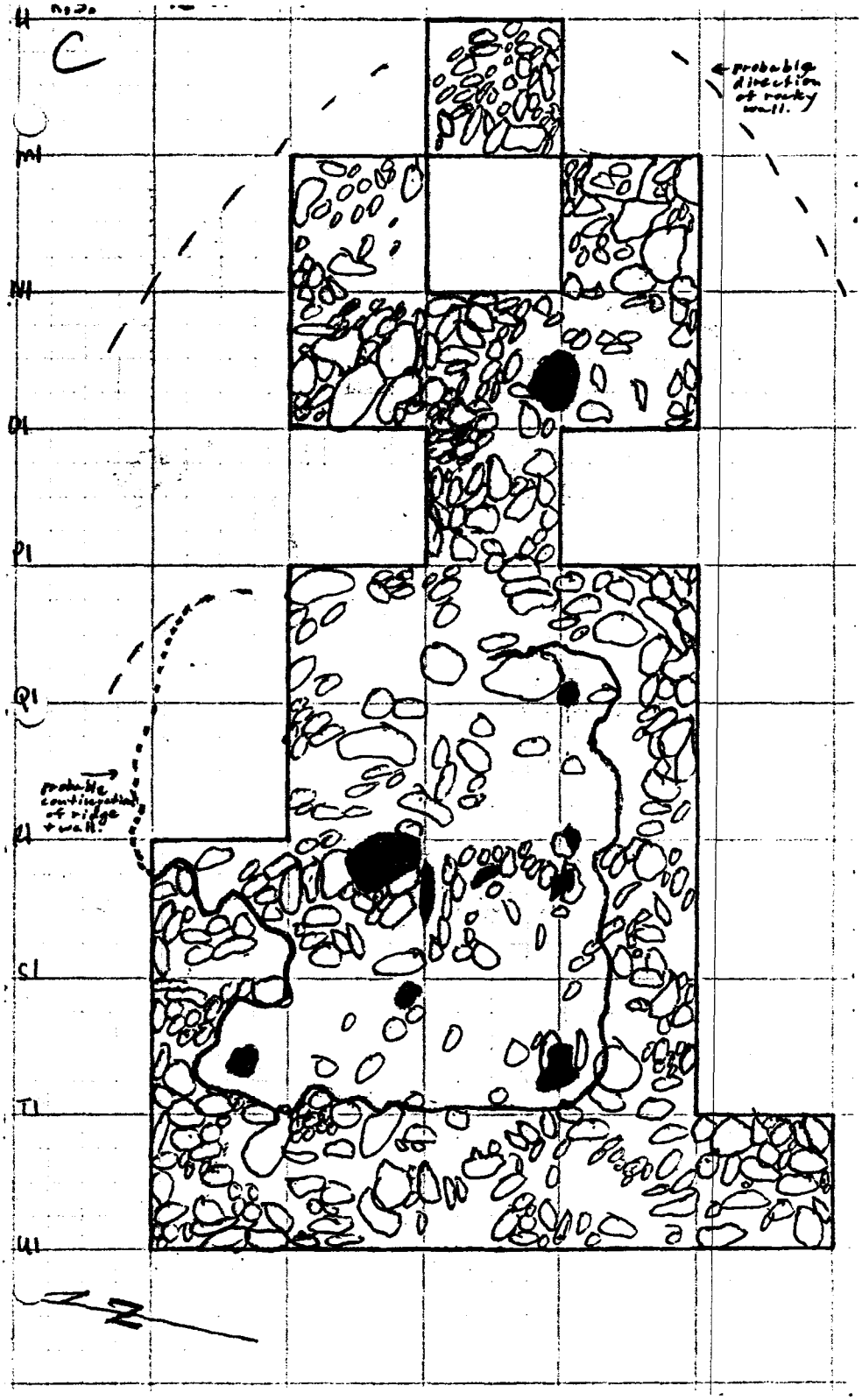


Figure 5.8 Sketch map of House 11. (Adapted from Harp n.d.)

From this information it can be demonstrated that there was a great deal of structural continuity at Phillips Garden during the middle phase with the possibility of structural variation. Houses 2, 4, 10 and 18 were similar in shape, size and general nature of construction. Houses 2, 10 and 18 had centrally located, load bearing postholes with similar dimensions (Renouf pers. comm.). If House 4 was re-excavated it is possible that it would have an axial feature arranged in the same manner as those in Houses 2, 10 and 18.

The re-excavation of Houses 2 and 18 also revealed that middle phase dwellings underwent episodes of renovation. Re-excavation of these dwellings indicated that they began being very large, but over time became smaller, presumably the need for very large dwellings diminished. Dwellings that were quite large and substantial and were intended for long-term reoccupation underwent episodes of major structural renovation. These episodes of renovation may have occurred for many reasons two will be suggested here. Firstly, the renovation may have occurred because the dwelling could no longer be repaired to its original size. Secondly, and what seems more likely, is that it reflects the changing nature of the Dorset group reoccupying the dwelling. It is quite likely that if an extended family group became smaller they would require a smaller dwelling and only repair it to the necessary size. The presence of Houses 6 and 11 have demonstrated that while the majority of the dwellings from the middle phase were similar, there was also the possibility of variation in architectural structure as well. Therefore, it is logical to conclude that middle phase dwellings were substantial structures meant to be reoccupied.

5.4 Comparing Architecture and Function

It has been demonstrated that site function during the middle phase was specialized; the Dorset were focused on the hunting and processing of mature seals (Erwin 1995; Hodgetts 2005). In this section I compare the results of the correspondence analysis in Chapter 4 to the structure of the dwellings to see if particular activities were more predominantly associated with certain dwelling types. A wide range of artifacts was found in each dwelling but the correspondence analysis in Chapter 4 indicated that dwellings may have had specialized functions. Before addressing the results from Chapter 4 the results from Erwin (1995) will be discussed as they are somewhat different than from presented in Chapter 4.

The results of Erwin's correspondence analysis indicated that middle phase dwellings clustered around procurement and processing activities which led to his conclusion that the middle phase had a specialized function. In his analysis he used the dwellings from all occupation phases which included the middle phase dwellings Houses 2, 4, 6, 10 and 11. Houses 2, 10 and 11 were strongly associated with processing activities while House 4 was associated with both procurement and processing activities and House 6 was associated with sewing activities. In 1995 Erwin calculated artifact frequencies from Harp's field notes; in his notes Harp listed all of the artifacts found within an excavation unit. Harp returned the artifacts collected during his excavations to the Province of Newfoundland and Labrador and over the course of several years, the artifacts were re-labelled and catalogued in the Port au Choix Archaeology Project database. During this process, many artifacts

were re-identified according to the Port au Choix Archaeology Project guidelines which resulted in a change in artifact frequencies.

It is important to address Erwin's (1995) analysis as it has been used to interpret site function during the middle phase. There are three main factors that may explain why differences occurred in the analysis. They are choice of software, changes in artifact frequency, and Erwin's (1995) analysis examined dwelling assemblages from all time phases whereas Chapter 4 took into account middle phase dwelling assemblages only.

Software did not have an affect on the results. Erwin (1995) used the BMDP Statistical Software Package that was available for use from the Computing and Communications at Memorial University of Newfoundland while I used Minitab 14.2. In learning how to use the software, I used Erwin's data as a sample and discovered that both software packages produced the same results.

It is quite possible that the change in artifact frequency from 1995 to 2006 may have affected the outcome. The change in artifact frequencies would have a direct affect on the calculation of the average artifact profile. In addition, it is likely that by using different artifact categories in 2006 it affected the frequencies of artifacts in what Erwin (1995:118) defined as "processing" and "procurement" categories.

It is also very likely that differences arose due to comparing only middle phase dwellings. This is because comparing middle phase dwelling assemblages would have resulted in a different average artifact profile and this would have affected the results. When examining the raw data, it is apparent that the artifact

assemblages were quite similar, and by comparing assemblages from the same time period, the correspondence analysis was able to pick up on more fine-grained differences between the components.

A comparison between correspondence analysis and architecture produced interesting results. Houses 10 and 11 are the most similar according to the results of my correspondence analysis; however they may not be architecturally similar. House 10 was a large dwelling with central support, while it has been difficult to determine the exact nature of House 11 it is possible that is was much smaller that other middle phase dwellings and had an irregular arrangement of pits. According to the correspondence analysis, Houses 10 and 11 were most closely associated with hunting and butchering activities. Houses 2, 4 and 18 were each associated with different activities and were similar architecturally. All of the dwellings were quite large and it is possible that House 4 may have had centrally located load bearing posts like House 2, 10 and 18. House 2 was most closely associated with skin processing activities, House 4 with lithic tool making activities and House 18 with transportation activities. House 6 may have been architecturally unique as it contained four pits, two of which were confined to the western portion of the dwelling, and was most closely associated with cooking and lighting activities but was also drawn towards the sewing and toys/games categories. When the results of the correspondence analysis are compared with the architectural features, it can be seen that even though dwellings may be similar architecturally, such as Houses 2, 4, 10 and 18, they may have different functions. This indicates that there might not be a link between specific types of dwelling structures and function.

The results of the correspondence analysis presented in Chapter 4 indicated that the function of middle phase dwellings may have been more diverse than what was once thought. When looking at the middle phase dwellings in isolation, all dwellings contained a wide range of tool types indicating that the occupants took part in many activities. To attempt to say that during the middle phase the primary focus of the site's occupants was not hunting and processing mature harp seals would be silly. Hunting seals was obviously the major activity at the site, based on the site's location in relation to the known migratory behavior of the animals and the overwhelming predominance of seal bones found in the faunal assemblage. However, after the animals have been killed and butchered, the skins must be processed, and during the months that passed between the seal migrations, many hours must have been spent repairing necessary equipment and preparing for the spring hunt as well as mending clothing and tending to children. It is apparent from the correspondence analysis and raw data that these other activities were occurring at the site in each dwelling. But why do the results of the correspondence analysis indicate that certain artifact categories associate more strongly with certain dwellings? Do these results indicate specialized dwelling functions? I am inclined to argue that the results do not indicate specialized functions *per se*. Since dwellings were used for multiple purposes, during the middle phase a particular dwelling may have been used more frequently for a particular purpose. For example, House 6 had many artifact types but was being pulled toward the sewing category in the correspondence analysis. The high number of needles found in the dwelling may indicate that more sewing activities were occurring in this dwelling than in others at the site during the middle

phase. It has been proposed that Phillip's Garden was a gathering location, a place where the Dorset gathered on a yearly basis to hunt seals and interact with one another. In a place where such gatherings took place, it would not be surprising for people to come together to perform similar activities. It has been suggested elsewhere that women's work among the Dorset may have been organized differently with an emphasis on cooperative work (LeMoine 2003). If this is true than some of the occupants of the site may have been sewing, working hides or making sled runners in a particular dwelling. These, along with many others, were tasks everyone needed to participate in, and after having spent several months with the same people having the opportunity to interact with friends and family that have not been seen since the previous year would have been a welcome opportunity.

5.5 Summary

For many reasons the middle phase of occupation at Phillip's Garden has recently become the focus of research. Initially re-excavation of middle phase dwellings began because middle phase architecture had never been excavated by current researchers; it was only known from publications and unpublished field notes. Once it had been determined that the architecture from the phase was different, it was felt that further investigation was needed (Renouf 2006; Renouf *et al* 2005). The recent investigation of House 18 has substantiated the claim that middle phase dwellings were large, substantial structures. The excavation of House 18 also revealed that dwelling renovations may have been common at the site as well and that

these new, smaller structures could vary, as evidenced by the comparison between House 18 and House 2.

