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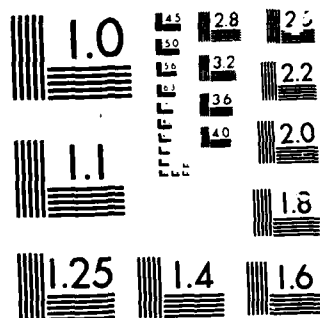
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**ARCHAEOLOGICAL INVESTIGATIONS
AT NONHABITATION AND BURIAL SITES
CHIEF JOSEPH DAM PROJECT,
WASHINGTON**

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Between 1978 and 1980, the U.S. Army Corps of Engineers contracted with the Office of Public Archaeology, University of Washington to conduct a mitigation program for cultural resources to be affected by a ten-foot pool raise behind Chief Joseph Dam. Of the 98 nonhabitation sites recorded for the reservoir, 13 which were in danger of inundation by the planned pool raise were recommended for Phase I mitigation and 45 which were not directly threatened, for Phase II mitigation. All rock art sites recommended for recording in Phase I or Phase II and all other accessible rock art sites in the reservoir were recorded. Recommended actions were taken at all Phase I rock feature sites. None of the features were found to mark burials; instead they either had no associated cultural materials or were of historic origin. Phase II sites were examined more selectively to insure that cairns from different contexts were examined. The only conclusively demonstrated prehistoric function for cairns is burial markers, and the best demonstrated historic feature types are fence supports and traps. The identification of some rock piles as homestead boundary markers, rock piles created by clearing rocks from fields, or placer mine deposits, is dependent on context, as artifacts were not found in association. Likewise, some rock features are interpreted as hunting blinds or trap anchors on the basis of location and lack of other demonstrated function. They cannot be certainly assigned to either the historic or prehistoric period. Burials were located during investigation of two rock feature sites and one prehistoric habitation site, and another was exposed by erosion at a prehistoric habitation site after the 1981 pool raise. All were relocated under a separate contract modification. The four burials, dating between 1000 B.P. and historic times, include the primary burial of an adult male, the secondary multiple burial of an adult female and a child, another child burial, and the secondary burial of a cranium in a housepit floor. Pollen analysis of soil samples from burials excavated by the University of Idaho at 45-OK-159 enabled determination of seasonality of burial in some cases.

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ARCHAEOLOGICAL INVESTIGATIONS AT NONHABITATION AND BURIAL SITES
CHIEF JOSEPH DAM PROJECT, WASHINGTON

by

Sarah K. Campbell

with

James M. Alexander, Marilyn G. Hawkes, Daniel G. Leen,
Deborah Newman, and Nancy A. Stenholm

Principal Investigators

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D.K. Grayson 1978-1981
M.E.W. Jaehnig 1981-1984
J.V. Jermann 1978-1981

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Final report submitted to the U.S. Army Corps of Engineers,
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The technical findings and conclusions in this report do
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Office of Public Archaeology
Institute for Environmental Studies
University of Washington

1984

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ABSTRACT

Between 1978 and 1980, the U.S. Army Corps of Engineers contracted with the Office of Public Archaeology, University of Washington to conduct a mitigation program for cultural resources to be affected by a ten-foot pool raise behind Chief Joseph Dam. Of the 98 nonhabitation sites recorded for the reservoir, 13 which were in danger of inundation by the planned pool raise were recommended for Phase I mitigation and 45 which were not directly threatened, for Phase II mitigation. All rock art sites recommended for recording in Phase I or Phase II and all other accessible rock art sites in the reservoir were recorded. Recommended actions were taken at all Phase I rock feature sites. None of the features were found to mark burials; instead they either had no associated cultural materials or were of historic origin. Phase II sites were examined more selectively to insure that cairns from different contexts were examined. The only conclusively demonstrated prehistoric function for cairns is burial markers, and the best demonstrated historic feature types are fence supports and traps. The identification of some rock piles as homestead boundary markers, rock piles created by clearing rocks from fields, or placer mine deposits, is dependent on context, as artifacts were not found in association. Likewise, some rock features are interpreted as hunting blinds or trap anchors on the basis of location and lack of other demonstrated function. They cannot be certainly assigned to either the historic or prehistoric period. Burials were located during investigation of two rock feature sites and one prehistoric habitation site, and another was exposed by erosion at a prehistoric habitation site after the 1981 pool raise. All were relocated under a separate contract modification. The four burials, dating between 1000 B.P. and historic times, include the primary burial of an adult male, the secondary multiple burial of an adult female and a child, another child burial, and the secondary burial of a cranium in a housepit floor. Pollen analysis of soil samples from burials excavated by the University of Idaho at 45-OK-159 enabled determination of seasonality of burial in some cases.

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PREFACE

The Chief Joseph Dam Cultural Resources Project (CJDCRP) has been sponsored by the Seattle District, U.S. Army Corps of Engineers (the Corps) in order to salvage and preserve the cultural resources imperiled by a 10 foot pool raise resulting from modifications to Chief Joseph Dam.

From Fall 1977 to Summer 1978, under contract to the Corps, the University of Washington, Office of Public Archaeology (OPA) undertook detailed reconnaissance and testing along the banks of Rufus Woods Lake in the Chief Joseph Dam project area (Contract No. DACW67-77-C-0099). The project area extends from Chief Joseph Dam at Columbia River Mile (RM) 545 upstream to RM 590, about seven miles below Grand Coulee Dam, and includes 2,015 hectares (4,979 acres) of land within the guide-taking lines for the expected pool raise. Twenty-nine cultural resource sites were identified during reconnaissance, bringing the total number of recorded prehistoric sites in the area to 279. Test excavations at 79 of these provided information about prehistoric cultural variability in this region upon which to base further resource management recommendations (Jermann et al. 1978; Leeds et al. 1981).

Intensive data recovery began on 31 July 1978, under Contract DACW67-78-C106, which provided for excavation, analysis, and reporting of six prehistoric habitation sites. Early in 1979, the contract was modified to include data recovery at a total of 17 prehistoric habitation sites, three historic site complexes, and the 13 nonhabitation sites specified for Phase I mitigation in the statement of work. An additional agreement was made that as many of the Phase II nonhabitation sites as possible would also be examined. Relocation of burials, however, was not a purpose of the original contract.

Planned relocation of burial sites was carried out by the University of Idaho under contract to the USCE (Sprague and Mulinski 1980). However, because erosion at other sites in the project area might disclose ancestral remains of members of the Colville Confederated Tribes, provisions were made for emergency removal of endangered human skeletal material. A separate burial relocation contract was signed between the University of Washington and the USCE. Exhumation and relocation of ancestral remains was conducted at the request of the Colville Confederated Tribes (Resolution 1978-211) in accordance with Corps regulations and was coordinated with the Washington State Historic Preservation Officer and the Advisory Council on Historic Preservation.

The Project's investigations are documented in four report series. Reports describing archaeological reconnaissance and testing include (1) a management plan for cultural resources in the project area (Jermann et al. 1978), (2) a report of testing at 79 prehistoric habitation sites (Leeds et

al. 1981), and (3) an inventory of data derived from testing. Series I of the mitigation reports includes (1) the project's research design (Campbell 1984d) and (2) a preliminary report (Jaehnig 1983b). Series II consists of descriptive reports on prehistoric habitation sites excavated as part of the project (Campbell 1984b; Jaehnig 1983a, 1984a,b; Lohse 1984a-f; Miss 1984a-d), and a report on the survey and excavation of historic sites (Thomas et al. 1984). A summary of project results is presented in Jaehnig and Campbell 1984).

Separate descriptive reports on prehistoric nonhabitation sites and burial relocation projects were originally planned as part of the Series II reports. Other project documents contain references to separate reports (Campbell 1984a and Campbell 1984c). This combined report replaces these two references.

ACKNOWLEDGEMENTS

This report is the result of the collaboration of many individuals and agencies. During the excavation and early reporting stages, co-Principal Investigators were Drs. Robert C. Dunnell and Donald K. Grayson, both of the Department of Anthropology, University of Washington, and Dr. Jerry V. Jermann, Director of the Office of Public Archaeology, University of Washington. Dr. Manfred E.W. Jaehnig served as Project Supervisor during this stage of the work. Since Fall of 1981 Dr. Jaehnig has served as co-Principal Investigator with Dr. Dunnell.

Several archaeologists on the staff of the Corps of Engineers have made major contributions to the project. They are Dr. Steven F. Dice, Contracting Officer's Representative, and Corps archaeologists Lawr V. Salo and David A. Munsell. Mr. Munsell and Mr. Salo have worked tirelessly to assure the success of the project, from its initial organization through site selection, sampling, analysis, and report writing. Mr. Munsell provided much needed guidance in the initial stages of the project and developed the strong ties with the Colville Confederated Tribes essential for the undertaking. Mr. Salo gave unstintingly of his time in order to guide the project through data collection and analysis; in his review of each report, he exercises that rarest of skills, an ability to criticize constructively. Jonathan Maas was helpful and conscientious in his role as the Corps observer during burial relocation operations at 45-OK-2 and 45-OK-250.

We appreciate the generous support and cooperation of the Colville Confederated Tribes throughout the project, particularly in respect to the sensitive issue of relocation of ancestral burial remains. We owe special thanks to Andy Joseph, representative from the Nespelem District on the Business Council, and Adeline Fredin, Tribal Historian and Director of the History and Archaeology Office. Mr. Joseph and the Business Council, and Mrs. Fredin, who acted as liaison between the Tribe and the project, did much to convince appropriate Federal and State agencies of the necessity of the investigation. They helped to secure the land and services needed for the project's field facilities as well as to establish a program which trained local people, including many tribal members, to be field excavators and laboratory technicians. Beyond all this, they extended us that courtesy and kindness which has made our stay in the project area a pleasant one. In return, conscious of how much gratitude must be packed into a few brief words, we would like to extend our most sincere thanks to all the members of the Colville Confederated Tribes who have supported our efforts, and to Mrs. Fredin and Mr. Joseph in particular.

We wish to thank all the private land owners who kindly allowed us to survey on their property, as well as the Colville Confederated Tribes and the State of Washington. The nonhabitation sites investigation was directed by William Zukosky, who also directed burial relocation at 45-D0-244 and 45-OK-1. Thanks to S. Fedick for his excellent excavation of Burial #2 at 45-D0-244. Burial relocation operations at 45-OK-2 were directed by Dr. Jaehnig, and those at 45-OK-250 by Sarah Campbell.

The report was compiled and edited in 1984 by Sarah Campbell. I am grateful to Marilyn Hawkes for a partial draft of a report on burial relocation projects written in 1982. Her summary of previous burial relocation projects is presented here with some editing and other portions of her introductory materials have been incorporated in Chapters 1 and 5. The descriptions of burial and nonhabitation sites, field procedures, and the osteological data in Appendix C were written from project records and notes made by William Zukosky, who was originally to have reported this material. I was fortunate to have help from Hartmut Krentz in preparing the osteological data for presentation. Drafts of the pollen report by Newman and the osteological report by Alexander were originally submitted in 1980 and 1982, respectively. As editor I take responsibility for the final form in which these occur.

Melodie Tune and Bob Radek drafted the figures and arranged the cover layout. Larry Bullis is responsible for the cover photo, taken near 45-OK-2A, and the photograph of the 45-D0-244 projectile points. Production of the final camera ready report was accomplished by Philippa Colley and Sarah Campbell. Randall Schalk helpfully proofed and offered comments on a draft manuscript.

1. INTRODUCTION

In addition to work at prehistoric habitation sites and historic sites, the Chief Joseph Dam Cultural Resources Project investigated nonhabitation sites, including rock features and pictographs, and relocated burials encountered during investigations of nonhabitation sites 45-D0-244 and 45-OK-1 and exposed at habitation sites 45-OK-2 and 45-OK-250. Investigation of nonhabitation sites was initiated primarily to examine possible burial cairns threatened by erosion, but collection of information on other types of nonhabitation sites was also a goal. Testing of possible burial cairns and relocation of burials accidentally encountered or threatened by erosion both were undertaken in respect for the spiritual beliefs of the Colville Confederated Tribe concerning burials (see Sprague and Miller 1979).

This report discusses both burial relocations and investigations at nonhabitation sites; although authorized by different contract modifications they were closely related procedurally. Many of the rock features recorded in the reservoir and investigated by the nonhabitation sites crew were assumed to mark burial locations. Burial relocations at 45-D0-244 and 45-OK-1 arose directly from investigation of rock features. Interpretation of the function of rock features and other nonhabitation sites, and of prehistoric burial patterns, depends on data from both projects.

The introductory chapter outlines the approach taken in investigating nonhabitation sites and terms used to designate sites and features, followed by a description of the geology of the project area and references to nonhabitation sites in the ethnographic literature of the area. Field work is summarized in the final section of this chapter. Rock art sites in the project area, are described in the second chapter by Dan Leen, who was primarily responsible for collecting the data. Chapter 3 describes fieldwork and findings at nonhabitation sites. Chapter 4 summarizes previous burial relocation projects and Chapter 5 summarizes the burial relocation activities of this project. Chapter 6 is an osteological report on the 45-OK-250 burial provided by James M. Alexander. The subsequent chapter, written by Deborah Newman, concerns a pollen analysis of samples from burials at 45-OK-159, excavated by the University of Idaho. In the final chapter the findings from burial and nonhabitation sites are briefly synthesized and recommendations are made for changes in the methodology of investigating nonhabitation sites.

PREVIOUS CONSIDERATIONS OF NONHABITATION SITES

For management purposes, prehistoric sites in the project area have been divided into two general categories, habitation and nonhabitation sites

(Munsell and Salo 1977, Jermann et al. 1978), both of which are integral to land use/settlement patterns. The term nonhabitation site refers to localities at which nondomestic activities were performed. They may take various forms, depending on the activities performed, but are generally recognizable by surface features (Jermann et al. 1978:11). In their synthesis of reconnaissance data, Munsell and Salo (1977) recognize the following kinds of nonhabitation sites in the project area: caches, cairns, burials, pictographs, petroglyphs, and hunting blinds.

The management plan (Jermann et al. 1978) points out that habitation and nonhabitation sites defined by surface rock features are actually not mutually exclusive, as features considered diagnostic of nonhabitation activities may also occur in association with habitation sites. They suggest that the problem is lessened by considering components, rather than sites, the basic unit for management consideration. Thus, there may be a nonhabitation component at a habitation site, just as there may be more than one occupation component at a habitation site. They adopt the classification used by Munsell and Salo (1977) to define six different kinds of nondomestic components:

CACHES

Caches are a category of nondomestic component that presumably served a storage function. Two distinct types have been identified in the project area: 1) naturally occurring hollowed rocks or crevices, and 2) artificially created depressions in talus slopes.

CAIRNS

Cairns are artificial piles of rock erected to mark culturally important places or events. Cairns occurring in otherwise rock-free areas may mark or enclose burials. Others may be related to vision quests or may mark storage pits or a culturally significant geological feature. At least three distinct types of cairns have been identified in the project area (D. Munsell, pers. comm.).

BURIALS/INHUMATIONS

This kind of nondomestic component includes all surface and subsurface locations for disposal of human remains. Burials may be marked by cairns (cairn burials), depressions in talus slopes (talus slope burials), or wooden stakes (cedar cyst burials). Because of similarity in appearances, burials can be mistaken for both caches and cairns.

HUNTING BLINDS

Hunting blinds are artificially created rock formations (e.g., depressions in talus slopes or rock alignments/walls) that are

located along game trails and usually are large enough to conceal at least one person. These features/constructions presumably are associated with hunting of large mammals (e.g., deer).

PICTOGRAPHS

Pictographs are a form of rock art characterized by application of graphic designs in red, yellow, or black pigments to bedrock faces.

PETROGLYPHS

These are a form of rock art characterized by incised or pecked designs on rock faces. Such rocks are often portable and also may bear evidence of painting.

Thus we see that rock features have essentially been used to define nondomestic sites, and that various kinds of rock features are interpreted as having specific cultural functions. However, these definitions do not adequately distinguish between the physical nature of the feature and its presumed function. This conceptual problem is generally reflected in the survey work done in the project area: interpretive functional labels have been applied to sites without adequate empirical documentation.

This methodological bias is certainly apparent in the investigations reported here. However, as the first systematic examination of nonhabitation sites in the project area apart from survey level data, this study has succeeded in expanding our knowledge of nonhabitation sites and provided a firmer basis for developing an adequate methodology for studying nonhabitation sites. The methodological biases which have affected our study of nonhabitation sites are discussed in more detail in Chapter 3 and in the final chapter, where we present some suggestions for future research.

THE PROJECT AREA

The project area lies along the Columbia River between Chief Joseph Dam at River Mile (RM) 545 and RM 590, just short of Grand Coulee Dam (Figure 1-1). The environment is described in detail in the project's research design (Campbell 1984d); here we summarize aspects of the geology and ethnography pertinent to this report.

GEOLOGY

Between Grand Coulee Dam and the Omak Trench, the Columbia River flows along the contact between the basaltic Waterville Plateau (south and west) and the granitic Colville Batholith (north and east). Below the Omak Trench, the river follows a valley which cuts through the Columbia Plateau itself, creating a basaltic outlier, the Omak Plateau, to the north.

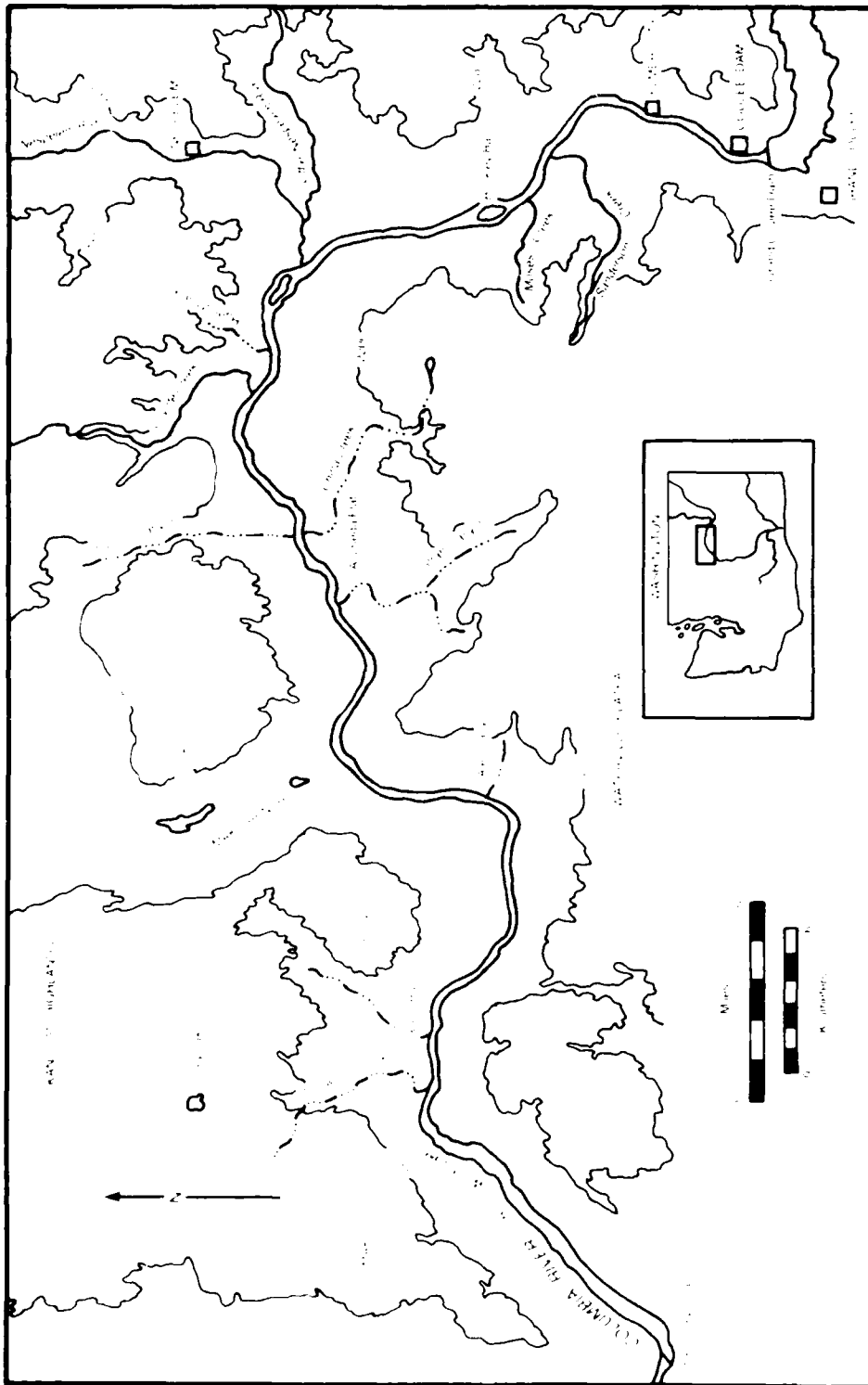


Figure 1-1. Map of project area.

The project area itself lies within two physiographic zones, the floodplain of the Columbia River and the canyon of the Columbia River Valley. The floodplain includes the river, its beaches and bars, and those lower terraces eroded by river action or receiving overbank alluvium during the more recent postglacial times. Although the Columbia River deposits are generally sand and silts, postglacial flood gravels, which include boulders and cobbles, form the base of most of the river bars. These are exposed along the river banks, as are glacial till deposits containing large rocks. Away from the river, the lower terraces are overlain by alluvial fans, colluvium, and talus falls from the canyon walls. The physiographic features and geological deposits along the valley walls are quite varied. At lower elevations along some sections of the river, broad, flat terraces dominate both sides of the canyon. Massive basaltic rim lags and erratics are common along some stretches of the river. Where terraces have been washed away, and where the original canyon was narrow, massive bedrock bluffs project down to the river's edge. Stepped escarpments of basalt rim the canyon on the south side of the river and on the north side west of the Omak Trench. They thinly cap the older highlands along the eastern valley of the Nespelem Valley.

In general then, the project area is characterized by broad flat terraces or benches at various elevations, with fine sediments at the surface and little soil development. Sedimentation is rapid on the floodplain and in areas of active colluvial deposition or alluvial fan formation, but may be extremely slow on high terraces which receive almost exclusively aeolian sediments. Bedrock outcrops and large erratic or lag blocks can be found at virtually any elevation above the river. Most steep slopes are rocky, and talus slopes form below granitic and basaltic cliffs. Interpretation of rock formations must be made within the immediate local context, such as the proximity to bedrock or erratics, the abundance of loose rock on the surface, the degree of slope, and other natural factors which could account for the presence or spatial arrangement of rocks.

ETHNOGRAPHY

Two Native American groups occupied the project area, the Sanpoil-Nespelem peoples in the area north and south of the Columbia River from above the Spokane River west to the Omak Trench, and the Sinkaiehk, or Southern Okanogan in the area around the Columbia and Okanogan Rivers west of the Omak Trench. We examined the primary ethnographic sources--Ray (1932) for the Sanpoil-Nespelem, and Spier (1938) for the Sinkaiehk--for references to the kinds of features already recognized as indicating nonhabitation sites (caches, cairns, talus depressions, and burials) and also for references to other activities away from habitation areas which might leave archaeological remains.

The central base of the settlement network was the winter village, occupied from mid-October or November until the spring thaw. Foods and other materials destined for winter consumption were stored in or around the village in talus pits or storage structures. In general, activities during the winter

months revolved around the villages. However, hunting trips might be made into the highlands, perhaps involving a base camp if the trip were long. During the rest of the year, the group split into smaller groups and moved to appropriate locations for exploiting particular resources. Thus, there were temporary base camps from which shellfish, roots, fish, and game were exploited, although these were not necessarily mutually exclusive.

Even temporary base camps would be characterized by domestic debris and recognized in the archaeological record as habitation, rather than nonhabitation sites. Procurement sites away from temporary base camps, such as the specific location at which roots were dug, generally would be devoid of living debris or any other detectable remains. Only those which involved some type of construction are likely to be evident. We summarize descriptions of constructions by various categories of activities below.

Fishing and Hunting

The fishing technology used by the two groups (see Ray 1932:58-67 and Post 1938:12-13,17-19) involved a variety of constructions; wooden platforms, traps, weirs with stone anchors or bulkheads. Ray reports the use, among the Sanpöll-Nespelem, of artificial channels (Ray 1932:58) and blinds for spear fishing consisting of a flat thatched roof casting shade across a stream (Ray 1932:60).

Constructions such as pit, noose, and deadfall traps were commonly used by both native groups in hunting (see Ray 1932:77-94 and Post 1938:19-24). Although deer fences constructed from trees were reportedly used by the Sinkaletk (Post 1938:20) neither ethnographer mentions rock wall blinds. Both groups practiced the technique of driving deer towards the head of a valley where men waited concealed, but no mention is made of artificially constructed cover.

Food Processing and Storage

Food processing and storage away from winter villages at temporary locations involved various types of constructions. Many plant foods were steamed or roasted in large pits. Wooden drying racks were used for meat and some plants; these might be constructed at either a temporary camp or at the main village.

While Ray reports that the Sanpöll-Nespelem stored roots at permanent storage places near the winter village quarters (1932:99), the Sinkaletk practice was different.

Food was stored in many ways: In arbors in the woods, rock shelters, pits in the ground, and inside the houses. The greater part was cached near where it had been dried and prepared, or at some nearby rock pile where a rock shelter might be made, leaving the work of carrying it home for winter when there was more time (Post 1938:31).

Post also reports that bitterroot was stored in pits lined with pine needles and covered with pine needles and rocks (1938:26) and that other storage caches might consist of a bark bucket covered with leaves and rocks (1938:31).

As winter came on the supplies were removed from the arbors to rock shelters or pits, usually nearer the winter villages. The pits were from six to sixteen feet in diameter and two to four feet deep, always round. They were lined with flat rocks twice the size of one's head, made by splitting larger rocks. . . . Sweet dry grass was laid down before the food was put in, and again on top of the food, perhaps some dirt, and then flat rocks piled on top. No skins were used for keeping out the rain; the rocks and grass were enough. Generally the cache stood several feet above ground level. This was preferable since the freezing of the ground would then not make it difficult to get at the food (Post 1938:32).

Ray describes the storage houses and elevated storage platforms used by the Sanpoil-Nespelem for storing fish and meat.

The [storage houses] were ordinarily situated on islands in the Columbia; the [elevated storage platforms] were erected at the site of the winter camps. The houses consisted of four walls made of logs laid horizontally one upon the other and secured in place by vertical posts sunk in the ground. The inside of the enclosure was lined with tule mats. The bags were deposited within the enclosure, then covered over with planks or poles on top of which stones were piled.

Elevated platforms for storage were supported by four posts sunk in the ground, one at each corner. The planks or poles forming the platform itself rested upon transverse poles extending between the supporting posts. The platforms were high enough to walk under (Ray 1932:76).

Vegetable foods were stored in regular storage houses such as were used for salmon and meats. But in addition the tightly closed bark containers were sometimes deposited in thickets of sagebrush. They were anchored there with flat rocks. Protected spots at the bases of cliffs were used at other times (Ray 1932:105)

Burials

The burial customs of both the Sanpoil-Nespelem and the Sinkaletk were similar to other Salish-speaking inhabitants of the Plateau. The general pattern was primary inhumation in a flexed position, wrapped in skin or matting with interment at locations near villages, although the practices of each group varied somewhat (cf., Ross 1849:321-322; Sprague 1967:181-189; Teit 1928:127, 1930:288-289).

Burial practices among the Sanpoil-Nespelem are described by Ray (1932:150-151). The body, in the clothes worn at death, was flexed and wrapped in deer skin with the hair adhering and tule mats, or only tule mats if the person was poor. It was buried in the nearest customary burial place, of which there were many, at least one or two near each village.

All burial grounds were in rocky places, talus slopes or sand banks. The rocky banks of the Columbia furnished many suitable spots. Rocks were removed by hand until a round hole three or four feet deep was excavated. At the foot of a sand bank it was only necessary to dig a small hole for a part of the bank could be broken down easily to form a mound over the corpse. Bodies were never cremated or placed in the river (Ray 1932:150).

With the body were deposited the person's keepsakes, fetishes, and ornaments of dress such as feathers, quills and strips of fur, but no clothing or other objects. . . . Flat rocks were laid on the corpse, then smaller rocks, gravel or sand. Sometimes the grave was covered with brush. Grave markers consisted of two or three small split cedar sticks erected in the rocks (Ray 1932:151).

Rose branches were used in the burial ceremony and discarded on the spot.

Burial in boxes in deep graves was recorded as a relatively recent development, which is compatible with the observation that only since about 1900 have the dead been buried in recognized cemeteries (Sprague and Miller 1980:13).

The material aspects of burial among the Sinkaiehk (see Mandelbaum 1938:128) were similar. The body was prepared for burial by washing, was dressed in clothes, and placed in a flexed position with the hands and feet crossed. It was then wrapped in a buffalo blanket or buckskin.

The body was buried either under a rock slide, or some other place where the grave could be covered over with rocks. The hole was lined with tule mats, or these were wrapped around the bundle. The body was always placed in the hole under the rock slide on its back (Mandelbaum 1938:127).

Although it is not known how general the practice of burying objects with the dead was, in the southern area personal items such as tools were placed on the body. One to three peeled, undecorated cedar poles were set up on the grave. Rose bushes and Oregon grapes were placed on the grave to prevent the ghost from escaping. If the ground was frozen too hard to bury the dead, the body was wrapped and placed in a tree, and then buried when the ground thawed. Once properly buried, bodies were not touched again.

Other Religious and Ceremonial Activities

Rock art is mentioned only in the context of religion in the ethnographic sources. Cline states that rock art might be used to announce power: "Two men on confidential terms might talk to each other about their guardian spirits, and watch each other paint symbols of them on a large rock in the hills. One of the men later told people that his comrade had painted these to show his power (Cline 1938:136)". Rock paintings were among the propitious locations for a child on quest to find their guardian spirit (Cline 1938:137). A father might send a child to a specific grouping of rock paintings, perhaps ones he had painted himself, with instructions to leave a stick or power emblem (Cline 1938:138). Short red lines would be added beside the paintings to indicate the number of guardian spirits obtained by the youth.

Only people with strong power painted pictures on rock. One did not do this until he had sung his power song at his first winter dance. When he painted these pictures, he had with him a friend who knew their meaning and who could later call on him for aid from the pictures . . . These pictures, in some vague way, assisted the painter to employ his power, especially to cure sickness, but the cure itself did not have to take place near the paintings (Cline 1938:143-144).

Post and Commons describe the sources and handling of mineral pigments (1938:69) but do not mention their uses.

Youths on their power quest often piled rocks (Cline 1938:138, 140).

Other

Post and Commons (1938:43) received reports that trenches and piles of rocks were used at camps as defensive barricades and for refuge.

Discussion

Most of the constructions made in ethnographic times at locations outside of habitation areas were of wood and unlikely to be preserved in the archaeological record. Fishing-related constructions are extremely unlikely to be present in our archaeological site sample: even if they survived destruction by the river, they would have been inundated by the initial pool raise. There is no record of rock alignments having been used in hunting, either as blinds or fences, in ethnohistoric times, although these would not be incompatible with the type of deer hunting practiced. Burials, storage caches, and cairns built during power quests, and rock art are four types of features commonly located away from habitation sites which are likely to be preserved in the archaeological record. Plant food processing involving steaming or roasting would leave distinctive oven features. This activity was commonly carried out away from permanent villages; whether it was always done

at a temporary camp or not is uncertain. Even if not associated with occupation debris, such areas might be interpreted as habitation sites on the basis of survey or test information because they would contain large amounts of fire-modified rock and perhaps tools.

SUMMARY OF FIELD WORK

The statement of work for the project specified work to be done at 13 nonhabitation sites for Phase I mitigation (Table A-1). Sites selected for Phase I mitigation (May 1979-September 1981) were those which would be inundated or otherwise directly impacted by the planned pool raise. They included two pictograph sites, one on each side of the river, 10 rock feature sites, six from Okanogan County and four from Douglas County, and one possible cedar cyst burial. All of the rock features were ones interpreted as burial markers or burial locations in the original survey. It is important to note however, that these exclude the possible burial sites chosen by Sprague for burial relocation.

Although Phase II was not actually scheduled to begin until September 1981, the project agreed to complete as many of the recommendations for Phase II mitigation as possible. Phase II sites would be affcted secondarily by the pool raise, such as by erosion. They were generally on terraces further from the water than the Phase I sites. A total of 44 sites were recommended for work in Phase II, including two pictograph sites, one rock alignment, one cache, and 40 cairn/talus depression features. Testing was recommended only at six of the cairn/talus depression sites; recording was recommended at all other sites.

The project established a specific crew to conduct the nonhabitation site investigations. This crew also accomplished the burial relocations between August and December 1979.

In June 1979, the nonhabitation site crew began surveying to relocate previously recorded sites as a first step toward excavating or recording nonhabitation sites recommended for Phase I work. Most of the pictograph sites were recorded during this month. The two rock art sites recommended for Phase I mitigation, 45-D0-208 and 45-OK-181 were found to have been inundated by the original 1950's pool raise so the crew advanced to the Phase II mitigation rock art sites, 45-OK-170 and 45-OK-240 and recorded them. As this work proceeded rapidly, it was decided to record all pictograph sites known in the reservoir.

Testing and recording of Phase I sites began July 17 with testing at 45-D0-221. In August, 45-D0-102, 45-D0-217, 45-D0-264, 45-D0-267, and 45-OK-263 were tested. Sites 45-OK-179, 45-OK-300, and 45-OK-302 were examined and determined to be natural. By the end of August all Phase I mitigation nonhabitation sites had been tested or determined to be natural, except for 45-D0-197 and 45-D0-304, which were examined or tested in November.

Additionally, the project investigated two previously unscheduled sites in August and September at the request of the Corps. Site 45-OK-255 was tested in August and site 45-D0-205 in September. Both were burial sites

previously scheduled for relocation by the University of Idaho. Site 45-OK-255 had been excavated by Idaho, and some burials removed in 1972. Later, an additional cairn was seen on the beach, which prompted a request from the Corps for further examination. Site 45-D0-205 had not actually been examined by Idaho because their examination of the site in the field indicated that it was actually an historic fence post and not a prehistoric burial cairn. This interpretation was not contradicted by the data recovered in our testing.

In September, the crew elected to begin testing Phase II mitigation sites to have the opportunity of examining some cairns on first terraces, in association with habitation sites, a type of site not found among the Phase I sites. Site 45-D0-244, near habitation site 45-D0-242 and 45-D0-243 was selected first, and was excavated in September and October. Exploration of two cairns encountered two burials; burial relocation continued through October and was completed at the beginning of November.

Survey efforts also continued in October. Twenty-seven sites were examined and determined not worthy of excavation. In November, the crew also did survey and testing at 45-D0-223, 45-D0-239, 45-OK-239, 45-OK-1, 45-OK-276, 45-OK-290, 45-OK-300, 45-OK-339. Site 45-D0-197 was tested and 45-D0-304 was determined to be natural, thus completing work at Phase I mitigation sites. Site 45-OK-1, also located on a terrace in association with a habitation site, was investigated in December and January at the special request of the Corps, and yielded two more burials. By the end of December, all Phase II sites had been examined, although not necessarily recorded. Mapping of 45-D0-278 was too difficult in the snow and was postponed until the following summer, when it was mapped by field school students. In January, 1980, the crew completed burial relocation work at 45-OK-1 begun in December. Also in January the crew examined 45-OK-290 at the request of Corps staff who had noted pits and copper stains there in November. In May 1981, the human remains from sites 45-OK-1, 45-OK-2, and 45-D0-244 were reburied by the Colville Confederated Tribes at a ceremony in Nespelem.

2. ROCK ART SITES

by Daniel G. Leen

Twelve rock art sites have been recorded in the project area (Figure 2-1). Four were inundated by the original pool raise in 1955 (45-D0-208, 45-OK-14, 45-OK-17, and 45-OK-181), and are described here on the basis of informants' descriptions and published sources. The remaining eight were recorded in detail by the project. Three of these (45-D0-441, 45-D0-442, and 45-OK-505) have since been inundated by the pool raise in February 1981 while the others were not affected by the pool raise.

The recording techniques used are discussed in the following section, which is followed by individual descriptions of each site, including context drawings and reproductions of individual pictographs. The age of the rock art is considered in the final section. Due to lack of adequate data for the rest of the Columbia Plateau and Okanogan Highlands as well as a lack of time and resources, no conclusive statement is made here regarding the cultural and stylistic relationship of the pictographs described below with the rock art of neighboring areas of Washington State and southern British Columbia.

RECORDING TECHNIQUES

Resurvey, field recording and informant interviewing connected with rock art sites took place between May and July 1979. Information from informants and published sources is the basis for the descriptions of inundated sites. The eight accessible sites were recorded using the following procedures.

First, each spatial grouping of closely associated pictographs was given a group designation (e.g., "west group") and each individual pictograph a field number which was written on a small piece of masking tape and affixed to the rock adjacent to the corresponding design. Next a rough map and field sketches of each group of pictographs were made to aid in later identification of photographs. Each individual design (unless exceptionally faded) was then photographed with Kodachrome 64 color slides and classified as to the motif represented (e.g., "quadruped", "anthropomorph", etc.), followed by photographs taken of each complete grouping of designs, the entire site (when more than one grouping of designs existed), and the site from a distance. A scale was placed in the photographs whenever possible.

Several photographic recording techniques were utilized in the field, including regular black and white photography, black and white infrared photography, the use of special filters, and colored slide photography.

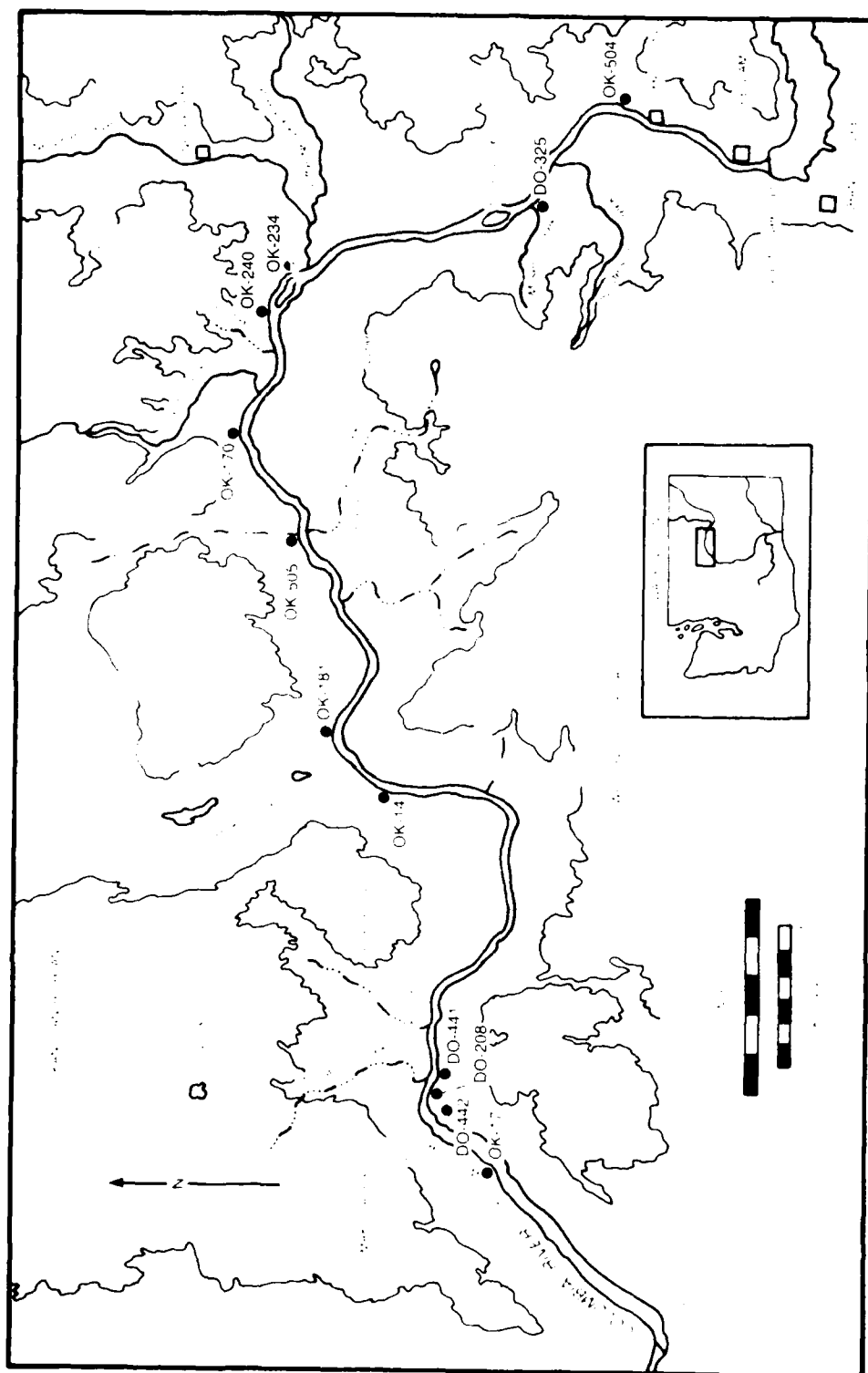


Figure 2-1. Location of rock art sites in project area.

Following the photography, color tracings on mylar sheets with a magic marker were made of all the pictographs whose designs were still visible. In the case of pictographs consisting of pigments other than red, black, or white, white was used to record the design and equated with the color of the pictograph represented (e.g., "white=yellow"). Color slides of all tracings were taken later. In the laboratory, finished slides were projected onto white paper for reproduction in color. These provided the clearest representations of the pictographs. On-site pencil tracings did not result in clear reproduction.

A written description was made at each site indicating the number of designs present, the pigments used, tentative motif identifications, whether polychrome designs and/or superimposition occurred, and the type of rock on which the designs were painted. Also, the amount of destruction resulting from human and natural causes was estimated and the likelihood of future damage to the site evaluated.

After completing the fieldwork, archaeological site forms were filled out and submitted to the Washington Archaeological Research Center for sites not previously recorded in their Master Site File.

