

REPORT OF INVESTIGATIONS NO. 29

EXCAVATIONS AT SPOKANE HOUSE— FORT SPOKANE HISTORIC SITE

1962-1963

by
JOHN D. COMBES

LABORATORY OF ANTHROPOLOGY
Division of Archaeology and Geochronology
Washington State University
Pullman, Washington

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Frontispiece.--Aerial view of 1963 excavations at Spokane House-Fort Spokane Historic Site.

FOREWORD

Much has been written about the fur trade era in the Northwest. The actual evidence of this fascinating period of history is now being brought to light through the foresight of the Washington State Parks and Recreation Commission and the excavations by archaeologists from Washington State University.

The site of Fort Spokane-Spokane House is providing a unique opportunity to illustrate the activities of the early fur traders and their relationships with the resident Indian population. Archaeological excavations have revealed such things as the stockade and bastions of the fort, the location of buildings within the fort, and many of the tools, utensils, and building materials actually used by the traders.

With the physical evidence provided by the archaeologist and the documentary evidence of the historian, an interpretive program of broad scope may be undertaken. A major step in such a program has now been accomplished; the excavation and study of the fur trade establishment will provide the fur trader's side of the story. But trading involves two parties and the Indian side of the story remains to be developed. When the excavation of the Indian campsite and burial site adjacent to the trading post has been accomplished, the full story may be told.

The interpretive program, pursued with enthusiasm and imagination, can only result in something of great educational and recreational value to the state and to the nation.

Richard D. Daugherty
Professor of Anthropology
Washington State University

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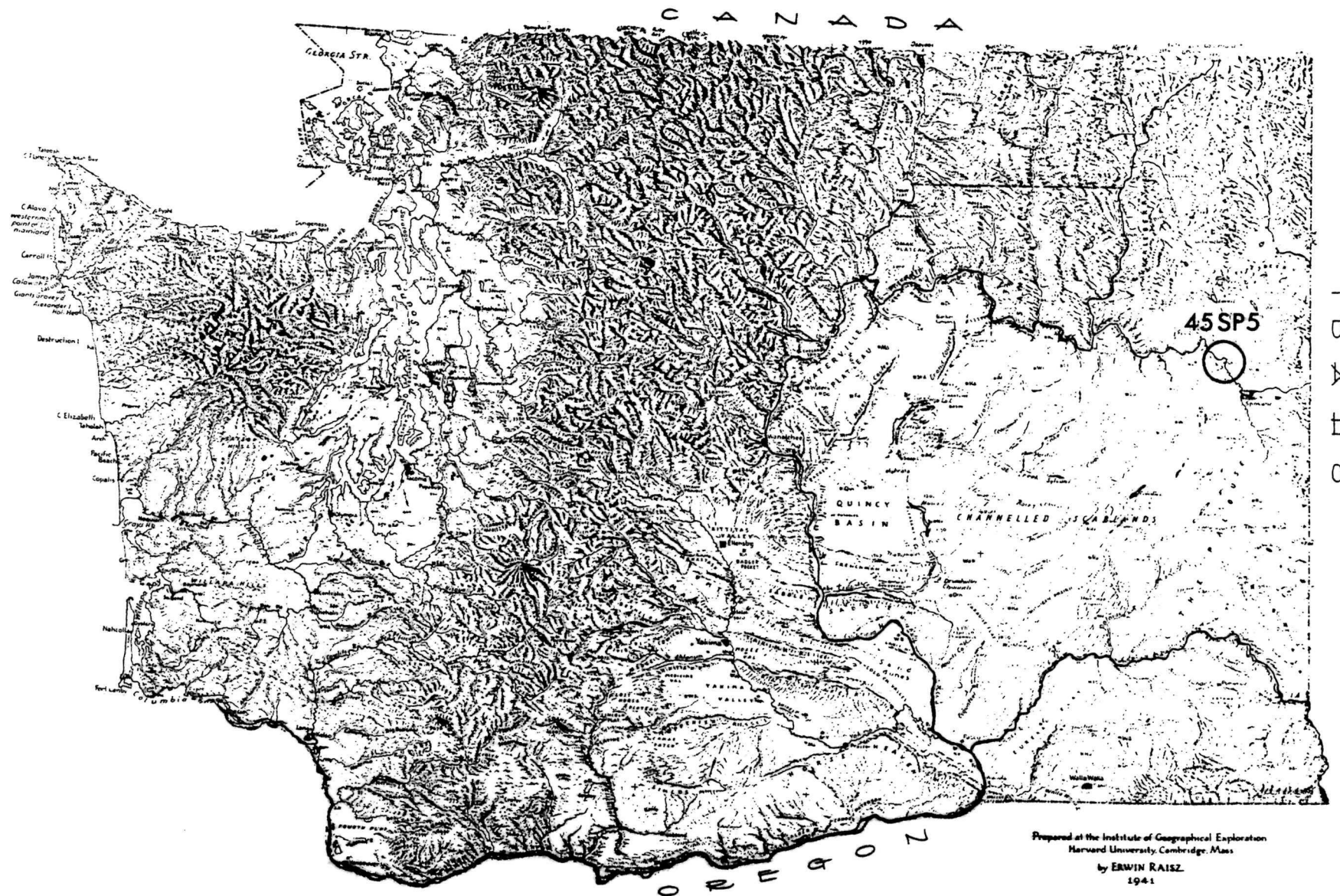


Fig. 1.--Physiographic map of the State of Washington illustrating site of Spokane House-Fort Spokane excavations.

EXCAVATIONS AT SPOKANE HOUSE-
FORT SPOKANE HISTORIC SITE

1962-1963

INTRODUCTION

Under contract with the Washington State Parks and Recreation Commission, Washington State University conducted archaeological excavations at Fort Spokane, located within Riverside State Park, eastern Washington, at the confluence of the Little Spokane and Spokane Rivers (Figure 1). A total of 1,145 man work days was invested in field work at this site during the summer field seasons of 1962-1963.

Objectives of the 1962 Field Season

The primary objective of the 1962 excavations was to locate an early fur trading post established in 1810 by the North West Company, commonly referred to as Spokane House. Because Spokane House was the earliest permanent non-Indian settlement in the State of Washington, the recovery of whatever data that might be salvaged concerning this early fur trade post would produce a valuable contribution to knowledge of the early history of this state.

It was proposed, also, as a secondary objective of this research program, that the location of any Indian camps, villages, or burial sites encountered during the search for Spokane House be recorded. Thus, a considerable amount of information not previously available would be added to the record of the Spokane House-Fort Spokane Historic Site.

Both of these investigations were undertaken under the supervision of Dr. Richard D. Daugherty of the Department of Anthropology, and under the field direction of the writer. Throughout the 1962 season, 11 students were employed. Gregory Cleveland, Dannie M. Ice, S. Blain Price, and Charles Shanks made up the original crew. In July, three more were added to the crew: Ronald Fiese, Steven Wiley, and Alan Wood. For the last three weeks of the field work, aid was given by Richard Peterson, and kitchen chores were taken over by Miss Barbara Grater and Miss Barbara Ratcliff. Volunteer help also was provided by Mr. Richard Mather, a Spokane man currently studying at Harvard College. Mr. Ice deserves special thanks for his services as field assistant.



Fig. 2.--Yough Development and Conservation Corps boys during second week of excavations (view Facing northwest).

Objectives of the 1963 Field Season

Field work during the summer of 1963 was devoted to excavations within the remaining traces of the Fort Spokane trading post.

From 1950 through 1953, Louis R. Caywood, National Park Service Archaeologist, had excavated portions of Fort Spokane. These excavations revealed the remains of the palisades as well as some features located within the enclosure. Approximately one-third of the area inside the palisades was excavated at that time. Thus the basic problem for study in 1963 was to excavate the fort interior with emphasis on the two-thirds of this former enclosure not previously examined. One of the primary purposes of this work was to make possible reconstruction and/or further interpretation of the site based on sound archaeological data.

Labor for the 1963 excavations was provided by the Washington State Parks and Recreation Commission's Youth Development and Conservation Corps. Washington State University provided Mr. Alan Wood to clean, label, and catalog the recovered specimens; and Mr. Paul Barnes who acted as field assistant and recorder.

Participation by the Youth Development and Conservation Corps

A Youth Conservation and Development Corps was established by the State of Washington in 1961 for the purpose of providing summer training and employment for students of high school age in the course of development and maintenance projects on public lands. In cooperation with the State Parks and Recreation Commission, a contingent of Youth Corps personnel was assigned to the archaeological excavations at Fort Spokane for the summer of 1963.

Members of the Youth Corps group at Fort Spokane worked under the direction of a trained archaeologist. Excavation was conducted on the basis of a 40-hour week--Tuesdays through Saturdays--with the boys working in pairs (one digging and the other screening). The program effectively dramatized the usefulness of the Youth Corps to development programs in the park system.

Thanks are due to the administrative staff of the Youth and Development Corps, and to the eight boys who worked on this project: Desmond Downey of Olympia, Fred Jamison of Tacoma, Donald Olson of Everett, Max Pospical of Moses Lake, Gary Varner of Tacoma, Bruce Shelton of Pullman, Jerry Turner of Wenatchee, and David Tussing of Seattle.

Acknowledgments

Without the support of the State Parks and Recreation Commission, these studies could not have been undertaken; the active personal interest of Joseph S. Whiting and Ted R. McTighe was especially appreciated, as was that of Director Clayton R. Anderson, with whom negotiations for these contracts were made. Local State Parks personnel gave aid to the field study in everyway possible. For this assistance we are indebted to Ross Nelson, District Supervisor, and to Ranger Lloyd Boyle and Assistant Ranger Tom Clark, both of Riverside State Park. We are indebted also to Mrs. Lloyd Boyle who found and donated to the study the only musket ball recovered during the 1962 excavations.

John M. Willitts, Chief of the Youth Development and Conservation Corps, deserves special thanks for his role in coordinating the use of the Youth Corps boys for this project.

During the course of both excavations, the site was visited by Paul J. F. Schumacher, Regional Archaeologist for the National Park Service. Discussions with Mr. Schumacher concerning historic archaeology were of great aid, and his generous assistance is gratefully acknowledged.

Historians actively engaged in local research are extremely important to a project dealing with an historic site. The writer greatly appreciated the time given him by Edward T. Becher and Louis Livingston of the Spokane Public Schools; by Jerome Peltier, an individual with an active interest in local history; and similar courtesy freely offered by Jack Dibblee, President of the Eastern Washington Historical Society, and Richard Conn, Director of the Eastern Washington Historical Museum provided great service by organizing and publicizing tours to the site area. As a result of their efforts, and as a result of newspaper, television, and radio news coverage, approximately twenty-two thousand people were able to visit the Fort Spokane site and actually witness archaeological excavations in progress. Thanks are due to staff members of the Spokane Daily Chronicle and Spokesman-Review, and of stations KHQ radio and television KREM-TV and KXLY-TV for their role in assisting in the public service aspects of this study.

We are grateful also for the friendliness shown by the many enthusiastic people of Spokane and the Nine Mile Falls area. Many of these people went out of their way to insure our stay was a pleasant one.

My personal thanks go to Dr. Richard D. Daugherty, supervisor of this project, for his continuing assistance during all phases of the project; to Roald Fryxell of the Washington State University Laboratory of Anthropology, for his geologic analysis and his critical review of the manuscript; and to Elwin K. Allen of the Washington State Highway Department of Spokane, for his assistance in mapping the site.

TABLE 1

OUTLINE SEQUENCE OF MAJOR EARLY HISTORIC EVENTS AT THE CONFLUENCE OF
THE SPOKANE AND LITTLE SPOKANE RIVERS

Year	Event	Evidence*
↑	Settlement of the area and agricultural use continuing to present.	Supporting evidence encountered during 1962-63 excavations.
1889	State of Washington admitted to Union.	(Historically determined)
1830's ?	First homesteaders.	
1826	Indian occupation continued. Abandonment of entire area by fur traders.	Established by findings of 1962-63 excavations. (Historically determined)
1813?	Abandonment of Spokane House by North West Company and occupation of Fort Spokane	(Historically determined)
1812	Arrival of Pacific Fur Company and erection of Fort Spokane	Location established in 1950-53 excavations; details clarified in 1963.
1810	North West Company's building of Spokane House.	Recovery of material which may have originated during this 1810 period; 1962 excavations.
1808-9	David Thompson's explorations and designation of confluence area as fur trade post site.	(Historically determined; first European visit to the Spokane area)
1805	Lewis and Clark's historic journey through Northwest.	(Historically determined)
↓	Indian occupation of the area.	Recovery of Indian material indicating pre-contact origin; 1962 excavations.

*In many instances limited evidence is available concerning these events in early historic records. Other definite findings of 1962 excavations: location of an extensive burial ground associated with former Indian occupation.

HISTORICAL BACKGROUND

At the turn of the nineteenth century, the North West Company, a Canadian firm, started exploration of the Rocky Mountains and areas west with interest in exploitation of the fur resources of these areas. David Thompson, explorer-geographer with the North West Company, made his way across the Rocky Mountains in 1807. As a result of these explorations, the trading posts of Kootenai House, Kullyspell House, and Saleesh House were established (Kingston 1948: 181). In 1810, Thompson established at the confluence of the Little Spokane and Spokane Rivers a post which was called Spokane House. Information is wanting regarding the size, types, and numbers of buildings erected which made up this early trading post.

In 1811, John Jacob Astor, realizing the profits that could be made in the fur trading business, organized the Pacific Fur Company. This action resulted ultimately in the erection, in 1812, of Fort Spokane near the North West Company's Spokane House. News of the outbreak of the War of 1812 between the United States and Great Britain, as well as other disappointing events, led the Astorians to sell out to the North West Company; thus the North West Company came into possession of Fort Spokane, which was occupied immediately.

In 1821, by an act of Parliament, the Canadian North West Company was absorbed by the British Hudson Bay Company. Finally, in 1826, it was realized that the Spokane area was not an ideal location for fur trading, and by April of 1826, a move to Kettle Falls was completed, thus ending almost 16 years of continuous occupation of the Spokane area by the early fur traders (see Table 1).

THE EXCAVATIONS OF 1962

Exploratory trenches were dug during the 1962 field season to evaluate locations which might have been the site of Spokane House, the earlier of the two trading posts established here.

Summary of Field Problems

Several initial problems were faced in attempting to locate the site of Spokane House: (1) the area requiring investigation is large, and (2) even though it is an historic site there is remarkably little factual information on which to draw. Before details of the excavations are presented, therefore, a brief discussion of these problems is in order, for the nature of these problems dictated the approach to investigation taken during field work.

With respect to the location of the original Spokane House, early writers made remarks such as "close to," "contiguous to," and "at the corner of" Fort Spokane. The vagueness of these descriptions has led to widely divergent interpretations of where the site actually lay, and there is little agreement among local historians as to the exact location of the site. Many of these people were interviewed, including a few of whom who have devoted a number of years' study to this problem. As many of the ideas suggested by these people were investigated as time permitted.

During the course of field work, the problem constantly arose of just what, if anything, would remain of this early dwelling. Should one expect to find structural remains? Apparently this building (or group of at least three buildings) was abandoned after only two or three years of occupancy. Would it seem logical that these buildings would be left standing, or, considering the work involved in preparing timbers at that time, would they have been razed and used elsewhere?

This question is of very real significance. If buildings at the site were razed after a short period of occupancy, it is doubtful that any structural evidence at all would remain. If posts were sunk in the ground it would be a simple matter to remove them since no appreciable amount of decay would have occurred, and such timbers would have been well worth salvaging.

Another problem encountered arises from agricultural use of the area after European settlement of the region in more recent time. Might cultivation have completely destroyed any

structural remains--if there were any remaining? This question poses another alternative: will the location of Spokane House have to be based merely on a concentration of early historic items or, if this structure possessed dirt floors, perhaps on nothing but a hardpan soil produced by packing of the floor.

Locally, there seems to be a great deal of concern over the possible existence of a palisade. The North West Company was in competition with the Astorian group which is known to have constructed a rather large palisaded fort. Would this impressive structure give them a position that would offer a business advantage? Or, assuming that Spokane House was minus the stockade, would they have had the advantage instead? The absence of palisading may have been taken by the Indians as a symbol of trust or friendship. Whether or not this was even a factor of importance during early competition is not known.

After critically reviewing these problems it must be asked: What might have been the factors that would influence their decision when establishing the position of this early post in the first place? Several considerations must have been important:

1. The availability of water; i.e., water had to be carried by hand. How far from the river would they build?
2. Were the Indians hostile and was there a chance of attack? If this was a factor, it would be reasonable to assume a location providing a defensive advantage would have been chosen.
3. Would they build in the Indian encampment?
4. It would be necessary to locate outside an Indian burial area.
5. Horses would have to be provided with an area offering both water and adequate surveillance.
6. The river provided not only drinking water and transportation but also a link with the Pacific Ocean.

With the above factors and many others in mind, and with the unfortunate lack of factual historic information, it was necessary, for the most part, to approach the area in the same manner one would approach a prehistoric site. A slight advantage is offered in this case by general knowledge of where the Indian burial area and encampment lay, and by an awareness of the importance of the Spokane River.

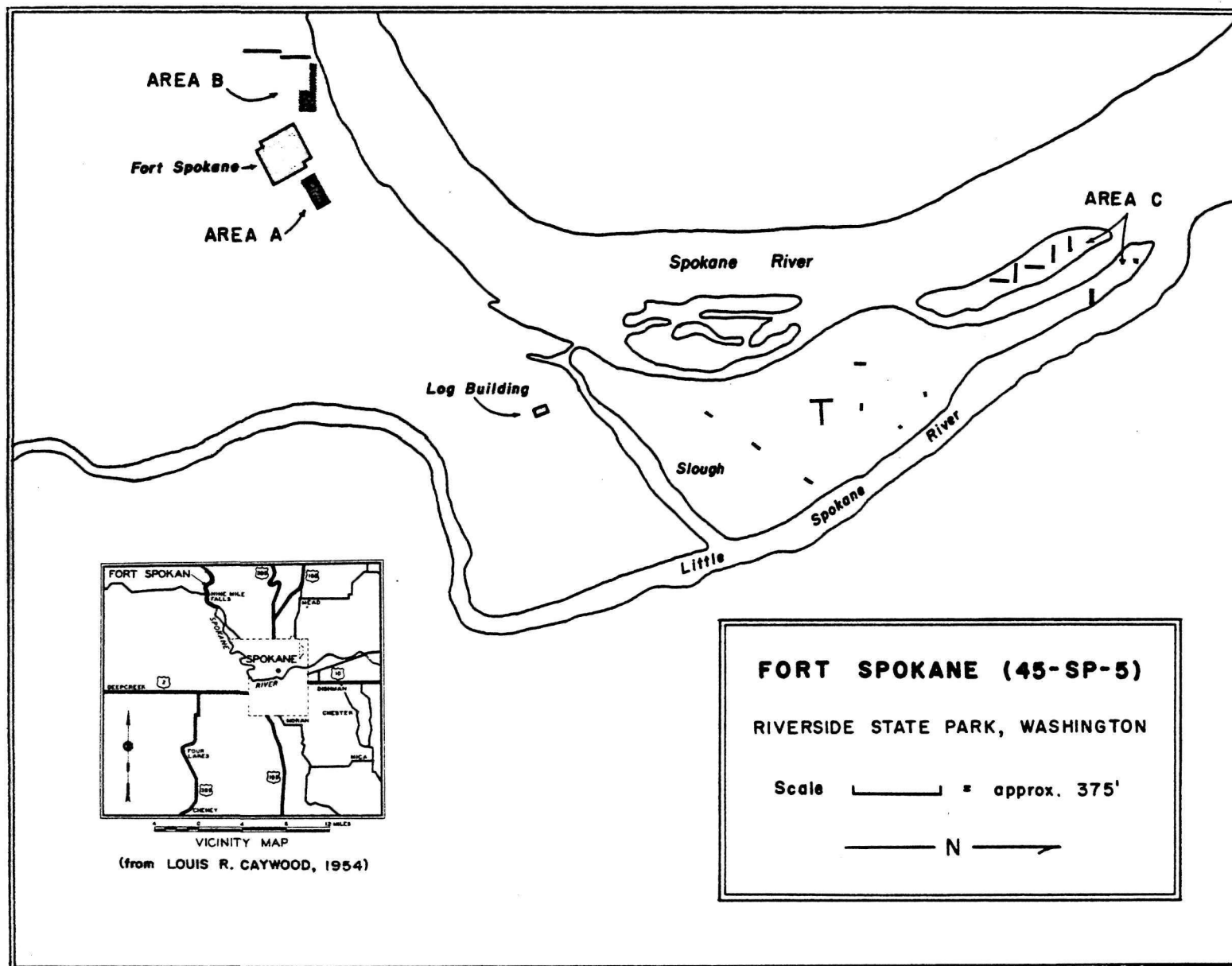


Fig. 3.--Sketch map illustrating areas of investigation during 1962 excavations.

