The Hatzic Rock Site: A Charles Culture Settlement

by

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ABSTRACT

This thesis describes the excavations conducted at the Hatzic Rock site (DgRn-23) during 1990 and 1991 and describes the analysis of structural remains and artifacts. The site is located in the Fraser River valley and contains three occupation zones all dating to the Charles Culture (ca. 4500-4700 BP).

Structural remains were shown to possess similarities with ethnohistoric shed-roof and pithouse dwellings from the area. The structure was also found to possess similarities with a Charles Culture structure from the Maurer site (DhRk-8) and a proto-historic structure from the McCallum site (DhRk-2). The observed similarities suggest continuity in structure design from the Charles Culture to the ethnohistoric period, however, a lack of clarity in the Hatzic data and poor comparative data detracts from this hypothesis.

The analysis of artifacts from the Hatzic Rock site indicated differences between the three occupation zones were minor with the exception of occupation zone III. Occupation zone III contains a high proportion of stemmed projectile point classes and pebble tools. Anvil stones are absent in occupation zone III and pebble flake tool proportions are lower than in occupation zones I and II.

The comparison of the Hatzic Rock site artifact assemblage to other Charles Culture assemblages indicates core and pebble tool proportions are much higher at the Hatzic Rock site. Similarly, the Hatzic Rock site artifact assemblage contains a high proportion of utilized flakes in relation to other Charles Culture sites. Retouched flake tools and formed unifaces were shown to be proportionately less represented at the Hatzic Rock site than at other Charles Culture sites.

Differences in site function, location and age are thought to account for the differences between artifact assemblages.

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CHAPTER ONE

INTRODUCTION

Introduction

This thesis discusses the results of excavations conducted at the Hatzic Rock site (DgRn-23) during the fall of 1990 and the spring and summer of 1991. The remains of a large semi-subterranean structure dated to the Charles Culture was the focus of this excavation.

An environmental and paleoenvironmental background is included in this thesis to provide a context for the research setting. The history of ethnographic research in the Fraser River valley is described. Ethnographic data pertaining to native groups in the research area are summarized to provide a cultural dimension. This includes information on Sto:lo subsistence and settlement patterns during the ethnohistoric period and Sto:lo oral traditions concerning Hatzic Rock.

Site chronology, stratigraphy, radiocarbon dates and the methods used to define occupation zones are described. Artifacts associated with each occupation zone are summarized and compared to each other. The combined Hatzic Rock site artifact assemblage is tabulated and compared to artifact assemblages from other Charles Culture sites. Obsidian artifacts from Hatzic are examined with X-ray fluorescence analysis and the results discussed. Faunal

remains are tabulated and evaluated.

Each feature type is defined and summarized. Features associated with the semi-subterranean structure are combined to describe the nature of this structure. Ethnohistoric and archaeological examples of dwellings from the Fraser River valley are used to help interpret these remains.

This thesis concludes by indicating how the analyses performed on the material excavated from the Hatzic Rock site have increased our knowledge of the Charles Culture. Directions for future research are provided.

A summary of the Charles Culture type follows to provide a historical context to the study of the Charles Culture.

Origin of the Charles Culture Type

The Charles phase was defined by Charles Borden in 1975 as a cultural manifestation encompassing the lower Fraser River Canyon, the lower mainland and the southern islands of the Strait of Georgia. The time period for this culture is approximately 5500 BP to 3000 BP (Borden 1975:96-97).

Borden's research at Esilao (DjRi-5) identified the lower Fraser River Canyon manifestation of this culture type and gave it the local phase name "Eayem." The Eayem phase ranged from roughly 3100 BP to 5500 BP. This local phase was expanded to include a component of similar age from the Maurer site (DhRk-8) (Borden 1975:71-72).

Borden recognized the cultural phase following Matson's Old Cordilleran Culture at the Glenrose site (DgRr-6) was similar in composition and age to the Eayem phase material at Esilao (Borden 1975:80). This component was called the St. Mungo phase after the St. Mungo Cannery site (DgRr-2) where deposits of similar age and nature were excavated (Calvert 1970; Boehm 1973; Matson 1976:283).

Material of similar age was documented by Carlson (1970) at the Helen Point site (DfRu-8) on Mayne Island in the western Strait of Georgia (Borden 1975:93). Material from the basal component at Helen Point was attributed to the "Mayne phase" and provisionally dated to 3000-5000 BP (Carlson 1970:116-117). The Mayne phase clearly coincided with the Eayem and St. Mungo phases on the mainland side of the Strait of Georgia (Borden 1975:93).

Borden recognized the high degree of similarity exhibited in the three regional phases (Eayem, St. Mungo and Mayne) and suggested the localized phase names be replaced by a regional phase name. This regional phase would encompass cultural manifestations in the lower Fraser Canyon, the lower mainland and the Strait of Georgia regions from roughly 3000 BP to 5500 BP. Borden named this the "Charles phase" (Borden 1975:96).

Burley (1980:15) and Pratt (1992:7) have argued that Borden's (1975) Charles phase is more appropriately defined as a culture type as it is a regional phenomenon rather than a local occurrence as implied by the phase concept. The

term Charles Culture type has been adopted in the archaeological literature (e.g. Mitchell 1990) and is used in this thesis. Although a complete geographic delineation of the Charles Culture type has not been attempted, it is thought to encompass the lower Fraser River Canyon, the lower mainland area and the southern Strait of Georgia. A summary of the salient features of the Charles Culture type follows.

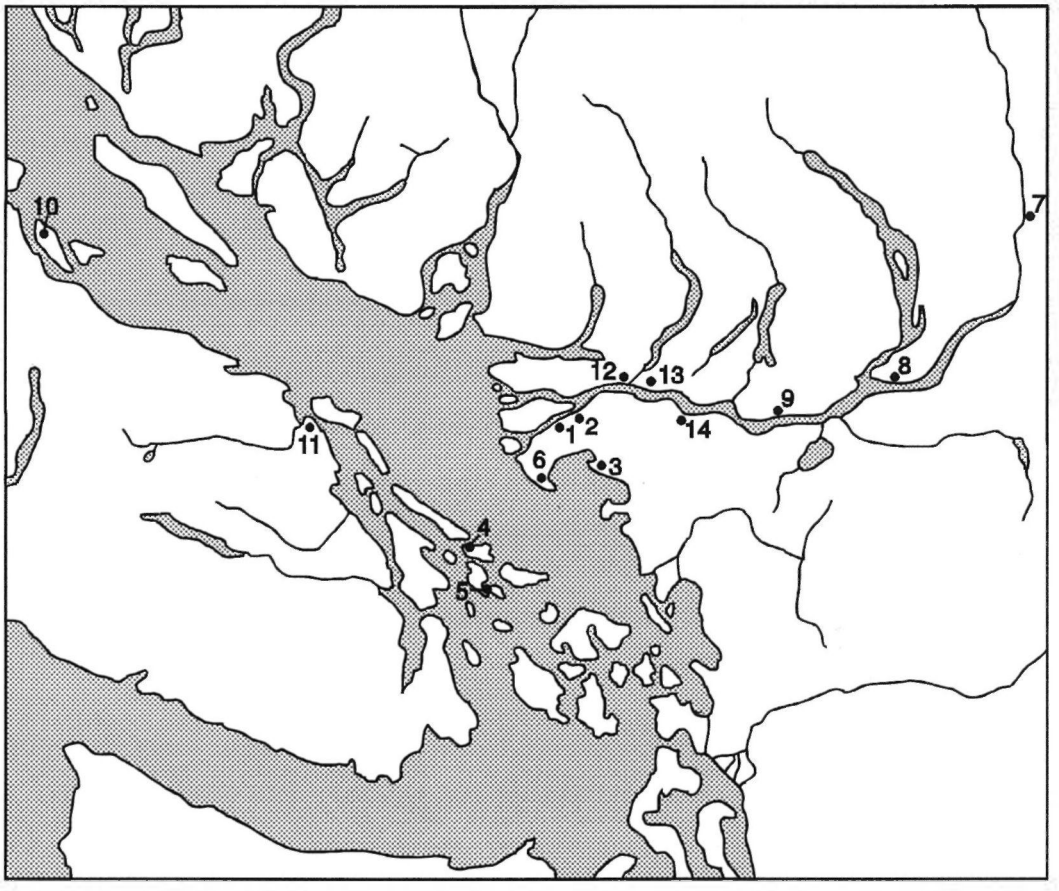
The Charles Culture Type

Pratt (1992) reviewed the archaeological literature and identified sites with Charles Culture components and eliminated sites which have been incorrectly assigned to this period. Sites with Charles Culture components include: St. Mungo (DgRr-2), Glenrose Cannery (DgRr-6), Crescent Beach (DgRr-1), Helen Point (DfRu-8), Pender Canal (DeRt-1,2), Tsawwassen (DgRs-2), Esilao (DjRi-5), Maurer (DhRk-8) and the Hatzic Rock site (DgRn-23) (see Figure 1.1). The Denman Island (DiSe-10), Jack (Duke) Point (DgRx-5) and Pitt River (DhRq-21) sites have Charles Culture components, however, problems with the analyses, such as component mixing, make the data problematic (Pratt 1992).

Two other Charles Culture sites can be added to Pratt's list. The Park Farm site (DhRq-22), located in the Pitt Meadows region, is dated to 4170±120 BP (SFU 405) (Spurgeon 1992:7). The second site is located at the National

Figure 1.1

Location of Charles Culture Sites



0 50
km

N

1) St. Mungo, DgRr 2
2) Glenrose Cannery, DgRr 6
3) Crescent Beach, DgRr 1
4) Helen Point, DfRu 8
5) Pender Canal, DeRt 1,2
6) Tsawwassen, DgRs 2
7) Esilao, DjRi 5
8) Maurer, DhRk 8
9) Hatzic Rock, DgRn 23
10) Denman Island, DiSe 10
11) Jack (Duke) Point, DgRx 5
12) Pitt River, DhRq 21
13) Park Farm, DhRq 22
14) Fort Langley

Historic Site of Fort Langley. A prehistoric component dated to 3835±110 BP (BGS 1421) and 4390±90 BP (SFU 653) was found below the historic fort remains (James 1990).

Pratt (1992) selected ten Charles Culture assemblages to define the Charles Culture type. These sites include: Crescent Beach, Denman Island, Esilao, Glenrose Cannery, Helen Point, Maurer, Pender Canal, Pitt River, St. Mungo and Tsawwassen (Pratt 1992:286). A summary of Pratt's (1992) Charles Culture definition follows.

Chipped stone tools tend to be manufactured from locally available basalt although quartzite and chert are also used in some quantity. Obsidian is also present but rare (Pratt 1992:292). Chipped stone artifacts are largely expedient in nature with unshaped flake tools and various forms of pebble tools dominant. Cores, including bifacial cores, are also common (Pratt 1992:290).

Formed chipped stone tools are far less common than unformed tools with bifaces either leaf-shaped or shouldered (Pratt 1992:291). The evidence for prepared blade technology is weak and the presence of quartz microliths is contentious (Pratt 1992:290).

Ground stone artifacts (including ground and chipped stone artifacts) are not abundant, and pecked stone artifacts (including pecked and ground stone artifacts) are rare. The debate continues over the presence of Gulf Islands Complex artifacts, however, evidence of labret wear on skeletons suggests that some of this complex does exist

(Pratt 1992:291,293).

A lack of organic preservation in many of the assemblages for this period restricts any summary of bone and antler tools. Bone and antler artifacts which did survive are similar to the lithic artifacts in their expedient nature. Rare nonutilitarian bone or antler artifacts are sparsely decorated, although exceptions have been found. Shell artifacts are not common, but exist where preservation conditions are favorable (Pratt 1992:292).

Faunal remains suggest a mixed economy where land and sea mammals were exploited. Although salmon were exploited to some extent, specialization had not yet begun (Pratt 1992:292).

Living floors, post holes and hearths are common to most sites. No evidence for large plank houses exists although Pratt (1992) acknowledges the structural remains at the Hatzic Rock and Maurer sites. Pratt (1992:293) suggests an egalitarian society existed despite the possible presence of status differentiation as reflected in burial remains at Tsawwassen and possibly Pender Canal.

Hypotheses and Organizing Framework

Little information exists concerning Charles Culture components from inland riverine locations such as the Hatzic Rock site. The Maurer and Esilao sites are both from such locations, however, they are poorly understood and lack

formal analysis and documentation. The analysis of material from the Hatzic Rock site represents an opportunity to properly document a Charles Culture site (Eayem phase) from a riverine location. The Hatzic data also provide an opportunity to examine the nature of residential architecture from this period. This information will provide the basis with which to formulate more complex questions concerning the prehistory of the Fraser River valley and southwestern British Columbia.

Three hypotheses concerning the nature of the structure excavated at the Hatzic Rock site have been developed and will be tested. These hypotheses are:

Hypothesis #1: The structure excavated at the Hatzic Rock site resembles southern northwest coast dwellings recorded during the ethnohistoric period.

Hypothesis #2: The structure excavated at the Hatzic Rock site constitutes a new type of building for the southern northwest coast.

Hypothesis #3: The structure excavated at the Hatzic Rock site does not resemble southern northwest coast dwellings from the ethnohistoric period, but does share structural and design elements.

The thesis is divided into six chapters, the first being this introduction. The second chapter discusses the environment and cultural setting of the site. The recent history and Sto:lo oral tradition of the Hatzic Rock site is

included. Chapter 3 describes excavation methods and the nature of stratigraphy. Radiocarbon dates are presented and the site is divided into occupation zones.

Chapter 4 summarizes artifacts excavated at the Hatzic Rock site and separates them into the occupation zones identified in the previous chapter. Artifacts from each occupation zone are compared and similarities and differences are noted. The results of obsidian X-ray fluorescence analysis and faunal analysis are included in this chapter. Chapter 4 concludes with the comparison of the Hatzic Rock site tool assemblage with other Charles Culture tool assemblages.

Chapter 5 summarizes and describes features recorded at the Hatzic Rock site. The nature of the structure excavated at Hatzic is presented. Ethnohistoric and archaeological dwellings from the Fraser River valley are used to assist in the interpretation of this structure. The three hypotheses previously outlined are evaluated.

The final chapter summarizes the results of the analysis and discusses how this research has contributed to the Charles Culture knowledge base. Directions are suggested for future research at Hatzic Rock site, and for the Charles Culture in general.

Three appendices are included. Appendix A presents metric summaries and descriptions of artifact classes identified at the Hatzic Rock site. Appendix B lists the proveniences and characteristics of post hole features from

the Hatzic Rock site. Appendix C provides the proveniences and characteristics of hearth features and charcoal concentration features uncovered at the Hatzic Rock site.

CHAPTER TWO

ENVIRONMENT AND CULTURE

Introduction

This chapter describes the environmental and cultural setting of the study area. This includes a discussion of the environment and paleoenvironment of the Hatzic Rock site and a summary of pertinent ethnographic data from the region.

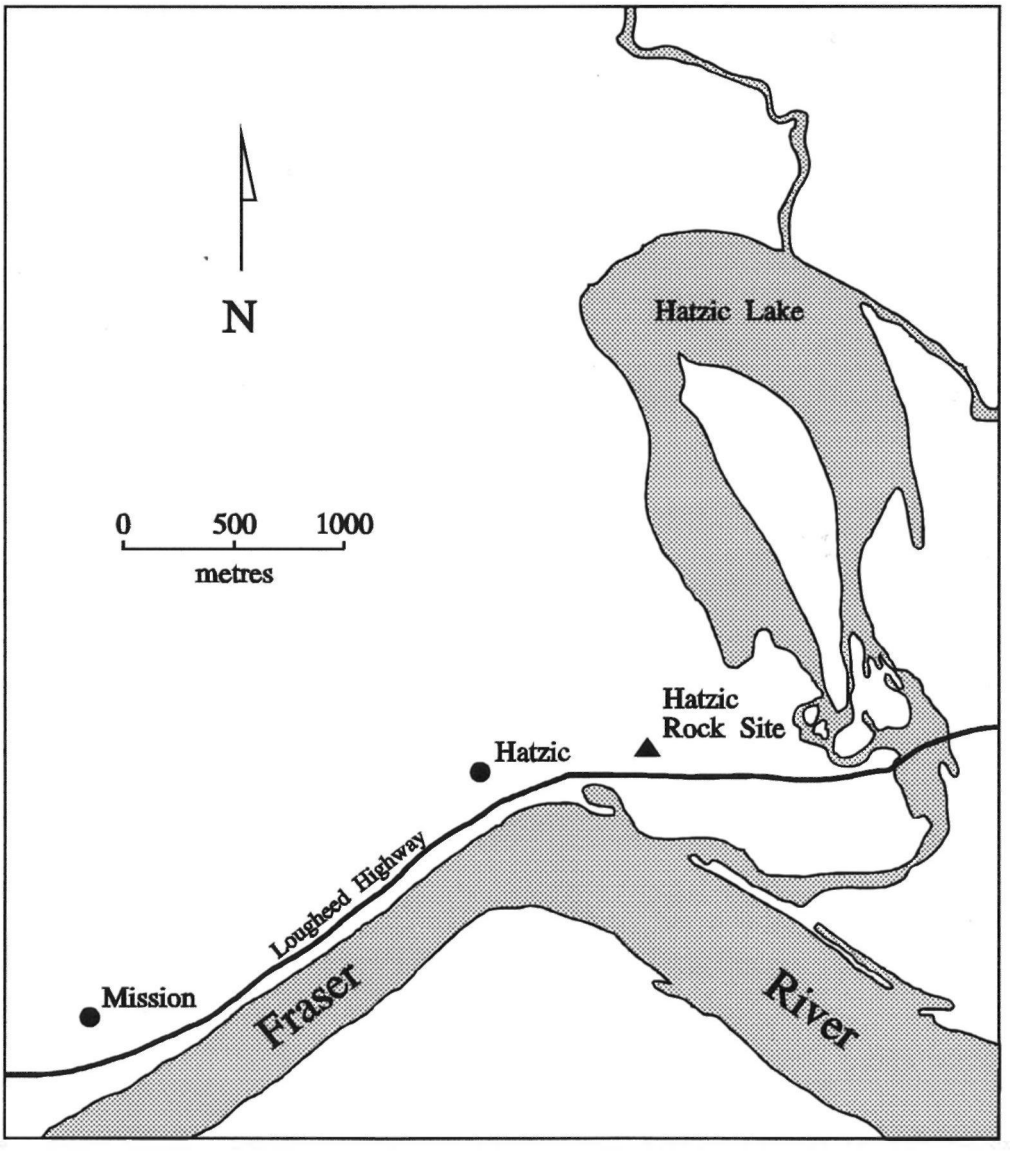
Environmental Setting of the Hatzic Rock Site

The Hatzic Rock site (DgRn-23) is located in the Fraser River Valley on the north bank of the Fraser River approximately 3 km east of Mission, B.C. and 80 km east of Vancouver. Hatzic Lake, an oxbow lake, is located less than 1 km to the east (Figure 2.1)

The site lies at 49 09' 07" north latitude and 122 15' 05" west longitude on a low river terrace 500 metres north of the present course of the Fraser River (Mohs 1992:2). The Hatzic Rock site straddles two distinct sediment zones. The floodplain located below the site is composed of Fraser River flood plain deposits which are composed of sand, silt and clay (Armstrong 1959). The second zone is composed of Huntington gravel (channel and floodplain deposits) overlying Sumas till. This zone forms the terrace on which

Figure 2.1

Map of the Hatzic Rock Site Vicinity



the Hatzic Rock site is situated (Armstrong 1959). The glacial erratic "Hatzic Rock" is obvious evidence of Sumas till. Gravel and sand deposits, up to 31 m thick, underlie Sumas till.

A review of the geologic and hydrologic literature failed to find a study which describes the location of the Fraser River for the period reflected in deposits at the Hatzic Rock site (c. 4500-5000 BP). Similarly, this search failed to locate information which indicates when Hatzic Lake was part of the Fraser River channel and not an oxbow lake.

McLean (1990) has examined Fraser River channel instability and historical channel changes, however, the time frame of his work falls short of the period addressed in this thesis. McLean's analysis of historic river changes restricts itself to the last 100 years and relies heavily on maps and aerial photos (McLean 1990:104).

McLean's (1990:104) research indicated the Fraser River channel remained relatively stable over the past century and determined that processes of erosion and deposition are slow, tending to evolve over a period of decades. Subsequently, river channel changes may not show any correlation with short term flow conditions or local hydraulic parameters. McLean's study suggested that assessing sedimentation or river channel changes is best measured in years or decades (McLean 1990:219).

McLean's study did not cite similar research for earlier periods, therefore, it is assumed that such a study is yet to be conducted. The presence of riverine sediments at the Hatzic Rock site and features such as an oxbow lake nearby, reveals that at some point the river course, or a portion of its flow, was closer to the site than it is today.

Today, the Fraser River valley possesses a mild climate characterized by wet winters and cool summers. Throughout the year, moist maritime air masses dominate this region. These air masses vary little in their seasonal temperature and tend to occur as surges of westward moving cyclonic storms (Stager and Wallis 1968:89). The pattern of winter air masses, which originate in the Gulf of Alaska, brings heavy precipitation and cold temperatures to the Fraser River valley (Stager and Wallis 1968:89-90).

The Coast Mountains, located north of the Hatzic Rock site, occasionally fail to contain cold air masses originating in the B.C. Interior. As a result, temperatures drop to the near-zero level and heavy snowfalls result in the Fraser River valley (Stager and Wallis 1968:90).

Summer months are dominated by high pressure systems which bring clear skies and moderate temperatures to the Fraser River valley. The summer storm track tends to lie north of coastal British Columbia resulting in less precipitation (Stager and Wallis 1968:90).

Pollen analysis has indicated that today's climate is similar to the climate for the period associated with archaeological deposits at the Hatzic Rock site (c. 4500-5000 BP) (Mathewes 1973:44). An abundance of hemlock and cedar pollen located above Mazama ash (c. 6600 BP) suggests wet mesothermal conditions existed then as they continue to today.

Two biogeoclimatic zones are located in the Hatzic area. The Coastal Western Hemlock Zone is located at low to middle elevations, and the Mountain Hemlock Zone is present in higher subalpine zones (Pojar et al. 1991:96; 1991a:114). The Hatzic Rock site lies in the Coastal Western Hemlock Zone which is dominated by western hemlock with western red cedar and Douglas-fir also widespread (Pojar et al. 1991:96).

Vegetation which would have been common at the Hatzic Rock site during the period in question is roughly comparable to Hatzic 100 years ago (prior to the onset of large scale commercial logging). An exception to this is cedar which began to flourish after 6000 BP. Pollen analysis has documented a major increase in cedar frequency from 5000-2500 BP, a period when cedar became a co-dominant species in coastal forests with western hemlock (Hebda and Mathewes 1984:712).

History of Ethnographic Research

The Sto:lo Indians live along the lower 170 kilometers of the Fraser River in southwestern British Columbia. The name Sto:lo translates as "people of the river" and refers to all native bands and tribes living along the Fraser River from Five Mile Creek, near Yale, to the Fraser River Delta. The Sto:lo are comprised of many different bands but at the time of writing prefer to be recognized collectively as Sto:lo with two exceptions, the Katzie and Musqueam. All Sto:lo (including the Musqueam and Katzie) are members of the greater Coast Salish Indian Nation (Mohs 1992:8).

The Halkomelem name Hatzic is associated with a bullrush or reed which grew in profusion in the territory of the Hatzic people (Mohs 1992:9). Marion Smith noted that the Hatzic lived at a small lake (Hatzic Lake?) below Dewdney but were no longer existing as a tribe when she worked in the area (Smith 1936-1939:MS 268:3:2:10). Similarly, Duff described the Hatzic as a small tribe that occupied land along the north bank of the Fraser River around Hatzic Lake (Duff 1952:23). The Hatzic Rock site lies in the territory of the Hatzic tribe which was declared extinct by the Canadian government.

Gordon Mohs, heritage consultant for the Sto:lo Tribal Council, has had the opportunity to interview a number of Sto:lo elders who possess knowledge of the Hatzic people. An elder from Chehalis indicated the Hatzic were wiped out

by smallpox and other diseases prior to 1900. The Hatzic who survived those epidemics were absorbed by the Katzie and Nooksack tribes (Mohs 1992:9).

The Fraser River valley has had a long history of ethnographic research. Observations on the Sto:lo were first recorded by the explorer Simon Fraser who descended the river which bears his name in 1808. Fraser's letters and journals provide a glimpse of Sto:lo culture at the time of his voyage (Lamb 1960).

Charles Hill-Tout conducted field research among the Coast Salish, including some Sto:lo groups. The results of his research were published between 1895 and 1911 (Maud 1978:163). Hill-Tout's observations on the Chilliwack, Pilalt, Kwantlen, Chehalis and Scowlitz people are particularly relevant to this research as they include information on place-names and aspects of material culture (Maud 1978).

Diamond Jenness visited the Katzie reserve in 1936 and interviewed Old Pierre, a 75 year old "Indian doctor". Though Jenness concentrated on the faith of Old Pierre, he explored aspects of Katzie culture including social organization and daily life (Jenness 1955:5).

Marion Smith conducted fieldwork among the Coast Salish of British Columbia and Washington State during the late 1930's. Smith's research is particularly relevant to this research for her observations on Coast Salish dwellings and her test excavation at the McCallum site near Agassiz (see

Smith 1936-1939, 1940, 1940a, 1941, 1947, 1950, 1950a, 1954).

Wilson Duff began ethnographic research among the Sto:lo during the summers of 1949 and 1950 to collect data for his University of Washington Master's thesis (1952a). Duff spent nine weeks among the Sto:lo and later published "The Upper Stalo Indians of the Fraser River of B.C." (1952) an ethnography that concentrated on the Tait, Chilliwack and Pilalt people of the upper Fraser River valley. Although Duff's study concentrated on these groups, he noted much of the information was also applicable to other Sto:lo groups (Duff 1952:7). Duff's ethnography encompassed such broad topics as environment, village names and locations, history, material culture, subsistence, social organization, social dynamics, external relations, beliefs and pastimes.

While preparing Diamond Jenness' Katzie material for publication, Wayne Suttles conducted further ethnographic research among the Katzie during the summer of 1952 and subsequent visits (Suttles 1955:5). Suttles visited Katzie village to clarify Jenness' phonetic transcriptions of native terms with Old Pierre's son Simon. Suttles also gathered material on Katzie identity, neighbors, habitat, subsistence and kinship ties. Jenness' earlier material and Suttles' later observations of the Katzie were published in the same monograph (Jenness 1955; Suttles 1955).

During the 1960's Oliver Wells, a longtime Chilliwack resident and amateur anthropologist, published material on various aspects of Sto:lo culture (see Wells 1963, 1965, 1965a, 1965b, 1966, 1966a). Most relevant to this research is a posthumously published collection of Wells' observations which contains transcriptions of taped interviews with native elders on topics including precontact native culture, material culture, missionization, mythology and life histories (Wells 1987).

This assortment of ethnographic sources provided the data to formulate a picture of Sto:lo culture during the ethnohistoric period, however, problems exist. For example, Duff's (1952) account of Sto:lo culture represents the most complete body of data from the study area yet the number of individuals he interviewed was limited to six (Duff 1952:9-10). Such a small sample raises questions in terms of its coverage and accuracy. This does not mean Duff's (1952) data, or that of other anthropologists, is not useful, rather it illustrates the need to be aware of the circumstances surrounding each work. Information concerning the circumstances and methodology must be factored in when using such data.

With this potential problem in mind, a description of Sto:lo subsistence and settlement patterns from the ethnohistoric period follows. This summary is based on an amalgam of the various sources cited above. By using several different sources the influence of any inaccuracies

or inherent biases are kept to a minimum.

Sto:lo Subsistence and Settlement Patterns

The summer months were the most important to the Sto:lo economy due to large predictable runs of spawning salmon (Oncorhynchus sp.) in the Fraser River and its tributaries. All five species of Pacific salmon were available in the rivers but chinook (O. tshawytscha) and coho (O. kisutch) were most important due to their size and suitability for preservation (Duff 1952:62-63).

Sockeye (O. nerka) runs began in the Fraser River during the middle of June and peaked after mid-July when freshets had subsided (Duff 1952:62). Pink salmon (O. gorbuscha) spawned in late August and continued through most of September. Chum salmon (O. keta) spawned in the Fraser River from mid-September through to December while coho spawned in the late fall and winter in small streams which feed the Fraser River (Duff 1952:62).

The size and importance of the Fraser River salmon fishery is reflected by the number of people it attracted. Indians from many regions including the mouth of the Fraser River and Vancouver Island arrived in Upper Sto:lo territory to take part in the fishery. These groups would ascend the Fraser River and into the lower Fraser River Canyon to amass winter stores of preserved salmon (Duff 1952:25; Maud 1978:12).

Summer months were characterized by congregations of people at favourable fishing locations. Little information exists concerning the nature of Sto:lo summer residences, however, indications are that some Upper Sto:lo lived in plank houses or temporary mat buildings (Duff 1952:50; Wells 1987:35). The type of residence likely depended on the location of resource procurement sites and the planned length of stay.

The fall subsistence and settlement pattern was in many ways a continuation of the summer pattern. Salmon were still plentiful in the Fraser River and its tributaries. By late September emphasis on the salmon fishery began to wane as other economic activities, such as hunting and berrying, gathered momentum (Duff 1952:62). Most hunting took place in the fall as animals tended to be fat and their young had had the summer to develop (Duff 1952:72). After the salmon drying season hunters went into the mountains in search of game, often for several days. Some hunting forays could last several weeks. In these cases, hunters established base camps (Duff 1952:73).

Species hunted include black bear (Ursus americanus), mountain goat (Oreamnos americanus), deer (Odocoileus sp.), wapiti (Cervus elaphus), grizzly bear (Ursus arctos) and beaver (Castor canadensis). Bird species include ducks (Anas sp.), Canada geese (Branta canadaensis), bald eagles (Haliaeetus leucocephalus), and spruce grouse (Dendragapus canadensis) (Duff 1952:71).

Plant food available in the fall included wild crab-apples and hazelnuts. Cranberries, which grew in Katzie territory and other areas near the mouth of the Fraser River, were often obtained through trade or from visitors (Duff 1952:74; Suttles 1955:10,27). The Katzie also dug wapato, a wild root vegetable, during the fall (Suttles 1955:10,27). The availability and native use of plant foods in Sto:lo territory has been well documented by Duff (1952), Turner (1975,1978), Turner et al. (1990), and Turner and Bell (1971).

The fall months were likely a period of population dispersal as small task groups spread across the landscape to take advantage of a variety of resources. Dwellings used in the fall would be similar to those used throughout the summer. Both temporary mat lodges and plank houses were utilized near the fisheries while mat lodges were used while hunting and collecting.

Winter was the season when primary group villages were utilized by the Sto:lo. Winter was largely a time of ceremonial activity with less emphasis placed on subsistence activities. Stored foods, such as salmon and dried berries, were utilized (Duff 1952:73; Suttles 1955:10).

Steelhead trout, which spawned in January, were caught in the winter (Suttles 1955:22; Wells 1987:133). Although most hunting occurred in the fall, bears were smoked out of their dens in the winter (Duff 1952:71-72; Suttles 1955:21; Wells 1987:57).

Winter dwellings were one of two types. The Tait, Chilliwack, Pilalt, Chehalis and Scowlitz inhabited pithouses during the region's three coldest months (January-March)(Maud 1978:118). Groups located further downriver below Chilliwack and Scowlitz considered pithouses a luxury and used them only on rare occasions (Duff 1952:46; Maud 1978:47; Wells 1987:35). Wilson Duff's informant, Robert Joe, a Chilliwack, suggested that pithouses below Chilliwack and Scowlitz were rare due to problems associated with low ground and water seepage (Duff 1952:46).

Shed-roof plank houses were the most common winter dwelling downriver from the Chilliwack and Scowlitz (Duff 1952:46,49). Duff's Katzie informant, Edmond Lorenzo mentioned other less common plank house types in this region. Lorenzo described a gable roof house of his grandfather which was similar to others located at Sumas and elsewhere. Lorenzo also spoke of Chilliwack traditions in which a house with an inverted gable roof featured prominently. Duff suggested these "unusual" house types may have been related to the development and growth of ceremonial and social functions (Duff 1952:48).

Upper Sto:lo winter village populations tended to be fluid with families often relocating to other villages or vacant locations. As a result, the best places for habitation within a group's territory would likely have been used at one time or another. Much of this population movement was motivated by the search for richer food

resources or firewood. However, some movement would be due to internal friction or the desire for a change in surroundings. A few village locations, such as Yale, Hope and Langley, were permanent due to the extremely rich resources available nearby. Duff (1952:85) speculated there were few Upper Sto:lo villages with populations exceeding 50 individuals.

Recent research at the Keatley Creek pithouse village near Lillooet brings Duff's village population estimates into question. Hayden and Spafford (1993:116-117) argue that one person resided in a pithouse per 2.5 m^2 of floor space. If such densities were similar in Sto:lo pithouses then Duff's (1952) estimates must be considered low. Hayden's research suggests Sto:lo village population estimates should be re-examined in light of the Keatley Creek data (see also Hayden 1992).

Spring was an important period for the Sto:lo as food supplies needed replenishing. Plant foods played an important role at this time of year. The shoots of salmonberry, thimbleberry, the round stalk of the cow-parsnip and other green shoots were eaten (Duff 1952:74). The availability and native use of plant foods has been well documented and the reader is again referred to Duff (1952), Turner (1975,1978), Turner et al. (1990), and Turner and Bell (1971) for an in-depth discussion of the availability and use of plant foods.

Eulachon (Thaleichthys pacificus), an abundant anadromous fish, enter the Fraser River during late April until the end of May (Drake and Wilson 1992:8; Duff 1952:70; Suttles 1955:21,23). These fish were caught in large numbers by the Sto:lo and provided an important addition to their diet. Eulachon regularly ascend the Fraser River as far as Mission but rarely further than Chilliwack. Eulachon were preserved by smoking rather than rendered into oil as was the practice of other groups on the northwest coast (Drake and Wilson 1992:22; Duff 1952:71). The Katzie harvested these fish with rakes whereas bag nets were used in Upper Sto:lo territory (Duff 1952:71; Suttles 1955:23).

White sturgeon (Acipenser transmontanus), a fish species which can weigh as much as 800 kg, were also consumed by the Sto:lo (Duff 1952:67). Sturgeon were available year-round but were most easily obtained during June and July when they moved into shallow river sloughs to spawn (Duff 1952:67; Von Krough 1980:12). Trout also spawned in the spring and were harvested in some number (Wells 1987:107). By mid-June spawning sockeye would begin to appear and economic activities would again turn to the salmon fishery (Duff 1952:63).

Little information exists describing spring dwellings, however, it is likely that winter dwellings remained inhabited until the population began to disperse in search of seasonal resources. Dwellings at these procurement locations were likely either plank houses or temporary mat

structures depending upon the nature of the activities, group size and the planned duration of the stay (Suttles 1955:15).

Oral Tradition of the Hatzic Rock Site

During the course of excavations at the Hatzic Rock site Gordon Mohs collected oral traditions pertaining to Hatzic Rock from Sto:lo elders. Three elders revealed that Hatzic Rock is associated with an earlier period in Sto:lo history when the Creator, Xa:ls, came to earth. In this earlier time, four great chiefs challenged the authority of Xa:ls and were subsequently transformed into the stone at Hatzic. One elder also revealed that Shxwexwo:s, the Thunderbird that lives on nearby Sumas Mountain, acts as the guardian of Hatzic Rock (Mohs 1992:11).