Final drawings were made by projecting color slides onto drawing paper with red and black artists' pencils used to indicate the various pigments. Black was occasionally used to indicate the texture of the rock surface, and all non-red designs were also drawn in black for easier photocopying. Due to the vagueness of many of the pictographs, these finished drawings are somewhat subjective in nature and emphasize the more obvious characteristics of a design. Drawings of each main grouping of pictographs at each site were made to show the location of each design within the group. Field numbers on the drawings correspond to the field numbers on the color slides and mylar tracings.

SITE DESCRIPTIONS

With few exceptions the rock art recorded in this survey is characteristic of the rock art of the Columbia Plateau culture area. All examples are pictographs, although a single petroglyph was reported by an informant at 45-00-208. As elsewhere on the Columbia Plateau, red pigments predominate with some use of yellow, yellow-green, black, and white. Polychrome designs and superimpositions are rare.

Regarding the design motifs encountered at the various sites, motif classifications were made on the premise that description is possible in most cases but symbolic interpretation is not. The design motifs recognized in this study are illustrated in Figure 2-2. Nearly half of the individual pictographs were classified as unidentifiable motifs (68 designs), and the remainder comprise 21 anthropomorphs, 13 quadrupeds, 9 arcs, 8 unclassifiable geometric designs, 5 "arrow" designs, 3 horsemen, 3 groups of possible "counting" marks, 3 groups of possible "paintbrush testing" lines, 2 birds, 2 hands, 1 horse, and one fish.

Although no absolute dating techniques are presently available for determining the age of pictographs, the presence of horses and horsemen as

TABLE OF MOTIFS

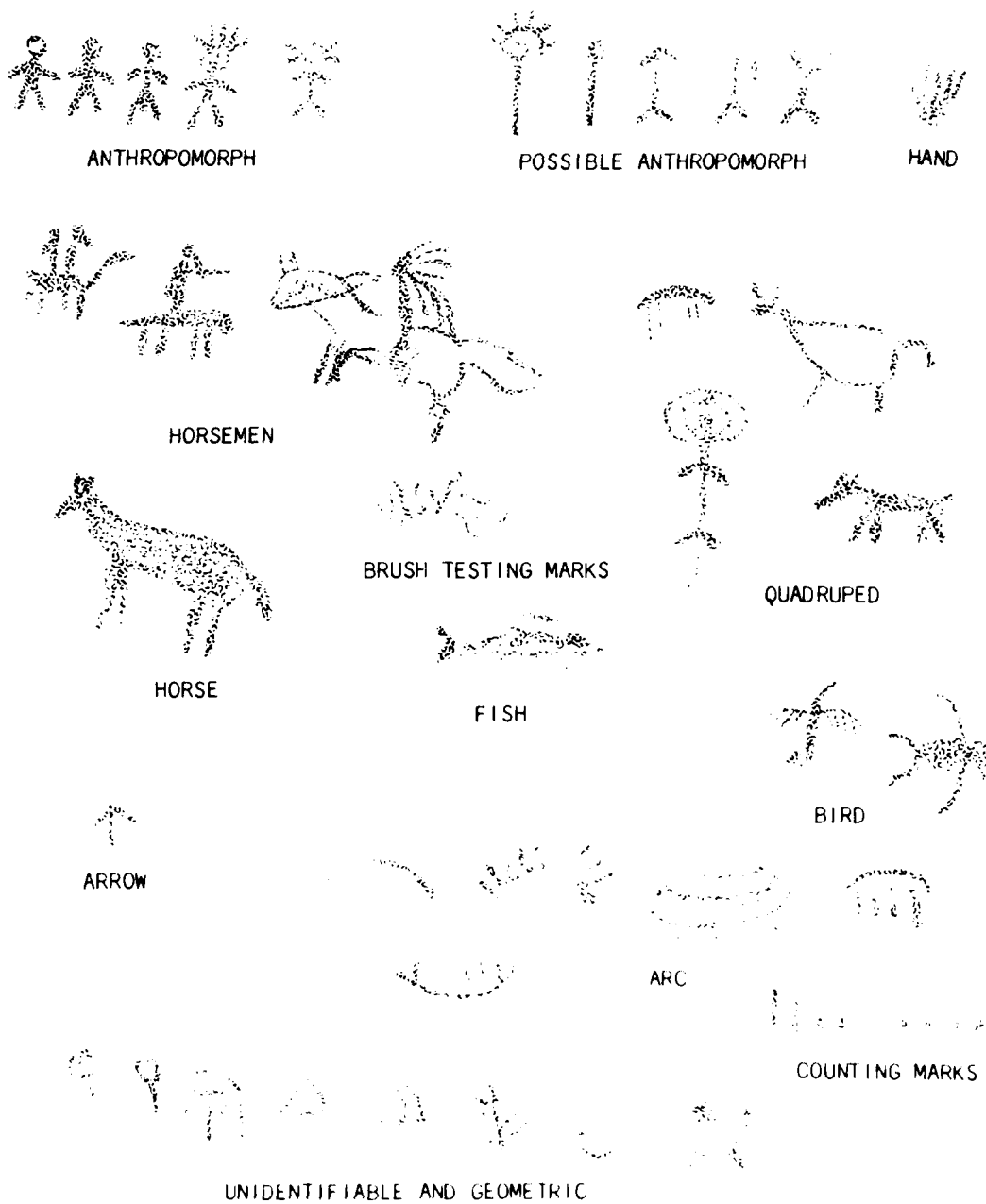


Figure 2-2. Pictograph motifs found in project area.

design motifs conclusively demonstrates that at least some of the pictographs in the area surveyed were made after the 1730's, as horses were first introduced to the area at that time (Haines 1938: 430). Hematite (red ochre) however, appears to have a high degree of chemical stability as shown by test excavations in the Hell's Canyon area of the Snake River in Idaho where red ochre paint was found on a basalt roof spall in a stratigraphic level associated with the Cascade Phase. A paint applicator found in the same context indicates that red pictographs were being made there ca. 6000-7000 B.P. (Randolph and Dahlstrom 1977). While it is unlikely that pictographs exposed to the weather would remain visible for that length of time, it does seem probable that many of the pictographs described above are considerably older than the early historic art indicated by horse and horseman motifs.

45-DO-208

Site 45-DO-208, originally recorded by WSU in 1975, was one of the two sites recommended for recording in Phase I mitigation. Located on granitic cliffs at the east end of a portage trail around Box Canyon Rapids, about 500 meters east of the old Brandt Homestead, the site was estimated to be 30 meters below the level of Rufus Woods Lake in 1979 (Webers 1979). We know of no photographs of this site; however, we have the description of the Webers, who visited it before the initial pool raise of Rufus Woods Lake. Four or five pictographs of quadrupeds (very similar to 45-OK-14 Field #6) were observed as well as one petroglyph of a circle around 15 centimeters in diameter (Table 2-1). The pictographs were around 30-50 centimeters high and in red and yellow pigments.

Table 2-1. Pictograph and petroglyph data, 45-DO-208.

Field Number	Drawing	Photograph	Tracing	Motif	Color
1	-	-	-	Quadruped	All were Red or Yellow.
2	-	-	-	Quadruped	
3	-	-	-	Quadruped	
4	-	-	-	Quadruped	
5	-	-	-	Geometric	Petroglyph

45-D0-325

Site 45-D0-325 is a habitation and rock art site recorded by the CJD CRP survey and later tested. Located one kilometer south of Buckley Bar, at RM 580, the site is at an elevation of 970 feet above m.s.l. (mean sea level). Stratified prehistoric midden materials were scattered around the bases of two adjacent basalt erratics. Numerous pictographs occur on the southernmost erratic (Figure 2-3) on a face which forms the east wall of an overhang shelter. The nonhabitation sites crew recorded 41 pictographs in red, yellow, and black pigments including a number of anthropomorphs, arrow designs, arcs with and without rays, geometric designs, possible paintbrush testing marks, a bird, and a quadruped (Table 2-2, Figure 2-4 through 2-7). One red and yellow polychrome design and one black over red superimposition were noted. There was minor damage to one design due to cattle rubbing against part of the erratic, however, the site has not been affected by the February 1981 pool raise of Rufus Woods Lake.

Table 2-2. Individual pictograph data, 45-D0-325.

Field Number	Drawing	Photograph	Tracing	Motif	Color
32	X	X	X	Geometric	Red
33	-	X	-	Unidentifiable	Red
34	-	X	-	Unidentifiable	Red
35	-	X	-	Unidentifiable	Red
36	-	X	-	Unidentifiable	Red
37	-	X	-	Unidentifiable	Red
38	-	X	-	Unidentifiable	Red
39	X	X	X	Anthropomorph, Arrow	Red, Black
40	X	X	X	Anthropomorph	Red
41	-	X	-	Unidentifiable	Red

Table 2-2. Cont'd.

Field Number	Drawing	Photograph	Tracing	Motif	Color
1	-	X	-	Unidentifiable	Red
2	-	X	-	Unidentifiable	Red
3	-	X	-	Unidentifiable	Red
4	-	X	-	Unidentifiable	Red
5	X	X	X	Anthropomorph	Red
6	X	X	-	Anthropomorph, Arc	Red
7	-	X	-	Unidentifiable	Red
8	-	X	-	Unidentifiable	Red
9	-	X	-	Unidentifiable	Red
10	X	X	X	Unidentifiable	Red
11	-	X	-	Unidentifiable	Red
12	-	X	-	Unidentifiable	Red
13	-	X	-	Unidentifiable	Red
14	-	X	-	Unidentifiable	Red
15	-	X	-	Unidentifiable	Red
16	X	X	X	Anthropomorph	Red
17	X	X	X	Anthropomorph, Arc	Red, Yellow
18	X	X	X	Anthropomorph	Red
19	X	X	X	Unidentifiable	Red
20	X	X	X	Bird, Arc	Red
21	-	X	-	Paintbrush Testing Marks	Red
22	-	X	-	Unidentifiable	Red
23	-	X	-	Unidentifiable	Red
24	X	X	X	Arrow	Red
25	X	X	X	Quadruped	Red
26	X	X	X	Geometric	Red
27	X	X	X	Paintbrush Testing Marks	Red
28	-	X	-	Unidentifiable	Red
29	-	X	X	Unidentifiable	Red
30	X	X	X	Anthropomorph	Red
31	X	X	X	Unidentifiable	Red

45-D0-325



Figure 2-3. Location of pictographs, 45-D0-325.

45-00-325

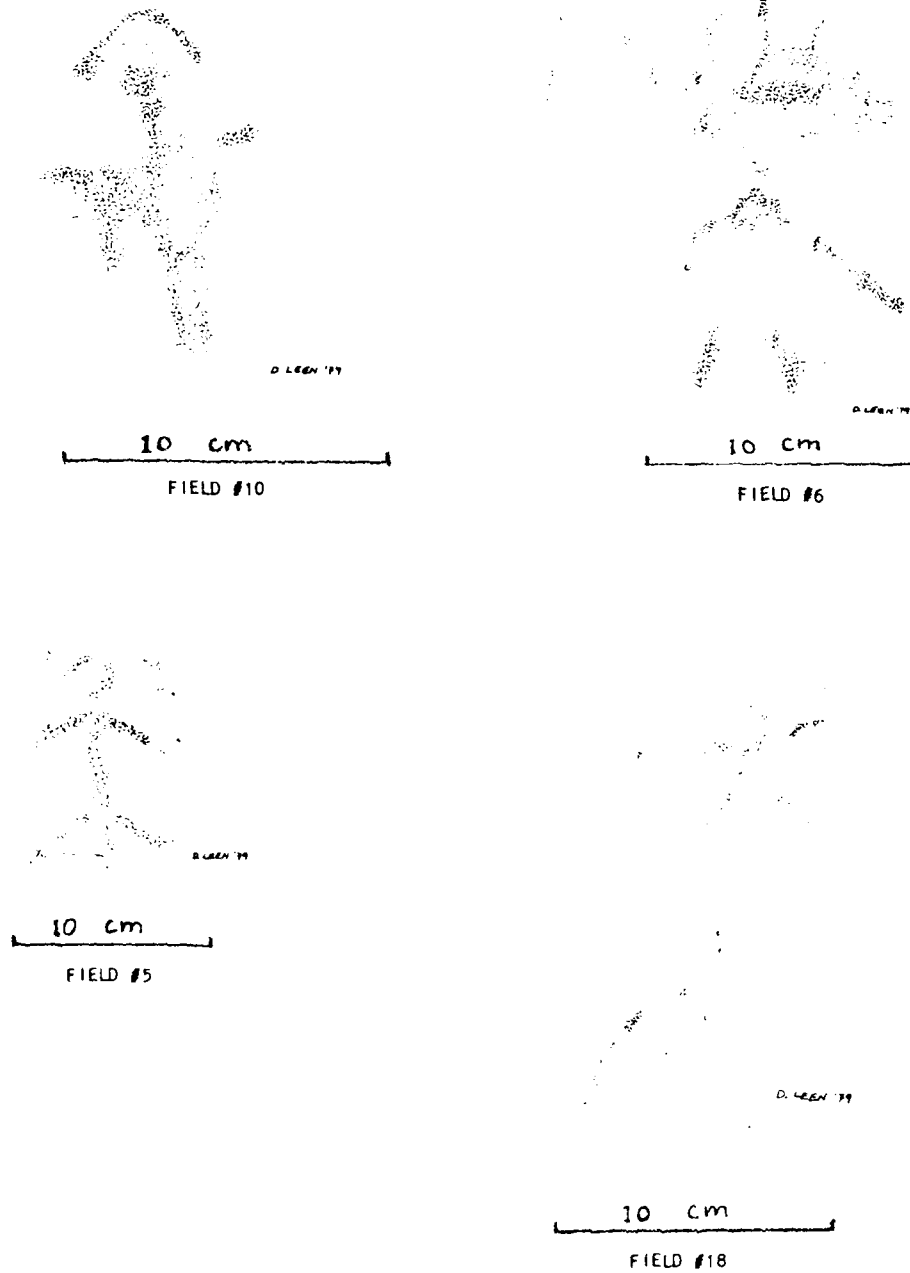


Figure 2-4. Pictograph 5, 6, 10, and 18 at 45-00-325.

45-D0-325

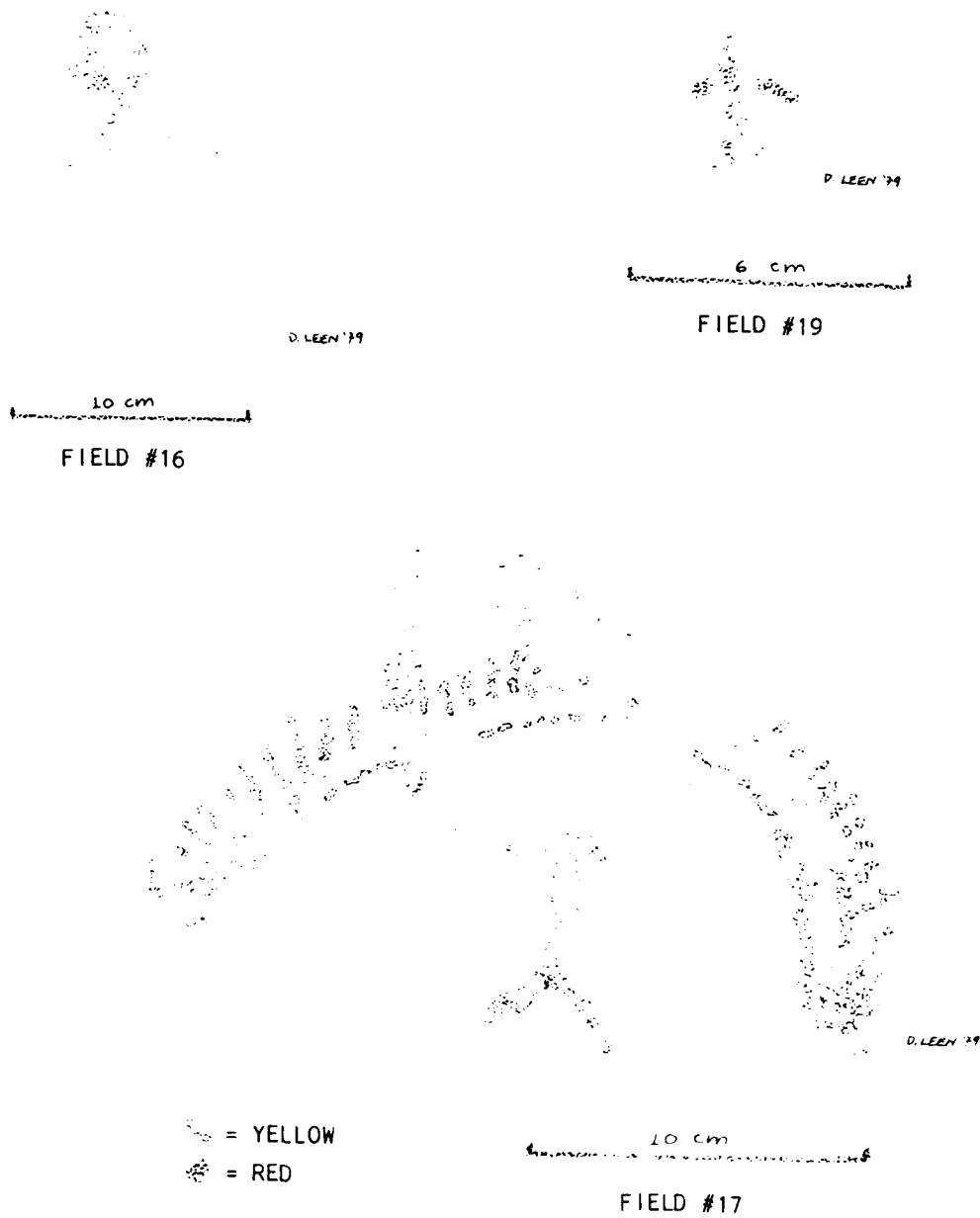


Figure 2-5. Pictograph 16, 17, and 19 at 45-D0-325.

45-D0-325

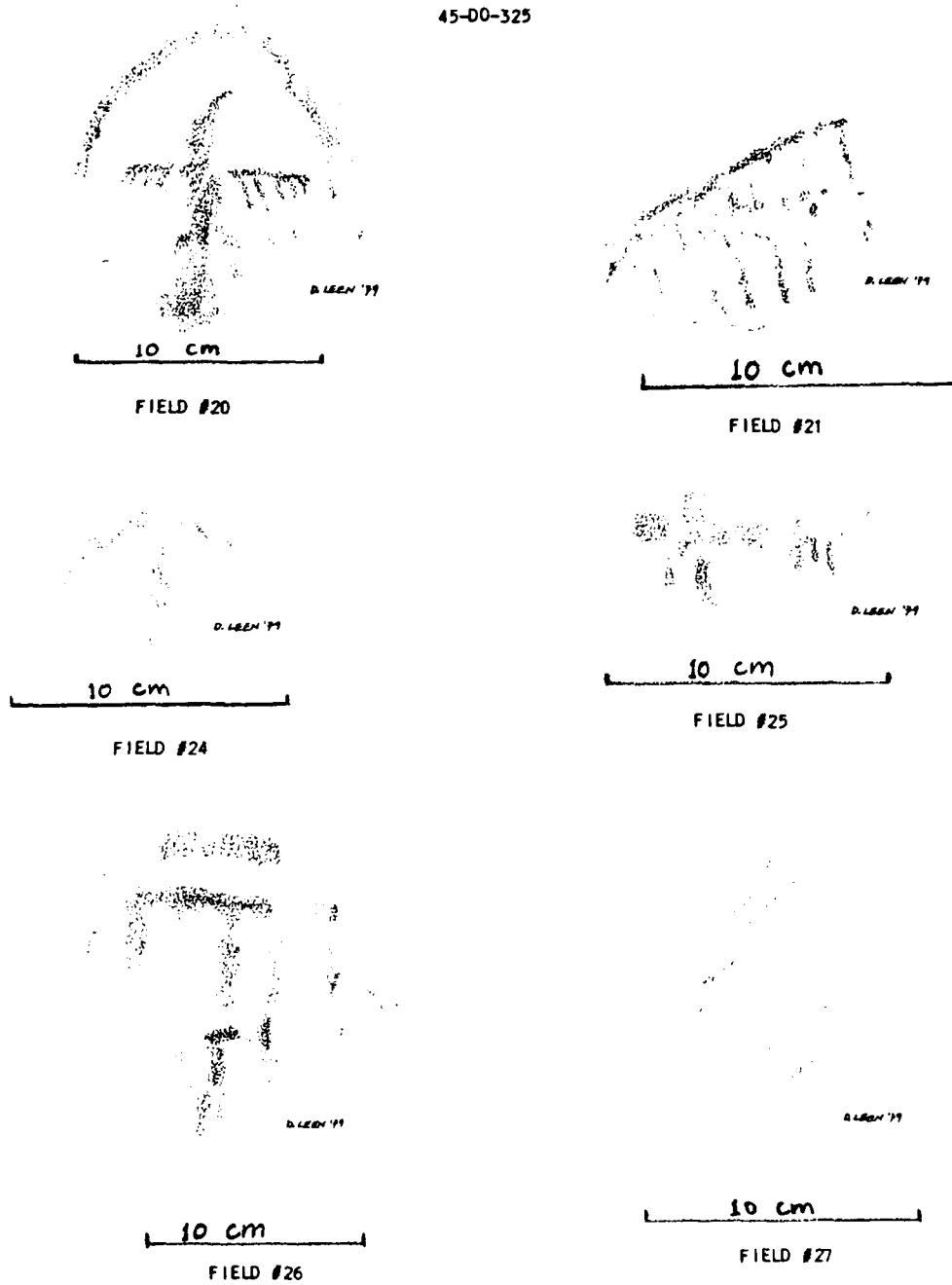


Figure 2-6. Pictograph 20, 21, 24 through 27 at 45-D0-325.

45-D0-325

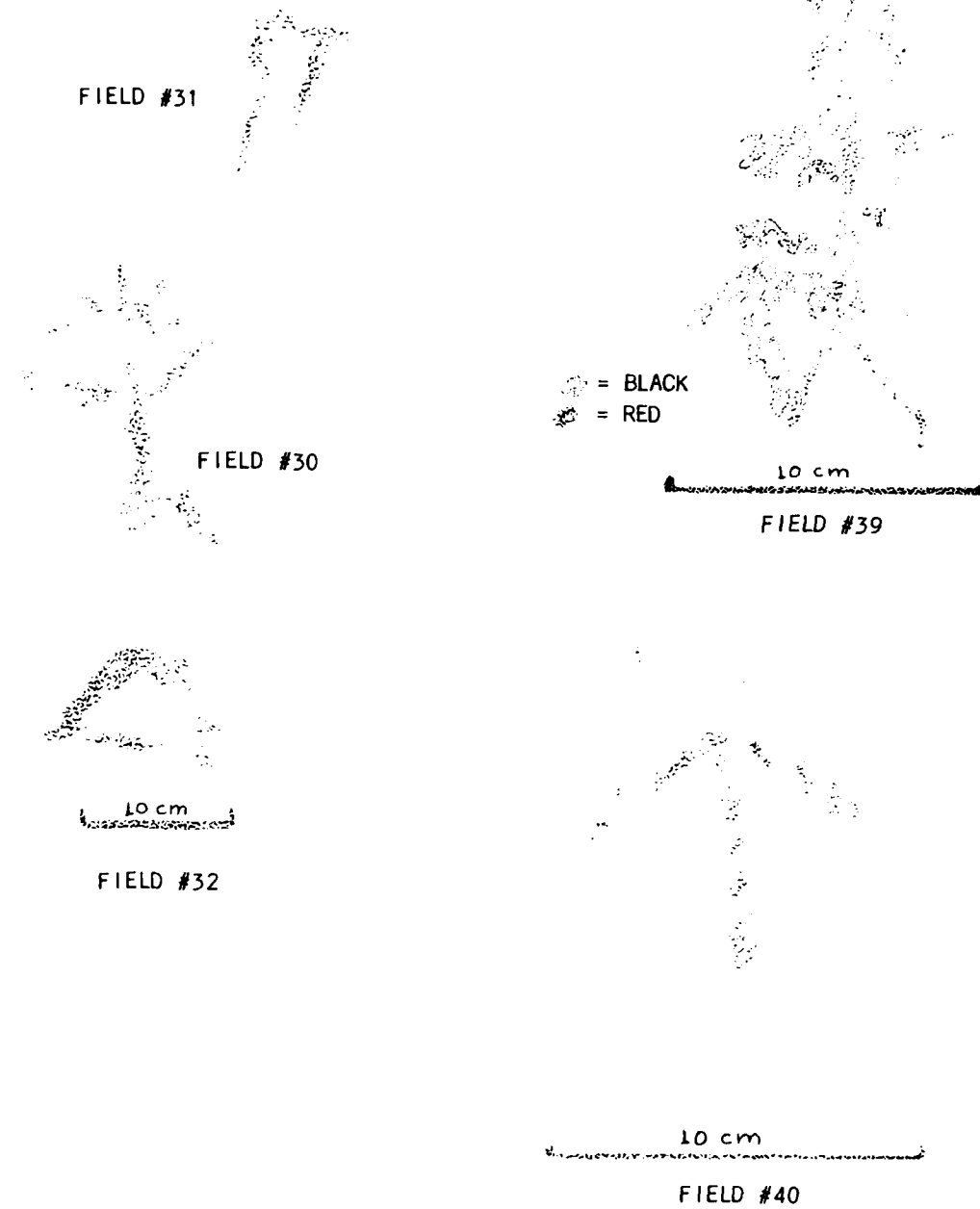


Figure 2-7. Pictograph 30, 32, 39, and 40 at 45-D0-325.

45-DO-441 (HEFFERNAN SITE)

The Heffernan site was first recorded by the author in 1979 as part of the nonhabitation sites investigation. It is at USGS RM 556.6, around one kilometer east of the old Brandt homestead in Douglas County. It is at an elevation of 920 feet m.s.l. and in 1979 was about 10 meters from the shore of Rufus Woods Lake. Sixteen red pictographs were noted on the river-facing side of a small glacially polished basalt erratic (Figure 2-8). Although a considerable overgrowth of lichens was noted, dating of the pictographs by lichenometry does not appear to be possible at this site due to a number of limiting factors (Beschel 1961). Designs found here include anthropomorphs, horsemen, quadrupeds, and one geometric design (Table 2-3, Figures 2-9 through 2-11). This site was inundated by the February 1981 pool raise of Rufus Woods Lake.

Table 2-3. Individual pictograph data, 45-DO-441.

Field Number	Drawing	Photograph	Tracing	Motif	Color
1	-	X	-	Unidentifiable	Red
2	X	X	X	Horseman	Red
3	X	X	X	Horseman	Red
4	-	X	-	Unidentifiable	Red
5	X	X	X	Geometric	Red
6	X	X	X	Horseman, Quadruped Anthropomorph	Red
7	X	X	X	Anthropomorph	Red
8	-	X	-	Unidentifiable	Red
9	X	X	X	Anthropomorph	Red
10	X	X	X	Anthropomorph	Red
11	X	X	X	Anthropomorph	Red
12	-	-	-	Unidentifiable	Red
13	-	X	-	Unidentifiable	Red
14	X	X	-	Unidentifiable	Red
15	-	X	-	Unidentifiable	Red
16	X	X	X	Anthropomorph	Red

45-D0-441

(HEFFERNAN SITE)



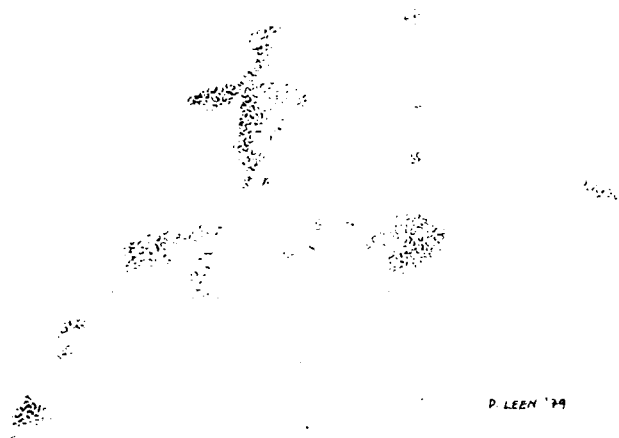
Figure 2-8. Location of pictographs, 45-D0-441.

45-D0-441 (HEFFERNAN SITE)



10 cm

FIELD #2



10 cm

FIELD #3

Figure 2-9. Pictograph 2 and 3 at 45-D0-441.

45-D0-441
(HEFFERNAN SITE)

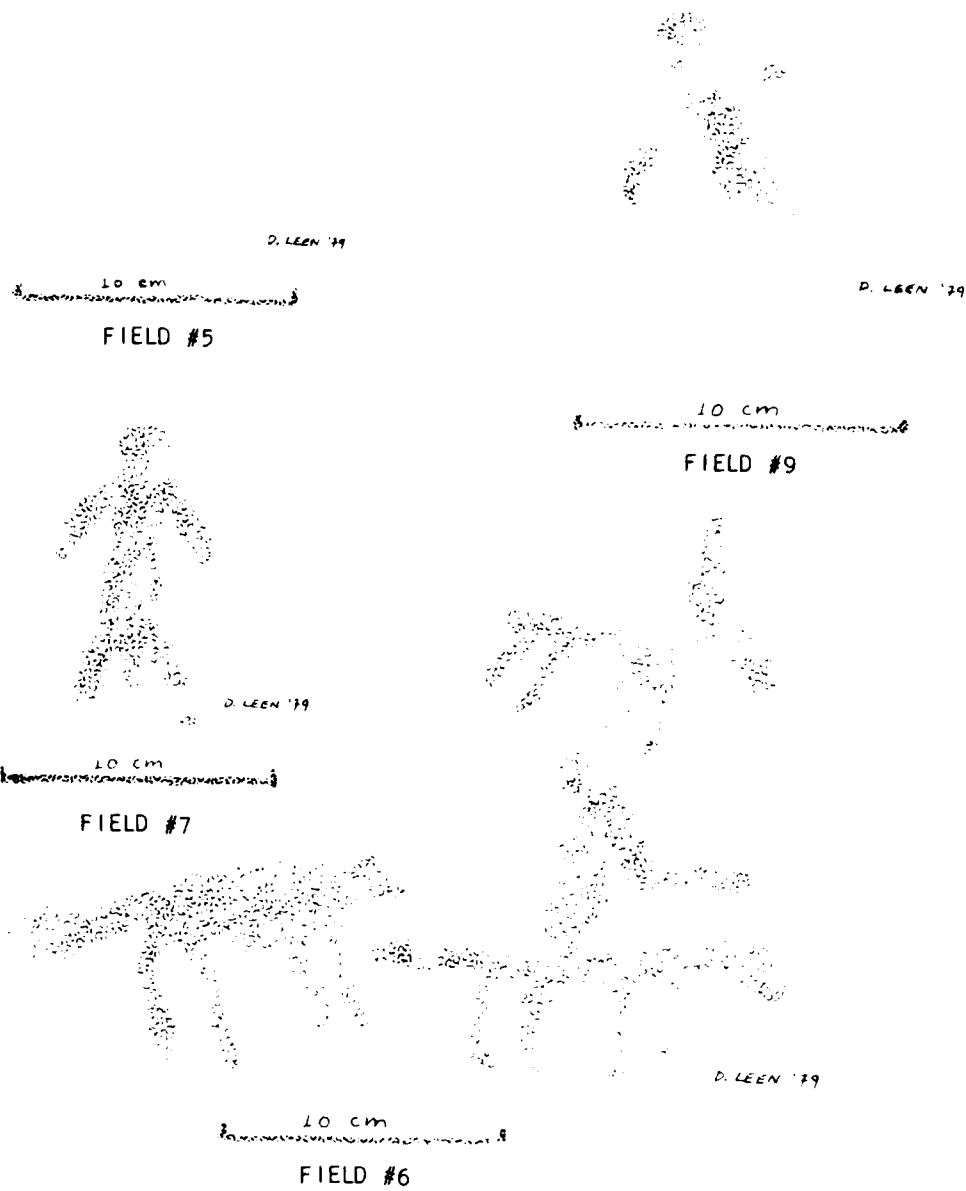


Figure 2-10. Pictograph 5, 6, 7, and 9 at 45-D0-441.

45-D0-441
(HEFFERNAN SITE)

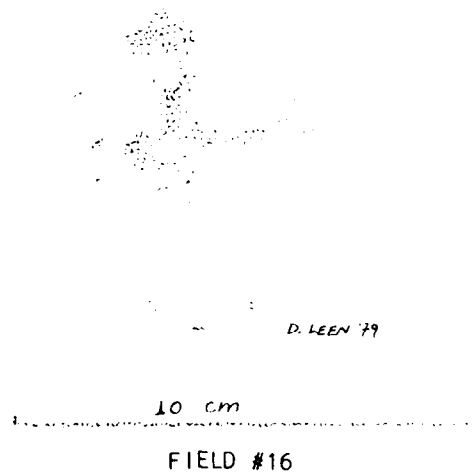
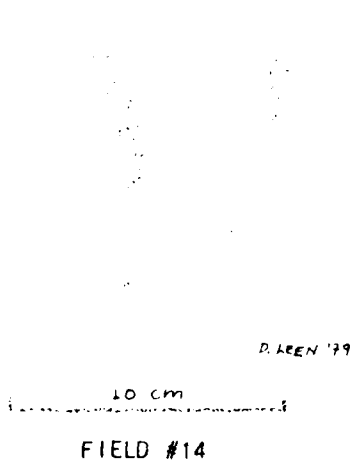
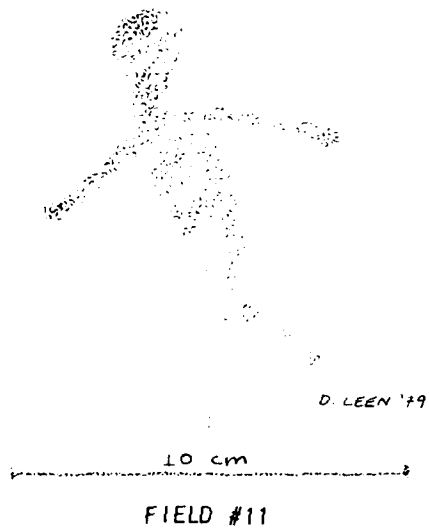
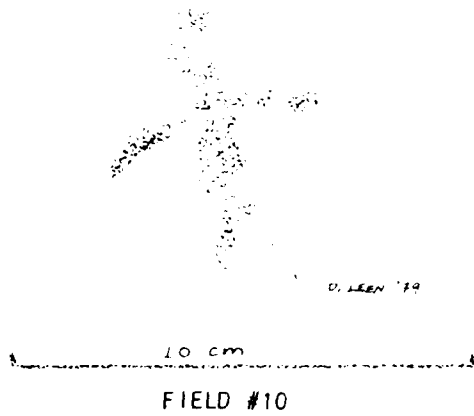


Figure 2-11. Pictograph 10, 11, 14, and 16 at 45-D0-441.

45-DO-442 (BRANDT HOMESTEAD SITE)

Site 45-DO-442 was first recorded by the author in 1979 as part of the nonhabitation sites investigation. It is at USGS RM 555.5, about 100 meters east of the old Brandt homestead in Douglas County. At an elevation of 920 feet m.s.l., the site was just above the level of Rufus Woods Lake. It consists of 13 pictographs painted on the ends of a nearly horizontal outcropping of columnar basalt facing away from the river (Figure 2-12). Designs found here include one anthropomorph, arcs with and without rays, and one geometric design, all in red pigment, and one red and white polychrome of an arc with rays (Table 2-4, Figures 2-13 through 2-15). The remaining parts of the basalt erratic were inundated by the February 1981 pool raise of Rufus Woods Lake. On 26 January 1980, Field Number 4 was removed by D. Munsell and L. Salo of the U.S. Army Corps of Engineers and placed in the project's artifact collections.

Table 2-4. Individual pictograph data, 45-DO-442.

Field Number	Drawing	Photograph	Tracing	Motif	Color
1	-	X	-	Unidentifiable	Red
2	X	X	X	Anthropomorph	Red
3	X	X	X	Arc	Red
4	X	X	X	Arc	Red, White
5	-	X	-	Unidentifiable	Red
6	-	X	-	Unidentifiable	Red
7	X	X	X	Arc	Red
8	-	X	-	Unidentifiable	Red
9	-	X	-	Unidentifiable	Red
10	X	X	X	Geometric	Red
11	-	X	-	Unidentifiable	Red
12	-	X	-	Unidentifiable	Red
13	X	X	X	Arc	Red

45-D0-442
(BRANDT HOMESTEAD SITE)

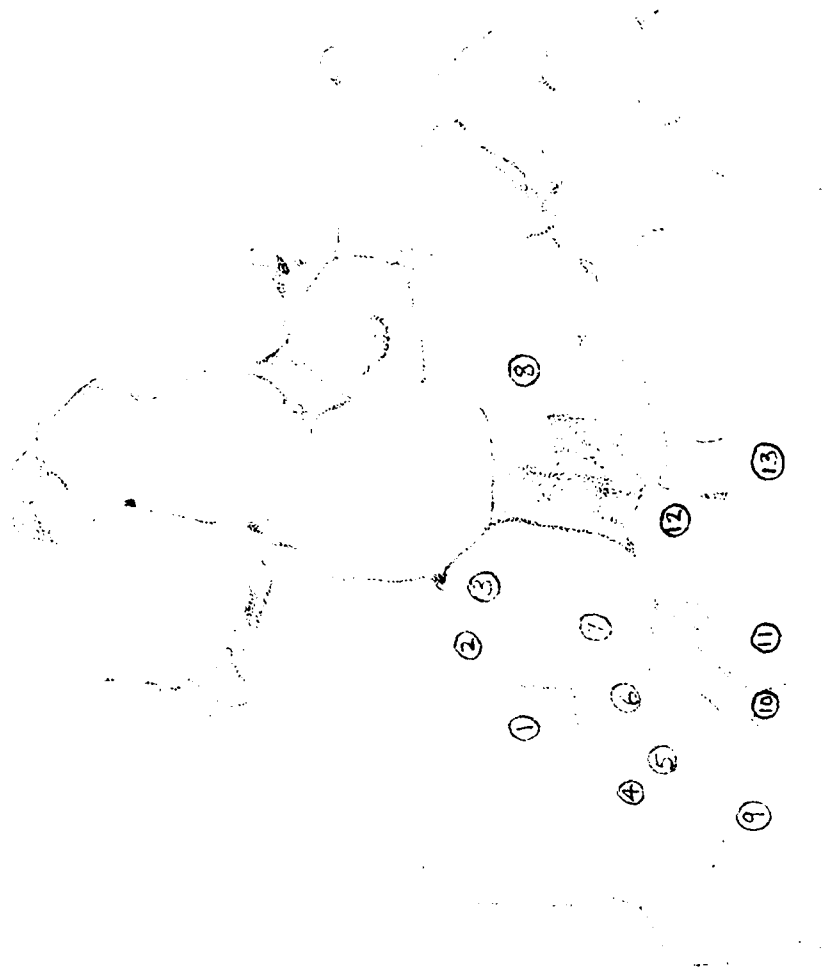


Figure 2-12. Location of pictographs, 45-D0-442.

45-D0-442
(BRANDT HOMESTEAD SITE)

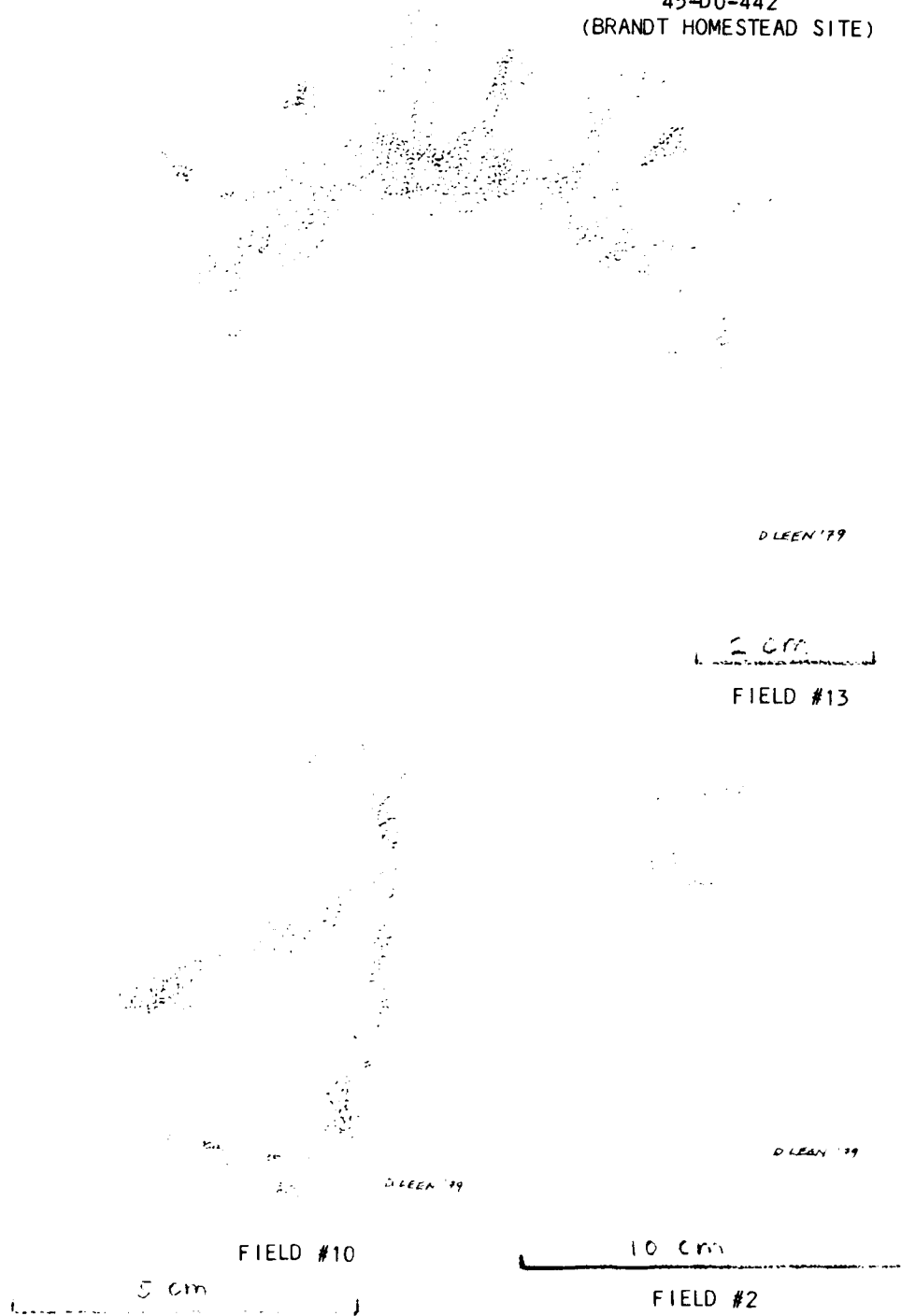


Figure 2-13. Pictograph 2, 10, and 13 at 45-D0-442.

