BASKETRY FROM THE OZETTE VILLAGE ARCHAEOLOGICAL SITE: A TECHNOLOGICAL, FUNCTIONAL, AND COMPARATIVE STUDY

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ABSTRACT

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In this study prehistoric basketry items, including baskets, cradles, hats, mats, and tumplines, from the Ozette Village Archaeological site and other Northwest Coast water-saturated archaeological sites are examined on three analytical levels. First, the basketry attributes (modes) are considered and compared between the sites. Second, basketry stylistic/technological classes are created using a paradigmatic classification framework. These basket, hat, and mat classes are also compared between sites through the use of cluster analysis techniques. The results of these comparisons clearly indicate a continuity of basketry styles in three separate regions of the Northwest Coast for the last 2,000 to 3,000 years, potentially indicating techno-cultural continuity in these regions. Third, a functional classification of the basketry items from Ozette Village and other sites is considered. The Ozette basketry artifacts are ideal for this purpose, since they generally are recovered in their original position in a prehistoric household and contain original contents. The arrangement of the basketry objects in Ozette House I indicate the location of different family units. Functional categories of basketry in each family area reflect the status and activities of the household members. Comparisons of basketry functional categories from each Northwest Coast wet site demonstrate site-use differences. Major village

sites, fishing stations, and shellfish gathering areas are separated in cluster analysis since they produce different frequencies of basketry categories. The three-level analysis of basketry from Ozette Village and other Northwest Coast wet sites demonstrates a special analytic value for basketry artifacts in Northwest Coast prehistory research.

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INTRODUCTION

In recent years numerous basketry artifacts have been recovered from water-saturated archaeological sites (wet sites) located on the Northwest Coast of North America. They are the subject of investigation in the present study. The main focus is on the basketry from the Ozette Village archaeological complex located at Cape Alava near the northwestern tip of the Olympic Peninsula, Washington (Map 1). Comparisons are made among this and other collections within a temporal and spatial framework.

The basketry artifacts from Northwest Coast sites are studied and compared on the following analytic levels: (1) basketry attributes (modes), (2) the basketry stylistic/technological classes (types), and (3) basketry functional classes. The results of these analyses and the inter-site comparisons are used to generate hypotheses concerning existing or developing models of Northwest Coast prehistory. If the results of inter-site comparisons of basketry technologies demonstrate major shifts in basketry styles through time, or regional continuities of basketry styles through time, or any other patterns, these data are used to develop hypotheses concerning the development, movement, or interaction of cultural manifestations on the Northwest Coast. It is proposed at the outset that basketry artifacts from Northwest Coast wet sites are complex and analytically sensitive materials. They should be of considerable help in establishing chronologies for and in synthesizing major aspects of the prehistory in this area. Though the data presently available are limited, there is a high probability of many more Northwest Coast wet sites adding to this data base. In a preliminary way this study adds the new dimension of basketry technology to Northwest Coast prehistory, and demonstrates the analytic potential of prehistoric Northwest Coast basketry artifacts.

Map 1. The distribution of excavated water-saturated archaeological sites on the Northwest Coast of North America.

Ozette Village and Other Northwest Coast Wet Sites

The abundant rainfall on the Northwest Coast has helped to create the numerous water-saturated archaeological sites (wet sites), which contain large quantities of perishable artifacts. Most of these sites have been discovered and excavated within the last seven years. Coastal archaeologists only recently have developed the hydraulic techniques necessary for the careful excavation of such sites and the techniques needed for effectively preserving the perishable artifacts. To date, eleven wet sites have been excavated on the Northwest Coast. Ozette is unique among these sites because it contains a part of a prehistoric village that has been preserved under a massive mudslide that occurred between 300 and 500 years ago. Excavations of Ozette have produced an almost complete collection of basketry, cordage, and other artifacts made from plant materials.

The hundreds of prehistoric Ozette basketry artifacts are the focus of this study, and serve as the basis for analytic comparisons with basketry from other wet sites along the coast. These other sites are waterlogged sites that are located (1) at river mouths and estuaries, (2) in slough/cove areas (or areas that were slough/cove areas at one time and have since filled in), (3) beside or in calm tidal flat (mudflat) areas, (4) beside fresh water springs or creeks within or near a village, and (5) along river channels (Croes 1976d:286-287). These Northwest Coast wet sites have certain features in common and each can be defined as a water-saturated soil matrix below a water table in which cultural objects made from vegetal materials have been preserved. Generally, the vast majority of the items made of vegetal matter remain intact and complete. Because of the anaerobic condition in the water-saturated soils and the general lack of aerobic decay organisms (bacteria, and more importantly, fungi) decomposition has been very slow.

Some amount of decay has occurred, however, because of anaerobic bacteria and fungi. This is true especially of the softer animal tissue, but also is true of some vegetal matter.

The sites along the Northwest Coast to be considered here are: (1) Lachane (GbTo 33), (2) Axeti (Kwatna) (FaSu 1), (3) Little Qualicum River (DiSc 1), (4) Musqueam Northeast (DhRt 4), (5) English Camp (45SJ24), (6) Fishtown (45SK99), (7) Conway (45SK59b), (8) Biederbost (45SN100), (9) Hoko River (45CA213), (10) Ozette Village (45CA24), and (11) Wapato Creek Fish Weir (45PI47) (see Map 1 for locations).

In this study, it is only the basketry items found in these sites that are to be compared. These artifacts are excellent for comparative studies principally for three reasons: (1) basketry items have been recovered from all Northwest Coast wet sites, (2) they usually are the most abundant artifact found in wet sites, and (3) basketry items are complex artifacts with numerous diagnostically sensitive attributes (modes) which are excellent for comparative purposes.

Spatial and Temporal Considerations

Map 1 illustrates the spatial distribution of those Northwest Coast wet sites that have been excavated as of the date of this study. These sites have been discovered in widely scattered areas along the coast. No doubt many other sites of this type remain to be discovered.

Radiocarbon dates from the water-saturated areas and levels of these sites range from approximately 500 B.P. to as early as 3,000 years B.P., and fall within the following time periods (see Map 1):

General Time Period	Sites
2,500-3,000 B.P.	Musqueam Northeast, Hoko River
1,500-2,500 B.P.	Biederbost, Lachane
500-1,500 B.P.	Axeti, Conway, Fishtown
300-500 B.P.	Ozette Village
?	Little Qualicum River, English Camp, Wapato Creek

In terms of age, it is significant that two wet sites on the Northwest Coast have C14 dates as early as 2,500 to 3,000 years B.P., and it is likely that wet sites dating from even earlier periods eventually will be discovered. Water-saturated archaeological sites from other parts of the world have been discovered that date from as early as 60,000+ years B.P. (see Croes 1976b:6-8 for a listing of examples). These sites are very similar to the Northwest Coast wet sites in that usually they are associated with an unoxidized, bluish clay/silt soil matrix and have excellent preservation of vegetal materials. Such sites indicate the potential for very early, well-preserved, vegetal artifacts from water-saturated archaeological sites; earlier wet sites (prior to 3,000 years B.P.) can be expected from the Northwest Coast within geologic (glacial-climatic)/cultural limits.

The Basketry Artifacts

This study deals primarily with Ozette Village basketry. The Ozette shed-roof houses, the elaborate wood working technology, the spectacular art, and the elaborate whaling and hunting gear perhaps draw more attention, but the basketry artifacts have one major point in their favor: they are the most common artifact in other Northwest Coast water-saturated archaeological sites. Ozette provides the best situation for studying basketry because these artifacts are usually recovered in their actual functional context, and in the places within the house where they had been used or stored. Moreover, the baskets often have their original contents preserved, indicating

their use. The relatively complete data from Ozette Village, therefore, can serve as the basis for a study of basketry from all Northwest Coast wet sites.

Basketry items, as complex artifacts, have numerous attributes or modes. Use of these modes for comparison within the Ozette Village site context and with basketry modes from other sites provide useful interpretive data. Comparisons also can be made among the complex combinations of these basketry modes which form the basketry types or classes. Artifacts with this diagnostic sensitivity are notably scarce on the Northwest Coast, where most of the stone, bone, and shell artifacts appear to change little through time and across space. In this regard George F. MacDonald, working with the Northwest Coast Prince Rupert Village sites, has noted:

> . . . all of the artifacts relating to economic activities and manufacturing which form the vast majority of the collections show continuity from the lower to upper horizons and with ethnographic Tsimshian specimens (these include fish hook components, line weights and net gauges, barbed points, hunting gear, bark peelers and shredders, shell knives, planing adzes, beaver teeth carving tools, etc.) (1968:5).

and

> Unfortunately the vast majority of artifacts from each horizon are non-diagnostic, such as bone awls or fish hook barbs. Tool types that have greater diagnostic value such as harpoons or decorated objects are too rare to be of much use (1969:7).

Some of these difficulties with the archaeological data on the Coast should be alleviated as more water-saturated archaeological sites, with basketry and other vegetal artifacts, are discovered and excavated. The proposition here is that vegetal artifacts, particularly basketry, when incorporated into already established frameworks for Northwest prehistory, will furnish some of the data necessary (1) to provide more sensitive chronologies for the Northwest Coast; (2) to .help clarify how different cultural traditions have originated, developed, and changed through time and across space; and (3) to provide a more complete knowledge of the prehistoric site-specific activities of the regions. Some preliminary statements are made in this study relative to

what data on basketry can demonstrate concerning Northwest Coast prehistory on the basis of information presently available.

A Brief Review of the Literature on Basketry

The approach followed here in analyzing the Ozette Village basketry, and that of other collections as well, is in some ways tediously explicit and systematic. The reason for this is that basketry needs to be clearly presented since it is not commonly understood, and the terminology involved is not used frequently nor is it well standardized in (or outside of) the discipline. Earlier basketry studies have been utilized to develop a standard terminology and a general research orientation.

The approaches to the study of basketry followed by other authors fall into six major categories:

1. The ethnographic-descriptive approach.
2. The key to identification approach.
3. The how to make them approach.
4. The basketry as art approach.
5. The basketry classification approach.
6. The systematic comparison through time and across space (or prehistory) approach.

The Ethnographic-Descriptive Approach

The classic ethnographic-descriptive work dealing specifically with basketry was done by Otis

Tufton Mason: *Aboriginal American Basketry: Studies in a Textile Art without Machinery* (1902). Mason described in detail the ethnographic Indian basketry materials, construction techniques (of base, body, and rims), decoration styles and techniques, shapes, symbolism (meanings of designs), and functions of different baskets. He then described the distribution of different types of baskets in defined ethnic areas. The study was thorough and included a glossary of basketry terms. This massive study provided the definitive base for most of the basketry studies to follow.

Another study of this kind was made by George Wharton James: *Indian Basketry* (1909). This book, in addition to describing ethnographic American basketry materials, techniques, and forms, deals with such subjects as "basketry in Indian legend and ceremonial," numerous different aspects of symbolism in Indian basketry, and "the poetry of Indian basketry." It also describes the most valuable collectors' baskets, how to preserve baskets, and discusses the "decadence of the art."

Important descriptive-ethnographic works dealing with basketry on the Northwest Coast include G. T. Emmons' *The Basketry of the Tlingit* (1903), a very detailed and well done description of ethnographic Tlingit basketry, and Frans Boas' ethnographies, including "The Kwakiutl of Vancouver Island" (1909) and "Ethnology of the Kwakiutl" (1913). Both of Boas' works contain thorough descriptions of how, when, and where basketry materials were collected by the Kwakiutl, how the raw materials were prepared, the process of manufacturing baskets described step by step by Kwakiutl informants, and detailed description of the functions of different kinds of Kwakiutl baskets. Also included in the list is Marian Smith's well organized description of "Salish Coiled Baskets" (1949). Smith offers a scheme for recording Salish basketry. Herman

K. Haeberlin, James A. Teit, and Helen Roberts' "Coiled Basketry in British Columbia and Surrounding Regions" (1928) provides a detailed descriptive study of British Columbia Salish coiled basketry, including information on gathering, preparing, and the technical manipulation of the basketry materials. Livingston Farrand's "Basketry Designs of the Salish Indians" (1900) offers a good photographic coverage of Washington Coast Quinault and other Coast Salish baskets, and Interior Fraser-Thompson River Salish coiled basketry. This work emphasizes design. Ruth Underhill's *Indians of the Pacific Northwest* (1945) is a descriptive ethnographic study of Washington State Indians which provides good descriptions and illustrations of basketry materials, techniques, and types in the coastal Washington area. Reverend Myron Eells' "The Twana, Chemakum, and Klallam Indians of Washington Territory" (1887) describes eleven kinds of baskets for these groups, detailing which plant materials were used in their manufacture. T. T. Waterman's *Notes on the Ethnology of the Indians of Puget Sound* (1973) contains a section describing six major features of Puget Sound basketry technology and delineating eight kinds of Puget Sound baskets. Lila O'Neale's *Yurok-Karok Basket Weavers* (1932) describes Yurok-Karok baskets, and considers different social aspects relating to the basket-weavers, including such subjects as training and professionalism, cooperation and the concept of design ownership, men's attitude toward the craft, and the commercial aspects of Yurok-Karok basketry.

The Key to Identification Approach

The main objective of studies of this variety is to help identify the cultural origins of baskets. These studies contain photographs of major basket types from each cultural area with descriptions of the types. A reader can often determine which illustrated basket resembles most closely a particular specimen and thereby predict the cultural origins of the specimen in question.

To an extent, Mason's work, *Aboriginal American Basketry* (1902), also can be used for this purpose, but this was not the primary objective of his study. Charles Miles and Pierre Bovis' *American Indian and Eskimo Basketry: A Key to Identification* (n.d.) is a photographic key. Frank Lamb's *Indian Baskets of North America* (1972) also is a photographic key which provides good descriptions and maps of the different cultural areas from which the basketry specimens were derived. Both works are useful in identifying the cultural origins of historic North American basketry and supplement one another.

The How to Make Them Approach

Except for the numerous general craft books which emphasize Western basketry techniques, in particular wicker basketry, few works have dealt in a comprehensive fashion with how to make baskets from the standpoint of the many possible materials, techniques, and forms. One of the earliest examples of this approach is *Indian Basket Weaving* (1903) by the Navajo School of Basketry. This work discusses several different techniques and provides detailed steps for manufacturing certain basketry forms. A later and very comprehensive work by Sandra Corrie Newman is titled *Indian Basket Weaving, how to weave Pomo, Yurok, Pima, and Navajo baskets* (1974). Publications have come out recently dealing with basket weaving as a modern textile art. Included in this group are *The Technique of Basketry* (1974) by Virginia I. Harvey and *A Modern Approach to Basketry* (1974) by Dona Z. Meilach.

The Basketry as Art Approach

The major work on basketry as an art is Ed Rossbach's study, *Baskets as Textile Art* (1973). Rossbach follows a descriptive format but approaches baskets as an artist. He describes what he

categorizes as "temporary" quickly constructed baskets, and "permanent" baskets, and provides numerous photographs of the different parts of baskets. He deals with qualitative aspects of basketry materials, patterning in basketry, basketry techniques of coiling, plaiting, twining, and wickerwork, and also discusses the processes involved in the manufacture of basketry. With his art-oriented approach, stressing several different conceptual aspects, Rossbach has added a new dimension to the study of basketry.

The Basketry Classification Approach

Studies that follow this approach deal with how basketry attributes and basketry types can be classified, and the problems involved in classifying basketry. Helena Balfet's "Basketry: A Proposed Classification" (1957) is a good example of this approach. She created a scheme for classifying all ethnographic basketry, including a classification of techniques for basket body construction, basket base ("starts") construction, and basket rim ("finishes") construction. The classification framework is paradigmatic (Dunnell 1971:200) and her work was an attempt to definitively standardize basketry classifications.

Gene Weltfish (1932), dealing with certain problems and the comparative value of classifying basketry in "Problems in the Study of Ancient and Modern Basket-Makers," stated:

> Basketry ... is peculiarly useful for comparative study. It can be approached and controlled technically from many points of view, because in the basketry art the fundamental mechanical factors involved in the technical process objectify themselves in the product and are not lost in the process of making. In controlling basketry for comparative purposes, a variety of problems come up-including problems of technical criteria and description, questions of the stability and comparability of technical traits, problems of exact allocation, and in the comparative study itself, questions of chronology or allocation in time and the

> general methodological problems of in how far the basket-making art can be used as a key to cultural and physical relations of native groups, past and present. It is important also to weigh details and peculiarities (p. 108).

Weltfish discusses five basketry types for North America and characterizes each on the basis of several technical traits. Though this is not a rigid classification scheme, it is an attempt to characterize basketry types in North America for comparisons through time and across space.

The author's Master of Arts paper, "An Analysis of Prehistoric Baskets from the Ozette Site, Cape Alava" (Croes 1972), basically is a development of a classificatory scheme for the Ozette Village baskets. The Ozette baskets are paradigmatically classified at the level of basket attributes—the modes of construction materials; shapes; body, bottom, and rim construction techniques; basket extensions (handles, flaps, and tumpline loops); gauges of weave; sizes; and ornamentation techniques--and then basket classes are defined paradigmatically according to the stylistic attribute considerations. These classes are then synthesized into a functional classification according to stylistic similarities, contents of baskets, and distributional characteristics. Attribute, technologic/stylistic, and functional type classifications are created for the Ozette baskets. This preliminary attempt at classification provides the basis for the revised and expanded classification scheme developed here for the basketry from Ozette.

The Systematic Comparison through Time and Across Space (Prehistory) Approach

Studies following this approach deal with how different basketry technologies were related and have changed through time and across space. Gene Weltfish's study, "Prehistoric North American Basketry Techniques and Modern Distribution" (1930), is concerned with distributions

of basketry attributes in North America in both historic and prehistoric times. Because of the early date of the study, the prehistoric data are markedly limited. In considering the distribution of modern basketry, Weltfish is able to determine some recurrent patterns of attributes in different areas of North America, is able to delineate some similarity between prehistoric and historic basketry and, in addition, to formulate some explanations for those results.

James W. Adovasio's study, "The Origin, Development and Distribution of Western Archaic Textiles" (1970), is a good example of the prehistory approach to the study of basketry. Adovasio analyzed Great Basin basketry and demonstrated the change over the past 10,000 years. From the study, Adovasio was able to compare the basketry data with studies of the development and distribution of lithic, bone, and other artifact categories in the Great Basin, and to create several new hypotheses regarding (1) how cultures were related within the Great Basin and elsewhere, (2) how and where basketry techniques (and possibly cultural groups) were distributed, and (3) when techniques were developing or being discarded in a space/time frame. Adovasio developed his analytic framework around one attribute of basketry, the weaving technique. His work has contributed substantially to the understanding of Great Basin prehistory. Recently Adovasio completed a more substantial basketry study, "Prehistoric North America Basketry" (1974), which expands his earlier work to include data from sites throughout North America. This work establishes stages for the evolution of basketry techniques in North America and provides a series of maps illustrating spatial changes in basketry construction techniques through time.

In the Northwest Coast area, Joan Megan Jones' study, *Northwest Coast Basketry and Culture Change* (1968), is a thorough analysis of historic museum baskets. She defined basket modes

and basket types and demonstrated, by the use of a controlled ten-year time interval and the seriation method, how these basket modes and types changed through time in frequency of occurrence in selected areas on the Northwest Coast. Her conclusions provide explanations for these changes. Jones recently (1976) completed an expanded definitive study of the historic baskets from the Northwest Coast which considers space/time changes in specific areas of the Northwest Coast. This study will become even more valuable as additional Northwest Coast water-saturated archaeological sites are excavated and the prehistoric basketry is compared with contact period basketry from specific areas. Attention will be given here to the basketry mode and type definitions developed by Jones so that her categories can be related to those of the present study.

Although aspects of each of the discussed six approaches are used in this study, the main approach is that of the last, the systematic space/time comparison (or prehistory) approach. Basketry artifacts from the Ozette Village and other sites on the Northwest Coast are analyzed using research designs developed from earlier studies. The basketry classifications developed here employ many of the major diagnostic attributes or modes discussed in other studies. One major objective of this study, which departs from some earlier works, is to define the basketry attributes (modes) and the combinations of the modes into basketry classes (types) in a definitively explicit format. To achieve this, every basketry mode and class is defined paradigmatically by a distinct and clearly defined combination of diagnostic features. The reasons for explicit definitions are two: (1) since basketry is unfamiliar to most readers, its different aspects need to be clearly defined, and (2) the Ozette Village basketry offers a very special occurrence of prehistoric material (e.g., in this case all the prehistoric basketry in an occupied Northwest Coast house). Clarity of presentation will allow this collection to be compared with

other collections on the Northwest Coast and elsewhere, from both the historic and prehistoric period.

The Analytic Framework

This analysis includes (1) a diagnostic attribute or mode classification, (2) a stylistic/technological type classification, and (3) a functional classification of the Ozette Village and other Northwest Coast basketry. The attributes or modes defined in the first classification are employed in defining the stylistic/technological types in the second classification, and the types so defined are then utilized to define the functional classes in the last classification. The units created in these classifications are used (1) as the units of analysis when dealing with the distribution and function of basketry within the Ozette Village site, especially in reference to the first excavated Ozette house (House I), and (2) to develop similar comparative classifications for the basketry from other Northwest Coast sites for a detailed comparison of the existing prehistoric basketry assemblages on the entire Coast. The summarized results present a detailed picture of the basketry from a single household at Ozette in its prehistoric cultural context and, using the basketry data from all Northwest Coast wet sites, present new hypotheses concerning the prehistoric development of, and interrelationship between, the basketry technologies in different regions of this area.

OZETTE VILLAGE BASKETRY ATTRIBUTE (MODE) CLASSIFICATION

A paradigmatic classification framework is employed here to create explicit definitions. A paradigmatic classification is a non-hierarchical classification in which classes are formed by a distinct combination of mutually exclusive alternate features (Dunnell 1971:200). In this case, each basketry attribute from the different dimensions, e.g., the dimensions of construction materials, construction techniques, shapes, etc., are defined, and these modes are used later to form basketry classes, These defined modes and classes become the units for comparison. Conklin stated that "paradigmatic classification arranges entities which are known (1) to share a certain common feature (Lounsbury 1956), and (2) to constitute a contrast set (Conklin 1962a)" (Conklin 1969:107). Therefore, each class consists of items that share the definitive features of being basketry, but differs from all other classes of basketry on the basis of at least one definitive mode.

The Analytic Universe: Ozette Basketry

Before classification of the different kinds of Ozette basketry can be attempted, the items to be classified need to be defined. Basketry is defined here as *any object that is coiled or woven of bark, limbs (boughs), roots, grass blades, or any combination of these materials.* Any artifact that meets these necessary and sufficient conditions is considered to be basketry. This definition of basketry includes such items as baskets, hats, mats, tumpline straps, and cradles from Ozette, but excludes blankets which are manufactured on loom frames with materials including dog hair, bird down, and cattail head seed-fluff. Slightly over 1,000 examples of basketry thus defined (including basketry fragments) were recorded for this analysis from the Ozette Village House I

area.

The Dimensional Features of Basketry

The dimensional features of the basketry attribute (mode) classification are considered first. In defining the concept of dimension for classification, Watson et al. state: "a dimension is some formally defined aspect of the group of objects that is being studied" (1971:138). Dunnell defined dimensions as "a set of mutually exclusive alternate features" (1971:200). And Lounsbury defined a dimension of a paradigm as "a set of mutually exclusive (i.e., non-co-occurrent) features which share some or all of the same privileges of combination ('bundling') with features not of this dimension" (1969:193). The dimensions of basketry to be considered here are:

1. Construction materials.
2. Shapes or forms.
3. Base and body construction techniques.
4. Extensions made onto the basketry object.
5. Selvage techniques.
6. Gauges of weave.
7. Sizes.
8. Ornamentation methods and techniques.

In considering these different basketry dimensions, the diagnostic attributes (modes) of each dimension are defined. As Spaulding pointed out: "a dimension is that aspect of a class of things or events which requires its own special measuring apparatus" (1960:72). The method of

analysis of each of the above Ozette basketry dimensions is delineated in the text so that comparisons can be made with the same dimensional units in other studies.

The Basketry Modes

Each dimension of basketry from Ozette Village has a range of attributes which intuitively are considered to be culturally relevant. The term mode is applied to these attributes. This concept of mode is well defined by Rouse as "an abstraction of a recurring feature from the specimen" (1939:18). Rouse further assumes that modes "express the culture which conditions the artisan's behavior" (1939:18). Dunnell considers modes as "an intuitive cultural class of attributes of discrete objects" (1971:202). To derive basketry modes, Rouse's recommended technique is utilized in this study: "examine a collection in terms of the artisan's procedure, starting first with the material he used, continuing with his technique of manufacture, and then considering shape, decoration, and uses" (1960:314).

Basketry Materials

It is assumed that the basketmaker had knowledge of what plant to seek when gathering basketry materials, what part of the plant to use, and how to prepare or modify that plant part, if necessary, into basketry materials. To identify the plants used for the Ozette basketry materials, a newly developed collodion peel replica technique for cell analysis was employed (Croes n.d.). From analysis of cell structure and general macro-features, and with reference to ethnographic data, most basketry materials could be identified. These analyses also indicated the probable part of the plant (e.g., the root, bough, bark, leaf, or stem) being used and the modification (e.g.,

splitting, thinning, sectioning, etc.) of the plant part. Other aspects are involved in the gathering and preparing of basketry materials, but the above criteria are considered the most significant for definitive purposes.

The modes of Ozette basketry material are defined in Table 1. Under the category "modification," an idealized cross-section through the designated plant part is drawn to illustrate the general method of splitting, thinning, or sectioning.

Table 1. Basketry materials defined.

	Plant		Plant Part		Modification; X-Sec.		Name
1.	*Thuja plicata*	+	root	+	curvilinear split splints	→	Cedar Root Splints
2.	*Picea sitchensis*	+	root	+	curvilinear split splints	→	Spruce Root Splints
3.	*Thuja plicata*	+	boughs (limbs)	+	flat split splints	→	Cedar Bough Splints
4.	*Acer circinatum*	+	boughs (limbs)	+	flat split splints	→	Vine Maple Bough Splints
5.	*Thuja plicata*	+	inner cortex of bark	+	split ribbon strips	→	Cedar bark Strips
6.	*Prunus emarginata (?)*	+	bark	+	cut ribbon strips	→	Cherry Bark Strips
7.	*Xerophyllum tenax*	+	leaves	+	edges scraped	→	Bear Grass
8.	*Carex sitchensis*	+	leaves (blades)	+	split sedge blades	→	Split Beach Grass
9.	*Scirpus acutus*	+	stems	+	flattened	→	Tule (Bulrush) Stems
10.	*Typha latifolia*	+	leaves	+	flattened	→	Cattail Leaves

Table 2. Frequency of Ozette Village basketry materials.

Material	Baskets	Hats	Mats	Total	
Cedar bark	172	7	141	320	(71%)
Cedar splints	81			81	(19%)
Tule/cattail			16	16	(4%)
Splint/cedar bark	14			14	(3%)
Cedar bark/splint	3	3		6	(1%)
Root (?)	3	3		6	(1%)
Splint/cherry bark Total	3			3	(1%)
	276 (62%)	13 (3%)	157 (35%)	446	(100%)

From a sample size numbering 446 basketry items (not including basketry fragments), split cedar bark strips were the basketry materials most commonly employed at Ozette (Table 2). Of the cedar bark basketry items 54% are baskets, 44% are mats, and 2% are hats. Most of the Ozette mats, with the exception of those made of tule, were made of this flexible material. Detailed descriptions of gathering and preparing cedar bark basketry materials have been provided by Boas (1909:371-372; 1913:120-134).

Cedar splints (mostly boughs) were the next most frequently employed material (Table 2). This sturdy, rigid, water-resistant (non-absorbent) material was used in constructing utility baskets. A detailed description of gathering and preparing cedar bough basketry materials has likewise been provided by Boas (1913:116).

Tule stems and cattail leaves were the next most frequently used materials (Table 2) and appear to have been used primarily for mat construction. Unfortunately, these materials are very poorly preserved at Ozette and the basketry items constructed of these materials are very difficult to

identify. Detailed descriptions of gathering and preparing tule stems and cattail leaves have been provided by Gunther (1945:21-22) and Underhill (1945:106-107).

Combinations of basketry materials in constructing individual basketry items also are employed. Most common of these combinations is cedar splints as the primary elements and cedar bark strips as the secondary element (splint/cedar bark; Table 2). All basketry items constructed using this combination of materials are baskets. The next most frequent combination is the reverse of the first, with cedar bark strips as the primary and cedar splints as the secondary element. Of the Ozette basketry items made with this combination of materials, three were baskets and three were hats. Of still lower frequency is the combination of cedar splints as the primary element, and cherry bark strips as the secondary element. Only baskets were noted with this combination.

The use of root construction materials was recorded on three coiled baskets and three hats. Detailed descriptions of gathering and preparing spruce roots have been provided by Boas (1913:116-119).

In summary, cedar bark strips appears to have been the most common basketry construction material at Ozette Village, and were especially typical of mat constructions although frequently used in baskets and hats as well. Easy to obtain quickly and in large quantities, this material is relatively strong and flexible and functions well for the sacks, wallets, bags and mats, commonly made from it. The cedar splints were the next most frequently employed material used in constructing Ozette basketry items. This material mainly was used to construct sturdy pack, storage, and utility baskets and was suitably strong, rigid, and water repellant (non-absorbent). Tule/cattail was the next most frequently used basketry material and mainly was used in the con-

struction of mats which were recorded ethnographically as covers for temporary shelters, as wall covers, and as mattresses. These materials are light, water-repellant, and springy. Combinations of materials also were used, mainly for baskets and to a lesser degree for hats. These combinations afforded to basketry items the best qualities of each of the combined materials. For example, a basket or hat with combinations of materials often has a sturdy and rigid cedar splint warp and a flexible but strong cedar bark or cherry bark weft. Root materials also were used in coiled basket and woven hat construction at Ozette. These materials usually were split into thin, fine basketry elements that were strong, very pliable, and non-absorbent. These were valuable qualities, especially in the construction of strong, water-tight coiled baskets and strong, water-resistant hats.

Comparison of Basketry Materials Utilized at Other Northwest Coast Wet Sites

Ozette is one of eleven excavated Northwest Coast wet sites. Most of these sites have significant samples of basketry artifacts. Ozette, of course, has the largest sample (446 basketry items, not including basketry fragments, from House I alone). Basketry from other sites varied from two to 130 specimens. While occasionally a small portion of the basketry from a given site could not be studied because it was in the process of being cleaned, was in preservation, or was incompletely analyzed due to time limitations, the majority of each collection (90%+) have been studied and recorded and provide the basic data for these comparisons.

Sample size is carefully noted in the comparisons. It should be noted that the Ozette Village basketry sample consisted of relatively complete specimens, rather than the generally fragmentary specimens found at most other wet sites. Controlled excavations and labeling

techniques at most of the sites being compared indicate which fragments belong to a single specimen.

Most Northwest Coast wet sites have basketry artifacts constructed from the same materials used at the Ozette Village site. However, the frequency of utilization of the different materials varies markedly among the different sites. If one compares the frequency graphs (Fig. 1) some important patterns can be observed. The two northernmost sites, Lachane and Axeti, have a strong stress on the use of cedar bark basketry materials (100 and 96% respectively). The sites of Conway and Fishtown are interestingly similar in terms of basketry material frequencies. These sites are spatially very close (Map 1), and temporally somewhat separated (Conway 670±75 B.P.; Fishtown: 1220±70 B.P.). With regards to the three earliest wet sites, Musqueam Northeast, Biederbost, and Hoko River (approximately 3,000, 2,000, and 2,500 years B.P. respectively), a correlation is seen between the first two sites in their strong stress on cedar splints basketry materials (90% and 98% respectively). The Hoko River site on the other hand has a strong emphasis on cedar bark followed by cedar splints, splints/cedar bark, and root (?) basketry materials. Thus, of the three earliest sites the Musqueam Northeast and Biederbost sites show a positive correlation, but the Hoko River site is most similar to the Ozette Village site to which it is spatially very close (Map 1), but temporally separated by about 2,000 years. The three remaining sites, Little Qualicum River, English Camp, and Wapato Creek, have too small a sample for the comparison to be significant, but are listed for reference.

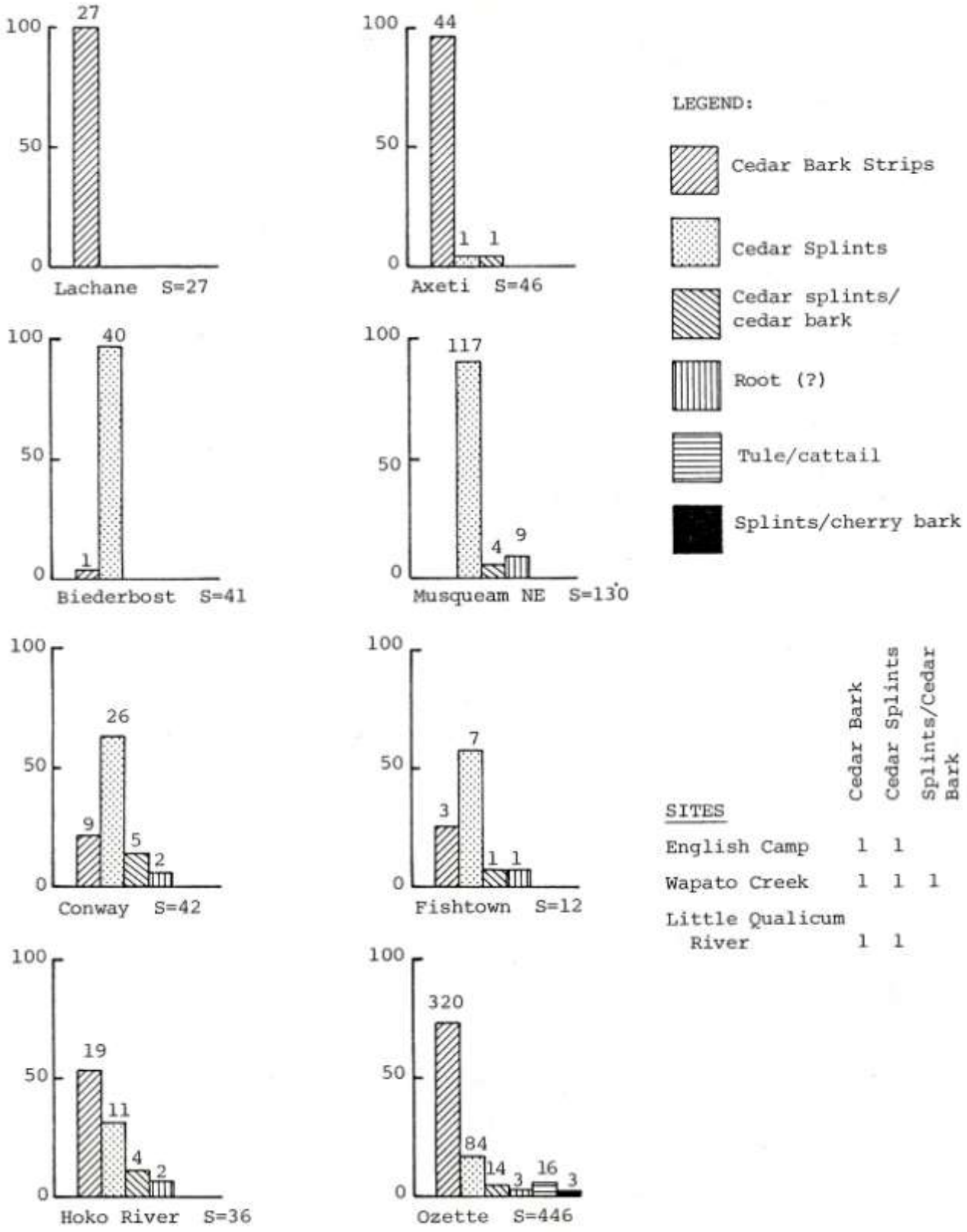


Fig. 1. Frequency of occurrence (histograms) of basketry materials utilized at Northwest Coast wet sites.

In general, similar basketry materials occur at most Northwest Coast wet sites, but the emphasis or frequency of occurrence of the different materials is noticeably different among many of the sites and similar among others. Environmental differences in the site areas cannot be a major factor contributing to the different frequencies in basketry materials, since often the stressed materials are from the same plant, just different parts of the plant. For example, Musqueam Northeast has a high frequency of western red cedar splint (bough) basketry materials, whereas Lachane has a 100% frequency of western red cedar inner bark basketry materials. The same plant is involved; just different parts--bough vs. bark—were stressed.

To further compare the frequency of kinds of basketry material recorded at each of the eight Northwest Coast wet sites (with significant sample sizes) a close proximity analysis using the double-link method is conducted (after Renfrew and Sterud 1969:265-277). Employing Robinson's method to construct the correlation matrix (Robinson 1951), two final serial orders are constructed (Fig. 2A). These tests, demonstrating the degrees of similarity, support the similarities seen in the histograms. Strong correlations of similarity in frequency (greater than 180) of basketry materials used exist between (1) the northernmost wet sites, Lachane (LA) and Axeti (AX); (2) the spatially very close sites of Conway (CO) and Fishtown (FI); and (3) the early and somewhat contemporary sites of Musqueam Northeast (MU) and Biederbost (BI). Relatively strong correlations (150-179) exist between (1) the spatially very close sites of Hoko River (HO) and Ozette Village (OZ), and (2) the spatially separated Axeti and Ozette Village sites. As will be discussed below, the Ozette Village/Axeti correlation may be indicative, in part, of the type of site; both were major village sites. At the lower level of correlation (129-149) all the Puget Sound/Gulf of Georgia sites— Conway, Fishtown, Biederbost, and Musqueam

Northeast—are joined, though temporally the latter two are much earlier. Hoko River and the Fishtown and Conway sites also correlate at this level.

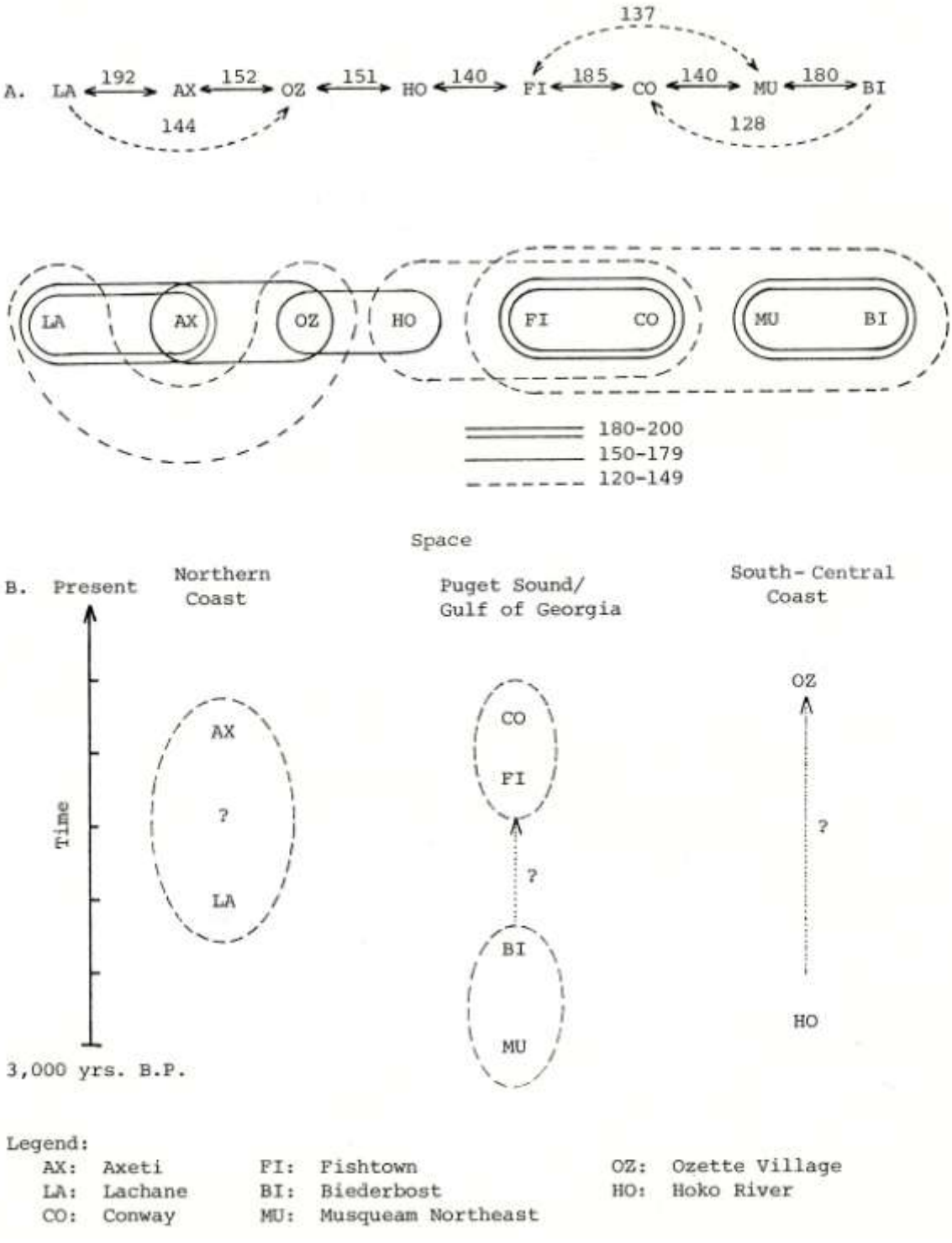


Fig. 2. (A) Double-link close-proximity chain series for basketry materials. Degrees of similarity: 0 = no similarity to 200 = complete similarity. (B) Hypothetical continuity model of site interrelationships, based on basketry construction materials utilized.

These degrees of similarity in frequency of utilization of different basketry materials between Northwest Coast wet sites are significant in terms of possible cultural and/or functional similarities. From only these comparisons of basketry construction materials there appear to be potential relationship between Axeti and Lachane, Conway and Fishtown, Biederbost and Musqueam Northeast; a somewhat less strong relationships between Ozette Village and Hoko River, Ozette Village and Axeti; and a somewhat weaker correlation yet between Conway, Fishtown, Musqueam Northeast, and Biederbost. Considering temporal and spatial data concerning these sites, a hypothetical and general model derived from the basketry material data is constructed in Fig. 2B. It should be noted that the north coast sites, Lachane and Axeti, are spatially quite separate (Map 1), and their correlation may indicate site functional similarities (both are considered to be village sites) rather than any cultural/stylistic similarities. This hypothetical model, based only on basketry materials utilized, is generally a continuity model for spatially-defined areas. The preliminary hypotheses derived from these data and advanced for further testing are:

1. Musqueam Northeast and Bidederbost are culturally and functionally related sites.
2. Conway and Fishtown are culturally and functionally related sites.
3. These four above mentioned Puget Sound/Gulf of Georgia sites may represent some form of cultural continuity in this region.
4. Hoko River and Ozette Village, though temporally separated, also may represent some form of cultural continuity in this south-central coast region.

While these hypotheses are tentative at this point, it will be seen that many of the preliminary correlations between the sites are not limited to the basketry construction material dimension, but also can be seen in some of the other dimensional categories and also when considering basketry classes.

Basketry Shapes

In considering the Ozette Village basketry shapes the general basketry categories--baskets, hats, and mats—are dealt with separately. These categories have their own unique shapes or forms that are related to their separate functions: baskets were used as containers; hats were used as covers for the head; and mats were used to place things upon, for wrapping material, and to cover things. Baskets and hats have three-dimensional shapes, whereas mats are two-dimensional flat forms. Figure 3 provides a general orientation to basketry shapes and to the major points of reference used in discussing them.

Basket Shapes Defined

Basket shapes are defined according to (1) the shape of the base, (2) the side profile, and (3) the shape of the mouth. This sequence of features reflects the development of the basket shapes in the manufacturing process: the maker first shaped the base, next the sides, and finally shaped the developing mouth. The shapes of the base or mouth are easily identified with reference to the horizontal two-dimensional planes, and the side profiles are identified with reference to the vertical two-dimensional plane (see Fig. 3 for plane orientation). These features usually are readily understood because of the symmetry along the horizontal and vertical planes found in most basket shapes. Certainly many other considerations are involved in developing the basket shape, but in considering the finished Ozette basket shapes the above criteria are the most definitive.

The modes of Ozette basket shapes are defined in Table 3. The illustrated base and mouth shapes

reflect the difference in relative sizes between the two. The names given to the basket shapes are intended to be descriptive.

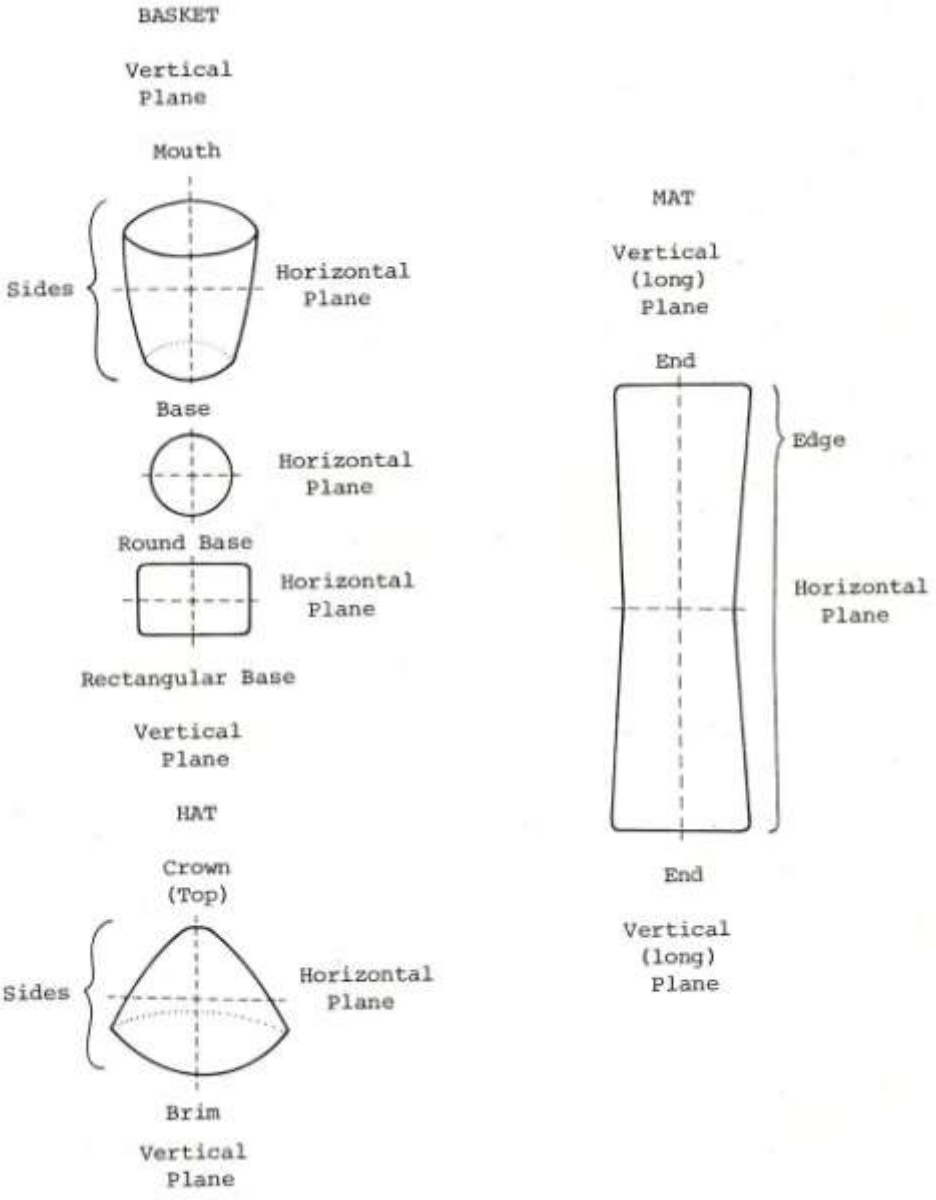
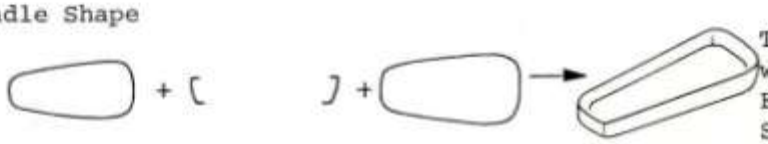
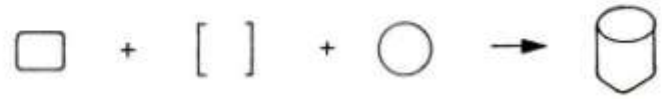


Fig. 3. Basketry areas and planes of orientation defined.

