

AN ABSTRACT OF THE THESIS OF

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Richard E. Ross

The Philpott site (35CS1) is located on the north bank of the Coquille River near Bandon, Oregon. Test excavations at the site were conducted in 1978 by Oregon State University under the direction of Richard E. Ross.

One artifact assemblage and one distinct component were defined during the analysis of the site. The remnants of fish weirs were present in the adjacent beach zone. Charcoal samples from the upper and lower levels of the component yielded dates of 250 ± 40 BP and 570 ± 50 BP, respectively. The location of the site and the presence of fish weirs, coupled with the artifact and faunal assemblages, indicate that 35CS1 was utilized on a seasonal basis as a fishing camp. Raw materials used in the manufacture of lithic tools also were obtained from the adjacent beach zone.

Based on the testing data, the Philpott site was nominated to and subsequently placed on the National Register of Historic Places in January, 1980. To date it is the only prehistoric coastal site in Oregon on the register.

AN ANALYSIS OF LITHIC TOOLS AND DEBITAGE FROM 35CS1: A
PREHISTORIC SITE ON THE SOUTHERN OREGON COAST

by

John Allen Draper

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APPROVED:

Redacted for privacy

Professor of Anthropology in charge of major

Redacted for privacy

Chairman of Anthropology

Redacted for privacy

Professor of History

Redacted for privacy

Professor of History of Science

Redacted for privacy

Graduate Representative

Redacted for privacy

Dean of the Graduate School

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Typed by Linda Morgan for John Allen Draper

TABLE OF CONTENTS

CHAPTER I	
Introduction	1
Environmental Setting	3
Geology	3
Flora	5
Fauna	6
Site Description	8
Descriptive Archeology	9
CHAPTER II	
Archeological Background	18
Northern Oregon Coast	20
Central Oregon Coast	21
Southern Oregon Coast	24
CHAPTER III	
Ethnographic and Historic Background	31
CHAPTER IV	
Methodology	39
CHAPTER V	
Lithic Manufacturing Stages at 35CS1	45
Selection of Raw Materials	45
Stage 1	45
Primary Flaking: Production of the Preform	47
Stage 2	47
Stage 3	48
Secondary Flaking: Production of the Finished Tool	49
Stage 4	49
Stage 5	49
CHAPTER VI	
Discussion and Conclusions	51
Prehistoric Function of 35CS1	51
Cultural Affiliations	75
References Cited	81
APPENDIX A: Artifact Descriptions and Photographs	90
APPENDIX B: Selected Soil Profiles	126

LIST OF ILLUSTRATIONS

Figure		Page
1	Area of Philpott site (35CS1) on the Oregon coast . . .	1
2	Location of test pits and auger holes	11
3	North-south cross section of 35CS1 revealed by augering	13
4	Remnants of fish weirs at 35CS1	14
5	Location of sites investigated since the early 1930s .	19
6	Schematic view of lithic manufacturing sequences at 35CS1	46
7	Fire hearth feature at 35CS1, Test Pit I	53
8	Comparison of cryptocrystalline, quartzite and obsidian types between the flaked stone tools and debitage, 35CS1	63
9	Archeological sites and areas of relevance to the summary and conclusions	77
10	Projectile points	110
11	Secondary blanks (preforms)	111
12	Knives, drills, gravers	113
13	Scrapers	115
14	Choppers	118
15	Hammerstones	119
16	Pestle	121
17	Adze blades	122
18	Line (net) sinker	123
19	Cores	124
20	Miscellaneous artifacts	125
21	Soil Profile: Test Pit A (west wall)	126
22	Soil Profile: Test Pit E (west wall)	127
23	Soil Profile: Test Pit G (north wall)	128

LIST OF TABLES

Table	page
1 Reported carbon 14 dates for Oregon coastal sites	30
2 Artifact assemblage, 35CS1	54
3 Faunal remains, 35CS1	58
4 Summary of selective attributes derived from the lithic debris, 35CS1	62
5 Summary of manufacturing attributes derived from the lithic debris, 35CS1	66
6 Composition and reduction techniques exhibited by complete flakes in sample	68
7 Fire cracked rock	72
8 Thickness of midden deposits	72
9 Geographic distribution of projectile point types found at 35CS1	76

AN ANALYSIS OF
LITHIC TOOLS AND DEBITAGE FROM 35CS1:
A PREHISTORIC SITE ON THE SOUTHERN OREGON COAST

CHAPTER I

Introduction

Prior to 1972, archeological investigations of prehistoric sites on the Oregon coast can be characterized as shortlived, often haphazard, yielding little more than a listing of artifact types. In 1972, however, excavations began at the Seal Rock site (35LNC14) which marked the first longterm commitment to the study of marine, estuarine and riverine adaptations of the prehistoric peoples who once occupied the entirety of the Oregon coast. The excavations were conducted under the direction of Dr. Richard Ross, Oregon State University. Since the 1972 field season at Seal Rock, archeological investigations have been conducted by Oregon State University at the Neptune site (35LA3) near Yachats in 1973; Bullard's Beach (35CS3) and Seal Rock in 1974; Port Orford (35CU9) in 1976; site 35TI47 near Tillamook, the Gordon Ross site (35CS42) at Coos Bay, and the Philpott site (35CS1) near Bandon in 1978; and the Umpqua Eden site (35D083) in 1978 and 1979.

The research material utilized in this paper resulted from test excavations conducted at the Philpott site (35CS1) in 1978 under the direction of Richard Ross. The Philpott site was investigated

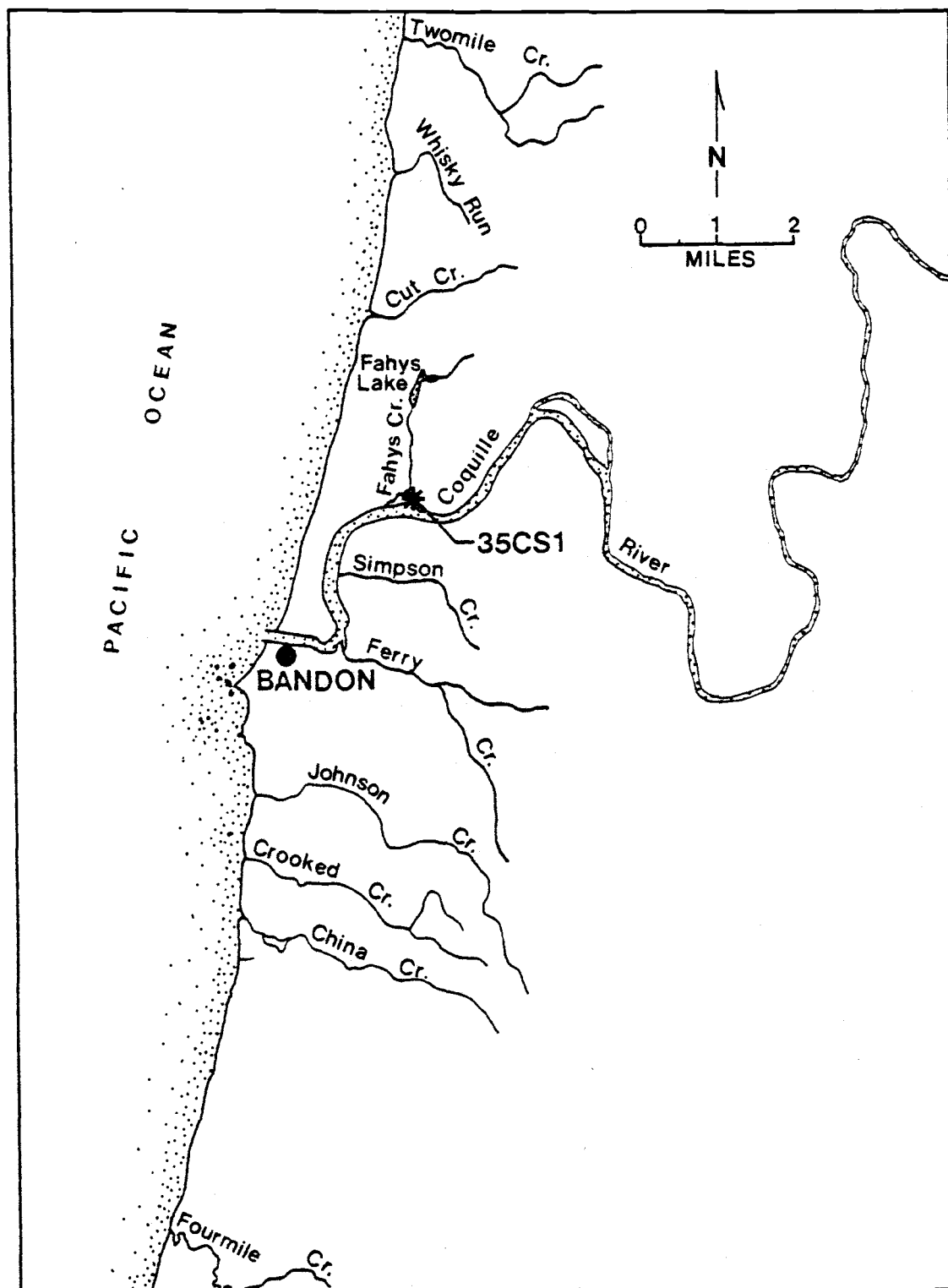


Figure 1. Area of Philpott site (35CS1) on the Oregon coast.

because of its location on the southern Oregon coast, a virtually unknown archeological area, and the impending riprapping of an earthen levee situated on top of the site which would hinder, if not prevent, future investigation of the site. The lithic artifacts and debitage materials recovered from 35CS1 during the 1978 field season will provide a framework for comparative studies with data from both past and future excavations on the coast.

Environmental Setting

Geology

The Philpott site (35CS1) is located in the southern portion of the Coast Range Physiographic Province (Figure 1). As defined by Ewart Baldwin (1976:1), the Coast Range Physiographic Province extends northward from the Middle Fork of the Coquille River in Oregon to the Willapa Hills in southwestern Washington. The Willamette Valley and Puget Sound lowlands mark the eastern boundary of the Coast Range. In general, the southern Oregon coast is characterized by steep mountain slopes and sharp ridges, and is considered topographically mature. Most peaks range from 450-750 meters in elevation. A narrow coastal plain lies between most rocky headlands along the western slope of the Coast Range.

Baldwin (1945) has named the Pleistocene sediments in the Bandon area the Coquille Formation, which were deposited during the Sangamon or an intra-Wisconsin glacial stage. The lowest sediments

of the formation may extend 75-100 meters below the present sea level. Marine terraces located south of Bandon were formed during the late Pleistocene as a result of fluctuating sea levels and are seldom more than 40 meters above the present sea level (Baldwin 1976:32).

The Coquille River assumed its present position when it cut through the Coast Range during a period of Late Cenozoic uplift. During the late Pleistocene, the mouth of the Coquille River was filled with Coquille Formation sediments creating the present bay. The floodplains and natural levees found along the Coquille River also were formed during the late Pleistocene (Baldwin 1976:35).

Soils at 35CS1 belong to the Coquille series of deep, poorly drained soils derived from alluvium deposited during episodic flooding. This type of soil is commonly found in the tidal flats and floodplain zones along the lower reaches of the Coquille River. Surface soil (35-50 centimeters thick) is generally a dark grayish brown silty loam, while the subsoil (50 cm to 1 meter thick) consists of a dark grayish brown silty clay loam. These deposits lie atop a very dark bluish gray silty clay (Agricultural Experiment Station 1969).

Climatically, the Coast Range Physiographic Province is characterized by mild temperatures; wet, mild winters; relatively cool, dry summers; and a long frost free season. Average annual precipitation is 40-45 inches and 52-54°F, respectively. Infrequent snowfall may add to the annual precipitation (Franklin and Dyrness 1973:38).

Flora

The Philpott site (35CS1) is situated in the Picea sitchensis Zone as defined by Jerry Franklin and C. T. Dyrness (1973) which extends along the entirety of the Oregon and Washington coasts. The dense coniferous forests in this zone are comprised of Sitka spruce (Picea sitchensis), western hemlock (Tsuga heterophylla), western redcedar (Thuja plicata), Douglas fir (Pseudotsuga menziesii) and grand fir (Abies grandis). Lodgepole pine (Pinus contorta) is present in some localities along the coast and red alder (Alnus rubra) is present on disturbed sites. Small stands of coast redwood (Sequoia sempervirens), myrtlewood (Umbellularia californica) and Port Orford cedar (Chamaecyparis lawsonia) also are present. Understory species found in association with the coniferous forests include swordfern (Polystichum munitum), salal (Gaultheria shallon), Pacific rhododendron (Rhododendron macrophyllum) and hairy manzanita (Arctostaphylos columiana) (Franklin and Dyrness 1973). Edible plant resources such as red huckleberry (Vaccinium parvifolium), evergreen huckleberry (V. ovatum), red elderberry (Sambucus racemosa), salmonberry (Rubus spectabilis) and thimbleberry (R. parviflora) also are present.

To date only one reported palynological study has been conducted in the vicinity of the Philpott site (35CS1). H. P. Hansen (1947), utilizing pollen samples taken from peat bogs located near Bandon, concluded that the vegetation and climate in the Bandon area and along the southern Oregon coast had not changed significantly during the last 6,000-7,000 years.

Fauna

Land mammals present in the forested foothills, estuary and coastal zones near Bandon include blacktail deer (Odocoileus hemionus), black bear (Ursus americanus), raccoon (Procyon lotor) and brush rabbit (Sylvilagus bachmani). Elk (Cervus canadensis) were at one time plentiful prior to extensive Euroamerican settlement and development of the region. Other species found locally include ground squirrel (Citellus beecheyi), bobcat (Lynx rufus) and beaver (Castor canadensis) (Burt and Grossenheider 1976).

A variety of sea mammals are present along the southwestern Oregon coast at various times of the year. Stellar sea lions (Eumetopias jubata) and California sea lions (Zalophus californianus) migrate along the coast during portions of the year, occasionally hauling out or establishing rookeries on rocky and sandy beaches or on offshore rocks. Northern fur seals (Callorhinus ursinus) winter in the open sea off the Oregon coast between November and February. Sick animals, because of their weakened condition, sometimes haul out on beaches. Harbor seals (Phoca vitulina) are present throughout most of the year and are found in both riverine and marine estuaries (Snyder 1978). Both stellar sea lions and harbor seals have been observed up river drainages for distances up to seventy-five miles (Scheffer 1958; Ingles 1965).

Three species of Pacific salmon, an important aboriginal food resource, annually migrate up the Coquille River and many of its

tributaries. Salmon species include chinook (Oncorhynchus tshawytscha), chum (O. keta) and coho (O. hisutch) which are present in the Coquille drainage system during the late summer and fall. Adult coastal cutthroat trout (Salmo clarki clarki) also are present during the same period (Snyder 1907). Other species seasonally available include herring (Clupea haringus pallosi) which spawn in the estuary during the winter, and surfsmelt (Hypomesus pretiosus) which spawn on gravelly beaches during the summer.

Several varieties of fish are present throughout the year in the bay and estuary zones at the mouth of the Coquille River. These include pile perch (Rhadophilus vocea), buffalo sculpin (Enophrys bison), Pacific staghorn sculpin (Septocottus armaturo), starry flounder (Platichthys stellatus) and cabezon (Scorpaenichthys marmoratus). White sturgeon (Acipenser transmontanus) can be found in both fresh and saltwater environments as it travels back and forth from the coast to upstream localities during periodic feeding and spawning migrations (Beardsley and Bond 1970).

Sandy, gravel and mudflat areas situated within the protected waters of the bay and estuary zone sustain numerous bivalve mollusc species. Giant horse clam (Modiolus rectus), gaper clam (Schizothaerus nuttalli), basket cockle (Clinocardium nuttalli) and butter clam (Saxidomus giganteus) are abundant in the mudflat and sandy tidal zones which are exposed during low or minus tides. Pacific scallop (Pectori caurinus), sand clam (Macoma secta) and littleneck clam (Venerupis tenerrime) also are present in these zones (Quayle 1974; Ricketts and Calvin 1976).

Several varieties of avifauna inhabit the coastal and estuarine habitats in the vicinity of the Philpott site (35CS1). These include at least six species of gull (Larus species), Brandt's cormorant (Phalacrocorax penicillatus) and great blue heron (Ardea herodias). The coniferous forests in the area support large numbers of band-tailed pigeon (Columba fasciata), crow (Couris brachyrhynchos) and raven (C. corax). Pileated woodpecker (Dryocopus pileatus) also are present (Peterson 1961). It should be noted that the scalp of the pileated woodpecker was valued as a wealth item by aboriginal groups along the entirety of the southern Oregon coast.

Site Description

The Philpott site (35CS1) is situated on the north bank of the Coquille River approximately one mile northeast of Bandon and approximately 1.5 miles inland from the coast. The site is located in the NW 1/4 of the SE 1/4 of Section 17, Township 27S, Range 14W (Figure 1). During the winter and spring of 1976 and 1977, flooding of the Coquille River breeched a section of an earthen levee located on the southern perimeter of 35CS1. To prevent further slumpage and erosion, the landowner obtained a permit from the Army Corps of Engineers in 1978 to riprap that portion of the levee situated on his land. Upon learning of this decision, the Anthropology Department, Oregon State University obtained permission to conduct test excavations at the site prior to its being covered with rock.

However, fearing that possible seepage from the Coquille River into the test units might cause further slumpage and loss of soil, the landowner restricted testing operations to those portions of the site 15 meters or more away from the levee.

A portion of the site along its southern perimeter has been destroyed by the Coquille River as its course has shifted slightly to the north. The fluctuating level of the river due to the ebb and flow of the tide has also contributed to the partial destruction of the site. The site area and adjacent land is currently used as pasture for a large herd of dairy cattle. Occasional plowing and reseedling of the pasture area during the last 80 years has caused some disturbance in the surface soils which protect the site. It is from this "plow zone" area that the historic cultural material--bottle and glass fragments--was recovered.

Descriptive Archeology

Test excavations at 35CS1 were conducted over a three week period in July of 1978 under the direction of Richard Ross. Isaac N. Barner and John A. Draper served as field supervisors for the project. Initially, an east-west transect tied into primary and secondary datum points was superimposed over the site to maintain horizontal control. Transit, leveling rod and line levels were used to maintain vertical control. Two 2 x 2 meter test pits (A and B) were excavated along this transect. Test pit C was placed in the center of a rather lush, circular growth of pasture grasses and weeds thought to be a possible

house pit depression (Figure 2). The sterile overburden deposits were excavated in arbitrary 20 cm levels by skim shoveling. Midden and underlying deposits in each test unit were excavated in arbitrary 10 cm levels by skim shoveling and troweling. All test pits were excavated to a depth of at least 70 centimeters. All excavated materials were screened through 1/4 inch mesh hardware cloth.

The 8-10 centimeters of midden deposits found in test pits A and B, and 4-5 centimeters of midden deposits found in test pit C yielded little cultural material, indicating that the east-west transect had been established near the northernmost perimeter of the site. No cultural materials of aboriginal manufacture or features typically associated with a prehistoric coastal house were found in test pit C.

To more precisely locate the site boundaries and thickest midden deposits, a north-south and east-west series of auger holes were excavated at 10 meter intervals with a 4 inch auger. This task was simplified somewhat as the midden deposits were readily visible along the river bank at low tide, enabling one to discern the east-west dimensions of the site along its southern perimeter.

The series of excavated auger holes revealed (1) the existence of a rather large, relatively undisturbed archeological site; (2) that the midden deposits throughout the site were protected by a 30-60 cm layer of sterile alluvial overburden which had been deposited during episodes of periodic flooding; (3) the thickest deposits of midden soil containing prehistoric cultural material were located near the base of the levee; and (4) that seepage from the Coquille River within the excavated

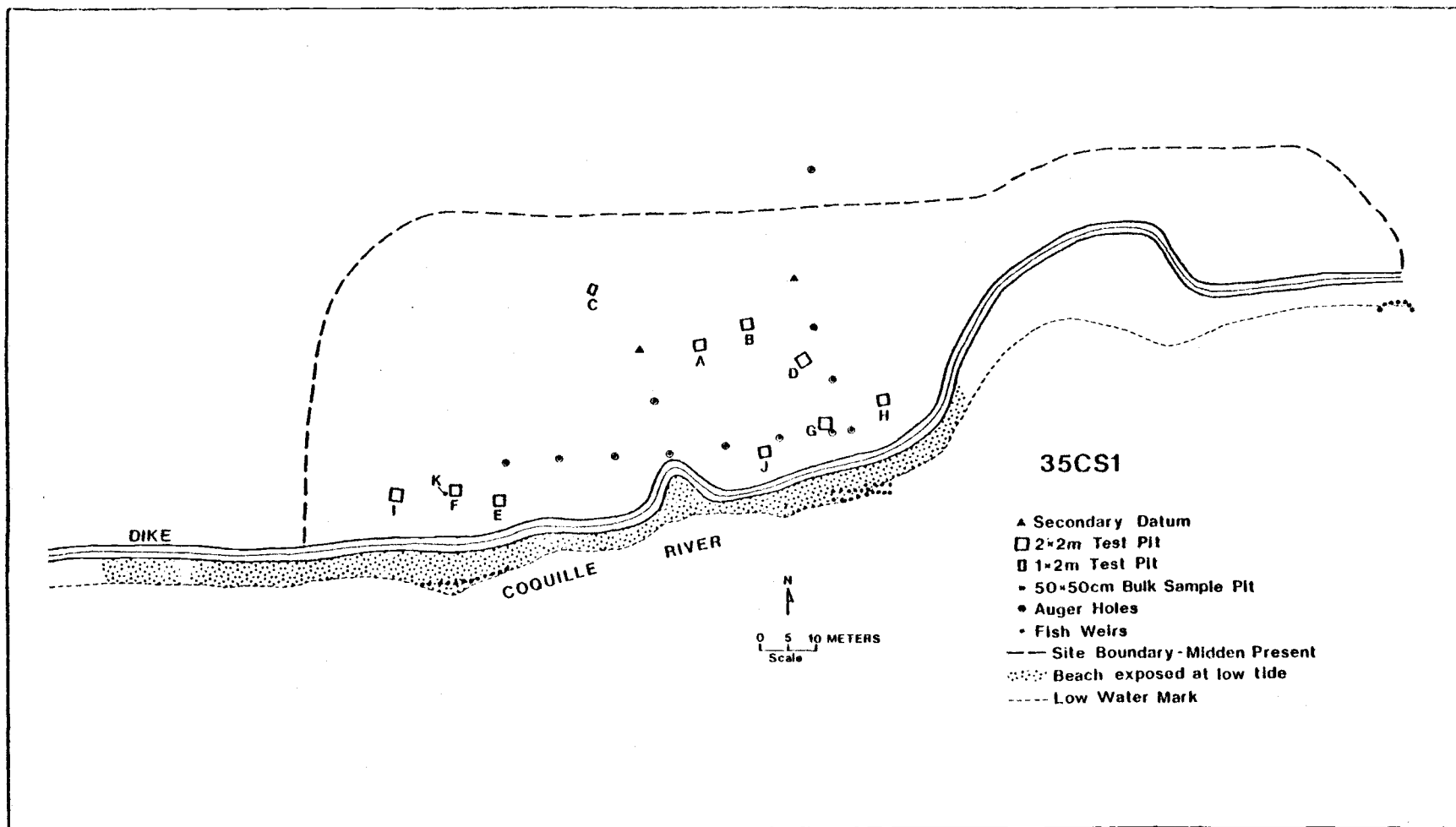


Figure 2. Location of test pits and auger holes.

test units did not occur unless excavation reached a blue-gray clay strata situated approximately 30 cm beneath the midden deposits (Figure 3). After considering this information, the landowner consented to the placement of the remaining test units nearer to the levee.