Recent History of the Hatzic Rock Site

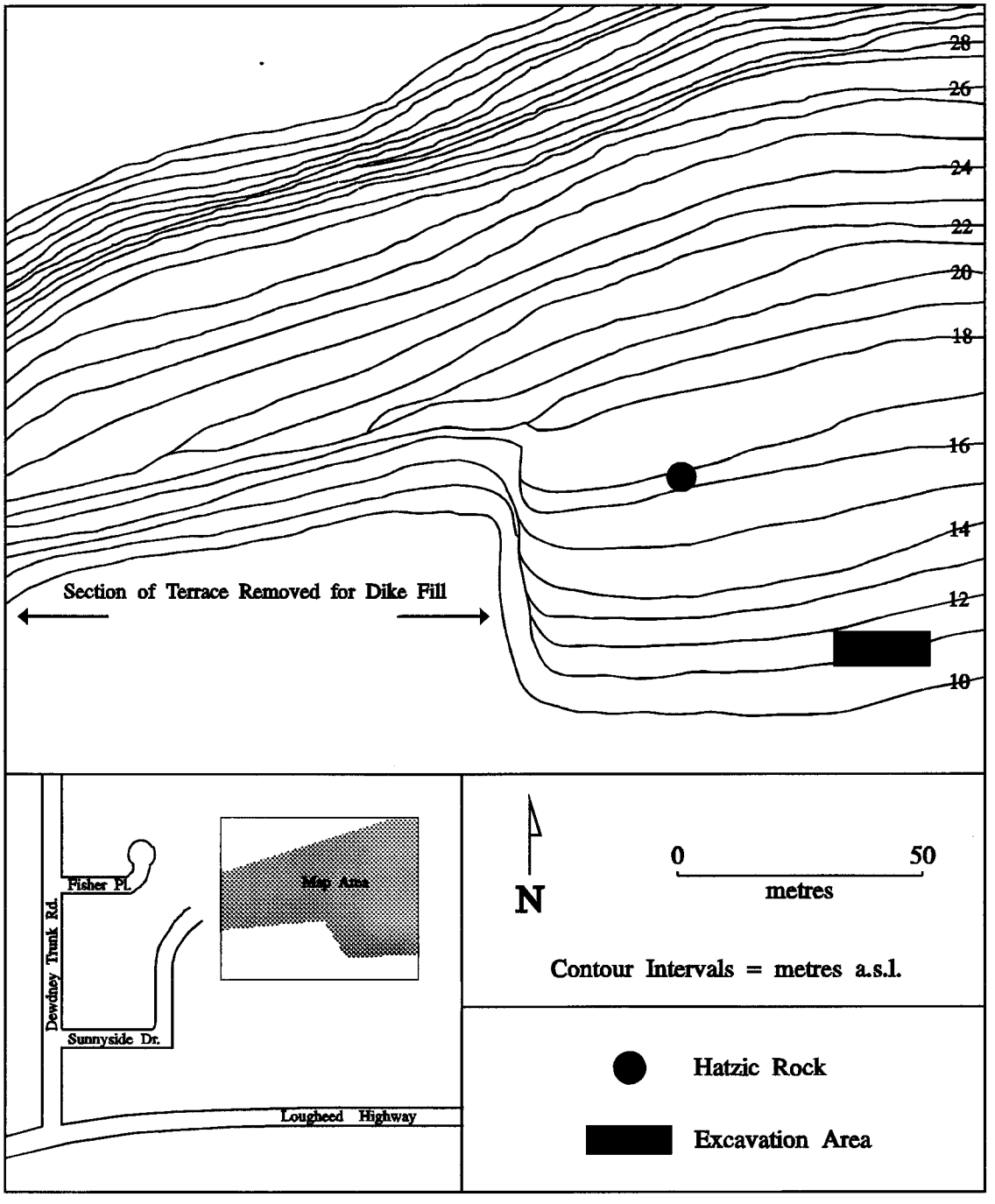
Through interviews with Sto:lo elders Mohs learnt that the area surrounding Hatzic Rock was used as a campsite in the early historic period. Sto:lo Indians from the upper Fraser River valley camped at the Hatzic Rock site in the mid-1800's when the Oblate mission at Mission was being constructed. Other informants indicated Lil'wat Indians from Port Douglas and Skookumchuk, on Harrison Lake, camped at the Hatzic Rock site while the mission was being

established (Mohs 1992:10). The Hatzic Rock site appears to have been known as a favorable campsite for native people in the region even though the last of the Hatzic people had died from disease or left the area.

The Hatzic Rock site was cleared of natural vegetation and used as an orchard by the Catherwood family (Mohs 1992:11). The presence of a few remaining fruit trees on the northern fringes of the property attest to this use (Wilson 1991:6). A large section of the river terrace (c. 8000 m^2) which the Hatzic Rock site occupies was removed for dike fill in the flood year of approximately 1960 (Wilson 1991:6)(Figure 2.2). The Catherwood property was eventually sold to Mr. Harry Utzig in 1979 (Mohs 1992:11). The British Columbia Provincial Government recognized the heritage value of the Hatzic Rock site and purchased the property in the spring of 1993 and turned its management over to the B.C. Heritage Trust.

Figure 2.2

Contour Map of the Hatzic Rock Site



CHAPTER THREE

CHRONOLOGY

Introduction

This chapter describes the chronology of material excavated from the Hatzic Rock site. This includes a description of excavation methods, stratigraphy and radiocarbon dates. Archaeological deposits are divided into occupation zones to facilitate the analysis of artifacts and features in chapters four and five.

Excavation Methods

During a cursory field inspection of a new subdivision development, archaeological deposits were discovered at the Hatzic Rock site in October 1990 by Gordon Mohs (Mohs 1991:1; Wilson 1991:2). As preparations were being made to conduct an archaeological assessment of the site, the top metre of deposit was removed by the developer and redeposited in long berms along the southern perimeter of the property (Mohs 1991:1; Wilson 1991:6).

Excavations, directed by Mohs, began at the Hatzic Rock site in late October of 1990 with funding provided by the Sto:lo Tribal Council and the Ministry of Municipal Affairs, Recreation and Culture through the B.C. Heritage Trust and B.C. Lotteries (Mohs 1991:1). Fieldwork included the

excavation of six 1x1 m units, by arbitrary 10 cm levels, and the surface collection of artifacts. This fieldwork concluded in November 1990 due to inclement weather and a lack of funds. Excavation units were covered and the area was fenced off (Mohs 1991:1).

Excavations continued at the Hatzic Rock site during the spring and summer of 1991. The Sto:lo Tribal Council and the U.B.C. archaeology fieldschool conducted a collaborative salvage excavation at the Hatzic Rock site prior to its anticipated destruction by the subdivision development. The Sto:lo crew was supervised by Gordon Mohs of the Sto:lo Tribal Council. The U.B.C. archaeology fieldschool was supervised by Professor David Pokotylo. Funding for this excavation was provided by a grant from the B.C. Archaeology Branch. Funding in kind was provided by the Sto:lo Tribal Council. The University of British Columbia Dean of Arts Office provided supplementary funding for the U.B.C. archaeology fieldschool. The B.C. Heritage Trust provided funds to operate a public interpretation program at the site.

In September of 1991, I.R. Wilson Consultants, Ltd. were retained by the B.C. Archaeology Branch to conduct an archaeological resource inventory and impact assessment of the Hatzic Rock site. This work was to determine the impact to archaeological resources of the proposed residential subdivision development.

Wilson's fieldwork sought to determine site boundaries within the proposed development and to identify the nature of cultural deposits (Wilson 1991:2). Using a backhoe, Wilson assessed the nature of archaeological deposits at nineteen locations across the proposed development property.

This thesis studies the materials collected by the controlled excavations that took place at the Hatzic Rock site during the fall of 1990 and the spring/summer of 1991. Information obtained by I.R. Wilson Consultants, Ltd. is only used in general discussions of the nature of the site.

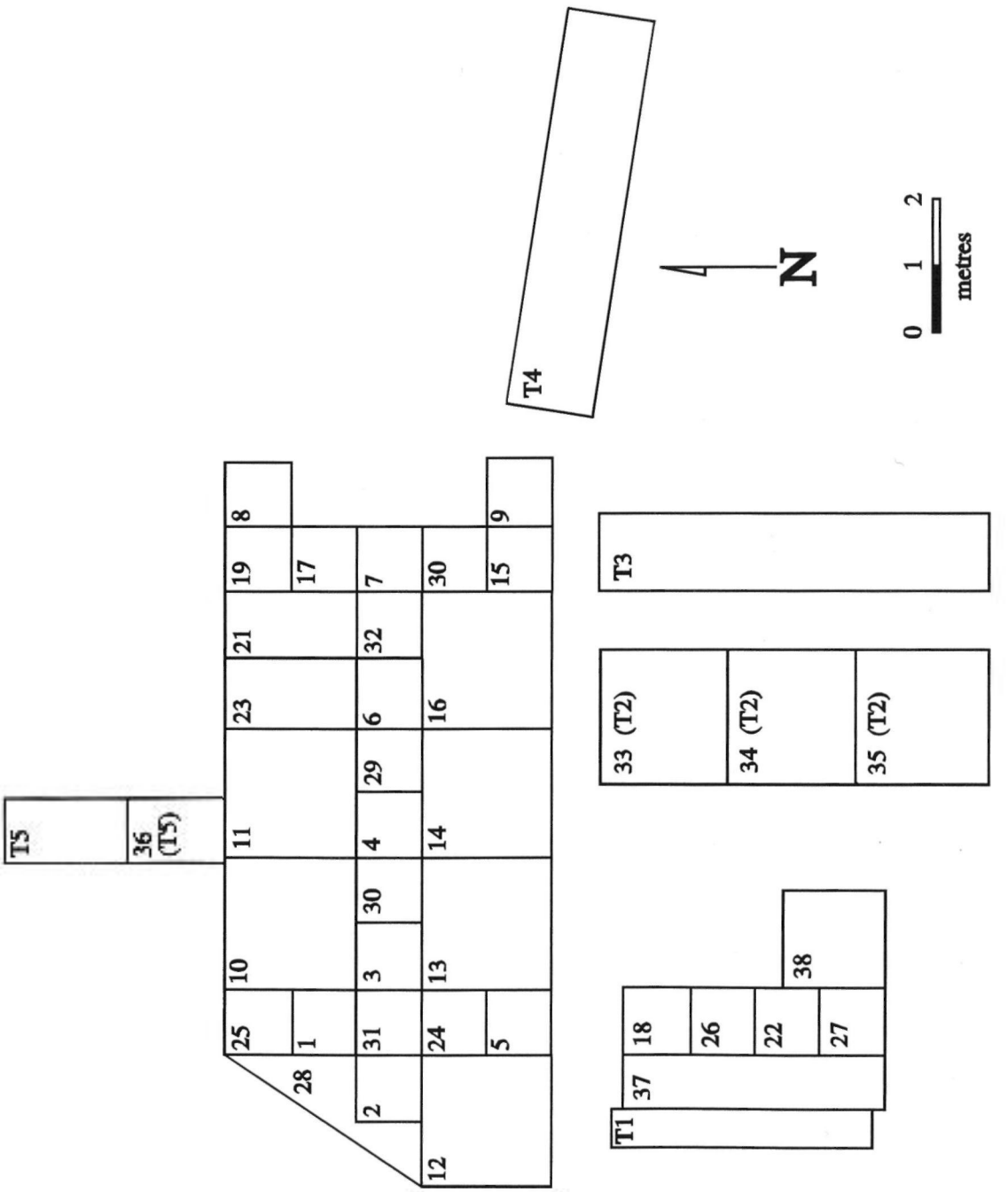
A variety of techniques were employed to excavate archaeological deposits at the Hatzic Rock site. As the excavation was treated as a salvage operation various methods evolved during the fieldwork in order to recover as much information as quickly as possible.

The size of most excavation units was either 1x1 m or 2x2 m, however, some irregular units were excavated near the end of the 1991 field season. In all, thirty-eight units were excavated along with five exploratory back-hoe trenches (see Figure 3.1). Trench 2 was later divided into three 2x2 m units (units 33-35) and excavated by hand. The southernmost portion of trench 5 was redesignated as unit 36 and excavated by hand. An area of approximately 67 m^2 was excavated.

U.B.C. fieldschool excavation units were excavated by natural layers in 10 cm arbitrary levels. These 2x2 m units were subdivided into sixteen 50 cm x 50 cm subunits to

Figure 3.1

Plan of Excavation Units



provide greater horizontal control for the material recovered. Units excavated by the Sto:lo crew were excavated by 10 cm arbitrary levels. The Sto:lo crew did not separate discrete layers or divide excavation units into subunits. All matrix was screened through ¼" mesh and artifacts found in situ had their locations tied into the unit datum. Floor plans of each level and its features were drawn. Carbon and soil samples were taken throughout the excavation as required. Wall profiles were drawn of completed units.

Late in the excavation, after the U.B.C. fieldschool had concluded, methods were modified to salvage as much information as possible prior to the immanent development of the property. Although not ideal from an archaeological perspective, few options existed. Arbitrary levels were increased to 20 cm and shovels replaced trowels in most instances. A backhoe was used to excavate five trenches around the perimeter of the main excavation area to assist in placing other units as time ran short.

During the course of the excavation, it became evident the remains of a large structure were being uncovered. This structure became the focus of the excavation. Near the end of the summer field season several excavation units were rapidly excavated to locate the southwestern limit of this structure. These units were not excavated by levels but simply shoveled out. Artifacts located in situ were retained with pertinent provenience information. Matrix was

not screened. The excavation of these units ceased when post hole features demarcating the edge of the structure were encountered.

Stratigraphy

Stratigraphy at the Hatzic Rock site was complex as layers were not easily discerned above floor deposits (Figure 3.2). Matrix above sterile gravel deposits consisted of homogenous accumulations of fluvial matrix. This matrix tended to be rock free with little variation in colour.

Underlying sterile gravel deposits were either unsorted accumulations of pebbles, cobbles, and coarse sand or finely layered veneers of coarse sand. The fine layered sands suggest periods when standing water accumulated in this location (Pattison personal communication 1991). No attempt was made to separate these two gravel deposits in the profile drawings.

Radiocarbon Age Estimates

Eight radiocarbon dates were obtained for the Hatzic Rock site (Figure 3.3). Six dates from the main excavation area indicate a range of 510 radiocarbon years with two additional dates obtained from a second structure discovered to the east (trench 4).

Figure 3.2

Main Excavation Area South Wall Profile

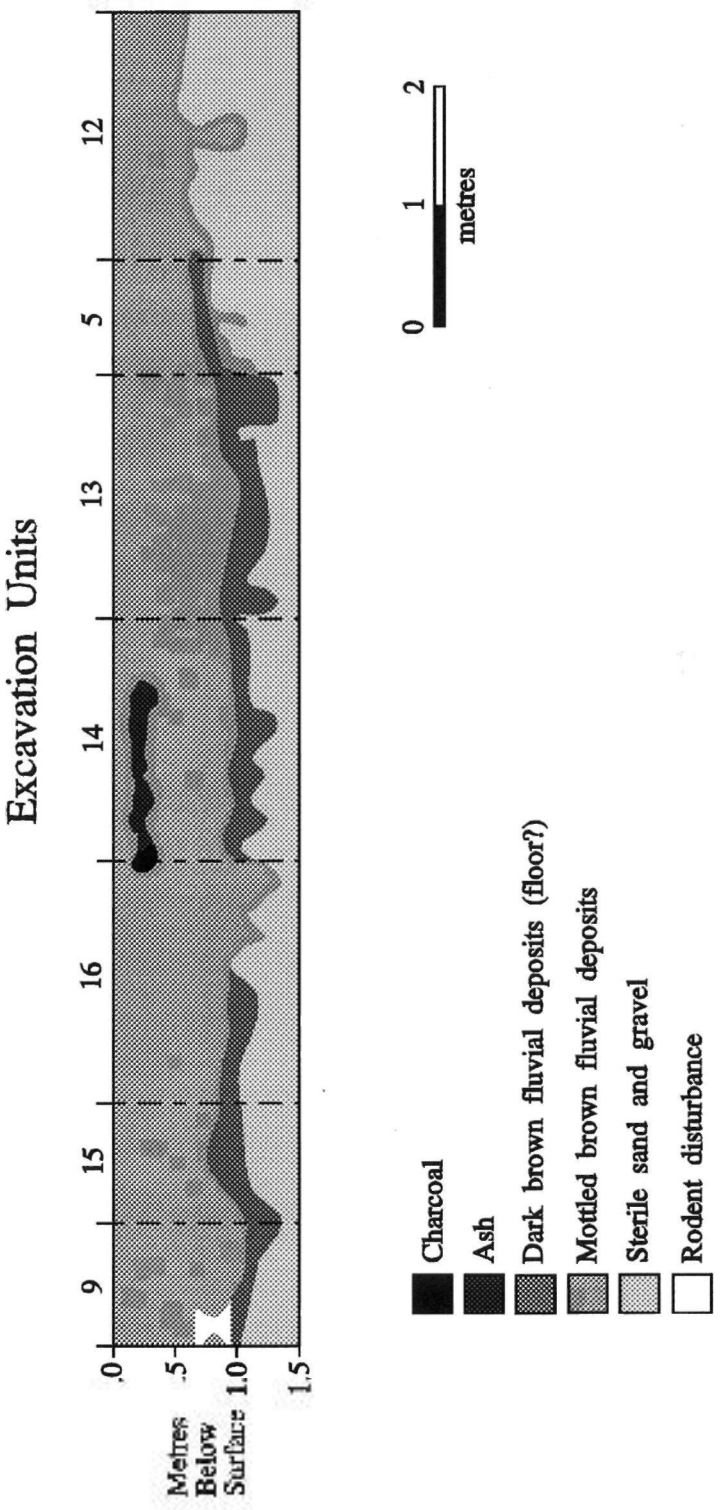
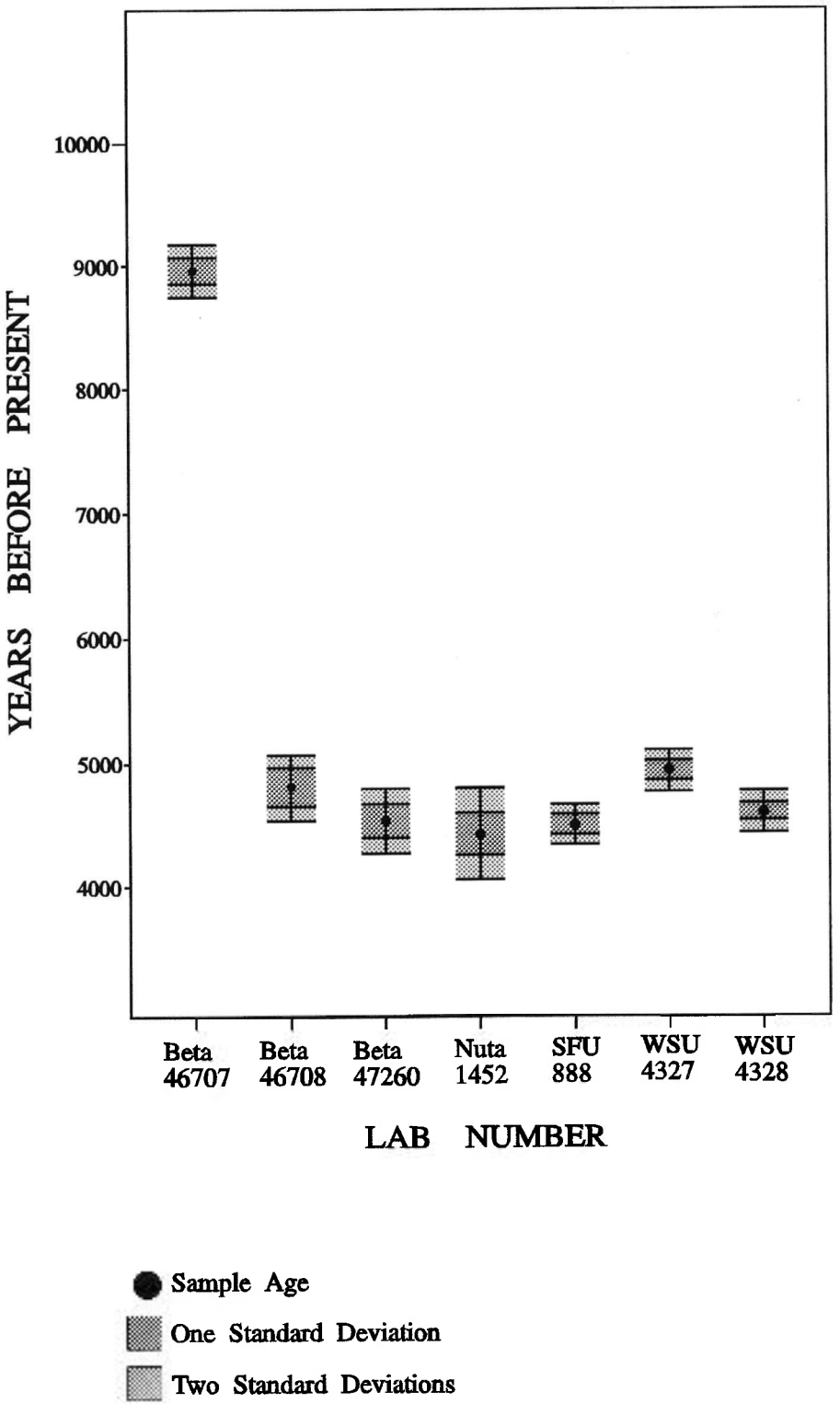


Figure 3.3

Radiocarbon Dates from the Hatzic Rock Site



Radiocarbon dates from the main excavation area include two dates from a post feature in unit 3. A sample from 180 cm d.b.u. (depth below unit) provided a date of 4420±180 BP (Nuta-1452). A sample from 200 cm d.b.u. provided a problematic date of A.D. 2800[1].

Two radiocarbon samples were obtained from hearth features in the structure's floor deposits. One sample dated to 4490±70 BP (SFU-888). A second sample dated to 4800±70 BP (Beta-46708). When standard deviations are taken into account, the two floor dates are roughly contemporary with the previously described post feature date (4420±180 BP).

A fifth radiocarbon sample, taken from a charcoal lens in unit 10, 15 cm above a gravel bench feature inside the structure, dated to 4930±70 BP (WSU-4327). This sample likely reflects an age associated with the occupation of the structure or a period shortly thereafter. This date is older than the date obtained from the post feature, but, when standard deviations are considered, these dates all fall within the same general age range. A statistical summary of the four valid dates from structure 1 provide the age of 4725±39 BP (Berry 1982).

The disturbed surface of the site was dated to 4590±70 BP (WSU-4328) with a sample taken from a charcoal

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[1] The S.F.U. lab number and the radiocarbon age of this sample could not be obtained despite repeated attempts. The cause of sample inaccuracy could not be determined.

concentration 5.7 m west of the unit 10 datum (5-15 cm d.b.s.). This date suggests a rapid rate of deposition at the Hatzic Rock site.

Also dated were the remains of a second structure, exposed east of the main excavation by an exploratory backhoe trench (trench 4). A charcoal sample, associated with the structure's floor, was taken from the north wall of trench 4 and dated to 8980±90 BP (Beta-46707). A second sample, also taken from the north wall of trench 4, yielded a date of 4530±120 BP (Beta-47260). Field notes indicate this sample was taken from "about" 20 cm above the structure's floor, however, wall profiles suggest it was taken from the structure's floor. The stratigraphic relationship between these two dates is illustrated in Figure 3.4.

The 8980 BP date is considered problematic because of its great age in comparison to other samples from the site[2]. The failure to secure a second date of this antiquity from an adjacent sample raised some concern. As a result, the 8980 BP date is discounted. An additional date(s) of this

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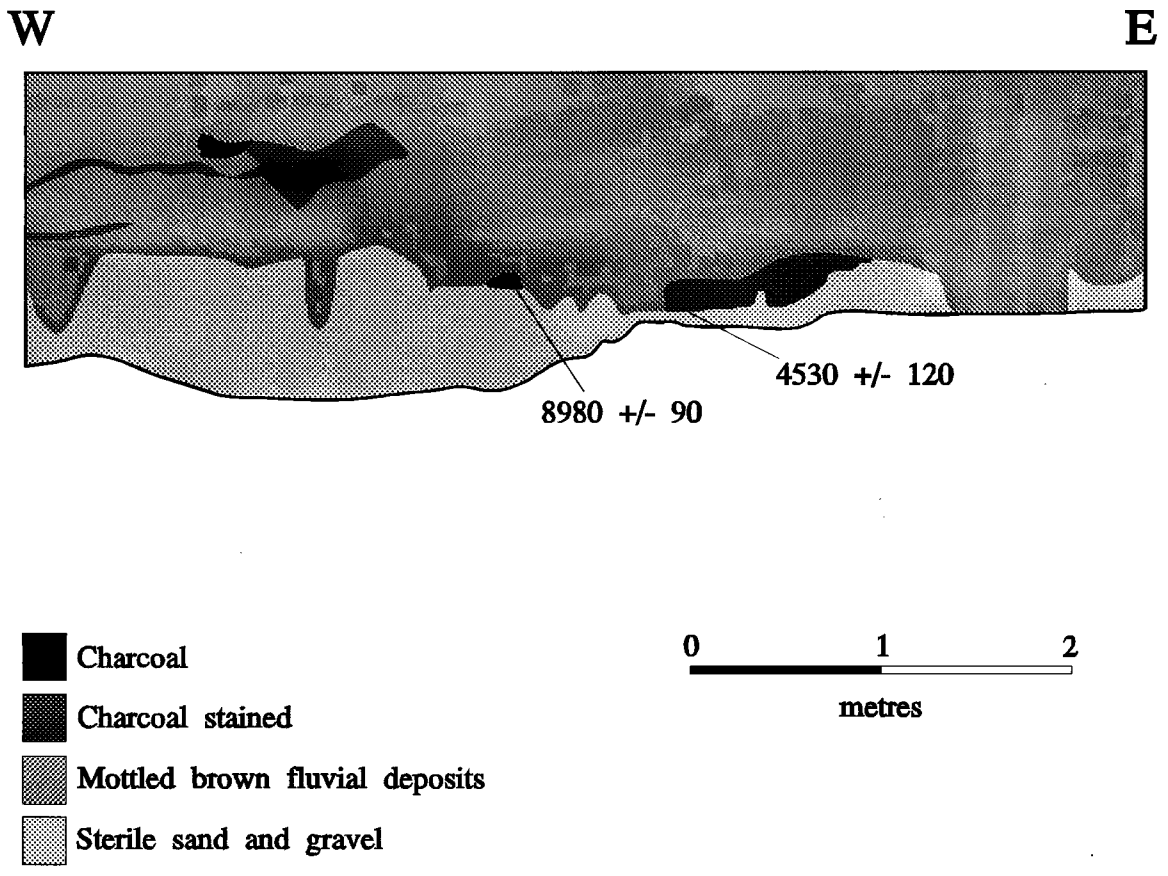
[2] Beta Analytic, Inc. noted a minor amount of root contamination present in this sample and the amount of suitable carbon was slightly on the low side. In response the lab performed extended counting on the sample to reduce the associated, somewhat higher statistical error term. The lab also went to lengths to ensure lab procedures and carbon content were correct. The reason for the apparent sample contamination is not known.

Figure 3.4

Trench 4 North Wall Profile



age would be necessary before the 8980 BP date could be accepted. Whether the sample which provided the early date is accurate, contaminated, or represents old wood could not be determined (see Bowman 1990 for a discussion of possible sources of contamination).

The second date from structure two is also not without problems. The 4530±120 BP (Beta-47260) date raises questions when compared to the date obtained for the disturbed surface. The date for structure two is younger than the surface date, however, their standard deviations overlap.

To summarize, radiocarbon dates from structure one provide an averaged age of 4725±39 BP. Dates associated with the second structure, located in trench 4, are problematic due to large difference in the two sample ages. The second date from structure two indicates it is roughly contemporary with the disturbed site surface located 1 metre above it. This suggests structure two is approximately 4500 years old.

Though two of the dates obtained from the Hatzic Rock site raise serious concerns, the remaining dates appear reliable. That many of the Hatzic radiocarbon dates overlap does not indicate problems, rather it reflects the shortcomings of radiocarbon dating in general. Radiocarbon dating is not precise enough to measure the rapid deposition of material which appears to have occurred at the Hatzic Rock site.

Occupation Zones

Three major occupation zones were identified in the main excavation area at the Hatzic Rock site. The second structure exposed in trench 4 was not included in this analysis. The methods used to distinguish the occupation zones are described below.

Stratigraphy was the first method used to separate occupation zones. Stratigraphy isolated floor deposits associated with the structure from overlying fill. Floor deposits were easily identified as a thick (c. 10-20 cm) dark band of matrix overlying sterile gravel. The dark colour of floor deposits is likely to have been caused by the accumulation and trampling of charcoal, ash and other by-products of daily life. The presence of hearths and post features in many wall profiles also helped isolate this zone. The floor was designated as occupation zone III.

Though this method proved the most simple and successful it was not without problems. For example, as discussed earlier in this chapter, with the exception of the U.B.C. fieldschool, units were most often excavated in a series of 10 cm or 20 cm arbitrary levels. Distinct layers were not separated so there was no attempt to keep floor deposits separate from the fill. As a result, blurring exists between occupation zone III and overlying deposits in some areas of the excavation.

The homogenous nature of matrix located above occupation zone III prevented the stratigraphic delineation of further occupation zones. While stratigraphic lenses were present, they covered limited areas and could not be linked together to define larger occupation zones as was possible with the floor zone.

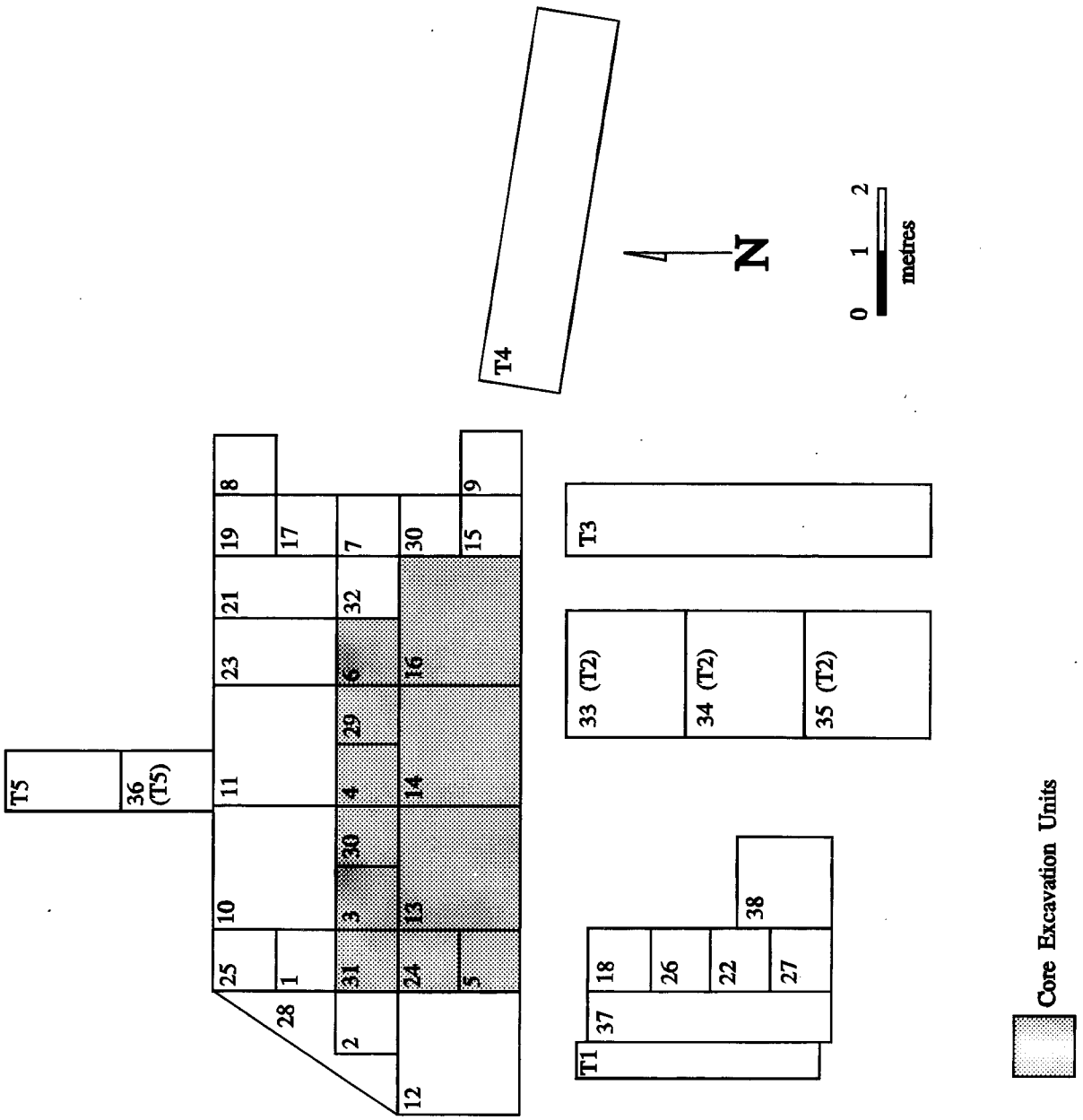
The ability to isolate discrete occupation zones was further complicated in some of the excavation units by data quality and the effect of sloping structure walls. In response to these difficulties eleven of the thirty-eight excavation units were isolated as a "core" area (Figure 3.5). Core excavation units were located in areas of level floor deposits away from the edge of the structure. These excavation units were used to further delineate occupation zones at the Hatzic Rock site.

The analysis of hearth features in the core area was the only technique which successfully delineated additional occupation zones. Hearth features proved ideal for this purpose as they often covered a large area and suggested some form of living floor or surface.

The location of hearth features in core excavation units were plotted by unit and level. This method successfully identified two zones of occupation above zone III. Occupation zone I was identified in the top 40 cm of deposits by the presence of four hearths at roughly the same

Figure 3.5

Core Excavation Units



depth followed by a hiatus of these features. Occupation zone II lay directly below occupation zone I and rested on occupation zone III.

To summarize, occupation zone III deposits were defined on the basis of stratigraphy as the dark 10-20 cm thick band of matrix overlying basal gravel deposits. This occupation is associated with the floor of the structure. Occupation zone II was defined simply as the deposits underlying zone I and overlying zone III deposits. Occupation zone II is composed of a relatively homogenous accumulation of fluvial matrix with cultural material distributed throughout.

Occupation zone I was identified in the top 40 cm of cultural deposits based on the presence of several small hearths at roughly 30-40 cm d.b.u. These hearths suggested a stable living surface and provided the basis of occupation zone definition. Unfortunately the upper portion of occupation zone I was removed by land altering activities in the fall of 1990.

The following two chapters examine the artifacts and features associated with each occupation zone.

CHAPTER FOUR

ARTIFACTS

Introduction

This chapter summarizes artifacts excavated from the Hatzic Rock site. The Hatzic Rock site artifact assemblage is tabulated and compared at the intra-site level and the inter-site level. The intra-site comparison seeks to identify differences between the three occupation zones isolated at the Hatzic Rock site.

At the inter-site level, the Hatzic Rock site artifact assemblage is compared to artifact assemblages from other Charles Culture sites. This comparison seeks to understand how the Hatzic Rock site artifact assemblage relates to other artifact assemblages of similar age. This comparison also attempts to determine whether differences between Eayem phase sites and St. Mungo phase sites are reflected in the artifact assemblages or whether differences between residential sites and resource procurement sites can be observed.

Methods of Analysis

Originally 10,016 artifacts were processed for this analysis, however, artifacts lacking proper provenience were

later excluded. In all, 8552 artifacts are used in this analysis.

Artifacts were processed in one of two ways depending upon their type. Items classified as tools received the most detailed treatment. Tools were classified using the typology developed by Mitchell and Pokotylo (n.d) for their Fraser Canyon Project. Modifications to this typology include the merging of some artifact classes and the addition of new artifact classes. Cores were included with tools because like a tool, cores reflect specific activities that were carried out at the site (Pratt 1992:93). Debitage includes all lithic waste material resulting from tool manufacture, modification, or repair. Classes of debitage include unmodified flakes, flake shatter and block shatter. Appendix A contains descriptions and metric summaries for each tool class.

Artifact raw material was determined using the typology developed by Mitchell and Pokotylo (n.d) for their Fraser Canyon Project. This typology was modified to suit the needs of the Hatzic Rock site analysis, however, the classifications remain comparable. Differences include the merging of raw material classes into single classes and the addition of new classes.

Artifacts

Table 4.1 provides tool counts and percentages for each occupation zone identified in the core excavation units. Tool counts and percentages from occupation zones I-III are remarkably similar and reflect an emphasis upon expedient flakes and pebble tools. Artifacts of this nature represent over 80% of the tool assemblage in each occupation zone.

Occupation zone I is marked by the absence of bifacially worked flake and pebble tools. A single projectile point was recovered from occupation zone I whereas occupation zones II and III each had several examples. Projectile points comprised approximately 12% of the occupation zone II and III artifact assemblages whereas the single projectile point represents less than 3% of the occupation zone I assemblage. The occupation zone I projectile point was recovered at the interface with occupation zone II thus raising the possibility that it may belong in the lower occupation zone II.