Table 3. Ozette basket shapes defined.

	Shape of Base	Side Profile	Shape of Mouth	Illustration	Name of Shape	Number and Frequency of Occurrence
1.					Flat Rectangle	(42, 16.7%)
2.					Flat Trapezoid	(22, 10.8%)
3.					Inverted, Truncated Pyramid	(7, 3.4%)
4.					Cube	(7, 3.4%)
5.					Expanding, Rounded Cube	(86, 42.2%)
6.					Ovate, Inverted, Truncated Cone	(23, 11.3%)
7.					Ellipse with Low Expanding Sides	(3, 1.5%)
8.					Rectangular-base, Recurving Oval	(4, 2.0%)
9.					Cylinder	(1, 0.5%)
10.					Inverted, Recurving, Truncated Cone	(1, 0.5%)
11.					Rounded-base Cylinder	(2, 1.0%)

Table 3 (Continued)

	Shape of Base	Side Profile	Shape of Mouth	Illustration	Name of Shape	Number and Frequency of Occurrence
12.					Recurving Cube	(1, 0.5%)
13.					Truncated Sphere	(2, 1.0%)
14.					Inverted, Truncated Cone	(1, 0.5%)
--Cradle Shape						
15.					Trapezoid with Low Expanding Sides	(3, 1.5%)
--Infant Face Cover Shape						
16.					Flat Rectangle With Two Open Edges	(6, 2.9%)
Additional Basket Shapes Recorded at Other Northwest Coast Wet Sites					Total	(204, 99.7%)
17.					Sub-rectangular, Inverted, Truncated Cone	
18.					Square-base Cylinder	

At Ozette the most frequent basket shape is the expanding rounded cube form (#5, Table 3). This shape is seen in both a common cedar splint, utility basket, and also a smaller flexible cedar bark bag or sack. Other common open (vs. flat) shapes for generally larger utility, pack, and/or storage baskets include inverted, truncated pyramid (for a specialized form of pack basket, 13,

Table 3); cube (for a large, flexible cedar bark storage and pack basket, #4, Table 3); ovate, inverted, truncated cone (for splint bough and/or cedar bark carrying and storage baskets, #6, Table 3); and rectangular-base, recurving oval (for a large flexible cedar bark storage basket, #8, Table 3) . The next most common basket shapes at Ozette are the flat forms (see #1 and #2, Table 3). Of the Ozette Village baskets, 27.5% are of this form and are almost all small flexible cedar bark bags or wallets. Many of the other basket shapes are limited in number, with only one to three representatives. These limited in number basket shapes include tray shapes (ellipse with low sides, #7, Table 3); small ("trinket") baskets (#9, #11, and #14, Table 3); and cradles (trapezoid with low sides, #15, Table 3). Somewhat more common are the distinctively shaped infant face cover forms (flat rectangle with two open edges, #16, Table 3).

The Ozette Village basket shapes usually are closely correlated with the function of the basket, and this makes it difficult to differentiate between a general category of basket shape and its functions. For example, the inverted, truncated pyramid shape was called "sloping-sided clam" by Jones, implying that the main function of baskets of this shape was for gathering clams (Jones (1968:9). The dimension of basket shape is important but should not be confused prematurely with functional categories of baskets. The close association is noted here, however.

Comparison of Basket Shapes from Other Northwest Coast Wet Sites

The Ozette baskets have a wider variety of shapes as compared with those reconstructed basket shapes recovered from other Northwest Coast wet sites. This probably is related to the greater number and more complete baskets recovered at Ozette than at other sites.

A major problem in dealing with basket shapes from other wet sites is the fragmentary condition

in which many of them were found. Often only tentative identifications of the original basket shapes can be given, derived from the careful consideration of the base and side formations. Basket shapes from other sites that are tentatively reconstructed are discussed below. The presence and frequency of these basket shapes are recorded in Table 4.

Flat forms (#1 and #2, Tables 3 and 4) occurred only at Ozette Village and Hoko River. At both sites these bags were constructed of flexible cedar bark materials.

Open (vs. flat) basket shapes, generally functioning as large utility baskets, were much more common than flat bag shapes at all sites. Inverted, truncated pyramid basket shapes (#3, Tables 3 and 4) were recorded at Ozette Village, Hoko River, Axeti, and possibly at Little Qualicum River. In each case, these basket examples are large utility pack baskets and constructed with the open wrapped body weave (below). Unfortunately, the Hoko River examples are fragmentary, but from the recovered bases of specimens it is clear that they had small, almost pointed or sharply rounded, bases characteristic of this shape. Such baskets are recorded ethnographically as pack baskets and were most commonly used by south-central coast groups.

Cube basket shapes (#4, Tables 3 and 4) were recorded at Ozette Village and Axeti. Both of these sites had large cedar bark baskets of this shape, and at Ozette Village these were used as storage baskets (below).

Table 4. Basket shapes occurring at Northwest Coast wet sites (number of occurrences indicated in parentheses).

Basket Shape	Ozette Village	Hoko River	Musqueam Northeast	Biederbost	Axeti	Lachane	Conway	Fishtown	Wapato Creek	Little Qualicum River	English Camp
1. Flat rectangular	+ (42)	+ (1)			+ (1)						
2. Flat trapezoid	+ (22)	+ (1)			+ (1)						
3. Inverted, truncated pyramid	+ (7)	+ (5?)								+ (?)	
4. Cube	+ (7)										
5. Expanding, rounded cube	+ (86)										
6. Ovate, inverted, truncated cone	+ (23)		+ (2?)				+ (4)	+ (2)			
7. Ellipse with low expanding sides	+ (3)										
8. Rectangular-base, recurving oval	+ (4)										
9. Cylinder	+ (1)										
10. Inverted, recurving, truncated cone	+ (1)										
11. Rounded-base cylinder	+ (2)										
12. Recurving cube	+ (1)										
13. Truncated sphere	+ (2)										
14. Inverted, truncated cone	+ (1)	+ (3)									
15. Trapezoid with low expanding sides	+ (3)						+ (1)	+ (1)			
16. Flat rectangle with two open edges	+ (6)										
17. Sub-rectangular, inverted, truncated cone		+ (1?)	+ (11)	+ (8?)							
18. Square-base cylinder						+ (7)					+ (1?)

Ovate, inverted, truncated cone basket shapes (#6, Tables 3 and 4) were recorded at Ozette Village, Conway, Fish-town, and possibly at Musqueam Northeast. Baskets of this shape were the common open weave, cedar splint, utility baskets at these sites.

Sub-rectangular, inverted cone basket shapes (#17, Table 3) were common at the early Puget Sound/Gulf of Georgia sites of Musqueam Northeast (Croes 1975:24, 26-27), and Biederbost, and one example possibly occurs also at Hoko River. The single basket recovered from English Camp also is possibly of this form. This shape has a square base, and sides which were brought up in an expanding, rounded profile*, effected by the addition of warp elements to the main corners of the basket (Fig. 4). No major corner warp elements were noted, and the corners were rounded or rather indistinct. The mouth form outline was similar to the base form outline, but probably more rounded and with equal length and width measurements. This basket shape was recorded as characteristic of rather large, cedar splint (bough) constructed, utility carrying baskets from these sites.

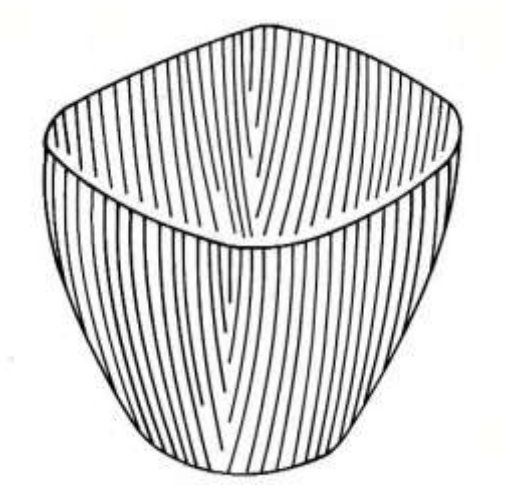


Fig. 4. Addition of corner warps to expand the basket sides on Musqueam Northeast sub-rectangular conical basket forms.

The square-base cylinder basket shape (#18, Table 3) was recorded only at Lachane, and was the single basket shape recorded from this site. These baskets have a squarish flat base, straight sides, and a rounded mouth outline, and are characteristic of small, flexible, cedar bark baskets. The identical basket shape, size, and construction materials were recorded as common characteristics of historic baskets of the Tsimshians (the people recorded ethnographically for the Lachane area) (Croes 1977).

Inverted, truncated cone basket shapes (#14, Table 3) occurred at Hoko River and Ozette Village. These are small, close weave, cedar bark baskets.

Trapezoid with low side (cradle) shapes (#15, Table 3) were recorded at Ozette Village, Conway, and Fishtown. The cradles at Ozette were woven of cedar bark strips, whereas those from Conway and Fishtown were woven with thin cedar splints.

Basket Shapes Summarized

Most basketry from Northwest Coast wet sites, with the obvious exception of Ozette Village, is too fragmentary for complete shape identifications. Shape characteristics, where it has been possible to determine them, provide valuable information about the function of the baskets. Since basket shape reconstructions from fragmentary specimens often are tentative, only general comparisons between sites are possible. These comparisons tend to indicate:

1. Hoko River and Ozette Village have similar baskets of flat forms, inverted, truncated pyramid "pack" basket shape, and inverted, truncated cone shape.

2. Ozette Village, Conway, and Fishtown have similar large, cedar splint, open weave, utility baskets with ovate, inverted, truncated cone shape.

3. Musqueam Northeast, Biederbost, and possibly English Camp (early Puget Sound/Gulf of Georgia sites) and Hoko River have utility pack baskets of the sub-rectangular, inverted, truncated cone shape.

4. Lachane has small, cedar bark baskets with the square-base cylinder shape. This basket shape is only recorded archaeologically at Lachane, but is a common basket shape for historic baskets of the Tsimshian area.

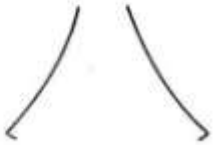
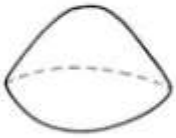
5. Ozette Village, Conway, and Fishtown have cradles with the trapezoid with low sides shape. Conway and Fishtown cradles are very similar, being woven of thin cedar splints; they are distinct from Ozette Village cradles, which were woven of cedar bark strips.

Unfortunately, sample sizes of identifiable basket shapes at most Northwest Coast wet sites are very small, and close-proximity analyses, such as conducted here with basketry materials, do not properly reflect the degrees of similarity among sites. However, from the simple occurrence of certain shapes at different sites, the information tends to support many of the site correlations as noted with basketry construction materials.

Hat Shapes Defined

Hat shapes are defined according to (1) the crown profile and (2) the side profile (see Table 5). Since the shape of the brim and other shapes recorded through the horizontal planes of the hat are circular, they therefore do not provide distinguishing features characterizing the different hat shapes. Likewise, the side profiles, with one exception, are generally conical with only slight differences in the slope of the sides, and are therefore of limited diagnostic value. The variable profile of the hat crown however is of considerable diagnostic value with several different forms (Table 5) including flat-tops, knob-tops, and rounded-tops.

Table 5. Ozette hat shapes defined.

	Crown Profile		Side Profile		Illustration	Name of Shape	Number and Frequency of Occurrence
1.		+		→		Truncated "Flat-top" Cone	(4, 28.6%)
2.		+		→		Assymetrical, Truncated Cone "Southwester"	(1, 7.1%)
3.		+		→		Rounded Knob-top Cone	(4, 28.6%)
4.		+		→		Cylindrical Knob-top Cone	(1, 7.1%)
5.		+		→		"Onion Dome" Knob-top Cone	(1, 7.1%)
6.		+		→		Rounded-top Cone	(3, 21.4%)
						Total	(14, 99.9%)

Additional Hat Shape Recorded from Hoko River Site

7.		+		→		"Small" Knob-top Cone	

At Ozette Village fourteen complete hats were recovered from House I, including five (36%) with a truncated (flat top) cone shape (#1 and #2, Table 5); six (43%) with a knob-top cone shape (#3, #4, and #5, Table 5); and three (21%) with a rounded-top cone shape (#6, Table 5). One of the functions of these three major shapes apparently was to serve as status and/or age-sex markers of the hat owners. According to ethnographic information flat-top hat forms were worn by Nootkan "commoners," knob-top hat forms by Nootkan "nobles," and rounded-top conical forms probably by young persons or females (cf. Mozino 1970, below). All forms obviously would have functioned equally to protect the wearer from the weather.

Comparison of Hat Shapes from Other Northwest Coast Wet Sites

Hats recovered from other sites are discussed by site below.

Musqueam Northeast Hat Shapes

One basketry fragment, possibly a top portion of a hat, was recovered at the early Musqueam Northeast site but, unfortunately, it is too fragmentary for proper shape identification (Borden 1976:245, Fig. 6a; Croes 1975:13).

Hoko River Hat Shapes

Two hat fragments were recovered from the early Hoko River site. Both are top sections and complete enough for shape reconstruction (see #7, Table 5). Both hats have a small knob-top cone shape, with much smaller knobs than those from Ozette Village. Both of these hats had

been constructed of cedar bark (cf. Croes 1976c:218, 220). The fact that this knob-top style is very early may prove of significance in socio-cultural interpretations of the Hoko River site.

Axeti Hat Shapes

Two hats were recovered from the Axeti site. Both of these hats are of the rounded-top cone shape (#6, Table 5). Both appear to have been constructed from cedar bark.

English Camp Hat Shapes

A single hat was recovered from the English Camp site. This fragmentary hat also is of the rounded-top cone shape (#6, Table 5; Sprague 1976:83).

Wapato Creek Fish Weir Hat Shapes

A single hat was recovered from the Wapato Creek Fish Weir site. This hat, though somewhat fragmentary at the very top, appears to have a small knob or pointed top, possibly similar to #7, Table 5, but with a taller point. This hat had been constructed from cedar bark (Munsell 1976a:51, Fig. 5 and Plates III and IV).

Hat Shapes Summarized

Hat forms from Northwest Coast wet sites are not numerous except for the Ozette Village site. Hats recovered to date are of both the rounded-top and knob-top cone shape. As more hats are

recovered, their shapes may provide valuable socio-cultural information. In the early historic period they commonly demonstrated the wearer's status.

Mat Shapes Defined

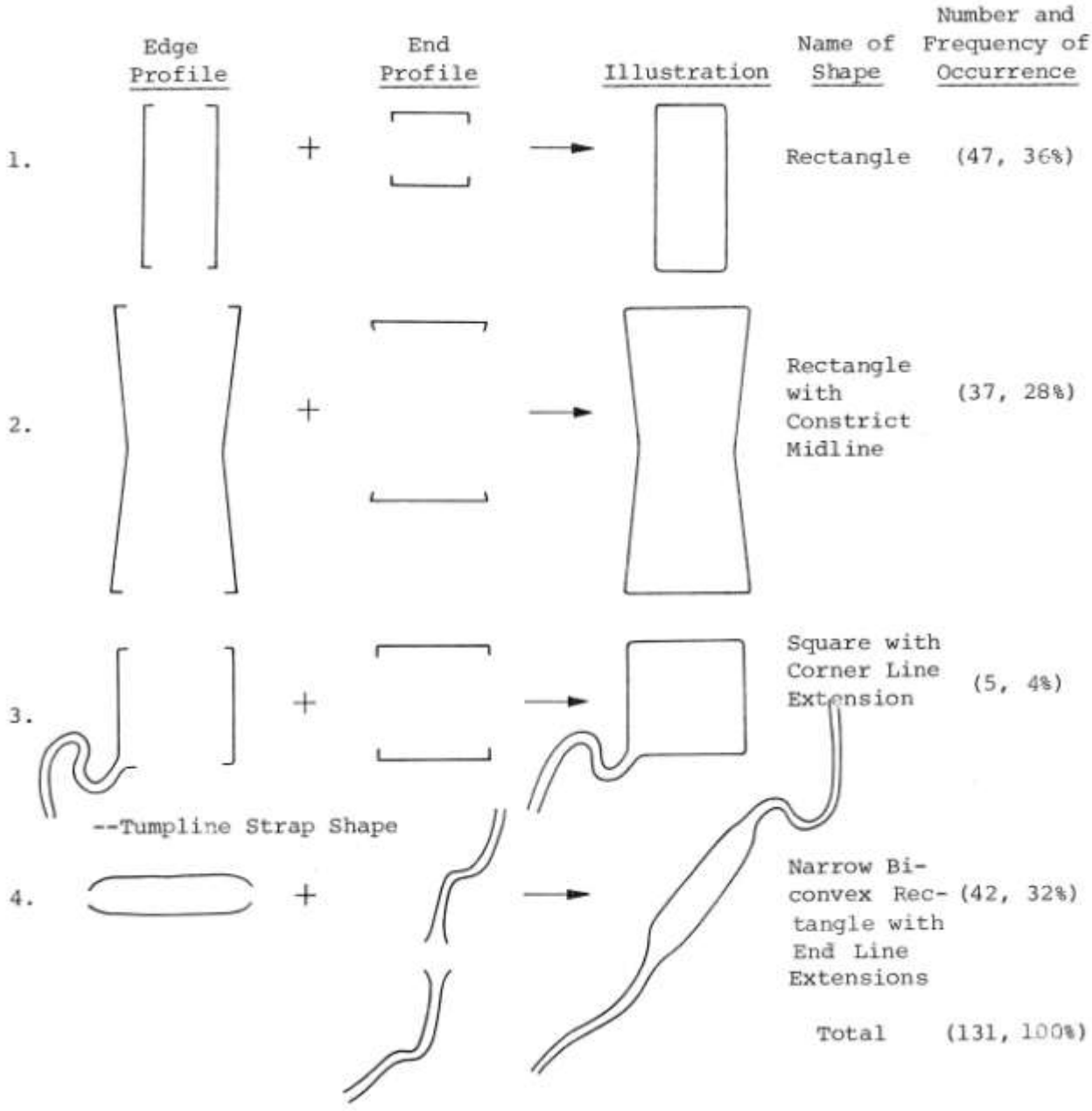
Mat shapes are defined according to (1) the edge profiles and (2) the end profiles. Mat shapes, in contrast to baskets and hats, are two-dimensional flat forms. Analysis indicates that the edge and end profiles are diagnostic. Obviously, the edge and end are indistinguishable if the mat is square or round, but this is infrequent with the Ozette Village mats and with mats of other sites.

The mat shape modes are defined in Table 6. The relative size difference between the length of the edges and ends is recorded since this feature obviously is important in defining two-dimensional shapes. Tumpline straps (#4, Table 6) are incorporated under the category of mats because as flat two-dimensional basketry items (and for technical reasons) they are best studied here. The names given to mat shapes are intended to be descriptive.

At Ozette, forty-seven (36%) of the mats are rectangular in shape. Most of the mats of this shape functioned as harpoon sheaths, i.e., folded sheets of only slightly modified cedar bark that held and protected sea mammal harpoon points. Next in frequency are tumpline straps (narrow bi-convex rectangle with end line extensions, #4, Table 6), many of which are broken but are complete enough to identify' their shape. Next in frequency—thirty-seven (28%) of the mats—is the rectangle with constricted midline shape. This constituted the "true" (long) mat at Ozette Village. These large cedar bark mats often were recovered in a very fragmentary condition. Least in frequency is the square with line corner extension shape (five [4%]). This is a small

cedar bark mat. All mats made from tule/cattails at Ozette are too fragmentary to accurately establish any shape definitions, but most likely were rectangular.

Table 6. Ozette mat shapes defined.



Comparison of Mat Shapes from Other Northwest Coast Wet Sites

Because of the fragmentary nature of the mats from these sites, the original shapes of very few could be accurately reconstructed. Often it was questionable whether fragments were from mats or baskets. If intersecting straight edges (corners) were observed, then the specimen probably was a mat fragment, but its total shape often could not be identified.

Mats and mat fragments are absent from Musqueam Northeast, Biederbost, English Camp, and Wapato Creek. A few checker woven cedar bark fragments, possibly from mats, were recorded at Hoko River, Fishtown, Conway, and Little Qualicum River. Numerous cedar bark mat fragments were recorded from the two northernmost wet sites of Lachane and Axeti. These sites and Ozette are considered village sites, whereas most other wet sites appear to have been special fishing or gathering stations; the higher frequency of cedar bark, checker weave mat fragments at village sites may correlate with the domestic activities occurring at these sites. The Lachane and Axeti mat fragments often had preserved edges and sometimes corners. One rather complete specimen from Axeti had a rectangular form. Another fragmentary Axeti specimen may have represented a tumpline strap. Unfortunately, at Ozette Village complete mats are relatively infrequent, and very rare at other Northwest Coast wet sites.

Basketry Base and Body Construction Techniques

There are two general categories of basketry construction techniques: (1) weaving techniques and (2) coiling techniques. These two categories are considered separately. The basketry construction techniques include those used for basket bases and bodies, hat crowns and sides,

and mat bodies.

Weaving Techniques

Ozette Village weaving techniques may be divided into the weaving categories of plaiting, twining, and wrapping. These weaving processes are defined as follows:

1. Plaiting: interweaving of single weft elements on alternate sides of the warp elements.
2. Twining: interweaving by twisting or turning of two weft elements on either side of the warp elements.
3. Wrapping: interweaving by winding one weft .element around the second weft element while enclosing the warp element.

All weaving techniques are further defined according to (1) number of weft elements (per row), (2) the arrangement of the weft elements, (3) the weft row placement, and (4) the orientation of the weft to warp according to the planes of the basketry object (Table 7). The terms weft and warp are defined as follows:

Weft—the horizontal engaging element of the weave.

Warp—the vertical engaged element of the weave.

Table 7. Basketry Construction Techniques Defined.

	No. of Weft Elements (per row)		Arrangement of Weft		Row Placement		Orientation of Weft/Warp to Basketry Plane	Name and Illustration
A.	Ozette Plaiting Techniques							
1.	1	+	The weft element is plaited in front of one warp element and behind the next warp element.	+	close spacing	+	horizontal/ vertical →	Checker 
2.	1	+	The weft element is plaited in front of two warp elements and behind the next two warp elements, etc.; the weft is staggered one warp element in each row.	+	close spacing	+	horizontal/ vertical →	Twill 2/2 

Table 7 (Continued)

	No. of Weft Elements (per row)		Arrangement of Weft		Row Placement		Orientation of Weft/Warp to Basketry Plane	Name and Illustration
3.	1	+	The weft element is plaited in front of one warp element and behind the next warp element.	+	close spacing	+	oblique/ oblique →	Checker on Bias 
4.	1	+	The weft element is plaited in front of two warp elements and behind the next two warp elements, etc.; the weft is staggered one warp element in each row.	+	close spacing	+	oblique/ oblique →	Twill on Bias 

Table 7 (Continued)

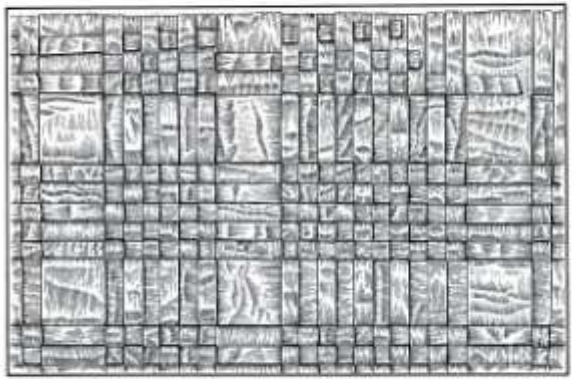
	No. of Weft Elements (per row)		Arrangement of Weft		Row Placement		Orientation of Weft/Warp to Basketry Plane	Name and Illustration
5.	1	+	The weft element is plaited in front of one warp element and behind one warp element; width of weft and/or warp elements are varied in order to create constructional design.	+	close spacing	+	horizontal/ vertical	Examples: Checker IIA  Checker II Plaid  Checker IIB  Checker IIC 

Table 7 (Continued)

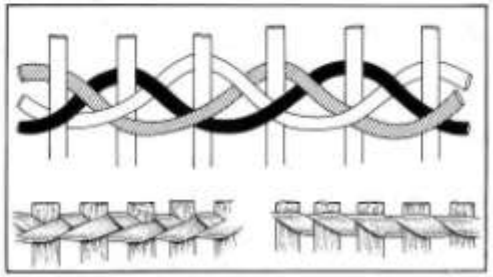
	No. of Weft Elements (per row)		Arrangement of Weft		Row Placement		Orientation of Weft/Warp to Basketry Plane	Name and Illustration
6.	1	+	The weft element is plaited over two, under one, over one warp alternately.	+	close spacing	+	oblique/ oblique →	Twill 2/1/1 
7.	3	+	The weft elements are combined into a braid with each element plaited in front of two warp element behind one warp element. Each weft element is advanced one warp element ahead of preceding weft element.	+	close spacing	+	horizontal/ vertical →	3 Strand Braid 

Table 7 (Continued)

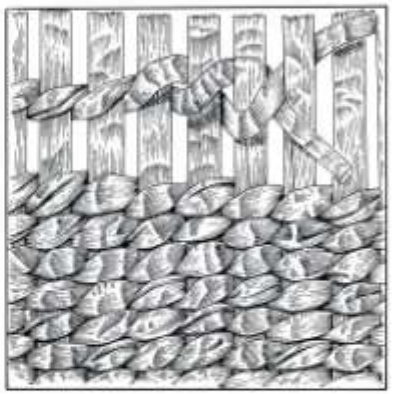
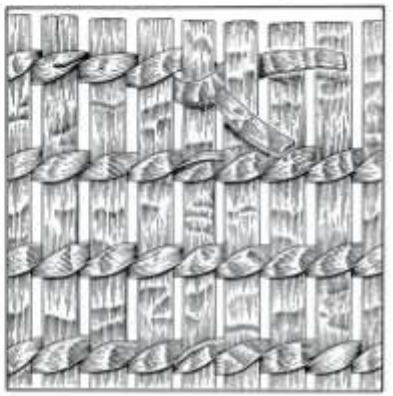
	No. of Weft Elements (per row)		Arrangement of Weft		Row Placement		Orientation of Weft/Warp to Basketry Plane	Name and Illustration
B.	Ozette Twining Techniques							
8.	2	+	The weft is twined one element in front, and one element behind each warp.	+	close spacing	+	horizontal/ vertical →	Plain Twining 
9.	2	+	The weft is twined one element in front, and one element behind each warp.	+	open spacing	+	horizontal/ vertical →	Open Twining 

Table 7 (Continued)

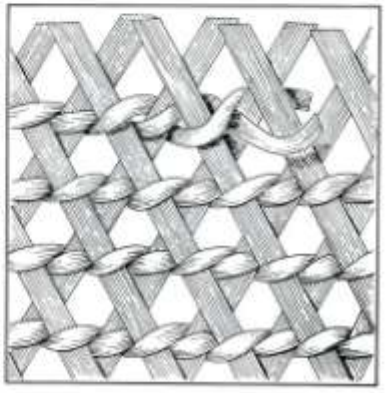
	No. of Weft Elements (per row)		Arrangement of Weft		Row Placement		Orientation of Weft/Warp to Basketry Plane	Name and Illustration
10.	2	+	The weft is twined one element in front of two warp elements, and one element behind the same two warp elements; the weft is staggered one warp element in each row, creating a diagonal appearance.	+	close spacing	+	horizontal/vertical →	Diagonal Twining 
11.	2	+	The weft is twined one element in front, and one element behind each warp.	+	open spacing	+	horizontal/alternates: oblique to left, oblique to right →	Cross Warp Twining 

Table 7 (Continued)

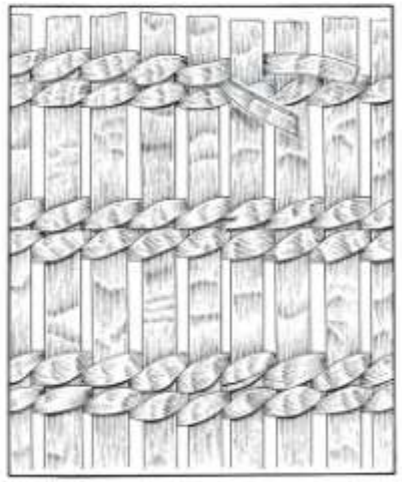
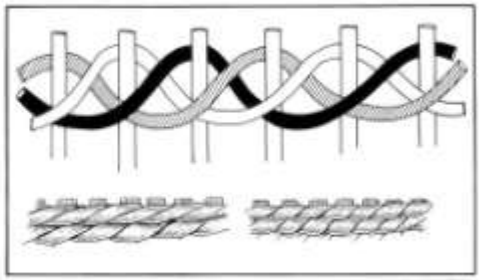
	No. of Weft Elements (per row)		Arrangement of Weft		Row Placement		Orientation of Weft/Warp to Basketry Plane	Name and Illustration
12.	2	+	The weft is twined one element in front and one element behind each warp.	+	open spacing with two rows of close twining between open spaces	+	horizontal/ vertical →	Open Two Rows Twining 
13.	3	+	Each weft element is twined in front of two warp elements and behind one warp element; each weft element advances one warp ahead of preceding weft element.	+	close spacing	+	horizontal/ vertical →	3 Strand Twining 

Table 7 (Continued)

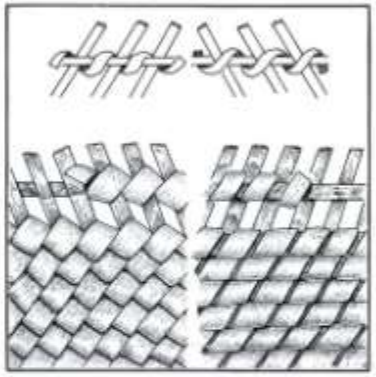
	No. of Weft Elements (per row)		Arrangement of Weft		Row Placement		Orientation of Weft/Warp to Basketry Plane	Name and Illustration
C.	Ozette Wrapping Techniques							
14.	2	+	One weft element is along back of warp; the other weft element is wrapped around each warp element and the back-up weft element.	+	close spacing	+	horizontal/ oblique to left or right →	Wrapped Twining 
15.	2	+	One weft element is along back of warp; the other weft element is wrapped around each warp element and the back-up weft element. The lean of the weft wrapping alternates between rows.	+	open spacing	+	horizontal/ vertical →	Open Wrapping 

Table 7 (Continued)

No. of Weft Elements (per row)	Arrangement of Weft	Row Placement	Orientation of Weft/Warp to Basketry Plane	Name and Illustration
D. Ozette Combination Twining and Plaiting Techniques				
16. Alternate rows have one row with 2 and one row with 1.	There are two weft elements as in plain twining and one weft element as in checker plaiting.	close spacing	horizontal/vertical	Alternate Plain Twined and Checker 
17. Alternate rows have one row with 2 and one row with 1.	There are two weft elements as in plain twining and one weft element as in twill 2/2 plaiting.	close spacing	horizontal/vertical	Alternate Plain Twining and Checker Plaiting in Twos 

Table 7 (Continued)

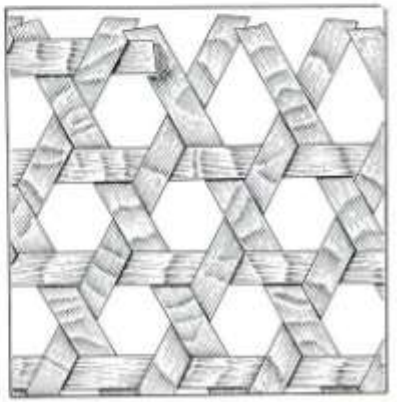
	No. of Weft Elements (per row)	Arrangement of Weft	Row Placement	Orientation of Weft/Warp to Basketry Plane	Name and Illustration
E.	Additional Plaiting Techniques from other Northwest Coast Wet Sites				
18.	1	The weft element is plaited in front of three warp elements and behind three warp elements; the weft is staggered one warp element in each row.	close spacing	horizontal/ vertical	Twill 3/3 
19.	1	The weft element is plaited in front of one warp element and behind one warp element.	open spacing	horizontal/ alternates: oblique to left, oblique to right	Cross Warp Plaiting 

Table 7 (Continued)

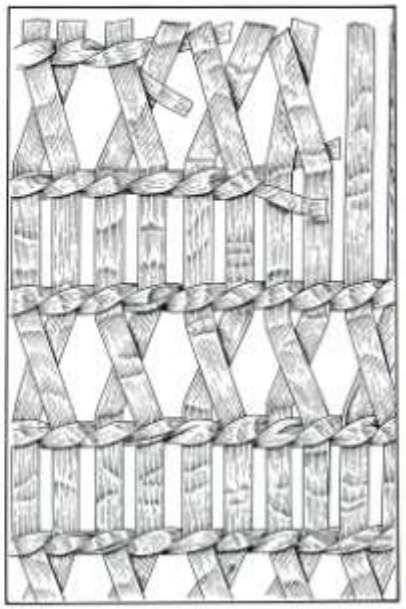
	No. of Weft Elements (per row)		Arrangement of Weft		Row Placement		Orientation of Weft/Warp to Basketry Plane	Name and Illustration
F. Additional Twining Techniques from other Northwest Coast Wet Sites								
20.	2	+	The weft is twined one element in front and one element behind each warp.	+	open spacing	+	horizontal/ alternate: vertical in one row and oblique to right, oblique to left in next.	→ Alternate Open Twining/ Cross Warp Twining 

Table 7 (Continued)

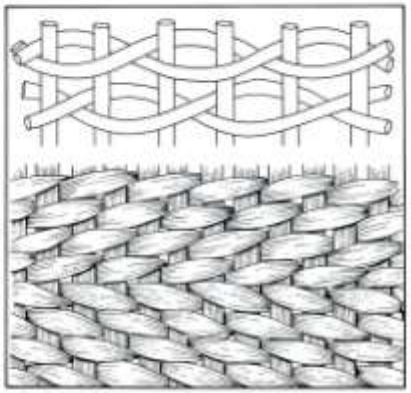
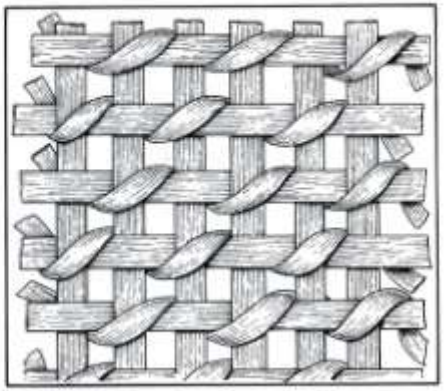
	No. of Weft Elements (per row)		Arrangement of Weft		Row Placement		Orientation of Weft/Warp to Basketry Plane	Name and Illustration
21.	2	+	The weft is twined one element in front of two warp elements and one element behind the same two warp elements; the weft is staggered on warp element in each row creating a diagonal appearance. The lean of twining alters creating a chevron appearance.	+	close spacing	+	horizontal/ vertical →	Diagonal Twining with Reversed Lean 
G.	Additional Wrapping Techniques from other Northwest Coast Wet Sites							
22.	2	+	One weft element is checker plaited; the other weft element is wrapped around adjacent warp elements and the plaited weft element; the wrapping weft element is advanced on the warp element in each row creating a diagonal appearance.	+	open spacing	+	horizontal/ vertical →	Wrap Around Plaiting 

Table 7 (Continued)

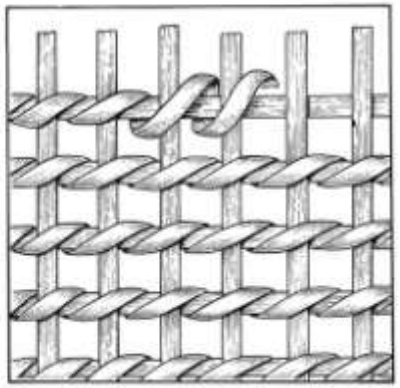
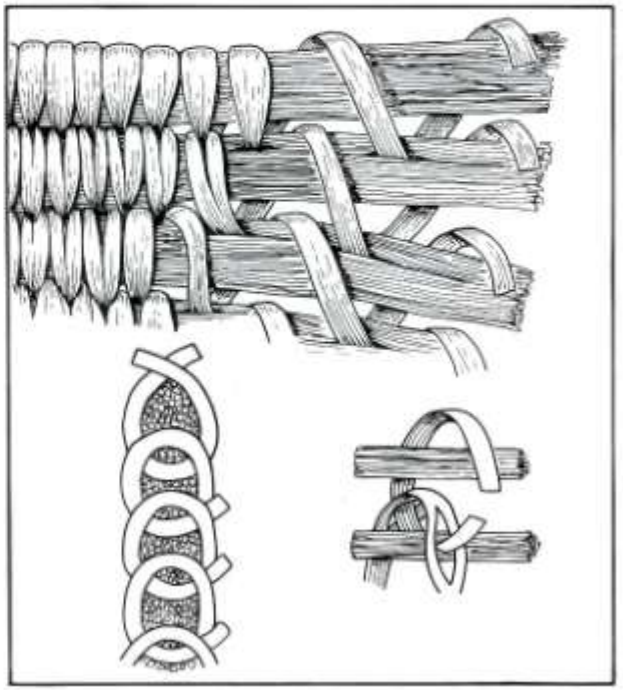
	No. of Weft Elements (per row)	Arrangement of Weft	Row Placement	Orientation of Weft/Warp to Basketry Plane	Name and Illustration
23.	2	+ One weft element is along back of warp; the other weft element is wrapped around each warp element and the back-up weft element. The lean of the weft wrapping remains uni-directional.	+ open spacing	+ horizontal/ vertical →	Unidirectional Open Wrapping 

Table 7 (Continued)

	Sewing Element Stitch Engagement		Sewing Element/ Foundation Engagement		Foundation Composition		Name and Illustration
H.	Coiling Technique						
24.	The sewing element splits the front and back surface of adjacent sewing elements.	+	piercing	+	bundle	→	Split Stitch Bundle Coiling 

The active weft elements are woven across the passive warp elements. In some cases, e.g., cross warp weaves, the weft and/or warp can be oblique to the horizontal and vertical planes of the basketry object. Reference is made to this characteristic in the fourth feature of the weave technique definition, i.e., the orientation of the weft to warp according to the planes of the basketry object (Fig. 3).

The basic basketry weaving technique modes are defined in Table 7. The names are intended to be descriptive of the variations in the basic weaving techniques.

Coiling Techniques

Coiled basketry is relatively rare at the Ozette Village site; only one major coiling technique is recorded. This technique is defined according to three features: (1) engagement of sewing elements, (2) engagement of sewing element and foundation, and (3) foundation composition. The term sewing element refers to the engaging (active) encircling element of the stitch, and the foundation is the engaged (passive) element of the stitch that is encircled. It may consist of one or many elements. The active sewing element binds together the passive foundation elements.

The single basketry coiling technique is defined and illustrated in Table 7, #24. The name is intended to be descriptive of the coiling technique.

Ozette Basket Base and Body Construction Techniques

Basket Base Construction Techniques

Ozette basket bases often are distinct in construction technique from their corresponding body or side weave technique. The different Ozette base construction techniques are recorded in

Table 8 with their frequency and overall percent of occurrence. The sample size of identifiable Ozette basket bases is 238 specimens.

Table 8. Ozette basket base construction techniques.

Construction Techniques	Number	Percent
Plaiting		
1. Checker	85	36
2. Twill 2/2	78	33
3. 1 row checker	3	1
4. Checker IIA	1	
	167	70
Twining		
5. 1 row plain twining	55	23
6. 1 row three strand twining	3	1
7. Spiral based plain twining	3	1
8. Open twining	1	
	62	25
Wrapping		
9. Open wrapping	7	3
Coiling		
10. Spiral based coiling	1	
11. Meander based coiling	1	
	2	1
Total	238	

The base weaves called one row checker, one row plain twining, and one row three strand twining were techniques used on the very narrow flat bag forms. As their names imply, spiral based plain twining and spiral based coiling techniques were formed in a spiraling manner from a small midpoint. The meander based coiling was formed by bending the coils back and forth onto the sides of each other in a tight meander-fashion, thus forming a rectangular shaped coiled base.

The woven base techniques most frequently employed at Ozette are plaiting techniques, particularly checker and twill 2/2 plaiting. These bases commonly are anchored with a surrounding

row of plain twining. Baskets made with wrapping techniques, specifically Ozette open wrapped pack baskets, have a small open wrapped base. Coiled bases, found on the rare coiled baskets, are of two distinct forms, spiral and meander based coiling. Meander based coiling historically is characteristic of the Fraser River coiled baskets. The possibility that all coiled baskets at Ozette, including the meander-based specimen were introduced from some eastern Gulf of Georgia area is considered below when discussing the coiled basket classes.

Comparison of Basket Base Construction Techniques Recorded from Other Northwest Coast Wet Sites

Table 9 indicates the number and percent of basket base weaving techniques recorded from the ten other Northwest Coast wet sites. Unfortunately, only small sample sizes of basket bases (ranging from two to twelve) were recovered from these sites, with three sites yielding none. Again, this is partially the result of the fragmented condition of basketry from most of these sites. Each of the major basket base weaving categories is considered separately below.

Plaiting

Eighty-four percent (forty-one specimens) of all basket bases recorded from other Northwest Coast wet sites have plaited bases. At Lachane, checker plaiting was the only technique employed for cedar bark basket bases. Checker bases also are common on the northern Axeti cedar bark baskets. Checker bases on baskets at Hoko and Conway occur, but are less frequent than other techniques. Twill 2/2 basket bases were recorded from many sites, most frequently at Musqueam Northeast arid at the two spatially close sites at Conway and Fishtown. Baskets with twill 2/2 bases at these three sites usually were constructed using sturdy cedar splints materials. Twill 3/3 basket bases are recorded only at the early Musqueam Northeast and Biederbost sites. This may be an early basket base construction technique for the Puget Sound/Gulf of Georgia area. Twill 3/3 bases at these sites are recorded on sturdy cedar splint baskets (Croes 1975:18-20).

Table 9. Basket base weave techniques recorded at Northwest Coast wet sites other than Ozette Village. Percent of occurrence is denoted in parentheses.

Technique	Hoko River	Musqueam Northeast	Biederbost	English Camp	Axeti	Lachane	Conway	Fishtown	Wapato Creek	Little Qualicum River	Total
Plaiting											
1. Checker	1 (11)				3 (75)	9 (100)	4 (33)				17
2. Twill 2/2	1 (11)	6 (75)	1 (20)				8 (67)	2 (100)			18
3. Twill 3/3		2 (25)	4 (80)								6
Twining											
4. Spiral based plain twining	2 (22)										2
5. 1 row plain twining	1 (11)										1
Wrapping											
6. Open wrapping					1 (25)						1
7. Wrap twining	4 (45)										4
Total	9	8	5		4	9	12	2			49

Twining

Hoko River is the only Northwest Coast wet site in addition to Ozette with examples of base twining techniques (Table 9). Two specimens have the spiral based twining technique and one flat bag has a base of single row plain twining. Both of these techniques occur at the nearby Ozette Village site, the latter frequently.

Wrapping

Base wrapping techniques occur at the Hoko River and Axeti sites. Those from Hoko River are wrap twined. These baskets have small, narrow, possibly pointed bases and have been at one time part of large sized, cedar splint, inverted, truncated pyramid, pack and utility baskets. The single basket base of this technique recovered at Axeti displays the open wrapping technique. This open wrapped basket is a large carrying "pack" basket of sturdy splints with an inverted, truncated pyramid shape. Ozette baskets constructed with this open wrapping technique also are of this type.

Coiling

Basket base coiling techniques have been recorded at no Northwest Coast wet site other than Ozette. These techniques probably developed later on the Northwest Coast (see below).

Summary

Unfortunately, examples of basket bases from other sites are rare. Of those found, the plaited-technique bases are most common, followed by wrapping and twining techniques. In general, checker plaiting techniques are relatively more frequent in the northern Lachane and Axeti sites, and twill 2/2 base techniques are more common to southern sites. Twill 3/3 appears to have been most common to Puget Sound/Gulf of Georgia sites prior to 1500 years B.P. Twine base techniques are most common to the

spatially close but temporally separated Ozette Village and Hoko River sites. Wrapping techniques occur at Ozette Village, Hoko River, and Axeti, and apparently on functionally similar, large, sturdy, carrying "pack" baskets. Coiled basket base techniques occur only at the Ozette Village site, and only infrequently there.

Ozette Basket Body Construction Techniques

As mentioned, Ozette basket body and base construction techniques frequently are distinct in weave. The different types of Ozette basket body weaves and the actual frequency and overall percent of occurrence are listed in Table 10. The sample size of identifiable Ozette basket bodies for this study is 325 examples.

Table 10. Ozette basket body construction techniques.

Construction Techniques	Number	Percent
Plaiting		
1. Checker	115	35
2. Twill 2/2	68	21
3. Twill on bias	9	3
4. Checker IIA	5	2
5. Checker IIB	11	3
6. Combination: Checker IIB and a checker	2	1
7. Combination: Checker II plaid and checker	3	1
8. Twill 2/1/1	1	
	214	66
Twining		
9. Open twining	65	20
10. Alternate plain twining/checker	15	4
11. Alternate plain twining/checker II in twos	1	
12. Plain twining	12	4
13. Cross warp twining	2	1
	95	29
Wrapping		
14. Open wrapping	13	4
Coiling		
15. Split stitch coiling	3	1
Total	325	

The basket body construction techniques employed most frequently are forms of plaiting (66%), particularly checker and twill 2/2 plaiting. Other forms of plaiting techniques can be considered special variations and/or combinations of the basic checker and twill 2/2 techniques. These variations often are more complex and decorative than the basic plaiting techniques.