A comparison of artifact assemblages also indicated that there were subtle differences in the types of activities that occurred at the site during the middle phase. An earlier correspondence analysis reported that dwellings had specialized procurement and processing functions while the results reported here indicate that there was a wider range of activities occurring at the site during the middle phase.

It can be said of the middle phase that it was a time when the site was most intensely occupied and that it was the peak period of dwelling contemporaneity. The Dorset came to Phillip's Garden to hunt harp seals, and it has been demonstrated elsewhere that they were selecting mature individuals during an early winter and a later spring hunt (Hodgetts 2005a, 2005b). During this phase, dwellings were larger than once thought and were very substantial, often requiring two load-bearing posts along the central axis of the structure. Dwellings also underwent episodes of renovation when extended family groups became smaller and required a smaller dwelling or when it could no longer be repaired to its previous size.

The nature of renovation varied between dwellings. House 2, as seen in the alteration of the postholes along the central axis of the dwelling, was rebuilt on a smaller scale but still incorporated central support. House 18 was rebuilt in a circular or oval fashion as evidenced by the ring of postholes along the perimeter of the central depression. Dwelling function was more diverse during this time. While the results of the correspondence analysis indicate that each structure was associated with a different activity, a wide range of activities was represented in the artifact

assemblages of all dwellings. This seems to indicate that while a particular dwelling may have focused on a particular activity, it was not the only activity that the occupants carried out. Overall, the evidence seems to indicate that the middle phase was more varied in architecture and activities than once thought.

Chapter 6: Summary and Conclusions

6.1 Summary and Conclusions

The primary objective of this thesis is to contribute to the understanding of the middle phase of occupation at Phillip's Garden through the examination of architectural remains and the analysis of artifact assemblages. Earlier research conducted about architecture at the site indicated that dwellings were the least substantial during this phase of occupation (Erwin 1995). During the 2004 field season at Phillip's Garden, data generated by the re-excavation of two middle phase dwellings indicated that these structures were larger than once thought and were very substantial indicating that they were permanent dwellings intended for reuse over long periods of time.

This thesis began with an overview of the Dorset Palaeoeskimo and the Phillip's Garden site, and a summary of the relevant research which has been conducted there since its discovery by Wintemberg in the late 1920s (1939). This was followed by an overview of the dwellings at Phillip's Garden which have been excavated and the information about them that has been published or available in unpublished reports. The radiocarbon dates for these dwellings indicate that dwellings from all three occupation phases have been excavated at the site. A comparison of these dwellings indicated that there were many differences between them and a further analysis of what accounted for these differences indicated that the most likely cause of the differences was time. Many similarities could be seen in

dwellings that dated to the early phase of occupation at the site such as Features 1 and 14. These similarities included size and shape, the nature of the stone perimeter surrounding the central depression, a line of pits interpreted as an axial feature, secondary rear entrances, and the presence of a stone, box-shaped feature. Dwellings that dated from the middle phase of occupation at the site, such as Houses 2 and 10 were also similar. The similarities included size and shape, the nature of the stone perimeter surrounding the central depression, a stone-paved area abutted by two pits oriented along the N-S axis of the dwelling. In House 2 these pits were interpreted as postholes which supported load-bearing posts. The presence of these postholes has led to the current interpretation of dwellings from the middle phase of occupation; that they were very large, substantial structures that were intended for long periods of reuse (Renouf 2006). A single dwelling, Feature 55, has been dated to the late phase of occupation at the site. This dwelling was different from both early and middle phase dwellings. Feature 55 was the smallest dwelling; it contained a paved axial feature, and was surrounded by a narrow stone perimeter that likely functioned as a bench. The dwelling's primary entrance faced northeast and the secondary rear entrance faced southeast. The stone perimeter was surrounded by small postholes that accommodated both straight posts and curved supports. The paved axial feature was unique to Feature 55 at Phillip's Garden but they have been found at other Dorset sites in Newfoundland and Labrador that date to the same time period. This analysis illustrated that a pattern of construction changes through time existed at the site and it lead to the hypothesis that a distinct type of dwelling may have been constructed

during the middle phase. To test this hypothesis another middle phase dwelling was excavated, House 18.

The results from the excavation of House 18 were presented in Chapter 3. The purpose of this section was to present the data that was generated through test excavation squares in 1963 and excavation in 2005. A description of how the dwelling was constructed and later reconstructed was presented. It was determined that House 18 had initially been a large structure requiring central support but was later reconstructed on a smaller scale. Data concerning the construction of House 18 were then compared to House 2 and 10. From this comparison it was determined that the dwellings were similar in size and shape, they both had paved troughs that were abutted at the north and south ends by a posthole that accommodated a load-bearing post. This new data generated from the excavation House 18 indicated that at least three dwellings from the middle phase of occupation were large, centrally supported structures strengthening the hypothesis that a distinct dwelling type existed at the site during the middle phase of occupation. Once it had been determined that House 18 was constructed similarly to Houses 2 and 10 I was interested in determining if similar activities were occurring within the dwellings during the middle phase of occupation and in particular I was interested in determining if any of the dwellings may have had a specialized function.

In Chapter 4 the artifact assemblages from six fully excavated middle phase dwellings were analyzed using correspondence analysis. Raw data suggested that a wide range of activities occurred in each dwelling while the results of the correspondence analysis indicated that some of the dwellings were closely associated

with specific artifact categories. This association of dwellings and artifact categories has been interpreted as a particular dwelling having a specialized focus but not necessarily a specialized function. This idea of a specialized focus was further explored in Chapter 5.

Chapter 5 synthesized existing information about the middle phase and then compared it to new data generated about the middle phase through recent research. It had been determined that during the middle phase of occupation the site was most intensely occupied but that dwellings were quite substantial and the occupants were primarily focused on hunting seals during the early winter and late spring.. However, a later analysis indicated that dwellings from this phase of occupation were less permanent and less substantial. Recent data generated through the reinvestigation of middle phase dwellings has revealed that dwellings during this phase were larger than previously thought and required centrally located posts to support a substantial roof. This most recent data substantiates the earlier interpretation of dwellings at the site during the middle phase. The results of the correspondence analysis and dwellings were further explored in this chapter. The correspondence analysis dealt with the artifact assemblages from six middle phase dwellings while previous chapters only described the architectural details of three of the dwellings, Houses 2, 10 and 18. Houses 4, 6, 11 which were the remaining three dwellings were described in this chapter. It was determined through the examination of field notes that House 4 was likely similar to the other dwellings while Houses 6 and 11 may have been different. From the sketch maps of the dwellings it was determined that these dwellings may have been smaller and the arrangement of pits in the dwellings were different. When

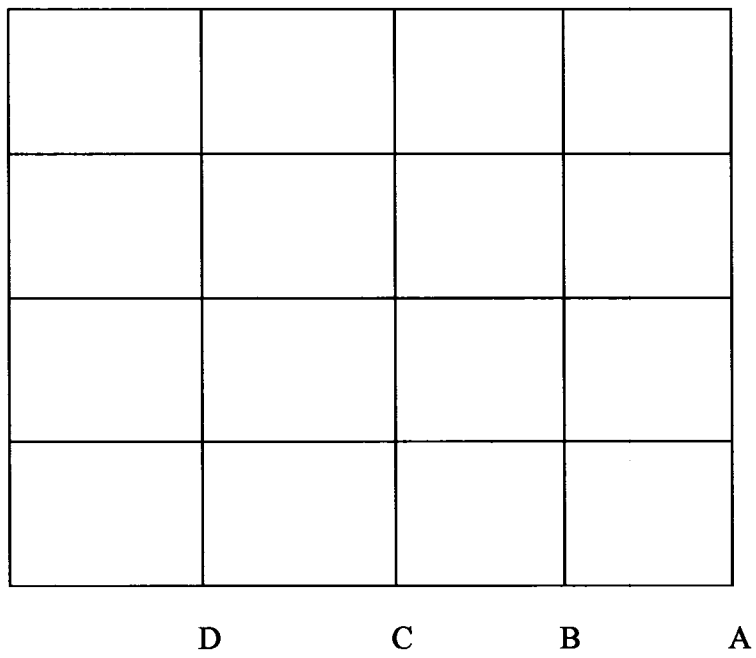
the results of the correspondence analysis were compared with dwelling remains it was determined that there was no association with a particular dwelling type and an activity focus. Houses 10 and 11 which were the most similar functionally may have differed structurally, while dwellings which were similar structurally were different functionally. The analysis presented in Chapter 5 indicated that the structures were more permanent and varied, and activities were more varied during the middle phase of occupation at Phillip's Garden.

To conclude, the over all intention of this thesis was to add to the interpretation of the middle phase of occupation at Phillip's Garden from data generated through recent archaeological investigations. These investigations focused on the architectural remains of three dwellings which dated to the middle phase of occupation at the site. From these investigations it has been determined that those dwellings were much different than once thought; they were larger, required central support and underwent episodes of reconstruction. Correspondence analysis determined that the activities occurring at the site during this phase were more varied than previously thought and that architecture also varied.

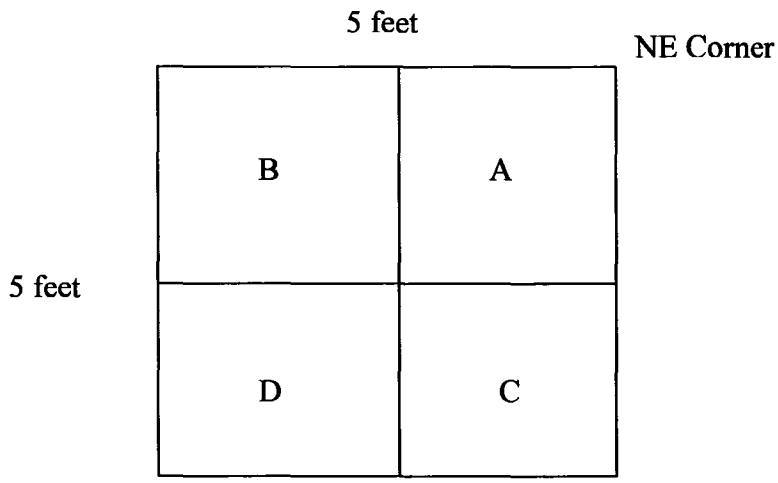
Appenix A

Harp's Excavation Grid and Excavation Square Orientation

Harp's survey grid of Phillip's Garden was measured in 50 foot intervals and divided into 5 ft^2 excavation units. The excavation units were numbered alphabetically east-west, and numerically north-south. The excavation units were named according to the stake located in the northeast corner and each unit was divided into quadrants.



Example of Harp's Excavation Grid

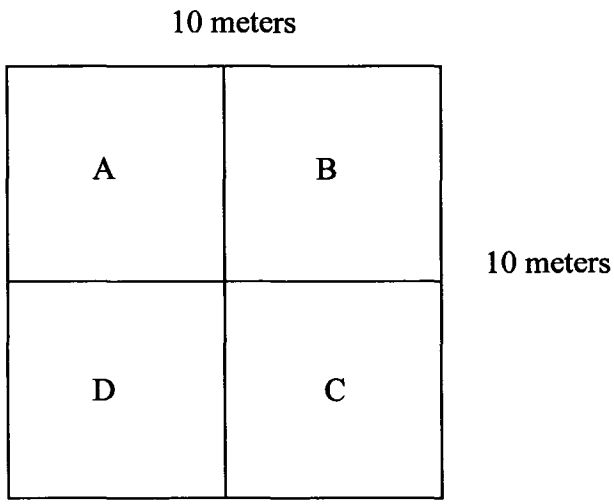


Example of Harp's Excavation Square

Appendix B

The Parks Canada Provenience System and Excavation Grid Orientaion

The excavation grid at Phillip's Garden currently in use was established by Renouf in 1984 (1985) and consists of 10 m^2 units known as operations. These units are arranged along the datum line that runs from east to west across the site. Operations are labeled numerically from 201-399 according to the Parks Canada provenience system. Each operation is divided into four 5 m^2 sub-operations and they are designated A, B, C and D in a clockwise fashion from the upper left hand corner.