45-D0-442
(BRANDT HOMESTEAD SITE)

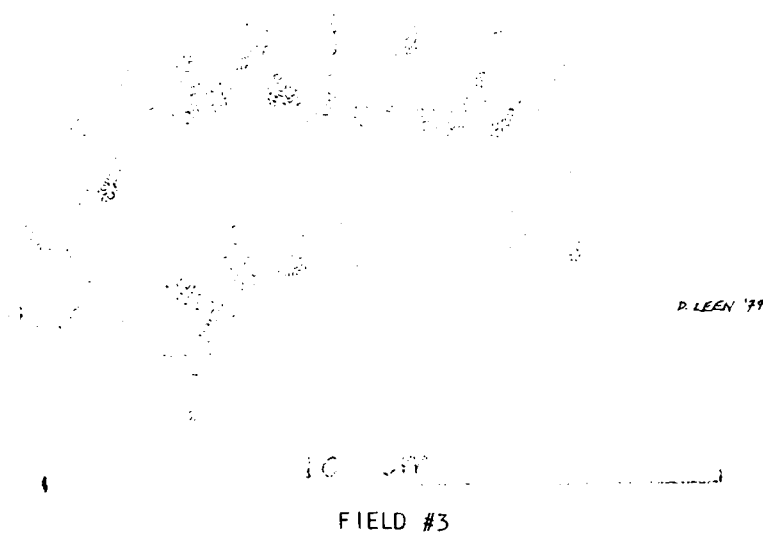


Figure 2-14. Pictograph 3 at 45-D0-442.

45-D0-442
(BRANDT HOMESTEAD SITE)

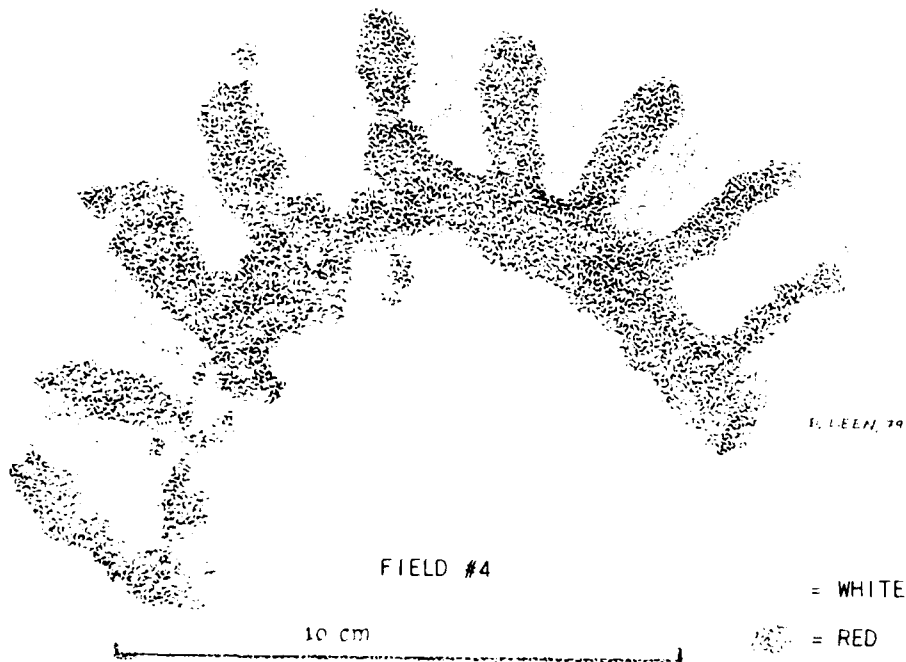
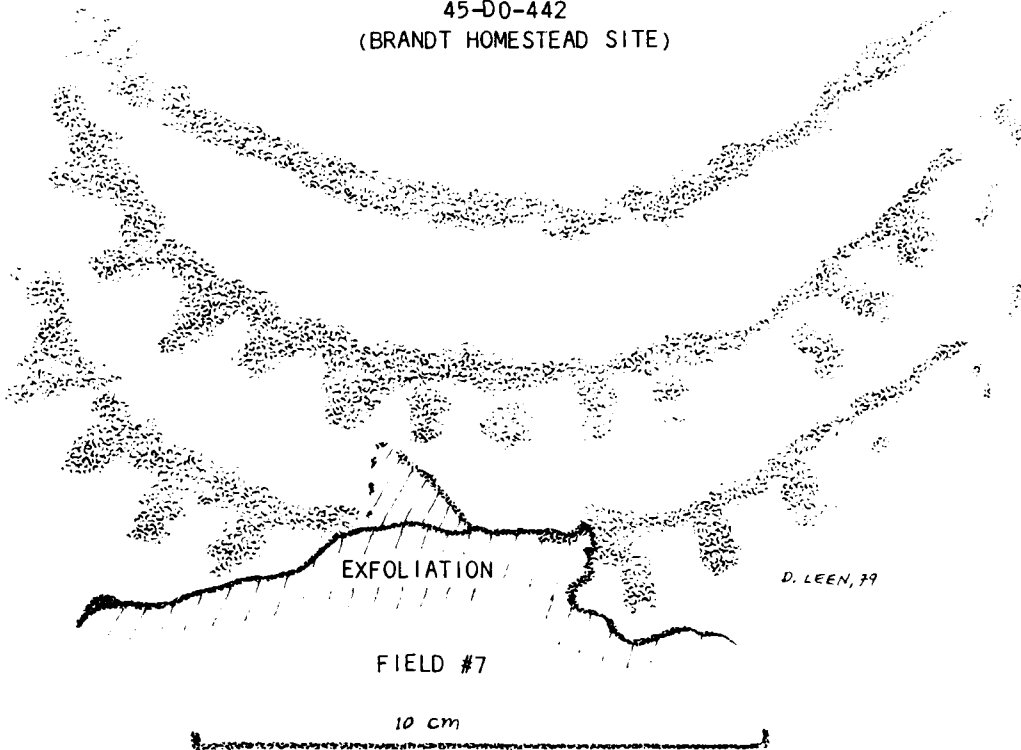


Figure 2-15. Pictograph 4 and 7 at 45-D0-442.

45-OK-14

Site 45-OK-14 was recorded by the River Basin Survey in 1949 1.5 km south of Condon's Ferry. On the first terrace above the Columbia River, it was inundated by the initial pool rise of Rufus Woods Lake. Harold Cundy (ca. 1934) describes this site as a large basalt erratic with 108 red pictographs and burials at its base. Quadrupeds, hands, a sun or star image, geometric designs, "counting" marks, and a relatively modern looking horseman (Table 2-5) were observed and sketched by Cundy (ca. 1934). Some of these are shown in Figures 2-16 through 2-17. During a ten-foot drawdown of the reservoir in July 1979, the erratic protruded above the water and a fragmentary red pictograph was observed less than one meter above the high water line. Local informants describe seeing numerous pictographs both above and below the water line shortly after the 1955 pool rise (Webers 1979). An article in the Wenatchee Daily World in 1953 also describes this site before inundation and includes photographs.

Table 2-5. Individual pictograph data, 45-OK-14 (taken from Cundy 1934).

Field Number	Drawing	Photograph	Tracing	Motif	Color
1	X	-	-	Horseman	[All or mostly Red]
2	X	-	-	Anthropomorph, Quadruped	
3	X	-	-	Quadruped	
4	X	-	-	Anthropomorph, Geometric	
5	X	-	-	Anthropomorph	
6	X	-	-	Quadruped	
7	X	-	-	Quadruped	
8	X	-	-	Quadruped	
9	X	-	-	Geometric	
10	X	-	-	Geometric, Hand	
11	X	-	-	Hand	
12	X	-	-	Unidentifiable	

45-OK-14



FIELD #1



FIELD #2



FIELD #3

Figure 2-16. Pictograph 1 through 3 at 45-OK-14.

45-OK-14



FIELD #4



FIELD #5



FIELD #6



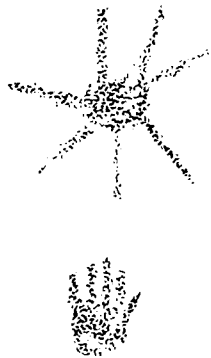
FIELD #7



FIELD #8



FIELD #9



FIELD #10



FIELD #11

Figure 2-17. Pictograph 4 through 11 at 45-OK-14.

45-OK-17

Site 45-OK-17, recorded by the River Basin Survey in 1949, at 10 kilometers above Chief Joseph Dam was inundated by the initial pool raise of Rufus Woods Lake in 1955. It apparently consisted of red-orange pictographs on a large granitic, erratic boulder, but no record of the designs is known (McClure 1978).

45-OK-170

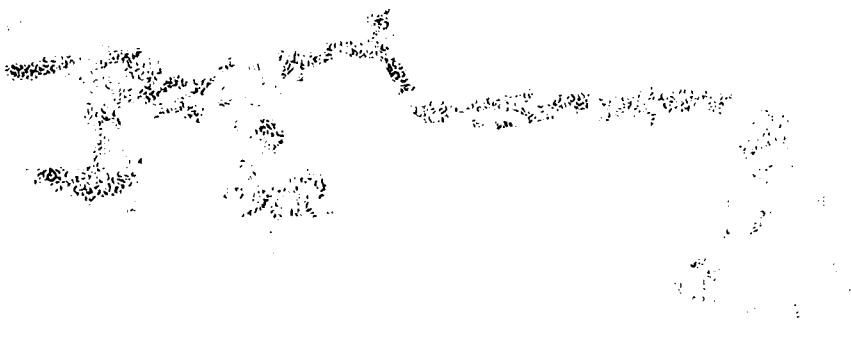
This site was first officially recorded as 45-OK-74 and 45-OK-170 by WSU in 1975 (Munsell and Salo 1977:Appendix D) but had been previously recorded by Harold Cundy (ca. 1934). What is left of the site is located 920 feet m.s.l. at the base of granitic cliffs at Deadman's Eddy, just downstream from Nespelem Bar, 175 m downstream from RM 578. Although originally consisting of three main areas of pictographs, that part of the site below the road was apparently inundated by the initial pool rise of Rufus Woods Lake, and one of the two upper areas appears to have been blasted away during recent road construction. The third area of the site has suffered from blasting and natural exfoliation. Recent spray painted graffiti were found along the road nearby. In all, around 25 designs were observed at this site in red, yellow, and green-yellow pigments. No polychrome designs were found. While many of the designs are faded beyond recognition, a few are still reasonably intact, including anthropomorphs, hands, quadrupeds, a fish, a bird, geometric designs, "counting" marks, and one fine example of a horse which appears to be stylistically different from the other designs present (Table 2-6, Figures 2-18 through 2-24). This latter design may eventually be covered by rain washed sediments from the road directly above it but it does not appear to be in imminent danger. Local informants described the inundated portion of this site as having more anthropomorphs ("stick figures"), three humans on one horse, two teepees, and more fishes (Webers 1979). This site was not affected by the February 1981 pool raise of Rufus Woods Lake.

Table 2-6. Individual pictograph data, 45-OK-170.

Field Number	Drawing	Photograph	Tracing	Motif	Color
West Group					
1	-	X	-	Unidentifiable	Red
2	-	X	-	Unidentifiable	Red
3	X	X	X	Counting Marks	Red
4	X	X	X	Anthropomorph, Quadruped, Fish	Red
5	X	X	X	Quadruped	Red
6	X	X	X	Anthropomorph, Geometric, Counting Marks, Quadruped	Red
7	-	X	-	Unidentifiable	Red
8	-	X	-	Unidentifiable	Red
Central Group					
1	-	X	-	Unidentifiable	Red
2	-	X	-	Unidentifiable	Red
3	X	X	X	Hand	Yellow
4	-	X	-	Unidentifiable	Red
5	X	X	X	Bird, Quadruped	Yellow
6	X	X	X	Anthropomorph	Yellow
7	-	X	-	Unidentifiable	Red
8	X	X	X	Hand	Red
9	-	X	-	Unidentifiable	Red
10	-	X	-	Unidentifiable	Yellow
11	-	X	-	Unidentifiable	Yellow
12	-	X	-	Unidentifiable	Red
13	X	X	X	Unidentifiable	Yellow-Green
14	X	X	X	Quadruped	Yellow
15	-	X	-	Unidentifiable	Red
16	-	X	-	Unidentifiable	Yellow
East Group					
1	X	X	X	Horse, Quadruped	Red



Figure 2-18. Location of pictographs, West Group, 45-OK-170.



45-OK-170

45-OK-170

WEST GROUP

Figure 2-19. Pictograph 5, West Group, at 45-OK-170.

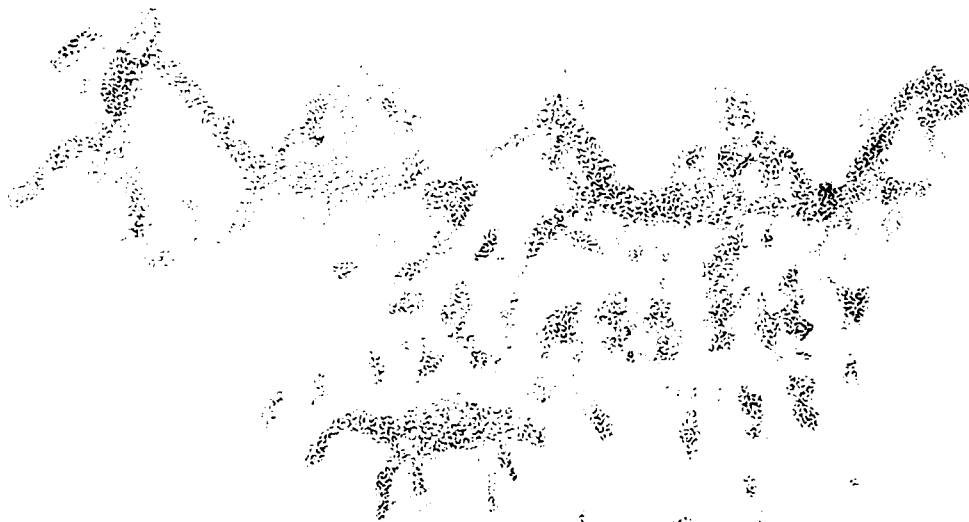


D. LEEN, 79

10 cm

45-OK-170

WEST GROUP



D. LEEN, 79

10 cm

45-OK-170

WEST GROUP

Figure 2-20. Pictograph 4 and 6, West Group, at 45-OK-170.

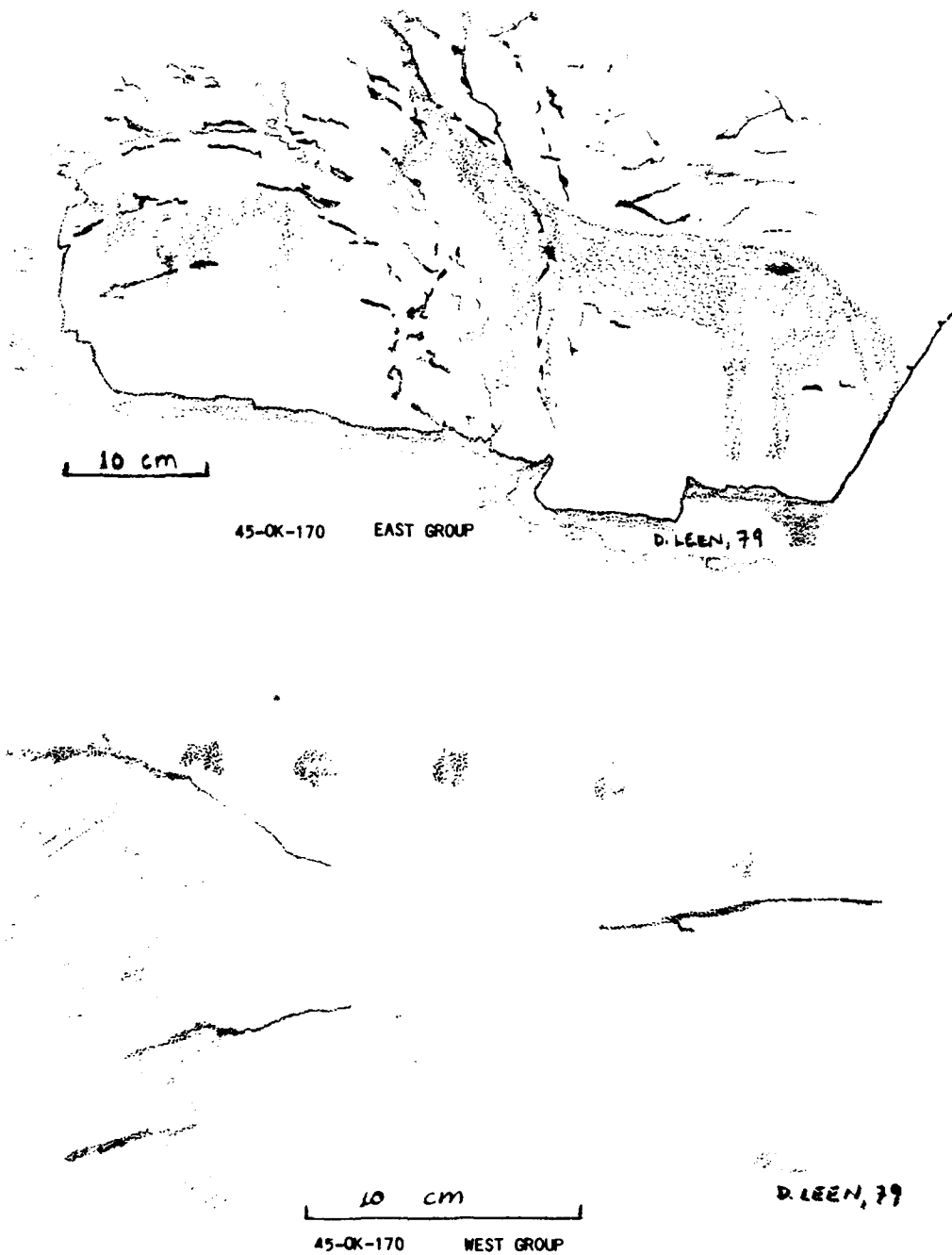


Figure 2-21. Pictographs, East Group, and Pictograph 3, West Group, at 45-OK-170.



45-OK-170 CENTRAL GROUP

Figure 2-22. Location of pictographs, Central Group, 45-OK-170.

45-OK-170 CENTRAL GROUP

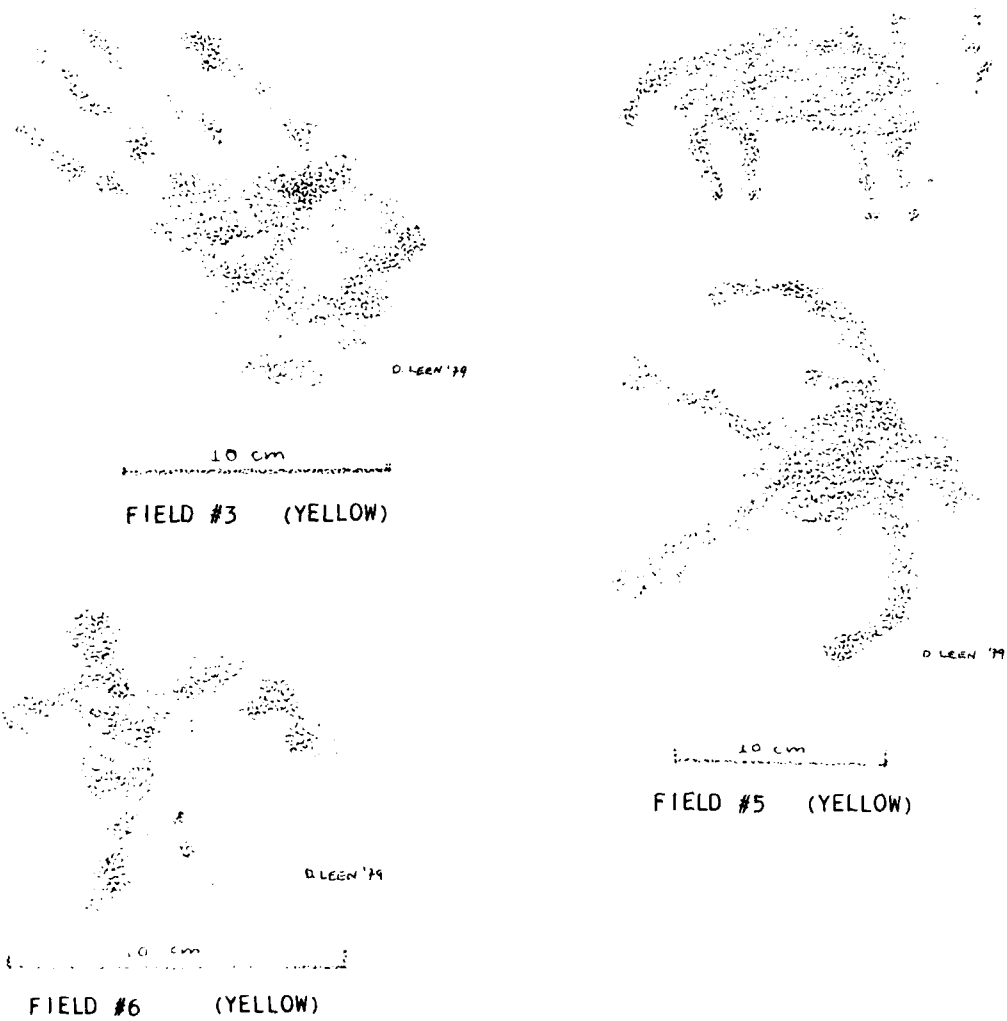


Figure 2-23. Pictograph 3 and 6, Central Group, at 45-OK-170.

45-OK-170

CENTRAL GROUP



D. LEEN '79

10 cm

FIELD #8



D. LEEN '79

10 cm

FIELD #13 (GREEN)



D. LEEN '79

10 cm

FIELD #14 (YELLOW)

Figure 2-24. Pictograph 8, 13, and 14 at 45-OK-170.

45-OK-181

Site 45-OK-181 is described on the 1975 WSU survey form as being on granitic cliffs in the vicinity of Condon's Ferry. A search of the area by boat and on foot did not succeed in relocating and verifying the site. It was concluded that this site must have been inundated by the initial pool rise of Rufus Woods Lake.

45-OK-234

Site 45-OK-234 is in a small canyon at RM 582, about one kilometer northeast of the Rufus Woods Lake shoreline and just north of the Nespelem River. At an elevation of 1100 feet m.s.l., the site is outside the project guide-taking lines. The pictographs were found on the protected face of a large granite boulder at the base of granitic cliffs (Figure 2-25) adjacent to an alluvial fan with a spring. Although some designs were faded beyond recognition, six designs were observed in red and black pigments including an anthropomorph, quadrupeds, geometric designs, and "counting" marks (Table 2-7, Figure 2-26). No polychrome designs were noted but there may be some superimpositions. This site was not affected by the February 1981 pool raise of Rufus Woods Lake.

Table 2-7. Individual pictograph data, 45-OK-234.

Field Number	Drawing	Photograph	Tracing	Motif	Color
1	-	X	-	Unidentifiable	Black
2	X	X	X	Quadruped	Black
3	X	X	X	Anthropomorph, Quadruped	Red, Black
4	X	X	X	Counting Marks, Unidentifiable	Red
5	X	X	X	Geometric, Unidentifiable	Red, Black
6	-	X	-	Unidentifiable	Black

45-OK-234

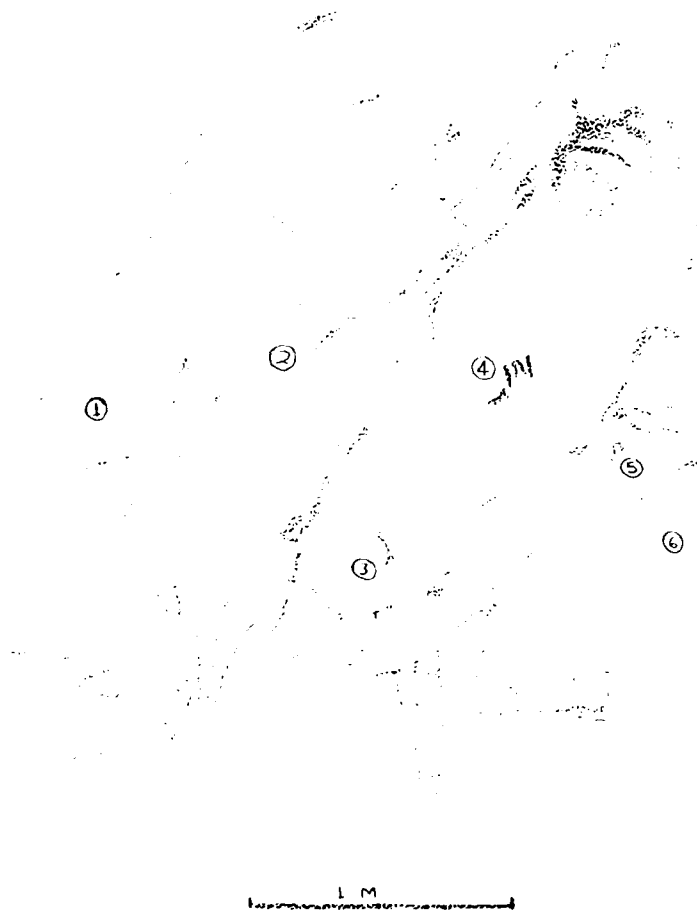


Figure 2-25. Location of pictographs, 45-OK-234.

45-OK-234



D. LEEN '79

10 cm

FIELD #2



D. LEEN '79

10 cm

FIELD #3 (TOP)



D. LEEN '79

10 cm

FIELD #3 (BOTTOM)



D. LEEN '79

10 cm

FIELD #4



D. LEEN '79

10 cm

FIELD #5

Figure 2-26. Pictograph 2 through 5 at 45-OK-234.

45-OK-240

Site 45-OK-240 is described on the USCE survey form as seven or more talus depression at the base of a granitic cliff with associated pictographs. The talus depressions are assumed to be burial locations as a probable human long bone was observed in the rocks. At least three of the burials appear to have been looted. The cliff is on the southeast side of Armstrong Canyon near Nespelem Bar, at RM 581. Elevation is 1100 feet m.s.l. The pictographs were found in two groups on a protected rock face (Figures 2-27 and 2-28). A total of 15 designs in red and black pigments were noted, including anthropomorphs, arrow designs, an arc with rays over a possible anthropomorph, a geometric design, and possible paintbrush testing marks (Table 2-8, Figures 2-29 and 2-30). No polychrome designs were noted. This site was not affected by the February 1981 pool raise of Rufus Woods Lake.

Table 2-8. Individual pictograph data, 45-OK-240.

Field Number	Drawing	Photograph	Tracing	Motif	Color
West Group					
1	X	X	X	Anthropomorph	Red
2	-	X	-	Unidentifiable	Red
3	X	X	X	Arrow	Red
4	-	X	-	Unidentifiable	Red
5	-	X	-	Unidentifiable	Black
6	X	X	-	Paintbrush Testing Marks,	Red
7	-	X	-	Unidentifiable	Red
8	-	X	-	Unidentifiable	Red
9	-	X	-	Unidentifiable	Red
10	-	X	-	Unidentifiable	Red
11	X	X	X	Anthropomorph	Red-Brown
East Group					
1	X	X	X	Geometric	Red
2	X	X	X	Arrow	Red
3	X	X	X	Anthropomorph, Arc	Red
4	X	X	X	Arrow	Red

45-OK-240 WEST GROUP



Figure 2-27. Location of pictographs, West Group, 45-OK-240.

45-OK-240 EAST GROUP



Figure 2-28. Location of pictographs, East Group, 45-OK-240.

45-OK-240
WEST GROUP

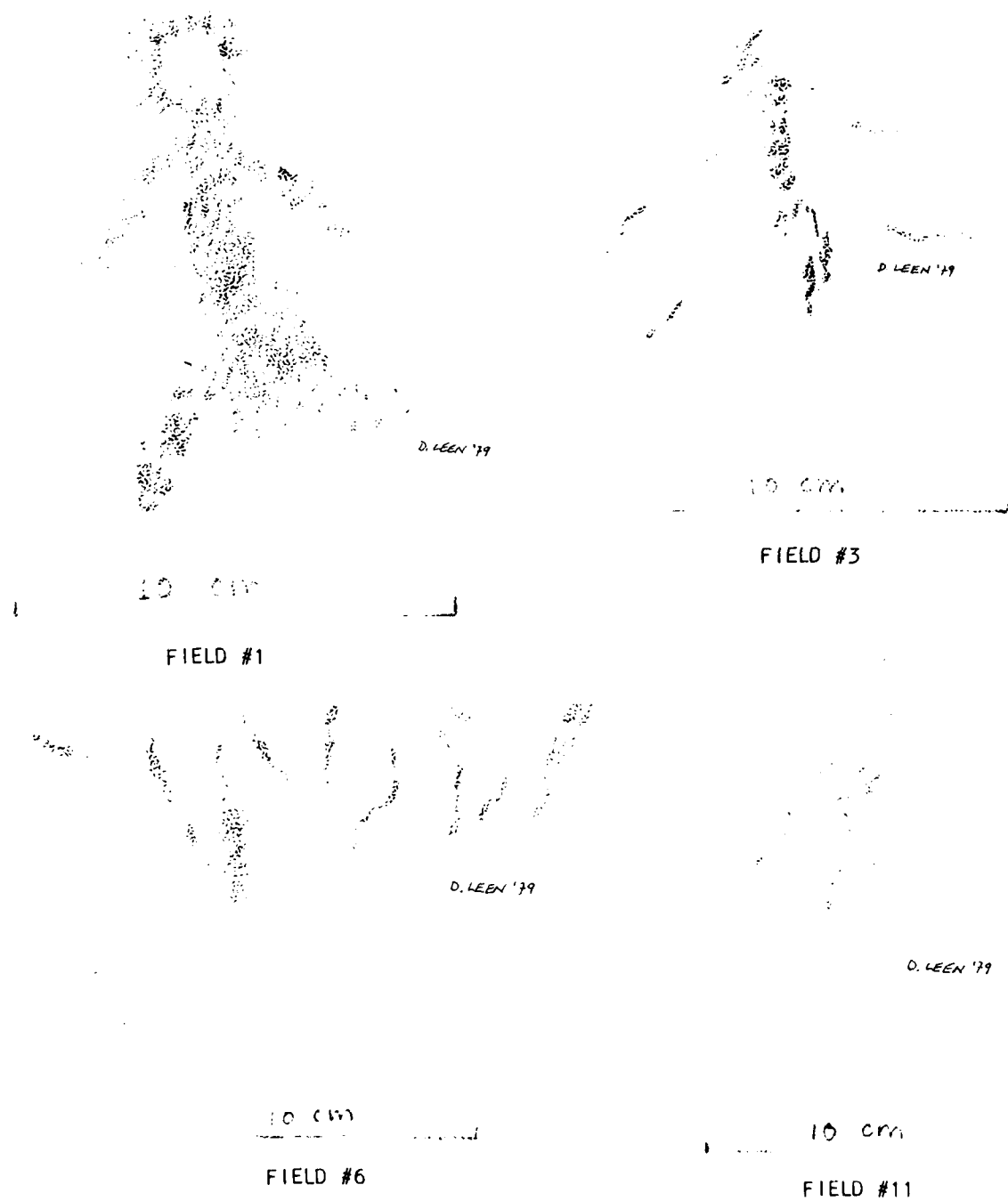


Figure 2-29. Pictograph 1, 3, 6, and 11, West Group, at 45-OK-240.

45-OK-240
EAST GROUP



10 cm

FIELD #1

D. LEEN '79



D. LEEN '79

10 cm

FIELD #2



10 cm

FIELD #3

D. LEEN '79



D. LEEN '79

10 cm

FIELD #4

Figure 2-30. Pictograph 1 through 4, East Group, at 45-OK-240.

45-OK-504 (PETER DAN CREEK SITE)

This site was first recorded by the author in 1979 as part of the nonhabitation sites investigation. Located just south of Peter Dan Creek, USGS RM 592, this site is at an elevation of 1000 feet m.s.l. The site consists of four pictographs at the base of a large basalt erratic (Figure 2-31) approximately 100 m east of Rufus Woods Lake. The designs face the river and include an unusual quadruped with a stylized head in red pigment and a red and white polychrome arc or "rake" design (Table 2-9, Figure 2-32). Spray painted survey markings were noted around three meters north of the designs on the same erratic, and around 10 meters south of the erratic shell, bone, and lithic debris were observed on the surface of a recently bulldozed area. While there is some question as to the stability of the land in this area due to projected variations in the level of Rufus Woods Lake after the February 1981 pool raise, this site does not appear to be in great danger of having its foundation eroded away.

Table 2-9. Individual pictograph data, 45-OK-504.

Field Number	Drawing	Photograph	Tracing	Motif	Color
1	X	X	X	Quadruped	Red
2	-	X	-	Unidentifiable	Red
3	X	X	X	Arc	Red, White
4	-	X	-	Unidentifiable	Red

45-OK-504
(PETER DAN CREEK SITE)

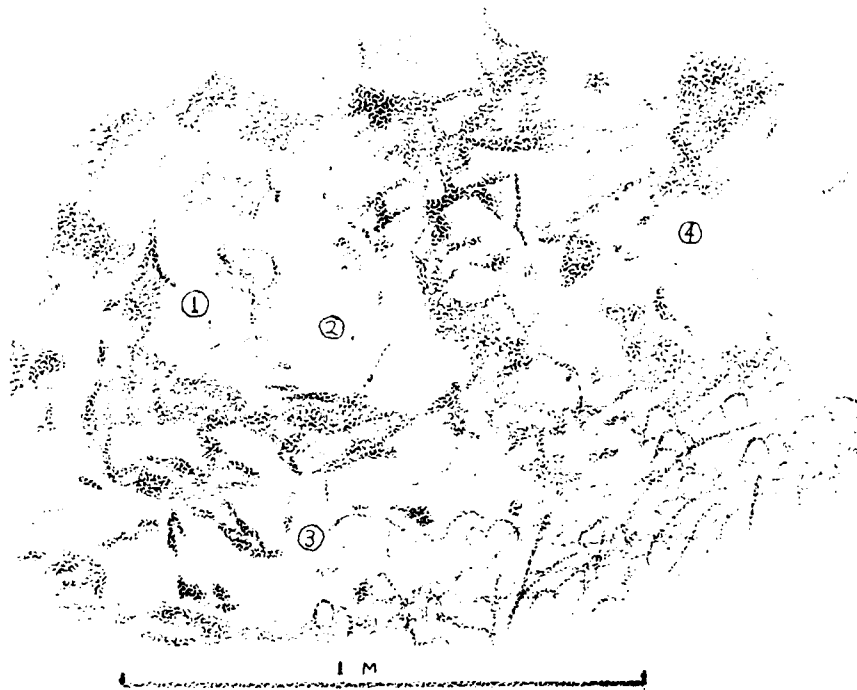
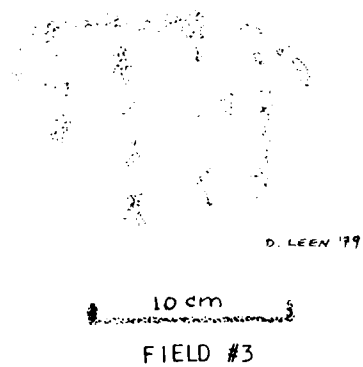


Figure 2-31. Location of pictographs, 45-OK-504.

45-OK-504
(PETER DAN CREEK SITE)



○ = WHITE

● = RED

Figure 2-32. Pictograph 1 and 3 at 45-OK-504.

45-OK-505

This site was first recorded by the author in 1979 as part of the nonhabitation sites investigation. Located at USGS RM 574.5 and 400 meters west of 45-OK-11, site 45-OK-505 is at an elevation of 960 feet m.s.l. approximately 2.8 m above the level of Rufus Woods Lake. It consists of 2 designs in red pigment about 3 m apart on a granite bedrock face under an overhang (Figure 2-33). While one design is too faded to stand out clearly, the other is comprised of two "rake"-like arcs that are fairly distinct (Table 2-10, Figure 3-34). This site was inundated by the February 1981 pool raise of Rufus Woods Lake.

Table 2-10. Individual pictograph data, 45-OK-505.

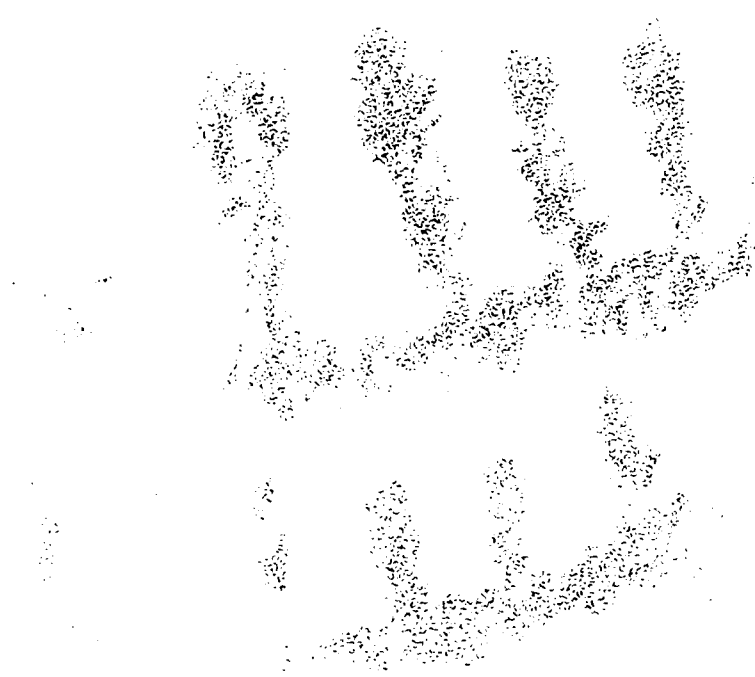
Field Number	Drawing	Photograph	Tracing	Motif	Color
1	X	X	X	Arc	Red
2	-	X	X	Unidentifiable	Red

45-OK-505



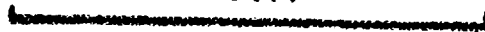
Figure 2-33. Location of pictographs, 45-OK-505.

45-OK-505



D. LEEN, '79

10 cm



FIELD #1

Figure 2-34. Pictograph 1 at 45-OK-505.

3. ROCK FEATURE SITES

The results of our investigations of rock feature sites indicate a greater diversity of feature forms and feature functions than recognized in the management plan classification discussed in Chapter 1. The majority of the rock features recorded on project area survey forms were described as burial marker cairns or talus burials. Very few of such features we tested were found to mark or contain burials. Many rock features date from the historic period, when they were created by removal of rocks from fields, as fence supports, or to mark homestead boundaries. Others are associated, not with burials, but with habitation debris. Other cultural functions, such as trap anchors, have been demonstrated. Some cairns apparently are natural in origin.

The determinations made in this investigation may include a greater variety of site functions and have the advantage of subsurface data in many cases, however, they are little more satisfying than the original survey form designations because the criteria by which rock features are assigned to functional categories are not adequately reported. The nonhabitation site survey unfortunately did not use a systematic means of describing and classifying rock features such as that already developed by Smith in his pioneering work with rock features in the Columbia Basin (1977). In the conclusions of this report, we discuss these methodological problems in greater detail and make a number of suggestions for improving the methodology for investigating nonhabitation sites.

Here we need only note that we attempt, throughout the report, to describe the empirical evidence observed at the nonhabitation sites, and to avoid interpretive labels which carry implications about origin, age, or function. We use the term **cairn** to mean a cluster or pile of rocks on the ground surface, regardless of origin, **talus depression** to mean a concave area in talus, regardless of origin, and **burial** to mean features in which human skeletal remains were actually found.

The reader should note well that cairn is used in a very broad sense, following its previous usage in the project area. Cairns are not limited to piles of rocks, but may include any arrangement or cluster of rocks suspected of being artificial. In fact, the majority of the cairns recorded in the project area consist of rocks clustered on the surface. We chose to continue using the term cairn, in spite of its potentially misleading connotations, because it occurs so pervasively in previous records for the project area.

PROCEDURES

At Phase I test sites, the surface configuration of the cairns was recorded photographically and by drawing. Then 1 x 1, 1 x 2, or 2 x 2 m-units were excavated under the cairns, following standard project excavation procedures (Campbell 1984d). Purposive sampling was chosen as the most cost effective sampling alternative, given the small number of features at such sites and the fact that the structures were detectable at ground surface. Sites 45-D0-304, 45-OK-179, 45-OK-300, and 45-OK-302 were not actually tested as it appeared they were natural.

Investigation procedures were altered for Phase II sites. Cairns were photographed and shovel tested to determine if they were prehistoric burial marker cairns. The large majority of cairns were eliminated from consideration in this fashion. Of the remaining sites, a few were tested and one was mapped.

SITE DESCRIPTIONS

The following site descriptions include an initial description taken from the original survey form completed by WSU, USCE, or CJDCRP. We have changed the wording from the survey forms, substituting the term cairn or depression for burial if a burial has not been demonstrated. Additional or differing observations made by the nonhabitation sites crew are also included, as well as the results of test excavations.

The determination of site origin reported here is taken from the notes of the nonhabitation sites crew director. In very few cases was the basis for the decision given. Unless other information is provided, the determination natural simply means that no cultural material was found in association with the rock feature. It is likely that some of these rock features are natural-- fortuitous arrangements of rocks, depressions formed by spalling, or by slides on talus slopes. However, other possible cultural functions such as above-ground storage caches have not been convincingly eliminated.

45-D0-102

This site is described on the USCE survey form (March 1976) as a scattered midden and at least two cairns immediately south of the west end of Buckley Bar, 1,225 m upstream from RM 586, at elevation 950-960 feet m.s.l. (Figure 3-1). The open camp site is on a low river terrace with a gently undulating surface covered with low grass and occasional greasewood, sagebrush and juniper trees. The cairns are on the sandy beach below.

