ARCHAEOLOGICAL INVESTIGATIONS AT
NOOTKA SOUND, VANCOUVER ISLAND

by

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The archaeology of the Moachat Nootka territory, consisting of Nootka Sound and Tahsis and Tlupana Inlets, was chosen as the specific concern of this thesis. Nootka Sound was an important area in the early historic fur trade and a great deal was written by the early explorers and traders about the inhabitants of this region. However, little archaeological work has been done. A large-scale excavation, carried out at the main Moachat village of Yukwot in 1966 by the National Historic Parks Branch, was the only previous archaeological project. As the material obtained by this excavation had not been published or fully processed at the time of writing, very little of the information was available for the present study. The objectives of the fieldwork were: to visit and describe the sixteen villages and camp sites listed for the Moachat by Drucker (1951: 229), to carry out excavations at one of these sites, to visit and describe the burial caves and pictographs which were known to exist in the area, and to collect whatever ecological and ethnographic information could be conveniently obtained. No site survey was undertaken, although a few previously unrecorded sites were discovered.

Excavations were carried out at Coopte (DkSp1), the winter village of the Moachat, during the summer of 1968. The excavations were rather small in scope, lasting only two months and being conducted sometimes by myself only and sometimes with the help of one assistant. Nevertheless, fifteen test pits were excavated which yielded 273 artifacts and a fair sample of faunal remains and historic material.

This paper includes an account of the excavations at Coopte, as well as descriptions of the other sites visited. It is also an attempt
to integrate historic and ethnographic information with the archaeological data. The substantial body of published and unpublished information provides a convenient basis for the interpretation of the archaeological material. It is hoped that this approach will prove useful in attempting to describe the way of life of the aboriginal inhabitants of Nootka Sound.
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ETHNOGRAPHIC SETTING

A. Introduction

Ethnographic information is particularly relevant to the interpretation of data from the sites in this area. The time depth seems shallow enough so that the archaeological remains most likely are those of the historic occupants described in the ethnographic literature and of their immediate ancestors. Direct ethnographic analogy can be employed, looking to the published material for information on the manufacture and use of the items found during the excavation. Occasionally this method yields insights into the social or religious life of the inhabitants, which could never be gained by an analysis of the artifacts alone. Workers in this area are particularly fortunate in having a comparatively large body of published and unpublished sources available, including a number of early journals. Such information as the seasonal occupation of the various sites in the area and economic activities carried out there, which is fairly well documented for the early historic period, is of inestimable value in interpreting the archaeological data.

The fullest description of the aboriginal culture, then, is reached by a synthesis of the ethnographic, historic, and archaeological information. Not only does archaeology gain in this synthesis, but the other two disciplines can also utilize archaeological findings. Ethnographic and historic documents are often incomplete or biased. Informants may not always remember correctly or may attribute to their group qualities which they did not possess. Fieldworkers also may color the results by their own preconceptions. Archaeological data are more definite and may be used to test the validity of ethnographic
evidence or historical traditions. They can also be used to fill in the blank spots in historic or ethnographic information. On the other hand, ethnography benefits from the temporal depth which archaeology provides. One approach complements the other.

The most effective use of these three disciplines, then, would call for the excavation of Indian sites with a relatively shallow time depth, extending into the historic period. This approach has been used with considerable success by others. The work of Frederica de Laguna (1956, 1960, 1964) on the northern coast is especially notable in this respect. This thesis will be primarily archaeological, but it is hoped that a description of the ethnographic and historical setting will complement the archaeological data and lead to a more complete picture of the life of the aboriginal inhabitants.

The section on the ethnographic setting is of necessity selective in the aspects described. A large volume could be written on Nootkan ethnography. Two good ethnographies already exist (Drucker 1951; Koppert 1930). This section will deal with those aspects of Nootkan ethnography that offer most help in the interpretation of archaeological data. Other major aspects of Nootkan life, less useful for this purpose, are either not included or dealt with peripherally in the text.
B. The Nootka -- General View

The Nootka tribes inhabited the west coast of Vancouver Island from Cape Cook to the vicinity of modern Port Renfrew. In addition, the Makah, a Nootkan branch speaking a dialect mutually intelligible with that of the Vancouver Island tribes, occupied the land across the Strait of Juan de Fuca on Cape Flattery. The neighbors on northern Vancouver Island were the Kwakiutl, who were closely related to the Nootka. Across the island from the central and southern groups lived various divisions of the Coast Salish. The Nootka groups along the west coast were relatively homogeneous in culture, but some differences did arise in the south due to sustained Coast Salish influence.

The term "Nootka" was erroneously applied by Captain Cook in 1778, when he thought he heard the Moachat use it to refer either to themselves or their land. He therefore named the entrance Nootka Sound and the people Nootka. Actually the word does not seem to occur in the Nootka language (Mozino 1913: 36; Drucker 1951: 3). Like most coastal Indians, the Nootka had no conception of themselves as a unified "tribe". The only inclusive term would refer to those speaking the same language.

The Nootka, along with their Kwakiutl neighbors, belong to a language stock known as Wakashan. This name was first applied by Cook (1790: 1778), while visiting Friendly Cove in 1778.

Were I to affix a name to the people of Nootka, I would call them Wakashians; from the word Wakash, which was very frequently in their mouths. It seemed to express applause, approbation, and friendship. For when they appeared to be satisfied, or well pleased with anything they saw, or any incident that happened, they would, with one voice, call out, "wakash! wakash!"
A time depth of twenty-nine centuries exists for the members of this language stock (Swadesh 1954: 362), indicating that the Nootka and Kwakiutl cultures have only been separated for that length of time. The linguistic evidence is borne out by the general similarity between the two cultures. Close relations between the two groups were still maintained when geographically possible; the chiefs of the Kwakiutl Nimpkish and Neweetee tribes being frequent visitors of the Moachat and other northern Nootka groups.

The Nootka had perhaps the most full maritime culture on the Northwest Coast. The rugged western coastline of Vancouver Island literally forced them to take to the sea in their food quest. This purely maritime pattern, plus a presumably considerable time depth for the Wakashan language on the coast, has led Drucker (1955) to characterize the Wakashan cultures as most typical Northwest Coast culture. In his paper on the origin of Northwest Coast culture he states:

> It appears that the Wakashan-speaking segment of the Northwest Coast represents the purest strain of Coast culture, in the sense of having the least amount of interior influences. Moreover, it is just this province which was the most active culture focus of the area, elaborating and developing areal patterns to their maximum. On the bases of these two conclusions, it can be inferred that the Wakashan Province represents the oldest strain of Northwest Coast civilization.
> (Drucker 1955: 76)

Drucker (1951: 3) divides the Nootka language into three dialect divisions: Nootka proper, spoken by all the northern and central Nootka groups; Nitinat, spoken by the southern Nootka; and Makah, spoken by the people of Cape Flattery. There were a number of major political units plus several small autonomous groups, among the divisions speaking Nootka proper. Beginning in the north these are: the Chickliset, Kyoquot,
Map 1 The Nootkan Tribes
(after Drucker 1951)
Ethissat, Nuchatlet, Moachat, Muchalat, Hesquit, Ahousat, Clayoquot, and a number of groups in the Barkley Sound area. Duff (1964: 24) lists these as the Ucluelet, Toquat, Uchucklisat, Hopachisat, Tsishaat, and Ohiat. The Kyoquot, Moachat, and Clayoquot tribes were the most powerful at the time of the first contact. The tribal holdings of these groups are shown in Map 1. The Moachat, the inhabitants of Nootka Sound, are the specific concern of this thesis.

C. History of Nootka Sound

The first European to come into contact with the Nootka was Juan Perez, sailing from Mexico. He arrived off the west coast of the Island in 1774. Although never coming ashore, he conducted a certain amount of commerce with the natives who came out to his ship. When Cook arrived four years later, he found the natives in possession of several Spanish silver spoons, which had been stolen from Perez's vessel (Mozino 1913: 36).

The historic period actually began for the Nootka with the arrival of the famous explorer Captain James Cook in 1778. His visit to Friendly Cove resulted in an interesting account of the inhabitants of Yukwot and of their chief, Maquinna. The Moachat showed very little fear of the large vessel and strange people, for they eagerly climbed on board to steal or trade for any metal items. In return they brought furs of many kinds, ochre, small ornaments and other items (Cook 1796: 211).

Among the most extraordinary of the items offered to Cook were human skulls and hands, with some of the flesh remaining on them, and showing signs of having been cooked (Cook 1796: 211, 264). Similar trade items were mentioned by such other early writers as
Espinosa (1802: 130), Meares (1790: 124, 255), Strange (1929: 27), Roquefeuil (1823: 33), Mozino (1913: 10), Boit (Howay 1941: 387), and Martinez (1789: 205). As human remains were used in whaling rituals and as war trophies, their presence does not necessarily mean that cannibalism was practiced, as some writers assumed. Neither Sproat's nor Drucker's informants had any memory of such a practice, and vigorously denied it for their ancestors (Sproat 1868: 187; Drucker 1951: 343).

Cook's visit was destined to have important repercussions on the Indians of this area. When it was learned that the sea otter pelts which he had obtained from the Moachat could be resold in Canton for tremendous profits, a rush of trading vessels to the area resulted. Meares arrived in 1785, closely followed by the Boston traders, Kendrick and Gray. Friendly Cove became a favorite port of call for the early fur trade vessels. This trade continued until the second decade of the nineteenth century, when the sea otter were all but exterminated.

This influx of foreign vessels naturally alarmed the Spanish who, after all, had claimed the entire area in 1774. Martinez arrived in Friendly Cove in 1789 and seized three British trading vessels. Construction of a fort was completed in the same year on the village site of Yukwot, forcing the Moachat to move several miles up the inlet. The construction of the fort and the seizure of the British vessels brought England and Spain to the brink of war. This so-called "Nootka Controversy" was finally settled by arbitration in favor of the British. Quadra, the Spanish commander, handed over the Spanish possessions to Captain George Vancouver in 1794.

The Moachat at first handled this trade very well. They set themselves up as middlemen between neighboring groups and the European
traders. Cook (1796: 119) mentions that the natives refused to allow any other Indians near his vessel. This trade monopoly, plus an easy access to such items of European manufacture as firearms, gave the Moachat a decidedly superior position to that of their neighbors.

The proximity of the Europeans, however, was a mixed blessing for the Moachat. Haswell (Howay 1941: 53) describes the methods used in trading with the Indians in 1788:

On there arrival at a village to plunder them of all the fish and oil they could find and give them perhaps a small pese of copper in return far less valuable than the provisions they had taken by forse, and leav the poor harmless wretches unprovided for a long and rigerous winter.

Several disputes did arise, as when Martinez shot a high-ranking Moachat chief for a fancied slight. The construction of the Spanish fort on the site of their main village also caused the Moachat some hardship. In spite of this, the Moachat held a high regard for their Spanish visitors, which is mentioned in several early sources (Espinosa 1802: 17; Mozino 1913: 45; Vancouver 1798: 385).

The main hardship which the Indians had to suffer because of their visitors was the introduction of European diseases. Syphilis was the first to strike, taking a great toll as early as 1790. A later smallpox epidemic further hastened the decimation of the native population. With this great decline in population the old village sites fell into disuse, and the survivors began to band together into a confederacy of previously independent local groups.

One of the main sources of information for the Moachat dates to the beginning of this period of change and declining population. This is the journal of John R. Jewitt, a survivor of the massacre of
the crew of the "Boston" in 1802. An insult by the ship's captain led to the capture of the vessel and the massacre of the crew. Jewitt was spared by Maquinna out of friendship and because, as the ship's armorer, he could be of great use to the Indians. He spent nearly three years as Maquinna's slave and his detailed and insightful writings have added greatly to our knowledge of this period.

As the sea otter had been nearly exterminated by the 1820's, the fur trade declined, and the Moachat were spared further intensive white contact for several decades. A brisk trade in dogfish oil in the 1850's brought increased contact. The fur seal became important in the 1880's. In this period Nootka men shipped out on European vessels to the Bering Sea to hunt the disappearing fur seal herds. This meant a considerably broadened world view for the Nootka as well as, for some at least, the amassing of a considerable amount of money.

With the cessation of the fierce intertribal wars, people began to travel freely up and down the coast. Many found jobs in Victoria, in the Fraser River canneries, or in the Puget Sound hopfields. The income from these occupations made possible more frequent and spectacular potlatches. Added to this was the fact that the decrease in population meant almost anyone could claim a potlatch position. Potlatches, formerly possible only for people of high rank and after a good deal of preparation, now became possible for anyone who had worked for a season to collect the money. The traditional native economy was thus struck with galloping inflation.

Gradually even these changed elements of the aboriginal culture were discontinued to conform to the new ways. Potlatching was abandoned shortly after legal measures were taken against it. The law
was actually aimed against the excesses of the Kwakiutl performances, but the Nootka also felt the pressure and discontinued the practice.

Today, most of the Moachat live in Friendly Cove, the traditional site of Maquinna's Yukwot. The band holds as reserve land the winter village sites of Coopte and O'wis, as well as most of the salmon fishing stations. Modern subsistence activities center around a small fishing fleet of trollers. In this respect, at least, links with the economic pursuits of their forefathers are still retained.

D. Ecology of Nootka Sound

The Moachat, along with the other Nootka groups inhabited a rugged and harsh environment. The outer coasts were often impassable for months at a time during the stormy winters, forcing the tribes to withdraw into sheltered inlets. The Moachat were, however, fortunate to have the sheltered waterways of Nootka Sound, which became the main port of English, Spanish, and American vessels as well. The land along the inlets is extremely rugged and offers few suitable locations for village sites. Mountains rise straight out of the water to heights of up to 4,000 feet. A dense forest growth, supported by an annual rainfall of 96 to 100 inches, makes travel over the land extremely difficult. It is no accident that the Nootka are the most maritime Northwest Coast tribe, for living in this environment, they are virtually forced to take to the sea.

The climate is not particularly harsh but is marked by a heavy annual rainfall, coming primarily in the winter. Violent storms lash the coast from fall until early spring, forcing the Nootka to withdraw up the sheltered inlets. Snows of brief duration occasionally occur but in general the Japanese current along the coast keeps the temperature
above the freezing point. Summers are mild but frequent rain squalls occur and fog banks may roll in from the open ocean day after day.

The heavy rainfall supports a dense growth in the coastal forest. The woods consist predominantly of such conifers as Douglas fir, red and yellow cedar, hemlock, and yew. The Dominion Forest Service also lists western white pine, lodgepole pine, Sitka spruce, and Amabilis fir among the conifers for this area, as well as such deciduous trees or shrubs as: black cottonwood, western white birch, red alder, Sitka alder, choke cherry, bitter cherry, vine maple, broadleaf maple, and blueberry elder. Certain of these were important resources to the Moachat. The Western red cedar, which frequently reaches heights of 150 to 200 feet (Dominion Forest Service 1949: 76), and has a long straight grain, was extensively used by the Indians for planks for their houses or storage boxes and for canes. In addition, cedar bark was woven into robes, rain capes, baskets, and mats. Shredded cedar bark was an important part of the ceremonial paraphernalia. The tough yew wood was used for paddles, digging sticks, spears, and wedges. Hemlock and alder, because of their somewhat sweet taste, were used for spoons and serving bowls (Koppert 1930: 40; Drucker 1951: 90). Poles for drying racks and fish weirs could be made from any small tree, such as fir.

The sea provided the vast majority of the Moachat food resources. Salmon and herring were the main staples. All five species of Pacific salmon, plus steelhead, occurred in this area. Of these, dog salmon (Oncorhynchus keta) was by far the most important. Not only could this fish be taken in great quantities in every sizeable stream and river, but the time of the runs, early fall, was the most suitable for preserving in large quantities for winter (Drucker 1951: 36). Drucker's informants
also stated that the flesh had less fat than that of the coho, which run about the same time, and therefore was easier to cure. The runs of sockeye, spring, and humpback salmon were not as large as those of the dog salmon, and were therefore of lesser importance. Halibut grounds occur offshore, in the open ocean. These fish were of considerable economic importance due to their large size — females may reach a weight of over 400 pounds (Clemens and Wilby 1961: 185). Cod was found everywhere, but was generally only fished when other fresh fish were scarce. Herring, as already indicated, were taken in vast quantities. In addition, the spawn, collected on evergreen boughs laid on prepared platforms in the spawning grounds, formed a substantial food item. According to Drucker (1951: 60), the pilchard or sardine was not taken by the aboriginal inhabitants. However, "sardines" are mentioned by such early writers as Meares (1790: 245), Mozino (1913: 25), and Strange (1929: 18), and were apparently taken in great quantities. Sea mammals were intensively hunted for prestige as well as their economic value. Whales of several species, hair seal, sea lion, sea otter, and porpoise were avidly hunted. The sea also yielded molluscs of various kinds, which could always be counted upon to supply a meal. Butter clam, little-necked clam, horse clam, geoduck, cockles, pecten, large and small mussels (Mytilus californianus and M. edulis), abalone, and limpets could be gathered. Cook (1796: 259) states that the large mussel was an essential food resource, but that the others were of only minor importance. In addition, crabs, sea anemones, sea cucumbers, and large barnacles were gathered. Marine resources, as can be seen, were varied and abundant.

Land animals contributed relatively little to the larder. This is partially because of the difficulty in travelling through the dense
forest and partially because the abundant and varied marine resources left little need for land hunting. Black bear, wapiti, deer, mountain lion, wolf, raccoon, land otter, marten, mink, beaver, and squirrel were the common land animals.

The avifauna appears to have been varied and numerous. Waterfowl such as ducks and geese contributed substantially to the native diet. Eagles were apparently sought for their flesh as well as their feathers (Drucker 1951: 59). Gulls were apparently also eaten (Mozino 1913: 9). Cook (1796: 236-7) mentions that birds were continually hunted and lists the birds present at Friendly Cove as crows and ravens, a jay or magpie, wren, thrush, eagle, hawk, heron, king-fisher, woodpecker, humming bird, gulls, and ducks.

Plant food provided only an incidental part of the native diet. Green shoots were eagerly sought in the spring. Berries were picked in season and provided the only sugar in the diet. Salal-berries, salmon-berries, huckle-berries, thimble-berries, blueberries, and wild strawberries were the most common. In addition, certain roots, such as the skunk cabbage, the wild clover, and the Camass root were gathered and eaten. Menzies (Newcombe 1923: 116) describes the Moachat women at the village of Tacis digging with sticks for wild clover roots. However, these were only incidentals in a diet which was largely based on fish and other animals. Even such food as berries was customarily eaten in eulachon or whale grease.

E. The Moachat Confederacy

Drucker (1951: 228-31) outlines the development of the Moachat confederacy, as obtained from his informants. Some idea of the political
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units involved is essential to an understanding of the seasonal migrations of these groups.

Originally the Moachat were probably a number of independent local groups, occupying individual winter village sites on the southern coast of Nootka Island and up Nootka Sound. Through the transfer of territorial rights, a tribal organization gradually developed among the groups in Nootka Sound and up Tahsis Inlet. It was in this manner that the local groups on the outer coasts obtained rights to winter up the Sound. Yukwot and Coopte became tribal rather than lineage villages because the chiefs of these villages gave other local groups the right to build houses there. These transfers of territorial rights resulted in the formation of a single tribal group out of a number of previously independent local groups. Some groups, such as the inhabitants of Amitsa, declined in importance and became extinct, while others, such as the owners of Yukwot and Coopte, became very important.

The local groups inhabiting Tlupana Inlet also formed a tribal organization at about the same time. The main winter village was that of O'wis, near Coopte. This organization was also formed by the bestowal of territorial rights. The people who owned O'wis gave the right to build winter houses at that village to their neighbors in Tlupana Inlet, as well as to the people of Luis, on Tahsis Inlet. They had no single summer village, but eventually obtained rights to places along the east shore of lower Nootka Sound, and moved in summer to a series of camps strung along the beach.

The basis for the confederation of the tribes was established by the giving of rights to summer houses at Yukwot to the Tlupana Inlet groups. Drucker's informants stated that these rights were given in
connection with marriage. This resulted in the modern Moachat confederation. This was a very recent phenomenon, reaching its final form with the addition in the 1890's of the few Muchalat who had survived the wars with the Moachat.

F. Economic Cycle

The Moachat had a pattern of seasonal migration to certain fixed village or camp sites. This section describes this pattern of shifting residence and the differing economic activities carried on at each site. Trade, which could also be considered part of the economic cycle, is given a separate heading.

The two factors of climatic change and scattered resources kept the Moachat in a continual cycle of seasonal movement. During the summer the various groups of Maquinna's tribal organization were spread out along the outer coast, engaged in off-shore fishing and sea-mammal hunting, with the bulk of the population being at Yukwot or E'as. In the fall, with the first signs of the approaching storm season, the outer coast groups began their migration along the shore back to Yukwot. They stayed at Yukwot for the fall dog salmon run, which lasted four to six weeks. When the dog salmon run was over, they began their migration to their winter villages of Tacis and Coopte, up Tahsis Inlet.

The house posts were left standing at each site, but the planks for the roof and sides were taken with the group to their new location. The planks were lashed to two canoes, about six feet apart, and thus formed a convenient platform or deck upon which to place the rest of the items being moved. This is described by Sproat for the Nootka in the Alberni area:
On the decks are baskets full of preparations of salmon-roe, dried salmon, and other fish together with wooden boxes containing blankets and household articles. The women and children sit in a small space purposely left for them. I have seen goods piled on these rafts as high as fourteen feet from the water.

(Sproat 1868: 38)

Jewitt, who travelled with Maquinna on these seasonal movements for several years, has left us an account of these movements.

On the third of September, the whole tribe quitted Nootka, according to their constant practise, in order to pass the autumn and winter at Tashees and Coopette, the latter lying about thirty miles up the Sound in a deep bay, the navigation of which is very dangerous from the great number of rocks and reefs with which it abounds. On these occasions every thing is taken with them, even the planks of their houses, in order to cover their new dwellings.

(Jewitt 1815: 104)

Immediately on our arrival, we all went to work very diligently in covering the houses with the planks we had brought, the frames being ready erected, these people never pretending to remove the timber.

(Jewitt 1815: 105)

The end of the dog salmon run, plus opportunities to gather other winter provisions, were the main inducements to settle at Tacis. Jewitt (1815: 105-122) describes in considerable detail the economic activities pursued here.

The principal object in coming to this place, is the facility it affords these people of providing their winter stock of provisions, which consists principally of salmon, and the spawn of that fish; to which may be added herring and sprats, and herring spawn.

(Jewitt 1815: 106)

Salmon were taken in enormous numbers, principally in pots or weirs. Jewitt (1815: 107) gives the astonishing figure of more than seven
hundred salmon caught in the space of fifteen minutes! The great abundance of fish at this time is further shown by another quote from Jewitt:

Such is the immense quantity of these fish, and they are taken with such great facility, that I have known upwards of twenty-five hundred brought into Maquinna's house at once, and at one of their great feasts, have seen one hundred or more cooked in one of their largest tubs.

(Jewitt 1815: 108)

Fish was by far the most important, but certainly not the only food source obtained at this site. Black bear are very common in this area and Jewitt (1815: 117) mentions several being caught in deadfalls. Wild ducks were numerous and frequently caught. Kendrick and Hoswell (Howay 1941: 83) visited this site to hunt fowl and wrote: "we found Geese ducks and Teel in plenty ...." Berries were also abundant in this area, being gathered by the Moachat women in great quantities and eaten with oil. A number of berries grow in the area, but only one type, which Jewitt calls "yama" (probably salal), was preserved by the Moachat. This was done by pressing bunches of the berry between two planks and drying it. Certain roots were also dug by the women. Menzies (Newcombe 1923: 116) describes the Moachat women digging with sticks for the roots of the wild clover. As can be seen by the early accounts, foodstuffs were abundant at this site, allowing for the storage of a large amount of provisions to last the winter months.

After laying in their food stores, Maquinna's group left Tacis for the tribal winter village of Coopte. Jewitt once again describes the movement:

On the 31st. (December) all the tribes quitted Tashees for Cooptee, whither they go to pass
the remainder of the winter, and complete their fishing, taking off every thing with them in the same manner as at Nootka.

(Jewitt 1815: 123)

Coopte was the great herring fishery of the Moachat. This fish was taken in great quantities during the first few weeks at this site, along with some salmon and cod. Jewit (1815: 126) states: "The natives now began to take the herring and sprat in immense quantities, with some salmon, and there was nothing but feasting from morning till night." The herring were fished by means of a herring rake - a long wooden stick set with sharp whalebone teeth. This was wielded with both hands by the fisherman, who struck the water with it, and flipped the fish impaled on the teeth into the canoe. The effectiveness of this implement is described by Jewitt:

It is astonishing to see how many are caught by those who are dexterous at this kind of fishing, as they seldom fail when the shoals are numerous, of taking as many as ten or twelve at a stroke, and in a very short time will fill a canoe with them.