The near absence of bifacial tool classes, including projectile points, in occupation zone I raises several questions. Were bifacial tools not used in occupation zone I? Does this lack of bifacial artifacts reflect shifts in site use or increased tool curation? An absence of bifacial technology in occupation zone I is possible but unlikely. Perhaps land altering activities which occurred prior to the excavation had a skewing influence on this occupation zone's

Table 4.1 Tool Counts and Percentages from Occupation Zones I-III (Core Excavation Units)

Artifact Class	Occupation Zone					
	I		II		III	
Projectile Points						
Leaf-Shaped Projectile Point	0	.0%	3	5.4%	1	1.5%
Stemmed Projectile Point	1	2.6%	1	1.8%	2	3.0%
Lanceolate Projectile Point	0	.0%	1	1.8%	0	.0%
Projectile Point Tip	0	.0%	1	1.8%	0	.0%
Projectile Point Medial Section	0	.0%	0	.0%	1	1.5%
Leaf-Shaped Point Base	0	.0%	1	1.8%	0	.0%
Stemmed Projectile Point Base	0	.0%	0	.0%	4	6.1%
	1	**2.6%**	**7**	**12.5%**	**8**	**12.1%**
Blade Tools						
Microblade	1	2.6%	0	.0%	0	.0%
	1	**2.6%**	**0**	**.0%**	**0**	**.0%**
Flake Tools						
Multiple Point Graver	0	.0%	0	.0%	1	1.5%
Pièce Esquillée	0	.0%	1	1.8%	1	1.5%
Pebble Flake with Steep-Angled Bifacial Retouch	0	.0%	1	1.8%	0	.0%
Pebble Flake with Steep-Angled Unifacial Retouch	2	5.3%	4	7.1%	3	4.6%
Pebble Flake with Acute-Angled Unifacial Retouch	1	2.6%	0	.0%	0	.0%
Pebble Flake with Acute-Angled Utilization	0	.0%	1	1.8%	0	.0%
Flake with Acute-Angled Bifacial Retouch	0	.0%	1	1.8%	0	.0%
Flake with Steep-Angled Unifacial Retouch	3	7.9%	6	10.7%	5	7.6%
Flake with Acute-Angled Unifacial Retouch	2	5.3%	2	3.6%	1	1.5%
Steep-Angled Utilized Flake	6	15.8%	5	8.9%	8	12.1%
Acute-Angled Utilized Flake	7	18.4%	7	12.5%	9	13.6%
Cortex Spall Flake with Steep-Angled Bifacial Retouch	0	.0%	0	.0%	1	1.5%
	21	**55.3%**	**28**	**50.0%**	**29**	**43.9%**

Con't

Table 4.1 Con't

Cores/Pebble Tools						
Core	10	26.3%	12	21.4%	16	24.2%
Pebble with Bifacial Peripheral Flaking	0	.0%	1	1.8%	2	3.0%
Pebble with Unifacial Peripheral Flaking	1	2.6%	1	1.8%	4	6.1%
Pebble with Unifacial Peripheral Flaking/ Hammerstone	0	.0%	0	.0%	1	1.5%
Hammerstone	0	.0%	1	1.8%	1	1.2%
Hammerstone with Edge Abrasion	0	.0%	0	.0%	1	1.2%
Hammerstone/Anvil	0	.0%	1	1.8%	0	.0%
Anvil Stone	0	.0%	1	1.8%	0	.0%
	11	**29.0%**	**17**	**30.4%**	**25**	**37.9%**
Ground Stone						
Disc Bead	2	5.3%	0	.0%	0	.0%
Ground Slate Blade Fragment	0	.0%	0	.0%	1	1.5%
Formed Abrasive Stone Fragment	0	.0%	2	3.6%	1	1.5%
Abrasive Stone	0	.0%	0	.0%	1	1.5%
	2	**5.3%**	**2**	**3.5%**	**3**	**4.5%**
Ground and Pecked Stone						
Pebble Hammer	0	.0%	1	1.8%	0	.0%
	0	**.0%**	**1**	**1.8%**	**0**	**.0%**
Miscellaneous						
Paint Stone	2	5.3%	0	.0%	0	.0%
Paint Stone/Anvil	0	.0%	1	1.8%	1	1.5%
	2	**5.3%**	**1**	**1.8%**	**1**	**1.5%**
TOTAL	**38**	**100.0%**	**56**	**100.0%**	**66**	**100.0%**

assemblage. A satisfactory explanation for the minimal presence of bifacial tools in occupation zone I remains elusive.

Pebble tool and pebble flake tool artifact classes showed considerable variation between the three occupation zones. Pebble tool classes were most dominant in occupation

zone III (10.6%) in comparison to occupation zone II (3.6%) and occupation zone I (2.6%). The difference in pebble tool proportions between occupation zones could be functionally or temporally related.

For example, the greater number of pebble tools in occupation zone III, the oldest cultural deposits excavated at the Hatzic Rock site, may be a reflection of artifact continuity from the preceding Old Cordilleran Culture (O.C.C.). The O.C.C. (9000-5500 BP) was dominated by pebble based tool classes. While possible, the short time span represented in the Hatzic Rock site deposits suggests this hypothesis, if valid, would hold true for the slightly younger deposits in occupation zones I and II. As mentioned, this is not the case therefore differences in the proportions of pebble tools are likely functionally related.

A somewhat different pattern is reflected by the proportion of pebble flake tool classes in each occupation zone. Occupation zone II contains the greatest proportion of these tool classes (10.7%) with occupation zone I containing slightly less (7.9%). Occupation zone III contains the smallest proportion of pebble flake tools (4.6%).

Ground stone artifacts are more or less equally represented in the three occupation zones. Disc beads are unique to occupation zone I whereas abrasive stones are only found in occupation zones II and III. A single ground slate blade fragment was found in occupation zone III.

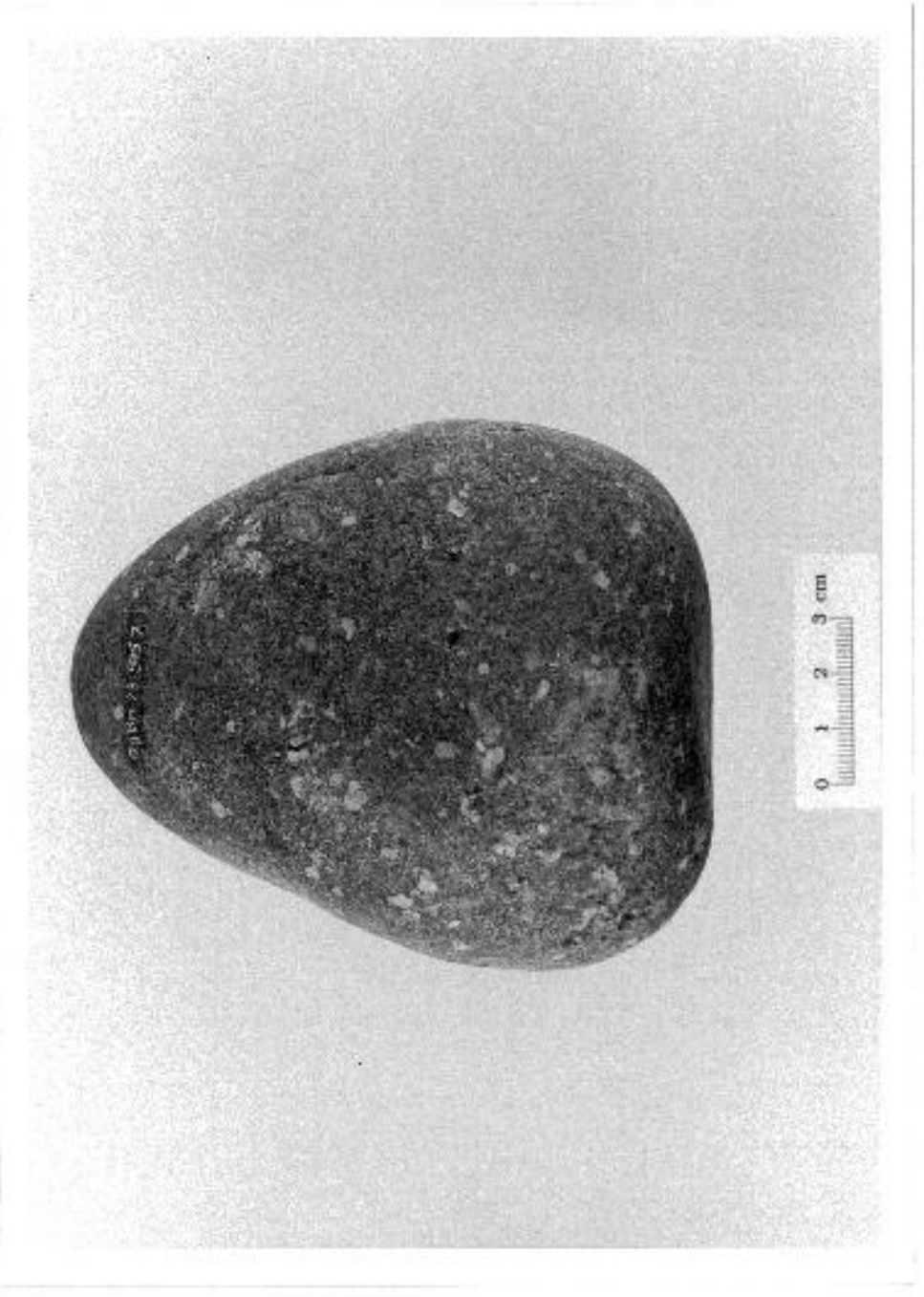
Pecked stone is represented by a single item, a pebble hammer, found in occupation zone II (see Figure 4.1). A single microblade, fashioned from basalt, was recovered in occupation zone I. The best evidence for a prepared blade industry at the Hatzic Rock site is a small basalt microblade core with two well defined blade scars. Unfortunately this item was found on the disturbed surface of the site making its relationship to the excavated deposits unclear.

Items of note which were not included in Table 4.1 include ochre and ochre-related artifacts of various types. Several pieces of ochre and flakes with ochre adhering were found in each occupation zone. Occupation zone III contained a piece of fire cracked rock covered with ochre while occupation zone II contained an acute-angled utilized flake coated with ochre.

As occupation zones I-III all date to the Charles Culture, the composition of the three tool assemblages was expected to be comparable with each other with the exception of occupation zone III. Occupation zone III is associated with the floor of the structure and was expected to possess evidence of a greater range of activities as indicated by artifact types and greater numbers of curated artifact types. Occupation zone III did not possess a large proportion of curated artifact types as expected or contain evidence for a greater range of activities. The occupation zone III tool assemblage does not suggest substantial

Figure 4.1

Pebble Hammer



differences exist between the floor and non-floor tool assemblages except for the higher proportion of pebble tools in occupation zone III and the lower proportion of pebble flake tools.

The near absence of bifacial tool classes in occupation zone I is an anomaly.

Tools from a combined occupation zone I/II and occupation zone III, in both core and non-core excavation units, were tabulated and presented in Table 4.2. Similar to the pattern observed in the core excavation units, the tool assemblages for the composite occupation zone I/II and occupation zone III are dominated by expedient flake or pebble tools. Occupation zone I/II is composed of 80.9% flake and pebble tools while 73.8% of occupation zone III is made up of these items. Anvil stones are noticeably absent from occupation zone III.

Projectile points are twice as common in occupation zone III as occupation zone I/II suggesting projectile points may have been stored or curated within the structure, however, the high number of fragmentary examples weakens this interpretation. Leaf-shaped and stemmed projectile point forms were found in both occupation zones. Stemmed projectile points and stemmed projectile point fragments were twice as common in occupation zone III. This may reflect a shift in hafting technology or preference. A single lanceolate point, unique to occupation zone I/II, was recovered. The dominance of the stemmed projectile point

Table 4.2 Tool Counts and Percentages from Occupation Zones I/II and III

Artifact Class	Occupation Zone			
	I/II		III	
Projectile Points				
Leaf-Shaped Projectile Point	3	2.0%	4	2.4%
Stemmed Projectile Point	4	2.6%	9	5.4%
Lanceolate Projectile Point	1	.7%	0	.0%
Projectile Point Tip	1	.7%	1	.6%
Projectile Point, Distal Fragment	2	1.3%	2	1.2%
Projectile Point Medial Section	0	.0%	1	.6%
Leaf-Shaped Point Base	1	.7%	4	2.4%
Stemmed Projectile Point Base	1	.7%	8	4.8%
	13	**8.6%**	**29**	**17.3%**
Miscellaneous Bifaces				
Formed Biface, Steep-Angled Edge	0	.0%	1	.6%
	0	**.0%**	**1**	**.6%**
Blade Tools				
Microblade	1	.7%	0	.0%
	1	**.7%**	**0**	**.0%**
Flake Tools				
Multiple Point Graver	0	.0%	1	.6%
Discoidal Uniface	0	.0%	1	.6%
Pièce Esquillée	2	1.3%	2	1.2%
Pebble Flake with Steep-Angled Bifacial Retouch	1	.7%	0	.0%
Pebble Flake with Steep-Angled Unifacial Retouch	13	8.6%	8	4.8%
Pebble Flake with Acute-Angled Unifacial Retouch	1	.7%	1	.6%
Pebble Flake with Acute-Angled Utilization	1	.7%	0	.0%
Flake with Steep-Angled Bifacial Retouch	1	.7%	4	2.4%
Flake with Acute-Angled Bifacial Retouch	0	.0%	1	.6%
Flake with Steep-Angled Unifacial Retouch	19	12.5%	9	5.4%
Flake with Acute-Angled Unifacial Retouch	4	2.6%	2	1.2%

Con't

Table 4.2 Con't

Steep-Angled Utilized Flake	14	9.2%	16	9.5%
Acute-Angled Utilized Flake	18	11.8%	28	16.7%
Cortex Spall Flake with Steep-Angled Bifacial Retouch	0	.0%	1	.6%
Cortex Spall Flake with Acute-Angled Unifacial Retouch	0	.0%	1	.6%
	74	**48.7%**	**75**	**44.6%**
Cores/Pebble Tools				
Core	35	23.0%	34	20.2%
Pebble with Bifacial Peripheral Flaking	4	2.6%	5	3.0%
Pebble with Unifacial Peripheral Flaking	4	2.6%	5	3.0%
Pebble with Unifacial Peripheral Flaking/ Hammerstone	0	.0%	1	.6%
Hammerstone	1	.7%	1	.6%
Hammerstone with Edge Abrasion	0	.0%	2	1.2%
Hammerstone/Anvil	2	1.3%	1	.6%
Anvil Stone	3	2.0%	0	.0%
	49	**32.2%**	**49**	**29.2%**
Miscellaneous Chipped Stone				
Miscellaneous Flaked Slate	1	.7%	0	.0%
	1	**.7%**	**0**	**.0%**
Ground Stone				
Disc Bead	2	1.3%	0	.0%
Ground Slate Blade Fragment	2	1.3%	3	1.8%
Miscellaneous Worked Nephrite	0	.0%	1	.6%
Formed Abrasive Stone Fragment	4	2.6%	3	1.8%
Abrasive Stone	2	1.3%	1	.6%
	10	**6.6%**	**8**	**4.8%**
Ground and Pecked Stone				
Grooved Cobble/Anvil	0	.0%	1	.6%
Pebble Hammer	1	.7%	0	.0%
	1	**.7%**	**1**	**.6%**
Miscellaneous				
Paint Stone	2	1.3%	3	1.8%
Paint Stone/Anvil	1	.7%	1	.6%
Pyroclast	0	.0%	1	.6%
	3	**2.0%**	**5**	**3.0%**
TOTAL	**152**	**100.0%**	**168**	**100.0%**

form in occupation zone III was unexpected. The stemmed projectile point form is thought to overlap with the Locarno Beach phase (3300-2500 BP) on the coast while the leaf-shaped form is thought to have continued from the O.C.C. This inverse relationship to the expected pattern suggests this assumption may require reassessment.

As discussed with the core excavation units, a single basalt microblade was recovered and is included in occupation zone I/II. Though the presence of a microblade is intriguing, its status is in question. Pebble tool proportions in occupation zone III (6.6%) are slightly more dominant than in occupation zone I/II (5.2%). This differs from the pattern seen in the core excavation units where occupation zone III pebble tools were more than twice as common than the other two occupation zones.

Differences in pebble flake tool proportions revealed the same general pattern seen in the core excavation units. Pebble flake tools in occupation zone I/II (10.7%) were almost twice as common than in occupation zone III (5.4%). This suggests differences between pebble flake tool proportions in occupation zone I/II and occupation zone III are real while the differences in pebble tool proportions are more tenuous.

Ground stone tools, though not common, are evenly represented in each occupation zone. Disc beads were absent in occupation zone III and occupation zone I/II did not contain any worked nephrite. Pecked stone is extremely rare

and is represented by a pebble hammer in occupation zone I/II and a grooved cobble/anvil in occupation zone III (Figure 4.2).

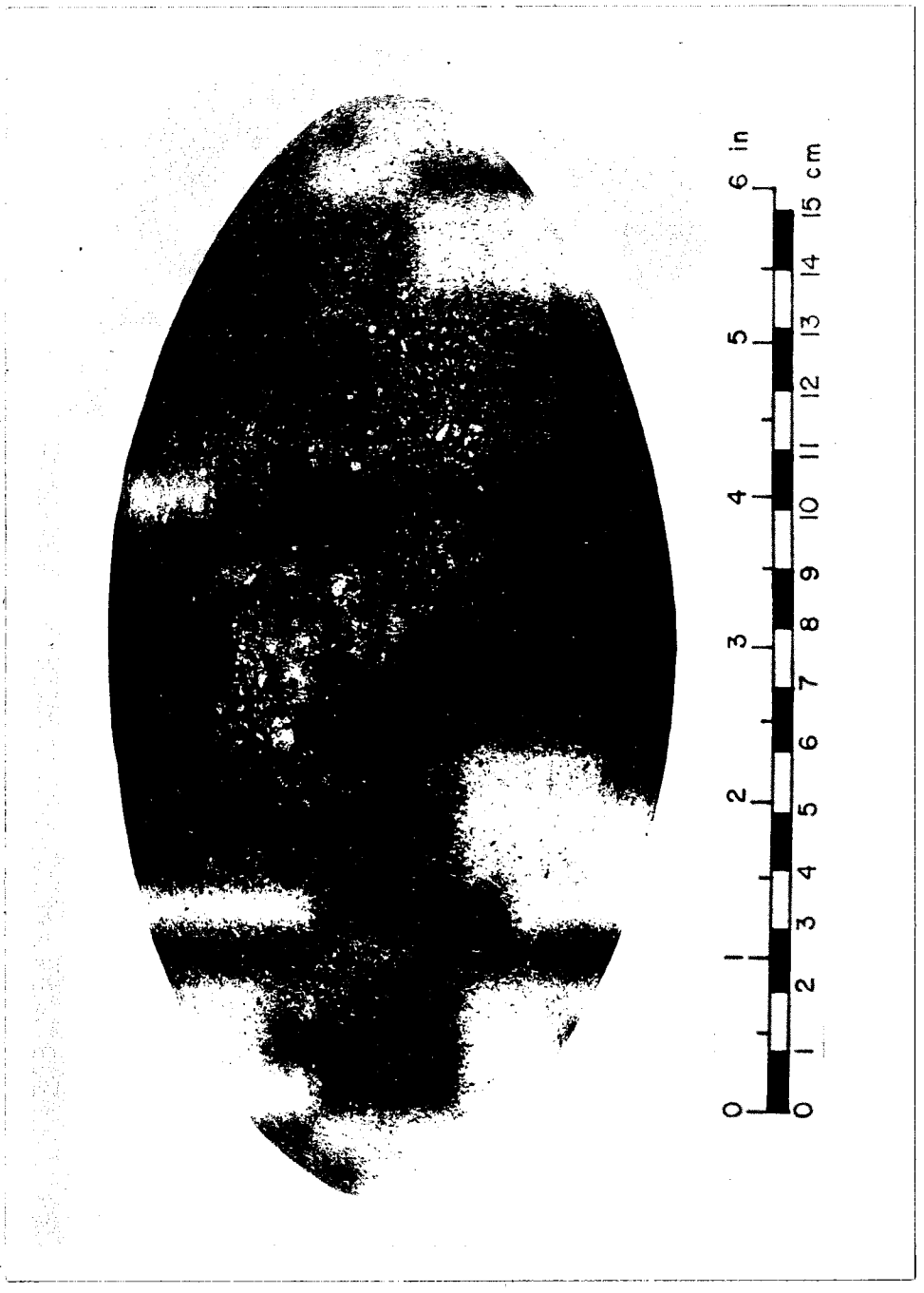
The grooved cobble/anvil appears to have been used for processing plant or animal material as exhibited by areas of polish on its working surface. Pecked grooves representing hand grips were located along the edges of the tool. Given the time necessary to shape such an object, the tool was likely curated.

Paint stones, or palate-type artifacts, are present in both occupation zones. Not included in Table 4.2 but of note are several ochre-related artifacts. Thirty-six pieces of ochre were recovered from occupation zone I/II with twenty-seven found in occupation zone III. An acute-angled utilized flake with ochre adhering was found in occupation zone I/II. In each occupation zone classes of debitage, including unmodified flakes and block shatter, were recovered with ochre adhering to them. Occupation zone I/II contained a small unmodified pebble coated with ochre while occupation zone III contained pieces of fire cracked rock dusted with ochre. These artifacts are intriguing and when combined with the paint stones suggest ochre use and processing was an important activity at the Hatzic Rock site.

An unmodified vitreous basalt raw material nodule, probably of Interior B.C. origin, was recovered from occupation zone III. An unmodified pyroclast from

Figure 4.2

Grooved Cobble/Anvil



occupation zone III was included with the tool assemblage summary for reasons indicated below. This pyroclast is an unmodified sliver of obsidian which has the appearance of a bipointed awl.

Pyroclastic materials settle out of the atmosphere after explosive volcanic eruptions (Courty et al. 1989:101). In this case, the obsidian erupted out of a volcano in liquid form then solidified into its characteristic shape as it fell to earth. The pyroclast recovered from Hatzic exhibits no evidence of working and is completely covered with cortex.

Hobler (personal communication 1992) has encountered pyroclasts in his own research on the central coast of British Columbia where they have turned up in the context of early historic period trade goods. Hobler suggested that though some pyroclasts he has analyzed have been modified they could also have been used as tools in their natural form. Hobler further suggested many pyroclasts possess unique forms or qualities which may have made them objects of interest and thus appreciated for their natural beauty (Hobler personal communication 1992). Fredrickson (1984:514) describes similar artifacts from north coastal California as obsidian bangles. Little can be said about the pyroclast discovered at the Hatzic Rock site except that it may have served as an expedient tool (perforator?) or was brought to Hatzic for its aesthetic properties.

To summarize, the occupation zone I/II and III artifact assemblages indicate expedient tools were predominant. Further, the presence of anvil stones only in occupation zone I/II suggests the manufacture and processing of raw materials occurred outside of habitations. Differences in the proportion of pebble tools in each occupation zone are less clear than in the core excavation units, however, differences in pebble flake tool proportions appear real.

The presence of prepared blade technology is weak and ground stone items are present in small numbers. The presence of ground stone beads suggests personal adornment was practiced. Ochre and ochre related artifacts are well represented and indicate this mineral was widely used or processed at the Hatzic Rock site. The dominance of stemmed projectile point types in occupation zone III and their equal representation with leaf-shaped types in occupation zone I/II suggests the dominance of the stemmed forms may have been declining through time contrary to the expected pattern.

As occupation zone III is associated with the floor of the structure there exist expectations concerning the tool assemblage expected to be recovered. These include evidence of a greater range of activities as indicated by artifact types and greater numbers of curated artifact types. Artifacts which are unique to occupation zone III, likely representing activities not present in occupation zone I/II, include a grooved cobble/anvil, a nephrite fragment and a

multiple point graver. These artifacts suggest activities such as woodworking, the processing of plant materials and perhaps the processing of hides. Each of these artifacts were likely curated. The absence of artifact types such as anvil stones which are present in occupation zone I/II, indicates lithic reduction, or the processing of other raw materials, probably did not take place within the structure. This is not unexpected given the debris associated with these activities.

The nephrite fragment found in occupation zone III suggests the maintenance, storage or use of nephrite artifacts within the structure.

In general, the occupation zone III artifact assemblage shares most of its characteristics with occupation zone I/II. However, the artifacts that best reflect specific activities associated with occupation zone I/II or occupation zone III are mostly limited to one example of each type. This causes some concern when attempting meaningful interpretations. Some caution needs to be exercised. What is apparent is that many of the activities performed at the Hatzic Rock site over the ages remained the same and required the same tools. This is clearly reflected in the composition of the tool assemblages for each occupation zone.

As expected, the floor deposits of occupation zone III did exhibit some unique artifact types that suggest activities performed in the structure were not carried out in later occupations of the site.

Table 4.3 provides the number and percentage of each tool type found at the Hatzic Rock site. This table combines occupation zones I/II and III from Table 4.2 to summarize the entire Hatzic Rock site tool assemblage.

Table 4.3 indicates the Hatzic Rock site tool assemblage is dominated by expedient chipped stone tools. This includes various types of flake tools (46.6%) and various types of pebble tools (30.6%). Cores account for 21.6%. When combined, these tool types represent 77.2% of the Hatzic Rock site tool assemblage.

All bifaces are projectile points, or projectile point fragments, with one exception being a thick projectile point preform. No bifacial knives were recovered. Projectile point forms were either stemmed, leaf-shaped or lanceolate. Only one lanceolate example was recovered and the stemmed form occurred twice as frequently as the leaf-shaped form. The presence of a prepared blade technology is represented by one basalt microblade and, as discussed earlier, its status remains contentious.

Ground stone artifacts are present in small numbers and include slate blade fragments (Figure 4.3), which may have served a cutting function, disc beads, which suggest some form of personal adornment and a small piece of worked

Table 4.3 Tool Counts and Percentages from the Hatzic Rock Site

Artifact Class	Combined Occupation Zones I-III	
	n	%
Projectile Points		
Leaf-Shaped Projectile Point	7	2.2%
Stemmed Projectile Point	13	4.1%
Lanceolate Projectile Point	1	.3%
Projectile Point Tip	2	.6%
Projectile Point, Distal Fragment	4	1.3%
Projectile Point Medial Section	1	.3%
Leaf-Shaped Point Base	5	1.6%
Stemmed Projectile Point Base	9	2.8%
	42	**13.1%**
Miscellaneous Bifaces		
Formed Biface, Steep-Angled Edge	1	.3%
	1	**.3%**
Blade Tools		
Microblade	1	.3%
	1	**.3%**
Flake Tools		
Multiple Point Graver	1	.3%
Discoidal Uniface	1	.3%
Pièce Esquillée	4	1.3%
Pebble Flake with Steep-Angled Bifacial Retouch	1	.3%
Pebble Flake with Steep-Angled Unifacial Retouch	21	6.6%
Pebble Flake with Acute-Angled Unifacial Retouch	2	.6%
Pebble Flake with Acute-Angled Utilization	1	.3%
Flake with Steep-Angled Bifacial Retouch	5	1.6%
Flake with Acute-Angled Bifacial Retouch	1	.3%
Flake with Steep-Angled Unifacial Retouch	28	8.8%
Flake with Acute-Angled Unifacial Retouch	6	1.9%

Con't

Table 4.3 Con't

Steep-Angled Utilized Flake	30	9.4%
Acute-Angled Utilized Flake	46	14.4%
Cortex Spall Flake with Steep-Angled Bifacial Retouch	1	.3%
Cortex Spall Flake with Acute-Angled Unifacial Retouch	1	.3%
	149	**46.6%**
Cores/Pebble Tools		
Core	69	21.6%
Pebble with Bifacial Peripheral Flaking	9	2.8%
Pebble with Unifacial Peripheral Flaking	9	2.8%
Pebble with Unifacial Peripheral Flaking/ Hammerstone	1	.3%
Hammerstone	2	.6%
Hammerstone with Edge Abrasion	2	.6%
Hammerstone/Anvil	3	.9%
Anvil Stone	3	.9%
	98	**30.6%**
Miscellaneous Chipped Stone		
Miscellaneous Flaked Slate	1	.3%
	1	**.3%**
Ground Stone		
Disc Bead	2	.6%
Ground Slate Blade Fragment	5	1.6%
Miscellaneous Worked Nephrite	1	.3%
Formed Abrasive Stone Fragment	7	2.2%
Abrasive Stone	3	.9%
	18	**5.6%**
Ground and Pecked Stone		
Grooved Cobble/Anvil	1	.3%
Pebble Hammer	1	.3%
	2	**.6%**
Miscellaneous		
Paint Stone	5	1.6%
Paint Stone/Anvil	2	.6%
Pyroclast	1	.3%
	8	**2.5%**
TOTAL	**320**	**100.0%**

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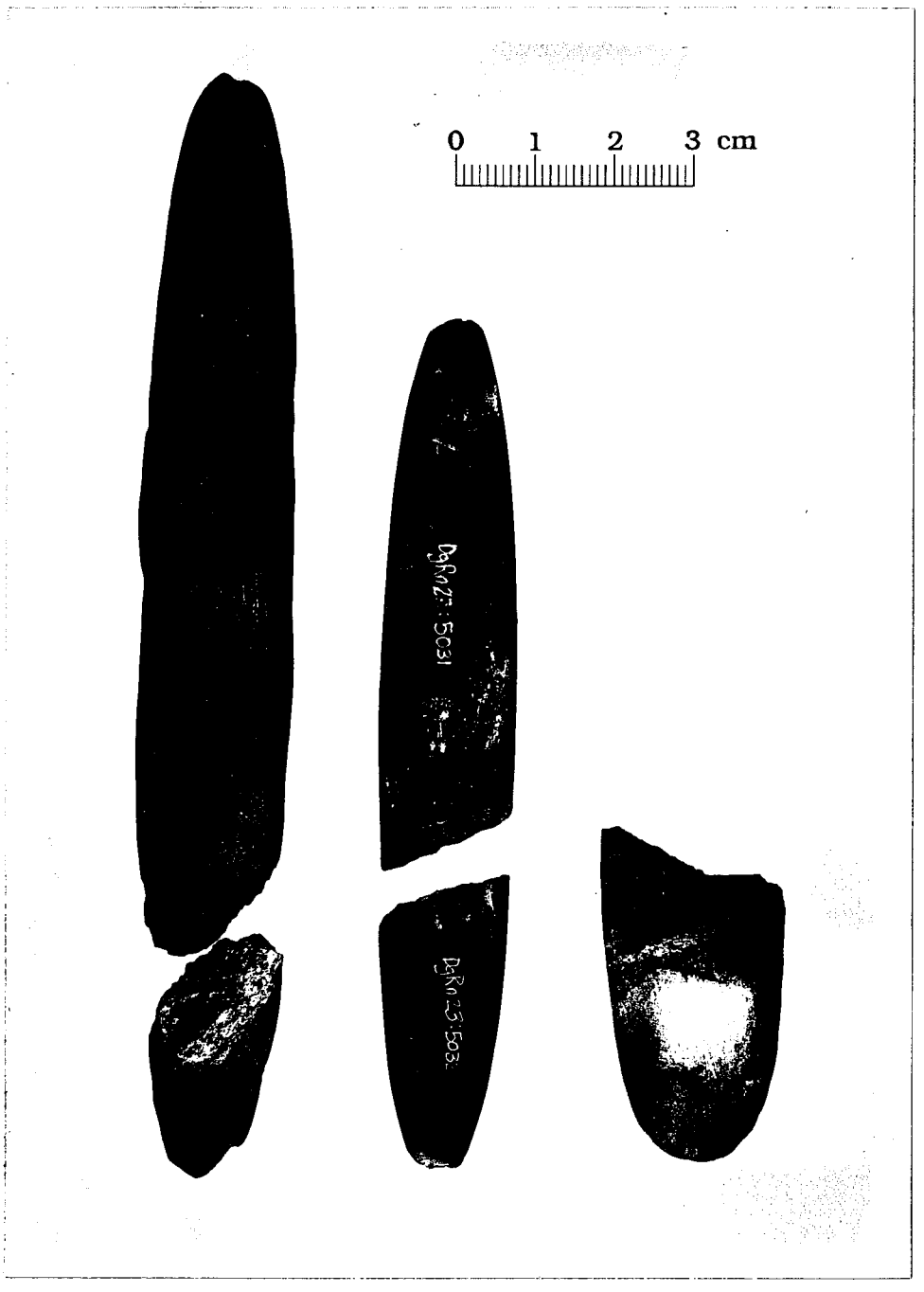
Figure 4.3

Ground Slate Blade Fragments



nephrite that suggests the use of adzes or chisels. Abrasive stone classes provide further evidence of a ground stone industry.

Pecked stone artifacts are rare at the Hatzic Rock site. Both examples, a crude pebble hammer and a grooved cobble/anvil, suggest artifacts of this type may have been curated. The time required to fashion these artifacts, the grooved cobble/anvil in particular, is considerable. This artifact, and others of a similar nature, would likely have been either cached at their place of use or would have traveled from location to location with its owner(s).

The presence of ochre and many ochre-related artifacts indicates this mineral was processed and used at the Hatzic Rock site. Various ochre covered artifacts, such as palates and paint stone/anvils, suggest the material may have been used for the decoration of objects which have since disintegrated (e.g. basketry or boxes).

The range and frequency of lithic raw materials represented in the Hatzic Rock site tool assemblage is summarized in Table 4.4. The most common raw materials are locally available and include basalt and andesite[1]. The reliance on these local raw materials further reinforces the expedient nature of the tool assemblage.

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[1] Also described as argillite (Borden 1975:74) or siliceous argillite.

Table 4.4 Hatzic Rock Site Raw Material Types and Frequencies

Type	n	%
Andesite	46	14.4
Basalt	179	55.9
Chert	16	5.0
Diorite	5	1.6
Granite	20	3.4
Mudstone	2	.6
Nephrite	1	.3
Obsidian	5	1.6
Quartzite	12	3.8
Sandstone	11	3.4
Slate	7	2.2
Vitreous Basalt	16	5.0
Total	**320**	**100.0%**

Several imported, or exotic, raw material types were also present in the Hatzic Rock site tool assemblage. These materials include, obsidian, chert and vitreous basalt. These materials are not found in the immediate Hatzic area and would have been brought to the Hatzic Rock site from distant quarry locations.

Obsidian X-ray Fluorescence Analysis

Several obsidian artifacts were submitted for X-ray fluorescence analysis. This non-destructive process measures the concentration of elements within each sample to determine the source location of obsidian samples. A "fingerprint" obtained for a particular sample, is then

matched with fingerprints for specific quarry locations to reveal the source location of the obsidian artifact or sample (Nelson 1975:95; Nelson et al. 1975:86). Malcolm James, a graduate student at Simon Fraser University, conducted the obsidian analysis.

Results from James' analysis revealed the Hatzic Rock site obsidian was obtained from sources in eastern Oregon State (Table 4.5). Quarry locations identified in Table 4.5 are illustrated in Figure 4.4.

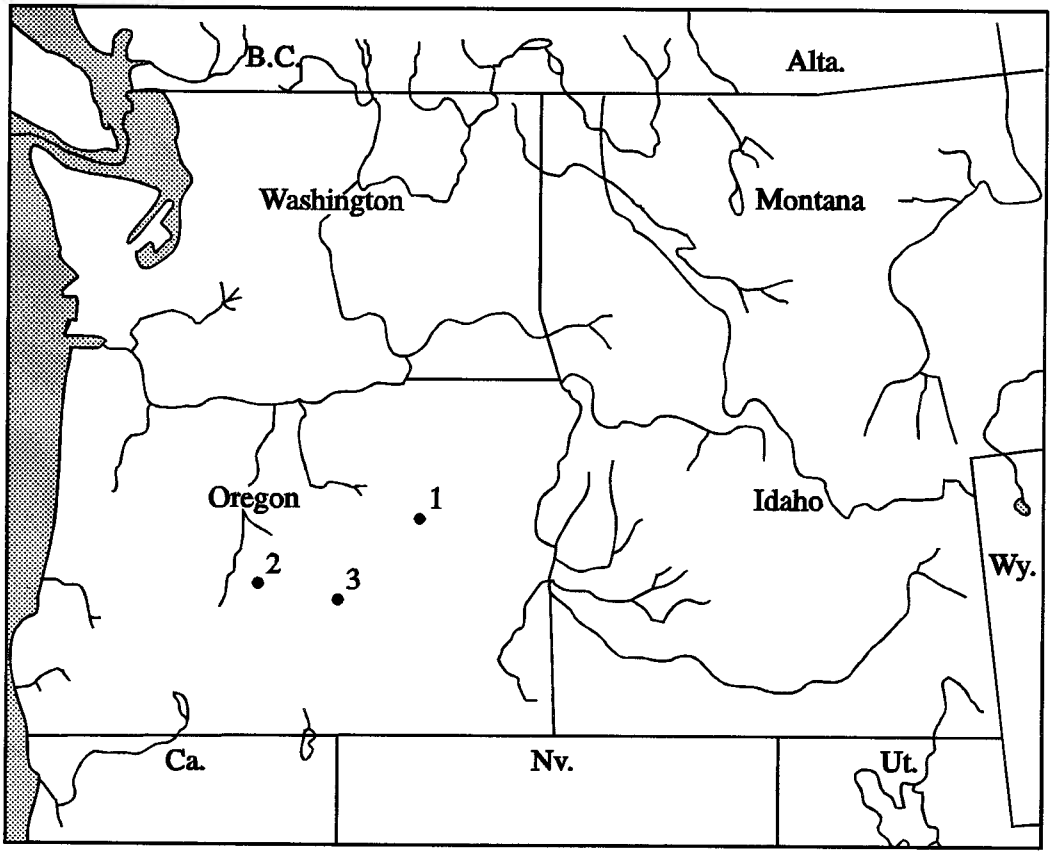
Table 4.5 X-ray Fluorescence Analysis Results

Catalogue Number	Provenience	Quarry Location
4032	unit 2, level 3	John Day
13,162	unit 3, level 6	Newberry Caldera 1
13,163	unit 3, level 2	John Day or Glass Butte B

The presence of obsidian from sources in eastern Oregon suggests the material was obtained either through an exchange network or directly by the inhabitants of the Hatzic Rock site. Carlson (1983:22) has argued that the widespread distribution of obsidian throughout the northwest coast suggests trade was the most likely means of obtaining this raw material.