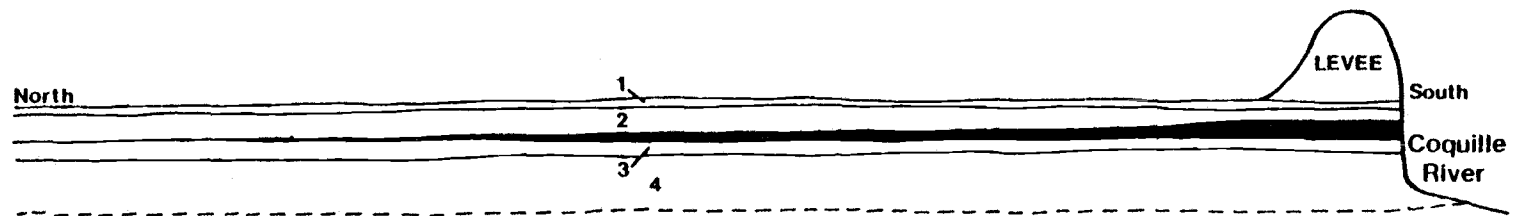
Because of time constraints, the remaining 2 x 2 meter test pits (D-J) were placed near the base of the levee where the midden deposits were thickest. This procedure was undertaken to maximize the sample of cultural material recovered from the site. All test pits were excavated to a depth of 60 cm or more with the exception of test pit J, which was excavated to a depth of 30 centimeters.

A 50 x 50 cm test pit also was excavated from which a bulk sample of midden soil was taken for future microscopic analysis.

In addition to these procedures, the beach area adjacent to the site was staked off at five-meter intervals to facilitate the surface collection of cultural materials (i.e., lithic debitage and artifacts) that had eroded out of the site. Further investigation of the beach zone during low tide periods revealed the remnants of possibly three sets of fish weirs (Figure 4).

Midden deposits throughout the site consisted of a rich, dark organic soil containing sparse quantities of charcoal and several small lenses of shell. Although the preservation of organic material was generally poor, badly decomposed faunal remains were present. With the exception of surface collection areas on the beach, all prehistoric cultural materials recovered from the site were contained within the matrix of dark midden soil. Midden deposits in all of the test pits

NORTH-SOUTH CROSS SECTION 35CS1



- 1 Plow zone.
- 2 Surface soil; dark grayish brown silty loam.
- Midden deposit containing prehistoric cultural material.
- 3 Subsoil; dark grayish brown silty clay loam.
- 4 Substratum; very dark blue-gray silty clay.

0 1 2 3 4 5
Meters

Figure 3. North-south cross section of 35CS1 revealed by augering.



Figure 4a. Remnants of fish weirs at 35CS1.



Figure 4b. Remnants of fish weirs at 35CS1.

except E lay in an undisturbed context. The disturbance in test pit E can be attributed to the excavation of a shallow trench near the base of the dike by the landowner.

The prehistoric artifact assemblage recovered from 35CS1 consists of complete and fragmented lithic tools, including several types of projectile points, scrapers, adze blades, gravers, worked flakes, hammerstones and utilized flakes. Approximately 80-85% of the 4,200 lithic items recovered from the site consisted of unmodified waste flakes or debitage. Although local relic collectors have recovered basketry items, antler wedges, barbed bone points and other organic items from the slumpage areas along the bank of the river, none were found during testing operations. It should be noted that the remains of cordage material associated with fish weirs at 35CS2, located just downstream from 35CS1, have been noted and recorded (Barner 1979).

Carbon 14 dates indicate that the site was initially utilized around AD 1350 (DCI 1396:570 \pm 50) and abandoned sometime around AD 1700 (DCI 1395:250 \pm 40). The absence of trade or post-contact goods such as beads, pipes and other items further supports the latter date, as these items are typically found in coastal sites utilized after Euroamerican contact during the early nineteenth century.

The focus of this study will be an analysis of the lithic artifacts and debitage recovered from 35CS1 during the 1978 field season. Faunal remains and related features found in association with the lithic items also will be incorporated into the study to gain further insight into the prehistoric function of the site and to delineate,

when possible, behavioral patterns of the site's prehistoric occupants.

CHAPTER II

Archeological Background

The earliest recorded archeological investigations along the Oregon coast were conducted by H. A. Chase (1873) on the southern Oregon coast. Chase noted that location of numerous Athabascan settlements and "excavated" several shell middens to obtain a collection of artifacts. His descriptions of Athabascan houses and tool assemblages make interesting reading, but are of little archeological value today.

Chase's work was soon followed by that of Paul Schumacher, a representative of the Smithsonian Institution, in 1873 and 1875 (Schumacher 1874, 1877). Like Chase, Schumacher observed and recorded the culture and settlement locations of the various Native American groups occupying the southern Oregon coast. Although several burials and shell middens were excavated, Schumacher's work provides little information relevant to current archeological research on the Oregon coast.

No further archeological research was conducted on the Oregon coast until the early 1930s. This was due in large part to the lack of trained archeologists in the state, and to research interests oriented to other areas in the Pacific Northwest. (See Figure 5 for the location of sites investigated since the early 1930s.)

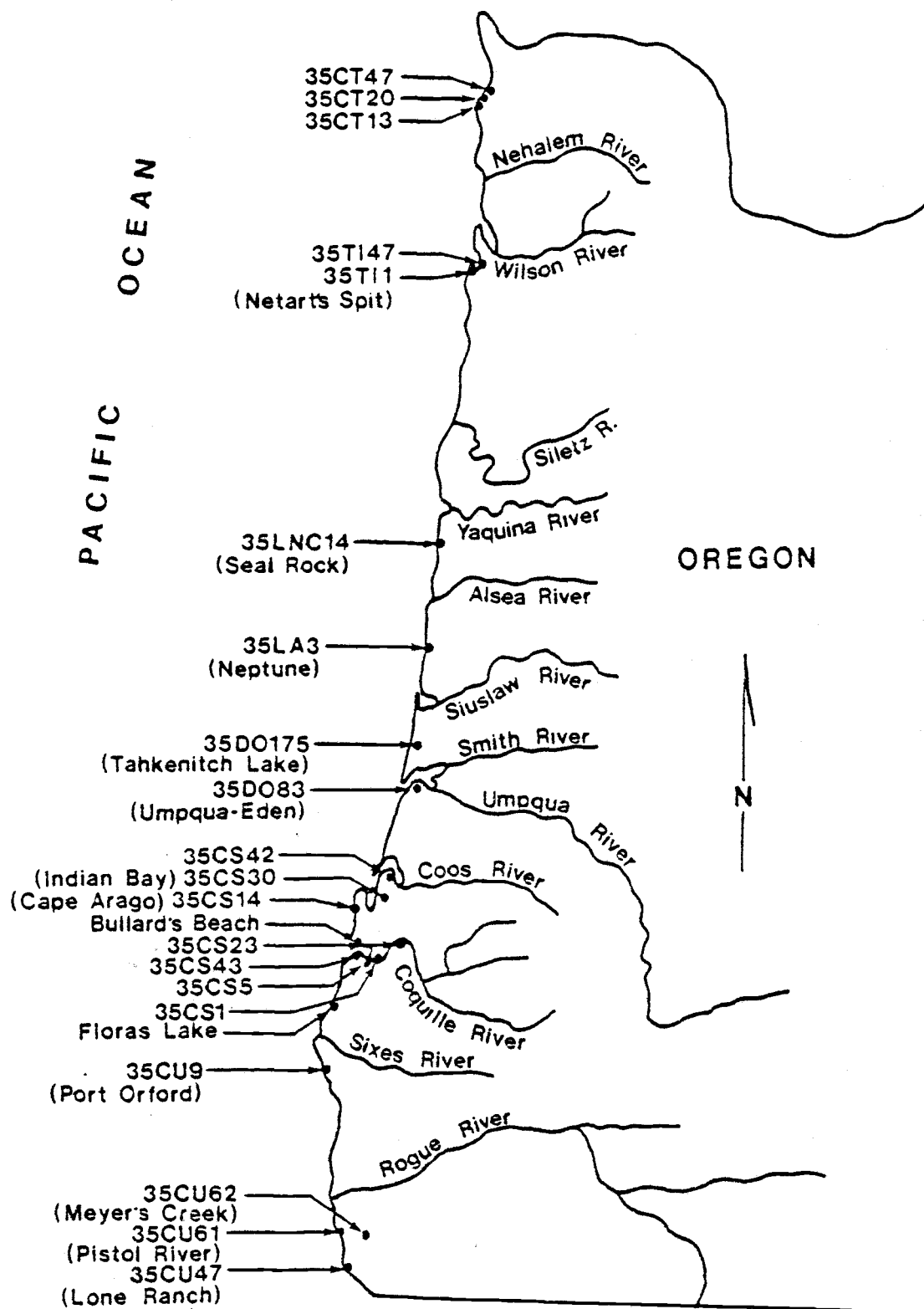


Figure 5. Location of sites investigated since the early 1930s.

Northern Oregon Coast

To date five reported prehistoric archeological sites have been investigated on the northern Oregon coast. During the 1950s extensive excavations were conducted on Netart's Sand Spit (35TI1) near Tillamook by Thomas Newman (1959). The artifacts and faunal remains recovered from several shell middens and fifteen housepits indicate that the site occupants were exploiting a variety of marine resources. Occupation of the site began about AD 1400 and terminated about AD 1800. The latest occupants of the site were probably the Tillamook (Berreman 1937).

In 1967, excavations were begun at site 35CT47 near Seaside by George Phebus, a representative of the Smithsonian Institution (Phebus and Drucker 1973). The tool assemblage recovered from the site included several lanceolate projectile points and composite harpoon points. Faunal materials, including the numerous remains of sea mammals and shellfish, indicate a marine adaptation. Charcoal samples from the lower levels of a house pit yielded a date of 600 BC (Phebus and Drucker 1973). Two additional sites near the Seaside area, 35CT13 and 35CT20, also were excavated (Phebus and Drucker 1973). Faunal remains and artifacts were comparable to those recovered from 35CT47. Occupation of both sites began about AD 300 and terminated around AD 900. These dates are at best tenuous, however, as the charcoal samples used for dating may have been contaminated (Phebus and Drucker 1973).

Site 35TI47, located at the Oceanside Wayside near Tillamook, was tested by Oregon State University in 1978 (Zontek 1978). Test

excavations revealed the existence of a large, stratified shell midden. Although small, the artifact sample from 35TI47 suggests a late prehistoric age for the site. The faunal remains, which included numerous stellar sea lion bones and large quantities of shell, indicate a marine adaptation. Like 35TI1, the latest occupants of 35TI47 were probably the Tillamook (Berreman 1937).

Central Oregon Coast

Five archeological sites situated between the Siletz and Umpqua rivers have been excavated during the last decade. The Seal Rock site (35LNC14), a shell midden fronting the ocean, was excavated in 1972 and 1974 by Oregon State University (Ross 1975; Snyder 1978). The artifact assemblage included several composite toggling harpoons which were found in association with a large number of stellar sea lion and other pinniped remains. It appears that the site occupants were oriented toward marine resources, and frequently hunted sea mammals from the offshore rocks located near the site (Snyder 1978). Based on carbon 14 dates, occupation of the site began approximately 400 years ago and terminated sometime around AD 1800. The latest occupants of the site were probably the Alsea (Drucker 1934; Berreman 1937).

The Neptune site (35LA3), a small shell midden located at Neptune State Park, was excavated by Oregon State University in 1973. Although analysis is not yet complete, the faunal remains indicate a marine adaptation (Ross 1973; Barnes 1978). The carbon 14 date

(DIC 1399:320±45) indicates that the site is contemporaneous in age with the Seal Rock site. The absence of house pits at 35LNC14 and 35LA3 suggest that both sites were occupied on a seasonal rather than a permanent basis.

A historic Native American burial site was excavated from a small sand spit situated in the estuary of the Salmon River in 1974 (Woodward and Archibald 1975). The remains, that of an adult male, had been interred on a layer of cedar planks. Planks also were found above and on one side of the body. Associated artifacts included several buttons, a ceramic pipe, a wood-handled knife, and a small piece of fabric material. These items strongly suggest a relatively recent date for interment.

Peter Stenhouse (1974) began excavation of the Umpqua Eden site (35D083) in 1974. Working in conjunction with the Oregon Coastal Indian Archeological Society, Stenhouse exposed a circular house pit floor approximately one meter below the surface. A fire hearth, post molds and the depressions left by edge-placed planks also were found in association with the living surface. Excavations were resumed at the site by Oregon State University during the summers of 1978 and 1979 (Hogg 1979; Ross 1978, 1979; Ross and Snyder 1979). Expanding upon Stenhouse's work, areas to the north, east, and south of the house pit floor were excavated. Excavation revealed that the upper levels of the site had been disturbed by historic usage of the area, specifically the construction of a house belonging to the Fort Umpqua

postmaster during the 1800s, and by more recent logging activities. Undisturbed portions of the site at the earliest levels of occupation yielded several significant artifacts. These included several lanceolate points, sun baked clay pipes and one clay figurine, barbed bone harpoon points, bone projectile points, and numerous decorative bone items. Charcoal samples taken from the lower cultural deposits yielded a date of 1010 BC, making the Umpqua Eden site the oldest site thus far excavated on the Oregon coast. Faunal material found in the lower component include the remains of harbor seal, stellar sea lion, salmon, starry flounder, deer and duck. These remains indicate that the early occupants of the site exploited the estuary and surrounding forested areas extensively. A second living surface, possibly that of a plank longhouse, also was found. This feature and the associated artifacts represent a more recent period of occupation. The presence of house floors suggest that habitation of the site was not confined to one season of the year (Ross and Snyder 1979). Further work at the site will no doubt yield additional information about early coastal adaptations.

Brian Harrison (1978) salvaged a burial eroding out of a small ocean bluff at Neptune State Park in 1977. Excavation revealed that the burial lay beneath a thin deposit of shell containing cultural material, faunal remains and fire-cracked rock. Harrison concluded that the burial was that of an adult male Native American probably from a time period predating Euroamerican contact (Harrison 1978:14).

Southern Oregon Coast

During the 1930s, the remains of three house pits and associated midden deposits at Bullard's Beach (35CS3) were excavated by Kenneth Leatherman and Alex Krieger (1940). Three burials and 150 artifacts were recovered from the site. Based on the artifact assemblage and the depth of the midden deposits, it was determined that the site was occupied for only a very short period during the mid-nineteenth century. The occupants were probably the Lower Coquille (Berreman 1937).

Further salvage excavations were conducted at 35CS3 by Oregon State University in 1974 to remove three burials eroding out of the river bank. Trade beads and other artifacts found with the burials place interment at around AD 1840 (Ross 1976).

A second site located approximately four miles upstream from 35CS3 also was excavated by Leatherman and Krieger (1940). Although no chronological sequence was established, the artifact assemblage suggests an earlier and longer period of occupation for the site than that associated with 35CS3.

Joel Berreman (1944) excavated a Chetco site (35CU37) situated on Lone Ranch Creek during the early 1940s. Excavation yielded the remnants of four plank houses and 23 burials. The size of the shell midden (up to ten feet deep and 200 feet in diameter) and the artifact assemblage suggest that the site was utilized extensively for several hundred years, and abandoned sometime during the early nineteenth century (Berreman 1944).

A possible village site (35CS5) situated on the Bandon sand spit at the mouth of the Coquille River was excavated by Luther Cressman in the early 1950s (Cressman 1952, 1953). Although badly eroded and deflated, the site contained several house pits, one burial and numerous artifacts. The faunal remains and artifacts indicate that the site inhabitants were exploiting both marine and riverine resources such as shellfish, salmon, deer and elk. The latest occupants of the site, which was abandoned around 1850, were probably the Lower Coquille (Berreman 1937).

Cressman (1952, 1953) also excavated site 35CS23, situated just south of the city of Coquille, during the early 1950s. A number of scrapers, choppers and other artifacts were recovered from midden deposits buried nearly 2.5 meters beneath the surface. River mussel shell and other badly decomposed faunal remains also were recovered. Considering the location and the thickness of the midden deposits (80 cm), the site may have yielded potentially significant information pertinent to understanding riverine and coastal adaptations. Unfortunately, time constrictions and impending construction activities at the site prohibited any intensive investigation of the archeological resource (Newman 1959). Charcoal samples from the site yielded a date of 300-400 BP.

Five housepits and a shallow shell midden (35CU47), situated on the shore of Flores Lake, were excavated during the late 1950s (Newman 1959). The artifact assemblage and depth of the midden deposits

indicate the site was briefly occupied during the early nineteenth century, probably by the Tututni or other Athabascan group (Berreman 1937).

The Meyers Creek site (35CU62), located near the Pistol River, was excavated by the University of Oregon in the early 1960s. A partially burned plank, probably the remnants of a house pit structure, yielded a date of 3,000 BP. Information regarding the artifact and faunal assemblages has not yet been published (Cressman 1977:194-195).

Continuing vandalism by relic collectors and the impending construction of Highway 101 prompted Eugene Heflin (1966) to salvage as much data as possible from site 35CU61 before it was totally destroyed. Situated at the mouth of the Pistol River, the large village site contained 42 house pits. Hampered by time constrictions, inadequate funds, and ongoing construction activities, Heflin managed to excavate several house pits from which hundreds of pestles, mortars, barbed bone points, awls, projectile points and other artifacts were recovered. Numerous land and sea mammal bones, fish bones, shell and other faunal materials also were salvaged. The artifact assemblage suggests a late prehistoric age for the site. Continued looting by relic collectors and the completion of Highway 101 have all but destroyed a truly significant cultural resource.

A large shell midden (35CS30) situated on Indian Bay in the south slough of Coos Bay was excavated by Ron Stubbs (1973) during the summer of 1973. The large quantity of faunal material, especially the

remains of fish and shellfish, suggest a marine-estuarine adaptation. Carbon 14 dating indicates a period of occupancy between AD 1650 and AD 1850. Based on the site location and the types of resources being exploited, Stubbs concluded that the site was occupied year round. The latest occupants of the site were probably the Coos (Berreman 1937; Jacobs 1939).

A shell midden and possible village site (35CU9) situated on the headland at Port Orford was tested by Oregon State University in 1976. Diagnostic artifacts and the absence of trade items suggest a late prehistoric age for the site. The numerous remains of shellfish, fish and sea mammals indicate that the site's occupants were heavily dependent upon marine-riverine resources (Ross 1977).

A burial eroding out of the river bank at Bullard's Beach State Park (35CS2) was salvaged by Oregon State University in 1976 (Harrison 1977). The excellent state of preservation of the skeleton suggest that the age of the burial is contemporaneous with that of the burials excavated at 35CS3 by Richard Ross (1976).

Site 35CS14, a shell midden located within the boundaries of the Cape Arago Coast Guard Reservation on Gregory Point, was investigated in 1977 (Draper and Hartmann 1979). Test excavations revealed that portions of the site had been severely disturbed by construction activities over the last 100 years. Midden deposits from less disturbed areas contained large quantities of marine shell, land and sea mammal bones, and fish bones. It appears that the site inhabitants were heavily dependent upon resources found in the intertidal zone and on nearby

offshore rocks. The outline of a house pit also was delineated along a bluff overlooking the ocean. Based on the faunal remains and artifact assemblage, and the presence of a house pit, it was concluded that the site was occupied throughout most of the year rather than on a seasonal basis. Dated bone samples indicate that the site was initially utilized around AD 400 (DIC 1398:1540 \pm 50). The latest occupants of the site were the Coos (Beckham 1978).

Site 35D0175, a shell midden situated on a small peninsula on the west shore of Tahkenitch Lake, was tested in 1978 by Oregon State University (Hartmann 1978). The composition of the midden was predominately that of saltwater molluscs. The remains of fish, deer and sea mammals also were present. No artifacts of aboriginal manufacture were recovered (Hartmann 1978). The absence of cultural material is probably due to sampling error as only a small portion of the site was sampled during testing.

In contrast to Glenn Hartmann's findings, Richard Pettigrew (1979) observed several projectile points and waste flakes found in association with midden deposits, faunal remains, charcoal deposits and fire-cracked rock in a roadcut passing through another portion of the site in 1979. Pettigrew's report suggests that prehistoric cultural materials are present at 35D0175 and that further evaluation is necessary.

Site 35CS43, situated on the old townsite of present day Bandon, was tested by Oregon State University in 1978 (Draper and Barner 1978). Excavation revealed that nearly all of the site had been disturbed by

construction and development activities during the last 100 years. Prehistoric artifacts recovered from the site included a small number of projectile points, bone awls, scrapers and utilized flakes. The artifacts indicate a late prehistoric age for the site, which was probably occupied by the Lower Coquille (Berreman 1937).

Site 35CS42, a small shell mound situated adjacent to Catching Slough on Coos Bay, was excavated by Oregon State University in 1978 (Draper and Barner 1978). The artifact assemblage included sun baked clay pipes, bone awls and needles, adze blades, and a small number of projectile points. Several wood posts, believed to be the remnants of fish-drying racks, also were recovered. The midden deposits were clearly stratified, comprised of discrete layers of marine-estuarine shell and alluvial sediments. Prior to the construction of an earthen levee along Catching Slough, the site was periodically inundated during the winter and spring. Thus it is likely that the site was occupied on a seasonal basis. Dated wood samples from the lower levels of occupation indicate the site was initially utilized around AD 800 (DIC 1397: 1150 \pm 55). Once again, the latest occupants of the site were probably the Coos (Berreman 1937).

In addition to the above investigations, several major site surveys have been accomplished along the Oregon Coast. These include Berreman (1935), Lloyd Collins (1953), David Cole and Wilbur Davis (1963), Cole and Harvey Rice (1965), Davis (1968), and Ross (1976).

TABLE 1
REPORTED CARBON 14 DATES FOR OREGON COASTAL SITES

Location of Sites		BP Date (Lab/Sample #)
<u>Northern Oregon Coast</u>		
Seaside	35CT13	1675-1330 BP (Smithsonian/?)*
	35CT20	1705-1035 BP (Smithsonian/?)*
	35CT47	1750-1650 BP (Smithsonian/?)*
		1150-1250 BP (Smithsonian/?)*
		2550-2650 BP (Smithsonian/?)*
Netart's Spit	35TI1	280 \pm 150 BP (UM/?) 550 \pm 150 BP (UM/?)
<u>Central Oregon Coast</u>		
Seal Rock	35LNC14	160 \pm 80 BP (WSU/1642)
		375 \pm 70 BP (WSU/1643)
Neptune	35LA3	320 \pm 45 BP (DCI/1399)
Umpqua Eden	35D083	2960 \pm 44 BP (DCI/1174)
<u>Southern Oregon Coast</u>		
Indian Bay	35CS30	250 \pm 80 BP (GUL/?)
Cape Arago	35CS14	1540 \pm 50 BP (DCI/1398)
	35CS42	1150 \pm 55 BP (DCI/1397)
Philpott	35CS1	250 \pm 40 BP (DCI/1395)
		570 \pm 50 BP (DCI/1396)
35CS23		300 \pm 150 BP (UM/?)
		450 \pm 150 BP (UM/?)
Meyer's Creek	35CU62	3000 \pm 90 BP (GAK/1317)

*Possible contaminated sample

CHAPTER III

Ethnographic and Historic Background

Linguistic information and maps of Oregon derived during the early twentieth century indicate the lower Coquille River drainage basin was occupied by small groups of people collectively referred to as the Lower Coquille (Berreman 1937). At the time of Euroamerican contact, the Lower Coquille occupied the Coquille River drainage basin from its mouth approximately 25 river miles upstream to near the present town of Coquille. Whiskey Run Creek and Flores Lake marked the respective northern and southern boundaries of their territory. Territories adjacent to the Lower Coquille were occupied by the Coos to the north, the Upper Coquille to the east, and the Tututni to the south.

The linguistic affiliation of the Lower Coquille is at best tenuous. Early linguists have classified the "Miluk dialect" spoken by the Lower Coquille as belonging to the Kusan language family (Frachtenburg 1914). Miluk was thought to have been mutually unintelligible (distinct) from the "Hanis dialect," also of the Kusan language family, spoken by the Coos. In contrast, Melville Jacobs (1939, 1940), using information gathered from Coos informants during the 1930s, concluded that Hanis and Miluk were closely related to one another.