Methods of Excavation

The 1962 Spokane project began in mid-June by attempting to define the boundaries of previous excavations carried out by Louis R. Caywood (1954) from 1950 to 1953, and to re-establish his basic datum point. It was felt that for convenience of integrating the two studies at a future date, the point of reference should be the same for the two projects. The wooded area south and west of the site of Fort Spokane provided an excellent spot to establish camp and a base of operations which were maintained throughout the summer.

The method of excavation was essentially this: each test trench or square was dug by a crew of two individuals--one digging and the other screening. Because of the absence of complex stratigraphy, each trench was dug as a single unit using a square point shovel to slice a thin layer from the digging surface. The earth so removed then was placed in a screen where the second crew member worked the material with a trowel through a 1/4-inch mesh hardware cloth screen into a wheelbarrow. Such screening of each shovel full and removal of only 1 or 2 inches of material from an approximate 1 square foot of surface, made possible precise location of each artifact. At least 80% of the artifacts were discovered in the screen. Level bags were kept for each unit of excavation and material saved included such items as flint chips, bone, and shell fragments. Standard field forms were used for recording all data.

Most exploratory trenches were 2 feet wide by 2 feet deep and varied in length as the situation required. In most instances it was not necessary to penetrate any deeper than 2 feet, for at this depth sterile gravel was encountered.

Areas Tested

During the 1962 excavations, three main areas were tested: (1) the location suggested by C. S. Kingston (1948: 186)--Area A of the present study; (2) slightly south of the Caywood boathouse excavations (1954)--Area B of the present study; and (3) the location suggested by Jerome A. Peltier (1961: 35)--Area C of the present study.

The first area explored (Area A, Figure 3) was north and east of the presently marked location of Fort Spokane. A series of trenches 3 by 10 feet was excavated through this area and was laid out in "herring-bone" fashion, oriented alternately north-south and east-west in order to sample the area thoroughly. Excavation at this location was stopped, however, when several burials were encountered at a point approximately 100 feet north-east of the fort. Up to that time, the burials were thought to be several hundred feet east of this area. This was the first significant find. The northwest corner of the burial area was

established along with the location of five burials, one of which was removed. An excellent sample indication was thus obtained concerning burial methods used by the former Indian occupants. Area A yielded approximately 30 artifacts, 13 of which were of European origin.

At this point in the field study, the help of three additional men was acquired through the Laboratory of Anthropology at no extra expense to the project, and the manpower of the crew was almost doubled. These men started exploratory work in Area C--an area known locally as "the island." The original crew moved from Area A to Area B, directly west of Fort Spokane.

Area B is located adjacent to the Spokane River on land slightly lower than that of the fort. An exploratory trench (Trench 1, Figure 4) measuring 2 by 2 by 100 feet was excavated parallel to the river approximately 15 feet inland from the river bank. This exploratory work yielded two useful clues: first, a charcoal-darkened culture stratum appeared in the stratigraphy roughly 1 foot from the surface (see Fryxell, this report, Appendix A); and second, historic items which were concentrated in the darkened level. The definite cultural level which contained early historic items appeared quite promising. With this encouragement, operations were expanded in this area and our efforts were concentrated here for the remainder of the field season.

An attempt then was made to determine the extent of the charcoal-darkened stratum. The area was gridded for excavation into units 10 feet square (see Figure 4). Each 10-foot square was excavated as a single unit. The squares were dug according to productivity and a careful check was maintained on the charcoal stratum of these squares as well as the original 2 by 2-foot exploratory trench. Figure 5 illustrates Area B excavation in process.

Many items of European origin were recovered in this area, including hand-wrought nails, handmade washers, miscellaneous tools, trade beads, and at least one part from a musket. In addition to the historic goods, items of Indian manufacture were obtained, among them projectile points, a digging stick handle, scrapers, and line or net sinkers.

The search for structural remains was, for the most part, unrewarding. One post of substantial size was recovered. This post (see Figure 6) lacked any associated cultural material. Three others were located in the same general area, but were directly associated with burials. These posts were not excavated past determining their purpose.

The excavations in Area C were strictly exploratory in nature. Four 5-foot squares were excavated until the water table was reached. A small amount of Indian material was present, but

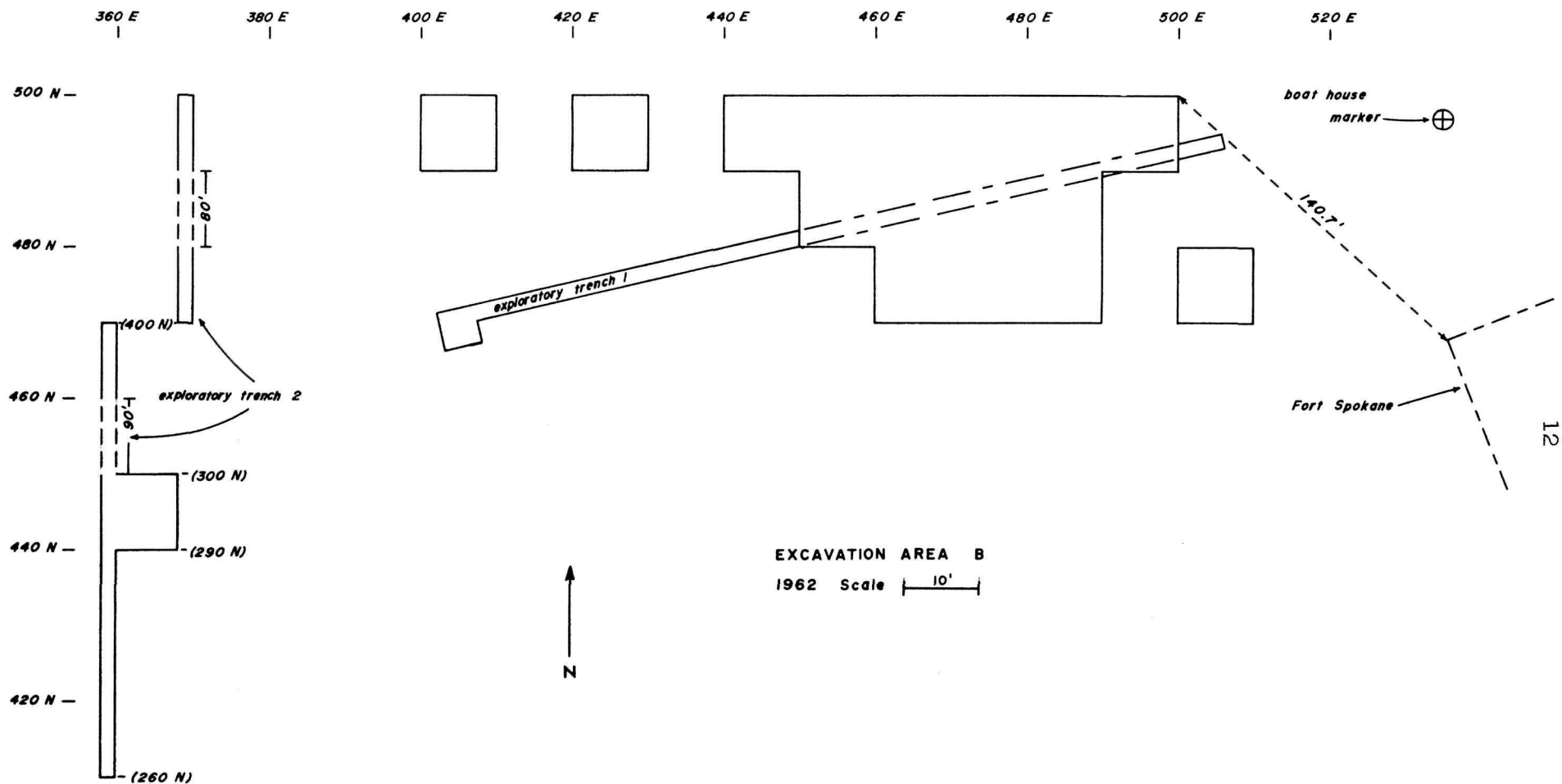


Fig. 4.--Site plan of Area B.

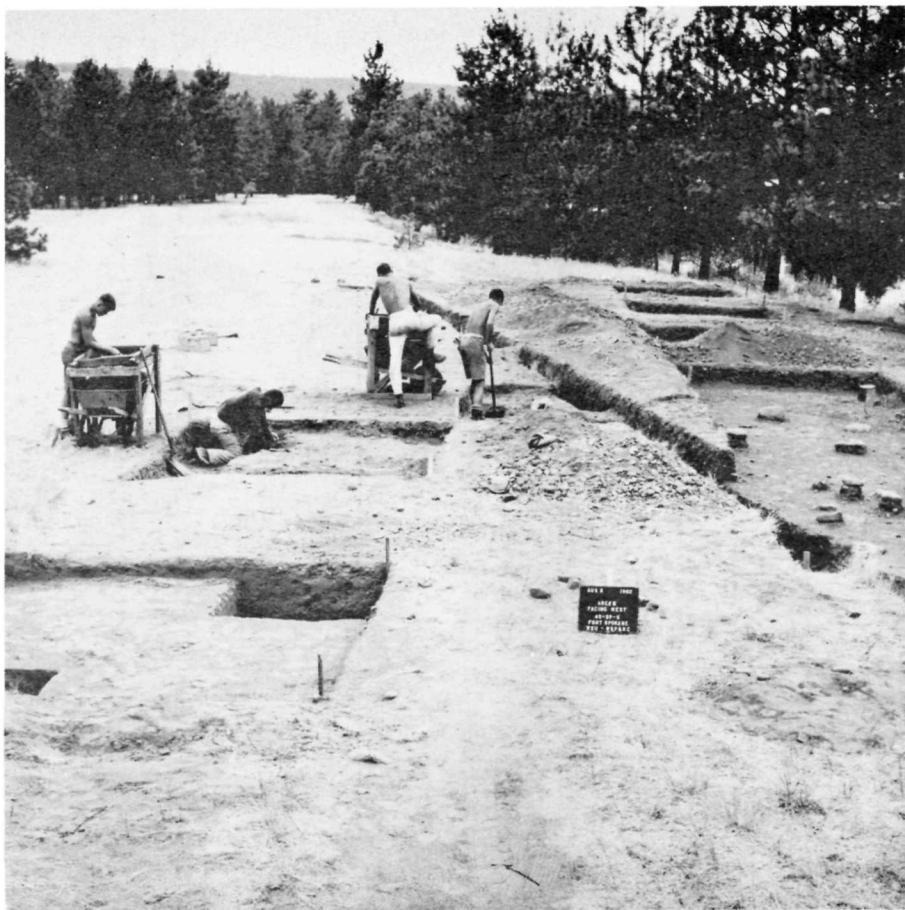


Fig. 5.--Excavations in progress, Area B.
(view facing west).

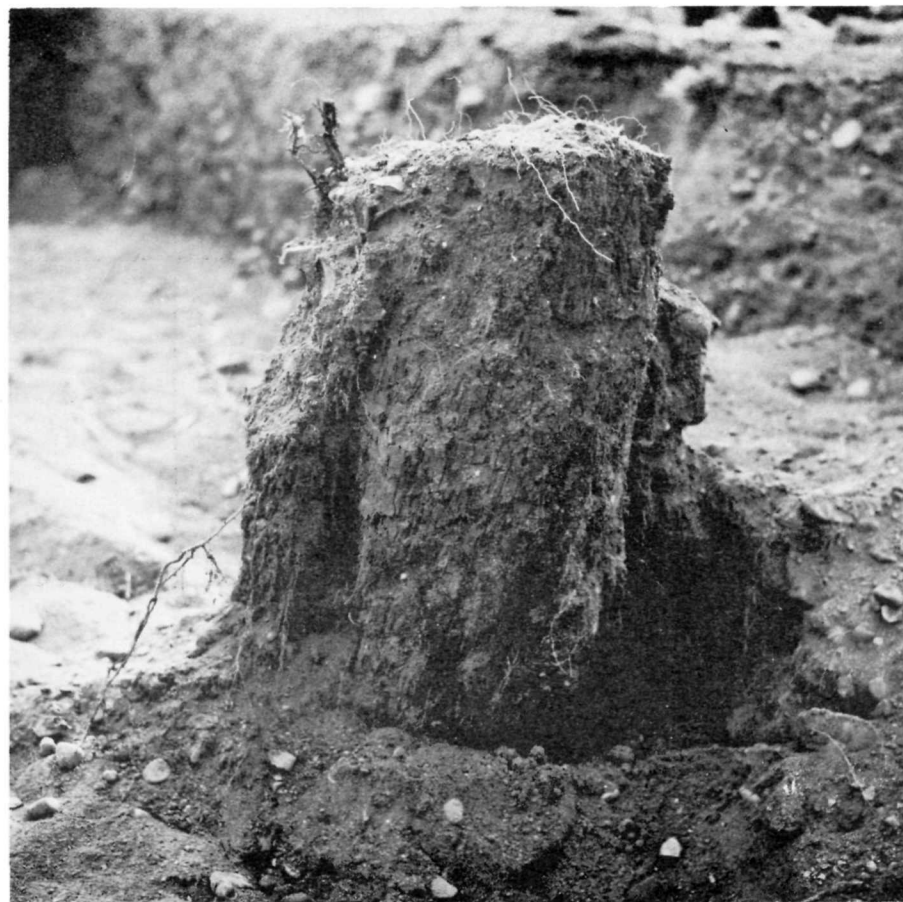


Fig. 6.--Unidentified post encountered in Area B.

only to a depth of about 1 foot. The lower levels excavated consisted of sterile river gravels.

On the small island at the tip of the peninsula, five 2 by 2-foot trenches from 40 to 100 feet long were excavated. This trenching again revealed only items of Indian origin. Several other test trenches were excavated in the broad flat between the point of the peninsula and the slough, also yielding only limited evidence of Indian occupation.

TABLE 2

SURFACE AREA, VOLUME, AND FINDS PER CUBIC YARD EXCAVATED
AT SPOKANE HOUSE-FORT SPOKANE HISTORIC SITE, 1962

Area	Surface Area Excavated (Square Feet)	Volume Excavated (Cubic Yard)	Finds per Cubic Yard
A	760	60	0.5
B	1,600	133	5.3
C	580	43	3.3
Total	2,940	236	

Structural Remains

Evidence of occupation located during the 1962 study included no structural remains. The work in Area A located a rather large Indian burial ground. Area B located no structures but yield many artifacts suggesting use. Area C produced artifacts indicating moderate use of the area by Indians, but offered little if anything that might be traced to the traders.

Cultural Materials Recovered of European Origin

Nails

The most abundant single item recovered during the excavations was the nail. Sixty-four complete specimens were found, in addition to 45 incomplete, and 4 wire specimens that

were obviously quite late machine-made nails. It is interesting to note that with the exception of the four wire specimens, all but one was hand wrought.

There are many forms of nails, contingent, of course, on the use for which they were designed. It has been estimated that there are at least 300 different types of nails (Fontana 1962: 55), and of each type, no less than ten different sizes. Thus when dealing with a collection of hand-wrought nails, it must be remembered that the maker had a specific purpose in mind, although to attempt a classification on this basis would be impossible.

Perhaps the most universally understood classification is the present penny system. At least as far back as the 1870's, this system was used by manufacturers of square cut nails. When comparing this system on the basis of length, it is found to be essentially the same as present-day specifications. It is not, however, possible to compare directly gauge or thickness of the shank. Complete nail specimens then, will be discussed using the present penny system. Various manufacturers' schemes may vary slightly but not significantly for our purposes here. The scheme followed here is that of the Colorado Fuel and Iron Corporation.

TABLE 3

COMPLETE COMMON SIZED HAND-WROUGHT NAILS RECOVERED AT
SPOKANE HOUSE-FORT SPOKANE HISTORIC SITE, 1962

Penny Weight	Length (inches)	Number of Specimens	Illustration
3 d.	1-1/4	5	Fig. 20; b
5 d.	1-3/4	2	Fig. 20; d
6 d.	2	15	Fig. 20; e
8 d.	2-1/2	11	Fig. 20; g
12 d.	3-1/4	5	Fig. 20; i

TABLE 4

SPECIAL PURPOSE HAND-WROUGHT NAILS, RECOVERED AT SPOKANE
HOUSE-FORT SPOKANE HISTORIC SITE, 1962

Penny Weight	Length (inches)	Number of Specimens	Use, Description, Illustration
4 d.	1-1/2	5	Large head, large shank cross section, use unknown, 8-sided.
? d.	<2	16	All tips missing, large head from 9/16 to 6/8-inch, shank cross section from 3/16 to 5/8-inch, soft metal, appears to have been used for clinching. Fig. 20; q.
3 d.	1-1/4	1	L-head, made from headless nail, used for floors and clapboard. Fig. 20; p.
16 d.	3-1/2	1	Large, flat nail, cross section 5/16 by 3/16-inch. Fig. 20, l.
? d.	<2	1	Tip section of large spike, cross section at break 6/16 by 5/16-inch. Fig. 20, o.
5 d.	1-3/4	1	Flat, point tapers two sides only, cross section 4/16 by 3/32-inch. Fig. 20, n.

The incomplete nail specimens recovered in 1962 include 20 fragments with head and 24 fragments with points only. One of the latter appears to be a portion of a cut nail.

Mentioned previously were four modern wire nails. There are one each of the following: 16 d. 9 gauge, 8 d. 12 gauge, 5 d. 14 gauge, and 4 d. 14 gauge. Also recovered from gravel above the charcoal-darkened stratum were ten modern staples commonly used for fencing. These specimens were manufactured from approximately 10-gauge wire and are referred to in the Colorado Fuel and Iron Corporation catalog as a 1-1/2-inch staple with a 1/4-inch spread.

Washers

Another common item recovered was the washer. There were 48 of these cataloged including 31 complete specimens and 17 fragments. These washers were handmade from sheet iron, roughly square, ranging in size from $9/16$ by $6/18$ of an inch to $1-1/16$ by $1-1/16$ inches with a $5/32$ -inch hole punched in the center.

Tools

Three tools, most likely associated with the Europeans, were found: 2 $2-5/16$ -inch tip segment of a plano-convex file, an awl point minus the handle $2-9/16$ inches in length, and a side drill minus the handle. The drill bit would drill a hole approximately $5/32$ of an inch in diameter.

Items Associated with Firearms

Included in this collection are a worm screw tip from a cleaning rod, a 70-caliber lead musket ball, and a gray and black gun flint measuring $11/16$ by $6/8$ of an inch and $5/8$ by $13/16$ of an inch. These flints are characteristically English in origin and fall closely near the range of size to those commonly used for either a horse pistol or a pocket pistol (Woodward 1960: 39). Also found were a small piece of unmolded lead and at least four metal pieces too fragmentary for certain identification, but which may be rifle parts.

One modern slug was found quite near the surface and was identified as being of 38 caliber. The number and twist of the riflings indicate it had been fired from a Colt product. The examining specialist¹ estimated that this particular type slug would have to postdate 1920.

Ceramics

Thirty-eight pottery fragments were found but unfortunately all are quite small and no manufacturer's marks are present. Six of these are a brown glazed or stoneware. Sixteen of the fragments are Chinese porcelain three of them being very fine, delicate porcelain with a red-orange design.

Fourteen of the pieces recovered are decorated with blue, and one rather heavy piece--a surface find--bears a multicolored design which may be a farm scene. These fragments all are earthenware, probably of English origin.

¹Roland DeBoer, Department of Police Science, Washington State University.

The remaining piece, quite different than any of the above, is thin and glazed black with very small flecks of brown. Its origin is, at this time, unknown.

Glass

Eighty glass fragments were recovered. Thickness of these pieces ranges from 1/16 to 6/16 of an inch. No identifiable marks were present on any of these pieces; some are certainly from bottles, but most are thought to be window glass. Fifteen pieces (clearly from bottles) are dark green, ten have a slight green tint, two are amber in color, and the remaining fragments are clear.