Figure 4.4

Quarry Locations for Obsidian
Recovered at the Hatzic Rock Site



1) John Day
2) Glass Butte B
3) Newberry Caldera 1

(based on James n.d.)

The presence of Oregonian obsidian at the Hatzic Rock site is intriguing given that other quarry locations, such as Garibaldi, are nearer to Hatzic. This suggests either Oregonian obsidian may have been a higher quality material than obsidian from nearer sources or the inhabitants of the Hatzic Rock site had greater affinity with groups to the south than with groups to the west. Regardless, the presence of Oregonian obsidian indicates other commodities, or ideas, were also being exchanged between these two locations (see Nelson et al. 1975:85; Carlson 1983:22).

Faunal Analysis

Due to acidic soil conditions[2], the Hatzic Rock site faunal assemblage, was small and in poor condition. Faunal material was recovered in calcined condition indicating that burning played a role in preservation (Crockford 1992; Klein and Cruz-Uribe 1984:6). The majority of the Hatzic faunal remains were either small flecks or minute fragments of the original element.

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[2] Three matrix samples were randomly selected for pH evaluation. Twenty grams of matrix were mixed with 20 ml of distilled water and tested with a Fisher Accumet pH meter (model 825 MP). The results are as follows: pH 5.3 (EU 1, level 3), pH 5.7 (EU 24, level 7) and pH 5.6 (EU 13, level 7). These results indicate the pH of soil at the Hatzic Rock site is acidic and explains the near total lack of faunal remains.

As the Hatzic Rock site faunal assemblage was limited only general observations could be made. Mammalian and piscean faunal remains were analyzed by Susan Crockford of Pacific Identifications, Ltd. Shellfish remains were analyzed by the author at the U.B.C. Laboratory of Archaeology. The Hatzic Rock site faunal assemblage is summarized in Table 4.6.

Domestic dog (Canis familiaris) and possibly mule deer (Odocoileus hemionus) were the only mammalian species identified. An undetermined species of small forest bird (Passeriniformes sp.) was identified. Many unidentifiable remains, including those which may belong to small mammals or birds, were also recovered.

Identifiable fish remains include: Pacific salmon (Oncorhynchus sp.), a salmonid species (Salmonidae) (either Pacific salmon or trout) and a small fish species such as sucker or chub (Catostomidae/Cyprinidae).

The most abundant faunal remains recovered from the Hatzic Rock site were shellfish, however, the identification of species was difficult. Unidentifiable shellfish remains are likely the remains of horseclams (Tresus ssp.), butterclams (Saxidomus giganteus) or basket cockles (Clinocardium nuttalli) based on the thickness of shell fragments. Barnacles (Balanus glandula) were identified in some number because of their characteristic interior honeycomb structure.

Table 4.6 Hatzic Rock Site Faunal Remains

	NISP
Mammal	
Canis familiaris (Domestic dog)	3
unidentifiable ungulate	16
unidentifiable ungulate (*Odocoileus hemionus*?)	2
unidentifiable carnivore (*Canis familiaris*?)	1
unidentifiable small mammal[3]	95
unidentifiable	43
Bird	
Passeriniformes sp. (small forest bird)	1
Unidentifiable small bird	83
unidentifiable[4]	180
Fish	
Oncorhynchus sp. (Pacific salmon)	1
Salmonidae (Pacific salmon or trout)	2
Catostomidae/*Cyprinidae* (sucker or chub)	17
unidentifiable	2
Shellfish	
Balanus glandula (barnacle)	138
unidentifiable	782
Total	**1366**

[3] Could also belong to a small bird.
[4] Could also belong to a small mammal.

Little can be said about this faunal assemblage except that the species of mammals, fish and shellfish identified are consistent with those which would have been available to individuals inhabiting the Hatzic Rock site. Crockford (1992) suggests the presence of calcined domestic dog bone may lead to assumptions concerning the ultimate disposal of dogs or their use in general. Shellfish suggest contact and/or trade with coastal groups. The possibility also exists that the inhabitants of the Hatzic Rock site periodically ventured to coastal regions to gather shellfish themselves.

Inter-site Tool Assemblage Comparisons

This section presents the results of the comparison of the Hatzic Rock site artifact assemblage to other Charles Culture artifact assemblages. The Hatzic Rock site artifact assemblage is compared with Eayem phase components from Esilao and Maurer. This comparison seeks to determine whether the composition of artifact assemblages from the three Eayem phase sites are relatively the same or exhibit a high degree of variability.

The Hatzic Rock site tool assemblage is then compared to the St. Mungo phase lithic tool assemblages from Glenrose Cannery, St. Mungo and Crescent Beach. This comparison attempts to determine how the Hatzic Rock site artifact

assemblage relates to similarly aged sites from the mouth of the Fraser River.

Borden (1975) provided the best summary of the Eayem phase tool assemblage from Esilao. Unfortunately, this overview is general and does not include artifact tables or illustrations of tool types. The following synopsis of the Eayem phase tool assemblage from Esilao is taken from Borden (1975).

A variety of flake and pebble tool forms are common at Esilao. Pebble tools include choppers and scraper planes with flake tools represented by a variety of types including utilized and retouched flakes. Cortex spall tools, including knives, were found at Esilao.

These tool classes are comparable to those found at the Hatzic Rock site with the exception of the cortex spall category. While two cortex spall tools were found at the Hatzic Rock site they could not be described as cortex spall knives. Unfortunately, without frequency data, the importance of cortex spall knives at Esilao cannot be evaluated.

Projectile point types at Esilao are similar to those from the Hatzic Rock site with both leaf-shaped and stemmed forms present, however, no lanceolate examples were recovered at Esilao. Large leaf-shaped knives and small bifacial knives are present at Esilao but were not recovered at the Hatzic Rock site.

Pièces esquillées and burins were found at both sites while drills were found only at Esilao. Similarly, quartz crystal microliths, present at Esilao, were absent at the Hatzic Rock site.

Ground stone artifacts from both sites reflect subtle differences perhaps reflecting a different range of activities at these two locations. Ground slate knife fragments and a chipped, and ground, leaf-shaped projectile point-like object were recovered at Esilao. Neither of these tool types were found at the Hatzic Rock site. Slate blade fragments, disc beads and a fragment of worked nephrite were recovered from the Hatzic Rock site but were not found at Esilao. Abrasive stones of various shapes and sizes were reported in both tool assemblages.

Decorative items found at Esilao but not the Hatzic Rock site include a phyllite grub carving and a fragment of an incised siltstone plaque. Fine gravers and incising tools were also found at Esilao.

Similar to the Hatzic Rock site, lithic raw materials used at Esilao tend to be locally available and include argillite, crystalline quartz, slate and sandstone. Some imported raw materials such as vitreous basalt and various crypto-crystallines are also represented.

The Maurer site has an Eayem phase component and the remains of at least one structure dated to this period (ca. 4200 BP). These factors make the comparison of the Maurer

tool assemblage with the Hatzic Rock site tool assemblage a logical choice.

However, the Maurer tool assemblage, like Esilao, lacks proper documentation thus limiting comparisons. Also there is good evidence to suggest Eayem phase artifacts at the Maurer site are mixed with post-Eayem phase material. Though the Maurer data need to be treated with some caution, they need not be avoided outright. Discrepancies exist between the Maurer tool assemblage summaries in LeClair (1973) and LeClair (1976). The following discussion uses the information found in LeClair (1976) and disregards the earlier, perhaps more preliminary, summary.

Roughly 6000 lithic artifacts were recovered in LeClair's 1973 excavation with 1500 of these identified as tools. LeClair divided the Maurer tool assemblage into broad classes: unifaces, bifaces, choppers, cores or miscellaneous.

Utilized or retouched flakes were classified as unifaces at Maurer. Tools of this nature represent 72% of the Maurer tool assemblage as compared to 44.4% at the Hatzic Rock site.

Bifaces, including projectile points, represent 5% of the Maurer assemblage in comparison to 13.4% of the Hatzic Rock site assemblage. Leaf-shaped, stemmed and lanceolate projectile point forms are present at each site. Bifacial knives and a side-notched projectile point from the Maurer site are absent at the Hatzic Rock site. The side-notched

projectile point likely represents mixing from a later component. The Maurer tool assemblage contains two drills while none were recovered from the Hatzic Rock site. However, a fragment of an obsidian drill was found in the disturbed surface deposits at Hatzic.

The cobble tool category at Maurer includes choppers, spall tools and hammerstones and represents 8% of the Maurer tool assemblage. This category of artifacts at the Hatzic Rock site, including spall tools and excluding cores, accounts for 9.7% of the tool assemblage.

LeClair's core category includes pyramidal and polyhedral forms and represents 15% of the Maurer tool assemblage. Cores from the Hatzic Rock site comprise 21.6% of the tool assemblage.

The final grouping of Maurer artifacts falls into the miscellaneous category. This category contains pseudo-microblades (possibly lenticular flakes), at least two pièces esquillées, pigment (ochre) and a palate stone. The status of microblades at Maurer is problematic due to the high likelihood of component mixing and the possibility that they may be lenticular flakes. As at the Hatzic Rock site, the presence of prepared blade technology at the Maurer site remains contentious. Pièces esquillées are present in low numbers at both sites.

Quantities of ochre and a palate stone are associated with the structure excavated at Maurer. Similarly at the Hatzic Rock site quantities of ochre and several palate stones were found.

Dominant raw material types at Maurer include vitreous basalt, jasper, a crypto-crystalline gray chert and obsidian. Relative proportions of each raw material were not provided. These raw material indicate both local and non-local stone was utilized in the manufacture of tools.

To summarize, the Eayem tool component from the Maurer site is poorly documented and probably represents component mixing. The number of tools excavated at Maurer appears unusually high relative to Hatzic and the great number of unifaces suggests re-analysis may be warranted.

Bifacial tools at Maurer, while proportionately less represented, are similar to those found at the Hatzic Rock site with the exception of knives, drills and a side-notched point. Cobble tool proportions are similar although unifacial choppers are more dominant at Maurer. Quantities of ochre and palate stones found in each site suggest the use and/or processing of this material took place.

Absent from the Maurer tool assemblage are ground or pecked stone artifacts. A small number of ground and pecked stone artifacts were expected at Maurer, however, their complete absence cannot be satisfactorily explained.

Although the summaries of tool assemblages from Esilao and Maurer are limited, general observations are possible. The Hatzic Rock and Maurer sites are both dominated by expedient flake and pebble tools. These tool types are present at Esilao, however, without frequency data it cannot be known with certainty whether these tool types are as dominant.

Cortex spall knives are present at Esilao but are missing from the Hatzic Rock site tool assemblage. It is uncertain whether these tools are present at Maurer. These knives may have been used in the lower Fraser River Canyon salmon fishery thus explaining their absence at the Hatzic Rock site. The examination of cortex spall tools from the Maurer site would shed light on this hypothesis.

Bifacial tools are roughly comparable at the three sites. Each site possesses examples of leaf-shaped and stemmed projectile points while a third lanceolate form was observed at the Hatzic Rock and Maurer sites. Surprisingly absent from the Hatzic Rock site are bifacial knives and drills. Examples of these artifact types were found at Maurer and Esilao.

Weak evidence for prepared blade technology exists both at the Hatzic Rock and Maurer sites. Whether this class of artifact truly exists at either site remains unresolved. Evidence of microblade technology was absent at Esilao, however, a quartz microlith industry was noted. Quartz microliths were not found at Maurer or the Hatzic Rock site.

This tool class may have been associated with the fishery in the lower Fraser River Canyon thus explaining their paucity at the other two sites.

Bipolar reduction was practiced at all three sites as indicated by a small number of pièces esquillées.

Ground stone tools are present at both Esilao and the Hatzic Rock site but are absent at Maurer. A satisfactory explanation for this absence was not obtained. Ground stone tools were few in number at the Hatzic Rock site. Their frequency at Esilao is unknown but may be quite low as well.

Esilao and the Hatzic Rock site both contain unique ground stone items. The Eayem assemblage from Esilao contained fragments of ground slate knives, an incised grub effigy and an incised mudstone plaque. In contrast, the Hatzic Rock site contained fragments of slate blades, disc beads and a fragment of worked nephrite. Abrasive stones were recovered from both sites. The limited number of ground stone artifacts from either site makes conclusions difficult. Differences may, in part, be related to site function.

Pecked stone is exclusive to the Hatzic Rock site. Only two examples of pecked stone were recovered. Such a small sample of this probably curated artifact class makes interpretation difficult, however, artifacts like this may reflect the semi-sedentary nature inferred for the Hatzic Rock site. However, this argument fails to explain the

absence of pecked stone artifacts at the Maurer site which also has a residential function.

The presence of ochre at all three sites, and ochre-related artifacts, such as palates, at the Hatzic Rock and Maurer sites, indicate this material was processed and utilized to some degree at each location.

In general, the lithic tool assemblages from the three Eayem phase sites: Esilao, Maurer and the Hatzic Rock site share many characteristics. However, tool assemblages from each site also diverge in a number of areas. Some of these differences may be related to location, site function or temporal differences, however, without properly reported tool assemblages from Maurer and Esilao there is no way to evaluate this further. The formal analysis of the Esilao and Maurer tool assemblages is required before a "typical" Eayem phase tool assemblage can be defined with confidence.

The Hatzic Rock site artifact assemblage was examined in a regional context by comparing it to three well documented St. Mungo phase sites: Glenrose Cannery, St. Mungo and Crescent Beach. This comparison sought to determine how the Hatzic Rock site artifact assemblage related to coastal manifestations of the Charles Culture type. Esilao and Maurer were excluded from this comparison as both sites lacked artifact frequency information.

Table 4.7 combines the Hatzic Rock site artifact assemblage summarized in Table 4.3 with Pratt's (1992:90) Table 2.3 summarizing artifact counts and percentages from

Table 4.7 Tool Counts and Percentages from the Hatzic Rock Site and the Charles Culture Components from Glenrose Cannery, St. Mungo and Crescent Beach

Artifact Class	HR		GC		STM		CB	
	n	%	n	%	n	%	n	%
Bifacial Tools								
Leaf-Shaped Biface	8	2.5	19	4.0	7	2.1	7	1.9
Stemmed Biface	13	4.1	4	.8	13	3.8	6	1.6
Lanceolate Biface	1	.3	0	.0	0	.0	0	.0
Drill	0	.0	1	.2	0	.0	0	.0
Misc. Formed Biface	0	.0	0	.0	0	.0	1	.3
Biface Fragments	21	6.6	29	6.1	27	7.9	14	3.8
	43	**13.5**	**53**	**11.2**	**47**	**13.8**	**28**	**7.7**
Blade-Like Tools								
Microlith/ Linear Flake	1	.3	4	.8	0	.0	2	.6
	1	**.3**	**4**	**.8**	**0**	**.0**	**2**	.6
Flake Tools								
Graver	1	.3	2	.2	0	.0	0	.0
Pièce Esquillée	4	1.3	4	.8	26	7.6	49	13.4
Formed Uniface	1	.3	40	8.4	20	5.9	3	.8
Bifacially Ret. Flake	8	2.5	12	2.5	14	4.1	2	.6
Unifacially Ret. Flake	57	17.9	133	28.1	74	21.7	47	12.8
Utilized Flake	77	24.1	82	17.3	44	12.9	118	32.2
Cortex Spall	2	.6	11	2.3	3	.9	14	3.8
	150	**47.0**	**284**	**59.9**	**181**	**53.1**	**233**	**63.7**
Cores/Pebble Tools								
Core	69	21.6	54	11.4	49	14.4	55	15.0
Pebble Tool	19	6.0	23	4.9	19	5.6	19	5.2
Hammerstone	7	2.2	13	2.7	14	4.1	5	1.4
Anvil Stone	3	.9	1	.2	1	.3	4	1.1
	98	**30.7**	**91**	**19.2**	**83**	**24.3**	**83**	**22.7**

Con't

Table 4.7 Con't

Ground Stone								
Disc Bead	2	.6	5	1.1	4	1.2	(508)	(58.1)
Ground Stone Biface	0	.0	2	.4	0	.0	0	.0
Ground Stone Biface Frag.	5	1.6	1	.2	1	.3	0	.0
Decorated Ground Stone	0	.0	6	1.3	4	1.2	1	.3
Abrasive Stone	10	3.1	18	3.8	12	3.5	18	4.9
Misc. Ground Stone	1	.3	8	1.7	5	1.5	1	.3
	18	**5.6**	**40**	**8.5**	**26**	**7.6**	**20**	**5.5**
							(528)	**(60.4)**
Chipped and Ground Stone								
Chipped/Ground Biface (Leaf-Shaped)	0	.0	1	.2	0	.0	0	.0
Chipped/Ground Biface Medial Frag.	0	.0	0	.0	1	.3	0	.0
Chipped/Ground Biface Distal Frag.	0	.0	0	.0	1	.3	0	.0
Chipped/Ground Stone Frag.	0	.0	0	.0	1	.3	0	.0
	0	**.0**	**1**	**.2**	**3**	**.9**	**0**	**.0**
Ground and Pecked Stone								
Misc. Pecked and Ground Stone	2	.6	1	.2	1	.3	0	.0
	2	**.6**	**1**	**.2**	**1**	**.3**	**0**	**.0**
Miscellaneous								
Paint Stone	7	2.2	0	.0	0	.0	0	.0
	7	**2.2**	**0**	**.0**	**0**	**.0**	**0**	**.0**
TOTAL	**319**	**100.0**	**474**	**100.0**	**341**	**100.0**	**366**	**100.0**
							(874)	**(100.0)**

HR = Hatzic Rock site STM = St. Mungo site

GC = Glenrose Cannery site CB = Crescent Beach site

Glenrose Cannery, St. Mungo and Crescent Beach. As previously discussed, bone and antler artifacts did not survive at the Hatzic Rock site, therefore, tools of this nature were deleted from the St. Mungo phase tool assemblages to facilitate comparison. Artifact classes were merged into general classes (e.g. pebble tools).

The percentage of each artifact class at the Crescent Beach site was calculated without ground stone disc beads due to the high numbers of this artifact class. The inclusion of the disc bead class would have skewed artifact class proportions. The Crescent Beach site artifact assemblage total (including disc beads) was used to calculate the percentage of disc beads. This figure was included in Table 4.7 but enclosed in parentheses.

The degree of artifact assemblage variability is comparable at all four sites. Glenrose Cannery contains 24/30 artifact classes in comparison to 22/30 at the Hatzic Rock and St. Mungo sites. The Crescent Beach site exhibited the lowest degree of diversity with only 19/30 artifact classes present. Similarly, artifact classes unique to each site reflected a limited degree of variability. Glenrose Cannery and St. Mungo each possess three unique tool classes and the Hatzic Rock site possesses two unique classes. The Crescent Beach site has only one unique tool class.

Artifact classes unique to the Hatzic Rock site include paint stones and a lanceolate shaped projectile point. Unique artifact classes in the three coastal sites include a drill, a miscellaneous formed biface, a ground stone biface, a leaf-shaped chipped/ground biface, two fragmentary chipped/ground biface classes and a chipped/ground stone fragment.

Proportions of bifacial tools are relatively equal for each site (11.2%-13.8%) except the Crescent Beach site which has a much smaller proportion (7.7%). Glenrose Cannery possesses the greatest proportion of leaf-shaped bifaces. The stemmed biface form was common at the Hatzic Rock site (4.1%) and the St. Mungo site (3.8%). Stemmed bifaces are also present in some numbers at the Crescent Beach site (1.6%). This suggests the lack of stemmed bifaces in the Glenrose Cannery assemblage (.8%) does not reflect the pattern seen in other Charles Culture sites.

Formed unifaces are well represented at the Glenrose Cannery (8.4%) and St. Mungo (5.9%) sites but are not common at the Hatzic Rock (.3%) or Crescent Beach (.8%) sites. Pièces esquillées are common to the Crescent Beach (13.4%) and St. Mungo (7.6%) sites but minimally represented at the Glenrose Cannery (.8%) and Hatzic Rock (1.3%) sites.

Retouched flakes represent a large proportion of the Glenrose Cannery (30.6%) and St. Mungo (25.8%) artifact assemblages. This artifact class is well represented at the

Hatzic Rock site (20.4%) but proportionately less represented at the Crescent Beach site (13.4%).

The opposite pattern is reflected in utilized flake classes. These artifacts are most common at the Crescent Beach site (32.3%) and the Hatzic Rock site (24.1%). The Glenrose Cannery (17.3%) and St. Mungo (12.9%) sites possess utilized flakes in substantially reduced proportions.

Core and pebble tool classes are dominant at the Hatzic Rock site (30.7%) in comparison to the three coastal sites (19.2%-24.3%). Three of the four artifact classes in this general tool category are dominated by the Hatzic Rock site. The Hatzic Rock site contains proportionately more cores, slightly more pebble tools and more anvil stones than the other three sites. Hammerstones are not dominant at the Hatzic Rock site (2.2%) but the proportion falls within the same range as Glenrose Cannery (2.7%) and Crescent Beach (1.4%). The St. Mungo site (4.1%) dominates this class.

The proportion of ground stone tools at each site is comparable when disc beads from the Crescent Beach site are excluded. The Glenrose Cannery (8.5%) and St. Mungo (7.6%) sites share slightly higher proportions of ground stone artifacts than the Hatzic Rock (5.6%) or Crescent Beach (5.5%) sites. Ground stone artifact classes are roughly comparable at each site except for decorated ground stone objects which are absent from the Hatzic Rock site. The Crescent Beach site has an extremely high number of disc

beads in comparison to the other three sites. Ground stone biface fragments are most common at the Hatzic Rock site.

Chipped and ground stone tool classes are not present at the Hatzic Rock site or the Crescent Beach site. These artifacts are present, in small numbers, at both Glenrose Cannery (.2%) and St. Mungo (.9%). Ground and pecked stone is minimally represented at each site with the exception of the Crescent Beach site which lacks this class of artifact. The Hatzic Rock site (.6%) possesses a slightly higher proportion of these artifacts than Glenrose Cannery (.2%) or St. Mungo (.3%).

The comparison of the Hatzic Rock site artifact assemblage with the St. Mungo phase artifact assemblages from Glenrose Cannery, St. Mungo and Crescent Beach indicated how the Hatzic Rock site artifact assemblage compared to other documented Charles Culture artifact assemblages. The most obvious difference is the high proportion of cores and pebble tools at the Hatzic Rock site in relation to the other three sites.

The Hatzic Rock site artifact assemblage is also marked by a low proportion of formed unifaces and fewer retouched flakes in relation to Glenrose Cannery and St. Mungo. In contrast, the proportion of utilized flakes at the Hatzic Rock site is high, similar to the Crescent Beach site.

No chipped and ground artifacts were found at the Hatzic Rock site, however, pecked and ground stone is marginally more common. Paint stones are exclusive to the Hatzic Rock site.

The proportion of ground stone artifacts at the Hatzic Rock site is within the same range as the other three sites that were examined. However, decorated ground stone artifacts were noticeably absent from the Hatzic Rock site.

Differences between the four artifact assemblages may be the result of several discrete factors or a combination of these factors. The residential function of the Hatzic Rock site in comparison to the three coastal resource procurement sites may have been responsible for some of the differences in artifact assemblage composition. Similarly, site location could have been responsible for some of the diversity.

The age of the Hatzic Rock site may also explain some of the variability seen in the four artifact assemblages. Artifacts from the Hatzic Rock site are slightly older than artifacts from the other three sites. The greater age of the Hatzic Rock site artifacts suggests closer affiliation with the O.C.C. than the other three sites. If true, this would partially account for the higher proportion of cores and pebble tools at the Hatzic Rock site.

The comparison of the Hatzic Rock site artifact assemblage with the three St. Mungo phase sites was general and somewhat limited. However, substantial differences were

found to exist between the four artifact assemblages. A multivariate analysis of the four artifact assemblages is clearly warranted. Unfortunately, such an analysis extends beyond the scope of this thesis. While not providing all the answers, this comparison provides the logical starting point for future comparative analyses.

CHAPTER FIVE

FEATURES

Introduction

This chapter describes the 280 features which were excavated at the Hatzic Rock site. Each feature type is described and totals are provided for each occupation zone. Feature data are then used to provide the basis for an interpretation of architectural remains uncovered at the Hatzic Rock site. Features located outside the main excavation area (e.g. trench 4 and Wilson 1991) are included in the general feature discussion but are excluded from the analysis of the structure.

Comparative archaeological and ethnohistoric data are used to assist in the interpretation of the structure. The three hypotheses outlined in chapter one are evaluated.

Features

Features recorded at the Hatzic Rock site include: post holes, hearths, charcoal concentrations, a drainage ditch, a gravel bench and two composite anvil stone features. The structure excavated at the Hatzic Rock site is essentially an amalgam of several feature types and is discussed in a later section.

Post Holes

Post holes were the most common feature type. One hundred and eighty-eight of these post holes are circular/ovoid with an additional fifteen rectangular examples (Figure 5.1). Post hole features from the main excavation area are all associated with occupation zone III. Specific information for each post hole is listed in Appendix B.

Metric data are available, or extrapolated, for all but two post holes. The maximum horizontal dimension of each circular/ovoid and rectangular post hole was used to summarize these features. Post hole diameters ranged from 5-51 cm with a median of 16 cm. The interquartile range of post hole diameters was 11-22 cm. A box plot (see Hartwig and Dearing 1979) of diameters (Figure 5.2) indicates six post holes have values which exceed 38 cm.

Hearths and Charcoal Concentrations

Hearths and charcoal concentrations were common features at the Hatzic Rock site. Hearths are defined as concentrations of burnt soil, charcoal and fire cracked rock in a well defined area. These features represent *in situ* burning on an occupation surface similar to those described by Gose (1976:190). Nineteen of the thirty-six identified hearths were located on or in deposits inferred to be the

Figure 5.1

Post Hole Features on Floor Deposits

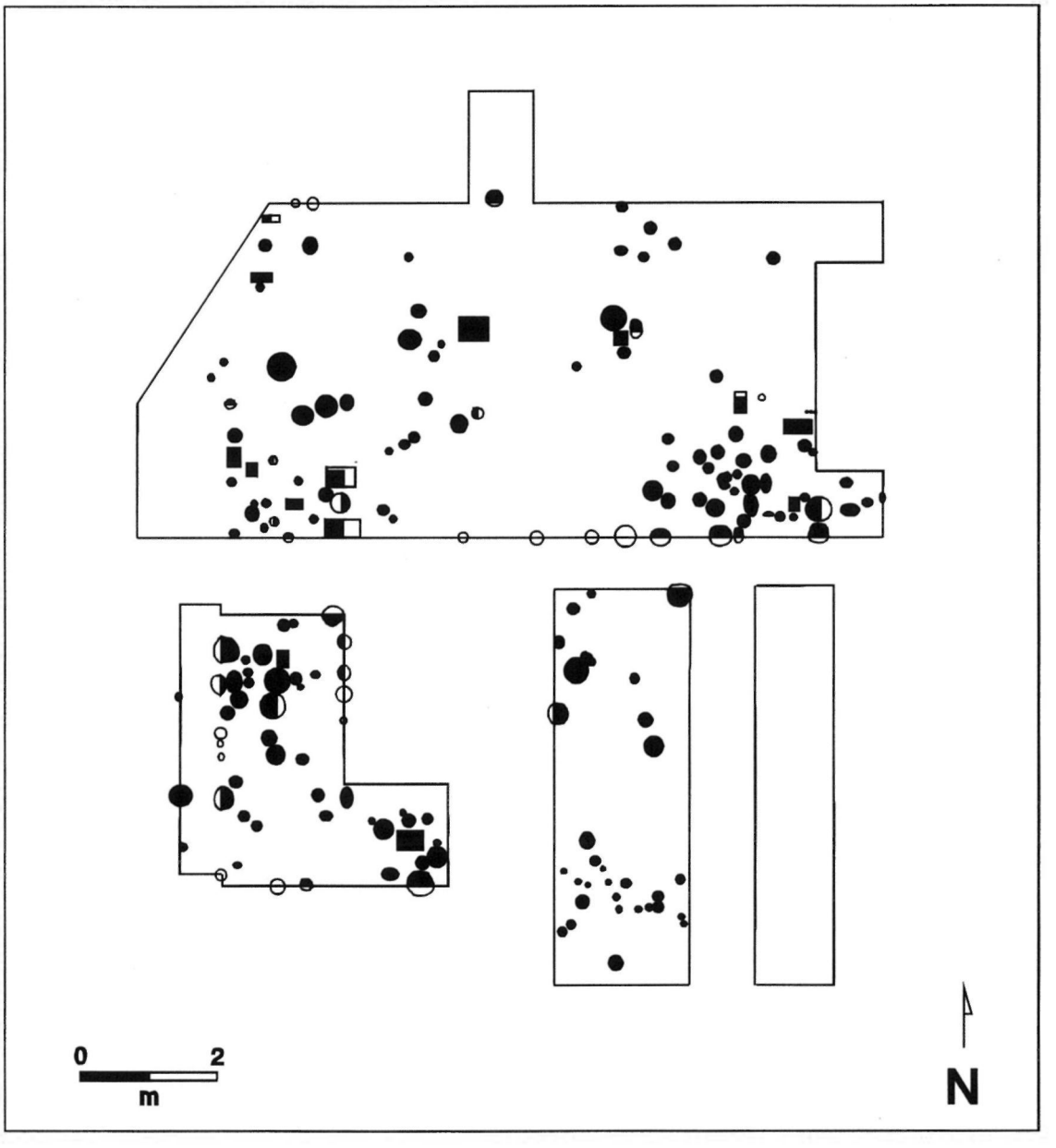
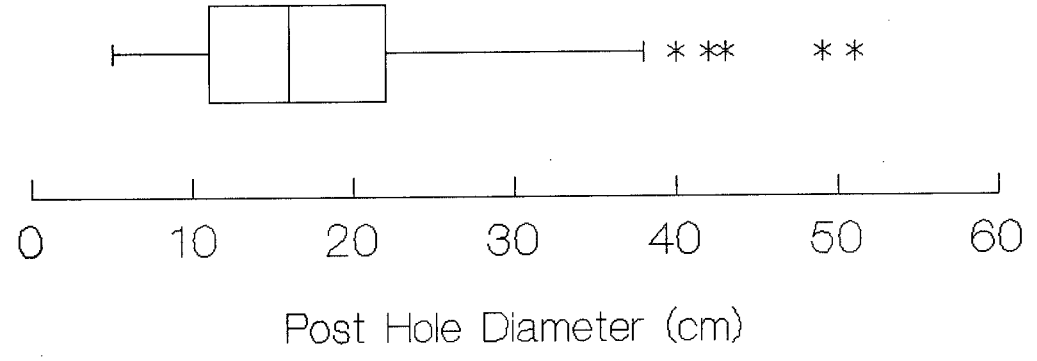


Figure 5.2

Box Plot of Post Hole Diameters



floor of the structure (occupation zone III)(Figure 5.3). Thirteen of the hearth features were located in occupation zone II with the remaining four from occupation zone I. As indicated in Figures 5.3 and 5.8, several hearth features from occupation zone III lie on or against a gravel bench feature. This suggests some fires may have been set against this naturally fireproof wall. These hearths could also represent fires that were lit after the structure was abandoned.

At least two hearths contained quantities of small disc-shaped pebbles thought to be either boiling stones or stones used for lining a hearth (see Samuels 1991:189). The dimensions of these stones are statistically summarized in Table 5.1. The generally uniform size and shape of these stones indicates they were specifically selected perhaps due

Figure 5.3

Hearth Features Located on Floor Deposits

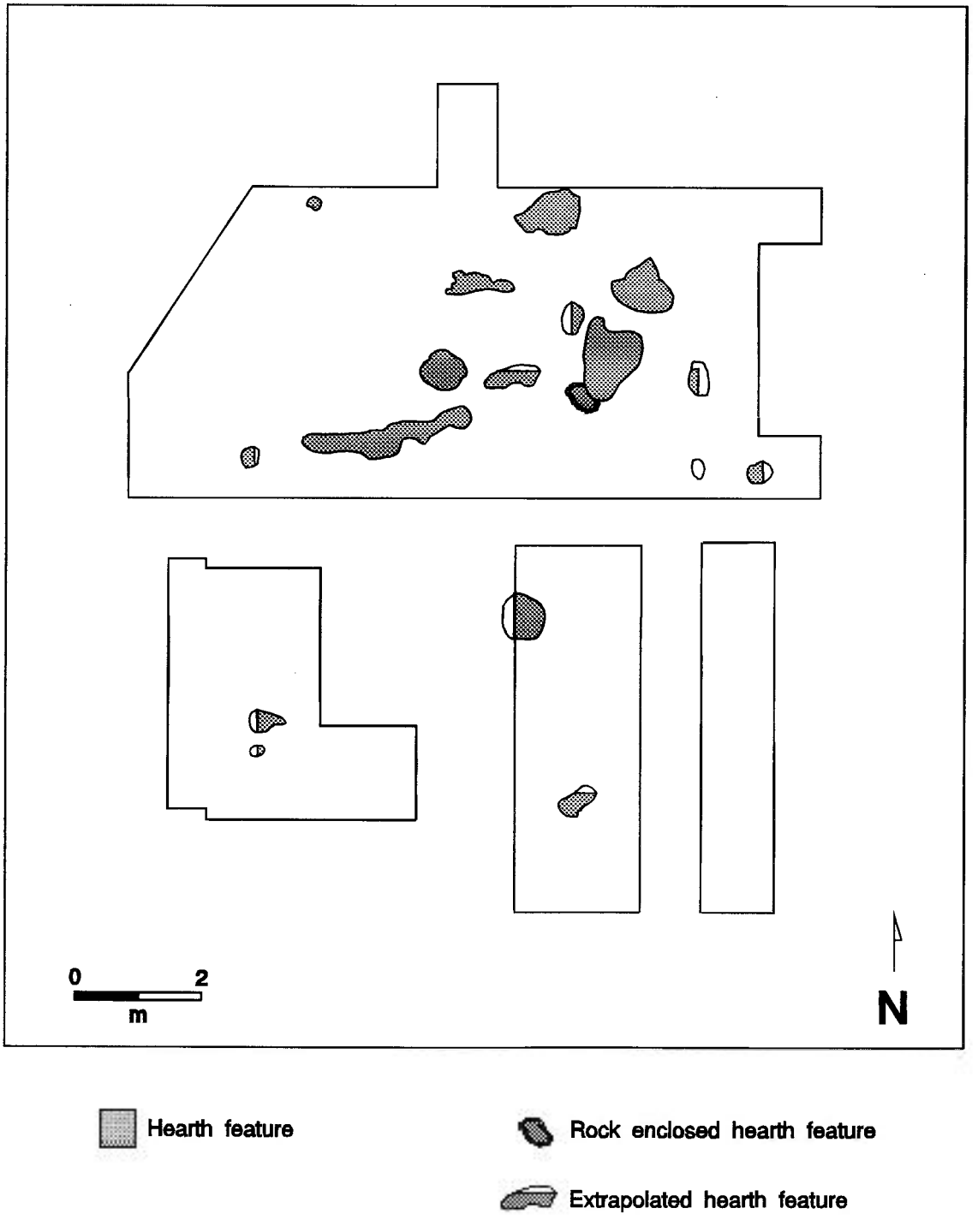


Table 5.1 Boiling Stone Metric Summary

	Number	Median	Range	Interquartile Range
Length,mm	162	46	33-71	42-51
Width,mm	158	37	28-55	34-41
Thickness,mm	164	15	6-34	12-17
Weight,g	165	34.2	4.1-108.4	25.8-47.4

to characteristics such as resilience to heat fracture or the amount of time required to heat the stones.

Charcoal concentrations are, as the name implies, concentrations of charcoal, although some burnt soil and fire cracked rock may also be present. These features likely represent the contents of hearths which were redeposited away from their place of use, perhaps during cleaning episodes. Thirty-seven charcoal concentrations were recorded. Fifteen of these charcoal concentrations were found in occupation zone III. Occupation zone II possessed nine charcoal concentrations. Three others were found in occupation zone I. Nine charcoal concentrations were located in backhoe trench profiles and could not be assigned to an occupation zone. One charcoal concentration was located 5.7 m west of the excavation unit 10 datum and provided a radiocarbon sample for the site surface (refer to Chapter 3). Appendix C lists detailed information on each hearth and charcoal concentration.

Gravel Bench

A gravel bench was identified around much of the northern perimeter of the structure. This bench was formed by the excavation of the terrace slope to create a level floor surface in the structure. In the southern half of the structure the natural terrace slope decreased, thus eliminating the need to excavate a level surface. The margins of this feature can be seen in Figure 5.4.