Similar disparities are seen in more recent linguistic studies. Joe Pierce (1965) speculates that it is quite possible that Miluk and Hanis were not dialects, but totally unrelated languages which evolved

from different, yet unknown language stocks. Other investigators propose that the Lower Coquille, Coos, Alsea and Siletz languages exhibit enough similarities to be classified as a separate language family, referred to as Yakonan (Suttles and Elmendorf 1963). Since the available Miluk and Hanis language corpus is rather small, and few surviving Lower Coquille and Coos can recall or speak their traditional language, it is doubtful that the linguistic issue associated with this area can be resolved.

Prior to Euroamerican arrival along the southern Oregon coast, European-introduced diseases had severely reduced the aboriginal population. During the late 1700s, a smallpox epidemic swept through the Willamette Valley, the Columbia Gorge, and much of the Oregon coast (Mackey 1974; Ruby and Brown 1976). An estimated 50% of the Kalapuyan population occupying the Willamette Valley died as a result of this epidemic (Mackey 1974:21). Although statistics are not available, similar affects may have been experienced by the Lower Coquille and other groups occupying the coast and areas adjacent to the Columbia River. Subsequent epidemics during the 1800s further reduced the population (Cook 1955; Taylor and Hoaglin 1962; Ruby and Brown 1976). Decimated by disease, surviving Lower Coquilles were easily "pushed aside" by miners and settlers claiming land for mining operations and agriculture during the 1850s. Lower Coquille occupation of the lower Coquille River drainage basin officially ended with the forced signing of treaties and subsequent removal to the Siletz Reservation in 1856 (Beckham 1977).

Ethnographic data concerning the Lower Coquille is virtually nonexistent. Surviving Lower Coquille were not interviewed by anthropologists until the late 1800s and early 1900s. It is very unlikely that these informants could relate to the ethnographers the various political, social, economic and technological aspects of a cultural system which ceased functioning in a traditional manner after the epidemics of the late 1700s. Although fragmentary, ethnographic data concerning the Coos, Upper Coquille, Siletz, Alsea, Umpqua and other groups occupying territories adjacent to the Lower Coquille does exist (i.e., Barnett 1937; Connell 1937; Dorsey 1890; Drucker 1934; Hall 1978; Harrington 1943; Jacobs 1939; Lewis 1906; St. Clair 1909). These groups appear to exhibit a high degree of cultural similarity with the Lower Coquille; therefore, the data available on these cultures will be synthesized to construct an ethnographic model of Lower Coquille culture as it might have existed at the time of Euroamerican contact.

Like the Coos and other neighboring groups, the largest integrative social and political unit among the Lower Coquille was probably the autonomous patrilineal band, made up of an extended family of 20 to 80 individuals. Each band had a headman whose position was hereditary. A headman usually possessed personal wealth, status and desirable leadership qualities. Although two or more bands occasionally shared a common village site during the winter, each band retained its own headman and acted independently from other bands (Drucker 1934; St. Clair 1909).

Among the various bands a class system existed which was based upon wealth and prestige. Dentalia, otter pelts, the scalps of pileated woodpeckers and other wealth items represented power and social status among the Lower Coquille, and were also a means of economic exchange and social mobility. Wealth items were normally passed down from father to son (primogeniture). Social classes were comprised of noble or wealthy individuals, commoners and slaves. Commoners could become nobles by acquiring wealth. Usually, however, the rank of nobility was hereditary (Barnett 1937; Lewis 1906).

Marriages were normally arranged by the bride's parents and usually occurred between members of the same class. Wealth items were used by the groom to purchase the bride. Marriages frequently took place in childhood, although the couple did not live together until they were adults.

Principal winter villages were located on protected sites along the coast and on elevated terraces adjacent to the lower Coquille River or along its major tributaries. Resources in the vicinity of the winter villages were jointly owned or shared by the band members. Winter villages generally consisted of several semi-subterranean plank houses constructed from cedar, driftwood and bark. Elkhorn or bone wedges and hammerstones were used to split the planks from hewn logs. Stone adzes were probably used to thin and shape the planks. Each house had a fire hearth and storage space for food, utensils, tools and other items (Barnett 1937; Connell 1937). Subterranean or semi-subterranean sweathouses also were constructed near the winter villages.

The Lower Coquille were centrally-based hunters and gatherers whose settlement patterns and subsistence patterns were closely attuned to the availability of their primary resources, salmon and camas. Winter villages were abandoned in the early spring in favor of temporary camp sites located in areas containing camas and other plant resources. Camas roots were harvested by the women with the aid of digging sticks. Camas was processed by roasting in earth ovens for several days. The roots were then ground and formed into thick cakes which were stored for winter use, or made into a thick soup for immediate consumption (Drucker 1934). Wild strawberries, thimbleberries, blackberries, salmon berries, skunk cabbage, salal and a variety of seeds also were gathered during the summer. Other plants exploited by the Lower Coquille include Oregon grape, kinnick-innick, cascara and brackenfern roots (Hall 1978). While in the temporary camps, men would participate in both communal and individual hunting forays.

A potentially significant plant resource not described in the available ethnographic literature is the myrtle tree. Among northern California groups such as the Pomo, nuts gathered from myrtle trees during the summer were dried and eaten, or ground into a flour and baked as bread. Myrtle leaves also were used for medicinal purposes among these groups (Kirk 1970; Chestnut 1974). Myrtle trees are fairly abundant along the southern Oregon coast and adjacent inland valleys. Descendants of the Lower Coquille recall using myrtle leaves

to treat some illnesses (Hall 1978). However, whether or not myrtle nuts were exploited as a food resource by the Lower Coquille or other southern coastal groups is unknown.

The economy of the Lower Coquille focused largely upon salmon. Several species run annually from late summer to fall in the Coquille River and its tributaries. Fish weirs were constructed to obstruct and direct the spawning salmon into a confined space where they could be procured. Fish traps, nets and fish spears were often used in conjunction with the weirs to take the fish. Most of the salmon were dried or smoked by the women and then stored for the winter. Other less important species exploited include trout, cabezon, rockfishes, starry flounder, sculpins and eels. Smelt and eulachon (candlefish) also were exploited during their respective spawning seasons. Angling devices, herring rakes, nets and spears were used to procure these species (Dorsey 1890; Jacobs 1939).

Hunting and gathering activities provided the Lower Coquille with additional sources of protein. Pitfall traps, bows and arrows, snares and nets were used by the men to take deer, elk, rabbit and other land mammals. Sea mussels, bay mussels, chitons, barnacles, limpets and other shellfish were gathered from the offshore rocks, tidal pools, sandy beaches and mudflats throughout much of the year. Sea otters which ventured into the bay may have been hunted from canoes. Migratory waterfowl, nestlings and eggs also were exploited when available (Barnett 1937; Drucker 1934; Hall 1978; Jacobs 1939).

Stone boiling in watertight baskets was probably the predominant method of cooking meat and fish. Roasting, baking and stove-pit cooking also were practiced.

The carcasses of beached sea lions, seals, whales and other sea mammals were exploited for their meat and oil. Ann Connell's (1937) interview with a Coos informant indicates that seals which ventured into the estuary were occasionally caught in fish traps and baskets. The available literature, however, does not suggest that the Lower Coquille actively hunted sea mammals.

Baskets were woven by the women from the roots of spruce trees, the bark from wild hazel, hazel roots, grasses and ferns. The quality of the weave was very high, creating a nearly watertight basket. Baskets used for stone boiling were coated with hot pitch to make them watertight. Storage baskets, cradleboards and hats also were woven. Open work weaving techniques were used to make baskets for carrying fish, shellfish and other items requiring aeration or drainage (Hall 1978; Harrington 1943). Rushes and tule reeds woven into mats were used to line the walls of lodges and to cover summer shelters.

The ethnographic data for neighboring groups (Dorsey 1890; Drucker 1934) suggests that dugout canoes were the primary means of transportation utilized by the Lower Coquille. Canoes manufactured in this area were round-bottomed and straight-sided, with blunted raised ends which made them maneuverable in swift currents. Soft

woods such as cedar were used to construct the dugouts. Controlled fires and adzes were used to hollow out the shell. Canoes were widened by filling the shell with water and hot stones to soften the wood, then inserting thwart spreaders to widen the beam (Barnett 1937). Although the canoes were well-suited to river travel, they were highly unstable in the open sea.

It must be remembered that the ethnographic model presented is incomplete and subject to revision. The paucity of ethnographic information concerning the Lower Coquilles and other Oregon coastal groups does, however, illustrate the need for further archeological research in the area. Scientific archeological excavations and surveys can provide the data necessary to reconstruct the settlement patterns, subsistence activities, resource procurement strategies and other aspects of Lower Coquille culture which are now only minimally understood.

CHAPTER IV

Methodology

The primary objectives of the analysis of lithic tools and debitage from 35CS1 is (1) determine the manufacturing stages involved in the production of stone tools accomplished at the site; (2) determine what raw materials were most frequently used in the manufacture of lithic tools and determine whether the lithic material was obtained locally or acquired by trade; and (3) to discern, if possible, any distributional patterns of the debitage and tools that might indicate possible activity areas (i.e., lithic reduction areas). The results of the lithic analysis, in conjunction with the faunal remains, associated features, and pertinent ethnographic, archeological and environmental data, will then be used to generate statements about the site's prehistoric function. The results of the analysis also will serve as comparative data for future archeological investigations in the area.

Artifact assemblages recovered from most prehistoric archeological sites consist of lithic tools and debitage, the waste material produced during the manufacture of a stone tool. This is due in large part to environmental factors which affect the preservation of bone, wood and other artifacts manufactured from organic material. The preservation of organic material is particularly bad in areas like the Pacific Northwest where the climate is alternately wet and dry, or hot and cold. Soil acidity, soil composition, time and length of deposition, bacteria

and other environmental conditions also contribute to the rapid decay of organic material in archeological sites. Notable exceptions to this are coastal shell middens, water-logged sites, and sites situated in dry caves such as those found in the Great Basin. As a result of differential preservation, studies of lithic tools and lithic technologies have become an integral part of most archeological investigations during the last seventy years.

Lithic tools possess readily identifiable diagnostic attributes which have traditionally been used by the archeologist in the construction of "typologies" (artifact categories). In contrast, a review of the available literature (Brauner 1972; Crabtree 1972; Osborne 1965) suggests that few studies have included or focused upon the lithic debitage produced during the manufacture of a tool. Debitage has been viewed by archeologists as lacking any readily identifiable diagnostic attributes such as those possessed by a finished tool. Because of this viewpoint, debitage materials recovered from archeological sites are seldom studied. The problem is further compounded by the amount of time required to analyze the debitage. When one does encounter any mention of waste material in a site report, it often reflects only a simple flake count.

Diagnostic attributes of at least the last stage of manufacture are indicated by the flake scars present on finished tools. During the many stages of manufacture, however, a variety of waste flakes are produced in the reduction of the initial mass of lithic material to its finished form (Crabtree 1972). The size, shape, thickness and

curvature of the reduction flakes can reveal the various manufacturing steps carried out by the flint knapper. As a consequence, the reduction flakes can be considered more diagnostic than the flake scars on a finished tool. Reduction flakes also retain the bulb of applied force, indicators of platform preparation and other characteristics which can be used to determine the manufacturing technique (Crabtree 1972:1). Because of these factors, it is the position of this investigator that an indepth analysis of both the debitage and the finished lithic tools can provide potentially significant information about past human behavior.

To delineate the stages of manufacture at 35CS1 that might be reflected in the debitage, specific attributes of the waste flakes which would illustrate the various methods and stages of lithic reduction had to be selected. For the purposes of this study, attributes of a flake deemed potentially significant were those of the striking platform (ground, chattered, and platform angle), length, width, weight, various attributes which indicate removal by hard or soft hammer techniques, presence or absence of cortex, and presence or absence of a hinge fracture. Fragmentary flakes were not included in this phase of the analysis as only complete flakes exhibit all of the above attributes.

The specific size of each complete waste flake was derived from a ratio of the attributes length to width. Weight was also considered and utilized as an indicator of relative flake size. The measurements of length and width were standardized after T. Loy and G. R. Powell

(1977). Maximum length was derived by measuring along an axis perpendicular to the striking platform, while maximum width was measured along an axis parallel to the striking platform and perpendicular to the axis of length. An analytical balance was used to weigh the smaller flakes, and a triple beam balance was used to weigh the larger flakes. Each individual flake was weighed to within 0.10 grams.

For analytical purposes, the information obtained from the above attributes was plotted on two-dimensional graphs for each test unit and the surface collection areas to delineate the range in size of the waste flakes and to observe any clustering of specific flake sizes which might indicate primary or secondary lithic reduction activities. The angle of the striking platform was measured from the dorsal side of the flakes with a contact goniometer.

Three flake attributes which enable one to distinguish between "soft" and "hard" hammer techniques were considered in this study. These are the development of the bulb of percussion (cone or conchoid), the presence or absence of an overhang of material on the bulbar face and the degree of development of the percussion rings. A flake detached with a hard hammer will exhibit a well-defined cone or bulb of percussion, while a soft hammer flake will exhibit a diffuse, indistinct bulb of percussion (conchoid) and a small overhang of material on the bulbar face often referred to as a "lip." Percussion rings are generally indistinct on flakes detached with a soft hammer, but become more pronounced as the hammer becomes harder.

Analysis of the lithic tools was accomplished in two stages, beginning with a preliminary sorting of the artifacts into major artifact groupings or classes based on their respective form and inferred function (e.g., projectile points, scrapers, adze blades). When function could not be determined for an artifact or group of artifacts, classes were established according to major or gross morphological attributes (e.g., worked flakes, worked chunks).

The second stage of analysis involved the establishment of varieties within each artifact category based on secondary form variations. Within the projectile point category, for example, the attributes of blade form and size, stem form and size, and neck width were used to define varieties. Categories for artifacts such as scrapers which exhibit edge wear or polish were established and further refined with the aid of a 40x power microscope and a magnifying glass. Artifacts which had been placed in classes based on their morphological attributes were reexamined with these instruments and compared to already identified tool forms to determine, if possible, their function (inferred). The context in which the artifact was found also was considered during this phase of analysis. If function could be discerned, the artifact was then placed in an appropriate class and category. The attributes of length, width, thickness and length of worked edge was measured to the nearest millimeter with sliding calipers. Weight was measured with a triple beam balance and edge angle was measured with a contact goniometer. When applicable, pertinent data was expressed in mean and range form for each variety. Sample size and material

also were noted. Artifact descriptions and measurements are presented in Appendix A.

Two selective attributes, color and material, were deemed potentially significant in the analysis of the flaked stone artifacts and reduction flakes. For analytical purposes, these data were observed and plotted on two-dimensional graphs for each test unit and surface collection areas to determine if any correlation between the composition of the debitage and the flaked artifacts was evident. The degree of correlation would indicate whether the flaked tools were manufactured at the site, or manufactured elsewhere and brought to the site. All complete and fragmentary flaked tools and waste flakes were considered in this phase of the analysis.

CHAPTER V

Lithic Manufacturing Stages at 35CS1

To better understand the significance of the lithic debitage and tools found at 35CS1 a discussion of the lithic manufacturing stages undertaken at the site is necessary at this point. Based on the lithic debitage analyzed for this study, five manufacturing stages will be considered. Stage one will be described as the selection of a suitable raw material from which a tool could be produced. Stages two and three in the actual reductive process will be referred to as primary flaking. This category includes those techniques and the resultant waste material produced during the manufacture of a preform or core. Differences between the two stages can be determined from specific attributes exhibited by the waste flakes. Stages four and five will be referred to as secondary flaking which includes those techniques and resultant waste material produced during the reduction of the preform into a finished tool. This generalized manufacturing sequence is illustrated in Figure 6.

Selection of Raw Material

Stage 1

Stage one encompasses the selection of a suitable raw material from which the desired tool could be manufactured. Two materials, cryptocrystalline silica and quartzite, were present at 35CS1. Both

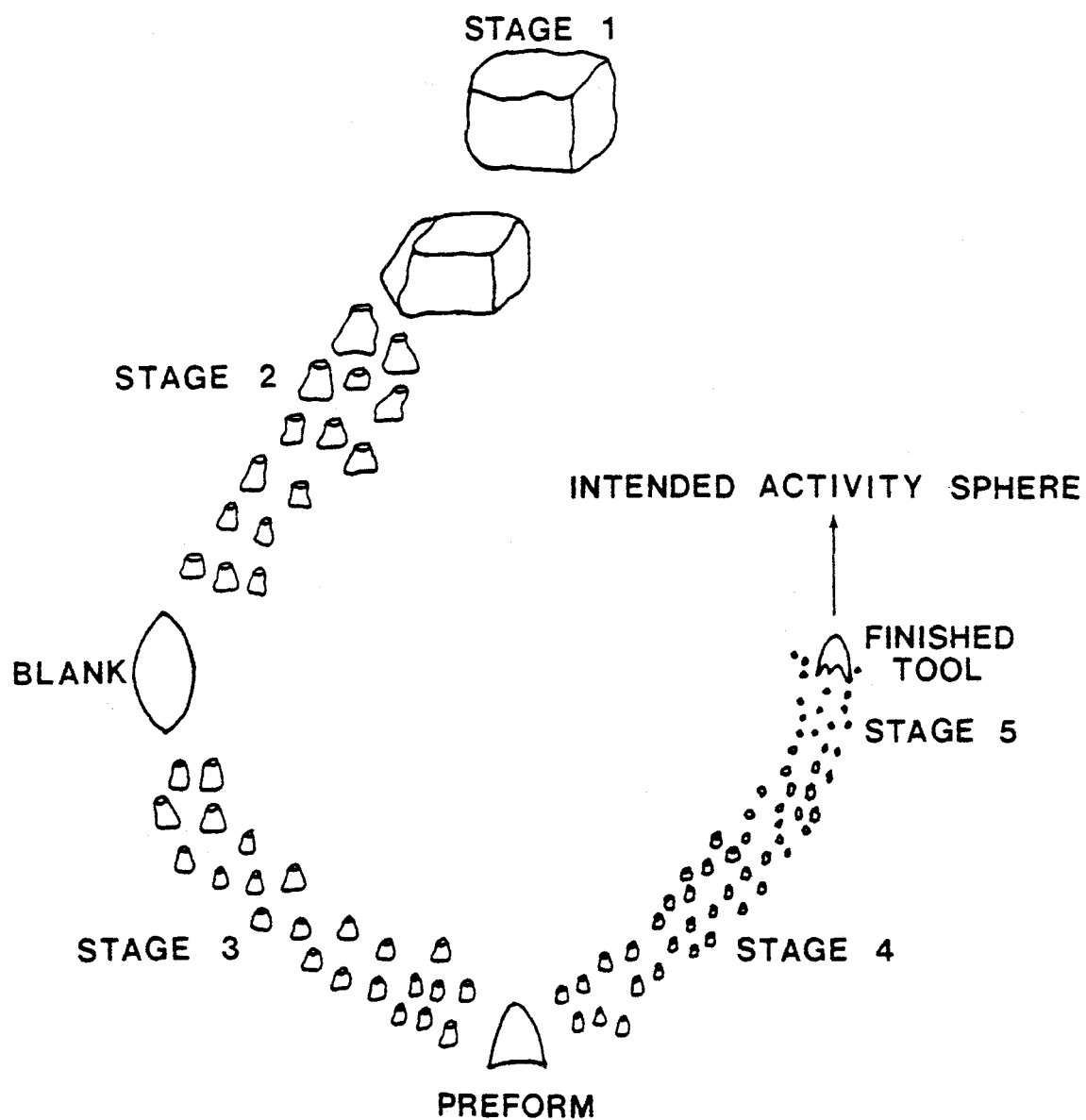


Figure 6. Schematic view of lithic manufacturing sequences at 35CS1. (after Brauner, 1972).

were obtained from local secondarily redeposited gravels in the form of semipolished, subangular to well-rounded nodules or cobbles. Based on the number of large, irregular cortical chunks found at the site, it appears that many of the nodules or cobbles were tested by breakage to determine whether fractures or seams of impure material were visibly present. Breakage may have been accomplished with a heavy, hard hammer (stone) or by hurling the nodule against an anvil stone. Nodules exhibiting defects may have been rejected at this point to prevent premature breakage and unwanted step fractures from occurring during the reductive process.

Primary Flaking: Production of the Preform

Stage 2

Stage two commences with the reduction of the selected nodule or cobble into a crude biface referred to as a "blank." Occasionally, blanks were produced at 35CS1 which were somewhat ovate or tabloid in form. Reduction was accomplished primarily by percussion flaking with a hard (stone) hammer; soft (antler or wood) hammer techniques were seldom employed during this stage at 35CS1. The resultant waste flakes are generally large and irregular in size and shape, and retain some portion of the cortex on the striking platform or dorsal surfaces. Cores from which a large number of flakes could be detached for tool manufacture also were occasionally produced during this stage at 35CS1.

Stage 3

Stage three begins after a suitable blank has been produced. During this stage the tool maker attempts to create a series of platforms and ridges on the edge of the blank which are used to "better control" the removal of flakes. This was accomplished by exploiting the property of conchoidal fracture found in the cryptocrystalline silica material used at the site. Both hard (stone) and soft (antler or wood) hammer percussion flaking techniques (roughly 60% and 40%, respectively) were employed during this stage. The resultant waste flakes are still relatively large, but are more uniform in size and shape. Primary flaking or reduction is complete when the tool maker has established a series of platforms and ridges on the biface and a preform of desired size and shape is produced. It should be noted that there was no evidence in the chipping debris at 35CS1 to suggest that quartzite was used in the production of blanks or finished preforms.

Most of the cryptocrystalline silica materials selected for reduction at 35CS1 were subjected to heat treatment (thermal alteration) to "relieve stresses and strains in the stone" (Crabtree 1972:5). This process also makes the material more elastic and vitreous which gives the tool maker more control over flake removal. Heat treatment can be accomplished by burying the stone and slowly heating it to a temperature of from 400° to 900°F (Crabtree 1972). The temperature will vary depending upon the composition of the material being treated.

Materials such as cryptocrystalline silica which have been heat treated are characterized by a "waxy" appearance and texture, and often undergo a color change (i.e., yellows change to red). Cores and blanks composed of cryptocrystalline were heat treated prior to further reduction at 35CS1.

Secondary Flaking: Production of the Finished Tool

Stage 4

Secondary flaking is initiated during stage four when the preform is further reduced by percussion flaking. Roughly 85% of the flakes produced during this stage at 35CS1 were detached with a soft (antler or wood) hammer. Although smaller, the resultant waste flakes are similar in shape and overall morphology to those produced during the final stage of primary flaking. Evidence of edge grinding and platform chatter are generally more visible on the waste flakes produced during stage four.

Stage 5

The final stage of manufacture was accomplished by pressure flaking. This technique requires a pressure tool such as an antler tine which is used to apply force with more precision to the striking platforms on the edges of the piece being worked. The resultant waste flakes are typically small and thin in comparison to those produced by percussion flaking and often exhibit distinct signs of platform

preparation. In terms of overall morphology, pressure flakes are more uniform in size (length, width and thickness), shape and weight. This uniformity is due to the regularity in the striking platforms and ridges (pre-existing flake scars) which "guide" the direction of the applied force and, consequently, the size of the detached flakes (Brauner 1972; Crabtree 1972).

Assuming that premature breakage or other mishap has not occurred during the above manufacturing sequence, the finished tool is removed from the reduction area and used for whatever purpose it was produced. Unless disturbed or used as tools, however, most of the flakes detached during the reduction process remain where they fell. These flakes can be used by the archeologist to delineate specific reduction areas contained within a site and the manufacturing techniques involved in the production of the lithic tools (Brauner 1972:21-22; Crabtree 1972:1).