(Jewitt 1815: 127)

Clams were also secured from the offshore beds near Coopte. These economic activities were all carried out at the beginning of the winter period. The middle and late winter months were periods of feasting and dancing. The winter ceremonial, called the Loquana or Shamans' Dance, took place at this time. For the period of these dances work was prohibited and feasting was continuous. The quantities of provisions which had been secured earlier were quickly depleted, and occasionally the tribe was in a desperate situation by the time the spring salmon arrived.

In the early spring the tribe moved back to Yukwot, where they fished for spring salmon and herring, and collected large quantities
of herring spawn. Many of the people remained at Yukwot through the summer while others departed during the warm summer months to the villages of E'as and Tsaxsís, where they did offshore fishing and hunted for sea mammals. In the fall they all returned to Yukwot and began the cycle once more.

This seasonal migration which has just been outlined holds true only for Maquinna's local group, which was the dominant Moachat unit, and the only one for which there is adequate documentation. The other Tahsis Inlet local groups also spent the winter at Coopte and at least part of the summer at Yukwot, but spent the fall at their own fishing stations of Mawun, Amitsa, Tsawun, and Hatoq. The Tlupana Arm local groups, as indicated in the previous section, spent the summer at a series of camps along the eastern shore of Nootka Sound and spent the winter at the village of O'wis, near Coopte. In the fall they occupied a number of fishing stations at the head of Tlupana Arm and in Hisnit Inlet. This pattern lasted until a late period when they received territorial rights at Yukwot and began to spend their summers there.

This pattern of shifting residence to fixed sites, then, served a number of functions - it made available the greatest amount of food resources, it provided sheltered locations in the winter, and according to Sproat (1868: 38), it gave the birds and the elements a chance to clear away some of the putrid fish and other refuse which surrounded the sites. The outer coast with its mollusc beds, halibut banks, and opportunities for sea mammal hunting and the inlet with its salmon streams could not both be exploited effectively by a completely sedentary group. The utilization of all seasonal resources was necessary to achieve the élaboration of culture which was obtained by the Indians of this area.
G. Trade

The Moachat appear to have carried on an extensive trade with their Nootkan neighbors and with the Kwakiutl groups on the other side of the island. Just how widespread this trade was is indicated by the aboriginal presence of metals such as iron and copper, which must have reached the Moachat through a series of trades from a distant source. Cook mentions the presence of iron implements among the Moachat:

Their implements are almost wholly made of iron....The chisel and knife are the principal forms that iron assumes among them.... What we saw among them were about the breadth and thickness of an iron hoop; and their singular form plainly proves, that they are not of European make....

(Cook 1790: 1776)

Cook also mentions the use of copper tools, which were greatly valued by the natives. They were used only in their native state; that is hammered into form rather than smelted, as the Indians had no knowledge of metallurgy. The raw material for these implements must have been traded in from a considerable distance.

Cook also noted that these Indians were no strangers to the art of trading. Other Indian groups were not allowed to approach his vessel, which was held as a strict trade monopoly by Maquinna's tribe. Occasionally the Moachat would take a number of items which they had received from Cook and disappear for several days, returning with native items they had received from other groups to trade to Cook.

Aboriginally, a considerable trade was carried on between the various Nootkan political divisions. This was somewhat hampered, however, by constant intertribal warfare. Martinez (1789: 200) states:
All the natives trade among themselves from one village to another. The Coast Indians trade with those of the interior villages (bartering fish to them). Along the coast they carry on a trade in fox skins and some give more pelts for an amount of copper or iron than do others.

Jewitt (1815: 137) also mentions this intertribal trade:

The trade of most of the other tribes with Nootka was principally train-oil, seal or whale's blubber, fish fresh or dried, herring or salmon spawn, clams and mussels, and the yama, a species of fruit which is pressed and dried, cloth, sea otter skins, and slaves.

The Moachat traded most frequently with the powerful Clayoquot to the south, to whom they were related by a series of marriage ties, and the Kyuquot to the north. Foodstuffs were the most frequently traded commodity, according to their scarcity. The Moachat may have one year imported dried salmon or herring spawn, and attempted to trade their surplus of the same commodity the next year. Regional differences were also important. One of the most frequent Moachat exports was bear skins, due to the abundance of black bear at Nootka Sound. Other commodities, which were not plentiful at Nootka Sound, had to be imported. Dentalia shells, which were important ornamental and prestige items, were obtained mainly from the Clayoquot. The Spanish were quick to participate in this trade system, bringing up abalone shells from California, which were used by the Moachat for dress ornamentation, in trade for furs.

In addition to this trade with other Nootkan groups, the Moachat carried on an extensive trade with certain Kwakiutl divisions, particularly the Nimpkish. The latter were reached by an overland trail between Tahsis and Nimpkish Rivers. Mills' informants still remembered making the trip with their fathers between Yukwot and Alert Bay, going by way of Tahsis River to Woss Lake, north on the Woss
River to Nimpkish Lake, and down Nimpkish River to the east coast and Alert Bay. Dugouts were left at convenient locations for trading expeditions. The overland trip from Yukwot village to Alert Bay, a distance of about one hundred miles, only required twenty-six miles of foot travel (Mills 1955: 75). The name "tacis" comes from the word "taci", which means "doorway", and refers to the fact that this over-land trail to the Nimpkish begins there (Drucker 1951: 228).

The importance of this Kwakiutl-Nootka contact becomes apparent in Menzies' journal of Vancouver's voyage. Menzies, at Nootka Sound in 1792, also travelled into Kwakiutl territory. In discussing these people he noted:

They also talked much of Maquinna the Chief of Nootka Sound with whom they seemed to have kept up a considerable commercial intercourse as they spoke of having received from him almost every article of Traffic in their possession such as Cloths Muskets &c. These Muskets did not appear to be of English Manufactory as their barrels were secured to the Stocks by means of Iron hoops, so that it appears extremely probable that Maquinna has been the grand agent through which the bartering Commerce of this interior Country has been carried on by some inland communication....

(Newcombe 1923: 80)

The Nimpkish apparently arrived at Yukwot or Tahsis fairly frequently - much more often than the return trips by the Moachat. On one of these trips they were viewed by Jewitt, who refers to them as the "Newchemass" and describes them as "savage looking and ugly men". He describes their items of barter:

They brought with them no furs for sale, excepting a few wolf skins, their merchandize consisting principally of the black shining mineral called pelpelth, and the fine red
paint which they carefully kept in close mat bags, some small dried salmon, clams, and roes of fish, with a little coarse matting cloth.

(Jewitt 1815: 95)

The "black shining mineral called pelpelth" to which Jewitt refers is mica, which was highly regarded as personal ornamentation (Brown 1896: 117). After the face and body had been painted with red ochre and grease, mica was sprinkled on top to give a sparkling appearance. The rather striking effect this produces is mentioned as early as Cook in 1778.

Trade was also practised with Kwakiutl groups other than the Nimpkish, but not as frequently. The Neweetee and Koskimo of the northern tip of the island occasionally came down the coast as far as Nootka Sound. Jewitt (1815: 41), listing the tribes that arrived at Yukwot after the massacre of the "Boston", includes the "Neu-wit-ties" as well as Nootkan tribes. He did not mention any reciprocal visits by the Moachat.

This pattern of trade played an important part in the Moachat economy. Surplus items could be traded for food commodities which were scarce in the Nootka Sound area. A poor salmon run or a low yield of herring spawn could be made up for in trade with neighboring groups. In addition, trade with the Kwakiutl provided economically important items which were not otherwise available.

H. **Subsistence Technology**

a) Food-gathering technology

Since implements of the food quest rank among the most frequently-recovered archaeological materials, ethnographic information
on the food quest technology is of great value to the archaeologist in interpreting his findings. This section is a brief survey of the dominant techniques used in the food quest.

Fishing was the most important economic activity carried on by the Nootka. This fact is reflected in a comparative diversity and complexity of material items. Salmon, the most important single food item, were caught on hooks, by spearing, and with traps. Cook (1796: 268) states that "their hooks, which are made of bone and wood, display no great ingenuity...." According to Meares (1790: 264), the hooks were of bone or shell. Apparently the change to iron hooks came very early, as evidenced by statements from Mozino and Espinosa:

Formerly they had no other hooks than those made from shells, but now they have abandoned these for those made of iron.

(Mozino 1913: 25)

They formerly used fish hooks of wood and shell, made with considerable art, but now they use only iron hooks.

(Espinosa 1802: 134)

The salmon hook was usually just a sharpened bone or wood splinter lashed as a barb onto a wooden shank. The halibut hook was more complex. It was of hardwood which had been steamed and bent to a "U" shape, and with a bone barb lashed to it. Similar hooks were used for cod. Cod were also speared, with the use of special lures to attract the fish to the surface. Harpoons were frequently used for salmon. These had a wooden shaft eight to ten feet long with two or three diverging foreshafts. Each foreshaft was tipped with the typical Northwest Coast composite harpoon head, composed of two bone valves and a bone or shell point. For small fish, such as perch or rock fish, a small piece of bone, sharpened at both ends, was simply baited and tied in the middle as a gorge. The fishing lines were of kelp which had been
split, boiled, and dried. Whale sinew was also used for this purpose.

Herring and other small fish were taken in great numbers by the previously mentioned herring rake (p.18 above). This implement was described by Jewitt as:

A stick of about seven feet long, two inches broad, and half an inch thick, is formed from some hard wood, one side of which is set with sharp teeth, made from whale bone, at about half an inch apart.

(Jewitt 1815: 127)

The bone teeth of the herring rake were replaced by nails in the historic period. Herring were also taken in nets of nettle bark (Koppert 1930: 69). Dogfish, sought for their oil more than their flesh, were taken on a regular halibut hook, on a special hook with a deer antler barb, or in nets when they ran in schools (Koppert 1930: 67). Fish traps, in a variety of ingenious forms, were used with great success, particularly for salmon. Undecorated wooden clubs, usually of yew, were used to subdue large fish.

Sea mammal hunting was also an extremely important activity, both for economic and prestige purposes. One harpoon type served the hunter for seal, sea lion, porpoise, and in the historic period for sea otter. The shaft, about fourteen feet long, ended in two diverging yew foreshafts. Each was tipped with the typical Northwest Coast composite harpoon head - similar to that used for salmon but larger. The valves were of bone or antler. The blade was of ground mussel shell which was replaced by iron early in the historic period. The head was wrapped in nettle-fibre cord or sinew and covered with pitch. The same type of harpoon, only larger and without the diverging foreshafts, was used in whaling. The shaft was of yew and was fourteen to eighteen feet long. The head was again the composite type, but considerably larger than the
sealing harpoon head. The barbs were of wapiti antler or whalebone. The blade was of mussel shell. These were tied by sinew and secured with pitch. The harpoon lanyard was made of whale sinew covered with bark. The whaling line was formed of whale sinew (Koppert 1930: 61) or cedar withes (Drucker 1951: 29; Waterman 1920: 37). To this were attached a number of seal skin floats. This completed the whaling harpoon and accessories. One final item was a pair of lances with antler points, one with a chisel-like edge for hamstringing the whale, the other with a sharp point for killing it (Drucker 1951: 31).

Land hunting was relatively unimportant to most Nootka groups. This is reflected in a low level of specialization in the technology. Bows and arrows were commonly used. The same bow was used for land hunting, sea otter hunting, and war. It was about four feet in length and was made of yew with a whale-sinew string. The arrows were a foot and a half to two feet long and were tipped with bone or shell points. A spear, fashioned from a five or six foot length of yew wood and with a fire-hardened tip, was also used. Deadfalls were used for bear, deer, and wapiti, as well as for such smaller animals as mink, marten, beaver, and raccoon. These varied somewhat in construction. Those for bear and the small fur-bearers were baited and were set off by the animal entering the trap to get the bait. Those for deer and wapiti were triggered by a trip line across a path.

Waterfowl also played a part in the Nootkan diet. These were primarily hunted by torchlight with nets. Jewitt, who witnessed this activity in 1804, states:

These...were caught with nets made from bark in the fresh waters of that country. Those who take them, make choice for that purpose,
of a dark and rainy night, and with their canoes stuck with lighted torches, proceed with as little noise as possible, to the place where the geese are collected, who, dazzled by the light, suffer themselves to be approached very near, when the net is thrown on them, and in this manner, from fifty to sixty, or even more, will sometimes be taken at one cast.

(Jewitt 1815: 165)

The main pole of the net is about twelve feet long. Two crosspieces support a mesh of nettle fibre line. The net is thrown like a spear over the ducks or geese, who become entangled in the mesh. In addition to the net, several types of traps were used for diving ducks. The multiprong bird spears, common among the Salish (Barnett 1955: Fig. 32), and the Makah (Swan 1870: 48) appear not to have been used in this area.

In addition, a number of simple implements were used in gathering foodstuffs. Simple digging sticks were used in digging clams and roots. A long spear was used to gather crabs. A long pronged pole was used to gather sea urchins. A "fence" of spruce or fir boughs, weighted near the bottom in spawning grounds, was used to collect herring spawn.

b) Food-preparing technology

Cooking methods were not complex. Stone-boiling, steaming, broiling, and roasting were the Moachat cooking methods. Of these, boiling by hot stones placed in wooden boxes was the principal method. Jewitt gives a good description:

Into one of their tubs they pour water sufficient to cook the quantity of provision wanted. A number of heated stones are then put in to make it boil, when the salmon or other fish are put in without any other preparation than sometimes cutting off their heads, tails, and fins, the boiling in the meantime being kept up by the application of the hot stones, after which it is left to
cook until the whole is nearly reduced to one mass. In a similar manner they cook their blubber and spawn, smoked or dried fish, and, in fine, almost everything they eat, nothing going down with them like broth.

(Jewitt 1815: 70)

Mozino also gives an account of the stone-boiling method:

They make fire by rubbing two pieces of wood against each other, and when they have it well going they heat a quantity of stones, which they draw out with long wooden tongs and quench in pails of water containing fish until the latter are cooked.

(Mozino 1913: 9)

Steaming is a variant of the widespread earth-oven technique. Jewitt again gives a good description:

When they cook their fish by steam, which are usually the heads, tails, and fins of the salmon, cod, and halibut, a large fire is kindled, upon which they place a bed of stones, which, when the wood is burnt down, becomes perfectly heated. Layers of green leaves or pine boughs are then placed upon the stones, and the fish, clams, etc., being laid upon them, water is poured over them, and the whole closely covered with mats to keep in the steam.

(Jewitt 1815: 70)

Tales of famous feasts tell of piles of food so high that young men had to climb onto the roof to pour on more water to make steam (Drucker 1951: 63). Broiling was done over coals or a low fire and was used chiefly for fresh fish. Roasting was of comparatively minor importance, being used for such food items as fern roots as well as fish. Cook (1796: 259) states that an important food item was the large mussel, which was roasted in its shell. In addition, small fish such as herring were frequently eaten raw.

The preservation of various foods for the stormy winter months was the main challenge to the food-preparing technology. During this time the Moachat lived chiefly on dried fish, particularly dog salmon. Strips of
this fish were broiled over the fire then smoked on drying racks. These were then pressed and stored in bales. Halibut and cod were also dried. Herring were split open and hung to dry either in the house or outdoors. The cutting implements were mussel-shell knives or long bone knives. The flesh of mammals and birds was apparently never dried (Drucker 1951: 65). Clams were steamed, skewered on small sticks placed over the fire, and then dried. They were also occasionally preserved by pressing onto cakes with thimbleberries. The only other berries to be preserved were salal berries. These were crushed between cedar planks and then dried into cakes in the sun. The camass root was roasted and preserved for winter use. All dried foots were customarily dipped into whale or fish oil before being eaten.
1. Yukwot (DjSp1)
2. Coonte (DkSo1)
3. Taxis (D1Sp1)
4. Amitaa (D1Sp2)
5. Hatoq (DkSo1)
6. Tsawun (DkSp3)
7. Luis (DkSr7)
8. Mawun (DkSr6)
9. E'tas (DjSq1)
10. Tsaxis (DjSq2)
11. DjSp3
12. O'wis (DkSr2)
13. Hisnit (DkSr5)
14. Tsaxho' (DkSo3)
15. Ta'atis (DkSo2)
16. Mowatca (DkSo1)
17. Nisaq (DkSc4)

A. burial cave (DjSn2)
B. rock shelter burial and pictograph (DjSol)
C. 'bear cave' (DkSn2)
D. burial canoe (D1Sr2)
E. pictographs (DkSp3)
THE MOACHAT SITES

A. Village and Camp Sites

Drucker (1951) lists sixteen sites for the Moachat Nootka. Most of these were visited during the field season. One additional small site was recorded. The locations of these sites are shown on Map 2.

Yukwot (DjSp 1) - Nootka I.R. 1

Yukwot, "the place where the winds meet", became famous as the Friendly Cove of the early travellers to the Northwest Coast. Cook visited here in 1778 and left us a good account of the inhabitants of that time. The cove in front of the village offered shelter to English, Spanish, and American vessels, many of whose captains recorded much of the way of life of the inhabitants. The journal of John R. Jewitt, during his captivity here, greatly adds to our knowledge of the way of life in this village.

Yukwot has a very favorable position. It is located just inside the entrance to Nootka Sound. The village stands on a rising bank, overlooking a deep sheltered cove. The open ocean is just a short distance behind the village. North of the village is a thickly wooded area, containing several large lakes. It has a central position between the outer coast beaches and the sheltered villages up the inlets.

Yukwot was possibly at one time simply the summer village of one of the lineages. Drucker (1951: 230) discusses a period of tribal consolidation among the Tahsis Inlet groups, resulting in Yukwot becoming the summer village of this tribal organization. Later, with the amalga-
formation of the Tlupana Arm groups, a confederacy, with its center at Yukwot, was formed.

According to Jewitt (Brown 1896: 99), Yukwot consisted of about twenty houses, of varying sizes, built nearly in a line.

They vary not much in width, being usually thirty-six to forty feet wide, but are of very different lengths, that of the king, which is much the longest, being about one hundred and fifty feet, while the smallest, which contain only two families, do not exceed forty feet in length.

Roquefeuil (1823: 29) measured the ridgepole of Maquinna's house to be 76 feet, and noted that it was supported by two enormous carved posts. King (Beaglehole 1967: 1409), one of Cook's officers, describes the largest house as being about 140 feet long, with many separate divisions. Meares' sketch map of the village (1790: 108) shows sixteen houses, while Drucker's informants told him that the village had always had thirteen houses (1951: 231). Samwell (Beaglehole 1967: 1097), a surgeon with Cook in 1778, mentions 80 or 90 canoes hauled up on the beach and a population of five or six hundred people. Jewitt (1815: 142) estimated the population of Friendly Cove to be no less than 1500 persons. Cook (1796: 253) estimated 2000 inhabitants for Nootka Sound.

Yukwot was temporarily abandoned by the Indians after the establishment of a Spanish fort in 1789. Barracks, a store house, a hospital, and gardens took the place of the Indian village, while a small gun emplacement was built on one of the small islands at the entrance to the cove. The Indians meanwhile withdrew up the sound to the village of Tacis. After the abandonment of the Spanish fort in 1795, the Indian village was rebuilt. By the time Broughton (1804: 50) returned in 1796, he noted that the Indian village was once more active on its original site.
Sketch of

Friendly Cove

in

Nootka Sound,

taken by

Mr. Wedgborough

The English Factory

(from Meares, 1790)
Yukwot is still inhabited by descendants of Maquinna's tribe. About the same number of houses still stand, but they are small one-family homes rather than the large communal dwellings, and many are empty. A beautiful small church, built to commemorate this historic spot, stands at the rear of the village. One large pole, a carved grave marker, and a number of houseposts have been maintained. Fishing is the prime occupation and several fish boats can usually be seen at the wharf. But the population is quickly decreasing. Only about fifty Indians still inhabited this site at the time this study was made. With the establishment of a government housing program at Gold River, even this small number may soon disappear and Yukwot will be unoccupied for the first time in centuries.

Coopte (DkSp 1) - Nootka I.R. 9

Coopte was the winter village site for all the Moachat Nootka except the Tlupana Arm groups, who wintered at nearby O'wis. Located just inside the entrance to Tahsis Inlet, and protected from the open waters of Nootka Sound by several islands, it offered a rather sheltered place to spend the winter months.

One of the few early sources to refer to this site is Jewitt (1815: 123-128), but he refers much more to the great feasts held here than to the site or the habitations. Kendrick (Howay 1941: 83) was also at Coopte but does not describe the village.

A full description of this site will be given in the following section, along with an account of the excavations carried out there.

Tacis (DlSp 1) - Nootka I.R. 11

Tacis is located at the head of the inlet. It appears to have
been the fishing village of Maquinna's lineage. It was occupied during
the fall and early winter, before they moved down the inlet to Coopte.
Great stores of provisions were gathered at this site to last through
the winter feasts at Coopte. For a time, during the Spanish occupation
of Friendly Cove, this seems to have become the main center of the Moachat.

Several of the early sources mention this site. Jewitt (1815: 105) describes its rather pleasant and secure position. He was less
impressed with the crowded conditions:

The houses here are placed in a line like
those at Nootka, but closer together, the
situation being more confined, they are
also smaller, in consequence of which we
were much crowded....

(Jewitt 1815: 106)

Drucker (1951: 74) states that the posts and beams were smaller and that
some of the houses were set with their ends so close together that doorways
had to be left in the sides. Vancouver (1798: vol. 1: 395) was much
more impressed with Maquinna's "royal residence". He estimated the length
of Maquinna's house at one hundred feet (1798 vol. 3: 311). He also
mentions a carved house post in this building, which is not mentioned by
Jewitt and specifically denied by Drucker (1951: 74). The population at
Tacis was estimated as not much less than eight or nine hundred persons
by Vancouver (1798 vol. 3: 310).

Five houses and two sheds stand along the beach of the site
today. Only one of the houses is occupied. With the completion of the
government project in Gold River, this site will probably also become
uninhabited. A small area of secondary growth, presumably covering the
original area of habitation, extends behind the houses. The deposit
appears to be dark soil with a great deal of rock and cannot be very
extensive. A survey made by the National Historic Parks crew in 1966
noted a small deposit of bulldozed shell in this area. The deposit is probably considerably disturbed due to recent logging operations.

Amitsa (DlSp 2)

Drucker locates this site south of Tacis, opposite where Esperanza Inlet joins Tahsis Inlet. The Amitsa group apparently became extinct rather early (Drucker 1951: 229). This area now is covered with deciduous forest and dense brush. A large stream runs through the center. No evidence of an archaeological deposit could be found.

Hatoq (DkSq 1)

This was a small lineage fishing village. It was originally in an excellent location, being at the back of a sheltered bay. A small stream ran through the site. However, all traces of an archaeological deposit have been wiped out by the modern logging town of Blowhole Bay and the logging operations behind the town.

Tsawun (DkSp 3) - Nootka I.R. 10

This site is located on a small point, north of the Tsowwin River, about midway on the east side of Tahsis Inlet. It was a small fishing village. Only a few houses could have stood here due to the small size of the site. The point is only about eighty feet across at the base. The site is now lightly covered with brush and a few small trees. Several Indian houses stood on the point until fairly recent times and remains of these can still be seen.

The deposit is quite shallow; the elevation of the site above high water being only about three feet. The matrix was crushed shell,
overlain by a thin layer of topsoil and underlain by gravel. The shell content of the deposit is mainly clam. Clam shells abound on the beach. Clam beds are found directly offshore. This area is well-known to local inhabitants as the best place in the inlet to gather clams and we can assume that this food resource was extensively utilized by the Indians while laying in their winter stores of food.

Luis (DkSp 7)

This was also a small lineage fishing village. It is located on the west side of Tahsis Inlet but was apparently more closely associated with the Tlupana Arm groups than the other villages in Tahsis Inlet (Drucker 1951: 230). Logging operations and logging camp have obliterated the site.

Mawun (DkSp 6)

This is the closest of the fishing villages to Friendly Cove. It is located inside Boston Point, south of the entrance to Tahsis Inlet, in a sheltered bay into which a stream flows. However, the site has been destroyed by logging operations.

E'as (DjSq 1) - Nootka I.R. 3

This site is located on Bajo Point, on the south shore of Nootka Island, about eleven miles west of Friendly Cove. Such open-ocean sites were occupied during the summer. Offshore fishing and sea mammal hunting were the main economic activities carried out at these sites. Tradition credits the inhabitants of these open ocean sites with the invention of the art of whaling (Drucker 1951: 228). This area was not visited during the 1968 field season. A National Historic Parks crew, visiting the area in 1966, described the site as a large shell midden, being 600 to 700
feet long and eight feet high.