Ditch

The remains of what is interpreted to be part of a ditch feature were uncovered in units 19 and 36. This trench-like feature was excavated into sterile gravel deposits apparently in an attempt to divert rain run-off from the terrace slope above the structure (see Figures 5.5 and 5.6).

Evidence that the gravel deposits were excavated along the outer edge of the gravel bench as well as the inner side suggest the ditch is present north, west, and east of the structure just beyond the areas excavated. Further excavations are necessary to corroborate the dimensions and full extent of the ditch.

Figure 5.4

Location of Gravel Bench Feature

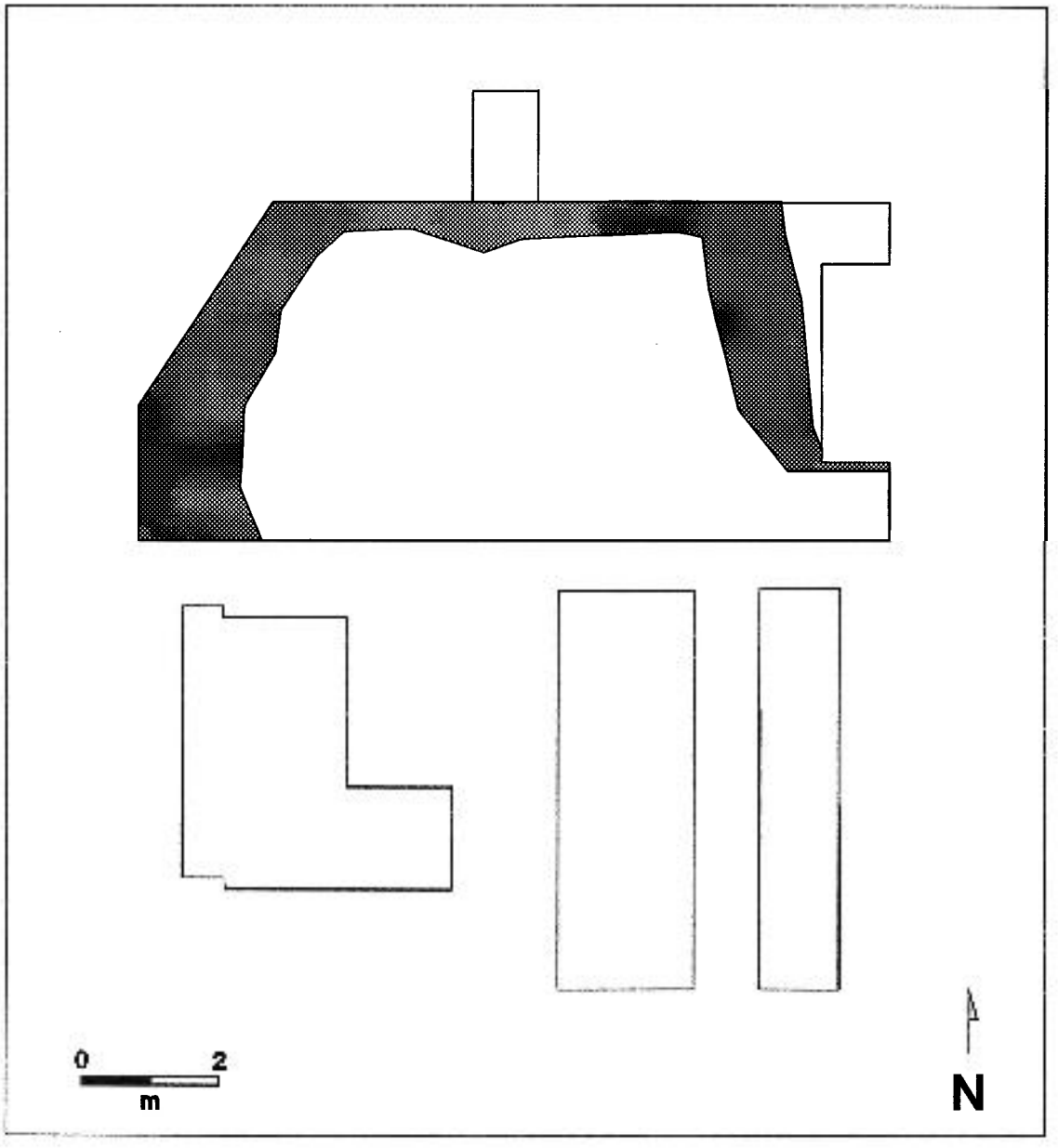


Figure 5.5

West Wall Profile of Ditch Feature (Unit 36)

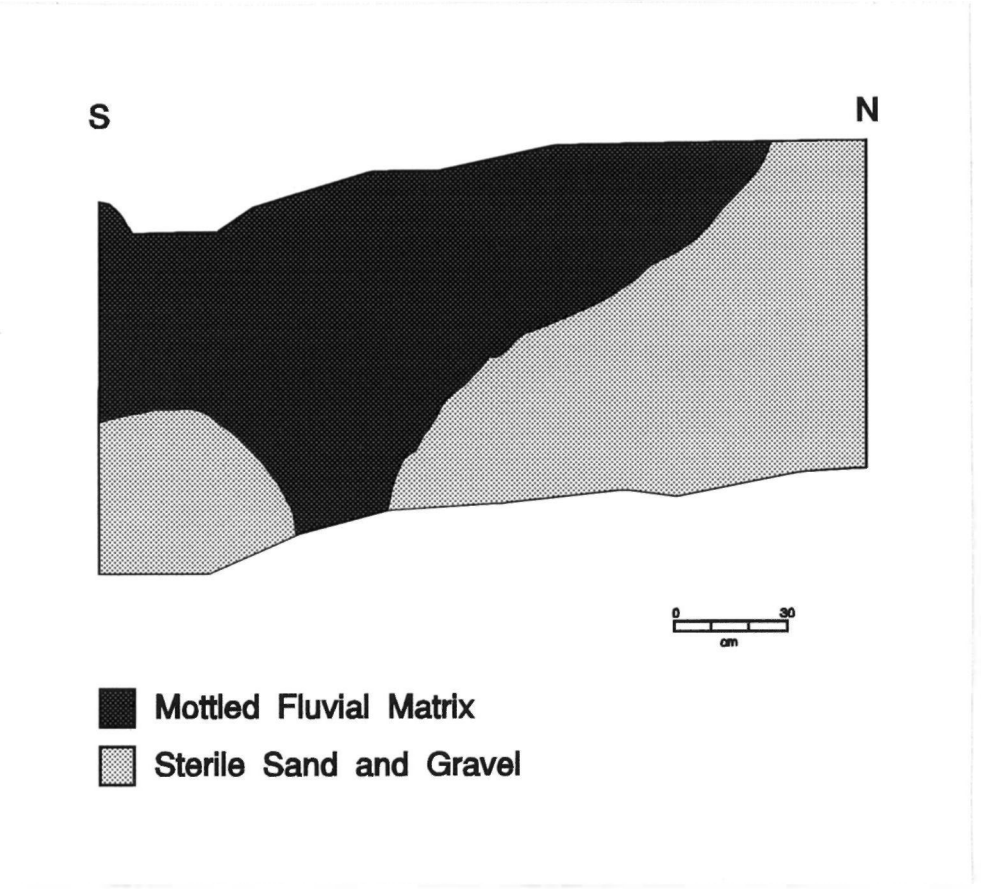
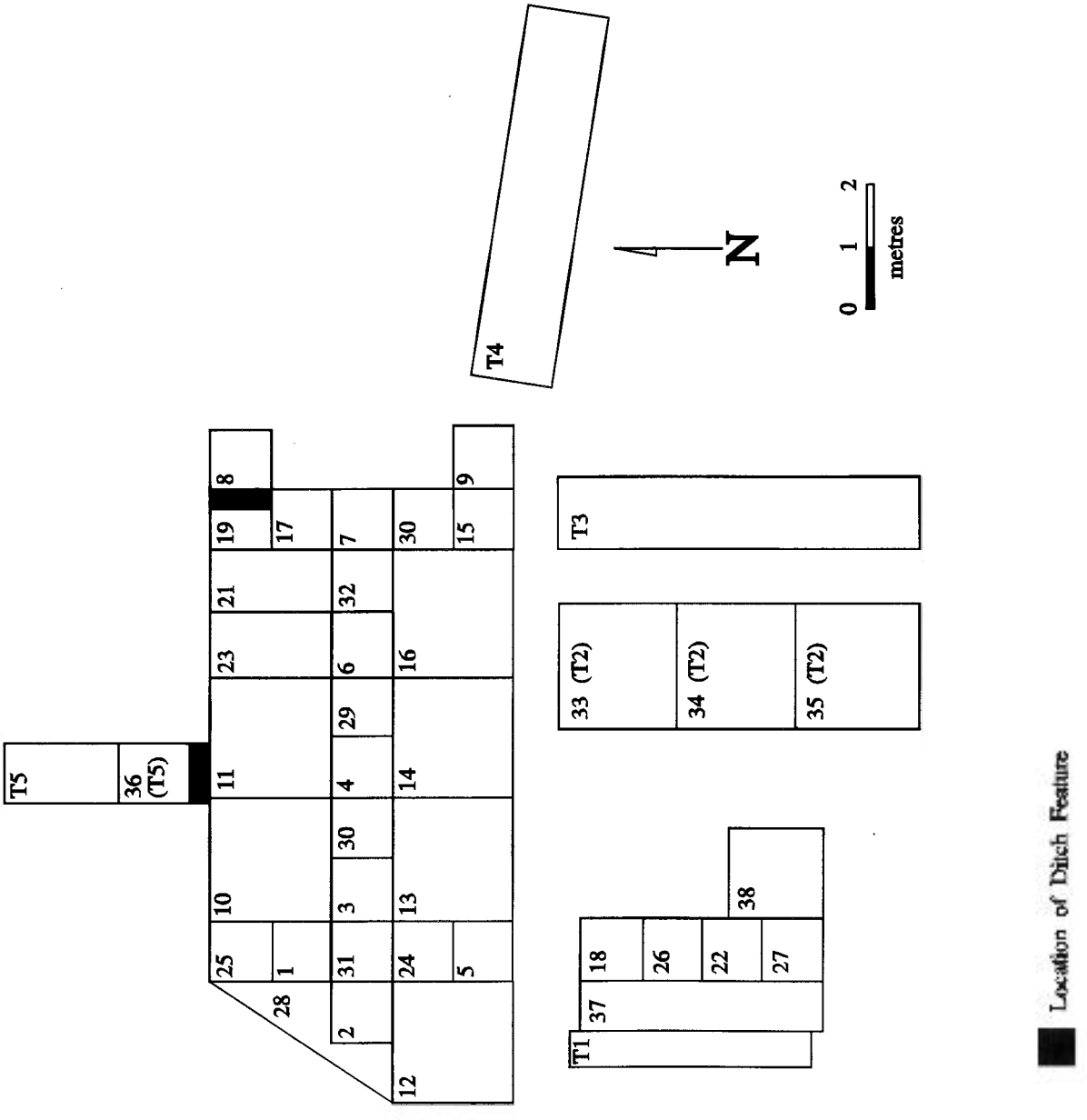


Figure 5.6

Plan View of Ditch Feature



Anvil Stone Features

Two features are primarily anvil stones used to process raw materials of various types. However, they also possess characteristics or associated materials which warrant a more detailed description.

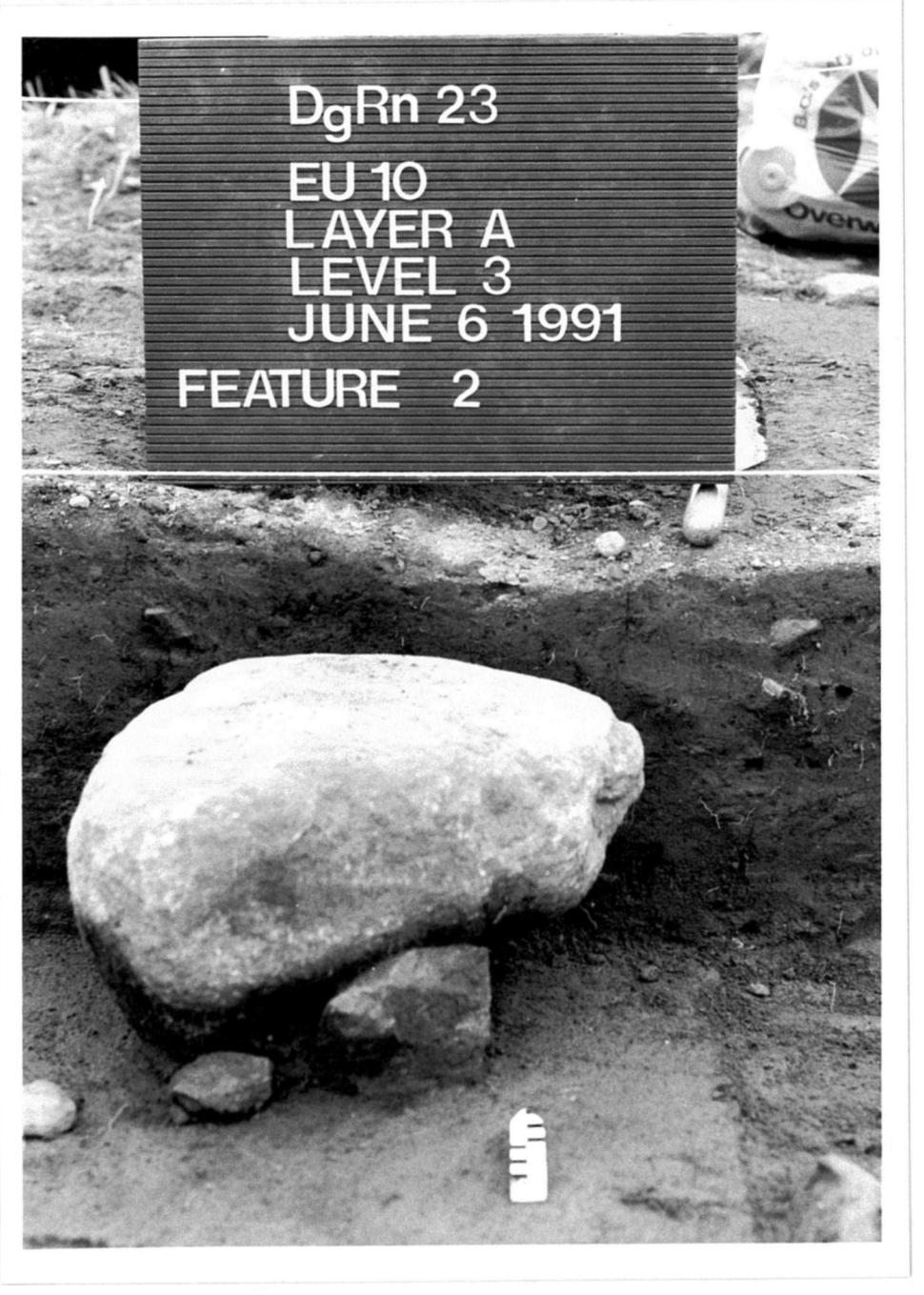
One anvil stone was found in excavation unit 10 in levels 1-5 (5-38 cm S, 115-149 cm E) and is mainly associated with occupation zone II (Figure 5.7). The anvil stone is a 30 cm x 30 cm granite cobble with a roughly triangular outline. Its surface has evidence of pecking, in the form of pitting and abrasion and was surrounded by lithic debris.

The base of the anvil stone was supported by soil and three pebbles, one of which has unifacial peripheral flaking. A charcoal lens, dated to 4930±70 BP (WSU-4327), was observed directly below the support stone (20-30 cm d.b.s.) and a ground slate blade fragment was recovered just below the charcoal lens. This feature indicates several activities including lithic reduction and possibly food preparation took place at this location.

The second anvil stone was located in excavation unit 3 in levels 2-5 (75-98 cm S, 43-97 cm E) and is associated with occupation zone II. The anvil stone measured 48.9 cm (L) x 34.9 cm (W) x 31.8 cm (Th) and weighted over 45 kg. The surface of the anvil stone was level and would have provided an excellent working surface.

Figure 5.7

Composite Anvil Stone Feature from
Excavation Unit 10, Levels 1-5



The presence of pitting and abrasion on the working surface indicates intense use. A large amount of lithic debitage was recovered from the base of the feature suggesting the anvil stone was recovered in its primary context.

Both anvil stones were accidentally backfilled at the end of the 1991 field season, however, the example from unit 3 was relocated on the backfilled surface of the excavation area. Both anvil stones were given catalogue numbers and are included in the analysis, however, metric data for the anvil stone from unit 10 could not be obtained.

In general, hearth and charcoal concentration features are common throughout the excavation area in all three occupation zones. The two anvil stone features are only associated with occupation zone II. The remaining feature types: post holes, the gravel bench and ditch are exclusively related to the structure (occupation zone III). The following section combines the occupation zone III features to reconstruct the structure from the Hatzic Rock site.

Hatzic Rock Site Architecture

The following discussion of Hatzic Rock site architecture is limited to data gathered from the main excavation area. Structural data gathered from the second structure identified in trench 4 are too limited to allow interpretation. Similarly, evidence of a possible third

structure, located south west of the main excavation area by Wilson (1991) did not provide information useful to this summary.

Approximately two thirds of a structure was uncovered in the main excavation area. This structure is semi-subterranean and measures 11 m (N-S) x 10 m (E-W) with a roughly square outline[1] (Figure 5.8). The structure was partially excavated into the terrace slope to provide a level living surface.

The terrace excavation, as well as the method of construction, created a bench area along the northern or "uphill" half of the structure. A break in this gravel bench suggests an eastern ground level entrance to the building. A ditch, which likely diverted hillside water run-off, appears to have encircled the northern half of the structure outside the bench element.

The many post hole features documented for the structure reveal a complex pattern which hindered interpretation. A specific structure cannot be isolated due to the fact that there are many post hole features. Rather, the distribution of post holes reflects considerable maintenance and rebuilding over time.

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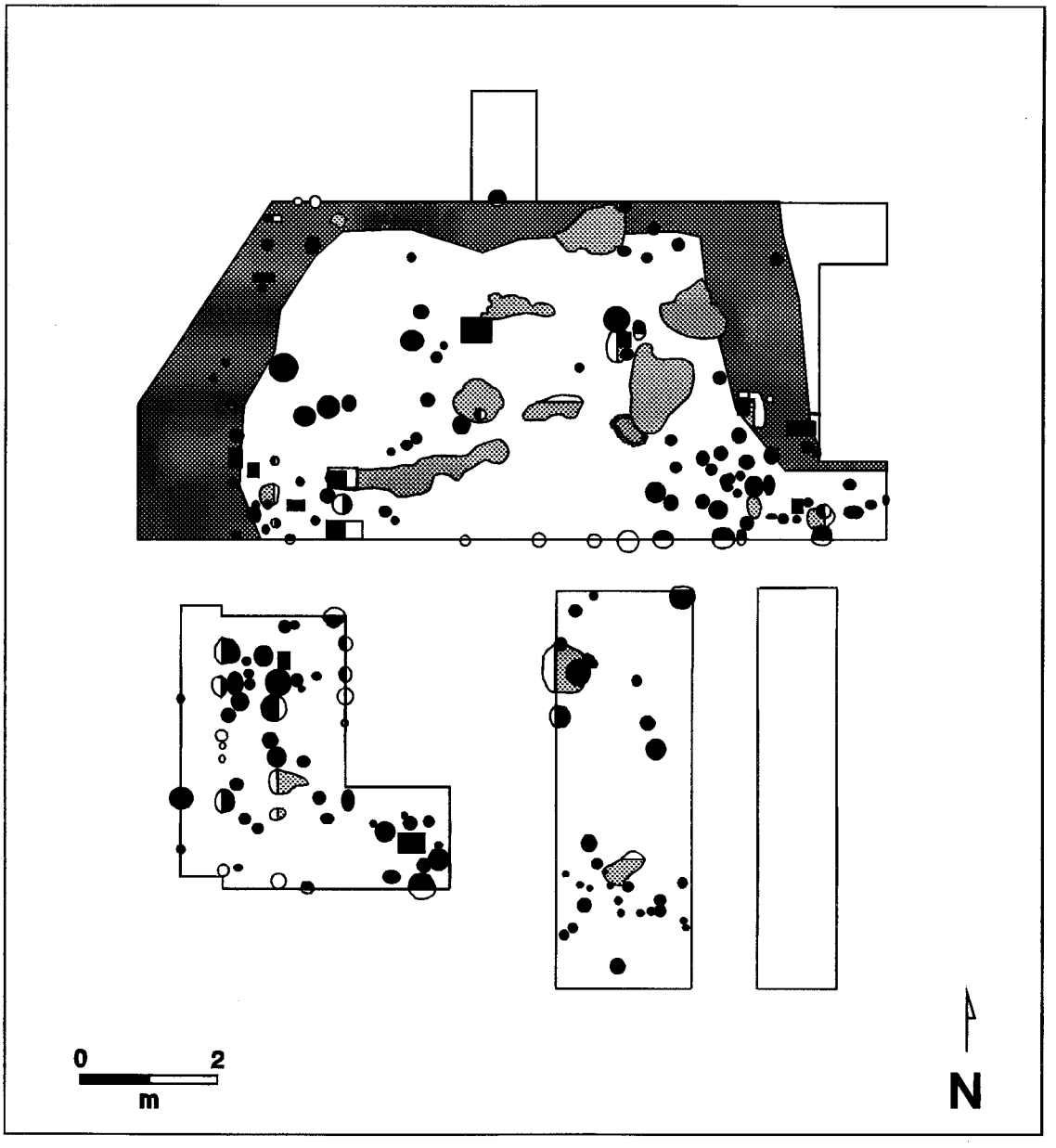
[1] The structure outline in Figure 5.8 is approximate and was extrapolated using the gravel bench margin and post hole locations.

Figure 5.8

Plan of Structure Excavated at
the Hatzic Rock Site



The great number of post holes were helpful in delineating the boundaries of the structure. The pattern of larger (>25 cm dia.) post holes was separated from the pattern of small post holes in an attempt to determine the location of major structural supports. Unfortunately, the results were inconclusive.

The confusion in the post hole patterning was not unexpected given the time and labour that was likely invested in a structure of this nature. Rather, it would be unusual for such a structure to show little sign of extended use.

Larger circular/ovoid and rectangular post holes likely represent the remains of load bearing structural posts. These would include the post holes noted in Figure 5.2 with diameters exceeding 38 cm. Smaller post holes are probably the remains of posts which served to support wall planks or light constructions, such as drying racks, interior partitions or benches. The smaller post holes are generally located at the perimeter of the building whereas the large post holes tend more toward the centre of the excavation except in the southwest margin of the structure where some larger examples were observed.

Although there is good evidence of the number and location of post features within this structure, the height of the posts could not be determined. Further, the type of roof construction and roofing material could not be inferred from the existing data.

The location of hearths situated on the living floor indicates several areas were utilized for cooking or heating. A large hearth northwest of the presumed entrance appears to be the most intensively utilized based on the recovery of great quantities of fire cracked rock and concentrations of boiling stones. Other hearths may reflect specific activity areas within the structure, the distribution of social groupings within the structure, or the changing use of space through time. For instance, post hole data suggest the structure was repeatedly maintained or modified, therefore, the location and size of hearth features likely changed over time as well.

Discussion

Three hypotheses concerning the nature of the structure excavated at the Hatzic Rock site were presented in Chapter one. These hypotheses are:

Hypothesis #1: The structure excavated at the Hatzic Rock site resembles southern northwest coast dwellings recorded during the ethnohistoric period.

Hypothesis #2: The structure excavated at the Hatzic Rock site constitutes a new type of building for the southern northwest coast.

Hypothesis #3: The structure excavated at the Hatzic Rock site does not resemble southern northwest coast dwellings from the ethnohistoric period, but does share structural and design elements.

Concerning hypothesis one, the data clearly indicate the structure excavated at the Hatzic Rock site does not resemble, either in the strict sense, pithouse or shed-roof plank houses from the ethnohistoric period. Several basic differences exist between these structure types.

The most obvious difference between the structure excavated at the Hatzic Rock site and ethnohistoric pithouse dwellings is the fact that the Hatzic structure is not fully subterranean. Pithouses were, as the name implies, wholly subterranean being built in a large pit excavated to contain and insulate the dwelling. The frameworks and cladding of pithouses were covered with earth to provide a weatherproof and insulating layer (Boas 1890; Laforet and York 1981; Smith 1947; Teit 1900).

The structure excavated at the Hatzic Rock site was not built with a pit feature. The space occupied by the Hatzic structure was only partially excavated. Rather than excavating a pit, a portion of the terrace slope was removed. The terrace excavation resulted in roughly half of the structure being built into the slope. This excavation provided a level living surface and demarcated the northern wall and roughly half of the western and eastern walls of the structure.

The internal bench feature known to surround pithouse interiors (see Laforet and York 1981:120; Smyly 1973:50; Teit 1900) was only partially present in the structure excavated at the Hatzic Rock site. As the structure at

Hatzic was only partially subterranean, this earthen bench was only observed where terrace deposits were removed.

Pithouses possess either four or six central support posts that supported radiating roof beams (Boas 1890:81-82; Laforet and York 1981:117; Smith 1947:257). The complex pattern of post hole features associated with the Hatzic structure made interpretation difficult, however, a similar construction could have existed in the subterranean (northern) portion of the structure, but not in the southern free standing portion of the structure.

Roof entrances were the norm for pithouses (Boas 1890:82) although Laforet and York (1981:119) describe a side entrance variation that appears to be a relatively late development. Evidence of an eastern ground level entrance at the Hatzic Rock site further differentiates this structure type from most ethnohistoric pithouses.

The structure excavated at the Hatzic Rock site differs from shed roof type plank houses largely due to its subterranean aspects. Shed roof houses can best be described as a permanent framework of posts and beams with removable wall and roof plank cladding (Suttles 1990:462).

Boas' (1890) Songish shed roof house example from south eastern Vancouver Island had six large posts supporting three equally large roof cross beams. Additional posts were added if further structural support was required for greater roof spans or if smaller diameter posts were used (Barnett 1955:36). Posts on one side of the house, usually parallel

with a shoreline, were higher than those on the opposite side to create a slanted roof and an obvious "front" to the building (Boas 1890:11; Suttles 1990:462).

The structure excavated at the Hatzic Rock site differed from shed roof plank houses primarily because it was built into the side of a terrace. This raises some doubt as to whether wall and roof cladding could have been removed and reinstalled with ease as was the case in shed roof structures. Likely, the wall cladding for the northern half of the structure at Hatzic would have been difficult to install and remove in comparison to the free standing southern portion.

The interior bench of the Hatzic structure, created by the terrace excavation, differed from what is found in shed roof houses. In shed roof houses such platforms, or benches, were constructed from posts and boards against interior walls.

The preceding discussion shows that basic differences exist between the structure excavated at the Hatzic Rock site and ethnohistoric pithouses and shed roof plank houses. For this reason the first hypothesis was rejected.

The second hypothesis, that the structure excavated at the Hatzic Rock site is a unique building in terms of its design and construction, is not supported as there are similarities between the Hatzic structure and ethnohistoric pithouses and shed roof plank houses. The evaluation of the first hypothesis touched upon many of the same points which

are used to render a null result for this second hypothesis. The structure excavated at the Hatzic Rock site clearly shares fundamental features with ethnohistoric pithouse and shed roof plank houses.

Features shared with pithouses include its semi-subterranean aspects and the gravel bench feature. Also, post hole patterning in the northern portion of the Hatzic structure suggests the presence of load bearing posts which could have supported radiating roof beams. Pithouses employed a similar construction strategy.

The non-subterranean aspects of the Hatzic structure suggest some similarity to shed roof plank houses. The southern half of the Hatzic structure was free standing with post hole features suggesting larger diameter posts served a load bearing function and supported roof beams. Small diameter post features along the structure's perimeter suggest they held wall planks in place. Shed roof plank houses used a similar construction technique. An eastern ground level entrance in the Hatzic structure is also shared with most shed roof plank houses.

This second hypothesis, that the structure excavated at the Hatzic Rock site constitutes a new type of building for the southern northwest coast, must be rejected as the Hatzic structure shares some basic design features with ethnohistoric house forms.

This raises the third and final hypothesis that the structure excavated at the Hatzic Rock site does not strictly resemble southern northwest coast dwellings from the ethnohistoric period, but does share structural and design elements. This has already been shown to be valid in the evaluation of the second hypothesis. The evaluation of this last hypothesis is extended to include archaeological examples of structures from other sites in the region.

As mentioned, the structure excavated at the Hatzic Rock site shared several design features with ethnohistoric pithouses. The Hatzic structure was not entirely subterranean, like a pithouse, as the southern half was entirely above ground. However, the northern portion of the building was excavated into a hillside and was semi-subterranean.

A bench feature located along the northern perimeter of the structure at the Hatzic Rock site also resembles pithouse construction. The outline of this bench suggests large central posts supported radiating roof beams which, by design, created the interior space.

The similarity between the structure excavated at the Hatzic Rock site and shed-roof plank houses is less clear. Though the southern half of the building was entirely above ground, the lack of patterning in large post features makes comparisons difficult. The presence of obvious pairs of small post holes along the southern perimeter of the Hatzic structure suggest wall planks may have been retained in a

manner similar to shed-roof plank houses from the ethnohistoric period.

The structure excavated at the Hatzic Rock site was found to share features with the Charles Culture structure excavated at the Maurer site (see LeClair 1976; Fladmark 1982). The structure from Maurer is similar to the structure from Hatzic in its semi-subterranean construction, its shape, eastern ground level entrance and overall size (7x11 m). The central depression and sleeping/storage platforms observed at Maurer do not appear at Hatzic (LeClair 1976; Fladmark 1982).

Interestingly, the Maurer structure shares several features with shed-roof plank houses from the ethnohistoric period. This raises the possibility that the structure from the Hatzic Rock site shares many more features with shed-roof plank houses than those which are directly observable. Unfortunately, the lack of clarity in structural details at the Hatzic Rock site may have masked much of this similarity.

The structure from the Maurer site resembles ethnohistoric shed-roof houses with its six large posts evenly spaced around a central depression. These posts likely served a load bearing purpose with 19 smaller posts along the perimeter of the structure likely supporting the wall cladding. This is remarkably similar to the plan of a Songish shed roof house illustrated by Boas (1890:11,12).

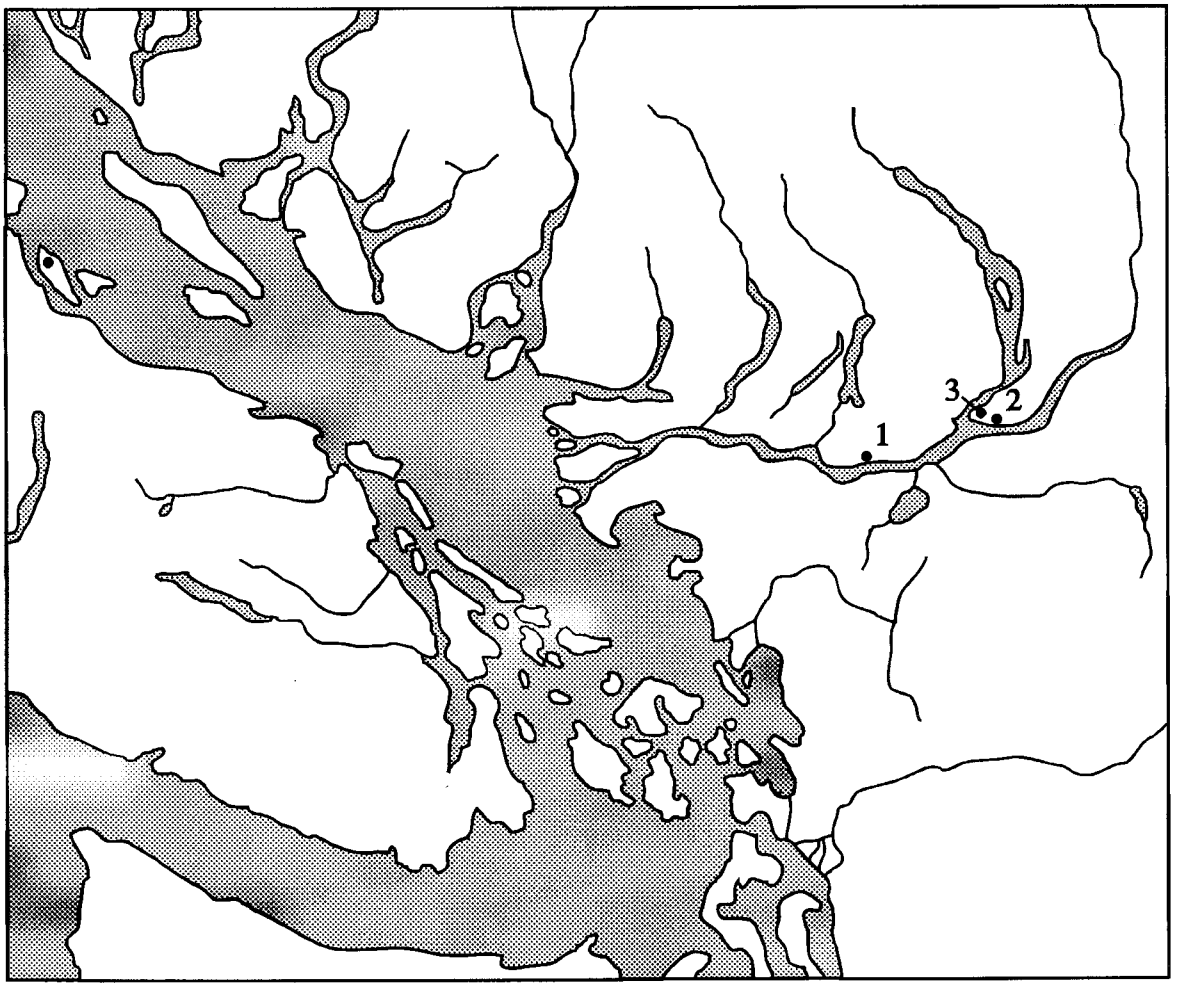
At the Maurer site, a platform existed in the space between the edge of the central depression and wall. This was likely used for storage and/or sleeping. The size of the Maurer structure falls within the range of smaller shed-roof plank houses. However, its main point of difference with other shed roof plank houses is its semi-subterranean nature. The clear pattern of post features at Maurer suggests the structure experienced little, if any, maintenance or rebuilding activity. The location of a single large hearth on the floor of the structure reinforces the use of the structure for a relatively limited period of time.

The similarity of the Hatzic Rock site structure with the Maurer structure reflects a common design intent. Evidence from the Maurer site suggests a common house form existed during the Charles Culture and some evidence suggests this design may have continued into the ethnohistoric period. Differences between the Hatzic Rock site and Maurer structures are not overwhelming and may be attributed to the specific building sites or to the clarity of the Maurer data, which suggests a single occupation, in contrast to the frequently rebuilt and maintained structure at the Hatzic Rock site.

House remains that are perhaps the most similar to the Hatzic structure were partially excavated at the McCallum site (Figure 5.9) by Marion Smith (1947).

Figure 5.9

Location of the McCallum Site, DhRk-2



1) Hatzic Rock, DgRn-23
2) Maurer, DhRk-8
3) McCallum, DhRk-2

0 50
km

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Similar to Hatzic, the McCallum site structure was a large rectangular semi-subterranean structure excavated into the side of a terrace. Like Maurer, but unlike Hatzic, the McCallum structure had evidence of an interior depression and sleeping or storage platforms around the interior perimeter. The McCallum structure diverged from the other examples with its great 17 m x 9 m size which is more in common with ethnohistoric shed-roof plank house dimensions. Unfortunately the structure at the McCallum site was only excavated for three days making the data of limited utility for this comparison (Smith 1947).

The similarity of these three archaeological examples, two from the Charles Culture and one from the Canyon Culture (late) (Smith 1947), further reinforces the idea of design continuity from the Charles Culture to the ethnohistoric period. The basic similarities of these three structures are obvious with the differences possibly explained by the choice of building sites, the raw materials at hand and the needs of the occupants.

To summarize, the structure excavated at the Hatzic Rock site resembles aspects of ethnohistoric dwellings and archaeological examples from the Fraser River valley. Hatzic appears to represent an amalgam of the various building techniques, likely in response to local conditions and the requirements of its occupants.

The Hatzic structure is similar to pithouses in its semi-subterranean aspects which is also shared in the structures from the Maurer and McCallum sites. The Hatzic structure may have incorporated many more aspects of shed-roof plank house construction as is the case at the Maurer and McCallum sites. However, the Hatzic data lack the necessary resolution needed for the certainty of this interpretation.

A precise description of the structure at Hatzic is not possible. The data suggest there is some evidence for design continuity over time, but the maintenance and rebuilding of the structure has made the interpretation of structural patterning difficult. Perhaps future fieldwork at the Hatzic Rock site can help clarify the uncertainty.