Example of the Parks Canada Excavation Unit

Appendix C

Feature Descriptions

F117 Flake Concentration (7A259A; 7A249B)

This feature was found within two sub-operations, 7A259A and 7A249B, in the northern section of the excavation area within L2. It is circular in shape and when fully exposed the flake concentration was 1.4 m x 1.5 m. The soil was brown and black with small pieces of gravel and a large concentration of small flakes. The flakes were primarily blue-green chert and most were tertiary or tool retouch flakes. Artifacts found within feature included a preform (7A249B147), worked bone (7A249B148, 242), endblades (7A259A140, 284), burin-like tools (7A259A191, 250), scrapers (7A259A193, 247, 249), cores (7A259A194, 199, 246), microblades (7A259A195, 198, 243, 281, 282), tip flute spalls (7A259A192, 200, 211), and a harpoon head amulet (7A259A248).

F118 Midden (7A259A)

This feature was found in the eastern portion of the excavation area within L2 in sub-operation 7A259A. The soil was loose, dark and filled with faunal material, a small number of flakes and many artifacts. Based on initial field identification, faunal material included the remains of bird, fish, seal, and possibly some caribou long bone fragments. The feature ended between L 3 and L4 and measured 2.13 m north to south; east-west dimensions were was not recorded as the feature continued into the baulk. It ranged between 10 and 13 cm in thickness. The midden appears to be

associated with the house rather than post-occupation as it had a number of stones on top of it, suggesting that these had formed a stepping surface. Since the stones were in L2, the same as other stones we interpreted as part of the dwelling structure, we interpreted midden feature 118 as associated with the dwelling and not a post-abandonment phenomenon. Artifacts found within this feature included microblades (7A259A114, 117, 118, 171, 323, 344, 349, 370, 402, 445, 529, 582), preforms (7A259A328, 337, 403, 410, 446, 480, 531), worked bone (7A259A348, 350, 447, 524, 537, 539, 541), cores (7A259A324, 333, 334, 336, 343, 406, 449, 478, 479, 489, 526, 589), scrapers (7A259A325, 346, 411, 450, 472, 484, 523), endblades (7A259A112, 120, 363, 407, 473, 474, 490, 530, 542, 587), bone points (7A259A366, 475), small bone and ivory cubes (7A259A164, 419, 477, 534, 535, 585), tip flute spalls (7A259A167, 415, 485, 540, 585), soapstone (7A259A327, 483), schist (7A259A521, 588), nephrite (7A259A119), an abrader fragment (7A259A165), a biface (7A259A326), slate tools (7A259A331, 335, 583), a burin-like tool (7A259A364), amulets (7A259A361, 405), worked ivory (7A259A412, 413), and a Groswater Palaeoeskimo endblade (7A259A417). A total of nine charcoal samples were collected from this feature (7A259A115, 329, 330, 345, 401, 408, 418, 522, 581).

F119 Post Hole (7A259D)

This feature was first identified in L2 and appeared as a ring of stones, 60 x 50 cm, south of F120 in the centre of the excavation area. As L2 was excavated, the pit expanded to become oblong in shape. This feature was filled with a black, midden-

like soil and contained faunal material, flakes and several artifacts. However, at 20 cm below surface, the post hole became circular in nature once again with rocks embedded into the walls. Some small slabs were found within this feature on a steep slant suggesting their use as supports for a post. The bottom of the post hole was 15 cm in diameter and it was lined with a flat rock. The pit was 50 cm deep. Artifacts found within the feature include microblades (7A259D861, 866, 911, 941), nephrite (7A259D863), cores (7A259D841, 844, 864, 865, 867, 945), antler (7A259D868, 913), a bodkin (7A259D869), scrapers (7A259D882, 890, 914, 915), endblades (7A259D826, 847, 849, 885, 942, 946, 947), a burin-like tool (7A259D886), worked bone (7A259D825, 916), performs (7A259D827, 912), soapstone (7A259D829, 848), tip flute spalls (7A259D843), an amulet (7A259D845), a needle (7A259D917) a slate tool (7A259D887). Several charcoal samples were taken from this feature (7A259D842, 850, 881, 883, 944).

F120 Axial Feature (7A259A, 7A259D)

This feature was initially identified as a circular arrangement of rocks exposed by Harp in the central region of the excavation. The feature measured 1.3 x 1.9 m and was a shallow depression lined with large rocks. After removing the top layer of rocks and lower level 2 (LL2) soil the feature became key-hole shaped with slab rocks lining the bottom and rocks and small cobbles lining the sides. Artifacts found in this feature included an endblade (7A259A43), microblades (7A259A995, 1132; 7A259D824, 948), soapstone (7A259A994), preforms (7A259A996, 998), tip flute

spalls (7A259A997), scrapers (7A259A1135, 1202, 1203), a Groswater biface (7A259A1131), cores (7A259D821, 823), and a uniface (7A259D822).

F121 Stone-lined, flake-filled pit (7A259A)

This feature was first identified in L2 and was associated with F117, a flake concentration. The feature was a pit filled with F117, a black soil containing many flakes, and was surrounded by fist-sized cobbles. This feature was located just north of the axial feature in the central excavation area. Some artifacts and faunal material were found in the feature. The diameter of the pit measured 65 x 70 cm at the opening with the interior diameter measuring 28 x 26 cm at the bottom. The pit was 16 cm deep. Artifacts found in this feature included worked bone (7A259A1092) and a slate tool (7A259A1091).

F122 Flake Concentration (7A249C)

This feature was first identified within L2 and ended in L3 in the southwestern region of the excavation area. The feature was oval in shape and its perimeter was defined by a large rock at either end. The feature contained many flakes and an assortment of artifacts including four quartz crystal cores. The flake concentration in L2 measured 35 x 20 cm decreasing in size to 27 x 13 cm in L3. Artifacts found in this feature included tip flute spalls (7A249C222), soapstone (7A249C259), endblades (7A249C256, 895), cores (7A249C224, 227, 228, 229, 230, 257, 258) and preforms (7A249C225, 226, 251, 255).

F123 Storage Pit (7A249C, 7A259D)

This feature was first noted by Harp in 1963 as one of two pits in square F4-56. According to his notes they were located in the southern end of the house depression on the raised wall area. We first noted this pit as a depression in L2 in the southern region of the excavation area after the sod had been removed. As the area around the feature was cleaned up and excavation began it was noted that several large, flat stones were slumping into the pit. It is possible that these were cap stones, the stones used to cover the feature while it was in use to keep out debris. The pit was filled with black L2 soil and during the first portion of excavation the pit was square and the walls were lined with cobbles. Below several large pieces of whalebone a layer of rocks was found. These whale bone piece and rocks were removed revealing LL2 soil. As the excavation continued the pit retained its square shape with large rocks defining the south, west and east walls. There were several large boulders that lined the bottom of the pit. The opening of the feature measured 110 x 85 cm and the bottom 49 x 22 cm and was 60 cm deep. Artifacts found in this feature included a beaver incisor (7A249C265), microblades (7A249C250, 266, 288. 289; 7A259D298, 310, 324, 329, 334, 335, 368, 977), preforms (7A249C267; 7A259D294, 323, 325, 370), a biface (7A249C246; 7A259D973), cores (7A249C249, 281, 286, 291, 783, 796, 797; 7A259D330, 383, 974, 975), endblades (7A249C283, 287, 290, 785; 7A259D336, 362, 991, 994), sled runner fragments (7A249C282, 284,285), worked bone (7A249C781, 782, 795; 7A259D299, 300, 333, 369, 783), soapstone (7A249C798; 7A259D366, 976, 980), tip flute spalls (7A259D297, 326), scrapers (7A259D327, 363, 367, 384), ground slate (7A259D364), a whetstone (7A259D365),

a needle (7A259D971), an awl (7A259D978), and a harpoon head (7A259D979). A number of charcoal samples was taken (7A249C791, 792, 794; 7A259D972) as well as a soil sample for palaeoethnobotanical testing (7A259D328).

F124 Pit (7A249C)

F124 was the second pit noted by Harp in F4-56 within L2 soil at the southern end of the excavation area. Upon excavation, the pit was circular, lined with stones and filled with L2 soil. The pit measured 65 x 65 cm and was 45 cm deep. F123 and F124 were located next to one another and shared a wall. It was noted while dismantling the feature that F124 sloped towards F123. A charcoal sample was collected from between the rock layers that made up the common wall between the two features. Artifacts found in this feature included a possible lampstand (7A249C898) and a charcoal sample was collected (7A249C901).

F125 Lampstand (7A249B)

This feature was a thin limestone slab found within L2. This limestone slab was identified as a possible lampstand as it contained a deposit of burned seal fat in a semi-circular pattern indicating the area where the lamp may have sat. It measured 25 cm long, 18 cm wide and 2 cm thick. The slab was collected and assigned a catalogue number, 7A249B439. The lampstand was found on top of F127 and is not considered to be *insitu* and is not in Figure 6.

F126 Bone Concentration (7A249C)

This concentration of bone was round to oval in shape within L2. It measured 97 x 60 cm and developed into a pit between 20 and 25 cm thick located within the southwestern region of the excavation area. The soil was very black and in some areas there seemed to be more bone than soil. The faunal material from this feature was quite interesting as it contained the remains of very young seals and much bird bone. Artifacts found included worked bone (7A249C425, 429, 430), a core (7A249C426), a microblade (7A249C427), and a tip flute spall (7A249C428).

F127 Bone Concentration (7A249B, 7A249C)

This feature was initially identified in L2 and consisted of a bone concentration in a slight north to south trench east of the western interior edge of the house depression. The soil in this area was very black and greasy and the feature measured 120 x 94 cm. Two pieces of burnt wood were found within the bone concentration, some of which was recovered as charcoal samples. An area of pea gravel, F142, was found west of the trench. Artifacts found included bone points (7A249B617, 894, 1141), ivory and bone cubes (7A249B680, 711, 892), a harpoon head (7A249B901), needles (7A249B539, 673, 708) microblades (7A249B540, 553, 682, 683, 880, 903), scrapers (7A249B461, 531, 668, 703, 704, 715, 898), endblades (7A249B566, 647, 677, 689, 705), a graver (7A249B557), soapstone (7A249B559), nephrite (7A249B561, 713), a preform (7A249B906), cores (7A249B462, 519, 532, 582, 588, 589, 590, 643, 650, 676), ground slate (7A249B613, 618, 678, 702, 709, 714), tip flute spalls (7A249B520, 556, 611, 687), wood (7A249B902), ivory (7A249B564), antler

(7A249B644), a beaver incisor (7A249B646), and worked bone (7A249B537, 568, 581, 584, 587, 615, 616, 641, 642, 671, 674, 675, 679, 669, 684, 685, 706, 707, 712, 878, 893, 905). Several charcoal samples were recovered (7A249B463, 533, 555, 558, 560, 562, 563, 645, 672, 899, 900, 907).

F128 Buried Cultural Layer (7A249B)

This feature was identified at the bottom of L3 northwestern region of the excavation area. During the excavation of N-32 E58 L2-3 were removed revealing a second, buried layer of L2.