Metal Objects

Fifty-seven unidentified pieces of iron, 14 tin fragments, and 18 brass and copper pieces were cataloged. The iron includes a variety of sizes and shapes and, in most cases, is very badly oxidized. At least nine of the iron fragments and three of the brass pieces possess evidence of having been cut by hammer and chisel. This could have been done by the occupants of the fort, but may have been done by Indians. Such trimming is a crude but effective method of cutting out metal projectile points, two of which were recovered. One of the brass fragments also has a piece cut out of it which roughly resembles a point (Figure 25; n).

One brass fragment possessed a rolled edge which may be part of a cup. There were also two rather curiously incised shafts of brass (Figure 25; k, l).

The tin fragments may have been from some early containers which could easily fall within the time period of interest.

The iron-handled portion of a large butcher knife was found measuring 2-3/8 inches in length and 1-5/16 inches in width with a thickness of 3/32 of an inch. This knife fragment possesses two 5/32 of an inch perforations with which the handle was secured (Figure 21; r).

Trade Beads

The excavations of 1962 did not recover many beads, probably because the work was not in the fort area itself, and were not in the area of intensive Indian occupation. Approximately 20 trade beads were retrieved. Eighteen are blue of which 14 are translucent, roughly spherical in shape, and range in size around a dimension of 5 by 7 mm (Figure 27; b); 1 is opaque, tubular, and 2 by 2 mm in size. The two that are not blue are large, spherical white beads measuring 12 by 10 mm (Figure 27; c).

Clay Pipes

Five clay pipe fragments were recovered. These include three stem fragments, one bowl fragment with an interior blackened from use, and one 2-inch stem with the base of a bowl attached (Figure 25; a). The latter fragment had a "T" and a "D" impressed on the spur. If the pipe were to be held in the usual smoking position, the "T" would be on the left side and the "D" on the right.

Jewelry

One brass finger ring was found during these excavations. It measured $1/32$ of an inch thick and had an inside diameter of $7/8$ of an inch (Figure 26; e).

Miscellaneous

A handmade pair of tweezers was found during these excavations. This particular item is $1-15/16$ inches in length and was shaped from a brass strip clearly showing the many faceted surfaces characteristic of a hand-grinding operation.

A darning needle $2-3/8$ inches long also was recovered (Fig. 25; e).

This season's study produced three buttons: One plain "China" button, measuring $7/16$ of an inch in diameter and $1/8$ of an inch thick, of milk white porcelain or glass; and two brass buttons with a wire loop brazed on the back for fastening. These are simple brass discs, one measuring $15/16$ of an inch across and $1/16$ of an inch thick, and the other measuring $9/16$ of an inch across and $1/32$ of an inch thick. Similar buttons have been found throughout the Columbia River region in early post-contact sites.

A jew's-harp was recovered which is 2 inches long and $7/8$ of an inch across the head. This item is made of brass.

The following items also were found: a small fragment of pewter (ornately decorated), a $1-1/2$ by $1-1/8$ -inch copper pendant, and a $3-3/8$ by $3-3/8$ -inch fragment from a cast-iron pot (Figure 21; q).

Cultural Materials Recovered of Indian Origin

Until work actually is carried out in the area of intense Indian occupation, little can be made in the way of conclusive statements concerning the culture of the Spokane Indians. Present excavation was designed primarily to test for the location

of Spokane House, and the Indian items recovered give only a superficial idea of their material culture.

For future reference, the classification and description of artifacts found associated with Indian occupation is presented in modified outline form. Major categories are listed by function, and the artifacts designated by form, style, or type. The term form is used to refer to any single artifact, or a limited number of artifacts, that are found to have certain distinctive characteristics; but at this point, one cannot be certain that these characteristics are not fortuitous. If form is found with some frequency, indicating additional cultural significance, it is then designated style. Style is used where a substantial number of artifacts occur--all of which share certain distinctive formal characteristics--but for which adequate distributional data are lacking. Since the same formal characteristics occur repeatedly, this style has potential cultural significance for comparative purposes. Type, then, is reserved for a substantial number of specimens which share not only distinctive formal characteristics, but also share presently available information concerning the temporal and spatial distribution (Daugherty 1956: 233).

When several items of the same classification are presented, measurements will be given indicating the range of the specimen found. Under the category of materials, differentiation will not be made between the various forms of cryptocrystalline silica, since this group represents a continuum of materials including opal, chalcedony, and silicified sediments, and differentiation is not only difficult but in this instance is of little or no significance from an archaeological standpoint.

Projectile Points

Style 1

1. Specimens: 17 (Fig. 28; a,b,).
2. Materials: cryptocrystallines, obsidian, quartz, basalt.
3. Measurements: L: 2.7-1.5 cm; W: 1.3-1.1 cm; T: .3-.2 cm.
4. Description: side-notched triangular shaped; blade edge straight; lenticular cross section; flaking ranges from regular to random; notches from .2 to .4 cm in width; base straight; basal thinning present.
5. Technique: pressure flaked.
6. Comments: two specimens not included in range above are much larger: 4.7 by 2.4 by .5 cm, and 4.4 by 2.5 by .6 cm.

Style 2

1. Specimens: 11 (Fig. 28, c,d).
2. Materials: obsidian, cryptocrystallines.
3. Measurements: L: 2.2-1.6 cm; W: 1.1-1.0 cm; T: .3-.2 cm.
4. Description: side-notched triangular-shaped; blade edge straight; lenticular cross section; flaking ranges from regular to random; notches from 2 to 4 mm wide; concave base; basal thinning present.
5. Technique: pressure flaking.
6. Comments: These specimens are essentially the same as Style 1 except for the concave base.

Style 3

1. Specimens: 12 (Fig. 28; e).
2. Materials: chalcedony.
3. Measurements: L: 3.5-1.8 cm; W: 1.6-2.4 cm; T: .5-.3 cm.
4. Description: corner-notched triangular shape; straight edge; lenticular cross section; flaking from regular to random; narrow angled shoulders; expanding stem; straight base; barbs symmetrical from large to medium; basal thinning present.
5. Technique: pressure flaked.

Style 4

1. Specimens: 14 (Fig. 28, f).
2. Materials: cryptocrystallines, basalt.
3. Measurements: L: 4.6-1.9 cm; W: 1.8-1.2 cm; T: .6-.3 cm.
4. Description: triangular-shaped; blade edge slightly convex; lenticular cross section; random flaking; broad-angled shoulders; expanding stem; straight base; wide corner notching; barbs extremely small to absent; basal thinning present.
5. Technique: pressure flaking.

Style 5

1. Specimens: 9 (Fig. 28, g).
2. Materials: basalt, cryptocrystallines.
3. Measurements: L: 3.0-1.6 cm; W: 1.8-1.3 cm; T: .6-.3 cm.
4. Description: triangular-shaped; blade edge straight; lenticular cross section ;random flaking; broad-angled shoulders; stem contracting blunt; straight base; corner notching; basal thinning present.
5. Technique: pressure flaking.

Style 6

1. Specimens: 10.
2. Materials: cryptocrystallines, basalt.
3. Measurements: L: 1.9-1.0 cm; W: 1.0-0.8 cm; T: 0.3-.1 cm.
4. Description: triangular-shaped; straight edge; lenticular cross section; random flaking; side notching, wide-angled, crude; basal thinning present.
5. Technique: pressure flaking.
6. Comments: These specimens are very crudely shaped.

Style 7 (iron)

1. Specimens: 2 (Fig. 27, i).
2. Materials: iron.
3. Measurements: L: 3.7 cm; W: 1.3 cm; T: 0.1 cm.
4. Description: stemmed; blade edge convex; plano-plane cross section; blade edge sharpened by grinding; strong rounded shoulders; straight parallel stem; irregular base.
5. Comments: One of these specimens possesses a serrated stem, probably intended to facilitate hafting. These appear to have been cut with maul and chisel from an iron strap.

Form 1

1. Specimens: 1 (Fig. 28, j).
2. Materials: opal.
3. Measurements: L: 2.6 cm; W: 1.3 cm; T: 0.5 cm.
4. Description: lanceolate-shaped; maximum width lower one-third; blade edge convex; lenticular cross section; regular flaking; shallow serrations; basal thinning present.
5. Technique: pressure flaking.

Form 2

1. Specimens: 1 (Fig. 28, k).
2. Materials: basalt.
3. Measurements: L: 5.0 cm; W: 1.2 cm; T: 0.7 cm.
4. Description: laurel leaf-shaped; blade edges convex; lenticular cross section; random flaking; weak rounded shouldering; stem contracting blunt; stem convex; basal thinning.
5. Technique: percussion flaking.

River Cobble, Notched Net Weight or Line Sinker

Style 1 (Side-notched)

1. Specimens: 17 (Fig. 29, b).
2. Materials: basalt.
3. Measurements: L: 9.0-6.5 cm; W: 6.5-3.5 cm; T: 2.7-1.4 cm.
4. Description: river cobble plan-view oval; flat oval cross section.
5. Technique: One or two flakes removed on each edge of cobble by percussion, providing a notch on each edge of cobble.

Style 2 (End-notched)

1. Specimens: 2.
2. Materials: basalt.

3. Measurements: L: 6.0-5.7 cm; W: 5.3-3.6 cm; T: 1.3-1.5 cm.
4. Description: river cobble plan-view oval; flat oval cross section.
5. Technique: One or two flakes removed on each end of cobble by percussion, providing a notch on each end.

Discoidal Rough Core Scrapers or Knives

Style 1

1. Specimens: 5 (Fig. 29, a, c).
2. Materials: quartzite, basalt.
3. Measurements: L: 9.5-6.9 cm; W: 6.6-4.4 cm; T: 1.2-.6 cm.
4. Description: spherical to oval plan-view; scraping and/or cutting edge all around perimeter.
5. Technique: two techniques used: two specimens were flaked entirely by percussion all around edges, sides from flat to slightly convex; three specimens possess natural side surfaces, edges worked by percussion and pressure.

Hammerstone

Style 1

1. Specimens: 1.
2. Materials: basalt.
3. Measurements: L: 12.7 cm; W: 7.2 cm;
4. Description: cylindrical stone with ends displaying heavy usage from pounding and grinding.
5. Technique: shaped by pecking and grinding.

Girdled Sinker

Style 1

1. Specimens: 2.
2. Materials: Diorite.

3. Measurements: L: 17.4--incomplete; W: 13.0-11.5 cm;
T: 9.0-4.4 cm.
4. Description: river cobble; grooved perpendicular to long axis.
5. Technique: This girdling was done by pecking, with some grinding possible.

Knives

Style 1

1. Specimens: 4.
2. Materials: quartzite, cryptocrystallines.
3. Measurements: L: 4.5-2.7 cm; W: 2.6-1.8 cm; T: .6-.6 cm.
4. Description: triangular-shaped plan-view; lenticular cross section; edges straight; random to regular flaking; straight base.
5. Technique: pressure flaked.

Style 2

1. Specimens: 2.
2. Materials: cryptocrystallines.
3. Measurements: L: 6.0 cm; W: 2.5 cm; T: 1.0 cm.
4. Description: laurel leaf shaped; widest portion lower one-third; point at both ends.
5. Technique: pressure flaked.

Pentagonal Points

Style 1

1. Specimens: 3 (Fig. 28, p).
2. Materials: cryptocrystallines.
3. Measurements: L: 5.4-2.7 cm; W: 3.2-2.2 cm; T: 0.6-0.7 cm.

4. Description: pentagonal plan-view; lenticular cross section; edges straight to concave; regular flaking; straight base.
5. Technique: Pressure flaking; two of these specimens have concave cutting edges probably due to retouching.

Side Scraper

Style 1

1. Specimens: 4.
2. Materials: cryptocrystallines.
3. Measurements: L: 2.5-1.6 cm; W: 2.0-1.1 cm; T: 0.6-0.3 cm.
4. Description: roughly rectangular plan-view; spall, worked on three edges; flaking from one side only, bifacially flaked at tip.
5. Technique: pressure flaking.

Snub-Nosed End Scraper

Style 1

1. Specimens: 2.
2. Materials: cryptocrystallines.
3. Measurements: L: 3.4-2.3 cm; W: 3.2-3.2 cm; T: 1.0-0.9 cm.
4. Description: roughly rectangular plan-view; sides contract toward one end; at other end is located a convex snub-nosed scraping edge, with an angle around 60°.
5. Technique: pressure flaking with under surface unchipped, upper surface exhibits rough flaking.
6. Comments: This style scraper probably was hafted in the end of a long bone. The investigator has seen a similar one, found complete, from the lower Snake River region.

Drill

Style 1

1. Specimens: 3 (Fig. 28, o).
2. Materials: cryptocrystallines.

3. Measurements: L: 5.0-2.5 cm; W: 2.7-1.2 cm; T: 0.6-0.5 cm.
4. Description: square or oval thumb grip with a short, stubby, projection up to 1 cm long; cross section oval or diamond shaped.
5. Technique: drill bit area pressure flaked all around.

Graver

Form 1

1. Specimens: 1 (Fig. 28, p).
2. Materials: chalcedony.
3. Measurements: L: 1.7 cm; W: 1.7 cm; T: 0.6.
4. Description: rectangular thumb grip with stubby projection
3 mm long.
5. Technique: projection uniformly worked by pressure.

Cobble Scraper or Knives

Style 1

1. Specimens: 10 (Fig. 29, e, f).
2. Materials: basalt.
3. Measurements: L: 16.7-8.7 cm; W: 13.3-5.3 cm; T: 5.3-1.2 cm.
4. Description: this group of scrapers consists of river cobbles which have been split longitudinally, and of large basalt fragments with at least one rather sharp edge. exhibiting heavy usage.
5. Technique: five of these specimens probably were split naturally and merely picked up and used; the remaining were percussion flaked.

Cobble Choppers

Style 1

1. Specimens: 5.
2. Materials: basalt.

3. Measurements: L: 14.0-10.5 cm; W: 15.0-9.5 cm; T: 4.4-5.2 cm.
4. Description: oval to rectangular river cobbles, severely battered by use.
5. Technique: These cobbles show evidence of percussion flaking as well as battered edges. These choppers do not appear to be intentionally shaped.

Unidentified

Form 1

1. Specimens: 13 (Fig. 28; m-q).
2. Materials: basalt.
3. Measurements: L: 6.3-12.7 cm; W: 2.0-3.2 cm; T: 0.8-1.6 cm.
4. Description: roughly rectangular in plan-view; lenticular cross section; edges usually from parallel to slightly convex; edges sharpened bifacially; ends blunt.
5. Technique: these items are shaped entirely by percussion from what appears to be a basalt cobble.
6. Comments: The investigator has not seen anything like these before. The center portion of each edge (the used surface) appears in most instances to be battered as if struck against a hard surface.

Used Spalls

Style 1

1. Specimens: 62.
2. Materials: obsidian, cryptocrystallines.
3. Measurements: L: 1.3-6.9 cm; W: 1.0-3.0 cm; T: 0.2-1.2 cm.
4. Description: Spalls or spall fragments possessing evidence of use or retouching.
5. Technique: Spalls obtained by percussion, retouching by pressure.

Used Fragments

Style 1

1. Specimens: 114.
2. Materials: obsidian, cryptocrystallines.
3. Measurements: L: 0.9-4.9 cm; W: 0.7-4.0 cm; T: 0.3-1.7 cm.
4. Description: chips and pieces possessing indications of use or retouching.
5. Technique: pressure flaking.

Nondiagnostic Projectile Point Fragments

1. Specimens: 82.
2. Materials: obsidian, cryptocrystallines, quartzite, basalt.

Antler Digging Stick Handle

Style 1

1. Specimens: 1 (Fig. 29, g).
2. Materials: deer antler.
3. Measurements: L: 22.2 cm; W: 3.0 cm; T: 2.3 cm.
4. Description: tip segment of a deer antler with an oval in the center measuring 2.0-1.7 cm.
5. Technique: drilling.

Tubular Pipe

Style 1

1. Specimens: 1 (mouth piece fragment only) (Fig. 28, n).
2. Materials: unidentified soft mineral.

3. Description: this find consists of a piece of the flared mouth piece of a pipe. Three grooves 1 mm in depth have been ground around this fragment, with a hole 1 mm in diameter drilled parallel with the axis of the pipe.
4. Technique: carving, grinding.

Milling Stone

Style 1

1. Specimens: 1.
2. Materials: granodiorite.
3. Measurements: L: 45.0 cm; W: 37.5 cm; T: 21.9 cm.
4. Description: hopper mortar, with a shallow circular depression which measures 21.25 cm in diameter and 1.9 cm in depth.
5. Technique: The depression probably was formed through use.
6. Comments: This milling stone was found on the surface near the camp of the field crew.

Other items recovered that are of note include a few small rolls of birch bark (Fig. 29, d) and a small strip of leather. It is interesting to note also that there is a rather high occurrence of obsidian (roughly 10%) and of quartz crystal. Practically all level bags had obsidian chips. One piece of this obsidian was analyzed spectrochemically (Harvey, Appendix B, this report). There are no obsidian flows anywhere near the site, and an analysis of this nature may, in the not too distant future, provide us with information concerning its origin. On the basis of information included in Appendix B, note the similarity between the specimen from Spokane and the sample from Newberry crater located in central Oregon. Studies of this nature still are in exploratory stages.

Many animal bones were collected in the Fort Spokane site area, and probably are the remains of animals used for food. These bones were identified in the field, and include specimens from elk, deer, and horse.

THE EXCAVATIONS OF 1963

Methods of Excavation

The writer and a crew of two men from Washington State University arrived on the site June 30, and were met there by John Willetts, Chief of the Youth Development and Conservation Corps with eight boys chosen to work on this project. Camp was established in the wooded area south and west of the site to provide a base of operations. The first few days consisted of setting up camp and clearing the fort area of existing interpretive signs, marked logs, and concrete supports.

For horizontal and vertical controls in the excavations, a datum point was established approximately 20 feet from the east corner of the fort, as located by Caywood (1954). Figure 7 illustrates stockade walls, Caywood's excavations, and the 1963 excavations including datum and grid. This point served also as a corner for arbitrary X and Z axes paralleling sides of the fort, the X axis being aligned approximately NE from datum, and the Z axis at a right angle to it. This arbitrary grid system was used, rather than cardinal directions, to enable grid lines to parallel fort lines. Each significant feature was assigned an elevation and X and Z coordinates with reference to the datum point.

The site was excavated in 10-foot excavation units with close horizontal control and loose vertical control. This method was used because the site had been occupied for only 16 years, thus representing only a single occupation, which left only a single culture-bearing stratum (see Fryxell, Appendix A, this report). For these reasons, vertical control of objects found at the site is not extremely critical; horizontal relationships in this case are critical and are far more meaningful.

The first 10-foot units were excavated in the east corner and long the northwest and southeast sides to align present excavations with palisading located by previous work. The eight Youth Corps boys worked in pairs, one screening and one shoveling.

The depth to which the trenches were dug was determined by the depth from the surface of the historic material. The level at which the sterile deposits were encountered varied from 0.5 feet to 2.3 feet below the surface, and averaged approximately 0.9 feet. Table 5 gives a statistical summary of the excavations and records an extremely large number of artifacts as well as the richness of the deposits.