Twining techniques are the next most common body weaves (29%), and open twining is the most common form of twining. The open twining technique produced basket bodies that were well-ventilated and/or drained. Alternate plain twining/checker and checker plaiting in twos, which are actually combinations of twining with checker plaiting, are relatively uncommon (#16 and #17, Table 7). Neither plain twining nor cross warp twining is common. Historically, the latter (#11, Table 7) is most common to central and southern Washington Coast groups such as the Quinault and the Chinook. Ozette baskets with cross warp twining may have been traded from this area, or perhaps the technique was borrowed.

Wrapping techniques are exclusively open wrapping. This open weave provides a strong, well-ventilated and/or drained basket body structure (#15, Table 7) and was used mostly on pack baskets. This distinctive technique has been recorded historically as common in pack baskets from Wakashan and surrounding language groups.

Coiled baskets are rare at Ozette. Again, coil basketry appears to have been introduced late into this area, probably from the Puget Sound/Gulf of Georgia areas.

Comparison of Basket Body Construction Techniques from Other Northwest Coast Wet Sites

Table 11 indicates the number and percent of basket body weaving techniques recorded from the ten other Northwest Coast wet sites. Again, the sample sizes varied from site to site, but all are relatively small, ranging from zero to fifty-one identifiable basket body sections. Unique to the

Musqueam Northeast site are several basket bodies that had a combination of distinct weave techniques on a single basket. These combinations have been labeled Musqueam Northeast A-F, and are illustrated in Fig. 5. The samples of the major weaving categories and combinations are considered below.

Plaiting

Checker plaited basket bodies are frequent at the early Biederbost site and somewhat less so at the early Musqueam Northeast site. At both sites this weave was employed in the construction of relatively large baskets, with the construction material being splint cedar bough and/or root materials. In contrast, checker plaited basket bodies were constructed only of cedar bark at Hoko River, Lachane, Axeti, Conway, and Little Qualicum River.

Twill 2/2 basket body weaves occur infrequently except at Ozette Village. Baskets with twill 2/2 body weaves from Musqueam Northeast, Conway, and Fishtown were constructed of cedar splints. The latter two used this technique for cradle sides. The single Lachane twill 2/2 basket was constructed of cedar bark as were all other baskets from that site.

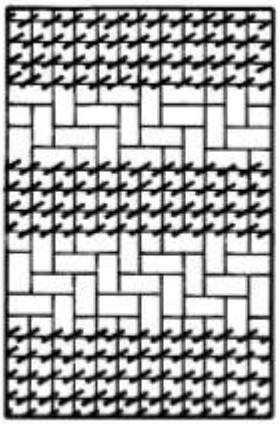
As at Ozette, checker IIB weave occurs infrequently at the northern Lachane and Axeti sites. This is a decorative checker plaiting technique (#5, Table 7).

Cross-warp plaiting occurs only at the northern Axeti site and appears to have been used in constructing flexible cedar bark bags (#19, Table 7).

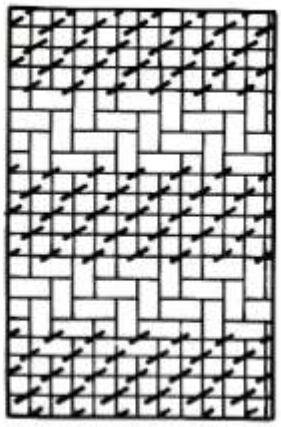
Table 11. Basket body weave techniques recorded at Northwest Coast wet sites other than Ozette Village. Percent of occurrences denoted in parentheses.

Technique	Hoko River	Musqueam Northeast	Biederbost	English Camp	Axeti	Lachane	Conway	Fishtown	Wapato Creek	Little Qualicum River	Total
Plaiting											
1. Checker	1 (8)	9 (18)	26 (68)		1 (17)	1 (6)	3 (12)			1 (33)	17
2. Twill 2/2		1 (2)				1 (6)	2 (8)	1 (17)			18
3. Checker IIB					2 (33)	1 (6)					6
4. Cross warp plaiting					1 (17)						
Twining											
5. Open twining		5 (10)	12 (32)	1 (100)		10 (63)	21 (81)	5 (83)			2
6. Plain twining	3 (25)					1 (6)					1
7. Alternate open twining/ cross warp twining						1 (6)					
8. Open 2 rows twining						1 (6)					
Wrapping											
9. Open wrapping	6 (50)				2 (33)					2 (66)	1
10. Wrap twining	1 (8)										4
11. Wrap around plaiting	1 (8)	28 (55)									

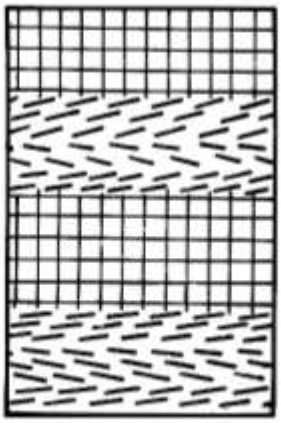
Technique	Hoko River	Musqueam Northeast	Biederbost	English Camp	Axeti	Lachane	Conway	Fishtown	Wapato Creek	Little Qualicum River	Total
Combinations											
12. Musqueam NE combination A		1 (2)									
13. Musqueam NE combination B		3 (6)									
14. Musqueam NE combination C		1 (2)									
15. Musqueam NE combination F		3 (6)									
Total	12	51	38	1	6	16	26	6		3	159
Reinforcements											
Single wrap		7 (88)	8 (33)	1 (100)							16
Double wrap		1 (13)	16 (67)								17
Total		8	24	1							33



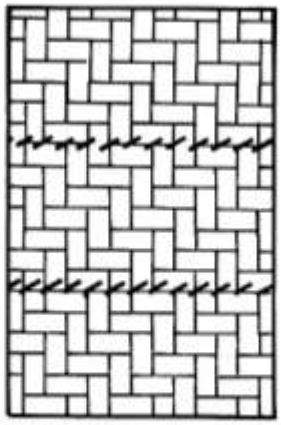
A. Combination unidirectional open wrapping/twill 2/2



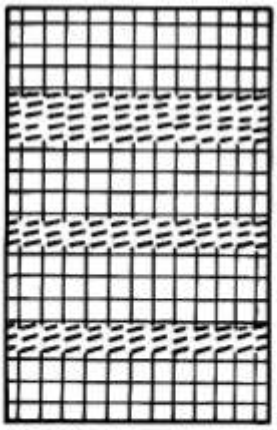
B. Combination wrap around plaiting twill 2/2



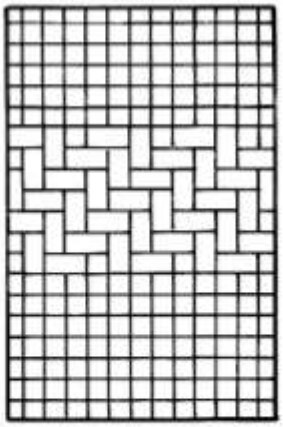
C. Combination checker/ diagonal twining



D. Combination twill 2/2/ one row plain twining



E. Combination checker/ plain twining



F. Combination checker/ twill 2/2

Fig. 5. Combination of distinct body weave techniques recorded from Musqueam Northeast.

At Musqueam Northeast combination F, with alternating twill 2/2 and checker techniques, occurs on three baskets.

Twining

The most frequent basket body construction technique at other Northwest Coast wet sites is twining (n-59, 40% of recovered baskets), of which open twining is the most common variety. Next most frequent is plain twining with the remaining technique's being variations of open twining: alternate open twining/cross warp twining, and open two rows twining (see #12 and #20, Table 7).

In terms of percent frequency, open twining is most common at the spatially close Fishtown (81%) and Conway (83%) sites. It was used at both these sites to construct relatively large, sturdy, well ventilated and/or drained utility baskets. Open twining also is the major technique at the northern Lachane site for constructing small, flexible, cedar bark baskets. Twining of basket bodies is not recorded at the northern Axeti site. Open twining is relatively common on large cedar splint baskets at the early sites of Biederbost and Musqueam Northeast and at the undated site of English Camp.

Plain twining of basket bodies is common on small baskets from the Hoko River site and occurs on one example from Lachane. Close plain twining provided strong, tightly woven, flexible baskets.

Several variations in twining techniques occur at the northern Lachane site, all "decorative" variations of open twining.

All of the Northwest Coast wet sites have a major pattern of twining with a lean up-to-the-right. This is typical of the historic basketry of these regions, but in contrast with the lean up-to-the-left pattern of ethnographic Tlingit and Haida spruce root twining associated with the northern areas (Croes 1977). This emphasis on the lean up-to-the-left or right was culturally encouraged, and twining with a lean up-to-the-right may be a general pattern for twining basketry in the southerly-areas.

Wrapping

Wrap around plaiting, a basket construction technique common at Musqueam Northeast, actually is a combination of checker plaiting with a wrapping element binding the weave. This technique is similar to open twining which utilizes two equally flexible weft elements. At Musqueam Northeast the back-up weft element is a flat rigid splint, and the binding wrap element is a flexible, thin splint material. Because of the wrapping characteristic, this technique has been differentiated from other forms and called wrap around plaiting (#22, Table 7). The wrapping element is advanced one warp element in each row creating a diagonal appearance to the weave. Apparently this helps to stabilize rows and also gives a decorative appearance to the basket surface. This technique is most characteristic of large, cedar splint, sub-rectangular conical baskets from the early Musqueam Northeast site. These baskets probably functioned as large carrying baskets (Croes 1975). A single fragmentary specimen from the early Hoko River site also displays this technique.

Open wrapping, with the lean of the wrap alternating between rows (#15, Table 7), is the body construction technique most frequently used for large utility baskets found at the early Hoko River site. These baskets appear to have been pack baskets with narrow bases, apparently with an inverted, truncated pyramidal shape. This technique and basket shape are most characteristic of "specialized" pack baskets typical of the nearby Ozette Village site. This technique and shape also are typical of historic Wakashan pack baskets. This form of basket with the very narrow base historically is most typical of Wakashan groups and of groups in the immediately surrounding areas (Croes 1976; Jones 1976). This form probably indicates a long period (2,500+ years) of technological and perhaps general cultural continuity on the Northwest tip area of the Olympic peninsula. More will be said about this below.

This basket body construction technique occurs also on pack baskets at Axeti which is within the territory of the historic Bella Coola. The Bella Coola are surrounded by the Wakashan Kwakiutl who are known to have commonly used this technique. Two basket fragments with open wrapping also were recovered at the Little Qualicum River site.

Wrap twining was recorded on one basket body from the Hoko River site. This technique created a strong close weave surface and was utilized here in constructing a small, split root (?), conical basket. The technique is very common on modern commercial baskets made most commonly in the Makah/Nootka areas but also to a much lesser degree among Washington Coast Salishan and Chemakuan groups (Jones 1976).

Combinations

Six kinds of weave combinations (Fig, 5), combining plaiting, twining, and/or wrapping techniques, were found at Musqueam Northeast. All of them are assumed to be from basket bodies, even though some are too fragmentary to be identified with certainty. This process of combining alternating body weave techniques is distinctive of utility baskets from Musqueam Northeast, and probably was used more for decorative than functional purposes (Croes 1975:14).

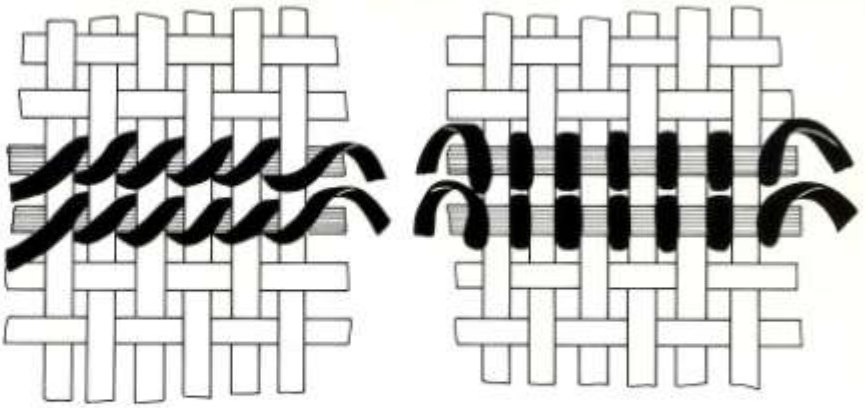
Basket Body Reinforcement Techniques

Early Puget Sound/Gulf of Georgia prehistoric baskets have distinct body reinforcement rows incorporated onto the main body weave. These reinforcement elements consist of rows of strong thick splints which were wrapped onto different strategic areas of the basket body. These rows reinforce and support the form of the basket and greatly strengthen it. The number of rows varies from one to several, and the wrapping techniques vary, employing either a single or double wrapping element(s) (see Fig. 6). The usual placement on a basket body includes (1) high rows on the basket near the rim, (2) middle rows, and/or, (3) rows near the base of the basket (Fig. 6).

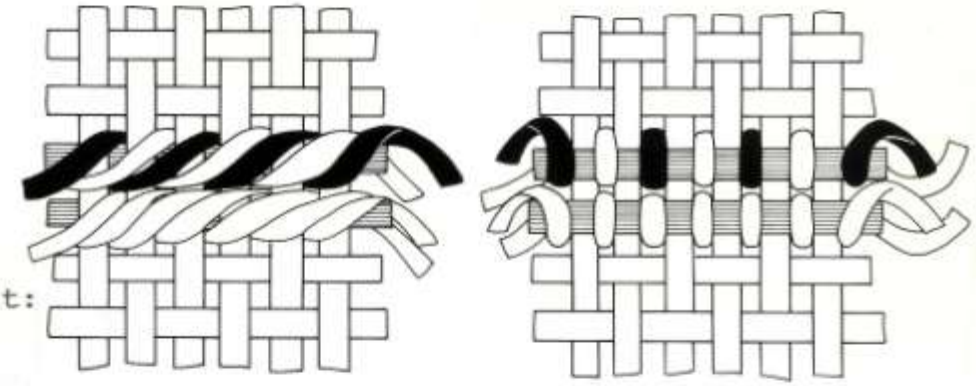
Name

Illustration

1. Single Wrap Reinforcement:



2. Double Wrap Reinforcement:



Common Application of Reinforcement Rows Onto Basket Body:

Fig. 6. Basket body reinforcement techniques

The early sites of Musqueam Northeast and Biederbost, and the undated site of English Camp produced baskets with these body reinforcement rows. From Musqueam "Northeast eight baskets have reinforcement rows. Seven were recorded with single wrap rows and had main basket body weaves of checker (n=3), wrap around plaiting (n=2), or twill 2/2 (n=2). One has double wrap reinforcement rows and is constructed with wrap around plaiting. From Biederbost twenty-four baskets have reinforcement rows of which eight exhibit single wrap rows. The main basket body weaves on these baskets are checker (n=7) and open twining (n=l). The sixteen remaining Biederbost baskets have double wrap reinforcement rows, all of which are on baskets with checker body weaves. The single large basket example recovered at English Camp has single wrap reinforcement rows and an open twined body weave.

At all of these sites rows of reinforcement were applied to large cedar splint basket bodies. That this reinforcement technique appeared at the two early Puget Sound/Gulf of Georgia sites, dating prior to 2,000 years B.P., and has not been noted in later sites (Croes 1975:18), may indicate that the undated English Camp basket also was early. In addition, this reinforcement technique associates the early Musqueam Northeast and Biederbost sites. Later Puget Sound/Gulf of Georgia sites, especially Conway and Fishtown, do not have reinforcement rows on their large, cedar splint, open twined baskets.

Basket Body Construction Techniques Summarized

Northwest Coast wet sites have both shared and distinctive basket body construction techniques. The following characteristics are shared:

1. Checker plaiting--early Biederbost and Musqueam Northeast: checker plaiting with cedar splints on large utility baskets.

2. Checker IIB plaiting—Ozette Village, Axeti, and Lachane: all sites have occurrences of this decorative checker plaiting technique.

3. Twill 2/2 plaiting--Fishtown and Conway: both sites have cradles constructed of cedar splints and twill 2/2 plaiting.

4. Open twining—Fishtown and Conway: high frequency of open twined, cedar splint, inverted ovate conical baskets. Biederbost and Musqueam Northeast: lower frequency, but consistent use of this technique on large, cedar splint baskets.

5. Open wrapping—Hoko River, Axeti, and Ozette Village: major emphasis on open wrapped, large, splint, "pack" baskets.

6. Body reinforcement wrapping techniques—Biederbost, Musqueam Northeast, and English Camp: use of single or double wrap reinforcement rows on large, cedar splint baskets.

Site-distinctive basket body construction techniques are as follows:

1. Cross-warp plaiting—Axeti: unique to Axeti cedar bark baskets.

2. Twining—Lachane: distinct variety of and stress on twining techniques.

3. Wrap around plaiting—Musqueam Northeast: distinct and major construction technique for the large, cedar splint, sub-rectangular conical baskets.

4. Combinations of weave techniques on a single basket body—Musqueam Northeast: distinctive of this site, and probably a decorative technique on the large, cedar splint, sub-rectangular conical baskets.

5. Plaiting techniques--Ozette Village: stress on several varieties of plaiting techniques.

6. Coiled baskets—Ozette Village: only major occurrence of coiled basketry. Rare at this site. (May reflect late occurrence of coiled basketry on the coast.)

Ozette Hat Construction Techniques

All Ozette hat body construction techniques are variations of twining. These variations include plain, diagonal, three strand, and "skip-stitch" twining. The occurrence and percent of each form

is recorded in Table 12. The sample size of identifiable Ozette hat bodies is fifty-one specimens. As can be seen, the vast majority were constructed entirely with a plain twine body weave. Combinations #2 and #4 are recorded on Ozette spruce (?) root twined hats. The combination #2 (with "skip-stitch") is a technique similar to that used on spruce root hats constructed in historic times by groups further north, especially the northern Kwakiutl, Tsimshian, Haida, and Tlingit groups (Willoughby 1910:4). The remaining combinations, #3 and #5, are seen in knob-top hats from Ozette Village and constructed of cedar bark.

Table 12. Ozette hat body construction techniques.

Construction Techniques	Number	Percent
1. Plain twining	45	88
2. Combination #2	3	6
a. Plain twining		
b. (1 row 3 strand twining) (optional)		
c. Diagonal twining		
d. (1 row 3 strand twining) (optional)		
e. "Skip-stitch" twining		
3. Combination #3	1	2
knob-top		
a. Plain twining		
b. 1 row 3 strand twining		
c. Plain twining		
d. 3 strand twining (several rows)		
body		
e. Plain twining		
4. Combination #4:	1	2
Alternate rows of		
a. Plain twining		
b. Diagonal twining		
5. Combination #5:	1	2
knob-top		
a. Plain twining		
body		
b. Diagonal twining		
c. Plain twining		
d. 1 row 3 strand twining		
e. Plain twining		
Total	51	100

Some Ozette hats (flat-top and knob-top forms) have a woven inner layer as well as an outer (body) layer. The inner layers were constructed with a combination of different twining and plaiting techniques. The combinations found from hat top to bottom are:

Flat-top hats

1. Plain twining
2. Checker IIb

1. Plain twining
2. Checker
3. Plain twining

1. Plain twining only

Knob-top hats:

1. Plain twining
2. Checker

Both knob-top and flat-top hats:

1. Plain twining
2. Alternate plain twining/checker

Comparison of Hat Construction Techniques from Other Northwest Coast Wet Sites

Table 13 indicates the number of hat body weaving techniques recorded from the ten other Northwest Coast wet sites. Once again the sample sizes are very low, ranging from zero to two examples. Each of the major techniques is considered separately below.

Table 13. Hat body weave techniques recorded at Northwest Coast wet sites other than Ozette Village

Technique	Hoko River	Musqueam Northeast	Biederbost	English Camp	Axeti	Lachane	Conway	Fishtown	Wapato Creek	Little Qualicum River	Total
Plain twining	2 (100)			1 (100)					1 (100)		4
Axeti combination #1[a]					1 (50)						1
Ozette combination #2[b]					1 (50)						1
Total	2			1	2				1		6

[a] Axeti combination #1: (a) plain twining, (b) checker, (c) twill 2/2, (d) diagonal twining (e) twill 2/2, (f) checker.

[b] Ozette combination #2: (a) plain twining, (b) 1 row 3 strand twining, (c) diagonal twining, (d) 1 row 3 strand twining, (e) "skip-stitch" twining

NOTE: Illustrations provided below.

Plain Twining

Plain twined hats occur at three of the four wet sites from which hats were recovered. All of these plain twined hats are constructed from cedar bark materials. The two hats at Hoko River are knob-top types; at Wapato Creek the single specimen is a knob or pointed-top hat; and at English Camp a rounded-top conical hat was recovered.

Combination Types

At Axeti two cedar bark conical hats were recovered, each with complex combinations of weaving techniques. One hat has, from top to bottom, rows of plain twining, checker plaiting, twill 2/2 plaiting, diagonal twining, twill 2/2 plaiting, and checker plaiting. Since this elaborate combination of fine gauge twining and plaiting techniques was recorded only at Axeti, it has been designated the "Axeti combination #1."

The other hat found at Axeti also is a cedar bark conical hat, but was constructed with a specific combination of weave techniques also discovered on three hats from Ozette (combination |2, Table 13). This combination is observed on prehistoric Axeti and Ozette hats and was most common historically to northern spruce root hats (Willoughby 1910:4).

Few hats have been recovered from other Northwest Coast wet sites, but because of their complex shapes and weaving techniques they are valuable for comparative purposes. Plain twining with cedar bark was recorded on four hats and Axeti has cedar bark hats with complex combinations of weave techniques. One Axeti hat has the Ozette combination #2 body construction technique, which is a common northern Northwest Coast hat construction technique and composition in historic times.

Ozette Mat Construction Techniques

Ozette mat construction techniques include plaiting, sewing, and the use of plain bark sheets. Plaiting includes checker, twill 2/2, checker on bias, and twill on bias. Mat sewing techniques were used exclusively on tule/cattail mats, in which these stem/leaf materials were arranged side-by-side and sewn together. Plain bark sheets were employed to make flat, thin, rectangular harpoon, sheaths. These Ozette mat construction technique categories are recorded in Table 14. As can be seen, checker plaiting was the major technique utilized in constructing Ozette mats. Most of the 336 Ozette specimens are cedar bark mat fragments recovered from the refuse middens. Complete specimens of mats with checker plaiting usually are rather large mats with a constricting midline and they usually are found within the Ozette House I structure. Most of the checker on bias and twill on bias plaiting techniques were used in making tumpline strap bodies. A few small square mats were woven using the checker on bias technique. One small rectangular mat was recorded with twill 2/2 plaiting.

Table 14. Ozette mat construction techniques.

Construction Techniques	Number	Percent
Plaiting		
1. Checker	336	76
2. Twill 2/2	1	
3. Checker on bias	21	5
4. Twill on bias	30	7
	388	88
Sewing		
5. Sewn	16	4
Plain Bark Sheet		
6. Cedar bark sheet	37	8
Total	441	100

Comparison of Mat Construction Techniques from Other Northwest Coast Wet Sites

Identifiable mat forms were recovered from only two other Northwest Coast wet sites, northern Lachane and Axeti (Table 15). All of these mats were constructed of cedar bark and with the checker plaiting technique. Now fragmentary, they probably once were sections from relatively large mats.

Table 15. Mat weave technique recorded at Northwest Coast wet sites other than Ozette Village.

Site	Number of Examples, Checker Technique
Hoko River	
Musqueam Northeast	
Biederbost	
English Camp	
Lachane	4
Axeti	24
Conway	
Fishtown	
Little Qualicum River	
Wapato Creek	
Total	28

Construction Techniques Recorded from Ozette Basketry Fragments

Ozette basketry pieces, too fragmentary to be properly identified as basket bodies or bases, hats, or mats, exhibit a variety of plaiting, twining, wrapping, and coiling techniques. These are listed in Table 16 along with frequency and percent occurrence. Often the identity of the original basketry item is strongly suggested by the remaining fragment. The sample size of these fragments is 391. The construction technique found most frequently is plaiting, particularly checker plaiting of cedar bark materials. These fragments most likely were originally parts of mats. Twill 2/2, and checker IIA-C/Plaid were seen in far fewer fragments, and these probably

represent basket bodies. Checker on bias fragments might be from small square mats or tumpline body straps. The single example of twill 3/3 is a cedar bark fragment probably from a "fancy" mat or basket body.

Table 16. Construction techniques recorded from Ozette basketry fragments.

Construction Techniques	Number	Percent
Plaiting		
1. Checker	293	75
2. Twill 2/2	9	2
3. Checker IIA	1	
4. Checker IIB	4	1
5. Checker IIC	3	1
6. Checker II plaid	3	1
7. Check on bias	2	1
8. Twill 3/3	1	
	316	81
Twining		
9. Plain twining	29	7
10. Open twining	18	5
11. Alternate plain twining/checker	4	1
12. Cross warp twining	3	1
13. Open 2 rows twining	4	1
	58	15
Wrapping		
14. Open wrapping	2	1
15. Wrap twining	1	
	3	1
Coiling		
15. Split stitch coiling	14	3
Total		100

In the twining category, several plain twined basketry fragments were recovered, probably from hats and some baskets. Open twining, alternate plain twining/checker, cross warp twining, and open twining in twos are less frequent and the fragments, probably are from basket bodies. It is possible, however, that the alternate plain twining/checker fragments could have been from the inner layer of Ozette hats (above).

In the wrapping category, two probable open wrapped fragmented pack baskets were found. The single example of wrapped twining in the Ozette House I area is a very fragile, poorly preserved bag specimen constructed of grass and cedar bark. The low frequency of wrapped twining at Ozette is in some ways surprising, since it became so popular for later historic Makah area basketry (Jones 1968:23, 1976; Croes, personal observations).

Fourteen fragments of coiled basket bases or bodies were recovered in and around the Ozette House I area. These fragments often appear to have been intentionally cut from baskets to form strips, ribbons, and trapezoid-shaped pieces. The cuts were made across coiled rows. The reason for cutting pieces from baskets is discussed below under the functional classification of Ozette coiled baskets.

Comparison of Construction Techniques Recorded on Basketry Fragments from Other Northwest Coast Wet Sites

Table 17 indicates the number and type of construction techniques recorded from basketry fragments from the ten other Northwest Coast wet sites. The sample sizes range from zero to seventy examples. Each major category of construction technique is considered separately below.

Table 17. Basketry fragment construction techniques recorded from Northwest Coast wet sites other than Ozette Village. Percent of occurrence in parentheses.

Technique	Hoko River	Musqueam Northeast	Biederbost	English Camp	Axeti	Lachane	Conway	Fishtown	Wapato Creek	Little Qualicum River	Total
Plaiting											
1. Checker	4 (40)	19 (28)	10 (100)		64 (91)	6 (60)	3 (17)	1 (17)		1 (100)	108
2. Twill 2/2		1 (2)					1 (6)	1 (17)			5
3. Checker on bias					2 (3)						3
4. Cross warp plaiting					3 (4)						1
					1 (1)						
Twining											
5. Open twining		4 (6)				4 (40)	14 (78)	2 (33)			24
6. Plain twining	3 (30)	9 (13)						1 (17)			13
7. Diagonal twining		1 (2)									1
Wrapping											
8. Open wrapping	3 (30)										3
9. Wrap around plaiting		24 (36)									24
10. Unidirectional open wrapping		3 (4)									3
Combinations											
11. Musqueam NE combination B		1 (2)									1
12. Musqueam NE combination C		1 (2)									1
13. Musqueam NE combination D		2 (3)									2
14. Musqueam NE combination E		1 (2)									1
15. Musqueam NE combination F		1 (2)									1

Technique	Hoko River	Musqueam Northeast	Biederbost	English Camp	Axeti	Lachane	Conway	Fishtown	Wapato Creek	Little Qualicum River	Total
Coiling											
16. Split stitch bundle								1 (17)			1
Total	10	67	10	0	70	10	18	6		1	192

Plaiting

Checker plaiting occurs at most sites. The checker plaited fragments at the early Musqueam Northeast and Biederbost sites are of cedar splints materials, probably from the large checker plaited utility baskets common to these sites. Most of the checker plaited fragments at other sites, including Ozette Village, are constructed from cedar bark. The very high frequency of cedar bark checker plaited fragments at Axeti and Ozette and the relatively high frequency at Lachane probably represent cedar bark mat fragments and again seem to correlate with their identification as village sites.

Twill 2/2 fragments at Musqueam Northeast and Conway are constructed of splints, and probably represent basket bodies or bases. Those at Axeti and Fishtown are plaited of cedar bark and probably represent mats or baskets.

Checker on bias occurs on narrow shaped bands of basketry at the Axeti site. These cedar bark specimens could be from fragmented tumpline straps, which are of this technique and common at Ozette Village.

Cross-warp plaiting was recorded only at Axeti and these cedar bark fragments probably are from basket bags.

Twining

Open twined fragments from Musqueam Northeast, Conway, and Fishtown usually are cedar

splint specimens, originally part of large open twined baskets. The examples from Lachane are woven in cedar bark.

Plain twined fragments are relatively common at Hoko River and Musqueam Northeast; one example occurred at Fishtown. Two of the Hoko River examples and the Fishtown example are constructed of cedar bark. All the Musqueam Northeast examples and one of the Hoko River examples appear to have been constructed of a root (spruce?) material. These fragments could have been parts of hats or close weave baskets.

Diagonal twining was recorded on one Musqueam Northeast fragment. This technique usually was found as a part of baskets and in the combination "C" weave technique on baskets at this site (Fig. 5).

Wrapping

Open wrapping, with the lean of the wrap alternating between rows, occurs on three fragments at Hoko River. Probably these represent large carrying baskets. The unidirectional open wrapping (with unidirectional lean, #23, Table 7) occurs on three fragments at Musqueam Northeast. Probably these examples are from baskets with a combination "A" weave (see Fig. 5).

Wrap around plaiting is the most frequent weave technique recorded on fragments from Musqueam Northeast, and since this also is the most common basket body construction technique at that site it is assumed that these fragments are from basket bodies.

Combination of Construction Techniques

Musqueam Northeast combination weaves A through F all occurred on woven fragments at that site. They are probably from basket bodies since these weave combinations have been recorded previously only on basket bodies there.

Coiling

A single fragment of split stitch, bundle foundation coiling was recovered at the Fishtown site. It consists of only two stitches, 3.8 x 1.5 cm in area. The Fishtown site, on the delta of the Skagit River (Map 1), is in an area occupied in historic times by Salishan speaking people, who had a developed coiling technology. Since, outside of the late Ozette Village site, this is the only example of prehistoric coiled basketry, it is probable that this technique did not become common until late.

Summary

Basketry fragments from Northwest Coast wet sites are relatively common. These fragments often can be assigned to their most likely functional category, baskets, hats, or mats. The high occurrence of cedar bark checker plaited fragments appears to be associated with sites that were villages (Ozette Village, Axeti, and Lachane). In general the high frequency of a given technique in fragments correlates with a high frequency of those techniques in complete specimens at those sites.

Northwest Coast Prehistoric Basketry Construction Techniques Summarized

Table 18 indicates the frequency and percent occurrence of distinct basketry construction techniques recorded from all Northwest Coast wet sites. In this table the combination of weaves (Musqueam Northeast combinations A-F, Ozette Village basket and hat combinations, etc.) are not recorded as distinctive techniques, but the occurrence of each technique in the combination is counted. Also, the Ozette Village sewn and flat bark sheet techniques are not included. Ozette Village has recorded the widest variety of basketry construction techniques. Certainly this is partly because of the very large sample size from Ozette Village (1,391 specimens including fragmentary examples) and if larger collections existed from other Northwest Coast wet sites, some additional techniques would probably be recorded.

Table 18. Basketry construction techniques from all Northwest Coast wet sites.
Percent of occurrence in parentheses.

Technique	Ozette Village	Hoko River	Musqueam Northeast	Biederbost	English Camp	Axeti	Lachane	Conway	Fishtown	Wapato Creek	Little Qualicum River
Plaiting											
1. Checker	829 (60)	6 (18)	36 (26)	36 (68)		93 (87)	20 (57)	10 (18)	1 (7)		2 (50)
2. Twill 2/2	156 (11)	1 (3)	18 (13)	1 (2)		3 (3)	1 (3)	11 (20)	4 (29)		
3. Twill 3/3	1		2 (1)	4 (8)							
4. Checker IIA	7 (1)					2 (2)	1 (3)				
5. Checker IIB	15 (1)										
6. Checker IIC	3										
7. Checker II plaid	9 (1)										
8. Twill on bias	39 (3)										
9. Checker on bias	23 (2)					3 (3)					
10. Cross-warp plaiting						2 (2)					
Twining											
11. Open twining	84 (6)		9 (7)	12 (23)	1 (50)		10 (29)	35 (63)	7 (50)		
12. Plain twining	89 (6)	8 (24)	11 (8)		1 (50)		1 (3)		1 (7)	1 (100)	
13. 1 row plain twining	55 (4)	1 (3)									
14. 1 row 3 strand twining	3										
15. Spiral based plain twining	3	2 (6)									
16. Alternate plain twining/checker	20 (1)										
17. Cross-warp twining	5										
18. Open 2 rows twining	4						1 (3)				
19. "Skip-stitch" twining	3					1 (1)					
20. Diagonal twining	3		3 (2)								
21. Alternate open twining/cross-warp twining							1 (3)				

Technique	Ozette Village	Hoko River	Musqueam Northeast	Biederbost	English Camp	Axeti	Lachane	Conway	Fishtown	Wapato Creek	Little Qualicum River
Wrapping											
22. Open wrapping	22 (2)	9 (27)				3 (3)					2 (50)
23. Wrap twining	1	5 (15)									
24. Unidirectional open wrapping			1 (3)								
25. Wrap around plaiting		1 (3)	56 (41)								
Coiling											
26. Split stitch bundle	17 (1)								1 (7)		
Total	1,391	33	136	53	2	107	35	56	14	1	4

In order to summarize the degree of similarity in basketry construction techniques among Northwest Coast wet sites, a close-proximity analysis is conducted. Since preliminary comparisons indicate that the actual frequency of occurrence of each technique has site functional implications thereby strongly influencing the results, straight occurrence data (i.e., presence/ absence), is used to demonstrate the extent of shared construction techniques among sites. To construct the similarity coefficient matrix, *Jaccard's coefficient Sj* is used. *Sj* gives stronger count weight to agreement scores (+ +), and ignores negative matches (- -) (Doran and Hodson 1975:141). Therefore, the construction techniques that occur at both sites are considered important, those that occur at one but not the other are noted, and those that occur at neither site are not counted. This gives a stronger weight to sites which share distinct techniques. The Sj coefficient ranges from complete site similarity (1) to no site similarity (0). Because of the large number of construction techniques occurring at Ozette Village and their relative scarcity elsewhere, the similarity coefficients between it and most sites is relatively low (below .50). Still, the general similarities between different sites can be ranked. To identify general patterns of site-to-site similarities, close-proximity analyses are conducted considering (a) basket base construction techniques, (b) basket body construction techniques, and (c) all recorded distinct basketry construction techniques (Fig. 7). Other basketry categories, mat and hat construction techniques, have too small a number of samples for testing. Also, only eight sites had large enough collections to be included. The close-proximity analyses are conducted with the double-link method (Renfrew and Sterud 1969). The results of each test, with a chain-series representing the degrees of similarity, are depicted in Fig. 7. Each of these tests, and the comparison of basketry construction techniques, are summarized below.

Basket Base Construction Techniques

Biederbost and Musqueam Northeast have a strong correlation in terms of basket base construction techniques (A, Fig. 7) since both sites share twill 2/2 and twill 3/3 techniques. At the lower level of correlation (.30-.49) all the Puget Sound/ Gulf of Georgia sites (Musqueam Northeast, Biederbost, Conway, and Fishtown) cluster with each other, again suggesting a possible regional relationship in this area. The northern Coast sites, Lachane and Axeti, correlate at the middle level since they both have checker plaited basket bases. And the south-central Coast sites, Hoko River and Ozette Village, correlate at the middle level with the occurrence of one row plain twining and spiral based twining techniques distinctive of those sites.

Basket Body Construction Techniques

The close-proximity analysis for basket body construction techniques (B, Fig. 7) indicates again a generally strong correlation between the four Puget Sound/Gulf of Georgia sites. Musqueam Northeast does not show as strong a relationship as the other three sites because of the distinctive body weave techniques occurring at that site, including wrap around plaiting and combination techniques. The technique of applying single and double wrap reinforcement rows onto the basket bodies (Fig. 6) at Musqueam Northeast and Biederbost was not considered in this test, since it is not a weave technique, but an application to a body weave technique. This shared reinforcement technique would additionally suggest relationships of these earlier sites and basketry technologies.

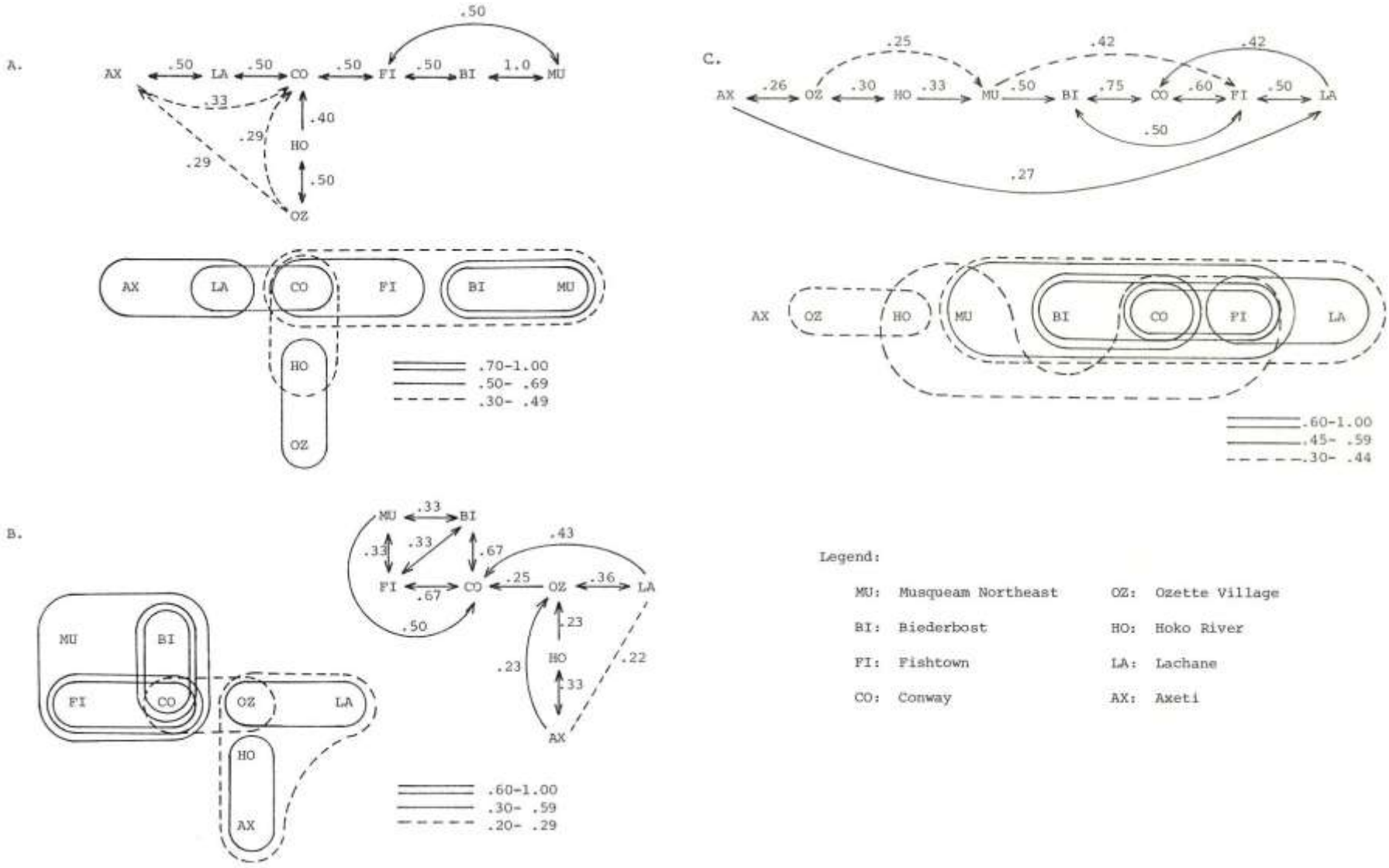


Fig. 7. Double-link close-proximity chain series for (A) basket base construction techniques, (B) basket body construction techniques, and (C) all distinct basketry construction techniques recorded at Northwest Coast wet sites. Degrees of similarity: 0 = no similarity to 1.0 = complete similarity.

The northern Coast sites of Lachane and Axeti do not correlate strongly in body weave techniques. This suggests some technological differences between these sites.

South-central Coast sites of Ozette Village and Hoko River only correlate at the lower level, sharing open wrapping and plain twining body weaves.

All Distinct Basketry Construction Techniques

Consideration of all recorded distinct basketry construction techniques (C, Fig. 7) shows again a strong correlation between Puget Sound/Gulf of Georgia sites. Musqueam Northeast is again not quite so strongly correlated because of some of its unique weave techniques (wrap around plaiting, diagonal twining, and unidirectional open wrapping).

The northern Lachane and Axeti sites correlate very weakly. This tends to suggest that no strong techno-cultural relationships existed between these sites.

The south-central Coast sites of Ozette Village and Hoko River are correlated in a double link (with arrows pointing in both directions). Axeti also correlates, though somewhat less, with Ozette Village. These sites share many techniques including the distinctive open wrapping technique. In terms of basketry construction techniques the south-central coast sites may indicate some form of technological continuity in this region.

In viewing all the close-proximity chain series (A-C, Fig. 7) certain patterns are noted. In most cases the Puget Sound/Gulf of Georgia sites cluster tightly. This clustering is significant in proposing technological and possibly some form of cultural continuum in this area. However, it should be made clear that each site also has features unique to itself. This technological and/or cultural continuity should be considered hypothetical and needs further testing.

The south-central Coast sites of Hoko River and Ozette Village also group closest, especially because of their shared occurrences of open wrapping, spiral based twining, wrapped twining, and one row plain twining base weave techniques.

The northern Coast sites of Lachane and Axeti only cluster strongly for basket base construction techniques (A, Fig. 7), and are not as strongly associated in other tests. This tends to discount any close correlation or continuity relationship between these temporally and spatially separated sites.

According to the close-proximity analyses, it may be generally concluded that the basketry construction techniques from Northwest Coast wet sites show interrelationships similar to those shown by basketry construction materials in the previous test (Fig. 2). The basketry construction techniques data thus add to and somewhat support the hypothetical areal continuity model constructed on the basis of basketry construction materials (Fig. 2). However, degrees of similarity between Lachane and Axeti Northern Coast sites are not nearly as strong, and the basketry technologies at these two sites probably are not closely associated. In some respects Axeti, Hoko River, and Ozette Village are more closely correlated (B and C, Fig. 7). A revised hypothetical continuity model, employing only basketry construction techniques data, is

presented in Fig. 8. When all basketry attributes are considered, including the combination of attributes into whole classes of basketry objects, this model is further tested.

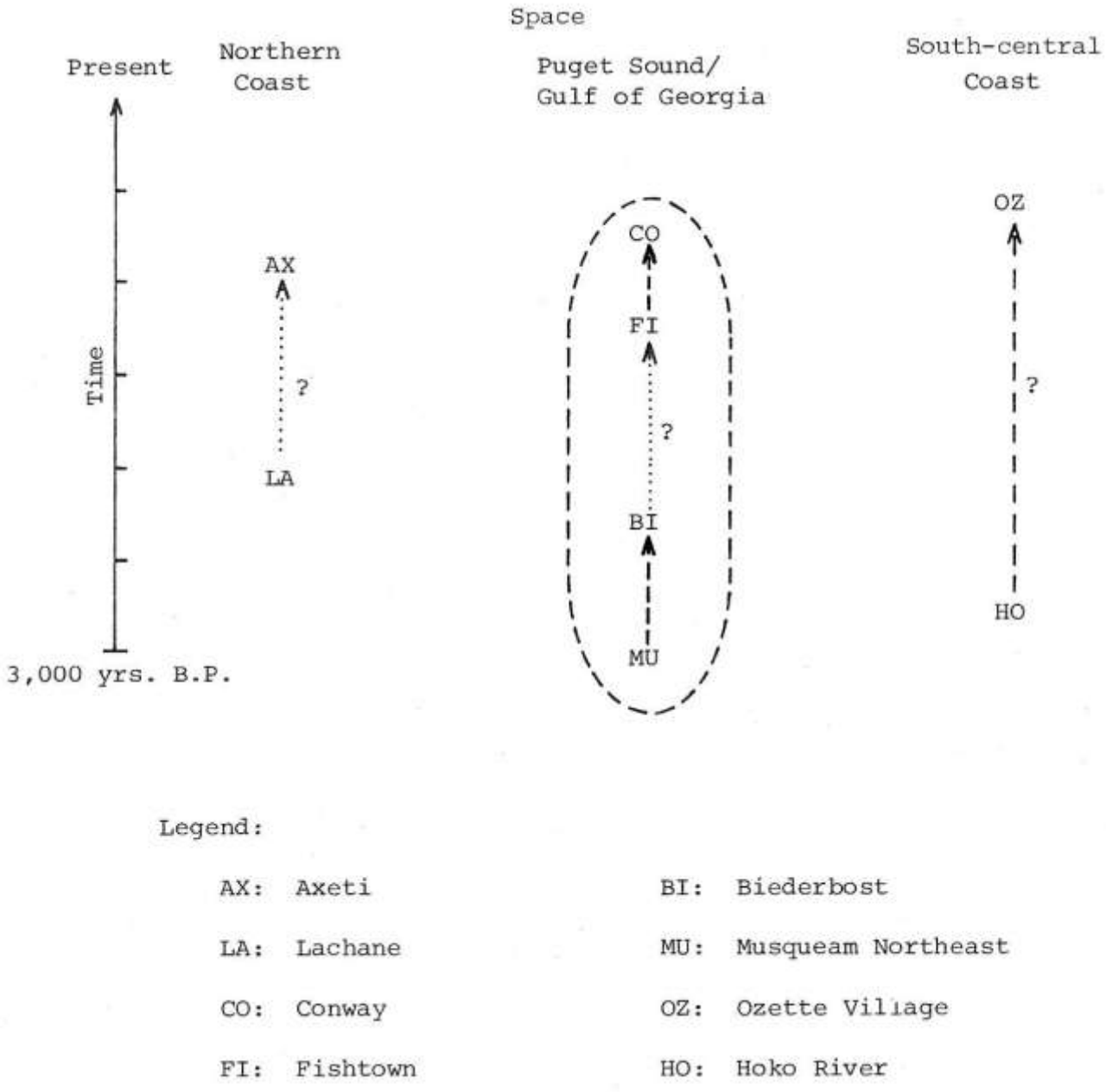


Fig. 8. Hypothetical continuity model of site interrelationships based on basketry construction techniques.

Extensions on Basketry Objects

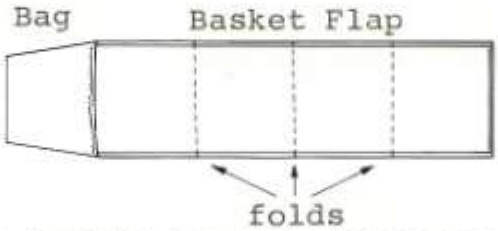
Basketry extensions can be defined as additional components connected to the basic basketry forms. Often important functional parts, these can be new materials incorporated onto the form, or can be an extension of the basketry weave construction. For baskets these extensions include flaps, handles, tumpline loops and cradle line attachments, for hats they are seen as inner headbands. Since basketry extensions may be either additions or continuations they are defined by a description of how they were constructed and applied.