We tested the site between 31 July 1979 and 6 August 1979. Both cairns consisted of granite and waterworn basalt cobbles. One of the cairns had a depression in the middle, possibly indicating that it had been disturbed. A 2 x 2-m unit (34S31E) was placed in this cairn. Another 2 x 2-m unit (43S42E) was placed in the other cairn, which showed no evidence of disturbance. Both units were dug to a level of 50 cm without encountering any human skeletal

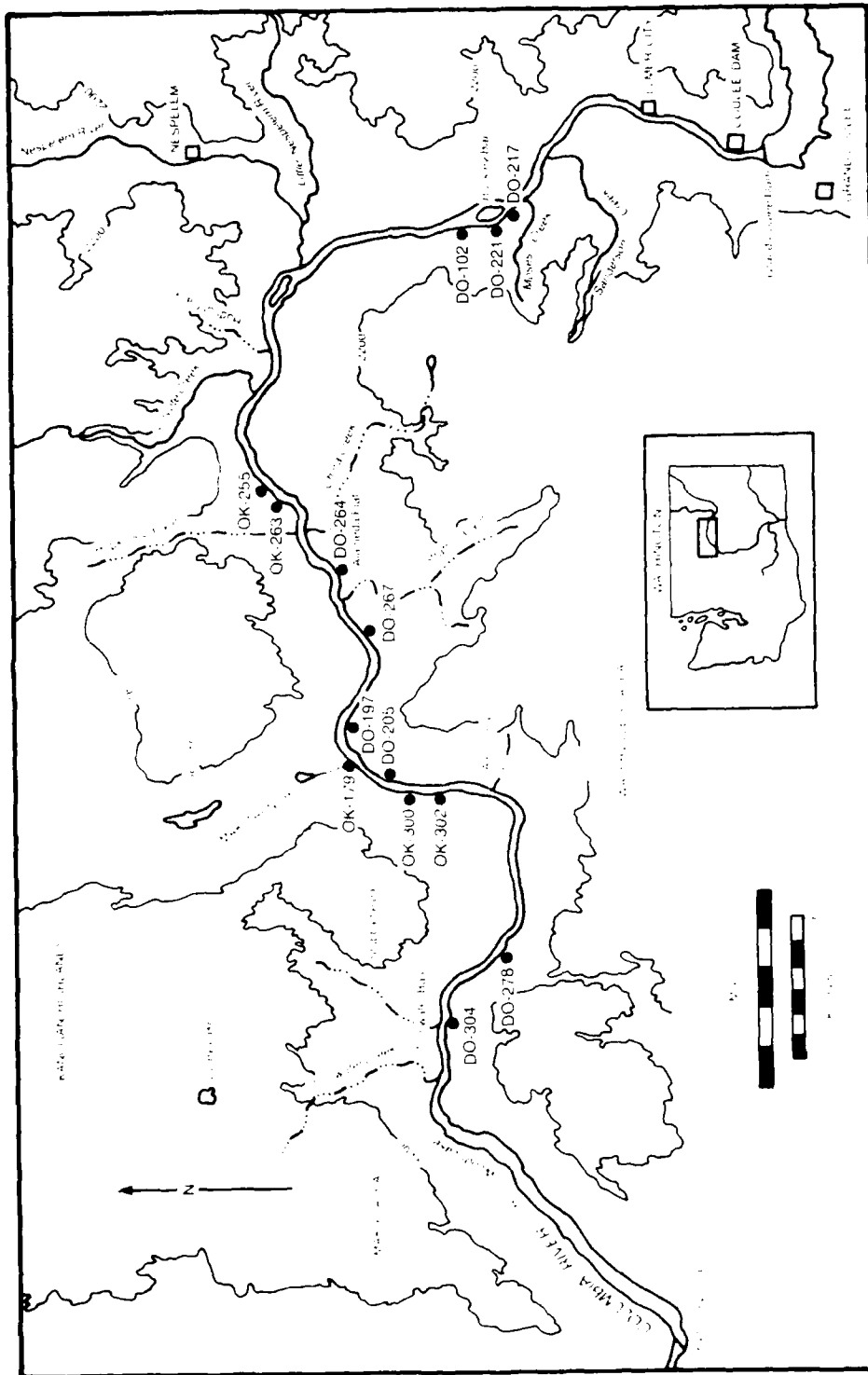


Figure 3-1. Location of nonhabitation sites.

material or any other cultural material. The matrix texture graded from sand through gravels to cobbles, and the color from gray to orange. The field personnel interpreted these cairns as natural formations.

45-00-197

This site (Figure 3-1) was recorded by WSU in 1976 on the basis of an informant report. The Weber brothers, owners of the property, had removed a single burial from a low terrace adjacent to the river. The field has been under cultivation for some time and is actively eroding.

The CJDCRP investigated four cairns near the water between 5 November 1979 and 14 November 1979. The Webers informed the field crew that these were homestead boundary markers and piles resulting from clearing rocks from the field during plowing. Four units were excavated, one in each cairn. They are 11N9W (a 2 x 2-m unit, SE quad excavated to 50 cm), 7N9W (a 2 x 2-m unit, SE quad excavated to 60 cm), 7N30E (a 1 x 1-m unit, NE quad excavated to 60 cm), and 7N28W (a 1 x 1-m unit, NW quad excavated to 50 cm). Even though a cobble chopper was found in the area, we agree with the Webers that these cairns date to the historic period.

A surface map of Cairn 3 is shown in Figure 3-2. It consisted of 8 rocks (type not recorded). Cairn 1 consisted of 15 rocks, and Cairn 2 consisted of six rocks (type not recorded).

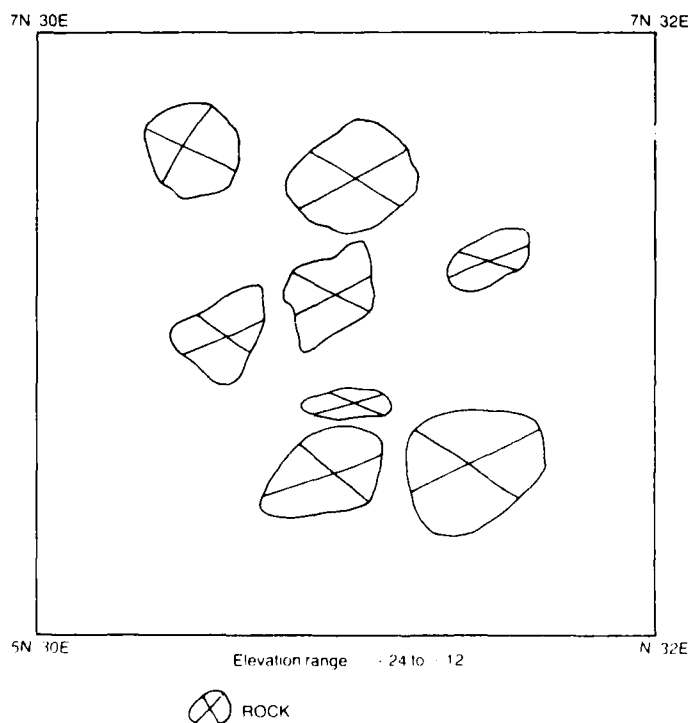


Figure 3-2. Cairn 3, 7N30E, 45-00-197.

45-DO-205

Site 45-DO-205 is described as two rock cairns, both 0.8 m in diameter (USCE survey form, March 1976). It is on the edge of a sloping river terrace, above a steep drop-off, 300 m downstream from RM 567 at an elevation of 1000 feet m.s.l. (Figure 3-1). Vegetation consists of low grasses, sagebrush, and rabbitbrush.

This site looked promising because of its close proximity to habitation site 45-DO-204 and because the cairns comprised the only waterworn rocks in a sandy area with some basalt erratics. Although not scheduled for Phase I or Phase II investigation, this site was investigated by the CJDCRP nonhabitation site crew at the request of the Corps. The two cairns, both consisting of large waterworn cobbles of granite and basalt, were excavated between 30 August and 7 September. A 2 x 2-m unit, 9S12W was placed over a group of three basalt and two granite rocks, and a 1 x 2-m unit, 2S14W, was placed over a group of three basalt and four granite rocks. Both units were dug to a depth of 50 cm without encountering any cultural material. The stratigraphic sequence was sand overlying gravels, overlying white silt.

Although the cairns appear to be artificial because of their location, no other evidence of human activity was recovered which would allow us to interpret their function.

45-DO-216

Site 45-DO-216 is described as a single rock cairn 1.5 m in diameter (USCE survey form, March 1976). It is on a steep slope between the lowest and next highest river terraces, 600 m downstream from RM 588, at elevation 970 feet m.s.l. Vegetation is dense grass cover with thick growth of greasewood. Basalt boulders were observed on the terrace which otherwise was covered with brown sandy silt. The site is just downriver from open camp site 45-DO-215.

This site was examined by the CJDCRP nonhabitation sites survey crew during October 1979 who located a mound of dirt with one large rock on it. Another possible cairn consisted of a ring of rocks to the south. No other evidence of human activity was found associated with either formation.

45-DO-217

Site 45-DO-217 is a single rock cairn 1.0 m in diameter (USCE survey form, March 1976). It is on a steep slope between the river and the first terrace 1000 m upstream from RM 587, at elevation 950 feet m.s.l. (Figure 3-1). The soil matrix is a tan sandy silt. Vegetation on the terrace consists of pine, juniper, rabbitbrush, and greasewood with a heavy cover of grasses.

The nonhabitation sites crew relocated this site, finding a promontory with juniper, with four or five circular rock formations of different sizes with some mounding. Two of the additional cairns, mounds of waterworn basalt and granite cobbles, were tested between 7 August 1979 and 10 August 1979. The 2 x 2-m units placed at each cairn, 11N3W, and 24N1W were excavated to

depth of 50 cm without yielding any material. Cairn 1 at 11N3W consisted of 23 basalt and two granite rocks, and Cairn 2 at 24N1W consisted of four basalt and four granite rocks. The matrix graded from a grey sand through orange gravels to a gray clay layer. The field crew interpreted these cairns as natural.

45-D0-221

This site is described on the USCE survey form (March 1976) as consisting of a midden deposit and cairn on a river terrace, 150 m downstream from RM 587, at elevation 946-955 feet m.s.l. (Figure 3-1). Vegetation on the low, level river terrace consists of low grasses and juniper, hawthorne and chokecherry trees. The soil matrix is a brown sandy silt nearly free of rock. Fire-cracked rock, a quartzite core and flake tools were observed on the surface.

This site was investigated by the CJDGRP nonhabitation site crew from 17 July 1979 to 30 July 1979. The large cairn on the beach was tested with a 2 x 2-m unit, 33N25E, and adjacent 1 x 2-m unit, 33N27E, and 1 x 1-m units 31N27E and 31N25E (Figure 3-3). All quads were excavated to a sloping cobble surface 30-50 cm below the surface. The cairn consisted of 49 basalt and 12 granite rocks. Other materials recovered were historic artifacts--nails, staples, wire, fragments of leather. The cairn is interpreted as an historic fence support.

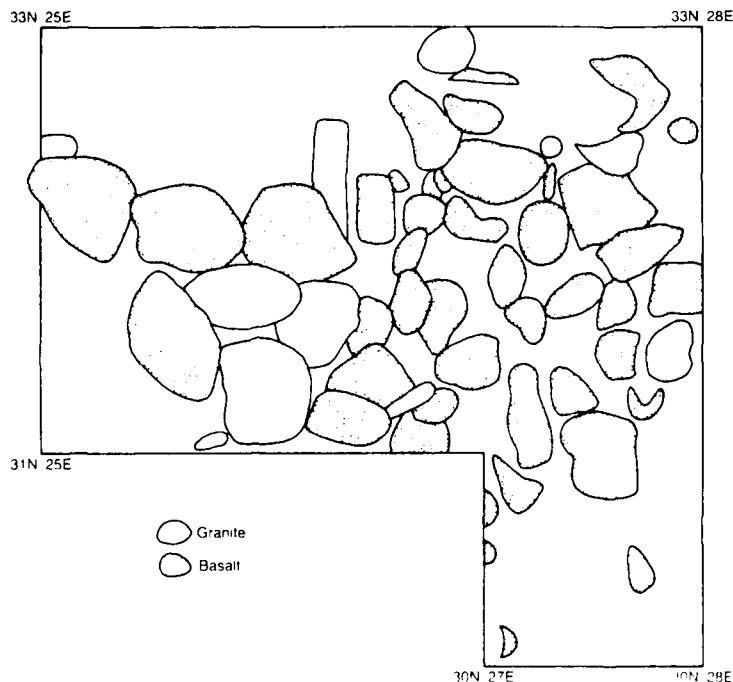


Figure 3-3. Cairn, 33N25E, 45-D0-221.

Two additional cairns on the terrace above the beach, located by Lawr Salo of the USCE during a visit to the site during testing, were also tested. The 2 x 2-m units placed in these cairns, 5N16E and 14S18E, were excavated to a depth of 50 cm. One of these cairns consisted of 51 rocks, including 35 basalt and 16 granite, all river cobbles between 65 and 145 cm in length. No cultural materials were recovered. The latter two cairns are interpreted as natural.

45-D0-222

This site is described on the USCE survey form as consisting of fire hearths eroding from a low river terrace and a single rock cairn on an adjacent granite rock outcrop. It is on a low, level, sandy terrace with juniper trees and a dense cover of low grasses, 250 m downstream from RM 587, at an elevation from 950-960 feet and 970 feet m.s.l.

The CJDCRP nonhabitation site crew resurveyed this site in 1979. They observed the circular rock cairn, as well as wire and a surveyor's stake on the granite outcrop. They interpreted the rock circle as natural.

45-D0-223

Site 45-D0-223 consists of three, and possibly more, rock cairns in an area 10 m in diameter (USCE survey form, March 1976). At an elevation of 970-1000 feet m.s.l., 1300 m upstream from RM 586, it is near nonhabitation sites 45-D0-222 and 45-D0-102. There are frequent bedrock exposures on the terrace, which has a moderate cover of low grasses with scattered rabbitbrush.

This site was investigated by the CJDCRP nonhabitation site crew in November 1979. Three basalt cairns were observed. One at the base of the terrace under an outcrop had historic materials all around it. This was interpreted as an historic fence support. The other two cairns, one at the front edge of an outcrop, and one in a small gully down river, were interpreted as natural. One of these cairns had a depression in the middle, but it is unclear which one.

45-D0-224

This site is described on the USCE survey form (March 1976) as three rock cairns on a high river terrace, 1,000 m upstream from RM 586, at an elevation of 1,050 feet m.s.l. The gently sloping, high river terrace is covered with grasses and scattered rabbit brush. The soil is sandy with occasional basalt cobbles on the surface. The cairns occur in an area 30 m in diameter.

In 1979 the site was investigated by the nonhabitation site crew, who reported a total of 5 cairns, all of basalt. They concluded the cairns are probably natural, but recommended testing.

45-D0-228

This site is described on the USCE survey form (March 1976) as a single cairn, a pile of rounded rocks 2.0 x 1.0 m, at the margin of an alluvial fan. The site is 550 m upstream from RM 568, at elevation 980 feet m.s.l. The cairn itself supports a dense growth of Oregon grape. The nearly level alluvial fan supports vegetation consisting of grasses, rabbit brush, greasewood, pine, and juniper trees.

This site was resurveyed by the nonhabitation sites crew in 1979. No direct evidence of human activity was found. However, just downriver from 45-D0-228 is historic cultural material, such as a cable brace and a small platform, which indicates a ferry landing site. The cairn observed at 45-D0-228 might be a windlass cable anchor or other feature connected with the ferry landing site. A natural pile of basalt was also observed nearby in a gully.

45-D0-229

This site is described on the USCE survey form (March 1976) as three cairns on a small, gently sloping alluvial fan, 375 m upstream from RM 586, at an elevation of 970 feet m.s.l. The surface of the alluvial fan is sandy, with numerous basalt cobbles. Vegetation included a single ponderosa pine, chokecherry, and a ground cover of low grasses and scattered greasewood. Depressions are also mentioned but not described. One of the cairns is intact, the others appear to have been rifled.

This site was resurveyed by the nonhabitation sites crew in 1979. They also observed three cairns, two of them large. They noted abundant historic materials in the area, including cable supports, a platform, and wood. They concluded that the cairn was an historic feature connected with a ferry landing site.

45-D0-232

This site is described on the USCE survey form (March 1976) as a 2 x 2 m talus depression with a cedar wood slat in it. It was found in granite talus on the northeast side of a large granite outcrop. The site is 550 m downstream from RM 585, at an elevation of 1,050 feet m.s.l. Vegetation on the steep slope consists of low grass and interspersed rabbit brush and greasewood. The depression appeared to have been vandalized and is in poor condition.

The nonhabitation sites crew resurveyed the site in 1979, noting the depression in granite talus. However, they found no evidence of human activity and interpreted the depression as being natural.

45-D0-239

This site at RM 581 is described on the USCE survey form (March 1976) as a talus cairn, 2 x 1 m, at the terminus of a basalt cobble tongue on a river terrace. The surface of the gently sloping terrace (1000' in elevation) is a brown sandy silt with basalt cobbles. Vegetation consists of a heavy grass cover with rabbitbrush, greasewood, and scattered pines.

The nonhabitation site crew investigated the site in November, 1979. They confirmed the cairn, a pile of basalt rocks occurring on a terrace with no other rocks. Charcoal was found under the cairn during shovel testing but there was not sufficient time for further excavation.

45-D0-240

This site is described on the USCE survey form (March 1976) as three or four cairns in a tabular granite talus slope on a high terrace. The moderately sloping talus accumulation, which supports a growth of elderberry shrubs, is 100 m downstream from RM 580, at an elevation of 1,110 feet m.s.l.

The nonhabitation sites crew examined the site in 1979. They found two cairns of basalt rock each more than 1.0 m in diameter on top of a raised area of dirt. They also observed a small depression at the base of the talus slope with a ring of small rocks around it. The site is near a historic homestead site, 45-D0-241H. The crew concluded the site was natural.

45-D0-264

This site is described on the USCE survey form (March 1976) as consisting of two cairns on a river terrace. They are on a level, sandy terrace with numerous cobbles and occasional granite boulders, 675 m downstream from RM 574, at an elevation of 990-1000 feet m.s.l. (Figure 3-1). Vegetation consists of a dense cover of low grasses, rabbitbrush, and sagebrush. One cairn has been disturbed.

The nonhabitation sites crew resurveyed this site in June 1979. They found one mound, one depression (disturbed), and two cairns. The two cairns are made up of basalt and granite rocks, both waterworn and angular, and are aligned perpendicular to the river. The terrace is covered with granite rocks, but the cairns are the only places where they are in piles.

A 2 x 2-m unit, 11S7W, was excavated under Cairn 1, which was higher on the terrace and which was not disturbed. This cairn consisted mainly of granitic rocks 32 to 140 cm in length, and was approximately 20 cm high. The southern quads were terminated at 30 cm and the northern quads excavated to 50 cm where the matrix graded from gray sand to cobbles with an orangish matrix. An additional unit would have been excavated if cultural material was noted, but none was discovered.

A second 2 x 2-m unit, 9S6W, was placed on Cairn 2, which was closest to the river and had a central depression, approximately 20 cm deep, possibly indicating disturbance. The quads were excavated to depths of 30 to 40 cm,

where a similar matrix change from gray sand to cobbles with an orangish matrix was observed. Five bone fragments weighing 16 grams were recovered from U.L. 20, 9S6W and U.L. 20, 9S5W, and a few traces of charcoal were noted during excavation, but otherwise the unit was sterile. The rocks of the cairn extended beyond the 2 x 2-m unit, but adjacent units were not opened because of the lack of cultural materials found in 9S5W.

Although Cairn 2 is obviously of cultural origin, its function could not be determined by excavation. The cairn appears not to be a result of land clearing, since the surrounding area is covered with rocks for some distance. No nails or wire were recovered to suggest the cairn had served as a fence-post brace.

45-DO-267

This site is described on the USCE survey form (March 1976) as a cairn, 3 x 2 m, at the base of a large granite erratic boulder. It is on a rocky, level terrace adjacent to China Creek, 100 m downstream from RM 573, at elevation 965 feet m.s.l. (Figure 3-1). Vegetation consists of large sagebrush, small trees and short grasses. The cairn has been rifled, and is in poor condition.

When the nonhabitation sites crew investigated 45-DO-267 in August 1979, they found a large depression under the overhang of a large granite boulder, rather than a cairn. The depression was ringed by angular and waterworn basalt and granite cobbles. Soot marks were observed on the erratic in the vicinity of the depression.

From 23 August to 28 August 1979, three 2 x 2-m units were excavated in the depression. See Figure 3-4 for a surface map of the excavated units. The rocks around and in the depression, 22 basalt and 83 granite cobbles, were designated Feature 1. A matrix change was encountered between 30 and 40 cm in both 4NOE and 6NOE which corresponded to the appearance of cultural materials-- flakes, bone fragments, and charcoal. A broken projectile point was found in 4NOE. Fifty-two bones and bone fragments weighing 10.7 grams, and five pieces of cryptocrystalline debitage weighing 3.7 grams were recovered. All three units were terminated when a layer of large granitic cobbles was encountered, at 40 cm in 20NOE and 6NOE and at 50 cm in 4NOE. At the cobble layer, the matrix color changed from gray to orange.

The blackening by soot of the erratic face and the buried cultural material indicate the site was used as a camp site by prehistoric peoples taking advantage of the semi-sheltered location.

45-DO-268

This site is described on the USCE survey form (March 1976) as at least three cairns on a gently sloping river terrace 75 m upstream from RM 569, at an elevation of 980 feet m.s.l. The area is a formerly plowed field, now currently in pasture with short grasses and occasional sagebrush. The

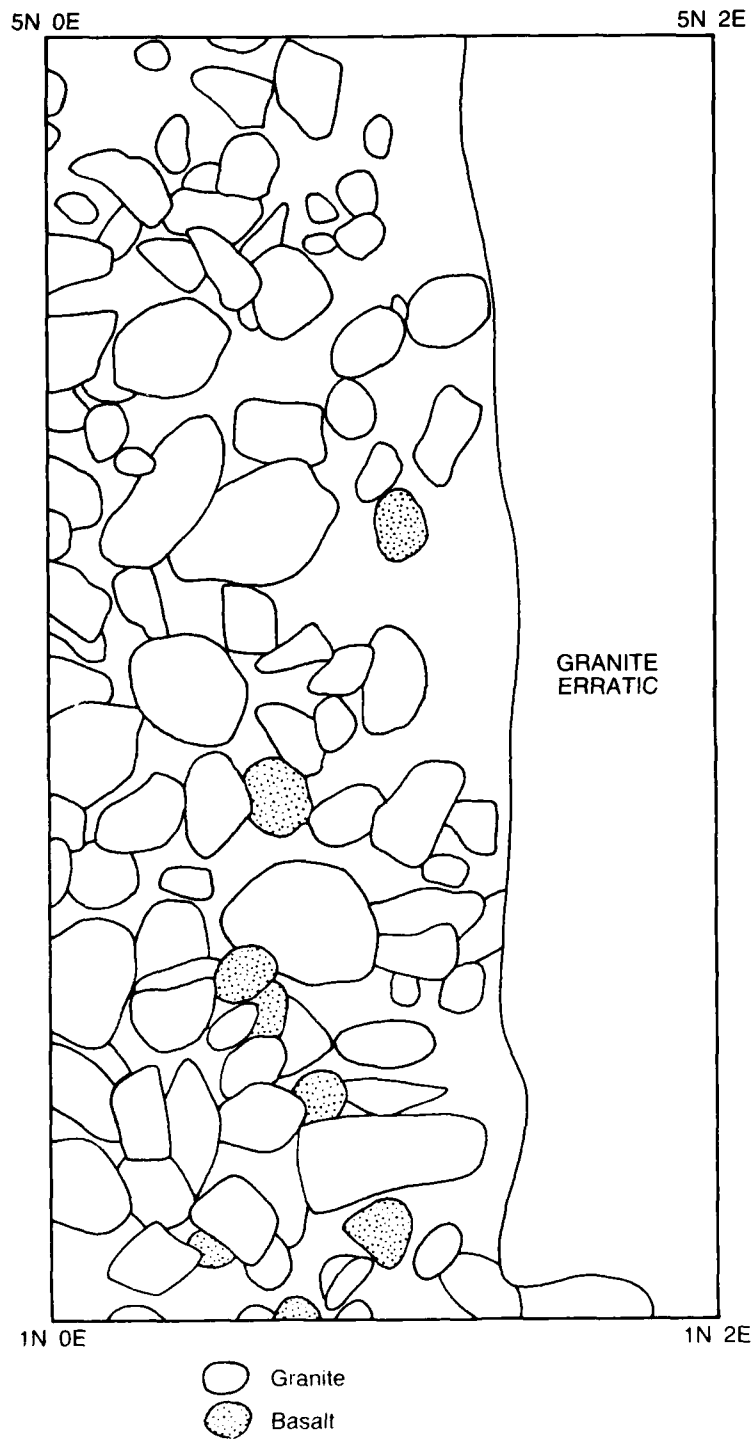


Figure 3-4. Feature 1, 45-D0-267.

surveyors suggest the cairns may have been built in association with cultivation of the field.

The nonhabitation sites crew investigated the site in 1979. The concluded the cairns were rockpiling piles associated with a homestead and boundary markers of the homestead.

45-DO-277

This site is described on the USCE survey form (March 1976) as at least two depressions in talus at the base of a basalt erratic. The depressions are large, together covering an area 4 x 4 m, and may represent burials or hunting blinds. The site is on a moderately sloping terrace with abundant basalt erratics, 125 m upstream from RM 559, at an elevation of 970 feet m.s.l. Vegetation consists of poison oak, sumac and low grasses.

The nonhabitation sites crew resurveyed this site in 1979, noting two or three depressions under a basalt erratic, one of which had berries in it. The field crew reached the conclusion that the depressions were natural in origin.

45-DO-278

This site is a series of cairns and rock alignments on a basalt bedrock promontory with sparse vegetation consisting of sagebrush and low grasses (USCE survey form, March 1976). It is 100 m upstream from RM 559, at an elevation of 970 feet m.s.l. (Figure 3-1).

The nonhabitation sites crew resurveyed this site in 1979, but did not map it because of the visibility problems posed by snow on the ground. Two other rock rings were seen on nearby outcrops on the river. It was mapped by students from the University of Washington field school in 1980 (Figure A-1).

This rock alignment site is unique in the project area. The basalt rock walls form two rings, one inside the other. There are cairns, at least one of which is definitely artificial, atop the rock walls in three locations. Possibly some of the structure of this rock formation is natural, perhaps a collapsed lava blister. However, even if so, it has been elaborated on by people. According to tribal elders, the site is a ceremonial site. It is near rockshelter site 45-DO-326, which was used as a habitation site.

45-DO-281

This site is described on the USCE survey form (March 1976) as two talus depressions at the base of a basalt erratic. It is on a gently sloping terrace with numerous basalt erratics and granite bedrock outcrops, 750 m upstream from RM 556 at an elevation of 1,030 feet m.s.l. Vegetation consists of a heavy growth of low grasses and sagebrush.

The nonhabitation sites crew examined the site in 1979, finding two cairns at the base of a basalt erratic, and one depression on the side away from the river. No evidence of human activity was found and the field crew interpreted the depressions as natural in origin.

45-00-304

This site, a basalt rock cairn 2.5 x 1.8 m in size at the base of a basalt erratic, was added to the inventory by the CJDCRP survey (1977). It is in a low field of basalt erratics, 25 m upstream from RM 557, at an elevation of 965 feet m.s.l. (Figure 3-1). Vegetation is sagebrush and grasses.

The nonhabitation sites crew examined the site in 1979. They relocated a pile of rocks at the base of the erratic, but found no evidence of human activity. They postulated a natural origin for the cairn.

45-00-315

This site, consisting of two rock cairns, was added to the inventory by the CJDCRP survey (1977). Both cairns are 140 cm in diameter and 30 cm above the ground surface. The distance between the centers is 3.1 m. One cairn has a depression in the center. The site is on a bench about 40 m above a major terrace, 300 m down river from RM 574 at an elevation of 1,040 feet m.s.l. Vegetation is sagebrush and grasses.

The nonhabitation site crew relocated the cairns in 1979. They noted that the cairns were formed of waterworn granite, but saw no evidence of human activity. A natural origin was postulated for the cairns.

45-00-318

This site, first recorded by the CJDCRP survey (survey form, 1977), consists of nine cairns spread over a 50 m long area on a high, slightly sloping river terrace. All nine cairns are made of waterworn cobbles, the stones varying in diameter from 10 to 50 cm. The cairns are 90 to 120 cm in length and average 20 cm in height. The site is 350 m upstream from RM 576, at an elevation of 1,320 feet m.s.l. Vegetation consists of grasses, and a few young sagebrush. It may have once been cultivated, as sage surrounds the area.

This site is located outside the guide-taking lines. However, it was examined by the nonhabitation site crew in October 1979. They suggest the rock piles were formed during the early historic period when rocks were cleared from the field for cultivation.

45-OK-179

This site is described on the USCE survey form (February 1976) as a single talus depression, 5 x 5 m, at the base of a basalt erratic. The erratic is on a gently sloping terrace 450 m downstream from RM 568, at an elevation of 950-960 feet m.s.l. (Figure 3-1). Vegetation consists of a moderate cover of cheatgrass, and sagebrush. The burial may have been partly looted.

The nonhabitation site crew resurveyed and shovel tested 45-OK-179 in August 1979. There was no evidence of human activity and it appeared that the depression under the overhang was formed naturally by spalls from the face of the large rock.

45-OK-213

This site is described on the USCE survey form (February 1976) as a rock cairn, 2 m in diameter, atop a 10 m high basalt erratic. The site is on a level terrace strewn with basalt cobbles, 475 m upstream from RM 585, at an elevation of 1,074 feet m.s.l. Vegetation in the vicinity of the site is a dense growth of grass and sagebrush.

This site was resurveyed by the nonhabitation site crew in 1979, who found wood and wire in the cairn. Although it otherwise resembles a marker cairn, they interpreted it as a bird trap because of the wood and wire. This site is 80 to 100 m downstream from 45-OK-212. The site was photographed but not mapped.

45-OK-214

This site is described on the USCE survey form (February 1976) as a cairn, 1 m in diameter, on the edge of a high terrace 1,025 m downstream from RM 585. The terrace, at an elevation of 1,040 feet m.s.l., overlooks a lower river terrace. Vegetation consists of a heavy growth of lichens on the rocks constituting the cairn and sparse growth of grass and rabbitbrush on the surrounding area.

The nonhabitation site crew, who investigated this site in October, 1979, found a rock pile on the terrace edge and no other evidence of human activity. The cairn was interpreted to have a natural origin.

45-OK-216

This site is described on the USCE survey form (February 1976) as a ring of rocks, 1.0 m in diameter, atop a large basalt erratic. Six large basalt erratics were noted on the steeply sloping terrace 175 m downstream from RM 584, at an elevation of 1,020 feet m.s.l. Vegetation consists of low grasses, sagebrush, and deciduous trees along the water's edge.

This site was resurveyed by the nonhabitation site crew in October, 1979. The site is a possibly artificial ring of rocks. It was photographed but not mapped.

45-OK-223

This site is described on the USCE survey form (February 1976) as a nondomestic cache site. The cache consists of a hollowed granite boulder with two openings, each with a separate flat rock lid. The boulder is 1 m wide, 2 m long, and 1 m high. The east end has a hole 60 cm in diameter and 35 cm

deep and the north end has a hole 60 cm in diameter and 60 cm deep (with lid). The site is on a gently sloping river terrace 525 m upstream from RM 582, at an elevation of 965 feet m.s.l. Vegetation consists of sagebrush, rabbitbrush, short grasses, and ryegrass.

The nonhabitation site crew resurveyed this site and found a flat rock inside the cache with the following words on it, "In the age of mankind he destroyed the earth and himself."

45-OK-239

This site is described on the USCE survey form (February 1976) as housepits, midden, and an associated cairn. It is on a gently undulating river terrace 150 m upstream from RM 581 at an elevation of 1,000 feet m.s.l. Vegetation consists of sagebrush, rabbitbrush, and cheatgrass. Choppers, fire-cracked rock, quartzite flakes, bone fragments, and mussel shell were observed on the surface, as well as housepit depressions and a cairn.

The site was relocated in November 1979 and tested on 15 January 1980. The cairn was photographed and then dismantled. A 25 x 25 cm hole was excavated with pick and shovel down to 50 cm. No cultural material was found.

45-OK-255

This site is described on the USCE survey form (February 1976) as a sparse midden deposit on a low river terrace. Cultural materials--mussel shell fragments and fire-cracked rock--were visible as a lag deposit on the beach. The site is on a low, level river terrace 575 m upstream from RM 576, at an elevation of 950 feet m.s.l. (Figure 3-1). Vegetation consists of low grasses and small, unidentified deciduous trees.

Site 45-OK-255 was first investigated in 1979 by the burial relocation crew from the University of Idaho. Sprague concluded that it was not a prehistoric burial site. However, during resurvey, the nonhabitation site crew noted a previously unrecorded cairn--a group of water worn granitic rocks with two wooden posts sticking up. The site was tested in August 1979. A 2 x 2-m unit, 11N5W, was excavated to 50 cm and found to be sterile except for three wooden posts in the SW quad and nails in the fill. This quad was excavated to 80 cm to remove the posts. The matrix between the posts was mottled so one could see how the hole was dug for the posts and then filled. It probably was a corner fence post that needed extra support.

45-OK-263

This site is described on the USCE survey form (February 1976) as a possible cedar cyst burial on a low river terrace. A horizontal charcoal stain was observed approximately 1.2 m below the surface in the eroding bank. It intersected a vertical charcoal stain, suggesting the basal portion of a cedar cyst. There was no cairn on the surface. The site is on an eroding low level river terrace 575 m upstream from RM 575, at an elevation of 955 feet

m.s.l. (Figure 3-1). Vegetation consists of a sparse cover of grasses and sagebrush.

From 17 August to 23 August the CJD CRP nonhabitation sites crew excavated four units at 45-OK-263. Fire-modified rock, shell fragments, lithics and fish bone were recovered, but no human skeletal remains. We interpret this as a campsite, rather than a burial site.

A 2 x 2-m unit, 5S10E, was placed over the eroding charcoal and excavated to depths of 70 cm in the northern quads and 80 cm in the southern. Angular fire-blackened granite rocks 50 cm in length were found in this unit as well as large pieces of charcoal, laid horizontally. Shell and flakes were also noted at this level. The matrix was charcoal stained but a pit was not apparent. Because some of the charcoal extended into the west wall, an adjacent 2 x 2-m unit, 5S8E, was opened to the west. Excavated to 70 cm, it contained material similar to that in 5S10E.

In addition, the eroding bank was terraced and the slump screened. Unit 7S10E, a 1 x 2-m unit, was placed at the base of the bank to recover charcoal and an articulated salmonid backbone. It was started at 130 cm and terminated at 200 cm. The faced off bank profile showed the deep culturally stained layer containing pieces of charcoal overlain by a thin shell layer, above which was white silt, and an organic layer at the top.

Unit 6N36E, a 1 x 2-m unit excavated to 50 cm, was completely sterile.

In all, 149 bones and bone fragments weighing 37 grams, three worked cryptocrystalline lithics weighing 2.1 grams, and 17 pieces of shell weighing under 1.0 gram were recovered.

45-OK-276

This site is described on the USCE survey form (February 1976) as a single cairn, 2 x 1 m, on a gently sloping hillside covered with boulders. It is below a rock bluff, 550 m upstream from RM 571, at an elevation of 970 feet m.s.l. Vegetation consists of low grass, greasewood, and sagebrush.

This site was resurveyed and tested in November 1979. The survey crew located two depressions, one ringed by rock, and a cairn which they considered probably natural because of the rockiness of the area. No evidence of human activity was found and the site was interpreted as natural in origin.

45-OK-278

This site is described on the USCE survey form (February 1976) as two cairns on a 45-degree, rocky slope 850 m upstream from RM 569, at an elevation of 980 feet m.s.l. Vegetation consists of sagebrush, greasewood, and rabbitbrush with a sparse cover of low grasses.

This site was re-examined and shovel tested by the nonhabitation site crew in 1979. The entire area in which the cairns are supposedly located consisted of rock and the survey crew interpreted the cairns as having a natural origin.

45-OK-281

This site is described on the USCE survey form (February 1976) as three cairns, each 0.8 m in diameter, on a granite bedrock outcrop. It is 900 m upstream from RM 568, at an elevation of 970 feet m.s.l. Vegetation consists of lichens, mosses, scattered sagebrush, tumbleweeds, and cheatgrass.

The site was relocated by the nonhabitation sites crew, who located one cairn on the granite outcrop. They interpreted the cairn as a historic homestead boundary marker.

45-OK-282

This site is described on the USCE survey form (February 1976) as a group of cairns on a granite bedrock outcrop 525 m upstream from RM 568, at an elevation of 1,020-1,030 feet m.s.l. The cairns include one large cairn and several smaller cairns composed of one or more rock. A sparse growth of grasses, sagebrush, rabbitbrush, and a large, mature pine tree were observed.

The site was relocated by the nonhabitation sites crew in 1979, who observed a depression with three or four small cairns and one larger cairn. These were interpreted as boundary marker cairns. Time did not permit mapping this site. A small marker cairn consisting of three pieces of granite was found on an adjacent outcrop.

45-OK-283

This site is described on the USCE survey form as eight talus depressions at the base of a small rock outcrop. It is 400 m upstream from RM 568, at elevation 970-980 feet m.s.l. Vegetation consists of a dense growth of short grasses, sagebrush, and rabbitbrush.

The site was re-examined by the nonhabitation sites crew in 1979. Two depressions were located in the talus slope below the largest outcrop. No evidence of human activity was found and the crew concluded they were natural in origin.

45-OK-285

This site is described on the USCE survey form (February 1976) as a midden scatter with an associated cairn on a nearby basalt rock outcrop. It is 325 m upstream from RM 568, at elevation 985-990 feet m.s.l. Vegetation consists of a sparse growth of grasses, sagebrush, and rabbitbrush. Cultural material was observed on a wind-deflated surface, including cryptocrystalline utilized flakes, quartzite tabular knife, basalt flakes, cryptocrystalline debitage, and a cairn. Projectile points have been collected from this site by a local collector.

The site was re-examined by the CJDGRP nonhabitation site crew in 1979, who observed a ring of basalt rocks on top of a basalt erratic. They also noted a nearby survey cairn. The site was not mapped.

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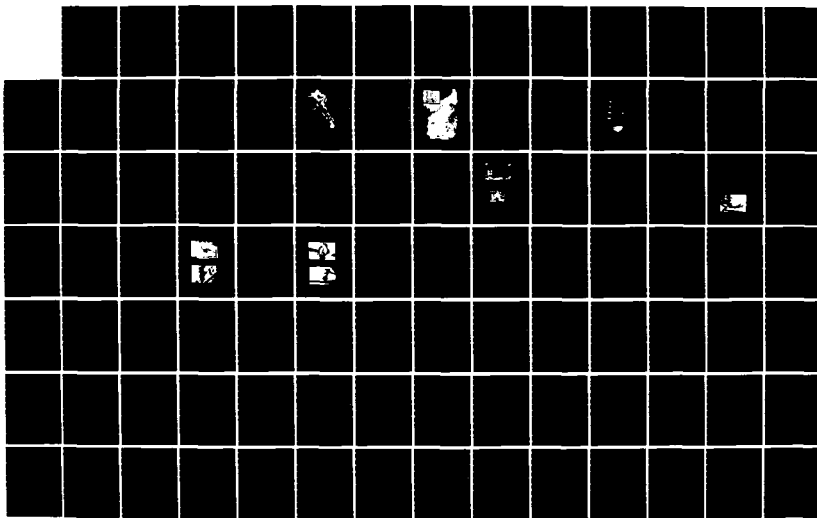
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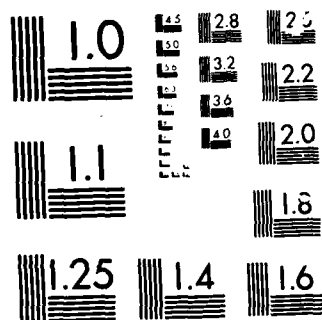
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MICROCOPY

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45-OK-286

This site is described on the USCE survey form (February 1976) as two cairns at the base of a rock outcrop 225 m upstream from RM568, at an elevation of 960-990 feet m.s.l. Vegetation in the area consists of sagebrush and low grasses. Two cairns were observed, one with wood slabs in the base. One had been looted.

This site was re-examined in 1979 by the nonhabitation site crew, who observed two obvious depressions and one questionable depression in the talus slope behind 45-OK-287. They concluded the site was natural in origin as no evidence of human activity was found.

45-OK-290

This site is described on the USCE survey form (February 1976) as a midden scatter on a river terrace 250 m downstream from RM 568, at an elevation of 1,000 feet m.s.l. The site is on a gentle slope in the vicinity of a fully charged aquifer draining the Goose Flats area. Vegetation consists of short grasses and low bushes with some ryegrass. Fire-cracked rock, large quartzite core tools and flakes were seen on the eroded surface.

Not previously considered a nonhabitation site, 45-OK-290 was tested at the request of the Corps because they had observed depressions and copper stains during a visit. Local sources had also reported that early historic burials might be in the area. The nonhabitation site crew tested it in January 1980. Snow on the ground created some difficulty in locating the depressions, which were small, less than 1.0 m in diameter. Eight test holes were excavated, using a pick, and in every case, rock and cobbles were encountered within 10 cm of the surface. Apparently the low ridge on which the site lies is a glacial moraine.

45-OK-291

This site is described on the USCE survey form (February 1976) as a circular rock alignment atop a basalt erratic 325 m downstream from RM 568, at elevation 987 feet m.s.l. The low river terrace on which the site was found is adjacent to an aquifer and a stream and has occasional basalt outcrops and large granite boulders. Vegetation consists of bunchgrass, sagebrush, and rabbitbrush.

This site was re-examined by the nonhabitation sites crew, who felt that the rock alignment merited mapping. However, this was not accomplished due to lack of time. They also noted a natural depression at the base of the erratic.