F129 Midden Pit (7A259A)

This feature was a rectangular pit filled with midden deposit and measured 132 x 58 cm within L2. The midden material consisted of very black, light soil, unburned faunal material and artifacts. A series of six articulated seal vertebrae were also found within this feature. This feature was located in the northeastern region of the excavation area, south of F130, very near the possible entrance of the dwelling and was 25 cm deep. Artifacts found included microblades (7A259A655, 684, 704, 798, 801, 808), slate scrapers (7A259A603, 766, 800), scrapers (7A259A619, 647, 651), cores (7A259A765, 779, 802), a whetstone (7A259A652), a burin-like tool (7A259A649), a biface (7A259A767), an endblade (7A259A794), a lance (7A259A631), an ivory cube (7A259A632), an amulet (7A259A764) and an organic tool preform (7A259A620).

F130 Midden Pit (7A259A)

This feature was a circular midden pit that measured 45 x 50 cm within L2. This pit was found north of F129, in the northeastern region of the excavation area, and filled with a black, greasy soil and contained a lesser amount of faunal material than F129. The pit was 25 cm deep. Artifacts found included bifaces (7A259A762, 1104), microblades (7A259A738, 804), cores (7A259A806, 835, 837), an endblade (7A259A809), a preform (7A259A807), and a scraper (7A259838). A soil sample was also collected (7A259A777).

F131 Bone Concentration (7A249C)

This feature was a bone concentration found within L2. The feature measured 67 x 95 cm and was confined within a circular arrangement of rocks. This feature was found in the western region of the excavation area.

F132 Midden (7A259A)

This was a midden deposit of faunal material within L2 that measured 196 x 42 cm. It was located along the northeastern extent of the excavation area and was east of F129 and F130. The soil was very black and greasy and filled with bones. Within the deposit two complete seal skulls were found, one on top of the other. The bottom skull was upside down while the top skull was buried right side up; one of the skulls faced the northeast while the other faced the southeast. It is possible that this arrangement may have occurred naturally when the faunal material was deposited or

they may have been buried purposefully. Broken elements of seal skulls were found throughout the house but these were the only two complete skulls found.

F133 Tool Concentration (7A249C)

This feature was discovered within L2 and surrounded by a circle of large rocks in the southwestern region of the excavation area. It measured 30 x 36 cm. The feature consisted of a collection of tools, preforms and a core, all of which were broken. Artifacts found in this feature include a bone point (7A249C649), endblades (7A249C661, 662,663), preforms (7A249C664, 666,667,668), a core (7A249C650), a hammerstone (7A249C677) and ground slate (7A249C665).

F134 Flake and Tool Concentration (7A249C)

This feature occurred within L2 but rested directly on top of L3 within the southwestern region of the excavation area just north of F133. It was a small, triangular area, 23 x 15 cm, containing many flakes and artifacts. Artifacts in this feature included endblades (7A249C669, 670, 671, 672, 675) and a microblade (7A249C678).

F135 Charcoal Stain (7A259D)

This feature occurred in L3, was oval in shape, measured 82 x 40 cm and was located at the southern extent of the excavation area. The area of charcoal staining contained little cultural material; a single tip flute spall and some burnt bone was found.

F136 Charcoal Stain (7A259D)

This area of charcoal staining that occurred in L3 and ended in L4 was located within the southeastern region of the excavation area. The area was rectangular in shape and measured 1.64 x 1.97 m. When viewed in profile the stain first appeared as a layer of grey ash, followed by a layer of yellow soil and then the layer of black staining. It contained little cultural material other than a few flakes.

F137 Bone Concentration (7A249B)

F137 was an irregularly shaped concentration of faunal material that occurred within L2 and measured 58 x 125 cm within the western region of the excavation area. It contained a preform, scraper and microblade (7A249B976, 7A249B977, 7A249B980) and some flakes (7A249B974). This feature also yielded a charcoal sample (7A249B979).

F138 Charcoal Stain/Midden (7A259D)

Initially this feature, which occurred within L3, it measured 50 x 65 cm. It was located within the southeastern region of the excavation area. Initially we found no cultural material; however, as excavation continued the soil in the feature became very greasy and a lot of faunal material and a few flakes were recovered. When excavation of the feature was completed it measured 81 x 66 cm in L4. This feature resembled another area of charcoal staining and may have been associated with F135 and F136 just to the south.

F139 Black Stain (7A259D)

This feature, identified in LL2, was an area of greasy, black soil that measured 94 x 157 cm. It was located in the eastern region of the excavation area and located just north of F138. The greasy feel of the soil has been attributed to seal fat. Within this area some flakes and faunal material were recovered. Artifacts found in this feature included a core (7A259D1022), a microblade (7A259D1023) and an endblade (7A259D1024).

F140 Eastern Perimeter (7A259A&B)

This feature was the eastern perimeter along the edge of the house depression and was identified in L2. It occurred in N-35 E63, N-35 E64, N-35 E65, N-34 E63, N-34 E64 and N-34 E65 and consisted of an area of large flat stones containing little faunal material but a few artifacts. The level area of flat stones was accompanied by a rise in topography that was noticed by excavators and visible in contour maps. The interpretation of the area as a platform is based on the rise in topography and level area of flat stones. This area measured 1.95 x 2.75 m.

F141 Charcoal Stain (7A249B)

This feature was an area of burning that occurred in L3 of the western region of the excavation area. It was rectangular in shape and measured 73 x 95 cm. The soil was grayish-brown, with patches of black. It is possible that this feature is associated with F142.

F142 Area of Pea Gravel (7A249C)

This feature first appeared in the bottom of L2 in the western region of the excavation area. This area of pea gravel was rectangular shaped and measured 45 x 127 cm. It ran along an area of sudden incline along the western perimeter of the central depression and may be associated with north to south trench in F127. The area of soil between the north to south trench and area of pea gravel was a mixture of L2 and sand indicating some form of disturbance had occurred within this region.

F143 Possible Post Hole (7A249C)

This feature appeared in L3 in the southwestern region of the excavation area in an area of naturally occurring limestone. The hole was circular in shape and the walls were very steep along three sides. The soil that was removed from the post hole was orange and a large rock was found in the centre. The feature measured 46 x 70 cm and was 44 cm deep.

F144 Charcoal Stain (7A249C)

This feature occurred within L3 in the western region of the excavation area. It was round in shape and measured 100 x 85 cm. The soil of this feature was black and greasy, with ash and small flecks of charcoal.

F145 Possible Post Hole (7A259B)

This feature was first identified in L2 and ended in L3 along the eastern extent of the excavation area. It was a 22 x 13 cm, circular pit filled with black, greasy soil. The

sides were very steep and the top edge was outlined with stones. To the northeast of this feature a fat-encrusted lampstand was found. Artifacts associated with this feature included a preform (7A259B257), worked bone (7A259B265) and a harpoon head (7A259B258). Two charcoal samples were collected (7A259B256, 264).

F146 Possible Post Hole (7A249B)

This feature was a small, circular post hole in the northwestern region of the excavation area. It initially appeared in L2 and ended in L4 and was filled with L2 soil. It had steeply sloping sides and was 16 cm deep. It measured 20 x 21 cm at the top and 7.5 x 9 cm at the bottom.

F147 Bone Concentration (7A259A)

This was a small, oblong concentration of bone contained within L2 in the eastern region of the excavation area. It contained a lot of seal bone, some flakes and a core. The feature measured 91 x 115 cm.

F148 Charcoal Stain (7A259A)

This feature, contained within L3, was a square shaped area of charcoal staining that measured 84 x 73 cm. It contained a few flakes and a small amount of bone. This feature was found in the eastern region of the excavation area.

F149 Bone Filled Pit (7A249C)

This feature was a small circular pit found within L4 to the west of F119 in the centre of the excavation area. Some stones lined the top of the pit and it was filled with L4 sand and faunal material. The pit measured 24 x 21 cm.

F150 Gully

This is a narrow gully that defines part of the northwestern perimeter of the dwelling depression. The gully was about 30-50 cm wide, a few cm deep, and could be traced approximately 6.5 m within the dwelling. For part of that distance it could be seen to run along the inside of a distinct rise or berm (Feature 150), along the other side of which ran a parallel but narrow gully within which was a layer of pea-gravel (Feature 142).

F151 Western Berm

Associated with and between gully Features 142 and 150 was a small rise or berm (Fig. 22). This was a linear hump of mixed sand (L4) and black soil (L2) that runs parallel to the two gullies and also to the incline of the western perimeter of the dwelling (Feature 152). There was no L3 as if this is an area of disturbance. The berm was about 35-50 cm wide and could be traced for a length of 3.5 m. We interpret Feature 151 as a disturbed area and speculate that this could be where sand and earth had been piled on top of the bottom edge of tent skins to hold them down.

F152 Western Perimeter

Feature 152 marked the inner edge of a western perimeter berm that was 2.96 m wide and was comprised of two layers of L4 rocks. We interpret the berm as a platform, comparable to, but of different construction than, platform Feature 140. There was a long piece of whalebone lying on top of this perimeter. It measured 51 x 14 cm and we speculate that it might have been a structural element of the dwelling. Of

particular note, above Feature 152 there were several stones within L2 that had LL2 beneath them.

F153 Perimeter Pits

This feature comprises 42 small pits that were unevenly distributed around the perimeter of the dwelling depression. Fourteen of these ringed the western perimeter of the central depression; including Feature 146. Less clearly, nine were clustered in the southern dwelling perimeter, six followed the outline of the northeastern perimeter, eight were in the eastern platform and a number were in and around these identified clusters. The pits were small, round and most were rock-lined. Size was approximately 10-15 cm in diameter and 10-15 cm deep. They had been filled with L2 and were dug into L4. They are interpreted as small post holes that outline one and likely more phases of dwelling construction.

Appendix D

Correspondence Analyses Results

Simple Correspondence Analysis: C3, C4, C5, C6, C7, C8

Contingency Table

	H2	H4	H6	H10	H11	H18	Total
AB	40	48	6	18	31	39	182
WS	2	6	1	0	2	16	27
PU	0	0	2	0	0	1	3
AX	0	0	1	0	1	0	2
BF	251	138	78	151	72	69	759
DA	1	15	12	1	8	2	39
EB	391	232	220	200	294	340	1677
PP	0	0	0	0	0	1	1
BLF	7	0	0	0	0	1	8
MB	782	408	588	526	585	804	3693
CM	55	24	32	26	48	35	220
CF	141	352	87	150	201	153	1084
CP	224	2	4	10	7	155	402
SR	193	43	93	102	42	145	618
HS	17	6	1	1	3	13	41
BLT	48	41	31	20	36	41	217
AM	9	5	18	7	8	27	74
AW	16	2	2	8	14	11	53
BOP	6	8	10	2	3	13	42
BLOP	5	2	10	7	2	8	34
BO	1	0	1	0	0	2	4
CU	3	0	33	0	0	21	57
FS	11	5	7	3	0	1	27
HA	3	3	13	2	1	12	34
HH	8	4	10	10	4	12	48
IP	0	1	0	0	0	0	1
LA	1	0	1	0	2	4	8
LF	0	1	1	0	0	0	2
NE	2	1	35	5	7	17	67
SOP	7	5	17	4	7	5	45
SR	37	38	46	46	21	150	338
TSR	12	3	0	6	3	7	31
2x4	2	1	0	0	0	6	9
ONT	1	2	3	1	2	29	38
ES	582	274	193	282	344	330	2005
SS	15	13	9	11	18	11	77
BST	42	33	22	39	5	11	152
CT	17	7	8	4	10	3	49
SP	2	0	1	0	0	1	4
SLP	2	2	6	0	2	4	16
SSC	2	0	0	1	3	17	23
LS	0	0	0	0	0	16	16
SBT	2	4	4	1	1	1	13
SSBT	2	1	1	2	0	1	7
SL	11	2	23	2	25	45	108
SSPT	12	5	49	50	23	20	159
SSSL	6	0	1	1	1	0	9
PBW	98	71	10	61	44	70	354
PB	111	37	21	24	11	30	234