These definitions are shown in Fig. 9. The names given are intended to be descriptive.

BASKET EXTENSIONS

A. Ozette Basket Flaps Defined

A plaited flap extended from one edge of a flat bag basket and several times the height of the basket: LARGE FLAP EXTENSION (n=3)



(flap folded several times around bag)

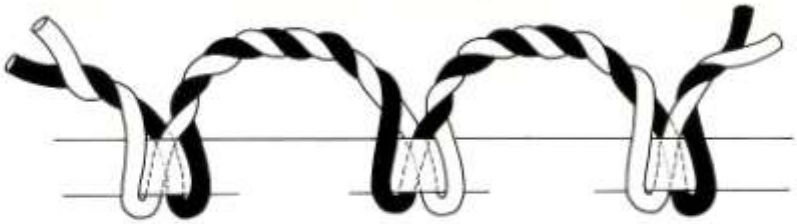
B. Ozette Basket Handles Defined

1. Single cordage loop handles attached to basket edge beneath the rim: SINGLE HANDLES (n=1, 2%)

2. Continuous looped series of two strand cordage handles with one strand of cordage attached to the basket edge beneath the rim: CONTINUOUS, ONE STRAND ATTACHED, LOOPED HANDLES (n=53, 87%)

Fig. 9. Ozette basketry extensions defined.

3. Continuous looped series of two strand cordage handles with both strands of cordage attached to the basket edge beneath the rim: CONTINUOUS, TWO STRAND ATTACHED, LOOPED HANDLES (n=2, 3%)



4. Double looped two strand cordage handles with two strands of cordage attached to the basket edge beneath the rim: DOUBLE LOOPED HANDLES (n=1, 2%)

5. Braid handle crossing over basket mouth and attached to the basket edge beneath the rim: CROSS-THE-MOUTH BRAID HANDLE (n=4, 7%)

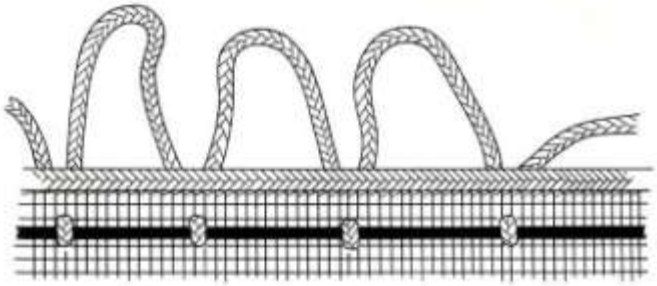
Fig. 9. Ozette basketry extensions defined (Continued).

C. Ozette Basket Tumpline Loops Defined

Two cordage loops attached to upper corners of basket body; used to guide tumpline straps around the top of pack baskets: DOUBLE TUMPLINE LOOPS (n=7)

D. Ozette Cradle Line Attachments Defined

Looped braid lines along cradle sides; lines anchored to stick on outside edge of cradle; used to guide additional straps across the top of the cradle to secure child inside the cradle: BRAID CRADLE LOOPS (n=3)

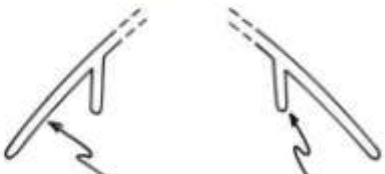


TOP IDEALIZED VIEW, looped braids with securing straps

HAT EXTENSIONS

E. Ozette Hat Headbands

1. Folded down headband, derived from hat inner layer: FOLDED DOWN HEADBAND (n=8)



CROSS-SECTION

Fig. 9. Ozette basketry extensions defined (Continued).

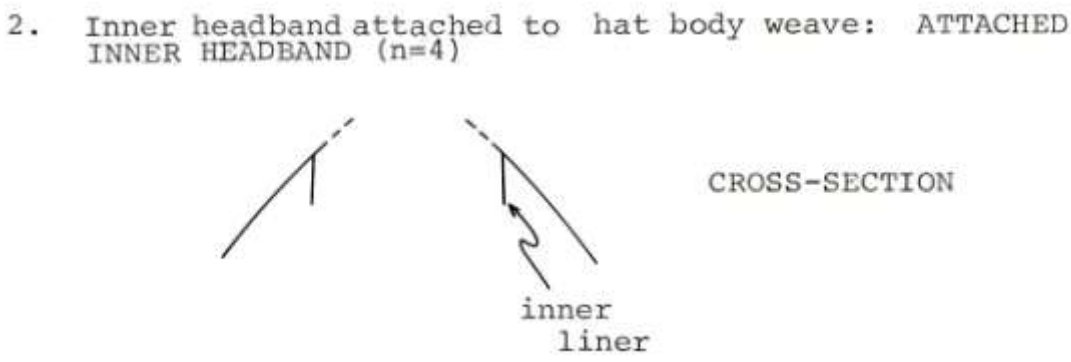


Fig. 9. Ozette basketry extensions defined (Continued).

Basket Flaps

Long flaps are found on three Ozette Village cedar bark bag forms. The flaps are folded around the bags in a fashion similar to those on tobacco pouches. All of these baskets are fishing tackle bags containing fishhooks and other fishing gear and are considered separately below as a special functional class of Ozette basket. This form of basket flap has not been found at other Northwest Coast wet sites.

Basket Handles

Five types of basket handle attachments were recorded. Each type is considered below.

Opposing, Single Looped Handles

One basket was recovered with single and opposing handles. These handles were constructed of twisted cedar boughs and attached to the rim of a large open twined, cedar splint basket (Art. #

FS/168) (#1, Fig. 9B).

Continuous, One Strand Attached, Looped Handles

This handle attachment technique is by far the most common form (n=53, 87%). These handles are constructed with a continuous looped series of two strand cedar bough cordage attached with alternating single strands passing under the rim edge at consistent intervals (#2, Fig. 9B). Usually they were attached to large cedar splint baskets (either twill 2/2 or open twined baskets). Makah Senior Citizens report that they were used to secure the contents of a full basket by running a line through opposite loops, in a criss-cross fashion. The contents often were covered with large leaves before being tied in. This technique provided a means to hold in items and to prevent spillage (personal communication; Gunther, personal communication). Some baskets with these handles were found with tumpline straps running through them.

Continuous, Two Strand Attached, Looped Handles

This type of handle attachment was rare, found on only two baskets. In function and form it was much like the continuous, one strand attached, looped handle, except both of the two strands passed under the rim edge of the basket (#3, Fig. 9B). At the present time this two strand attachment technique may be observed on many baskets from Coast Salishan groups especially Quinault and Twana (personal observations). Because these baskets from Ozette Village also show many other characteristics more common to Coast Salishan basketry it is likely that they were introduced to Ozette Village.

Opposing, Double Looped Handles

A single example of this handle attachment is recorded. It is formed of two strand twisted cedar bough cordage and is attached at three points by a single or double strand passing under the rim edge of the basket (#4, Fig. 9B).

Cross-the-Mouth Braid Handle

Four baskets were found with cross-the-mouth braid handles. These were constructed from cedar bark braided lines and attached to small cedar bark bags (#5, Fig. 9B).

Comparison of Handle Construction Techniques Recorded from Other Northwest Coast Wet Sites

Hoko River, English Camp, Wapato Creek, Axeti, and Lachane baskets are recorded as having no handle attachments either because of low sample sizes or because they may not have occurred. The handle attachment techniques recorded on baskets from other sites are discussed below.

Single (Opposing or in Series) Handles on Rim

Opposing single cedar bough, two strand cordage handles occur on the rims of baskets at the Puget Sound/Gulf of Georgia sites of Biederbost (n=5), Musqueam Northeast (n=15), Conway (n=7), and Fishtown (n=l) (Fig. IOC). The single handles from Musqueam Northeast were

initiated with a single overhand knot, and this knotting technique is unique to this site (Fig. 10D).

Single, cedar bough, two-strand cordage handles occur in a systematic staggered series on the rims of baskets at Musqueam Northeast (n=2) and Biederbost (n=l) (Fig. 10B). At both of these sites the number of such baskets might have been greater, but the baskets were too fragmentary in most cases for the type of handle to be determine^. These staggered handle loops were recorded on large cedar splint baskets and probably functioned to tie in the basket contents as did the continuous looped handles at Ozette Village (Croes 1975:24).

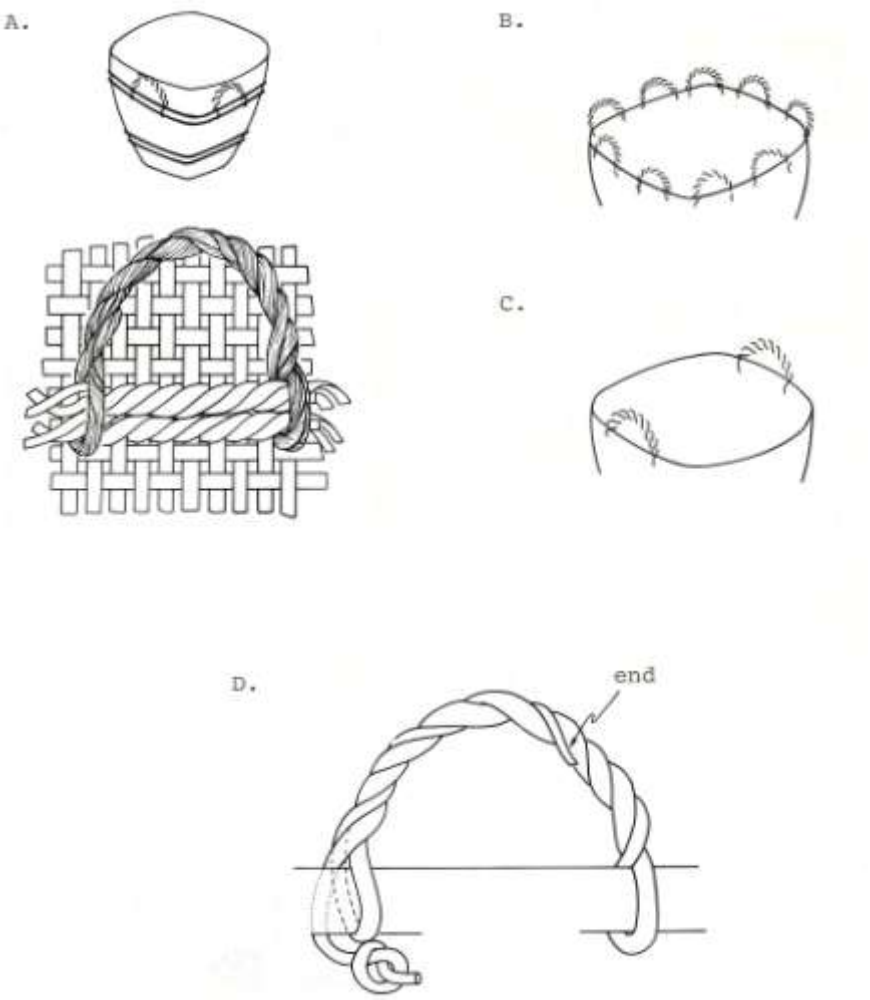


Fig. 10. Handle attachment techniques recorded from Northwest Coast wet sites: (A) single handles attached to body reinforcement rows, (B) series of single handles attached to basket rim, (C) opposing single handles, and (D) overhand stopper knot utilized to construct Musqueam Northeast handles.

Single Handles Attached to Reinforcement Rows on the Sides of Baskets

At the Biederbost site, single cedar bough cordage handles are attached to reinforcement rows on the sides of baskets (n=9) (Fig. 10A), thus distributing the carrying support lower on the basket sides than handles along the rim.

Single Handles Attached to Basket Weft Rows Directly Below the Rim

Two basketry examples from Little Qualicum River site have single cedar bough two-strand handles (possibly in a staggered series) attached at a location two weft rows below the rim, a minor variation of single handles attached to the rim as described above.

Double Loop Opposing Handles

Double looped, cedar bough cordage handles were recorded at Conway (n=5) and Fishtown (n=l). Three of the examples at Conway have two middle strands passing under the rim and the remaining examples have only one (14, Fig. 9B). A basket with double loop opposing handles has been found at Ozette.

Handle Construction Techniques Summarized

Many distinct two strand, cedar bough, handle attachment techniques have been recorded on prehistoric southern Northeast Coast baskets. Table 19 indicates the presence/absence of distinctive handle attachment techniques at Northwest Coast wet sites.

Table 19. Occurrence of distinct handle attachment techniques at Northwest Coast wet sites.

Handle Attachment Technique	Ozette Village	Musqueam Northeast	Biederbost	Conway	Fishtown	Little Qualicum River
1. Continuous, one strand attached, looped handles	+	-	-	-	-	-
2. Single handles in a staggered series around rim	-	+	+	-	-	-
3. Single handles attached to body reinforcement rows	-	-	+	-	-	-
4. Single (opposing) handles	+	+	+	+	+	-
5. Continuous, two strand attached, looped handles	+	-	-	-	-	-
6. Across-the-mouth braid handles	+	-	-	-	-	-
7. Double looped (opposing) handles	+	-	-	+	+	-
8. Single handles attached on weft rows below rim	-	-	-	-	-	+

Though the data are limited, a close-proximity analysis of handle attachment techniques was conducted to establish a framework for general comparisons. The coefficient of similarity matrix was created as before, using the presence/absence data and *Jaccard's coefficient, Sj*. The double-link chain series resulting from this test is illustrated in Fig. 11.

As can be seen, Conway and Fishtown have complete correlation, both sites have double loop opposing handles and single loop opposing handles. Ozette Village correlates at a lower level with Conway and Fishtown, essentially because one basket with double loop opposing handles was found at this site. This example is unique at Ozette Village and may have been introduced

from the Puget Sound area. Otherwise Ozette Village is distinct in its major handle attachment technique, the continuous, one strand attached, looped handles.

Biederbost and Musqueam Northeast correlate strongly, both having single opposing handles and single handles in a staggered series around the basket rim. Biederbost is unique with the occurrence of handles attached to the reinforcement rows on the basket body.

The Little Qualicum River site is unique in having handles attached two weft rows below the rim and does not correlate with any other site. A larger sample from this site would be needed to properly evaluate these data.

The close-proximity analysis significantly associated the early Puget Sound/Gulf of Georgia sites, Musqueam Northeast and Biederbost, and the later sites, Conway and Fishtown, and to a lower degree, the four with each other (Fig. 11).

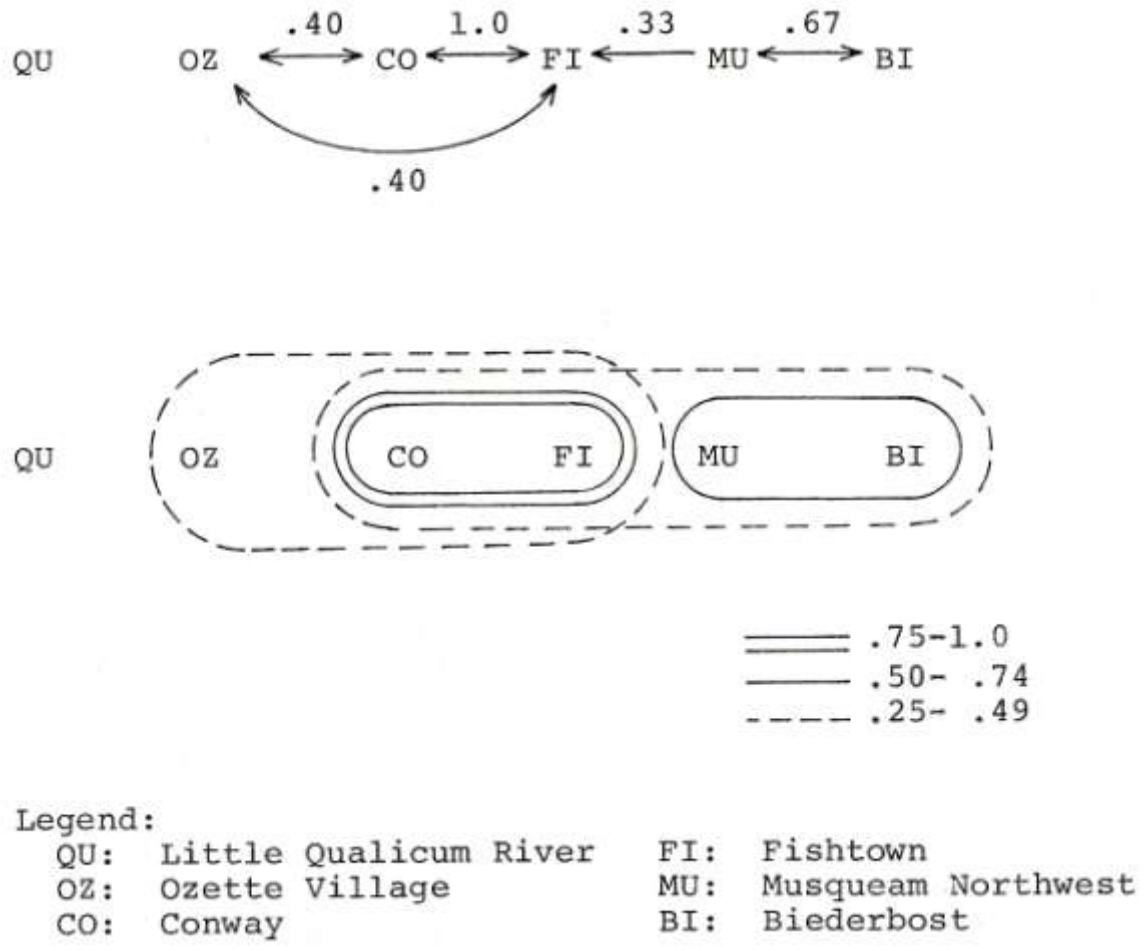


Fig. 11. Double-link close-proximity chain series for basket handle attachment techniques recorded at Northwest Coast wet sites. Degrees of similarity: 0 = no similarity to 1.0 = complete similarity.

Handle attachment techniques have proven to be useful for site comparative analyses, and should be carefully considered.

Tumpline Loops

Two strand, cedar bough (?) cordage tumpline loops were recorded attached to the corners of seven pack baskets at Ozette Village (Fig. 9C). These corner loops helped to guide and support the tumpline strap around the upper edge of the pack baskets. Tumpline loops also were found to

be common on museum specimen pack baskets from the historic Nootka/Makah and other areas (personal observations). None was recorded at any other Northwest Coast wet site.

Cradle Line Attachments

Three Ozette Village cradles have special braid loops attached along their sides. These cedar bark braids were anchored to a narrow stick that was placed along the outside edges of the cradle. Other lines were criss-crossed through these braid cradle loops to secure the child in the cradle (Fig. 9D). Such attachments were not found on cradles recovered at other Northwest Coast wet sites.

Hat Headbands

Headbands, recorded on all complete Ozette Village hats, functioned to stabilize the conical hats on the wearer by fitting snugly around the head. Many Ozette Village hats have headbands which are a folded-down portion of an inner layer of weave (Fig. 9E, #1); in others, headbands are independent bands and attached to the inside weave (Fig. 9E, #2). Each of these forms is considered separately below.

Folded-down Headband

Headbands folded-down from the hat inner layer are the most common type recorded (n=17). Adjacent warps at a certain level in the inner layer were folded back on themselves and woven to form the narrow headband. Various weaving techniques were used including (a) plain twining

(n=11), (b) alternate plain twining/checker (n=3), (c) checker (n=l), and (d) diagonal twining (n=2). All headbands (and inner layers) were constructed of cedar bark materials. One example of a folded-down headband is illustrated in Fig. 12A. They are generally from two to five cm wide and were placed approximately nine cm up from the hat rim (Fig. 12). In regard to the construction of folded-down headbands, Willoughby wrote:

> Upon the under side at about three inches from the rim each warp element is doubled upon itself, forming a loop about 3/4s of an inch long. Through these loops is run a strong double cord of Indian hemp. The loops are bound together by twining weaving, and form an inner rim edged with the cord hemp, which fits the head snugly (1903:67).

Attached Inner Headband

Four Ozette Village hats were recorded with independent headbands attached to the inside body weave of the hat. All were woven with the alternate plain twining/checker weave technique and were constructed of cedar bark. The hat bodies were constructed of fine gauge spruce (?) root materials. One example of an attached headband is illustrated in Fig. 12B.

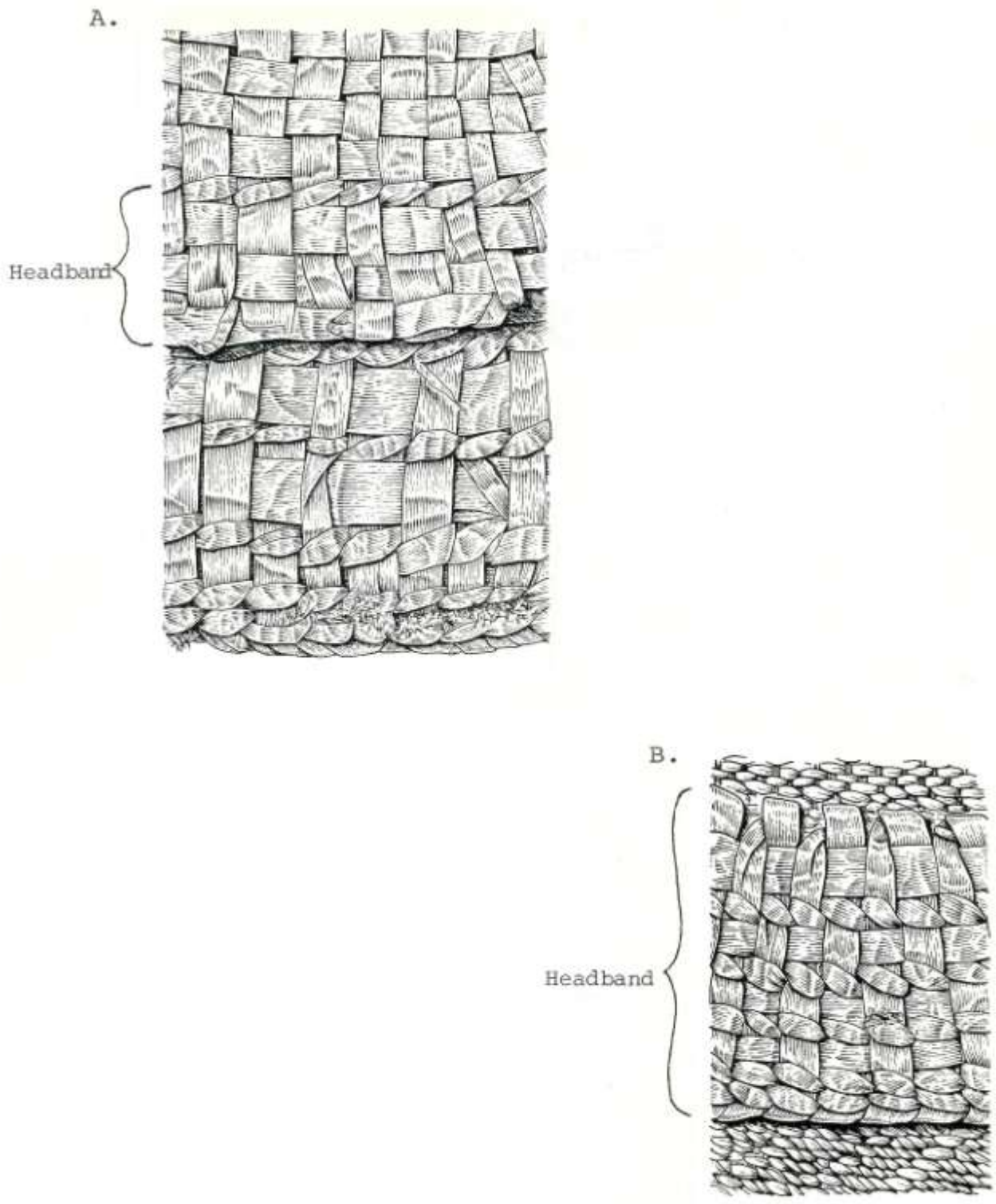


Fig. 12. Inside sections of Ozette Village hats illustrating types of headbands. (A) Folded-down headband, (B) attached headband.

Comparison of Hat Headbands Recorded from Other Northwest Coast Wet Sites

Hat headbands were not found on the fragmentary hats from Hoko River, English Camp, and one of the hats from Axeti. The other Axeti hat appears to have a headband and inner layer, though no other information is recorded. The single hat recovered from Wapato Creek has an inner layer and this forms the skull-cap or headband. This inner layer and headband is attached to the inside pointed top of the hat and forms a cedar bark inner "cap." It is woven in plain twining (Munsell 1976a, Fig, 5, Plate IV).

Basketry Selvage Techniques

A consideration of basketry selvage techniques focuses on specific parts of the separate basketry categories. These are delineated below (see Fig. 3 for orientation):

Baskets:	The basket selvage is the rim finish.
Hats:	The hat selvage is the brim finish.
Mats:	The mat, being a two-dimensional form, has a selvage edge and end construction. The edges of the Ozette Village mats are on the long dimension of the mat and the ends are along the narrow dimension.

In the definitions of the selvage techniques tabulated below (Table 20), a letter or letters in parentheses indicates which basketry category the particular technique is associated with, i.e., B = basket, H = hat, and M = mat. With this scheme, (B, H) means the selvage technique was recorded on baskets and hats, but not on mats, and so forth. Whether the technique is a mat end or edge is not delineated at this point, since often an edge technique can be used as an end technique.

Table 20. Basketry selvage techniques defined.

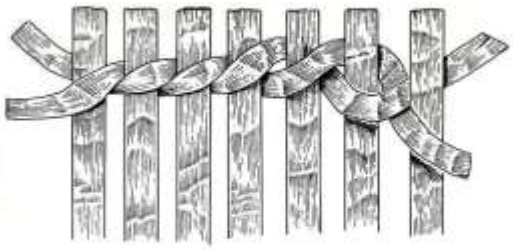
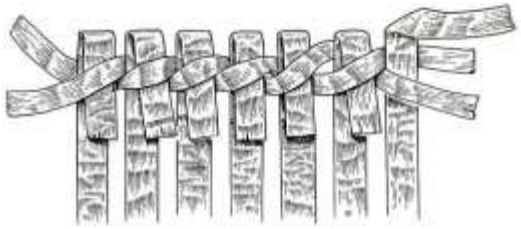
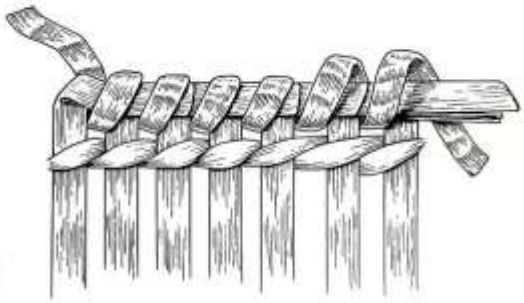
Warp Arrangement	Weft Arrangement	Name, Associated Basketry Forms, and Illustration
1. Warp elements cut off	+ two weft elements twined over the warp elements	→ CUT OFF (B,H,M) 
2. Warp elements bent down on themselves	+ two weft elements twined over the bent down warp elements	→ BENT DOWN (B,M) 
3. Warp elements bent down approximately 90° to right or left	+ single weft element wraps around bent down warp elements in a coiling fashion	→ COILED (B) 

Table 20. Basketry selvage techniques defined (Continued).

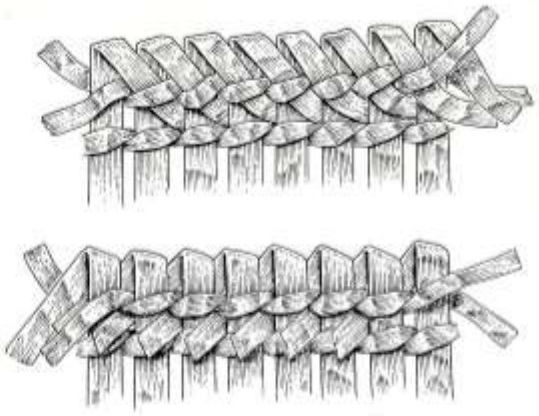
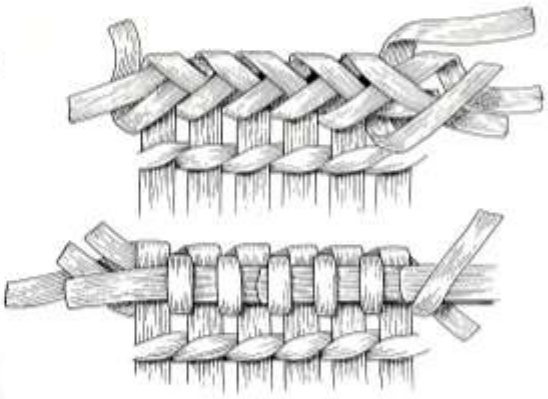
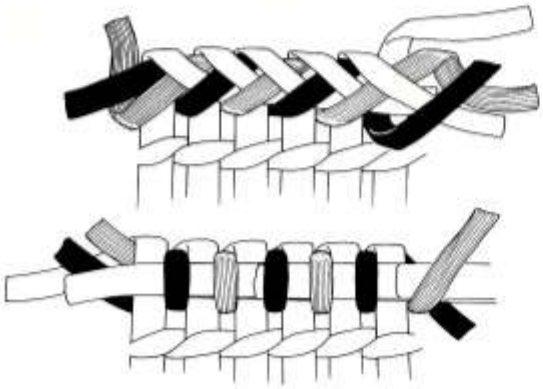
Warp Arrangement	Weft Arrangement	Name, Associated Basketry Forms, and Illustration
4. Warp elements bent down approximately 135° to right or left and tucked behind adjacent warp elements	+ two weft elements twined over bent down ends of warps; excess warp ends commonly are cut off	→ TURNED IN (B,H,M) 
5. Warp elements bent down approximately 90° to right or left	+ two weft elements alternate wrapping over bent down warp elements, across two upright warp elements, and back behind the finish again	→ MOCK BRAID (B)  

Table 20. Basketry selvage techniques defined (Continued).

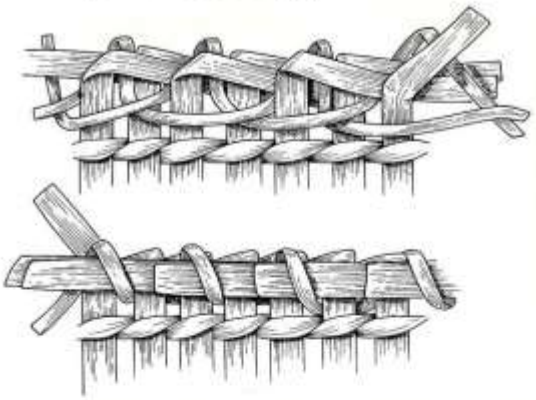
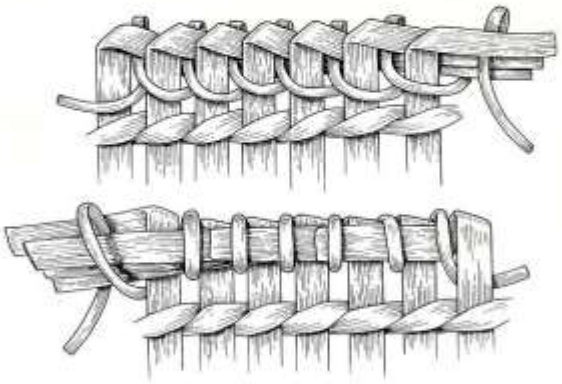
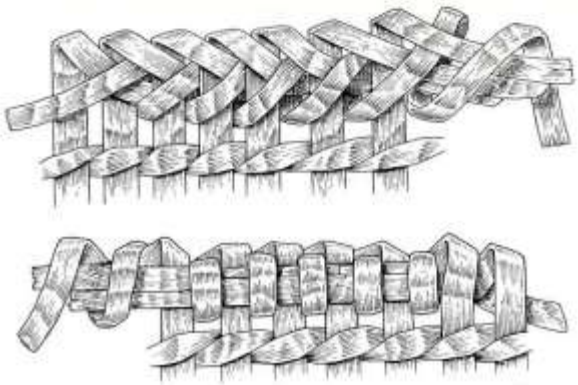
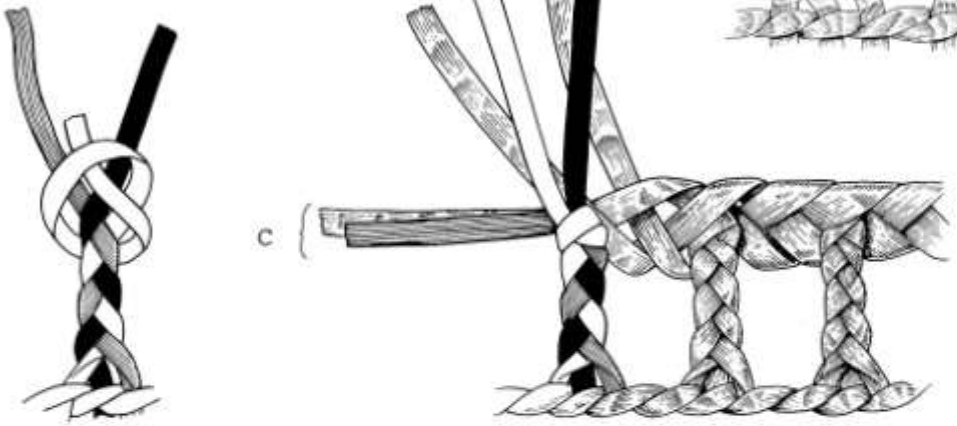
Warp Arrangement	Weft Arrangement	Name, Associate Basketry Forms, and Illustration
6. Warp elements bent down approximately 90° to right or left	+ two weft elements wrap around bent down warp elements and hitch or hook around each other after each wrap	→ HITCHED (B) 
7. Warp elements bent down approximately 90° to right or left	+ single weft element wraps behind the bent down warp elements, back over the underlying bent down warp elements and across the next upright warp element	→ LOOPED (B) 
8. Warp elements bent down approximately 90° to right or left over only the adjacent up-right warp and behind all other warps	+ single weft element wraps over bent down warp elements, across one up-right warp element, and back behind the rim again in a coiling fashion	→ TUCK AND WRAP (B) 

Table 20. Basketry selvage techniques defined (Continued).

Warp Arrangement	Weft Arrangement	Name, Associated Basketry Forms, and Illustration
9. Warp separated into groups of three elements and continued up in separate braids	+ unbraided ends of three warp braid elements combined into the three elements of a horizontal weft braid	→ OPEN BRAID (B)



10. Warp consists of a heavy support strip	+ weft element wrapped once and a half around support warp and back into the main body of the weave	→ AROUND AND BACK (MAT EDGE) (M)

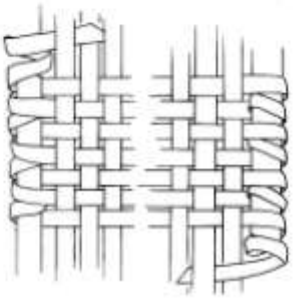


Table 20. Basketry selvage techniques defined (Continued).

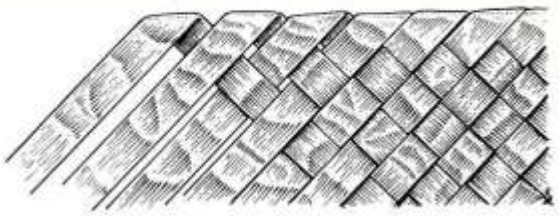
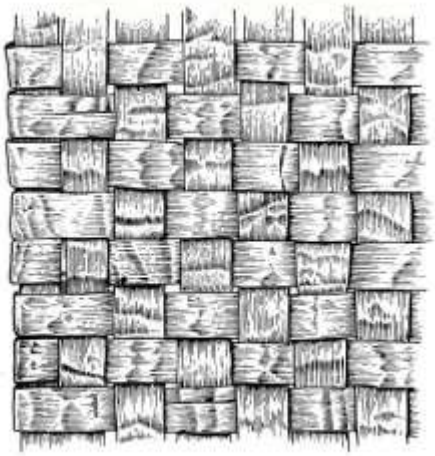
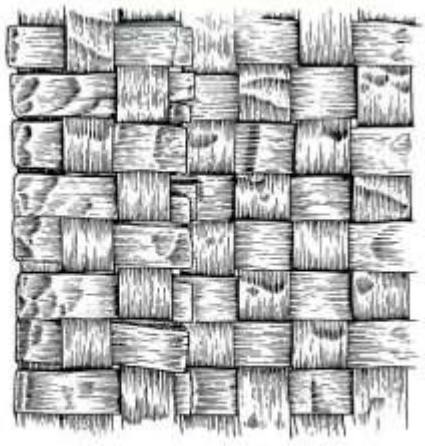
Warp Arrangement	Weft Arrangement	Name, Associated Basketry Forms, and Illustration
11. No definite warp	+ on bias (oblique) weft elements bent 90° back into the main body of the weave	→ BENT BACK (M) 
12. Warp consists of single flat strip	+ weft elements bent down over edge warp element and woven back into two or more body warp elements	→ TURN IN AND BACK (M)  

Table 20. Basketry selvage techniques defined (Continued).

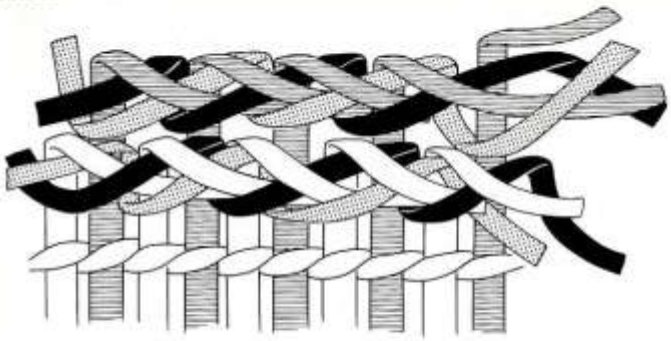
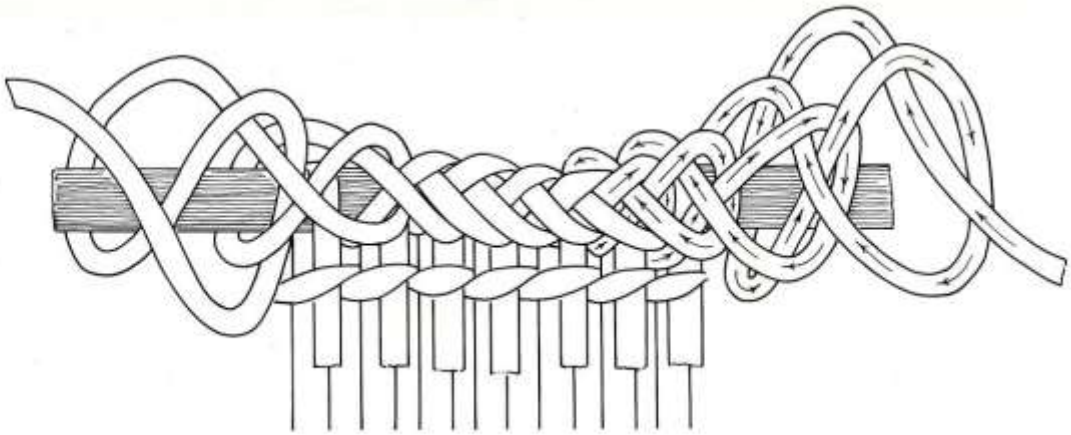
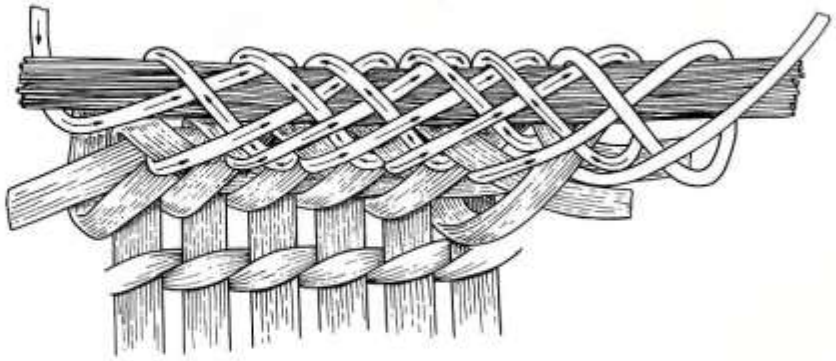
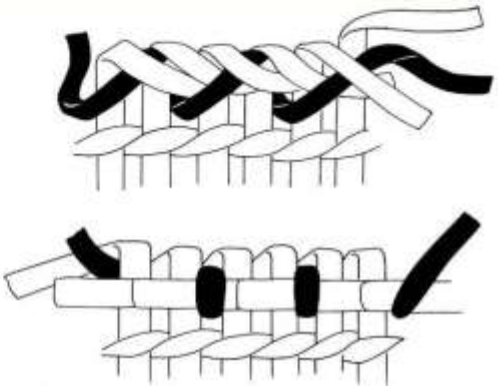
Warp Arrangement	Weft Arrangement	Name, Associated Basketry Forms, and Illustration
13. Alternate warp elements bent down at two different levels approximately 90° to right or left	+ two weft elements at two different levels alternate wrapping over bent warp elements, across two upright warp elements, and back behind the finish again	→ DOUBLE MOCK BRAID (B) 
14. Warp elements bent down over thick reinforcement element	+ single weft element hitched back through itself and around horizontal reinforcement element	→ TOP HITCH (B) 

Table 20. Basketry selvage techniques defined (Continued).

Warp Arrangement	Weft Arrangement	Name, Associated Basketry Forms, and Illustration
15. Same as mock braid (#5)	+ same as mock braid but with the addition of an applied horizontal reinforcement element that is encircled, in a circle-eight wrap, by a single weft element	→ CIRCLE-EIGHT WRAP/ MOCK BRAID (B)
16. Warp elements bent down approximately 90° to right or left over only the adjacent upright wrap and behind all other warps	+ single weft element wraps over two bent down warp elements, across two upright warp elements and back behind the edge again in a coiling fashion	→ SINGLE STRAND WRAP (B)





The basketry selvage techniques are defined according to the arrangements of warp and weft elements in finished selvage. The names given to the selvage techniques are intended to be descriptive of the finished form (Table 20).

Ozette Village Basket Rim Construction Techniques

At Ozette Village a wide variety of basket rim construction techniques occur. Occasionally some of these techniques correlate with specific classes of baskets, but sometimes different rim finishes occur on apparently the same class. The number and frequency percent of Ozette Village basket rim construction techniques are recorded in Table 21. The hitched rim technique (#6, Table 20) is the most common example recorded. This usually was found on the single most frequent class of basket: the large, cedar splint; expanding, rounded cube; twill 2/2; storage-utility basket (OB29, described below). These baskets usually have a series of continuous, one-strand-attached, looped handles on this rim. Hitched rims also were recorded on some cedar bark flat bags and sacks. Looped rims (#7, Table 20) are similar to hitched rims, and were recorded on similar baskets.

Table 21. Ozette Village basket rim construction techniques.

Name	Number	Percent
1. Cut off	1	
2. Bent down	9	4
3. Coiled	11	5
4. Turn in	19	9
5. Mock braid	6	3
6. Hitched	73	35
7. Looped	28	13
8. Tuck and wrap	48	23
9. Open braid	11	3
10. Tuck and wrap covered with coiling	5	2
Total	211	99

The tuck and wrap rim construction technique (#8, Table 20) is second most frequent at Ozette Village. This was most commonly utilized to finish cedar bark baskets of different forms.

Other rim techniques are less common. Of these the turned in rim (#4, Table 20) is common on smaller cedar bark baskets. Mock braid rims (#5, Table 20) are not common and occurred on baskets that appear to have been introduced to the site, possibly from Coast Salish groups. They are found to occur most frequently on historic baskets from such groups as the Quinault and Twana. At Ozette open braid rims (#9, Table 20) were recorded on large whale harpoon bags and on an open twined, cedar bark storage basket. Coiled rim (#3, Table 20) and tuck and wrap covered in coiling rim (#8 and #3, Table 20) techniques are most common on Ozette large, open wrapped, inverted truncated pyramid pack baskets. This created a strong, smooth surface rim that would function well on these rigorously used pack and gathering baskets.

Comparison of Basket Rim Construction Techniques from Other Northwest Coast Wet Sites

Table 22 indicates the frequency and percent of occurrence of distinct basket (and cradle) rim construction techniques recorded at other Northwest Coast wet sites.

Table 22. Occurrence of basket rim construction techniques at other Northwest Coast wet sites. Percent of occurrence in parentheses.

Basket Rim Construction Techniques	Hoko River	Musqueam Northeast	Biederbost	English Camp	Axeti	Lachane	Conway	Fishtown	Wapato Creek	Little Qualicum River
1. Mock braid	5 (71)	19 (73)	4 (17)							
2. Double mock braid		1 (4)								
3. Circle-eight wrap/mock braid			15 (63)							
4. Circle-eight wrap			5 (21)	1 (100)						
5. Single strand wrap		6 (23)								
6. Tuck and wrap (B)							11 (69)			
7. Looped							2 (13)	2 (40)		
8. Top hitch							3 (19)	1 (20)		
9. Turned in	2 (29)				1 (33)	1 (17)		2 (40)		
10. Tuck and wrap					1 (33)					
11. Cut off						4 (67)				
12. Hitched										2 (100)
13. Tuck and wrap covered with coiling					1 (33)					
14. Bent down						1 (17)				
Total	7	26	24	1	107	6	16	5	0	2

Mock braid rims in various forms (#l, #2, and #3, Table 22) are common techniques at the early Northwest Coast wet sites of Hoko River, Musqueam Northeast, and Biederbost. This technique occurs infrequently at Ozette Village but historically it is relatively common on Coast Salishan baskets, and was especially noted on those of the Quinault and Twana area (personal observations). This complex technique had, therefore, potentially thousands of years of continuity in the general southern Northwest Coast area. The circle-eight braid/mock braid is actually a mock braid rim finish with a circle-eight wrapped element attached over it (#15, Table 20). This would have strengthened the edge on these Biederbost baskets significantly. One example of criss-cross braid rim also was recorded on the single basket recovered from English Camp.

Single strand wrap, tuck and wrap (B), and looped rim construction techniques recorded at Musqueam Northeast, Fishtown, and Conway are similar with a single strand weft element wrapping around the bent down warps. The main difference between these techniques is the way in which the warps are bent behind, bent over and behind, or bent in front of adjacent warps. Tuck and wrap (B) is similar to plain tuck and wrap except the warps are bent immediately behind adjacent warps instead of over one and behind. These rims were used at the above mentioned sites on larger, cedar splint, usually open twined, utility baskets.

Top hitched rim constructions are found on cradles from the spatially close Fishtown and Conway sites (#14, Table 20).

Turn in rims were recorded on some basketry items from Hoko River, Lachane, Axeti, and Fishtown. This rim technique was used to finish fine gauge cedar bark baskets.