Tsaxsis (DjSq 2) - Nootka I.R. 2

This is also an open-ocean site, about six miles west of Friendly Cove on the south shore of Nootka Island. It is located at the mouth of Beano Creek. The National Historic Parks crew reports a small cabin on the site, but no evidence of a shell deposit.

DjSp 3

This is a small, previously unrecorded site about 1½ miles west of Yuwot, east of Maquinna Point. It is not mentioned in Drucker's list of sites, but would be one of the small local group summer camps. The deposit is shell midden, ranging from about four inches to almost a foot in depth, and underlain by beach sand. The shell content is almost entirely clam. Some patches of burnt shell were noticed and fire-cracked rock was abundant.

The site appears to extend along the shore for only about 35 feet. The distance back was not determined but large trees stand about 25 feet from the shore.

Three posts, each about five feet high, are standing in the bushes at one end of the site. These are square posts with nails. They seem to form a rectangle, about six feet by four feet, but missing one corner post. Several planks lay on the ground. These are possibly the remains of a historic grave house.

O'wis (DkSp 2) - Nootka I.R. 8

This site was the winter village for the groups having fishing stations in Tlupana Arm and the local group at Luis. It is located a
short distance east of Coopte, at the mouth of Hoiss Creek.

Cook apparently visited this site during a survey of the Sound in April, 1778. The site was deserted when he arrived. The houseposts were standing but all the planks had been removed. Cook mentions large fish weirs in the water at the front of the site (Beaglehole 1967: 304).* These were constructed of small branches, and varied in the size of the mesh according to the size of the fish which was intended to be caught.

The site is much smaller than Coopte, being quite small for a winter village site. It is now covered with dense underbrush. Remains of several European houses stand at the back of the site on the west side of the creek. A large area of sandy beach extends in front of the site. It is on a rather exposed part of the inlet, not being sheltered by small islands from the open ocean currents, as is Coopte. Very rough water is often encountered in this area.

Hisnit (DkSp 5) - Nootka I.R. 7

This site is located near the head of Hisnit Inlet, on the west side. It was a small fishing village, closely associated with the groups further up Tlupana Inlet. It is on a small area of flat ground now covered with secondary growth, at the mouth of a stream. The elevation is only slightly above high water line.

Tsaxho' (DkSö 3) - Nootka I.R. 6

This fishing village was located at the head of Tlupana Inlet, in Head Bay. It is just east of the mouth of Sucwoa River. The modern logging camp of Head Bay is nearby.

*The description of the fish weirs is omitted from the 1796 edition of Cook's journals.
Ta'atis (DkSo 2)

This site is also at the head of Tlupana Inlet, between Head Bay and Moutcha Bay. It is in what appears to be an unlikely spot for a site. Apparently several European-type houses stood on the beach and point until quite recent times. The point is rocky, with no deposit. Two small patches of beach occur. Some secondary growth is at the back of these, but large deciduous trees also occur. These areas are only slightly above the high water line.

Mowatca (DkSo 1) - Nootka I.R. 5

This site is on the east side of Moutcha Bay, below the mouth of the Conuma River. It is a small site, covered in secondary growth. The front of the site is tidal flats, and the site itself is only slightly elevated above this level. One recent shack stands at the southern end of the site and is apparently still used as a hunter's cabin.

From the description of the location and the similarity of the name, this site seems to be the "Mooetchee" visited by Vancouver in 1794. Vancouver was not impressed by this small village "which consisted of a few houses huddled together in a cove" (1798 vol. 3: 312). The lack of order as well as the small size of this village led Vancouver to comment on the superiority of Maquinna's villages.

Nisaq (DkSo 4) - Nootka I.R. 4

This site is located at the head of Nesook Bay, just north of the mouth of Tlupana River. It was also a small lineage fishing village. It was not visited during the 1968 season.
Yukwot (DjSp 1)

pl. 1
pl. 2

pl. 3
0'wis

(DkSp 2)
pl. 4

Tsawun

(DkSp 3)
pl. 5

Tacis

(D1Sp 1)
pl. 6
Indian fishing boat at head of Hisnit Inlet
pl. 7

Hisnit
(DkSp 5)
pl. 8

Mowatca
(DKSo 1)
pl. 9
B. Burial Caves

This classification includes both burial caves and rock shelter burials. As well as those listed here, reports were gathered of several burial caves in the woods behind Yukwot.

DjSp 2

This cave is located on the south-east side of the largest island of the Saavedra group, a small cluster of islands lying a short distance up the sound from Friendly Cove. It is well known to the inhabitants of Friendly Cove and was presumably used by the Moachat while they were in residence there. The cave is easily accessible, being located directly at sea level. It extends in a considerable distance but is filled at high tide except for a small area at the back. The rest of the cave is filled with washed-in wood.

Four or five burials in boxes were still present in this cave as late as 1966, when the area was investigated by a National Historic Parks crew. No burials or cultural material now remain. The bones may have been gathered by the local inhabitants for interment.

DjSo 1

This complex, consisting of a burial and pictograph, is located just out of Moachat territory near the beginning of Muchalat Arm (see Map 2). It is included here because of its proximity to the Moachat area and because the Muchalat burial practices are identical to those of the Moachat. The burial is best considered a rock shelter burial, rather than a cave burial.

This complex is located on the east side of Hanna Channel, near
the south end. It is located on a rock face south of the Muchalat village of Tcecin (Indian Reserve #15). A large perpendicular flat rock face extends for most of the point. On this face is located a pictograph in red ochre. This will be discussed in the section on pictographs. About twenty feet to the south of the pictograph, at the edge of the point, is a rock ledge. A small covered area, extending back about six feet and partially blocked by rocks, is formed by the ledge. The remains of a burial are in this area. The body had been placed under the ledge, with the legs flexed to fit into the rocks at the back of the cavern and the head extending outward. The skull and most of the bones of the upper body are missing. The legs, one arm, and an undetermined number of body bones still remain. These are obscured by half-rotted rags covering the bones. The body was apparently buried in a European shirt and possibly also European pants. The burial was then wrapped in cedar bark. The cedar bark at the top has largely rotted away, but that underneath the body is in a state of relatively good preservation. See plates 10, 11, and 12.

DkSp 4 - "Bear Cave"

This feature is located on the east coast of Nootka Island, on Tahsis Inlet. It is north of the site of Luis and south and across the inlet from Tsawun, which is the most accessible site. The cave is about 50 feet back from the water's edge and about 50 to 75 feet in elevation at the entrance.

The cave itself is part of a large fault in the rock formation, which runs for a considerable distance in this area, at times taking the form of a very deep fissure. However, the fissure is quite shallow at this point. The side of the fault overhangs to form a roof. A rock fall
at each end has closed off a chamber about 24 feet long, 5 feet wide, and 20 feet high. This chamber is accessible by climbing down the rock-fall, under the overhanging ledge.

Despite its being included as a burial cave, no human remains were discovered in this chamber. However, information was obtained from inhabitants of the nearby mill town that the cave had contained a burial at the time of its discovery during hand-logging operations a number of years ago. This burial had been placed in a wooden box. Both box and bones were apparently removed by the discoverers, leaving no material evidence for such use of the cave.

A great number of bones were found in the cave, however. These were almost entirely bear. Bear skulls were piled in four groups, while smaller bones littered the floor. There seemed to be a disproportionately small amount of limb and body bones in relation to the skulls. Twenty-two bear skulls were counted, along with four skulls of unidentified smaller carnivores. Nine complete bear pelvic bones, thirteen halves of bear pelvic bones, sixteen scapulae, and one mandible were also counted. Smaller bone fragments were numerous. The bones seem to exhibit differing amounts of aging and weathering. In addition, the cave contained two large geoduck clam shells and several patches of charcoal.

The presence of these bear remains is not easily explained. Certainly some type of bear ceremonial is indicated. Perhaps a short discussion of bear ceremonialism is necessary here.

Bear ceremonialism has a wide distribution, being found among certain groups in North America, Asia, and Europe (Hallowell 1926). Such ceremonies involving game animals are intelligible in the light of the general beliefs about nature. The bear is never regarded as merely food,
but is given certain supernatural attributes. Often a rich mythology develops. The idea that game animals must be respected rather than mis-treated is almost universal among primitive groups which depend upon them.

These general characteristics certainly apply to the Nootka and the rest of the Northwest coast culture area. The first salmon rites practised in this area were simply another manifestation of the general practice of honoring game animals upon whom subsistence depended. The presence of a bear ceremonial is interesting because of the minor economic importance of the bear in this area. However, the bear was very important in the mythology and was frequently credited with having human attributes. Because supernatural attributes were attached to the bear, it seems only logical that some means of showing respect to the bear would be undertaken when one was killed. We know this was the case from the ethnographic data. Jewitt (1815: 117) describes a ceremony among the Moachat in which the freshly-killed bear is seated in an upright position, dressed in a chief's head-dress and sprinkled with eagle down, and ritually offered a tray of provisions. Drucker (1951: 181) describes a similar ceremony. The presence of a well-developed bear ceremonialism, then, would appear to be established.

However, these ceremonies only imperfectly explain the presence of the bear skulls in this cave. Jewitt does not mention disposal of the skull or other bones, while Drucker states that the skulls were not kept, but thrown into the woods. No other sources mention disposal of the bones. A common feature of bear ceremonialism in general, however, is the placing of the skull in some special place, out of the reach of defiling animals. Morice (Hallowell 1926: 22) writes that the Dene of the interior placed the skull of the bear on a stump or tree out of the reach of animals.
This seems to have been a common practice. I would suggest that the use of this cave in which to place the skulls and certain other bones of the bear was a local variant of this general pattern. The differing amounts of weathering on the skulls indicates that this practice had been carried out over a period of time.
the rock shelter
pl. 10

the burial
pl. 11

the pictograph
pl. 12
C. Burial Canoe

Occasionally among the Nootka a canoe was used instead of a wooden box to contain the body of a deceased person. This would be placed on some rocky point overlooking the water. While no examples of this have actually been found in Moachat territory, one (D1Sr 2) was examined in Esperanza Inlet, in the territory of the 'Ehetisat, only a short distance out of Moachat territory. See Map 2.

The canoe is located on a rocky point about twelve feet above mean sea level. The point is quite prominent and the canoe can be easily seen from the water. The canoe is about twelve feet in length. It is of dugout construction with several thwarts across the inside. Nails and a copper patch are visible on the canoe. A number of large rocks were placed inside the canoe. No bones were found in or around the canoe, although it is reputed to have been a burial canoe. It is doubtful that it could serve any other purpose. The most probable explanation is that the bones were gathered up later, possibly for interment.

Burial canoes also still remain further down Esperanza Inlet, in Nuchatlitz territory. Reports were obtained of two burial canoes on Catala Island. The canoes are apparently in a poor state of preservation but still contain the remains of several individuals.

Burial canoes were also used on the other side of Moachat territory. Moser (1926: 40) mentions a burial at Hesquiat in 1875 in which a small Indian canoe was used as a coffin. Sproat (1868: 259) states that worn-out canoes were occasionally used as coffins in the Alberni area. This trait, then, can be inferred for the Moachat although there are no known remaining burials of this type within Moachat territory.
Burial Canoe (D1Sr 2)

pl. 14
Pictographs

DjSo 1

This pictograph is associated with a rock shelter burial, described in the section on burial caves. The pictograph is located on a flat perpendicular rock face about fifteen feet above water line. It is painted in red ochre and is about three feet long. The representation is somewhat difficult to interpret. It may be a bird form. It may also be a seal, with side and rear flippers indicated and head toward the water. See plate 12. Its association with the burial is interesting. It possibly serves as a marker for the burial and may indicate the prowess of the dead person as a hunter.

DkSp 8

This group of pictographs is located on the east side of Hisnit Inlet, nearly opposite the site of Hisnit. The main figure is a well-executed eagle or thunderbird form. It is located on a flat rock face about ten feet above the high water line. About two hundred feet north of this figure is a small group of pictographs. They are located on a rock face on a small point and are about 25 feet above high water level. They are difficult to see from the inlet. These pictographs are rather indistinct, being more weathered and less carefully executed than the bird form. They seem to be three small anthropomorphic figures, one enclosed in a circle. All are done in red ochre.

A large outcrop of ochre is visible on a rock face on the same side near the entrance to Hisnit Inlet. This is a possible source of the ochre used in the pictographs. All pictographs in the area are of red ochre.
No other pictographs were found within Moachat tribal boundaries. However, pictographs are common along nearby Muchalat Inlet.
EXCAVATIONS AT DkSp 1

A. The Site

1. Description

Coopte is located on Indian Reserve #9 of the Nootka Band, on the east shore just inside the entrance to Tahsis Inlet (Map 2). It is easily spotted, being the only relatively flat piece of land in the immediate area. The northern part of the site is on a small point, in front of which is a good beach. Washed-in shells are piled at the top of the beach. The site is quite large. It was paced out to about 230 yards along the beach. Secondary growth and small bushes, in places quite dense, cover the site. Large deciduous trees stand immediately behind the site. A distinctive feature is a scarp which runs the entire length of the site, dividing it into two terraces. The second terrace is approximately seven to nine feet higher than the first terrace. The first terrace varies in elevation but is generally five or six feet above the highest water line. In addition, there is a small third terrace at the north end of the site, at some distance back from the beach. It is not as distinct as the others but is several feet higher than the second terrace. Two streams supply water to the site. One stream runs along the northern boundary of the site. It is often dry during the summer. The other stream is larger and runs all year. It nearly bisects the site. These features are shown on Map 4.

2. Surface Features

A number of cultural features are visible on the site. These include canoe skids, house remains and a possible bridge (Map 4). In addition to the house remains, sawn boards and hand-split planks were common on the surface of the site. Pieces of broken pottery, bottles,
and such miscellaneous items as a large iron pot, an axe head, and a bayonet were found on the surface.

Canoe Skids

Lines of piled-up rocks in the inter-tidal zone mark areas the Indians have cleared to bring their canoes up on the beach. There appear to be seven distinct 'skids'. They start at approximately S:220' (see section on measurements) and run south past the end of the site, a distance of over 200 feet.

House Remains 1

The remains consist of two standing front posts, one rear post, and several large split planks. The two front posts occur along the beach at S:110' and 130'. They are about 4½ feet high. The right rear post is missing. The left rear post is located a distance of 25 feet from the front post. It is about four feet high. Several large split planks lie near it.

House Remains 2

This occurs at the front of the first terrace at about S:170' to 190'. It appears to have been a small recent house or shed. The remains consist of thin poles and sawn boards, along with rusted metal items such as washbasins.

House Remains 3

This occurs at the back of the second terrace, beyond the area of secondary growth, among the large deciduous trees. It is located at about S:215' to 225', E:70'. The remains consist of several split planks
and a number of small boards, many of the latter standing upright among the trees against a large log.

House Remains 4

This feature is located immediately north of the stream, along an area where the stream backs up to form a small pond, at a considerable distance back from the beach. The remains consist of a few posts and split planks, all lying on the ground.

Bridge

Several large planks were noted near the mouth of the creek at the northern boundary of the site. The National Historic Parks crew, here in 1966, noted this as the remains of a bridge which crossed the creek.

3. Localized Ecology

All five species of salmon run up Tahsis Inlet, passing in front of this site. Herring are also common and were extensively fished by the natives. Coopte became known as the great herring fishery of the Moachat. Halibut and other bottom fish could also be taken here. This area is still known to the Indians as a good fishing spot. Indian trollers are frequently seen fishing off Coopte Point in the late summer and fall.

Sea mammals also come up the inlet, passing by the site. Porpoises and harbour seals are common, and both were seen during the field season. Sea lions may also occasionally be seen, particularly in the fall, when they follow the salmon run. Killer whales may come into the inlet in the fall, feeding mainly on seal and sea lion. This information was gained largely from Mr. Stan Sharcott, the fisheries agent for the area.
The great number of washed-in shells along the front of the site gives a good idea of the variety of shellfish available to the native inhabitants. Butter clam, little-necked clam, horse clam, geoduck, blue mussel, and the occasional abalone could be gathered, as well as such smaller molluscs as limpets, triton, and turban shells. Barnacles are also abundant. Strangely, there was only a comparatively small amount of shell actually in the deposit, indicating that the Moachat were not heavily relying on shellfish while at Coopte.

This site is also still known to the Indians as a good place to hunt land mammals. Deer and bear are apparently both common. Several deer were frequently seen on the site during the field season, as well as such smaller animals as squirrels and raccoons.

Birds are numerous around the site and were presumably utilized as a food resource by the inhabitants. Small diving ducks frequently appear in the inlet. Sea gulls and wild pigeons are also common. Larger birds, such as eagles, ravens, and the great blue heron, are occasionally seen.

Berries also played an important role in the aboriginal diet. Salmonberries, elderberries, huckleberries, and blackberries grow on the site. However, some of these may have been introduced as were a number of fruit trees on the site.

4. Excavating Procedure

Excavation was carried out entirely with trowels. The deposit was trowelled into dustpans and then thrown to the side of the pits. No attempt was made to screen the deposit after trowelling. It is felt that the rocky nature of the deposit would render screening ineffective.
A hydraulic system of checking backdirt could have been devised and may yet be used effectively in this area, but it is felt that it would have been prohibitively time-consuming in such a small operation.

As stratigraphy was virtually lacking in some areas of the site, the deposit was generally removed in arbitrary six inch levels. However, as the surface of the site generally sloped from east to west, the first levels were excavated to a sufficient depth to even out the slope. The appearance of beach sand or gravel also meant a discontinuation of the policy of arbitrary levels in order to follow the natural slope.

The position of each artifact was carefully measured in three co-ordinates, establishing its exact position in the deposit. Each artifact was then given a number and its position and the matrix recorded. All faunal remains and historic material not given artifact numbers were collected and placed in separate bags for each excavated level.

5. Notes on Measurements

For convenience in measuring, the beach in front of the site was considered to run north - south. Actually, it runs NE - SW, except for a small section at the north end of the site which is almost true north - south.

Because of the central location of a stream which almost bisects the site, it was decided to take all horizontal measurements from near there. A large boulder near the mouth of the creek was chosen for this purpose. All horizontal measurements, then, are either north or south of this central point, and east from an imaginary line drawn along the beach (Map 4).

For vertical measurements, a separate secondary datum was
established for each square. This was the northeast corner at surface. Each vertical measurement within the square, then, refers to the depth below the surface level of the northeast corner.

To tie all the secondary vertical datum points together and give a common basis to all vertical measurements, a primary datum of zero sea level was established. To establish this, all that was done was to measure the height of the northeast corner for each pit above the water line at a known tide (9.6 feet in this case) and to add this height to the height of the tide. To reduce any vertical measurements given in this text to a common denominator, all that need be done is to subtract the given measurements from the total height above zero sea level of the northeast corner of each square. The measurements above zero sea level for each square are as follows:

- T.P.1 - 16.8'
- T.P.2 - 16.1'
- T.P.3 - 16.6'
- T.P.4 - 23.3'
- T.P.5 - 16.6'
- T.P.6 - 18.8'
- T.P.7 - 18.8'
- T.P.8 - 16.6''
- T.P.9 - 16.6'
- T.P.10 - 18.8'
- T.P.11 - 18.6'
- T.P.12 - 18.8'
- T.P.13 - 18.8'
- T.P.14 - 19.0'
- T.P.15 - 27.3'

6. Excavated Units

Fifteen five foot by five foot test pits were excavated at this
site. The location of these is also shown on Map 4. Thirteen pits, in three clusters, were excavated on the first terrace. Two pits, one at the north end and one at the south end of the site, were excavated on the second terrace. No excavation was undertaken on the third terrace. A level by level description for each pit, giving the matrix and the material obtained, is given in appendix 1. A general description will be given here.

A fifteen-foot trench, composed of test pits 8, 3, and 9, is located from S:105' to 120', E:35' to 40'. It is almost entirely within the bounds of the three posts described as House Remains 1. The surface slopes toward the nearby beach and is of little elevation above it. The matrix was dark soil with a great deal of rock, underlain by gravel. Traces of crushed shell occurred in the dark soil toward the southern section of the trench. The depth of the cultural deposit was only about 1.6 feet.

Another fifteen-foot trench, composed of test pits 1, 5, and 2, is located at S:195' to 210', E:20' to 25'. This is just south of House Remains 2 and is inland from the most northerly of the canoe skids. The matrix was dark soil with a great deal of rock, underlain by gravel. Occasional small pieces of shell and small lenses of ash were noted. The depth of deposit was only 2.2 to 2.5 feet.

A cluster of seven pits was excavated north of the stream. This formed a cross composed of test pits 7, 10, 11, 12, 13, and 14, as well as test pit 6, separated from the others by a five foot balk. The depth ranged from about 3.5 feet to 4.9 feet in the cluster forming the cross, with the greatest depth near the edge of the terrace. Test pit 6 seems to be a bit removed from the main deposit. It was only 2.7 feet deep at the north, but sloped to 3.3 feet at the south. The matrix in this pit
was only dark soil and rocks. The other squares, however, contained two thick strata of crushed shell. Shell from the deepest strata extended a distance of several inches into the gravel underlying the dark soil at the bottom of the pit. These two shell strata were also the most productive areas encountered on the site, yielding large quantities of faunal remains and numerous bone artifacts.

The two second terrace pits had a very low artifact yield. Test pit 4 was located at S:210' to 215', E:50' to 55'. The matrix was dark soil and rocks, with numerous thin layers of ash. A great many tiny fish bones were contained in several of these ash layers. The bottom of this pit had not been reached when work was terminated because of wet conditions at a depth of five feet. Test pit 15, the other second terrace pit, was located at N:60' to 65', E:85' to 90'. The matrix again was largely dark soil and rocks. A large hearth feature, extending from a depth of one foot to four feet, was encountered in this pit. At the bottom of this feature, large rocks and hard compact ash extended across the square and formed the sole matrix for that level. One artifact, a cobble tool (DkSp 1:240), was found in the ash. The northeast quadrant of this square was taken down to a depth of eight feet before sand was reached.
Coopte (DkSp 1)

pl. 15
facing northwest

pl. 16
facing southeast
(canoe runways in distance)
Coopte (DkSp 1)

pl. 17
Canoe skids

pl. 18
posts (house remains 1)
B. The Artifact Collection

1. Chipped Stone

Artifacts of chipped stone are not common at Coopte. Well-executed pressure-flaked items, such as projectile points and scrapers, are absent from the sample recovered. This is in keeping with the ethnographic information and the general recent appearance of the material. The Stselax phase, the most recent in the Fraser Delta sequence, also has a paucity of chipped stone artifacts (Borden 1968: 21). Kidd (1969: 50) notes a virtual absence of chipped stone in the late component of the Fossil Bay Site in the San Juan Islands, while Carlson (1960: 581) states that chipped stone is rare in the recent San Juan phase of all sites in that area. The chipped stone artifacts from this site consist of roughly percussion-flaked pebbles, which have been divided into two classes on the basis of size.

Small Chipped Pebbles

A series of six crudely-chipped pebbles was recovered from this site (DkSp 1: 83,101,179,205,242,245 - plate 22,b-e). They are all rounded beach pebbles, four to five cm. in diameter, and are basalt or a similar material. All have a certain amount of flaking to provide a cutting edge. These cutting edges vary considerably, possibly having specialized functions. Several show a large degree of wear. It is suggested that these tools were used in the manufacture of small wooden implements. Such a practice is not mentioned in the ethnographic literature. However, the small cutting edges on the pebbles would be very serviceable in the manufacture of such implements as harpoon and arrow shafts, poles for nets and fish traps, and possibly even for...
some bone artifacts.

Larger Pebble Tools

Two artifacts fall into this category. One (DkSp 1: 240 - plate 22a), is a large rounded beach cobbles of fine-grained granitic rock. Several large flakes have been removed from one end, forming a bifacial chopping edge. This was probably used in heavy-duty woodworking. Pitting on the butt end of the rock indicates that it has been hammered or used as a hammer-stone. Jewitt (Brown 1896: 124) states that woodworking mauls were often simply "smooth round stones". Such a use would explain the pitting on the butt of this artifact. A small amount of pitting on one face indicates that it may also have been used as an anvil stone. The largest diameter is 13.6 cm. This specimen came from the second terrace of the site, in a matrix of ash from a large hearth feature.

The second artifact (DkSp 1: 61) in this category was formed from a large basalt flake. The edge opposite the bulb of percussion was retouched to form a unifacial chopping edge. This was still sharp, indicating little or no wear. The diameter would be about 12cm. Found on the beach, this specimen was lost during transportation from the site.

2. Pecked and Ground Stone

Implementes formed by pecking and grinding do not appear to have been common. Two hand maul fragments are the only examples of this category in the sample.