45-OK-295

This site at RM 587 is described on the USCE survey form (February 1976) as talus burials at the base of basalt erratic boulders. The site is on a gently sloping, moderately high (1005'), river terrace with abundant basalt erratic lag block. The vegetation consists of grasses, sagebrush, greasewood and deciduous trees growing at the base of the basalt erratics. Burials were located in the talus breakdown from the basalt erratics. The area is 70 x 70 m. At least four talus burials were observed and occasional bone. A number of the burials have been vandalized.

The nonhabitation site crew observed only natural talus depressions.

45-OK-300

This site is described on the USCE survey form (February 1976) as three to five cairns 700 m upstream from RM 566, at an elevation of 970 feet m.s.l. (Figure 3-1). The site is on a moderately sloping, medium height river terrace with numerous granite boulders. Vegetation consists of short grasses, sagebrush, and rabbitbrush.

This site was resurveyed by the nonhabitation sites crew in August 1979. They observed charcoal under two cairns but there was not sufficient time to test the site further.

45-OK-302

This site is described on the USCE survey form (February 1976) as at least seven cairns at the base of basalt erratics. It is located 150 m upstream from RM 566, at an elevation of 950-960 feet m.s.l. (Figure 3-1). Numerous large basalt erratics occur on the gently sloping to level river terrace. Vegetation consists of low grasses, sagebrush, sumac, and poison oak growing on the basalt talus. At least four of the cairns appear to have been vandalized.

This site was resurveyed in August 1979 by the nonhabitation site crew. Below an erratic they found a depression which appeared to have been formed naturally by a greater rate of spalling from the face of the erratic than from the roof of the overhang (like 45-OK-179).

45-OK-305

This site is described on the USCE survey form (February 1976) as a depression in the talus slope at the base of a basalt erratic, 300 m upstream from RM 564, at an elevation of 1,010-1,020 feet m.s.l. The gently sloping river bench on which the site is found has occasional basalt erratic boulders. Vegetation consists of short grasses and a profuse growth of sagebrush and rabbitbrush.

This site was examined by the nonhabitation site crew in October 1979. They concluded it was a natural talus formation.

45-OK-306

This site is described on the USCE survey form (February 1976) as talus depressions on a steep terrace side, 150 m downstream from RM 564, at an elevation of 1,030 feet m.s.l. The site is on a steep hillside with a series of granite cobble talus chutes. Vegetation consists of low grasses, sagebrush, and rabbitbrush.

This site was examined by the nonhabitation site crew in October, 1979. They concluded it was a natural talus formation.

45-OK-307

This site is described on the USCE survey form (February 1976) as a talus depression 3 x 3 m in size at the base of a basalt erratic. The erratic is at the edge of a high river terrace 650 m downstream from RM 564, at elevation of 1,075 feet m.s.l. Vegetation consists of grasses, sagebrush, and rabbitbrush.

This site was examined by the nonhabitation site crew in October 1979. They concluded it was a natural talus formation.

45-OK-335

This site was added to the inventory by the CJDGRP survey (1977). It consists of two basalt rock cairns, approximately 12 m apart, on a flat surface on a high terrace. Vegetation is dense sagebrush. The site is 250 m downstream from RM 555, at elevation 1,040 feet m.s.l.

This site was examined by the nonhabitation site crew in 1979. They concluded that the formation was natural in origin.

45-OK-339

This site, added to the inventory by the CJDGRP survey (1977) consists of an oval ring of 14 large rocks with a circular depression in the center. The rocks include granite, basalt and waterworn cobbles. The ring is 3 m in length and the depression is 10 cm deep and 70 cm in diameter. It was interpreted as a disturbed cairn. It is located on the edge of an upper terrace at RM 563.5, at an elevation of 1,080 feet m.s.l.

This site was re-surveyed in November 1979 by the nonhabitation site crew, who observed a cairn of mixed granite, basalt, and indeterminate rocks, 2.4 x 2.8 m, with a depression in the middle. The cairn was shovel tested to 50 cm but nothing was found.

4. PREVIOUS BURIAL INVESTIGATIONS

by Marilyn G. Hawkes

Since archaeological investigations in north-central Washington have been concentrated along the reservoirs of the Columbia River, the following discussion was drawn primarily from work done in the Rufus Woods Lake, Lake Roosevelt and Wells Reservoir areas. Arranged roughly chronologically, this review describes relevant archaeological work and documents the history of burial excavation in and near the project area.

OBSERVATIONS PRIOR TO 1950

The earliest reports of archaeological activity in the general vicinity contain notations of skeletal material. In 1866, John Keast Lord described artifacts and a skull he recovered from sand banks near Fort Colville (quoted in Sprague 1971:3), and in (1893 or 1883) Mr. J. A. Frisbie claimed he had discovered three flexed, seated skeletons (quoted in Sprague 1971:3-4). Frisbie's report described the "tomb" as a dome-shaped chamber constructed of clay, adobe, and shale that required blasting before the explorers could enter. These early, sometimes obviously fanciful, accounts of the contents of Native American burials illustrate a fascination with antiquities during this period. Much of the interest was on the part of artifact collectors which resulted in the looting of burials for grave goods. Marking the location of a grave with a cedar plank was a native burial custom that, unfortunately, facilitated these destructive activities.

Even more disastrous to the record of Native American burial customs than casual grave robbing was the organized effort in 1939 to relocate several hundred graves threatened with inundation by the reservoir behind the new Grand Coulee Dam. The government contracted with the undertaking firm of Ball and Dodd, Spokane for the relocation work. According to an interview with Ball in 1965, as reported by Sprague (1971:3) the firm succeeded in relocating 1,380 burials. Speed was of the essence because the firm was paid on a piecework basis; in one five-month period 1,017 burials were removed (Chance 1970:2). Accompanying grave goods seem to have disappeared in several directions (Chance 1970:2) and the work was "done in such a manner as recklessly to destroy the archaeological evidence" (Collier et al. 1942:39). Although some cemetery areas excavated by the undertaking firm were situated on high knolls, the most usual location was "a bench above a known campground" (Chance 1970:2). Of other burial customs, however, no information was recorded. During the 1965 interview, Ball described the Kettle Falls soil burials as extended on the back. Cedar stakes were used to mark the head

until historic times and "rock cairns were rare and found only at lower elevations along the Columbia River" (Sprague 1971:3). Sprague warns that these recollections 25 years after the work was completed should be used extremely carefully. They are recounted here because there are no other available descriptions of the large number of burials removed from the Upper Columbia.

The initial professional archaeological work in the Upper Columbia River was salvage excavation conducted by Collier, Hudson, and Ford during 1939-1940. The project area included both banks of the Columbia River from Grand Coulee Dam north to the Canadian border. Although the undertaking firm had already removed hundreds of burials from this area, investigators recovered the remains of 150 individuals from 13 sites (Collier et al. 1942:39). The majority of the burials were inhumations at the edges of sand river benches, with the heads oriented downriver and in a westerly direction. A majority of these burials were in a flexed position; the rest were in a semiflexed position, except a very few that were extended. Circular constructions of river cobbles and cedar planking were common at these grave locations. Talus slope burials also were recorded. These, too, were oriented downstream, usually flexed, and usually marked with cedar stakes. The use of grave goods in both types of burials was variable, and although European trade-goods were assumed to indicate a post-1800 date for inhumation, there was no strong correlation between the type of burial and the presence or absence of European trade goods. Cultural data from the Collier, Hudson, and Ford project were being reviewed for incorporation in a report to the Colville Confederated Tribes and the Spokane Tribe and the reader is referred to Sprague and Mulinski (1980:7-9) for a detailed site-by-site presentation of the results of the preliminary reanalysis.

BURIAL RELOCATION PROJECTS AFTER 1950

RIVER BASIN SURVEYS

The first organized archaeological work in the Chief Joseph Dam reservoir, from Coulee Dam south to Bridgeport, was salvage excavation conducted by the Smithsonian Institution River Basin Surveys in the summer of 1950 (Osborne et al. 1952). During testing of housepit sites along the north bank of the reservoir, the remains of five persons were recovered. The investigators reported:

Burials were found, but all had been disturbed . . . All that were found near the river bank sites (OK2, OK1, etc.). The dead had been flexed, buried two or three feet deep, and the graves had been covered with small basalt boulders. The small cairns provided perfect markers for the graves, and it appears that collectors missed none. (Osborne et al. 1952:37).

Because of the disturbed condition of the burials located during this work, no additional information about burial customs could be recovered.

Skeletal material from the initial reservoir projects was analyzed by Heglar (1957). He notes that although Plateau populations did not differ significantly from coastal populations, the physical characteristics of the upper Columbia populations were more varied than those of populations from other subareas, such as the southern Plateau. He suggested, on the basis of blood type evidence, that females could have come from another area, such as the Plains (Heglar 1957:75).

LAKE ROOSEVELT

Later work in the Grand Coulee reservoir, Lake Roosevelt, was conducted largely during annual spring draw-downs, when the operating level of the lake was reduced by several feet. In 1966, for instance, under contract with the National Park Service, Sprague and Birkby (1970) recovered burials from nine graves at the Freeland site (45-FE-1). At most, these graves contained 17 individuals (Sprague and Birkby 1970:9-16). Where it could be determined, the burials had been interred in a flexed position with deposition on the back favored, with the exception of one infant in an extended position. Orientation was almost universally westerly; again the exception was the infant. Evidence suggested that individuals were wrapped in deerskin and buried without coffins. The most common artifacts included in the burials were rolled copper beads; other artifacts included glass beads, bone and iron objects, and dentalia. An early historic date was postulated on the basis of the presence of copper and iron and the relative scarcity of glass beads. The high incidence of infants and children, the shallow burial depth, and other factors led investigators to suggest that the burials represented a portion of an epidemic protohistoric burial ground (Sprague and Birkby 1970:16).

During a spring survey of the Coulee Dam National Recreation Area by David H. Chance (1967), the partial remains of 15 individuals were recovered. Because this surface-collected skeletal material in poor condition lacked cultural context, little information concerning burial patterns could be recovered, although copper staining on the bones of three individuals suggested that quantities of historic copper grave goods had been interred with them (Sprague and Birkby 1970:17). Similar instances of out-of-context, weathered skeletal material without associated cultural material have been reported for the Banks Lake area (Sprague and Birkby 1970:19-21).

In 1972, excavations at Kettle Fall in northern Lake Roosevelt revealed a small number of mostly fragmentary burials that were subsequently recovered by Chance and his crew (Chance et al. 1977). Also exhuming burials during this season was an undertaker under contract with the Bureau of Reclamation. The archaeologists stated that "nearly all the information on . . . fourteen individuals was lost to erosion, pothunters, and the undertaker" (Chance et al. 1977:66), although it was noted that some burials appeared to be in a flexed position and several were marked by light cobble cairns. The skeletal remains recovered by the archaeologists underwent standard osteological study before reinterment, but the others were immediately reburied in a protected cemetery (Chance et al. 1977:66).

WELLS RESERVOIR

Excavations in the Wells Reservoir encountered a total of 17 burials at two different sites (Sloan and Greengo 1963). Several observations concerning the burial patterns were possible. Although there was no apparent preference for cedar cists or stone cairns, the orientation of the body was parallel to the river in all but two cases where it could not be determined. Seven of the burials were semi-flexed, five were flexed, and five others were too disturbed to assign a position. The bulk of the grave goods was recovered from adult burials with only one nonadult accompanied by artifacts in any quantity. Interestingly, the investigators noted that the distribution of artifact types seemed to be based on sex. Associated with males were the majority of the knives, scrapers, bone awls, bone points, dentalia, abalone shell, olivella shell, iron fragments, steatite pipes and antler tines. Associated with the females were the majority of the mussel shells, antler wedges, red ochre, copper fragments, bone beads, seed or berry beads, rodent's teeth, and suprisingly, projectile points. The presence of small projectile points, iron and copper fragments, and gambling bones was considered to be evidence of a post-contact interment date for these burials.

RUFUS WOODS LAKE

In the Chief Joseph reservoir, Rufus Woods Lake, recent burial relocation projects have been sponsored by the Corps of Engineers because reservoir operations have threatened burial sites with inundation and severe sloughing. The problem of increased vandalism likely with heavier recreational use of the reservoir also was considered when evaluating the degree to which a particular site was endangered.

In the 1950's, extensive evidence of vandalism and relic hunting was noted at 45-OK-20, a 200-foot long and 20-foot wide "Indian Tribal Burial Mound" near the mouth of the Nespelem River. At the request of the Colville Confederated Tribes and under contract with the Corps of Engineers, James C. Garner, a University of Washington archaeologist, exhumed the remaining burials at this site between August and October 1955 (Garner 1956). Thirty undisturbed and seven disturbed burials were found; the remainder of the skeletal material was so fragmentary and scattered that the investigator could only estimate that it represented the remains of perhaps twenty individuals (Garner 1956:4). The most common type of burial was one in which the body had been surrounded with vertically placed wooden slabs. Five burials also were marked with large stones placed over the grave, and one burial was marked only by a pile of stones. Three graves had no markers. When it could be determined, the position of the body was recorded as flexed, and an orientation to the west seemed to be favored. Copper artifacts were recovered from only two burials and represent the only possible trade goods, suggesting that the site pre-dates 1800. The remains were relocated in the Catholic cemetery at Nespelem. As requested by the Tribes (Garner 1956:5) no dedication or reinterment ceremony was performed.

In 1972, in response to plans to raise the operating level of the Chief Joseph Dam reservoir, the University of Idaho began a burial relocation project under contract with the Corps of Engineers at site 45-OK-11B (Sprague and Birkby 1973). Nine undisturbed burials plus fragments were recovered from this site, subsequently known as 45-OK-255. The general characteristics of these burials included deposition on the back in both the flexed and extended positions with orientation to the west. Grave goods were present but were limited to bone and lithic tools (Sprague and Miller 1979:2), indicating that the burials were of prehistoric origin. The use of burial boxes, cists, and cairns seemed to be quite variable (Sprague and Mulinski 1980:3). Reburial of the ancestral remains from this site was in the Nespelem Catholic cemetery on 8 December 1977.

Between July 1977 and January 1978, the University of Idaho, under contract to the Corps of Engineers, conducted a survey of possible burial sites in the Chief Joseph reservoir (Sprague and Miller 1979). Although no new sites were added to the inventory of sites prepared previously by the Corps' cultural resources survey (Munsell and Salo 1977), 32 sites previously recorded as possible burial sites were rejected on the basis of field observations, and 12 more were eliminated after shovel-tests. Nine sites were verified as likely burial sites and recommended for excavation. The maximum number of burials was estimated at 200 individuals.

During June and July 1979, the nine sites recommended for excavation and relocation of ancestral remains were investigated by the University of Idaho (Sprague and Mulinski 1980). Five sites contained no evidence of use as burial locations. Although burials had been recovered previously from two of the remaining sites, 45-OK-20 (Garner 1956) and 45-OK-255 (also known as 45-OK-11B) (Sprague and Birkby 1973), no additional ancestral remains were encountered during extensive testing. Evidence of a mid-nineteenth century burial at 45-OK-225 was noted, but the context of the scattered and fragmentary skeletal material had been virtually destroyed by amateurs. At site 45-OK-159, however, the burials were undisturbed, and the remains of nine individuals, five of them from one multiple burial, were recovered. The burial pattern at this site was flexed inhumation. Individuals were oriented with heads to the west, and cedar cists and stone cairns marked the burial locations. Associated grave goods included abundant shell beads, bone objects, lithic material, and rolled copper and brass beads. Arguing that brass beads pre-dated copper beads, and noting a Plateau-wide trend for amounts of included grave goods to increase over time, investigators concluded that the burials probably were interred between about 1700 and 1800 (Sprague and Mulinski 1980).

The ancestral remains from sites 45-OK-225 and 45-OK-159 were relocated in the Nespelem Indian Cemetery (Catholic cemetery) at Nespelem, Washington, on 12 May 1981. Also included were ancestral remains recovered from sites 45-OK-2, 45-DO-244, and 45-OK-1, which are described in the present report. The ceremony was attended by representatives of the Colville Confederated Tribes, the U.S. Army Corps of Engineers (Seattle and Division offices), the University of Idaho Anthropology Department, the University of Washington Chief Joseph Dam Cultural Resources Project, and the public.

REGIONAL SYNTHESIS

Sprague (1967) has proposed a chronological sequence of burial types for the Plateau Culture Area. The sequence begins in the late prehistoric period with flexed burials. In the protohistoric period, use of cairns, cists, and grave goods increases, and the historic period was characterized by the use of burial boxes and extended positions (Sprague and Mulinski 1980:10). The number of artifacts included with burials generally increased over time (Sprague 1967:201). Although there are exceptions to this developmental sequence, the relative temporal order of burial patterns has generally been upheld by archaeological data recovered in north-central Washington. Evaluation of applicability to the project area is hampered by small sample size and lack of comparability of the data. Nevertheless, the sequence can be used effectively as a working framework for investigation of burials in the project area.

5. BURIAL RELOCATION SITES

During survey and testing of nonhabitation sites conducted between 17 July 1979 and 23 January 1980, excavators encountered skeletal material at two sites. Site 45-D0-244, located on a low river terrace near prehistoric habitation sites 45-D0-242 and 45-D0-243, was excavated during September and October 1979. The skeletal remains of a child were recovered from beneath one rock cairn and those of an adult male from beneath a second cairn. Although several other rock piles resembling cairns were tested and the area between, and in the immediate vicinity, of the burials was excavated, no evidence of other inhumations was found. Excavations during December 1979 and January 1980 at site 45-OK-1 in the vicinity of an alignment of water worn cobbles revealed the secondary burials of an adult female and a child. Further testing of possible cairns at this site, as requested by the Tribal Representative, yielded no additional ancestral remains.

An unusual secondary burial was found during salvage excavations at 45-OK-2 in July 1980. A cranium, with no other skeletal remains, was contained in a pit in the floor of a housepit.

In August 1981, human skeletal remains were found on the beach margin of 45-OK-250, exposed by erosion along the margins of Rufus Woods Lake after the 10-foot pool raise in February 1981. During burial relocation operations in September the nearly complete articulated skeleton of an elderly woman was recovered. The adjacent area was searched for additional burials but none were found.

The excavations at each site are described in more detail below.

45-D0-244

This site is described on the USCE survey form (March 1976) as a single cairn on a gently sloping river terrace at 725 m upstream from RM (River Mile) 579, at an elevation of 1015 feet m.s.l (Figure 5-1). The cairn was 2 x 1.5 m with a depression in it, possibly indicating some disturbance. It overlooks 45-D0-243 and is near 45-D0-242, both prehistoric habitation sites.

Site 45-D0-244 was chosen as the first Phase II site to be investigated because it had qualities not represented among the Phase I sites: it was on a low river terrace and was associated with habitation sites. When the nonhabitation crew surveyed the site, they observed a second cairn, slightly upriver from the one already recorded. Both cairns were near the edge of the terrace. Both consisted of angular granite cobbles placed in a circular arrangement, but not stacked into a pile.

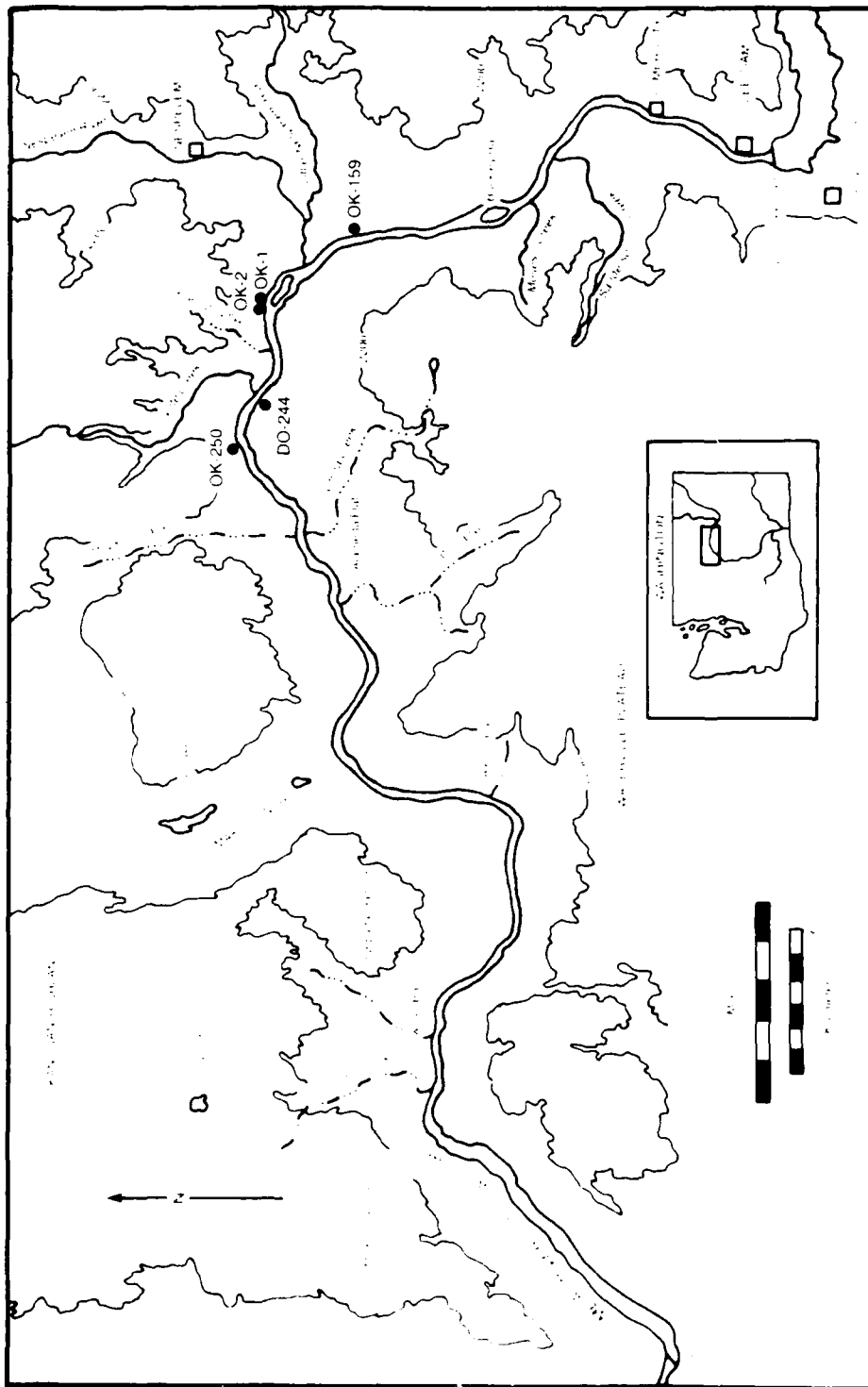


Figure 5-1. Location of burial relocation sites.

EXCAVATION PROCEDURES

A total of 10.25 cubic meters was excavated at 45-D0-244 between 22 September and November 2. Excavation began with two 2 x 2-m units, 7N13W and 8N18W, one located on each cairn. When skeletal remains were first found, in unit 7N13W, the Corps of Engineers and the Colville Confederated Tribes were notified, and work proceeded.

Unit 7N13W was excavated in Feature 1, the upriver cairn. Skeletal remains were first encountered in UL (Unit Level) 20 but the bones were isolated and scattered. A feature was not defined until the pit boundaries became visible in UL 50. The unit was excavated to uniform depths of 50 cm b.u.d. (below unit datum) in the eastern quads and to 60 cm in the western quads. Below this, only the pit containing the burial, which extended to 85 cm in the southern quads, was excavated.

Unit 8N18W was excavated in Feature 2, the downriver cairn. By the bottom of the 30 cm level, there was a clear outline of a pit, and the remains of a wooden cyst, which extended into the southern half of the east wall. Excavation was temporarily halted at this level, and an adjacent 2 x 2 m-unit, 7N17W, was excavated to the same depth to expose the entire feature, designated Feature 4. At 30 cm depth, Feature 4 was surrounded by a gravelly, sterile soil, and only the feature itself was excavated further.

A 1 x 2-meter unit at 7N14W was excavated to connect the two areas where human remains had been encountered. It was excavated to a depth of 30 cm and no cultural remains were found. Two, 1 x 1-meter units, 2N22W and 5N22W, were excavated in areas containing surface exposures of rock that could possibly be cairns. They were terminated at depths of 10 cm and 20 cm, respectively, as no evidence of cultural activity was found in either instance.

The cairns were photographed and drawn, and the rocks were then removed. Only the rocks visible on the surface were included, and no soil matrix. Once a burial feature was defined, all soil from the feature was screened through 1/16-inch mesh screen.

Skeletal remains in both burials were in relatively poor condition and were treated with vinylite resin before they were removed. Preservation of charred organic remains in Feature 4 was accomplished by applying a solution of vinylite resin, acetone, and methyl-isobutyl ketone, which acts as a bonding agent while impregnating the material to be preserved. Although the process of applying this preservative is quite time-consuming, it enabled the excavators to recover the cyst in such a manner that later reconstruction would be feasible. Tags indicating the proper orientation were attached to all the planking and matting specimens excavated.

Osteological observations made by W. Zukosky are summarized in Appendix C, along with additional description of the burials *in situ*.

BURIAL 1

Burial 1, in 7N13W, contained the remains of a young individual of indeterminate sex interred in an oval pit (Feature 1). Tooth eruption indicates the child was approximately six years of age (see Appendix C for details). No grave goods accompanied the burial, but the burial had been marked by wooden posts. A fire was built over the burial and a rock cairn built over the fire. The skeletal remains were incomplete and scattered: it is uncertain whether this is a function of preservation or whether it indicates that this is a secondary burial. A radiocarbon date of 410 ± 71 was obtained from charcoal in the feature (Table 5-1).

Grave Preparation

The outlines of a pit were first visible at 56 cm b.u.d., where the pit fill, dark brown silty sand with small gravels, contrasted with the yellowish orange sterile rocky soil layer into which the pit was excavated. At this level, the pit was an elongated oval in shape, 90 cm long and 55 cm wide (Figure 5-2). It extended until 85 cm b.u.d., decreasing gradually in size. The bottom shape was not noted but was probably relatively flat, as the pit measured 65 x 30 cm at 80 cm b.u.d. and had disappeared by 85 cm.

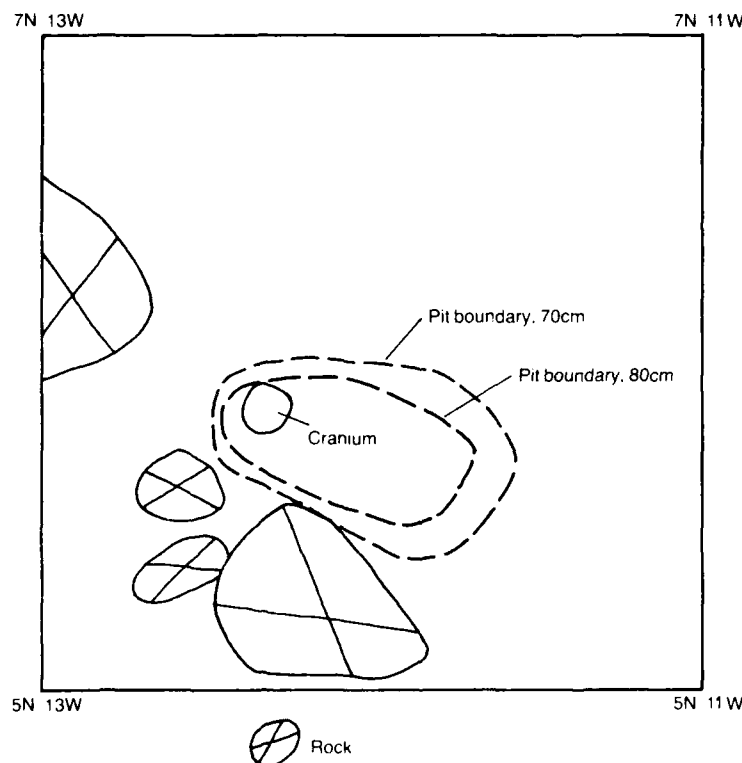


Figure 5-2. Plan view of Feature 3 pit, 45-D0-244.

Table 5-1. Radiocarbon date samples from burial relocation projects.

Site	Burial	Lab Sample #	Unit	Level	Feature #	Material/gms	Radiocarbon Age in Years B.P. (T1/2=5568)	Dendro-corrected Age ² (T1/2=5730)	C12/C13	C13 Adjusted Radiocarbon Age
45-00-244	1	B-1973	6M13W	30	-	Charcoal/13.4	370±60	410±71		
	2	B-1974	7M17W	20	-	Charcoal/16.8	160±50	165±50*		
	1	TX-4019	7M13W	60	3	Charcoal/15.8	3210±80	3518±97		
Review of field notes indicates the charcoal was probably from older sediments into which the burial pit intruded, and fell into the feature during excavation.										
45-0K-1	2	TX-4020	7M18W	40	4	Charcoal/15.5	490±50	520±63		
	1	B-1975	9S27W	70	1	Charcoal/15.6	170±80	175±60*		
	1	TX-4021	9S27W	100	1	Charcoal/11.4	550±70	574±80		
Identified as <u>Pinus ponderosa</u> by Dr. Stenholm, sample from burnt plankling.										
45-0K-159	2	B-2655	Burial 2	-	-	Bone/295	580±60	601±69	-17.33 Q/00	700±60
	7	B-2656	Burial 7	-	-	Bone/300	410±50	446±63	-16.03	560±60
	8	B-2657	Burial 8	-	-	Bone/300	180±60	185±60*	-17.04	310±60
	9	B-2658	Burial 9	-	-	Bone/300	220±60	227±60*	-21.06	280±60
	1	B-6553	4S2E	50-70	900	Bone/327	320±60	329±60		

1 TX samples were dated by University of Texas-Austin, Radiocarbon Laboratory. The B samples were dated by Beta Analytic, Inc. The TX samples from 45-0K-1 and 45-00-244 were obtained first. As they were older than expected on the basis of grave goods accompanying the burials, other samples were sent to Beta Analytic for dating. The latter dates are more consistent with dates based on artifacts, and are the ones reported in the text.

2 Dendrocorrected according to Damon et al. (1974).
* Age too recent to dendrocorrect.

Placement of the Body

Small bone fragments and teeth were recovered from the NW and SW quads in UL 20, 30, and 40. No skeletal remains were found in UL 50. Small bone fragments and teeth continued to be scattered in the fill and found in the screen after the pit was defined. Only a few elements were found *in situ*: the cranium, the mandible, and an ilium. The ilium, found at 56 cm b.u.d. approximately 10 cm outside the pit to the north, was the only identifiable human bone recovered from the NW quad. The cranium was found at 70 cm b.u.d. at the western end of the pit (Figure 5-2). The midline was oriented 50 degrees N and the face looked toward the river. Although the pit extended east of the skull, no other bones were found *in situ*. Five teeth were found in the screen from this level, three in the SW and two in the SE. The pit extended to 85 cm below the surface, but no other large pieces of bone were found.

It is not possible to determine conclusively whether this is a secondary or primary burial. The size of the pit suggests that more skeletal material was originally deposited. As the individual was relatively young, the absence of almost all of the post-cranial skeleton could well be due to poor preservation, rather than initial absence. The fact that the innominate was slightly higher than the skull and outside the pit outline suggests more about rodent activity than arrangement of the body. Postdepositional movement of elements is also suggested by the scattered distribution of the teeth.

Postburial Treatment

Because of the vagueness of the pit outlines in the upper levels and poor preservation of the skeletal remains and the wooden structure, it is difficult to reconstruct how the grave was closed and the burial ceremony concluded.

Six vertically oriented pieces of charcoal, ranging in width from 5 to 17 cm were found in UL 20. Evidently the remains of upright posts or planks, they are located directly over the skull and western end of the pit. They are not the remains of a cyst surrounding the body but rather appear to be markers placed above the grave and later burned down below the ground surface. A vertical piece of carbonized wood was also found in UL 70, southeast of the skull. No connection can be traced with the wood in UL 20.

The cairn at the surface consisted of 23 angular or waterworn granitic rocks, ranging in circumference from 40 cm to 110 cm and in length from 15 to 40 cm (Figure 5-3a). This represented only the exposed portion of a large rock feature which included both fire-modified and unmodified rock. An additional 53 rocks including 13 that were fire-modified were recovered in UL +10 through 20 (Figure 5-3b). The fire-modified rocks are located in the center and towards the bottom of the rock concentration. It appears that a fire was built in the partially filled depression and rocks piled over it while it still burned. Thus, the cairn may have had a ritual role in the burial ceremony and also later served to mark the grave.

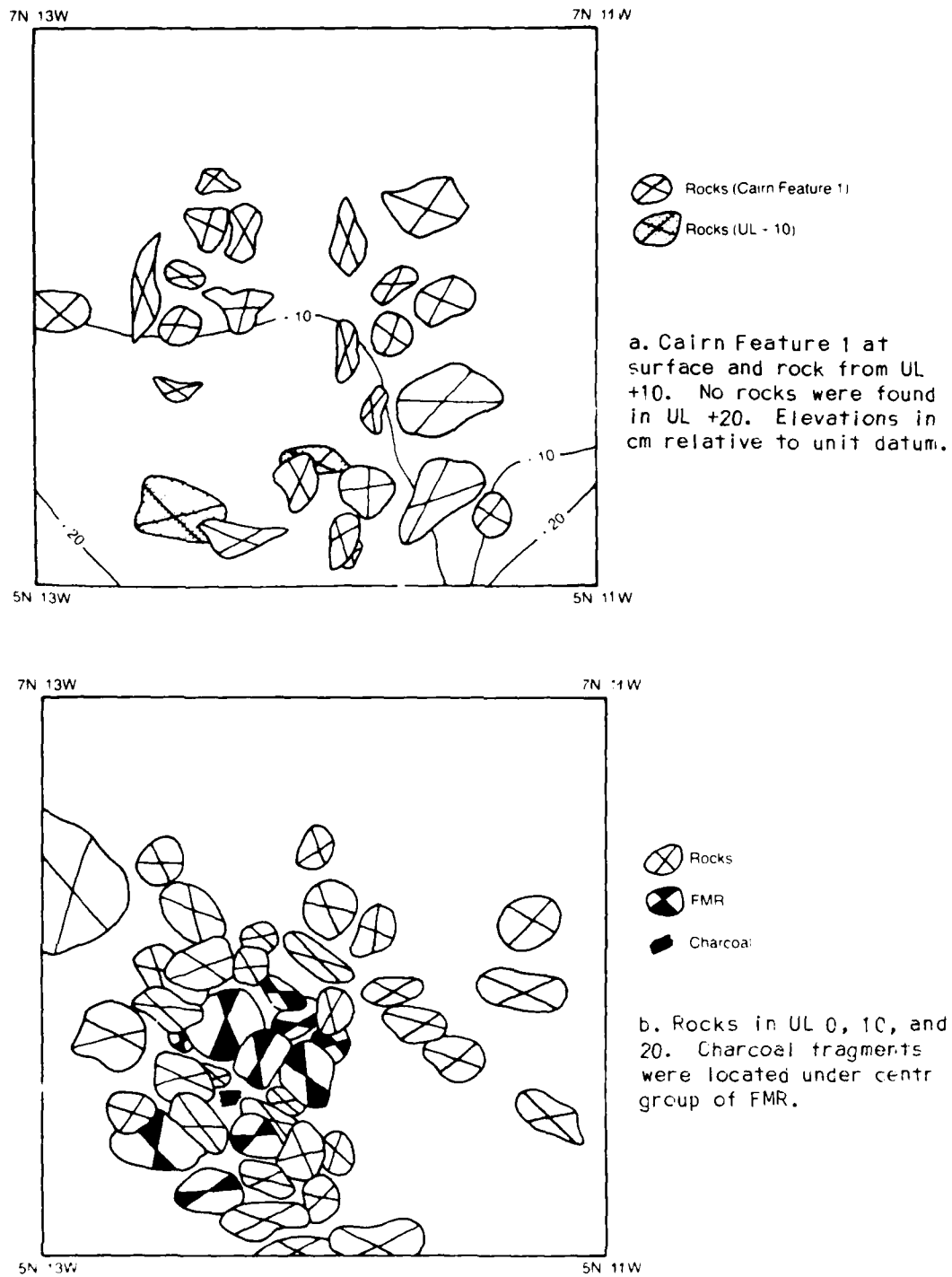


Figure 5-3. Plan view of rock feature, 7N13W, 45-D0-244.

BURIAL 2

Burial #2, excavated in 8N18W and 7N16W, is the primary burial of an adult male, interred in an elaborate wooden cyst placed within a pit. Numerous grave goods accompanied the burial. A radiocarbon date of 370 ± 60 , was obtained on charcoal from the cyst (Table 5-1). This date is consistent with the assemblage of eight Plateau side-notched projectile points found in the grave.

Preparation of the Grave

The pit was excavated into a stratum of yellowish/orange soil with angular granitic gravels and some large boulders. It was oval in shape, measuring 95 cm in length and 52 cm in width at the floor. The bottom of the pit was fairly flat, being 68 cm b.u.d. at the western end and 70 cm b.u.d. at the eastern end. It was fairly steep walled, retaining approximately the same shape for 30 cm above the bottom, although becoming slightly larger.

Within the pit was a cyst formed of upright wooden planks (Figure 5-4). The uppermost end of one of the planks was first encountered at 0 cm b.u.d., but the outline of the entire structure was not exposed until the floor of the 40 cm level (50 cm b.u.d.). At least 30 planks formed an elongated oval, 125 cm long and 38 cm wide. Several of the planks leaned inward, suggesting the original width may have been greater. The planks varied in size from 5.0 to 40.0 cm in width and were generally 5.0 to 7.0 cm thick. None were more than 10.0 cm long. One piece which leaned inwards at the eastern end of the cyst measured 35 x 35 cm. Several had been lashed together (Figure 5-5) with a split woody material run through drilled holes. The few planks examined by Dr. Stenholm were identified as pine. At the west end of the cyst was thick a post, measuring about 10 x 15 cm.

All around the outside of the planking, except on the western side, was a layer of matting (Figure 5-5). It was constructed of a tubular plant material, identified as bullrush (*Scirpus* spp.) by Dr. Stenholm. The rushes were stitched together (not woven) with a fine, double-strand twisted twine. The matting was placed with the rushes themselves oriented vertically.

Preparation and Placement of the Body

Removal of the planking and matting exposed the inhumation, a flexed adult male laying on his left side, his face towards the river (Plate 5-1, Figure 5-5). The individual's left arm was flexed, with the hand located near or under the shin. The right arm extended along the body, crossing over the right femur, the position of the hand indicating it had been tucked under the right tibia and fibula. The right hand held a large chipped stone knife. The right leg was more tightly flexed than the left, with the foot resting on the distal end of the left tibia. The right foot was resting against the east wall of the pit.



Figure 5-4. Drawing of cyst above Burlal 2, 45-D0-244 (drawn by Barbara Fyvolent).

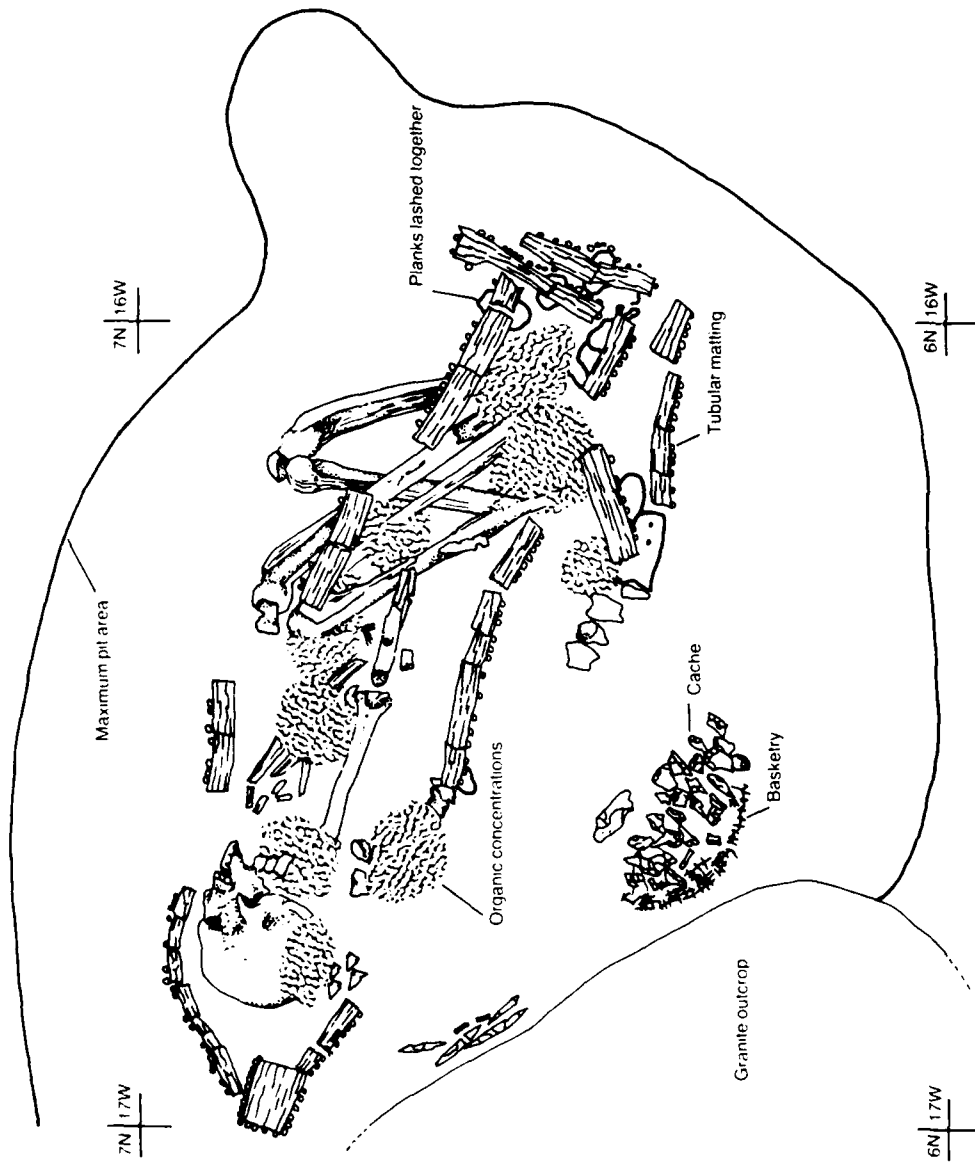


Figure 5-5. Drawing of Burial 2, 45-00-244, showing cyst, matting, lithic cache, and organic concentrations.