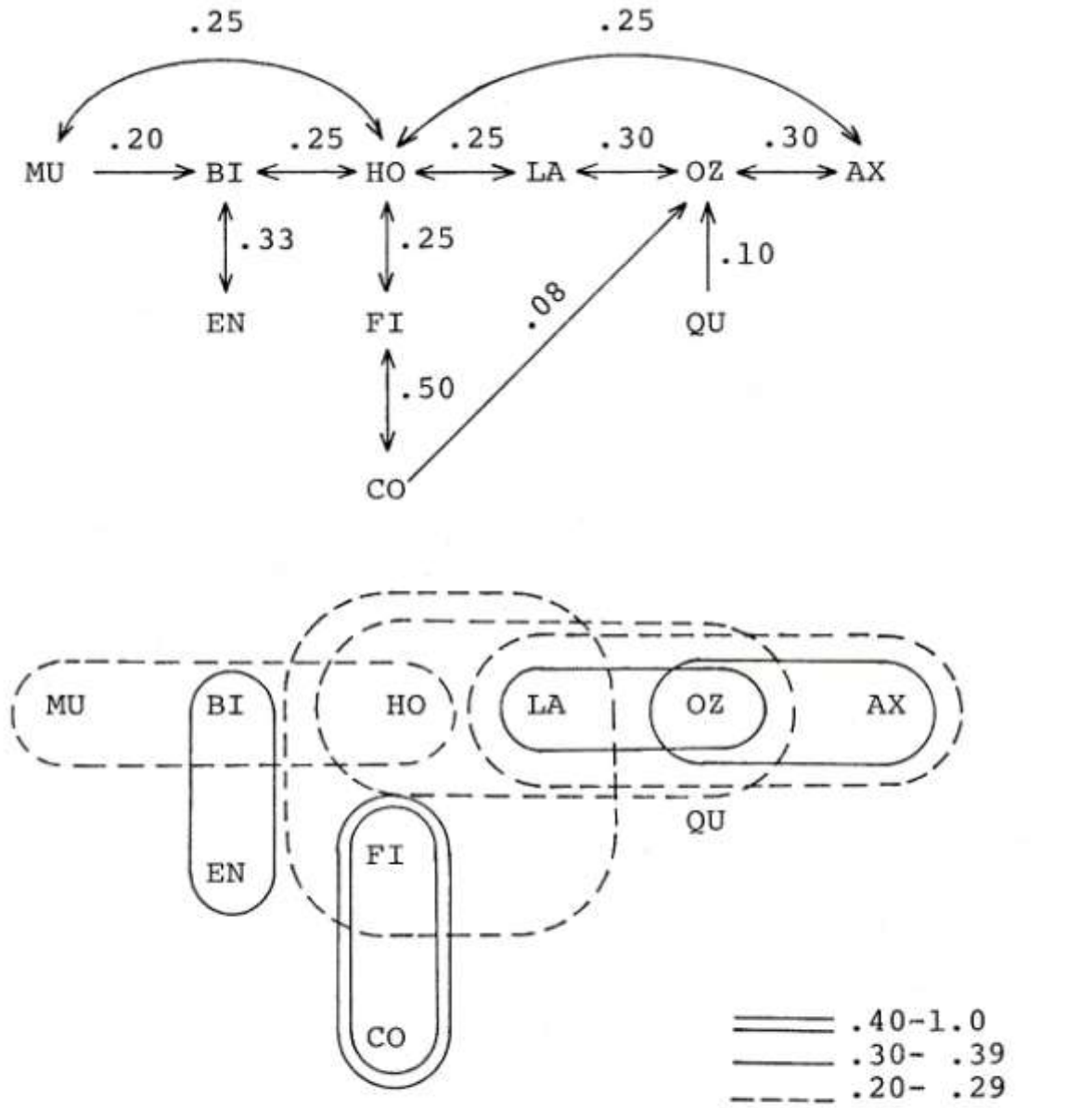
Cut off rims are most common at Lachane and often are formed with a row of cross-warp twining before being cut off (Croes 1977).

Hitched rims, most common to Ozette Village, were recorded on basket examples from Little Qualicum River.

Tuck and wrap rims covered with coiling are recorded on an open wrap, inverted truncated pyramid, pack basket at Axeti. This is the same rim construction technique employed for baskets of this class at Ozette Village.

Basket Rim Construction Techniques Summarized

Basket rims from Northwest Coast wet sites are technically complex modes and hence are useful for comparative studies. Unfortunately, the sample size of recorded basket rims is not large and the fragmentary nature of most wet site basketry often makes it difficult to identify techniques. Because of these conditions, occurrence data, not frequency data, are used to conduct a close-proximity analysis with rim construction techniques. The double-link chain series resulting from the coefficient of similarity test is illustrated in Fig. 13.



Legend:

MU:	Musqueam Northeast	CO:	Conway
BI:	Biederbost	LA:	Lachane
EN:	English Camp	OZ:	Ozette Village
HO:	Hoko River	AX:	Axeti
FI:	Fishtown	QU:	Little Qualicum River

Fig. 13 . Double-link close-proximity chain series for basket rim construction techniques recorded at Northwest Coast wet sites. Degrees of similarity: 0 = no similarity to 1.0 = complete similarity.

The sites showing the strongest correlation in terms of rim construction techniques are the spatially close Fishtown and Conway sites. They shared top hitch rim construction techniques on cradles, and looped rim construction techniques on large, open twined, cedar splint baskets.

The early wet sites, Musqueam Northeast, Biederbost, Hoko River, and English Camp (?), cluster at a lower level because of the occurrence of mock braid, or criss-cross braid/mock braid rim construction techniques. The later Puget Sound/Gulf of Georgia sites of Conway and Fishtown did not share rim construction techniques with earlier sites, and therefore do not cluster with them in this test.

The north coast sites, Lachane and Axeti, correlate at a low level with Ozette Village, but this must be a general association if temporal/spatial factors are considered.

Ozette Village Hat Brim Construction Techniques

At Ozette Village the main hat brim construction technique was the turned in finish (n=11, 79%). This technique anchors down the hat warp ends in a close and tight manner creating a braid-like appearance on the outside surface (#4, Table 20). Another hat, with the cut off form (n=l, 8%), was recovered from stratigraphic unit III at Ozette Village; this cultural layer was above the major mudslide layer, and therefore later in time. All hats recovered from beneath the major mudslide are finished with the turned in brim.

Comparison of Hat Brim Construction Techniques from Other Northwest Coast Wet Sites

Hats recovered from most Northwest Coast wet sites are very fragmentary and often brim edges are not preserved. No hat brim construction techniques could be identified on hats from Hoko River and English Camp. One hat each from Axeti and Wapato Creek are complete enough for brim finish identification, and both show cut off brim techniques. The Wapato Creek hat has a cut off brim anchored by two rows of three strand twining. This is the same finish found on cut off brim hats at Ozette Village (above).

Ozette Village Mat Edge and End Construction Techniques

Mat Edges

The Ozette Village mat edges (the long dimension of the mat form) are finished with a variety of techniques. These mat edge techniques usually correspond with specific classes of mats. The number and percent frequency of techniques are recorded in Table 23. As can be seen the major technique is wrap around and back. Since it is recorded primarily on mat forms (and some basket flaps [n=3]) it is a good criterion for identifying fragments as mat fragments. The wrap around and back technique (#10, Table 20) usually was formed around a cedar bark braid or a layer of cedar bark strips. This created a thick, strong edge. The wrapping element encircled the edge twice and then was brought back into the next row of the mat body weave. In this manner the mat body weft element was continuous and did not have to be any particular length.

Table 23. Ozette Village mat edge construction techniques.

Name	Number	Percent
1. Wrap around and back	327	79
2. Bent back	50	12
3. Unmodified edge	37	9
4. Turn in and back	1	
Total	415	100

The next most frequent mat edge technique is the; bent back form (#11, Table 20). This occurs on smaller square mats at Ozette Village (n=5) and most frequently on the edges of tumpline straps (n=45). Both of these mat forms were created with either checker on bias or twill on bias construction techniques. This technique produced flat strong edges especially appropriate for tumpline straps that laid flat and tight against the user's forehead.

The next most frequent edge technique, unmodified edges, is recorded on flat sheets of bark constituting the Ozette harpoon sheaths. The edges of these sheaths were left as the cut edge of the bark sheets forming the sheaths. No edge techniques per se were necessary since there was no body weave involved.

One example of the turn in and back mat edge technique has been recorded from Ozette Village. In this technique the weft end of the checker plaiting was brought back and plaited; into a few body warp elements (#12, Table 20).

In summary, Ozette Village mat edges include three major forms from three major classes of mats. First, the long, constricted midline shaped mats have wrap around and back edges. Second, the tumpline straps have turn back edges. And third, unmodified edges are typical of

harpoon sheaths.

Mat Ends

The Ozette Village mat ends (usually the narrow dimension of the mat form) were finished with a variety of techniques that, again, often correspond with specific classes of mats. The number and percent of these techniques are recorded in Table 24. As can be seen, the major technique is cut off ends. These are recorded on the long, constricted midline mat forms and on harpoon sheaths. Usually from one to three rows of plain twining or three strand twining were woven across the end warps before they were cut off.

Table 24. Ozette Village mat end construction techniques.

Name	Number	Percent
1. Bent down	9	4
2. Turn in and back	6	3
3. Turned in	26	12
4. Cut off	140	62
5. Braid line ends	45	20
Total	226	101

The next most common technique is braid line ends. This technique was used in forming the tumpline strap lines.

Finally, turned in, bent down, and turn in and back techniques are found on cedar bark plaited mats, but in low frequencies.

Comparison of Mat Edge and End Construction Techniques from Other Northwest Coast Wet Sites

Mats are usually very fragmentary at Northwest Coast wet sites, and a distinction between actual mat ends or edges often is impossible. Therefore, only tentative identification of mat edge or end construction techniques can be made.

Identifiable mat fragments were found only at Lachane and Axeti. The mat edge and end construction techniques are recorded in Table 25. Unfortunately, only a very small sample was obtained from Lachane. At Axeti the main technique was turn in and back (#12, Table 20). On specimens with corners preserved, often both the ends and edges had been finished with the turn in and back technique.

Table 25. Examples of mat edge and end construction techniques from other Northwest Coast wet sites.

Name	Lachane	Axeti
1. Cut off	2	
2. Turn in	1	
3. Bent down	1	2
4. Turn in		15
5. Bent back		4
Total	4	21

Selvage Techniques Summarized

Because of the larger variety of techniques and larger sample sizes, basket rim construction appears to be the most useful of all selvage techniques for comparative analyses among Northwest Coast wet sites. A careful study of historic basket rims on the Northwest Coast would

provide valuable data for comparison with the recorded prehistoric techniques. For example, the early occurring mock braid rim techniques also occurred commonly on historic Coast Salishan baskets. The presence of this complex technique on historic baskets probably reflects a long techno-cultural continuity in the southern area. As more wet sites are discovered and excavated, the careful analysis of basketry selvage techniques should provide valuable new comparative data.

Basketry Gauge of Weave

The gauges of weave of the Ozette Village basketry are analyzed quantitatively using a series of histograms to illustrate the overall distributions. The general weaving categories of plaiting, twining, and wrapping, and the sewing technique of coiling, are considered separately. The different categories of basketry, i.e., baskets, mats, hats, cradles, and tumplines, are not separated since the different weave gauges usually reflect these categories. Where these correlations do occur they will be delineated in the text. The process of measuring the gauge of weave on each specimen involves the measurement of the number of stitches per 2.5 cm (approximately one inch) in from three to four areas on the basketry surface (across the warps) and then recording an average measurement. These averages are rounded off to whole integers for representation in the histograms. The objectives here are (1) to examine the histogram data and delineate general gauge categories, such as fine, medium, and coarse gauges for the basketry and, (2) to indicate whether or not there is a patterned tendency for these gauge categories to correlate with basketry categories (baskets, hats, mats), basketry techniques, basketry materials, and so forth.

Gauge of Weave of Ozette Village Plaiting Techniques

Plaiting techniques, including checker, twill 2/2, checker on bias, twill on bias, and all forms of checker II, are plotted for gauge of weave in the histogram, Fig. 14. The mean gauge is 3.82 stitches per 2.5 cm with a standard deviation of 1.37. The histogram reflects a steep sided normal curve. In examining the histogram for frequency of occurrence of the different gauges of weave, one sees a very high frequency of specimens (75%) having a gauge of from three to five stitches per 2.5 cm. This is considered the range of medium gauge plaiting. The lower frequency of specimens (13%) with from one to two stitches per 2.5 cm is considered in the range of coarse gauge plaiting, and the low frequency of specimens (12%) with from six to ten + stitches per 2.5 cm is considered in the fine range.

In general terms, the Ozette Village basketry specimens with a coarse gauge of plaiting are usually coarse mats and checker weave basket bases. The specimens with a medium gauge are usually the majority of the mats and the checker and twill 2/2 weave basket bodies. Those with a fine gauge are usually (1) basket bodies with plaiting techniques of fine checker, fine twill 2/2, twill on bias, and the different techniques of checker II; (2) the body weave of the tumpline straps; (3) the plaited parts of the inner layer of hats; and (4) rarely, fine mats. The gauge categories, therefore, do tend to associate with distinct basketry categories or parts thereof and thus are considered useful divisions.

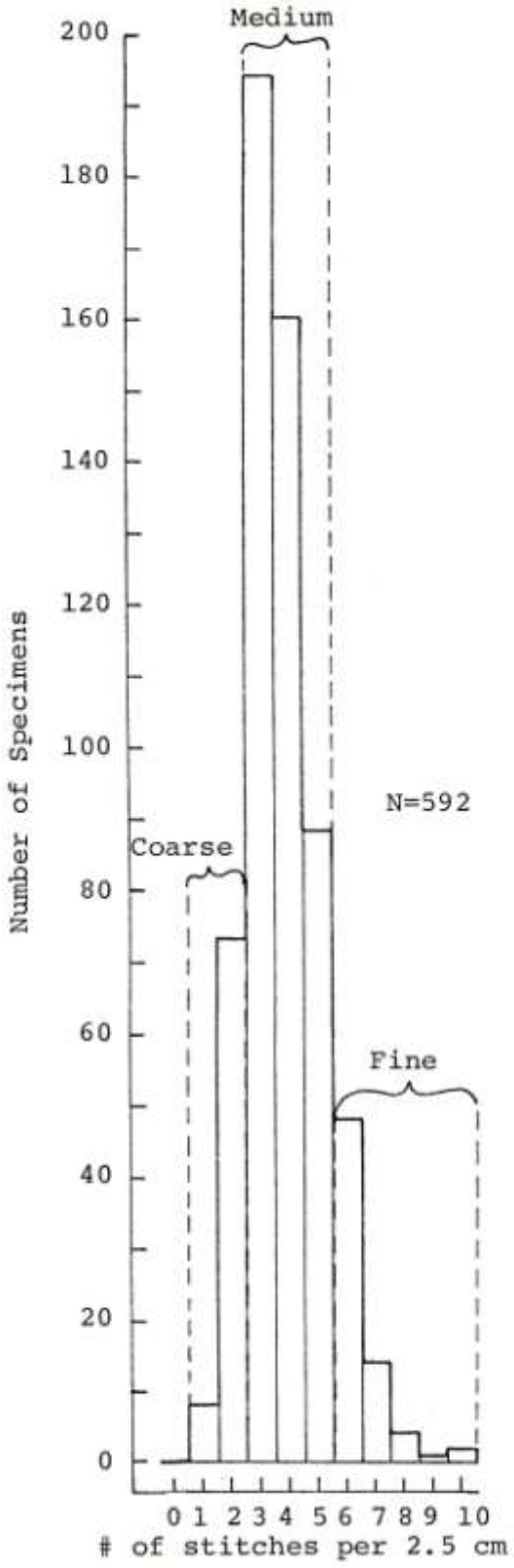


Figure 14. Gauge of weave of Ozette basketry plaiting techniques.

Gauge of Weave of Ozette Village Twining Techniques

Twining techniques, including plain, open, cross warp, diagonal, and the alternate plain twining/checker, are plotted for gauge of weave in the histogram, Fig. 15A. The mean gauge is 4.88 stitches per 2.5 cm with a standard deviation of 2.12, the histogram representing all twining techniques (Fig. I5A) reflects a steep sided normal curve, but has two main peaks at three and six stitches per 2.5 cm which give the histogram a slight bimodal character. The cause for this double peak is discovered when the most common twining techniques (plain and open) are graphed separately on the same coordinates (Fig. 15B); each is a steep sided normal curve. These separate graphs demonstrate that open twining is generally of a coarser weave gauge than plain twining, and this correlates with the basketry categories involved. Open twining usually is recorded on coarse gauge, large, cedar splint, burden-utility baskets, and plain twining on medium to finer gauge hats and baskets. Histogram A demonstrates further that 72% of the specimens have a gauge of weave of three to six stitches per 2.5 cm, and this is by far the most frequent range of twining (Fig. 15A). This range is considered the medium gauge range of twining. The one to two stitches per 2.5 cm coarse range has an 8% frequency. And the fine gauge range, seven to ten + stitches per 2.5 cm, has a 20% frequency.

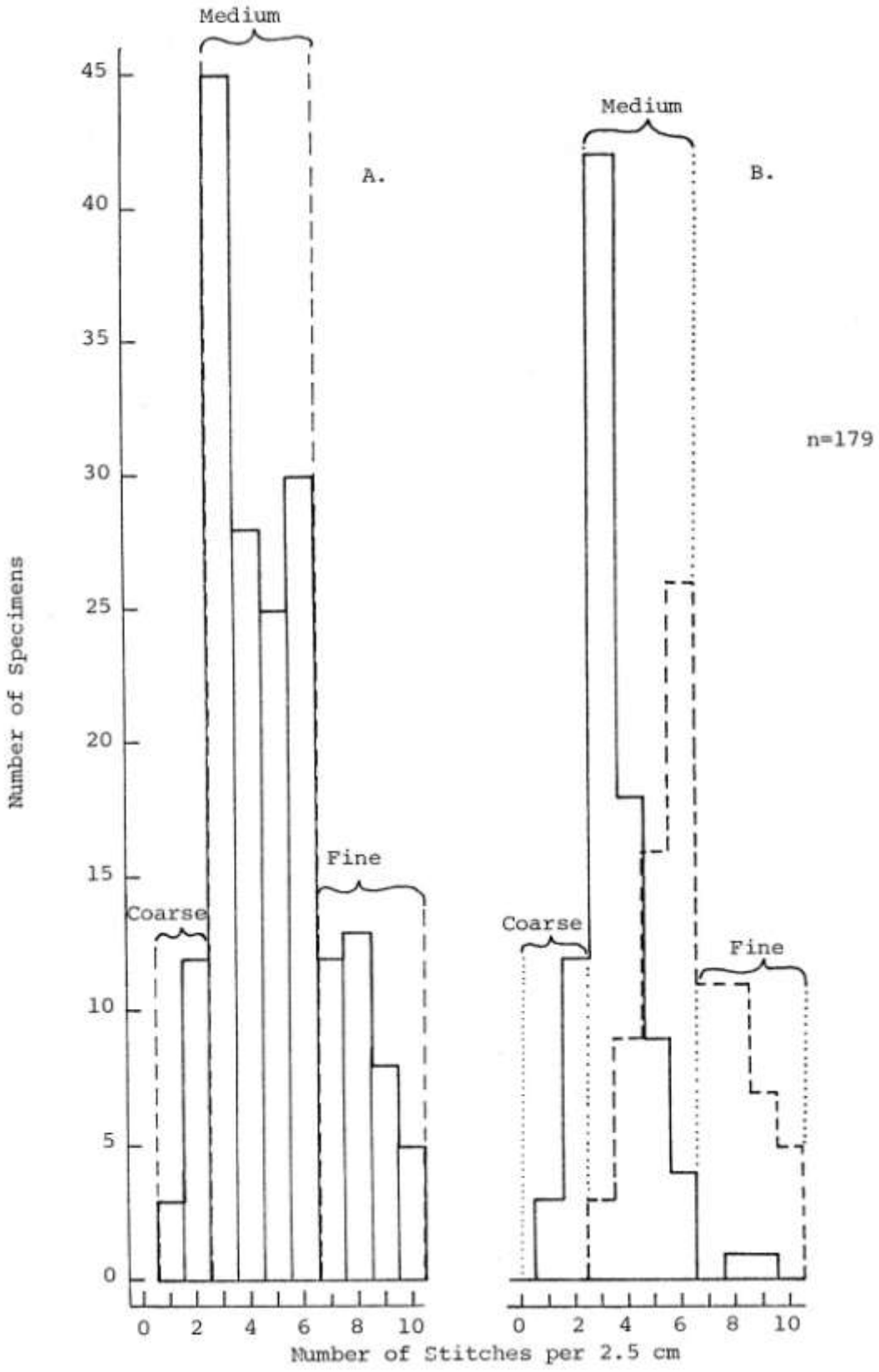


Fig. 15. Gauge of weave of Ozette Village basketry twining techniques (A) all twining techniques, (B) solid line = open twining techniques, dashed line = plain twining techniques.

The histogram comparing open and plain twining gauge of weave (Fig. 15B), demonstrates that plain twining never has a coarse gauge of weave and that only open twining falls into this range. Both plain twining and particularly open twining are in the medium gauge of weave category. Primarily plain twining, plus two examples of open twining, make up the fine gauge category. The two specimens with fine gauge open twining are distinct at Ozette Village and appear to have been introduced baskets, possibly of Coast Salishan origin (see below). Histogram B demonstrates that these weave gauge categories are useful for comparative purposes, and that open and plain twining have their particular range of weave gauge within this framework. This difference in range corresponds in part with the materials used; open twining is usually on baskets constructed of rigid cedar splint bough (limb) materials, and plain twining is usually on hats constructed of flexible western red cedar inner bark materials.

In summary, the specimens with coarse twine gauge of weave usually are open twined baskets, those with medium twine gauge are open twined basket bodies and some plain twined hat bodies. Those with fine twine gauge usually are plain twined hats and a few plain twined basket bodies. These gauge categories tend to correlate positively with distinct twining techniques, basketry materials, and basketry categories, and are, therefore, considered useful divisions for comparative purposes.

Gauge of Weave of Ozette Village Wrapping Techniques

The open wrapping technique, usually recorded on large pack baskets or on trays, is plotted in the histogram, Fig, 16A. The sample contains only thirteen specimens, an insufficient number upon which to establish gauge categories. The histogram illustrates a range from two to five stitches per 2.5 cm, with the highest frequency at the lower figure.

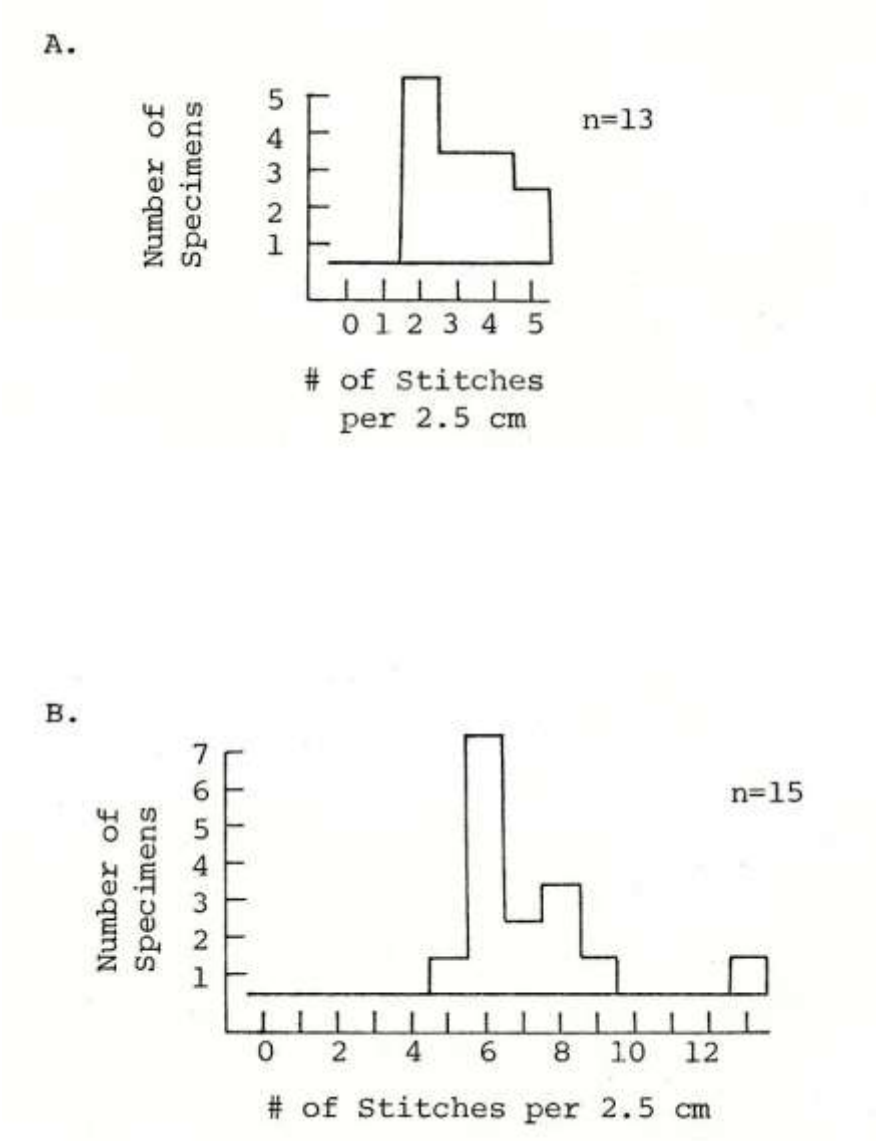


Fig. 16. Gauge of Ozette Village (A) wrapping and (B) coiling techniques.

Gauge of Weave of Ozette Village Coiling Techniques

The split stitch bundle coiling technique is plotted in the histogram, Fig. 16B. Again the sample size (fifteen specimens) is insufficient to establish gauge categories. The histogram illustrates a range from five to thirteen stitches per 2.5 cm, with a peak at six. The specimens with nine and thirteen stitches per 2.5 cm are considered fine gauge.

Ozette Village Gauge of Weave Summarized

The two weaving categories from Ozette Village with samples large enough to be able to develop general weave gauge categories, plaiting and twining, have similar ranges of coarse, medium, and fine gauges of weave. The defined gauges of weave designations for the two major weave categories are:

	Plaiting	Twining
Coarse:	1-2 stitches	1-2 stitches per 2.5 cm
Medium:	3-5 stitches	3-6 stitches per 2.5 cm
Fine:	6-10+ stitches	7-10+ stitches per 2.5 cm

The only difference between plaiting and twining weave gauges is in the medium to fine range. Not a sufficiently large sample of wrapping and coiling techniques occurred to establish gauge categories for this group.

Comparison of Basketry Gauge of Weave from Other Northwest Coast Wet Sites

Basketry from other sites also has been recorded in stitches per 2.5 cm. The gauges of weave of the plaiting, twining (plain and open), wrapping, and coiling techniques from Northwest Coast wet sites are discussed separately below.

Plaiting

Table 26 indicates the number, range, mean, standard deviation, and general gauges (coarse, medium, fine as established at Ozette Village) for the plaiting techniques recorded at Northwest Coast wet sites. As can be seen, most sites have an average gauge of plait weave from three to five stitches per 2.5 cm. Hoko River has a finer gauge mean of 5.9, but also has a wider standard deviation. At most sites finer plaiting was recorded on fine weave basket bodies, the medium gauge plaiting on mats or on some basket bases and bodies, and coarse gauge on basket bases. Significant and/or distinct correlations or non-correlations of plait weave gauges among Northwest Coast wet sites are not observed.

Table 26. Gauge of weave of all twining techniques recorded at Northwest Coast wet sites. Percent frequency at each site is recorded in parentheses.

Site	Number	Range	Mean	Standard Deviation	Coarse	Medium	Fine
Ozette Village	592	1-10	3.82	1.37	77 (13)	444 (75)	71 (12)
Hoko River	5	3-8	5.90	2.01	0 (0)	2 (40)	3 (60)
Axeti	73	1-8	3.97	1.76	12 (16)	48 (66)	13 (18)
Lachane	15	.5-6.5	2.99	1.95	5 (33)	7 (47)	3 (20)
Musqueam Northeast	40	2-10	3.80	1.58	6 (15)	31 (78)	3 (8)
Biederbost	36	2.5-6	3.64	0.65	1 (3)	35 (97)	0 (0)
Fishtown	3	3.5-6	4.88	1.26	0 (0)	2 (66)	0 (0)
Conway	9	1-4	2.78	1.00	3 (33)	6 (66)	0 (0)
Little Qualicum River	2	3-4	3.50	0.71	0 (0)	2 (100)	0 (0)

Twining

Tables 27, 28, and 29 indicate the number, range, mean, standard deviation, and general gauges for the plain, open, and all twining techniques respectively at Northwest Coast wet sites. Each of these different categories is considered separately.

Table 27. Gauge of weave of plain twining techniques recorded at Northwest Coast wet sites. Percent frequency at each site is recorded in parentheses.

Site	Number	Range	Mean	Standard Deviation	Coarse	Medium	Fine
Ozette Village	89	3-10	6.21	1.68	0 (0)	55 (62)	34 (38)
Hoko River	8	4-13.5	8.13	2.68	0 (0)	1 (12)	7 (88)
Axeti	1	5			0 (0)	1 (100)	0 (0)
Lachane	1	8.5			0 (0)	0 (0)	1 (100)
Musqueam Northeast	10	5.5-16	11.45	2.67	0 (0)	1 (10)	9 (90)
Fishtown	1	5.5			0 (0)	1 (100)	0 (0)
Conway	1	6			0 (0)	1 (100)	0 (0)
Little Qualicum River	1	4.5			0 (0)	1 (100)	0 (0)

Table 28. Gauge of weave of open twining techniques recorded at Northwest Coast wet sites. Percent frequency at each site is recorded in parentheses.

Site	Number	Range	Mean	Standard Deviation	Coarse	Medium	Fine
Ozette Village	90	1-8.5	3.33	1.33	15 (17)	73 (81)	2 (2)
Lachane	12	3-7	4.41	1.38	0 (0)	11 (92)	1 (8)
Musqueam Northeast	8	3-6	4.13	1.13	0 (0)	8 (100)	0 (0)
Biederbost	12	2.5-8	4.67	1.78	0 (0)	10 (83)	2 (17)
Fishtown	7	2-3	2.39	0.45	4 (57)	3 (43)	0 (0)
Conway	25	1-6.5	2.74	1.00	7 (29)	16 (66)	1 (4)
English Camp	1	3			0 (0)	1 (100)	0 (0)

Table 29. Gauge of weave of all twining techniques recorded at Northwest Coast wet sites. Percent frequency at each site is recorded in parentheses.

Site	Number	Range	Mean	Standard Deviation	Coarse	Medium	Fine
Ozette Village	179	1-10	4.88	2.12	14 (8)	129 (72)	36 (20)
Hoko River	8	4-13.5	8.13	2.68	0 (0)	1 (13)	7 (88)
Axeti	1	5			0 (0)	1 (100)	0 (0)
Lachane	13	3-8.5	4.78	1.74	0 (0)	11(85)	2 (15)
Musqueam Northeast	18	3-16	8.19	4.28	0 (0)	9 (50)	9 (50)
Biederbost	12	2.5-8	4.67	1.78	0 (0)	10 (83)	2 (17)
Fishtown	8	2-5.5	2.78	1.18	4 (50)	4 (50)	0 (0)
Conway	25	1-6.5	2.74	1.00	7 (29)	16 (66)	1 (4)
English Camp	2	3-6	4.50	2.12	0 (0)	2 (100)	0 (0)
Wapato Creek	1	4.5			0 (0)	1 (100)	0 (0)

Plain Twining

Plain twining occurs with appreciable frequency only at Ozette Village, Hoko River, and Musqueam Northeast (Table 27). Single examples occur at Axeti, Lachane, Fishtown, English Camp, and Wapato Creek. Examples of this technique were not found at other Northwest Coast wet sites. Musqueam Northeast plain twining usually is of a very fine gauge of weave, with a mean of 11.45 stitches per 2.5 cm. Hoko River plain twining also is rather fine gauge, with a mean of 8.13. Plain twining at most sites was used as hat body and small basket base and body construction techniques.

Open Twining

Open twining occurs frequently at Ozette Village, Lachane, Musqueam Northeast, Biederbost, Fishtown, Conway, and was the technique used on the only basket recovered at English Camp

(Table 28). Examples of open twining were not recorded at Hoko River, Axeti, Wapato Creek (except on a fish weir), and Little Qualicum River. At the northern Lachane site open twining is the major basket body construction technique and is associated with cedar bark baskets. At all the southern Northwest Coast wet sites, open twining was a major technique used for the manufacture of large, cedar splints, utility-gathering baskets. Basketry from the Puget Sound/Gulf of Georgia sites of Conway and Fishtown has a coarse average gauge of weave, from two to three stitches per 2.5 cm. At other sites open twining averaged approximately four stitches per 2.5 cm.

All Twining Techniques

Most sites have recorded examples of twining techniques (Table 29). The early Hoko River and Musqueam Northeast sites have the finest mean gauge of twining, but it should be noted that Musqueam Northeast has a wide standard deviation. Conway and Fishtown have the coarsest mean gauge. Most other sites averaged about five stitches per 2.5 cm.

Wrapping

Table 30 indicates the number, range, mean, standard deviation, and general gauge (coarse = 1-2, medium = 3-6, and fine = 7+ stitches per 2.5 cm) for the wrapping techniques recorded at Northwest Coast wet sites. Four of the sites, Ozette Village, Hoko River, Axeti, and Little Qualicum River, have examples of open wrapping techniques. Hoko River, with the largest number of baskets with this technique, also has the finest mean gauge of wrapping techniques (5.14 stitches per 2.5 cm). Musqueam Northeast shows no open wrapping, but many examples

of wrap around plaiting. Examples of fine, medium, and coarse gauge wrapping with this distinct technique were found at Musqueam Northeast.

Table 30. Gauge of weave of wrapping techniques recorded at Northwest Coast wet sites. Percent frequency at each site is recorded in parentheses.

Site	Number	Range	Mean	Standard Deviation	Coarse	Medium	Fine
Ozette Village	13	2-5	3.08	1.10	5 (39)	8 (61)	0 (0)
Hoko River	14	2.5-10	5.14	1.98	0 (0)	11 (79)	3 (21)
Musqueam Northeast	57	2-10	4.18	1.58	2 (4)	51 (89)	4 (7)
Biederbost	12	2.5-8	4.67	1.78	0 (0)	10 (83)	2 (17)
Axeti	2	1.75-2	1.88	0.18	2 (100)	0 (0)	0 (0)
Little Qualicum River	2	2.5-3	2.75	0.35	0 (0)	2 (100)	0 (0)

Coiling

Table 31 indicates the number, range, mean, standard deviation, and general gauges (medium = 5-10, fine = 11+ stitches per 2.5 cm) of coiling techniques recorded at Northwest Coast wet sites. At only two of the sites were coiling techniques recorded. Fishtown produced one fragmentary example and Ozette Village had the highest representation (n=15) (see Table 31).

Table 31. Gauge of coiling techniques recorded at Northwest Coast wet sites. Percent frequency at each site is recorded in parentheses.

Site	Number	Range	Mean	Standard Deviation	Coarse	Medium	Fine
Ozette Village	15	5-13	7.07	1.94	0 (0)	14 (93)	1 (7)
Fishtown	1	4.5			0 (0)	1 (100)	0 (0)

Even here, however, examples of coiling are relatively rare. One Ozette Village example was recorded with thirteen stitches per 2.5 cm, a very fine gauge example of this technique.

Gauge of Weave Summarized

Gauge of weave has proved not to be a very sensitive criterion for inter-site comparisons. In general, plaiting techniques most frequently are medium gauge and were used for baskets and mats. Plain twining techniques are finer gauge and usually are recorded on fine gauge hats or baskets. Open twining techniques are medium-coarse gauge techniques used generally for coarse utility-gathering baskets. Wrapping techniques usually are recorded on medium gauge carrying-utility baskets. The Hoko River open wrapping techniques are of the finest mean gauge. Coiling occurs in appreciable frequency only at Ozette Village, with one example of fine gauge coiling at that site.

Basketry Sizes

Several alternative approaches to classification are possible when considering the category of basketry sizes. Sizes can be recorded according to basketry volume; according to length, width, and height measurements; and according to surface area. The volume capacity of basketry generally is limited to baskets, since the volume capacity of hats and mats is functionally or structurally irrelevant. Even with the Ozette baskets, volume is sometimes a poor indicator of basket size. For example, whale harpoon bags, the largest baskets at Ozette, have essentially no volume when empty and would thus be considered smaller in size than the smallest rectangular basket.

Another method for size measurement has been used for Northwest Coast museum baskets by Jones (1968:8-9). She measured the diameter, depth, and width of each basket, and different size categories are established according to the longest measurement of any of these three dimensions. For example, if the diameter, depth, or width of a basket was larger than twelve inches, then the basket size was considered to be in a large category. These size categories were somewhat arbitrary, and Jones has since demonstrated that her size divisions are not statistically valid (Jones 1976:59). Length, width, and height comparisons are important only for comparisons between baskets, hats, and mats in the same or similar basketry classes. Then the comparisons are much more informative since the items of particular classes are dimensionally very similar.

The consideration of Ozette Village basketry sizes is based upon surface area. Surface area calculations have been found to provide a useful measurement for comparing the relative sizes of all basketry items. These measurements are made on baskets, hats, and mats that were complete or very nearly so.

To calculate surface area measurements with a high degree of accuracy would have been nearly impossible and hopelessly time consuming. Instead approximate measurements of the flattened and often broken baskets, hats, and mats were made by averaging formulae that give, a close approximation of the surface area of each specimen. The basic surface area formulae used for these calculations include:

1. A rectangle or square with sides a and b has an area = ab.

2. The area of a trapezoid whose parallel sides are a and b arid height h = l/2 (a+b) h.

3. The area of a circle - πr^2

4. The surface of a sphere of radius r = $4 \pi r^2$.

5. The curved surface of a right cylinder where r = the radius of the base and h, the height, = $2 \pi rh$.

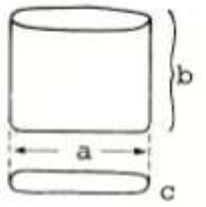
6. The curved surface of a right cone whose height is h and radius of base r = $\pi r \sqrt{r^2+h^2}$.

These basic surface area formulae have been combined into general basketry surface area formulae as illustrated in Fig. 17.

Although not exact, these measurements provide a good data base for comparing the surface area of basketry items from Ozette Village and other sites. For fragments, these comparisons give a minimum size estimate and allow an estimate of the original size for the fragmentary pieces. The surface area size categories are discussed separately for Ozette Village baskets, hats, and mats below.

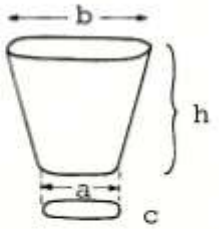
Baskets

1.



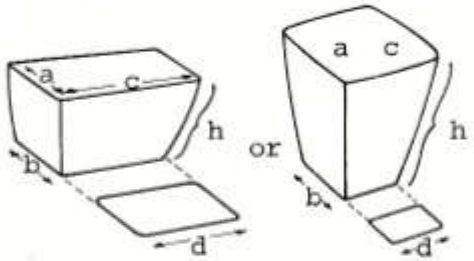
$= 2(ab) + 2(bc) + ac$

2.



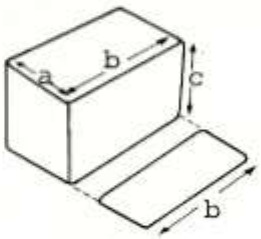
$= 2(1/2(a+b)h) + 2(hc) + ac$

3.



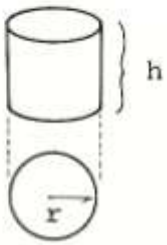
$= 2(1/2(a+b)h) + 2(1/2(c+d)h) + bd$

4.



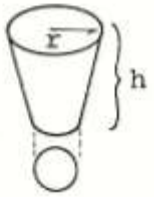
$= 2(ac) + 2(bc) + ab$

5.



$= 2\pi rh + \pi r^2$

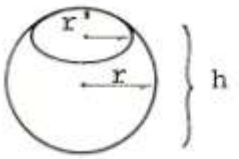
6.



$= \pi r\sqrt{r^2 + h^2}$

Fig. 17. Ozette basketry surface area size calculations

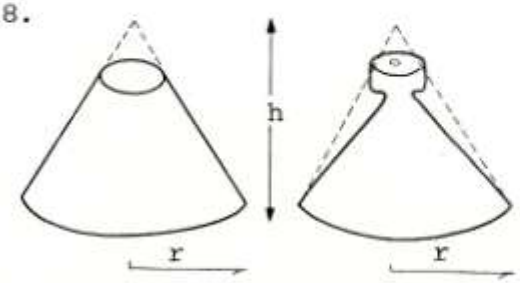
7.



$= 4 \pi r^2 - \pi r_1^2$

Hats

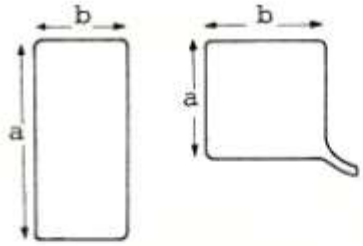
8.



$= \pi r \sqrt{r^2 + h^2}$

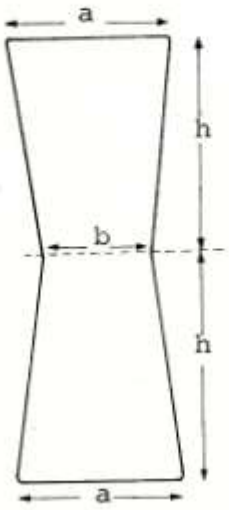
Mats

9.



$= ab$

10.



$= 2(1/2(a+b)h)$

Fig. 17. Ozette basketry surface area size calculations (Continued)

Ozette Village Basket Sizes

One hundred fifty-five Ozette Village baskets are sufficiently complete to allow surface area measurements. The graph (Fig. 18B) illustrates the range (1 to 108 square decimeters) and distribution of the baskets by surface area. The largest number of baskets (116 or 75%) are in the small category. The almost normal curve in this small category has been divided further into (1) extra-small, (2) medium-small, and (3) small-intermediate subcategories. The next category is the intermediate size and includes twenty-one or about 13% of the baskets. The large category size contains twelve or 8% of the baskets and the extra large category contains six or 4%. The basket size categories have been established as follows:

Small	1-19 sq. decimeters		75%
Extra-small	1- 4 sq. decimeters	14%	
Medium-small	5-14 sq. decimeters	51%	
Small-intermediate	15-19 sq. decimeters	10%	
Intermediate	20-40 sq. decimeters		13%
Large	41-70 sq. decimeters		8%
Extra-large	71-110+ sq. decimeters		4%

These size categories are used for general reference and in considering the different functional classes of baskets below.

The majority of the Ozette Village baskets tend to cluster in the small size category. This relates to the common occurrence of small flat bags and sacks. The large size baskets generally are storage and pack baskets. The extra-large Ozette baskets are the flat whale harpoon bags.

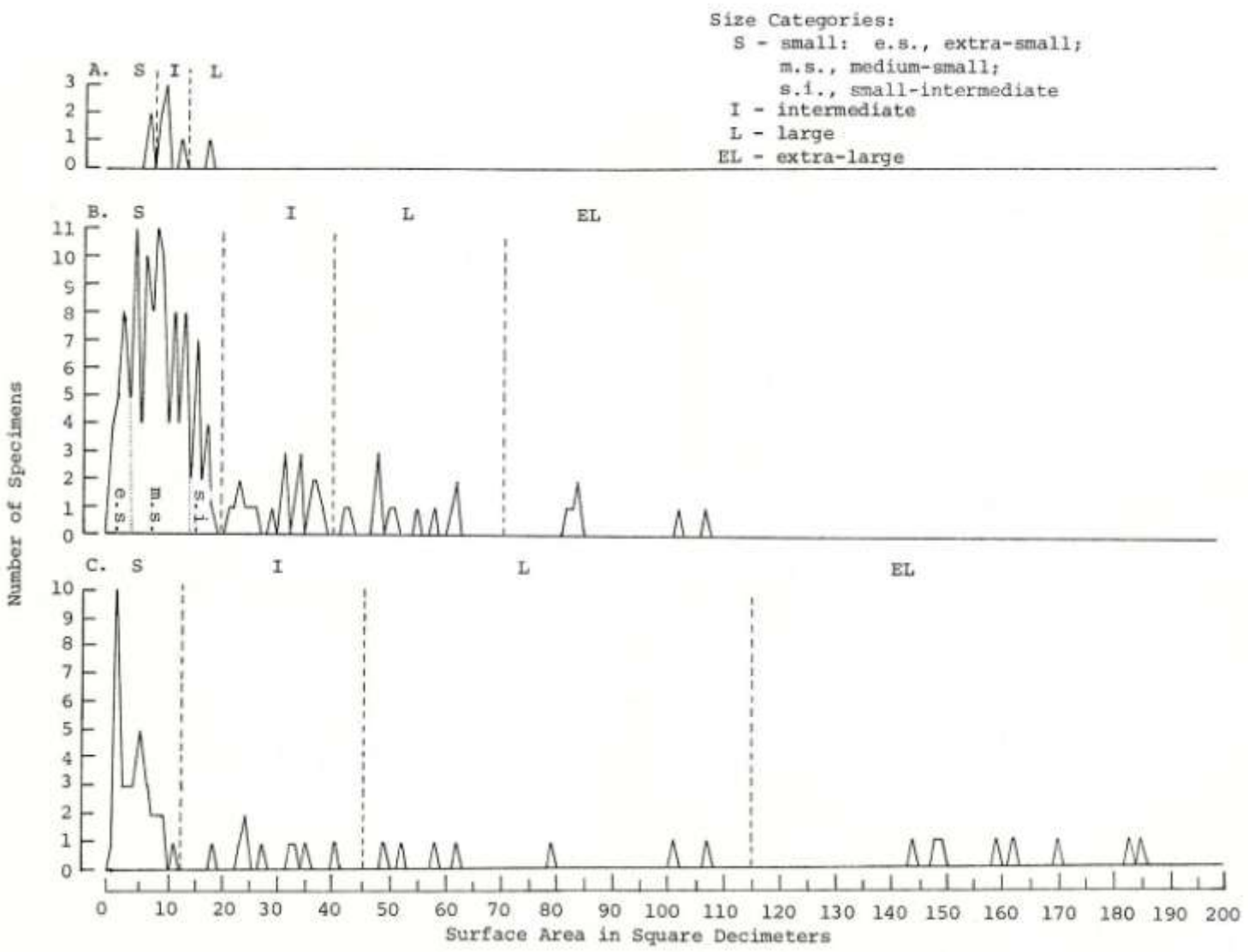


Fig. 18. Ozette Village basketry size categories. A. Hats, B, Baskets, C. Mats.