CHAPTER VI

Discussion and Conclusions

Prehistoric Function of 35CS1

Based on the overall homogeneity exhibited within the various artifact categories recovered at 35CS1 and the relatively short time-span indicated by the carbon 14 dates, it was possible to define one late prehistoric component. Since no clustering of artifact types could be discerned from the vertical distribution of cultural material, the artifacts at 35CS1 may also represent a single assemblage. The data recovery techniques (i.e., artifacts and cultural debris were gathered and recorded in meter-square units rather than in situ) may have "erased" any evidence of multiple assemblages.

The location of 35CS1 along the Coquille River, coupled with the presence of fish weirs in the beach zone adjacent to the site, strongly indicate that the site was utilized prehistorically on a seasonal basis during the late summer and fall as a fishing camp. Environmental and cultural factors exclude usage of the site at other times of the year. During the winter and early spring, rainfall and runoff from the Coast Range significantly raise the level of the Coquille River and its tributaries. Given its location on the floodplain, 35CS1 would have been inundated much of the time during this period. Assuming the model of subsistence and settlement patterns presented in Chapter III is accurate, the Lower Coquille would have been in semipermanent villages during the winter and spring. Winter villages were situated on elevated terraces well above the floodplain.

The Lower Coquille spent the early spring and summer in temporary camps near camas grounds. Prior to construction of the earthen levee at the site, however, vegetation in the immediate vicinity of 35CS1 was composed of a variety of salt marsh plants. Few, if any, of the edible plant resources described in the available ethnographic literature would have been present in this environment. Thus it is highly unlikely that the site was occupied during the spring or early summer.

Based on this evidence, one can conclude that the primary function of the site was that of a fishing station where salmon were procured and processed during the late summer and fall for winter use. The artifact and faunal assemblages (Table 2 and 3) further supports this conclusion. The large number of scrapers, worked and utilized flakes, knives and choppers found in association with the faunal remains indicate that butchering activities associated with the processing of fish and meat were undertaken at the site. In contrast, the absence of mortars, metates and manos in the artifact assemblage suggests that plant foods were infrequently used or processed at the site. The pestle found in test pit I may have thus been used to pulverize dried fish.

One salmon and one unidentifiable fish vertebra were present in the faunal assemblage. Both were found in test pit I in association with a line or net sinker, the aforementioned pestle, and the remnants of a fire-hearth (Figure 7). The paucity of fish remains is due in

TABLE 2. ARTIFACT ASSEMBLAGE, 35CS1

Category	Test Pit											Total
	A	B	C	D	E	F	G	H	I	J	SCA*	
Projectile points:												
01-01A					3	1						4
01-02A					2		1		1		1	5
01-02B	2				2	3						7
01-03A							1					1
01-04A					1	1						2
01-05A					1							1
01-06A					2							2
01-07A					3		1		2			6
01-07B					2							2
Blanks												
02-01A					4						1	5
02-02A					1			1			1	3
02-03A					1						1	2
02-04A					1							1
02-05A											1	1
02-06A					2						1	3
02-06B					1						1	2
02-07A					1		1					2
02-07B						1			1			1
02-07C					1							3
02-07D					3							1
02-08A											1	1
02-09A					1							1
02-09B					1							1
02-10A					8	1	4	1		1	2	17

TABLE 2 (cont'd). ARTIFACT ASSEMBLAGE, 35CS1

Category	A	B	C	D	Test Pit		G	H	I	J	SCA*	Total
					E	F						
Knives:												
03-01A					1							1
03-01B							1					1
03-02A						1						1
Drills-Perforators:												
04-01A							1		1			2
04-02A					1							1
Gravers-Perforators												
05-01A					1	1	3		1			6
05-01B					6	1	2				2	11
05-01C					5				1	1	1	8
05-02A					3							3
Scrapers:												
06-01A											2	2
06-01B									1			1
06-02A				1	3	4	1	1	2		2	14
06-03A					4	1	1		1	1	6	14
06-04A					6					1		7
06-05A							1				1	2
06-05B					1							1
06-06A				1								1
06-07A								1				1
06-08A					5	1	2		1		1	10
06-08B									1	1	1	3

TABLE 2 (cont'd). ARTIFACT ASSEMBLAGE, 35CS1

Category	Test Pit											Total
	A	B	C	D	E	F	G	H	I	J	SCA*	
Utilized Flakes:												
07-01A				1	13	6	2	3		2	2	29
07-02A	1				28	2	3		7	8	11	60
07-03A	1				3	2				3	7	16
07-04A					9				1	1	5	16
07-05A					5		2		3	2	2	14
07-06A					8				1			9
07-07A	1				11	1	3			4	5	25
07-08A					8	3				1	2	14
Worked Flakes:												
08-01A					12	4	3				11	30
08-02A					2					1	2	5
08-03A					1				2		5	8
08-04A						2				2		3
Choppers:												
09-01A									1	1		2
Hammerstones:												
10-01A						1	2					3
10-02A					1							1
10-03A										1		1
Pestle:												
11-01A									1			1

TABLE 2 (cont'd). ARTIFACT ASSEMBLAGE, 35CS1

Category	A	B	C	D	Test Pit		G	H	I	J	SCA*	Total
					E	F						
Adze Blades:												
12-01A										1		1
12-02A					2			1				3
12-03A					2		2			2		6
Line or Net Sinkers:												
13-01A									1			1
Cores:												
14-01A							1		1		3	5
14-02A									2	1	1	4
14-03A					1		1		2	1	11	16
Miscellaneous Artifacts:												
15-01A							1					1
15-02A								1				1
15-03A					1							1

*SCA: Surface Collection Areas.

TABLE 3. FAUNAL REMAINS, 35CS1

Name/identifiable elements	Test Pit										SCA*
	A	B	C	D	E	F	G	H	I	J	
<u>Cervus canadensis</u> (elk)											
teeth,molars(fragmented)					11	3				3	
metatarsal(fragmented)					2				1		
phalange										1	
femoral epiphysis										1	
cervical vertebra(body)					1						1
vertebral articulating process											1
mandible(left)							1				
<u>Odocoileus</u> species (deer)											
calcaneous							1				
<u>Castor canadensis</u> (beaver)											
ulna(fragmented)											1
tooth,incisor							1				
<u>Phoca vitulina</u> (harbor seal)											
radius(fragmented)						1					
humerus(fragmented)					1						
<u>Cetecea</u> (whale,species unknown)											
ribs(fragmented)							9				
unidentifiable bone(fragmented)									4		1
Aves (bird,species unknown)											
unidentifiable bone(fragmented)									5		
Salmonidae (salmonid)											
vertebra									1		
Pisces (fish,species unknown)											
vertebra					1						

TABLE 3 (cont'd). FAUNAL REMAINS, 35CS1

	Test Pit										SCA*
	A	B	C	D	E	F	G	H	I	J	
<u>Name/identifiable elements</u>											
<u>Schizothaerus nuttalli</u> (gaper clam)											
periostracum					5		6		3	3	
Unidentifiable teeth fragments											
elk size					9	2	2		4	1	
deer size							2				
Unidentifiable mammal bone											
fragments					330	41	91		698	92	13

*SCA: Surface Collection Areas.

large part to preservation factors. Most of the bone recovered at the site was badly deteriorated. The majority of specimens in the faunal assemblage recovered in situ were that of larger and/or denser elements which would decay more slowly than would smaller elements. Exceptions to this were small, fragmented or complete bones that had been burned. Both fish vertebrae had been partially charred.

The fish weirs located in the beach zone adjacent to the site were constructed to direct the spawning salmon into a confined area near the bank of the river where they could be taken more easily. Fish spears armed with barbed bone points were probably used in conjunction with the weirs to procure the fish (Drucker 1934; Barnett 1937; Johnston and Cassaway 1978). Although none were found at the site during testing, local relic collectors have recovered a number of barbed bone point from slumpage areas along the river bank (Pullen 1979). The presence of a single line or net sinker in the artifact assemblage suggests that nets and angling devices were infrequently used to take fish.

The faunal assemblage also suggests that occasional hunting forays were undertaken at the site. All species represented in the faunal remains are found locally. Elk appears to have been hunted more frequently than other game. The remains of deer and beaver were present in relatively low frequencies. Gaper clam and birds also were exploited. The remains of harbor seal and whale in the faunal assemblage indicate that sea mammals were utilized on occasion as a food

resource. As noted in Chapter I, harbor seals frequently travel up coastal drainages in the pursuit of salmon. The specimens found at the site may have become entangled in the fish weirs and were subsequently dispatched and utilized. The whale bone no doubt represents the remains of a beached animal that had washed ashore on the coast or in the bay. There was no evidence in the artifact assemblage to suggest that a specialized tool kit (i.e., harpoons) was used to hunt sea mammals. These animals were probably taken on a chance encounter basis. The faunal assemblage from 35CS1 suggests that terrestrial and marine mammals were exploited and utilized as a dietary adjunct while fishing activities were being undertaken at the site.

A secondary function of 35CS1 was that of a source area for raw materials used in the manufacture of lithic tools. As illustrated in Table 4, a high degree of homogeneity is exhibited by the chipping debris in the "selective" attribute categories. The material composition of the chipping debris consisted of cryptocrystalline (84.1%), quartzite (15.8%) and obsidian (0.1%). Cryptocrystalline and quartzite materials, as evidenced by the cortical flakes in the sample (Table 5), were obtained locally in the form of subangular to well-rounded, semi-polished nodules from secondarily redeposited gravels. Green cryptocrystalline (37.8%) followed closely by red cryptocrystalline (29.9%) were selected most frequently for reduction. The low frequencies of flakes in the remaining cryptocrystalline categories may reflect their

TABLE 4. SUMMARY OF SELECTIVE ATTRIBUTES DERIVED FROM THE LITHIC DEBRIS, 35CS1

Selective Attributes	Test Pit										SCA*	Total
	A	B	C	D	E	F	G	H	I	J		
% Material Types												
1) Cryptocrystalline												
red	40.9	0	0	33.3	30.4	28.9	20.3	28.6	29.4	32.1	45.4	29.9%
green	40.9	33.3	0	25	40.5	40.6	47.4	40.9	41.1	41	34.6	37.8%
red/green	13.6	66.7	0	8.3	4.6	7.4	5.8	6.1	2.8	8.2	12.5	5.9%
dark gray	0	0	0	0	4.7	3.9	8.7	14.3	7.9	1.9	7.6	5.4%
other	0	0	0	0	4.7	3.9	8.7	14.3	7.9	1.9	7.6	5.4%
2) Quartzite												
gray	4.5	0	0	25	24	7.8	11.3	2	9.3	4.1	16.3	12.1%
red	0	0	0	0	0	3.9	3.2	0	5.7	3.7	12	3.7%
3) Obsidian												
black	0	0	0	0	0	0	0	0	0.7	0	0	0.08%
red/black	0	0	0	0	0	0	0	0	0.3	0	0	0.02%
% Material												
1) Cryptocrystalline	95.5	100	0	75	76	88.3	85.5	98	84	92.2	71.7	83.7%
2) Quartzite	4.5	0	0	25	24	11.7	14.5	2	15	7.8	28.3	16.2%
3) Obsidian	0	0	0	0	0	0	0	0	1	0	0	0.1%
% Heat Treated												
Cryptocrystalline	100	100	0	100	96.4	89.4	86.4	85.4	78.6	95	95.6	93.9%
N Sample	22	3	0	12	1683	256	310	49	428	268	734	3765

*SCA: Surface Collection Areas.

relative abundance in the local deposits. Quartzite chipping debris also were common in the sample. However, all but one of the flaked stone artifacts (a chopper) had been manufactured from cryptocrystalline. Based on these data, one can conclude that the finer grained cryptocrystalline materials were preferred over the coarser grained quartzite for tool manufacture. Unmodified quartzite (and cryptocrystalline) flakes, however, may have been used during the processing of fish and meat.

Obsidian flakes were rare. All of the obsidian chipping debris was found in test pit I (Table 4). Since obsidian is not indigenous to the coast, it is likely that this material was obtained through trade from inland groups located to the east or southeast. The absence of primary obsidian flakes coupled with the presence of a single fragmented obsidian preform suggests that this material was acquired as blanks.

*new
obsidian
in the area
probably in
the Chappin*

Although indigenous to the coast, meta-schist chipping debris was not present at 35CS1. The line or net sinker and adze blades in the artifact assemblage manufactured from meta-schist were probably produced elsewhere.

The high degree of correlation between the material and color composition of the flaked stone artifacts and the composition of the chipping debris found at 35CS1 is illustrated in Figure 8. This correlation indicates that most of the flaked stone tools found at the site were manufactured there.

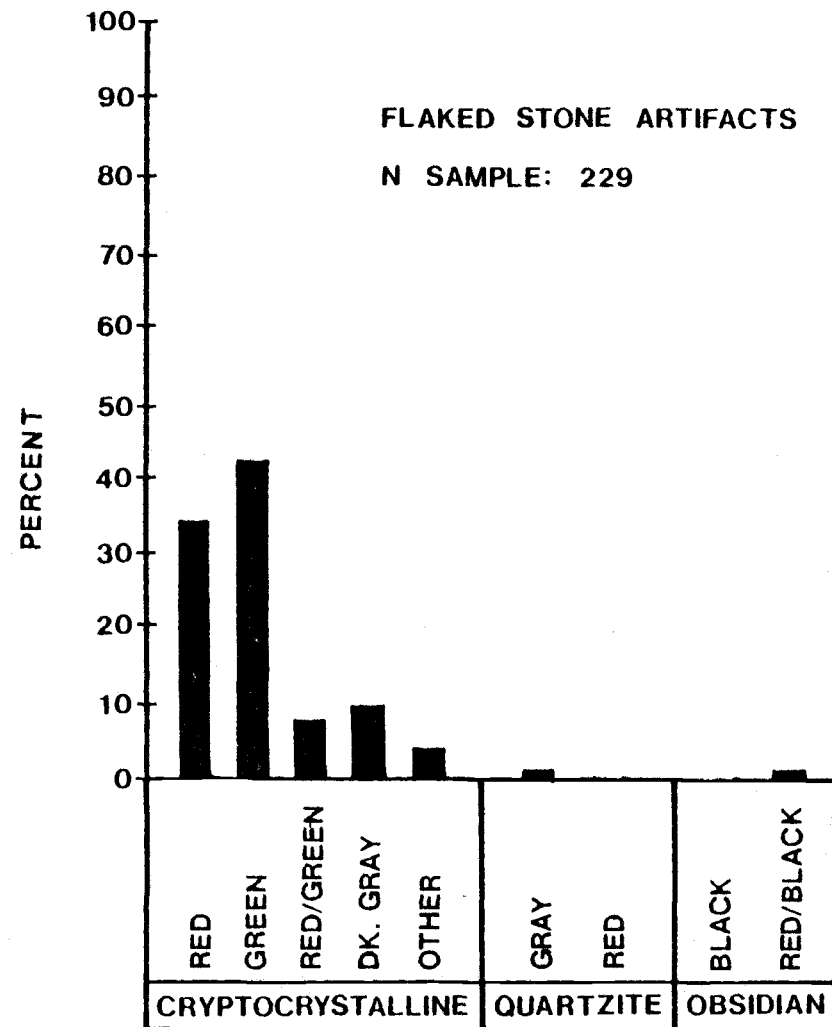
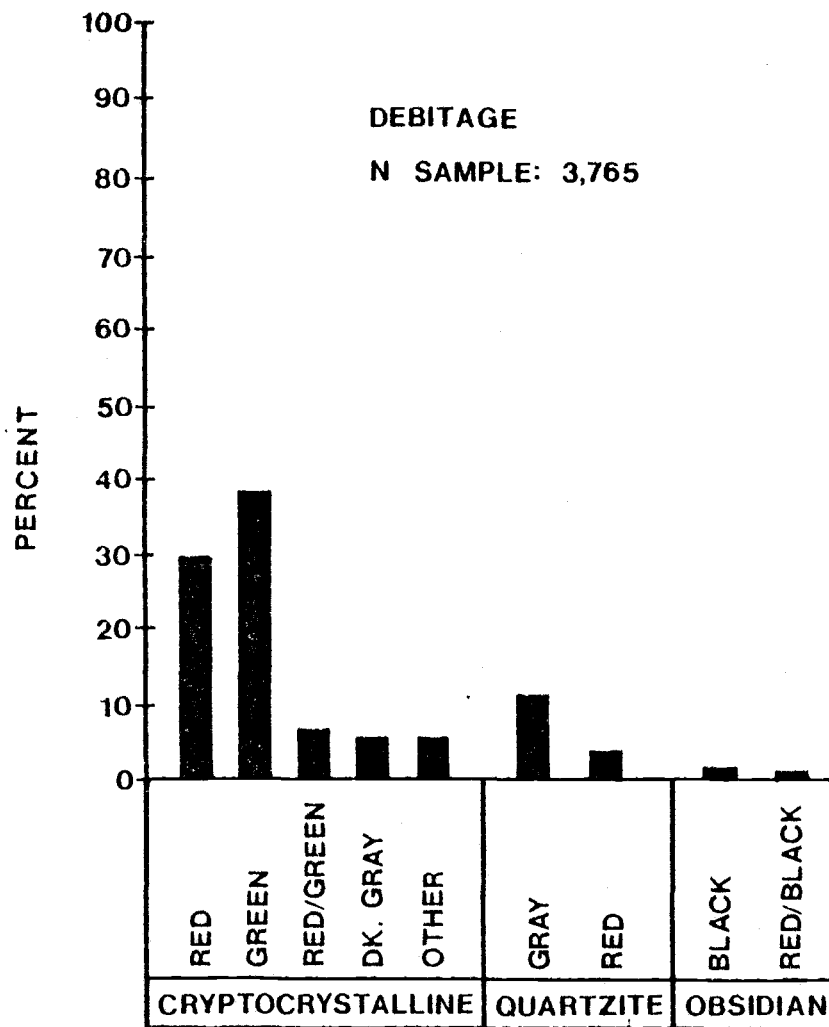


Figure 8. Comparison of cryptocrystalline, quartzite and obsidian types between the flaked stone tools and debitage, 35CS1.

Since only complete flakes can be used to study manufacturing attributes, the initial sample of 3,765 flakes was reduced to 1063 flakes. The cortical flakes in the sample indicate that nodules or cobbles of cryptocrystalline and quartzite were brought to the site for the purpose of reduction. A high degree of homogeneity was observed in the manufacturing attribute categories weight and size (length/width) (Table 5). The flake sample indicates that primary flaking processes were attempted more frequently than were secondary flaking processes at the site. This is clearly demonstrated by the average weight and size of the flakes recovered from the test pits and surface collection areas. The available data suggests that nodules of cryptocrystalline were brought to the site and reduced to the preform stage. Unless rejected, the preforms were removed from the site and further reduced elsewhere. Were the completed preforms taken to the winter village and reduced to a finished tool?

The composition of the debitage in test pit E does indicate, however, that at least one nodule of green cryptocrystalline and possibly one nodule of red cryptocrystalline underwent the entire reductive process. Roughly 41% and 30% of the flake sample from test pit E were composed of green and red cryptocrystalline, respectively (Table 4). Nearly 28% of the flakes composed of green cryptocrystalline and 29% of the flakes composed of red cryptocrystalline were cortical flakes. The remaining material categories ranged from 35% to 60% cortical flakes. Secondary chipping debris accounted for

TABLE 5. SUMMARY OF MANUFACTURING ATTRIBUTES DERIVED FROM THE LITHIC DEBRIS, 35CS1

Manufacturing Attributes	A	B	C	D	E	F	G	H	I	J	SCA*	TOTAL
\bar{X} length/width(cm)	5.11	5.61	0	6.95	6.33	6.64	9.5	6.6	4.5	6.8	10.1	7.66cm
\bar{X} weight(g)	2.3	1.7	0	7.10	4.71	6.1	4.9	3.3	3.3	5.7	9.4	5.47g
% cortical flakes	83.3	100	0	71.4	38.2	21.9	37.7	18	26	29.8	54.2	37.72%
\bar{X} platform angle	74.5	62	0	72.9	68.1	70.8	69.8	68.8	73.3	68.3	73.3	65.52°
% hinge fracture	16.6	0	0	28.5	25.2	27.4	24	18	21	28.1	22.5	24.17%
% platform chatter	0	100	0	71.4	34.3	12.3	6.9	36	22	38.6	15.2	25.5%
% ground platform edge	0	0	0	14.3	17	28.8	26.4	36	26	10.5	19.9	19.8%
N Sample	6	1	0	7	509	73	136	11	110	57	153	1063

*SCA: Surface Collection Areas.

nearly 22% of the flake sample in test pit E (Table 6). Roughly 60% and 35% of the secondary flaking debris were composed of green and red cryptocrystalline, respectively. It should be noted that the relatively small number of secondary flakes in test pit E (as well as the other test pits) is probably due to sampling error. All excavated materials were screened through 1/4" mesh hardware cloth. As a consequence, many of the smaller flakes indicative of secondary flaking processes may have passed through the screens.

Several blanks, preforms, biface fragments, core fragments, and a hammerstone also were recovered from test pit E. The association of these artifacts with the large number of waste flakes suggests that test pit E may have partially exposed a lithic reduction work area.

With the exception of one or two nodules of cryptocrystalline in test pit E, however, the chipping debris indicates that secondary flaking processes were seldom undertaken at the site. It is likely, therefore, that the majority of the complete and fragmented projectile points were manufactured elsewhere and brought to the site in a finished form. The composition of the remaining flaked stone artifacts also are indicative that primary flaking processes were attempted more frequently than were secondary flaking processes at the site. All are either a direct product of primary flaking or were manufactured from waste flakes produced during the primary stages of reduction. Most, if not all, of these artifacts were manufactured at 35CS1.

The lithic reduction activities at 35CS1 was characterized by hard hammer techniques. Nearly 63% (662) of the waste flakes

TABLE 6. COMPOSITION AND REDUCTION TECHNIQUES EXHIBITED BY COMPLETE FLAKES
IN SAMPLE, 35CS1

Category	A	B	C	D	E	F	G	H	I	J	SCA*	TOTAL
Cortical Flakes	5	1	0	5	194	16	52	2	26	17	83	401
% hard hammer	100	100	0	100	96.4	93.7	82.6	100	96.1	88.2	77.1	90.3
% soft hammer	0	0	0	0	3.6	6.3	17.4	0	5.9	11.8	22.9	9.7
Core Reduction Flakes	1	0	0	2	205	47	64	8	63	35	63	488
% hard hammer	0	0	0	100	68.5	65.9	60.9	62.5	60.3	53.5	38.1	59.6
% soft hammer	100	0	0	0	31.5	34.1	39.1	37.5	39.7	46.5	61.9	40.4
Bifacial Thinning Flakes	0	0	0	0	110	10	20	1	21	5	7	174
% hard hammer	0	0	0	0	5.5	10	5	0	9.5	0	0	5.7
% soft hammer (and pressure flaking)	0	0	0	0	94.5	90	95	100	90.5	100	100	94.3
N Sample	6	1	0	7	509	73	136	11	110	57	153	1063

*SCA: Surface Collection Areas.

exhibited distinct bulbs of percussion and percussion rings, indicating detachment with a hard (stone) hammer (Table 6). The presence of the overhang of material on the bulbar face, diffuse (conchoid) bulbs of percussion, and indistinct percussion rings indicated that 33% (350) were produced with a soft (antler or wood) hammer. Five percent (70) of the flakes were detached by soft hammer and/or pressure flaking techniques. Owing to their size it was impossible to discern the exact reductive technique employed to detach these flakes. Pressure flaking, as indicated by the projectile points, scrapers, drills and worked flakes, was employed during the final stage of their manufacture.

Roughly 24% of the flakes in the sample exhibited hinge fractures (Table 5). This attribute occurred with equal frequency in most of the test pits. The low frequencies or absence of hinge fracture among the flakes contained in test pits A, B, and H is probably due to the small sample size. Hinge fracture occurs when too heavy a hammerstone is used to detach a flake. This attribute has been used as an indicator of the flint knappers skills (Osborne 1965). However, raw materials are fairly abundant in the local deposits and were seldom reduced beyond the preform stage. Thus the flint knappers at 35CS1 may not have been concerned about the size or density of the hammerstone or percussor used during the initial stages of the reductive process. Scrapers, knives and other tools could still be manufactured from the resultant waste flakes, and a new nodule of material could be easily obtained in the event that the blank or preform was fragmented during the reductive process.