PEB	171	159	64	94	178	173	839
PS	9	3	1	1	0	12	26
PST	1	0	0	1	0	0	2
PU	22	37	10	0	1	23	93
UA	742	235	454	320	360	512	2623
Total	4125	2279	2240	2200	2430	3420	16694

Row Profiles

	H2	H4	H6	H10	H11	H18	Mass
AB	0.220	0.264	0.033	0.099	0.170	0.214	0.011
WS	0.074	0.222	0.037	0.000	0.074	0.593	0.002
PU	0.000	0.000	0.667	0.000	0.000	0.333	0.000
AX	0.000	0.000	0.500	0.000	0.500	0.000	0.000
BF	0.331	0.182	0.103	0.199	0.095	0.091	0.045
DA	0.026	0.385	0.308	0.026	0.205	0.051	0.002
EB	0.233	0.138	0.131	0.119	0.175	0.203	0.100
PP	0.000	0.000	0.000	0.000	0.000	1.000	0.000
BLF	0.875	0.000	0.000	0.000	0.000	0.125	0.000
MB	0.212	0.110	0.159	0.142	0.158	0.218	0.221
CM	0.250	0.109	0.145	0.118	0.218	0.159	0.013
CF	0.130	0.325	0.080	0.138	0.185	0.141	0.065
CP	0.557	0.005	0.010	0.025	0.017	0.386	0.024
SR	0.312	0.070	0.150	0.165	0.068	0.235	0.037
HS	0.415	0.146	0.024	0.024	0.073	0.317	0.002
BLT	0.221	0.189	0.143	0.092	0.166	0.189	0.013
AM	0.122	0.068	0.243	0.095	0.108	0.365	0.004
AW	0.302	0.038	0.038	0.151	0.264	0.208	0.003
BOP	0.143	0.190	0.238	0.048	0.071	0.310	0.003
BLOP	0.147	0.059	0.294	0.206	0.059	0.235	0.002
BO	0.250	0.000	0.250	0.000	0.000	0.500	0.000
CU	0.053	0.000	0.579	0.000	0.000	0.368	0.003
FS	0.407	0.185	0.259	0.111	0.000	0.037	0.002
HA	0.088	0.088	0.382	0.059	0.029	0.353	0.002
HH	0.167	0.083	0.208	0.208	0.083	0.250	0.003
IP	0.000	1.000	0.000	0.000	0.000	0.000	0.000
LA	0.125	0.000	0.125	0.000	0.250	0.500	0.000
LF	0.000	0.500	0.500	0.000	0.000	0.000	0.000
NE	0.030	0.015	0.522	0.075	0.104	0.254	0.004
SOP	0.156	0.111	0.378	0.089	0.156	0.111	0.003
SR	0.109	0.112	0.136	0.136	0.062	0.444	0.020
TSR	0.387	0.097	0.000	0.194	0.097	0.226	0.002
2x4	0.222	0.111	0.000	0.000	0.000	0.667	0.001
ONT	0.026	0.053	0.079	0.026	0.053	0.763	0.002
ES	0.290	0.137	0.096	0.141	0.172	0.165	0.120
SS	0.195	0.169	0.117	0.143	0.234	0.143	0.005
BST	0.276	0.217	0.145	0.257	0.033	0.072	0.009
CT	0.347	0.143	0.163	0.082	0.204	0.061	0.003
SP	0.500	0.000	0.250	0.000	0.000	0.250	0.000
SLP	0.125	0.125	0.375	0.000	0.125	0.250	0.001
SSC	0.087	0.000	0.000	0.043	0.130	0.739	0.001
LS	0.000	0.000	0.000	0.000	0.000	1.000	0.001
SBT	0.154	0.308	0.308	0.077	0.077	0.077	0.001
SSBT	0.286	0.143	0.143	0.286	0.000	0.143	0.000
SL	0.102	0.019	0.213	0.019	0.231	0.417	0.006
SSPT	0.075	0.031	0.308	0.314	0.145	0.126	0.010
SSSL	0.667	0.000	0.111	0.111	0.111	0.000	0.001
PBW	0.277	0.201	0.028	0.172	0.124	0.198	0.021
PB	0.474	0.158	0.090	0.103	0.047	0.128	0.014
PEB	0.204	0.190	0.076	0.112	0.212	0.206	0.050
PS	0.346	0.115	0.038	0.038	0.000	0.462	0.002

PST	0.500	0.000	0.000	0.500	0.000	0.000	0.000
PU	0.237	0.398	0.108	0.000	0.011	0.247	0.006
UA	0.283	0.090	0.173	0.122	0.137	0.195	0.157
Mass	0.247	0.137	0.134	0.132	0.146	0.205	

Column Profiles

	H2	H4	H6	H10	H11	H18	Mass
AB	0.010	0.021	0.003	0.008	0.013	0.011	0.011
WS	0.000	0.003	0.000	0.000	0.001	0.005	0.002
PU	0.000	0.000	0.001	0.000	0.000	0.000	0.000
AX	0.000	0.000	0.000	0.000	0.000	0.000	0.000
BF	0.061	0.061	0.035	0.069	0.030	0.020	0.045
DA	0.000	0.007	0.005	0.000	0.003	0.001	0.002
EB	0.095	0.102	0.098	0.091	0.121	0.099	0.100
PP	0.000	0.000	0.000	0.000	0.000	0.000	0.000
BLF	0.002	0.000	0.000	0.000	0.000	0.000	0.000
MB	0.190	0.179	0.263	0.239	0.241	0.235	0.221
CM	0.013	0.011	0.014	0.012	0.020	0.010	0.013
CF	0.034	0.154	0.039	0.068	0.083	0.045	0.065
CP	0.054	0.001	0.002	0.005	0.003	0.045	0.024
SR	0.047	0.019	0.042	0.046	0.017	0.042	0.037
HS	0.004	0.003	0.000	0.000	0.001	0.004	0.002
BLT	0.012	0.018	0.014	0.009	0.015	0.012	0.013
AM	0.002	0.002	0.008	0.003	0.003	0.008	0.004
AW	0.004	0.001	0.001	0.004	0.006	0.003	0.003
BOP	0.001	0.004	0.004	0.001	0.001	0.004	0.003
BLOP	0.001	0.001	0.004	0.003	0.001	0.002	0.002
BO	0.000	0.000	0.000	0.000	0.000	0.001	0.000
CU	0.001	0.000	0.015	0.000	0.000	0.006	0.003
FS	0.003	0.002	0.003	0.001	0.000	0.000	0.002
HA	0.001	0.001	0.006	0.001	0.000	0.004	0.002
HH	0.002	0.002	0.004	0.005	0.002	0.004	0.003
IP	0.000	0.000	0.000	0.000	0.000	0.000	0.000
LA	0.000	0.000	0.000	0.000	0.001	0.001	0.000
LF	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NE	0.000	0.000	0.016	0.002	0.003	0.005	0.004
SOP	0.002	0.002	0.008	0.002	0.003	0.001	0.003
SR	0.009	0.017	0.021	0.021	0.009	0.044	0.020
TSR	0.003	0.001	0.000	0.003	0.001	0.002	0.002
2x4	0.000	0.000	0.000	0.000	0.000	0.002	0.001
ONT	0.000	0.001	0.001	0.000	0.001	0.008	0.002
ES	0.141	0.120	0.086	0.128	0.142	0.096	0.120
SS	0.004	0.006	0.004	0.005	0.007	0.003	0.005
BST	0.010	0.014	0.010	0.018	0.002	0.003	0.009
CT	0.004	0.003	0.004	0.002	0.004	0.001	0.003
SP	0.000	0.000	0.000	0.000	0.000	0.000	0.000
SLP	0.000	0.001	0.003	0.000	0.001	0.001	0.001
SSC	0.000	0.000	0.000	0.000	0.001	0.005	0.001
LS	0.000	0.000	0.000	0.000	0.000	0.005	0.001
SBT	0.000	0.002	0.002	0.000	0.000	0.000	0.001
SSBT	0.000	0.000	0.000	0.001	0.000	0.000	0.000
SL	0.003	0.001	0.010	0.001	0.010	0.013	0.006
SSPT	0.003	0.002	0.022	0.023	0.009	0.006	0.010
SSSL	0.001	0.000	0.000	0.000	0.000	0.000	0.001
PBW	0.024	0.031	0.004	0.028	0.018	0.020	0.021
PB	0.027	0.016	0.009	0.011	0.005	0.009	0.014
PEB	0.041	0.070	0.029	0.043	0.073	0.051	0.050
PS	0.002	0.001	0.000	0.000	0.000	0.004	0.002
PST	0.000	0.000	0.000	0.000	0.000	0.000	0.000

PU	0.005	0.016	0.004	0.000	0.000	0.007	0.006
UA	0.180	0.103	0.203	0.145	0.148	0.150	0.157
Mass	0.247	0.137	0.134	0.132	0.146	0.205	

Expected Frequencies

	H2	H4	H6	H10	H11	H18
AB	44.97	24.85	24.42	23.98	26.49	37.29
WS	6.67	3.69	3.62	3.56	3.93	5.53
PU	0.74	0.41	0.40	0.40	0.44	0.61
AX	0.49	0.27	0.27	0.26	0.29	0.41
BF	187.54	103.62	101.84	100.02	110.48	155.49
DA	9.64	5.32	5.23	5.14	5.68	7.99
EB	414.38	228.94	225.02	221.00	244.11	343.56
PP	0.25	0.14	0.13	0.13	0.15	0.20
BLF	1.98	1.09	1.07	1.05	1.16	1.64
MB	912.52	504.15	495.53	486.68	537.56	756.56
CM	54.36	30.03	29.52	28.99	32.02	45.07
CF	267.85	147.98	145.45	142.85	157.79	222.07
CP	99.33	54.88	53.94	52.98	58.52	82.36
SR	152.70	84.37	82.92	81.44	89.96	126.61
HS	10.13	5.60	5.50	5.40	5.97	8.40
BLT	53.62	29.62	29.12	28.60	31.59	44.46
AM	18.29	10.10	9.93	9.75	10.77	15.16
AW	13.10	7.24	7.11	6.98	7.71	10.86
BOP	10.38	5.73	5.64	5.53	6.11	8.60
BLOP	8.40	4.64	4.56	4.48	4.95	6.97
BO	0.99	0.55	0.54	0.53	0.58	0.82
CU	14.08	7.78	7.65	7.51	8.30	11.68
FS	6.67	3.69	3.62	3.56	3.93	5.53
HA	8.40	4.64	4.56	4.48	4.95	6.97
HH	11.86	6.55	6.44	6.33	6.99	9.83
IP	0.25	0.14	0.13	0.13	0.15	0.20
LA	1.98	1.09	1.07	1.05	1.16	1.64
LF	0.49	0.27	0.27	0.26	0.29	0.41
NE	16.56	9.15	8.99	8.83	9.75	13.73
SOP	11.12	6.14	6.04	5.93	6.55	9.22
SR	83.52	46.14	45.35	44.54	49.20	69.24
TSR	7.66	4.23	4.16	4.09	4.51	6.35
2x4	2.22	1.23	1.21	1.19	1.31	1.84
ONT	9.39	5.19	5.10	5.01	5.53	7.78
ES	495.43	273.71	269.03	264.23	291.85	410.75
SS	19.03	10.51	10.33	10.15	11.21	15.77
BST	37.56	20.75	20.40	20.03	22.13	31.14
CT	12.11	6.69	6.57	6.46	7.13	10.04
SP	0.99	0.55	0.54	0.53	0.58	0.82
SLP	3.95	2.18	2.15	2.11	2.33	3.28
SSC	5.68	3.14	3.09	3.03	3.35	4.71
LS	3.95	2.18	2.15	2.11	2.33	3.28
SBT	3.21	1.77	1.74	1.71	1.89	2.66
SSBT	1.73	0.96	0.94	0.92	1.02	1.43
SL	26.69	14.74	14.49	14.23	15.72	22.13
SSPT	39.29	21.71	21.33	20.95	23.14	32.57
SSSL	2.22	1.23	1.21	1.19	1.31	1.84
PBW	87.47	48.33	47.50	46.65	51.53	72.52
PB	57.82	31.94	31.40	30.84	34.06	47.94
PEB	207.31	114.54	112.58	110.57	122.13	171.88
PS	6.42	3.55	3.49	3.43	3.78	5.33
PST	0.49	0.27	0.27	0.26	0.29	0.41
PU	22.98	12.70	12.48	12.26	13.54	19.05
UA	648.13	358.08	351.95	345.67	381.81	537.36