Hand Mauls

The maul was of the unhafted pestle-shaped type of wide distribution on the Northwest Coast. These tools were made of any hard stone
of suitable size which could be found on the beach (Drucker 1951: 77). Their manufacture required a long and laborious process of pecking and grinding, done over a considerable period of time (Drucker, op.cit; Koppert 1930: 38). They were an important part of the flourishing woodworking industry, being primarily used for driving yew wood wedges to split off large cedar planks.

Two hand maul fragments were found at this site. Unfortunately, only one was found in situ and it came from a historic level. The different materials support Drucker's statement that any suitable stone would be used.

One specimen (DkSp 1: 164 - plate 21,a) was found on the beach. It is a basal fragment, with most of the striking head intact. The material used was a granitic rock, with large crystals of hornblende. It is grey in color, with a reddish tinge in places. The diameter of the striking head is 7.5cm., while the diameter of the remaining shaft is 5.5cm.. The fragment is 7.2cm. high.

The second specimen (DkSp 1: 199 - plate 21,b) is the cone-shaped top of a hand maul. The fragment consists of a fairly large cone-shaped projection, a bulge or flange, and the beginning of the shaft. It is made of dark brown, fine-grained sandstone. Such a soft stone is unusual and rather unsuitable for hand mauls. The height of the fragment is 7.4cm., while the diameter at the beginning of the shaft is 4.1cm.

3. **Ground Stone**

The ground slate industry, which was extremely important in the Marpole and Stselax phases of the Fraser Delta sequence (Borden 1968: 19, 21), was absent from this sample. The only item of ground stone obtained
was a siltstone fish hook shank. The presence of a considerable number of abrasive stones, however, would indicate that the technique of manufacture by grinding was extremely important at this site.

Fish Hook Shank

Stone fish hook shanks have a wide distribution in the northern hemisphere. Such implements are not mentioned in the ethnographic material concerning the Nootka, but several were obtained archaeologically at nearby Yukwot. They are of soft stone, usually slate, which has been ground to shape. One end is grooved for attachment to the line, while the other end is bevelled and grooved for attachment of a bone barb (fig. 1). The weight of this implement also serves as a sinker for the line.

One specimen (DkSpl: 52) was obtained from this site. It appears to be made of siltstone, rather than the more common slate. It is in fragmentary condition. The intact proximal end has a groove and notch for attachment to the line. The distal end is missing. The fragment is 5.1 cm. long, with a thickness at the broken end of 1.1 cm.

Abrasive Stones

As in almost all Northwest Coast sites, abrasive stones are numerous at Coopte. Because of their frequency (43 specimens in a total artifact yield of 273) and their presumed importance, they will be dealt with at length here. These tools were employed in the manufacture of virtually all bone, antler, and wood artifacts. Almost all the bone artifacts obtained from this site show grinding striations, indicating that they had been manufactured in part by abrasive techniques. Moreover, the artifact sample gives definite evidence of the use of abrasive stones in the manufacture of mussel shell artifacts and the preparation of pigment. A
ground stone fish hook shank and two hand maul fragments attest to the use of abrasive stones on stone artifacts as well. Further excavation would likely have produced other stone artifacts, such as adze blades, which had been formed by grinding on abrasive stones.

It must be remembered, however, that the abrasive stones which the archaeologist finds are merely by-products. The abrasive stones were used until they were no longer serviceable and then they were discarded. There is no stage at which they may be considered finished products. This makes them rather difficult to classify according to any meaningful criteria.

The classification used here is based on the type of wear. The main assumption is that linear grinding will produce a central depression or groove, while planar grinding will result in a flat surface. There is no clear-cut distinction. Linear grinding tends to be accompanied by planar grinding, and a flat face could also be produced by a linear grinding of a flat object. The criterion used for classification is whether or not a central depression has been produced. The degree of wear is also important, but as almost all examples in this study show a high degree of wear, it is not very useful as a classificatory device. The various attributes used in this description are listed in Table 1. I am indebted to P. Monahan (n.d.) for suggestions in organizing this material.

With the exceptions of DkSp 1: 262 and 264, both of siltstone, all specimens were of various grades of sandstone. These were classified according to coarseness, using the following scale of grain size:

- 0.3 - 0.7 mm. coarse-grained
- 0.1 - 0.3 mm. medium-grained
- less than 0.1 mm. fine-grained
Most of this sample was classified as medium-grained. Once coarse, five fine, and three fine to medium specimens were recorded.

The shape of the abrasive stones is irregular and variable, although most approach a roughly rectangular form. The size also varies considerably. Irregular slabs of sandstone, which were the raw material, were subsequently modified only slightly. Only a few appear to have been carefully shaped.

Despite the fact that almost all specimens which were recovered from Coopte are in fragmentary condition, a high incidence of shaped or utilized edges is evident. Of the forty-three specimens, twenty-seven show evidence of grinding on the edges. The actual incidence of shaped or utilized edges is probably higher since several of the remaining sixteen specimens are only small medial fragments.

A similar number of abrasive stones had been ground on one side only as had been ground on both sides. Sixteen examples are included in the former category and fifteen are in the latter. In addition, eleven specimens fall into a third category, characterized by normal wear on one face and only slight wear on the other. This may be due to only occasional use on one face when a coarser surface was desired or to handling of the rock during use. One abrader of irregular shape (DkSp 1: 264) is not included in any of these categories.

A slightly larger number of artifacts with finished edges fall into the second group, but the sample may be too small for this to be significant. The proportions are eight out of sixteen in the group with wear on one face only, eleven out of fifteen in the group with wear on both faces, and seven out of eleven in the third group.

Two specimens (DkSp 1: 137, 239) exhibit markings along one
edge indicating that they had been sawn to shape. The saw marks on both specimens are quite shallow. They extend from both faces on DkSp 1: 239 but from only one on DkSp 1: 137. The use of a sawing technique to get slabs of rock to the desired shape appears to be fairly common. A bar abrader which was found at Tsawun (DkSp 3: 1) has deep saw marks and a ridge produced by this technique.

Two specimens (DkSp 1: 204,326) seem to be complete, with three edges ground to a finish and one edge roughly chipped to shape. Both are rectangular and of a size that would easily fit in the hand. The chipping may serve the purpose of roughing and blunting that edge to provide a grip for the fingers. It would then appear that these abraders were held in the hand and moved around on the object being abraded, rather than the object being moved along the abrader. This would suggest work on large surfaces, such as woodworking or the manufacture of large stone artifacts.

Relatively few specimens show evidence of linear grinding, as manifested by a central depression and/or grinding striations in one direction. Ten examples were classified as having depressions or grooves. Two of these also had striations in the depressions and on the rest of the surface, running the same direction as the depression. No examples were found of striations running the same direction without a central depression. However, of the ten examples with depressions, in seven cases the depressions are very shallow and indistinct. Only three examples (DkSp 1: 14,58,140) have well-developed depressions or grooves. One example (DkSp 1: 140) has two parallel grooves.

Separation of the abrasive stones into those with a central depression or groove and those without is more than a classificatory device.
because it affords some hint as to the use of these objects. While linear and planar grinding cannot rigidly be separated, these techniques probably were used for different purposes. The size of the object being abraded was probably the main factor. Small objects, such as those of bone or shell recovered from this site, would likely have been placed on the abrader and moved in a largely linear pattern, producing a groove on the abrader face. Large objects would tend to be moved in a planar pattern over the abrader face, or the abrader could be held in the hand while grinding a large stationary object. This would be particularly applicable to woodworking.

It is thus suggested that the abrasive stones classified as having a central depression or groove were used for the manufacture of small items particularly of bone or shell. The small size of the grooves on most specimens in this category also supports this hypothesis. The grooves are generally narrow and occasionally also of small amplitude (e.g. DkSp 1: 140).

One abrader (DkSp 1: 14) is stained dark red along the length of the groove and in several spots on the rest of the face. It is suggested that this abrader was used to grind small blocks of red ochre, a pigment which occurs naturally in the area. Its use for decorative purposes on the coast is well-known. It is mentioned for the Indians of this area by Cook (1796: 243), Meares (1790: 252), and Jewitt (1815: 77). Jewitt also mentions that a fine-grade ochre was a highly valued trade item from the Nimpkish Kwakiutl to the north. As well as its decorative use on the human body, ochre was used for other purposes, such as the painting of pictographs described in an earlier section.

This leaves thirty-three of the forty-three abraders collected in a category having flat surfaces, indicating planar grinding. The high
proportion of abrasive stones to other artifacts suggest that they may have been used on perishable material, such as wood, which rarely shows up in the archaeological record of the Northwest Coast. In addition, planar grinding indicates work on larger surfaces, such as in woodworking. It would appear that a large coarse-grained abrader such as DkSp 1:49 would only be suitable for heavy duty work. We know from the historical and ethnographic material that woodworking was an important industry among these people. Boas (1966: 29,31) mentions the use of "grit-stones" in woodworking among the Kwakiutl and Drucker (1951: 79) lists "grinders of sandstone" in his inventory of carpentry tools. It is therefore evident that abrasive stones played an important part in the woodworking tradition of the Indians in this area.
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*1 All measurements are in centimeters. A "+" sign indicates the artifact is incomplete in this direction.

*2 X(s) indicates those that have been classified as having a shallow central depression.
4. Bone and Antler

Bone was the most frequently-utilized raw material for artifacts found at Coopte. Nearly half of the artifact sample falls into this category. Antler, on the other hand, appears to have been only infrequently utilized. Only one artifact of antler came from this site. The paucity of antler artifacts seems somewhat surprising. Deer were common in the vicinity of Coopte but their antler is too small for the usual antler artifacts, such as wedges or hafts. While wapiti did not occur in the immediate area, they were intensively hunted along Gold River by a few groups of the nearby Muchalat (Drucker 1951: 36). Wapiti hides were traded to the Moachat (Mills 1955: 97), so presumably their antler could also be obtained. Perhaps the explanation lies in the availability of an alternate material. Eight fragments of worked whalebone, raw material suitable for the same type of artifacts as were frequently made of antler, were recovered. Yew, or a similar hard wood, may also have been used.

A predominance of bone artifacts is also found in the late phase of other sites along the Northwest Coast. Bone is the largest artifact category in the Stselax phase of the Fraser Delta (Borden 1968 class notes) and in the San Juan Phase sites (Carlson 1960: Table 3).

Most of the bone artifacts in the sample fall into a general point category. As a considerable range of variation is evident within this category, it will be subdivided and some attempt will be made to apply tentative functional designations. The other categories of bone artifacts contain considerably fewer specimens and their function is generally easier to discern.
Bone Points

(a) Projectile points

i) Barbed

One unilaterally-barbed projectile (DkSp 1: 183 - plate 20a) was found at Coopte. It has two low barbs which do not protrude past the general outline of the artifact. It was found in several fragments but is almost complete when pieced together. The length is 11.5 cm. A carefully-made base, terminating in a rounded blunt point, would suggest that it was hafted as an end point, possibly for an arrow. Fixed barbed bone and antler points have a wide distribution on the Northwest Coast. They are found in the Fraser Delta (Borden 1951: 14,17,18,20), the San Juan Islands (Carlson 1960: 579; King 1950: 45-46), and the northern coast (de Laguna 1956: 179-181; 1964: 142-146 fig. 17). Drucker (1943: 123-125) lists fixed barbed points as typical of the Northern and the Straits of Georgia - Pudget Sound Aspects, and of rare occurrence in the Milbanke - Queen Charlotte Sound Aspect.

ii) Unbarbed

Three specimens were obtained at Coopte which appear to be unbarbed projectile points. In Drucker's classification, they would fall into type BlAc (Drucker 1943: 41, fig. 6c). The outline for this type has gradually tapering sides with an abrupt tip. In all three examples the greatest diameter is a short distance below the tip. Two specimens (DkSp 1: 136,154 - plate 19a,b) are nearly round in cross section and have a round flat base. One, made from hard mammal bone, comes to a very sharp tip, while the other, of sea mammal bone, is much blunter. The third specimen (DkSp 1: 176 - plate 19c) has the same general outline.
but is flattened in cross section. The base is missing. All are about the same size, ranging from 4.1 cm. to 4.6 cm. Such points seem to have been rather common on the coast. Kidd (1969: 51, plate VIIIe) illustrates a similar point which he considers to have been either an arrow point or an end blade for a composite harpoon head. Drucker (1943: 124) lists unbarbed fixed bone points as common in the Milbanke - Queen Charlotte Sound and the Straits of Georgia - Pudget Sound Aspects.

Two other artifacts (DkSp 1: 139,206) may also be considered under the category of projectile points. Both have sharp points, with straight converging sides and an almost round cross section. Both are made from sea mammal bone. The base is missing in both examples. The shape and size of these specimens would make them very serviceable as points for the composite harpoon valves found at this site. However, as they could also have served as herring rake teeth or fish hook barbs, their inclusion in this category is only tentative.

(b) Barbs

This is a rather heterogeneous collection of pointed bone artifacts. They are generally quite slender, and complete specimens show some thinning at the base. Because of the ethnographically attested importance of fishing in the area, it is assumed that artifacts in this category were used as fish hook barbs. Further differentiation on the basis of size and general outline is necessary, but complicated by the fragmentary condition of most specimens. Only the larger single-pointed forms are considered here. Bipoints and very small bone points, some of which may also have been barbs on fishing implements, are treated separately.

i) Slender forms with thinned base (plate 20c-f)
Artifacts in this category are rather slender, generally with straight converging sides and a maximum width near the base. The cross section is usually flattened to ovoid, but nearly round in a few specimens. Most of the fragmentary examples were included here after comparison with complete specimens. Lengths of the complete artifacts range from 3.5 cm. to 7.0 cm. The largest of these would have been suitable as barbs for halibut hooks; more likely they were used on hooks designed for salmon or cod.

ii) Large stout forms (plate 20b)

12 examples - DkSp 1: 18,118,145,148/150,156,185,186
187,208,210,214,243

This subdivision is distinguished by their more massive shape, being wider and thicker than the specimens in the previous subdivision. Although most examples are lacking their bases, these do not appear to have been as carefully thinned. The cross sections are flattened to ovoid. One complete specimen (DkSp 1: 148/150) is 10 cm. in length. Artifacts in this category may have been stout barbs for fish hooks or may have been used as barbs on the lateral prongs of leister spears. Leisters were used by all Nootka groups (Drucker 1950, Element 46; 1951: 21).

iii) Slender artifacts tapering from center in two directions

5 examples - DkSp 1: 124,146,152,209,212

The widest part of these artifacts is near the center. In several cases the sides are curving and irregular. All are slender, with flattened to ovoid cross sections. The average size is about 5.0 cm. They most
likely also functioned as barbs for fish hooks.

(c) Bipoints

Twelve examples were found of small bone artifacts which taper to sharp points at each end. These may have served a number of functions. Further subdivision may be useful in attempting to determine the most probable function of these artifacts.

i) Slender, flattened bipoints - plate 20g-i

9 examples - DkSp 1: 39,128,143,155,178,181,213,237,258

This category consists of slender, roughly symmetrical bipoints, generally of bird bone. The size range is 3.0 cm. to 4.8 cm. These specimens were most probably used as gorge hooks, not only for fish but also for aquatic birds. Barnett (1955: 85, fig.27) illustrates a similar artifact used by the Salish on set lines, particularly for catching flounder. Swan (1870: 41) states that the gorge hook was used by the Makah for small fish, such as perch or rock-fish. Drucker (1951: 34) describes a trap used by the Nootka for catching diving waterfowl as consisting of many baited bone gorges tied to an anchored pole. The gorge was also used for waterfowl at Yakutat Bay (de Laguna 1964: 154).

Another possible but less likely function for these artifacts is as herring rake teeth or small barbs on other fishing implements. King (1950: 53) tentatively identified the small, symmetrical bird bone bipoints from Cattle Point as herring rake teeth. However, those recovered from Coopte may be too small for such a use.

Two artifacts (DkSp 1: 143,237 - plate 20g,h), being slightly longer and more carefully-made than the others in this category, may have had a different function. They may have been nose-pins, although
they seem slightly small for this purpose. Drucker (1950, Element 632) lists bone nose-pins for the Nootka, Kwakiutl, Bella Coola, and Tsimshian as well as for shamans among the Haida and Tlingit. Barnett (1939, Element 1136) adds all Gulf of Georgia Salish except the Sechelt and Squamish.

ii) Stout, rounded bipoints — plate 20j

3 examples — DkSp 1: 159, 218, 248

These specimens are stouter than those in the previous category and have their greatest width slightly off-center. All are of land mammal bone and are ovoid to round in cross section. The only complete specimen is 3.6 cm. long, and the others would have been roughly the same size. These may also have been gorges or barbs, but their most likely function is as herring rake teeth. Carlson (1960, fig. 4D,e) illustrates several similar examples which he identifies as herring rake teeth. Descriptions of the herring rake among the Moachat are common in the early account (Cook 1790: 1774; Meares 1790: 265; Jewitt 1815: 127). The herring rake appears to have been a culture element common to all groups on the Northwest Coast (Drucker 1950, Element 96; Barnet 1939, Element 92).

(i) Small pointed Bone

11 examples — DkSp 1: 36, 45, 97, 117, 141, 180, 182, 215, 217, 249, 254

This category includes a number of small slender pointed objects, both fragmentary and complete. Most are of mammal bone, but several are made from bird bone splinters. The length ranges from 1.7 cm. to 3.4 cm. Only one specimen (DkSp 1: 117 — plate 20k) is of distinctive type. It is made from a bird bone splinter which has been carefully worked over the
entire surface. One end comes to a sharp point while the other projects at an obtuse angle to the main axis. It is difficult to assign a definite function to these small artifacts, but they may have been used as barbs on small fishing hooks. Teit (1900: 253, fig 234a,b) illustrates two types of small fish hooks, used by the Thompson Indians which were barbed with bone points about the size of those in this category. Numerous small fish were available to the inhabitants of Coopte and were presumably taken with similar hooks.

Bone Awls

Only those examples which appear to be definitely awls are included here. Some specimens from earlier categories may also have been used as awls. Two distinct types occur - one made from splinters of mammal bone and one from cut bird bones. In addition, unmodified dogfish dorsal fin spines may have been used as awls. These will be treated separately. A variety of bone awl types is characteristic of the Milbanke - Queen Charlotte Sound and the Straits of Georgia - Pudget Sound Aspects (Drucker 1943: 124).

(a) Mammal bone splinter awls

Five examples (DkSp 1: 90,133,184,260,271) of this type were found at Coopte. All are made from irregular splinters of mammal bone. Two examples have been left rough except for the tip, which has been sharpened and shows polish. The other three awls show some overall polish. They range from 3.4 cm. to 5.0 cm. in length.

(b) Bird bone awls

Only one example (DkSp 1: 246) of this type was found. It is a
complete specimen, made from a bird limb bone. The end of the bone has been ground at an angle to form a sharp point. The length is 9.2 cm. Similar specimens are illustrated by Smith (1903, fig.35) for the Marpole site on the lower Fraser River.

Needle

One fragment of mammal bone (DkSp 1: 247) was found which may have been part of a needle. One end of the fragment retains part of a small groove, which may be the beginning of the eye. It would be type IIA of Drucker's classification (1943: 52).

Harpoon Valves - plate 19d-g

8 examples - DkSp 1; 92,106,194,207,250,253,265,272

Drucker (1943: 39) distinguishes two types of valves for composite harpoon heads (fig 2). Type I is channeled to hold a point with a stem or slender base, while type II is scarffed to form a slot for a wide cutting blade. Only one specimen (DkSp 1: 253), a small end fragment, appears to belong to type II. Another (DkSp 1: 106) is a harpoon valve blank, completely shaped except for the addition of the channels or slot, so cannot be placed in either type. The remaining specimens belong to type I. Both types were found at the Yukwot excavation (W.H. Folan, personal communication).

Composite harpoon heads were in common use in the early historic period along the southern Northwest Coast. Drucker (1943: 124) lists them as common in the Milbanke - Queen Charlotte Sound and the Straits of Georgia - Pudget Sound Aspects. They were used for both fishing and sea-mammal hunting. Even whales were hunted with the same basic type of
harpoon as salmon, the only major difference being size. Koppert (1930: 60) states that harpoon valves for whaling harpoons were of antler or whalebone and were about five and a half inches long. The examples found here would be about the size for salmon or similar sized fish - about two to two and a half inches.

Pendant

One example (DkSp 1: 142) was found which appears to be a pendant. It is spatulate in shape, with one end worked down to a small knob, apparently for suspension. The other end is missing. It is 4.9 cm. long and 0.9 cm. wide at the widest point.

Ground Scapula Fragment

One example (DkSp 1: 251) was found of a scapula fragment which appears to have been ground flat along one edge. It may originally have had a rectangular shape. Deer or wapiti scapulae were ground to a rectangular shape for use as net gauges by the Indians of the lower Fraser River (Dr. C.E. Borden 1968: class notes). This fragment is 6.1 cm. long and 2.2 cm. wide.

Wedge Fragment

One example (DkSp 1: 256) in this category appears to be the butt end of a medium-sized wedge. It is made of a wapiti limb bone which has been split lengthwise and ground. Some polish is evident over most of the artifact, particularly on the butt. Unfortunately, the bit is missing. The fragment is 7.0 cm. long and 4.5 cm. wide.

The presence of only one artifact in this category suggests that
wedges were often made of perishable material, such as yew wood. Drucker (1950, Element 420) lists wooden wedges as common to all Northwest Coast divisions, including the Nootka. A few Nootka groups are shown as unique in the use of bone or "horn" (sic) wedges (Drucker 1950: Element 424), although Drucker elsewhere (1943: 55) indicates that these are found among other groups as well. It should also be noted that Drucker's distribution list does not include the Coast Salish. Wapiti antler was the main raw material for wedges on the east coast of Vancouver Island (Barnett 1955: 108). Antler wedges are numerous in sites in the Fraser Delta (Smith 1903: 161; Borden 1950: 14-15, 18-20). Both antler and bone wedges were found at Cattle Point (King 1950: 50). The lack of antler wedges at Coopte, as noted earlier, probably represents a preference for other materials.

Worked Bone Fragments

15 examples - DkSp 1: 4, 40, 48, 91, 99, 103, 111, 126, 151, 161, 177, 201, 261, 266

These are all unidentifiable fragments of bone artifacts. Some small examples are probably fragments of earlier categories, such as bone points or awls. Others appear to be fragments of larger artifacts or beginning stages in the manufacture of some artifact.

Worked Whalebone

Eight fragments of worked whalebone were recovered. These are all merely large fragments of bone, probably intended to be worked into artifacts. A number of implements are known to have been made of whalebone. Koppert (1930: 60) mentions the large whaling harpoon valves of whalebone. He also (p. 104) mentions whalebone spear heads that were
fourteen inches in length. Whalebone wedges were made by some Coast Salish groups (Barnett 1939: Element 581), and presumably also occur among the Nootka. Other large whalebone implements are bark shredders and beaters, handles for adzes, and the large Wakashan war clubs.

Four large fragments (DkSp 1: 16, 87, 94, 259) have one face which has been ground flat. None has more than one face worked. They are 8.8 cm., 6.7 cm., 11.4 cm., and 11.6 cm., in length, respectively.

One face of another fragment (DkSp 1: 46) has a large sawing groove running its length. The two faces parallel to the groove also seem to have been formed by sawing. This fragment is 9.2 cm. long.

Two rib fragments (DkSp 1: 253, 257) appear to have been slightly worked. They are 7.7 cm. and 6.6 cm. in length.

The most interesting artifact in this category is a regularly-shaped bar of whalebone (DkSp 1: 147). It is 15.8 cm. in length and is nearly square in cross section, with an average width of 1.5 cm. and tapering only slightly from one end to the other. One side is smooth while the entire length of the other three sides is covered with chopping marks. These chopping marks occur at regular intervals of every two to five centimeters. They are all parallel to each other and perpendicular to the length of the object. The marks are too regular to have been made by random chopping, as would be the case if it had been used as a chopping block. The use for such an artifact is unknown.

Antler

The paucity of antler artifacts at Coopté has already been discussed. Antler was of minor importance in Nootka technology but did serve certain specialized functions. Some valves for large composite harpoons were apparently made of antler (Koppert 1930: 60; Drucker 1951:
The lances used in the whale hunt, one with a sharp point for killing and the other with a wide chisel-like blade for hamstringing, were both tipped with wapiti antler (Drucker 1951: 31). Antler was probably also used for certain minor purposes, much in the same way as bone. Only one antler artifact (DkSp 1: 6) was found. This is a piece of cortex from a wapiti antler. It appears to be a fragment of a larger artifact. The edges are water-worn and the whole shape is distorted by warping. It is 8.5 cm. long and 1.9 cm. wide.