Evidence of edge grinding and platform chatter was observed on 19.8% and 25.5% of the waste flakes, respectively (Table 5). Both are a result of processes which serve to strengthen the striking platform. Edge grinding is accomplished with an abrasive stone which is rubbed along an axis parallel to the edge being worked. The majority of the chattered platforms probably occurred as a result of "edge trim." Edge trim is accomplished by "a series of light blows with a billet or hammerstone perpendicular to the worked edge" (Brauner 1972). Platform chatter also is caused by the use of a percussor that is too light to detach a flake or by a weak striking platform that crushes when struck.

Disparities in the occurrence of edge grinding and platform chatter in test pits A, B, and H is probably due to the small flake sample recovered from these units. Disparities between the remaining test pits and surface collection areas also may be due in part to varying sample sizes. However, the occurrence of edge grinding and platform chatter in test pits E, F, G, I and J does raise several questions about the lithic reduction activities at 35CS1. Were some flint knappers concerned primarily with the production of finished preforms? If so, were techniques used to strengthen the striking platform attempted more frequently by these individuals to prevent premature breakage or unwanted fractures from occurring? Were other flint knappers concerned primarily with the manufacture of scrapers, knives and other tools which could be used to process fish and meat? If this were the case, would attention have been given to strengthening

the striking platform of the cores or nodules of raw material from which the flakes were detached? Because of the data recovery techniques and the relatively small number of flakes recovered from most of the test pits, these questions cannot be answered at this point. Behavioral data obtained by open-site excavation techniques, however, may provide additional information concerning these aspects of the lithic reduction activities accomplished at the site.

Nearly 94% of the cryptocrystalline waste flakes and 89% of the artifacts manufactured from cryptocrystalline had been heat-treated (Table 4). This was indicated by the varying degrees of color change and the "waxy" appearance and texture exhibited by these items.

In addition to the possible lithic reduction work area exposed by test pit E, a possible food processing locus was partially exposed in test pit I. Associated with the remnants of a fire-hearth (Figure 7) were heavy concentrations of mammal, bird and fish bone, fire-cracked rock, charcoal and partially burned wood (Tables 3 and 7). Nearly 60% of the fire-cracked rock and 76% of the bone recovered from test pit I was found within 80 cm of the fire-hearth. Roughly 70% of the bone had been burned. Artifacts present in the immediate vicinity of the hearth included a pestle, a chopper, and five complete and fragmented scrapers (Table 2). The association of these artifacts with the fire-hearth and faunal remains strongly suggest that meat and fish were processed here. It is interesting to note that approximately 75% of the bone fragments exhibited sharp edges or fractures as though purposely crushed to

TABLE 7. FIRE CRACKED ROCK, 35CS1

	Test Pit										
	A	B	C	D	E	F	G	H	I	J	TOTAL
weight (kg)	0.9	0.6	0	7.5	97.1	18.6	43.9	10.4	19.1	5.4	203.5

TABLE 8. THICKNESS OF MIDDEN DEPOSITS, 35CS1

	Test Pit										
	A	B	C	D	E*	F	G	H	I	J	
thickness (cm)	7-10	7-8	4-5	11-13	44-52	28-50	18-19	16-18	24-26	14-16	

*Disturbed.

extract the marrow. The chopper found in association with the bone fragments may have been used to accomplish this task.

Other artifacts present in the assemblage from 35CS1 are summarized in the following discussion. Although only three drills were recovered, all were well-made tapered varieties. One preform specimen (02-08A) was probably an unfinished drill. Four recognized varieties of gravers also were present in the sample. Graver tips (05-01B) produced by unifacial pressure flaking on otherwise unmodified flakes were the predominant form. The presence of these artifacts in the assemblage indicate that items of bone, wood or other organic materials were manufactured at the site.

Four of the five hammerstones in the sample are rather problematical. All four lateral edges of one specimen (10-01A) have been polished through use, creating a narrow ridge along the entire circumference of the cobble. Three specimens (10-02A) exhibit the same attribute on one end; the opposing ends have been crushed through use. The angles of the "faceted" edges on all specimens vary from 90° to 125°. All of the "faceted" hammerstones were produced from quartzite cobbles. The narrow ridges created on the lateral surfaces of the cobbles may have served as a striking edge, used to detach flakes from blanks or preforms. However, the wear marks on the ridges of the hammerstones are not as well-defined as would be expected on a tool used as a percussor. Since the "faceted" edges were polished and not crushed as a result of use, these artifacts may have been used to process hides rather than used for percussion.

Three nondescript "artifacts" were present in the component. One is an amorphous nodule of sunbaked (?) clay (15-01A) that appears to have been crudely shaped or molded. One fragmented piece of petrified wood (15-02A) with a ground (?) edge and a single piece of striated soapstone (15-03A) also were present. Function could not be determined for any of these items.

The heaviest concentrations of artifacts, chipping debris, faunal remains, fire-cracked rock and midden deposits were found within 10 to 12 meters of the river bank (Tables 2, 3, 6, 7 and 8). These data, coupled with the presence of two possible work areas in test pits E and I, strongly suggest that the majority of butchering and lithic reduction activities were accomplished in these areas of the site adjacent to the river. It is the position of this investigator that these activities were undertaken near the river bank as a matter of convenience. Salmon taken from the river with fish spears (or nets) could be tossed up to the river bank where they were processed. The raw materials from which stone tools were manufactured also are present on the beach adjacent to the site. When scrapers, knives, cores or other tools were required, the flint knapper could quickly obtain the desired raw materials from the beach zone.



Figure 7. Fire hearth feature at 35CS1, test pit I.

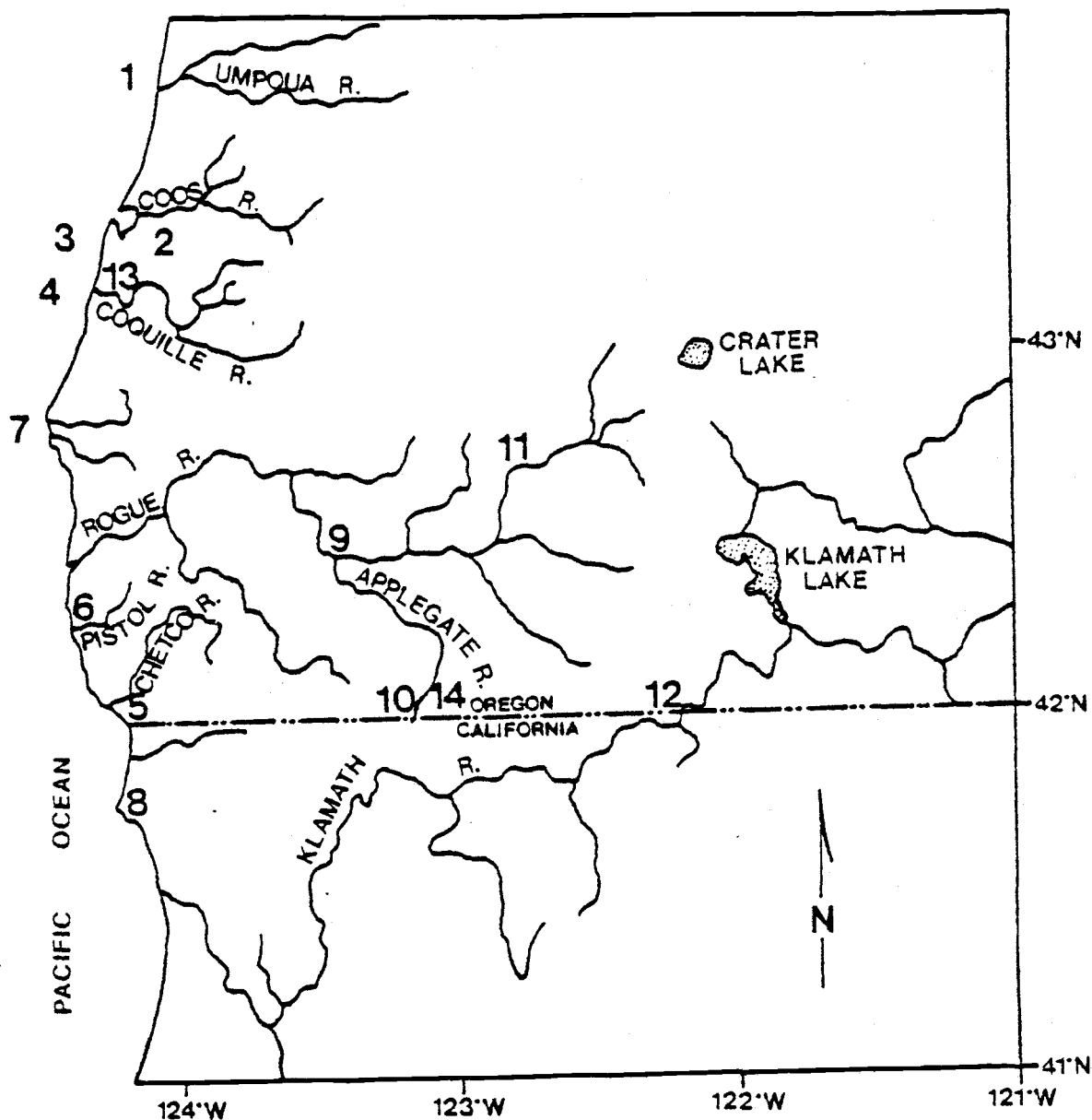
Cultural Affiliations

The artifacts from 35CS1 are similar to those recovered from other late prehistoric sites in southwestern Oregon and northern California. However, since projectile points are considered more "diagnostic" (i.e., they can help delineate chronological relationships and affiliations among sites or areas) than most artifacts, the following discussion will focus upon the projectile point forms in the artifact assemblage from 35CS1. The geographic distribution of the projectile points found at 35CS1 are illustrated in Table 9 and Figure 9. Based on relative and absolute dates, all of the sites or components within the sites considered in this discussion were occupied at some time between AD 1300 and AD 1850, and are contemporaneous in age with 35CS1.

By far the most common projectile point forms in the sample from 35CS1 were small, triangular-bladed, base-notched points (01-01A, 01-02A, and 01-02B). As indicated in Table 9 and Figure 9, these point forms are a common phenomena in both coastal and interior sites in southwestern Oregon and northern California. The predominant projectile point category (01-02B) in the sample of base-notched points was characterized by barbs that extend below the plane of the base. This type of point, often referred to as a Gunther Barbed (Treganza 1958), is believed to have "a probable distribution center near the mouth of the Klamath River" (Leonhardy 1967:36). Their occurrence in coastal and interior sites in southwestern Oregon probably represents

TABLE 9. GEOGRAPHIC DISTRIBUTION OF PROJECTILE POINT TYPES
FOUND AT 35CS1

	Category						
	01-01A	01-02A	01-02B	01-03A	01-04A	01-05A	01-06A
OREGON							
<u>Coastal Sites</u>							
Philpott (35CS1)	+	+	+	+	+	+	+
Umpqua Eden	+						+
Indian Bay			+				+
Cape Arago							+
Bullard's Beach		+	+				+
Port Orford	+				+		
Pistol River		+			+		+
Lone Ranch Creek		+	+		+		+
<u>Interior Sites</u>							
Ritsch (35J04)							+
Applegate Reservoir	+		+		+		
Elk Creek Reservoir		+	+				
Lost Creek Reservoir	+		+				
Squaw Lakes							+
CALIFORNIA							
<u>Coastal Sites</u>							
Point St. George	+		+				+
<u>Interior Sites</u>							
Iron Gate	+	+	+				



- | | | |
|--|---------------------------------------|---|
| 1 UMPQUA-EDEN
(Stenhouse 1974;
Ross 1978, 1979;
Ross & Snyder 1979;
Hogg 1979) | 5 LONE RANCH CREEK
(Berreman 1944) | 10 APPELEGATE RIVER
(Brauner & Honey
1977) |
| 2 INDIAN BAY
(Stubbs 1973) | 6 PISTOL RIVER
(Heflin 1966) | 11 ELK CREEK AND
LOST CREEK
(Davis 1972; Brauner
& Honey 1979) |
| 3 GREGORY POINT
(CAPE ARAGO
(Draper & Hartmann
1979) | 7 PORT ORFORD
(Ross 1977) | 12 IRONGATE
(Leonhardy 1967) |
| 4 BULLARD'S BEACH
(Ross 1976) | 8 POINT ST. GEORGE
(Gould 1966) | 13 PHILPOTT SITE |
| | 9 RITSCH SITE
(Wilson 1979) | 14 SQUAW LAKES
(Brauner & Kindred 1979) |

Figure 9. Archaeological sites and areas mentioned in summary and conclusion section.

a diffusion of technology from northern California. The remaining base-notched forms are characterized by small, straight to constricting stems with straight to convex bases. With the exception of the long barbs, these forms are similar in overall configuration and are found in the same geographic areas as those specimens represented by category 01-02B. This data suggests that these point forms also had a developmental and distributional center in northern California, perhaps along the Klamath River.

Two concaved-based projectile points (01-06A) were present in the component. This point form is a common phenomena along the Oregon coast south of the Umpqua River. Similar points have also been reported at one coastal site in northern California and at two interior sites near Grants Pass and Medford, Oregon (Table 9, Figure 9). The distribution of these points suggests a regional technological development confined almost exclusively to the southern Oregon and northern California coasts. Their presence in only two interior sites in southwestern Oregon further supports this conclusion. Bart Wilson (1979:57) has proposed that the presence of concaved-based projectile points at the Ritsch site near Grants Pass may have been the result of a diffusion of technological traits into the region from the coast. Considering the distribution of this point form, Wilson's conclusion may be an accurate one.

A similar distributional pattern is evident for the small lanceolate forms (01-04A) found at the site. These points, which have a short, broad stem with a convex base, have been reported almost

exclusively at sites on the southern Oregon coast between the Coquille River and the Oregon-California border. Similar points also have been reported at one interior locality in the Applegate Reservoir area located near Medford, Oregon (Table 9, Figure 9). Like the concaved-based projectile points, the small lanceolate forms may represent a regional technological development which originated along the southern Oregon coast. Their presence in one interior locality may thus represent a diffusion of technological traits into the area.

Two projectile point forms, 01-05A and 01-03A, appear to be unique to the Philpott site. The first category (01-05A) was a small, narrow triangular-bladed point with a straight base; the second category (01-03A) was a small, triangular-bladed, corner-removed point with a rather wide expanding stem and straight base. Only one specimen of each type was found at 35CS1. These types of projectile points have not been reported at other sites in the region. Thus the two aberrant specimens present at 35CS1 may represent local technological innovations. As an aid to future work in the area, the projectile point forms 01-05A and 01-03A will be referred to as "Philpott A" and "Philpott B" points, respectively.

Joel Berreman (1944), based on data from a small number of excavated sites, concluded that the cultures of the southern Oregon coast were similar to and thus closely affiliated with coastal cultures found in northern California. Although small, the sample of projectile points recovered from 35CS1 does suggest some degree of cultural affiliation with northern California. The projectile point forms found at 35CS1 decrease in frequency as one moves north past Coos Bay; none are

found north of the Umpqua River. Few of the projectile point forms are found south of the Klamath River in northern California. Projectile points found south of the Klamath River and in central California tend to be larger and ovate in form rather than triangular (Leonhardy 1967). The central Cascades or eastern margin of the Great Basin may mark the easternmost distribution of the point forms found at 35CS1. All of the projectile point forms occur in the archeological record during the last 500 to 600 years, indicating a diffusion of technological traits rather than migrations of people. Thus the similarities between the Philpott site and other marine and riverine sites reported in southwestern Oregon may indicate a transitional area between northern coastal groups on the Oregon coast and northwest coast California groups. It should be noted, however, that although some affiliation with northwest coast California cultures is indicated, technological innovations still occurred independently on the southern Oregon coast. This was evidenced by the "Philpott A" and "Philpott B" projectile points found at 35CS1. The distribution of the concaved-based and lanceolate points also suggests that these forms were a southern Oregon coast innovation. Since the sample of artifacts from 35CS1 was very small and only a few scientific archeological excavations have been conducted on the southern Oregon and northern California coasts, these conclusions are at best tenuous. Future work in the region will provide a broader data base from which statements concerning cultural affiliations can be generated.

References Cited

Agricultural Experiment Station

- 1969 Oregon's Long-Range Requirements for Water; General Soil Map Report with Irrigable Areas North, Mid-, and South Coast Drainage Basins. Agricultural Experiment Station, Oregon State University, Corvallis, and the United States Department of Agriculture, Soil Conservation Service.

Baldwin, Ewart M.

- 1945 Some Revisions of the Late Cenozoic Stratigraphy of the Southern Oregon Coast. *Journal of Geology* 52:35-46. *

- 1976 Geology of Oregon. Kendall/Hunt, Dubuque, Iowa. *

Barner, Isaac N.

- 1979 Personal communication regarding the Gordon Ross Site (35CS42).
- 1979 Personal communication regarding the fish weirs at 35CS2.

Barnes, Debra

- 1979 Personal communication regarding analysis of the cultural and faunal materials from the Neptune Site (35LA3).

Barnett, H. G.

- 1937 Culture Element Distributions: VII, Oregon Coast. *Anthropological Records* I(3):155-203. University of California Press, Berkeley.

Beardlsey, Alan J. and Carl. E. Bond

- 1970 Field Guide to Common Marine and Bay Fishes of Oregon. Department of Fisheries and Wildlife, Oregon State University, Corvallis.

Beckham, Stephen Dow

- 1977 The Indians of Western Oregon. Arago Books, Coos Bay, Oregon.
- 1978 Personal communication regarding aboriginal occupants of 35CS14 based on John Harrington's unpublished field notes.

Berreman, Joel V.

- 1935 A Preliminary Survey of the Shell Mounds and Other Occupied Sites on the Coast of Southern Oregon and Northern California. Unpublished manuscript on file, Department of Anthropology, University of Oregon, Eugene. *

Berreman, Joel V.

1937 Tribal Distribution in Oregon. Memoirs of American Anthropological Association, Menasha, Wisconsin.

1944 Chetco Archaeology. General Series in Anthropology, No. 11, American Anthropological Association, Menasha, Wisconsin.

Brauner, David R.

1972 Space, Time, and Debitage: A Study of Lithic Debris, Chagvon Bay, Alaska. Unpublished Masters thesis, Department of Anthropology, Washington State University, Pullman.

Brauner, David and William Honey

1977 A Reevaluation of Cultural Resources within the Applegate Lake Project Area, Jackson County, Oregon. Report prepared for the U.S. Army Corps of Engineers, Portland District.

1980 Reevaluation of Cultural Resources within the Proposed Elk Creek Lake Project Area, Jackson County, Oregon. Report prepared for the U.S. Army Corps of Engineers, Portland District. Department of Anthropology, Oregon State University, Corvallis.

Brauner, David and Kay Kindred

1979 Archeological Evaluation of the Squaw Lakes Site, 35JA69, Jackson County, Oregon. Report prepared for Rogue River National Forest by the Department of Anthropology, Oregon State University, Corvallis.

Brown, Vinson

1976 Sea Mammals and Reptiles of the Pacific Coast. Macmillan New York, pp. 1-57.

Burt, William H. and R. P. Grossenheider

1976 A Field Guide to the Mammals. Houghton Mifflin, Boston.

Chase, H. A.

1873 Indian Mounds on the Coast of Oregon. American Journal of Science and Arts, third series, article 6, New Haven 6(31):26-32.

Chestnut, V. K.

1974 Plants Used by the Indians of Mendocino County, California. Reprinted by Mendocino County Historical Society as first published in Contributions from the U.S. National Herbarium, Vol. VII.

Cole, David L. and Wilbur Davis

- 1963 Report on Investigations of Archaeological Sites at Gardiner, Oregon. Manuscript on file, Museum of Anthropology, University of Oregon, Eugene.

Cole, David L. and Harvey S. Rice

- 1963 Archaeological Survey of the Proposed Oregon Dunes National Seashore. Report submitted to the National Parks Service, Museum of Natural History, University of Oregon, Eugene.

Collins, Lloyd R.

- 1953 Archaeological Survey of the Oregon Coast. Unpublished manuscript on file, Department of Anthropology, University of Oregon, Eugene. *

Connell, Ann

- 1937 Indian Legends. Xerox copy, source unknown.

Cook, S. F.

- 1955 The Epidemics of 1830-33 in California and Oregon. Berkeley, University of California Press.

Crabtree, Don E.

- 1972 An Introduction to Flintworking. Occasional Papers of the Idaho State University Museum, Number 28, Pocatello.

Cressman, Luther S.

- 1952 Archeological Field Work; University of Oregon--Summer, 1952, Oregon Coast Prehistory. Report of the Department of Anthropology, University of Oregon, Eugene.

- 1953 Oregon Coast Prehistory: Problems and Progress. Oregon Historical Quarterly 54:291-300.

- 1977 Prehistory of the Far West: Homes of Vanished Peoples. University of Utah Press, Salt Lake City.

Davis, Wilbur

- 1968 Oregon Coastal Survey. Field notes on file, Department of Anthropology, Oregon State University, Corvallis. *

- 1974 Lost Creek Archeology, 1972. Report prepared for the National Park Service. Department of Anthropology, Oregon State University, Corvallis. *

- Dorsey, J. Owen
1890 The Gentile System of the Siletz Tribes. Journal of American Folklore 3:227-237.
- Draper, John A. and Isaac N. Barner
1978 Excavations at the Gordon Ross Site (35CS42). Field notes on file at Department of Anthropology, Oregon State University, Corvallis. *
- 1978 Excavations at 35CS43. Field notes on file at Department of Anthropology, Oregon State University, Corvallis. *
- Draper, John A. and Glenn D. Hartmann
1979 A Cultural Resource Evaluation of the Cape Arago Lighthouse Locality, Gregory Point, Oregon. Report submitted to U.S. Coast Guard, 13th District, Seattle.
- Drucker, Philip
1934 Contributions to Alsea Ethnography. University of California Publications in American Archeology and Ethnology 35:81-101.
- Frachtenburg, Leo J.
1914 Notes on the Kusan Dialect. Columbia University Contributions to American Anthropology 4:145.
- Franklin, Jerry F. and C. T. Dyrness
1973 Natural Vegetation of Oregon and Washington. USDA Forest Service General Technical Report PNW-8, U.S. Department of Agriculture, Portland, Oregon.
- Gould, R. A.
1966 Archeology of the Point St. George Site and Tolowa Prehistory, University of California Publications in Anthropology, 4, University of California Press, Berkeley.
- Hall, Roberta L.
1978 Oral Traditions of the Coquille Indians. Department of Anthropology, Oregon State University, Corvallis. *
- Hansen, H. P.
1947 Postglacial Forest Succession, Climate and Chronology in the Pacific Northwest. Transactions of the American Philosophical Society 37(I):1-130.
- Harrington, John P.
1943 Oregon Coast-Report and Map. Unpublished. Bureau of American Ethnology, Catalogue of Manuscripts, No. 4360.

Harrison, Brian

1977 A Unique Burial from the Lower Coquille. Unpublished manuscript on file, Department of Anthropology, Oregon State University, Corvallis.

1978 Report of a Burial Excavation at Bob Creek (35LA10), Lane County, Oregon. Report submitted to Department of Anthropology, Oregon State University, Corvallis.

Hartmann, Glenn D.

1978 An Archaeological Evaluation of the Tahkenitch Lake Site (35D0175), Douglas County, Oregon. Department of Anthropology, Oregon State University, Corvallis.

Heflin, Eugene

1966 The Pistol River Site of Southwest Oregon. University of California Archaeological Survey Reports 67:151-206.

Hogg, Thomas C. (ed.)