Observed - Expected Frequencies

	H2	H4	H6	H10	H11	H18
AB	-4.97	23.15	-18.42	-5.98	4.51	1.71
WS	-4.67	2.31	-2.62	-3.56	-1.93	10.47
PU	-0.74	-0.41	1.60	-0.40	-0.44	0.39
AX	-0.49	-0.27	0.73	-0.26	0.71	-0.41
BF	63.46	34.38	-23.84	50.98	-38.48	-86.49
DA	-8.64	9.68	6.77	-4.14	2.32	-5.99
EB	-23.38	3.06	-5.02	-21.00	49.89	-3.56
PP	-0.25	-0.14	-0.13	-0.13	-0.15	0.80
BLF	5.02	-1.09	-1.07	-1.05	-1.16	-0.64
MB	-130.52	-96.15	92.47	39.32	47.44	47.44
CM	0.64	-6.03	2.48	-2.99	15.98	-10.07
CF	-126.85	204.02	-58.45	7.15	43.21	-69.07
CP	124.67	-52.88	-49.94	-42.98	-51.52	72.64
SR	40.30	-41.37	10.08	20.56	-47.96	18.39
HS	6.87	0.40	-4.50	-4.40	-2.97	4.60
BLT	-5.62	11.38	1.88	-8.60	4.41	-3.46
AM	-9.29	-5.10	8.07	-2.75	-2.77	11.84
AW	2.90	-5.24	-5.11	1.02	6.29	0.14
BOP	-4.38	2.27	4.36	-3.53	-3.11	4.40
BLOP	-3.40	-2.64	5.44	2.52	-2.95	1.03
BO	0.01	-0.55	0.46	-0.53	-0.58	1.18
CU	-11.08	-7.78	25.35	-7.51	-8.30	9.32
FS	4.33	1.31	3.38	-0.56	-3.93	-4.53
HA	-5.40	-1.64	8.44	-2.48	-3.95	5.03
HH	-3.86	-2.55	3.56	3.67	-2.99	2.17
IP	-0.25	0.86	-0.13	-0.13	-0.15	-0.20
LA	-0.98	-1.09	-0.07	-1.05	0.84	2.36
LF	-0.49	0.73	0.73	-0.26	-0.29	-0.41
NE	-14.56	-8.15	26.01	-3.83	-2.75	3.27
SOP	-4.12	-1.14	10.96	-1.93	0.45	-4.22
SR	-46.52	-8.14	0.65	1.46	-28.20	80.76
TSR	4.34	-1.23	-4.16	1.91	-1.51	0.65
2x4	-0.22	-0.23	-1.21	-1.19	-1.31	4.16
ONT	-8.39	-3.19	-2.10	-4.01	-3.53	21.22
ES	86.57	0.29	-76.03	17.77	52.15	-80.75
SS	-4.03	2.49	-1.33	0.85	6.79	-4.77
BST	4.44	12.25	1.60	18.97	-17.13	-20.14
CT	4.89	0.31	1.43	-2.46	2.87	-7.04
SP	1.01	-0.55	0.46	-0.53	-0.58	0.18
SLP	-1.95	-0.18	3.85	-2.11	-0.33	0.72
SSC	-3.68	-3.14	-3.09	-2.03	-0.35	12.29
LS	-3.95	-2.18	-2.15	-2.11	-2.33	12.72
SBT	-1.21	2.23	2.26	-0.71	-0.89	-1.66
SSBT	0.27	0.04	0.06	1.08	-1.02	-0.43
SL	-15.69	-12.74	8.51	-12.23	9.28	22.87
SSPT	-27.29	-16.71	27.67	29.05	-0.14	-12.57
SSSL	3.78	-1.23	-0.21	-0.19	-0.31	-1.84
PBW	10.53	22.67	-37.50	14.35	-7.53	-2.52
PB	53.18	5.06	-10.40	-6.84	-23.06	-17.94
PEB	-36.31	44.46	-48.58	-16.57	55.87	1.12
PS	2.58	-0.55	-2.49	-2.43	-3.78	6.67
PST	0.51	-0.27	-0.27	0.74	-0.29	-0.41
PU	-0.98	24.30	-2.48	-12.26	-12.54	3.95
UA	93.87	-123.08	102.05	-25.67	-21.81	-25.36

Chi-Square Distances

	H2	H4	H6	H10	H11	H18	Total
AB	0.550	21.577	13.895	1.493	0.767	0.079	38.361
WS	3.271	1.453	1.899	3.558	0.948	19.813	30.942
PU	0.741	0.410	6.339	0.395	0.437	0.242	8.564
AX	0.494	0.273	1.995	0.264	1.726	0.410	5.161
BF	21.470	11.410	5.582	25.979	13.403	48.111	125.955
DA	7.740	17.585	8.751	3.334	0.951	4.490	42.851
EB	1.319	0.041	0.112	1.996	10.198	0.037	13.702
PP	0.247	0.137	0.134	0.132	0.146	3.086	3.881
BLF	12.765	1.092	1.073	1.054	1.164	0.249	17.398
MB	18.669	18.339	17.257	3.177	4.187	2.974	64.603
CM	0.008	1.212	0.208	0.309	7.971	2.250	11.958
CF	60.075	281.266	23.489	0.357	11.834	21.484	398.506
CP	156.466	50.952	46.237	34.865	45.353	64.079	397.952
SR	10.633	20.283	1.225	5.189	25.566	2.672	65.569
HS	4.658	0.029	3.683	3.588	1.476	2.520	15.954
BLT	0.589	4.369	0.122	2.585	0.617	0.269	8.549
AM	4.715	2.577	6.560	0.777	0.713	9.247	24.589
AW	0.644	3.788	3.674	0.148	5.121	0.002	13.376
BOP	1.847	0.896	3.380	2.258	1.586	2.246	12.212
BLOP	1.377	1.503	6.482	1.417	1.757	0.154	12.690
BO	0.000	0.546	0.400	0.527	0.582	1.701	3.756
CU	8.723	7.781	84.034	7.512	8.297	7.443	123.790
FS	2.808	0.468	3.148	0.088	3.930	3.712	14.155
HA	3.472	0.581	15.606	1.373	3.151	3.639	27.823
HH	1.257	0.994	1.967	2.134	1.277	0.477	8.107
IP	0.247	5.462	0.134	0.132	0.146	0.205	6.325
LA	0.483	1.092	0.005	1.054	0.599	3.401	6.635
LF	0.494	1.936	1.995	0.264	0.291	0.410	5.389
NE	12.797	7.256	75.252	1.661	0.777	0.781	98.523
SOP	1.526	0.213	19.901	0.628	0.031	1.931	24.230
SR	25.910	1.437	0.009	0.048	16.163	94.182	137.748
TSR	2.459	0.359	4.160	0.897	0.507	0.066	8.448
2x4	0.023	0.043	1.208	1.186	1.310	9.369	13.138
ONT	7.496	1.959	0.864	3.207	2.254	57.815	73.596
ES	15.129	0.000	21.487	1.196	9.318	15.876	63.006
SS	0.852	0.589	0.172	0.072	4.116	1.445	7.245
BST	0.525	7.231	0.126	17.963	13.255	13.025	52.126
CT	1.977	0.014	0.309	0.935	1.153	4.935	9.323
SP	1.035	0.546	0.400	0.527	0.582	0.040	3.131
SLP	0.965	0.016	6.915	2.109	0.046	0.159	10.210
SSC	2.387	3.140	3.086	1.361	0.036	32.046	42.056
LS	3.954	2.184	2.147	2.109	2.329	49.378	62.101
SBT	0.457	2.790	2.917	0.297	0.421	1.039	7.921
SSBT	0.042	0.002	0.004	1.259	1.019	0.131	2.457
SL	9.220	11.015	4.996	10.514	5.477	23.649	64.872
SSPT	18.953	12.858	35.875	40.265	0.001	4.853	112.805
SSSL	6.412	1.229	0.036	0.029	0.073	1.844	9.623
PBW	1.267	10.638	29.605	4.413	1.100	0.088	47.111
PB	48.912	0.800	3.444	1.516	15.614	6.712	76.998
PEB	6.360	17.260	20.961	2.482	25.563	0.007	72.634
PS	1.033	0.085	1.775	1.718	3.785	8.361	16.757
PST	0.518	0.273	0.268	2.058	0.291	0.410	3.818
PU	0.042	46.525	0.492	12.256	11.611	0.818	71.744
UA	13.596	42.306	29.587	1.906	1.246	1.197	89.838
Total	509.609	628.819	525.381	218.569	272.272	535.560	2690.209

Relative Inertias

	H2	H4	H6	H10	H11	H18	Total
AB	0.000	0.008	0.005	0.001	0.000	0.000	0.014
WS	0.001	0.001	0.001	0.001	0.000	0.007	0.012
PU	0.000	0.000	0.002	0.000	0.000	0.000	0.003
AX	0.000	0.000	0.001	0.000	0.001	0.000	0.002
BF	0.008	0.004	0.002	0.010	0.005	0.018	0.047
DA	0.003	0.007	0.003	0.001	0.000	0.002	0.016
EB	0.000	0.000	0.000	0.001	0.004	0.000	0.005
PP	0.000	0.000	0.000	0.000	0.000	0.001	0.001
BLF	0.005	0.000	0.000	0.000	0.000	0.000	0.006
MB	0.007	0.007	0.006	0.001	0.002	0.001	0.024
CM	0.000	0.000	0.000	0.000	0.003	0.001	0.004
CF	0.022	0.105	0.009	0.000	0.004	0.008	0.148
CP	0.058	0.019	0.017	0.013	0.017	0.024	0.148
SR	0.004	0.008	0.000	0.002	0.010	0.001	0.024
HS	0.002	0.000	0.001	0.001	0.001	0.001	0.006
BLT	0.000	0.002	0.000	0.001	0.000	0.000	0.003
AM	0.002	0.001	0.002	0.000	0.000	0.003	0.009
AW	0.000	0.001	0.001	0.000	0.002	0.000	0.005
BOP	0.001	0.000	0.001	0.001	0.001	0.001	0.005
BLOP	0.001	0.001	0.002	0.001	0.001	0.000	0.005
BO	0.000	0.000	0.000	0.000	0.000	0.001	0.001
CU	0.003	0.003	0.031	0.003	0.003	0.003	0.046
FS	0.001	0.000	0.001	0.000	0.001	0.001	0.005
HA	0.001	0.000	0.006	0.001	0.001	0.001	0.010
HH	0.000	0.000	0.001	0.001	0.000	0.000	0.003
IP	0.000	0.002	0.000	0.000	0.000	0.000	0.002
LA	0.000	0.000	0.000	0.000	0.000	0.001	0.002
LF	0.000	0.001	0.001	0.000	0.000	0.000	0.002
NE	0.005	0.003	0.028	0.001	0.000	0.000	0.037
SOP	0.001	0.000	0.007	0.000	0.000	0.001	0.009
SR	0.010	0.001	0.000	0.000	0.006	0.035	0.051
TSR	0.001	0.000	0.002	0.000	0.000	0.000	0.003
2x4	0.000	0.000	0.000	0.000	0.000	0.003	0.005
ONT	0.003	0.001	0.000	0.001	0.001	0.021	0.027
ES	0.006	0.000	0.008	0.000	0.003	0.006	0.023
SS	0.000	0.000	0.000	0.000	0.002	0.001	0.003
BST	0.000	0.003	0.000	0.007	0.005	0.005	0.019
CT	0.001	0.000	0.000	0.000	0.000	0.002	0.003
SP	0.000	0.000	0.000	0.000	0.000	0.000	0.001
SLP	0.000	0.000	0.003	0.001	0.000	0.000	0.004
SSC	0.001	0.001	0.001	0.001	0.000	0.012	0.016
LS	0.001	0.001	0.001	0.001	0.001	0.018	0.023
SBT	0.000	0.001	0.001	0.000	0.000	0.000	0.003
SSBT	0.000	0.000	0.000	0.000	0.000	0.000	0.001
SL	0.003	0.004	0.002	0.004	0.002	0.009	0.024
SSPT	0.007	0.005	0.013	0.015	0.000	0.002	0.042
SSSL	0.002	0.000	0.000	0.000	0.000	0.001	0.004
PBW	0.000	0.004	0.011	0.002	0.000	0.000	0.018
PB	0.018	0.000	0.001	0.001	0.006	0.002	0.029
PEB	0.002	0.006	0.008	0.001	0.010	0.000	0.027
PS	0.000	0.000	0.001	0.001	0.001	0.003	0.006
PST	0.000	0.000	0.000	0.001	0.000	0.000	0.001
PU	0.000	0.017	0.000	0.005	0.004	0.000	0.027
UA	0.005	0.016	0.011	0.001	0.000	0.000	0.033
Total	0.189	0.234	0.195	0.081	0.101	0.199	1.000