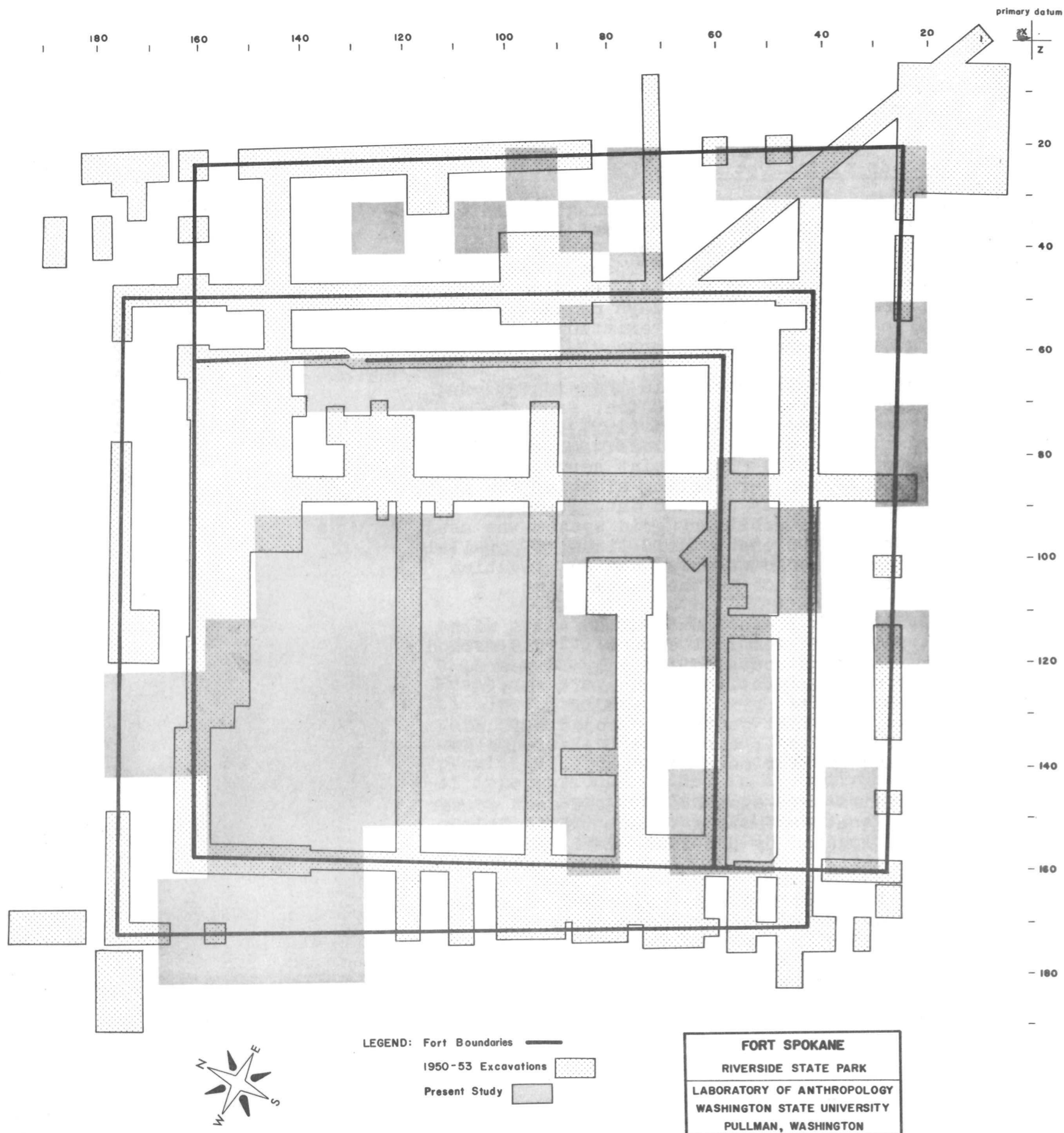


Fig. 7.--Map illustrating stockade walls, Caywood's excavations, and the 1963 excavations.

TABLE 5

SURFACE AREA, VOLUME, AND FINDS PER CUBIC
YARD EXCAVATED AT FORT SPOKANE, 1963

Total number days spent in field	55
Surface area excavated	10,300 sq. ft.
Volume of earth moved	345 cu. yd.
Artifacts recovered	3,319
Finds per cubic yard	9.62

Areas Tested

All areas tested during the 1963 study were confined to within the Fort Spokane boundaries as defined previously, with emphasis being placed on those areas not excavated by the earlier study. In particular, excavations were concentrated in the northwest corner because of its productiveness both in structural evidence and cultural items. This was determined by systematic sampling of all areas not previously excavated (see Fig. 7).

Structural Remains

The primary objective during these excavations was to locate, if possible, interior structural remains. Except for purposes of alignment the fort walls were, for the most part, left untouched. Mr. Caywood's previous work had been concerned mainly with the walls, which now appear to be well established.

Few structural remains are left at Fort Spokane. Perhaps the destruction of the buildings and the apparent farm use of the land in more recent times has been responsible; this would have been especially true if the structures were constructed by means of the post and sill method. A plow easily could pull up and destroy such buried evidence.

Fortunately, however, one cornerstone with the butt end of a vertical post resting on its flat upper surface was found. This find is representative of the post and sill method of construction thought to have been used here. This feature was removed and preserved for future interpretive use (see Fig. 8).

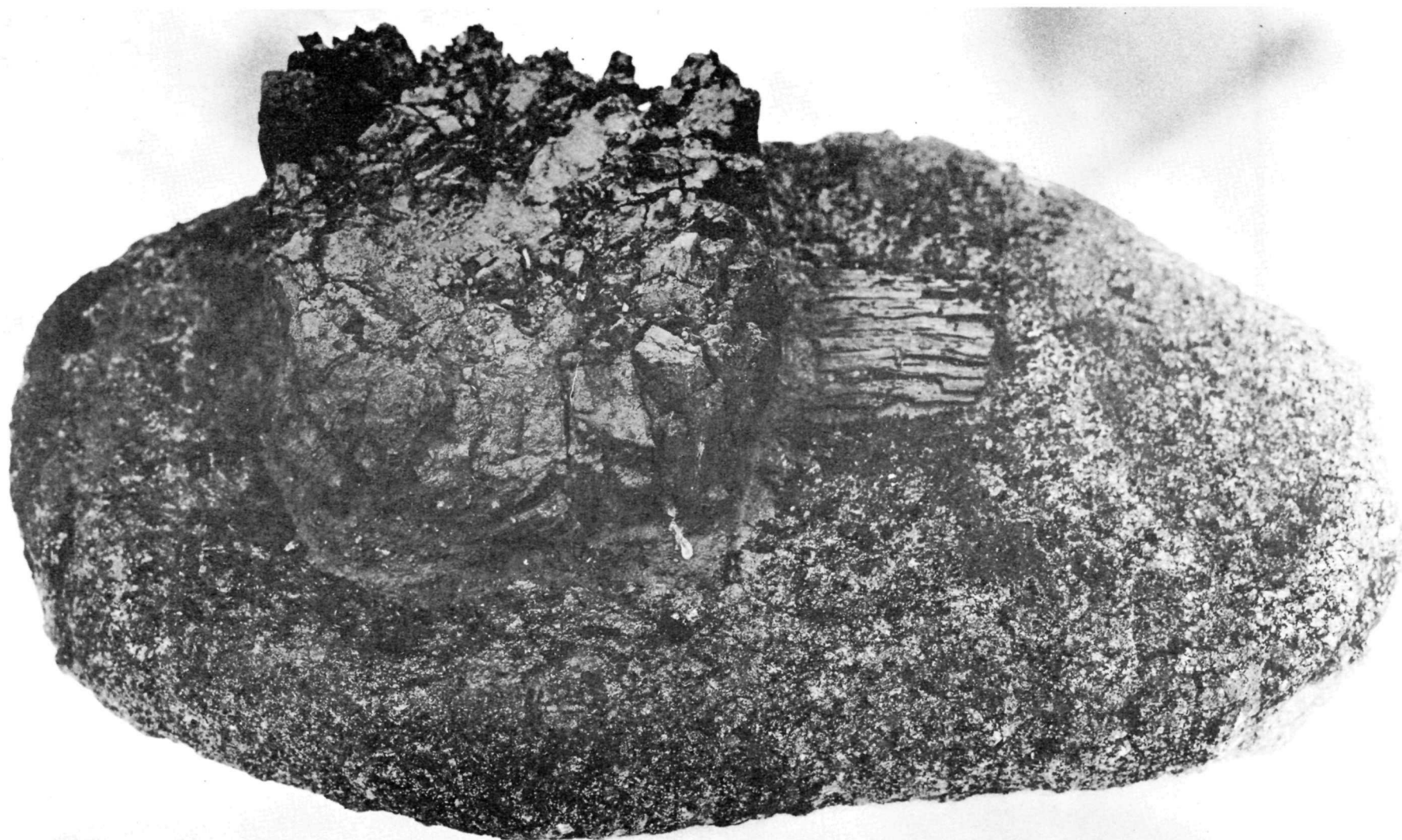


Fig. 8.--Cornerstone and post located in Fort Spokane during the 1963 excavations (post is ca. 0.65 feet square).

TABLE 6

FEATURES, DIMENSIONS, AND LOCATIONS OF STRUCTURAL REMAINS AT FORT SPOKANE, 1963

Feature Number	Description	Horizontal	Location
		X	Z
1	Iron stake (capped 1-inch pipe set by Caywood)	160.0	22.8
2	Decayed wood 0.5 feet in diameter	89.3	38.9
3	Charcoal in fill	87.2-90.0	50.0-54.5
4	Iron stake (Caywood marker)	24.1	51.7
5	Decayed wood, grain horizontal	127.0	67.9
6	Round boulder 1.0 by 1.0 feet	94.6	65.4
7	Evidence of fire containing numerous animal bones	83.0-87.5	84.8-90.0
8	Post 0.4-foot cross section	77.1	79.7
9	Decayed wood fragments	85.5	81.6
10	Decayed wood, grain horizontal	73.5	89.0
11	Angular stones	53.4	86.5
12	Angular stones	55.6	86.5
13	Angular stones	56.7	89.1
14	Angular stones	58.2	88.9
15	Angular stones	59.7	89.6
16	Angular stones	59.8	80.5
17	Angular stones	59.8	80.0
18	Squared board 0.3 feet wide	143.7-142.7	93.1-95.0
19	Rounded stone 0.7 by 0.6 feet	134.1	97.6
20	Flat stones (3) average diameter 0.5 feet	80.7	99.7

TABLE 6--Continued

21	Stones (6) ca. 1.0 feet in diameter	55.9	91.2
22	Post, triangular, 0.4 feet on a side	126.4	103.7
23	Several various-shaped stones	156.0	155.8
24	Stone with vertical post butt	149.2	118.6
25	Post 0.4 feet diameter	118.2	118.0
26	Several stones at this location	177.5	127.9
27	Forge hearth area consisting of slag, charcoal, iron fragments, and ash	140.0-160.0	130.0-150.0
28	Large fire hearth	160.0-180.0	120.0-140.0
29	Four flat stones averaging 0.8 feet across	52.7-54.6	136.2-137.7
30	Decayed post	114.9	149.2
31	Flat stone 0.5 feet in diameter	117.3	149.4
32	Post	104.0	140.3
33	Post 0.5 feet in diameter	85.8	148.4
34	Flat stone 1.0 by 1.1 feet in diameter	53.0	143.5
35	Rounded stone 0.5 feet across	54.4	143.6
36	Rounded stone 1.3 by 0.6 feet	52.8	141.7
37	Granite stone 0.8 feet across	58.7	158.4
38	Large concentration of animal food bones including horse; the block was just outside of fort wall	140-50 130-40	170-80 160-80

One of the most significant discoveries was the location of the forge hearth area. The investigators had hoped to locate this area by collecting all cinder material found in the entire site, and by then plotting its distribution; the forge location logically might be expected to be the area most heavily concentrated with this material. Caywood (1954: 60) reported the widespread distribution of this material throughout the entire fort area and the 1963 excavations certainly confirmed this. Half-way through the field season, however, the forge hearth was located without question. It consisted of a heavy concentration of cinders and a very fine light-colored ash containing many metal fragments typical of a blacksmith's debris. Also associated were the butt remains of some vertical posts about 5 inches in diameter.

The remaining features or structural evidence are presented best in tabular form. The following chart includes items found, dimensions (where possible), and location data keyed to Figure 7. (See Table 6.)

This list of features, with the exception of 24 and 27, provides us little information other than that the area was occupied and did have structures at one time. The wood remains were in such a bad state of preservation that identification was barely possible. There is no question that the stones found were associated with structures, possibly including chimneys. The multitude of hand-wrought nails recovered in this area also provides evidence of the existence of structures within the compound.

Cultural Materials Recovered of European Origin

The amount of cultural material recovered in 1963 was extremely large. This is not surprising; the area excavated was occupied continuously for a period of at least 14 years, and all fill removed was screened through a 1/4-inch mesh. A large percentage of the items were 1,185 specimens of hand-wrought nails; with slightly less than half of this number complete. Other items found in rather large quantities include: pottery sherds, 409; clay pipe fragments, 130; glass trade beads, 116. The remaining specimens consist of items associated with firearms, and an array of trade material including keys, jews'-harp, jewelry, an old door lock, and tools. Items of Indian manufacture make up but a small portion of the material recovered.

Descriptive information concerning the artifacts recovered is presented in the following paragraphs.

Nails

Data concerning the nails recovered are summarized in tabular form using the penny system as a classificatory scheme.

TABLE 7

COMMON HAND-WROUGHT NAILS RECOVERED AT FORT SPOKANE
EXCAVATIONS, 1963

Penny Weight	Length (inches)	Number of Complete Specimens Recovered	Illustration
20 d.	4	2	Fig. 20; k
16 d.	3-1/2	12	Fig. 20; j
12 d.	3-1/4	20	Fig. 20; i
10 d.	3	49	Fig. 20; h
8 d.	2-1/2	66	Fig. 20; g
7 d.	2-1/4	7	Fig. 20; f
6 d.	2	46	Fig. 20; e
5 d.	1-3/4	33	Fig. 20; d
4 d.	1-1/2	61	Fig. 20; c
3 d.	1-1/4	40	Fig. 20; b
2 d.	1	19	Fig. 20; a

TABLE 8

SPECIAL PURPOSE HAND-WROUGHT NAILS RECOVERED AT FORT
SPOKANE EXCAVATIONS, 1963

Penny Weight	Length (inches)	Number of Specimens	Use, Description, Illustration
5 d. 3 d. 2 d.	1-3/4 1-1/4 1	1 1 1	L-head, made from headless nail, used for floors and clapboard; Fig. 20; p.
7 d.	2-1/4	1	Head 7/8-inch diameter, square shank 3/8-inch at head. Use unknown; Fig. 20; m.
8 d. 6 d. 4 d. 3 d.	2-1/2 2 1-1/2 1-1/4	8 1 4 9	Large head, shank like common nail, probably used as a clinch nail, used in situation where a "pulling out" danger existed (14 incomplete specimens); Fig. 20; q.
?	5/8	3	Tacks made from rolled sheet copper, use varied; Fig. 20; r.

In addition to the above complete specimens, there are an additional 763 fragments which could not be classified. These may be listed as follows: 304 fragments with head, 329 shanks, and 130 point fragments.

Nails not associated with the early fur trade, most likely of the later homestead era, include: 7-10 d., 21-8 d., 6-8 d., and 1-2 d. These specimens all are very well-made machine-cut square nails. Thirty incomplete specimens were found.

Washers

The 1963 excavations produced square washers made from sheet iron, similar to those found in 1962. These specimens range in size from 5/8 by 6/8 of an inch to 1-1/8 by 1-5/8 inches. Twenty are complete, seven are fragmentary.

Tools

Five partial files were unearthed, and it appears that the file was an important tool to both the early frontiersman and the Indian (Fig. 21; h,i,j,k).

1. Plano-convex with part of tang and heel.
2. Plano-plano tip portion.
3. Plano-plano tip portion.
4. Plano-plano tip portion.
5. Too fragmentary to ascertain style.

Five awl points (minus handles) 2 inches to 2-3/4 inches long, complete the list of tools (Figure 21, b,c,d).

Items Associated with Firearms

Thirteen well-worn gun flints were recovered (Fig. 22; a,b,c). These flints all have the characteristic features of flints known to be English in origin. These specimens are so heavily used, a determination of size is impossible; however, they are large enough to have been used for rifles.

Flint lock parts found at Fort Spokane are so badly oxidized that identification of the manufacturer is not possible. The following parts were identified as to their function: two broken springs (f,g), 1 brass butt plate (l), 1 badly deteriorated lock plate (k), 2 flash pans (d,e), 1 tumbler (p), 1 cock top (i), 1 trigger (m), 3 frizzen (h,i,j), 1 sear (n), 2 cleaning

rod tips (s), 3 lead shot (probably for birds)(o), and one 50-caliber bullet (q). These are illustrated in Fig. 22. Pieces of lead were common.

Ceramics

A total of 409 small fragments of porcelain and earthenware were added to the collection. Again no manufacturer's marks were obtained.

Chinese porcelain accounted for 234 pieces--mostly decorated with blue. There appear to be at least six patterns represented (Fig. 24; a-d). One hundred and thirty-four pieces of earthenware, probably of English origin, were cataloged (Fig. 24; e-q). Also found were 44 pieces of brown glazed ware or stoneware (Fig. 24; h-i). All of the above are similar to sherds found during the 1962 season. No decorative patterns were readily discernible.

Glass

Approximately 300 broken pieces of glass make up this category. There are ten colors in this collection: clear, light green tint, green, dark green, very dark green, amber, brown, rose tint, light blue tint, and dark blue. No marks were found on any of these pieces. However, most of these fragments probably are from bottles, and some may be bits of glass from trade mirrors or similar items. It is also possible that some fragments are window glass.

Iron Objects

More than 300 fragments of iron were recovered. These consist chiefly of scraps (bits and pieces resulting from the manufacture of something else) or broken pieces of a finished product.

Three pieces from a cast-iron pot, very much like the one found during the previous summer (Fig. 21; p), were recovered. Miscellaneous items include three handmade hinge parts (Fig. 21; s); one pot or kettle handle attachment (Fig. 21; m); a hand-wrought tumbler of a lock (Fig. 21; o) similar to the one recovered this season; one spring-- $1\frac{3}{16}$ of an inch long and $\frac{4}{16}$ of an inch in diameter--made from wire $\frac{1}{16}$ of an inch in diameter; three strap iron pieces riveted together-- $1\frac{5}{8}$ inches wide (barrel hoop?); and a hand-wrought gate latch (?).

Two iron table forks were found (Fig. 24; k,l). One is a complete three-pronged fork minus the bone or wooden handle. The other specimen is an incomplete two-pronged fork consisting of the shoulder and about $\frac{3}{8}$ of an inch of each prong.

One of the most interesting specimens recovered during the 1963 excavations is a handmade door lock (Figure 23). It consists of a hand-wrought face plate with keyhole and cover, and with a two-tumbler action. When found, the lock was badly oxidized, but when treated in an electrolytic bath, all moving parts were freed. It is a remarkable specimen, and should be of particular interest for interpretive use.

Two keys were uncovered (Fig. 21; e, l). One was an incomplete handmade specimen consisting of the loop and part of the stem. The other was a machine-made key of unknown origin which is comparable to the modern-day "skeleton key" and is probably recent.

An interesting item of unknown use, measuring 4-1/2 inches long, made of a square shaft 1/4-inch on a side, tapered to a point on one end, also was found. The end opposite the point has a 3/8-inch piece perpendicular to the main shaft, with a half circle-shaped piece hinged to it. It may be some kind of an extracting tool, or perhaps was used in the maintenance or repair of firearms (Fig. 21; n).

Sheet copper and brass fragments account for 148 items. These materials range in thickness from 1/32 of an inch to 1/16 of an inch, and appear to consist chiefly of trimmings.

Trade Beads

Glass trade beads account for 116 items, most of them blue. For lack of a usable classificatory scheme they will be presented here by size, color, and form (see Table 9).

Clay Pipes

Clay pipes similar to those recovered previously were found in 1963. Eighty-nine stem pieces, 36 bowl fragments, 3 bowl bases with spur, and 2 bowl bases without spur, were collected for a total of 130. No complete specimens were recovered, nor could any be reconstructed (Fig. 25; b-d).

Jewelry

Three simple brass band finger rings were retrieved: two had a diameter of 6/8 of an inch from a band 3/16 of an inch wide; one had a diameter of 11/16 of an inch, and a band slightly less than 3/16 of an inch wide (Fig. 26; e-q). Two rather ornate ring fragments, which at one time had sets, also were located (Fig. 26; h).

A brass object thought to be part of an earring fastening device (Fig. 26; j), and an amber stone setting (faceted glass), conclude the items of personal adornment (Fig. 26; k).