1979 Umpqua River Basin Cultural History, Phase I Research. Report to the Douglas County Commissioners, Roseburg, Oregon.

Ingles, Lloyd G.

1965 Mammals of the Pacific States. Stanford University Press, Stanford, California.

Jacobs, Melville

1939 Coos Narrative and Ethnological Texts. University of Washington Publications in Anthropology 8(1):1-126, Seattle.

1940 Coos Myth Texts. University of Washington Publications in Anthropology 8(2):127-260, Seattle.

Johnston, Richard B. and K. A. Cassavoy

1978 The Fishweirs at Atherly Narrows, Ontario. American Antiquity 43(4):697-709.

Kirk, Donald R.

1970 Wild Edible Plants of the Western United States. Naturegraph, Healdsburg, California.

Leatherman, Kenneth E. and Alex D. Krieger

1940 Contributions to Oregon Coast Prehistory. American Antiquity 6(1):19-28.

Leonhardy, Frank

- 1967 The Archeology of a Late Prehistoric Village in Northwestern California. Bulletin no. 4, Museum of Natural History, University of Oregon, Eugene; March.

Lewis, Albert B.

- 1906 Tribes of the Columbia Valley and the Coast of Oregon. Memoirs of the American Anthropological Association 1905-1907 I(2):147-209.

Loy, T. and G. R. Powell

- 1977 Archeological Data Recording Guide. Heritage Record No. 3, Archeological Division, British Columbia Provincial Museum.

Mackey, Harold

- 1974 The Kalapuyans. Mission Hill Museum Association, Inc. Salem, Oregon.

Newman, Thomas M.

- 1959 Tillamook Prehistory and Its Relation to the Northwest Coast Culture Area. PhD dissertation. Department of Anthropology, University of Oregon, Eugene.

Osborne, Douglas

- 1965 Chipping Remains as an Indication of Cultural Change at Wetherill Mesa. Contributions of the Wetherill Mesa Archeological Project, Memoirs of the Society for American Archeology, 19:30-44.

Peterson, Roger T.

- 1961 A Field Guide to Western Birds. Houghton Mifflin, Boston.

Pettigrew, Richard M.

- 1979 Report on the Archeological Survey of Oregon Forest Highway Route 5, U.S. 101 (Intermittent Sections), Oregon Coast Highway, Lane, Douglas and Coos Counties. Report submitted to Highway Division, Oregon State Department of Transportation by Oregon State Museum of Anthropology, Eugene.

Phebus, George and Robert M. Drucker

- 1973 Archaeological Investigations of the Northern Oregon Coast. Report submitted to Chairman's Office, Department of Anthropology, Smithsonian Institution, Washington, D. C.

Pierce, Joe E.

- 1965 Hanis and Miluk: Dialects of Unrelated Languages. International Journal of American Linguistics 31:323-325.

Pullen, Reg

- 1979 Personal communication with BLM archeologist, Coos Bay District, Coos Bay, Oregon regarding bone artifacts found at 35CS1.

Quayle, D. B.

- 1974 The Intertidal Bivalves of British Columbia. British Columbia Provincial Museum, Victoria, British Columbia.

Ricketts, E. F. and Jack Calvin

- 1976 Between Pacific Tides. Stanford University Press, Stanford, California.

Ross, Richard E.

- 1973 Excavations at the Neptune Site (35LA3). Field notes on file, Department of Anthropology, Oregon State University, Corvallis.
- 1975 Prehistoric Inhabitants at Seal Rock, Oregon. Geological Newsletter, Geological Society of the Oregon Country 41(5), Portland.
- 1976 Archeological Survey of State Park Lands along the Oregon Coast. Report submitted to State Parks and Recreation, Department of Anthropology, Oregon State University, Corvallis.
- Excavations on the Lower Coquille River, Coos County, Oregon. Report submitted to Oregon State Parks and Recreation, Department of Anthropology, Oregon State University, Corvallis. *
- 1977 Preliminary Archeological Investigations at 35CU9, Port Orford, Oregon. Report submitted to State Parks and Recreation, Department of Anthropology, Oregon State University, Corvallis.
- 1978 Excavations at 35D083. Field notes on file at Department of Anthropology, Oregon State University, Corvallis. *
- 1979 Excavation at 35D083. Field notes on file at Department of Anthropology, Oregon State University, Corvallis. *

Ross, Richard E. and Sandra L. Snyder

- 1979 Riverine Adaptations on the Central Oregon Coast: 35D083-- A Preliminary Report. Paper presented at the 4th annual meeting for the Society for American Archeology, 23-25 April.

- Ruby, R. H. and John A. Brown
 1976 The Chinook Indians: Traders of the Lower Columbia River.
 Univesrity of Oklahoma Press, Norman.
- Scheffer, Victor B.
 1958 Seals, Sea Lions and Walruses. Stanford University Press,
 Stanford, California.
- Schumacher, Paul
 1874 Remarks on the Kjukken-moddings on the Northwest Coast of
 America. Smithsonian Institution Annual Report for the
 year 1873.
- 1877 Researches in the Kjukkenmoddings of the Coast of Oregon
 and of the Santa Barbara Islands and Adjacent Mainland.
 U.S. Geological and Geographical Survey of Territories,
 3(1), Washington, D. C.
- Snyder, John O.
 1907 The Fishes of the Coastal Streams of Oregon and Northern
 California, United States Fish and Wildlife Service, Fish
 Bulletin, Vol. 27, pp. 153-189. Washington, D. C.
- Snyder, Sandra L.
 1978 An Osteo-Archeological Investigation of Pinniped Remains
 at Seal Rock, Oregon (35LNC14). M.A.I.S. thesis, Department
 of Anthropology, Oregon State University, Corvallis.
- St. Clair, Henry H.
 1909 Traditions of the Coos Indians of Oregon. Journal of
 American Folklore 22(83):25-41.
- Stenhouse, Peter J.
 1974 Progress Report on the Umpqua-Eden Archaeological Rescue Dig
 (first phase), Oregon Coastal Indian Archaeological Society,
 Coos Bay.
- Stubbs, Ron
 1973 Preliminary Report on Indian Bay Site, 35CS30. Unpublished
 report.
- Suttles, Wayne and William W. Elmendorf
 1963 Linguistic Evidence for Salish Prehistory. Proceedings of
 the 1962 Annual Spring Meeting of the American Ethnological
 Society: Symposium on Language and Culture.

Taylor, H. C. and Lester L. Hoaglin

- 1962 The Intermittent Fever Epidemic of the 1830s on the Lower Columbia River, *Ethnohistory* 9(2), Spring.

Treganza, Adam E.

- 1958 Salvage Archeology in the Trinity Reservoir Area, Northern California. University of California Archeological Survey Reports, 43:1.

Wilson, Bart M.

- 1979 Salvage Archeology of the Ritsch Site, 35J04: A Late Prehistoric Village Site on the Central Rogue River, Oregon. Unpublished M.A.I.S. thesis, Department of Anthropology, Oregon State University, Corvallis.

Woodward, John and Dale Archibald

- 1975 An Unusual Indian Burial from the Salmon River Estuary, Lincoln County, Oregon. *Northwest Anthropological Notes* 9(1):27-31.

Zontek, Terry

- 1978 Test Excavations and Cultural Resource Evaluation of the Oceanside Site (35TI47). Department of Anthropology, Oregon State University, Corvallis.

APPENDIX A

Artifact Descriptions

A total of 436 artifacts were recovered from the Philpott site (35CS1) which were definitely manufactured or utilized by Native Americans. The artifact sample was subdivided into 16 functional categories for analytical and descriptive purposes. Morphological categories were employed when function could not be determined.

When warranted, artifact categories were further subdivided into groups. Shared technological or morphological attributes were used as the determining criteria by which tool forms were distinguished within any given category. Modifications of the basic form defining the group necessitated further subdivision of the group into varieties. In most instances, modifications were restricted to one attribute.

Owing to the paucity and composition of the historic artifacts, categories were defined on the basis of material rather than functional categories in all but one instance.

The designation of artifact categories, groups and varieties was employed as an analytical technique to facilitate the analysis of the cultural material recovered from the Philpott site. These categories were not designed to reflect the mental template(s) envisioned by the tool maker during the manufacture of the artifact(s). When possible, however, the context in which the artifact was found as well as relevant ethnographic and historic data were used during analysis to delineate artifact categories and/or forms.

All of the artifacts recovered from the Philpott site (35CS1) were alpha-numerically coded for identification purposes. The first

two numerical digits in the code denote category. The second two digits, also numerical, denote the group. The capital letter following the second two digits refers to the variety represented by the artifact.

01 Projectile Points (Figure 10)

01-01A Base notched; small constricting stem; convex base; thin triangular blade; straight to slightly convex edges; flaking random; one specimen fragmented.

	Range	Mean
Length	24-25 mm	24.7 mm
Width	16-18 mm	17.3 mm
Thickness	3-5 mm	3.8 mm
Neck width	4-5 mm	4.8 mm
Weight	0.9-1.7 g	1.2 g
Material	cryptocrystalline 4	
N sample	Test Pit E:	3
	Test Pit F:	1

01-02A Base notched straight to slightly constricting stem; straight to convex base; base usually thinned; thin triangular blade; straight to slightly convex edges; one specimen serrated; flaking random; four specimens fragmented.

	Range	Mean
Length	16-27 mm	21.5 mm
Width	14-18 mm	16.0 mm
Thickness	3-4 mm	3.4 mm
Neck width	5-7 mm	6.0 mm
Weight	0.4-1.5 g	0.9 g
Material	cryptocrystalline 5	
N sample	Test Pit E:	2
	Test Pit G:	1
	Test Pit I:	1
	SCA:	1

01-02B Same as 02A except: barbs extend below the plane of the base; three specimens serrated; three specimens fragmented.

	Range	Mean
Length	18-31 mm	25 mm
Width	19-21 mm	20 mm
Thickness	2-4 mm	3.7 mm
Neck width	4-7 mm	5.8 mm
Weight	0.4-1.6 g	1.2 g
Material	cryptocrystalline 7	
N sample	Test Pit A:	2
	Test Pit E:	2
	Test Pit F:	3

01-03A Corner removed; wide expanding stem; straight base; base thinned on one side; small triangular blade; straight to slightly convex edges; flaking random.

Length	35 mm
Width	18 mm
Thickness	5 mm
Neck width	12 mm
Weight	2.6 g
Material	cryptocrystalline 1
N sample	Test Pit G: 1

- 01-04A Lanceolate projectile point; convex edges; edges constricted near base to form a short, broad hafting element; base straight to rounded; flaking random; secondary flaking on one specimen incomplete.

	Range	Mean
Length	42-43 mm	42.5 mm
Width	12-15 mm	13.5 mm
Thickness	8-9 mm	8.5 mm
Neck width	?-6 mm
Weight	4.2-4.3 g	4.25 g
Material	cryptocrystalline 2	
N sample	Test Pit E:	1
	Test Pit F:	1

- 01-05A Stemless projectile point; straight base; base thinned; narrow, thin triangular blade; concave edges; flaking random.

Length	36 mm
Width	13 mm
Thickness	4 mm
Weight	1.1 g
Material	cryptocrystalline 1
N sample	Test Pit E: 1

- 01-06A Stemless projectile point; concave base; base thinned; thin triangular blade; straight to slightly convex edges; flaking random; both specimens fragmented. The following metric data is from one specimen.

Length	36 mm
Width	19+ mm
Thickness	5 mm
Weight
Material	cryptocrystalline 2
N sample	Test Pit E: 2

- 01-07A Distal or tip fragments of projectile points.

Material	cryptocrystalline 6
N sample	Test Pit E: 3
	Test Pit G: 1
	Test Pit I: 2

01-07B Lateral edge fragments of projectile points.

Material	cryptocrystalline	2
N sample	Test Pit E:	2

02 Blanks (Figure 11)

02-01A Primary blank; crudely roughed-out biface; percussion flaked; broad, often deep, irregular flake scars; three specimens fragmented. The following metric data is from one complete specimen.

Length	70 mm	
Width	42 mm	
Thickness	23 mm	
Material	cryptocrystalline	5
N sample	Test Pit E:	4
	SCA:	1

02-02A Same as 01A except: all specimens fragmented during the thinning process.

Material	cryptocrystalline	3
N sample	Test Pit E:	1
	Test Pit H:	1
	SCA:	1

02-03A Primary blank; roughed-out ovate biface; percussion flaked; broad, irregular flake scars; one specimen probably broken during manufacture. The following metric data is from one complete specimen.

Length	44 mm	
Width	37 mm	
Thickness	12 mm	
Material	cryptocrystalline	2
N sample	Test Pit E:	1
	SCA:	1

02-04A Primary blank; roughed-out tabloid biface; percussion flaked; broad, irregular flake scars.

Length	50 mm	
Width	52 mm	
Thickness	16 mm	
Material	cryptocrystalline	1
N sample	Test Pit E:	1

- 02-05A Secondary blank; concave base; convex edges; rounded tip; lenticular to triangular cross section; broad, thick blade shaped by percussion flaking.

Length	45 mm
Width	32 mm
Thickness	10 mm
Material	cryptocrystalline 1
N sample	SCA: 1

- 02-06A Secondary blank; straight base; convex edges; rounded tip; roughly triangular in cross section; broad, thick blade shaped by percussion flaking; secondary pressure shaping and thinning begun on lateral edges; thickness of two specimens may have terminated reduction. The following metric data is from one complete specimen.

Length	48 mm
Width	32 mm
Thickness	10 mm
Material	cryptocrystalline 3
N sample	Test Pit E: 2
	SCA: 1

- 02-06B Same as 06A except: base convex; both specimens probably broken during manufacture.

	Range	Mean
Length	?-42 mm
Width	23-26 mm	24.5 mm
Thickness	4-6 mm	5 mm
Material	cryptocrystalline 2	
N sample	Test Pit E: 1	
	SCA: 1	

- 02-07A Secondary blank; convex base; small triangular blade; convex edges; lenticular to triangular in cross section; with the exception of notching overall shape complete; thinning near completion; both specimens were projectile point preforms.

	Range	Mean
Length	28-31 mm	29.5 mm
Width	17-22 mm	19.5 mm
Thickness	6-7 mm	6.5 mm
Material	cryptocrystalline 2	
N sample	Test Pit E: 1	
	Test Pit G: 1	

- 02-07B Same as 07A except: concave base; straight to slightly convex edges; specimens probably broken during manufacture.

	Range	Mean
Length
Width	23-?
Thickness	5-6 mm	5.5 mm
Material	cryptocrystalline 2	
N sample	Test Pit F:	1
	Test Pit I:	1

- 02-07C Same as 07A except: straight base; one barb well-shaped, extending below the plane of the base.

Length	29 mm
Width	23 mm
Thickness	5 mm
Material	cryptocrystalline 1
N sample	Test Pit E: 1

- 02-07D Same as 07A except: straight base, straight edges; distinct triangular shape; two specimens may be completed projectile points; one specimen fragmented.

	Range	Mean
Length	22-27 mm	24.5 mm
Width	20-23 mm	21.5 mm
Thickness	3-5 mm	4.0 mm
Material	cryptocrystalline 3	
N sample	Test Pit E:	3

- 02-08A Secondary blank; broad, thick convex base; long, narrow triangular blade produced on thick flake; straight to slightly convex edges; shaping and thinning confined primarily to medial and distal portion of blade; flaking random; specimen probably a drill-perforator preform.

Length	55 mm
Width	24 mm
Thickness	11 mm
Material	cryptocrystalline 1
N sample	SCA: 1

02-09A Distal or tip fragments of secondary blanks (preforms).

Material	obsidian	1
N sample	Test Pit E:	1

02-09B Basal fragments of secondary blanks (preforms).

Material	cryptocrystalline	1
N sample	Test Pit E:	1

02-10A Unclassified bifacial fragments; the majority of these specimens are probably fragmented blanks.

Material	cryptocrystalline	17
N sample	Test Pit E:	8
	Test Pit F:	1
	Test Pit G:	4
	Test Pit H:	1
	Test Pit J:	1
	SCA:	2

03 Knives (Figure 12)

03-01A "Flake knife"; large, irregular flake of cryptocrystalline bifacially modified on distal end to form a strong, acute, convex cutting edge; flaking random.

Length	34 mm
Width	28 mm
Thickness	10 mm
N sample	Test Pit E: 1

03-01B Same as 01A except: cutting edge produced on lateral edge of flake.

Length	31 mm
Width	46 mm
Thickness	8 mm
N sample	Test Pit G: 1

03-02A Basal knife fragment; blade-like flake of cryptocrystalline bifacially modified on lateral edges to form acute cutting edges; flaking random.

N sample	Test Pit F: 1
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04 Drills-Perforators (Figure 12)

02-01A Tapered drill-perforator; no prepared hafting element; base convex and unmodified; bit cross section oval to diamond; flaking random; secondary pressure shaping and thinning incomplete on one specimen; one specimen fragmented.

	Range	Mean
Length	?-58 mm
Base width	18-20 mm	19 mm
Bit width	12-13 mm	12.5 mm
Bit thickness	5-6 mm	5.5 mm
Material	cryptocrystalline 2	
N sample	Test Pit G:	1
	Test Pit I:	1

04-02A Tapered drill-perforator; bit produced on an otherwise unmodified irregular flake; bit ovoid in cross section.

Bit length	14 mm
Bit width	9 mm
Bit thickness	4 mm
Material	cryptocrystalline 1
N sample	Test Pit E: 1

05 Gravers-Perforators (Figure 12)

05-01A Small, well-formed, acute projection manufactured on an irregular flake, broken projectile point, or biface fragment; tip produced by unifacial flaking; tip generally projects 3-5 mm.

Material	cryptocrystalline 6
N sample	Test Pit E: 1
	Test Pit F: 1
	Test Pit G: 3
	Test Pit I: 1

05-01B Small, well-formed, broad projection manufactured on an irregular flake or core fragment; tip generally unifacially formed; tip terminates with wide, straight to slightly convex working edge; working edge "chisel-like"; length of working edge 4-7 mm.

Material	cryptocrystalline 11
N sample	Test Pit E: 6
	Test Pit F: 1
	Test Pit G: 2
	SCA: 2

- 05-01C Small, acute projection produced on an irregular flake or core fragment; projection formed between two unifacially flaked notches approximately 4-6 mm apart.

Material	cryptocrystalline	8
N sample	Test Pit E:	5
	Test Pit I:	1
	Test Pit J:	1
	SCA:	1

- 05-02A Natural projection on irregular flake used as a graver-perforator without modification.

Material	cryptocrystalline	3
N sample	Test Pit E:	3

06 Scrapers (Figure 13)

- 06-01A Tapered steep-end scraper; produced on a thick flake; obtuse, convex working edge manufactured on end of flake; lateral edges of flake purposely tapered toward striking platform; platform not removed; modified unifacially; ventral side of flake unmodified; overall shape sub-triangular; working edge polished by use.

	Range	Mean
Length	48-51 mm	49.5 mm
Width	37-46 mm	39.5 mm
Edge angle	85-87°	86°

Material	cryptocrystalline	2
N sample	SCA:	2

- 06-01B Same as 01A except: lateral edges of flake not tapered but parallel; overall shape ovoid to square.

Length	32 mm	
Width	49 mm	
Edge angle	83°	
Material	cryptocrystalline	1
N sample	Test Pit I:	1

- 06-02A Obtuse, straight to slightly concave or convex scraper edge produced on the end of an otherwise unmodified irregular flake or core fragment; modified unifacially.

	Range	Mean
Length of modified edge	16-40 mm	24.8 mm
Edge angle	57-88°	76.7°
Material	cryptocrystalline 14	
N sample	Test Pit D:	1
	Test Pit E:	3
	Test Pit F:	4
	Test Pit G:	1
	Test Pit H:	1
	Test Pit I:	2
	SCA:	2

- 06-03A Same as 02A except: obtuse edge produced on lateral edge.

	Range	Mean
Length of worked edge	11-51 mm	32.1 mm
Edge angle	65-85°	74.4°
Material	cryptocrystalline 14	
N sample	Test Pit E:	4
	Test Pit F:	1
	Test Pit G:	1
	Test Pit I:	1
	Test Pit J:	1

- 06-04A Multi-edge scraper; obtuse, straight to slightly concave or convex scraper edge produced on two or more edges of otherwise unmodified irregular flake or core fragment; modified unifacially.

	Range	Mean
Edge angles	54-86°	67°
Material	cryptocrystalline 7	
N sample	Test Pit E:	6
	Test Pit J:	1

- 06-05A Bifacially tapered end scraper; produced on thick flake; obtuse, convex working edge manufactured on end of flake; lateral edges of flake slightly tapered toward striking platform; platform removed; modified bifacially; ventral

and dorsal side of flake unmodified; overall shape ovoid to subtriangular; portion of working edge crushed by use; flaking random; one specimen fragmented. The following metric data is from one complete specimen.

Length	56 mm
Width	41 mm
Edge angle	68°
Material	cryptocrystalline 2
N sample	Test Pit G: 1
	SCA: 1

06-05B Same as 05A except: platform not removed; working edge polished.

Length	48 mm
Width	45 mm
Edge angle	61°
Material	cryptocrystalline 1
N sample	Test Pit E: 1

06-06A Obtuse, convex scraper edge produced on end of an otherwise unmodified irregular flake; modified bifacially; working edge crushed.

Length of modified edge	42 mm
Edge angle	66°
Material	cryptocrystalline 1
N sample	Test Pit D: 1

06-07A Acute, convex working edge produced on lateral edge of irregular flake; unifacially modified; working edge polished; one edge of flake modified unifacially to produce obtuse, straight to slightly convex scraper edge; working edge polished.

Length of bifacially modified edge	59 mm
Edge angle	40°
Length of unifacially modified edge	50 mm
Edge angle	84°
Material	cryptocrystalline 1
N sample	Test Pit H: 1

06-08A Unclassified scraper fragments; obtuse, straight to slightly convex or concave scraper edge produced on irregular flake or core fragment; modified unifacially;

most specimens may be end scraper fragments.

	Range	Mean
Edge angle	70-86°	76°
Material	cryptocrystalline 10	
N sample	Test Pit E:	5
	Test Pit F:	1
	Test Pit G:	2
	Test Pit I:	1
	SCA:	1

06-08B Same as 08A except: obtuse straight to convex scraper edge modified bifacially; most specimens may be end scraper fragments.

	Range	Mean
Edge angle	57-68°	62.5°
Material	cryptocrystalline 3	
N sample	Test Pit I:	1
	Test Pit J:	1
	SCA:	1

07 Utilized Flakes

07-01A Acute edge of flake or core fragment utilized without modification; wear flakes generally removed unifacially by unidirectional scraping motion; utilized edge generally straight; edge probably concave prior to use or as a result of utilization.

Material	cryptocrystalline 29	
N sample	Test Pit D:	1
	Test Pit E:	13
	Test Pit F:	6
	Test Pit G:	2
	Test Pit H:	3
	Test Pit J:	2
	SCA:	2

07-02A Same as 01A except: convex edge utilized.

Material	cryptocrystalline 60	
N sample	Test Pit A:	1
	Test Pit E:	28
	Test Pit F:	2
	Test Pit G:	3
	Test Pit I:	7
	Test Pit J:	8
	SCA:	11

07-03A Same as 01A except: concave edge utilized.

Material	cryptocrystalline	16
N sample	Test Pit A:	1
	Test Pit E:	3
	Test Pit F:	2
	Test Pit J:	3
	SCA:	7

07-04A Same as 01A except: at least two straight to slightly convex or concave edges utilized.

Material	cryptocrystalline	16
N sample	Test Pit E:	9
	Test Pit I:	1
	Test Pit J:	1
	SCA:	5

07-05A Obtuse (greater than 45°) edge of flake or core fragment utilized without modification; wear flakes generally removed unifacially by unidirectional scraping motion; utilized edge generally straight; edge probably concave prior to use or as a result of utilization.

Material	cryptocrystalline	14
N sample	Test Pit E:	5
	Test Pit G:	2
	Test Pit I:	3
	Test Pit J:	2
	SCA:	2

07-06A Same as 05A except: convex edge utilized.