Analysis of Contingency Table

Axis	Inertia	Proportion	Cumulative	Histogram
1	0.0593	0.3679	0.3679	******************************
2	0.0448	0.2781	0.6460	**********************
3	0.0324	0.2012	0.8472	**********
4	0.0141	0.0876	0.9348	*******
5	0.0105	0.0652	1.0000	*****
Total	0.1611			

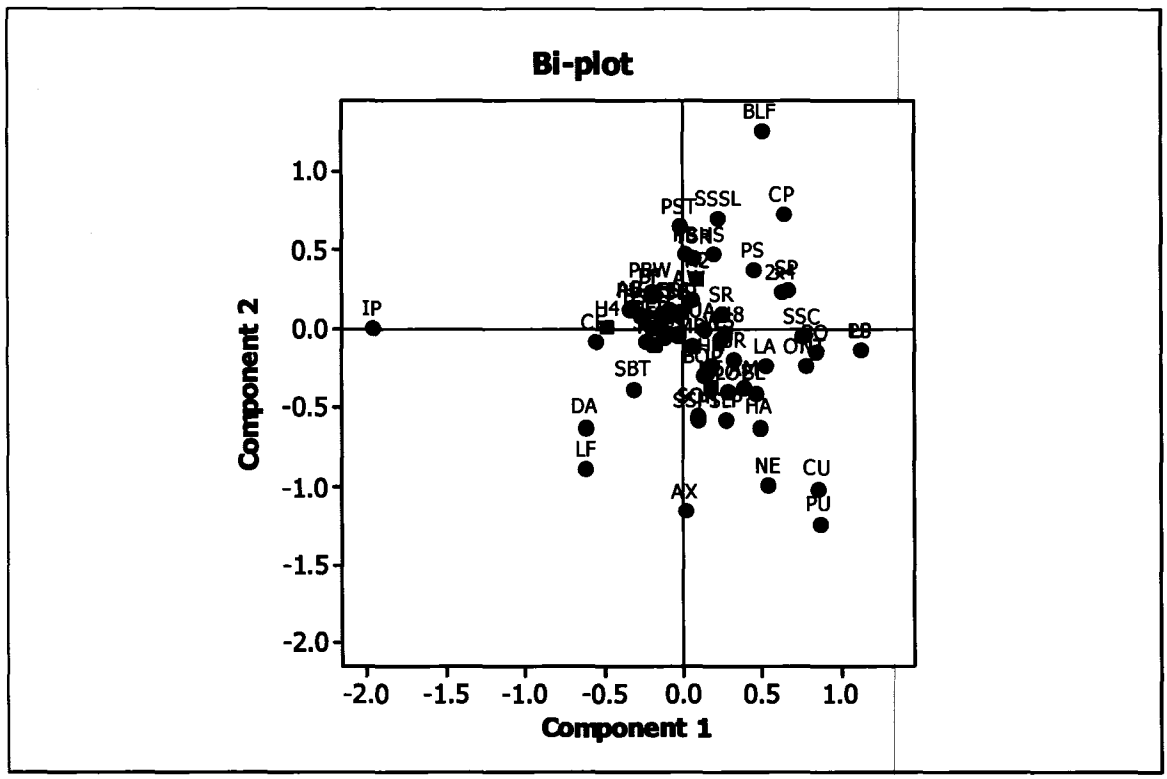
Row Contributions

					Component 1			Component 2		
ID	Name	Qual	Mass	Inert	Coord	Corr	Contr	Coord	Corr	Contr
1	AB	0.591	0.011	0.014	-0.327	0.508	0.020	0.132	0.083	0.004
2	WS	0.054	0.002	0.012	0.238	0.049	0.002	-0.076	0.005	0.000
3	PU	0.796	0.000	0.003	0.866	0.263	0.002	-1.234	0.534	0.006
4	AX	0.510	0.000	0.002	0.013	0.000	0.000	-1.147	0.510	0.004
5	BF	0.509	0.045	0.047	-0.201	0.243	0.031	0.210	0.266	0.045
6	DA	0.702	0.002	0.016	-0.617	0.347	0.015	-0.625	0.356	0.020
7	EB	0.202	0.100	0.005	-0.029	0.105	0.001	-0.028	0.097	0.002
8	PP	0.333	0.000	0.001	1.129	0.328	0.001	-0.138	0.005	0.000
9	BLF	0.847	0.000	0.006	0.497	0.114	0.002	1.263	0.733	0.017
10	MB	0.825	0.221	0.024	0.056	0.177	0.012	-0.106	0.647	0.056
11	CM	0.058	0.013	0.004	-0.034	0.021	0.000	-0.045	0.037	0.001
12	CF	0.873	0.065	0.148	-0.560	0.852	0.343	-0.087	0.020	0.011
13	CP	0.949	0.024	0.148	0.636	0.409	0.164	0.731	0.540	0.287
14	SR	0.647	0.037	0.024	0.243	0.559	0.037	0.097	0.088	0.008
15	HS	0.686	0.002	0.006	0.195	0.097	0.002	0.479	0.589	0.013
16	BLT	0.453	0.013	0.003	-0.122	0.375	0.003	-0.055	0.078	0.001
17	AM	0.878	0.004	0.009	0.388	0.454	0.011	-0.375	0.424	0.014
18	AW	0.152	0.003	0.005	0.056	0.012	0.000	0.188	0.139	0.002
19	BOP	0.376	0.003	0.005	0.137	0.064	0.001	-0.301	0.312	0.005
20	BLOP	0.663	0.002	0.005	0.292	0.228	0.003	-0.403	0.435	0.007
21	BO	0.793	0.000	0.001	0.850	0.769	0.003	-0.149	0.024	0.000
22	CU	0.809	0.003	0.046	0.863	0.343	0.043	-1.006	0.466	0.077
23	FS	0.025	0.002	0.005	-0.015	0.000	0.000	0.113	0.024	0.000
24	HA	0.776	0.002	0.010	0.495	0.299	0.008	-0.625	0.477	0.018
25	HH	0.536	0.003	0.003	0.187	0.206	0.002	-0.236	0.330	0.004
26	IP	0.609	0.000	0.002	-1.963	0.609	0.004	0.005	0.000	0.000
27	LA	0.406	0.000	0.002	0.530	0.339	0.002	-0.237	0.068	0.001
28	LF	0.433	0.000	0.002	-0.614	0.140	0.001	-0.889	0.293	0.002
29	NE	0.865	0.004	0.037	0.546	0.202	0.020	-0.987	0.663	0.087
30	SOP	0.588	0.003	0.009	0.098	0.018	0.000	-0.554	0.570	0.018
31	SR	0.344	0.020	0.051	0.320	0.251	0.035	-0.196	0.094	0.017
32	TSR	0.781	0.002	0.003	0.067	0.016	0.000	0.456	0.765	0.009
33	2x4	0.305	0.001	0.005	0.625	0.267	0.004	0.234	0.037	0.001
34	ONT	0.342	0.002	0.027	0.778	0.312	0.023	-0.238	0.029	0.003
35	ES	0.667	0.120	0.023	-0.078	0.196	0.012	0.122	0.471	0.040
36	SS	0.661	0.005	0.003	-0.235	0.586	0.004	-0.084	0.075	0.001
37	BST	0.223	0.009	0.019	-0.264	0.204	0.011	0.081	0.019	0.001
38	CT	0.135	0.003	0.003	-0.131	0.091	0.001	0.092	0.044	0.001
39	SP	0.653	0.000	0.001	0.669	0.573	0.002	0.251	0.081	0.000
40	SLP	0.652	0.001	0.004	0.275	0.118	0.001	-0.584	0.534	0.007
41	SSC	0.315	0.001	0.016	0.758	0.314	0.013	-0.048	0.001	0.000
42	LS	0.333	0.001	0.023	1.129	0.328	0.021	-0.138	0.005	0.000
43	SBT	0.407	0.001	0.003	-0.317	0.165	0.001	-0.384	0.242	0.003
44	SSBT	0.031	0.000	0.001	-0.027	0.002	0.000	0.101	0.029	0.000
45	SL	0.631	0.006	0.024	0.460	0.352	0.023	-0.409	0.279	0.024
46	SSPT	0.483	0.010	0.042	0.093	0.012	0.001	-0.578	0.471	0.071
47	SSSL	0.509	0.001	0.004	0.224	0.047	0.000	0.703	0.462	0.006

48	PBW	0.736	0.021	0.018	-0.203	0.309	0.015	0.238	0.427	0.027
49	PB	0.693	0.014	0.029	0.014	0.001	0.000	0.477	0.692	0.071
50	PEB	0.467	0.050	0.027	-0.201	0.466	0.034	0.009	0.001	0.000
51	PS	0.520	0.002	0.006	0.446	0.309	0.005	0.369	0.211	0.005
52	PST	0.225	0.000	0.001	-0.022	0.000	0.000	0.655	0.225	0.001
53	PU	0.162	0.006	0.027	-0.334	0.145	0.010	0.117	0.018	0.002
54	UA	0.532	0.157	0.033	0.135	0.529	0.048	-0.010	0.003	0.000

Column Contributions

					Component 1			Component 2		
ID	Name	Qual	Mass	Inert	Coord	Corr	Contr	Coord	Corr	Contr
1	H2	0.855	0.247	0.189	0.099	0.079	0.041	0.310	0.776	0.529
2	H4	0.828	0.137	0.234	-0.478	0.828	0.526	0.001	0.000	0.000
3	H6	0.744	0.134	0.195	0.179	0.137	0.072	-0.377	0.607	0.426
4	H10	0.132	0.132	0.081	-0.110	0.121	0.027	-0.032	0.010	0.003
5	H11	0.371	0.146	0.101	-0.172	0.266	0.073	-0.108	0.105	0.038
6	H18	0.488	0.205	0.199	0.275	0.482	0.261	-0.029	0.005	0.004