TABLE 9

TRADE BEADS RECOVERED DURING 1963 EXCAVATIONS AT FORT SPOKANE

Description	Number of Specimens	Diameter (mm)	Length (mm)	Illustration
Light blue, opaque	44	6	4	Fig. 27; d
Medium blue, translucent, round	18	6		Fig. 27; e
Light blue, translucent	12	2	3	Fig. 27; f
Dark blue, translucent, tubular	1	6	23	Fig. 27; g
Dark blue, translucent, tubular	1	4	12	Fig. 27; h
Light blue, translucent, elliptical	1	6	11	Fig. 27; i
Light blue, opaque	4	5	7	Fig. 27; j
Medium blue, opaque	3	6	7	Fig. 27; k
Pink, opaque	1	6	4	Fig. 27; l
Red, translucent	2	7	5	Fig. 27; m
Extra large coarse seed, yellow translucent (fragmentary)	1	?	7	Fig. 27;
Very large necklace, dark blue opaque (fragmentary)	1	11	10	Fig. 27;
Coarse seed, white, opaque	3	4	3	Fig. 27; n
Blue green, translucent, spherical	1	6		Fig. 27; o
Medium very wide Cornaline d'Aleppo	2	5	7	Fig. 27; p
Purple, translucent, ovoid	1	8	9	Fig. 27; q
Royal blue, opaque	1	8	7	
Medium white paste, spherical	1	10		
Royal blue, opaque	2	5	4.5	
Clear glass, multifaceted (40) with copper wire through hole	1	15	12	Fig. 27; r
Clear glass, tubular, faceted (25) with wire strung through hole	1	6	6	Fig. 27; s
Dark blue, translucent with wire strong through hole	1	6	8	Fig. 27; t
Hollow brass	1	8.5	7	Fig. 27; u
Black paste, white line around each end with yellow line around center perpendicular to stringing axis	1	10	5	Fig. 27; v
Light blue, opaque, spherical fragments	9	6-9		

Buttons

Twelve buttons were cataloged including a one-hole bone button 6/16 of an inch in diameter, one china button (Fig. 26; d) similar to those found in 1962, and eight brass disc buttons with a wire eye cramped or brazed on back 9/16 to 11/16 of an inch in diameter. Two of these specimens had markings--one had a T B and a star, the other had LEST and two stars and one other word that was not legible. Their origin is unknown. Of the above specimens, only one was a true "spun back" button like the specimens found in 1962. All of the metal disc buttons were probably covered at one time with cloth (Fig. 26; a-c).

Miscellaneous

Two jew's-harps similar to those found in previous excavations here and elsewhere in the northwest were recovered. Both measured 3-6/8 inches long, with the loop 1 inch across (Fig. 25; h-j). Also found were seven straight pins made from 1/32-inch wire, with the head fashioned from wire wrapped around the end (Fig. 25; f); six small wire rings of unknown use, ranging in diameter from 7/8 of an inch to 3/16 of an inch; a fish hook with no eye at end of the shank, but with a flattened area for suspension (Fig. 25; g); a bone object resembling the handle for an eating utensil (Fig. 24; j); and two square brass wooden shaft splicers or ferrule 1-1/2 inches long and 1/4-inch on a side (Fig. 21; g).

A small double-tongued buckle 1-3/8 by 5/8 of an inch was recovered with the top half of a small brass thimble and a pocket knife with one blade 4 inches in length. The blade of this knife is 13/16 of an inch wide and 3-1/8 inches long (Fig. 21; f).

Six very unusual small stones that were unearthed appear to have been used as sharpening stones. They were fashioned from argilite and measure 3/16 of an inch in thickness and 1-3/8 to 13/16 inches in length (Fig. 25; o-r).

Cultural Materials Recovered of Indian Origin

The amount of Indian material recovered in 1963 was quite small. This was expected, however, since the excavations were restricted to the fort area.

The 12 projectile points found include one made of sheet iron, 7 which are side-notched, and 4 corner-notched specimens typical of the late period. Other artifacts include 4 or 5 end scrapers, 1 drill fragment, 1 double-notched cobble net sinker,

bits and pieces of leather, 1 unincised beaver tooth, and several worked and/or broken pieces of nondiagnostic implements. Two tinklers made of sheet copper or brass conclude this category.

ANALYSIS OF MATERIALS RECOVERED

During the two seasons of work at Fort Spokane, a total of 4,194 artifacts was recovered and cataloged. This brings the total collection for items recovered from this site to 5,228. The following chart gives the number of items cataloged by year:

Excavations by L. R. Caywood:

1950	235
1951	340
1952	257
1953	202

<u>Subtotal</u>	<u>1,034</u>
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Present study:

1962	875
1963	3,319

<u>Subtotal</u>	<u>4,194</u>
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TOTAL	5,228
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Analysis of these cultural items, presented by categories of material in the following pages, provides the most complete picture of activities at Fort Spokane yet available.

Nails

Nails comprise one of the largest groups of artifacts recovered. Recently the Arizona Archaeological and Historical Society published an especially interesting and informative analysis of nails in The Kiva (1962). The criteria used to distinguish hand-wrought nails from square nails were essentially the following:

Regardless of size, wrought nails can readily be distinguished from square cut nails on the basis of the following features:

- (1) Wrought nails taper on all four sides of the shank toward the point rather than on two opposite sides as in the case of square cut nails.
- (2) Wrought nails vary in thickness throughout the length of the shank because of their having been hand forged; square cut nails exhibit uniform thickness because of their having been cut from a plate of uniform thickness.

- (3) Striations, minute parallel shear marks resulting from the smear of the cutting blade used to make square cut nails, are absent on shanks of wrought nails . . .

Cut nails were made from rectangular strips of iron plate and tapered to a point by a single cut across the plate. The thickness and height of the plate determined the thickness and height of the nail, while the breadth of the nail at its head and point depended on the amount of taper applied in cutting and the strength of the blow used in forming the head (The Kiva 1962: 52).

The same article provided an excellent summary of research on the nail, and is worth quoting in its entirety.

Before Christ-A.D. 1800: Nails were handmade, wrought nails, universally characterized by uneven rectangular shanks that taper on all four sides to a point. For certain purposes wrought nails continued in use until as late as 1850, and in isolated instances may have been made in the United States when square cut or wire nails were not available.

1790-1810: This period is characterized by machine-cut nails, the nail plate being reversed under alternate blows of the cutter to give the cross section [a diamond shape]. A few stampheaded nails occur, but most are headed by a single handdriven blow. Angle-headed or L-headed nails made from headless nails also appear and continue in use until after the 1850's for use in floors and clapboards.

1810-1825: Machines are invented to make cut nails that obviate the necessity of having to turn the nail plate. The result is a cross section [with a U-shape]. Until 1825 such nails continued largely to be headed simply by being struck with a hammer.

1825-1830: Cutting of nails continues as immediately above, but water-powered machines are developed that head them automatically. The heads, however, are rather thin and lopsided.

circa 1830-circa 1855: Wire nails are invented in France (hence "French nails") that are ground to a point and headed by hand. The first such nails are made in the United States by William Hassall (or Hersel) of New York City. They are rare in the United States during this period.

1830-circa 1890: Cut nails are produced in machines that cut and head them uniformly. Heads are less thin, more uniform, and comparatively square. They are extra heavy on large nails. Cross section of shanks on virtually all nails [V-shaped]. Cut nails in the United States during this period outnumbered all other kinds with respect to both numbers and varieties.

circa 1855-present: Machines are invented in France to make complete wire nails automatically. Few are exported to the United States, soon to be replaced by machines of American manufacture. It is about 1890, however, before wire nails outnumber cut nails. Wire nails today are the common variety in the country.

circa 1870-present: Cut nails are annealed to prevent their rupturing when clinched.

circa 1890-present: Cut nails continue to be manufactured for special purposes, such as securing wood to cement, concrete, or plaster. Until about 1950, when they were replaced by cement-coated nails for the purpose, cut-nails were also commonly found in sub-flooring for hardwood floors. It was also probably early in this period that large cut nails were pretapered in rolling mills, the nails then being cut with parallel rather than diagonally opposing strokes of the knife (Ibid., 54-55).

Washers

Seventy-five rectangular washers made from sheet iron were collected during the two seasons of excavations. Apparently these were used in situations where there was danger of a nail pulling out, and the washers were used in conjunction with a clinch nail. It is thought that these washers were used with more success than the clinch nail alone. Referring back to the chronology of nails, annealing of clinch nails to prevent their rupturing was not introduced until 1870. It is interesting to note also that nearly all of the clinch nails recovered were, in fact, ruptured.

The difference in yield between the two years may have some important implications. The 1962 excavations produced 48 of these washers, which came from the boathouse and work area. This may indicate that the washers were used primarily in the manufacture of the boats, which are known to have been built here on the banks of the Spokane River (Elliott 1914: 283).

Tools

While the recovery rate of tools was small, those that were found are indicative of their importance to the economy of the traders. The six awls would have been valuable for working leather and other sewn materials, and the files most likely were popular in the manufacture of small items of metal and in repairing rifles. The small pair of tweezers, for example, was shaped by a file. No larger tools were located, possibly because of the importance placed upon them, but also because of their size and weight, which certainly were important matters considering the great distance involved in obtaining them.

Iron Objects

Both in and around an old fur trading post one would expect to recover a great many metallic odds and ends. This was the case during both seasons of excavation. Again, as one would expect, more was found inside the fort walls (and especially associated with the forge hearth area) than in the surrounding area. No large items were found, but iron of all sorts undoubtedly was held at a premium considering the great distances involved in obtaining it. Also, from historic records we know that hinges, latches, and similar hardware were removed carefully and transported to the new location at Kettle Falls.

A few scraps of "tin" were found. It is quite possible that these were associated with the occupation, for "Tin (i.e., sheet iron) containers date well back to the 1820's in this country and a few years earlier in England and France." (Sprague 1959: 105)

Trade Goods

Artifacts of European manufacture may be considered as representing two groups: those items used by the Europeans around the fort, and those representing goods traded by them to the Indians. It must be remembered that such a distinction is arbitrary, and that an overlap in use of objects by these groups is probable for at least some items. That is, theoretically, any one of these goods is potentially a trade item, so a distinction of this type is speculative unless the items recovered are directly associated with a given group of people.

While discussing "trade goods" it is perhaps appropriate to quote briefly Arthur Woodward, a noted authority on early historic items:

The use of the term "trade goods" in relation to those objects of European origin which found their way into the hands of the Indian of the North American continent from the 16th century through the 19th century is, in a sense, a misnomer. Under this category collectors, archaeologists, historians, and ethnologists have lumped all items either traded, sold, or given outright to the tribesmen. In certain areas as many gifts were made of blankets, guns, beads, paint, weapons of the edged variety, kettles, agricultural implements, textiles, bottles, buttons, ornaments, etc., by the French British, Dutch, Spanish, and American governments as were exchanged by individuals for profit.

However, since the terminology seems fixed, there is no logical reason for discriminating in either the types or methods of the distribution of these goods. Hence, . . . the term "trade good" may be understood to mean all classifications, official and unofficial, of the hundreds of articles given or traded to the Indians (1959).

Items Associated with Firearms

The two years of excavations produced a total of 41 items directly associated with firearms. None of these items provided conclusive evidence of a specific manufacturer. However, they are chronologically significant because they clearly represent the era during which the post is known to have been used.

Ceramics

Ceramics found at Fort Spokane present a unique problem. Several hundred sherds have now been recovered, yet not one bearing a manufacturer's mark was found. Most of the recovered fragments probably are of oriental origin, and the rest of European origin.

Criteria used for identification of such ceramics are essentially as follows: Ceramics made of a permeable paste are referred to as earthenware; those made of impermeable pastes are divided into stoneware and porcelain. Earthenware includes "ironstone" and groupings such as Wedgewood. Stoneware is represented by crocks, "little brown jugs," and a modern German-style beer mug. Porcelain includes a large grouping of white ceramics which originated in China, and is easily distinguished by its translucence when held to a light. Porcelain is also sometimes called china or chinaware (Jelks 1958: 202).

With reference to the stoneware collected during this study, Caywood (1954) reports unearthing 15 similar pieces:

These were portions of small jars or bottles used for the transportation and storage of fluids or oils, probably from China. Similar ware has been found at Fort Vancouver, Drakes Bay, and in the mission sites of California, Arizona, and New Mexico (1953: 63).

Glass

Almost 400 fragments of glass were recovered during the two years of excavations. No markings or other diagnostic features were obtained. The only other method of attacking this problem is to analyze the glass spectrographically. A spectrochemical analysis was performed on representative samples of these fragments in hopes of eventually understanding their origin, or at least to make possible linking this material with the various early historic sites of the west. From these results it has become quite clear that this technique will yield important information in the future. These data are included in Appendix B.

Trade Beads

Little, if anything, may be said concerning trade beads, especially with respect to dates. It is felt by most investigators that the glass bead industry started in Italy and that most beads obtained archaeologically originated there (Woodward 1959). At any rate, until a technique is developed to identify and classify trade beads effectively, descriptive data will suffice.

It is interesting to note that the Caywood excavations and the 1962-1963 excavations produced an overwhelming predominance of blue beads (Caywood 1953: 49). Woodward indicates that there seemed to be a color symbolism that was very strong among many tribes. The early explorers also reported that along the Columbia River region, blue beads of any size were very popular (Woodward 1959).

More beads were found within the fort than elsewhere.

Clay Pipes

Nearly 100 clay pipe fragments were cataloged. Both years' specimens have the T D stamped into them, either on the bowl itself or on the spur. Apparently, these T D specimens have a long history, and one goes back at least 200 years (Fontana et al., 1962: 95). Clay pipes frequently have been found by archaeologists, yet little is known of their development. From the high frequency of their occurrence within the walls of the fort, one might conclude that clay pipes were popular with the traders themselves.

Jewelry

Only a few pieces of jewelry were found at Fort Spokane, but it is interesting to note that rings similar to those recovered were reportedly exchanged for one beaver skin per dozen, while 20 needles were worth one beaver skin at Fort Spokane in 1824-1825 (Merk 1931: 172-173).

Miscellaneous

The jew's harp seems to be a common item found at these early posts. Those recovered here are identical with the specimens recovered at Fort Okanogan in 1952 by Louis R. Caywood (1952: 53).

Tweezers may have been used most by Indians. To the Indian, facial hairs were something to be removed. Prior to European contact, clam shell pinchers, bits of obsidian, hot

embers, etc., were used to pluck or shave off these distasteful hairs. However, Europeans introduced steel, iron, brass, and short lengths of spring which could be more efficiently used for this purpose. The pair of tweezers made from brass was most likely used for this purpose (Fig. 25; m).

Several of the buttons recovered possess no marks of identification and their dating until very recently has been difficult. However, Olsen (1963) provides useful information concerning these specimens. Buttons similar to those found at Fort Spokane are identified by him through occurrence of concentric tool marks located on the back of the button; hence, they usually are referred to as "spun-back" buttons. The "spun-back" buttons were used both by civilians and the military from about 1770 until the close of the Revolution in 1785.

Buttons of this type were cast from white metal or brass and with a brass-wire eye set into a boss on the button back. The cast button was held in a chuck and spun, while a tool cut the button back to the desired thickness. A burred edge around the eye and the concentric tool marks usually identify this type. Examination of several pairs of knee-length breeches that were worn during the Revolution revealed that this style of button was used as a fastening device. They were, however, covered with the same material as the trousers (Olsen 1963: 552).

Small four-holed buttons commonly called "china buttons" also were found. This type button formerly was used on males' shirts and females' shirtwaists and underwear (Miller 1954: 64). These cannot be dated, since similar ones may be purchased in stores today.

GENERAL METHODS OF CONSTRUCTION

Neither detailed plans nor general sketches are known to exist for the original Spokane House trading post, or for the later Fort Spokane. Because the location of Spokane House remains an unsolved problem, and because almost no structural remains exist even within the stockade of Fort Spokane, where several buildings are known to have stood, any attempt to reconstruct the general appearance of either post will have to rely heavily on a knowledge of general construction methods in use at frontier outposts early during the nineteenth century.

In order to provide the most useful possible synthesis of information presently available on the construction methods which would have been common practice when Spokane House and Fort Spokane were built, a series of sketches and notes has been prepared from historic reports of that period. This task was undertaken by Mr. Steve Allured, staff artist of the Office of Publications, Washington State University. Drawings and notations on the following pages are his; they are based on specific data obtained from the papers of Ralph S. Space (David Thompson in Montana, p. 14), Dr. Merle W. Wells (David Thompson in Idaho, p. 24), and Joel E. Ferris (David Thompson in Washington, p. 35) in The David Thompson Sesquicentennial Symposium (Cheetham, ed., 1960). The material in these papers has been interpreted in the light of other reports by Kingston (1948), Caywood (1954), Peletier (1961), and the archaeological excavations of 1962-1963 summarized in this report.

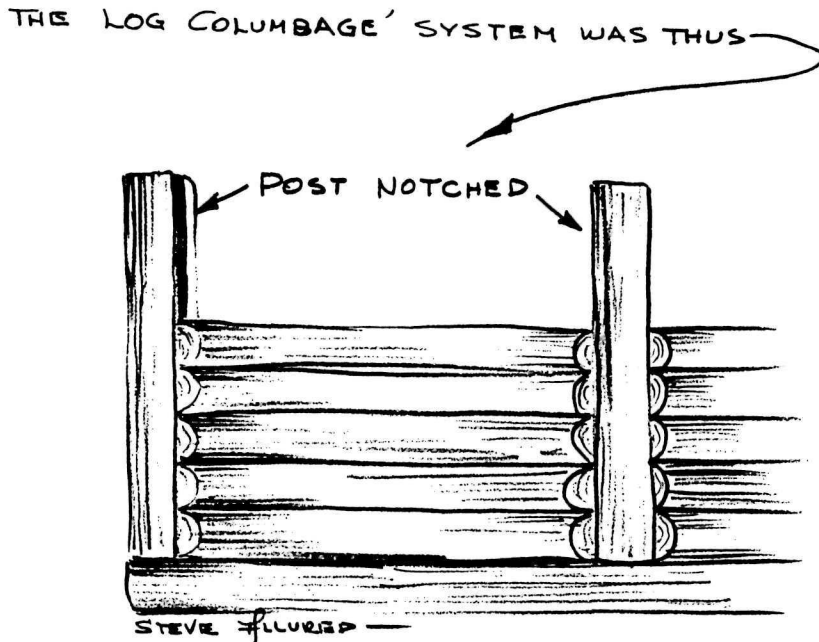
Sketches and Notes on the Original Spokane House, 1810-1812

The first building constructed at the original Spokane House was a log warehouse, which was followed by a cabin for the men. There was no palisaded area at Spokane House, but the buildings were placed to form a rude courtyard; the final number of buildings is open to question. Because the buildings were temporary, they would not have been so carefully constructed as those of the later fort. Beyond these surmises, little can be said except for the information presented in the accompanying drawings.

It is known that at least axes and a whipsaw were possessed by the men at the site, and it is likely that they also had chisels, wedges, and hammers. At least some cedar logs reportedly were obtained from the banks of the upper Little Spokane River, though the exact location is not recorded. Questions as

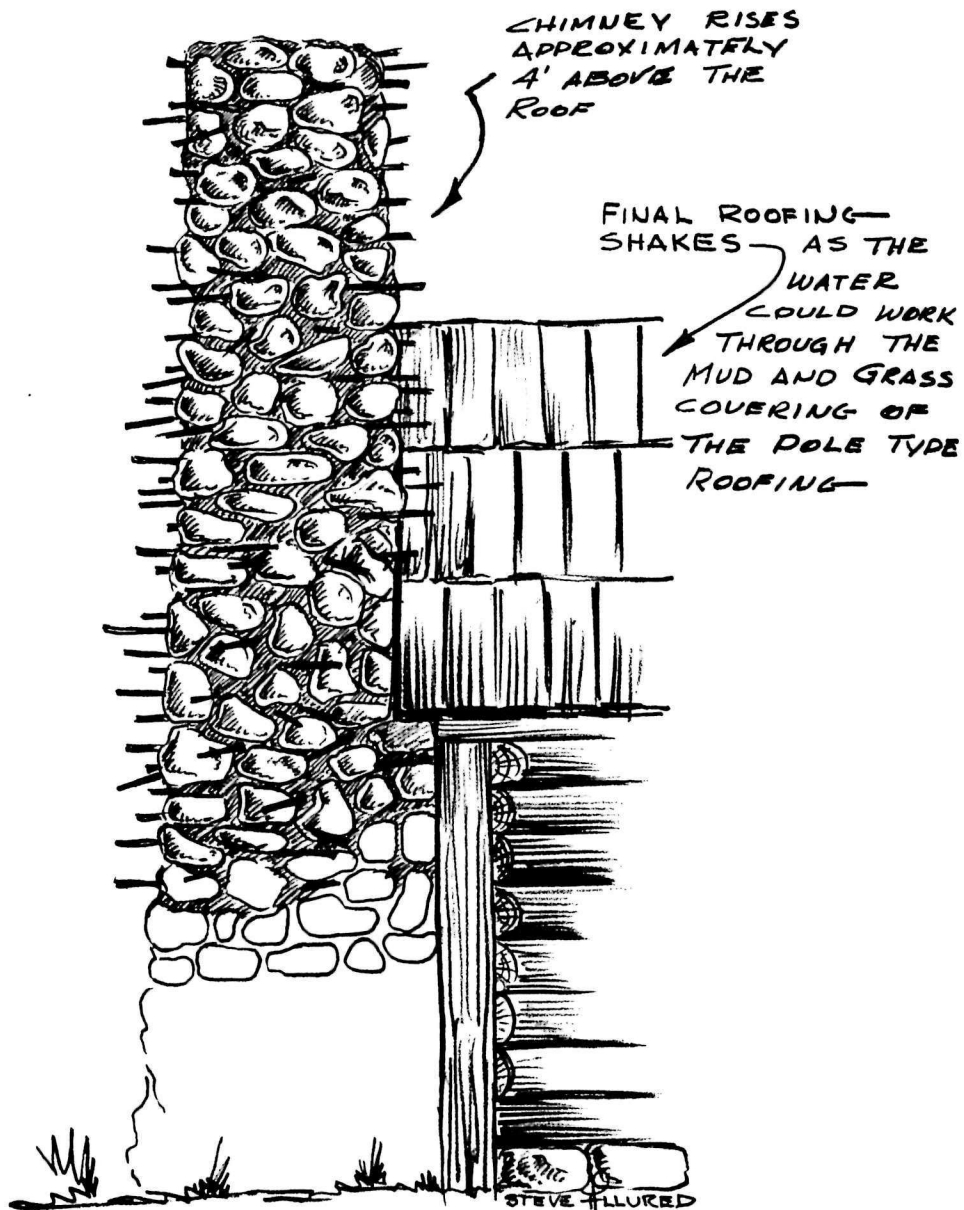
to what other tools were used in construction, to what extent wood was available locally, and to what degree local vegetation has changed since the time of construction of these buildings, or what woods other than cedar were utilized, all remain unanswered.