Beaver Tooth

Beaver incisors were sometimes utilized as small woodworking tools. These could be ground to a sharp edge, split to give a narrower incising edge, or used unmodified. Drucker (1950: Element 432) lists beaver tooth knives as present among some divisions of the Kwakiutl, Tsimshian, and Tlingit. Barnett (1939: Element 614) adds a few Coast Salish divisions. Beaver tooth knives are found archaeologically in Tlingit territory (de Laguna 1960: 118, plate 9a-q; 1964: 105, plate 16a,b), in the Fraser Delta (Borden 1968: class notes), and at Cattle Point (King 1950: 51,58).

One large beaver incisor (DkSp 1: 37) was found at this site. It has not been modified. The bite edge may show some wear, but it is too deteriorated to be certain of this. At any rate, its presence in the cultural deposit suggest the possibility that the Moachat were using beaver incisors as small woodworking tools.

Dogfish Dorsal Spines

A total of 369 dogfish dorsal spines was obtained at Coopte.
These sharp spines were used by the Indians of the Fraser Delta as awls (Borden 1968: class notes). Because of their rather frequent occurrence at Coopte, only the first three were given artifacts numbers. All others were placed in the level bags. These spines were later examined for evidence of use. A test sample of six level bags, with concentrations of dogfish dorsal fin spines, was examined. These were taken from two areas of the site, at differing depths. When fragmentary specimens were discarded, this sample consisted of 180 specimens to be examined for wear. Three criteria were used in this study. They are: blunting of the sharp tip of the spine, wearing away at the tip of the shiny surface cover, and pinching at the base of the spine. The results of this sample are shown in Table 2. An average of 50.49% of the spines show wear, suggesting use as awls. If this percentage is extended to include those outside the sample, then 186 of the total 369 dogfish dorsal spines obtained would be expected to show wear, although this figure would actually be lower due to the fragmentary specimens. Even those not showing use as awls may have been brought into the site for that purpose. Dogfish were taken in considerable quantity, as indicated by the number of spines in the deposit. As their flesh was considered only a starvation food, they may have been taken primarily for the use of their spines as awls and their skin as an abrasive material. As will be discussed later, some of the more recent spines may have been brought into the deposit as a result of the historic dogfish oil trade.
Table 2

Incidence of Wear on Dogfish Dorsal Fin Spines

<table>
<thead>
<tr>
<th>Test Pit</th>
<th>Level</th>
<th>No. Used</th>
<th>No. Unused</th>
<th>% Used</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>0-0.8</td>
<td>14</td>
<td>15</td>
<td>48.27</td>
</tr>
<tr>
<td>8</td>
<td>0-1.0</td>
<td>11</td>
<td>13</td>
<td>45.83</td>
</tr>
<tr>
<td>8</td>
<td>1.0-1.5</td>
<td>21</td>
<td>26</td>
<td>44.68</td>
</tr>
<tr>
<td>9</td>
<td>0.8-1.3</td>
<td>27</td>
<td>33</td>
<td>45</td>
</tr>
<tr>
<td>10</td>
<td>3.5-4.0</td>
<td>5</td>
<td>4</td>
<td>55.55</td>
</tr>
<tr>
<td>13</td>
<td>3.5-4.0</td>
<td>7</td>
<td>4</td>
<td>63.63</td>
</tr>
<tr>
<td></td>
<td></td>
<td>85</td>
<td>95</td>
<td>50.49</td>
</tr>
</tbody>
</table>
5. **Shell**

The plentiful shells on the beaches of this area were often picked up and used unmodified for a great variety of purposes. Large clam shells were particularly useful. These were employed as spoons and cups, for lamps (Drucker 1951: 108), for scraping hides, and even for such heavy work as digging post holes (Koppert 1930: 13). *Mytilus californianus*, the large mussel found on the outer beaches, could also be used unmodified for a number of purposes. Koppert (1930: 86) mentions a rattle made by placing pebbles in the closed halves of a large mussel shell. Such unmodified shells would be difficult to detect in an archaeological deposit.

The California mussel was also ground on abrasive stones to produce a variety of artifacts. The cutting blades of the large whaling harpoons were originally of this material, before being replaced by iron in the historic period (Koppert 1930: 60; Meares 1790: 259; Waterman 1920: 31). Adze blades and chisels for woodworking were also often of ground mussel shell (Sproat 1868: 86; Swan 1870: 36). The most important implement fashioned of this material was the woman's fish knife. They were used particularly for salmon and were indispensable tools for the preparation of salmon for drying.

Only one artifact of ground mussel shell was recovered at Coopte. This may be due to the fact that the large mussel only occurs on the open ocean beaches. However, a few large patches of mussel shell, which must have been brought from Yukwot, were found in the deposit. Also, it would be expected that the fish knives and other artifacts of this material would be carried along by the group during their seasonal movements. Preservation may be a factor as the edges, which are the only modified
surfaces of the artifact, are the first to decompose.

The one modified shell found (DkSp 1: 175) is the butt fragment of a large ground mussel artifact. It is 6 cm. long and 5.6 cm. wide. Both edges and the end have been ground flat. However, only one edge has been extensively ground. This edge is 0.7 cm. thick. Two bevels were produced by the grinding. The edge is roughly flat and perpendicular to the main face of the shell. No lateral cutting edge is visible. It probably had a chisel edge on the missing end, making it serviceable as a chipping or scraping implement.
6. **Contact Goods**

The arrival of the Europeans on the Northwest Coast meant a new wealth of material goods for the original inhabitants. Metal tools, guns, blankets, ornaments, and other Caucasian items were eagerly sought by the Indians. When the European sailors learned that valuable furs could easily be obtained from the natives for these items, a flourishing trade began. Contact items quickly spread up and down the coast by aboriginal trade networks, reaching some areas even before the advent of the Europeans.

As at all sites with a historic component, contact goods are present at Coopte. Some of these, such as glass beads and clay pipe fragments, may have been early trade items. Others, such as nails and fragments of glass and historic pottery, probably represent a later stage in the acceptance of Caucasian implements.

**Glass Beads**

Glass beads are common in the historic levels at Coopte. The Moachat received great quantities of such beads during the fur trade period. Glass beads were an integral part of the fur trade, not only in this area but across North America.

A variety of types was found at Coopte. They ranged from rather large beads, which were presumably strung on necklaces, to tiny "seed beads", which were used to make decorative beadwork designs on clothing. This latter type is quite recent. A large variety of colors is also represented in the sample of beads obtained.

Large blue beads of types a and b (see below) appear from their context to be the oldest. They were also apparently the favorite along
the coast in the early historic period. Strange (1929: 37) writes that color, rather than quantity, was the important factor at Prince William Sound and that only sky-blue beads would be accepted by the natives. Lewis and Clark (Woodward 1965: 16) noticed the same preference on the Columbia. Later other colors predominated. As always, fashions were short-lived and traders had to keep abreast of the changes.

In the following classification, large blue faceted beads and "seed beads" are considered as distinct types. The others in the sample are placed into groups based on color. Differences in shape and size within each color group are described. The terms spherical, cylindrical, and barrel shaped are used to describe the bead outline. The hole is described as large or small, in relation to the total size of the bead.

(a) Blue faceted beads - plate 23h,i

12 examples - DkSp 1: 3,13,22,43,53,63,68,81,108,123,165,224

These beads range in color from medium blue to deep purple and range in size from 0.4 cm. to 1.0 cm. in diameter. They are cylindrical in shape, with a large hole. The distinctive feature of this type is that the outside surface is multi-faceted. The ends of the bead are frequently rough as if broken from a tube during manufacture. This type is sometimes referred to as "Russian beads", and has a wide distribution on the Northwest Coast. It is found on the Columbia River (Woodward 1965: 34-35), late in the Stselax phase of the Fraser Delta (Borden 1968: class notes) and in Alaska (Oswalt and Van Stone 1967: 59). Woodward (1965: 10) dates the period of popularity for faceted beads at the 1830's to the 1870's

(b) Light blue beads

i) Spherical - plate 23j,k
These beads are robin's egg blue in color. They vary in size from 0.5 cm. to 0.9 cm. in diameter. All are spherical in shape with a small hole. These also have a wide distribution on the coast. They are found on the Columbia River (Woodward 1965: 34, type 1), late in the Esilao phase of the Fraser Canyon (Borden 1968a: 24), and may be the "Cook beads" found among the Chugach (de Laguna 1965: 211, plate 43,26).

ii) Barrel-shaped

6 examples - DkSp 1: 1,112,130,170,221,227

These are all smaller than the previous category, averaging about 0.4 cm. They have a short barrel shape, with a small hole.

(c) Dark Blue beads

4 examples - DkSp 1: 23,70,77,233

These beads are dark blue in color, spherical in outline, and have a small hole. Three examples are about the same size - 0.6 cm. in diameter. Another (233) is slightly larger and has veins of light blue running throughout the bead.

(d) Red beads

i) Barrel-shaped - plate 23m,n


This is the most common type and also appears to be the most recent. Beads of this type are a bright opaque red with a white inside lining. They have a short barrel shape with a small to medium hole. Sizes range from slightly larger than seed beads to 0.7 cm. in diameter, with the average diameter being about 0.4 cm. These beads appear to be a late variety of the famous "Cornaline d'Aleppo" beads, so named.
because of the association in the Italian export business with the city of Aleppo in the Near East (Woodward 1965: 19). They have a wide distribution in North America. As they were particularly popular at Hudson's Bay Company posts, they became known as "Hudson's Bay Beads" in the west. The recent, whitelined red variety was probably confined to the Northwest (Orchard 1929: 87).

ii) Cylindrical

2 examples - DkSp 1: 109,223

These two small beads have a dull reddish-brown exterior with a dark lining. The diameter is 0.3 cm. They may be a type of Cornaline d'Aleppo bead, described by Woodward (1965: 19), which antedates the white-lined red variety. These also have a wide distribution, being found from the Columbia (Woodward 1965: 34, type 14) to Alaska (Oswalt and Van Stone 1967: 59).

(e) Black bead - plate 23,1

DkSp 1: 72

One large, round, black bead, 1.3 cm. in diameter, was found.

(f) White beads

i) Spherical - DkSp 1: 235

One large, spherical white bead, 1.2 cm. in diameter, came from this site.

ii) Barrel-shaped - DkSp 1: 5,64,76,131

These are all small beads, about 0.3 cm. in diameter, with a short barrel shape. One example (DkSp 1: 64) is misshapen.

(8) Wine colored beads

DkSp 1: 113,226,234

Two examples (113,226) are opaque, 0.5 cm. in diameter, and round
with a relatively large hole. The other (234) consists of three small round wine-colored beads fused together by heat.

(h) "Seed beads"

11 examples - DkSp 1: 41, 62, 67, 73, 78, 121, 191, 222, 232

"Seed beads" are considered to be those 0.2 cm. in diameter and smaller. They occur in a large variety of colors. This sample includes six blue, three pink, one red, and one white bead. They are comparatively recent. Similar specimens may be purchased at present for sewing into beadwork designs.

Fish Lure - plate 23o

This specimen (DkSp 1: 198) resembles two opaque wine-colored beads joined together so the hole goes through the entire artifact. The length is 1.2 cm. It was probably the lure on a recent metal fish hook.

Tubular Copper Foil Bead - plate 23g

This type of bead was fairly common all along the Northwest Coast. Tubular copper ornaments are found on the Columbia (Woodward 1965: 16), in the Esilao phase of the Fraser Canyon (Borden 1968a: 24), at Comox and in southern Kwakiutl territory (Drucker 1943: 122), and among the Tlingit (de Laguna 1960: 126, pl.10; 1964: 158, fig. 19g,i). Sheet copper, obtained by trade, was cut up and rolled into the size of bead desired. Sometimes these were quite large. They were frequently used as "spacers" for other beads on necklaces. One example (DkSp 1: 42), 2.8 cm. in length, came from Coopte.

Clay Pipe Fragments - plate 23b-f
Clay pipes were important trade items in the early historic period and are found at many sites in North America. Those found at Coopte appear to be rather small, but due to their fragmentary condition the size of the complete pipe cannot be determined. The color ranges from white to a dull grey, with one specimen (DkSp 1: 2) being dark green. Abrasion marks over the entire surface of one stem fragment (DkSp 1: 9) show that it has been ground to a smaller diameter, probably for refitting into the pipe after breakage.

Pipe Stem - plate 23a

This specimen (DkSp 1: 188) is the stem of a recent-style pipe. It is black in color and 7.1 cm. in length. The end of the stem which fits into the pipe has been broken and re-worked by what appear to be cutting strokes to fit back into the pipe bowl.

Metal Button - plate 23p

Only one button (DkSp 1: 268) of unidentified metal was found at Coopte, although a number of the small white recent variety were obtained. Traces of fabric still adhere to the back of this button. It is 2.1 cm. in diameter.

Metal Buckle - plate 23q

One example (DkSp 1: 269), 3.9 cm. wide, came from Coopte. It is the type used for suspenders.

Drawer Handle

One curved strip of rusted iron (DkSp 1: 270), 8.0 cm. in length,
was probably the handle for a drawer.

Key

One large rusted iron key (DkSp 1: 273) was found at Coopte. It is 7.7 cm. in length.

Miscellaneous Contact Goods

Common historic items from the top of the deposit include nails of both the round and square type and a wide range of sizes, buttons of the small white recent variety, broken bottle and window glass, and fragments of historic pottery. These were not given artifact numbers but were placed in the level bags. Their frequency can be noted in appendix 1.
C. Discussion of the Site

Detailed data of excavation are contained in Appendix 1. For specific references to the faunal remains, features, and other information obtained by excavation, the reader is referred to that section.

The artifactual material is much as would be expected from coastal people in this area. Apart from contact goods, the dominant items were bone points, barbs, and gorges used in the food quest, primarily for fishing. Harpoon valves, of the size used for salmon, were also found. Tools used for the manufacture of other implements, such as abrasive stones and chipped pebbles with cutting edges, were also common.

The general coastal woodworking complex of adzes, chisels, wedges, and hand mauls was only imperfectly represented here, but this is probably due to inadequate sampling. Two fragments of hand mauls were found. No adzes were uncovered, although several were obtained from the Yukwot excavation. No bone or stone chisels were uncovered, although the large piece of ground *Mytilus californianus* (DkSp 1: 175) may once have had a chisel edge. The butt of one large wapiti bone wedge (DkSp 1: 256) was obtained. The ethnographic information indicates that most wedges were made of yew wood, which would not be preserved.

No artifacts were found which conflict with the evidence from ethnographic sources. The artifact types which are not mentioned in the ethnographic literature tend to be the small or insignificant items which are easily overlooked. Several absences were noted; however, among the tool types which the ethnographic data would lead us to expect. This is probably also due to inadequate sampling. One notable absence is the woman's fish knife of ground mussel shell. This was an indispensable item of daily use among the Moachat women, particularly when preparing stores of salmon for drying. It was used until quite late in the historic
period for it was believed the use of steel knives was offensive to the fish (Drucker 1951: 91; Moser 1926: 64). Only one item of ground mussel shell was found at Coopte and this does not appear to have had a knife edge. Also missing are the bone fish knives, made of a deer ulna ground to a long slim point. These were used primarily for slitting herring, and therefore would be expected at Coopte as the ethnographic data credits this site with being the great herring fishery. Also lacking were dentalia shells, although most of those found all across the Northwest Coast and inland as far as the Great Plains had their origin among the Nootka. Jewitt (1915: 76) mentions that dentalia, which he calls "Ife-waw", were extensively used for necklaces and bracelets by the upper class, as well as forming "a kind of circulating medium among these nations." There were no dentalia grounds in Nootka Sound but major beds were located in Ehetisat territory and in Barkley Sound (Drucker 1951: 111). Dentalia were apparently traded to the Moachat in considerable quantities from both directions on the coast (Jewitt 1915: 76). Ornaments generally were lacking. With the exception of the historic trade beads, the only ornament was the fragment of a possible bone pendant (DkSp 1: 142). The bracelets and nose and ear ornaments of copper and shell mentioned by Cook (1796: 243) and Jewitt (1815: 79) were absent, although it is suspected that they would be rare in relation to the total artifactual assemblage in any case. As Coopte was a winter village, with winter dancing ceremonials to which other tribes were invited, it might be expected that the incidence of ornamentation would be higher at this site. In light of the heavy emphasis on ornamentation stressed in the early historical accounts, the lack of ornaments in the deposit is surprising.

The faunal remains from this site bear out information from ethnographic and historical sources that a great variety of food resources
was utilized. Deer was the only land mammal consistently hunted, which is to be expected due to the large number of deer in the area. Bones of small mammals, such as beaver, were not common in the deposit. In addition, a reasonable sample of sea mammal bones was obtained, including hair or harbour seal (Phoca vitulina), porpoise (Phocaenoides dalli), and a large cluster of butchered bone which is assumed to be whalebone. However, the most common remains were fish. Salmon, herring, and halibut vertebrae were identified, although probably other types were present. Three pharyngial teeth of sea perch were found. Dogfish dorsal spines were present in considerable quantity. Bird bones, usually found as long bone fragments, were also encountered in some quantity.

A large amount of sea mammal bone, presumably whalebone, came from one large cluster. This extended along the east wall of test pits 10 and 11 and a short distance into test pit 13, at a depth of between 1.6 feet below datum and just past 2.5 feet below datum. This cluster yielded 737 pieces of whalebone. No complete bones were found. All the pieces appear to have been chopped into fairly uniformly-sized fragments, which are generally too small to have been serviceable for artifacts. The large quantity found also makes it unlikely that the bone had been brought to the site as raw material for artifacts. A great many fragments had chop marks on the surface of the bone. As whales were usually butchered as soon as they were obtained, it appears that the Moachat were occasionally whaling while residing at Coopte, or that a dead whale had floated ashore nearby. Whaling was usually done from Yukwot or the outer coast sites.

Dogfish dorsal fin spines were found throughout the deposit at all depths. However, a particularly large number came from the trench formed by test pits 8, 3, and 9. Out of a total of 369 dogfish dorsal
fin spines from this site, 274 came from this area. As these pits were very shallow, being only about 1.5 feet deep, the time depth involved is comparatively slight. It is possible that this concentration is a result of the dogfish oil trade of the 1850's although it is doubtful that this explanation has enough time depth to account for the bottom layer of even such shallow pits. Dogfish dorsal spines also occurred in the deepest levels of other pits. The Nootka apparently ate both the oil and the flesh in prehistoric and early historic times, although at least the flesh appears to have been an emergency food only. Swan (1870: 29) states:

The Indians on Vancouver Island....make a lucrative business of extracting the oil, and sell large quantities to the Makah in exchange for whale oil, which they eat. The Clyoquot and Nootkans (Moachat) eat dogfish oil, but prefer whale oil when they can obtain it.... After the oil is extracted, the flesh is washed in cold water and again squeezed in the baskets, and in this state it is eaten by the Indians when other food is scarce.

The large number of dogfish remains at this site, as discussed earlier, is probably a result of the use of the spines as awls and the skin as an abrasive material.

A relative paucity of bird bones was noted. In addition to ducks and wild geese, such birds as eagles and gulls were also eaten (Mozino 1913: 9; Drucker 1951: 59). However, these birds were probably sought more for the ornamental value and ceremonial use of their feathers and down than for their flesh. Several early writers (Cook 1796: 207; Meares 1790: 112) mention the striking appearance which the Indians produced by sprinkling down on their hair and their painted and greased faces. Cook (1796: 236) mentions that birds were continually harrassed by the natives, both for food and for their feathers. In view of this documentation and also the large population of avifauna presently at the site, it would have been expected that more bird remains would be found.
The largest discrepancy of the faunal remains with the ethnographic data is in the type of fish remains found. Fish vertebrae were found throughout the site and were very numerous in some sections. The vast majority of these vertebrae were salmon. However, according to the major ethnographic source, Coopte was supposed to have been the great herring fishery of the Moachat. Jewitt (1815) states this several times:

"This place, which is their great herring and sprat fishery...."  
(p. 123)

"The natives now began to take the herring and sprat in immense quantities, with some salmon...."  
(p. 126)

"As usual at this season, we found the herring in great plenty..."  
(p. 165)

The concentration of small fish bones in ash layers on the second terrace may be herring, although they are too small and fragmentary to be identified. At any rate, salmon vertebrae appear to be the major fish remains in the deposit. It seems likely that Jewitt underestimated the importance of salmon fishing at Coopte, although this would be unusual for such a keen observer. Large stores of salmon were brought down from Tacis, where Jewitt does mention the large numbers of salmon caught. These would have been already dried and generally the vertebrae would have been removed. However, Drucker (1951: 63) does describe the preservation of salmon backs, which would still contain the vertebrae. Perhaps large numbers of these were brought down the inlet from Tacis. During much of their period of residence at Coopte the Moachat subsisted on their supply of dried food, which may explain the concentrations of salmon vertebrae in some areas of the site. A number of halibut vertebrae were also obtained, although they were not common. A few of these vertebrae were very large -
up to 5.5 cm. in diameter and 5.0 cm. high. Because of their large size, halibut played an important part in the Moachat economy. The outer coast sites would have a higher percentage of halibut bones than does Coopte, as that is where they were systematically fished. They were probably taken rather infrequently at Coopte.

A number of shell species were found in the deposit. Three types of clam — butter clam (Saxidomus giganteus), little-neck clam (Protothaca staminea), and horse clam (Schizothaerus capax) — were identified, as well as blue mussel (Mytilus edulis), California mussel (Mytilus californianus), triton shells, and barnacles. All are local, with the exception of the large mussel, which had to be brought in from the open ocean shores. In addition, a few land snail shells were found near the top of the deposit, but these probably crawled onto the site and do not represent an item of aboriginal diet. Shell was actually not abundant in the deposit. Two large layers of shell occurred in the area of the site in which test pits 7, 10, 11, 12, 13 and 14 were located, but these pits uncovered almost the full extent of the shell. Shell was either totally lacking or appeared in a few small patches in the other excavated units. Perhaps the large supply of dried food brought down from Tacis, along with fresh fish and deer meat obtained at this site, made it unnecessary to rely heavily upon shell-fish.

The occurrence of Mytilus californianus at Coopte is also somewhat puzzling. It had to be brought to this site from Yukwot or the open ocean sites, yet it appeared in large clusters in the two main layers of shell as well as sporadically elsewhere in the site. While it is true that this mussel was an important food item and was dried as part of the winter provisions, this does not account for the presence of the shells in the deposit. A clue to a possible explanation is given by Drucker (1951: 91);
A provident housewife would keep several knives, or at least the shells that could merely by sharpening be converted into knives, so that if one broke she had a substitute at hand.

The shells of the large mussel in the deposit, then, possibly represent raw material for artifacts, such as the woman's fish knife.

The horizontal distribution of shell and faunal remains is rather interesting. The second terrace pits yielded no shell and an almost negligible amount of faunal remains. The trench formed by test pits, 8, 3, and 9 yielded a great deal of faunal remains with only a small amount of shell. The trench of test pits 1, 5, and 2 yielded considerably fewer faunal remains and almost no shell. The most striking contrast is between test pits 6 and 7, separated by only five feet. Test pit 6 contained no shell and only a few small fragments of bone. Test pit 7, on the other hand, contained two large bands of shell and a large amount of faunal remains. Test pit 6 appears to have been just outside a large patch of shell and faunal remains that was largely excavated by test pits 7, 10, 11, 12, 13, and 14. Large numbers of fish bones were associated with the shell layers. The large cluster of whale bone described earlier occurred here. Deer and sea mammal bones were fairly common throughout. This seems to have been a dump area, where refuse such as bones and empty shells was tossed.

Rock features were not common. Only a few were excavated on the first terrace and even these may have been spurious because of the large amount of rock in all parts of the deposit. However, these rocks were larger than those generally encountered and seem to have a meaningful shape. The only extensive rock feature occurred in test pit 15, on the second terrace. This was a massive feature; extending from about one foot
to just past four feet below the surface. A large number of rocks, some of them massive in size, formed the feature, along with large areas of hard brown ash (see the appropriate level notes in Appendix 1 and floor plans 8 to 14). At the bottom of the feature the total matrix for the square was large rock and ash. A possible explanation for this feature is found in the ethnographic literature. Food preparations required large numbers of good-sized rocks, both for the stone-boiling and steaming techniques (see page 27 above). The association of large amounts of ash with the feature strengthens the conclusion that this feature is a result of the Moachat cooking methods. A further conclusion can be drawn from the association of the large feature in this pit and the dump area on the first terrace directly below. Cooking is an activity which was carried on in or near the dwellings. It may be inferred that the dwellings at this end of the site, for at least part of the period of occupation, were located on the second terrace. The dump area would then be explained as simply refuse from the dwellings tossed over the edge of the bank.