Ozette Village Hat Sizes

Unfortunately only nine hats from the House I area are complete or sturdy enough for good brim diameter and height measurements. With such a small sample, calculations can only be suggestive of size categories. The graph (Fig. I5A) illustrates the distribution of hats by surface area. The hats varied in surface area from eight to nineteen square decimeters. These calculations were made on the outside surface only and do not incorporate the surface area of the hat's inner layer. Two or 22% of the hats are in the small size category. They are woven with a root material and do not have inner layers. Five hats or 56% are in the intermediate category and most of these (n=3) are the cedar bark, flat top conical hats with an inner layer.. The remaining two, or 22% of the hats in the large surface area size category, are both cedar bark, knob-top conical hats with inner layers. The Ozette Village hat surface area size categories are established as follows:

Small	5 -8.5 sq. decimeters	22%
Intermediate	8.6-12 sq. decimeters	56%
Large	12.1-20+ sq, decimeters	22%

Small as the sample size is, these size categories nevertheless do tend to differentiate hats along general hat class lines. The smaller hats constructed of root materials probably were either female or young persons' hats; the flat top, cedar bark hats are the main intermediate size hats and ethno-graphically were worn by male "commoners; and the large hats are the cedar bark, knob-top conical ones, ethnographically reported as being worn by "nobility" (cf. Mozino 1970).

Ozette Village Mat Sizes

The majority of the mat specimens recovered are too fragmentary for accurate surface area determinations. In particular the larger mats, some as long as three meters, were badly damaged during the mudslide. However, fifty-nine mats (including seven tumpline specimens) are complete enough for surface area calculations. The surface area ranges from 1 to 185 square decimeters (see Fig. 18C). The largest number of mats, thirty-five or 59%, are in the small surface area size category and consisted mainly of two kinds of flat matting, the harpoon sheaths and the tumpline straps. Both of these are considered to be functionally distinct forms of matting. These two items always are small in size. The other mats in this category (n-3) are small square shaped mats of a distinct class (see below).

The remainder of the mats have a surface area from 18 to 185 square decimeters. These mats are similar in several characteristics: they are commonly cedar bark, checker weave mats with an around and back edge; constricted midline, rectangular shape; and twined midline. The main difference between them is their length, which varies from 63 cm (2 feet) long to 319 cm (10.5 feet) long. This large variation is, of course, reflected in the surface area measurements. The different size categories for this general class of mat are shown in the graph, Fig. 18C. Nine of these mats are in the intermediate surface area size category, seven are in the large category, and eight are extra-large. The surface area size categories have been established as follows:

Small	1- 12 sq. decimeters	59%
Intermediate	13- 45 sq. decimeters	15%
Large	46-115 sq. decimeters	12%
Extra-large	116-190+ sq. decimeters	14%

Ozette Village Basketry Sizes Summarized Based on surface area measurements, general size categories have been established for baskets, hats, and mats. These are listed for comparison in Table 32 (also see graph, Fig. 18). As expected, the different basketry categories have very different ranges of surface area sizes. The baskets have a wide range of sizes, but not as wide a range as the large mats at Ozette Village. Hats have a restricted size range, for obvious reasons.

Table 32. Ozette Village basketry size categories.

Size in square decimeters	**Baskets (n=155)**	**Mats (n=59)**	**Hats (n=9)**
Small	1-19 (75%)	1-12 (59%)	5-8.5 (22%)
Extra-small	1-4	-	-
Medium-small	5-14	-	-
Small-intermediate	14-19	-	-
Intermediate	20-40 (13%)	13-45 (15%)	8.6-12 (56%)
Large	41-70 (8%)	46-115 (12%)	12.1-20+ (22%)
Extra-large	71-110+ (4%)	116-190+ (14%)	-

With these categories established, the basketry from Ozette Village and elsewhere have been compared in terms of surface area. On basketry fragments, these minimum size calculations often give an indication of the projected size of the original items.

Comparison of Basketry Sizes from Other Northwest Coast Wet Sites

Complete basketry specimens from the other Northwest Coast wet sites were measured in the same way as from Ozette Village. For flat basketry fragments, a maximum length x width

surface area calculation was made. The range, mean, and standard deviation of the basketry size measurements from other sites are recorded in Table 33.

Table 33. Surface area size measurements (in square decimeters) of basketry artifacts from other Northwest Coast wet sites.

Site	Range	Mean	Standard Deviation	Number of Examples
Lachane	0.1 - 18.2	6.32	4.93	23
Fishtown	0.1 - 25.8	8.05	7.50	12
Conway	1.2 - 41.8	9.94	9.78	37
Hoko River	0.4 - 17.2	3.06	3.64	29
Biederbost	0.9 - 20.7	7.97	4.68	47
Musqueam Northeast	0.1 - 81.8	8.77	13.23	123
Axeti	0.1 - 74.8	3.34	8.65	140
Little Qualicum River	2.6 - 23.0	13.03	8.65	4
Wapato Creek	6.1 - 14.2	10.15	5.73	2
English Camp	3.9 - 19.6	11.75	11.10	2

Considering sites in Table 33 with a sample size over ten, one sees that the Puget Sound/Gulf of Georgia sites of Musqueam Northeast, Biederbost, Conway, and Fishtown have larger mean sizes of basketry fragments. Most of the basketry from these sites is from baskets (few if any are examples of hats or mats) and these generally are large, cedar splint, carrying-utility baskets. Each of these sites appears to have been a special fishing-gathering station rather than a major village area and, therefore, in terms of the activities at these site areas, large carrying-utility baskets would be expected. Some basketry fragments recovered from Musqueam Northwest (n=11), Biederbost (n=l), Conway (n=4), and Fishtown (n=l) are within the intermediate size category, and since these are fragments, probably they were once large to extra-large baskets. One Conway basket and five Musqueam Northeast basket fragments are in the Ozette Village

large size category, and one Musqueam Northeast basket fragment is in the extra-large size category (only six of 155 complete Ozette Village baskets fall into the extra-large size category). Some Musqueam Northeast baskets must have been very large in size. The complete cradles from Conway and Fishtown were 22.4 and 18.1 square decimeters (intermediate and small-intermediate) in size respectively.

The northern Lachane basketry has a mean size of 6,32 square decimeters. Complete baskets from this site (n=3) are relatively small and averaged approximately five square decimeters in surface area. Larger basketry specimens are cedar bark mat fragments (10.5, 18, and 18.2 square decimeters). The two specimens with eighteen -f square decimeters would, as fragments, be in the Ozette Village intermediate mat size range. These mats certainly would have been large to extra-large in original size.

Axeti and Hoko River have the smallest basketry mean size ranges. At Axeti the high numbers of mat fragments account for the smaller sized specimens. The largest preserved mat fragment is approximately 19.2 square decimeters (within the Ozette intermediate mat size category) and certainly had been much larger originally. Other larger Axeti basketry items are baskets; the largest is a large, open wrapped, pack basket approximately seventy-five square decimeters in surface area.

At Hoko River the complete baskets (n=5) are smaller types with a mean of 2.67 square decimeters and standard deviation of 1.98. This mean is within the extra-small Ozette Village basket size category. The larger baskets are very fragmentary; the largest is 17.2 square decimeters in surface area. These originally were open wrapped, burden-utility baskets. The

two hats from Hoko River are too fragmentary for the original size to be calculated.

Basketry Sizes Summarized

Most Puget Sound/Gulf of Georgia basketry specimens are large utility-carrying baskets. Complete baskets from Lachane usually are the smaller forms; the large basketry fragments at this site originally had been mats. Axeti produced numerous small mat fragments and some examples of large pack and storage baskets. Hoko River complete baskets are small forms, but fragments suggesting large pack baskets are not uncommon.

In terms of comparison, the basketry surface area size category is useful only in a general way because of the fragmentary nature of much of the Northwest Coast wet site basketry. It does, however, give some indication of the original basketry sizes.

Basketry Surface Ornamentation

Surface ornamentation of Ozette Village basketry was accomplished through the use of (1) color contrast techniques, (2) various construction techniques, and (3) the combinations of color contrast and constructional techniques. These three methods of surface ornamentation are defined by Jones (1968:12-13) as follows:

1. **Ornamentation through color contrast:** design is executed by use of contrasting color.
2. **Ornamentation through the use of structura1 techniques:** no use of contrasting color, design produced through weaving techniques.

3. **Ornamentation through color contrast and structural techniques:** in addition to the use of contrasting color, weaving techniques are employed for ornamentation.

Each of these methods of ornamentation is discussed below.

Ozette Village Basketry Ornamentation Through Color Contrast

Color Strands: The Use of Strands of a Color Different from that of the Main Construction Material

Color elements in a basket body often were produced by intentionally leaving the dark red-brown cedar bark adhering to some cedar splint basketry elements. The large cedar splint twill 2/2 plaited baskets from Ozette often have a pattern created by leaving bark adhering to the surface of some warps (n-11 baskets), or some wefts (n=5 baskets), or on some of both the warps and the wefts (n-3 baskets). This creates a checker or stepped patterning on the basket body surface. One cedar splint checker basket and two cedar splint open twined baskets also display this technique. All of these basket surface patterns were carefully composed to create consistent geometric patterns. This ornamentation technique has been noted ethnographically:

> Young cedar limbs are split and made into baskets. . . . The splitting produces two surfaces, the flat surface being white, while the round side with the bark on, is reddish. By turning the bark-side out in certain courses, and the white side in, in other courses, the basket-maker is enabled to bring out simple patterns (Waterman 1973:4).

Another method of employing different colored elements on a basket was to use a combination of dark cedar bark warp and light cedar splint weft elements. The geometric stepped or checker patterns thus created are found on four baskets at the site.

Overlay: The Use of Overlay Elements on the Warps and/or Weft of the Construction to Create Ornamentation

Overlay of white or dyed bear grass (Xerophyllum tenax) was recorded on a few twined baskets and on one twined hat at Ozette Village. The white grass elements covered the weft and/or warp elements to create color contrast patterns or designs (Fig. 19). The one hat found with bear grass overlay (art. # lll/VI/3) basically is a cedar bark plain twined hat and is fragmented and poorly preserved. This hat had been discarded in the refuse midden outside House I prior to the major mudslide. From careful examination, the white bear grass overlay appears to have covered the entire surface and shows no distinctive patterning or designs on the surface as may be noted on some historic Nootka/Makah hats. The hat when new would have been an attractive solid white color, in contrast to the common plain cedar bark hats.

Baskets (n-5) or basket fragments (n=10) recorded with white and dyed bear grass overlay often have geometric or representational color contrast designs. Usually these designs were composed on open twined baskets with some groups of warp elements having white grass overlay, and either all weft elements or alternate rows of weft elements overlaid with bear grass (Fig. 19, A and C), Frequently the bark was left adhering on groups of warps for color contrast as described above. This technique created open twined basket bodies with a geometric patterning of dark red-brown (bark), yellow (splints), and white (grass). The top edges of some of these baskets are finished with several rows of plain twining overlaid with white and dyed black bear grass, creating elaborate patterns. These patterns are discussed below in considering plain twined basket designs.

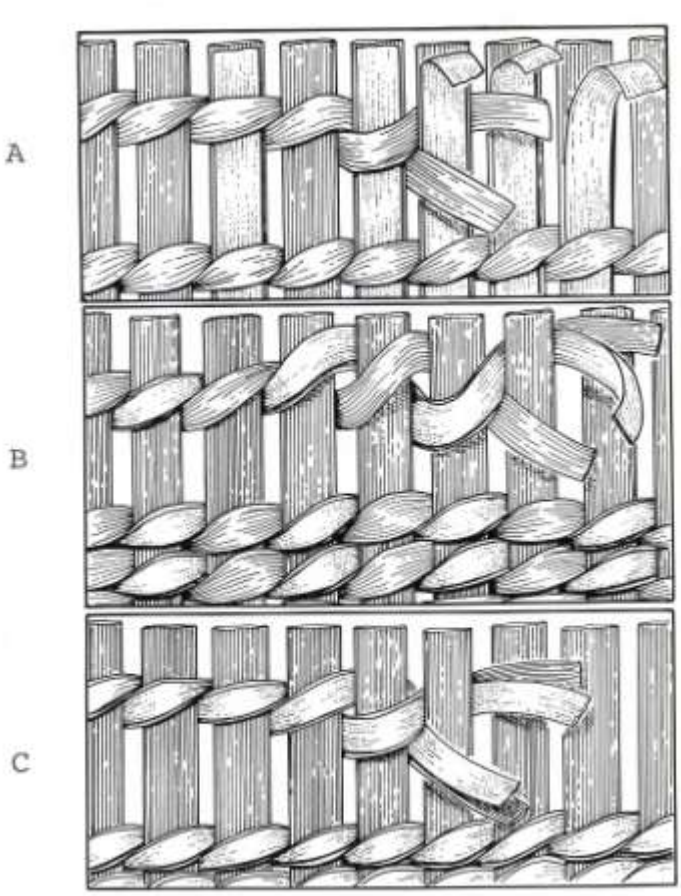


Fig. 19. Ozette Village overlay twining techniques. (A) overlay of warp elements, (B) overlay of alternate weft elements, and (C) overlay of all weft elements.

Some plain twined baskets (n=3) and basket fragments (n=7), and the border areas of some baskets (n=4) have either geometric or representational patterns created with overlay techniques. The geometric "checkered" or "zigzag" patterns were created by overlaying certain weft elements, and leaving others bare (Fig. 19B). The patterns created are illustrated in Fig. 20. Elaborate and realistic designs were created along the border areas of two baskets (Fig. 20, A and B). The first pattern (Fig. 20A) appears almost geometric, with triangular figures, but there is a consistent extension of the design to the side and top of each triangle. This design may have had some symbolic significance; one suggestion is that it represents the dorsal fin of the killer whale.

This design and basket are discussed in more detail below. The second design (Fig. 20B) depicts a zoomorphic figure. From ethnographic information this design appears to be similar to the dog design seen on the borders of historic Twana baskets (Nordquist 1959:2-3). The tail curling back over the body is especially characteristic of this design.

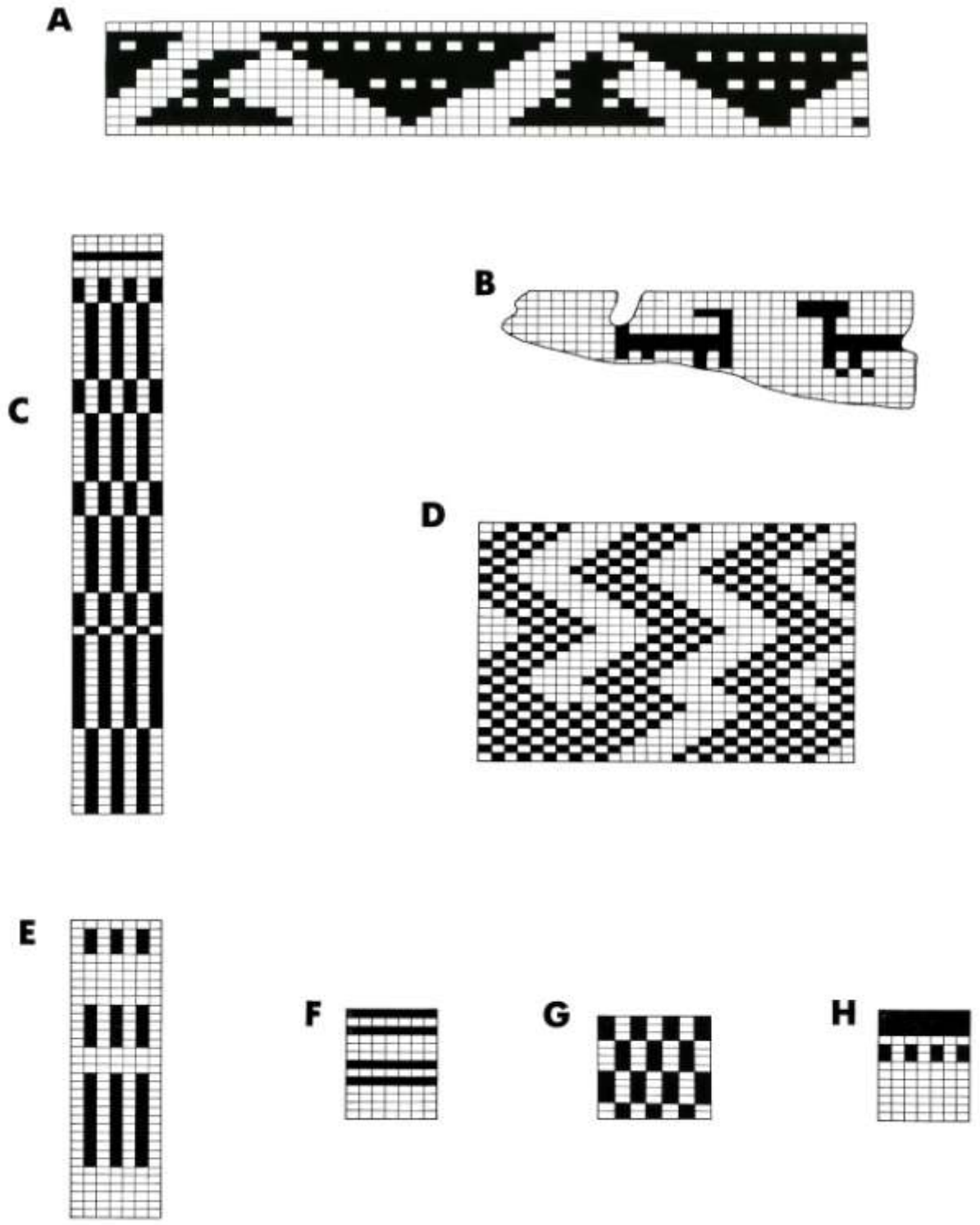


Fig. 20. Representational (A and B) and geometric (C-H) patterns created with overlaid grass. Dark areas in examples A and B created with dyed grass. Dark areas in examples C through H represent the white grass in contrast to areas without overlaid grass. Basket artifact numbers and the area of decoration are: A: 210/tV/1 (border), B: 63/V/105 (border), C: 177/V/79 (body), D: 172/IV/6 (body), E: 78/III/176 (body), F: 162/tV/3 (border), G: 164/VII/10 (body), H: 06/IV/2 (border).

Baskets with overlay designs are relatively rare at Ozette Village. The techniques of overlay, the geometric and realistic designs, and many other figures on these ornamented baskets are more typical of historic Salishan, especially Quinault and Twana, basketry. These baskets at Ozette Village may have been introduced through some form of contact with these and/or other outside groups.

Imbrication: The Use of Fold-in Elements over the Sewing Elements of Coiled Basketry

Some coiled basketry has been recorded at Ozette Village with designs created by imbrication (n=3) (Fig. 21). Usually these are geometric designs produced with dark cherry bark strips and/or light bear grass. An example of the design from a fragmented piece is illustrated in Fig. 22. Of the three complete coiled baskets recorded from House I, none are imbricated. The designs noted on fragments and on one coiled basket from House II are geometric patterns with multi-90° cornered designs (Fig. 22). This technique of imbrication and this type of design are most characteristic of coiled basketry of the upper Fraser River area (Haeberlin, Teit, and Roberts 1928; Farrand 1900) where it is likely a very old technique. These rare examples of coiled basketry with imbrication probably were introduced to Ozette Village from this area.

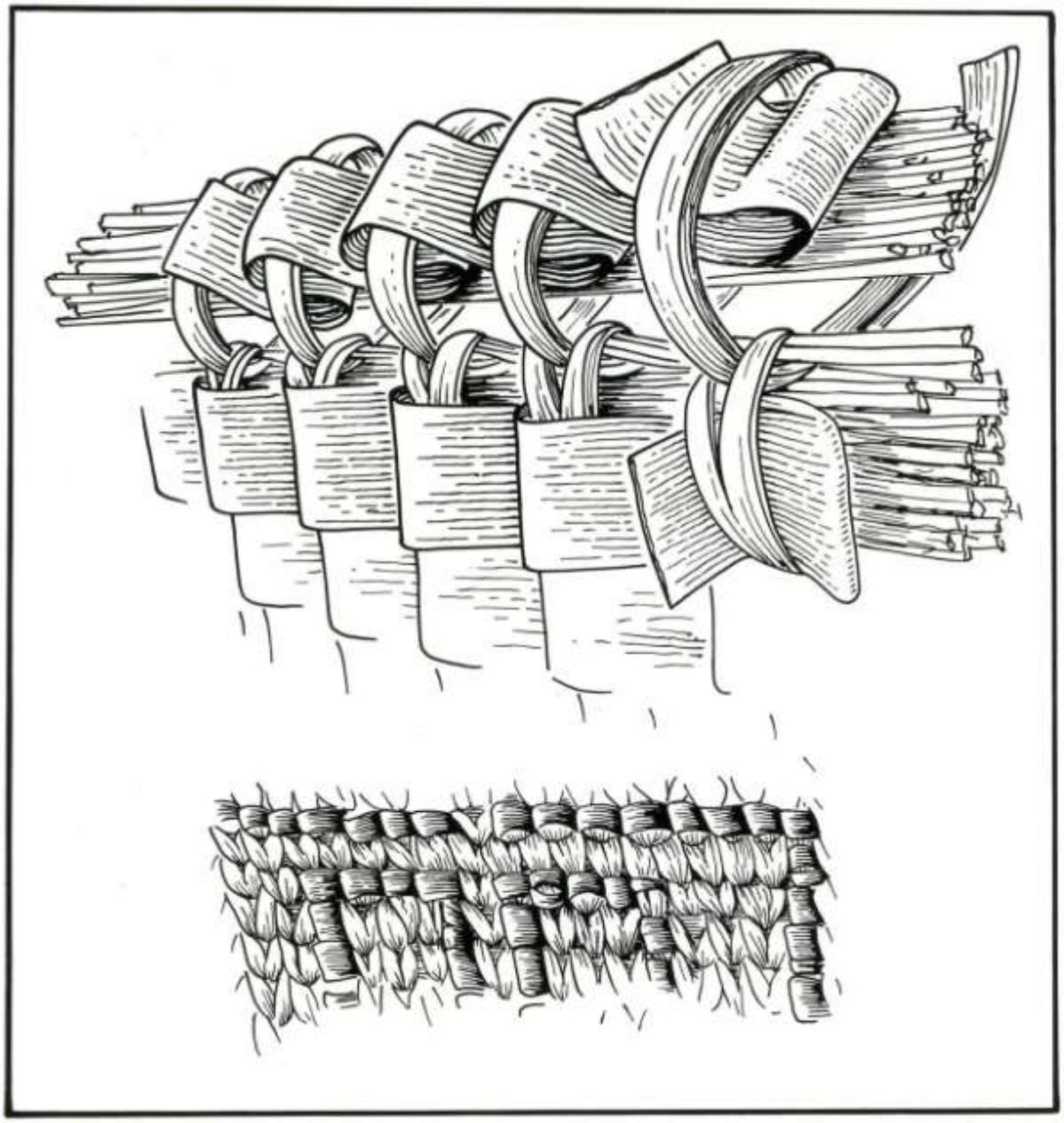


Fig. 21. Imbrication of Ozette Village coiled basketry.

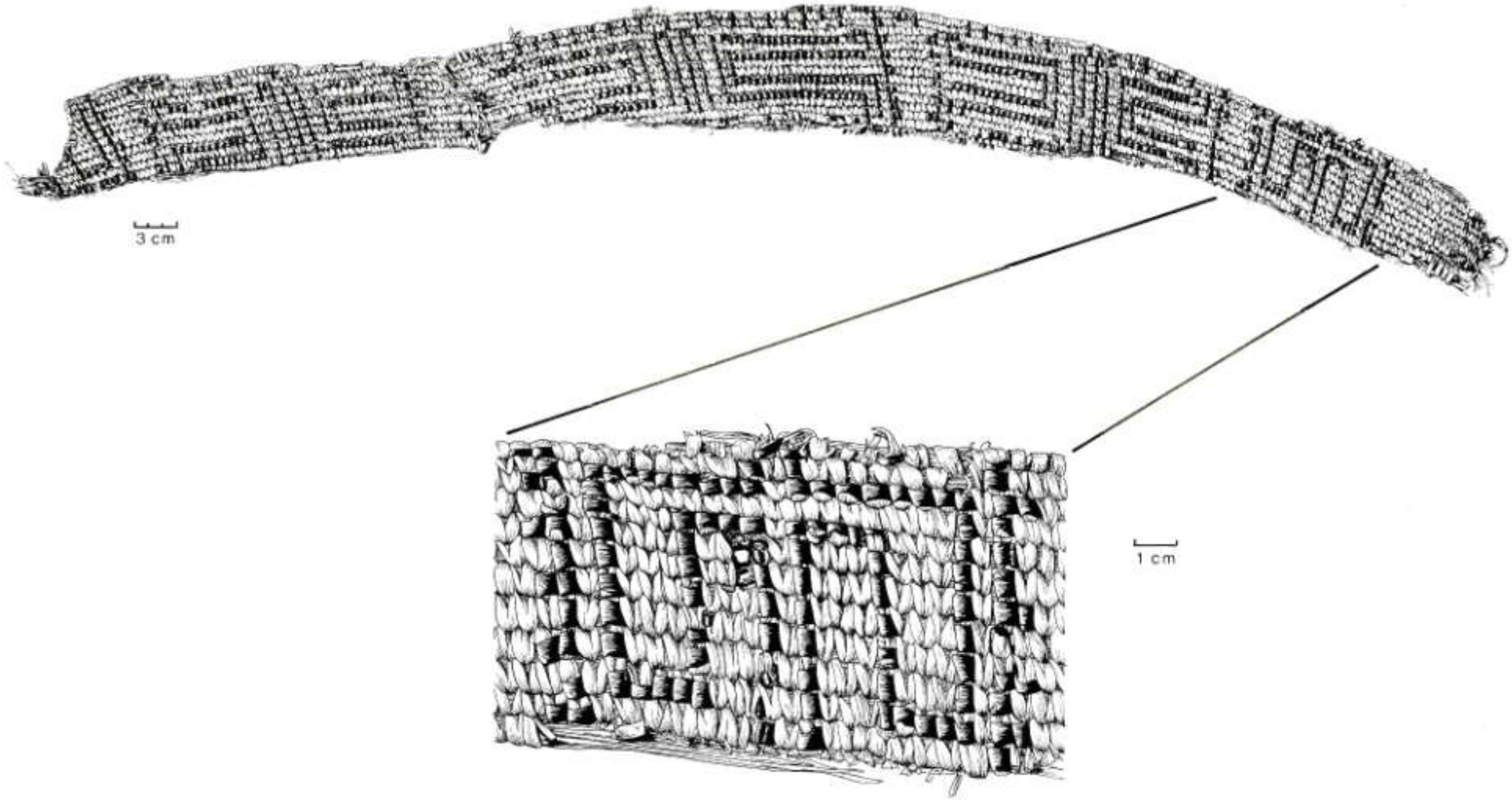


Fig. 22. Fragment of imbricated coiled basketry (179/tV/140) patterns with multi-90° cornered designs. Note geometric patterns with multi-90° cornered designs.

Applied Color: Colors Painted on the Surface of Basketry

One splint root hat from Ozette displays the remnants of a design(s) that had been painted on its surface (Art. #110/IV/3). The lower 2.5 cm of the brim is painted with red ochre, and the upper body has black pigment on the surface. The nature of the design created in black, if any, could not be determined.

Ozette Village Basketry Ornamentation Through the Use of Construction Techniques

Constructional techniques of ornamentation were the major decorative techniques employed in making Ozette Village basketry. A wide variety of these ornamental construction techniques occur. Ornamental plaiting techniques are especially numerous and characteristic of Ozette basketry.

Constructional techniques of ornamentation are sometimes difficult to differentiate from regular weaving techniques. For example, twill 2/2 weave has a somewhat ornamental appearance, but here it is not considered a distinctive form of constructional ornamentation because it is common and functionally appropriate for construction of many Ozette Village basketry items. The weaving techniques considered as distinctive forms of constructional surface ornamentation are recorded in Table 34 according to the basketry categories with which they are associated.

Table 34. Occurrence of ornamental construction techniques on Ozette Village basketry.

Technique	Basket	Hat	Mat	Basketry Fragments	Total
A. Plaiting					
Checker on bias			20	2	22
Twill on bias	8		30		38
Twill 2/1/1 on bias	1				1
Checker IIA	6			1	7
Checker IIB	11			4	15
Checker IIC				3	3
Checker II plaid				3	3
Twill 3/3				1	1
B. Twining					
Alternate plain twining/checker	16			4	20
Cross-warp twining	2			3	5
Open two rows twining				3	4
C. Combinations					
Hat combination #2		3			3
Hat combination #3		1			1
Hat combination #4		1			1
Hat combination #5		1			1
Checker/checker II plaid	3				3
Checker/checker IIB	2				2
Checker/twill 2/2	1				1

As mentioned previously, a wide variety of ornamental plaiting techniques were employed. Twill and checker on bias are associated most commonly with the construction of strong, flat edged, tumpline straps (n=45). Twill on bias also was used for flat bags (n=7) and infant face covers (n=l). Checker on bias is found on a distinctive, small/ square mat form (n=5). Twill 2/1/1 on bias had been employed on a single flat bag, Checker IIA, IIB, IIC, and II Plaid are decorative plaiting techniques most often seen on cedar bark flat bags, sacks, harpoon bags, and large storage baskets. Twill 3/3 can be seen on one cedar bark basketry fragment. These

ornamental plaiting techniques can be said to be culturally characteristic of Ozette Village basketry.

Ornamental twining techniques are less common at Ozette Village. Alternating plain twining/checker is the most common example and usually is recorded as a basket body weave on small cedar bark sacks (n=16). Cross-warp twining (without grass overlay) is rare and probably, as mentioned above, an introduced technique. Open two rows twining also is rare, and only recorded on four basketry fragments (Table 34).

In summary, techniques (especially plaiting) of constructional ornamentation are well represented at Ozette Village. They are characteristic also of historic Nootka/Makah plaited cedar bark basketry.

Ozette Village Basketry Ornamentation through Techniques of Combining Distinctive Weaves

A second general form of structural surface ornamentation occurring at Ozette Village and elsewhere is the combination of different weave techniques on a single item of basketry. For example, on a basket flap extension there may be several rows of checker weave, then several rows of twill 2/2 weave, then again, several rows of checker weave, and so forth.. Or on a hat there may be several rows of plain twining alternating with several rows of diagonal twining.

Combinations of weaving techniques on Ozette hats include the use of different twining techniques (Table 34). These combinations were discussed under the definition of hat weave techniques (p. 83). Hat weave combinations are used to create distinctive surface patterns. This

combination of techniques may be observed on historic Northwest Coast hats as well.

Checker/checker II plaid and checker/checker IIB weave combinations are found on flat bags, mainly on the large whale harpoon bags. These techniques are distinctive and characteristic of the culturally important whale harpoon baskets at Ozette Village. Historically, the Makah whale harpoon baskets typically were made with checker/checker II plaid weave combinations.

Checker/twill 2/2 combination was recorded on one fine gauge plaited basket flap extension. These flaps occur on special fishing tackle bags and are folded around the basket body to protect the contents (see below).

Ozette Basketry Ornamentation through Color Contrast and Construction Techniques

The last surface ornamentation technique to be discussed is the combination of color contrast and construction techniques. The combined use of these techniques is rare, but has been found on examples of cross warp twining where the warp and weft were overlaid with white bear grass (*Xerophyllum tenax*) (Fig. 23).

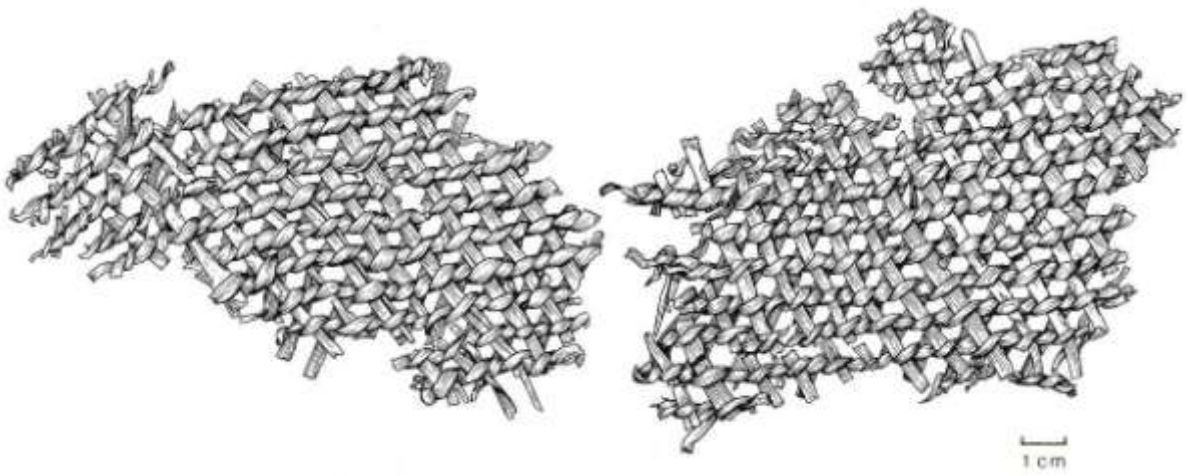


Fig. 23 . Example of basketry fragment with ornamentation through color contrast (grass overlay) and structural techniques (cross-warp twining) (96/ IV/1).

Ozette Village Basketry Ornamentation Techniques Summarized

The Ozette Village basketry surface ornamentation techniques are defined in Table 35. The number and percent of occurrence also is recorded. As can be seen, ornamental construction techniques are -characteristic of Ozette Village basketry. These usually involve the use of various forms of plaiting.

Ornamentation by the use of different color strands is next most frequent and, commonly, this was created on baskets by leaving the dark bark adhering to some of the cedar splint weave elements. These splints were evenly placed in the basket body weave construction, creating patterned geometric designs.

The combining of distinctive weave techniques on a basketry object was the next most common form of ornamentation. This is found especially on the distinctive plaited whale harpoon baskets and on twined hats.

Table 35. Ozette Village basketry surface ornamentation techniques defined.

Method of Ornamentation		Technique of Applying Color Contrast and/or Constructional Ornamentation		Name of Ornamentation Technique	Number and Frequency of Occurrence
1. Color contrast	+	different color strands as main weaving elements	=	color by different color strands	(23, 14%)
2. Color contrast	+	overlay of the main weave elements	=	color by overlay	(8, 5%)
3. Color contrast	+	imbrication on coil sewing elements	=	color by imbrication	(3, 2%)
4. Color contrast	+	paint applied to the weaving elements	=	color by painting	(1, 1%)
5. Color contrast	+	overlay and different color strands	=	color by overlay and different color strands	(4, 2%)
6. Constructionally ornamental weaving techniques	+	distinctive weaving techniques	=	constructionally distinctive weave	(109, 68%)
7. Constructionally ornamental weaving techniques	+	combination of alternative rows of weaving techniques	=	constructional combination of rows of distinctive weaves	(11, 7%)
8. Constructionally ornamental weaving techniques and color contrast	+	overlay on distinctive weaving techniques	=	color by overlay and weave distinctive	(2, 1%)
				Total	(161, 100%)

Color by overlay, color by imbrication, color by overlay and different color strands, and color by overlay and constructionally distinctive weaves all are techniques rather infrequently employed and are on baskets probably introduced to the site from other areas. The various overlay techniques and designs are more common historically to Salishan groups, especially the Twana and Quinault. The imbrication techniques and designs are found on coiled baskets that, in historic times, are more common to Fraser River Salishan groups. These infrequent overlay and imbricated baskets probably were introduced from these respective areas to Ozette Village through some form of contact whether trade, gifts, marriages, slaves, raids, or otherwise.

One hat from Ozette Village shows applied red and black paints. This technique of hat decoration has been observed on historic Makah hats from this area (Swan collection, personal observations).

Comparison of Basketry Surface Ornamentation from Other Northwest Coast Wet Sites

Few other Northwest Coast wet sites have basketry with distinctive surface ornamentation techniques. This may be so in part because most wet sites were fishing-gathering stations and it is primarily utility baskets that have been recovered. Usually these were not highly ornamented. Of the three sites other than Ozette with distinctive basketry surface ornamentation, two are considered to be village areas (Lachane and Axeti). The third site, Musqueam Northeast, was a fishing station and utility baskets at this site commonly were ornamented with combinations of construction techniques.

The basketry ornamentation techniques recorded at the village sites of Lachane and Axeti usually were constructionally distinct plaiting and twining techniques. Lachane had one example each of (a) checker IIB, (b) two rows open twining, and (c) alternate open twining/cross warp twining basket body weave techniques. Axeti had examples of (a) checker IIB (n=2), (b) cross warp plaiting (n=2), and (c) checker on bias (n=3). Hats were found at Axeti that showed combinations of distinct weave techniques, including Axeti hat combination #1 (n=l) and Ozette hat combination #2 (n-1) (see p. 85). That Axeti shares a complex hat weave pattern equivalent to one at Ozette Village is significant. This hat weave pattern also is common historically on hats from the northern Northwest Coast (see pg. 83). Axeti also had one mat

fragment with color contrast design created by dyeing. In this case four cedar bark weft elements had been dyed black and plaited as main weave elements in two bands across the end section of the mat. This created two rows of checker, dark/light, geometric design across the mat. Additional ornamentation may have occurred on other areas of the complete piece.

Musqueam Northeast is the only other wet site with distinctive basketry surface ornamentation techniques. At this early site, the dominant technique, wrap around plaiting (n=56, 41%), was woven in such a way that the wrap elements created a diagonal patterning through the basket body (see Table 7, #22). This can be considered a distinct form of basket ornamentation. But more characteristic of Musqueam Northeast basketry ornamentation are the numerous combinations of different weave techniques in many of the utility-carrying baskets (see Fig. 5). These combinations include Musqueam Northeast combination A (n=l), B (n=4), C (n=2), D (n=2), and F (n=4). These combinations give a distinctive ornamental appearance to the surface of these utility baskets (Croes 1975:14, 35, and 62).

In summary, surface ornamentation techniques are not common on Northwest Coast wet site basketry, and they appear to occur most often at village site locations. Ozette Village, Lachane, and Axeti (all considered village sites) shared basketry ornamentation techniques. However, Musqueam Northeast, a fishing station, had several distinctive combinations of weave techniques on large utility baskets. This characteristic of utility basket ornamentation is unique to this early site. Ozette Village is the only wet site with overlay and imbricated techniques of ornamentation. Since the overlay grass materials were poorly preserved at Ozette they may have occurred and been lost (decayed) at other and earlier wet sites. However, these general techniques of ornamentation may have developed only in certain restricted areas and a later time.

Unfortunately only relatively few basketry surface ornamentation techniques have been recovered at Northwest Coast wet sites. Because of these limited data, comparative analyses can be conducted on only a very general basis. The rare basketry surface ornamentation techniques, therefore, appear to have only limited comparative value in analyzing Northwest Coast prehistoric basketry.

A Summary of the Analysis and Comparison of the Basketry Modes Recorded at Ozette Village and Other Sites

Throughout this analysis of Ozette Village basketry modes, comparisons have been made with those from other sites. This aspect of the study provides some indication as to how the basketry technologies from all sites might be related through time and across space. Hypothetical models emerge depicting the regional continuity of basketry technologies on the Northwest Coast (Figs. 2 and 8). The combined results of all previous tests when synthesized into a single test produce similar results and thus strengthen the correlations or associations noted among sites. The test employed is an average linkage cluster analysis on a matrix of *Jaccard's coefficient*. The presence or absence of distinct basketry modes at each site is used. The basket dimensions considered are (1) basket base construction techniques, (2) basket body construction techniques, (3) basket body reinforcement techniques, (4) hat body construction techniques, (5) mat body construction techniques, (6) construction techniques recorded on basketry fragments, (7) basket handle construction techniques, and (8) basket rim construction techniques. In total, eighty-four distinct basketry modes were considered (Table 36). A computer program (provided by R. G. Matson [1976]), produces the resulting dendrogram illustrated in Fig. 24. As can be seen, the emerging clusters correspond with the previous groupings of sites produced in close-proximity

analyses that pertained to individual basketry dimensions and modes. This dendrogram summarizes the comparison of basketry modes from the Northwest Coast wet sites and is the basis for the following discussion.

Table 36. Occurrence of basketry modes (attributes) recorded at Northwest Coast wet sites.

Basketry Mode	Ozette Village	Hoko River	Axeti	Lachane	Musqueam Northeast	Biederbost	Conway	Fishtown
Basket Base Construction Technique								
1. Checker	+	+	+	+	-	-	+	-
2. Twill 2/2	+	+	-	-	+	+	+	+
3. Twill 3/3	-	-	-	-	+	+	-	-
4. Spiral based plain twining	+	+	-	-	-	-	-	-
5. 1 row plain twining	+	+	-	-	-	-	-	-
6. 1 row three strand twining	+	-	-	-	-	-	-	-
7. Open wrapping	+	-	+	-	-	-	-	-
8. Wrap twining	-	+	-	-	-	-	-	-
9. Coiling (spiral and meander based)	+	-	-	-	-	-	-	-
Basket Body Construction Technique								
10. Checker	+	+	+	+	+	+	+	-
11. Twill 2/2	+	-	-	+	+	-	+	+
12. Checker IIA	+	-	-	-	-	-	-	-
13. Checker IIB	+	-	+	+	-	-	-	-
14. Checker II plaid	+	-	-	-	-	-	-	-
15. Twill on bias (2/2 and 2/1/1)	+	-	-	-	-	-	-	-
16. Cross warp plaiting	-	-	+	-	-	-	-	-
17. Plain twining	+	+	-	+	-	-	-	-
18. Open twining	+	-	-	+	+	+	+	+
19. Diagonal twining	-	-	-	-	+[1]	-	-	-
20. Cross warp twining	+	-	-	-	-	-	-	-
21. Alternate plain twining/checker (and/checker II in twos)	+	-	-	-	-	-	-	-
22. Alternate open twining/cross warp twining	-	-	-	+	-	-	-	-
23. Open two rows twining	-	-	-	+	-	-	-	-
24. Wrap twining	-	+	-	-	-	-	-	-
25. Open wrapping	+	+	+	-	-	-	-	-
26. Wrap around plaiting	-	+	-	-	+	-	-	-
27. Unidirectional open wrapping	-	-	-	-	+[2]	-	-	-
28. Coiling	+	-	-	-	-	-	-	-

Basketry Mode	Ozette Village	Hoko River	Axeti	Lachane	Musqueam Northeast	Biederbost	Conway	Fishtown
Basket Body Reinforcement Techniques								
29. Single wrap reinforcement	-	-	-	-	+	+	-	-
30. Double wrap reinforcement	-	-	-	-	+	+	-	-
Hat Construction Techniques								
31. Plain twining	+	+	-	-	-	-	-	-
32. Ozette combination #2	+	-	+	-	-	-	-	-
33. Ozette combination #3	+	-	-	-	-	-	-	-
34. Ozette combination #4	+	-	-	-	-	-	-	-
35. Ozette combination #5	+	-	-	-	-	-	-	-
36. Axeti combination #1	-	-	+	-	-	-	-	-
Mat Construction Techniques								
37. Checker	+	-	+	+	-	-	-	-
38. Twill 2/2	+	-	-	-	-	-	-	-
39. Checker on bias	+	-	-	-	-	-	-	-
40. Twill on bias	+	-	-	-	-	-	-	-
Construction Techniques-- Basketry Fragments								
41. Checker	+	+	+	+	+	+	+	+
42. Twill 2/2	+	-	+	-	+	-	+	+
43. Twill 3/3	+	-	-	-	-	-	-	-
44. Checker IIA	+	-	-	-	-	-	-	-
45. Checker IIB	+	-	-	-	-	-	-	-
46. Checker IIC	+	-	-	-	-	-	-	-
47. Checker II plaid	+	-	-	-	-	-	-	-
48. Checker on bias	+	-	+	-	-	-	-	-
49. Cross warp twining	-	-	+	-	-	-	-	-
50. Plain twining	+	+	-	-	+	-	-	+
51. Open twining	+	-	-	+	+	-	+	+
52. Diagonal twining	-	-	-	-	+	-	-	-
53. Cross warp twining	+	-	-	-	-	-	-	-
54. Open two rows twining	+	-	-	-	-	-	-	-
55. Alternate plain twining/checker	+	-	-	-	-	-	-	-
56. Open wrapping	+	+	-	-	-	-	-	-
57. Wrap twining	+	-	-	-	-	-	-	-
58. Unidirectional open wrapping	-	-	-	-	+	-	-	-
59. Wrap around plaiting	-	-	-	-	+	-	-	-
60. Coiling	+	-	-	-	-	-	-	+
Handle Attachment Techniques								
61. Continuous, one strand attached, looped handles	+	-	-	-	-	-	-	-

Basketry Mode	Ozette Village	Hoko River	Axeti	Lachane	Musqueam Northeast	Biederbost	Conway	Fishtown
62. Single handles in a staggered series around rim	-	-	-	-	+	+	-	-
63. Single handles attached to body reinforcement rows	-	-	-	-	-	+	-	-
64. Single (opposing) handles	+	-	-	-	+	+	+	+
65. Continuous, two strands attached, looped handles	+	-	-	-	-	-	-	-
66. Across-the-mouth braid handles	+	-	-	-	-	-	-	-
67. Double looped (opposing) handles	+	-	-	-	-	-	+	+
68. Single handles attached on weft rows below rim	-	-	-	-	-	-	-	-
Basket Rim Construction Techniques								
69. Mock braid	+	+	-	-	+	+	-	-
70. Double mock braid	-	-	-	-	+	-	-	-
71. Circle-eight braid/mock braid	-	-	-	-	-	+	-	-
72. Circle-eight braid	-	-	-	-	-	+	-	-
73. Single strand wrap	-	-	-	-	+	-	-	-
74. Tuck and wrap (B)	-	-	-	-	-	-	+	-
75. Looped	+	-	-	-	-	-	+	+
76. Top hitch	-	-	-	-	-	-	+	+
77. Turned in	+	+	+	+	-	-	-	+
78. Tuck and wrap	+	-	+	-	-	-	-	-
79. Cut off	+	-	-	+	-	-	-	-
80. Hitched	+	-	-	-	-	-	-	-
81. Tuck and wrap covered with coiling	+	-	+	-	-	-	-	-
82. Bent down	+	-	-	+	-	-	-	-
83. Coiled	+	-	-	-	-	-	-	-
84. Open braid	+	-	-	-	-	-	-	-

[1]Recorded on Musqueam Northeast Combination Body Weave C.

[2]Recorded on Musqueam Northeast Combination Body Weave A.