Finan McDonald and Jaco Findley are reported to have been the builders of Spokane House.



ANY CHINKING—NEED WAS DONE WITH MUD & LONG GRASS PRESSED INTO THE CRACKS.

Figure 9



THE CHIMNEY WAS MADE OF STONE AND MUD CRUDELY WORKED WITH STRONG POLES OR STICKS AND LAYERS OF GRASS TO HOLD THE STONES IN PLACE. THE WALLS OF THE FIRE PLACE WERE APPROXIMATELY 18" THICK, 3' TO 4' WIDE OPENING BY ABOUT 15" DEEP. THE FLOOR OF THE FIRE BOX WAS RAISED A LITTLE.

Figure 10

POSSIBLE ROOFING OF SPOKANE HOUSE

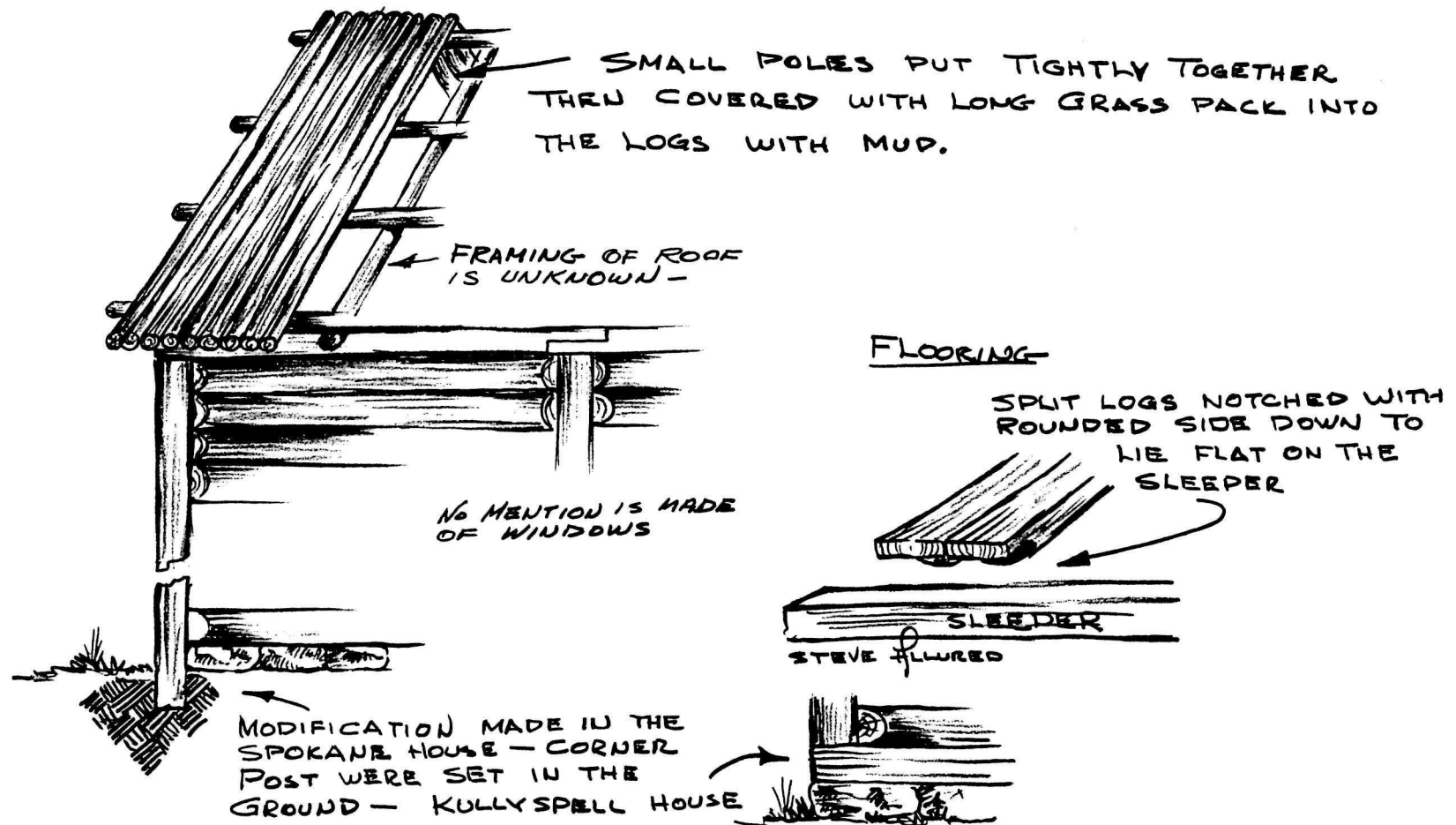


Figure 11

Sketches and Notes on Fort Spokane,
1812-1826

More useful information has been preserved regarding construction of Fort Spokane than remains for Spokane House, although the amount of detailed information still is meager. Several entries from the diary of Hudson Bay Company Journal (Caywood 1954, p. 75-85) for the years 1822-1823 are particularly helpful:

The entry of August 19 states that eight men were sent to square posts and beams.

The entry of August 23 says, in part, "the remaining part of the men putting up the frame of the store . . ."

The entry of August 24 states that "Today the men finished the frame of the store."

So little actual construction is described in these accounts that it is almost impossible to sketch the framing of the store. It may be assumed that beams were used across the width of the store building, but how many beams were employed and how far apart they were spaced is not known.

The entry of August 26 states, "Today all hands except the sawyers putting up the ridge pole of the store and the flag staff . . ."

From this point on the men were starting to lay the foundations and soles for the men's houses, except for one man who was employed in cutting roofing wood for the store. Roofing material probably consisted of a long type of shake, rather than board on board construction.

Throughout the entries of Finan McDonald, he repeatedly notes that men are engaged in various activities such as putting up the frame of the buildings, and then at a later time, the men are reported doing the same thing again. Such references suggest that several buildings were under construction at the same time.

The entry of September 11 states that "The sawyers have cut 200 pieces of wood for the roof of the store, they require to cut 200 more."

No mention is made of having more than one saw, a whip-saw, for cutting boards; and because the men were able to saw only 100 lineal feet a day, the number of boards required for all the work around the fort represented a tremendous amount of work. Such limitations must have complicated greatly the undertaking.

The entry of February 13 states, "The sawyers have been obliged to lay up the saw before they have finished the boards for the roof of the store the saw being so much wore down that it will not cut."

The entry of February 15 continues with the comment that the sawyers could cut boards in two with the worn out saw, but that was all.

Several terms used in reports of construction work at the Fort Spokane site are no longer in use, and a list of these unfamiliar items of terminology follows with present-day equivalent terms suggested where possible:

Soles = sills.

Blinds = (?) used in the bastions.

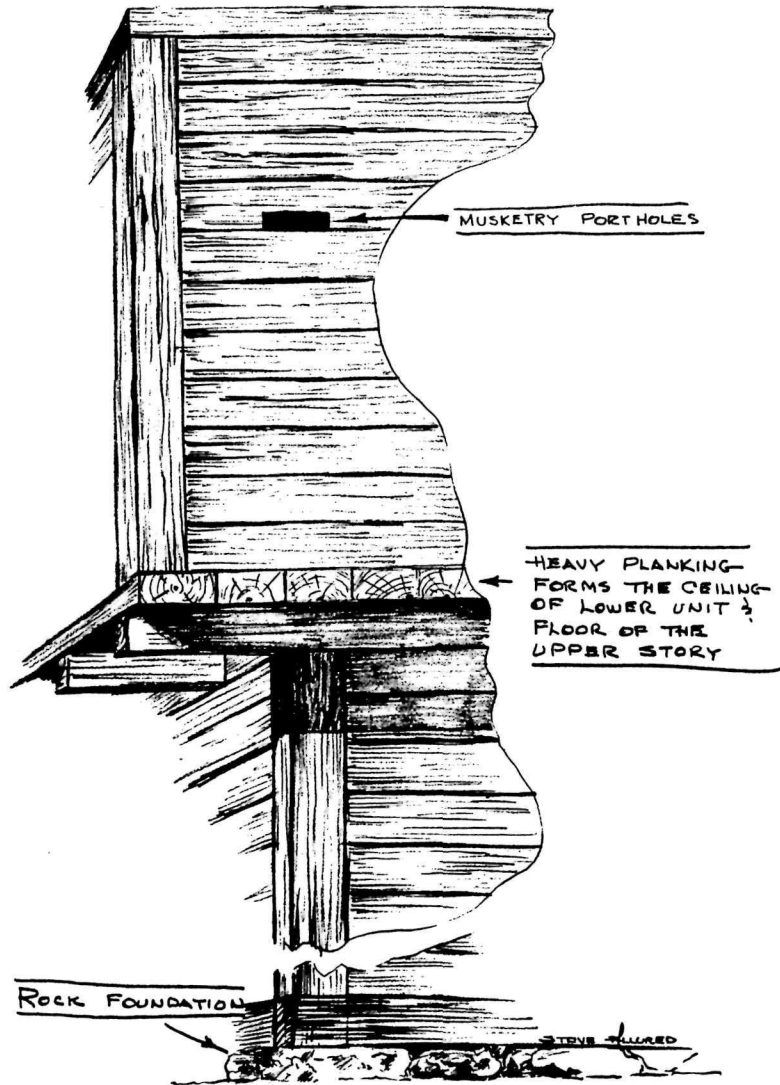
Sleepers = (?) sills?

Roof tree = ridge pole.

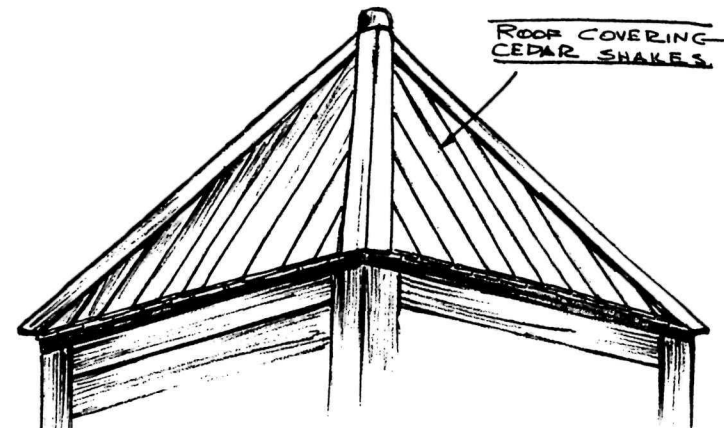
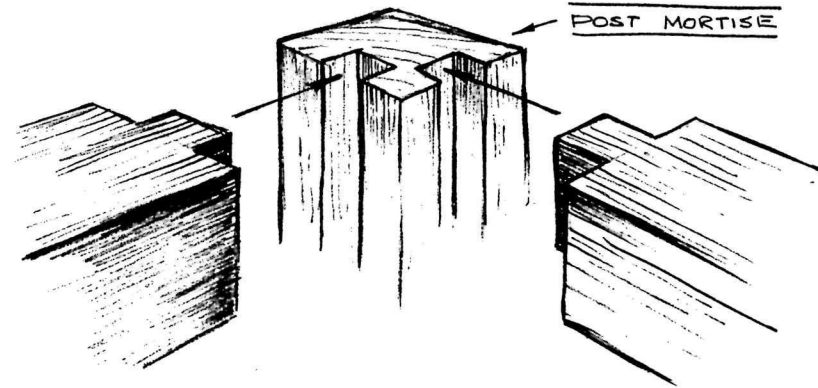
Needle beam = (?) plate.

Log columbage = A system by which vertical posts are erected at corners and at doorways, each post having a vertical groove running its full length to accept the sharpened ends of small horizontal logs. These horizontal logs extend from post to post, forming the wall surface. Thus the weight of the upper structure of the building is carried to the ground through the vertical posts. It is of particular interest to note that such construction reflects the influence of French Canadian techniques of the day; the resulting log structure differs from the common visual conception of log buildings built from unfinished horizontal logs interlocking at corners, a method of construction popularized in the New World by Scandinavian settlers.

BASTION DETAILING—
"POST IN THE SILL"



POST IN THE SILL



OLD BLOCKHOUSE OF H.B.C. ON MARCUS FLAT
IN STEVENS COUNTY. FROM HALTONE IN VOL. I p. 25
SPOKANE & THE INLAND EMPIRE BY N.W. DURHAM

Figure 12

Figure 13

ENTRY OF AUGUST 1, 1822 (THURSDAY)
 "WE SENT OFF SEVEN MEN TO SQUARE WOOD FOR
 THE NEW STORE. 11 FEET LONG BY 7 INCH WIDE
 ONLY ON TWO SIDES TO BE SQUARED."



AND SEVEN OTHERS TO CUT PALISADES FOR THE
 FORT 15 FEET LONG AND SQUARED ON TWO SIDES.
 THE FORMER SQUARED 35 PIECES AND THE LATTER
 50 PIECES..."

ENTRY OF AUGUST 17, 1822 (SATURDAY)

"THE MEN RAFTED DOWN TO THE FORT 56 PIECES
 OF WOOD 11 FEET LONG 4 SOLES 49 FEET LONG
 2. 28 FEET LONG AND A FLAG STAFF..."

ENTRY OF AUGUST 20, 1822

"THIS MORNING WITH THE ASSISTANCE OF ALL HANDS
 WE PUT THE SOLES OF THE STORE INTO THERE PROPER
 PLACE AND AFTER THAT THE MEN RESUMED THEIR
 WORK ONLY RETAINING TWO FOR TO CUT THE
 SOLES AND JOIN THEM TOGETHER"

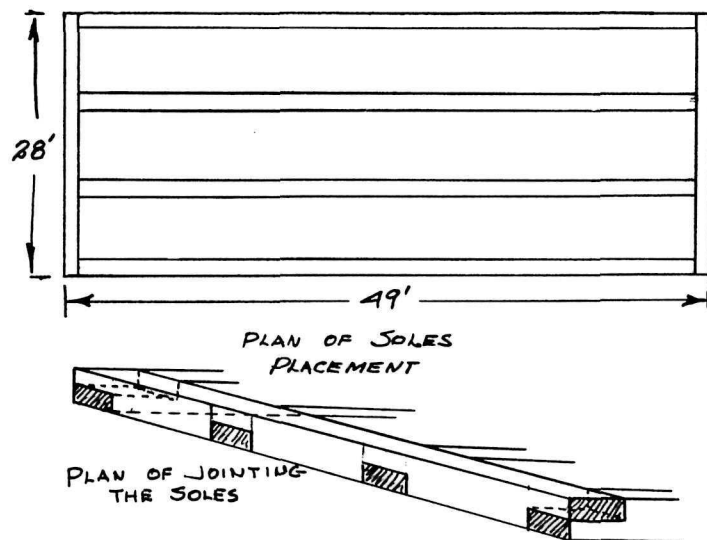


Figure 14

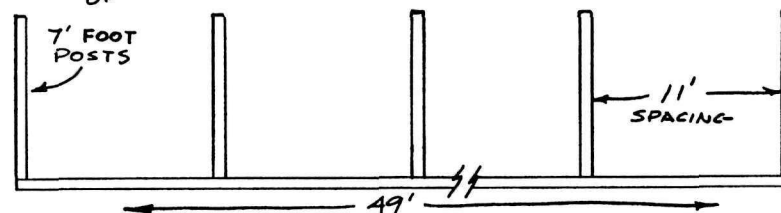
NOTE

THE FOUNDATION WAS MADE OF FLAT STONE UPON
 WHICH THE SOLES WERE LAID.

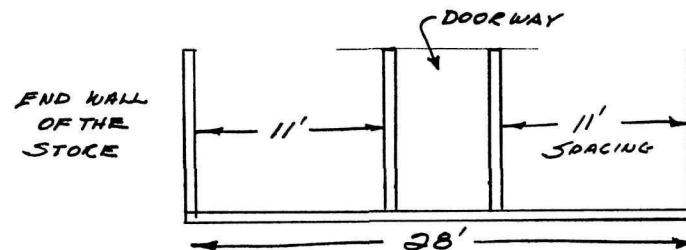


NOTE

THE WALLS OF THE STORE WERE "POST IN THE SILL"
 TYPE SO THIS MAY BE THE WAY THEY WERE PUT
 UP



A SPACINGS USING 11' = 44' OF THE 49' LEAVES
 5' OF WHICH THE POSTS WOULD HAVE TO TAKE UP.
 WITH NO KNOWN MEASUREMENTS FOR THE POSTS.
 THEY WOULD HAVE TO BE 1 1/2" IN THE ONE MEASURE.
 AND FROM THE NUMBER OF PIECES 11' INDICATED
 BY "MR. FINAN McDONALD" THE WALLS WERE SOMEWHERE
 NEAR 7' HIGH.

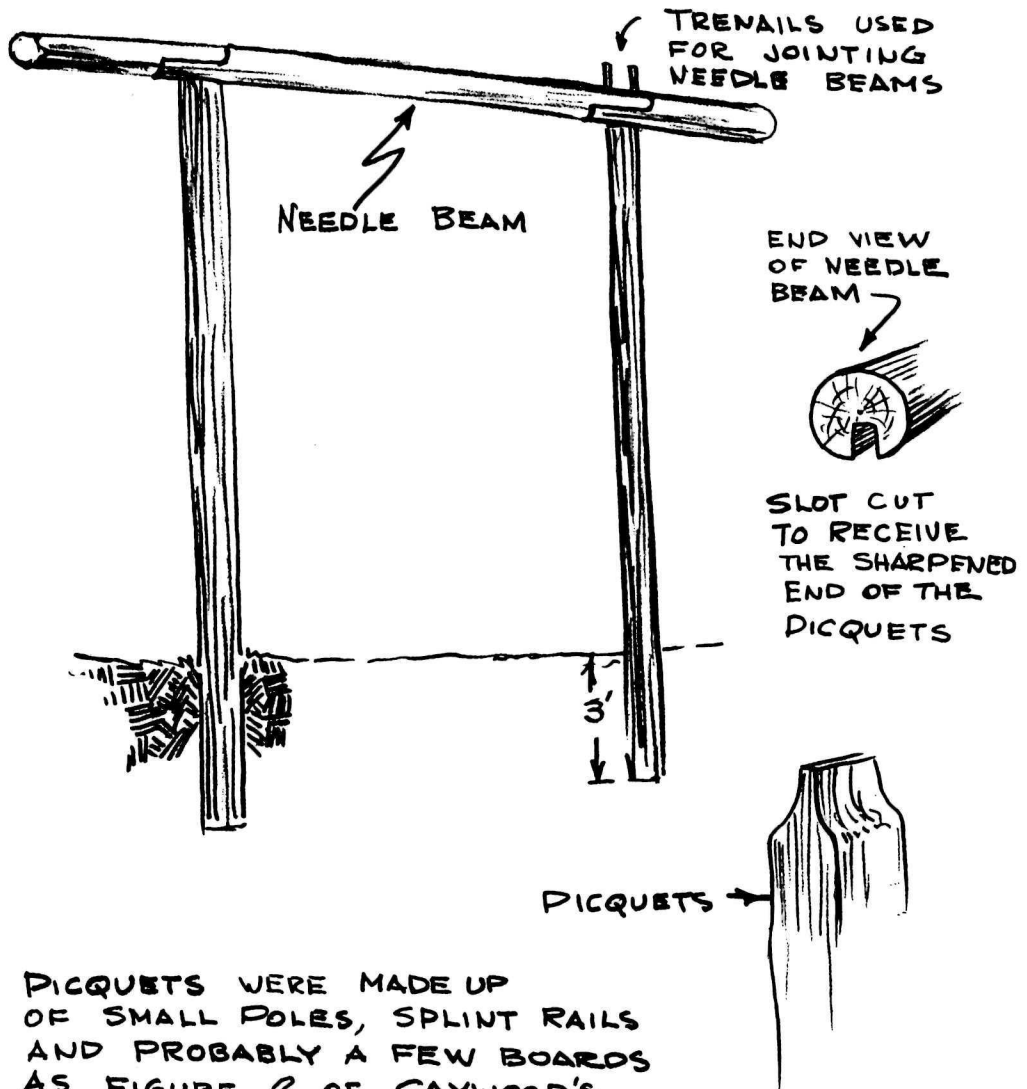


THE DOORWAY WOULD FIGURE OUT SOMEWHERE
 BETWEEN 3 1/2' TO 4' WIDE.