Simple Correspondence Analysis: C3, C4, C5, C6, C7, C8

Contingency Table

	H2	H4	H6	H10	H11	H18	Total
Hunting	432	274	294	227	322	390	1939
Butchering	1033	546	666	677	657	873	4452
Cooking and Light	45	21	77	61	61	107	372
Skin Processing	670	328	234	343	378	374	2327
Sewing	9	5	49	9	12	37	121
Lithic Tool Making	1062	743	381	466	544	852	4048
Organic Tool Making	53	43	32	24	55	55	262
Transportation	37	38	46	46	21	150	338
Games and Toys	15	3	33	6	3	28	88
Total	3356	2001	1812	1859	2053	2866	13947

Row Profiles

	H2	H4	H6	H10	H11	H18	Mass
Hunting	0.223	0.141	0.152	0.117	0.166	0.201	0.139
Butchering	0.232	0.123	0.150	0.152	0.148	0.196	0.319
Cooking and Light	0.121	0.056	0.207	0.164	0.164	0.288	0.027
Skin Processing	0.288	0.141	0.101	0.147	0.162	0.161	0.167
Sewing	0.074	0.041	0.405	0.074	0.099	0.306	0.009
Lithic Tool Making	0.262	0.184	0.094	0.115	0.134	0.210	0.290
Organic Tool Making	0.202	0.164	0.122	0.092	0.210	0.210	0.019
Transportation	0.109	0.112	0.136	0.136	0.062	0.444	0.024
Games and Toys	0.170	0.034	0.375	0.068	0.034	0.318	0.006
Mass	0.241	0.143	0.130	0.133	0.147	0.205	

Column Profiles

	H2	H4	H6	H10	H11	H18	Mass
Hunting	0.129	0.137	0.162	0.122	0.157	0.136	0.139
Butchering	0.308	0.273	0.368	0.364	0.320	0.305	0.319
Cooking and Light	0.013	0.010	0.042	0.033	0.030	0.037	0.027
Skin Processing	0.200	0.164	0.129	0.185	0.184	0.130	0.167
Sewing	0.003	0.002	0.027	0.005	0.006	0.013	0.009
Lithic Tool Making	0.316	0.371	0.210	0.251	0.265	0.297	0.290
Organic Tool Making	0.016	0.021	0.018	0.013	0.027	0.019	0.019
Transportation	0.011	0.019	0.025	0.025	0.010	0.052	0.024
Games and Toys	0.004	0.001	0.018	0.003	0.001	0.010	0.006
Mass	0.241	0.143	0.130	0.133	0.147	0.205	

Expected Frequencies

	H2	H4	H6	H10	H11	H18
Hunting	466.57	278.19	251.92	258.45	285.42	398.45
Butchering	1071.26	638.74	578.41	593.41	655.33	914.85
Cooking and Light	89.51	53.37	48.33	49.58	54.76	76.44
Skin Processing	559.93	333.86	302.32	310.17	342.53	478.18
Sewing	29.12	17.36	15.72	16.13	17.81	24.86
Lithic Tool Making	974.05	580.77	525.92	539.56	595.87	831.83
Organic Tool Making	63.04	37.59	34.04	34.92	38.57	53.84
Transportation	81.33	48.49	43.91	45.05	49.75	69.46
Games and Toys	21.18	12.63	11.43	11.73	12.95	18.08

Observed - Expected Frequencies

	H2	H4	H6	H10	H11	H18
Hunting	-34.57	-4.19	42.08	-31.45	36.58	-8.45
Butchering	-38.26	-92.74	87.59	83.59	1.67	-41.85
Cooking and Light	-44.51	-32.37	28.67	11.42	6.24	30.56
Skin Processing	110.07	-5.86	-68.32	32.83	35.47	-104.18
Sewing	-20.12	-12.36	33.28	-7.13	-5.81	12.14
Lithic Tool Making	87.95	162.23	-144.92	-73.56	-51.87	20.17
Organic Tool Making	-10.04	5.41	-2.04	-10.92	16.43	1.16
Transportation	-44.33	-10.49	2.09	0.95	-28.75	80.54
Games and Toys	-6.18	-9.63	21.57	-5.73	-9.95	9.92

Chi-Square Distances

	H2	H4	H6	H10	H11	H18	Total
Hunting	2.562	0.063	7.030	3.827	4.688	0.179	18.350
Butchering	1.367	13.464	13.265	11.775	0.004	1.915	41.790
Cooking and Light	22.135	19.634	17.007	2.628	0.711	12.215	74.331
Skin Processing	21.635	0.103	15.441	3.476	3.672	22.698	67.025
Sewing	13.898	8.800	70.452	3.150	1.896	5.923	104.119
Lithic Tool Making	7.941	45.314	39.932	10.028	4.515	0.489	108.220
Organic Tool Making	1.600	0.779	0.122	3.416	7.003	0.025	12.945
Transportation	24.164	2.271	0.099	0.020	16.617	93.401	136.572
Games and Toys	1.801	7.338	40.684	2.799	7.648	5.438	65.708
Total	97.102	97.767	204.033	41.120	46.754	142.282	629.058

Relative Inertias

	H2	H4	H6	H10	H11	H18	Total
Hunting	0.004	0.000	0.011	0.006	0.007	0.000	0.029
Butchering	0.002	0.021	0.021	0.019	0.000	0.003	0.066
Cooking and Light	0.035	0.031	0.027	0.004	0.001	0.019	0.118
Skin Processing	0.034	0.000	0.025	0.006	0.006	0.036	0.107
Sewing	0.022	0.014	0.112	0.005	0.003	0.009	0.166
Lithic Tool Making	0.013	0.072	0.063	0.016	0.007	0.001	0.172
Organic Tool Making	0.003	0.001	0.000	0.005	0.011	0.000	0.021
Transportation	0.038	0.004	0.000	0.000	0.026	0.148	0.217
Games and Toys	0.003	0.012	0.065	0.004	0.012	0.009	0.104
Total	0.154	0.155	0.324	0.065	0.074	0.226	1.000

Analysis of Contingency Table

Axis	Inertia	Proportion	Cumulative	Histogram
1	0.0281	0.6235	0.6235	******************************
2	0.0108	0.2398	0.8633	***********
3	0.0038	0.0846	0.9479	****
4	0.0021	0.0462	0.9941	**
5	0.0003	0.0059	1.0000	
Total	0.0451			

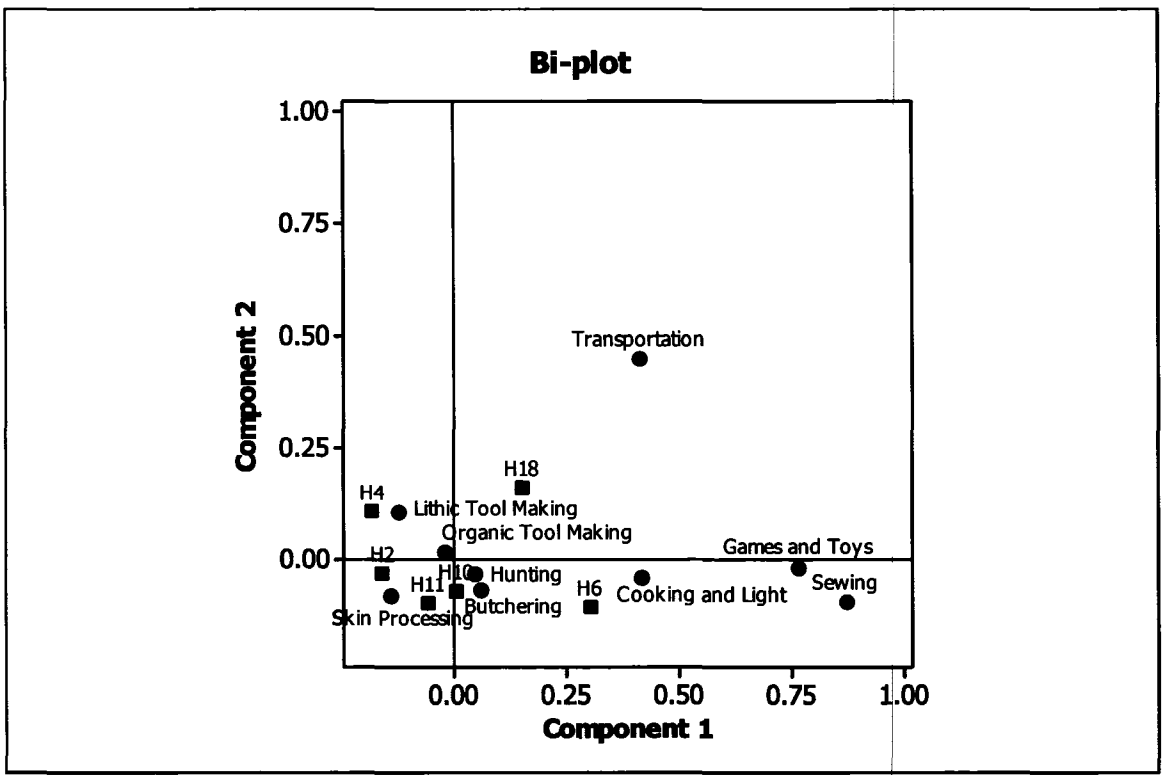
Row Contributions

					Component 1		
ID	Name	Qual	Mass	Inert	Coord	Corr	Contr
1	Hunting	0.353	0.139	0.029	0.048	0.240	0.011
2	Butchering	0.841	0.319	0.066	0.058	0.364	0.039
3	Cooking and Light	0.883	0.027	0.118	0.418	0.874	0.166
4	Skin Processing	0.912	0.167	0.107	-0.141	0.688	0.118
5	Sewing	0.896	0.009	0.166	0.873	0.885	0.235
6	Lithic Tool Making	0.950	0.290	0.172	-0.121	0.546	0.151
7	Organic Tool Making	0.013	0.019	0.021	-0.019	0.007	0.000
8	Transportation	0.926	0.024	0.217	0.415	0.426	0.148
9	Games and Toys	0.790	0.006	0.104	0.768	0.790	0.132

		Component 2		
ID	Name	Coord	Corr	Contr
1	Hunting	-0.033	0.113	0.014
2	Butchering	-0.067	0.477	0.132
3	Cooking and Light	-0.042	0.009	0.004
4	Skin Processing	-0.080	0.224	0.099
5	Sewing	-0.097	0.011	0.008
6	Lithic Tool Making	0.104	0.404	0.290
7	Organic Tool Making	0.017	0.006	0.000
8	Transportation	0.449	0.500	0.452
9	Games and Toys	-0.018	0.000	0.000

Column Contributions

					Component 1			Component 2		
ID	Name	Qual	Mass	Inert	Coord	Corr	Contr	Coord	Corr	Contr
1	H2	0.909	0.241	0.154	-0.158	0.867	0.215	-0.035	0.042	0.027
2	H4	0.891	0.143	0.155	-0.180	0.667	0.166	0.105	0.224	0.145
3	H6	0.935	0.130	0.324	0.305	0.827	0.430	-0.110	0.107	0.145
4	H10	0.250	0.133	0.065	0.008	0.003	0.000	-0.074	0.247	0.067
5	H11	0.591	0.147	0.074	-0.056	0.137	0.016	-0.102	0.454	0.141
6	H18	0.978	0.205	0.226	0.153	0.475	0.172	0.158	0.503	0.474


Bi-plot
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0.75
0.50
0.25
0.00
Component 2
Transportation
H18
H4
Lithic Tool Making
Organic Tool Making
Games and Toys
H2
H10
Hunting
Sewing
H11
H6
Cooking and Light
Butchering
Skin Processing
0.00
0.25
0.50
0.75
1.00
Component 1

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