Plate 5-1. Burial 2, 45-DO-244.

There was no evidence of a mat or any construction beneath the body. Small pieces of charcoal were found throughout the matrix surrounding the skeleton, although this matrix was not as heavily charcoal stained as that above the skeleton. There was no higher incidence of charcoal, burnt matting or any other material beneath the skeleton.

Along the line of the torso, between the head and pelvis, were several concentrations of carbonized organic material (Figure 5-5). There was a total of ten relatively large concentrations, seven in the 60 cm level and three in the 70 cm level. Several smaller concentrations were also removed separately. Adhering to the bottom of one of the concentrations in the 60 cm level were fragments of an innominate bone and a portion of the right femur. One of the concentrations in the 70 cm level had fragments of the right scapula and a rib adhering to the bottom. Visible in the organic material were small rounded forms, interpreted by the excavator as seeds and by the site director as insect larval cases. Each concentration was round in plan view with cross sections varying from conical to shallow and flat. Under one was fibrous organic material thought during excavation to be pine needles. The regular shape and association with fibrous material led the excavator to interpret these as caches of seeds in baskets. Possible leather scraps were also found.

Microscopic examination of three samples from the organic concentration has given us considerably more information about the composition of the concentrations (see Appendix D). One contained a portion of a flexible young branch of either willow or aspen. In another sample, the fibrous material thought to be pine needles was grass stems. In all three samples, the organic material was found to be fiberless, indicating it was animal, rather than plant tissue, and invaded with insect larval cases, presumably maggots. Dr. Stenholm observed nothing resembling skin or hair and no insect parts.

The field notes make it clear that the concentrations of organic material were found only below the fire-blackened rocks, and the only burnt skeletal elements were below the concentrations. This indicates that the organic concentrations observed are portions, accidentally preserved by carbonization of a more extensive layer of organic remains. The possibility was considered that these were charred remnants of the flesh of the body, and its wrappings, rather than offerings placed above the body, particularly because burnt bones adhere to the bottom of some of the concentrations. However, there is no evidence of skin or hair as would be expected from the body itself or a hide blanket. Further, a layer of woven grass was found below the charred organic material and above the bones of the skeleton in at least one place. We interpret these organic concentrations as remnants of the body wrappings and offerings, largely meat, laid over the body.

Grave Goods

In addition to the knife found in the individual's hand, there were numerous other grave goods. Five projectile points were found at the back of the skull (Figure 5-5) and another point found in the screen was from approximately the same area. The in situ points were oriented parallel to the

body with points pointing in a headward direction. Their orientation and location suggest the individual may have been buried with his quiver of arrows. This is corroborated by the discovery of a circular piece of leather located in the lower back area that may have once been the bottom of the quiver. Another small point was found in the area of the flexed left arm (Figure 5-5). A larger side-notched point (in three fragments) was lying in the area of the upper legs (Figure 5-5).

Outside the cyst, but within the pit were an antler pendant and four composite harpoon valves (Figure 5-5). A cache of lithic artifacts (Feature 7) was found in the west wall of the burial pit (Figure 5-5). This cache consisted of 72 cryptocrystalline objects, two incised bones, seeds, some bone fragments, a small pointed bone or tooth, and a small abraded pebble. The cryptocrystalline artifacts included a wide range of tool forms, mostly utilized flakes, but also including two drills, a triangular side-notched point, and two triangular bifaces, possibly projectile point preforms. One of the drills had a fragment of bone stuck at the base with a dark adhesive substance (later inadvertently removed in the lab during cleaning and processing). There was also a copper scrap in the cache. These items appear to have been placed in a small basket/pouch; fragments of woven material were recovered along with a negative woven impression found around the matrix containing the cache. Given the contents of this feature it appears that the individual was buried with his tool kit. Only ten lithic artifacts (not counting the points) were found in the grave outside the cache.

Eight of the projectile points from Burial 2 are Plateau side-notched points (Plate 5-2). The ninth point is also side-notched but is quite large. This is apparently an eccentric point, as nothing like it has been found in project assemblages of any age.

Postburial Treatment

A total of five large rocks were placed within the cyst, directly over the body (Figure 5-4). These were recovered in UL 40. More rocks, some fire-modified, were scattered in the levels above, up to the surface. The cairn visible at the surface was composed entirely of angular granitic rocks, ranging from 55-160 cm in circumference. The rocks were placed next to each other, not stacked. A total of 63 rocks was removed from 8N18W and 7N16W, including 17 which were fire-blackened. Six rocks outside these units which were not removed were probably part of the cairn as well. The excavator suggested that several rocks may have been previously removed from the SE quad of 8N18W, in the area of the small depression. The rocks are half buried, and we know that there has been some deposition on this surface since the burial. The matrix directly over the pit is more gravelly than elsewhere, perhaps indicating deposition of coarser materials in the topographic low.

The matrix of the pit at the +20 level, where it was first discernible, was loose, slightly charcoal darkened gravelly soil. Outside the pit boundaries, the soil was light brownish-gray sandy silt, compact, with less gravel, and with some patches of charcoal staining. In part of the 10 cm

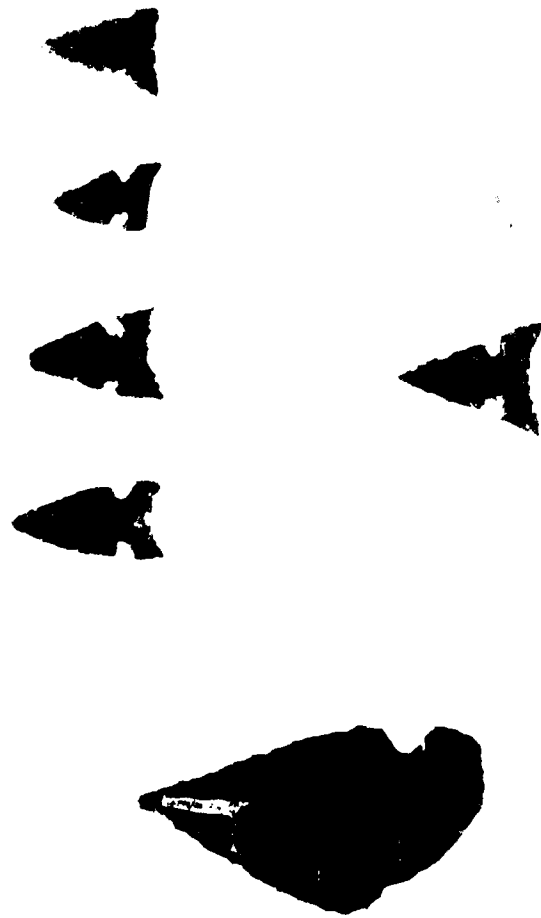


Plate 5-2. Projectile points from Burial 2, 45-DO-244 (each square = 1 cm).

level, and in the 20 and 30 cm level, the matrix of the pit was uniformly light orange-brown, with a very high gravel content very like the matrix into which the pit was excavated. The number of charcoal flecks decreased in levels 10 and 20 and none were observed in level 30. The pit also became smaller in size. These data indicate that a fire was built above the burial, blackening the rocks directly over the cyst and then backdirt was placed over the fire and more rocks.

45-OK-1

Site 45-OK-1 is located on a terrace immediately overlooking the reservoir at approximately RM 581 (Figure 5-1), just upstream from habitation site 45-OK-239. The site was originally recorded and tested by Osborne as a part of salvage efforts for the initial pool raise behind Chief Joseph Dam (Osborne et al. 1952). His investigations were solely concerned with excavation of an aboriginal housepit depression, which still occurs as an easily identifiable surface feature. However, an impromptu reconnaissance of this same area by project and Corps personnel during the first weeks of November identified one or more possible rock cairns on the site's surface. Because these features might mark inhumations, the site was included in burial search and recovery operations.

At the time of our work, potted holes and scattered rock and debris were visible on the surface of 45-OK-1. The field had been plowed in the past nearly up to the edge of the eroding bank. The site is in a topographic position similar to that of 45-OK-20, a large cemetery excavated in the 1950's (Garner 1956).

EXCAVATION PROCEDURES

On-site activities at 45-OK-1 began on 26 November 1979 and terminated 14 January 1980. A 1 x 2 m-unit, 8S28W, was placed over a line of rocks thought to be the remains of a cairn. The rocks comprising this surface feature consist of a variety of large waterworn cobbles. Excavation to 100 cm yielded no remains attributable to human burial beneath the cairn. Human remains were found, however, in an adjacent 1 x 2-m unit, 8S27W. There were no rocks on the steeply sloping surface of this unit.

Unit 8S4E, a 1 x 2, was excavated in a disturbed area. Rocks were scattered in the area as if they had been dug out, and a dentalium shell had been found below the disturbed area. The unit was terminated at 40 cm in the NW quad and 50 cm in the SW quad. Numerous rocks and one dentalium shell were the only items found. Another 1 x 2-m unit, 7S7W was placed over a possible cairn. It was excavated to 50 and 70 cm but nothing was found.

Three other 2 x 2-m units which encompassed clusters of large rocks, 5S12W, 7S12W, and 7S10W, were established. Maps of the surfaces were drawn and the soil below the rocks was tested. Nothing was found and the units were terminated.

The upper levels of 8S27W were excavated with a shovel and 1/8-inch screen, and in UL 70, where human bones were first encountered, a switch was made to trowel and 1/16-inch screen. The bones, fragmentary and in poor condition, were stabilized with vinylite resin.

BURIAL 1

Burial 1, in 8S27W comprises the remains of two individuals, one a mature female, the other an immature individual of indeterminate gender, in an oval pit. The burials were intermixed and both appear to be secondary. A radiocarbon date of 175 ± 60 was obtained on charcoal from the burial.

Grave Preparation and Placement of the Body

Human skeletal remains of two individuals were found intermixed over a depth of 60 cm, giving the impression of extreme disorder and randomness to the excavator. However, review of the field notes indicates the burial, although secondary, is very structured. In fact, the layering and physical separation of some of the elements raises the question of whether there might not be more than two individuals buried there. Although the arrangement of the elements seems unlikely to result from only two burials, the number of elements is not inconsistent with this interpretation. The question was not considered in the osteological analysis, and we have no means of verifying whether all of the adult bones really belong to the same individual.

In Unit Level 60, where there was a dramatic increase in the number of bone fragments and amount of charcoal staining, Feature 3 was designated even though pit boundaries were not evident. In levels 60 through 100, human bone, charcoal, and fire-modified rocks were confined to a circular area no more than 70 cm in diameter in the SW part of the NW quad and the NW part of the SW quad (Figures 5-6 and 5-7). The northern boundary of a pit finally became visible in UL 110 in the NW quad, where the pit was dug through a light colored layer of fine sediment, possibly a volcanic tephra layer (107-108 cm b.u.d.). The entire boundary of a pit 75 cm in diameter became visible in the next level (Figure 5-8). The flat-bottomed pit ended at 118 cm b.u.d. The distribution of remains in the overlying levels indicates that the pit had approximately the same plan shape and dimensions up to UL 60 and was at least 60 cm deep.

After the pit was excavated, the calvarium of an adult female was placed in the bottom on the west side (Figure 5-8). It seems it was actually skeletal at the time of burial, as the calvarium rested upright, that is it rested on its broken bottom margin. At the same elevation as the calvarium, approximately 110 to 117 cm b.u.d., there were a number of bone fragments (if any were identified, we do not know which they were, as the osteological notes do not indicate provenience). In contrast, the overlying 10 cm layer, UL 110, contained very few bones or other cultural remains, indicating a layer of soil had been put in the pit over the skull and other bones. A layer of organic material, represented by uncarbonized remains resembling cedar bark at the

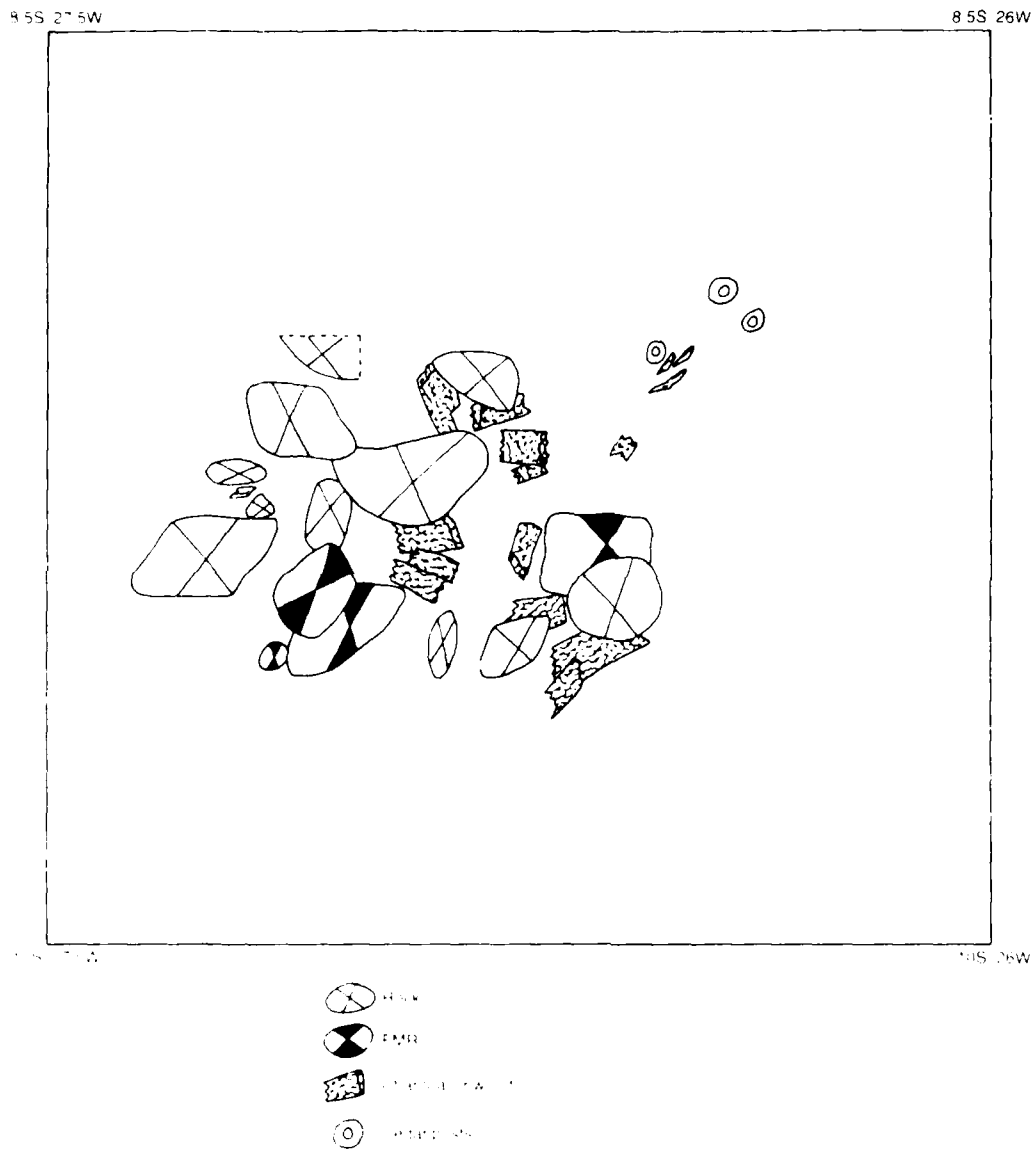


Figure 5-6. Rocks and charcoal from 80-100 cm b.u.d., Burial 1, 45-OK-1.

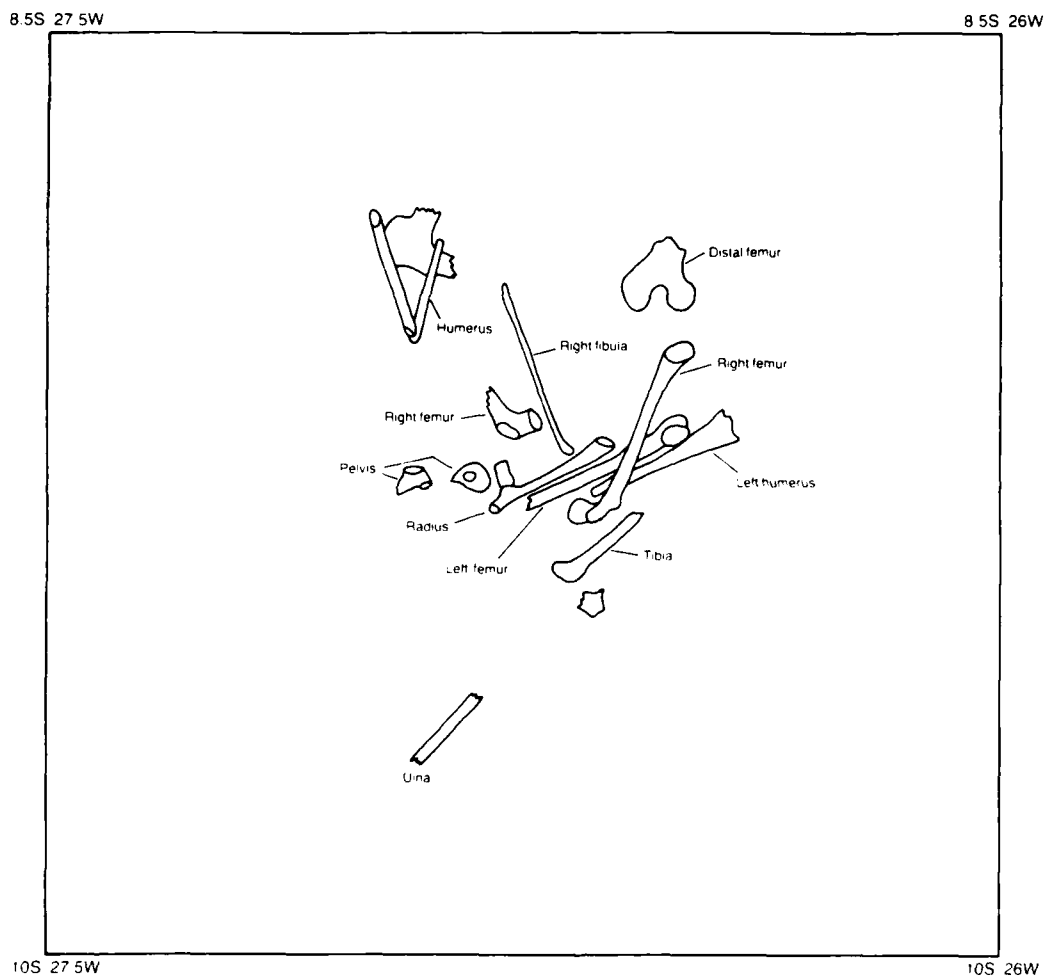


Figure 5-7. Human bones from 80-100 cm b.u.d., Burial 1, 45-OK-1.

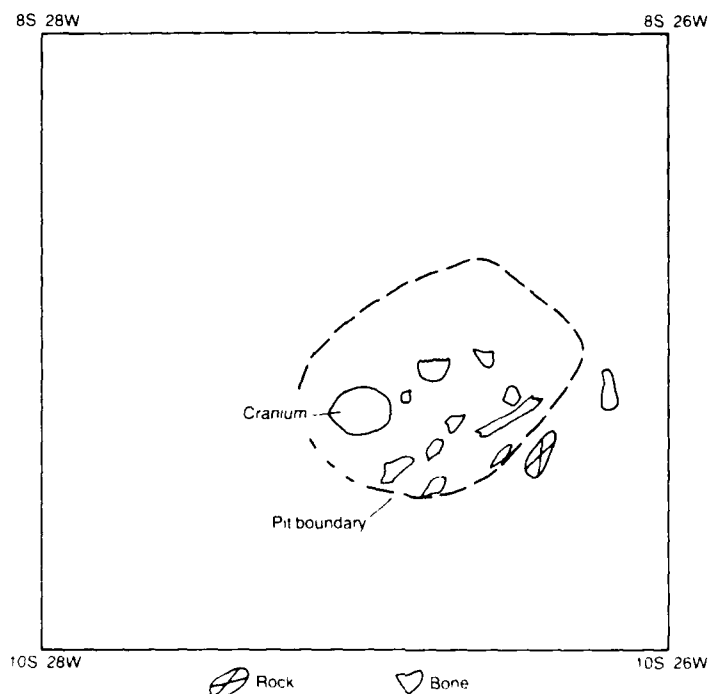


Figure 5-8. Pit outline and bone in Level 120, Burial 1, 45-OK-1.

base of UL 100 and top of UL 110, was laid over the soil. On this bed were placed most of the long bones of the adult female--the right fibula and femur, the left radius, humerus, and femur, and an ulna (unsided)--stacked in non-anatomical relationship (Figure 5-7). At the same level were the right femur, tibia, and pubis of the immature individual.

Above this second concentration of bone were a number of partially carbonized wooden planks ranging in size from 20 x 6 cm to 10 x 4 cm in plan view (Figure 5-6) lying horizontally. Although called cedar in the field, one of the planks has been identified by the project archaeobotanist, Dr. Stenholm, as ponderosa pine. Immediately on top of the layer of planking, were seven rocks, six of which were fire-modified. These were but a part of a larger rock concentration extending from the top of UL 100 into UL 80, and including a total of 16 rocks, 12 of them fire-modified. In UL 90 there were 4 wooden posts, approximately 3 cm in diameter, standing upright, and other large pieces of charcoal lying horizontally (Figure 5-6). The pelvis of the adult female was found in this level. Bone fragments, teeth and grave goods were found scattered throughout levels 70, 80, and 90, although the biggest concentration was in level 70, where the skull bones of the immature individual were found along with the left scapula and bones of the left arm. Hand bones, of the adult female (see Appendix C) were also found in UL 70. During excavation, it was in UL 80 that it first became apparent that there

were two individuals in the burial, when teeth with considerable attrition and others with no wear were found.

The occurrence of three distinct concentrations of bone, one in UL 120, which included the adult calvarium, one in UL 100 which included both adult and immature elements, and one in UL 70 which also included both adult and immature elements, each separated from the other by a layer of organic remains, is the primary basis for suggesting that there might be more than two individuals buried here. This issue is discussed further in the section on postburial activity.

Grave Goods

A number of artifacts were found in the grave, most abundant of which were shell beads. Five clam disk beads (possibly *Saxidomus*) were found in UL 120 (below the level of the skull). A total of 59 dentalium beads, both whole and in sections, and 33 *Olivella* beads were scattered throughout the burial. A dentalium shell in UL 100 had rolled copper inside it, and in this same level was a solid copper bead with twine in it. Lithics include 25 flakes and chunks, a biface fragment, and a broken projectile point found in UL 50, above the burial itself. The recent rodent bones are not considered associated with the burial, and there were also unidentifiable mammal bone fragments.

Organic remains found in the burial include a fragment of charred basketry with leather from below the long bones in UL 100 and seeds in UL 110 (see Appendix D for identifications). The latter, identified as hackberry seeds, are more recent than the burial and probably were introduced by rodents. The fragment of charred basketry and leather is approximately 5.5 cm long, 4.0 cm wide, and 1.8 cm thick. Examination showed it to be two, or possibly more, layers of charred skin or leather enclosed by grass matting, fastened with fine twine. It appears to be some sort of package, although probably not a basket, as the grass matting is relatively delicate. It could be a leather purse with a decorative grass cover.

Postburial Treatment

As discussed above, large pieces of partially carbonized planks were found laying horizontally in UL 90, above the main concentration of bone, and large pieces of charcoal were also found intermingled with skeletal remains in UL 70 and 80. Many basalt and granite cobbles, the majority of which were fire-blackened or fire-cracked, were found throughout UL 70, 80, and 90.

The horizontally laying planks in UL 90 are burnt only on the side facing upwards, and in the middle, but not the ends. It is not clear whether the planks were originally placed in a horizontal position. They may have been placed vertically and then fallen over before being completely burned.

While most of the bone shows no evidence of burning, some of the bones of the immature individual are burned.

If the secondary burials were interred as bundles in one location, it is difficult to suggest a reconstruction of the burial pit and subsequent alterations to it by burning and filling which would account for the arrangement of the skeletal remains. We know that a cyst was constructed over the burial after the long bones were laid in place, as the planking overlies the bones in UL 100. We know that numerous cobbles were placed above the planking, and that there was a fire located so that the planks were partially burned and many of the rocks fire-blackened. It is difficult to think of a sequence of burning and collapse which would result in the long bones lying beneath partially carbonized horizontal planks, segregated from the cobbles, while other skeletal elements lay above the planks, among the cobbles. If the planks are the floor of a cyst, then it was built above the long bones and we are still left with at least two different burial episodes. If they are the roof or walls of a cyst, then the rocks were placed above or outside it, and fell on top of the planks when they collapsed, but it is difficult to imagine a mechanism by which some bones could be displaced above the planks and cobbles.

Likewise, if the burial were disturbed by looting or accidental excavation, it is unlikely that bones could have been displaced from below the planks without also disturbing the planks. The extremely confined distribution of bone, FMR, and charcoal in Level 60 through 90 does not support the idea that the burial had been disturbed and the bones scattered in the fill. In addition, the bones of the left arm of the immature individual were found together, with the left scapula, in UL 70, indicating some degree of articulation.

45-OK-2

Site 45-OK-2 (Figure 5-1) is a housepit site extensively excavated during salvage operation of the Chief Joseph Dam Cultural Resources Project (Campbell 1984b). When what appeared to be the upper portions of a human cranium were exposed on 29 July 1980, during excavation of a pit in the Housepit 3 floor, the site director immediately halted excavations in that unit. The Corps of Engineers staff was contacted and authorization for emergency burial relocation was obtained. Exhumation took place on 4 August 1980.

House 3 is a semi-subterranean pit house, circular in shape, dated at approximately 1000 B.P. (Campbell 1984b). In the lighter matrix just at the base of the House 3 floor, three features were exposed, a hearth (Feature 97), a postmold (Feature 107), and a small pit (Feature 100) which contained a human cranium. The three features seem to be contemporary with each other, and with the initial construction of House 3. Charcoal from the hearth has been radiocarbon dated at 1112 ± 92 (B-4275); this date should closely date the burial feature as well.

The pit was oval in shape, 50 cm long and 35 cm wide. It was at least 15 cm deep, as the cranium was just barely exposed at 90 cm b.u.d., and the pit ended abruptly below the cranium at 105 cm b.u.d. At the base was a human cranium lacking a mandible, lying on its right side and facing the river. Two

pebbles lay under the right mastoid process. The base of the pit was filled with a dark, soft matrix while the remainder was filled with a lighter matrix resembling the material (although slightly darker) in which the housepit was excavated. The source of the dark matrix may be a rodent run with similar fill which was intersected by the pit. The dark fill of rodent runs in the general area is too extensive for the reverse to be true. The layer of dark soil in the pit is too thin and uniformly spread to be the result of a rodent run intersecting the pit after it was filled. Also, as the upper matrix of the pit fill is darker than the surrounding matrix, it may be that the fill is a mixture of both matrixes.

Three pieces of ocher and a flaked long bone were found with the cranium, as well as two unmodified bones and six FMR. Given the small size of the pit, the three pieces of ocher represent a considerable concentration of this material. A flotation sample from the feature yielded small amounts of yellow pine and Douglas fir charcoal, as well as bark and other unidentified wood fragments. These items may be miscellaneous charcoal refuse accidentally introduced into the pit in the fill.

We can offer no suggestion as to the function of the burial pit within the house. Feature 100 is near the center of the House 3 floor, but the significance of this is uncertain. It is possible that part of a burial was encountered in older deposits during construction of House 3, and the remains immediately reburied in the closest location. It is certainly interesting that the house was apparently occupied after the burial of the cranium, presumably by people who knew it was there. This would indicate a rather different attitude towards human remains than is generally indicated by the separation of burials from habitation areas in protohistoric and historic times and the practices reported in the ethnographic literature.

45-OK-250

Site 45-OK-250 (Figure 5-1) is a housepit site extensively excavated during salvage operations of the Chief Joseph Dam Cultural Resources Project (Miss 1984c). Occupation material ranges from prior to 3500 B.P. to protohistoric times, but the majority of the cultural deposits, and all of the housepits are from a component dating between 3500 and 2700 B.P. No burials were encountered there during salvage excavations.

In August 1981, a local resident discovered a human skull on the beach at 45-OK-250. The report was investigated by Larry Fredin of the Colville Confederated Tribes History Office who found additional skeletal material exposed in the cut-bank a few meters away from where the skull had been found. The skull and skull fragments and lithic debitage and tools were collected from slump materials lying on the beach by L. Fredin on 13 August 1981. The following day, project personnel aided Mr. Fredin in collecting soil samples from where the skull mold was still visible. A few additional fallen bones were collected as well. A modification to the burial relocation contract was arranged between the University of Washington and the Corps to allow emergency

exhumation of the burial. Burial relocation and burial search operations began 25 August and were completed 31 August.

PROCEDURES

A 2 x 2-m unit, 4S2E, was laid out to encompass the probable extent of the burial. It was excavated between 26 August and 29 August and the burial itself was removed on 8/28 and 8/29. The remainder of the project involved excavation of adjacent units to search for additional burials threatened by erosion. A total of 21.5 cubic meters was excavated in a total of 14 excavation units, including one 1 x 1-m square, six 1 x 2-m squares, and seven 2 x 2-m squares (Figure 5-9). The excavation strategy was to first excavate units along the cut bank, which was still unstable, and then to work back in from the cut bank. Care was taken to maintain the stability of the area around the burial; the immediately adjacent units were not excavated until the burial was removed.

No other burials were found. In general, all cultural material encountered was low density general debris which seemed to be related to the Hudnut component at 45-OK-250. An association of hammerstones was found in one unit, but was not featured in the interests of maintaining speed in burial search operations. A cluster of large rocks were encountered in unit 2S3E. As these might be part of a burial cairn, the adjacent units were excavated to completely expose the rocks. However, no evidence of a burial was discovered below them.

The cutbank intersected 4S2E, the burial unit, on a diagonal from SE to NW, cutting through the SE and NW quads. The SW quad was totally missing in some levels. The bank profile was undercut so the extent of the SE, NW, and SW quads varied from level to level. The human skeletal remains exposed in the wall were photographed as they initially appeared, partially exposed.

The soil overlying the remains was excavated first, taking precautions to prevent slumpage. The first human bones were exposed at the base of Level 50 but not collected in that level. Below that level, the burial was excavated as Feature 900 (the high number was given to avoid confusion with features defined during salvage). Feature 900 extended from Level 55 to the base of UL 70 when all human bones were removed. It was excavated in 5 cm levels with a trowel and 1/16-inch screen. As the bones were exposed, they were mapped, photographed, elevated and removed. The bones were not treated with vinylite resin. Soil samples were taken at several anatomical landmarks and from non-feature matrix.

The skeletal remains from Feature 900 were sent to Dr. J. Alexander, Central Washington State University. The results of his analysis are presented in Chapter 5. After examining the bones, he set aside a number of small bone fragments and small bones such as phalanges, totalling 327 gm, to be sent for radiocarbon dating (Table 5-1).

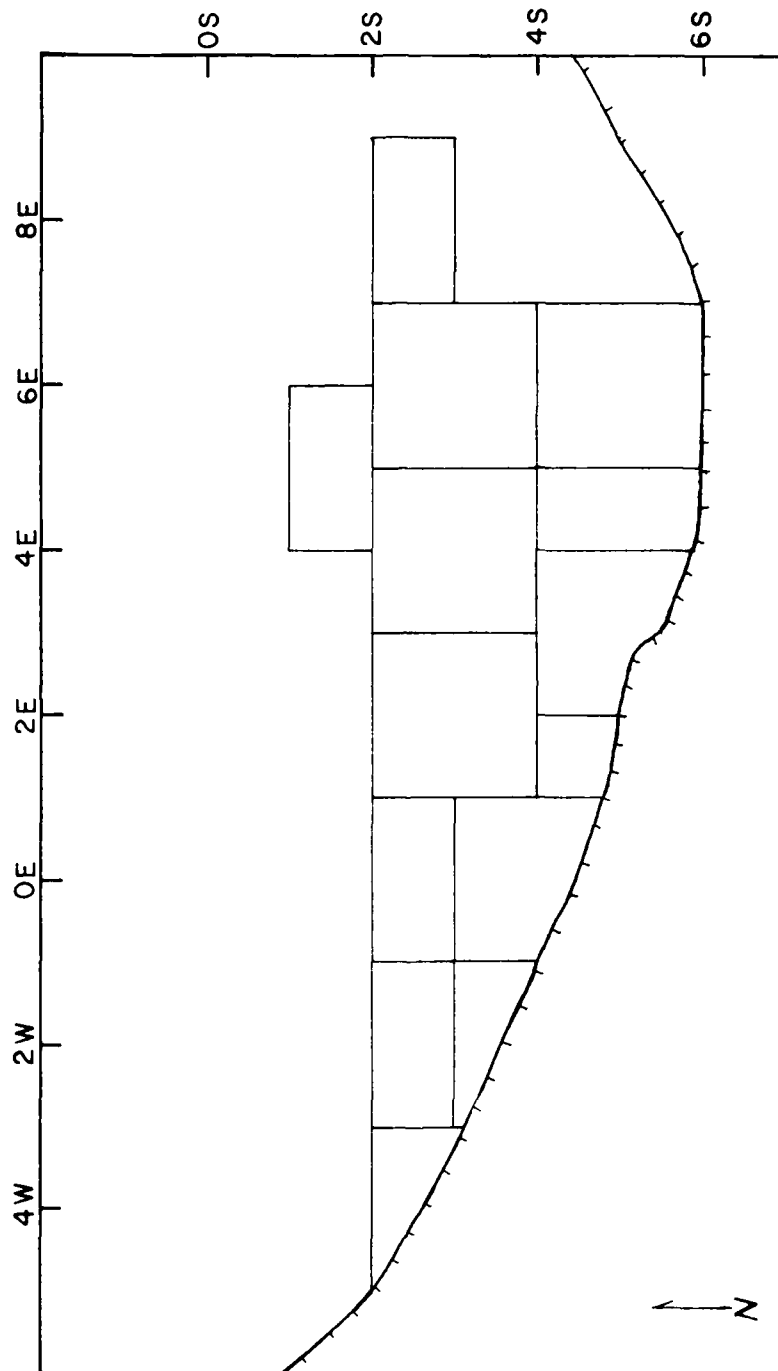


Figure 5-9. Excavated units, 45-OK-250.

BURIAL 1, FEATURE 900

The burial was determined to be that of an elderly woman, buried in a tightly flexed position. No grave goods accompanied the burial. No pit outlines were apparent. A dendrocorrected radiocarbon age of 329 ± 60 was obtained on the skeletal material itself.

Grave Preparation

No evidence of grave preparation was noted. The tightly flexed position of the body, and the rock over the body but 10 cm above it suggest that interment was in a pit. However no soil matrix change could be seen which might define a pit. The soil matrix around the bones was pale tan sand, coarse grained and compact, as was the surrounding matrix. In UL 60, a boundary could be drawn between the feature and the non-feature matrix, not on the basis of a soil color or texture difference, but because there was more cultural material--bone, shell, and FMR--in the vicinity of the burial. It is possible that these were not actually associated with the burial pit fill, but were materials from a later occupation which drifted into the depression above a pit. In the lower levels, a feature boundary was readily drawn which encompassed the tightly confined bones, but no matrix difference ever became apparent.

A few chunks of charcoal were found in UL 60, but nothing in their position or orientation suggested they were remains of either a cyst covering the body or a wooden post marking the burial.

Placement of the Body

The whole skeleton was first exposed in UL 65. It was laying on its right side in a tightly flexed position (flexed at pelvis and knees), with the knees pulled up to the chest (Plate 5-3). The arms were flexed parallel to the body and legs, the upper arms extending along the sides and folded at the elbow so the lower arms lay along the upper legs. The distal ends of the radii were near the distal end of the femora. Only one bone was recovered from the left hand, two from the right wrist, and six from the right hand. The left hand may have extended along the knee and later been eroded away; the right hand may have been placed between the legs. The axis of the body was roughly north-south, with the head at the east, or upriver end.

The highest element was a metacarpal at 55 cm b.u.d. The lateral side of the right pelvis was at 76.5 cm, and the right distal humerus was at 71 cm b.u.d.

Grave Goods

A biface fragment, possibly the base of a projectile point, was the only worn or manufactured item recovered from the feature. It was, however, found in UL 60, where the slightly higher amount of cultural material in the



Plate 5-3. Two views of Burial 1, 45-OK-250 (top: bank profile before excavation, bottom: plan view of exposed burial).

vicinity of the burial may be due to filling of the depression with later cultural material. A utilized flake was recovered at the same level, in the same quad, but from outside the feature boundary. Other cultural material recovered includes: two FMR weighing 70 grams, four shell, two flakes, and 20 bone fragments weighing 4.0 grams.

Postburial Treatment

A large granitic rock (30 cm long, 25 cm wide and 15 cm high) was found directly above the middle portion of the back. The base of the rock was at 54 cm, just 1 cm above the highest skeleton element, a metacarpal, and approximately 5 cm above the ribs beneath it. It was rough-textured, not smoothed like a river cobble. It was not fire-modified, but there was a deposit of calcium carbonate on the base. The rock may be a marker for the burial, and/or a protective weight placed over the pit. As Alexander suggests (see Chapter 5) the rock could already have been in place and undercut when a pit for the body was excavated. However, the carbonate deposit on the bottom does indicate that the rock was deliberately moved to this location. Such deposits are not generally found on isolated cobbles in overbank deposits, but in gravel and cobble layers at lower elevations.

There is no convincing evidence for the use of fire in connection with this burial. The greatest amount of FMR from the unit was recovered in UL 50 in the SW and NE quads, to the east and west of the large granite rock. There were also a few chunks of charcoal in this level. It is possible that these are related to a fire built over the burial, although there is no other evidence of fire, such as burned bone, soil, or fire-blackened rocks in the burial area itself. The contrast with the burials at 45-D0-244 and 45-OK-1, at which charcoal is abundant, as well as FMR and burned bone, certainly suggests that fire was not part of the burial ceremony in this case.

COMPARISON AMONG BURIALS

Of the four sites at which burials were found, three were habitation sites and the fourth was closely associated with habitation sites. Each burial is unique in terms of the form of disposal and demography (using terms as defined by Sprague 1967). They include the primary inhumations of an adult male, an elderly female, and a child, and the double secondary inhumation of an adult female and a child. The burial at 45-OK-2 is the oldest, dating to around 1000 B.P., and the others occurred within a relatively short period of time (approximately 400 to 150 B.P.). Even this small number of burials from a limited time period evince the considerable variation in burial patterns which has already been demonstrated in the reservoir (Sprague and Mulinski 1980).

Preparation of the graves varied considerably. The most elaborate preparations were made in the case of the adult male burial at 45-D0-244, in which a complete cyst was constructed and numerous grave goods were deposited with the body. The pit was large enough to contain not only the body, but

also the cyst, with space between the cyst and the pit walls. In the case of the 45-OK-1 burial and the child burial at 45-DO-244, the pit was an oval closer to the minimum size required to accommodate the remains, although some type of wooden construction was also placed in the grave. The pit outlines were not apparent in the 45-OK-250 burial, nor was any other evidence of grave preparation. A small circular pit was excavated for the interment of the calvarium at 45-OK-2.

The primary burials of the adult male and elderly female were represented by complete skeletal remains with the exception of a few items, missing because of random preservation factors. The secondary burial of the adult female at 45-OK-1 seems to have included a relatively complete skeleton, while the secondary burial at 45-OK-2 is limited to the cranium. Because of the poor preservation of immature bones, it is difficult to compare the child burials with the adult burials, or even to be certain, in the case of the one at 45-DO-244, whether the burials are secondary or primary. Where orientation could be determined on in situ remains, the faces looked toward the river.

Fire was used in connection with the burial ceremony in some cases but not all. Partially burned planks in Burial 2 at 45-DO-244 and the burial at 45-OK-1, and the fire-blackening on the underside of rocks placed above these two burials, show that fire was built over the grave in each case. Large pieces of charcoal in the child burial at 45-DO-244, indicate a similar event. In none of these cases does the fire appear to have been for the purpose of cremation. The bones at 45-DO-244 were charred in only a few areas, and these were near other burned items, and the bones of the mature individual at 45-OK-1 were not burned at all. Some bones of the immature individual were charred, perhaps because they were more delicate and because they were higher in the pit. Because the planks are only partially carbonized and the bones largely unburned, we suggest that the planks were set on fire after the bones were placed, and then soil was put over the top.

Not all of the graves were marked in the same manner. Rocks marked both the adult male and the child burials at 45-DO-244, while the burial at 45-OK-1 was found at least 1 meter away from a formation of rocks which may have been a cairn, and the burial at 45-OK-250 was marked by only a single rock. Whether this represents differences in ritual behavior, or whether it is a result of some later disturbance is not certain.

6. OSTEOLOGICAL REPORT ON THE BURIAL FROM 45-OK-250

by James M. Alexander, III

This report concerns the osteological analysis of human remains recovered in situ from a prehistoric burial at 45-OK-250. The scope of work encompassed by this report is: an inventory of the skeletal remains; osteometric data where preservation is complete enough; morphological observations and interpretations; analysis of pathologies; and photographs of materials of special interest. For additional information concerning the context and excavation of this feature in August 1981, by the Chief Joseph Dam Cultural Resources Project, see the preceding chapter. These remains will be reburied, with appropriate ceremony, by the Colville Confederated Tribes.

The skeletal remains were received at Central Washington University packed in several containers. They were removed and organized on an examination table for analysis according to articulation sequence. Condition of the bone at the time of unpacking was extremely friable. As the inventory and osteometric data will indicate, very few bones were intact. Also received was a lot of bone consisting of four tiny fragments collected on the beach when the eroding skeleton was first observed. No analysis could be done on this material and these fragments were re-packed with the other skeletal remains for reinterment.

In addition to the skeleton of a single human interment from 45-OK-250, seven lots of miscellaneous bone fragments were sent to the author for examination. These materials were recovered from the surface and overburden strata of the pit excavated to remove the burial. Some of the fragments are burnt. None of them can be identified as being of human origin. A few show evidence of cultural modification, although no specific artifact design is evident.