The early journals give us valuable information in the interpretation of certain other items from this site. Four small flecks of mica were found in the deposit (test pit 2, levels 0 - 1.4; test pit 7, level 1.5 - 2.0; test pit 12, levels 0 - 0.5 and 1.0' - 1.5'). Mica was highly prized by the Moachat for its ornamental value. After the face had been painted with red ochre and grease, mica was sprinkled on top to give a sparkling appearance. The striking appearance this produces was mentioned by such early writers as Cook (1796: 243), Jewitt (1915: 78), and Haswell (Howay 1941: 61). No red ochre was found in the deposit, but one abrasive stone (DkSp 1: 14) is stained dark red along the length of a groove worn into one face. It is suggested that this abrader had been
used to grind small blocks of ochre into powder, which could then be mixed with grease to form a paint. Its decorative purpose on the coast is widespread and well-known. Its use for face and body painting among the Moachat is attested to by nearly all of the early journals. The pictographs which are occasionally found in this area were also executed with red ochre and it is assumed that a number of their wooden utensils were also decorated with this material. Some ochre does occur naturally in this area. An outcrop of ochre in Hisnit Inlet was noted during the field season. Jewitt (1815, pages 78 and 95), however, states that high-quality ochre, as well as mica, was a highly-regarded trade item from the "Newchemass" or Nimpkish Kwakiutl.

No burials were discovered during excavation. This is in keeping with the ethnographic evidence, which indicates that interment was not practised by the Moachat. The dead were usually placed in wooden boxes which were then lashed to the branches of trees or placed in caves or rock shelters. Tree burial appears to have been the most common practice. An important person may simply have been placed in a box on a prominent point and some type of memorial placed beside it. Canoe burial has already been inferred to have been occasionally practised by the Moachat, as it was by their neighbors. Slaves and unimportant people were simply wrapped in cedar-bark matting and left in the woods. Inhumation was not practised until very late in the historic period and was largely due to missionary influence. In light of this, the absence of burials at this site is hardly surprising. However, a few scattered human bones, including several skull fragments, were uncovered. Scattered human remains are not uncommon in coastal sites. The probable explanation can also be found in the types of burial. The boxes containing tree burials decay and the bones fall to the ground. Added to this are bodies left in the
woods or other places which are accessible to animals, in particular dogs. The activities of these animals would scatter the bones, which, in the case of dogs, would then likely be carried back to the village site.

It is difficult to assign a guess date for the length of occupation of the entire site, but in general it seems quite recent. The trench formed by test pits 8, 3, and 9 is located on a shallow slope up from the beach and may possibly fall entirely within the historic period. The trench formed by test pits 1, 5, and 2 has presumably a slightly larger time depth. However, as the deposit was fairly shallow and historic material was found for about half this depth, the time depth here would also not be great. The seven test pits dug in or near the dump area at the north of the site offer more interesting speculation. The deposit ranged from 3.5 feet to 4.9 feet deep in this area. However, as this seems to have been a dump area, this build-up may have been comparatively rapid. Historic material extended a depth of just over one foot, but this makes a poor dating device due to the definite possibility of discontinuous build-up of the underlying layers. Several charcoal samples, which would give a definite date for this part of the site, were taken from just above beach sand but these have not been analyzed. The second terrace pits presumably have a greater time depth. Test pit 15 was taken down eight feet before beach sand was reached. However, the deepest artifact was found at 3.8 feet below surface and the rock feature ended just below four feet deep. A charcoal sample, which also has not been tested, was taken at a depth of 4.2 feet. An examination of the total artifact yield from the site indicates no great time depth. The artifacts appear to be homogeneous throughout the deposit. The artifacts found at the greatest depths (several small pointed bones, a bone projectile point fragment, and a harpoon valve fragment) are
identical to others found at lesser depths and to ethnographic
descriptions. On the basis of this evidence, a rough guess date of no
earlier than 1000 A.D. for the beginning of the period of intensive
occupation can be made. However, it is extremely probable that evidence
for an earlier date could be found on the second or third terrace. More
work needs to be done, particularly on the upper terraces.
Fishing Implements

fig. 1
composite fish-hook
with stone shank

fig. 2
composite harpoon head for salmon
(after Drucker, 1951, p. 20)

fig. 3
salmon trolling hook

fig. 4
halibut hook
Bone Artifacts

pl. 19
a-c projectile points
DkSp 1:154,136,176
d-g harpoon valves
DkSp 1:207,92,194,106

pl. 20
a barbed projectile point DkSp 1:183
b-f barbs DkSp 1:185,135,102,238,157
g-j bipoins DkSp 1:143,237,128,248
k small bone barb DkSp 1:117
pl. 21
hand maul fragments
DkSp 1:164,199

pl. 22
chipped pebbles
DkSp 1:240,83,242,101179
Contact Goods

pl. 23

a  pipe stem
b-f  clay pipe fragments
g  tubular copper foil bead
h-n  glass beads
o  fish lure
p  metal button
q  metal buckle
OTHER ARCHAEOLOGICAL WORK IN NOOTKA SOUND

Very little archaeology has been done in the Nootka Sound area compared to the attention given to historic documents. The only actual excavations prior to this study were carried out in the summer of 1966 by the National Historic Parks Branch under the direction of W. H. Folan. Their excavation was carried out at the main village site of Yukwot, although part of this crew did conduct a survey of the Nootka Sound area and excavated four test pits at Coopte. These test pits were all located at the north end of the site and yielded very little in the way of either faunal remains or artifacts.

The Yukwot excavation was a multi-disciplinary project. Extensive study of the historic documentation is to be combined with a careful analysis of the artifacts, faunal remains, types of shell in the deposit, and other information gained by excavation. This should result in a fairly exhaustive picture of the site of Yukwot, from earliest times to the present. When published, it will supercede some of the information presented in this study.

The major portion of the Yukwot excavation was undertaken in the center of the modern village. A 60 foot long trench, reaching a maximum width of 15 feet, was excavated. A maximum depth of 18 feet was reached, showing definite stratigraphy. In addition, a number of test pits were excavated in the shallow deposit of San Miguel Island, the small island at the entrance to the cove, on which the Spanish had erected a small gun battery.

More than 5000 prehistoric and historic artifacts were obtained during the excavation.* The implements of native manufacture included the component parts of composite harpoons, barbed fixed points, stone fish-hook shanks, maul fragments, many bone points, deer ulna fish knives,
large awls, some ground *Mytilus californianus*, and several small carvings. Historic goods included nails, pieces of window and bottle glass, porcelain fragments, beads, pipes, metal fish-hooks, and spoons. A few were Spanish in origin. A small cannonball was found on San Miguel Island. In addition, a large quantity of faunal remains was unearthed, as well as several stone-lined hearth features and a few post holes. A few burials were encountered but they all belonged to the historic period.

Over twenty carbon samples were taken during the excavation. However, only a few of these had their tests completed and the results known at the time of writing. These preliminary dates indicate a time span of approximately 4200 years. This early date makes Yukwot of more than local interest, and of significance to all Northwest Coast specialists.

Some inferences could be made as to the contents of unexcavated sites on the basis of the known economic activities carried out there. For example, the outer coast sites could be expected to yield the bones of sea mammals and fish, particularly halibut. While Coopte also yielded both sea mammal and halibut bones, it is expected that the percentage of these would be much higher on the outer coast. Salmon and deer remains, so common at Coopte, would be found less frequently. The artifacts would include harpoons, particularly of the large composite variety. Shell cutting blades and knives might also be found.

A small face was cleared by the author to determine the deposit at DjSp 3, a small site on the outer coast. Large clam shells, which had been eroded from the midden, were used to clear away a small area which was being eroded at the high tide level. The deposit was almost entirely

*Information concerning the Yukwot excavation was taken from a mimeographed research program and interim report and from a paper given by W.H. Folan at the 1969 Northwest Anthropological Conference in Victoria, B.C.*
clam shell, ranging from about four inches to almost a foot in depth, and underlain by beach sand. Patches of burnt shell and fire-cracked rock were encountered. No artifacts were found but a small quantity of faunal remains was obtained. One small phalange was the only mammal bone encountered. The identifiable fish bones were four halibut vertebrae, two sea perch pharyngial teeth, and one hypural plate from a tuna. The presence of the tuna hypural plate (identification by Dr. D.E. McAllister, National Museum of Canada) in the deposit is quite interesting. Two species of tuna, the albacore (Thunnus alalunga) and the bluefin tuna (Thunnus thynnus or T. saliens), which grow to lengths of 4 feet and 7 feet, respectively, occur on the British Columbia coast, more frequently in the years when the water is warmer. They are not common and could not have held a vital role in the Moachat diet. No ethnographic references were encountered concerning utilization of this food resource by the Moachat. Halibut and sea perch remains are only to be expected from a site in this area. Further investigation would have undoubtedly produced bones of sea mammals as well.

The fall fishing stations up the inlet would give a different picture. Salmon vertebrae would form the bulk of the faunal remains. Deer, which abound along the inlet, would also be well-represented in the deposit. Sea mammals which came up the inlet would be occasionally taken but these would not be as common as in the open ocean sites. Typical artifacts would be parts of composite harpoons of the size used for salmon, barbs for fish-hooks, and fish knives of shell or bone. Large mauls or battered cobbles, used for pounding in stakes for fish traps and weirs, might also be found.

The site of Tsawun (DkSp 3) was also tested in several places
during the 1968 field season to determine matrix and depth of deposit. The deposit is quite shallow, being under one foot deep in places. Under a thin layer of topsoil, the matrix of the deposit was almost entirely crushed shell. One artifact (DkSp 3:1), a fragment of sandstone bar abrader, was obtained. It is 6.5 cm. by 1.7 cm. by 1.5 cm. A rough ridge, formed by the technique of sawing from both sides and then snapping off the artifact, runs the entire length of one edge. The historic material obtained included a metal Winchester rifle cartridge and the side of an iron pot. The mammal bones obtained were one deer scapula and 14 unidentified fragments. The fish bones included 11 salmon vertebrae and one bone which has been identified as the quadrate of a large fish - possibly tuna, although it may be salmon. One bird bone fragment was also found. The prior assumption that salmon and deer remains would predominate seems to be justified.

Going into Muchalat territory, to the east of the Moachat along Muchalat Arm, we find much the same situation. However, a few groups lived inland along Gold River and seldom ventured down to the salt water. Deer and wapiti were the main food items. Preservation would probably be a problem at these sites as there would be no shell to neutralize the acidity of the soil. Thus for several reasons we would not expect to find the many bone points, gorges, and harpoon components which are common in the other sites of the Nootka Sound region. The yew wood spears used in hunting by these groups would also not be preserved. Nevertheless, the excavation of these sites would provide an interesting comparison with the salt water sites.

Few of the sites visited during the field season, however, would appear to repay extensive excavation. The sites are generally very shallow, often only a foot or two above the high water level. Yukwot
appears to be the only site with a great time depth, although interesting
dates may yet be obtained from Coopte and O'wis. The fishing stations,
in general, are shallow in depth and small in size. In addition, a large
proportion have been destroyed by recent logging operations.

However, few areas offer such possibilities for the direct
application of ethnographic information to the archaeological data. The
early historic documents give a great deal of invaluable information for
the interpretation of archaeological material. The shallow time depth
of most sites and the homogeneity of cultural items uncovered indicate
that these remains were left by the groups described in the journals and
their immediate ancestors. The pattern of seasonal movement to fixed
village sites in pursuit of varying economic resources allows speculation
as to what would be found at a site with inadequate documentation. Much
of the wealth of information on the inhabitants of Friendly Cove in the
early historic period can also be applied to archaeological material from
other sites in Nootka Sound and up Tahsis Inlet as the inhabitants of
these sites were the same people at a different time of the year and
engaged in different economic activities. In addition, some information
can be obtained from the modern descendents of these people, who are still
hunting and fishing in much the same area. An amalgamation of the
ethnographic, historic, and archaeological material, then, gives us an
uncommon opportunity for the fairly-complete reconstruction of the total
way of life of these people. Present knowledge of this area forms a good
basis for future research, which will give further insights into the
culture of the prehistoric and historic inhabitants of Nootka Sound.
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Appendix 1

Account of Each Excavated Level

Test Pit 1  S: 195'-200'  E: 20'-25'

Level 0'-1.1' (depth below datum)

Description - The surface of the site slopes somewhat to the west in this area. The first level evened out this slope within the pit. Consequently, while the bottom of the wall at the end of this level was 1.1' below surface, the west wall was only 0.2' below surface. The matrix was a dark black soil with a great number of rocks. A few pieces of clam shell and one piece of mussel shell were encountered.

Artifacts -  DkSp 1:1  trade bead
2  clay pipe fragment
3  trade bead

Historic Material -  1 thin metal plate
10 pieces of historic pottery
5 fragments of glass

Faunal Remains
Mammal - 1 large mammal vertebra (deer?)
1 deer phalange
1 mammal leg bone fragment
9 unidentified fragments

Fish - 18 vertebrae
3 spines

Other - 1 piece of *Mytilus californianus*

Level 1.1'-1.7'

Description - The matrix continued to be dark soil with a large number of rocks. Occasional pieces of broken clam shell were spread throughout the pit. Several small areas of scattered crushed clam and mussel shell were encountered, mainly along the north wall.

Artifacts -  DkSp 1:4  worked bone
5  abrasive stone
6  antler cortex
7  dogfish dorsal spine
8  abrasive stone
9  clay pipe fragment
10  bone point
11  dogfish dorsal spine
12  dogfish dorsal spine
13  trade bead
14  abrasive stone
15  trade bead
Historic Material - 3 thin metal pieces
  8 fragments of pottery
  2 pieces of glass
  1 square nail
  1 button

Faunal Remains
  Mammal - 2 small vertebrae
  2 phalanges
  6 rib fragments
  26 unidentified fragments
  Fish - 74 vertebrae
  18 spines
  12 other
  1 sea perch pharyngial tooth
  5 dogfish dorsal spines
  Bird - 7 long bone fragments

Level 1.7'-2.3'
Description - The matrix continued to be dark soil with a large amount of rock. Even more rock than in previous levels was encountered. Shell was almost entirely absent except for a few very small patches of blue mussel on the north wall.

Artifacts - DkSp 1:16 worked whalebone
  17 abrasive stone
  18 bone point
  19 abrasive stone
  20 abrasive stone

Faunal Remains
  Mammal - 11 unidentified fragments
  Fish - 5 vertebrae
  2 spines
  5 other
  4 dogfish dorsal spines
  Bird - 3 fragments

Level 2.3' to bottom
Description - The matrix continued to be dark soil with a great deal of rock. No shell was encountered. This level was terminated when gravel was reached in all the square. This sloped somewhat, following the original surface slope of east to west.
Gravel occurred at:
  2.5'b.d. in NE corner
  2.5'b.d. in SE corner
  2.7'b.d. in NW corner
  2.9'b.d. in SW corner

Artifacts - DkSp 1:21 abrasive stone
Faunal Remains - none
Test Pit 2  S: 205'-210'  E: 20'-25'

Level 0'-1.4' (depth below datum)

Description - This test pit was opened south of test pit one, leaving a five foot balk between them. The surface again sloped from east to west. The first level evened out this slope. At the completion of this level the bottom of the east wall was 1.4' below the surface, while the bottom of the west wall was only 0.2' below the surface. The matrix was dark soil with a small amount of rock. Occasional pieces of clam shell were encountered. A patch of brown sandy ash occurred at the bottom of this level in the NE corner.

Artifacts - DkSp 1:22  trade bead
23  trade bead
24  clay pipe fragment
25  trade bead

Historic Material - 5 pieces of pottery
4 pieces of glass
6 nails
2 pieces of scrap metal
2 small buttons

Faunal Remains
Mammal - 1 rib fragment
2 small unidentified fragments
Fish - 2 vertebrae
Bird - 1 fragment

Other - 1 small fleck of mica

Level 1.4'-1.9'

Description - The matrix continued to be dark soil and rocks. Rocks were more abundant than in the previous level. Several large rocks were clustered in the SW corner. A small patch of charcoal appeared at the top of this level near the middle of the east wall. This charcoal patch contained some ash with a great many tiny fish bones throughout. Patches of gravel occurred in the center of this square at the bottom of this level.

Artifacts - DkSp 1:26  abrasive stone
27  abrasive stone
28  abrasive stone
29  abrasive stone
30  abrasive stone
33  abrasive stone

Historic Material - 3 pieces of pottery
1 piece of glass

Faunal Remains - 7 small mammal bone fragments
Level 1.9 to bottom

Description - The matrix continued to be dark soil and rock, with rocks becoming more abundant with depth. This level was continued until gravel was reached in all the square. An uneven floor resulted, being highest in the NW quadrant. Measurements for each corner were:

- NE corner: 2.2'
- SE corner: 2.2'
- SW corner: 2.5'
- NW corner: 2.1'

Artifacts -

- DkSp 1:31 abrasive stone
- 32 abrasive stone

Faunal Remains - none

Test Pit 3  S: 110'-115'  E: 35'-40'

Level 0'-0.8' (depth below datum)

Description - This pit is located within the bounds of House Remains 1. The surface of the ground slopes slightly from east to west. The first level evened out this slope, being 0.8' below surface at the east wall and 0.3' below surface at the west wall. The matrix was dark soil with some rock.

Artifacts -

- DkSp 1:34 bone point
- 35 bone point
- 36 small pointed bone
- 37 beaver incisor
- 38 trade bead
- 39 small pointed bone
- 40 bone point fragment
- 41 trade bead
- 42 rolled copper bead
- 43 trade bead
- 44 trade bead
- 45 trade bead

Historic Material - 5 pieces of pottery
- 1 piece of glass
- 7 nails
- 1 button

Faunal Remains

- Mammal - 1 humerus distal end fragment (deer?)
- 2 deer tail vertebrae
- 1 scapula fragment
- 1 small mammal ulna fragment
- 1 deer molar
- 1 small carnivore molar
- 1 unidentified molar
- 5 small rib fragments
- 86 unidentified fragments
Fish - 67 vertebrae (mainly salmon; some herring and halibut)
  14 spines
  10 other
  1 sea perch pharyngial tooth
  37 dogfish dorsal spines
Bird - 28 fragments
Other - 3 small thick pieces of clam shell

Level 0.8'-1.3'

Description - The level continued to be dark soil, but with a great deal more rock than in the previous level. A thin lens of greyish ash, containing crushed clam shell, appeared in the NE corner. The SW quadrant contained a large thin patch of matted mussel and clam shell, with a large number of fish bones.

Artifacts - DkSp 1:46 worked whalebone
  47 abrasive stone
  48 worked bone fragment
  49 abrasive stone
  50 bone point
  250 harpoon valve
  251 ground scapula fragment

Faunal Remains
Mammal - 1 human axis vertebra
  2 sea mammal vertebrae (porpoise)
  1 seal humerus
  1 deer astragolus
  1 deer canon bone fragment
  1 deer phalange
  1 deer talus
  1 piece of antler
  4 small mammal rib fragments
  1 beaver (or muskrat) molar
  4 seal canines
  117 unidentified fragments

Fish - 66 vertebrae (including one very large halibut vertebra measuring 4.5 cm. in diameter, 3.3 cm. in height, with a spine 9.0 cm. long)
  22 spines
  24 other
  38 dogfish dorsal spines

Bird - 3 complete long bones
  33 fragments

Level 1.3' to bottom

Description - The matrix was dark soil with a great deal of rock. This level was continued until gravel was reached in all the square. This occurred first along the east wall, being just below the end of the last level. There was a marked slope to the west, being deepest in the SW corner. Measurements for each corner were:
Test Pit 4  S: 210'-215'  E: 50'-55'

Level 0'-0.7' (depth below datum)

Description - This pit is on the second terrace, at the southern end of the site. It stands at an elevation of about 7.2 feet above the first terrace pits below it. The surface of this square slopes slightly from east to west, with a 0.4 foot difference between the surface of these two walls. The matrix of the first level was dark soil, with a small amount of rock. A patch of brown ash, containing crushed clam shell, appeared at the bottom of this level in the SE corner.

Artifacts - DkSp 1:51 trade bead
52 fish hook shank
53 trade bead
54 trade bead

Historic Material - 1 piece of pottery
2 pieces of glass
1 button

Faunal Remains - none

Level 0.7'-1.3'

Description - The matrix for this level was dark soil, with a small amount of rock. Several large boulders were encountered. A thin layer of brown ash, containing crushed clam shell, occurred in the SE corner at 0.7' below datum. A thin layer of sand, underlain by small patches of charcoal, appeared in the same corner at 1.1' below datum. Large chunks of charcoal came from the NW corner.

Artifacts - none

Faunal Remains - none

Level 1.3'-1.8'

Description - The matrix from this level was a dark soil, with a large number of rocks. A patch of ash, containing very small fish bones, occurred in the SE corner at 1.7' below datum.
Artifacts - DkSp 1:55  abrasive stone
59  abrasive stone

Faunal Remains - none

Level 1.8'–2.4'
Description - The matrix continued to be dark soil and rocks, but with large patches of ash. One large patch of ash filled the entire SE quadrant from about 2.0' to 2.2' below datum. It was underlain in places by charcoal. It seemed to contain a great number of small fish bones. Occasional pieces of broken clam shell were also found in this area.

Artifacts - DkSp 1:56  abrasive stone
57  abrasive stone
58  abrasive stone

Faunal Remains - none (other than the many very small fish bones in the ash layer)

Level 2.4'–3.0'
Description - The matrix continued to be dark soil and rocks. Patches of ash also continued but were not as large as in the preceding level. A thin patch of gravel, underlain by ash, was uncovered in the SE corner at 2.4' below datum. A large area of charcoal occurred along the south half of the pit at the bottom of this level. It was largely underneath a layer of ash. A charcoal sample was taken at S: 213.7', E: 57.5', 3.0' below datum.

Artifacts - none

Faunal Remains - 2 small fragments of mammal bone

Level 3.0'–3.5'
Description - The matrix continued to be dark soil and rocks, with patches of ash. A large patch of charcoal occurred in the NW corner at 3.2' below datum. Charcoal and ash occurred in the SE corner. Occasional pieces of broken clam shell were found in the area.

Artifacts - none

Faunal Remains - none

Level 3.5'–4.0'
Description - The matrix continued to be dark soil and rocks, with small patches of ash. A small hole was uncovered in the NE corner at 3.9' below datum. It was 0.3' in diameter and had a depth of about 0.6'. Another hole appeared at S: 113.8', E: 50.6', 3.9' below datum. It was 0.2' in diameter and had a depth of about 0.5'.
Artifacts - DkSp 1:60 abrasive stone
Faunal Remains - none

Level 4.0'-4.5'
Description - The matrix continued to be dark soil and rock. A number of the rocks were quite large. A few small patches of ash occurred.
Artifacts - none
Faunal Remains - none

Level 4.5'-5.0'
Description - The matrix continued to be dark soil with a large amount of rock. Several huge boulders appeared in this level. A small patch of ash in the SE corner indicated that this level is still cultural. The pit was terminated at this level because of flooding.
Artifacts - none
Faunal Remains - none

Test Pit 5 S: 200'-205' E:20'-25'

Level 0'-1.2' (depth below datum)
Description - This pit was opened between test pits 1 and 2, forming a 15 foot trench. The surface sloped considerably from east to west. There was a difference of 1.1' between the surface of the east and west walls. The first level evened out this slope. The bottom of this level was 1.2' below the surface of the east side, while only 0.1' below the surface at the west side. The matrix was dark soil. A small lens of ash occurred along the east wall at the bottom of this level. Occasional pieces of broken clam shell were encountered.
Artifacts - DkSp 1:62 trade bead
63 trade bead
64 trade bead
65 trade bead
66 clay pipe fragment
67 trade bead
68 trade bead

Historic Material - 5 pieces of pottery
8 pieces of glass
6 nails
1 screw
3 large pieces of metal
Faunal Remains
Mammal - 9 fragments
Fish - 3 vertebrae
2 spines

Level 1.2'-1.7'
Description - The matrix continued to be dark soil. Patches of charcoal were encountered along the east wall under the layer of ash at the bottom of the previous level.
Artifacts - DkSp 1:69
70 clay pipe fragment
71 trade bead
72 trade bead
73 trade bead

Historic Material - 2 pieces of glass
1 copper strip
1 large piece of metal
1 button

Faunal Remains
Mammal - 1 large mammal (bear?) talus bone
6 fragments
Fish - 3 vertebrae
3 spines
1 other
Bird - 1 fragment
Other - 3 pieces of clam shell
1 piece of unidentified shell

Level 1.7'-2.1'
Description - The matrix was dark soil with a great deal more rock than in previous levels. Several large boulders appeared in this level. Patches of gravel occurred along the south end of this square at the bottom of this level.
Artifacts - DkSp 1:74 clay pipe fragment

Historic Material - 3 pieces of pottery

Faunal Remains
Mammal - 6 fragments
Fish - 1 vertebra
Bird - 1 fragment

Level 2.1' to bottom
Description - The matrix continued to be dark soil with a great deal of rock. The level was taken down until gravel was reached in all the square. This sloped from east to west, following the original surface slope, but with a raised area in the SW corner. Measurements
for each corner were: NE - 2.2’
SE - 2.4’
NW - 2.8’
SW - 2.1’

Artifacts - none
Faunal Remains - none

Test Pit 6  N: 65’-70’  E: 35’-40’

Level 0’-0.7’ (depth below datum)
Description - This is the first pit to be opened north of the horizontal datum point. The surface is relatively flat at this part of the site. The matrix was dark soil and a small amount of rock.