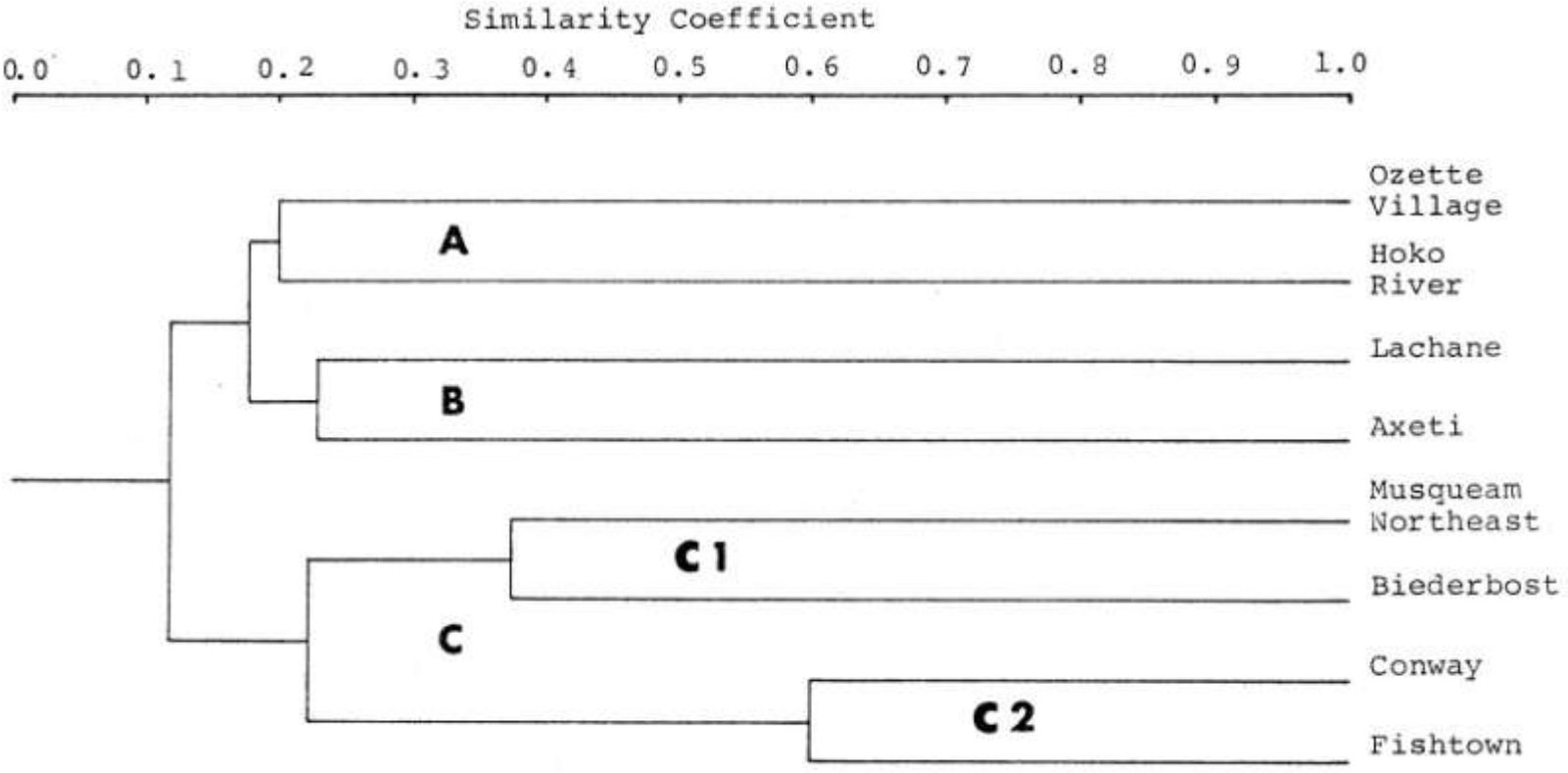
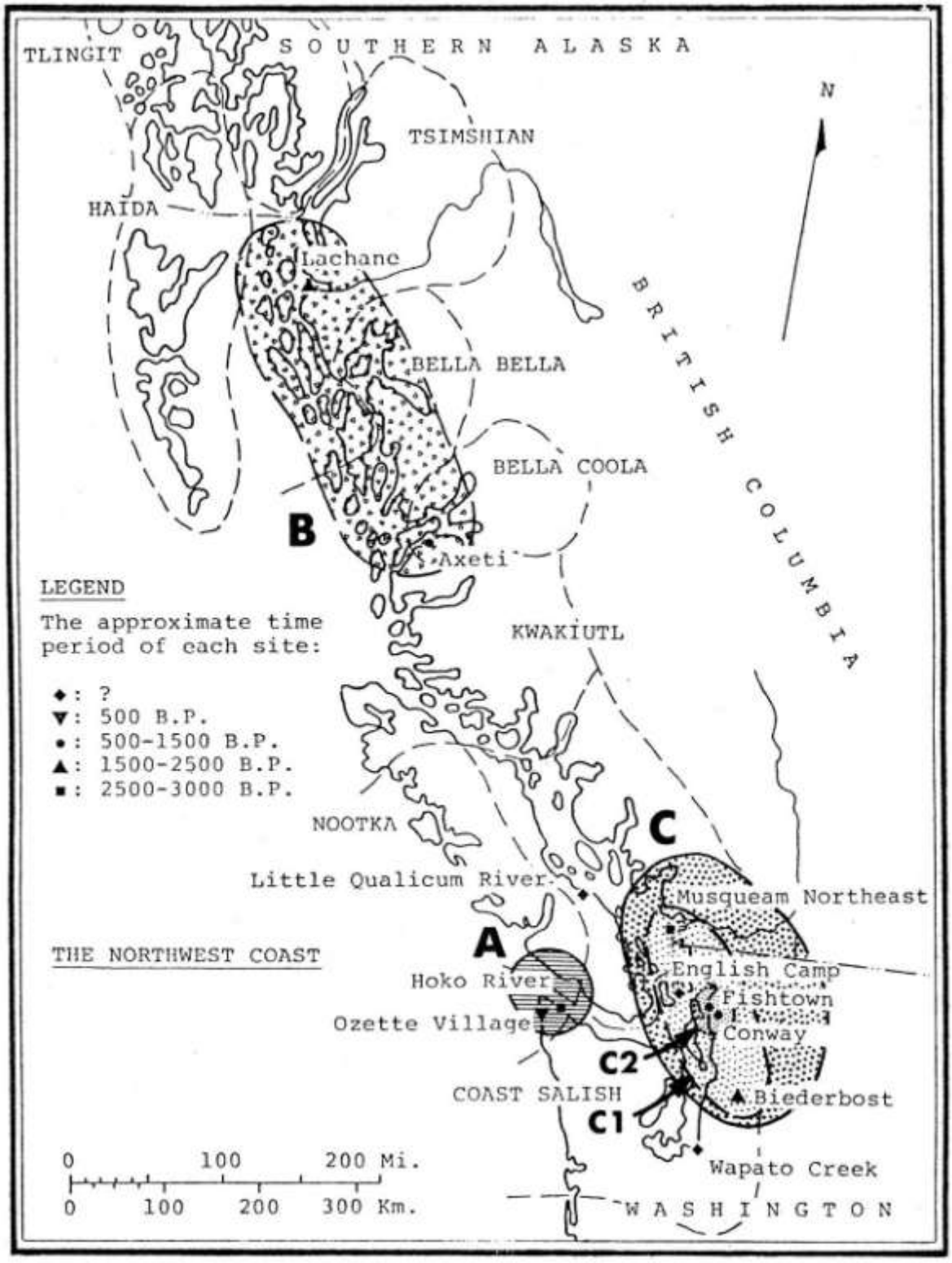


Fig. 24. Dendrogram representing an average linkage cluster analysis of Northwest Coast wet site basketry modes on a matrix of Jaccard' s coefficients. Degrees of similarity: 1 = complete similarity to 0 = no similarity.



Map 2. Regions of basketry style continuity on the Northwest Coast of North America based on average-linkage cluster analysis. Legend: Region A: South-Central Coast; Region B: Northern Coast; Region C: Puget Sound/Gulf of Georgia; Subregion C1: Sites dating 2-3,000 years B.P.; Subregion C2: Sites dating to about 1,000 years B.P.

The sites of Ozette Village and Hoko River group most closely with each other in the dendrogram (Fig. 24A; Map 2A). This also was the case when the individual dimensions of basketry construction materials (Fig. 1), basket shapes (Table 4) (both not considered in this average linkage test), and basketry construction techniques (considered here; Table 36) were considered. This association of sites and basketry technologies in the south-central coast regional area provides additional data for developing a model of techno-cultural continuity for at least 2,500 years in the south-central coast region.

Lachane and Axeti, the northern wet sites, cluster closest together (Fig. 24B; Map 2B), This clustering is considered of lower significance since the sites spatially are separate and, additionally, when considering the combination of basketry modes into basket classes (below), the two sites are quite distinct. However, the pattern of association of Lachane and Axeti separates somewhat this general northern region from the other regions. At a lower level this regional cluster (B) also links with the Ozette Village and Hoko River cluster (A). The association of the northern region (B) and the south-central coast region (A) may or may not be significant, but their spatial separation tends to weaken any possible close association.

The third major cluster (Fig. 24C; Map 2C) is a regional clustering of the Puget Sound/Gulf of Georgia sites.

The early Puget Sound/Gulf of Georgia sites of Musqueam Northeast and Biederbost (2-3,000 years B.P.) cluster together relatively closely, and this pattern indicates a significant degree of basketry mode similarity between these early sites (Fig. 24, C1; Map 2, C1). Musqueam Northeast is a Locarno Beach Phase site (Borden 1976). Biederbost, of a later time period and to

the south (Map 2), probably represents this or a closely related phase. English Camp, between the Musqueam Northeast and Biederbost sites, has only one basket example and therefore could not be included in the average linkage cluster analysis. However, the basketry technology exhibited by the single basket also would have linked this site (dating approximately 1,500 years B.P.+; Steve Kenady, personal communication) to the early Musqueam Northeast and Biederbost sites. These three sites indicate a regional association at an early time period throughout this Puget Sound/Gulf of Georgia region. In all likelihood, this association represents a strong cultural interrelationship among these groups through time.

The temporally later Puget Sound sites of Conway and Fishtown show the highest level of association (Fig. 24, C2; Map 27 C2). Though temporally separated by approximately 500 years, these sites spatially were very close (Map 2) and probably were occupied by culturally related groups.

The clustering of all Puget Sound/Gulf of Georgia sites (Fig. 24C) permits the development of a model suggesting a cultural continuity for this entire regional area for the last 3,000 years. Hypothetically, this pattern of continuity can be tentatively associated with an *in situ* Salishan cultural development, though considerably more testing will be needed.

The average-linkage cluster analysis of basketry modes recorded at Northwest Coast wet sites and the temporal and spatial factors seen in Map 2 support the regional continuity models as represented in Figs. 2 and 8. In the next section, when the combination of basketry modes into basketry classes is considered, the regional continuity models suggested here will again be evaluated and discussed.

OZETTE VILLAGE BASKETRY CLASSES

The dimensional features and modes of Ozette Village basketry defined in the last section may now be used to create basket, hat, and mat classifications. The following are considered stylistic/technological classifications since they delineate basketry stylistic and technological features rather than providing functional identifications. The primary purposes of these present classifications, which are based only on complete specimens, are to (1) demonstrate explicitly the range of basketry items that occurred at Ozette Village, (2) provide a framework for comparisons of basketry items from all Northwest Coast water-saturated archaeological sites, and (3) establish the main units necessary for the functional classification of Ozette Village basketry.

Three separate stylistic/technological classifications are constructed below. These are (1) an Ozette Village basket classification (including cradles), (2) an Ozette Village hat classification, and (3) an Ozette Village mat classification (including tumplines).

Each classification is constructed paradigmatically and is composed of a specific combination of diagnostic dimensional features. As such they provide information concerning the complete baskets, hats, and mats found at Ozette Village.

Ozette Village Basket Classification

The Ozette Village basket classes have been defined by combining the following previously discussed dimensional features:

1. Construction materials.
2. Shapes.
3. Base construction techniques.
4. Body construction techniques.
5. Basket extensions: flaps, handles, tumpline loops, etc.

This classification, therefore, excludes the dimensional features of:

6. Rim construction techniques.
7. Gauges of weave.
8. Sizes.
9. Ornamentation techniques.

While these last dimensional features are diagnostic, they are more significant when constructing the basket functional classification below. The justification for not using them in the stylistic/technological (abbreviated S/T below) basket classification is based upon four factors:

1. Rim construction techniques were more arbitrarily associated with the other dimensional features, and various rim styles were used to finish otherwise very similar baskets. If this feature were to be included in the classification the number of classes would be multiplied greatly, making the classification scheme too large for practical purposes.

2. Gauges of weave can be dependent upon (1) the basket materials used, (2) the material preparation, and (3) the skill of the weaver. For example, the individual weavers may weave coarsely or finely while making the same kind of basket, and the gauge would be a general reflection of personal skills rather than general basket classes. Gauges of weave have several functional implications. For example, a coarse open weave would allow good ventilation and drainage of a basket, whereas a tighter weave could more easily hold small objects. This dimensional feature therefore is used most when considering the functional classification of Ozette Village baskets (below).

3. Size is a useful dimensional feature for general basket class considerations, but the weavers, for several reasons, may have varied the size of baskets while trying to make the same general kind of basket. Basketry sizes appear to have different functional implications, and are, therefore, considered in the functional classification.

4. Ornamentation appears to be relatively independent of the other dimensional features and baskets of the same class may be undecorated or may be decorated with several different techniques.

The Ozette Village basket classes are defined in Fig. 25. The basket class definitions are labeled consecutively OBI, OB2, OB3, etc., signifying respectively, Ozette Basket Glass 1, Ozette Basket Class 2, Ozette Basket Class 3, etc.

Potentially over 200,000 paradigmatic basket classes are possible in this S/T classification considering only the Ozette Village basket modes and the possible combinations of the five dimensional features. However, only fifty-six basket classes actually occurred in the classification of the total collection. This clearly indicates a cultural selection by the artisan for only a limited number of combinations of these modes. These combinations are the basic units for the following discussion of Ozette Village baskets and their comparisons with baskets from other Northwest Coast wet sites.

Since this classification scheme is paradigmatic, if new classes are found in the continuing excavations at Ozette Village they can be incorporated readily into the series. After three years of excavation, during which time the basket collection doubled, only ten new classes were added (and only one had a significant number of examples [OB41]). This demonstrates the relative "completeness" and efficiency of this classification scheme.

Definition	Illustration and Frequency of Occurrence
OB1. MATERIAL: cedar bark SHAPE: cube BASE CONSTRUCTION: checker BODY CONSTRUCTION: checker EXTENSIONS: none	 (n=9, 4%)
OB2. MATERIAL: cedar bark SHAPE: cube BASE CONSTRUCTION: checker BODY CONSTRUCTION: checker IIB EXTENSIONS: none	 (n=3, 1%)
OB3. MATERIAL: cedar bark SHAPE: flat rectangle BASE CONSTRUCTION: 1 row twining BODY CONSTRUCTION: checker EXTENSIONS: none	 (n=20, 8%)
OB4. MATERIAL: cedar bark SHAPE: flat rectangle BASE CONSTRUCTION: 1 row twining BODY CONSTRUCTION: checker IIB EXTENSIONS: none	 (n=2, 1%)
OB5. MATERIAL: cedar bark SHAPE: flat rectangle BASE CONSTRUCTION: 1 row checker BODY CONSTRUCTION: checker IIC EXTENSIONS: none	 (n=2, 1%)

Fig. 25. Stylistic/technological classification of Ozette Village baskets.

Definition	Illustration and Frequency of Occurrence
OB6. MATERIAL: cedar bark SHAPE: flat rectangle BASE CONSTRUCTION: 1 row twining BODY CONSTRUCTION: combination, checker and checker IIB EXTENSIONS: none	 (n=1)
OB7. MATERIAL: cedar bark SHAPE: flat rectangle BASE CONSTRUCTION: 1 row twining BODY CONSTRUCTION: twill 2/2 EXTENSIONS: none	 (n=3, 1%)
OB8. MATERIAL: cedar bark SHAPE: flat rectangle BASE CONSTRUCTION: 1 row twining BODY CONSTRUCTION: twill on bias EXTENSIONS: none	 (n=6, 2%)
OB9. MATERIAL: cedar bark SHAPE: flat rectangle BASE CONSTRUCTION: 1 row twining BODY CONSTRUCTION: twill 2/1/1 on bias EXTENSIONS: none	 (n=1)
OB10. MATERIAL: cedar bark SHAPE: flat trapezoid BASE CONSTRUCTION: 1 row twining BODY CONSTRUCTION: checker EXTENSIONS: none	 (n=10, 4%)
OB11. MATERIAL: cedar bark SHAPE: flat trapezoid BASE CONSTRUCTION: 1 row checker BODY CONSTRUCTION: checker EXTENSIONS: none	 (n=1)

Fig. 25 (Continued)

Definition	Illustration and Frequency of Occurrence
OB12. MATERIAL: cedar bark SHAPE: flat trapezoid BASE CONSTRUCTION: 1 row twining BODY CONSTRUCTION: checker IIB EXTENSIONS: none	 (n=1)
OB13. MATERIAL: cedar bark SHAPE: flat trapezoid BASE CONSTRUCTION: 1 row checker BODY CONSTRUCTION: twill on bias EXTENSIONS: none	 (n=1)
OB14. MATERIAL: cedar bark SHAPE: expanding, rounded cube BASE CONSTRUCTION: checker BODY CONSTRUCTION: checker EXTENSION: none	 (n=19, 8%)
OB15. MATERIAL: cedar bark SHAPE: expanding, rounded cube BASE CONSTRUCTION: checker BODY CONSTRUCTION: checker IIA EXTENSIONS: none	 (n=3, 1%)
OB16. MATERIAL: cedar bark SHAPE: expanding, rounded cube BASE CONSTRUCTION: checker BODY CONSTRUCTION: checker IIB EXTENSIONS: none	 (n=2, 1%)
OB17: MATERIAL: cedar bark SHAPE: expanding, rounded cube BASE CONSTRUCTION: checker BODY CONSTRUCTION: twill 2/2 EXTENSIONS: none	 (n=2, 1%)

Fig. 25 (Continued)

Definition	Illustration and Frequency of Occurrence
OB18. MATERIAL: cedar bark SHAPE: expanding, rounded cube BASE CONSTRUCTION: checker BODY CONSTRUCTION: alternate plain twining/checker EXTENSIONS: across the mouth braid handle	 (n=11, 4%)
OB19. MATERIAL: cedar bark SHAPE: expanding, rounded cube BASE CONSTRUCTION: checker BODY CONSTRUCTION: open twining EXTENSIONS: none	 (n=1)
OB20. MATERIAL: cedar bark SHAPE: expanding, rounded cube BASE CONSTRUCTION: checker BODY CONSTRUCTION: plain twining EXTENSIONS: none	 (n=2, 1%)
OB21. MATERIAL: cedar bark SHAPE: rectangular-base, recurving oval BASE CONSTRUCTION: checker BODY CONSTRUCTION: checker EXTENSIONS: none	 (n=3, 1%)
OB22: MATERIAL: cedar bark SHAPE: Ovate, inverted, truncated cone BASE CONSTRUCTION: twill 2/2 BODY CONSTRUCTION: alternate plain twining/checker II in twos EXTENSIONS: none	 (n=1)
OB23: MATERIAL: cedar bark SHAPE: flat trapezoid BASE CONSTRUCTION: 1 row twining BODY CONSTRUCTION: checker EXTENSIONS: extra-large flap	 (n=3, 1%)

Fig. 25 (Continued)

Definition	Illustration and Frequency of Occurrence
OB24. MATERIAL: cedar bark SHAPE: flat trapezoid BASE CONSTRUCTION: 1 row twining BODY CONSTRUCTION: combination, checker and checker II plaid EXTENSIONS: none (RIM: open braid)	 (n=2, 1%)
OB25. MATERIAL: cedar bark SHAPE: flat trapezoid BASE CONSTRUCTION: 1 row twining BODY CONSTRUCTION: combination, coarse checker and medium gauge checker EXTENSIONS: none (RIM: open braid)	 (n=5, 2%)
OB26. MATERIAL: cedar bark SHAPE: flat rectangle with 2 open edges BASE CONSTRUCTION: 1 row twining BODY CONSTRUCTION: twill on bias EXTENSIONS: none	 (n=1)
OB27. MATERIAL: cedar bark SHAPE: flat rectangle with 2 open edges BASE CONSTRUCTION: 1 row twining BODY CONSTRUCTION: checker EXTENSIONS: none	 (n=4, 2%)

Fig. 25 (Continued)

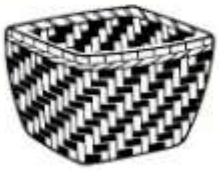
Definition	Illustration and Frequency of Occurrence
OB28. MATERIAL: cedar splints SHAPE: expanding, rounded cube BASE CONSTRUCTION: twill 2/2 BODY CONSTRUCTION: twill 2/2 EXTENSIONS: none	 (n=3, 1%)
OB29. MATERIAL: cedar splints (some vine maple) SHAPE: expanding, rounded cube BASE CONSTRUCTION: twill 2/2 BODY CONSTRUCTION: twill 2/2 EXTENSIONS: continuous, 1 strand under, looped handles	 (n=46, 19%)
OB30. MATERIAL: combination, cedar bark (mostly) and cedar splints SHAPE: expanding, rounded cube BASE CONSTRUCTION: twill 2/2 BODY CONSTRUCTION: twill 2/2 EXTENSIONS: continuous, 1 strand under, looped handles	 (n=3, 1%)
OB31. MATERIAL: combination, cedar splints (mostly) and cedar bark SHAPE: expanding, rounded cube BASE CONSTRUCTION: twill 2/2 BODY CONSTRUCTION: twill 2/2 EXTENSIONS: none	 (n=3, 1%)
OB32. MATERIAL: cedar splints SHAPE: expanding, rounded cube BASE CONSTRUCTION: twill 2/2 BODY CONSTRUCTION: open twining EXTENSIONS: continuous, 1 strand under, looped handles	 (n=1)

Fig. 25 (Continued)

Definition	Illustration and Frequency of Occurrence
OB33. MATERIAL: cedar (?) splints SHAPE: rectangular-base, recurving oval BASE CONSTRUCTION: twill 2/2 BODY CONSTRUCTION: open twining EXTENSIONS: continuous, 1 strand under, looped handles	 (n=1)
OB34. MATERIAL: cedar splints SHAPE: ovate, inverted, truncated cone BASE CONSTRUCTION: twill 2/2 BODY CONSTRUCTION: open twining EXTENSIONS: none	 (n=6, 2%)
OB35. MATERIAL: cedar splints SHAPE: ovate, inverted, truncated cone BASE CONSTRUCTION: twill 2/2 BODY CONSTRUCTION: open twining EXTENSIONS: single looped opposing handles (badly broken example)	 (n=1)
OB36. MATERIAL: cedar splints SHAPE: ovate, inverted, truncated cone BASE CONSTRUCTION: twill 2/2 BODY CONSTRUCTION: open twining EXTENSIONS: Opposing double looped handles	 (n=1)

Fig. 25 (Continued)

Definition	Illustration and Frequency of Occurrence
OB37. MATERIAL: cedar splints SHAPE: ovate, inverted, truncated cone BASE CONSTRUCTION: twill 2/2 BODY CONSTRUCTION: open twining EXTENSIONS: continuous, 2 strands under, looped handles (ORNAMENTATION: bear grass overlay on warps and wefts)	 (n=2, 1%)
OB38. MATERIAL: cedar splints SHAPE: ovate, inverted, truncated cone BASE CONSTRUCTION: twill 2/2 BODY CONSTRUCTION: open twining EXTENSIONS: continuous, 1 strand under, looped handles	 (n=12, 5%)
OB39. MATERIAL: combination, cedar splints (mostly) and cedar bark (weft) SHAPE: ovate, inverted, truncated cone BASE CONSTRUCTION: open twining BODY CONSTRUCTION: open twining EXTENSIONS: none	 (n=1)

Fig. 25 (Continued)

Definition	Illustration and Frequency of Occurrence
OB40. MATERIAL: cedar bark SHAPE: ovate, inverted, truncated cone BASE CONSTRUCTION: checker BODY CONSTRUCTION: open twining EXTENSIONS: none	 (n=2, 1%)
OB41. MATERIAL: cedar bark SHAPE: ovate, inverted, truncated cone BASE CONSTRUCTION: checker BODY CONSTRUCTION: open twining EXTENSIONS: none (RIM: open braid)	 (n=6, 2%)
OB42. MATERIAL: cedar bark SHAPE: rectangular-base, recurving oval BASE CONSTRUCTION: twill 2/2 BODY CONSTRUCTION: open twining EXTENSIONS: none	 (n=1)
OB43. MATERIAL: cedar splints SHAPE: expanding rounded cube BASE CONSTRUCTION: twill 2/2 BODY CONSTRUCTION: open twining EXTENSIONS	 (n=2, 1%)

Fig. 25 (Continued)

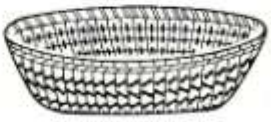
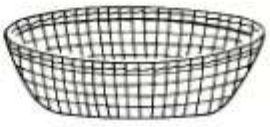
Definition	Illustration and Frequency of Occurrence
OB44. MATERIAL: combination, cedar splints (mostly) and cedar bark (wrapping element) SHAPE: inverted, truncated pyramid BASE CONSTRUCTION: open wrapping BODY CONSTRUCTION: open wrapping EXTENSIONS: double tumpline loops	 (n=9, 4%)
OB45. MATERIAL: combination, cedar splints (mostly) and cherry bark (wrapping element) SHAPE: inverted truncated pyramid BASE CONSTRUCTION: open wrapping BODY CONSTRUCTION: open wrapping EXTENSIONS: none	 (n=1)
OB46. MATERIAL: combination, cedar splints (mostly) and cedar bark (wrapping element) SHAPE: expanding, rounded cube BASE CONSTRUCTION: checker BODY CONSTRUCTION: open wrapping EXTENSIONS: none	 (n=1)
OB47. MATERIAL: combination, cedar splints (mostly) and cedar bark (wrapping element) SHAPE: ellipse with low expanding sides BASE CONSTRUCTION: checker BODY CONSTRUCTION: open wrapping EXTENSIONS: none	 (n=2, 1%)
OB48. MATERIAL: cedar bark SHAPE: ellipse with low expanding sides BASE CONSTRUCTION: checker IIA BODY CONSTRUCTION: checker EXTENSIONS: none	 (n=2, 1%)

Fig. 25 (Continued)

Definition	Illustration and Frequency of Occurrence
OB49. MATERIAL: combination, cedar bark (mostly) and cedar splints SHAPE: cylinder BASE CONSTRUCTION: checker BODY CONSTRUCTION: checker EXTENSIONS: none	 (n=1)
OB50. MATERIAL: cedar splints SHAPE: ovate, inverted, truncated cone BASE CONSTRUCTION: checker BODY CONSTRUCTION: checker EXTENSIONS: none	 (n=1)
OB51. MATERIAL: cedar (?) root splints SHAPE: inverted recurving cone BASE CONSTRUCTION: spiral based coiling BODY CONSTRUCTION: split stitch bundle coiling EXTENSIONS: none	 (n=1)
OB52. MATERIAL: cedar (?) root splints SHAPE: recurving cube BASE CONSTRUCTION: meander based coiling BODY CONSTRUCTION: split stitch bundle coiling EXTENSIONS: none	 (n=1)
OB53. MATERIAL: cedar (?) root splints SHAPE: truncated sphere BASE CONSTRUCTION: spiral based coiling BODY CONSTRUCTION: split stitch bundle coiling EXTENSIONS: none	 (n=1)

Fig. 25 (Continued)

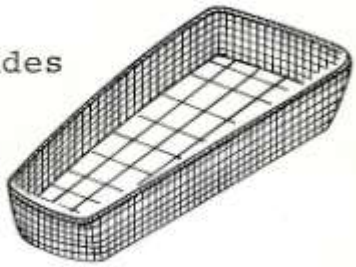
Definition	Illustration and Frequency of Occurrence
OB54. MATERIAL: cedar (?) bark SHAPE: rounded-base cylinder BASE CONSTRUCTION: spiral based plain twining BODY CONSTRUCTION: plain twining EXTENSIONS: none (ORNAMENTATION: patterns with bear grass overlay)	 (n=4, 2%)
OB55. MATERIAL: cedar bark SHAPE: inverted truncated cone BASE CONSTRUCTION: checker BODY CONSTRUCTION: plain twining EXTENSIONS: none	 (n=1)
OB56. MATERIAL: cedar bark SHAPE: trapezoid with low expanding sides BASE CONSTRUCTION: checker (w/wood slats) BODY CONSTRUCTION: checker EXTENSIONS: cradle line attachment loops	 (n=11, 4%)
Total = 246	

Fig. 25 (Continued)

As seen in the classification, a very wide variety of basketry styles has been recorded from in and around the Ozette House I area. When compared with the variety of S/T basket classes reconstructed from other Northwest Coast wet sites (see below), the Ozette Village baskets show the greatest range of technological variation. The reasons for this might include: (1) the fact that Ozette Village has the largest, most complete sample of basketry artifacts so far recovered on the Northwest Coast and, therefore, inherently more variation, and (2) Ozette was a major village

and not, for example, a fishing station with a functionally restricted range of baskets. Indeed activity restriction characterizes many of the other Northwest Coast wet sites which were specialized fishing-gathering stations. Because of this, only certain classes of baskets associated with those activities (e.g., utility-carrying baskets) were recovered.

Reconstructed Basket Stylistic/Technological Classes from Other Northwest Coast Wet sites

Whole basketry objects were infrequent at other wet sites. Therefore, in order to construct the original basketry classes, careful consideration was made of all the basketry fragments as well as the complete or almost complete examples.

The original construction materials and techniques of most fragmentary specimens are recorded. The more complete specimens provided important data concerning base and body construction techniques, shapes, sizes, ornamentation techniques, rim construction techniques, and basketry extensions (handles, etc.). This information was synthesized into S/T basket classes for each Northwest Coast wet site. The S/T basket class definitions and illustrated reconstructions are denoted in Fig. 26. These S/T classes are defined paradigmatically, as was the case with the Ozette Village basket classification. Basket classes are here defined by the combination of (1) construction material, (2) shape, (3) base construction technique, (4) body construction technique, and (5) basketry extensions (note: miscellaneous but significant additional information, i.e., rim construction techniques, size, body reinforcement techniques, are included in parentheses following definitions) (Fig. 26). This framework is similar to the Ozette Village classification and direct comparisons are possible. Unlike it, however, each specific class dimensional feature may have alternate possible modes, e.g., the dimensional feature of basketry

extensions for one class may be single opposing looped handles, or series of looped handles, or ?. The use of "or" statements condenses the classes so that the number remains useful for the following comparative analysis. The "or ?" statements are used to include basket fragments that were lacking particular dimensional features, but originally probably had belonged to a specific class. Many fragments only have material and body weave preserved and the rest of the original modes are unknown, or "?.." Under this scheme, most identifiable basket fragments are considered hypothetically to be part of baskets similar to the reconstructed classes (basketry fragments that did not belong to any of the classes are considered separately below). The number and percentage occurrence of specimens in each class are indicated next to the illustrated reconstruction. Since many of the class members are fragmentary, the number of examples provides only a rough indication of the frequency of a particular class of basket at the site, not an exact count. The reconstructed S/T basket classification is a general synthesis of presently available data. As the materials from these sites are further analyzed and additional areas of the sites excavated, more refined reconstructions may become possible.

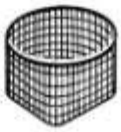
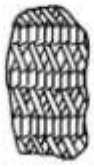
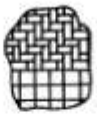
Definitions	Illustrated Reconstruction and Frequency of Occurrence
LACHANE	
LA-B1. MATERIAL: cedar bark SHAPE: square-base cylinder or ? BASE CONSTRUCTION: checker BODY CONSTRUCTION: open twining EXTENSIONS: none (SIZE: small or ?)	 (n=7, 54%)
LA-B2. MATERIAL: cedar bark SHAPE: square-base cylinder BASE CONSTRUCTION: checker BODY CONSTRUCTION: plain twining EXTENSIONS: none (SIZE: small)	 (n=1, 7%)
LA-B3. MATERIAL: cedar bark SHAPE: square-base cylinder BASE CONSTRUCTION: checker BODY CONSTRUCTION: checker EXTENSIONS: none (SIZE: small)	 (n=1, 7%)
LA-B4. MATERIAL: cedar bark SHAPE: square-base cylinder BASE CONSTRUCTION: checker (?) BODY CONSTRUCTION: 2 rows open twining EXTENSIONS: ? (SIZE: small)	 (n=1, 7%)
LA-B5. MATERIAL: cedar bark SHAPE: ? BASE CONSTRUCTION: ? BODY CONSTRUCTION: alternate open twining/ cross warp twining EXTENSIONS: ?	 (n=1, 7%)

Fig. 26. Hypothetical stylistic/technological basket class definitions and reconstructions recorded from other Northwest Coast wet sites.

Definitions

Illustrated Reconstruction and Frequency of Occurrence

LA-B6. MATERIAL: cedar bark
SHAPE: ?
BASE CONSTRUCTION: checker
BODY CONSTRUCTION: twill 2/2
EXTENSIONS: ?



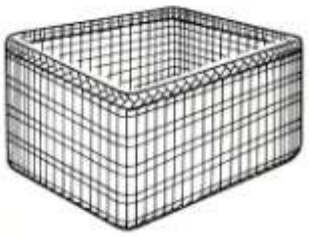
(n=1, 7%)

LA-B7. MATERIAL: cedar bark
SHAPE: ?
BASE CONSTRUCTION: ?
BODY CONSTRUCTION: checker IIB
EXTENSIONS: ?

(n=1, 7%)

AXETI

AX-B1. MATERIAL: cedar bark
SHAPE: cube
BASE CONSTRUCTION: checker
BODY CONSTRUCTION: checker IIB
EXTENSIONS: none or (?)



(n=2, 33%)

AX-B2. MATERIAL: combination, cedar splints (mostly) and cedar bark (wrapping element)
SHAPE: inverted, truncated pyramid
BASE CONSTRUCTION: open wrapping
BODY CONSTRUCTION: open wrapping
EXTENSIONS: none (?)

(n=2, 33%)

AX-B3. MATERIAL: cedar bark
SHAPE: ?
BASE CONSTRUCTION: checker on bias (?)
BODY CONSTRUCTION: cross-warp plaiting
EXTENSIONS: ?

(n=2, 33%)

Fig. 26. (Continued)

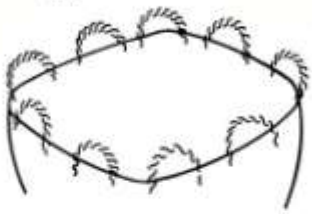
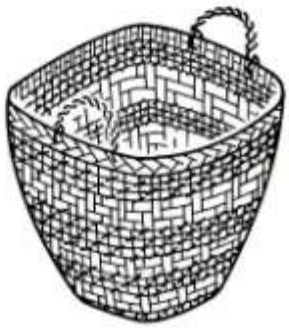
Definition	Illustrated Reconstruction and Frequency of Occurrence
MU-B4. MATERIAL: splints (cedar) SHAPE: inverted, sub-rectangular, truncated cone or ? BASE CONSTRUCTION: twill 3/3 or ? BODY CONSTRUCTION: combination, unidirectional open wrapping/ twill 2/2 EXTENSIONS: single opposing looped handles, series of looped handles, or ?	a.  or b.  (n=4, 4%)
MU-B5. MATERIAL: splints (cedar) SHAPE: inverted, sub-rectangular, truncated cone or ? BASE CONSTRUCTION: ? BODY CONSTRUCTION: combination, checker/ diagonal twining EXTENSIONS: ?	 (n=4, 4%)
MU-B6. MATERIAL: splints (cedar) SHAPE: inverted, sub-rectangular, truncated cone or ? BASE CONSTRUCTION: twill 2/2 or ? BODY CONSTRUCTION: combination, wrap around plaiting/ twill 2/2 EXTENSIONS: single opposing looped handles or ?	 (n=4, 4%)

Fig. 26. (Continued)

Definition

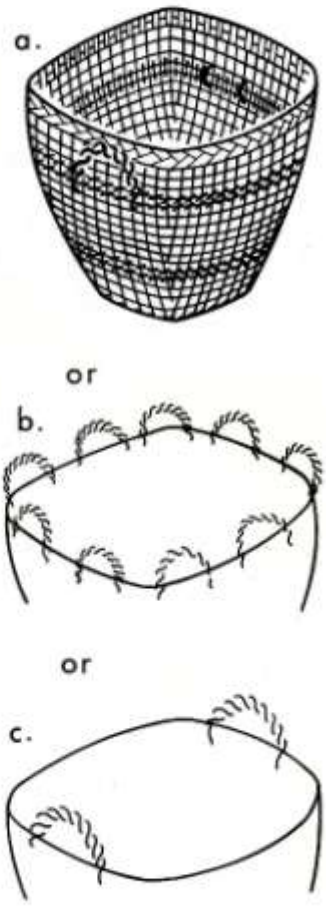
Illustrated Reconstruction and Frequency of Occurrence

MU-B 7. MATERIAL: splints (cedar)
SHAPE: inverted, sub-rectangular, truncated cone or ?
BASE CONSTRUCTION: ?
BODY CONSTRUCTION: combination, twill 2/2/ checker
EXTENSIONS: ?

(n=3, 3%)

BIEDERBOST

BI-B1. MATERIAL: splints (cedar)
SHAPE: inverted, sub-rectangular, truncated cone or ?
BASE CONSTRUCTION: twill 2/2 or ?
BODY CONSTRUCTION: checker
EXTENSIONS: single opposing handles on reinforcement rows, series of looped handles, single opposing looped handles, or ?
(REINFORCEMENT: rows double wrap reinforcement, none, or ?)



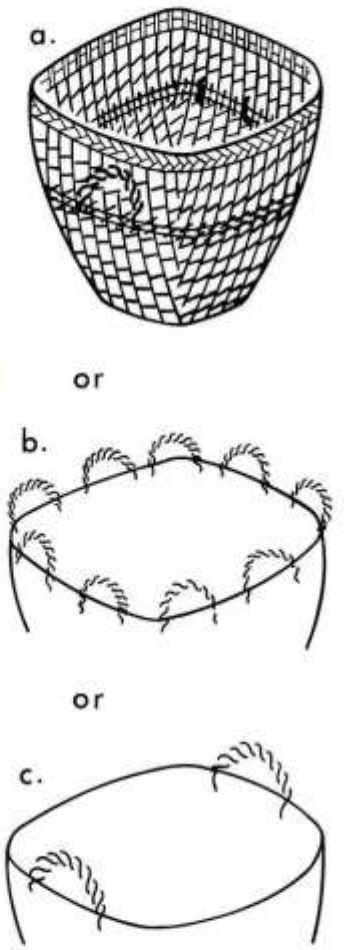
(n=35, 73%)

Fig. 26. (Continued)

Definition

Illustrated Reconstruction and Frequency of Occurrence

BI-B2. MATERIAL: splints (cedar)
SHAPE: inverted, sub-rectangular, truncated cone or ?
BASE CONSTRUCTION: twill 2/2, twill 3/3, or ?
BODY CONSTRUCTION: open twining
EXTENSIONS: Single opposing handles on reinforcement rows, series of looped handles, single opposing looped handles, or ?
(REINFORCEMENT: none, rows single wrap reinforcement, or ?)



(n=12, 25%)

Fig. 26. (Continued)

Definition

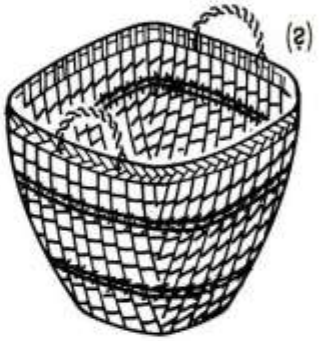
Illustrated Reconstruction and Frequency of Occurrence

BI-B3. MATERIAL: cedar bark
SHAPE: ?
BASE CONSTRUCTION: twill 2/2
BODY CONSTRUCTION: open twining
EXTENSIONS: ?

(n=1, 2%)

ENGLISH CAMP

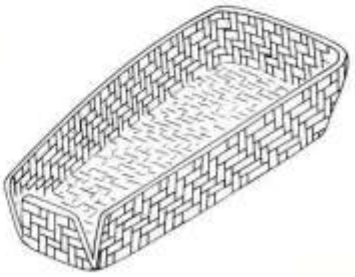
EN-B1. MATERIAL: splints (cedar)
SHAPE: inverted, sub-rectangular, truncated cone ?
BASE CONSTRUCTION: ?
BODY CONSTRUCTION: open twining
EXTENSIONS: ?
(REINFORCEMENT: rows double wrap reinforcement)



(n=1)

CONWAY

CO-B1. MATERIAL: splints (cedar)
SHAPE: trapezoid with low expanding sides
BASE CONSTRUCTION: twill 2/2
BODY CONSTRUCTION: twill 2/2
EXTENSIONS: none
(RIM: top hitch)



(n=2, 6%)

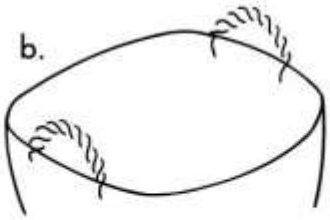
Fig. 26. (Continued)

Definition

Illustrated Reconstruction and Frequency of Occurrence

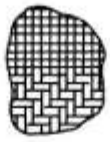
CO-B2. MATERIAL: splints (cedar)
SHAPE: ovate, inverted, truncated cone
BASE CONSTRUCTION: twill 2/2 or ?
BODY CONSTRUCTION: open twining
EXTENSIONS: opposing double looped handles, opposing single looped handles, or ?

or



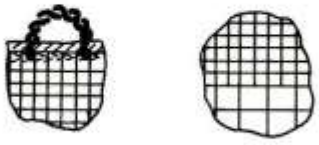
(n=27, 79%)

CO-B3. MATERIAL: cedar bark
SHAPE: ?
BASE CONSTRUCTION: twill 2/2
BODY CONSTRUCTION: checker
EXTENSIONS: ?



(n=1, 3%)

CO-B4. MATERIAL: cedar bark
SHAPE: ?
BASE CONSTRUCTION: coarse checker
BODY CONSTRUCTION: medium gauge checker
EXTENSIONS: single handle



(n=1, 3%)

Fig. 26. (Continued)

Definition

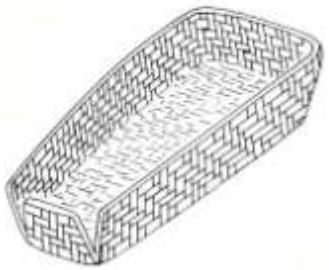
Illustrated Reconstruction and Frequency of Occurrence

CO-B5. MATERIAL: cedar bark
SHAPE: ?
BASE CONSTRUCTION: checker or twill 2/2
BODY CONSTRUCTION: open twining
EXTENSIONS: ?

(n=2, 6%)

FISHTOWN

FI-B1. MATERIAL: splints (cedar)
SHAPE: trapezoid with low expanding sides
BASE CONSTRUCTION: twill 2/2
BODY CONSTRUCTION: twill 2/2
EXTENSIONS: none
(RIM: top hitch)



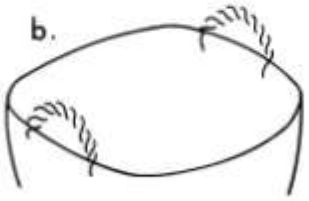
(n=1, 11%)

FI-B2. MATERIAL: splints (cedar)
SHAPE: ovate, inverted, truncated cone
BASE CONSTRUCTION: twill 2/2 or ?
BODY CONSTRUCTION: open twining
EXTENSIONS: opposing double looped handles, opposing single looped handles or ?

a.

or

b.



(n=6, 67%)

Fig. 26. (Continued)

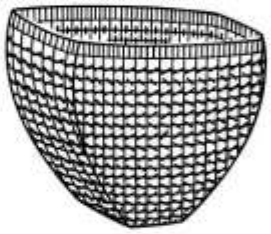
Definition	Illustrated Reconstruction and Frequency of Occurrence
FI-B3. MATERIAL: cedar bark SHAPE: ? BASE CONSTRUCTION: ? BODY CONSTRUCTION: checker EXTENSIONS: single handle	 (n=1, 11%)
FI-B4. MATERIAL: cedar bark SHAPE: ? BASE CONSTRUCTION: ? BODY CONSTRUCTION: open twining EXTENSIONS: ?	 (n=1, 11%)
HOKO RIVER	
HO-B1. MATERIAL: splints SHAPE: inverted, truncated pyramid or ? BASE CONSTRUCTION: wrap twining or ? BODY CONSTRUCTION: open wrapping EXTENSIONS: none or ?	 (n=13, 68%)
HO-B2. MATERIAL: cedar (?) bark SHAPE: inverted, truncated cone BASE CONSTRUCTION: spiral based twining BODY CONSTRUCTION: plain twining EXTENSIONS: none (SIZE: small)	 (n=2, 11%)
HO-B3. MATERIAL: splints (spruce root) SHAPE: inverted, truncated cone BASE CONSTRUCTION: wrap twining BODY CONSTRUCTION: wrap twining EXTENSIONS: none (SIZE: small)	 (n=1, 5%)

Fig. 26. (Continued)

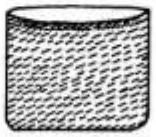
Definition

Illustrated Reconstruction and Frequency of Occurrence

HO-B4. MATERIAL: cedar bark
SHAPE: flat trapezoid
BASE CONSTRUCTION: 1 row twining
BODY CONSTRUCTION: checker
EXTENSIONS: none
(SIZE: small)

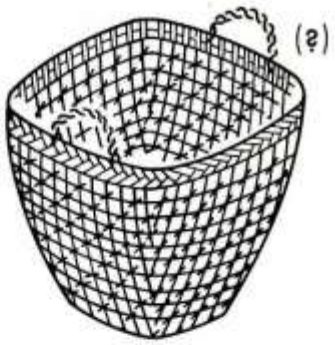
(n=1, 5%)

HO-B5. MATERIAL: cedar bark (?)
SHAPE: flat rectangle
BASE CONSTRUCTION: 1 row twining
BODY CONSTRUCTION: plain twining
EXTENSIONS: none
(SIZE: small)



(n=1, 5%)

HO-B6. MATERIAL: splints (cedar)
SHAPE: inverted, sub-rectangular, truncated cone (?)
BASE CONSTRUCTION: twill 2/2
BODY CONSTRUCTION: wrap around plaiting
EXTENSIONS: ?



(n=1, 5%)

LITTLE QUALICUM RIVER

QU-B1. MATERIAL: splints (cedar)
SHAPE: ?
BASE CONSTRUCTION: ?
BODY CONSTRUCTION: open wrapping
EXTENSIONS: handles 2 rows below rim

(n=2)

Fig. 26. (Continued)

Comparison of Basket Stylistic/Technological Classes from Northwest Coast Wet Sites

A comparison of the S/T basket classes recorded from all Northwest Coast wet sites reveals some significant similarities and dissimilarities. Table 37 lists the presence/absence of the different basket classes recorded from the sites. Those from a given site that are considered essentially equivalent or technically very similar to those from another are listed in the table legend. As can be seen, Ozette Village has the widest variety of distinct S/T basket classes. Some sites have many classes unique to themselves (e.g., Lachane and Musqueam Northeast), and some sites share similar classes (e.g., Fishtown and Conway). To measure the degrees of similarity in the occurrence of basket classes among sites, a close-proximity analysis, utilizing Jaccard's coefficient of similarity, Sj, was conducted.

The double-link chain series created from this analysis is illustrated in Fig. 27. This test is the framework for the discussion of intersite comparisons below.