BURIAL IN SITU

The author viewed a series of slides of the excavation in progress, including several views of the skeleton in situ, and was provided copies of the excavation field notes.

These data show that the body was lying on its right side in a fully flexed position. The axis of the body ran roughly north-south, with the face oriented toward the east, which is also upstream at this locale. Of special osteological interest is the extreme pathological curvature of the spine which is clearly visible in one slide of the series. The body was bent over anteriorly at an angle approaching one-hundred degrees. The area of the spine

involved in this abnormal curvature is between the eleventh thoracic and the first lumbar vertebrae. More specific anatomical detail is given below, but it should be noted that the excavation record makes clear that the curvature was present ante-mortem and was not a result of some sort of post-burial disturbance.

The rock immediately overlying a small section of the skeleton may indicate an effort to cap the remains. It is more likely, though, that the rock was encountered fortuitously during grave excavation and was simply undercut as a matter of expediency.

THE SKULL

INVENTORY

None of the bones of the calvarium are complete. Those represented are: most of the frontal, including the supraorbital torus; most of the right parietal and about one-half of the left parietal; the superior half of the occiput; the posterior half of the right temporal, including the mastoid process; the lower lateral corner of the right orbit, including most of the right zygomatic with a very small section of the right maxillary attached. No other facial bones or upper teeth were present. These bones were not articulated and were warped to varying degrees. The partial reconstruction was therefore unsatisfactory for osteometric analysis.

The mandible (Plate 6-1) is also incomplete, with many teeth missing. The mandibular condyles are missing, and the lateral surfaces of the ramii have eroded away. Teeth inventoried include: right side--first premolar, canine, both incisors; left side--first premolar, canine, both incisors.

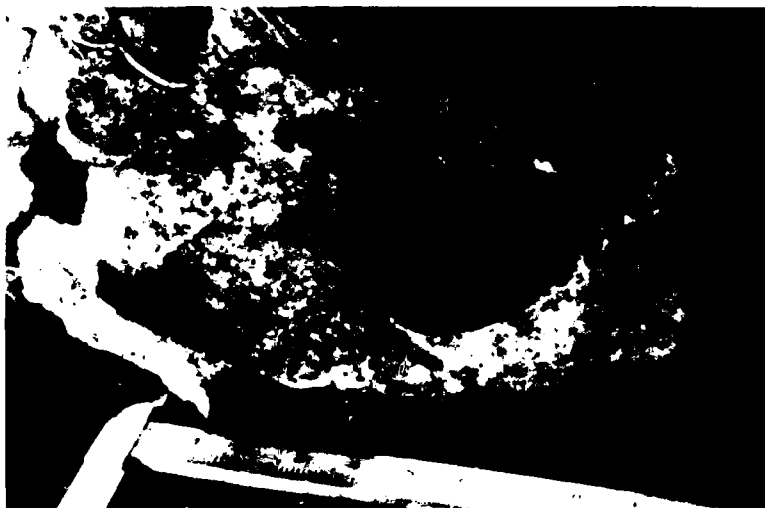


Plate 6-1. Mandible; note missing condyles, severe bone erosion, and alveolar resorption, Burial 1, 45-OK-250.

OSTEOMETRY

As explained above, no osteometry was practicable on the calvarium. A few measurements were possible on the mandible.

Gnathion-Gonion	8.9 cm
Bigonial diameter	9.6 cm

INDICES

Due to the paucity of osteometric data, no indices of practical comparative value were possible.

MORPHOLOGY

No evidence of artificial deformation on skull.

Temporal ridge does not extend past auditory meatus.

Supraorbital torus slight/moderate.

Supraorbital sulcus clearly defined on both sides.

Mastoid process is small.

Cranial bones generally appear thin, suggesting advancing resorption.

The mandible is 'pointed' at Gnathion.

Alveolar resorption severe.

Tooth wear severe, close to cingulum line.

Mental foramen halfway up body and under posterior edge of second premolar.

Gonial tubercles small and sharp.

Gonial angle = 125°

Due to the incompleteness of the calvarium a number of suture-closures could not be estimated. Those visible, the sagittal, coronal, lambdoidal, and a small section of the speno-parietal (on the parietal edge) are at or beyond the "maximum closure" level for age determination.

THE AXIAL SKELETON

INVENTORY

Vertebral Column

The cervical vertebrae, except for the atlas, are all represented. Only three--the second, third, and fifth (?) are nearly complete; the rest are badly articulated. All of the thoracic and lumbar vertebrae are represented by partial remains, as is also true of the sacrum. Only the first coccygeal vertebra could be identified.

Sternum

The sternum is present, although incomplete.

Costae

All twelve pairs of costae are represented.

No osteometry or index computation has been attempted on the axial skeleton due to the articulated condition of the remains.

MORPHOLOGY

The identifiable centrum portions of all vertebrae exhibit significant flaring. Other morphological data will be covered below, in the general section on pathologies.

THE APPENDICULAR SKELETON

INVENTORY

Clavicles

Both represented, though the right is very fragmentary.

Scapulae

Both represented.

Arms

The humerus, ulna, and radius are all represented for both sides of the skeleton. The left ulna is the only one of these which is complete.

Wrists and Hands

The left hand is represented by one phalange (thumb, distal); the right hand by one metacarpal and five phalanges. Two carpals are identifiable from the right wrist.

Innominates

Both present, although incomplete in detail.

Legs

The bones of the left leg are all represented. The patella is missing from the right leg.

Ankles

The right ankle is represented by the calcaneus, talus, and navicular; the left by the calcaneus, talus, and cuneiform.

Feet

From the right foot metatarsals one, two and four can be identified, along with the second proximal phalange; the left is represented by the proximal second and the proximal and medial third phalanges.

OSTEOMETRY

Left clavicle length	13.2 cm (est.)
Left ulna length	25.0 cm
Right ulna length	25.4 cm (est.)
Left humerus length	29.2 cm (est.)
Right humerus length	29.5 cm (est.)
Femoral head angle	106°

Innominate

Sub-pubic arch angle	110°
Greater sciatic notch angle	85°

INDICES

Except for one ulna length, all long bone measurements were estimates. Under such conditions not even a brachial index is warranted.

MORPHOLOGY

Scapula

Triangular in shape; these bones are thin and "sharp" on the edges, suggesting resorption due to advanced age.

Femur

The trochanters are of moderate size; the linea aspera is broad and well defined.

Humerus

The olecranon fossae are worn through on both humeri.

Long Bones, general

The epiphyseal plates are ossified completely. The bones are generally robust in detail for a skeleton of this size; e.g., femoral mid-shaft circumference of 8.0 cm.

Innominate

The obturator foramen is triangular in shape. The acetabulum is relatively deep, but small in diameter. A well-defined pre-auricular sulcus is present on both ilia. A ventral arc extends well below the base of the symphysis. A sub-pubic concavity is evident, as is a "pinched in" ischio-pubic ramus. Only one small section of a pubic symphysis face was still intact; it was scored at stage five (the maximum) on the McKern-Stewart scale for age determination. Some of the above details can be seen in Plates 6-2 and 3.

PATHOLOGIES

SKULL

No pathologies of pathogenic or traumatic origin are evident in the bones of the skull. "Abnormalities" such as bone loss and extreme tooth wear are readily assignable to old age and a diet containing a high percentage of gritty foods. These are typical of the skeletal remains of elderly prehistoric Northwest Amerindians. Dental caries are absent in the few remaining teeth, which is also typical for this population.



Plate 6-2. Lateral view of left innominate indicating the width of the greater sciatic notch, Burial 1, 45-OK-250.



Plate 6-3. Medial view of right innominate; arrow indicates location of the pre-auricular sulcus, Burial 1, 45-OK-250.

AXIAL SKELETON

All vertebrae with relatively intact bodies show evidence of severe "flipping" (see Plate 6-4). "Arthritic" flipping of the spine is also typical for the elderly of this population. No general explanation, such as heredity or diet, for this condition has been determined.

The severe anterior curvature of the spine previously cited represents a pathology of a different order. Within a section of the spine spanning no more than three vertebrae (T11-L1) there is a ventral curve exceeding 90 degrees. The only intact centrum from this group (L1) is shown in Plate 6-5. An absence of massive compensating modifications elsewhere suggests that this was not a congenital condition. In contrast, the general level of "arthritic" flipping is not nearly as severe elsewhere. Thus the most plausible explanation for this condition is accidental rupturing of one or more intervertebral discs sometime after reaching adulthood. The degree of modification of L1 suggests at least a decade of stress prior to death.

APPENDICULAR SKELETON

No true pathologies were noted in this section of the skeleton.

GENERAL CHARACTERISTICS

The subject of this study is unquestionably female. Although she was clearly elderly, her age at the time of death is somewhat indeterminate. A minimum age of sixty-five is a safe assumption, although I suspect that she may have exceeded that age by a decade or more. Her prime-of-life stature is computed to be 5 ft 4.5 in, based on the length of the intact left ulna and the estimated length of the incomplete left humerus.

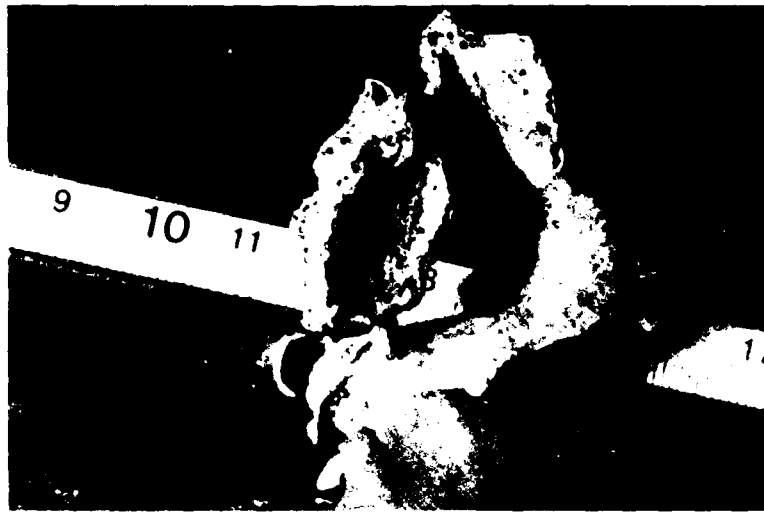


Plate 6-4. Inferior view of fifth (?) Cervical Vertebra, illustrating the centrum "flipping" typical of the entire spinal column, Burial 1, 45-OK-250.



Plate 6-5. Lateral view of the first lumbar centrum, ventral surface on the left; top of this body is beginning of area of severe anterior curvature described in text, Burial 1, 45-OK-250.

7. PALYNOLOGICAL ANALYSIS OF SOIL SAMPLES FROM BURIALS, 45-OK-159

by Deborah Newman

As part of burial relocation procedures related to the Chief Joseph Dam Project, the University of Idaho, under contract to the Corps of Engineers, Seattle District, relocated ancestral remains buried at 45-OK-159 (Sprague and Mulinski 1980). In order to recover information about botanical materials that may have been interred in the graves, soil samples were taken from locations within and immediately adjacent to all nine inhumations at the site (Table 7-1).

Burial 1, an adult male in a single grave, is dated to the early historic period by the presence of copper tubular beads among the grave goods. Similar beads were also found in the grave goods scattered over the top of a mass grave which contained Burials 2, 3, 4, 5, and 6, an adult female, three children, and an adolescent girl. Burials 7, 8, and 9, an adolescent and an adult female and an adult male, were found in single graves in the same area as the multiple grave. Their greater depth, the lack of grave goods in the two female burials, and the lack of trade items among the grave goods with the male indicate that they predate the mass burial.

After the burials had been removed, the soil matrix samples were turned over to the University of Washington for processing and analysis of constituent pollen. Components of the resultant pollen spectra were compared to proposed Columbia River Basin surface pollen spectra (Mack and Bryant 1974) as well as with one another to determine whether the characteristics of individual samples were attributable to natural or cultural factors. The following report summarizes the results of this analysis, performed by the author.

PROCEDURES

Not all of the 24 samples collected were analyzed. In the samples counted, the pollen concentration was so low that the time required for counting was considerably greater than originally estimated. Among the nine samples analyzed were all those removed from the body cavities (Samples 3, 16, 18, 19) since these are of greatest interest here. In addition, two topsoil samples and three of the samples from above and below the burials were chosen at random to be counted (Samples 2, 4, 14, 17, 20). These were used to compare the pollen spectra from different soil locations with those from the body cavity samples.

Table 7-1. Inventory of soil samples collected from 45-OK-159 as part of ancestral burial relocation at the Chief Joseph Dam Cultural Resources Project.

Sample Number	Burial Number	Unit	Association	Collection Date
1	8	OP2	Below burial	7/12/79
2	8	OP2	Topsoil	7/11/79
3	2	OP2	Chest/stomach cavity	7/10/79
4	7	OP2	Above burial	7/11/79
5	9	OP2	Below burial	7/12/79
6	1	OP1	Near skull	7/7/79
7	7	OP2	Below burial	7/12/79
8	6	OP2	Side of burial	7/11/79
9	3	OP2	Topsoil	7/11/79
10	4	OP2	Below burial	7/11/79
11	2	OP2	Below burial	7/11/79
12	8	OP2	Above burial	7/12/79
13	5	OP2	Below burial	7/11/79
14	9	OP2	Topsoil	7/12/79
15	1	OP1	Above burial	7/11/79
16	7	OP2	Chest cavity	7/11/79
17	6	OP2	Below burial	7/11/79
18	9	OP2	Chest cavity	7/12/79
19	1	OP1	Chest cavity	7/7/79
20	1	OP1	Below burial	7/7/79
21	4	OP2	Side of burial	7/11/79
22	3	OP2	Soil under bones	7/11/79
23	2	OP2	Below burial	7/10/79
24	5	OP2	Side of burial	7/11/79

A subsample of 20 grams was taken from each of the nine soil samples for use in the pollen extraction process. At this point, a known quantity of exotic *Eucalyptus* pollen was added to enable us to determine the concentration of pollen per sample during analysis. The calcareous portion of the samples was removed by swirling over heat in a 10% solution of hydrofluoric acid. Pollen grains and spores were separated from the remaining mineral material through heavy density centrifugation with zinc halide. When this was completed, the pollen containing material was acetolyzed in the manner described by Faegri and Iversen (1975). The samples were mounted on slides with silicon oil, and where possible three hundred pollen grains were counted from each sample. The percentage of each taxon was determined on the basis of the total number of pollen grains.

RESULTS

The results of the pollen counts are shown in Table 7-2. The percent of each taxon present is given, as is the actual pollen count. For ease of comparison, the samples are divided into two groups--body cavity samples and soil samples. Within each group, and for each taxon, the table presents both the average number of pollen grains and a composite percentage based on the total number of grains counted in the group. The latter forms a composite spectrum for the body cavity samples which may be compared to that for the soil samples.

Species	Station #1		Station #2		Station #3		Station #4		Station #5		Station #6		Station #7		Station #8		Total	Percent of total pollen count
	Grain	Grain/gram	Grain	Grain/gram	Grain	Grain/gram	Grain	Grain/gram	Grain	Grain/gram	Grain	Grain/gram	Grain	Grain/gram	Grain	Grain/gram		
Pinus	56.4/161	51.5/230	90.0/100	40.0/73	159.0	49.4	65.0/274	50.2/198	50.3/92	11.8/11	47.8/143	143.6	51.5					
Pinus	23/1	22/1	1.9/4	0/0	1.5	.46	47/2	0/0	0/0	0/0	0/0	0/0	.22					
Pinus	0/0	0/0	0/0	0/0	1.0	.31	0/0	0/0	0/0	0/0	0/0	0/0	0					
Pinus	0/0	0/0	0/0	0/0	1.5	.39	47/2	0/0	0/0	0/0	0/0	0/0	.22					
Pinus	0/0	0/0	0/0	0/0	0	0	0/0	0/0	0/0	0/0	0/0	0/0	.07					
Pinus	46/2	44/2	0/0	0/0	1.0	.31	0/0	0/0	0/0	0/0	0/0	0/0	0					
Pinus	46/3	22/1	0/0	0/0	1.5	.39	0/0	0/0	42/1	0/0	0/0	0/0	.36					
Pinus	20/9	22/10	1.4/3	6.4/12	8.5	2.6	47/2	.25/1	42/1	0/0	51/11	3.6	1.5					
Pinus	0/0	0/0	1.4/3	0/0	.75	.23	0/0	0/0	0/0	4.3/4	46/12	1.2	.43					
Pinus	0/0	0/0	0/0	0/0	0	0	0/0	0/0	0/0	0/0	40/12	.40	.14					
Pinus	23/3	1.5/1	46/1	2.7/5	6.5	2.0	71/3	1.4/6	2.7/5	4.3/0	2.0/2	4.0	1.4					
Pinus	14.3/63	11.8/54	2.6/6	22.0/40	40.8	12.6	6.8/31	7.1/24	10.4/25	17.2/16	17.1/51	30.6	11.0					
Pinus	7.24/32	10.3/47	6.2/13	11.5/21	28.3	8.7	12.6/53	18.6/64	19.6/47	28.0/26	11.7/55	45.0	16.1					
Pinus	20.2/116	14.2/65	4.8/10	10.4/20	52.8	16.5	3.1/13	10.0/14	7.9/19	50.1/28	10.7/32	25.2	9.0					
Pinus	7.0/31	3.1/16	46/19	4.4/19	16.8	5.2	7.8/33	1.5/4	20.8/90	3.2/3	3.7/11	20.2	7.2					
Pinus	23/1	2.6/3	0/0	0/0	1.0	.31	0/0	0/0	0/0	1.1/1	0/0	0	0					
Pinus	23/1	0/0	0/0	0/0	.25	.08	0/0	0/0	0/0	0/0	0/0	0	0					
Pinus	23/1	44/2	0/0	0/0	.75	.23	0/0	0/0	0/0	0/0	0/0	0	0					
Pinus	0/0	1.1/3	0/0	0/0	1.5	.39	0/0	0/0	0/0	0/0	0/0	0	0					
Pinus	23/1	25/1	25/1	25/1	.25	.08	0/0	0/0	0/0	0/0	0/0	0	0					
Pinus	0/0	0/0	0/0	0/0	0	0	47/2	0/0	0/0	0/0	0/0	.40	.14					
Pinus	0/0	0/0	0/0	0/0	0	0	0/0	0/0	0/0	0/0	0/0	.20	0					
Pinus	0/0	0/0	0/0	0/0	0	0	0/0	0/0	0/0	0/0	0/0	0	0					
Pinus	0/0	0/0	0/0	0/0	0	0	0/0	0/0	0/0	0/0	0/0	0	0					
Pinus	0/0	0/0	0/0	0/0	0	0	0/0	0/0	0/0	0/0	0/0	0	0					
Pinus	0/0	0/0	0/0	0/0	0	0	0/0	0/0	0/0	0/0	0/0	0	0					
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Pinus	0/0	0/0	0/0	0/0	0	0	0/0	0/0	0/0	0/0	0/0	0	0					
Pinus	0/0	0/0	0/0	0/0	0	0	0/0	0/0	0/0	0/0	0/0	0	0					
Pinus	0/0	0/0	0/0	0/0	0	0	0/0	0/0	0/0	0/0	0/0	0	0					
Pinus	0/0	0/0	0/0	0/0	0	0	0/0	0/0	0/0	0/0	0/0	0	0					
Pinus	0/0	0/0	0/0	0/0	0	0	0/0	0/0	0/0	0/0	0/0	0	0					
Pinus	0/0	0/0	0/0	0/0	0	0	0/0	0/0	0/0	0/0	0/0	0	0					
Pinus	0/0	0/0	0/0	0/0	0	0	0/0	0/0	0/0	0/0	0/0	0	0					
Pinus	0/0	0/0	0/0	0/0	0	0	0/0	0/0	0/0	0/0	0/0	0	0					
Pinus	0/0	0/0	0/0	0/0	0	0	0/0	0/0	0/0	0/0	0/0	0	0					
Pinus	0/0	0/0	0/0	0/0	0	0	0/0	0/0	0/0	0/0	0/0	0	0					
Pinus	0/0	0/0	0/0	0/0	0	0	0/0	0/0	0/0	0/0	0/0	0	0					
Pinus	0/0	0/0	0/0	0/0	0	0	0/0	0/0	0/0	0/0	0/0	0	0					
Pinus	0/0	0/0	0/0	0/0	0	0	0/0	0/0	0/0	0/0	0/0	0	0					
Pinus	0/0	0/0	0/0	0/0	0	0	0/0	0/0	0/0	0/0	0/0	0	0					
Pinus	0/0	0/0	0/0	0/0	0	0	0/0	0/0	0/0	0/0	0/0	0	0					
Pinus	0/0	0/0	0/0	0/0	0	0	0/0	0/0	0/0	0/0	0/0	0	0					
Pinus	0/0	0/0	0/0	0/0	0	0	0/0	0/0	0/0	0/0	0/0	0	0					
Pinus	0/0	0/0	0/0	0/0	0	0	0/0	0/0	0/0	0/0	0/0	0	0					
Pinus	0/0	0/0	0/0	0/0	0	0	0/0	0/0	0/0	0/0	0/0	0	0					
Pinus	0/0	0/0	0/0	0/0	0	0	0/0	0/0	0/0	0/0	0/0	0	0					
Pinus	0/0	0/0	0/0	0/0	0	0	0/0	0/0	0/0	0/0	0/0	0	0					
Pinus	0/0	0/0	0/0	0/0	0	0	0/0	0/0	0/0	0/0	0/0	0	0					
Pinus	0/0	0/0	0/0	0/0	0	0	0/0	0/0	0/0	0/0	0/0	0	0					
Pinus	0/0	0/0	0/0	0/0	0	0	0/0	0/0	0/0	0/0	0/0	0	0					
Pinus	0/0	0/0	0/0	0/0	0	0	0/0	0/0	0/0	0/0	0/0	0	0					
Pinus	0/0	0/0	0/0															

100

Several problems associated with the analysis of pollen collected from soil samples make interpretation complex. Typically, local over-and-under-representation of plant taxa occur because pollen grains may be transported long distances by wind and water. Differential production and preservation of pollen grains adds to the difficulty of interpretation. Vertical pollen movement through downwash and mixing by soil fauna prevents the assumption that the soil samples are truly representative of the contemporary flora.

COMPARISON WITH MODERN POLLEN SPECTRA

As an aid in interpretation, pollen counts from the present study were compared with those of Mack and Bryant (1974), who constructed the modern pollen spectra for several steppe communities in the Columbia Basin from surface soil samples. Although the samples collected from the burial sites do not necessarily represent the same steppe communities, these spectra indicate the suite of plant taxa that can reasonably be expected in the Chief Joseph samples. Mack and Bryant's results also show that a significant amount of variability exists within a single plant community.

Pine pollen is present in all the Chief Joseph samples in percentages ranging from 12% to 80%. Pine is a heavy pollen producer, and its pollen is easily transported by wind. The proximity of a stand may be gauged by the relative percentage of pine pollen in the assemblage. Mack and Bryant (1974) reported that stands of ponderosa pine (Pinus ponderosa) within 10 km of a site produced as much as 50% of the total pollen counted for that site. No less than 10% pollen was found in samples where the stand was less than 100 km away. The high percentages of pine that were found in all but one of the Chief Joseph samples suggest that a stand of pine may have been within a few tens of kilometers.

As shown in Table 7-2, pollen of Picea, Abies, Tsuga, Pseudotsuga, and Thuja appears in small quantities in all the samples. While these genera do not produce as much pollen as Pinus and they occur at higher elevations, their pollen, like that of pine, is easily dispersed by wind. Alnus and Betula also are represented in consistent amounts in the samples. These probably represent local contributions, since Alnus rhombifolia and Betula occidentalis occur frequently in stream valleys in the Columbia Basin (Mack and Bryant 1974). Salix occurs in similar habitats and also is present in the Chief Joseph samples.

Grasses comprise a large component in most floral associations in the Columbia Basin; in Mack and Bryant's spectra the grasses represent a relatively large proportion of the pollen assemblage. In the Chief Joseph samples, however, percentages of Gramineae range from 0.5% to 4.3%, decidedly lower than those reported by Mack and Bryant.

Percentages of Compositae also differ from those reported by Mack. Although Artemisia pollen is the typical dominant shrub within the steppe community, percentages of Artemisia pollen in the Chief Joseph samples range between 4% and 50%, values lower in general than those given by Mack and Bryant. Percentages of Compositae other than Artemisia are relatively high. Compositae is subdivided into two groups, Tubuliflorae and Liguliflorae.

Percentages for these two groups are similar and are also similar to those of Artemisia. Mack and Bryant, however, found high percentages of Artemisia, lower percentages of Liguliflorae.

The amount of Cheno-Ams varies between samples, perhaps indicating that the relative frequency of these genera in the local community is also variable. The remaining members of the pollen assemblage occur sporadically in very small amounts. Their low percentages may result from their limited pollen dispersal capabilities or their rather infrequent appearance in the local vegetation. Except for Juglans, Plantago, and Hippocastanea, these taxa are common in the Columbia Basin. Plantago is an exotic species which accompanies the arrival of Europeans and is generally associated with disturbed sites. Its occurrence in one of the topsoil samples is not remarkable. The presence of either Juglans or Hippocastanea is rather unlikely at this location and may indicate contamination during processing, which took place during their blooming period. The presence of Cyperaceae and Typha latifolia in two of the samples suggests that water or damp areas may have been nearby. There are ponds close by today.

The pollen assemblages from the Chief Joseph samples are nearly identical to the modern spectra in composition but differ considerably in the relative percentages of the major taxa. Apparently the pollen spectra from Chief Joseph represent a plant community different from those reported by Mack and Bryant, one that is most likely affected by some local environmental factor, possibly the proximity of the Columbia River itself.

No domesticated plant species are known to have been used by the native inhabitants of the area, the Sanpoil-Nespelem (Ray 1932). As expected, none appear in the pollen assemblage. None of the plant species occur in unusual quantities which would indicate that they were used specifically in connection with burial rituals.

COMPARISON OF BODY CAVITY AND CONTROL SAMPLES

A comparison of the two groups of pollen samples--the body cavity samples and the control soil samples--may provide insight into the human activity associated with the burials. The most obvious difference between the two groups lies in the pollen concentration per gram of soil (Table 7-2). The pollen concentration in the body cavity samples, which ranges between 3046 and 10855/gm, is decidedly greater than that in the soil samples, which ranges between 1246 and 2695/gm.

There are several possible explanations for the higher concentrations of pollen in the body cavity samples than in the control samples. Pollen may have been carried into the grave within the body through ingestion or inhalation. Also the body, clothing, and burial wrappings may have carried pollen grains from local plants blooming at the time. These may have included plants used for food, medicinal purposes, or other domestic activities. Burial practices, such as sweeping spirits from the grave site with rose boughs (Ray 1932), could also contribute to the pollen concentration. Another explanation for the difference might be that when the earth was placed over the body, pollen grains sifted through loose soil and gravel into the grave.

SEASONALITY

Assuming that higher concentrations of pollen in the body cavity samples indicate the pollen was deposited in connection with the the burial, percentages of certain taxa in the samples may indicate the season in which the burial took place. Figure 7-1 shows the percentages of the major taxa for each of the body cavity samples and for those of the composite soil sample spectra. Variability is to be expected between the samples, but certain trends might indicate the season of burial. Sample 18 shows a very high percentage of pine, which blooms in the spring, and relatively low percentages of other taxa, the majority of which bloom later in the season. This may suggest that Burial 9, from which Sample 18 was collected, was inhumed in the spring. Artemisia blooms in the late summer; Sample 3 contains a high value for Artemisia and relatively low values for pine, suggesting that Burial 2 is a later summer burial. These suggestions are supported by comparison of the body cavity sample with the composite soil spectrum, which is, in effect, an average of the soil samples. The percentage of pine in Sample 18 is decidedly higher, and the value of the other taxa lower, than those in the composite soil spectra. Likewise the Artemisia value in Sample 3 is considerably higher and the pine value is lower than the composite soil spectra.

Samples 16 and 19 from Burials 7 and 1, respectively, do not show sufficient differences from the composite spectrum to suggest the season of those burials. Possibly, this spectrum is actually characteristic of pollen deposited at a specific time of year. Alternatively, it may represent an average of seasonal spectra caused by post depositional disturbance. The possibility that it is a background spectrum derived from the soil used to fill the burial and not actually contemporaneous with the burial is unlikely given the high concentration of pollen grains in these two chest cavity samples. Sample 19 had the highest pollen concentration of all the samples, 10855/gm, far higher than any of the control samples.

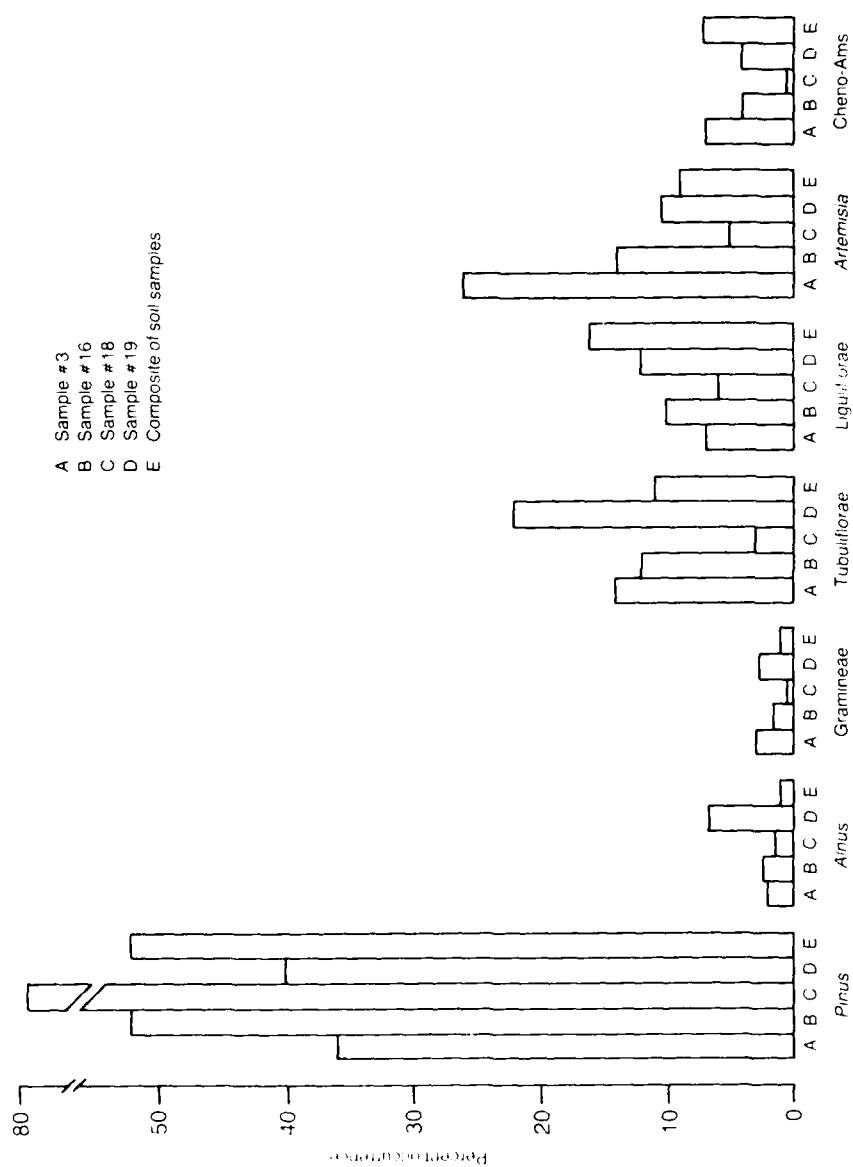


Figure 7-1. Percentage occurrence of pollen from soil samples, 45-OK-159.

8. DISCUSSION

In this report we have described a wide variety of archaeological phenomena, all investigated under the category nonhabitation sites. Except for burial sites, a number of which have been excavated previously, this constitutes the most extensive consideration of nonhabitation sites in the project area to date. However, relative to the investigation of habitation sites, only a small number of cultural features have been recognized, interpreted, and dated. We have learned as much about how we can improve our studies of such sites as we have learned about the sites themselves.

THE CONCEPT OF NONHABITATION SITE

One problem clearly demonstrated in this report is that it is not useful to define **nonhabitation site** as a location where nondomestic activities were performed. This approach requires that we be able to define two mutually exclusive sets of activities, domestic and nondomestic, while, in fact, there is considerable evidence in the archaeological and ethnographic records that this is not the case. For example, ethnographic data indicate that food storage sometimes took place at habitation sites and sometimes away from them. Even human burial is not necessarily exclusively nondomestic as indicated by the burial of a cranium in the floor of Housepit 3 at 45-OK-2. The extensive salvage excavations of prehistoric habitation sites indicate that basic activities such as fire-building, food preparation, butchering, and lithic tool manufacture took place in nearly every occupation, albeit in different combinations and intensities.

For archaeological studies of subsistence/settlement patterns in a particular region, it will be ultimately more useful to develop a set of site types distinguished on the basis of the range and diversity of activities present. Some sites will contain evidence of only a limited range of activities and might appropriately be termed nonhabitation or special purpose sites. This approach is not necessarily easier in application than the approach of separating sites on the basis of a division between domestic and nondomestic activities. The variability among sites in terms of the number and kind of activities no doubt forms a continuum and distinguishing site types will have to rely on quantitative or semi-quantitative measurements. Nonetheless, this approach is more realistic and has greater potential for insight into the logistics of the cultural system. In order to define nonhabitation sites in the manner described above, considerably more data would have to be collected. Survey level data is not appropriate for defining

nonhabitation sites because it is usually not possible to determine the absence of occupational debris or the range of activities represented from the surface evidence alone.

As discussed in the first chapter, the tactical decision made in the Corps survey and the CJDGRP management plan was to treat rock features (including rock art) as indicative of nonhabitation sites because these were the only kinds of nonhabitation sites known in the reservoir. Thus, the actual universe investigated in this study is rock feature sites. This was a practical approach to the study of nonhabitation sites given the amount of prior information.

However, review of the kinds of activities documented in the sites tested, and a comparison with the kinds of activities described in the ethnographic literature as taking place away from habitation areas demonstrates that this approach has led us to only a limited number of site types. Bulk food preparation and food storage areas, a major component in the ethnographic pattern, were not documented (although it has not been adequately demonstrated that rock cairns with no associated cultural materials are not emptied above-ground storage caches). Finding food preparation and storage areas may require excavation of rather different types of sites, such as very small sites with fire-modified rock and other debris. In addition, the use of special recovery methods, such as flotation and analysis of organic residues may be required to demonstrate the function of such sites. At any rate, rock features are neither necessary nor sufficient indicators of all the major types of nonhabitation sites we expect to find in the project area. Only a small portion of the range of nonhabitation sites has been documented, and these are largely related to ritual, rather than subsistence, activities.

Apart from the few methodological conclusions drawn above, conclusions about subsistence activities outside of habitation sites must await further work. The relatively large body of data concerning rock feature sites is considered in more detail below, and a summary statement is made about the burial relocation projects.

ROCK FEATURE SITES

The extensive examination of rock features reported here has increased our knowledge of their variability to the extent that it is apparent our approach was overly simplistic. Methodological shortcomings in the classification developed for management purposes (Munsell and Salo 1977; Jermann et al. 1978) were mirrored in the approach to data recording in the field. The principal problem is an over-reliance on a priori functional categories, drawn from ethnographic data, for recording sites. These functional categories were codified in a classification which oversimplifies the relationship between form and function and which relies on mixed surface and subsurface criteria for assignment to categories. Sites were recorded in terms of these functional categories, and the empirical information which would allow independent assessment of function was not consistently collected.

Even when the management plan classification (see Chapter 1 for details) is considered simply as a classification of rock feature sites and not of nonhabitation sites, it has logical shortcomings. It is unclear whether it is a classification of archaeological surface phenomena, of potential nondomestic activity types, of rock features, or of ethnographically recorded nondomestic activities. The criteria for recognition and the functional interpretations contain elements of all four, but not consistently. The definitions frequently confuse the physical nature of the observable phenomena and the interpreted function. Thus cairns are not simply piles of rock, but only those piles determined to not mark burials. It is stated that they may also mark storage pits, in which case they would seem also to fit the definition given for caches. The ability to assign features to these categories is extremely dependent on tactical matters. For example, the presence of human remains is included as part of the definition of burials. If this information was always available, there would never be a problem in distinguishing burials from caches and cairns.

The conceptual approach embodied in the classification has had pervasive effects on data collected in this study, introducing biases for which we cannot compensate post hoc. The classification implies that it is possible to place rock features in a functional category on the basis of survey information. Even though the descriptions presented in the classification clearly indicate that there is not a one-to-one relationship between form and function, the survey did not record information on form and function independently (eg., talus depressions are mentioned under caches, hunting blinds, and burials). The classification did not specify a set of variables to be recorded on individual talus depressions which would allow them to be assigned to specific functions and the survey did not compensate for this.

Even the question of artificiality was not approached in an empirical manner, but in an a priori manner. The field crew concluded that a number of sites were natural, and did not record them. Convincing evidence of possible natural origins was not given, nor were various possible cultural origins which would not leave associated cultural materials considered. Thus we are no further along in developing criteria for determining which piles of rock are natural and which are not. Nor do we have guidelines for how much subsurface testing under cairns is sufficient to ascertain the association of burials or other cultural remains.

The tendency to rely on ethnographic analogy in defining site function is seen clearly in the survey data collected by the Corps survey and the resurvey conducted by the nonhabitation sites crew. In the former, cairns and talus depressions generally are assumed to be burials, without independent confirmation. In the latter, even more subtle characteristics were given unwarranted weight. For example, the argument was advanced with respect to one site that a cairn was not a burial marker because it did not face the river, the orientation recorded by ethnographic studies. Even if this practice had been universal in historic times, which we should not assume, it was not necessarily followed in earlier times. Another assumption found in the field notes for the project was that rose bushes had some significance,

possibly marking burials. This obviously is based on the reported use of rose branches in the burial ceremony (see Chapter 1). However, as the talus slope areas where most of the cairns and talus depressions investigated were located is a natural habitat for wild rose, the association of roses with these sites is trivial and cannot be attributed to introduction by burial ceremonies. Wood associated with burials, whether stakes or the remains of buried cysts, is assumed to be cedar. Botanical analysis of wood from burials at 45-D0-244 and 45-OK-1 indicate that other woods were commonly used.

In contrast, Smith (1977) avoids the above methodological problems. His approach is to classify rock features, along with all other features, on the basis of surface-evident variables of form. Although he provides common sense labels for some of the rock feature classes in addition to simple structural labels (Smith 1977:59-60), the interpretation of function (1977:68-74) is kept separate from the recording of feature morphology.

RECONSIDERATION OF ROCK FEATURE TYPES

Work done in the reservoir to date demonstrates that rock features fulfilled a wide variety of cultural functions. It has also made clear that simple empiricism is not likely to further improve our knowledge. Additional data collection must be guided by a more explicit analytic framework that outlines the critical descriptive variables important in functional analysis of rock feature sites.

As a step in this direction, we have attempted a systematic summary of functions of rock features based on data collected on this project and on ethnographic observations (Table 8-1). The rock feature forms recognized are cairns, talus depressions, rock alignments, natural crevices, and rock art. Two levels of functions are indicated. The number of general functions which rock features may have are limited: disposal, weight or support, protection (including concealment), and marking. This is a broader range of functions than considered by Smith (1977) who focuses on the functions of defining space (marking) and protection.

The more specific functions are distinguished on the basis of what is being disposed, supported, protected, or marked. Table 7-1 includes the specific functions which have been demonstrated in the project area, with indication of example sites where appropriate. Also included are some categories which are logical possibilities, or traditionally accepted feature types.

We do not offer structural definitions of cairn, alignment, or talus depression, or of subtypes within these that would correspond to the specific functions. There are too few measurements or systematic descriptions of rock content and arrangement of rock features available from the project area to develop distinctive criteria. Smith's (1977) study is a better source of information about the variability in rock feature morphology and the kinds of distinctions that could be made. To some extent, of course, tactical definitions must be developed for any given area and environmental context.

Table 8-1. Form and function of rock features.

Form	Origin or General Function	Specific Function or Activity	Cultural Affiliation ¹	Evidence	
Rock pile or cluster	Disposal from other activities	Field clearing	E	45-00-318	
		Placer mining	E		
		Ovens, hearths, or other fires	E? N?		
	Weight or support	Trap anchor	E	45-OK-344 and 45-OK-346	
			N?		
		Ferry cable anchor	E	45-00-228 and 45-00-229	
		Fence post support	E	45-00-221 and 45-OK-255	
	Marker, event	Vision quest	N	Ethnographic observation, no archaeological examples.	
		Burial	N	Ethnography, 45-00-244 Burial 2, 45-OK-1 Burial 1.	
	Marker, territorial	Homestead	E	45-00-318	
		Use area or occupation area	N	Not done locally according to ethnographic sources.	
	Protection and storage	Food or supply cache	N	Ethnographic observations, no archaeological examples.	
Burial		N	45-00-244 Burial 2		
Rock alignment (may include aligned piles)		Disposal from other activities	Field clearing	E	Rocks could be placed in lines rather than piles, no examples recorded.
	Weight or support		Shelter construction	E	7Broken down root cellars.
		Dam	E	Site by Goose Flats	
	Protection	Wind break/shelter	N	No archaeological examples, would function similarly to talus depression.	
		Hunting blind	N	Not observed ethnographically. Many unexplained rock alignments.	
			E?		
	Marker, event or territory	Ceremonial wall	N	The walls at 45-00-278 could have erected either to mark the area as a special place, or by a series of events involving rock piling.	
	Talus depression	Protection and storage	Burial	N	Ethnographic reports, survey reports of depressions with stakes, 45-00-321 and 45-00-322.
			Food or supply cache	N	Ethnographic observation, no archaeological examples.
			Wind break/shelter	N	45-00-267, campsite in semi-shelter formed by depression
	Natural crevice or hollow	Storage, protection	Food or supply cache	N	Observed ethnographically. Cannot definitely be confirmed at 45-OK-223.
Fissure burials			N	Ethnographic observation, one possible archaeological example, not tested at 45-OK-252.	
Pictographs	Marker, event	Power display	N	Ethnographic observation, no archaeological examples.	
	Marker, territorial	Mark areas used regularly by individuals or group	N?	Areas with abundant rock art may correspond to social group boundaries.	