Figure 15

POSTS & PICQUETS

FOR THE PALISADES - 15' POSTS SET ABOUT 3' INTO THE GROUND AND FROM APPROXIMATELY 12' TO 14' APART



PICQUETS WERE MADE UP OF SMALL POLES, SPLINT RAILS AND PROBABLY A FEW BOARDS AS FIGURE 2 OF CAYWOOD'S REPORT SHOWS.

A TRENCH DUG BETWEEN THE POST RECEIVES THE BOTTOM END OF THE PICQUETS.

Figure 16

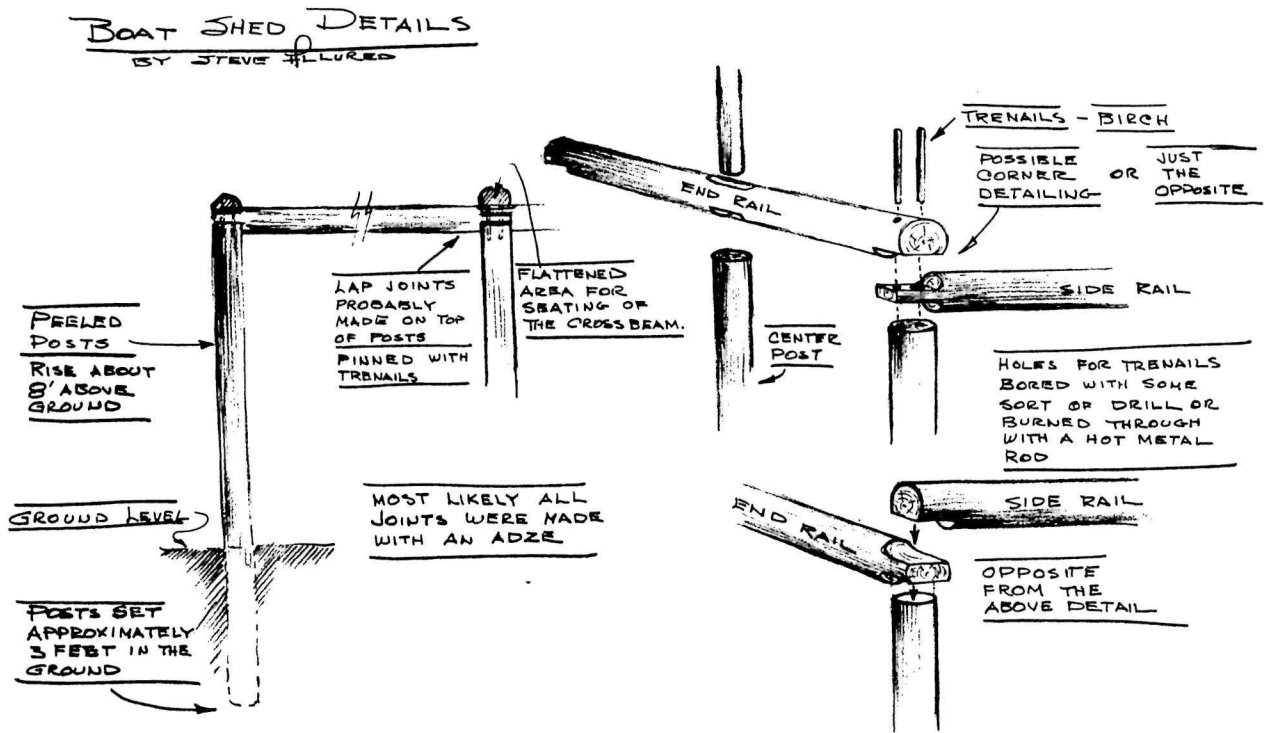


Figure 17

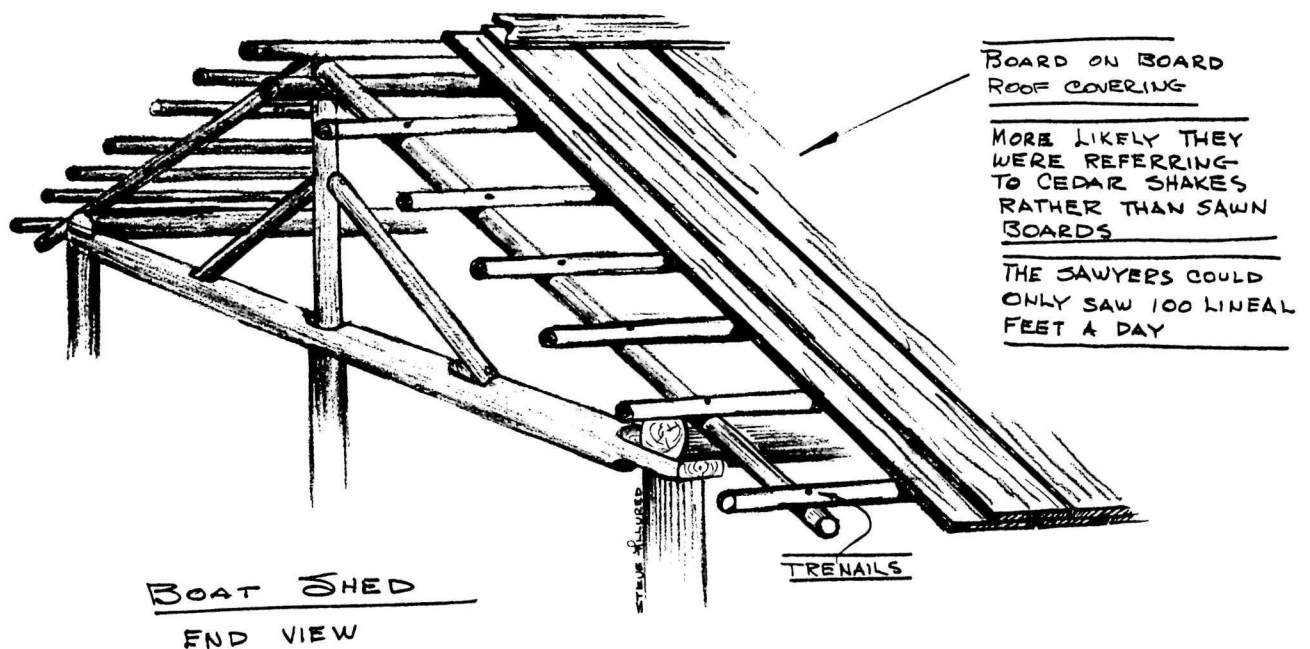


Figure 18

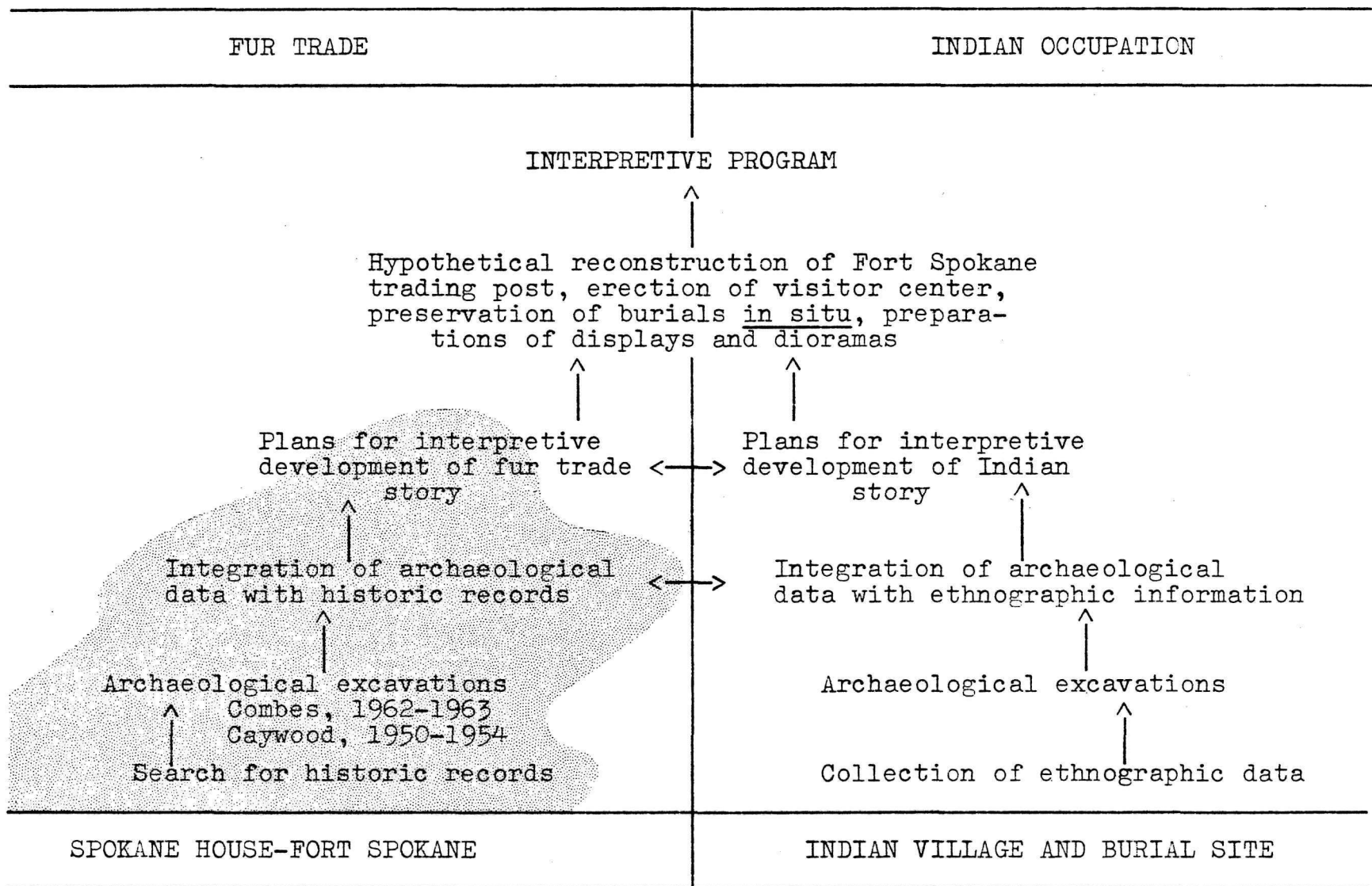


Fig. 19.--Diagram of suggested steps in the development of an interpretive program at the Spokane House-Fort Spokane Historic Site (shaded area indicates steps completed at the present time).

RECOMMENDATIONS FOR INTERPRETIVE DEVELOPMENT

A unique opportunity to interpret the early fur trade story of the Pacific Northwest is offered by the Spokane House-Fort Spokane historic site. It was not only the beginning of economic enterprise in what is now the State of Washington, but also was an area where the European trader and Spokane Indian lived harmoniously for a period of at least 16 years. The story of the fur trade cannot be told through a study of the European occupation alone; and a meaningful interpretation must include ample coverage of Indian participation in the fur trade as an integral part of his way of life. No other historic site in the State of Washington offers so much in a single location.

The inherent historic value of the Spokane House-Fort Spokane site, the intense interest afforded this important area, as well as the time and money already invested for archaeological and historic research, all seem to warrant a comprehensive interpretive program. Figure 19 diagrammatically illustrates a suggested series of steps by which the information necessary to development of such a program may be collected.

An intensive search for historic records and ethnographic data pertaining to the area should provide the backbone for the entire interpretive story, with archaeological excavations and explorations to follow as funds permit. For Fort Spokane, this phase has been completed; excavation of the area of Indian occupancy has not yet been carried out.

When archaeological research has been completed, these data must be integrated with the historic and ethnographic information already at hand.

Finally, detailed planning for the interpretive development completes the study.

Using Fort Spokane as the focal point of interest, the fur trade story could be interpreted any one of several ways. For example, structural information concerning construction details would permit only a hypothetical (rather than a precise) reconstruction at this time. Instead, the palisade and associated structures might be indicated using inexpensive concrete markers sunk to ground level, thus simplifying maintenance problems. Interpretive signs could point out areas of particular interest including the forge hearth area, fire hearths, and cellar depressions.

Jacob Finlay, a man of considerable historic importance, was one of the builders of Spokane House as well as a noted gunsmith. Men were known to travel hundreds of miles seeking his talents. Reburial of this frontiersman's remains in their original resting place would be fitting and would provide a significant historic point of interest.

A visitor center housing permanent displays and dioramas will be a necessary part of the development. The items recovered to date number well over 5,000 and certainly should be the basis for several informative displays.

The burial ground located during this study offers another excellent opportunity for illustrating the trade goods most prevalently utilized during the fur trade era. The most effective illustration would be achieved by excavating an area in the burial ground, exposing and preserving the graves as they are found. Skeletal material and grave goods (consisting of all the personal possessions of the deceased), could be stabilized by the application of an inexpensive resin (see Appendix A). The graves then should be covered by glass, fitted with indirect lighting, and housed in a separate building. A display of this dramatic nature would illustrate effectively burial customs of the time, would emphasize the impact of trade goods on Indian material culture, and would present the trade materials which provided the Indian his incentive to obtain furs.

The Indian site of occupation should be excavated and interpreted for the sake of its own value as well as its relationship to the trading post. Salmon fishing at this site was extremely important to the occupants and interpretation of the area should include markers pointing out the locations of known fish traps.

Local flora and fauna might well be included in a comprehensive interpretive program, for both traders and Indians were dependent on local game, and native plants provided essential staples in the Indian diet. Pictorial placards stationed in appropriate locations should enhance the overall understanding of the area.

A carefully planned and executed total development of the Spokane House-Fort Spokane Historic Site would give the State of Washington an interpretive development unequaled at any historic site in the Pacific Northwest.

SUMMARY AND CONCLUSIONS

Evidence encountered during this study still leaves the location of Spokane House a mystery. It is now possible, however, to appraise possible locations for the site of Spokane House far more critically than before. Without archaeological data there were as many plausible locations for Spokane House as there are interested people.

C. S. Kingston's (1948) suggested location for Spokane House would place this structure or structures either right in the middle of or right next to the extensive burial ground located by these excavations (Area A). This is a highly unlikely site for any post concerned with maintaining good relations with local Indians. Also, the recovery rate of artifacts in this region is extremely low (Table 2). One find per 2 cubic yards of sifted earth certainly does not constitute adequate evidence to support this location as a likely site for Spokane House, particularly since the materials recovered are mostly Indian rather than European in origin.

Advocates of the "island theory" for the site of Spokane House, as spelled out by Jerome A. Peltier (1961), could not be substantiated archaeologically. The island concept came from a sketch map included in a book written by Alexander Ross (1848), who placed the location of Spokane House on an island. Mr. Peltier's study is well thought out, and provides a useful piece of research, particularly because of the data gathered within it. It is understood that the area suggested by Peltier (Area C) was used extensively for agricultural purposes in the thirties, and was most likely disturbed considerably. However, in this location also the few artifacts found are predominantly of Indian manufacture (Table 2), and the case is further weakened when it is noted that Ross' map is grossly inaccurate in respect to general topographic features.

While excavating Area C, the low rate of artifact recovery, and the apparent slight use of the area by Indians implied by this scarcity of finds, became obvious. In an attempt to discover why this might have been so, aerial photographs taken over a period of the past 30 years were examined; existing topography of this area was examined in the field; and the area was interpreted by a geologist (see Appendix A). In each of these cases, information obtained indicates that Area C is subject to flooding during periods of high water. Long Lake Dam was thought to complicate this problem, because the reservoir ends at the tip of Area C. This possibility was investigated during a period in

which the reservoir level was down, and draw-down of the reservoir was found not to change significantly the river level at the particular spot in question.

As pointed out previously, exploratory trenching of Area A revealed the location of an extensive burial ground. This was documented further in 1963 by use of an electronic metal detection device.

Area B, west of the boathouse marker, provided the study with many items of European origin. This location was most likely a work area.

On the basis of information obtained through discussions with local residents and by inspection of private collections of artifacts, the main Indian camp probably was located on the west bank of the Little Spokane River, east of the old log barn still standing on Park Property. The actual camp, however, appears to have been situated on property not now owned by the State Parks.

The differences in number and distribution of European and Indian cultural material recovered during both seasons is noteworthy. In the course of work outside the boundaries of the fort area, most specimens recovered were of Indian origin; while excavating within the fort, the material recovered was predominantly of European origin. This distribution of artifacts strikingly verifies intensive use of the fort area by the Europeans. Large numbers of glass fragments, ceramics, metal, pipes, beads, and other objects of obvious European derivation found within the fort give good evidence of the area used most, as well as indications of items commonly used within the fort.

Also quite interesting is the large number of sheet iron washers found in Area B as opposed the number of those found within the fort. This concentration suggests that use of washers at the work area probably was for boat construction rather than in building the fort itself. The large number of nails found in the fort provide ample evidence of their importance to construction work within the palisade.

Although work in 1963 resulted in location of the forge hearth and a remnant of structural detail (the cornerstone and post), the search for structural remains that might have provided positive evidence for building size, location, and type of construction was otherwise fruitless.

As a result of this two-year study the following summary of work accomplished and of conclusions may be made:

1. An extensive appraisal of archaeological remains was made at this important confluence area.
2. Two popular suggested theories concerning the location of Spokane House were evaluated archaeologically, and areas suggested by these theories were found to be

essentially devoid of any significant cultural material, and hence may be eliminated from further consideration.

3. An abundance of evidence was recovered archaeologically supporting European occupancy both in the fort and around the fort.
4. Important features, notably the forge area, were located within the confines of the fort walls.
5. The location of an extensive Indian burial ground was determined.
6. Confirming evidence of Indian occupation before and after the Historic period was obtained.
7. Geologic studies show that, except for vegetation, the site remains essentially today as it did in the early 1880's. No significant topographic changes have occurred at the site by means of natural erosion or deposition.
8. At least for the present, reconstruction of Fort Spokane must be based primarily on knowledge of construction techniques known to have been used at other trading posts of that era in the Northwest. Data have been gathered to illustrate the most important of these methods.

The excavations in 1962 did not produce Spokane House. However, they did provide a wealth of equally valuable information concerning the type of materials used in maintenance and trade at this important site. Obtaining such information is an imperative step on which to base any responsible interpretive program for any area. Archaeological data collected during the past two years also has settled disputes on such questions as the location of the burial ground, added information regarding the location of the Indian camp, and by means of negative results has provided information on several possible locations of Spokane House.

Unfortunately, the years of neglect have been costly to what is considered by many to be the most important historic site in the State of Washington.