CHAPTER SIX

SUMMARY AND CONCLUSIONS

This thesis described Charles Culture remains excavated at the Hatzic Rock site in 1990 and 1991. These remains include the remnants of a semi-subterranean structure dated to 4725±39 BP.

The analysis of artifacts from the three occupation zones isolated at the Hatzic Rock site revealed minimal variation. Differences were often based on the presence or absence of a single example of an artifact class making the importance of these differences difficult to interpret.

Exceptions to this pattern include pebble tools and stemmed projectile points which were proportionally more common in occupation zone III. Anvil stones were absent in occupation zone III and pebble flake tool proportions were higher in occupation zones I and II.

Artifacts fashioned from obsidian were traced to three quarry sites in Oregon suggesting an exchange network operated between the quarries and the Hatzic Rock site. Faunal remains, while only minimally represented, indicated the range of species available to the occupants of the site. Shellfish remains suggest contact and/or trade with coastal areas. Quantitative insights into the Hatzic faunal assemblage were not possible.

Artifacts from the Hatzic Rock site (occupation zones I-III) are similar to Pratt's (1992) summary description of Charles Culture artifact assemblages. Pratt (1992) described Charles Culture lithic artifact assemblages as dominated by expedient flake and pebble tools fashioned from locally available basalt, quartzite, and chert. Similarly, these tool and raw material types were prominent at the Hatzic Rock site. Chert, which was relatively rare at the Hatzic Rock site, is an exception to this pattern.

Formed chipped stone tools were far less common than unformed tools, both in Pratt's summary and at the Hatzic Rock site. Pratt (1992) noted bifaces were either leaf-shaped or stemmed. These styles were both present at Hatzic along with a lanceolate style. A possible shift away from the stemmed point style towards the leaf-shaped style was noted in occupation zone I/II. Occupation zone I was anomalous in its near absence of bifacial tools. A satisfactory explanation for this lack of bifacial tools was not ascertained.

Pratt's (1992) summary indicated the evidence for prepared blade technology in the Charles Culture was weak. This is further confirmed at the Hatzic Rock site where a single microblade was recovered. No evidence of quartz microliths, another contentious artifact type in Charles Culture assemblages, were recovered.

Ground stone artifacts (including ground and chipped stone artifacts) were rare in Pratt's summary and at the Hatzic Rock site (Pratt 1992:291). Also, no evidence of Gulf Islands Complex artifacts existed at the Hatzic Rock site, however, Pratt (1992:293) cites some evidence of these items in the assemblages she examined.

The presence of large quantities of ochre and ochre-related artifacts at the Hatzic Rock site does not fit into Pratt's (1992) summary of Charles Culture assemblages. The presence of this material at Hatzic suggests ochre use and processing may have been important activities. In general, artifacts excavated from the Hatzic Rock site conform to Pratt's (1992) summary of Charles Culture lithic artifact assemblages.

The Hatzic Rock site artifact assemblage was compared to contemporary artifact assemblages from Esilao, Maurer, Glenrose Cannery, St. Mungo and Crescent Beach. This was done to determine the relationship between the Hatzic Rock site artifact assemblage and other artifact assemblages from this period. This comparison also sought to determine whether basic differences could be discerned between sites with an assumed residential function (Maurer and the Hatzic Rock site) and sites associated with resource procurement activities (Esilao, Glenrose Cannery, St. Mungo and Crescent Beach). Noticeable differences between inland Eayem phase sites and coastal St. Mungo Phase sites were similarly sought in this comparison.

An absence of quality data from Esilao and Maurer hindered this comparison but indicated real differences exist between artifact assemblages from residential sites and resource procurement sites. Characteristic of resource procurement locations are ground slate knife fragments, a large proportion of unifacial tools, spall tools/knives? (Esilao), a lack of pecked stone and the presence of incised stone plaques. Characteristic of residential sites are pecked stone artifacts, formed abrasive stones, palate stones associated with quantities of ochre, a high proportion of pebble tools, cores, anvil stones and possibly lanceolate style projectile points. A formal analysis of the Maurer and Esilao artifact assemblages is necessary substantiate these perceived differences.

The comparison of the Hatzic Rock site artifact assemblage with the three St. Mungo phase artifact assemblages revealed major differences exist. The Hatzic Rock site had a far greater proportion of pebble tools and cores than the St. Mungo phase sites. Utilized flake proportions at the Hatzic Rock site were also higher than the St. Mungo phase sites with the exception of the Crescent Beach site. The Hatzic Rock site was also found to possess far fewer formed unifaces or retouched flake tools than at the three St. Mungo phase sites. Differences in site function, location and age are thought to account for some of these differences.

A major study of Charles Culture tool assemblages is clearly warranted. Such a study could combine elements of Pratt's (1992) Charles Culture study with Matson's (1974) clustering and scaling of Strait of Georgia sites. Such a study would begin by re-classifying Charles Culture tool assemblages with a consistent tool typology such as that used by Pratt (1992). Once classified these tool assemblages could be clustered and scaled in a robust attempt to determine the relationships between tool assemblages.

Minimally, sites which should be included in such a study are: Crescent Beach, St. Mungo, Glenrose Cannery, Helen Point, Maurer, Esilao and the Hatzic Rock site. The analysis of tool assemblages from Maurer and Esilao would constitute large undertakings in time and resources as neither site has undergone any substantial analysis in the past. The Helen Point tool assemblage would require re-analysis to resolve questions concerning component mixing (see Pratt 1992).

Such an analysis could determine, with statistical confidence, whether real differences exist between Eayem phase and St. Mungo phase sites or whether real differences exist between sites with an inferred residential function and sites primarily associated with resource procurement activities.

Three general hypotheses concerning the nature of the structure excavated at the Hatzic Rock site were assessed in Chapter 5. Hypothesis one stated the structure resembles ethnohistoric examples of structures from the southern northwest coast. This was rejected. The second hypothesis stated the structure constituted a new type of building on the southern northwest coast. This hypothesis was also rejected. The third hypothesis stated the structure shares construction and design elements with ethnohistoric structures on the southern northwest coast. This hypothesis was accepted as the structure excavated at the Hatzic Rock site represents an amalgam of various design and construction elements seen in both shed roof style plank houses and pithouses from the ethnohistoric period.

This third hypothesis was expanded to include other archaeological examples of structures from the Fraser River valley. Structures excavated at the Maurer and McCallum sites were found to share basic design features with the Hatzic structure. This suggests a common design intent from as early as the Charles Culture and possibly continuing into the ethnohistoric period. The variation seen in this particular building solution was likely in response to local conditions such as site configuration, construction materials, the requirements of the occupants, cultural traits and construction knowledge.

Pratt (1992) argued Charles Culture society was egalitarian despite the possibility of status differentiation as reflected in burial remains at Tsawwassen and possibly Pender Canal. No evidence to support or refute this position was obtained at the Hatzic Rock site.

Pratt (1992) also argued that Charles Culture faunal remains indicated a mixed economy in which land and sea mammals were exploited. Further, she argued salmon were exploited to some extent, but specialization had not yet begun (see also Matson 1992). Structural data obtained from the Hatzic Rock and Maurer sites questions the belief that salmon specialization was not in place during the Charles Culture.

The inhabitants of the structures at the Hatzic Rock and Maurer sites would have required large and predictable dietary resources. It is doubtful that a hunting population, as suggested by Pratt (1992), would have required, or invested the necessary time and energy into, the large structures at Hatzic and Maurer. A lack of faunal remains from both sites limits this argument, but, it seems highly unlikely that a maritime oriented people would not be obtaining and processing large quantities of salmon for periods of resource scarcity.

This argument suggests the structure excavated at the Hatzic Rock site served a function similar to structures documented for the region during the ethnohistoric period (Chapter 2) and assumes semi-sedentary occupation is related

to the intensification and storage of salmon. This position is admittedly open to criticism due to the absence of faunal data, specific tool types, such as ground slate knives, or storage features such as pits. However, the structural data are in the very least, suggestive. Further, Cannon has argued for the presence of salmon specialization and storage technology at Namu on the central coast of British Columbia prior to 6000 B.P. (Cannon 1993:4). Perhaps similar data are waiting to be discovered on the south coast.

In the past our understanding of the Charles Culture has been derived from coastal shell midden sites, particularly from the lower mainland region. Reliance on coastal midden site data is problematic due to its inherent bias. In response, more research is required at non-coastal Charles Culture sites, such as the Hatzic Rock site.

A broad range of Charles Culture sites which reflect diverse activities, environments, and seasons of occupation require excavation before this period can be fully understood. Very little is known about this time in comparison with later periods of prehistory, however, as development in southwestern British Columbia continues, and new Charles Culture sites are found, this lack of knowledge will likely be addressed.

In the short term, projects which could further our understanding of the Charles Culture would include the formal analysis and publication of the Maurer and Esilao site data. A second structure tentatively identified at the

Maurer site (Carlson n.d.) could be excavated to provide comparative structural data.

Similarly, data obtained by James (1990) from the Charles Culture component at the Fort Langley site could be properly analyzed, reported, and published. Additional fieldwork could be conducted at this site.

More information concerning the Charles Culture waits to be uncovered at the Hatzic Rock site. The preservation of the site has been secured by the B.C. Heritage Conservation Branch encouraging the development of a long term research program. Aspects of the site to explore include unresolved elements of the structure from the 1990-91 excavations. This includes the nature of the ditch feature around the perimeter of the structure, the nature of the southeastern portion of the structure, and determining the season(s) of site occupation.

Future research at the Hatzic Rock site should include locating an undisturbed portion of the site to determine the nature and age of the top metre of the site that was largely bulldozed away in 1990. The excavation of this material could indicate how the site was utilized throughout its history and the nature of these later occupations.

The excavation of a second structure at the Hatzic Rock site would add to our knowledge of the Charles Culture and clarify the structure already excavated. Such an excavation could separate floor deposits from fill deposits thus allowing the nature of activity areas to be studied.

The analysis of material excavated from the Hatzic Rock site not only provided information concerning the nature of the structure in relation to other archaeological and ethnohistoric examples, but also contributed to the Charles Culture knowledge base in general. The Hatzic Rock site is the first well documented Charles Culture site outside of the lower mainland region. This thesis provides valuable baseline data for archaeologists working in southwestern British Columbia. These data will help formulate a reliable culture chronology for the Fraser River valley and allow more complex questions concerning the nature and development of northwest coast culture to be addressed.

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APPENDIX A

ARTIFACT DESCRIPTIONS

Introduction

Descriptions and statistical summaries of artifact classes used in this analysis are presented in this appendix. Absent or incomplete dimensions of complete tool classes are not recorded. Incomplete dimensions of fragmentary tool classes (e.g. projectile point medial section) are recorded but are placed in parentheses.

All tools were weighed on a digital scale to the nearest 0.1 g with artifacts weighing less than 0.1 g rounded up to a 0.1 g default weight. Tool length defined as the maximum measurement of the tool, or the maximum measurement of the tool following its orientation, was measured to the nearest millimeter. For example, the length of a flake tool would be measured from the striking platform to the distal termination area regardless of the fact that the width measurement may be greater.

The width dimension of tools, measured as the maximum measurement at right angles to the length measurement, was recorded to the nearest millimeter. The thickness dimension, defined as the measurement perpendicular to the length and width measurements (Haggarty and Sendey 1976:18), was also recorded to the nearest millimeter. Artifact

classes which possess less than three examples are not summarized in tabular form but are described in text.

Pebble flake classes are similar to regular flake classes except pebble flake dorsal surfaces are completely covered with cortex. Cortex spall flakes are created when a flake is struck from the cortical surface of a river pebble or cobble. The result of such an action is a flake which is entirely covered in cortex on its dorsal surface (Hansen 1973:180). Most cortex spall flakes possess little evidence of their striking platform.

Utilized flakes are characterized by the presence of use wear along the working edge but no evidence of systematic retouch (Kornbacher 1989:117). The edges of such tools are characterized by irregular nicks or small flake scars (Matson 1976:131). In comparison, retouched flakes are artifacts with deliberate edge modification, or retouch. Minimal edge retouch for designation as a retouched tool are three consecutive flake scars along a single face (Pratt 1990:348).

Working edges of all flake tool classes are either acute-angled or steep-angled. Acute-angled working edges are less than 45° whereas steep-angled working edges are greater than 45°.

Retouched artifact classes are either unifacially or bifacially modified. Unifacially retouched tools have edge modification on a single face whereas bifacially worked tools possess retouch on both faces (Pratt 1992:347). The

retouch on adjacent surfaces of bifacially retouched artifacts does not extend more than one third of either face from the margin (Pokotylo 1978:223).

FLAKED STONE ARTIFACTS

Projectile Points

Leaf-Shaped Projectile Point n = 7

The name of this projectile point class is derived from its chief diagnostic attribute, namely its leaf-shape (Pratt 1992:358).

Table A.1 Leaf-Shaped Projectile Point

	Number	Median	Range	Interquartile Range
Weight	7	9.3	6.9-20.9	8.0-14.3
Length	6	54	45-74	50-69
Width	7	21	16-25	20-23
Thickness	7	9	8-15	8.5-10.5

Stemmed Projectile Point n = 13

This projectile point class is characterized by a basal stem. This stem would have facilitated hafting.

Table A.2 Stemmed Projectile Point

	Number	Median	Range	Interquartile Range
Weight	13	9.6	3.6-27.0	7.7-15.0
Length	8	59	35-70	52-68
Width	13	24	20-31	21-25
Thickness	13	9	4-16	7-11

Lanceolate Point n = 1

A long narrow shape characterizes this projectile point class. One example was recovered and measures 102 (length) x 17 (width) x 9 (thickness) mm and weighs 16.1 g.

Projectile Point Distal Fragment n = 4

This artifact class is composed of projectile point fragments that lack much of their basal sections thus making a stylistic classification, such as leaf-shaped or stemmed point, impossible. As roughly 50% of the artifact is present, these projectile point fragments differ from the projectile point tip class.

Table A.3 Projectile Point Distal Fragment

	Number	Median	Range	Interquartile Range
Weight	4	(13.1)	(11.9-15.1)	(12.3-14.4)
Length	4	(54)	(47-63)	(49-60)
Width	4	25	24-26	24.5-255
Thickness	4	10	8-13	8.5-12

Projectile Point Tip n = 2

Tips from projectile points constitute this artifact class. These fragments are often quite small, yet are clearly derived from a projectile point (Pratt 1992:360). One example measures 18 x 16 x 4 mm and weighs 1.2 g. The second example measures 14 x 16 x 6 mm and weighs 1.1 g.

Projectile Point Medial Section n = 1

This class of projectile point lacks the tip and base. Projectile point medial sections do not possess the attributes necessary to determine the specific class (e.g. stemmed projectile point), however, their form clearly indicates they are a fragment of a projectile point and not some other type of biface. The single example of this tool class measures 23 x 21 x 12 mm and weighs 5.3 g.

Leaf-Shaped Projectile Point Base n = 5

This artifact class is comprised of bases of leaf-shaped projectile points which have broken away from tip and medial sections (Pratt 1992:361).

Table A.4 Leaf-Shaped Projectile Point Base

	Number	Median	Range	Interquartile Range
Weight	5	(3.7)	(2.7-13.0)	(3.4-6.4)
Length	5	(23)	(16-51)	(22-28)
Width	5	(24)	(22-26)	(23-26)
Thickness	5	8	7-11	7-10

Stemmed Projectile Point Base n = 9

This artifact class is made up of stemmed projectile point bases that have broken away from medial and tip sections (Pratt 1992:361).

Table A.5 Stemmed Projectile Point Base

	Number	Median	Range	Interquartile Range
Weight	9	(5.5)	(1.8-10.5)	(2.9-6.3)
Length	9	(22)	(18-38)	(20-29)
Width	9	(23)	(17-28)	(22-26)
Thickness	9	8	6-12	7-11

Other Formed Bifaces

Formed Biface, Steep-Angled Edge n = 1

This artifact class represents projectile points at an early stage of reduction. The single example of this class has an irregular outline with large flake scars dominating both faces. This specimen has an incomplete length dimension and measures 31 (width) x 17 (thickness) mm and weighs 21.9 g.

Blade Tools

Microblade n = 1

Microblades are less than 2.5 cm in length and have a triangular cross-section. The length of microblades tend to be two to three times greater than the width with a guiding line running down the middle of the blade (Pratt 1992:354). The striking platform of the specimen from the Hatzic Rock site is absent, perhaps purposely broken off to create a

linear cutting edge as suggested by Pratt (1992:354). The microblade has an incomplete length dimension and measures 9 x 4 mm and weighs 0.9 g.

Flake Tools

Multiple Point Graver n = 1

This class of graver has multiple working points which indicate fresh points were used as others became blunt. This artifact has one sharp, well formed point, a second blunted point opposite the fresh point and a third point that has been worn down to little more than a stub.

Similar artifacts were recovered by Burley at the False Narrows Midden (DgRw-4) near Nanaimo (Burley 1988:78). Burley refers to these artifacts as multiple tip flake gravers. The examples Burley recovered had from two to five spurs.

The multiple point graver recovered from the Hatzic Rock site measures 30 x 35 x 11 mm and weighs 9.3 g.

Discoidal Uniface n = 1

This artifact class is characterized by small steep-angled retouch scars around the artifact perimeter. The artifact is circular and the systematic nature of the retouch resembles the edge of a bottle cap. The artifact measures 24 x 23 x 9 mm and weighs 5.6 g.

Pièce Esquillée n = 4

Pièces esquillées are a nebulous artifact class referred to by a variety of names. Pièces esquillées are also commonly called bipolar cores or stone wedges (Pratt 1992:339). These tools are produced by striking a parent material that rests on a hard surface (Crabtree 1972:42) and are identified by the presence of two opposing edges that exhibit crushing and battering (Pokotylo 1978:226).

Table A.6 Pièce Esquillée

	Number	Median	Range	Interquartile Range
Weight	4	65.0	6.2-98.5	24.0-93.4
Length	4	54.5	19-62	33-62
Width	4	52	34-58	41-57
Thickness	4	17	8-31	12.5-24

Pebble Flake, Steep-Angled Bifacial Retouch n = 1

This artifact class represents pebble flakes which have steep-angled retouch on both faces. The only example of this tool class from the Hatzic Rock site measures 89 x 45 x 30 mm and weighs 116.1 g.

Pebble Flake, Steep-Angled Unifacial Retouch n = 21

This artifact class represents pebble flakes with steep-angled retouch on a single face.

Table A.7 Pebble Flake, Steep-Angled Unifacial Retouch

	Number	Median	Range	Interquartile Range
Weight	21	157.0	24.7-460.5	75.0-220.1
Length	13	75	42-131	55-90
Width	14	60.5	34-81	44-70
Thickness	20	29	13-62	22.5-33

Pebble Flake, Acute-Angled Unifacial Retouch n = 2

This artifact class represents pebble flakes which have acute-angled retouch on a single face. One example measures 76 x 56 x 13 mm and weighs 56.5 g. The second example has an incomplete length dimension and measures 43 x 13 mm and weighs 31.7 g.

Pebble Flake with Acute-Angled Utilization n = 1

This artifact class is characterized by the presence of wear along its acute-angled working edge. The only example of this tool class measures 56 x 91 x 18 mm and weighs 79.4 g.

Flake with Steep-Angled Bifacial Retouch n = 5

This artifact class represents flakes with steep-angled retouch on adjacent surfaces.

Table A.8 Flake with Steep-Angled Bifacial Retouch

	Number	Median	Range	Interquartile Range
Weight	5	12.2	5.5-191.7	7.6-16.3
Length	4	42	35-108	37-76.5
Width	3	31	29-85	30-58
Thickness	5	12	8-16	9-15

Flake with Acute-Angled Bifacial Retouch n = 1

This artifact class represents flakes which have acute-angled retouch on both faces. The single example of this class lacks a length dimension and measures 48 x 23 mm. This tool weighs 51.1 g.

Flake with Steep-Angled Unifacial Retouch n = 28

This artifact class represents flakes which have steep-angled retouch on a single face.

Table A.9 Flake with Steep-Angled Unifacial Retouch

	Number	Median	Range	Interquartile Range
Weight	28	26.3	2.7-566.9	8.7-70.8
Length	14	45.5	20-86	36-63
Width	14	42.5	29-75	35-62
Thickness	27	14	6-41	11-21

Flake with Acute-Angled Unifacial Retouch n = 6

This artifact class represents flakes which have acute-angled retouch on a single face.

Table A.10 Flake with Acute-Angled Unifacial Retouch

	Number	Median	Range	Interquartile Range
Weight	6	16.4	2.4-237.9	6.2-22.6
Length	5	41	20-91	35-56
Width	5	34	24-81	29-47
Thickness	6	10.5	5-24	10-13

Steep-Angled Utilized Flake n = 30

This artifact class represents utilized flakes with a steep-angled working edge.

Table A.11 Steep-Angled Utilized Flake

	Number	Median	Range	Interquartile Range
Weight	30	19.9	0.3-106.4	9.1-39.0
Length	18	43.5	21-80	33-52
Width	17	40	20-78	32-48
Thickness	30	15	3-25	11-20

Acute-Angled Utilized Flake n = 46

This artifact class represents utilized flakes with an acute-angled working edge.

Table A.12 Acute-Angled Utilized Flake

	Number	Median	Range	Interquartile Range
Weight	46	6.5	0.1-69.1	3.2-22.8
Length	25	40	15-78	26-49
Width	28	33.5	10-92	23-48
Thickness	44	8	2-26	6.5-11

Cortex Spall Flake with Steep-Angled Bifacial Retouch **n = 1**

This artifact class has steep-angled bifacial retouch and measures 83 x 69 x 15 mm and weighs 103.9 g.

Cortex Spall Flake with Acute-Angled Unifacial Retouch **n = 1**

This artifact class has acute-angled unifacial retouch and the single example measures 112 x 71 x 16 mm and weighs 147.5 g.

Cobble/Core Tools

Core n = 69

Cores are masses of lithic material from which smaller pieces of material (flakes, flake shatter or block shatter) are detached from at least two different surfaces through the use of applied force (Pratt 1992:338). In general, cores recovered from the Hatzic Rock site are irregular,

that is, not deliberately prepared for the removal of flakes, and are derived from river pebbles and cobbles.

Table A.13 Core

	Number	Median	Range	Interquartile Range
Weight	69	163.3	15.4-2089.9	75.7-327.9
Length	69	66	30-183	55-84
Width	69	57	25-113	43-68
Thickness	69	39	19-90	32-54

Pebble with Bifacial Peripheral Flaking n = 9

Pebbles with bifacial peripheral flaking are commonly known as pebble or cobble tools or choppers. These artifacts are river cobbles or pebbles which have been bifacially flaked at one end to produce a relatively sharp working edge. This artifact class is differentiated from cores by the presence of a formed working edge or evidence that one had existed previously.

Table A.14 Pebble with Bifacial Peripheral Flaking

	Number	Median	Range	Interquartile Range
Weight	9	320.8	85.8-527.0	146.5-455.6
Length	7	101	61-129	87.5-116.5
Width	5	52	40-74	50-74
Thickness	9	33	20-64	27-43

Pebble with Unifacial Peripheral Flaking n = 9

Pebbles with unifacial peripheral flaking are river cobbles or pebbles which have been unifacially flaked at one end to produce a sharp working edge.

Table A.15 Pebble with Unifacial Peripheral Flaking

	Number	Median	Range	Interquartile Range
Weight	9	771.2	366.5-1240.0	637.6-868.3
Length	9	111	104-150	107-141
Width	9	93	78-123	88-96
Thickness	9	57	32-65	49-63

Pebble with Unifacial Peripheral Flaking/ Hammerstone n = 1

This class of artifact possesses pecking damage on peripheral areas, which indicates utilization as a hammerstone, and unifacial peripheral flaking which indicates use as a chopping tool. The single example measures 102 x 70 x 39 mm and weighs 403.0 g.

Hammerstone n = 2

These artifacts are pebbles which possess battering or pitting on one or more sides or ends (Loy and Powell 1977:51). One specimen measures 92 x 62 x 48 mm and weighs 395.6 g. The second example measures 84 x 82 x 55 mm and weighs 464.1 g.

Hammerstone with Edge Abrasion n = 2

These pebbles possess battering or pitting on one or more sides or ends and abrasion marks on their edges. This abrasion was likely caused by the preparation of striking surfaces on cores or tools during stages of lithic reduction. One example measures 104 x 60 x 42 mm and weighs 411.5 g. The second example measures 74 x 63 x 49 mm and weighs 322.1 g.

Hammerstone/Anvil n = 3

This artifact class possesses pitting or battering on its ends and has at least one face which indicates use as both a hammerstone and an anvil. The ends of this artifact are battered or pitted with a central area on one or more faces possessing evidence of a depression, crushing or grinding.

Table A.16 Hammerstone/Anvil

	Number	Median	Range	Interquartile Range
Weight	3	203.7	194.7-422.1	n/a
Length	3	64	57-88	n/a
Width	3	56	54-72	n/a
Thickness	3	41	35-43	n/a

Anvil Stone n = 3

Stones which possess evidence of pecking or battering on one or more faces are defined as anvil stones. A variety of raw materials, including lithics, would have been processed on the surfaces of such artifacts. An oversight at the end of the 1991 excavation caused one large anvil stone to be backfilled into the excavation area. Dimensions for this anvil stone are not available. One example measures 76 x 71 x 39 mm and weighs 317.3 g. The second example measures 489 x 349 x 318 mm and weighs over 45 kg.

Miscellaneous Chipped Stone

Miscellaneous Flaked Slate n =1

This artifact class describes chipped slate fragments with no readily apparent use or function. The single artifact of this class exhibits systematic unifacial flaking along its margin suggesting a tool may have been in the process of being roughed out. This example measures 96 x 53 x 13 mm and weighs 70.3 g.

GROUND STONE ARTIFACTS

Disc Bead n = 2

Disc beads are small and biconically drilled with varying degrees of finish and are assumed to have been used

for personal adornment (Pratt 1992:372). Both examples weigh 0.1 g and measure 5 x 5 x 2 mm.

Ground Slate Blade Fragment n = 5

These artifacts are best described as fragments of long symmetrical blades. Several blade fragments could be conjoined into complete specimens showing the finished form. The dimensions of the conjoined tools are presented following the summary of fragmentary dimensions.

Matson (1976:148-149) classified similar artifacts recovered from the St. Mungo Component at the Glenrose Cannery site as ground slate points. The Glenrose specimens are considerably shorter, thinner and possess a more "point-like" outline than those from the Hatzic Rock site.

Three examples of this artifact class have been observed in the private collection of Mr. Steve Nemtin of Galiano Island, B.C. Nemptin's artifacts, which were surface collected from the Georgeson Bay site (DfRu-24) on Galiano Island, more closely resemble examples from the Hatzic Rock site than Matson's examples. Nemptin's artifacts are long and relatively thick with one specimen possessing a biconically drilled hole near its base. No artifacts of this nature were recovered by Haggarty and Sendey in their controlled excavation at the Georgeson Bay site (Haggarty and Sendey 1976).

Table A.17a Ground Slate Blade Fragment

	Number	Median	Range	Interquartile Range
Weight	5	(9.0)	(2.5-17.3)	(4.4-10.6)
Length	5	(42)	(31-110)	(36-69)
Width	5	17	15-23	16-19
Thickness	5	6	5-7	5-6

Table A.17b Conjoined Ground Slate Blade Fragments

Catalogue Numbers	Length	Width	Thickness	Weight
811 and 5033	125	19	6	19.8
5029[1] and 5030	113	19	4	15.5
5031 and 5032	97	17	5	14.9

Miscellaneous Worked Nephrite n = 1

This artifact class represents worked nephrite fragments. The single example of this tool class has a ground and polished surface and may represent a portion of a larger tool such as a celt or chisel. This fragment measures (14) x (10) x (2) mm and weighs (0.2) g.

Formed Abrasive Stone Fragment n = 7

Pratt (1992:369) defines this artifact class as possessing a smooth abrading surface with evidence of modification into shaped forms such as tear-dropped or bar.

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[1] This blade fragment is from an unknown level in excavation unit 1 and was excluded from the general summary of this artifact class.

This class of artifact was likely utilized to grind stone such as slate or softer materials including bone or antler.

Table A.18 Formed Abrasive Stone Fragment

	Number	Median	Range	Interquartile Range
Weight	7	(5.9)	(2.3-445.9)	5.5-23.3)
Length	7	(29)	(27-132)	(28.0-45.5)
Width	7	(25)	(17-116)	(24.5-41.0)
Thickness	7	(11)	(4-30)	(8.0-12.5)

Abrasive Stone n = 3

Pratt (1992:368) describes this artifact class as having been modified through abrasion but not purposely formed. Examples of this artifact class have undefined margins or lack margins altogether. This class of artifact was likely utilized to grind stone such as slate or softer materials such as bone or antler. The three specimens may represent fragments of formed abrasive stones. All three abrasive stones have obvious abrasion/incision marks on their working surfaces.

Table A.19 Abrasive Stone

	Number	Median	Range	Interquartile Range
Weight	3	(102.7)	(7.1-120.2)	n/a
Length	3	(61)	(40-102)	n/a
Width	3	(58)	(36-71)	n/a
Thickness	3	(15)	(5-28)	n/a

PECKED and GROUND STONE ARTIFACTS

Grooved Cobble/Anvil n = 1

A single grooved cobble/anvil was recovered and measures 166 x 85 x 63 mm and weighs 1410.1 g. This artifact is a symmetrically shaped ovoid pebble with a groove roughly 30 mm wide pecked around the entire edge to a depth of approximately 4 mm. One face of the pebble has evidence of pecking and a slight indentation in the centre. The same area is a glossy gray/black that indicates some type of organic material was processed on the surface. This polished area is roughly 56 x 41 mm. The opposite face of the artifact lacks direct evidence of pecking, however, the same polish, although less pronounced, is present in the central area. This area of polish is roughly 67 x 36 mm.

The presence of pecking and polish suggests a plant or animal resource may have been processed on the two faces. The pronounced groove encircling the pebble may have acted as a grip.

Pebble Hammer n = 1

A single pebble hammer recovered from the excavation measures 111 x 92 x 64 mm and weighs 940.1 g. This artifact is a squat pebble with a modified base. The base has either been flattened through use or by purposeful modification.

Use polish is present on the base of this tool suggesting it was used to process plant or animal resources. Abrasion marks located near the base indicate the tool may have been used as a hammerstone on occasion.

MISCELLANEOUS ARTIFACTS

Paint Stone n = 5

Paint stones are unmodified pebbles that are covered in either red ochre, a black pigment, or both. The presence of pigment on these stones suggest they were used to grind or prepare pigment. One specimen, appears to have been used as a palate as well as a grinding implement. This artifact (DgRn-23:5040) has a concentration of black pigment in the centre of one of the faces, suggesting use as a palate, and red ochre at the ends indicating pigment was ground.

Table A.20 Paint Stone

	Number	Median	Range	Interquartile Range
Weight	5	302.7	103.7-670.5	251.2-330.3
Length	5	87	52-113	84-106
Width	5	69	41-79	55-71
Thickness	5	30	30-70	30-37

Paint Stone/Anvil n = 2

This class of artifact is covered with either red ochre or a black pigment with pecking or battering on one or more faces. One example is a granite pebble covered with black pigment and measures 81 x 63 x 52 mm and weighs 391.0 g. This artifact has a shallow pecked depression measuring approximately 30 x 30 mm on one face. The second example measures 103 x 67 x 78 and weighs 822.4 g. One unmodified surface is thickly encrusted with red ochre with the adjacent surface dish shaped from pecking. No pigment is present on the pecked surface. Both ends of this artifact possess traces of ochre.

Pyroclast n = 1

Pyroclasts are pieces of obsidian which form when molten obsidian solidifies when settling out of the atmosphere after an explosive volcanic eruption (Courty et al. 1989:101). Although unmodified, this item was included as an artifact as it was imported from a distant source. The pyroclast recovered from the Hatzic Rock site is covered

with cortex and exhibits no sign of cultural modification. The pyroclast measures 63 x 10 x 9 mm and weighs 5.4 g.

APPENDIX B

POST HOLE FEATURES

Introduction

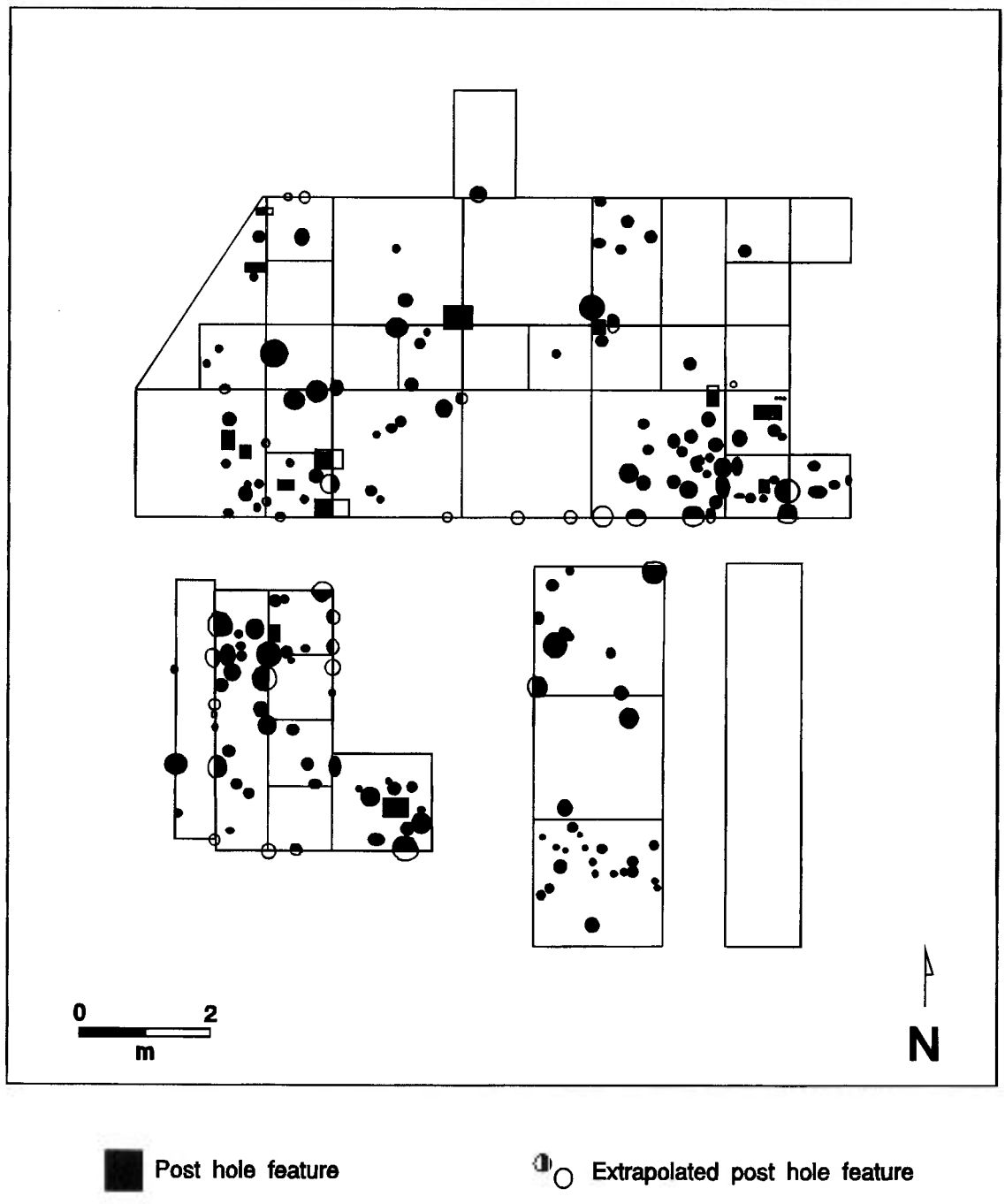
Post hole features were recorded in all 38 excavation units and each backhoe trench. However, data are not available for trench 3 as formal notes or wall profiles were not made. Two shapes of post hole features were recorded. The most common, circular/ovoid, is characterized by a circular, or near circular, outline. The second shape is rectangular.

Each post hole was numbered for ease of reference. Feature provenience was indicated by referring to the units and levels where the feature was found. Where information was lacking, or absent, a "n/a" was placed in the appropriate location. Specific feature provenience (e.g. 45 cm S, 23 cm E), was provided where possible. If specific feature provenience data were absent or lacking, a "?" was used in place of numeric coordinates. Figure B.1 shows post hole feature locations in relation to the excavation grid to assist in locating specific post hole features.

The maximum horizontal dimension was used to determine the diameter of circular/ovoid post features and the maximum dimension (length) for rectangular post holes. The width dimension of rectangular post holes was included where possible. The width dimension was measured as the maximum

Figure B.1

Post Hole Features in Relation
to Excavation Grid



dimension at right angles to the length dimension. In examples where feature data were lacking, or incomplete, the size of the post hole was extrapolated from existing data.

Feature depth was recorded in centimeters. Many post holes were not excavated beyond the house floor/gravel interface, therefore this data is not available. In cases where the entire feature was excavated notes rarely indicate the depth reached. In these cases where data are lacking, a "n/a" replaced the numeric data.