¹E = Euroamerican
N = Native American

On the question of whether artificiality is a necessary criteria for all of these features we would argue that artificiality is not necessary. A natural talus depression can be used in the same manner as one created by removing stones.

Any future work on rock features in the project area should collect more types of formal data in a systematic fashion. The following data categories are suggested:

DIMENSIONS: depth or elevation of rocks relative to surfaces, diameter or length and width of feature.

SHAPE/STRUCTURE: configuration or overall shape, degree of clustering or density, placement or arrangement of rocks.

COMPONENTS: number of rocks, size and weight of rocks, total and range, number of FMR, description of rock lithologies and rounding.

ASSOCIATION: constituents of associated cultural deposits, association with other rock feature, location within larger site, association with environmental features.

EVIDENCE OF ARTIFICIALITY: distribution and abundance of rocks in area, local topography.

Disposal

This category includes rock features not built for their own sake, but created by disposal of refuse from other activities. Piles of rocks created by clearing rocks from fields in historic times are a prime example of this. Rocks could also be placed in a line rather than a pile. Rock piles also resulted from placer mine activities. Examples of the latter were encountered in the nonhabitation sites survey but not described in detail. However, the historic sites survey (Thomas et al. 1984) recorded 5 rock cairns resulting from placer mining activity at 45-D0-272H. These large cairns of basalt and granite range in size from 14 x 29 ft to 10 x 171 ft. This site is unique among the placer mine sites, however: it is the only one with cairns and the only one along a tributary stream rather than along the Columbia River. Other placer mine sites were characterized by excavations or trenches, rather than cairns.

Weight or Support

Both rock piles and rock alignments are used as weights, to hold something in position. In historic times, Euroamericans used rocks to construct rock jacks, piles of rocks which supported fence posts, particularly in areas where it was not feasible to excavate deep postholes. Excellent examples of such features were excavated at 45-D0-221 and 45-OK-255 (see

Chapter 3). Rock piles found at 45-D0-228 and 45-D0-229 in association with wooden platforms and cables were interpreted as cable anchors. Measurements of these were not recorded by the nonhabitation sites crew but a cable anchor at 45-OK-180H measured 17 x 22 x 7 ft and one at 45-D0-203H measured 12 x 30 x 3.5 ft (Thomas et al. 1984).

Another similar use of rock piles in historic times was to anchor traps placed on top of erratics or in other areas where the traps could not be anchored with stakes. The best evidence of cairns as trap anchors comes from two sites not examined as part of the nonhabitation sites project. Sites 45-OK-344 and 45-OK-346 were recorded by the CJDGRP survey. The former is a basalt rock cairn on top of a large basalt erratic at the head of a short, steep gully at the north end of a river terrace at 1400' m.s.l. A steel trap is anchored within the cairn, which is 1.8 x 1.5 m. On the trap are the words:

Victor. Patent May 23, 07.
#3 trap, Made in USA.
Oneida Community.
(followed by illegible letters).

A similar steel trap was found at 45-OK-346. A cairn of basalt rocks was found on top of a basalt erratic 100 x 50 x 25'. Three other erratics were within 20-30'. The head of a large gully is 250 m to the west. The trap anchored within the cairn bears the inscription:

Oneida Victor, Made in U.S.A.
#3 Patent 9-26 (or 28)-11,
Animal Trap Company, Lititz Pa.

Site 45-D0-213, which was resurveyed as part of the nonhabitation sites investigation, was also interpreted as a trap site, possibly for birds or small mammals, because wood and wire were seen in the rock cairn.

In prehistoric times, rock piles may have been used for similar purposes, such as weighing down edges of shelters, traps, and fishing constructions, but none of these functions have been specifically demonstrated. Cairns like that at 45-D0-205, clearly artificial constructions with no associated cultural remains, may have had such a function.

Protection

Rock features were used in prehistoric times to protect people, stored goods, and burials against the elements, predators, and scavengers. Alignments, talus depressions (whether natural or artificially constructed), and rock piles could all function in this manner.

Rock piles were used in two manners in connection with food storage. They were reportedly placed over storage pits in ethnohistoric times, and also the piles themselves were used as locations for above-ground storage. Neither

type of feature has been demonstrated archaeologically in the project area. Excavation in two basalt mounds found on mesa tops in the Columbia Basin also failed to produce evidence of their use as storage caches Smith (1977:73).

We do have definite evidence that rocks were sometimes placed over burials (45-OK-159, 45-DO-244 are just two examples of many), although not always (45-OK-250, 45-OK-1). It is likely that this was done to protect the burials from disturbance.

There are numerous rock alignments in the project area for which no definite function has been ascertained. It should be pointed out, however, that they are under-represented in this study. The rock alignment sites recorded in the project area generally occur at higher elevations than cairns and a larger proportion are outside the guide-taking lines of the Chief Joseph Dam project. Some rock alignments may be hunting blinds. The use of rock blinds is not reported in the ethnographic literature, but blinds may have been used in earlier times or by Euroamerican hunters. Other rock alignments may have been windbreaks providing shelter for camping, functioning like the natural talus depression at 45-DO-267 which was used as a campsite. Smith (1977:73) reports crescentic basalt alignments on mesa tops that appear to provide concealment and a vantage point. He contrasts these with irregular alignments, the examples of which were longer than the crescentic alignments, and which he interprets as barricades.

Marker

Markers may either commemorate events or demarcate space. Smith (1977) provides a general discussion of the variety of ways in which rock features can define space; for example, cairns identify space, walls divide space, and walls can combine to contain space.

In historic times in the project area, cairns were used as territorial boundaries by homesteaders marking their property.

A rather different type of territoriality may have occurred among the Native American inhabitants of the area. Although pieces of property may not have been owned in the same sense as historic homesteads, spatial access to certain abundant and predictable resources was controlled, eg. traditional "ownership" of fish weir locations at major fisheries. Rock art or possibly other rock features may have been used to mark areas used by particular groups. Schalk (1982) has argued that the proliferation of rock art and other stylistic forms in the vicinity of the Dalles and Priest Rapids may reflect territoriality, perhaps between major language groups. He argues that territoriality at finer social scales might also be detectable archaeologically in terms of certain stylistic distributions.

One could imagine ownership rights to resource sites at rapids fisheries operating at several levels. In addition to the level of large scale groupings based upon language, we could envision a descending scale of groups including maximum bands (connubiums), individual local groups or minimum bands, and also social segments

within the individual local groups (i.e., families, lineages, clans, etc.). Rights of ownership might be "advertised" or "displayed" in ways that are archaeologically detectable with respect to any or all of these groups or, quite possibly, with respect to social entities that crosscut such groupings. (Schalk 1982:212-213).

One other site, 45-DO-278, may be an example of rock features used for spatial marking. In tribal traditions, the site is considered a ceremonial area. It is possible that the rock alignments were deliberately constructed to demarcate the area. On the other hand, the rock alignments and associated cairns could be the cumulative result of different individuals piling rocks at different times to mark events in their personal power quest. According to ethnographic data cairns were constructed to mark important spiritual events, such as a child's vision quest. Ethnographic data indicates that rock art also was used to mark certain personal events. Archaeological evidence, eg. Burial 2 at 45-DO-244 and Burial 1 at 45-OK-1, agrees with ethnographic accounts that burials were marked with cairns at the surface.

Application

This discussion of rock feature function has not been developed to the point of applicability. Application of this or a similar scheme would require the development of a set of expectations about the archaeological manifestations of certain functions. This would involve a large number of tactical decisions as the functions suggested vary in how readily they can be defined on the basis of archaeological evidence. Some functional feature types can be identified on the basis of survey data, such as historic trap anchors (if the anchors still remain) or ferry cable anchors. Other feature types, such as emptied above-ground storage caches, may have no associated artifacts that provide evidence of the activities which took place there. These may be definable primarily by distributional data, such as association with winter village sites. Hunting blinds may have a limited number of artifacts but be best defined by distributional data, such as association with particular topographic features. Yet other feature types can only be defined on the basis of subsurface data. In particular, subsurface storage pits marked by cairns will only be recognizable by excavation, and may require special recovery methods to retrieve evidence of the organic contents.

BURIALS

The burial relocation projects reported here are but a small addition to of the total number of burials which have been excavated in the project area. Not surprisingly, they fall well within the time range of previously known burials and include no new burial patterns. However, we have demonstrated that application of special techniques, such as pollen analysis and analysis of plant macrofossils and other organic remains can contribute to interpretation of burials.

Although only a few of the organic remains from Burial 2, 45-DO-244, and Burial 1, 45-OK-1 were examined they yielded extremely interesting information. The wood used in the cysts in both burials was pine, not cedar. Burial 2, 45-DO-244 contained extensive organic remains that apparently represented food buried as a grave offering. This practice has not been reported in the ethnographic literature. The small packet in Burial 1, 45-OK-1 may be a personal ornament or may also be some type of offering. Similar preservation conditions may be expected in other burials which have had fires built over them.

The analysis of pollen samples from burials at 45-OK-159 shows that it is possible to determine season of interment from pollen samples collected from burials in the northwestern Plateau region. Comparison with constructed modern natural pollen spectra indicates that the pollen spectra from body cavity samples are consistent in composition with natural spectra, although local plant community differences are reflected. From the relative frequencies of pollen grains of pine, which blooms in the spring, and Artemisia, which blooms in the late summer, one can infer that Burial 9 was interred in the spring and Burial 2 in the late summer. The relative frequencies of pollen types in Burials 7 and 1, more similar to the composite soil spectrum than to those of the other burials, provide no strong evidence of seasonality.

Although knowing the season of interment of these burials is intrinsically interesting, the lack of comparable seasonality data from other burials in the region prevents us from drawing broader conclusions. Sprague and Mulinski (1980) found one other immediate application of the data; they used it as independent evidence in determining which burials were part of the multiple burial. The palynological evidence indicated that Burials 7 and 9, initially considered possibly part of the multiple burial, were each buried at a different time than the multiple burial (Sprague and Mulinski 1980:47).

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**APPENDIX A:
SITE INVENTORY**

Table A-1. Inventory of nonhabitation sites.

Site Number	Site Type on Survey Form	Recorded by	USCE River Mile	Elevation (ft above sea level)	Action Recommended in Statement of Work ²		Action ³	Determination ⁴	According to Survey Form							
					Phase I	Phase II			Calm #	Depression #	Alignment #	Pictograph	Midden	Human Historic Bone Material	Location ⁵	
45-00-102	OC/B	WSU	586	950-980	T		2	N						X		
45-00-137	B	WSU	-	-	T			H	4							
45-00-205	B	WSU	587	1,000			2	N	2							
45-00-208	P	WSU	-	-	R		6	P					X			
45-00-216	C	USCE	588	970		R	1	N	1							3
45-00-217	B	USCE	587	950	T		2	N	4+							
45-00-221	OC/B	USCE	587	946-955	T		1	H/N	3				X			
45-00-222	OC/C	USCE	587	950-970		R	1	N	1					X		
45-00-223	B	USCE	586	970-1,000		R	1	H/N	3					X		1
45-00-224	C	USCE	586	1,050		R	1	N	5							1
45-00-225	C	USCE	586	1,100			4		1							3
45-00-227	B	USCE	588	1,080			4		2							2
45-00-228	B	USCE	586	980		T	1	H	1							8
45-00-229	B	USCE	586	970		T	1	H	3							8
45-00-230	H8	USCE	588	1,150			4				1					9
45-00-231	B	USCE	586	1,050			4			1						5
45-00-232	B	USCE	585	1,050		R	1	N		1						96
45-00-238	B	USCE	581	1,000		R	1		1							1
45-00-240	B	USCE	580	1,110		R	1	N	3							56
45-00-244	B	USCE	579	1,015		R	7		2				X			
45-00-264	B	USCE	574	990-1,000	T		2	N	2					X		
45-00-267	B	USCE	573	965	T		2	P		1						
45-00-268	B	USCE	569	980		R	1	H	3							1
45-00-277	B	USCE	559	970		T	1	N		2						28
45-00-278	C/A	USCE	559	970		R	1	P	3		2					68
45-00-279	H8	USCE	558	1,200			4				7					68
45-00-280	B	USCE	558	1,080		R	4		1		1					28
45-00-281	B	USCE	556	1,000		R	1	N	2	2						28
45-00-286	B	USCE	558	1,050			47			1+						28
45-00-304	C	CJDCBP	557	965	T		1	N	1							

Table A-1. Cont'd.

Site Number	Site Type on Survey Form	Recorded by	USCE River Mile	Elevation (if not same as level)	Action Recommended in Statement of Work ²		Determination ⁴	According to Survey Form					Historic Material	Location ⁵
					Phase I	Phase II		Coln #	Depression #	Alignment #	Pictograph	Hidden Bone		
45-00-315	C	CJDCRP	574	1,040		R	1	N	2					1
45-00-318	C	CJDCRP	578	1,320		R	1	H	8					1
45-00-325	P	CJDCRP	588	970			6	P			X	X		
45-00-441	P	CJDCRP	556.5 (USGS)	920			6	P			X			
45-00-442	P	CJDCRP	555.5 (USGS)	920			6	P			X			
45-00-1	W	RB6	581	1,008			7					X		
45-00-2	W	RB6	581.5	950-980			7							
45-00-14	P	RB5	-	-				P			X			1
45-00-17	P	RB5	-	-				P			X			
45-00-159	B	USCE	583	1,110					8					1
45-00-170	P	USCE	579	980		R	6	P			X			
45-00-175	B	WSJ	590	970		T	5		12	1+				1
45-00-179	B	WSJ	568	950-980		R	1	N	1					28
45-00-181	P	WSJ	-	-		R		P			X			
45-00-192	B	USCE	590	1,000					4					5
45-00-194	OC/B	USCE	590	1,050					2			X		1
45-00-200	B	WSJ	590	980						2				3
45-00-201	B	USCE	590	1,070					1					1
45-00-202	B	USCE	589	1,070		T	5		2					1
45-00-203	B	USCE	589	1,070		R	5		2					1
45-00-212	B	USCE	585	1,000-1,030					23					1
45-00-213	C	USCE	585	1,074		R	1	H	1				X	78
45-00-214	B	USCE	585	1,040		R	1	N	1					1
45-00-216	C	USCE	584	1,020		R	1		1	1				78
45-00-219	B	USCE	583	953					1					10
45-00-223	CA	USCE	582	965		R	1	H						1
45-00-225	B	USCE	582	1,010				P	2?					1
45-00-233	B	USCE	582	1,050					1					1
45-00-234	P	USCE	582	1,100			6				X			

Table A-1. Cont'd.

Site Number	Site Type on Survey Form	Recorded by	USCE River Mile	Elevation (if feet above sea level)	Action Recommended in Statement of Work ²		Action ³ Determination ⁴	According to Survey Form					Historic Material	Location ⁵
					Phase I	Phase II		Cairn	Depression	Alignment	Pictograph	Midden Bone		
45-OK-239	W	USCE	581	1,000			3							
45-OK-240	P/B	USCE	581	1,100		R	6		1+		X	X		9
45-OK-241	OC/B	USCE	581	970				2				X		1
45-OK-242	B	USCE	581	970		R	5	5						1
45-OK-250	OC	USCE	578	980			7					X	X	1
45-OK-255	W	USCE	576	950			3							
45-OK-262	B	USCE	575	980		R	5	2?						6
45-OK-263	B	USCE	575	955	T		2							
45-OK-264	OC/B	USCE	575	980		R								
45-OK-272	H/C	USCE	573	950-980		R				1+				68
45-OK-273	B	USCE	573	1,000		R		2						3
45-OK-276	C	USCE	571	970		T	3	1						9
45-OK-278	C	USCE	569	980		R	3	2						3
45-OK-279	B	USCE	569	950					1					5
45-OK-281	C	USCE	568	970		R	1		3					66
45-OK-282	C	USCE	568	1,020-1,030		R		1+						86
45-OK-283	B	USCE	568	970-980		R	1		8					8
45-OK-285	OC/C	USCE	568	985-990		R		1				X		88
45-OK-286	C	USCE	568	980-990		R	1	2						9
45-OK-290	OC	USCE	568	1,000			3					X		
45-OK-291	A	USCE	568	987		R	1			1				78
45-OK-294	OC/B	USCE	567	980										
45-OK-296	B	USCE	567	1,005		R	1	1+	4		X			28
45-OK-297	B	USCE	567	1,015			4		8					28
45-OK-300	B	USCE	566	970	T		1	3+						98
45-OK-302	B	USCE	566	950-980	R		1	7						
45-OK-305	B	USCE	564	1,010-1,020		R	1		1					28
45-OK-306	B	USCE	564	1,030		R	1		1+					56
45-OK-307	B	USCE	564	1,075?		R	1		1					98
45-OK-316	OC/B	USCE	559	955					2			X		28

Table A-1. Cont'd.

Site Number	Site Type on Survey Form	Recorded by	USCE River Mile	Elevation (6 feet above sea level)	Action Recommended in Statement of Work ²		Action ³	Observation ⁴	According to Survey Form							Location ⁵	
					Phase I	Phase II			Cairn	Depression	Alignment	Pictograph	Midden	Human Bone	Historic Material		
45-OK-318	B	USCE	553	985					3								1
45-OK-320	H/W	USCE	547	1,040						3							88
45-OK-335	C	CJODP	555	1,240	R		1	N	2								1
45-OK-338	C	CJODP	563.5	1,080	R		3	N	1								
45-OK-344	C [trap]	CJODP	588.5	1,400				N	1							X	78
45-OK-345	C [trap]	CJODP	587	1,480				N	1							X	1
45-OK-348	C	CJODP	588.5	1,320			6		7					X			78
45-OK-504	P	CJODP	582	1,000													
			US88														
45-OK-505	P	CJODP	574.5	880										X			

¹ Kind of site

O-cairn
T-talus depression
OD-open camp
B-burial
W-winter village
D-cache
P-pictograph
H-hunting blind
A-alignment

² Record

³ Action
Site described in survey forms as burials, talus depressions and cairns were grouped as cairn/talus depression in statement of work.

⁴ Observation

1. Examined/reviewed
2. Excavated
3. Shovel tested
4. Not examined, outside guide-taking lines.
5. Not examined, permission not obtained.
6. Pictograph
7. Burial relocation

⁵ Determination
H-historic
P-pictographic
M-material (no cultural materials associated)

5. 1. Terrace
2. Base of erratic on terrace
3. Slope
4. Face of erratic on slope
5. Talus slope
6. In or on bedrock outcrop
7. Top of erratic
8. Fan
9. Base of bedrock bluff on terrace
10. Beach
B-basalt
D-granite

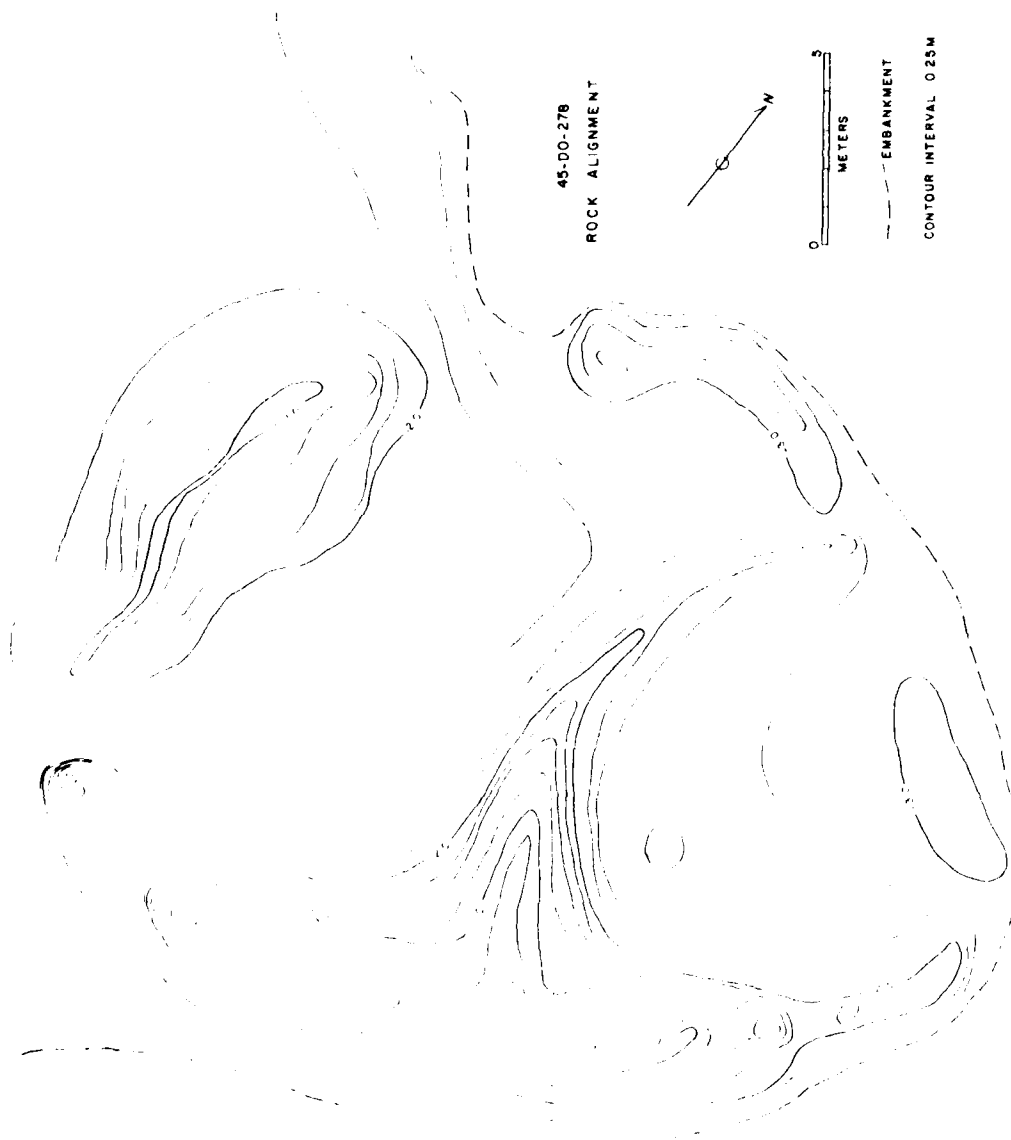


Figure A-1. Topographic map of 45-00-278, rock alignment.

**APPENDIX B:
PHOTOGRAPHIC RECORDS OF PICTOGRAPHS**

Film Roll Number	Sites
KR 365	45-OK-505
KR 366	45-OK-170, 45-OK-240
KR 368	45-OK-240, 45-OK-325
KR 369	45-OK-325
KR 370	45-DO-442
KR 397	45-OK-170, 45-OK-240
KR 398	45-OK-505, 45-OK-270, 45-OK-240, 45-DO-442 45-OK-32
KR 402	45-OK-234, 45-OK-504, 45-DO-442, 45-DO-441
KR 408	45-OK-505, 45-OK-170, 45-OK-240, 45-DO-441
KR 409	45-OK-14, 45-OK-505, 45-OK-170, 45-DO-441, 45-OK-325

**APPENDIX C:
OSTEOLOGICAL DATA FROM 45-DO-244,
45-OK-1 AND 45-OK-2**

The editor compiled the osteological information in this appendix from rough notes taken by W. Zukosky. Considerable rewriting, re-organizing, and interpretation were involved. Some inadequately documented observations were omitted. It is not feasible to document here the interpretations but annotations made on photocopies of the original notes are filed with the other records. Only major differences of opinion, such as those concerning estimation of age at death, are mentioned here. Interpretations and terminology were checked with Hartmut Krentz, University of Washington.

BURIAL #1, 45-DO-244

THE AXIAL SKELETON

SKULL

The following bones of the calvarium were present: left and right parietals; part of the occipital; a portion of the frontal including the left orbit; the right temporal, missing the mastoid process; and the zygomatic arch (unclear if this means the zygomatic bone or the zygomatic process of the temporal or maxilla). The frontal bone shows exostosis, as does the left parietal. Some areas show healing.

Only the anterior portion of the mandible (both right and left?) was present. The mental protuberance is prominent. Tooth buds of the central and lateral incisors and the canines were present in the alveolar sockets. The incisors are crowded but there is no hypoplasia. Only two teeth, the dP2 and the M1 remained in situ.

There are 11 teeth, including two in situ in the mandible, and 9 loose.

lower right: d11, d12, dM1, dP2, M1

lower left: M1, dP2, d12

upper right: M1

upper, not sided: d11, dP1

No wear was apparent on any of the teeth. The enamel crown was intact on the left M1, and the distal cusp bifurcates. The roots were in poor condition on the lower left dP2. The upper dI1 (not sided) is shovel-shaped, as is the lower left dI2. The enamel is chipped on the upper dP1 (not sided) and the lower right dP2. The lower right M1 has a Y5 cusp pattern and the distal cusp is bifurcated.

INNOMINATE

The only portion of the post-cranial skeleton recovered was an ilium, possibly the left.

AGE

The eruption of the permanent first molars, and presence of tooth buds of the incisors and canines, suggests the individual was approximately 6 years of age. Zukosky, however, gave an age of 2-4 years as his estimate.

SEX

Sex determination on an individual this young is of questionable value as secondary sexual characteristics of the skeleton are not well developed.

BURIAL #2, 45-DO-244

The burial was flexed, although not tightly, and was situated on its left side, facing the river. The right leg was more tightly flexed than the left, with the foot resting on the distal end of the left tibia. The right foot was resting against the east wall of the burial pit. The right arm was extended, crossing over the right femur with the hand apparently tucked under the right tibia/fibula. The left arm was flexed with the hand located near or under the chin. The vertebral column was slightly bent. A section of the lower thoracic and upper lumbar vertebrae is missing. The cervical section of the vertebrae curves sharply, terminating at the gonial angle of the mandible. Only small fragments of the ribs are present.

The dimensions of the skeleton in situ were 98 cm from the top of the skull to the end of the left foot, and 48 cm from the lumbar vertebrae to the proximal end of the left tibia. The highest bone, the anterior portion of the right foot, was 56 cm. The lowest bones were the left innominate and proximal end of the left fibula, which were at a maximum depth of 68 cm.

Some of the bones of the right side were charred on their upper side; the right scapula, humerus, radius, ulna, femur, sacrum, innominate, and a few rib fragments. All the charred bones were directly under, and/or in contact with concentrations of burnt organic material (see Chapter 4).

AXIAL SKELETON

SKULL

It is not stated in the notes whether the skull is complete. The frontal bone and both temporal bones are fragmentary. The mastoid process is missing from the right temporal. The face is apparently complete, as measurements were made on the palate. The bone is weathered and exfoliated. The maxilla was separated from the skull. All teeth were in situ except the two lateral incisors, two central incisors, and a canine, all missing postmortem. The supraorbital ridge is moderately robust, the notch and foramen are both present. The left mastoid process is long and robust. The nuchal area of the occipital is marked, the external occipital protuberance being prominent. All sutures are fused, but visible, externally and internally. The right ascending ramus of the mandible is missing, the left condyle is missing, and the body is broken at the mental foramen. Four incisors are missing postmortem, all others are present.

The chin is robust and square. The left ascending ramus of the mandible is close to 90 degrees. The gonial angle is not inverted. Buttressing occurs at the gonial tubercles and there is a mylo-hyoid bridge. The left M3 is worn more than the right, and all are worn lingually. The lower right molars still have enamel crowns, but the cusp pattern is not obvious. All other lower teeth have attrition into dentine. The enamel is chipped and cracked, and is exfoliating away. Hypoplasia can be seen on the lower canines. The upper right M3 is not worn as much as the left M3. The upper left M1 shows attrition into the root canal. The maxillary teeth are very worn, like the mandibular teeth. The left and right side area of the upper molars show alveolar reabsorption in the area of M2 and M3. All teeth are worn lingually.

Minimum frontal breadth	92.0 mm
Interorbital breadth	23.0
Height of mastoid process	22.0
Body thickness (Medial-lateral?)	15.3
Mandibular length (to condyle or to gonial angle?)	81.4
Sympheseal height	32.6
Palatal breadth	39.3
Maxillo-alveolar length	54.0
Maxillo-alveolar breadth	68.8

VERTEBRAE

Lumbar: 2
Thoracic: 7
Cervical: 2

All the vertebrae are fragmentary.

RIBS

Fragments: 4

SACRUM

Sections 1, 2, 3, and 4.

The first and second segments are not fused.

INNOMINATE

Left: partial ilium and acetabulum.
Right: partial ilium.

The sciatic notch on both sides is wide.

SCAPULA

Left: missing acromium, spine, and body; inferior medial border present.
Right: present but fragmentary.

The left scapula has a ridged border on the glenoid fossa, possibly suggesting right-handedness.

CLAVICLE

Left: sternal end missing.

APPENDICULAR SKELETON

HUMERUS

Left: distal ends missing.
Right: proximal missing.

The deltoid tuberosity on the right humerus is large and marked, and has expanded distally. The capitulum and trochlea show no wear or flipping. The deltoid tuberosity on the left humerus is not as marked as on the right.

ULNA

Left: proximal and distal ends missing.
Right: distal end broken off, head present but chipped.

RADIUS

Left: head missing, distal end present.
 Right: distal end broken, head present but chipped.

HAND

Left: 4 metacarpals.
 Right: 2 metacarpals.

FEMUR

Left: head missing, lateral and medial condyle present on distal end.
 Right: ends broken off, linea aspera marked, medial condyle present on distal end.

The linea aspera is marked on both femora. The shaft of the left is straight.

TIBIA

Left: medial side disintegrated, distal end missing.
 Right: distal end missing, lateral side exfoliating.

The popliteal line is marked on the left tibia.

FIBULA

Left: proximal and distal ends missing.
 Right: proximal and distal ends missing.

PATELLA

Left: present
 Right: present.

FOOT

Left: calcaneus, talus, 3 cuneiforms, navicular, cuboid, 5 metatarsals, 3 phalanges.
 Right: calcaneus and 2 metatarsal frags.

AGE

Zukosky described the individual as adult but did not give an age estimate. The individual is at least 18 years of age as the third molars have erupted and the long bone epiphyses have fused. The pelvis is not sufficiently described in the notes to determine whether the pubic symphysis or other epiphyses such as the iliac crest, the anterior inferior iliac spine or the ischial tuberosity had fused. We do know that the right and left sides were separated. This and the fragmentary condition of the pelvis may be an indication that bone growth had not been completed. This would also explain the wide sciatic notch on a skeleton which otherwise appears to be male.

SEX

The robustness of the skull indicates the individual is a male. Wide sciatic notches are generally a female trait. Between ages up until age 24, when the ischial tuberosity fuses, (Bass 1971:150) growth of the pelvis continues and secondary sexual characteristics are not fully developed.

45-DO-244 MISCELLANEOUS BONE

Three human skeletal elements found in UL 10 in the NE quad of 7N16W are not considered part of Burial 2. These are a left lower deciduous M1, and upper deciduous molar (unsided) and a skull fragment, possibly of the sphenoid. Because the teeth are deciduous they cannot be from Burial 2, an adult male individual. They could have originated in Burial 1, not far away in 7N13W, or there could be other burials in the area. Considerable disturbance is indicated in either case.

BURIAL #1, 45-OK-1**AXIAL SKELETON****SKULL**

Only portions of the skull were present, the left temporal, fragments of the right temporal and parietals, and the right side of the mandible with a broken ascending ramus. Teeth include one incisor, two canines, one premolar, and an M1. The side and upper/lower position of the teeth is not indicated in the notes. The M1 is not worn and has a Y5 cusp pattern.

SCAPULA

Left: only glenoid fossa present.

INNOMINATE

Left: pubis, ilium, and acetabulum.

Right: acetabulum only.

VERTEBRAE

Lumbar: 2

Thoracic: 2

APPENDICULAR SKELETON

HUMERUS

Left: end missing.

ULNA

Left: fragment.

FEMUR

Left: distal portion only, epiphysis not fused.

Right: proximal portion only, charred, epiphyses not fused.

TIBIA

Left: proximal portion only, epiphysis not fused.

Right: proximal portion only, epiphysis not fused.

FOOT

Right: calcaneus, burnt.

AGE

No age estimate was provided by Zukosky for this burial. The evidence of teeth is ambiguous. The notes do not state whether the teeth are permanent or deciduous, therefore, we assume they are permanent. An age of about 11 years is most consistent with the teeth recorded; generally by 11 years the deciduous teeth are replaced by permanent teeth, but the second molar has not yet erupted. The proximal epiphysis of the tibiae are not fused, neither is the distal epiphysis of the left femur. As these are among the latest long bone epiphysis to fuse, (commonly fusing 17-18, but up to 22 years of age) they provide only a maximum limit to the age of this individual.

BURIAL #2, 45-OK-1

AXIAL SKELETON

SKULL

The skull bones present include a partial frontal, 2 parietals, the occipital and the left side of the mandible. PM1 and PM2 are in situ in the mandible. Loose teeth inventoried include two maxillary canine, two maxillary premolars, lower right M1, M2, M3 and two lower central incisors.

The parietals are bulged (6.0 mm thick). Both parietal foramina are present. The ectocranial sutures are open (visible). The endocranial sutures are open except the sagittal which is fused at lambda.

The M3 is the least worn of the lower left molar, then the M2, and M1 is worn the least.

VERTEBRAE

Atlas: fragment
Axis: present
Cervical: 1
Lumbar: 4

There is no flipping on the lumbar vertebrae.

INNOMINATE

Right: fragment of ilium.
Left: fragment of ilium.

The sciatic notch is wide on both sides, and a pre-auricular sulcus is evident on the right innominate. The left ilium is very thin.

SACRUM

Body only, alae missing.

CLAVICLE

Left: fragment only.

RIBS

Four fragments.

SCAPULA

Left: only glenoid and acromium present, ridge is rounded.

APPENDICULAR SKELETON

HUMERUS

Left: proximal end broken, small deltoid tuberosity

Maximum length	297.0 mm
Distal epiphyseal breadth	57.0
Proximal epiphyseal breadth	46.0
Anterior-posterior diameter of head	35.0

ULNA

Right: proximal and distal ends missing
 Left: complete but head cracked

Head breadth	24.0 mm
Medio-lateral thickness of shaft, upper one-third	13.0
Anterior-posterior thickness of shaft, upper one-third	17.0
Maximum length	255.0
Physiological length	230.0

RADIUS

Right: proximal and distal ends missing
 Left: complete

Physiological length	225.0 mm
Maximum length	233.0
Medio-lateral thickness of shaft, medial portion	12.0
Anterior-posterior thickness of shaft, medial portion	9.0

HAND

Distal phalange: 1
 Medial phalange: 6
 Proximal phalange: 2
 Metacarpals: 4
 Hallox (assume first metacarpal): 1
 Carpals: 2

FEMUR

Left: condyles missing, lesser trochanter broken, head broken, large gluteal tuberosity.
 Right: condyles missing, greater trochanter broken, large gluteal tuberosity.

	Left	Right
Anterior-posterior diameter of head	44.3 mm	44.0 mm
Ventral diameter of neck	29.0	27.0
Medio-lateral diameter of neck	23.2	24.0
Oblique proximal breadth	92.0	91.0
Length of head and neck	82.0	73.0
Medio-lateral thickness of shaft, upper one-third	28.0	27.0
Anterior-posterior thickness of shaft, upper one-third	22.0	23.0
Medio-lateral thickness of shaft, medial portion	24.0	22.0
Anterior-posterior thickness of shaft, medial portion	26.0	26.0

TIBIA

Right: proximal and distal ends missing. Fire-blackened and rodent gnawed
 Left: distal end missing, proximal broken, periosteal layer exfoliating

FIBULA

Right: proximal end missing
 Left: proximal and distal ends missing

PATELLA

Right: present.

FOOT

Right: talus and calcaneus
 Left: talus and calcaneus
 Unsidled: 4 metatarsals.

AGE

Zukosky did not provide a specific age estimate for this adult. The fusion of the sagittal suture at lambda indicates the individual is probably over 40 years of age. The lack of lipping on the lumbar vertebrae suggests that the age was not much greater than 40.

SEX

The characteristics of the pelvis--wide sciatic foramen, auricular sulcus--indicate the individual was female.

BURIAL #1, 45-OK-2

AXIAL SKELETON

SKULL

This burial consists of only an incomplete cranium. The left side is missing (weathered) except for partial left temporal and parietal fragments. There is no mandible. Most of the face is missing, although it was sufficiently complete to allow measurement of orbital height, breadth, and interorbital breadth. The supraorbital ridges are moderately robust and the mastoid processes are small. The nuchal area is slightly marked. The posterior end of the zygomatic process does not extend as a crest. A third nuchal line is present. There is a supra-orbital foramen on the left side and a notch on the right side. Both parietal foramina are present. The endocranial sutures are

fused (that is, not visible), the ectocranial sutures are not fused. There are no deformities.

Maximum cranial length	181.0 mm
Left orbital height	33.7
Interorbital breadth	21.8
Orbital breadth	37.0
Thickness of parietal	7.5
Height of mastoid process	18.0
Porion-bregma ¹	118.0
Porion-vertex ²	119.0
Arc. nasion-opisthion	315.0 degrees?
Frontal arc Nasion-bregma	133.0

AGE

The ectocranial sutures are no longer visible, but the endocranial sutures are visible. Zukosky estimated the age of this individual as 35-40 years.

SEX

The description of the mastoid processes, nuchal area, and zygomatic arch indicate this skull is relatively gracile, suggesting the individual was a female. The brow ridges are moderately robust, but so are those of the adult female, Burial #2, 45-OK-1.

¹Notes say "auric. ht. bregma".

²Notes say "ht. vertex".

**APPENDIX D:
BOTANICAL ANALYSIS OF SAMPLES
FROM 45-DO-244 AND 45-OK-1**

by N. A. Stenholm

These samples were among the first from the project area examined by the analyst. Identifications were made without benefit of the comparative material collected later. All of the samples had been treated with vinylite resin.

45-DO-244

Several pieces of planking from the Feature 4 cyst were examined by the author in the laboratory in Nespelem in 1980. She identified them as pine (Pinus spp.). While in Vancouver B.C. during 1980-81, the analyst was sent 6 seeds, and three vials containing samples from the organic concentrations in UL 60 and 70, 7N17W, Feature 4.

Family: Boraginaceae

Lithospermum ruderae Dougl. ex Lehm. (puccoon, stoneseed)

The sample contained 6 shiny white seeds from a flowering plant commonly known as puccoon. Each has been gnawed by rodents. Puccoon had several aboriginal uses--as a dye plant, for beads and as a medicinal root. However, the unweathered, shiny surfaces of these seeds indicate that they are more recent than the burial.

Family: Salicaceae

Salix sp. or Populus sp. (willow or aspen)

Vial 1 contained a piece of a two year old secondary branch from either willow or aspen. A two-year old branch from either of these trees would provide flexible and easily worked construction material.

Family: Graminae

Andropogon?

Vial 3 contained several discrete xylary fiber bundles as well as fiber imbedded in ground tissue. Some fragments exhibit a slight twist. The width of the vascular bundles is large (up to 1 mm) and the bundles are heavily

sclerified. This would indicate a large, tough grass such as Andropogon (bluestem).

A small piece of grass epithelium was found in Vial 2.

Unidentified, nonbotanical material

Vials 1, 2, and 3 all contained charred organic material which is not plant tissue, as no fibers were visible under the microscope. Fibers are usually visible even in the digested remains of starchy plants. It is probably animal tissue. Numerous insect larval cases indicate the tissue was invaded by insects before it was charred. It may have been a piece of rotting, maggot infested, meat. One fragment in Vial 3 was clinging to a fragment of grass tissue.

To summarize by association: Vial 1 contained unidentified organic material, grass epithelium, and willow/poplar branch; Vial 2 contained only unidentified organic material; and Vial 3 contained grass tissue, with some unidentified organic material.

45-OK-1

Dr. Stenholm examined two carbon samples from 45-OK-1 at the laboratory in Nespelem. She identified both as ponderosa pine (*Pinus ponderosa*). Both were subsequently sent for radiocarbon dating. B-1975 was taken from 9S27W, UL 70, Feature 1. TX-4021 was taken from 9S27W, UL 100, Feature 1. Both were pieces of burnt planks associated with the burial.

While in Vancouver B.C. during 1980-81, the analyst was sent two samples for identification, one consisting of seeds and the other of carbonized organic materials.

INVENTORY #247 8S28W/UL80/FEATURE 1

Family: Ulmaceae

Celtis douglasii Planch (Hackberry)

The sample was described in the inventory as 4 half seed casings, three white and a dark brown one which appeared to have been burnt and was encrusted with sand. The seeds were not found in situ, and field notes do not mention them.

The sample consisted of 3 seed halves representing 2 complete seeds. What was described in the inventory as a burnt seed is actually a cast of the interior of a seed. The seeds have split open along natural suture lines, suggesting germination pressures. None of the seeds are charred, and the unweathered surfaces indicate they are no more than one or two years old.

INVENTORY #55 9S27W/UL100/FEATURE 1

The sample is described in the inventory as possible basketry and leather. It is approximately 5.5 cm long, 4.0 cm wide, and 1.8 cm thick and weighed 11.1 gm. (The sample was treated with vinylite resin in the field, so the weight is inflated). On one side is reed-like material with a thinner rope or twine woven in and out, and what resembles charred leather. On the other side is reed-like material, with no evidence of weaving, and a patch of charred leather 3.0 cm long, 2.0 cm wide, and less than 0.2 cm thick.

The sample consists of at least two or more layers, one of which is folded in on itself, of charred skin or leather enclosed by grass matting. The grass is found on both flattened sides. Further, the angle of the covering seems to indicate a bending of the grass as if it originally covered the sides as well. The grass is not distinctive enough to attempt further identification.

The material on the inside of the matting was identified as animal, probably skin, hide, or leather. It closely resembles a sample of charred deer skin (with hair) in the possession of the analyst except that the comparative specimen is thicker, which may be because of charring differences. What were thought in the field to be maggot cavities are simply normal artifacts of charring animal tissue below the epidermal layers.

Because it is so fine, the twine is likely to be Apocynum (Indian hemp or nettle). In the absence of comparative material, a positive identification could not be made.

This sample is interpreted as a packet or package. It is not a basket: the matting would be too delicate for hard cartage, and the layered skin or hide would not serve in that capacity either.