Artifacts - DkSp 1:76 trade bead
77 trade bead
78 trade bead
79 trade bead
80 clay pipe fragment
81 trade bead

Historic Material - 5 nails
1 piece of pottery
1 piece of glass

Faunal Remains - none
Other - 1 piece of clam shell

Level 0.7’-1.2’
Description - The matrix was dark soil with a considerable amount of rock. Several small ash patches occurred in this level. One of these, located toward the north of the pit at 0.75’ below datum, contained a great many very small fish bones, along with flecks of charcoal.

Artifacts - none
Faunal Remains - 1 small mammal bone fragment

Level 1.2’-1.7’
Description - The matrix continued to be dark soil and rocks. Several patches of ash occurred in this level - in the NW quadrant at 1.3’ below datum, in the SE quadrant at 1.4’ below datum, and in the SW quadrant at 1.5’ below datum. All contained a great many very small fish bones. All were associated with small patches of charcoal.

Artifacts - DkSp 1:82 trade bead
83 chipped pebble
84 abrasive stone

Faunal Remains - none
Level 1.7'-2.2'

Description - The matrix continued to be dark soil and rocks. Several ash layers occurred in the south half of the pit. These again contained very small fish bones, along with a few larger pieces of burnt bone. A brown, sandy gravel occurred in the NE corner at 2.0' below datum.

Artifacts - DkSp 1:252 abrasive stone

Faunal Remains - 8 small fragments of mammal bone

Other - 1 piece of clam shell

Level 2.2'-2.7'

Description - The matrix was dark soil with a great deal of rock. Gravel patches occurred along the north wall. One small patch of ash occurred in the NW quadrant.

Artifacts - DkSp 1:85 abrasive stone

Faunal Remains - none

Level 2.7' to bottom

Description - The matrix was dark soil and a great deal of rock, along with patches of brown sandy gravel. This level was continued until basal gravel was reached in all the square. This resulted in a marked slope from NE to SW. Measurements for each corner were:

NE - 2.7'
SE - 3.3'
SW - 3.7'
NW - 3.2'

Artifacts - none

Faunal Remains - none

Test Pit 7 - N: 55'-60'  E: 35'-40'

Level 0'-0.5' (depth below datum)

Description - This pit is located south of test pit 6, leaving a five foot baulk between them. The matrix was dark soil with a small amount of rock.

Artifacts - DkSp 1:86 trade bead
87 worked whalebone

Historic Material - 6 pieces of pottery
1 piece of glass
5 nails

Faunal Remains - none

Level 0.5'-1.0'

Description - The matrix was dark soil and rock. A small patch of
crushed mussel shell occurred in the SE corner from 0.8' to 1.0' below datum. A number of patches of crushed mussel and clam shell occurred at the bottom of this level. The largest occupied almost the entire SW quadrant. It also contained some ash, charcoal flecks, and fish bone.

Artifacts - DkSp 1:88 trade bead

Historic Material - 1 piece of glass
1 button

Faunal Remains
Mammal - 2 fragments
Fish - 5 vertebrae
9 spines
6 other

Level 1.0'-1.5'
Description - This level consisted of dark soil and rocks with large patches of crushed mussel and clam shell. The patches of shell which appeared on the floor of the previous level extended down into this level. The smaller patches were only about 0.1' deep, but in the SW corner shell extended for the entire depth of this level. Almost the entire SW quadrant was shell. This shell contained small flecks of charcoal and a great many fish bones. Salmon vertebrae were commonly found articulated.

Artifacts - DkSp 1:89 abrasive stone
90 bone awl
91 worked bone fragment
92 harpoon valve
93 abrasive stone
94 worked whalebone
253 worked bone fragment

Faunal Remains
Mammal - 9 fragments
3 fragments of sea-mammal bone
Fish - 532 vertebrae (almost entirely salmon)
56 spines
16 mandible fragments
70 other
5 dogfish dorsal spines

Other - 1 triton shell

Level 1.5'-2.0'
Description - The matrix for this level was dark soil and rocks, except for the SW quadrant where crushed mussel and clam shell continued from the previous level. The crushed shell was mixed with dark soil, rather than forming a distinct lens.
Faunal Remains

Mammal - 1 deer scapula
           1 mandible fragment (seal?)
           1 large mammal vertebra
           1 seal bulla
           44 fragments

Fish - 18 vertebrae (all salmon)
       8 spines
       7 other

Bird - 2 complete long bones
       3 fragments

Level 3.0'–3.5'

Description - The matrix was dark soil and rock. Scattered crushed mussel and clam shell spread throughout the depth of this level along the south wall. The large boulder mentioned in the two previous levels extended further during this level to occupy the entire north half of the pit, except for a small space in the NW corner.

Artifacts - DkSp 1:103 bone point fragment
            104 bone point tip
            152 bone point

Faunal Remains

Mammal - 1 deer scapula
           1 rib fragment (deer?)
           1 large mammal mandible fragment
           1 bulla
           1 deer phalange
           2 small mammal phalanges
           1 small carnivore canine
           33 unidentified fragments

Fish - 125 vertebrae (almost all salmon)
       25 spines
       35 other
       1 dogfish dorsal spine

Bird - 1 small bird skull
       10 long bone fragments

Level 3.5' to bottom

Description - Only the south half of this pit could be fully excavated because of the large boulder occupying the north half. The matrix was dark soil and rocks with crushed shell scattered throughout along the south wall. This was removed to gravel, which occurred about 3.5' below datum beside the boulder and was sloping toward the south. Along the south wall, however, this gravel did not occur as a distinct lens and the crushed shell and faunal remains extended down to the beach sand at about 4.2' below datum. The crushed shell and faunal remains even extended a short distance into the sand. A patch of charcoal occurred in the SW corner at 4.2' below datum. It occurred in a matrix of crushed
shell and dark soil, immediately above a thin layer of gravel above the beach sand. A charcoal sample was taken.

Artifacts - DkSp 1:105 bone point fragment  
106 harpoon valve blank  
157 bone point

Faunal Remains  
Mammal - 1 large mammal phalange  
1 large mammal vertebra  
1 human skull fragment  
1 unidentified skull fragment  
49 unidentified fragments

Fish - 12 vertebrae (salmon)  
10 spines  
11 other  
2 dogfish dorsal spines

Bird - 9 long bone fragments

Test Pit-8 S: 105'-110' E: 35'-40'  
Level 0'-1.0' (depth below datum)

Description - This pit was opened immediately north of test pit 3, forming a ten foot trench. The surface of the square slopes from east to west and toward the north. This level evened out the slope. The bottom of this level was 1.0' below surface along the east wall, 0.3' below surface in the SW corner and just at surface in the NW corner. The matrix was dark soil and rocks.

Artifacts - DkSp 1:107 bone point fragment  
108 trade bead  
109 trade bead  
110 trade bead  
111 worked bone fragment  
112 trade bead  
113 trade bead

Historic Material - 1 piece of pottery  
6 pieces of glass  
11 nails  
1 metal drawer handle  
1 metal button  
1 metal belt buckle

Faunal Remains  
Mammal - 2 deer molars  
3 deer phalanges  
1 deer canon bone fragment  
1 sea mammal phalange  
1 human (?) molar  
1 seal (?) canine  
39 unidentified fragments  
1 sea mammal bone fragment
Fish - 18 vertebrae (14 salmon, 2 herring, 2 halibut)
  4 spines
  6 other
  30 dogfish dorsal spines
Bird - 9 fragments
Other - 1 land snail
  several pieces of broken clam shell

Level 1.0'-1.5'
Description - The level consisted of dark soil and rocks. The floor of this level along the eastern wall was mainly rock, with gravel appearing in places.
Artifacts - DkSp 1:114 bone point
  115 trade bead
  116 trade bead
  117 small pointed bone
  118 bone point
  119 trade bead
  120 abrasive stone
Historic Material - 2 pieces of pottery
  2 nails
Faunal Remains
  Mammal - 1 sea mammal humerus fragment
  1 vertebra disk
  1 deer phalange
  1 deer molar
  6 unidentified fragments
  5 pieces of sea mammal bone
  Fish - 30 vertebrae (22 salmon, 7 herring and one large halibut)
    3 spines
    3 other
    55 dogfish dorsal spines
  Bird - 1 large claw (eagle?)
    34 long bone fragments

Level 1.5' to bottom
Description - The matrix consisted of dark soil with a great deal of rock. This was taken down to gravel. A marked slope from east to west, following the original surface slope, resulted. Measurements in each corner were:
  NE - 1.6'
  SE - 1.5'
  SW - 1.7'
  NW - 2.1'
Artifacts - none
Faunal Remains
  Mammal - 3 fragments
  Fish - 1 salmon vertebra
  2 dogfish dorsal spines
Test Pit 9  S: 115'-120'  E: 35'-40'

Level 0'-0.8' (depth below datum)

Description - This pit was opened immediately south of test pit 3, forming a 15 foot trench. The surface sloped slightly from east to west. This level evened out the slope. The bottom of this level was 0.8' below surface along the east wall and 0.3' below surface along the west wall. The matrix was dark soil.

Artifacts - DkSp 1:121  trade bead
122  worked bone fragment
123  trade bead
124  worked bone fragment
125  trade bead
255  clay pipe fragment

Historic Material - 1 piece of pottery
4 pieces of glass
3 nails

Faunal Remains
Mammal - 1 human skull fragment (temporal bone including ear opening)
1 deer molar
1 carnivore molar
1 tibia of small mammal
1 deer astragalus
1 deer phalange
1 metatarsal
30 fragments

Fish - 34 vertebrae (22 salmon, 6 herring, 6 halibut)
7 spines
7 other
22 dogfish dorsal spines

Level 0.8'-1.3'

Description - The matrix consisted of dark soil and rocks. Thin patches of crushed shell were scattered throughout. The shell patches sloped from east to west, following the original surface slope.

Artifacts - DkSp 1:126  worked bone
127  worked bone fragment

Historic Material - 1 metal strip

Faunal Remains
Mammal - 1 vertebra (porpoise?)
1 large unidentified bone
1 wolf or dog molar
102 unidentified fragments

Fish - 274 vertebrae (mainly salmon but some herring and halibut)
97 spines (including about 20 very large spines — up to 20 cm. or 8 in. long)
4 mandible fragments  
110 other  
76 dogfish dorsal spines  
Bird - 61 long bone fragments

Level 1.3' to bottom

Description - The matrix consisted of dark soil with a great deal of rock. This was taken down to gravel. This resulted in a slope from east to west, following the original surface slope. Measurements for each corner were:

- NE corner - 1.5'
- SE corner - 1.6'
- SW corner - 2.1'
- NW corner - 2.1'

Artifacts - DkSp 1:128 bone fragment

Faunal Remains

- Mammal - 1 metacarpal (human?)
  1 deer phalange
  1 large mammal humerus fragment
  15 fragments
- Fish - 16 vertebra (salmon, herring, and halibut)
  6 spines
  4 other
  13 dogfish dorsal spines
- Bird - 10 fragments

Test Pit 10  N: 50'-55' E: 35'-40'

Level 0'-0.5' (depth below datum)

Description - This pit was opened immediately south of test pit 7, forming a ten foot trench. The surface of the square was relatively even. Numerous decaying boards from an historic house were embedded in the sod. The matrix for the level was dark soil.

Artifacts - DkSp 1:129 trade bead
  130 trade bead
  131 trade bead
  132 trade bead

Historic Material - 6 pieces of pottery
  3 nails

Faunal Remains - 2 small fragments of mammal bone

Level 0.5'-1.0'

Description - The matrix was dark soil and rock for most of this level. The SW corner contained a great deal of rock. Crushed and matted clam and mussel shell appeared along the north and east walls, extending into the center of the pit, toward the bottom of this level. The appearance of shell sloped somewhat, occurring at 0.8' below
datum along the north and east walls, 1.0' below
datum in the center, and not at all on the SW quadrant.
The shell layer contained triton shells as well as
clam and mussel. Patches of gravel also appeared in
the shell area.

Artifacts - DkSp 1:133 bone awl
134 abrasive stone

Historic Material - 1 nail

Faunal Remains
Mammal - 2 small fragments
Fish - 5 vertebrae
11 spines
11 other

Level 1.0'-1.5'

Description - The matrix for most of this level was crushed shell
with some dark soil. The shell extended throughout
the pit except for an area around the SW corner. The
matrix in this area was dark soil with a great deal
of rock and patches of thick brown ash. Shell appeared
in this area on the floor of this level except in the
extreme SW corner. The matrix for the rest of the
square in this level was crushed clam and mussel shell,
with the occasional occurrence of whole shell. Triton
shells were also common. Some of the larger mussel
shells appeared to be *Mytilus californianus*, rather
than *M. edulis*. Patches of charcoal also occasionally
occurred in the shell. One large patch of charcoal,
associated with a great many fish bones, occurred in
the NE corner just under the surface of this level.
The end of this level coincided with the end of shell
in the NE corner, but shell continued in the NW and
SE quadrants.

Artifacts - DkSp 1:135 bone point
136 bone point

Faunal Remains
Mammal - 8 fragments
1 piece of sea-mammal bone
Fish - 206 vertebrae (almost entirely salmon)
34 spines
18 mandible fragments
32 other
Bird - 5 complete or fragmentary long bones

Level 1.5'-2.0'

Description - The matrix was largely dark soil and rocks with some
of the shell layer from the previous level extending
into it. In the NE quadrant the end of the shell
layer coincided with the beginning of this level.
Shell extended 0.1' or 0.2' into this level in the
NW and SE quadrants. In the SW quadrant the dark soil and thick brown ash described for the previous level extended through most of this level, with shell appearing at the bottom. This is the same lens of shell which appeared in the last level, making a considerable dip in this area. A large cluster of sea mammal bones was encountered in this level. All the bones were broken or cut, and extended in a cluster from the SE corner to about the center of the pit, and from about 1.6' below datum (the end of the shell in this area) to the bottom of this level. Fish bones were also common in this area.

Artifacts - DkSp 1:137 abrasive stone
138 abrasive stone
139 bone point

Faunal Remains
Mammal - 1 large rib fragment
12 unidentified fragments
153 fragments of butchered whalebone
Fish - 130 vertebrae (almost entirely salmon)
15 spines
3 mandible fragments
23 other
2 dogfish dorsal spines
Bird - 8 long bone fragments

Level 2.0'-2.5'

Description - The matrix for this level was mainly dark soil and rocks. The crushed shell from the previous levels appeared in the SW corner. It did not last the thickness of the level and was underlain by dark soil. Some sea mammal bones, from the cluster described in the previous level, occurred along the south wall.

Artifacts - DkSp 1:140 abrasive stone
141 small pointed bone

Faunal Remains
Mammal - 1 scapula fragment
1 deer astragalus
1 small rib fragment
22 unidentified fragments
48 whalebone fragments
Fish - 77 vertebrae (mainly salmon, some halibut)
11 spines
10 other
2 dogfish dorsal spines
Bird - 5 fragments

Level 2.5'-3.0'

Description - This level was composed of dark soil and rocks. Scattered thin patches of crushed shell occurred occasionally. Shell appeared on the NE quadrant at
Artifacts - DkSp 1:142 bone pendant
143 bone bipoint
144 worked bone fragment
256 wapiti bone wedge fragment

Faunal Remains
Mammal - 1 deer pelvis fragment
2 deer ulna fragments
1 deer vertebra
1 deer talus
1 deer astragalus
1 wapiti astragalus
6 deer long bone fragments
1 large mammal rib fragment
2 deer molars
1 unidentified molar
1 small tooth (seal?)
1 large antler (?) fragment
1 sea mammal (sea otter?) humerus
1 sea mammal phalange
3 fragments of sea mammal bone
54 unidentified fragments

Fish - 54 vertebrae (mainly salmon, some halibut)
22 spines
28 other
4 dogfish dorsal spines

Bird - 15 fragments

Level 3.0'-3.5'

Description - The matrix was mainly dark soil and rocks. Scattered crushed shell appeared throughout the square in this level. The amount of shell present was greater in the NE quadrant than in the SW quadrant. The end of this level nearly coincided with the end of dark soil and the beginning of gravel. Gravel began at 3.4' below datum in the NE corner. Shell and faunal remains extended from the dark soil right into the gravel. Gravel appeared on the floor of this level at several other places in the square. A rock feature occurred along the west wall, below the rock feature described for the previous level. See floor plan 2. This may also be spurious as a great many rocks occurred in this level. However, the rocks comprising the two features are generally much larger than those ordinarily encountered.

Artifacts - DkSp 1:145 bone point
146 bone point
147 worked whalebone
Faunal Remains

Mammal -
1 deer scapula fragment
1 deer pelvic bone fragment
1 deer ulna
1 deer humerus fragment
1 deer tibia fragment
1 deer canon bone
1 deer or wapiti canon bone
1 deer talus
1 large mammal talus
2 deer long bone fragments
6 deer vertebrae and 2 fragments of deer vertebrae
2 unidentified vertebral disks
1 deer molar
1 seal canine
1 small mammal molar
1 sea mammal humerus fragment
1 phalange
1 large unidentified bone
1 sea mammal bone fragment
100 unidentified fragments

Fish -
83 vertebrae (mainly salmon, some herring and halibut)
18 spines
32 other
6 dogfish dorsal spines

Bird -
25 fragments

Level 3.5'-4.0'

Description - The matrix was crushed shell and gravel. Gravel occupied the entire square, with faunal remains and a large amount of crushed shell extending through it. A few patches of dark soil appeared in the gravel. A thin layer of charcoal appeared along the west wall at 4.0' below datum. Beach sand appeared in several places along the east wall at the bottom of this level.

Artifacts - DkSp 1:154 bone point
155 bone point
156 bone bipoint
158 bone point
159 bone bipoint
160 bone point

Faunal Remains

Mammal -
1 deer phalange
1 land mammal vertebra
90 fragments
Fish  -  16 vertebrae (13 salmon, 1 halibut, 2 herring)
   20 spines
   20 other
   10 dogfish dorsal spines
   1 sea perch pharyngial tooth

Bird  -  1 large claw (eagle?)
   20 long bone fragments

Level 4.0' to bottom

Description  -  The gravel was entirely removed, as were the first few inches of beach sand underlying the gravel. Crushed shell and faunal remains extended throughout the gravel and a short distance into the beach sand. This level ended at the last appearance of shell and faunal remains. This sloped somewhat from NE to SW, being 4.1' below datum in the NE corner and 4.5' below datum in the SW corner. The shell was clam and mussel. Large pieces of Mytilus californianus were encountered. A patch of charcoal appeared in the SW quadrant. A charcoal sample was taken from N:57', E:36', and 4.1' below datum.

Artifacts  -  DkSp 1:161 worked bone fragment
   162  bone point tip
   258  small pointed bone

Faunal Remains
Mammal  -  1 small canine
   38 fragments
Fish  -  3 salmon vertebrae
   4 dogfish dorsal spines
Bird  -  8 fragments

Test Pit 11  N: 45'-50'  E: 35'-40'

Level 0'-0.5' (depth below datum)

Description  -  This pit was opened immediately south of test pit 10, forming a 15 foot trench. The surface of the square sloped slightly from the south to the north. Planks of an historic building were embedded in the sod. The matrix was dark soil, often heavily compacted, with a quantity of rock.

Artifacts  -  DkSp 1:169  trade bead
   170  trade bead
   171  trade bead
   172  trade bead
   173  trade bead

Historic Material  -  7 pieces of pottery
   4 pieces of glass
   5 nails
   2 buttons

Faunal Remains  -  2 mammal bone fragments
Level 0.5'-1.0'
Description - The matrix for most of this level was dark soil, heavily compacted, and with a great deal of rock. Thick brown ash occurred throughout the level near the NE corner. Crushed shell appeared on the floor of this level in the NE corner. A small hole appeared at N: 47.7', E: 35.3', and 0.9' below datum. It was 0.2' in diameter and about 0.7' deep.
Artifacts - DkSp 1:174 trade bead
Faunal Remains - none

Level 1.0'-1.5'
Description - The matrix was mainly dark soil and rocks. The soil was heavily compacted, particularly in the SW corner where there was also a great deal of rock. Several large rocks appeared in this area. See floor plan 3. Shell appeared in the NE corner. It only extended a short distance into the pit.
Artifacts - none
Faunal Remains - none

Level 1.5'-2.0'
Description - Shell extended further into the pit during this level. It occupied most of the NE quadrant and extended a short distance into the square along the entire north wall. It was overlain by patches of thick brown ash. The matrix for the rest of the level continued to be dark soil and rocks. A cluster of sea mammal bones occurred in the NE corner.
Artifacts - none
Faunal Remains
  Mammal - 2 unidentifiable fragments
  57 sea mammal bone fragments
  Fish - 18 vertebrae (all salmon)
  3 spines
  4 other
  Bird - 1 small bird skull
  2 long bone fragments

Level 2.0'-2.5'
Description - The layer of crushed shell extended across the pit in this level. It sloped from NE to SW, appearing only at the top of this level in the NE corner and at the bottom in the SW corner. Brown ash overlaid the shell. The matrix for the rest of the level was dark soil. The crushed shell contained clam and blue mussel, as well as some *Mytilus californianus*. Patches of barnacle appeared in the shell in the NW and SE quadrants. A large cluster of sea mammal bones, extending from the
clusters described for the previous level and for test pit 10, occurred in this level. They appear to be butchered whalebone. They extended in a cluster from the NE corner to the center of the pit and along most of the north and east walls.

Artifacts - DkSp 1:176 bone point  
177 worked bone fragment  
179 chipped pebble  
259 worked whalebone  
260 bone awl  

Faunal Remains  
Mammal - 1 large sea mammal phalange  
1 humerus fragment  
16 unidentified fragments  
350 pieces of whalebone  
Fish - 61 vertebrae (all salmon)  
12 spines  
11 other  
Bird - 2 long bone fragments  

Level 2.5'-3.0'  
Description - The matrix was mainly dark soil and rocks. The crushed shell lens extended a short distance into this level along the south wall. The cluster of sea mammal bones, described in the previous levels, extended a short distance into this level.  
Artifacts - none  

Faunal Remains  
Mammal - 20 unidentified fragments  
115 sea mammal bone fragments  
Fish - 8 vertebrae (all salmon)  
3 spines  
3 other  
3 dogfish forsal spines  
Bird - 6 long bone fragments  

Level 3.0'-3.5'  
Description - The matrix was dark soil and rocks. Crushed shell appeared at the northern end of the square. This did not form a distinct lens but was scattered throughout the dark soil. A small patch of ash occurred at the bottom of this level near the center of the square. Several large rocks appeared in the southern half of the square. Gravel appeared at the bottom of this level in the NE corner.  
Artifacts - DkSp 1:185 bone point  
186 worked bone fragment  
187 bone point fragment
Faunal Remains

Mammal - 1 deer phalange
- 40 unidentified fragments
Fish - 31 vertebrae (all salmon)
- 17 spines
- 24 other
- 2 dogfish dorsal spines
Bird - 1 pelvic bone fragment
- 1 breastbone
- 1 complete and 9 incomplete long bones

Level 3.5'-4.0'

Description - The matrix for this level was largely gravel. Gravel began at the surface of this level in the NE corner and sloped toward the south of the square where it appeared near the bottom of this level. Crushed shell and faunal remains extended right through the gravel, particularly at the north end of the square. Very little shell and only a few bones appeared in the gravel at the southern end.

Artifacts - none

Faunal Remains

Mammal - 2 human ulna or radius fragments
- 1 deer phalange
- 5 small mammal rib fragments
- 1 small mammal long bone fragment
- 1 porpoise vertebral disk
- 1 long bone epiphysis
- 26 unidentified fragments
Fish - 5 vertebrae (all salmon)
- 5 spines
- 6 other
- 1 dogfish dorsal spine
Bird - 1 small skull
- 4 long bone fragments

Level 4.0' to bottom

Description - This square was excavated to a depth of 4.5' below datum. The gravel was removed and beach sand was excavated for a short distance. A small amount of crushed shell and faunal remains extended into the beach sand a short distance at the north end of the square, but the beach sand at the south was sterile. A charcoal stain appeared at the beginning of beach sand in the NE corner.