A section headed "comments" provides additional information not recorded in the previous data fields. For example, if a feature's diameter was extrapolated from existing data this was indicated. Other information such as the angle of the post hole or the presence of rock enclosed bases would be mentioned in the comments section.

Circular/Ovoid Post Holes

1)
Unit 2, Level 7-9
Diameter: 10 cm
Depth: 20 cm
Provenience: 30-40 cm S, 25-35 cm E
Comments: This feature bottoms out on a rock.

2)
Unit 2, Level 8-12; Unit 12, Level n/a
Diameter: 14 cm
Depth: 40 cm
Provenience: 92-100 cm S (EU 2), 30-44 cm E (EU 2); 0-? cm S (EU 12), ? cm E (EU 12)
Comments: The feature extends towards the west wall at a slight angle. The south wall profile of unit 2 suggests the base of the post tapered to a point. No evidence of this feature was observed in Unit 12.

3)
Unit 2, Level 10-12; Unit 31, Level 10
Diameter: 43 cm
Depth: 20 cm
Provenience: 26-42 cm S (EU 2), 91-100 cm E (EU 2); 27-64 cm S (EU 31), 0-34 cm E (EU 31)
Comments: The slight discrepancy of proveniences between the excavation units is likely recording error.

4)
Unit 2, Level 7-10
Diameter: 10 cm
Depth: 30 cm
Provenience: 55-65 cm S, 5-15 cm E

5)
Unit 28, Level 2
Diameter: 7.5 cm
Depth: n/a
Provenience: 20-27 cm S, 13-21 cm W

6)
Unit 28, Level 1
Diameter: 19 cm
Depth: n/a
Provenience: 54-72 cm S, 0-17 cm W

7)
Unit 31, Level 12; Unit 24, Level 12
Diameter: 32 cm
Depth: n/a
Provenience: 88-100 cm S (EU 31), 60-91 cm E (EU 31); 0-20 cm S (EU 24), 60-91 cm E (EU 24)

8)
Unit 12, Level 9-12
Diameter: 20 cm
Depth: 34 cm
Provenience: 34-52 cm S, 136-156 cm E
Comments: The feature angles east to west.

9)
Unit 12, Level 11
Diameter: 11 cm
Depth: 10 cm
Provenience: 110-120 cm S, 131-142 cm E

10)
Unit 12, Level 11-13
Diameter: 9 cm
Depth: 24 cm
Provenience: 143-150 cm S, 167-176 cm E

11)
Unit 12, Level 11-12
Diameter: 11 cm
Depth: 16 cm
Provenience: 142-151 cm S, 181-192 cm E

12)
Unit 12, Level 10-11
Diameter: 19 cm
Depth: 11 cm
Provenience: 153-167 cm S, 159-178 cm E

13)
Unit 12, Level 11-13
Diameter: 10 cm
Depth: 19 cm
Provenience: 178-188 cm S, 182-190 cm E

14)
Unit 12, Level 11-13
Diameter: 9 cm
Depth: 22 cm
Provenience: 192-200 cm S, 134-143 cm E

15)
Unit 12, Level 10-12; Unit 24, Level n/a
Diameter: 10 cm
Depth: 23 cm
Provenience: 78-87 cm S (EU 12), 197-200 cm E (EU 12);
? cm S (EU 24), 0-? cm E (EU 24)
Comments: This feature extends into unit 24. However, no record of a such a feature was noted. Due to its relatively small size, the feature was likely cut through by the excavator. The dimensions of this feature were extrapolated from existing data.

16)
Unit 24, Level 11
Diameter: 29 cm
Depth: n/a
Provenience: 2-30 cm S, 29-58 cm E

17)
Unit 3, Level 12-17; Unit 30, Level 16; Unit 10, Level 16
Diameter: 30 cm
Depth: 50 cm
Provenience: 0-20 cm S (EU 3), 85-100 cm E (EU 3); 22-34 cm S; (EU 30), 0-5 cm E (EU 30); 190-200 cm S (EU 10), 63-90 cm E (EU 10)
Comments: This feature bottoms out on a rock. The discrepancy between the proveniences for EU 3, EU 10 and EU 30 can be attributed to recording error. Notes from EU 30 indicate the wall of the feature sloughed away as it was being excavated thus blurring the data from this unit somewhat.

18)
Unit 3, Level 12-18; Unit 13, Level 12
Diameter: 21 cm
Depth: 75 cm
Provenience: 89-100 cm S (EU 3), 0-18 cm E (EU 3); 0-10 cm S (EU 13), 0-10 cm E (EU 13)

19)
Unit 5, Level 9-11
Diameter: 9 cm
Depth: 15 cm
Provenience: 10-19 cm S, 32-40 cm E
Comments: This feature tapers with depth.

20)
Unit 5, Level 10-14
Diameter: 20 cm
Depth: 50 cm
Provenience: 27-47 cm S, 65-85 cm E
Comments: This feature tapers with depth.

21)
Unit 5, Level 8-11; Unit 12, level n/a
Diameter: 13 cm
Depth: 28 cm
Provenience: 68-81 cm S (EU 5), 0-8 cm E (EU 5); ? cm S (EU 12), ?-200 cm E (EU 12)
Comments: This feature lies partially in unit 12. However, no evidence of this feature was observed in the adjacent portion of unit 12. The west wall profile of unit 5 indicates the feature does extend into the adjacent unit. The feature was likely cut through during the excavation of unit 12 as its small size may have prevented its detection. This feature tapers with depth.

22)
Unit 5, Level 10-11
Diameter: 11 cm
Depth: 10 cm
Provenience: 92-100 cm S, 15-26 cm E
Comments: This feature extends into the south (baulk) wall. Feature dimensions were extrapolated from available data.

23)
Unit 5, Level 10-11
Diameter: 12 cm
Depth: 10 cm
Provenience: 64-76 cm S, 53-64 cm E
Comments: This feature tapers with depth.

24)
Unit 5, Level 9-13; Unit 13, Level 13
Diameter: 30 cm
Depth: 35 cm
Provenience: 44-60 cm S (EU 5), n/a cm E (EU 5); 130-160 cm S (EU 13), 0-8 cm E (EU 13)
Comments: This feature was not observed in the unit 5 excavation, however, it could be seen in the east wall profile. The size of the feature was extrapolated from available data.

25)
Unit 13, Level n/a
Diameter: 13 cm
Depth: 30 cm
Provenience: ?-200 cm S, 173-186 cm E
Comments: This feature was visible only in the south (baulk) wall profile (baulk). The size of the feature was extrapolated from existing data.

26)
Unit 13, Level 14
Diameter: 25 cm
Depth: 10 cm
Provenience: 20-45 cm S, 162-184 cm E

27)
Unit 13, Level 13
Diameter: 8 cm
Depth: 10 cm
Provenience: 68-76 cm S, 59-67 cm E

28)
Unit 13, Level 13
Diameter: 13 cm
Depth: 10 cm
Provenience: 55-68 cm S, 84-95 cm E

29)
Unit 13, Level 13
Diameter: 14 cm
Depth: 10 cm
Provenience: 45-59 cm S, 101-113 cm E

30)
Unit 13, Level 13; Unit 14, Level n/a
Diameter: 20 cm
Depth: 10 cm
Provenience: 8-28 cm S (EU 13), 190-200 cm E (EU 13); ? cm S (EU 14), 0-? cm E (EU 14)
Comments: This feature extends into unit 14, however, it

was not observed or noted during the excavation of this unit. The dimensions of this feature were extrapolated from existing data.

31)
Unit 13, Level 13
Diameter: 13 cm
Depth: 10 cm
Provenience: 152-163 cm S, 54-67 cm E

32)
Unit 13, Level 13
Diameter: 10 cm
Depth: 10 cm
Provenience: 168-178 cm S, 69-77 cm E

33)
Unit 13, Level 13
Diameter: 6 cm
Depth: 10 cm
Provenience: 128-134 cm S, 88-94 cm E

34)
Unit 30, Level 16
Diameter: 14 cm
Depth: n/a
Provenience: 24-38 cm S, 29-43 cm E

35)
Unit 30, Level 16
Diameter: 8 cm
Depth: n/a
Provenience: 10-18 cm S, 42-49 cm E

36)
Unit 30, Level 16; Unit 13, Level n/a
Diameter: 18 cm
Depth: n/a
Provenience: 86-100 cm S (EU 30), 13-31 cm E (EU 30); 0-? cm S (EU 13), ? cm E (EU 13)
Comments: This feature extends into unit 13, however, it was not noted or observed in this unit during excavation. Feature dimensions have been extrapolated from existing data.

37)
Unit 10, Level 11-12
Diameter: 8 cm
Depth: 15 cm
Provenience: 80-88 cm S, 100-104 cm E

38)
Unit 10, Level 14,15
Diameter: 19 cm
Depth: n/a
Provenience: 154-173 cm S, 104-123 cm E

39)
Unit 11, Level 14-20; Unit 23, Level 10
Diameter: 36 cm
Depth: 53 cm
Provenience: 162-195 cm S (EU 11), 184-200 cm E (EU 11); 162-198 cm S (EU 23), 0-18 cm E (EU 23)

40)
Unit 29, Level 15
Diameter: 13 cm
Depth: n/a
Provenience: 43-54 cm S, 36-49 cm E

41)
Unit 14, Level 11-14
Diameter: 22 cm
Depth: 30 cm
Provenience: ?-200 cm S, 76-98 cm E
Comments: Not observed or recorded when the unit was excavated but visible in the south wall (baulk) profile.

42)
Unit 14, Level 11-13
Diameter: 19 cm
Depth: 17 cm
Provenience: ?-200 cm S, 156-175 cm E
Comments: Not observed or recorded when the unit was excavated but visible in the south (baulk) wall profile.

43)
Unit 6, Level 11-16
Diameter: 15 cm
Depth: 50 cm
Provenience: 24-38 cm S, 8-23 cm E

44)
Unit 23, Level 8-10; Unit 11, Level n/a
Diameter: 20 cm
Depth: n/a
Provenience: 0-18 cm S (EU 23), 0-18 cm E (EU 23); 0-? cm S (EU 11), ?-200 cm E (EU 11)
Comments: This feature extends into the north (baulk) wall. No trace of this feature was observed or recorded in unit 11, however, it clearly extended into the unit. Dimensions of this feature were extrapolated from existing data.

45)
Unit 23, Level 10
Diameter: 15 cm
Depth: n/a
Provenience: 38-53 cm S, 47-62 cm E

46)
Unit 23, Level 10
Diameter: 14 cm
Depth: n/a
Provenience: 66-79 cm S, 6-20 cm E

47)
Unit 23, Level 10; Unit 6, Level n/a
Diameter: 20 cm
Depth: n/a
Provenience: 182-200 cm S (EU 23), 23-40 cm E (EU 23)
Comments: This feature extends into unit 6, however, no mention could be found in the excavation notes. Feature dimensions were extrapolated from existing data.

48)
Unit 23, Level 10
Diameter: 15 cm
Depth: n/a
Provenience: 63-78 cm S, 83-98 cm E

49)
Unit 23, Level 10
Diameter: 12 cm
Depth: n/a
Provenience: 81-92 cm S, 38-50 cm E

50)
Unit 23, Level 10; Unit 21, Level n/a
Diameter: 30 cm
Depth: n/a
Provenience: 130-160 cm S (EU 23), 88-100 cm E (EU 23); ? cm S (EU 21), 0-? cm E (EU 21)
Comments: This feature extends into unit 21, however, no mention could be found in the excavation notes. Feature dimensions were extrapolated from existing data.

51)
Unit 32, Level 17
Diameter: 17 cm
Depth: n/a
Provenience: 61-76 cm S, 41-58 cm E

52)
Unit 16, Level 12, 13
Diameter: 31 cm
Depth: 11 cm
Provenience: 184-200 cm S, 138-169 cm E
Comments: This feature continues south into the baulk wall. The size of this feature was extrapolated from existing data.

53)
Unit 16, Level 12-13
Diameter: 16 cm
Depth: n/a
Provenience: 177-192 cm S, 180-196 cm E

54)
Unit 16, Level 13-15
Diameter: 25 cm
Depth: 22 cm
Provenience: 190-200 cm S, 57-82 cm E
Comments: This feature continues south into the baulk wall and its size has been extrapolated from existing data.

55)
Unit 16, Level 12-13
Diameter: 25 cm
Depth: n/a
Provenience: 158-174 cm S, 133-158 cm E

56)
Unit 16, Level 12
Diameter: 14 cm
Depth: n/a
Provenience: 96-110 cm S, 130-143 cm E
Comments: The validity of this feature is uncertain.

57)
Unit 16, Level 13
Diameter: 28 cm
Depth: 12 cm
Provenience: 122-150 cm S, 44-68 cm E

58)
Unit 16, Level 13
Diameter: 21 cm
Depth: 6 cm
Provenience: 140-161 cm S, 68-88 cm E

59)
Unit 16, Level 12-13
Diameter: 20 cm
Depth: n/a
Provenience: 142-162 cm S, 113-132 cm E

60)
Unit 16, Level 13
Diameter: 9 cm
Depth: 5 cm
Provenience: 114-123 cm S, 159-166 cm E

61)
Unit 16, Level 13
Diameter: 8 cm
Depth: 4 cm
Provenience: 110-117 cm S, 177-185 cm E

62)
Unit 16, Level 13
Diameter: 8 cm
Depth: 5 cm
Provenience: 124-132 cm S, 156-164 cm E

63)
Unit 16, Level 13
Diameter: 8 cm
Depth: 5 cm
Provenience: 135-143 cm S, 172-179 cm E

64)
Unit 16, Level 13; Unit 15, Level 13-15
Diameter: 26 cm
Depth: n/a
Provenience: 121-140 cm S (EU 16), 184-200 cm E (EU 16); 16-35 cm S (EU 15), 0-10 cm E (EU 15)
Comments: The discrepancy between feature proveniences is likely a recording error.

65)
Unit 16, Level 12-13
Diameter: 18 cm
Depth: n/a
Provenience: 86-101 cm S, 176-194 cm E

66)
Unit 16, Level 12-13
Diameter: 19 cm
Depth: n/a
Provenience: 46-64 cm S, 166-185 cm E

67)
Unit 16, Level 12-14
Diameter: 18 cm
Depth: 12 cm
Provenience: 78-95 cm S, 116-134 cm E

68)
Unit 16, Level 12-13
Diameter: 16 cm
Depth: n/a
Provenience: 93-109 cm S, 78-92 cm E

69)
Unit 16, Level 12-13
Diameter: 14 cm
Depth: n/a
Provenience: 53-67 cm S, 72-84 cm E

70)
Unit 16, Level 12
Diameter: 12 cm
Depth: n/a
Provenience: 188-200 cm S, 174-183 cm E
Comments: This feature continues south into the baulk wall and its dimensions have been extrapolated from existing data.

71)
Unit 16, Level 12
Diameter: 16 cm
Depth: n/a
Provenience: 72-84 cm S, 143-159 cm E
Comments: The validity of this feature is uncertain.

72)
Unit 16, Level 15
Diameter: 30 cm
Depth: n/a
Provenience: ?-200 cm S (EU 16), 0-30 cm E (EU 16)
Comments: This feature was only observed in the south wall (baulk) profile and its size has been extrapolated from existing data.

73)
Unit 15, Level 15-18; Unit 9, Level 15
Diameter: 28 cm
Depth: n/a
Provenience: 80-100 cm S (EU 15), 82-100 cm E (EU 15); 90-100 cm S (EU 9), 0-10 cm E (EU 9)
Comments: This feature continues into the south (baulk) wall and its size has been extrapolated from existing data.

74)
Unit 15, Level 15-16
Diameter: 13 cm
Depth: 13 cm
Provenience: 45-56 cm S, 70-83 cm E

75)
Unit 15, Level 15-17
Diameter: 9 cm
Depth: 11 cm
Provenience: 74-83 cm S, 57-65 cm E

76)
Unit 15, Level 16-17
Diameter: 13 cm
Depth: n/a
Provenience: 72-85 cm S, 35-48 cm E

77)
Unit 15, Level 15-17
Diameter: 9 cm
Depth: n/a
Provenience: 71-78 cm S, 26-35 cm E

78)
Unit 15, Level 15-16
Diameter: 17 cm
Depth: n/a
Provenience: 13-30 cm S, 11-28 cm E

79)
Unit 9, Level 15
Diameter: 16 cm
Depth: 49 cm
Provenience: 20-36 cm S, 31-47 cm E

80)
Unit 9, Level 15
Diameter: 14 cm
Depth: n/a
Provenience: 50-64 cm S, 61-75 cm E

81)
Unit 9, Level 15
Diameter: 24 cm
Depth: n/a
Provenience: 60-76 cm S, 31-55 cm E

82)
Unit 9, Level 15
Diameter: 15 cm
Depth: n/a
Provenience: 45-60 cm S, 90-99 cm E

83)
Unit 20, Level 9
Diameter: 15 cm
Depth: n/a
Provenience: 65-80 cm S, 70-83 cm E

84)
Unit 20, Level 9
Diameter: 8 cm
Depth: n/a
Provenience: 79-87 cm S, 86-94 cm E

85)
Unit 20, Level 9-11
Diameter: 6 cm
Depth: 23 cm
Provenience: 21-27 cm S, 96-100 cm E
Comments: This feature continues into the eastern baulk wall and its dimensions were extrapolated from existing data.

86)
Unit 20, Level n/a
Diameter: 6 cm
Depth: n/a
Provenience: 22-27 cm S, 88-94 cm E

87)
Unit 20, Level 9
Diameter: 7 cm
Depth: n/a
Provenience: 23-29 cm S, 80-87 cm E

88)
Unit 20, Level 9-13
Diameter: 22 cm
Depth: 48 cm
Provenience: 74-92 cm S, 12-34 cm E
Comments: This feature is angled from west to east (base is portion furthest west).

89)
Unit 7, Level n/a; Unit 20, Level n/a
Diameter: 15 cm
Depth: n/a
Provenience: ?-100 cm S (EU 7), 15-30 cm E (EU 7); 0-? cm S (EU 20), 15-30 cm E (EU 20)
Comments: This feature was only visible in a photograph of the south wall of unit 7. No evidence of this feature was noted or observed in unit 20. The size of this feature has been extrapolated from existing data. This post hole is angled towards the east.

90)
Unit 17, Level 5-7; Unit 19, Level 7-8
Diameter: 19 cm
Depth: n/a
Provenience: 0-? cm S (EU 17), 37-45 cm E (EU 17); 86-100 cm S(EU 19), 27-46 cm E (EU 19)
Comments: This feature was visible in unit 19 and the north wall of unit 17. Excavators of unit 17 failed to observe and record this feature. The size of this feature was extrapolated from existing data.

91)
Unit 33, Level 12-13
Diameter: 12 cm
Depth: n/a
Provenience: 0-11 cm S (EU 33), 48-60 cm E (EU 33)
Comments: This feature extends into the north (baulk) wall and its size has been extrapolated from existing data.

92)
Unit 33, Level 12
Diameter: 13 cm
Depth: n/a
Provenience: 129-141 cm S, 108-121 cm E

93)
Unit 33, Level 12-13; Unit 34, Level n/a
Diameter: 30 cm
Depth: n/a
Provenience: 170-200 cm S (EU 33), 0-23 cm E (EU 33); 0-? cm S (EU 34), 0-? cm E (EU 34)
Comments: This feature extends westwards into the baulk wall. No evidence of this feature was observed or noted in unit 34. The dimensions of this feature have been extrapolated from available data.

94)
Unit 33, Level 12
Diameter: 32 cm
Depth: n/a
Provenience: 104-136 cm S, 15-46 cm E

95)
Unit 33, Level 12-13; Unit 34, Level n/a
Diameter: 20 cm
Depth: n/a
Provenience: 187-200 cm S (EU 33), 121-141 cm E (EU 33); 0-4 cm S (EU 34), 133-148 cm E (EU 34)
Comments: This feature tapers with depth.

96)
Unit 33, Level 13
Diameter: 15 cm
Depth: n/a
Provenience: 72-87 cm S, 0-12 cm E
Comments: This feature continues into the western (baulk) wall. Feature dimensions were extrapolated from existing data.

97)
Unit 33, Level 12-13
Diameter: 16 cm
Depth: n/a
Provenience: 20-36 cm S, 20-36 cm E
Comments: Three large rocks surrounded the base of this feature.

98)
Unit 33, Level 12-13
Diameter: 34 cm
Depth: n/a
Provenience: 0-28 cm S, 166-200 cm E
Comments: This feature continued into the northern and eastern baulk walls. The dimensions of this feature were extrapolated from existing data. A rock adjacent to the south edge of the feature may have served a support or retaining function.

99)
Unit 34, Level n/a
Diameter: 21 cm
Depth: n/a
Provenience: 166-185 cm S, 35-56 cm E

100)
Unit 34, Level n/a
Diameter: 26 cm
Depth: n/a
Provenience: 21-44 cm S, 138-164 cm E

101)
Unit 35, Level 9
Diameter: 13 cm
Depth: n/a
Provenience: 72-84 cm S, 150-163 cm E

102)
Unit 35, Level 9
Diameter: 9 cm
Depth: n/a
Provenience: 75-83 cm S, 140-149 cm E

103)
Unit 35, Level 9
Diameter: 5 cm
Depth: n/a
Provenience: 78-83 cm S, 117-122 cm E

104)
Unit 35, Level 9
Diameter: 11 cm
Depth: n/a
Provenience: 35-46 cm S, 94-104 cm E

105)
Unit 35, Level 9
Diameter: 6 cm
Depth: n/a
Provenience: 77-83 cm S, 89-95 cm E

106)
Unit 35, Level 9
Diameter: 6 cm
Depth: n/a
Provenience: 57-62 cm S, 82-88 cm E

107)
Unit 35, Level 9
Diameter: 7 cm
Depth: n/a
Provenience: 36-43 cm S, 71-78 cm E

108)
Unit 35, Level 9-10
Diameter: 20 cm
Depth: n/a
Provenience: 58-78 cm S, 25-44 cm E

109)
Unit 35, Level 9
Diameter: 5 cm
Depth: n/a
Provenience: 42-46 cm S, 43-48 cm E

110)
Unit 35, Level 9
Diameter: 5 cm
Depth: n/a
Provenience: 36-40 cm S, 38-43 cm E

111)
Unit 35, Level 9
Diameter: 5 cm
Depth: n/a
Provenience: 17-22 cm S, 64-68 cm E

112)
Unit 35, Level 8-9
Diameter: 14 cm
Depth: n/a
Provenience: 0-12 cm S, 48-62 cm E

113)
Unit 35, Level 10
Diameter: 13 cm
Depth: n/a
Provenience: 104-117 cm S, 0-12 cm E
Comments: This feature continues in the western (baulk) wall and its size was extrapolated from existing data.

114)
Unit 35, Level 9-10
Diameter: 13 cm
Depth: n/a
Provenience: 97-109 cm S, 13-26 cm E

115)
Unit 35, Level 8-10
Diameter: 10 cm
Depth: n/a
Provenience: 32-41 cm S, 175-185 cm E

116)
Unit 35, Level 8
Diameter: 5 cm
Depth: n/a
Provenience: 20-24 cm S, 18-23 cm E

117)
Unit 35, Level 9
Diameter: 6 cm
Depth: n/a
Provenience: 90-94 cm S, 178-184 cm E

118)
Unit 35, Level 9
Diameter: 6 cm
Depth: n/a
Provenience: 102-106 cm S, 182-188 cm E

119)
Unit 35, Level 10
Diameter: 21 cm
Depth: n/a
Provenience: 150-168 cm S, 71-92 cm E

120)
Unit 35, Level 9
Diameter: 14 cm
Depth: n/a
Provenience: 56-68 cm S, 140-154 cm E

121)
Unit 18, Level 10
Diameter: 20 cm
Depth: n/a
Provenience: 70-90 cm S, 94-100 cm E
Comments: This feature extends into the eastern (baulk) wall and its dimensions were extrapolated from existing data.

122)
Unit 18, Level 10
Diameter: 14 cm
Depth: n/a
Provenience: 78-87 cm S, 52-66 cm E

123)
Unit 18, Level 10; Unit 26, Level n/a
Diameter: 7 cm
Depth: n/a
Provenience: 96-100 cm S (EU 18), 32-39 cm E (EU 18); 0-? cm S (EU 26), ? cm E (EU 26)
Comments: This feature extends into unit 26 but was not observed by the excavator. Feature dimensions were extrapolated from existing data.

124)
Unit 18, Level 10
Diameter: 12 cm
Depth: n/a
Provenience: 0-12 cm S, 22-33 cm E
Comments: This feature extends into the north (baulk) wall and its dimensions were extrapolated from existing data.

125)
Unit 18, Level 9
Diameter: 33 cm
Depth: n/a
Provenience: 0-16 cm S, 67-100 cm E
Comments: This feature extends into the east and north (baulk) walls. The dimensions of this feature were extrapolated from existing data.

126)
Unit 18, Level 9
Diameter: 19 cm
Depth: n/a
Provenience: 25-44 cm S, 93-100 cm E
Comments: This feature extends into the east (baulk) wall and its dimensions were extrapolated from existing data.

127)
Unit 18, Level 9
Diameter: 17 cm
Depth: n/a
Provenience: 79-96 cm S, 23-39 cm E

128)
Unit 18, Level 8-10
Diameter: 19 cm
Depth: n/a
Provenience: 0-17 cm S, 5-24 cm E
Comments: This feature extends into the northern (baulk) wall and its dimensions were extrapolated from existing data.

129)
Unit 18, Level 8-9; Unit 26, Level 7-9; Unit 37, Level 9
Diameter: 40 cm
Depth: 21 cm
Provenience: 83-100 cm S (EU 18), 0-20 cm E (EU 18); 0-18 cm S (EU 26), 0-? cm E (EU 26); 90-130 cm S (EU 37), 64-80 cm E (EU 37)

130)
Unit 26, Level 8-10
Diameter: 23 cm
Depth: 22 cm
Provenience: 0-23 cm S, ?-100 cm E
Comments: This feature was only observed in the east wall profile of unit 26. The size of the feature was extrapolated from existing data.

131)
Unit 26, Level 8
Diameter: 8 cm
Depth: 9 cm
Provenience: 46-54 cm S, ?-100 cm E
Comments: This feature was only observed in the east wall profile of unit 26. The size of the feature was extrapolated from existing data.

132)
Unit 26, Level 7-9; Unit 37, Level 9
Diameter: 36 cm
Depth: 21 cm
Provenience: 35-60 cm S (EU 26), 0-? cm E (EU 26); 130-166 cm S (EU 37), 58-80 cm E (EU 37)
Comments: The feature tapers with depth.

133)
Unit 26, Level 9; Unit 22, Level 5-8; Unit 37, Level n/a
Diameter: 24 cm
Depth: 8 cm
Provenience: 82-96 cm S (EU 26), 0-? cm E (EU 26); 0-20 cm S (EU 22), 0-9 cm E (EU 22); 182-220 cm S (EU 37), ?-80 cm E (EU 37)
Comments: This feature was noted in the excavation of unit 26, however, its presence was confirmed in the west wall profile. This feature continues into unit 37, however, it was not recorded during the excavation.

134)
Unit 22, Level 8, Unit 38, Level n/a
Diameter: 16 cm
Depth: n/a
Provenience: 51-74 cm S (EU 22), 94-100 cm E (EU 22); 3-30 cm S (EU 38), 0-10 cm E (EU 38)
Comments: The slight discrepancy between feature provenience in the two excavation units is likely a recorder error. A thorough examination of unit plans suggest this feature was circular and roughly 16 cm in diameter.

135)
Unit 22, Level 5-7
Diameter: 14 cm
Depth: n/a
Provenience: 84-94 cm S, 65-79 cm E

136)
Unit 22, Level 5-6
Diameter: 17 cm
Depth: n/a
Provenience: 52-69 cm S, 54-68 cm E

137)
Unit 22, Level 6-7; Unit 26, Level n/a
Diameter: 15 cm
Depth: n/a
Provenience: 0-14 cm S (EU 22), 31-46 cm E (EU 22); ?-100 cm S (EU 26), 31-46 cm E (EU 26)
Comments: This feature continues into unit 26 although not mentioned in the field notes for this unit. Feature dimensions were extrapolated from existing data.

138)
Unit 27, Level 6
Diameter: 20 cm
Depth: n/a
Provenience: 89-100 cm S, 31-51 cm E
Comments: This feature extends into the southern (baulk) wall and its dimensions were extrapolated from existing data.

139)
Unit 38, Level n/a
Diameter: 9 cm
Depth: n/a
Provenience: 48-57 cm S, 34-43 cm E

140)
Unit 38, Level 12
Diameter: 28 cm
Depth: n/a
Provenience: 48-71 cm S, 41-69 cm E

141)
Unit 38, Level 11
Diameter: 22 cm
Depth: n/a
Provenience: 119-140 cm S, 53-75 cm E

142)
Unit 38, Level 11
Diameter: 43 cm
Depth: n/a
Provenience: 128-150 cm S, 87-130 cm E
Comments: This feature extends into the southern (baulk) wall of the unit. The dimensions of this feature were extrapolated from existing data.

143)
Unit 38, Level 11
Diameter: 20 cm
Depth: n/a
Provenience: 105-121 cm S, 101-121 cm E

144)
Unit 38, Level 12
Diameter: 29 cm
Depth: n/a
Provenience: 91-120 cm S, 120-145 cm E

145)
Unit 38, Level 12
Diameter: 9 cm
Depth: n/a
Provenience: 82-91 cm S, 130-139 cm E

146)
Unit 38, Level 12
Diameter: 17 cm
Depth: n/a
Provenience: 42-58 cm S, 82-99 cm E
Comments: The validity of this feature is uncertain.

147)
Unit 38, Level 12
Diameter: 7 cm
Depth: n/a
Provenience: 37-44 cm S, 82-88 cm E
Comments: The validity of this feature is uncertain.

148)
Unit 38, Level n/a
Diameter: 16 cm
Depth: n/a
Provenience: 42-57 cm S, 111-127 cm E
Comments: The validity of this feature is uncertain.

149)
Unit 37, Level 9
Diameter: 11 cm
Depth: n/a
Provenience: 53-63 cm S, 31-42 cm E

150)
Unit 37, Level 8
Diameter: 12 cm
Depth: n/a
Provenience: 70-82 cm S, 34-45 cm E

151)
Unit 37, Level 9
Diameter: 14 cm
Depth: n/a
Provenience: 86-100 cm S, 34-46 cm E

152)
Unit 15, Level 15-17; Unit 9, Level n/a
Diameter:: 25 cm
Depth: 15 cm
Provenience: 50-75 cm S (EU 15), 88-100 cm E (EU 15); 50-75 cm S (EU 9), 0-? cm E (EU 9)

153)
Unit 37, Level 9
Diameter: 22 cm
Depth: n/a
Provenience: 166-188 cm S, 60-80 cm E

154)
Unit 37, Level 8
Diameter: 26 cm
Depth: n/a
Provenience: 39-62 cm S, 48-74 cm E

155)
Unit 37, Level 7-8; Trench 1, Level n/a
Diameter: 38 cm
Depth: n/a
Provenience: 25-63 cm S (EU 37), 0-26 cm E (EU 37); ? cm S (trench 1), ?-60 cm E (trench 1)
Comments: The size of this feature has been extrapolated from existing data. This feature was not recorded in the field notes or profiles of trench 1, however, the west wall profile of unit 37 indicates continuation into trench 1.

156)
Unit 37, Level 8; Trench 1, Level n/a
Diameter: 22 cm
Depth: n/a
Provenience: 83-105 cm S (EU 37), 0-8 cm E (EU 37); ? cm S (trench 1), ?-60 cm E (trench 1)
Comments: The size of this feature has been extrapolated from existing data. This feature was not recorded in the field notes or profiles of trench 1, however, the west wall profile of unit 37 indicates continuation into trench 1.

157)
Unit 37, Level 9
Diameter: 20 cm
Depth: n/a
Provenience: 128-148 cm S, 1-18 cm E

158)
Unit 37, Level 9
Diameter: 25 cm
Depth: n/a
Provenience: 108-130 cm S, 13-38 cm E

159)
Unit 37, Level 8
Diameter: 33 cm
Depth: n/a
Provenience: 76-109 cm S, 8-32 cm E

160)
Unit 37, Level 9
Diameter: 11 cm
Depth: n/a
Provenience: 200-208 cm S, 57-68 cm E

161)
Unit 37, Level 10
Diameter: 18 cm
Depth: n/a
Provenience: 230-248 cm S, 12-30 cm E

162)
Unit 37, Level 10; Trench 1, Level n/a
Diameter: 32 cm
Depth: 31 cm
Provenience: 248-278 cm S (EU 37), 0-16 cm E (EU 37); 298-330 cm S (trench 1), ?-60 cm E (trench 1)
Comments: This feature was observed in unit 37 and in the east wall profile of trench 1. The dimensions of this feature were extrapolated from existing data.

163)
Unit 37, Level 10
Diameter: 13 cm
Depth: n/a
Provenience: 287-300 cm S, 26-39 cm E

164)
Unit 37, Level 10
Diameter: 14 cm
Depth: n/a
Provenience: 298-312 cm S, 44-58 cm E

165)
Unit 37, Level 10
Diameter: 8 cm
Depth: n/a
Provenience: 360-368 cm S, 18-26 cm E

166)
Unit 36, Level 3-4; Unit 11, Level n/a
Diameter: 21 cm
Depth: 15 cm
Provenience: 0-14 cm N (EU 36), 29-50 cm E (EU 36); 0-? cm S (EU 11), 19-40 cm E (EU 11)
Comments: No record of this feature was found in unit 11 field notes or wall profiles. Feature dimensions were extrapolated from existing data.

167)
Unit 25, Level 2-4
Diameter: 10 cm
Depth: n/a
Provenience: 0-? cm S, 30-40 cm E
Comments: This feature was not recorded during the excavation of unit 25, however, it was observed in a photograph of the north wall profile. The dimensions of this feature were extrapolated from existing data.

168)
Unit 25, Level 1-3
Diameter: 20 cm
Depth: 20 cm
Provenience: 0-? cm S, 50-70 cm E
Comments: This feature was not recorded during the excavation of unit 25, however, it was observed in a photograph of the north wall profile. The dimensions of this feature were extrapolated from existing data.

169)
Unit 25, Level n/a
Diameter: 21 cm
Depth: n/a
Provenience: 54-74 cm S, 45-66 cm E

170)
Trench 1, Level n/a; Unit 37, Level n/a
Diameter: 16 cm
Depth: 24 cm
Provenience: 182-198 S (trench 1), ?-60 cm E (trench 1); ? cm S (EU 37), 0-? cm E (EU 37)
Comments: This feature was only observed in the east wall profile of trench 1. The feature continues into unit 37, however, no mention could be found in the field notes. The size of this feature was extrapolated from existing data.

171)
Trench 1, Level n/a; Unit 37, Level n/a
Diameter: 8 cm
Depth: 11 cm
Provenience: 200-208 cm S (trench 1), ?-60 cm E (trench 1); ? cm S (EU 37), 0-? cm E (EU 37).
Comments: This feature was only observed in the east wall profile of trench 1. The feature continues into unit 37, however, no mention was recorded in the field notes. The size of this feature was extrapolated from existing data.

172)
Trench 1, Level n/a; Unit 37, Level n/a
Diameter: 18 cm
Depth: 29 cm
Provenience: 382-400 S (trench 1), ?-60 cm E (trench 1); ? cm S (EU 37), 0-? cm E (EU 37)
Comments: This feature was only observed in the east wall profile of trench 1. The feature continues into unit 37, however, no mention was recorded in the field notes. The feature continues into the south (baulk) wall of trench 1. Feature size was extrapolated from existing data.

173)
Trench 1, Level n/a
Diameter: 14 cm
Depth: 36 cm
Provenience: 96-110 cm S, 0-? cm E
Comments: This feature was identified in the western wall profile of trench 1 and its size was extrapolated from existing data.

174)
Trench 1, Level n/a
Diameter: 26 cm
Depth: 32 cm
Provenience: 245-271 cm S, 0-? cm E
Comments: This feature was identified in the western wall profile of trench 1 and its size was extrapolated from existing data.

175)
Trench 1, Level n/a
Diameter: 9 cm
Depth: 35 cm
Provenience: 331-340 cm S, 0-? cm E
Comments: This feature was identified from the western wall profile of trench 1. The size of this feature was extrapolated from existing data.

176)
Trench 4, Level n/a
Diameter: 42 cm
Depth: 42 cm
Provenience: 0-? cm S, 0-42 cm E
Comments: This feature was identified in the north wall profile of trench 4 and its size was extrapolated from existing data.

177)
Trench 4, Level n/a
Diameter: 20 cm
Depth: 42 cm
Provenience: 0-? cm S, 150-170 cm E

Comments: This feature was identified in the north wall profile of trench 4. The size of this feature was extrapolated from existing data.