Material	cryptocrystalline	9
N sample	Test Pit E:	8
	Test Pit I:	1

07-07A Same as 05A except: concave edge utilized.

Material	cryptocrystalline	25
N sample	Test Pit A:	1
	Test Pit E:	11
	Test Pit F:	1
	Test Pit G:	3
	Test Pit J:	4
	SCA:	5

07-08A Same as 05A except: at least two straight to slightly convex or concave edges utilized.

Material	cryptocrystalline	14
N sample	Test Pit E:	8
	Test Pit F:	3
	Test Pit J:	1
	SCA:	2

08 Worked Flakes

08-01A Obtuse, straight to convex or concave edge produced on otherwise unmodified irregular flake or core fragment; modified unifacially; specimens may have been modified for scraping or cutting function.

Material	cryptocrystalline	30
N sample	Test Pit E:	12
	Test Pit F:	4
	Test Pit G:	3
	SCA:	11

08-02A Same as 01A except: acute edge.

Material	cryptocrystalline	5
N sample	Test Pit E:	2
	Test Pit J:	1
	SCA:	2

08-03A Obtuse, straight to convex edge produced on otherwise unmodified irregular flake; modified bifacially; specimens may have been modified for scraping or cutting function.

Material	cryptocrystalline	8
N sample	Test Pit E:	1
	Test Pit I:	2
	SCA:	5

08-04A Same as 03A except: acute edge.

Material	cryptocrystalline	3
N sample	Test Pit F:	2
	Test Pit J:	1

09 Choppers (Figure 14)

- 09-01A Rounded, cryptocrystalline and quartzite river cobbles; unifacially flaked along one face to produce a sharp edge; one specimen may have been a cryptocrystalline core, secondarily used as chopper; edges slightly crushed through use.

	Range	Mean
Edge angle	61-84°	72.5°
N sample	Test Pit I: 1	Test Pit J: 1

10 Hammerstones (Figure 15)

- 10-01A Rounded quartzite river cobbles; one end used without modification; end crushed or pecked through use; opposing end faceted on both edges creating a narrow ridge; faceted edges polished through use; slight evidence of wear on lateral edges; one specimen fractured longitudinally, probably as a result of use.

	Range	Mean
Length	61-72 mm	65.6 mm
Width	50-67 mm	55.6 mm
Angle of faceted edge	105-113°	109°
N sample	Test Pit F: 1	Test Pit G: 2

- 10-02A Rounded quartzite river cobble; all lateral edges have been purposely faceted creating a narrow ridge along entire circumference of cobble; faceted edges polished through use; angles of faceted edges vary from 98° to 125°; specimen fractured on one end, probably as a result of use.

Length	63 mm
Width	61 mm
N sample	Test Pit E: 1

- 10-03A Subangular cryptocrystalline river cobble; shape irregular; used without modification; crushing or pecking through use evident on all edges.

Length	69 mm
Width	64 mm
N sample	Test Pit J: 1

11 Pestles (Figure 16)

11-01A Elongated, river cobble pecked and ground to a conical shape; pecking may have been restricted to two opposing lateral edges; striations present on entire surface (lengthwise); circular cross section; distal end flat to slightly convex; slightly crushed through use; flake scars (wear fracture) emanating from distal end along lateral margins; proximal end tapered to a blunt, convex "point."

Length	102 mm
Distal width	37 mm
N sample	Test Pit I; 1

12 Adze Blades (Figure 17)

12-01A Long, tabular piece of meta-schist ground and polished on all surfaces resulting in a rectangular shape; striations random on entire surface; double-bevelled in cross section. The following metric data is from one complete specimen.

Length	114 mm
Width	43 mm
Thickness	15 mm
Edge angle	42°
N sample	Test Pit J: 1

12-02A Same as 01A except double-tapered in cross section; one specimen fragmented.

	Range	Mean
Length	81-82 mm	81.5 mm
Width	37-38 mm	37.5 mm
Thickness	10-14 mm	12.6 mm
Edge angle	30-43°	36.5°
N sample	Test Pit E: 2	
	Test Pit H: 1	

12-03A Unclassified adze blade fragments.

Material	meta-schist	6
N sample	Test Pit E:	2
	Test Pit G:	2
	SCA:	2

13 Line Sinker (Figure 18)

13-01A Small ovoid to tabular piece of meta-schist ground and polished on all surfaces resulting in an oval to elliptical shape; striations random on entire surface; ovoid in cross section; incised groove on longitudinal axis of dorsal and ventral surfaces; both ends notched; specimen fragmented.

Length	?
Width	16+ mm
Thickness	7-8 mm
N sample	Test Pit I: 1

14 Cores (Figure 19)

14-01A Large cryptocrystalline river cobbles peripherally flaked so as to produce broad, thin irregular flakes; cortex present on some surfaces; resultant core conical to discoidal in overall shape.

N sample	Test Pit G: 1
	Test Pit I: 1
	SCA: 3

14-02A Same as 01A except: quartzite.

N sample	Test Pit I: 2
	Test Pit J: 1
	SCA: 1

14-03A Fragmented cryptocrystalline cores.

N sample	Test Pit E: 1
	Test Pit G: 1
	Test Pit I: 2
	Test Pit J: 1
	SCA: 11

15 Miscellaneous Artifacts (Figure 20)

15-01A Amorphous nodule of sunbaked(?) clay; appears to have been roughly molded or shaped; function, if any, unknown.

N sample	Test Pit G: 1
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15-02A Petrified wood fragment; one edge appears to have been ground; function, if any, unknown.

N sample Test Pit H: 1

15-03A Striated soapstone (?) fragment; function, if any, unknown.

N sample Test Pit E: 1

16 Glass and China

16-01A Glass fragment, brown.

N sample Test Pit C: 1

16-02A Same as 01A except: clear.

N sample Test Pit E: 9

16-03A China fragment, white.

N sample SCA: 1

17 Lead Shot

17-01A Small lead shot (.22 caliber?)

	Range	Mean
Diameter	4-6 mm	5 mm
N sample	SCA:	2

A - B	01-01A
C - D	01-02A
E - H	01-02B
I	01-03A
J	01-04A
K	01-05A
L	01-06A

Figure 10. Projectile points.

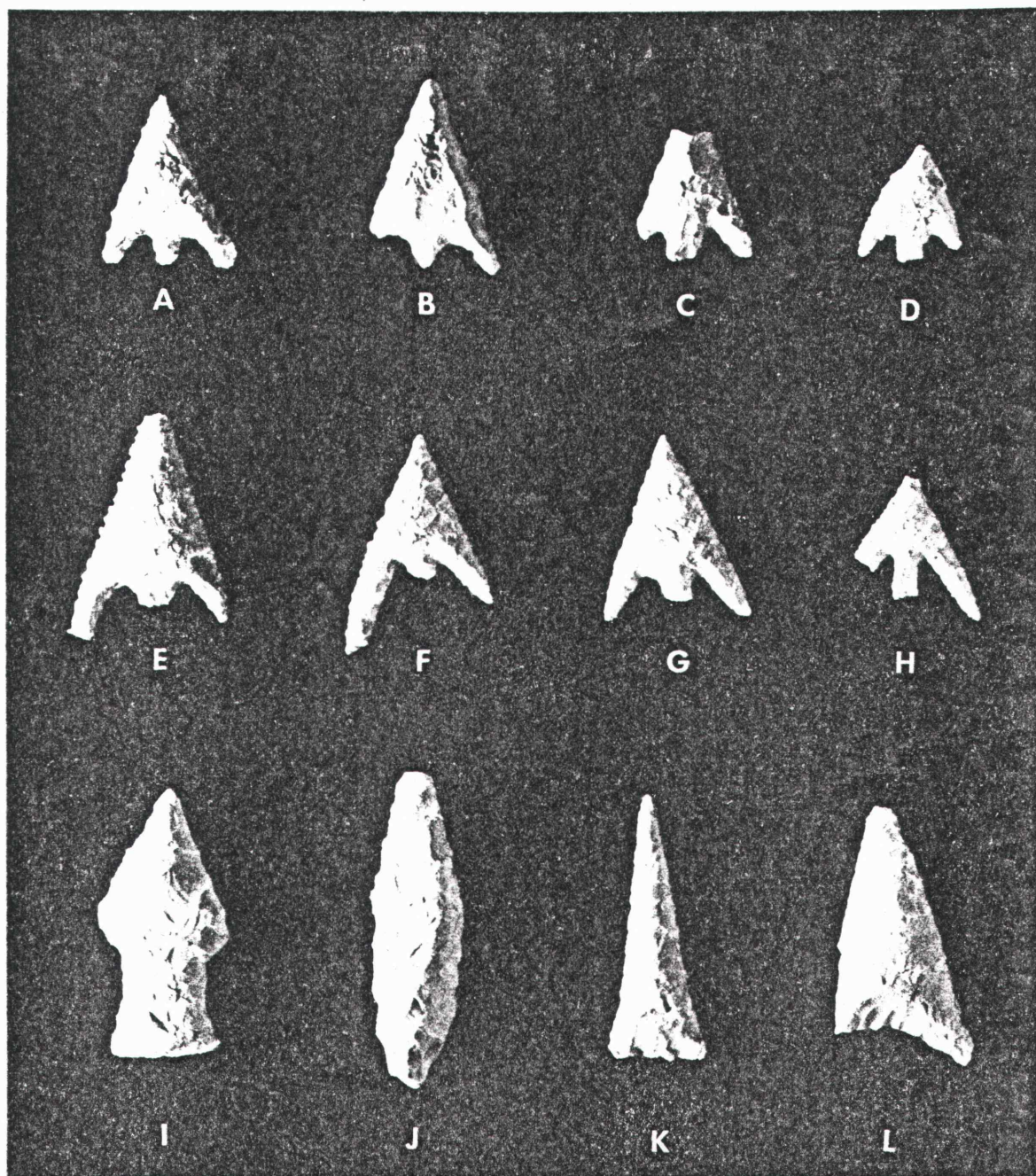


Figure 10. Projectile points.

A	02-05A
B	02-06A
C	02-06B
D - E	02-07A
F	02-07B
G	02-07C
H - I	02-07A
J	02-08A
K	02-09A

Figure 11. Secondary blanks (preforms).

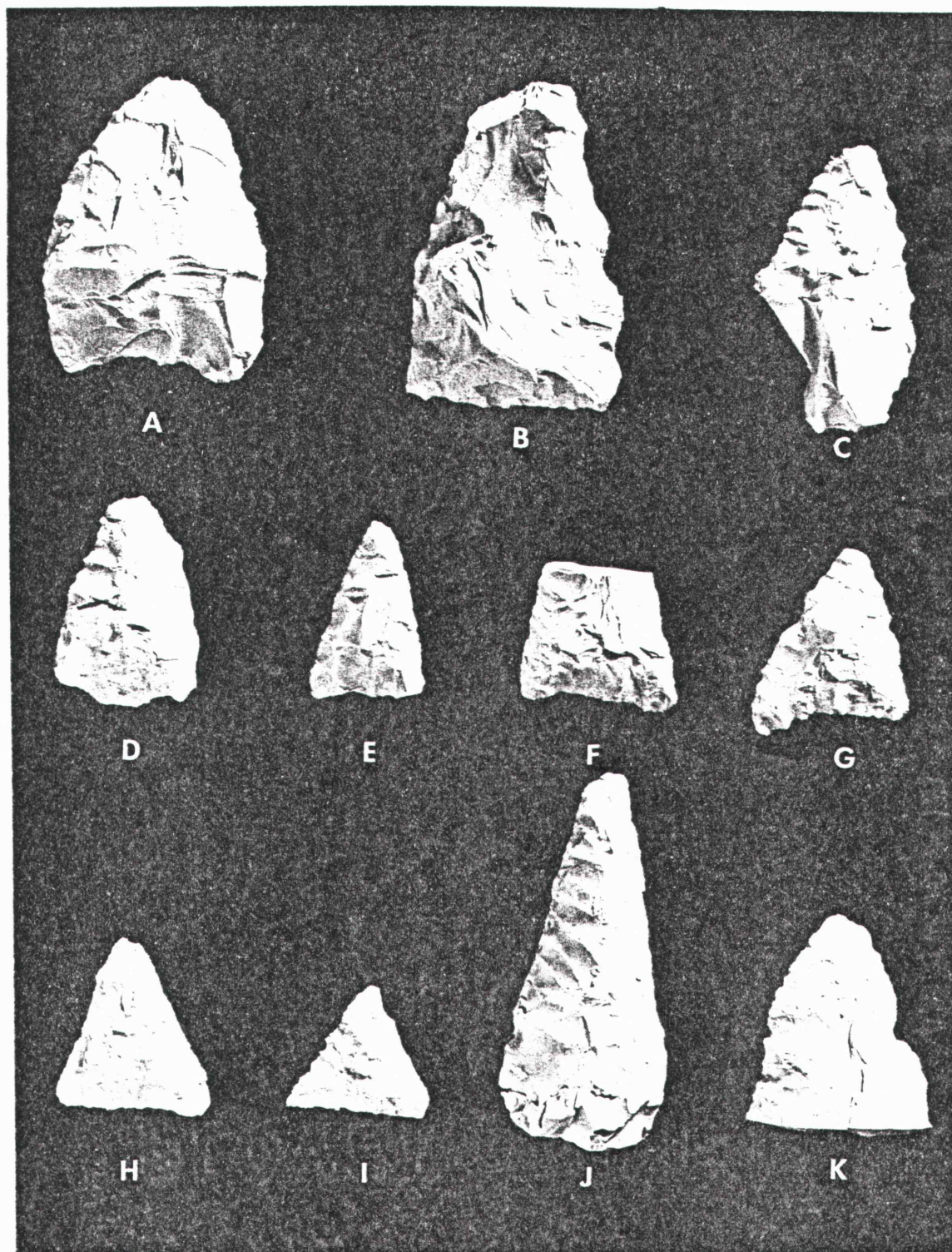


Figure 11. Secondary blanks (preforms).

Knives	
A	03-01A
B	03-01B
C	03-02A
Drills	
D - E	04-01A
F	04-02A
Gravers	
G - H	05-01A
I	05-01B
J	05-01C

Figure 12. Knives, drills, gravers.

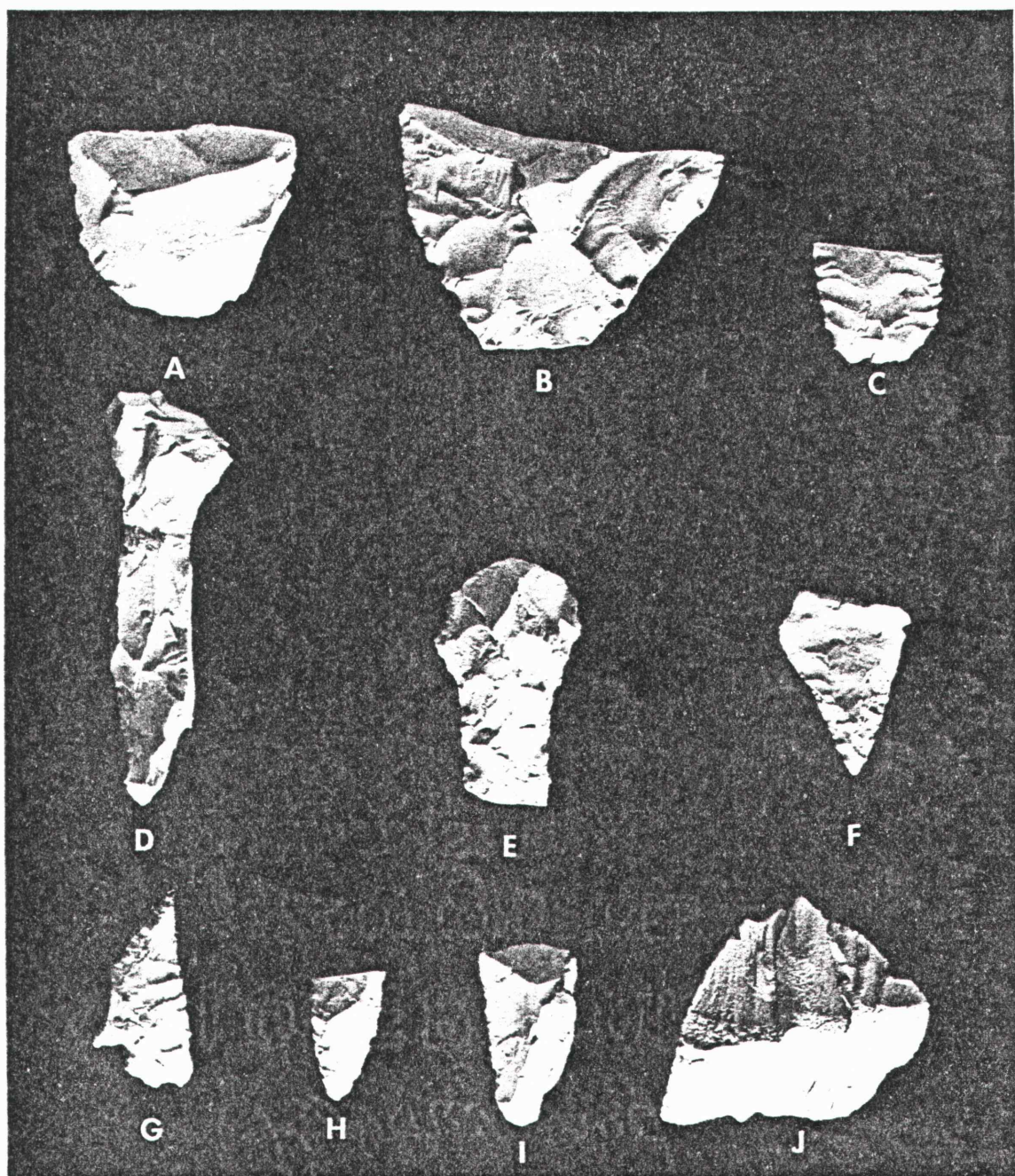


Figure 12. Knives, drills, gravers.

A - B	06-01A
C	06-01B
D	06-02A
E	06-03A
F	06-04A
G	06-05A
H	06-05B
I	06-06A
J	06-07A

Figure 13. Scrapers.

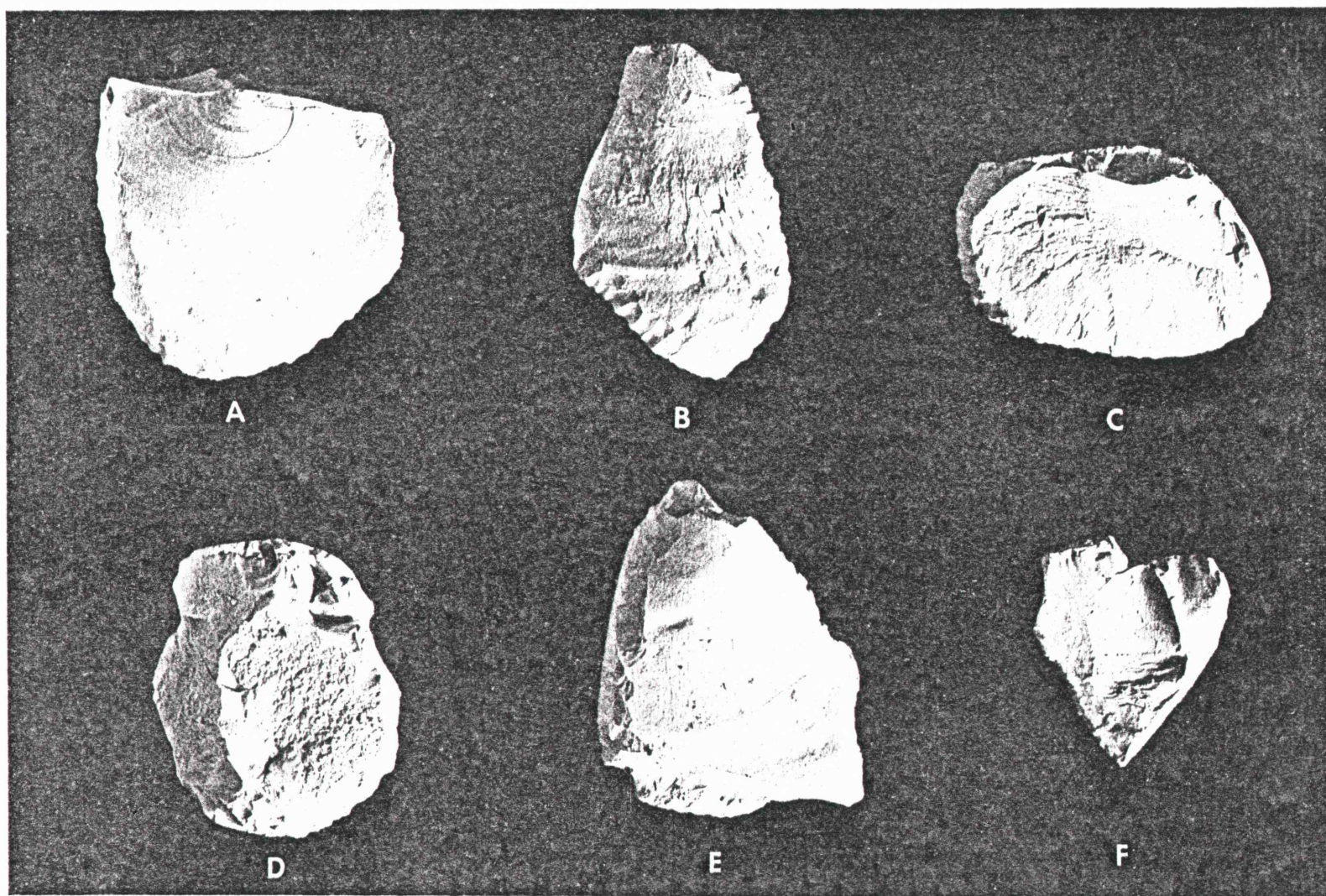


Figure 13. Scrapers.