Artifacts - DkSp 1:194 harpoon valve fragment

Faunal Remains

Mammal - 1 small rodent mandible fragment
- 14 fragments
Fish - 2 spines
- 1 dogfish dorsal spine
Bird - 2 long bone fragments
Test Pit 12  N: 50'-55'  E: 45'-50'

Level 0'-0.5' (depth below datum)

Description - This pit was opened five feet east of test pit 10. The surface was relatively even. The matrix was dark soil and small rocks.

Artifacts - DkSp 1:166  trade bead

Historic Material - 4 pieces of pottery
                         5 pieces of glass
                         1 nail

Faunal Remains - none

Other - 1 small fleck of mica

Level 0.5'-1.0'

Description - The matrix was dark soil and rocks. Small lenses of ash occurred at the bottom of this level in the SE corner and just west of center. A boulder, appearing on the bottom of the last level, extends along the north wall to a length of 4 feet and an average width of 1.5 feet. An abrasive stone was found leaning at an angle against this boulder.

Artifacts - DkSp 1:167  clay pipe fragment
                         168  abrasive stone

Historic Material - 2 pieces of pottery
                         2 nails

Faunal Remains - 1 salmon vertebra

Level 1.0'-1.5'

Description - The matrix of this level was dark soil and rock. Several small lenses of ash were encountered. The boulder on the north face extended further into this level, reaching a size of 4' by 2'. A row of rocks, extending to the SE corner, was also encountered. See floor plan 4.

Artifacts - none

Faunal Remains - none

Other - 1 small fleck of mica

Level 1.5'-2.0'

Description - The matrix of this level was dark soil and rock. A lens of crushed mussel shell was encountered. The largest extent of the boulder on the north wall was reached during this level.

Artifacts - none
Faunal Remains
Mammal - 5 fragments
Fish - 1 salmon vertebra
Bird - 1 fragment
Other - 1 triton shell

Level 2.0'-2.5'
Description - The matrix of this level was largely dark soil and rock. A large patch of crushed shell occurred in the SE corner. Gravel, mixed with dark soil, appeared at the bottom of this level in the NE corner. Four large horseclam shells, each measuring 0.5 feet across, were found fitted together and leaning against a rock. Several other large rocks appeared in the NE quadrant. See floor plan 5.

Artifacts - DkSp 1:175 ground mussel shell
178 small pointed bone

Faunal Remains
Mammal - 1 seal maxilla fragment
1 deer humerus distal end
1 deer tail vertebra
1 large unidentified bone
1 sea mammal bone fragment
20 unidentified fragments
Fish - 44 vertebrae (31 salmon, 13 herring)
34 spines
35 other
6 dogfish dorsal spines
Bird - 1 breast bone
1 unidentified bone
2 complete and 3 fragmentary long bones
Other - several pieces of Mytilus californianus

Level 2.5'-3.0'
Description - Sterile gravel was reached in the NE corner. Gravel, mixed with dark soil and some shell, occupied the SE quadrant. Crushed shell, with some ash, extended throughout the rest of the square during this level. Several large rocks also occurred in this level. See floor plan 6.

Artifacts - DkSp 1:180 small pointed bone
181 bone bipoint
182 small pointed bone
261 worked bone fragment

Faunal Remains
Mammal - 51 fragments
Fish - 22 vertebrae (18 salmon, 3 herring, 1 halibut)
44 spines
13 other
6 dogfish dorsal spines
Bird — 2 complete and 16 fragmentary long bones

Other — 1 piece of *Mytilus californianus*

1 triton shell

**Level 3.0' to bottom**

**Description** — This level was taken down to 3.5' below datum. The crushed shell, dark soil, and ash were removed and the sterile gravel below excavated for a short distance. The shell ended about 3.1' below datum across most of the square but extended almost to the bottom of this level in the SW corner. The larger boulder which occupied the northern section of the pit was found to rest on the beach gravel.

**Artifacts** — DkSp 1:183 barbed bone point

184 bone awl

**Faunal Remains**

**Mammal** — 1 sea mammal phalange

1 sea mammal long bone fragment

1 large mammal rib fragment

10 unidentified fragments

**Fish** — 2 vertebrae (1 salmon, 1 herring)

11 spines

7 other

1 dogfish dorsal spine

**Bird** — 4 long bone fragments

---

**Test Pit 13 N: 50'-55' E: 40'-45'**

**Level 0'-0.5' (depth below datum)**

**Description** — This pit was opened between test pits 10 and 12, forming a 15 foot trench. The surface of this area is relatively flat. The matrix was dark soil.

**Artifacts** — DkSp 1:188 pipe stem

189 double bead

190 trade bead

191 trade bead

192 trade bead

193 trade bead

197 trade bead

198 trade bead

**Historic Material** — 2 pieces of pottery

2 pieces of glass

3 nails

1 flat piece of metal

1 broken button

**Faunal Remains** — none

**Other** — 1 triton shell

1 piece of basalt
Level 0.5'-1.0'

Description - The matrix was dark soil. Crushed shell appeared in the SW corner at 0.9' below datum.

Artifacts - DkSp 1:195 trade bead
196 trade bead

Historic Material - 2 pieces of pottery
1 piece of glass
2 nails

Faunal Remains
Mammal - 1 deer tibia proximal end
3 fragments of sea mammal bone
4 unidentified fragments

Fish - 1 vertebra (salmon)
1 spine
1 other

Level 1.0'-1.5'

Description - The matrix was dark soil with a large amount of rock. A patch of crushed shell occurred in the SW corner but was not very extensive. A small amount of crushed shell occurred along the west wall but only extended a short distance into the square.

Artifacts - DkSp 1:199 hand maul fragment
200 trade bead
201 small pointed bone
202 abrasive stone

Faunal Remains
Mammal - 1 deer molar
4 deer tail vertebrae
1 large mammal phalange
1 small epiphysis
2 pieces of sea mammal bone
4 fragments

Fish - 13 vertebrae (12 salmon, 1 halibut)
2 spines
1 mandible fragment
5 other

Bird - 1 complete and 1 incomplete long bone

Level 1.5'-2.0'

Description - The matrix was dark soil and rocks. A small amount of crushed shell extended into the SW corner from the last level. A few small patches of ash occurred in this level.

Artifacts - DkSp 1:203 abrasive stone
262 abrasive stone

Faunal Remains
Mammal - 1 sea mammal phalange
1 seal ear bulla
1 unidentified vertebral disk
14 pieces of sea mammal bone
8 unidentified fragments

Fish –
3 salmon vertebrae
2 spines
3 other

Level 2.0'–2.5'
Description – The matrix was dark soil and rocks. A large patch of brown ash extended from the middle of the north wall to slightly north of center. It extended from approximately 2.0' below datum to 2.2' below datum. Numerous very small fish bones were scattered throughout the ash.

Artifacts – DkSp 1:204 abrasive stone
205 chipped pebble

Faunal Remains
Mammal –
5 unidentified vertebral disks
22 unidentified fragments
Fish –
4 vertebrae (3 salmon, 1 halibut)
1 spine
1 other

Bird –
2 fragments

Other –
1 piece of Mytilus californianus

Level 2.5'–3.0'
Description – The matrix was dark soil and rocks. Scattered crushed shell occurred in the dark soil in the SW corner but only extended a short distance into the square.

Artifacts – DkSp 1:206 bone point

Faunal Remains
Mammal –
1 land mammal (deer?) vertebra
1 porpoise vertebra
1 femur fragment (sea mammal?)
1 canine (seal?)
24 unidentified fragments
Fish –
22 vertebrae (all salmon)
3 spines
5 other
2 dogfish dorsal spines

Bird –
9 fragments

Other –
1 large piece of clam shell (horse clam or geoduck)

Level 3.0'–3.5'
Description – The matrix was mainly dark soil and rocks. Scattered crushed shell extended throughout the dark soil toward the bottom of this level.

Artifacts – DkSp 1:207 harpoon valve
208 bone point fragment
209 bone point
263 worked whalebone
Faunal Remains

Mammal -
  1 deer scapula fragment
  1 deer pelvic bone fragment
  3 large mammal rib fragments
  3 land mammal vertebrae
  1 small mammal vertebra fragment
  1 long bone fragment
  3 small skull fragments
  1 large skull fragment
80 unidentified fragments

Fish -
  130 vertebrae (mainly salmon; a few herring)
    34 spines
    18 other
      4 dogfish dorsal spines

Bird -
  1 bird vertebra
  1 bird rib fragment
  29 long bone fragments

Other -
  1 triton shell
  1 piece of *Mytilus californianus*

Level 3.5'-4.0'

Description - The dark soil ended near the top of this level. It was underlain by gravel at the western end of the pit. The gravel extended to the bottom of this level, where beach sand appeared. Gravel did not appear at the eastern end of the pit; beach sand being directly under the dark soil. Crushed shell was scattered throughout the dark soil and extended down through the gravel and into the beach sand. At the end of this level, sterile beach sand was reached in the eastern half of the pit. Crushed shell still continued along the western section.

Artifacts -

<table>
<thead>
<tr>
<th>Artifacts</th>
<th>Description</th>
</tr>
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<tbody>
<tr>
<td>DkSp 1:210</td>
<td>bone point fragment</td>
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<tr>
<td>211</td>
<td>bone point fragment</td>
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<tr>
<td>212</td>
<td>bone point</td>
</tr>
<tr>
<td>213</td>
<td>bone bipoint</td>
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<td>214</td>
<td>bone point</td>
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<td>215</td>
<td>small pointed bone</td>
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<td>216</td>
<td>abrasive stone</td>
</tr>
<tr>
<td>264</td>
<td>abrasive stone</td>
</tr>
<tr>
<td>265</td>
<td>harpoon valve fragment</td>
</tr>
</tbody>
</table>

Faunal Remains

Mammal -
  1 hair seal bulla
  1 seal canine
  1 seal incisor
  1 seal premolar (?)
  1 porpoise vertebra
  1 small epiphysis (deer?)
86 unidentified fragments

Fish -
  15 vertebrae (11 salmon, 4 herring)
   40 spines
   24 other
    12 dogfish dorsal spines

Bird -
  26 long bone fragments
Other - 1 piece of *Mytilus californianus*
several large pieces of clam shell

Level 4.0' to bottom

Description - Excavation was continued into the beach sand at the
western end of the pit. The beach sand was removed
until faunal remains and crushed shell no longer
appeared. This occurred at 4.3' below datum at the
center of the pit. The eastern half was not
excavated as sterile beach sand had already been reached.

Artifacts - DkSp 1:217  small pointed bone
              218  small pointed bone

Faunal Remains
Mammal - 1 seal mandible fragment
         1 seal premolar
         18 unidentified fragments
Fish - 2 vertebrae (1 salmon, 1 herring)
      3 spines
      1 other
      2 dogfish dorsal spines
Bird - 10 fragments

Test Pit 14  N: 50'-55'  E: 30'-35'

Level 0'-0.5' (depth below datum)

Description - This pit was opened immediately west of test pit 10,
forming a 20 foot trench. The pit is located almost
at the edge of the first terrace. There is a drop of
about four feet down to the high water line just past
the western edge of the square. The surface is some­
what irregular, with a general slope from west to east,
away from the edge of the terrace. The first level
evened out the slope. The west side of the pit was
about 0.9' below surface at the bottom of this level.
The matrix was dark soil. The western edge of the
pit contained a great deal of rock.

Artifacts - DkSp 1:230  trade bead
            231  trade bead
            232  trade bead
            233  trade bead
            234  fused trade beads
            235  trade bead

Historic Material - 2 pieces of pottery
          3 pieces of glass
          1 broken button
          7 nails
          1 large metal key

Faunal Remains - 1 deer scapula
Level 0.5'-1.0'

Description - The matrix was dark soil with a great deal of rock. The soil was heavily compacted at the west edge of the pit. Patches of ash occurred in this area.

Artifacts - none

Historic Material - 3 nails

Faunal Remains - several small fragments of burnt mammal bone

Other - 1 small piece of clam shell

Level 1.0'-1.5'

Description - The matrix was dark soil, often heavily compacted, with a great deal of rock. A number of small patches of ash occurred. Crushed shell appeared in the NE corner at the bottom of this level.

Artifacts - none.

Historic Material - 1 square nail
                   1 piece of glass

Faunal Remains - 1 small fragment of burnt mammal bone

Level 1.5'-2.0'

Description - The matrix was mainly dark soil with a large amount of rock. A large patch of ash occurred near the west wall. Crushed shell extended through this level in the NE corner. The shell sloped south and west, appearing along most of the east wall floor by the end of this level. The shell contained a large amount of *Mytilus californianus*, as well as clam, blue mussel, and triton shells. Small patches of charcoal appeared in the shell. The small amount of faunal remains collected came entirely from the shell area.

Artifacts - DkSp 1:237 bone bipo
            238 bone point

Faunal Remains
Fish - 11 spines
      6 other
Bird - 2 fragments

Level 2.0'-2.5'

Description - Dark soil formed the matrix for most of this level. The crushed shell described in the previous level extended further into the pit. It sloped south and west from the NE corner, appearing on the floor of this level in all the pit except along the west wall. Dark soil was reached in the NE corner where the shell lens terminated. Thin patches of ash overlaid much of the shell area. Four large articulated vertebrae appeared in the SW quadrant at 2.3' below datum, in an ash layer just above crushed shell. They appear to be
the vertebrae of a very large fish, probably halibut. The vertebrae are up to 5.5 cm. across and 5.0 cm. high.

Artifacts - none

Faunal Remains
Mammal - 1 small scapula fragment
1 piece of sea mammal bone
4 unidentified fragments
Fish - 43 salmon vertebrae
5 large halibut vertebrae
2 mandible fragments
2 spines
12 other
Bird - 5 fragments

Level 2.5'-3.0'
Description - The matrix for this level was mainly the crushed shell lens described in the two previous levels. It extended across the pit in this level. *Mytilus californianus* was common, as were clam, blue mussel, and triton shells. Patches of charcoal appeared in the shell. Dark soil was the matrix in the NE corner as the shell lens had already terminated in this area. At the bottom of this level the shell seems to have terminated across the rest of the pit, except along the west wall.

Artifacts - none

Faunal Remains
Mammal - 1 deer scapula fragment
1 deer molar
1 metacarpal (human?)
3 land mammal vertebrae fragments
12 pieces of sea mammal bone
20 unidentified fragments
Fish - 87 vertebrae (all salmon)
3 mandible fragments
7 spines
9 other
1 dogfish dorsal spine
Bird - 1 large claw (eagle?)
5 long bone fragments

Level 3.0'-3.5'
Description - The matrix was dark soil and rock. The crushed shell from the last level extended a short distance into this level along the west wall. A small amount of crushed shell also appeared on the floor of this level along the west wall.

Artifacts - DkSp 1:241 bone point fragment
242 chipped pebble
243 bone point fragment
244 bone point fragment
245 chipped pebble
Faunal Remains
Mammal - 1 deer molar
1 seal humerus
1 sea mammal vertebral disk
1 unidentified talus
3 pieces of sea mammal bone
26 unidentified fragments
Fish - 25 vertebrae (almost entirely salmon)
5 spines
5 other
5 dogfish dorsal spines
Bird - 6 fragments

Level 3.5'-4.0'
Description - The matrix was dark soil and rocks, with small amounts of scattered crushed shell. Gravel was reached at the end of this level in the NE corner. A number of large rocks appeared in this level. See floor plan 7.
Artifacts - DkSp 1:246 bird bone awl
247 bone point fragment
248 bone bipoint
Faunal Remains
Mammal - 1 seal maxilla fragment
2 sea mammal phalanges
1 sea mammal long bone fragment
1 deer ulna distal end
1 deer pelvic girdle fragment
1 land mammal vertebra (deer?)
1 small land mammal phalange
1 epiphysis
39 unidentified fragments
Fish - 54 vertebrae (50 salmon, 4 halibut)
8 spines
14 other
2 dogfish dorsal spines
6 sagittal otoliths (?) of large fish
Bird - 20 long bone fragments

Level 4.0'-4.5'
Description - The matrix for this level was mainly gravel, although dark soil extended a distance into this level in the western half of the pit. Crushed shell and faunal remains extended into the gravel. A patch of charcoal appeared between the dark soil and the gravel at the beginning of this level along the east wall. Beach sand appeared on the floor of this level along the east wall.
Artifacts - none
Faunal Remains
Mammal - 1 deer humerus distal end
1 deer vertebra spine
1 axis vertebra (deer?)
3 pieces of sea mammal bone
27 unidentified fragments

Fish - 8 vertebrae (all salmon)
10 spines
5 other
1 dogfish dorsal spine

Bird - 7 long bone fragments

Level 4.5' to bottom
Description - The pit was excavated to a depth of about 4.9' below datum. All the gravel was removed and the beach sand was excavated until no trace of faunal remains or crushed shell appeared.
Artifacts - DkSp 1:249 small pointed bone

Faunal Remains
Mammal - 9 fragments
Fish - 1 spine
1 other
1 dogfish dorsal spine

Test Pit 15 N: 60'-65' E: 85'-90'

Level 0'-0.5' (depth below datum)
Description - This test pit was located near the edge of the second terrace, at the north of the site. The surface was relatively even. The matrix of this level was dark soil.
Artifacts - DkSp 1:219 clay pipe fragment
220 trade bead
221 trade bead
222 trade bead
223 trade bead
224 trade bead
225 trade bead
226 trade bead
227 trade bead

Historic Material - 8 pieces of pottery
4 pieces of glass
2 large spikes
5 nails

Faunal Remains - none
Other - 1 piece of clam shell

Level 0.5'-1.0'
Description - The matrix of this level was dark soil and rock. Scattered pockets of ash appeared throughout but were larger near a number of rocks which appeared around the center of the square. The rock formation consists of two large rocks and several flat rocks, forming an arc. See floor plan 8.
Artifacts - DkSp 1:228 abrasive stone  229 trade bead

Faunal Remains - none

Level 1.0'-1.5'

Description - The matrix was mainly dark soil and rock. A pocket of ash was located in the SE corner. The configuration of rocks increased considerably in size during this level. The center of the feature appears to be the large rocks from the previous level, with lines of smaller rocks extending from them. See floor plan 9.

Artifacts - DkSp 1:236 abrasive stone

Faunal Remains - none

Level 1.5'-2.0'

Description - The matrix was dark soil and rock. Several small patches of ash and charcoal occurred. The rock feature continued into this level, with the addition of a number of large rocks. See floor plan 10.

Artifacts - none

Faunal Remains - 8 fragments of burnt mammal bone

Level 2.0'-2.5'

Description - The matrix of this level was dark soil and rock, except for a large area of hard brown ash around the rock feature. A number of additional large rocks appeared in this level, clustering from the center to the north wall. See floor plan 11.

Artifacts - DkSp 1:239 abrasive stone.

Faunal Remains - several small fragments of burnt bone

Other - several small pieces of clam shell

Level 2.5'-3.0'

Description - The matrix of this level was very hard brown ash over most of the square and dark soil in the NW corner. More large rocks appeared in the rock feature, clustering around the NE corner. See floor plan 12. Several small deep holes were noted in the ash. Charcoal was discovered in large quantity under the rocks in the NW corner. A charcoal sample was taken.

Artifacts - none.

Faunal Remains - 1 fragment of burnt mammal bone

Level 3.0'-3.5'

Description - The matrix of this level was compact brown ash, with dark soil continuing in the NW quadrant. The dark soil contained a great deal of charcoal. Large rocks continued to appear. See floor plan 13.
Artifacts - none
Faunal Remains - none

Level 3.5'-4.0'
Description - A mass of additional large rocks appeared in this level. They were clustered mainly around the center of the pit. See floor plan 14. The matrix was hard brown ash through most of the pit. Dark soil continued in the NE quadrant. Ash came to an end along the east wall and was underlain by black soil (mainly charcoal).
Artifacts - DkSp 1:240 cobble tool
Faunal Remains - none

Level 4.0'-4.5'
Description - The layer of hard brown ash came to an end near the top of this level, being replaced by dark soil across the square. Thin lenses of loose white ash and charcoal occurred. All traces of the rock feature disappeared with the end of the ash layer.
Artifacts - none
Faunal Remains - none

Level 4.5'-5.0'
Description - The matrix of this level was dark soil. Scattered patches of loose white ash occasionally occurred. A carbon sample was taken from the SW quadrant at 5.2' below datum.
Artifacts - none
Faunal Remains - none

Level 5.0'-5.5'
Description - The matrix for this level was dark soil with some gravel. Some scattered ash and charcoal still occurred.
Artifacts - none
Faunal Remains - none

Level 5.5'-6.0'
Description - The matrix continued to be dark soil, with some scattered ash and charcoal.
Artifacts - none
Faunal Remains - none

Level 6.0'-8.0'
Description - Only the NE quadrant was excavated. This was taken down to the appearance of beach sand. The matrix was
dark soil with a great deal of gravel. One layer of ash appeared at 7.5' below datum. Sand was reached just above the 8' below datum level.

Artifacts - none

Faunal Remains - none
Appendix 2

Profiles and Floor Plans

The walls of the two intersecting test trenches, composed of test pits 6, 7, 11, 12, 13, and 14, are shown here, as are the north and east walls of the two second terrace pits. The remaining six units were shallow in depth and almost homogeneous in matrix.

Few floor plans were drawn. Rock features were rare or difficult to discern in a matrix of dark soil and rocks. Half of the floor plans (numbers 8 to 14) refer to the large rock feature that extended through much of test pit 15. Each feature shown in the floor plan is described in the appropriate level notes in Appendix 1.
TEST PIT 4

S: 210'-215'
E: 50'-55'

NORTH WALL

dark soil, rocks

rock

EAST WALL

dark soil, rocks

rock

scale: 1 cm. = 1'

ash

ash

ash

ash

ash
FLOOR PLAN I
TEST PIT 10
N: 50'-55'
E: 35'-40'
FLOOR DEPTH = 3.0'

scattered crushed shell, dark soil

dark soil

scale←1'→
FLOOR PLAN Z
TEST PIT 10
N: 50'-55'
E: 35'-40'
FLOOR DEPTH - 2.5'

scale: 1'
FLOOR PLAN 3

TEST PIT II

N: 45'-50'  E: 35'-40'

FLOOR DEPTH - 15'

scale: ——— 1' ———
FLOOR PLAN 4
TEST PIT 12
N: 50'-55'  E: 45'-50'
FLOOR DEPTH - 1.5'

rock

dark soil

scale: ← 1' →
FLOOR PLAN 5
TEST PIT 12
N: 50'-55'  E: 45'-50'
FLOOR DEPTH - 2.5'

rock

dark soil

crushed shell + ash

gravel

four large horse-clam shells

scale: <-1->
FLOOR PLAN 6

TEST PIT 12

N: 50' - 55'  E: 45' - 50'

FLOOR DEPTH -- 2.0'

rock

gravel

crushed shell and ash

gravel, shell, dark soil

scale: ——— 1' ———
FLOOR PLAN 7
TEST PIT 14

N: 50' - 55'  E: 30' - 35'

FLOOR DEPTH -- 70'

dark soil

scale: 1' →
FLOOR PLAN 8
TEST PIT 1.5

N: 60° - 65°  E: 85° - 90°

FLOOR DEPTH - 1.0'

dark soil

scale: 1'
FLOOR PLAN 9
TEST PIT 15

N: 60' - 65'  E: 85' - 90'
FLOOR DEPTH = .5'

dark soil

scale: 1'
FLOOR PLAN 10

TEST PIT 15

N: 60' - 65'  E: 85' - 90'

FLOOR DEPTH: 2.0'

scale: 1'
FLOOR PLAN II
TEST PIT 15
N: 60° - 65°  E: 85° - 90°
FLOOR DEPTH - 2.5'

scale: ← 1' →
FLOOR PLAN 12

TEST PIT 15

N: 60' - 65'
E: 55' - 90'

FLOOR DEPTH - 3.0'

scale: 1'
FLOOR PLAN 13

TEST PIT 13

N: 60' - 65'  E: 85' - 90'

FLOOR DEPTH - 3.5'

dark brown soil

ash

scale: \(1'\)
FLOOR PLAN 14
TEST PIT 15
N: 60'-65'  E: 85'-90'
FLOOR DEPTH - 4.0'

scale: — 1' —
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</table>
TEST PITS 6, 7, 10, 11
EAST WALLS

WEST WALLS

scattered crushed shell extending from dark soil through gravel and into beach sand

scale: 1 cm = 1"
TEST PITS 10, 12, 13, 14

NORTH WALLS

dark soil

crushed shell

scattered crushed shell extending from dark soil through gravel and into beach sand

gravel

sandy gravel

gravel and sand

SOUTH WALLS

dark soil

crushed shell

gravel

sand

dark soil