178)
Trench 4, Level n/a
Diameter: 27 cm
Depth: 24 cm
Provenience: 0-? cm S, 496-523 cm E
Comments: This feature was identified in the north wall profile of trench 4. The size of this feature was extrapolated from existing data.

179)
Trench 4, Level n/a
Diameter: 37 cm
Depth: 24 cm
Provenience: 0-? cm S, 523-560 cm E
Comments: This feature was identified in the north wall profile of trench 4. The size of this feature was extrapolated from existing data.

180)
Trench 4, Level n/a
Diameter: 25 cm
Depth: 24 cm
Provenience: ?-130 cm S, 74-99 cm E
Comments: This feature was identified in the south wall profile of trench 4. The size of this feature was extrapolated from existing data.

181)
Trench 4, Level n/a
Diameter: 13 cm
Depth: 23 cm
Provenience: ?-130 cm S, 277-290 cm E
Comments: This feature was identified in the south wall profile of trench 4. The size of this feature was extrapolated from existing data.

182)
Trench 4, Level n/a
Diameter: 18 cm
Depth: 24 cm
Provenience: ?-130 cm S, 370-388 cm E
Comments: This feature was identified in the south wall profile of trench 4. The size of this feature was extrapolated from existing data.

183)
Trench 4, Level n/a
Diameter: 28 cm
Depth: 25 cm
Provenience: ?-130 cm S, 502-530 cm E
Comments: This feature was identified in the south wall profile of trench 4. The size of this feature was extrapolated from existing data.

184)
Trench 4, Level n/a
Diameter: 16 cm
Depth: 28 cm
Provenience: ?-130 cm S, 534-550 cm E
Comments: This feature was identified in the south wall profile of trench 4. The size of this feature was extrapolated from existing data.

185)
Trench 4, Level n/a
Diameter: 18 cm
Depth: 18 cm
Provenience: ?-130 cm S, 562-580 cm E
Comments: This feature was identified in the south wall profile of trench 4. The size of this feature was extrapolated with existing data.

186)
Trench 4, Level n/a
Diameter: 40 cm
Depth: 46 cm
Provenience: 40-80 cm S, 0-? cm E

Comments: This feature was identified in the west wall profile of trench 4. The size of this feature was extrapolated from existing data.

187)
Trench 4, Level n/a
Diameter: 20 cm
Depth: 24 cm
Provenience: 120-140 cm S, ?-600 cm E
Comments: This feature was identified in the east wall profile of trench 4. The feature continues into the eastern and southern (baulk) walls. The size of this feature was extrapolated from existing data.

188)
Trench 4, Level n/a
Diameter: 5 cm
Depth: 28 cm
Provenience: 21-26 cm S, ?-600 cm E
Comments: This feature was identified in the east wall profile of trench 4. The feature continues into the eastern (baulk) wall. The size of this feature was extrapolated from existing data.

<u>Rectangular Post Holes</u>

1)
Unit 28, Level 3; Unit 1, Level n/a
Size: 10 cm (N-S) x ? cm (E-W)
Depth: n/a
Provenience: 19-29 cm S (EU 28), 0-10 cm W (EU 28); EU 1 n/a
Comments: This feature continues into unit 1, however, it was not observed or noted when unit 1 was excavated.

2)
Unit 28, Level 4-5; Unit 2, Level 4-6
Size: 14 cm (N-S)x 26 cm (E-W)
Depth: 20 cm
Provenience: 6-17 cm S (EU 28), 0-26 cm W (EU 28); 6-20 cm S (EU 2), ? cm E (EU 2)
Comments: This feature was not identified in the excavation of unit 2, however, it was recorded in the west wall profile.

3)
Unit 12, Level 9
Size: 26 cm (N-S) x 16 cm (E-W)
Depth: 7 cm
Provenience: 66-92 cm S, 133-149 cm E
Comments: This elongate feature may be two adjacent circular post holes.

4)
Unit 5, Level 9-11
Size: 10 cm (N-S) x 20 cm (E-W)
Depth: 15 cm
Provenience: 45-55 cm S, 20-40 cm E

5)
Unit 5, Level 8-13; Unit 13, Level n/a
Size: 30 cm (N-S) x 51 cm (E-W)
Depth: 45 cm
Provenience: 75-100 cm S (EU 5), 77-100 cm E (EU 5); ?-200 cm S (EU 13), 0-28 cm E (EU 13)
Comments: This feature extends into the southern (baulk) wall of units 5 and 13. The feature was not noted during the excavation of unit 13, however, it was recorded in the south (baulk) wall profile. The dimensions of this post hole were extrapolated from available data. The bottom of the post hole ends abruptly suggesting the post base was shaped.

6)
Unit 5, Level 9-16; Unit 13, Level n/a; Unit 24, Level n/a
Size: 20 cm (N-S), 30 cm (E-W)
Depth: n/a
Provenience: 0-15 cm S (EU 5), 85-100 cm E (EU 5); ? cm S (EU 13), 0-? cm E (EU 13); ?-100 cm S (EU 24), 80-100 cm E (EU 24).
Comments: This feature tapers with depth and was not observed during the excavation of unit 24, however, the north wall profile of unit 5 clearly illustrates this feature continues into unit 24. The dimensions of this feature were extrapolated from existing data. The bottom of the post hole ends abruptly suggesting the post base was shaped.

7)
Unit 15, Level 15-17
Size: 20 cm (N-S) x 12 cm (E-W)
Depth: n/a
Provenience: 50-70 cm S, 56-68 cm E

8)
Unit 20, Level 8
Size: 15 cm (N-S) x 34 cm (E-W)
Depth: n/a
Provenience: 39-54 cm S, 50-84 cm E

9)
Unit 33, Level 12-13
Size: 15 cm (N-S) x 21 cm (E-W)
Depth: n/a
Provenience: 98-113 cm S, 37-58 cm E
Comments: The feature is kidney-shaped.

10)
Unit 12, Level 11-12
Diameter: 21 cm (N-S) x 11 cm (E-W)
Depth: 12 cm
Provenience: 87-108 cm S, 164-175 cm E

11)
Unit 30, Level 16; Unit 4, Level 13-14; Unit 10, Level 14-15; Unit 11, Level 15
Size: 30 cm (N-S) x 49 cm (E-W)
Depth: n/a
Provenience: 0-6 cm S (EU 30), 77-100 cm E (EU 30); 176-200 S (EU 10), 175-200 cm E (EU 10); 178-200 cm S (EU 11), 0-16 cm E (EU 11); 0-16 cm E (EU 4), 0-6 cm S (EU 4)

12)
Unit 6, Level 11-18; Unit 29, Level n/a
Size: 19 cm (N-S) x ? cm (E-W)
Depth: 53 cm
Provenience: 0-19 cm S (EU 6), 0-17 cm E (EU 6); ? cm S (EU 29), ?-100 cm E (EU 29)
Comments: No evidence of this post hole was observed or recorded in unit 29 although the feature clearly extends into the unit. The dimensions of this feature have been extrapolated from existing data.

13)
Unit 16, Level 11-16; Unit 32, Level n/a
Size: 30 cm (N-S) x 12 cm (E-W)
Depth: 50 cm
Provenience: 0-22 cm S (EU 16), 178-190 cm E (EU 16); ?-100 cm S (EU 32), ? cm E (EU 32)
Comments: This feature extends into unit 32, however, no mention could be found in the excavation notes. Feature dimensions were extrapolated from existing data.

14)
Unit 18, Level 8-9
Size: 22 cm (N-S) x 12 cm (E-W)
Depth: n/a
Provenience: 48-70 cm S, 3-15 cm E

15)
Unit 38, Level 11
Size: 27 cm (E-W) x 36 cm (N-S)
Depth: n/a
Provenience: 67-94 cm S, 76-112 cm E

APPENDIX C

HEARTHS AND CHARCOAL CONCENTRATIONS

Introduction

Hearth and charcoal concentration features were recorded in all 38 excavation units and each backhoe trench with the exception of trench 3. Formal notes or wall profiles were never made for trench 3, therefore, those data are not available. Hearths are defined as concentrations of burnt soil, charcoal and fire cracked rock in a well defined area. These features represent *in situ* burning on a living floor (Gose 1976:190). Charcoal concentrations, as the name infers, are concentrations of charcoal. However, fire cracked rock and burnt soil may also be present. These features likely represent the remnants of hearths which were redeposited away from their original place of use.

In general, notes concerning the location and nature of hearth and charcoal concentration features at the Hatzic Rock site were minimal or non-existent. In many instances features were identified during the analysis from floor plans, wall profiles, and photographs. Apart from these shortcomings, the data were sufficient to provide accurate descriptions of these features.

Each feature was numbered for ease of reference. Feature provenience was indicated by referring to the units and levels in which the feature was found. Where

information was lacking a "n/a" was placed in the appropriate location. Specific feature provenience (e.g. 45 cm S, 23 cm E), was provided where possible. If specific feature provenience data was lacking, a "?" was used in place of numeric coordinates.

The maximum length and width dimensions were recorded for each feature. In cases where this data was incomplete, the dimensions of the feature was left blank or, in some cases, extrapolated. Feature dimensions were rarely extrapolated due to their irregular nature.

Feature depth was recorded in centimeters. In cases where data are lacking a "n/a" replaced the numeric data. An optional comments section provides additional information not recorded in previous data fields. For example, if a feature's dimensions were extrapolated from existing data this was indicated. Other information, such as the presence of calcined bone or boiling stones, would also be mentioned in this field.

Hearths

1)
Unit 1, Level 1-4; Unit 25, Level 2-5
Dimensions: 55 cm (N-S) x 40 cm (E-W)
Maximum Thickness: 32 cm
Provenience: 0-30 cm S (EU 1), 50-90 cm E (EU 1); 75-100 cm S (EU 25), 50-88 cm E (EU 25)
Comments: The base of this feature is a dish-shaped patch of burnt soil with charcoal, calcined fish bone, and lithics present. Hearth size in unit 1 was based on a lens of burnt soil (22-32 cm d.b.u.) identified in the north wall profile. A large patch of charcoal stained soil undoubtedly related, though not part of the hearth feature proper, exists above the burnt soil lens.

2)
Unit 2, Level 2-5; Unit 31, Level n/a; Unit 28, Level n/a; Unit 1, Level n/a
Dimensions: n/a
Maximum Thickness: n/a
Provenience: 0-40 cm S (EU 2), 0-100 cm E (EU 2); ? cm S (EU 31), 0-? cm E (EU 31); ? cm S (EU 28), ? cm E (EU 28); ?-100 cm S (EU 1), ? cm E (EU 1)
Comments: Fire cracked rock, calcined bone fragments, and burnt soil were observed in this feature.

3)
Unit 25, Level n/a; Unit 10, Level 3; Unit 1, Level 4-6
Dimensions: 41 cm (N-S) x 141 cm (E-W)
Maximum Thickness: 18 cm
Provenience: ? cm S (EU 25), 0-100 cm E (EU 25); 79-120 cm S (EU 10) 0-75 cm E; 0-? cm S (EU 1), 34-100 cm E (EU 1)

Comments: Field notes were not precise enough to define the hearth alone, therefore, the surrounding carbon stained soil is included in feature dimensions.

4)
Unit 12, Level 8-9; Unit 5, Level 6-8
Dimensions: 29 cm (N-S) x ? cm (E-W)
Maximum Thickness: 16 cm
Provenience: 126-144 cm S (EU 12), 179-200 cm E (EU 12); 13-42 cm S (EU 5), 0-? cm E (EU 5)
Comments: This feature is situated on the floor of the structure uncovered in the main excavation area.

5)
Unit 5, Level 9-10; Unit 24, Level n/a; Unit 13, Level 11-12; Unit 14, Level 12
Dimensions: 60 cm (N-S) x 280 cm (E-W)
Maximum Thickness: 12 cm
Provenience: 0-24 cm S (EU 5), 74-100 cm E (EU 5); ?-100 cm S (EU 24), ? cm E (EU 24); 28-150 cm S (EU 13), 0-200 cm E (EU 13); 58-93 cm S (EU 14), 0-40 cm E (EU 14)
Comments: Charcoal stained soil, burnt soil, and calcined bone fragments are present in this feature. In unit 5 the floor gently slopes from west to east and is stained black with charcoal. The scale and shape of this feature, suggests it may represent a burnt structural element rather than a hearth. The feature gently curves north as it progresses eastward. The north-south dimension may seem great (e.g. unit 13), however, the feature is only 50-60 cm wide at its maximum. The feature rests on sterile gravel in unit 13. This feature is located on the floor of the structure uncovered in the main excavation area.

6)
Unit 24, Level 6-9; Unit 31, Level n/a, Unit 13, Level 7-8; Unit 3, Level n/a

Dimensions:	? cm (N-S) x 51 cm (E-W)
Maximum Thickness:	10 cm
Provenience:	0-54 cm S (EU 24), 62-100 cm E (EU 24); ?-100 cm S (EU 31), ?-100 cm E (EU 31); 17-60 cm S (EU 13), 0-13 cm E (EU 13); ?-100 cm S (EU 3), 0-? cm E (EU 3)
Comments:	This dish-shaped feature contains fire cracked rock, burnt soil, charcoal, and ash.

7)
Unit 3, Level 1-3

Dimensions:	24 cm (N-S) x 51 cm (E-W)
Maximum Thickness:	n/a
Provenience:	60-84 cm S, 48-99 cm E
Comments:	Little is known about this feature, however, level 1 notes indicate wood, tentatively identified as cedar, was present. The preservation of wood is unlikely and was probably introduced to the feature when the surface of the site was bulldozed. The feature lay below a charcoal layer and contains calcined bone fragments and burnt soil.

8)
Unit 3, Level 8-10; Unit 30, Level 12-15; Unit 10, Level 14

Dimensions:	? cm (N-S) x 109 cm (E-W)
Maximum Thickness:	26 cm
Provenience:	0-95 cm S (EU 3), 44-100 cm E (EU 3); 0-42 cm S (EU 30), 0-53 cm E (EU 30); ? cm E (EU 10), ?-200 cm S (EU 10)
Comments:	In addition to a boiling stone, calcined bone fragments and quantities of fire cracked rock were found in this dish-shaped feature.

9)
Unit 30, Level 15-17, Unit 13, Level n/a; Unit 14, level 8-10; Unit 4, Level 13-15
Dimensions: n/a
Maximum Thickness: 15 cm
Provenience: 63-100 cm S (EU 30), 60-100 cm E (EU 30); 0-? cm S (EU 14), 0-52 cm E (EU 14); 0-? cm S (EU 13), ?-200 E cm (EU 13); 65-100 cm S (EU 4), 0-40 cm E (EU 4)
Comments: Calcined bone fragments were observed in this dish-shaped feature which lies on the floor of the structure uncovered in the main excavation area.

10)
Unit 13, Level 3-4
Dimensions: 36 cm (N-S) x 92 cm (E-W)
Maximum Thickness: 10 cm
Provenience: 108-144 cm S, 70-162 cm E
Comments: This feature slopes west to east.

11)
Unit 14, Level 11E, 9W; Unit 4, Level n/a; Unit 29, Level n/a
Dimensions: ? cm (N-S) x 88 cm (E-W)
Maximum Thickness: n/a
Provenience: 0-23 cm S (EU 14), 62-150 cm E (EU 14); ?-100 cm S (EU 4), ? cm E (EU 4); ?-100 cm S (EU 29), ? cm E (EU 29)
Comments: This feature is situated on the floor of the structure uncovered in the main excavation area.

12)
Unit 14, Level 2-4; Unit 16, Level 3
Dimensions: ? cm (N-S) x 147 cm (E-W)
Maximum Thickness: n/a
Provenience: 92-200 cm S (EU 14), 93-200 cm E (EU 14); 85-200 cm S (EU 16), 0-40 cm E (EU 16)

Comments: This feature continues into the southern (baulk) wall.

13)
Unit 11, Level 4-6; Unit 23, Level n/a
Dimensions: ? cm (N-S) x ? cm (E-W)
Maximum Thickness: n/a
Provenience: 0-74 cm S (EU 11), 112-200 cm E (EU 11); ? cm S (EU 23), 0-? cm E (EU 23)
Comments: This feature is situated on the floor of the structure uncovered in the main excavation area.

14)
Unit 23, Level 5-7; Unit 21, Level 5-11; Unit 32, Level n/a
Dimensions: ? cm (N-S) x 106 cm (E-W)
Maximum Thickness: n/a
Provenience: 145-200 cm S (EU 23), 65-100 cm E (EU 23); 120-200 cm S (EU 21), 0-71 cm E (EU 21); 0-? cm S (EU 32), ? cm E (EU 32)
Comments: This feature is situated on the floor of the structure uncovered in the main excavation area. In unit 21 quantities of small ovoid stones begin to appear in level 7 with a large concentration in level 8. Some stones were in level 9. These stones likely represent concentrations of boiling stones which were used for cooking in containers such as baskets or wooden boxes.

15)
Unit 11, Level 7
Dimensions: 20 cm (N-S) x 70 cm (E-W)
Maximum Thickness: 5 cm
Provenience: 131-151 cm S, 10-80 cm E
Comments: This feature contained calcined bone fragments.

16)
Unit 11, Level 13-14
Dimensions: 30 cm (N-S) x 105 cm (E-W)
Maximum Thickness: n/a
Provenience: 141-171 cm S, 5-100+ cm E
Comments: The eastern half of unit 11 was excavated by U.B.C. and another crew excavated the western half at a later date. No trace of this feature was observed by the U.B.C. crew, however, floor plans indicate the feature likely extended for an additional 10 cm eastwards. This explains why the eastern provenience of the feature is 0-100+ cm. The dimensions of this feature were extrapolated from available data. This feature is situated on the floor of the structure uncovered in the main excavation area.

17)
Unit 6, Level 1-3; Unit 32, Level n/a
Dimensions: 11 cm (N-S) x ? cm (E-W)
Maximum Thickness: n/a
Provenience: 43-54 cm S (EU 6), 86-100 cm E (EU 6); ? cm S (EU 32), 0-? cm E (EU 32)

18)
Unit 6, Level 10-11; Unit 23, Level n/a; Unit 29, Level n/a; Unit 11, Level n/a
Dimensions: n/a
Maximum Thickness: 10 cm
Provenience: 0-40 cm S (EU 6), 0-15 cm E (EU 6); ?-200 cm S (EU 23), ? cm E (EU 23); ? cm S (EU 29), ?-100 cm E (EU 29); ?-200 cm S (EU 11), ?-200 cm E (EU 11)
Comments: This dish-shaped lens of burnt soil contained fire cracked rock and is associated with the floor of the structure uncovered in the main excavation area.

19)
Unit 16, Level 12; Unit 32, Level n/a; Unit 6, Level 11-14
Dimensions: 135 cm (N-S) x ? (E-W)
Maximum Thickness: n/a
Provenience: 0-49 cm S (EU 16), 25-100 cm E (EU 16); ?-100 cm S (EU 32), 0-? cm E (EU 32); 14-100 cm S (EU 6), 21-100 cm E (EU 6)
Comments: Over 14 kg of fire cracked rock was removed from this feature in unit 6. This feature is situated on the floor of the structure uncovered in the main excavation area.

20)
Unit 16, Level 12; Unit 14, Level n/a
Dimensions: 46 cm (N-S) x ? cm (E-W)
Maximum Thickness: n/a
Provenience: 19-65 cm S (EU 16), 0-41 cm E (EU 16); ? cm S (EU 14), ?-200 cm E (EU 14)
Comments: This feature was encircled by cobbles and is located on the floor of the structure uncovered in the main excavation area.

21)
Unit 16, Level 9-10; Unit 15, Level 9
Dimensions: n/a
Maximum Thickness: n/a
Provenience: ? cm S (EU 16), ?-200 cm E (EU 16); ? cm S (EU 15), 0-? cm E (EU 15)
Comments: This feature is situated on the floor of the structure uncovered in the main excavation area.

22)
Unit 15, Level 4
Dimensions: 15 cm (N-S) x 35 cm (E-W)
Maximum Thickness: n/a
Provenience: 35-50 cm S, 10-45 cm E

23)
Unit 15, Level 4
Dimensions: 10 cm (N-S) x 15 cm (E-W)
Maximum Thickness: n/a
Provenience: 15-25 cm S, 60-75 cm E

24)
Unit 15, Level 8-10; Unit 9, Level 6-10
Dimensions: 46 cm (N-S) x ? cm (E-W)
Maximum Thickness: n/a
Provenience: 51-97 cm S (EU 15), 61-100 cm E (EU 15); ? cm S (EU 9), 0-? cm E (EU 9)
Comments: In unit 15 this feature is a concentration of burnt soil surrounded by gray ash. This feature is situated on the floor of the structure uncovered in the main excavation area.

25)
Unit 9, Level 3-5
Dimensions: 32 cm (N-S) x 55 cm (E-W)
Maximum Thickness: n/a
Provenience: 42-74 cm S, 45-100 cm E
Comments: This feature continues into the eastern (baulk) wall.

26)
Unit 27, Level 3-4; Unit 37, Level n/a
Dimensions: 22 cm (N-S) x ? cm (E-W)
Maximum Thickness: 11 cm
Provenience: 75-97 cm S (EU 27), 0-? cm E (EU 27); ? cm S (EU 37), ?-80 cm E (EU 37)
Comments: This feature is situated on the floor of the structure uncovered in the main excavation area.

27)
Unit 20, Level 5-8; Unit 16, Level 8-9; Unit 32, Level n/a; Unit 7, Level n/a
Dimensions: n/a
Maximum Thickness: 25 cm
Provenience: 0-42 cm S (EU 20), 0-? cm E (EU 20); 0-20 cm S (EU 16), 184-200 cm E (EU 16); ?-100 cm S (EU 32), ?-100 cm E (EU 32); ?-100 cm S (EU 7), ?-100 cm S (EU 7)
Comments: This feature is a pocket of burnt soil capped by a mound of thick charcoal. This feature is situated on the floor of the structure uncovered in the main excavation area.

28)
Unit 36, Level 4-8, Unit 11, Level n/a; Trench 5, Level n/a
Dimensions: n/a
Maximum Thickness: 32 cm
Provenience: 60-160 cm N (EU 36), 3-100 cm E (EU 36); 0-? cm S (EU 11), ? cm E (EU 11); 0-? cm S (Trench 5), ? cm E (Trench 5)
Comments: This feature is a curved pit/hearth containing large quantities of charcoal and burnt soil.

29)
Unit 33, Level 11
Dimensions: 70 cm (N-S) x ? cm (E-W)
Maximum Thickness: n/a
Provenience: 80-150 cm S, 0-47 cm E
Comments: Calcined bone was identified in this feature which continues into the western (baulk) wall. This feature is situated on the floor of the structure uncovered in the main excavation area.

30)
Unit 35, Level 8; Unit 34, Level n/a
Dimensions: ? cm (N-S) x 68 cm (E-W)
Maximum Thickness: n/a
Provenience: 0-38 cm S (EU 35), 64-132 cm E (EU 35); ?-200 cm S (EU 34), ? cm E (EU 34)
Comments: This feature is situated on the floor of the structure uncovered in the main excavation area.

31)
Unit 22, Level 4-5; Unit 37, Level n/a
Dimensions: 18 cm (N-S) x ? cm (E-W)
Maximum Thickness: n/a
Provenience: 75-93 cm S (EU 22), 0-13 cm E (EU 22); ? cm S (EU 37), ?-80 cm E (EU 37)
Comments: This feature is situated on the floor of the structure uncovered in the main excavation area.

32)
Unit 22, Level 3-4; Unit 37, Level n/a
Dimensions: 33 cm (N-S) x ? cm (E-W)
Maximum Thickness: n/a
Provenience: 21-54 cm S (EU 22), 0-48 cm E (EU 22); ? cm S (EU 37), ?-80 cm E (EU 37)
Comments: This feature is situated on the floor of the structure uncovered in the main excavation area.

33)
Trench 1, Level 5-9
Dimensions: 70 cm (N-S) x ? cm (E-W)
Maximum Thickness: 36 cm
Provenience: 90-160 cm S, 0-? cm E

34)
Trench 1, Level n/a; Unit 37, Level n/a
Dimensions: 57 cm (N-S) x ? cm (E-W)
Maximum Thickness: 12 cm
Provenience: 159-216 cm S (Trench 1), ?-60 cm E (Trench 1); ? cm S (EU 37), 0-? cm E (EU 37)
Comments: This feature was dish-shaped.

35)
Unit 4, Level 9-10; Unit 30, Level n/a
Dimensions: 7 cm (N-S) x ? cm (E-W)
Maximum Thickness: n/a
Provenience: 50-57 cm S (EU 4), 0-12 cm E (EU 4); ? cm S (EU 30), ?-100 cm E (EU 30)
Comments: Fragments of calcined bone and fire cracked rock were observed in this feature.

36)
Unit 25, Level 3-4; Unit 10, Level n/a
Dimensions: 16 cm (N-S) x ? cm (E-W)
Maximum Thickness: n/a
Provenience: 19-35 cm S (EU 25), 89-100 cm E (EU 25); ? cm S (EU 10), 0-? cm E (EU 10)
Comments: This feature is situated on the floor of the structure uncovered in the main excavation area.

Charcoal Concentrations

1)
Unit n/a, Level n/a
Dimensions: n/a
Maximum Thickness: n/a
Provenience: 5.7 m west from the unit 10 datum; 5-15 cm d.b.s.
Comments: A sample of charcoal from this feature provided a date of 4590 ± 70 BP (WSU-

4328) for the bulldozed surface of the Hatzic Rock site.

2)
Unit 1, Level 7; Unit 25, Level n/a; Unit 10, Level n/a
Dimensions: n/a
Maximum Thickness: 3 cm
Provenience: 0-? cm S (EU 1), 68-100 cm E (EU 1); ?-100 cm S (EU 25), ?-100 cm E (EU 25); ? cm S (EU 10), 0-? cm E (EU 10)
Comments: This feature is a thin charcoal lens which contains calcined bone fragments.

3)
Unit 10, Level 8
Dimensions: 67 cm (N-S) x 38 cm (E-W)
Maximum Thickness: n/a
Provenience: 108-175 cm S, 18-56 cm E
Comments: Fire cracked rock was present in this feature.

4)
Unit 6, Level 3-5; Unit 29, Level n/a; Unit 32, Level n/a; Unit 16, Level 2,3; Unit 14, Level 3-5; Unit 13, Level n/a; Unit 4, Level 2-3; Unit 30, Level n/a; Unit 20, Level 2-3; Unit 7, Level n/a
Dimensions: n/a
Maximum Thickness: 24 cm
Provenience: 15-100 cm S (EU 6), 0-100 cm E (EU 6); ?-100 cm S (EU 29), ? cm E (EU 29); ? cm S (EU 32), 0-? cm E (EU 32); 0-? cm S (EU 16), 0-200 cm E (EU 16); 0-? cm S (EU 14), 0-100+ cm E (EU 14); 0-? cm S (EU 13), ? cm E (EU 13); ?-100 cm S (EU 4), 0-100 cm E (EU 4); ?-100 cm S (EU 30), ? cm E (EU 30); 0-100 cm S (EU 20), 0-? cm E (EU 20); ? cm S (EU 7), 0-? cm E (EU 7)
Comments: This feature is a thin charcoal lens which slopes through much of unit 6 from north to south. Unit 6 levels were determined by extrapolating data from

photographs. The unit 14 (E-W) provenience is 0-100+ cm E because only half of the north wall profile was recorded, however, the feature clearly continues. The unit 4 levels may be out by as much as 20 cm due to poor records. This feature slopes from west to east (10 cm over 1 m) in the south wall profile of unit 4. In general, the records for this feature are very poor.

5)
Unit 10, Level 5
Dimensions: 14 cm (N-S) x 12 cm (E-W)
Maximum Thickness: n/a
Provenience: 113-127 cm S, 26-38 cm E

6)
Unit 10, Level 3
Dimensions: 33 cm (N-S) x 34 cm (E-W)
Maximum Thickness: 3 cm
Provenience: 5-38 cm S, 115-149 cm E
Comments: The provenience of this feature is slightly skewed as the carbon concentration was part of a complex feature which included an anvil stone, support stones, and several lithic artifacts. Provenience was recorded for the entire feature but not individual components such as this lens. The provenience coordinates used for this lens are from the composite feature. A radiocarbon date of 4930 ± 70 BP (WSU-4327) was obtained from charcoal in this feature.

7)
Unit 31, Level 7-8; Unit 24, Level n/a
Dimensions: ? cm (N-S) x 45 cm (E-W)
Maximum Thickness: n/a
Provenience: 56-100 cm S (EU 31), 27-72 cm E (EU 31); 0-? cm S (EU 24), ? cm E (EU 24)

8)
Unit 5, Level 1
Dimensions: 30 cm (N-S) x 8 cm (E-W)
Maximum Thickness: n/a
Provenience: 20-50 cm S (EU 5), 21-29 cm E (EU 5)

9)
Unit 3, Level 7; Unit 10, Level n/a
Dimensions: ? cm (N-S) x 21 cm (E-W)
Maximum Thickness: n/a
Provenience: 0-45 cm S (EU 3), 58-79 cm E (EU 3); ?-200 cm S (EU 10), ? cm E (EU 10)

10)
Unit 30, Level 16
Dimensions: 8 cm (N-S) x 27 cm (E-W)
Maximum Thickness: n/a
Provenience: 66-74 cm S, 38-65 cm E

11)
Unit 30, Level 5; Unit 3, Level n/a; Unit 10, Level n/a
Dimensions: n/a
Maximum Thickness: n/a
Provenience: 0-30 cm S (EU 30), 0-50 cm E (EU 30); 0-? S (EU 3), ?-100 cm E (EU 3); ?-200 cm S (EU 10), ? cm E (EU 10)
Comments: This feature was not recorded in field notes but was observed in a photograph. The provenience of this feature, in unit 30, were extrapolated from the photograph.

12)
Unit 14, Level 2-4
Dimensions: ? cm (N-S) x 137 cm (E-W)
Maximum Thickness: 24 cm
Provenience: ?-200 cm S, 53-190 cm E
Comments: Calcined fish bone fragments were observed in this feature which extends into the southern (baulk) wall.

13)
Unit 4, Level 11-12; Unit 29, Level n/a
Dimensions: 41 cm (N-S) x ? cm (E-W)
Maximum Thickness: 5 cm
Provenience: 47-88 cm S (EU 4), ?-100 cm E (EU 4); ? cm S (EU 29), 0-? cm E (EU 29)
Comments: Provenience information for this feature was extrapolated from a photograph of the east wall of unit 4. The feature is a dish-shaped band of charcoal with as much as 20 cm of orange matrix above. Whether the orange matrix is related is not clear.

14)
Unit 4, Level 13-14; Unit 11, Level n/a, Unit 10, Level n/a; Unit 30, Level n/a
Dimensions: n/a
Maximum Thickness: 17 cm
Provenience: 0-? cm S (EU 4), 0-17 cm E (EU 4); ?-200 cm S (EU 11), 0-? cm E (EU 11); ?-200 cm S (EU 10), ?-200 cm E (EU 10); 0-? cm S (EU 30), ?-100 cm E (EU 30)

15)
Unit 16, Level 11
Dimensions: 22 cm (N-S) x 13 cm (E-W)
Maximum Thickness: n/a
Provenience: 126-148 cm S, 32-45 cm E

16)
Unit 16, Level 11
Dimensions: 16 cm (N-S) x 32 cm (E-W)
Maximum Thickness: n/a
Provenience: 36-52 cm S, 64-96 cm E

17)
Unit 9, Level 8
Dimensions: 12 cm (N-S) x 12 cm (E-W)
Maximum Thickness: n/a
Provenience: 42-54 cm S, 14-24 cm E

18)
Unit 9, Level 7-8
Dimensions: ? cm (N-S) x 30 cm (E-W)
Maximum Thickness: n/a
Provenience: 0-8 cm S, 14-44 cm E
Comments: This feature is a carbon concentration around a cluster of cobbles. The feature extends into the northern (baulk) wall.

19)
Unit 9, Level 8
Dimensions: 10 cm (N-S) x 22 cm (E-W)
Maximum Thickness: n/a
Provenience: 79-89 cm S, 5-27 cm E

20)
Unit 9, Level n/a
Dimensions: 6 cm (N-S) x 22 cm (E-W)
Maximum Thickness: n/a
Provenience: 74-80 cm S, 36-58 cm E

21)
Unit 8, Level 2-3
Dimensions: ? cm (N-S) x 43 cm (E-W)
Maximum Thickness: 7 cm
Provenience: 0-10 cm S, 30-73 cm E
Comments: This thin carbon lens extends into the northern (baulk) wall.

22)
Unit 8, Level 8-9
Dimensions: ? cm (N-S) x 13 cm (E-W)
Maximum Thickness: n/a
Provenience: 0-10 cm S, 68-81 cm E
Comments: The feature continues into the northern (baulk) wall.

23)
Unit 36, Level 2
Dimensions: 10 cm (N-S) x 13 cm (E-W)
Maximum Thickness: n/a
Provenience: 64-74 cm N, 61-74 cm E

24)
Unit 36, Level 7-8
Dimensions: n/a
Maximum Thickness: n/a
Provenience: 0-33 cm N, ?-160 cm E

25)
Unit 33, Level 13
Dimensions: 20 cm (N-S) x 40 cm (E-W)
Maximum Thickness: 6 cm
Provenience: 120-140 cm S, 63-103 cm E

26)
Unit 37, Level n/a; Unit 27, Level 5-6
Dimensions: n/a
Maximum Thickness: 8 cm
Provenience: 320-400 cm S (EU 37), 0-80 cm E (EU 37);
59-100 cm S (EU 27), 0-? cm E (EU 27)
Comments: This feature extends into the western (baulk) wall of unit 37 and the southern (baulk) walls of both excavation units.

27)
Unit 17, Level n/a; Unit 7, Level n/a
Dimensions: ? cm (N-S) x 46 cm (E-W)
Maximum Thickness: 7 cm
Provenience: ?-100 cm S (EU 17), 24-70 cm E (EU 17);
0-? cm S (EU 7), ? cm E (EU 7)

28)
Unit 27, Level 4-5; Unit 38, Level n/a
Dimensions: 50 cm (N-S) x ? cm (E-W)
Maximum Thickness: n/a
Provenience: 25-75 cm S (EU 27), 60-100 cm E (EU 27); ? cm S (EU 38), 0-? cm E (EU 38)

29)
Trench 1, Level 1-2
Dimensions: ? cm (N-S) x 17 cm (E-W)
Maximum Thickness: 10 cm
Provenience: 0-? cm S, 39-56 cm E
Comments: This feature continues into the northern (baulk) wall.

30)
Trench 1, Level n/a
Dimensions: n/a
Maximum Thickness: 5 cm
Provenience: 340-400 cm S, 0-? cm E
Comments: This thin charcoal lens continues into the southern and western (baulk) walls.

31)
Trench 4, Level n/a
Dimensions: n/a
Maximum Thickness: 47 cm
Provenience: 0-? cm S, 0-210 cm E
Comments: Along the north wall of trench 4 this feature is a carbon lens 5 cm thick. From 120-210 cm E the size of the feature explodes to a maximum thickness of 47 cm. The thin lens may represent the dispersal of burnt material from the nucleus of this feature. Calcined bone fragments were observed.

32)
Trench 4, Level n/a
Dimensions: n/a
Maximum Thickness: 5 cm
Provenience: 0-? cm S, 0-60 cm E
Comments: This feature is a dish-shaped charcoal lens which continues into the northern and western (baulk) walls.

33)
Trench 4, Level n/a
Dimensions: ? cm (N-S) x 17 cm (E-W)
Maximum Thickness: 8 cm
Provenience: 0-? cm S, 250-267 cm E
Comments: This feature extends into the northern (baulk) wall and is associated with a radiocarbon date of 8980 ± 90 BP (Beta-46707).

34)
Trench 4, Level n/a
Dimensions: ? cm (N-S) x 117 cm (E-W)
Maximum Thickness: 22 cm
Provenience: 0-? cm S, 343-460 cm E
Comments: This feature extends into the northern (baulk) wall and is associated with a radiocarbon date of 4530 ± 120 BP (Beta-47260).

35)
Trench 4, Level n/a
Dimensions: n/a
Maximum Thickness: 10 cm
Provenience: 0-? cm N, 0-40 cm E
Comments: This feature continues into the western and southern (baulk) walls.

36)
Unit 22, Level 2-4; Unit 37, Level n/a
Dimensions: 20 cm (N-S) x ? cm (E-W)
Maximum Thickness: 21 cm
Provenience: 19-39 cm S (EU 22), 0-? cm E (EU 22); ? cm S (EU 37), ?-80 cm E (EU 37)
Comments: This feature is an ash pocket which continues into the western (baulk) wall.

37)
Unit 24, Level 3; Unit 5, Level n/a
Dimensions: ? cm (N-S) x 22 cm (E-W)
Maximum Thickness: n/a
Provenience: 94-100 cm S (EU 24), 60-88 cm E (EU 24); 0-? cm S (EU 5), ? cm E (EU 5)