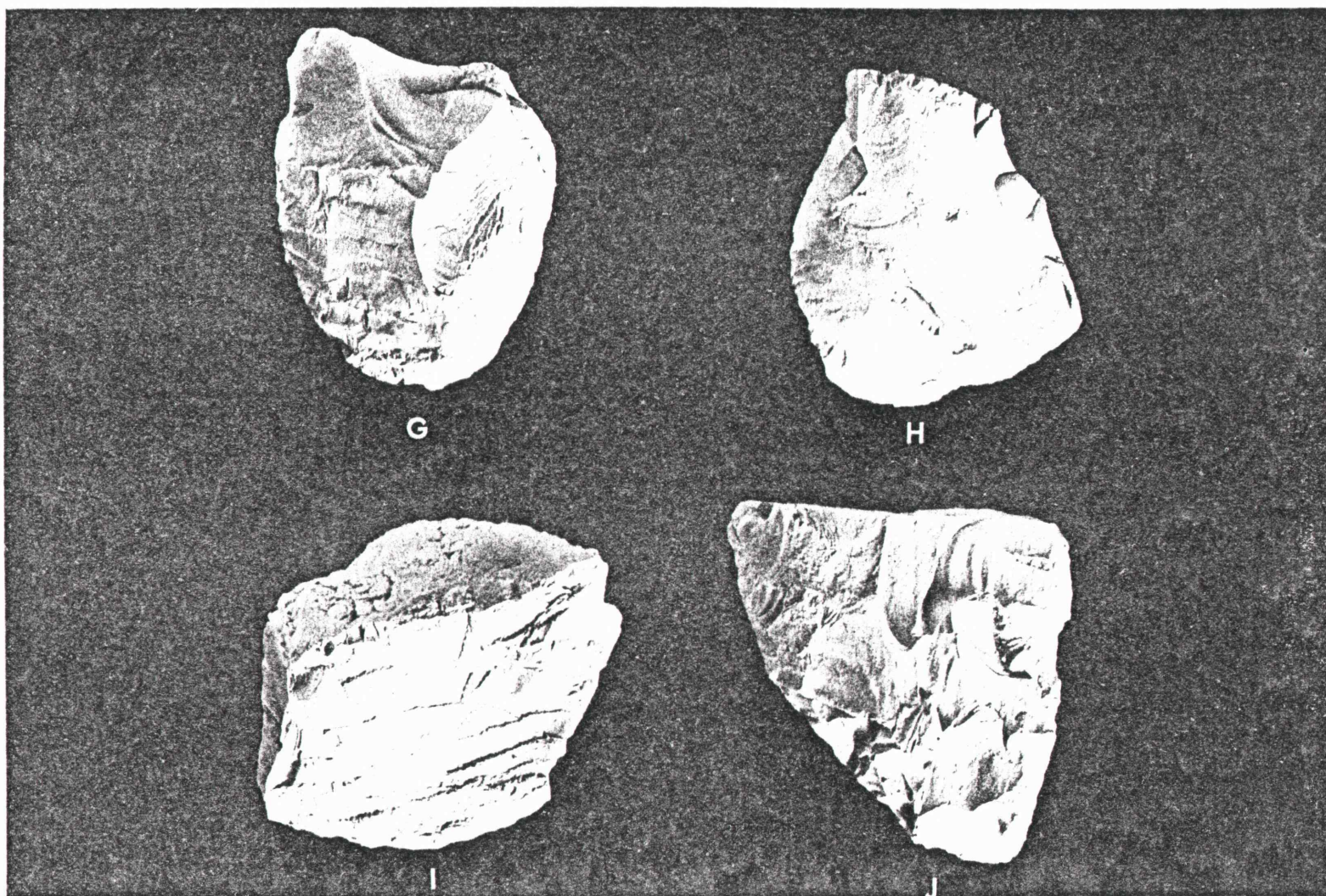
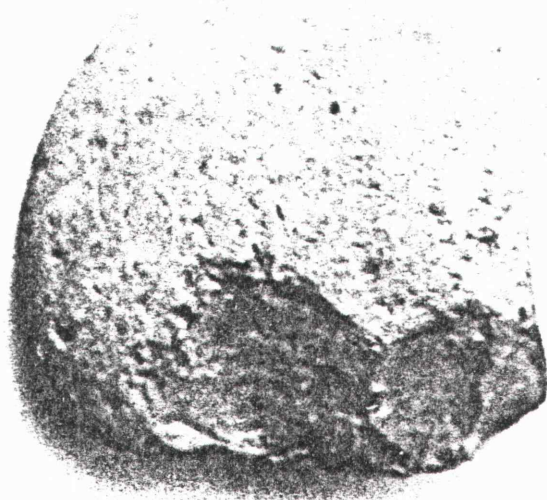


Figure 13. Scrapers (continued).



A



B

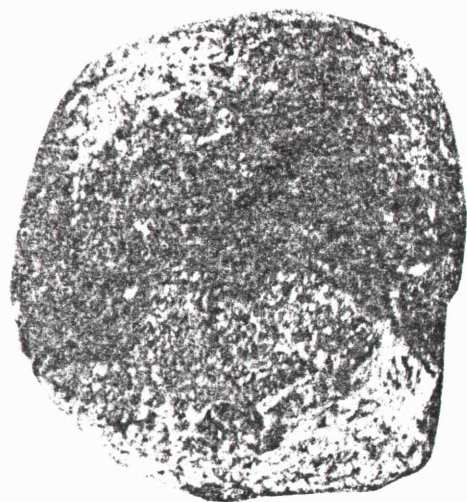
A - B

09-01A

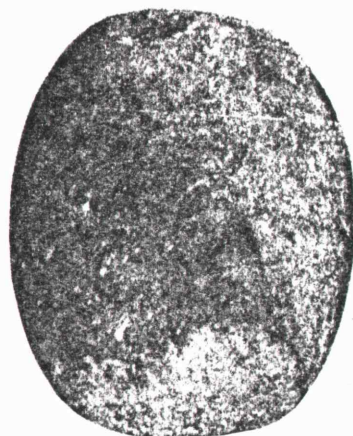
Figure 14. Choppers.

A - C	10-01A
D	10-02A
E	10-03A

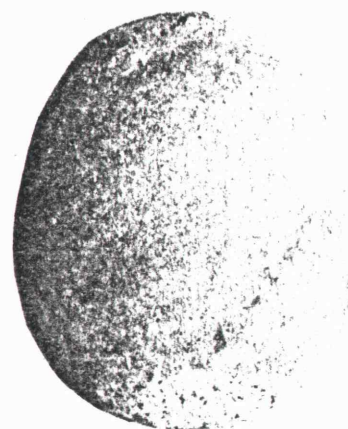
Figure 15. Hammerstones.



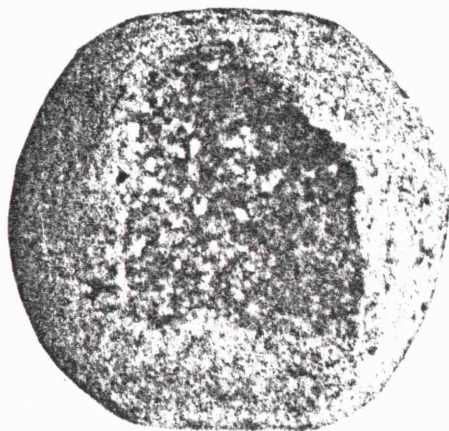
A



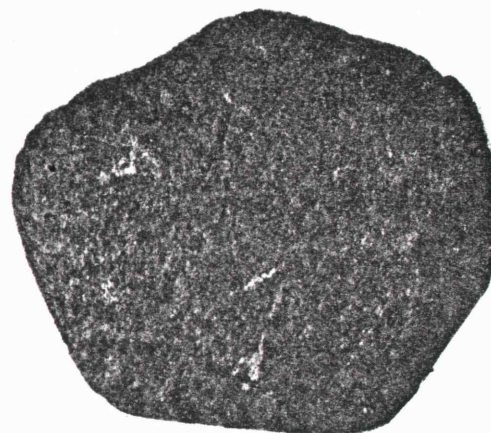
B



C

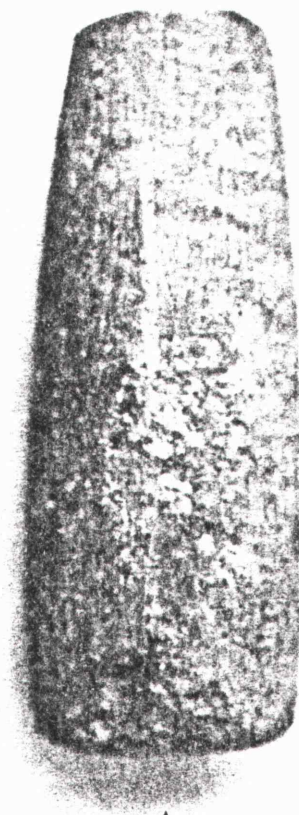


D



E

Figure 15. Hammerstones.



A

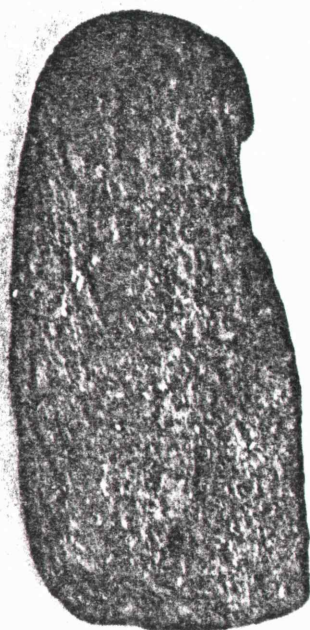
A

11-01A

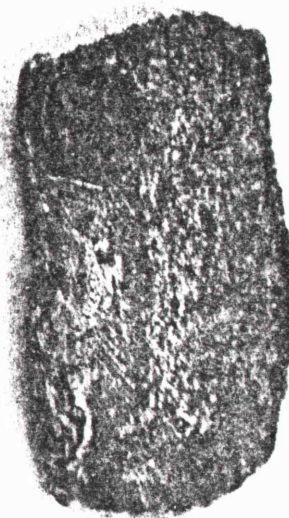
Figure 16. Pestle.



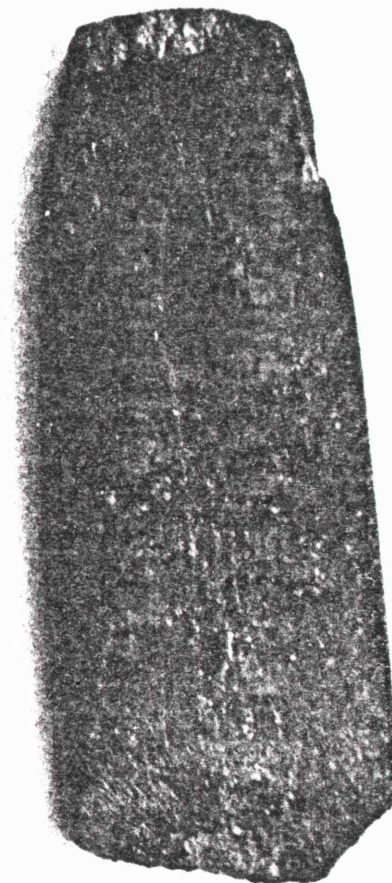
A



B



C



D

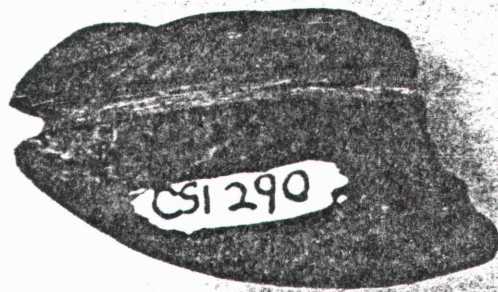
A - B

12-01A

C - D

12-02A

Figure 17. Adze blades.

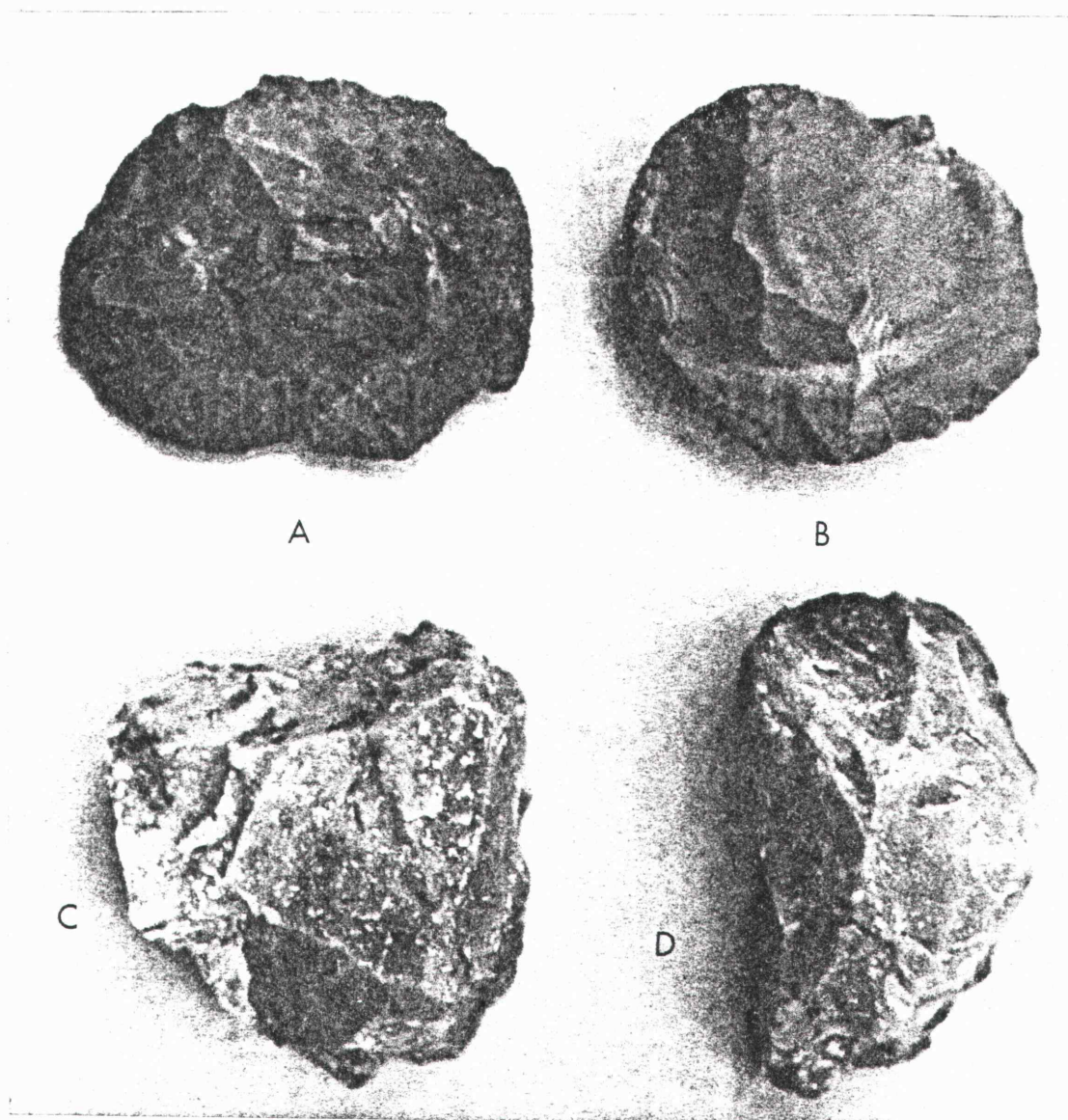


A

A

13-01A

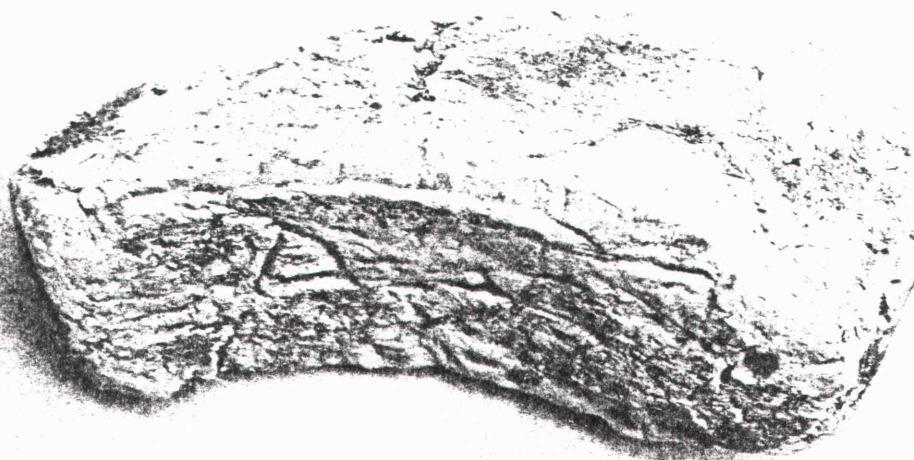
Figure 18. Line (net) sinker.



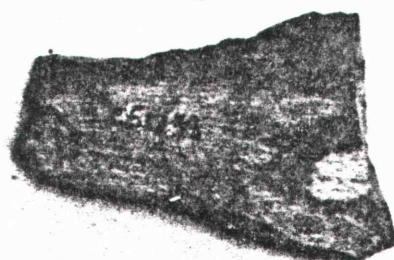
A - B 14-01A

C - D 14-02A

Figure 19. Cores.



A



B

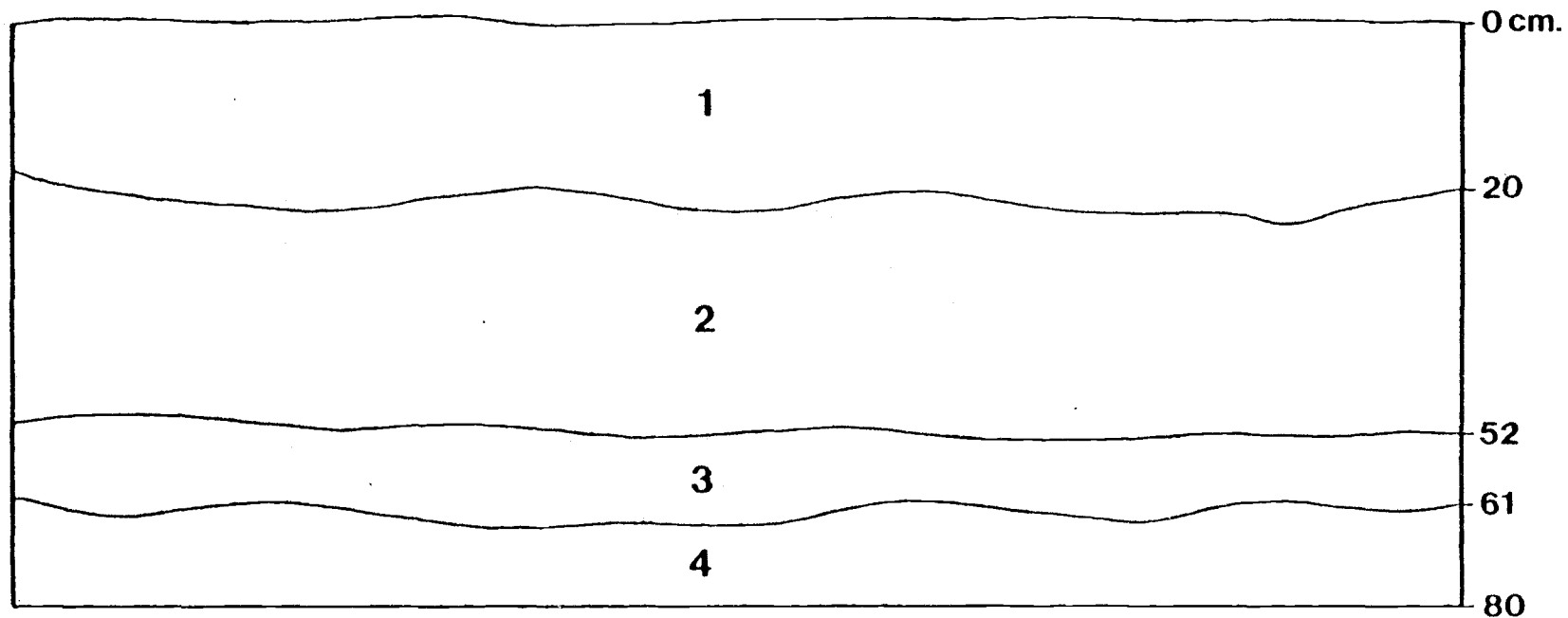
A 15-01A

B 15-02A

Figure 20. Miscellaneous artifacts.

APPENDIX B

Selected Soil Profiles



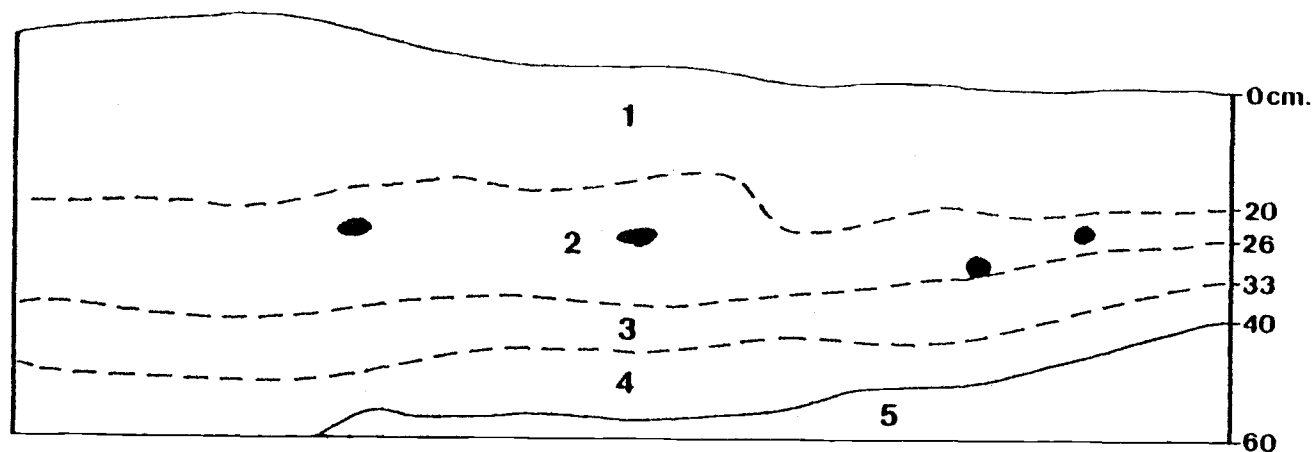
1 Plow zone.

3 10YR5/2 very dark grayish brown clay loam (midden).

2 10YR6/3 pale brown silty clay loam with red mottles.

4 10YR3/1 very dark gray silty clay.

Figure 21. Soil Profile: Test Pit A (west wall).



1 Plow zone: 10YR6/2 light brownish gray silty loam with dark gray silty clay loam with charcoal mottles (midden) which grade to-

2 10YR4/1 predominately dark gray silty clay loam with charcoal mottles (midden) mixed with lenses of dark grayish brown sandy silt loam which grade to-

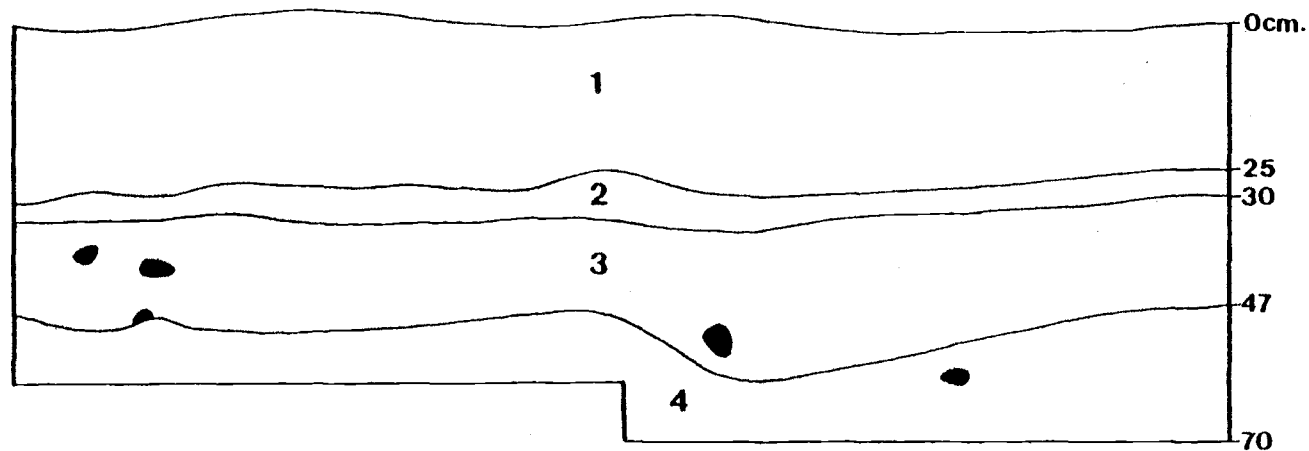
3 10YR3/2 very dark grayish brown silt clay loam with charcoal mottles (midden) which grade to-

4 10YR3/1 very dark gray silty clay loam containing infrequent lenses of sandstone and charcoal mottles (midden).

5 10YR2/2 very dark blue-gray silty clay with green silty clay(?) mottles.

● Fire-cracked rock.

Figure 22. Soil Profile: Test Pit E (west wall).



1 Plow zone.

3 10YR3/1 very dark gray silty clay loam with charcoal mottles (midden).

2 10YR5/3 brown silty clay loam with red mottles.

4 10YR6/2 compacted light brownish gray silty clay loam and fine gray sand with charcoal mottles.

● Fire-cracked rock.

Figure 23. Soil Profile: Test Pit G (north wall).