As mentioned above, the basket classes occurring at northern Lachane are unique to that site which, therefore, does not link with any other in the chain series (Fig. 27). In a separate study, Lachane basket classes have shown a significant positive correlation with historic Coast Tsimshian museum baskets (Croes 1977). Inasmuch as the prehistoric Lachane site is in the center of the historic Coast Tsimshian regions, this strong prehistoric/historic correlation in basket technology helps support a hypothetical model of cultural continuity for at least 2,000 years as proposed by MacDonald (1969) and Croes (1977) for this northern coast region.

Table 37. Occurrence of basket classes at Northwest Coast wet sites

Basketry Classes	Ozette Village	Hoko River	Lachane	Axeti	Musqueam Northeast	Biederbost	Conway	Fishtown
LA-B1			+					
LA-B2			+					
LA-B3			+					
LA-B4			+					
AX-B1	+			+				
AX-B2	+	+		+				
AX-B3				+				
MU-B1		+			+			
MU-B2	+				+	+	+	+
MU-B3					+	+		
MU-B4					+			
MU-B5					+			
MU-B6					+			
MU-B7					+			
BI-B2a						+		
CO-B1						+	+	
CO-B2a							+	
CO-B4							+	
HO-B2	+	+						
HO-B3		+						
HO-B4	+	+						
HO-B5		+						
OB-1	+							
OB3 to OB9	(7) +							
OB11-to OB34	(24) +							
OB37 to OB43	(7) +							
OB45 to OB54	(10) +							
OB56	+							

The early Puget Sound/Gulf of Georgia sites of Musqueam Northeast and Biederbost have a strong basket class similarity correlation (Fig. 27). At both sites the checker plaited or open twining, cedar splint, sub-rectangular conical carrying-utility baskets are frequently recorded (MU-B2, MU-B3, BI-B1b and c, BI-B2b and c). Baskets of these classes commonly have double and single wrap body reinforcement rows and single opposing looped handles or looped handles in a series.

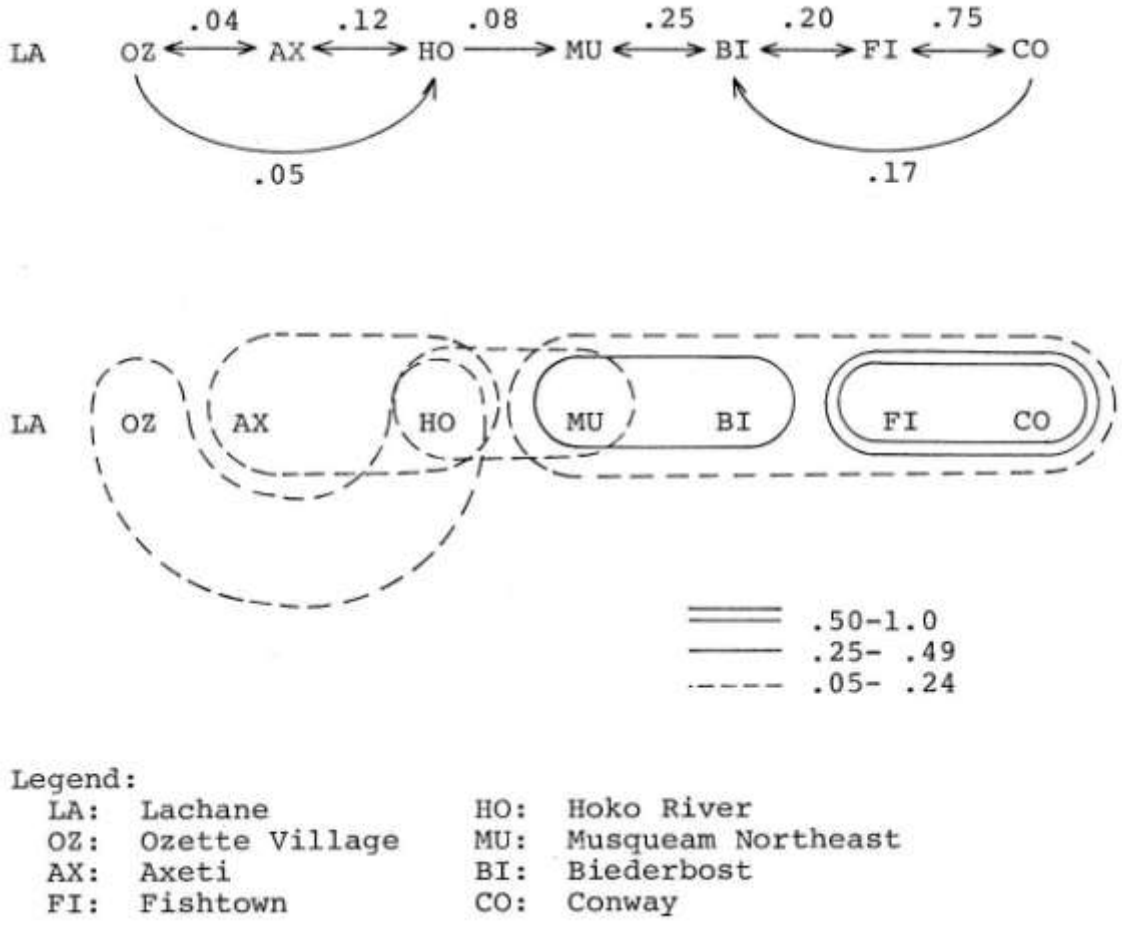


Fig. 27. Double-link close-proximity chain series for basket classes recorded at Northwest Coast wet sites. Degrees of similarity: 0 = no similarity to 1.0 = complete similarity.

Each site also contained distinct basket classes. Since these sites are somewhat separated spatially and temporally (Map 2), the high degree of technological similarity between the baskets of the two is significant. Some distinct form of cultural interrelationship and/or influence must have existed between the groups occupying these early sites. Though the English Camp site had too small a sample of baskets (n=l) for it to be included in the close-proximity test, the basket recorded is of the MU-B2 class (EN-B1) and very similar technologically to baskets recovered at Musqueam Northeast and Biederbost, Though undated, this San Juan Island site shows relationships through the basketry to the other Puget Sound/Gulf of Georgia sites.

The late Puget Sound/Gulf of Georgia sites of Fishtown and Conway have the strongest basket class similarity correlation (Fig. 27). The basket classes (including a distinct cradle form) are identical at these sites which are spatially very close (Map 1) but temporally separated by possibly 500 years.

At the lowest level of correlation (.05-.25, Fig. 27) all the major Puget Sound/Gulf of Georgia sites correlate with each other at least to the .1 to ,2 coefficient of similarity. Though not a strong correlation, these data provide evidence for techno-cultural continuity and interrelationship in this region.

Also at this lower level Ozette Village correlates with the Hoko River site at the .05 level (Fig. 27). These two south-central coast sites are spatially close, but temporally separated. The distinctive open wrapped burden basket (O344, HO-B1), the cedar bark, checker plaited trapezoid flat bags (OB10, HO-B4), and the plain twined, cedar bark, inverted cone basket classes (OB55, HO-B2) were found at both sites. These data support a hypothesis indicating some form of techno-cultural continuity and interrelationship in the south-central coast region distinct from the Puget Sound/Gulf of Georgia region.

Axeti and Hoko River correlate at the lowest level since they share a single basket class, the distinctive open wrapped burden basket. Because of this large temporal and spatial separation between these sites, and the fact that only one basket class was shared, this correlation is not considered significant.

Hoko River also correlates with the contemporary (early) Musqueam Northeast site at the lowest level because a single fragment of a MU-B1 basket was recovered at Hoko River (HO-B6). This wrap around plaited, twill 2/2 base, burden-utility basket is the most common class at Musqueam Northeast, and has been recorded only at this site and at Hoko River, Since the distinctive open wrapped burden basket (HO-B1) was the major Hoko River burden-utility basket class (unrecorded at Musqueam Northeast) and since only one MU-B1 occurred at Hoko River, this basket may not have been a common type and possibly was introduced through some form of contact from the Gulf of Georgia region (Hoko River is about 150 miles by the Straits of Juan de Fuca from Musqueam Northeast [Map 1]). Otherwise the basketry technologies from these two early and contemporary sites are generally dissimilar, and no strong inter-site relationships are suggested.

A slight similarity exists between Ozette Village, Fishtown, and Conway since a single example of a CO-B2 with opposing double-looped handles was found at Ozette Village.

Ozette Village and Axeti have some similarities in basket classes since both have large cedar bark storage baskets (AX-B1) and open wrapped burden baskets (AX--B2). These sites were approximately contemporary, but are spatially separate (Map 1).

These similarities probably are not significant and result only from the late contemporaneity of the sites; no strong inter-site relationship is suggested.

From these data, the areal continuity model of basketry technologies remains basically similar to models developed from the basketry attribute analyses (Figs. 2, 8, and 24). Lachane and Axeti

are separated and, as discussed above, other data indicate a stronger cultural/technological continuity between prehistoric Lachane and historic Coast Tsimshian basketry (Croes 1977). The areal continuity model, therefore, now consists of the following regions: northern coast, central coast, Puget Sound/Gulf of Georgia, and south-central coast (Fig. 28).

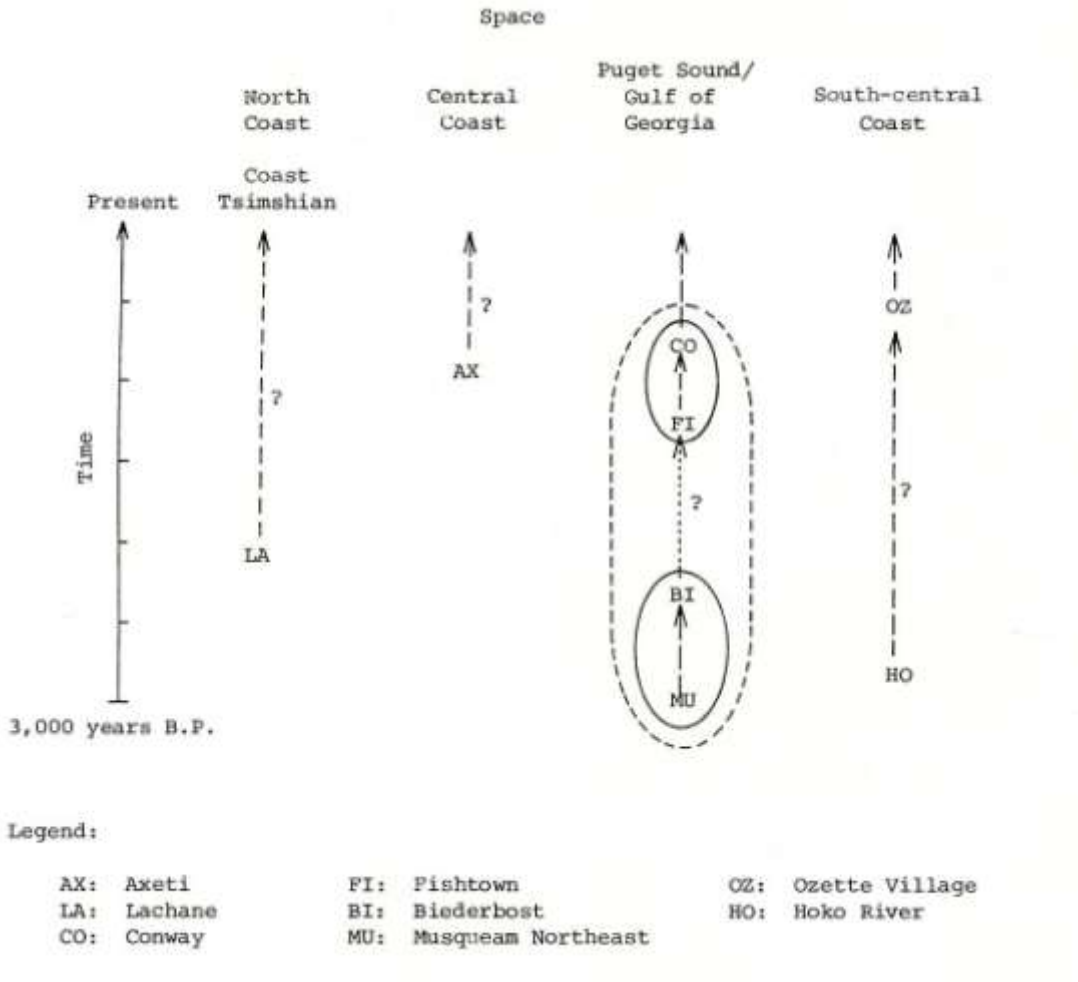


Fig. 28. Continuity model of site relationships through time and across space based on basket stylistic/technological classes.

In summary, the basket S/T classes from Northwest Coast wet sites appear to correlate in patterns similar to the individual basketry modes compared above. However, with the exception of Ozette Village, most basketry artifacts were fragmentary, requiring the reconstruction of basket classes. Though not as definite as the Ozette Village S/T basket classes, these classes

from other sites provide an indication of the major patterns of similarity. That the comparisons of basketry modes and classes generate similar and consistent models of inter-site regional continuity on the Northwest Coast is significant.

Ozette Village Hat Classification

The S/T classes of Ozette Village hats are defined by the combination of the following previously discussed dimensional features:

1. Construction materials.
2. Shape.
3. Body construction technique.
4. Inner layer/headband.

This classification excludes the following dimensional features:

5. Brim finish techniques.
6. Gauge of weave.
7. Size.
8. Ornamentation.

These last four dimensional features are excluded because:

1. Hat brim finish techniques are all basically the same, turned in finishes, and therefore are redundant in terms of the classification.

2. Gauge of weave and size are relevant to the understanding of the hat classes, but are discussed later, in the functional classification.

3. Since ornamentation on hats was basically a constructional combination of weaves, this is demonstrated under the dimensional feature of *body construction technique*. Other ornamentation techniques will be discussed separately.

The Ozette Village hat classes are defined in Fig. 29. The paradigmatic definitions are labeled OH1, OH2, OH3, etc., for Ozette Hat Class 1, Ozette Hat Class 2, Ozette Hat Class 3, etc. Any new classes can be added at the end as needed.

Potentially over 100 paradigmatic hat classes are possible in this classification considering only the Ozette Village hat modes and their possible combinations in the four dimensional features. However, only seven hat classes actually do occur at the site. This again indicates a cultural selection by the artisan of only certain combinations of these modes.

Ozette Village has the widest variety of hat classes recovered from a Northwest Coast wet site. Three general forms were common: the flat- top, the knob-top, and rounded-top conical hats. These hat styles ethnographically were worn by individuals with different social statuses or positions. The specific ranks or social meaning associated with hat shapes are discussed in the functional classification below. These S/T hat classes are the main units of reference in creating the functional classification and in comparing these hats with those recovered from other Northwest Coast wet sites.

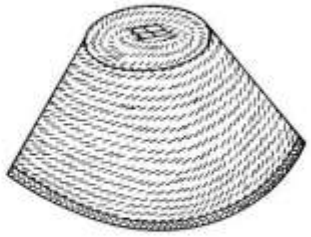
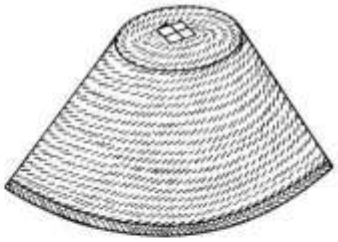
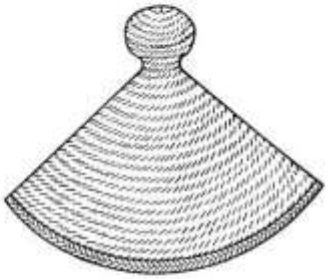
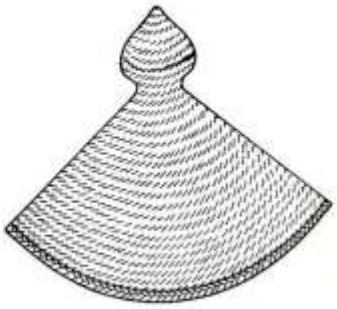
Definition	Illustration and Frequency of Occurrence
OH1. MATERIAL: cedar bark SHAPE: truncated (flat-top) cone BODY CONSTRUCTION: plain twining INNER LAYER/HEADBAND: inner layer with folded down headband	 (n=4, 27%)
OH2. MATERIAL: cedar bark SHAPE: assymetrical, truncated cone ("southwester") BODY CONSTRUCTION: plain twining INNER LAYER/HEADBAND: inner layer with folded down headband	 (n=1, 7%)
OH3. MATERIAL: cedar bark SHAPE: rounded knob-top cone BODY CONSTRUCTION: plain twining INNER LAYER/HEADBAND: inner layer with folded down headband	 (n=4, 27%)
OH4. MATERIAL: cedar bark SHAPE: "onion dome" knob-top cone BODY CONSTRUCTION: plain twining INNER LAYER/HEADBAND: inner layer with folded down headband	 (n=1, 7%)

Fig. 29. Stylistic/technological classification of Ozette Village hats.

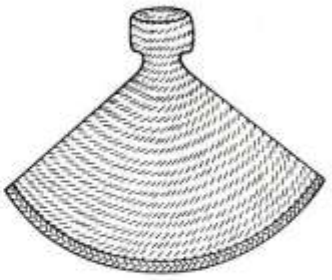
Definition	Illustration and Frequency of Occurrence
OH5. MATERIAL: combination, cedar bark (mostly), and splints (cedar root) SHAPE: cylindrical knob-top cone BODY CONSTRUCTION: plain twining INNER LAYER/HEADBAND: inner layer with folded down headband	 (n=1, 7%)
OH6. MATERIAL: splints (spruce (?) root) SHAPE: rounded-top cone BODY CONSTRUCTION: combination #4: alternate rows of a. plain twining, b. diagonal twining INNER LAYER/HEADBAND: no inner layer, attached headband	 (n=1, 7%)
OH7. MATERIAL: splints (spruce (?) root) SHAPE: rounded-top cone BODY CONSTRUCTION: combination #2: a. plain twining, b. (1 row 3 strand twining) c. diagonal twining, d. (1 row 3 strand twining), and e. "skip-stitch" twining INNER LAYER/HEADBAND: no inner layer, attached headband	 (n=3, 20%)

Fig. 29. (Continued)

Comparison of Reconstructed Hat Stylistic/Technological Classes from Other Northwest Coast Wet

As mentioned, few hats have been recovered from other sites. The hypothetical S/T classes reconstructed are defined in Fig. 30.

Definition	Illustrated Reconstruction and Frequency of Occurrence
AXETI	
AX-H1. MATERIAL: cedar bark SHAPE: rounded-top cone BODY CONSTRUCTION: "Ozette" combination #2: a. plain twining, b. diagonal twining, c. "skip-stitch" twining INNER LAYER/HEADBAND: ?	 (n=1)
AX-H2. MATERIAL: cedar bark SHAPE: rounded-top cone BODY CONSTRUCTION: Axeti combination #1: a. plain twining, b. checker plaiting, c. twill 2/2 plaiting, d. diagonal twining, e. twill 2/2 plaiting, f. checker plaiting INNER LAYER/HEADBAND: ?	 (n=1)
ENGLISH CAMP	
EN-H1. MATERIAL: cedar bark SHAPE: rounded-top cone BODY CONSTRUCTION: plain twining INNER LAYER/HEADBAND: ?	 (n=1)

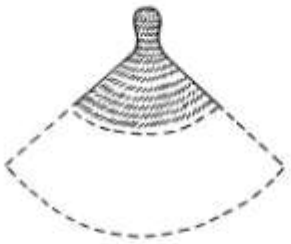
Fig. 30. Stylistic/technological hat class definitions and reconstructions recorded from other Northwest Coast wet sites.

Definition

Illustrated Reconstruction and Frequency of Occurrence

HOKO RIVER

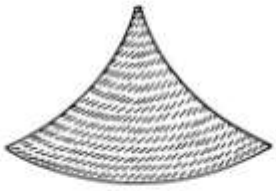
HO-Hl. MATERIAL: cedar bark
SHAPE: small knob-top cone
BODY CONSTRUCTION: plain twining
INNER LAYER/HEADBAND: ?



(n=2)

WAPATO CREEK FISH WEIR

WA-Hl. MATERIAL: cedar bark
SHAPE: concave sided cone
BODY CONSTRUCTION: plain twining
INNER LAYER/HEADBAND: inner cap "headband"



(n=1)

Fig. 30. (Continued)

In comparing prehistoric Northwest Coast hat classes, a close-proximity cluster analysis would be inappropriate because of the low frequency of hat classes. Instead, the hat classes from Northwest Coast wet sites are discussed in general below.

Hats, as would be expected, are not as common as other basketry items recorded from Northwest Coast wet sites. They are often, however, the most technically complex basketry objects at a site, and are therefore valuable for comparison and analysis.

The northern Axeti site has contributed two hats, and both are rounded-top conical, cedar bark hats with complex combinations of body weaves. The Axeti combination #1 hat body weave is

unique to this site. The other hat has an "Ozette" combination #2 body weave (Table 12) which, with "skip-stitch" twining, also is recorded on Ozette Village hats and is common on historic northern Northwest Coast spruce root hats. Hats of this weave technique may have been common at the northern Axeti site and possibly were introduced from the north to Ozette Village (see p. 83).

The rounded-top conical, cedar bark hat from English Camp is similar to other plain twined hat classes in the southern Northwest Coast area, but instead of a plain cedar bark warp, it has a twisted, two-strand, cedar bark string warp. This string warp technique has not been noted on hats at other sites.

The two cedar bark hats recovered from Hoko River are significant since they represent a style of knob-top hat dating to approximately 2,500 years B.P. Knob-top hats are common at Ozette Village and are recorded by ethnographers as status-markers of the upper class. Since the basketry at Hoko River generally appears to correlate with later Ozette Village and historic basketry in the Nootka/Makah area, this historic knob-top hat style obviously has early cultural origins, and may have had status-marking connotations even in the earlier periods. When the Hoko River site is further excavated, the variations in hat styles there will need to be carefully studied.

The single hat recovered from the Wapato Creek site appears to have a pointed conical shape. This hat has an inner cap forming an inner layer and headband.

In summary, conical, plain twined hats appear to be common along the Northwest Coast for at

least the last 2,500 years. Cedar bark appears to be the most common construction material, with, some examples of hats constructed o f root (possibly spruce),, Different hat crown shapes occur and may have had status-marking implications, as was the case historically. As more wet sites are excavated, these complex basketry items will be useful for comparison and for what they reveal of potential roles as status marking apparel.

Ozette Village Mat Classification

The combination of the following previously discussed dimensional features are used to define the S/T classes of Ozette Village mats:

1. Construction materials.
2. Shape.
3. Body construction techniques.
4. Edge/end construction techniques.
5. Size.

This mat classification, therefore, excludes gauge of weave and ornamentation for the following reasons:

1. Gauge of weave of mats is generally medium throughout and therefore is redundant in terms of classification.

2. Ornamentation on mats is very rare, and occurs only as constructionally distinct weaves in some mat classes. These different weaves, e.g., checker on bias, and twill on bias, are illustrated in the mat class definitions under body construction techniques, and are discussed in terms of the functional considerations of mat classes.

The Ozette Village mat classes are defined in Fig. 31 and are labeled OM1, OM2, OM3, . . . , meaning Ozette Mat Class 1, Ozette Mat Class 2, Ozette Mat Class 3, etc.

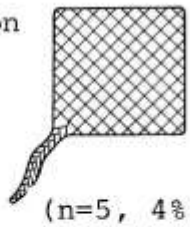
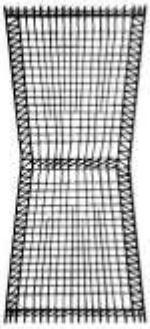
Definition	Illustration and Frequency of Occurrence
OM1. MATERIAL: cedar bark SHAPE: rectangle BODY CONSTRUCTION: plain bark sheet EDGE/END: unmodified/twined and cut off SIZE: small	 (n=38, 28%)
OM2. MATERIAL: cedar bark SHAPE: square with corner line extension BODY CONSTRUCTION: checker on bias EDGE/END: bent back/bent back SIZE: small	 (n=5, 4%)
OM3. MATERIAL: cedar bark SHAPE: square BODY CONSTRUCTION: checker EDGE/END: around and back/twined and cut off SIZE: small	 (n=8, 6%)
OM4. MATERIAL: cedar bark SHAPE: rectangle with constricted midline BODY CONSTRUCTION: checker (midline: 1 row twining) EDGE/END: around and back/twined and cut off SIZE: intermediate	 (n=10, 7%)

Fig. 31. Stylistic/technological classification of Ozette Village mats.

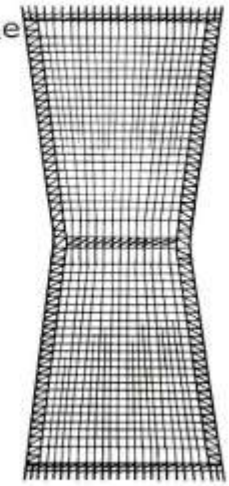
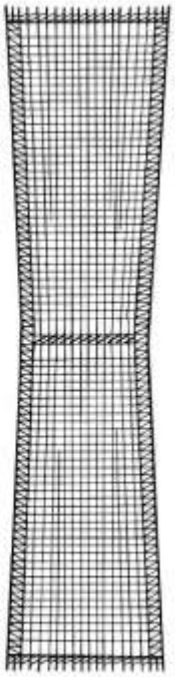
Definition	Illustration and Frequency of Occurrence
OM5. MATERIAL: cedar bark SHAPE: rectangle with constricted midline BODY CONSTRUCTION: checker (midline: 1 row twining) EDGE/END: around and back/twined and cut off SIZE: large	 (n=6. 4%)
OM6. MATERIAL: cedar bark SHAPE: rectangle with constricted midline BODY CONSTRUCTION: checker (midline: 1 row twining) EDGE/END: around and back/twined and cut off	 (n=7, 5%)

Fig. 31. (Continued)

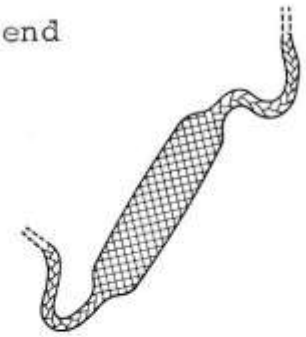
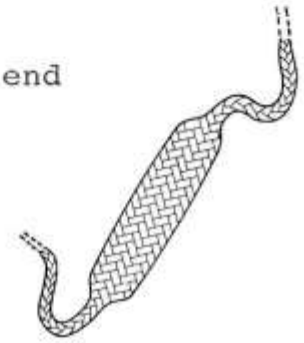
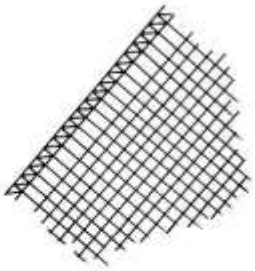
Description	Illustration and Frequency of Occurrence
OM7. MATERIAL: cedar bark SHAPE: narrow biconvex rectangle with end line extensions BODY CONSTRUCTION: checker on bias EDGE/END: bent back/braid line extensions SIZE: small	 (n=14, 10%)
OM8. MATERIAL: cedar bark SHAPE: narrow biconvex rectangle with end line extensions BODY CONSTRUCTION: twill on bias EDGE/END: bent back/braid line extensions SIZE: small	 (n=31, 23%)
Ozette Mat Fragments	
OMF1. MATERIAL: cedar bark SHAPE: indeterminate (rectangle with constricting midline ?) BODY CONSTRUCTION: checker EDGE/END: around and back/(twined and cut off ?) SIZE: indeterminate	 (n=301)
OMF2. MATERIAL: tule (cattail ?) SHAPE: indeterminate BODY CONSTRUCTION: sewn through EDGE/END: indeterminate SIZE: indeterminate	 (n=16, 12%)

Fig. 31. (Continued)

Potentially, over 500 paradigmatic mat classes are possible in this classification considering only the Ozette mat modes and the possible combinations in the five dimensional features. However, only nine mat classes actually do occur at the site. This again clearly indicates a cultural selection made by the artisan for only certain combinations of these modes. These combinations represent the basic units for further discussion of Ozette Village mats. In addition, classes of Ozette Village mat fragments (OMF) are included at the end of this classification. These Ozette fragments have characteristics unique to mats (flat intersecting corners, around and back edge constructions, sewn stems) but were too fragmented to identify as to shape, size, and other characteristics.

As with other categories of basketry, Ozette Village has the widest variety of mat forms recovered from a Northwest Coast wet site due to (1) the larger, more complete collection, and (2) the village context at Ozette. Generally, four flat mat forms are recorded at Ozette Village: the harpoon sheath (OM1); the smaller square mats (OM2 and OM3); the "true" long, constricted midline, cedar bark mats (OM4, OM5, OM6); and the tumpline straps (OM7 and OM8). Also, numerous fragments were recovered, including fragments of the "true" (OMF1), and tule/(cattail?) mats (OMF2). These general mat forms had specific functions which are discussed below. These S/T classes are the main units when comparing Ozette Village mats with mat classes recovered from other Northwest Coast wet sites.

Comparison of Reconstructed Mat Stylistic/Technological Classes from Other Northwest Coast Wet Sites

Only two other sites, the northern Axeti and Lachane sites, have examples of mats. The S/T mat classes reconstructed from these two sites are defined in Fig. 32. At both sites only fragmentary examples occur, and the actual complete mat shapes cannot be determined. The mats had been

constructed of cedar bark and in a checker weave. The mat edges and ends from both sites have the ending elements cut off and then anchored with twining or bent back a few stitches into the mat weave. This is unlike Ozette Village mat edges, where the elements had been wrapped twice around the edge element and then actively brought back into the body weave, i.e., the around-and-back mat edge technique. These basic differences separate the mat technologies of the northern sites from those of the Ozette site.

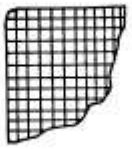
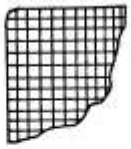
Definition	Illustrated Reconstruction, and Frequency of Occurrence
AXETI	
AX-M1. MATERIAL: cedar bark SHAPE: rectangular ? BODY CONSTRUCTION: checker EDGE/END CONSTRUCTION: bent down, turn in and back, or bent back	 (n=24)
LACHANE	
LA-M1. MATERIAL: cedar bark SHAPE: rectangular ? BODY CONSTRUCTION: checker EDGE/END CONSTRUCTION: bent down, turn in and back, or bent back	 (n=4)

Fig. 32. Stylistic/technological mat class definitions and reconstructions recorded from other Northwest Coast wet sites.

All sites recorded having mats—Ozette Village, Lachane, and Axeti—are here considered to be village sites. Therefore, a high frequency of cedar bark, checker weave mats at a site may be a correlation useful in suggesting that the site functioned as a village rather than as a special activity fishing/gathering station (see below).

Classes of Ozette Village Basketry Fragments

As would be expected, several basketry items recorded at Ozette and other sites are too fragmentary to identify as baskets, hats, or mats with complete certainty. These often can be assigned tentatively to specific basket, hat, or mat classes, as has been done when reconstructing classes from sites other than Ozette. To classify Ozette basketry fragments both construction material and technique have been employed. The 406 Ozette Village basketry fragments are classified in Table 38. Each of the twenty-two classes is labeled OF1, OF2, OF3, etc., for Ozette Basketry Fragment Class 1, 2, and 3, etc.

As can be seen in Table 38, the cedar bark, checker weave basketry fragment class (OF1) is of the highest frequency. Some of these fragments might have been parts of baskets, but more likely are parts of the common cedar bark, checker weave mats. The numerous mat fragments discussed above (OMF1, n=301), with the distinctive mat edges still attached, indicate that the majority of the OF1 fragments, without any edges remaining, probably were fragments of discarded and broken mats.

Other Ozette Village basketry fragment classes occur with a much lower frequency (Table 38). In general most of these appear to have been remains of basket base and body constructions. Some exceptions are the cedar bark, plain twined fragments (OF12), which probably are from hat body weaves, and the shredded cedar bark, open twined examples (OF13-OF15), that probably were examples of capes, skirts, blankets, or other forms of clothing.

Table 38. Classification of Ozette Village basketry fragments.

Class	Construction Material		Construction Technique	Number and Frequency of Occurrence
OF1	cedar bark	+	checker	290 (71%)
OF2	cedar bark	+	open twining	20 (5%)
OF3	cedar bark	+	twill 2/2	2 (1%)
OF4	cedar bark	+	alternate plain twining/checker	3 (1%)
OF5	cedar bark	+	checker IIa	1
OF6	cedar bark	+	checker IIb	4 (1%)
OF7	cedar bark	+	checker IIc	2 (1%)
OF8	cedar bark	+	checker II plaid	2 (1%)
OF9	cedar bark	+	twill 3/3	1
OF10	cedar bark	+	checker on bias	2 (1%)
OF11	cedar bark	+	twill on bias	1
OF12	cedar bark	+	plain twining	9 (2%)
OF13	cedar bark	+	shredded	7 (2%)
OF14	cedar bark	+	shredded warp/open twining in 2s weft	4 (1%)
OF15	cedar bark	+	shredded warp/open twining weft	4 (1%)
OF16	cedar splints (boughs)	+	twill 2/2	13 (3%)
OF17	cedar splints (boughs)	+	open wrapping	2 (1%)
OF18	cedar splints (boughs)	+	checker	1
OF19	cedar splints (boughs)	+	open twining	13 (3%)
OF20	cedar splints (boughs)	+	cross-warp twining	1
OF21	cedar splints (roots)	+	plain twining	10 (2%)
OF22	cedar splints (roots)	+	coiling	15 (4%)
			Total	406 (100%)

Comparison of Basketry Fragments Recorded at Other Northwest Coast Wet Sites

When basketry fragments from other Northwest Coast wet sites could not be assigned properly to a basketry class they were considered distinct basketry fragments and classified using the same

criteria as used in the Ozette basketry fragment classification. These classes are defined in Table 39. Some of them are discussed below.

Table 39. Classes of basketry fragments recorded at other Northwest Coast wet sites.

Class	Construction Material		Construction Technique	Number of Occurrence
LACHANE				
LA-F1	cedar bark	+	checker	6
AXETI				
AX-F1	cedar bark	+	checker	64
AX-F2	cedar bark	+	twill 2/2	2
AX-F3	cedar bark	+	checker on bias	3
MUSQUEAM NORTHEAST				
MU-F1	cedar (?) splints (root)	+	plain twining	9
MU-F2	cedar splints (boughs)	+	twill 3/3	2
CONWAY				
CO-F1	cedar bark	+	checker	2
FISHTOWN				
FI-F1	cedar bark	+	checker	1
FI-F2	cedar bark	+	plain twining	1
FI-F3	cedar bark	+	twill 2/2	1
FI-F4	cedar bark	+	shredded (twined edge)	4
LITTLE QUALICUM RIVER				
QU-F1	cedar bark	+	checker	2

The occurrence of cedar bark, checker weave basketry fragments is highest at the Lachane (LA-F1, n=6) and Axeti (AX-F1, n=64) sites. This correlates closely with the high occurrence of this fragment class at the Ozette Village site (OF1, n=290). As mentioned, these three sites have the only significant occurrence of cedar bark, checker weave mats, and these fragments were,

therefore, probably mats. This again can be considered partially indicative of the village type occupation of these three sites.

The checker on bias fragments from Axeti (AX-F3) probably had been tumpline straps.

The splints (root), plain twined fragments occurring at Musqueam Northeast (MU-Fl) originally may have been from small baskets or hats. The cedar splint, twill 3/3 fragments (MU-F2) probably had been basket bases (Croes 1975).

The cedar bark, plain twined fragments recorded at Fishtown (FI-F2) and Hoko River (HO-Fl) probably are from small baskets or hats.

The single example of a root constructed, coiled basketry fragment from Fishtown is the only example of coiled basketry recorded outside of Ozette.

The shredded cedar bark fragments at Hoko River (HO-F4) are twined along the upper edges, and probably represent skirt fragments. If so, this is the earliest recorded example of bark shredding for clothing on the Northwest Coast.

In summary, basket fragments are common at prehistoric Northwest Coast wet sites and are useful in some respects for comparative analyses. In most cases basketry fragments of a particular material and construction technique are found in similar proportion to these characteristics on identified basketry items (i.e., baskets, hats, mats) from a site. However, some techniques have been recorded only on basketry fragments, providing important new data.

A Summary of the Analysis and Comparison of the Basketry Classes Recorded at Ozette Village and Other Northwest Coast Wet Sites

Basketry classes are defined in this section for Ozette Village and other Northwest Coast wet sites. Since they represent the combination of specific basketry modes at each site, the occurrence of similar basketry classes at different sites might represent some form of cultural relationship or interaction among sites. To measure this the basket classes recorded at each site were compared in a close-proximity analysis (Fig. 27), but hat and mat classes were too limited in numbers for individual tests. At this point all basket, hat, and mat classes will be compared in a single test of the similarity or co-occurrence of specific classes. The presence/absence chart (Table 40) indicates which basket, hat, and mat classes occurred, and the legend indicates which basketry classes are considered equivalent. As a result ninety-one distinct basketry classes emerge. Unfortunately, because of the fragmentary nature and limited number of basketry artifacts, most sites have a limited number of basketry classes represented. The results are, therefore, somewhat weaker than might be desired, but they may indicate the general patterns of site association. The test used is again the average linkage cluster analysis, on a matrix of *Jaccard's coefficient*.

Table 40. Occurrence of basketry classes recorded from Northwest Coast wet sites

Basketry Classes	Ozette Village	Hoko River	Lachane	Axeti	Musqueam Northeast	Biederbost	Conway	Fishtown
LA-B1			+					
LA-B2			+					
LA-B3			+					
LA-B4			+					
AX-B1	+			+				
AX-B2	+	+		+				
AX-B3				+				
MU-B1		+			+			

Basketry Classes	Ozette Village	Hoko River	Lachane	Axeti	Musqueam Northeast	Biederbost	Conway	Fishtown
MU-B2	+				+	+	+	+
MU-B3					+	+		
MU-B4					+			
MU-B5					+			
MU-B6					+			
MU-B7					+			
BI-B2a						+		
CO-B1							+	+
CO-B2a							+	+
CO-B4							+	
HO-B2	+	+						
HO-B3		+						
HO-B4	+	+						
HO-B5		+						
OB-1	+							
OB3 to OB9	(7) +							
OB11-to OB34	(24) +							
OB37 to OB43	(7) +							
OB45 to OB54	(10) +							
OB56	+							
AX-H1	+			+				
AX-H2				+				
HO-H1	+	+						
OH1	+							
OH2	+							
OH4	+							
OH5	+							
OH6	+							
AX-M1			+	+				
OM1 to OM8	(8) +							
OMF1 to OMF2	(2) +							

NOTE: Basketry classes considered equivalent are: AX-B1 = OB2; AX-B2 = OB44 = HO-B1; MU-B1 = HO-B6; MU-B2 = BI-B2c = OB35 = CO-B2b = FI-B2b; MU-B3 = BI-B1c; CO-B1 = FI-B1; CO-B2a = FI-B2a = OB36; HO-B2 = OB55; HO-B4 = OB10; AX-H1 = OH7; HO-H1 = OH3; AX-M1 = LA-M1.

The resulting dendrogram is illustrated in Fig. 33. As can be seen, it is similar to the one resulting from the comparison of separate basketry modes occurring at these sites (Fig, 24). This is significant since the comparison of distinct combinations of basketry modes as basketry classes would not necessarily be expected to produce the same or similar results as the

comparison of separate basketry modes. In some cases, e.g., the Lachane basket classes, the manner of combination of the basketry modes into basket classes was unique to the site and would separate this site from others even though separate Lachane basketry modes might be shared with other sites. Therefore, though the comparative sample size was limited, the comparisons of the composite (paradigmatic) basketry classes can be considered in some ways a more sensitive test than simply comparing separate basketry modes. The resulting average-linkage dendrogram is the basis for the following discussion.

Ozette Village and Hoko River sites again show closest relationships with each other (Fig. 33A). Ozette Village has such an overwhelming number of basketry classes that the smallest degree of association could be considered potentially significant. It shares with Hoko River three general basket classes and one general hat class. The additional factor of spatial closeness (Map 2) provides another basis for supporting some form of techno-cultural continuity through time in this south-central coast region.

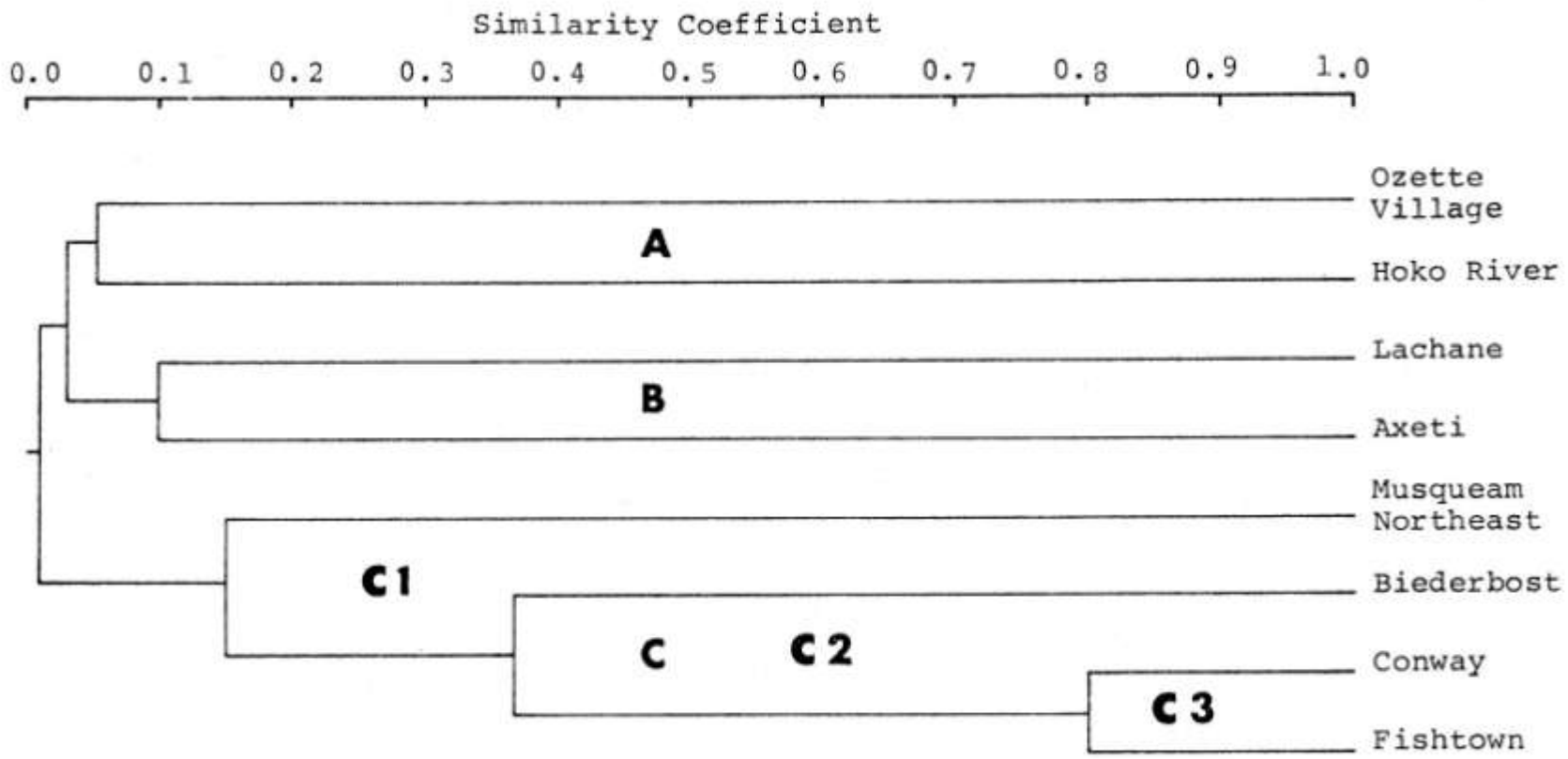


Fig. 33. Dendrogram representing average linkage cluster analysis of Northwest Coast wet site basketry classes on a matrix of Jaccard's coefficient. Degrees of similarity: 0 = no similarity to 1 = complete similarity.

The northernmost sites, Lachane and Axeti, again show closest relationships with each other (Fig. 33B). Lachane does not share basket classes with any other site (p. 230), and on a technological basis it shows greater similarity to historic Tsimshian baskets of that region (Croes 1977). However, the form of mat classes recovered at Lachane and Axeti are considered similar. Although neither site has complete mats represented, the fragments are similar in construction material, body weave, and edge/end construction (shapes could not be determined). Axeti shares basketry classes with Ozette Village (n=3) and Hoko River (n=l) and these data are responsible for the connections among these sites shown in the dendrogram (clusters A and B). That Axeti and Lachane show relationship probably is of a low and general level of significance, possibly indicating some form of northern regional pattern. However, since these sites are temporally and spatially separate, and dissimilar in most basketry classes, a significant techno-cultural association is not suggested.

The strong clustering of the Puget Sound/Gulf of Georgia sites is considered significant (Fig. 33C). The basketry classes recorded from the sites in this regional area cluster at a progressively higher level, corresponding with the temporal sequence recorded for these sites.

The early sites of Musqueam Northeast (approximately 3,000 years B.P.) and Biederbost (approximately 2,000+ years B.P.) cluster, having basketry classes that are stylistically/technologically similar. Musqueam Northeast has, however, several basket classes with combinations of body weave techniques (defined above) or with the distinct wrap around plaiting body weave technique which would tend to separate this site from Biederbost. These early sites share cedar splint, twill 3/3 base, open twined or checker plaited body, sub-rectangular conical baskets with double and single wrap body reinforcement rows. English Camp has a

single example of this kind of basket and, therefore, associates closely with the other early Puget Sound/Gulf of Georgia sites. The basket classes from these three sites are representative of an early style of Puget Sound/Gulf of Georgia carrying-utility basket.

At a higher level of association, Biederbost clusters with the later Puget Sound sites of Conway and Fishtown (Fig. 33, C2). Since Biederbost is later in time than Musqueam Northeast, the basketry from this site, if related, would be expected to cluster between the earlier and later sites. In general, however, Biederbost shared more basketry mode characteristics with Musqueam Northeast than with the later sites (p. 198).

The late Puget Sound sites of Conway and Fishtown are at the highest level of basketry class similarity in this regional clustering (Fig. 33, C3). These sites spatially are very close, located on the Skagit Delta (Map 1 and 2), but possibly temporally separated by approximately 500+ years. These sites probably represent culturally equivalent groups in this area.

In summary, basketry classes from the Northwest Coast wet sites appear to associate in a pattern similar to that of basketry modes (p. 195, Fig. 24). These data strongly support the patterns of regional continuity through time of basketry technologies and styles on the Northwest Coast as represented in Fig. 24A and Map 2. Though these tests should be considered weak in some respects, the emerging patterns of similarity and association can be considered important. As more Northwest Coast wet sites are discovered and excavated, the models based on basketry data will become more detailed and comprehensive. Because of its highly complex and therefore sensitive nature, basketry probably will become an increasingly valuable artifact category for developing chronologies and for understanding the development and interrelationships of

different prehistoric and historic cultural manifestations on the Northwest Coast.

The basketry classes established in this section will now be used as the main reference units in a consideration of the function of basketry items at Ozette Village and other Northwest Coast wet sites. An examination of the actual role of basketry objects and classes at Ozette Village and other sites will provide valuable information concerning so me of the activities which took place at these sites.