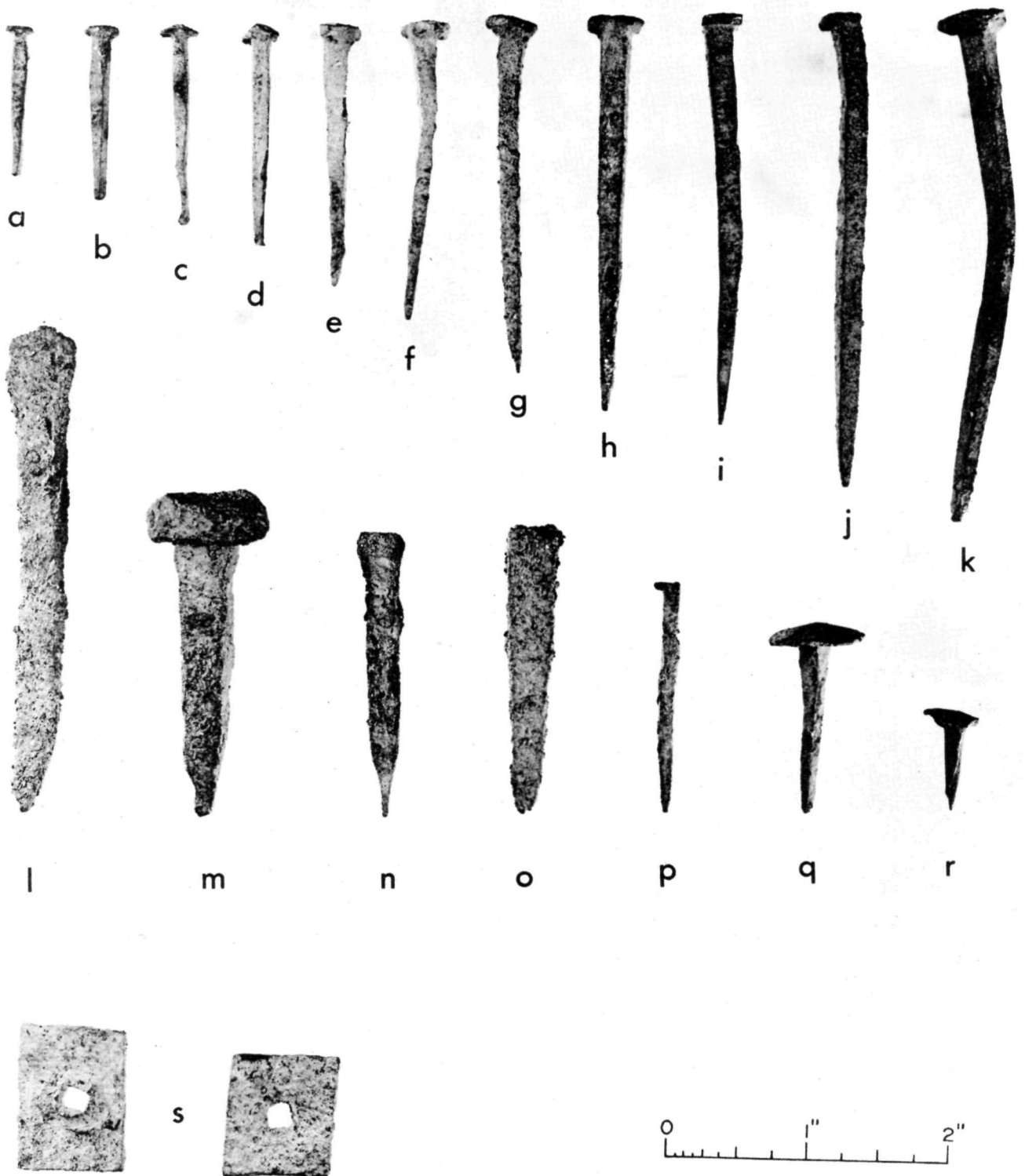


Fig. 20.--Examples of common-sized nails and special purpose nails recovered at Spokane House-Fort Spokane Historic Site.

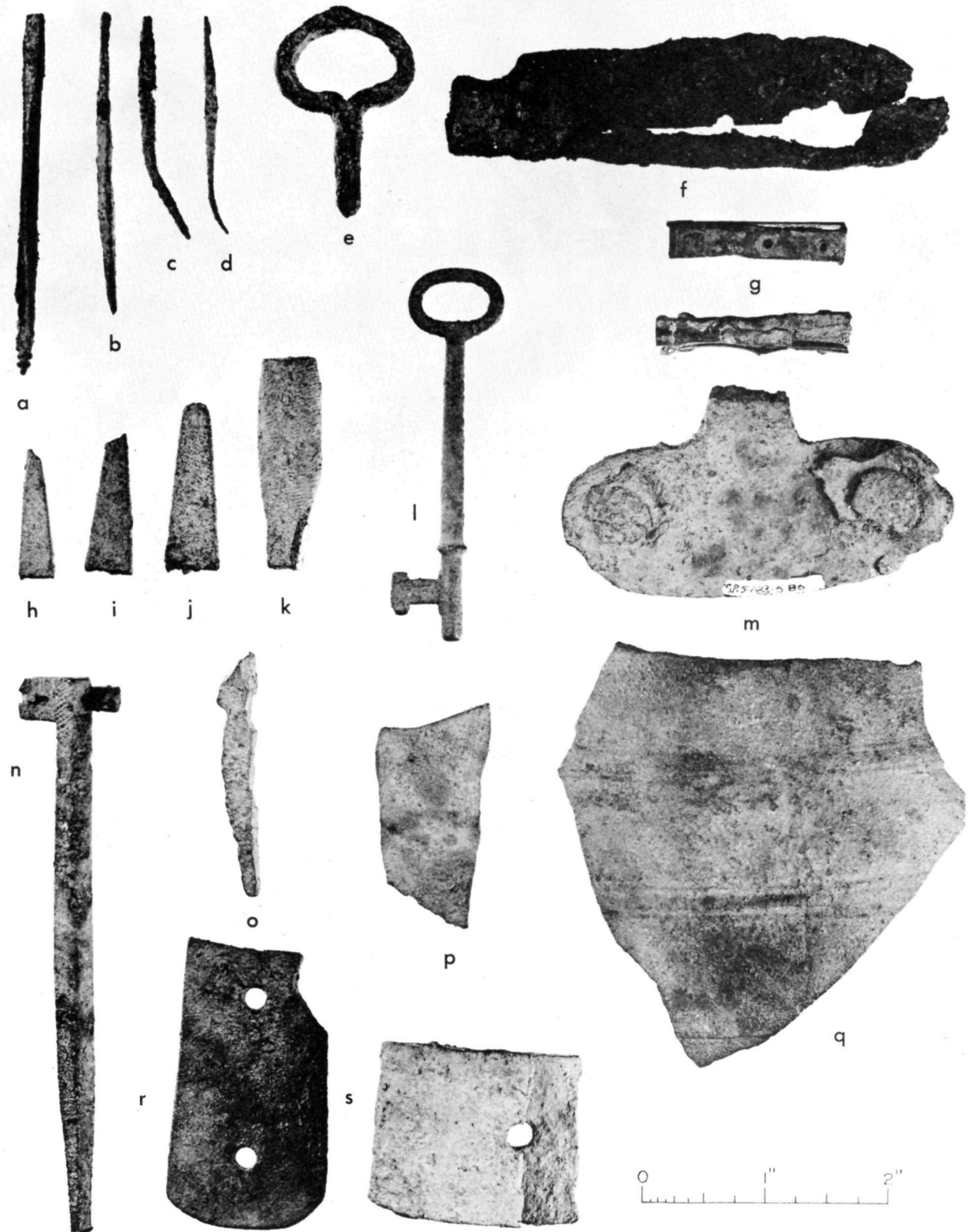


Fig. 21.--Tools and other iron objects.

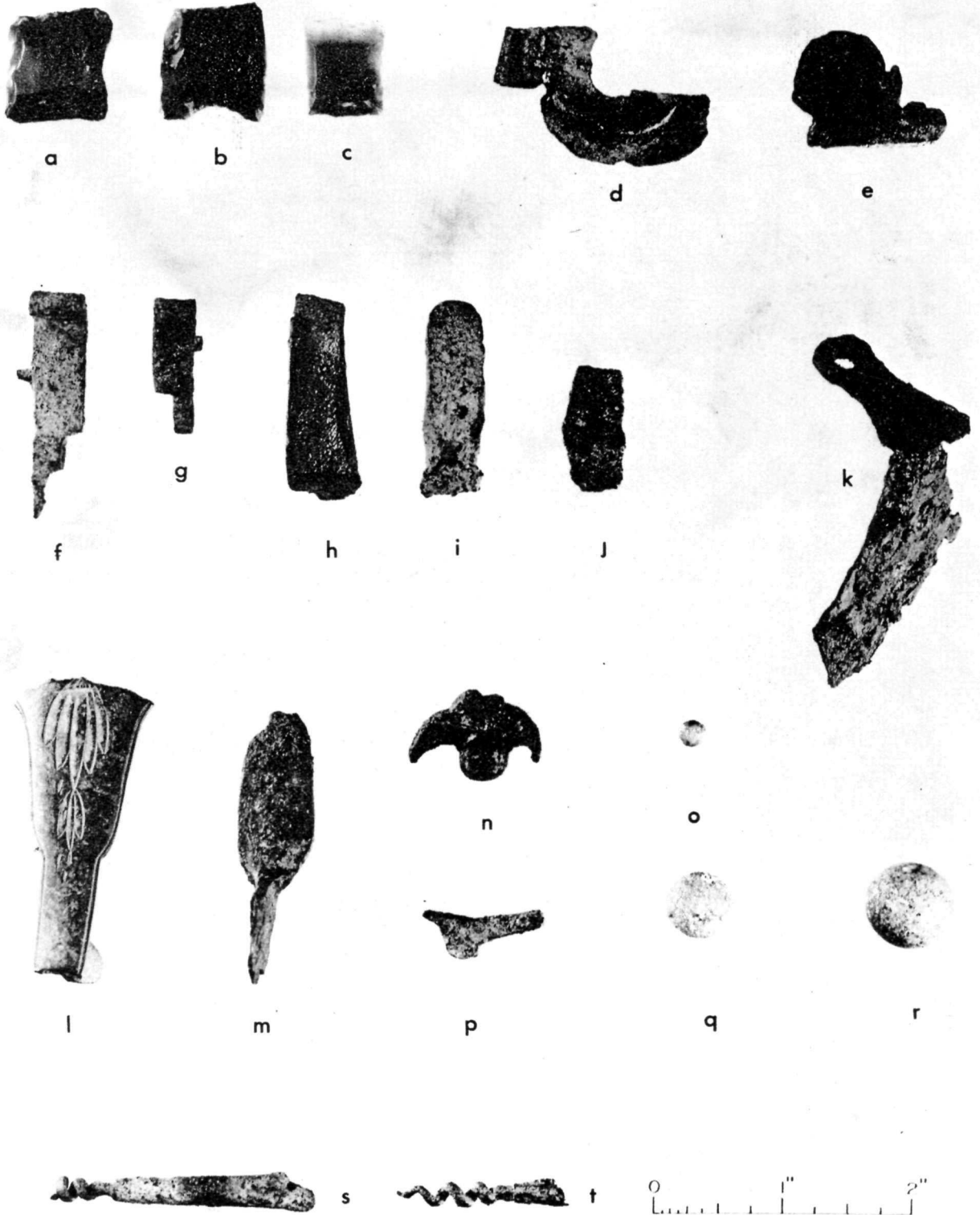


Fig. 22.--Items used in association with firearms.

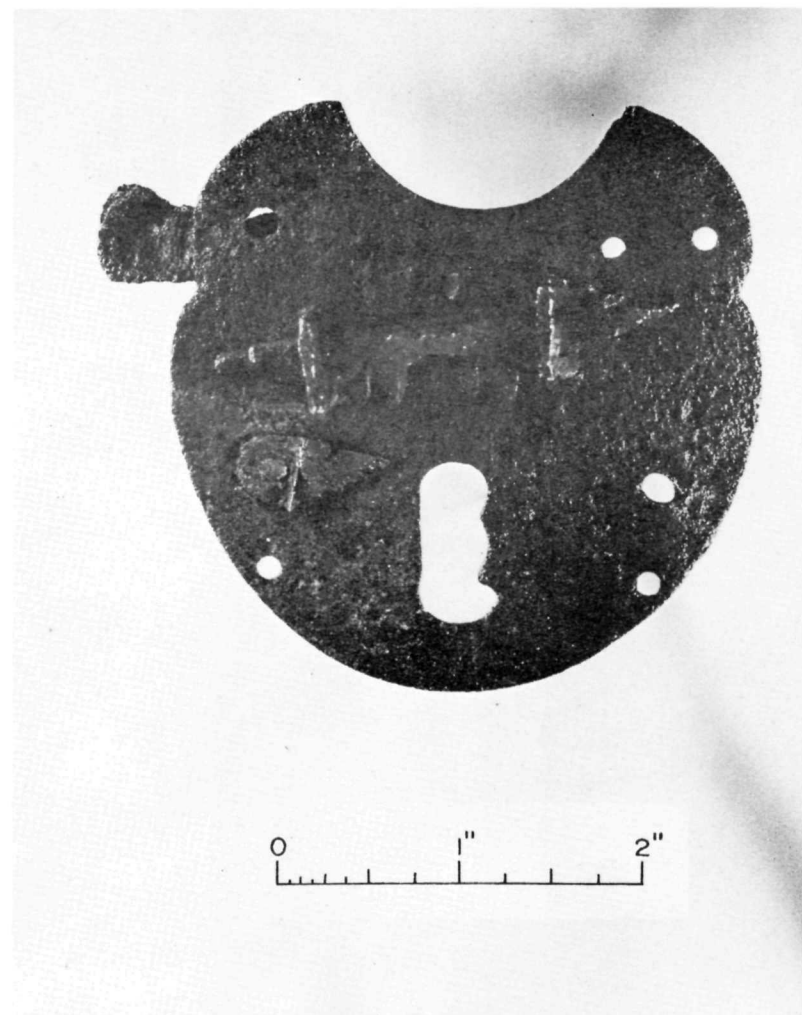
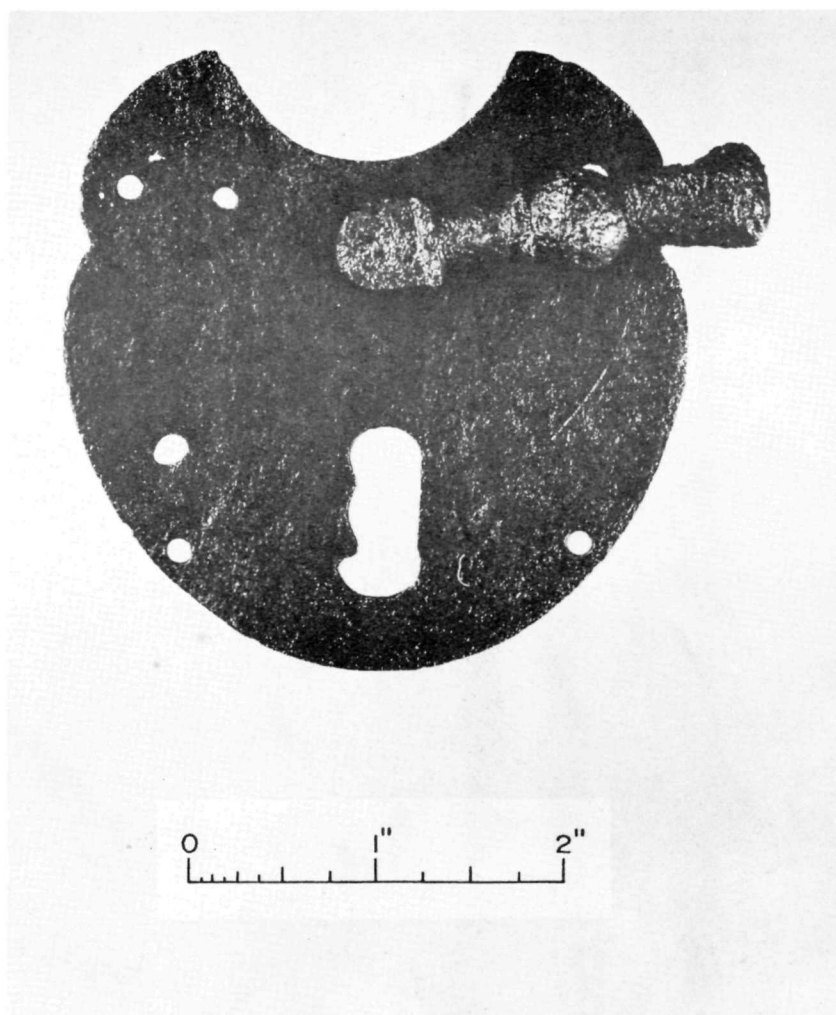


Fig. 23.--Front and back views of handmade lock.

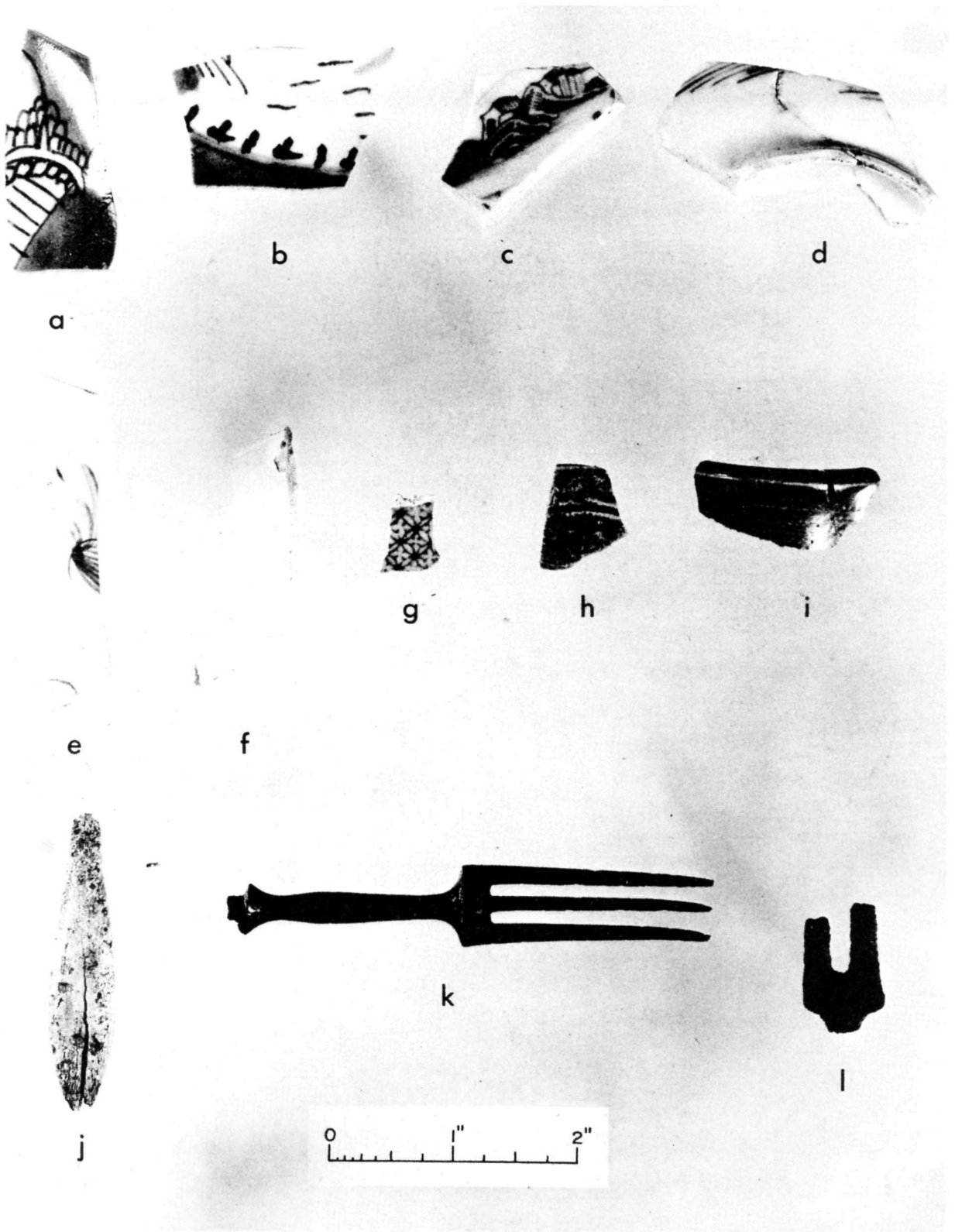


Fig. 24.--Ceramics and eating utensils.

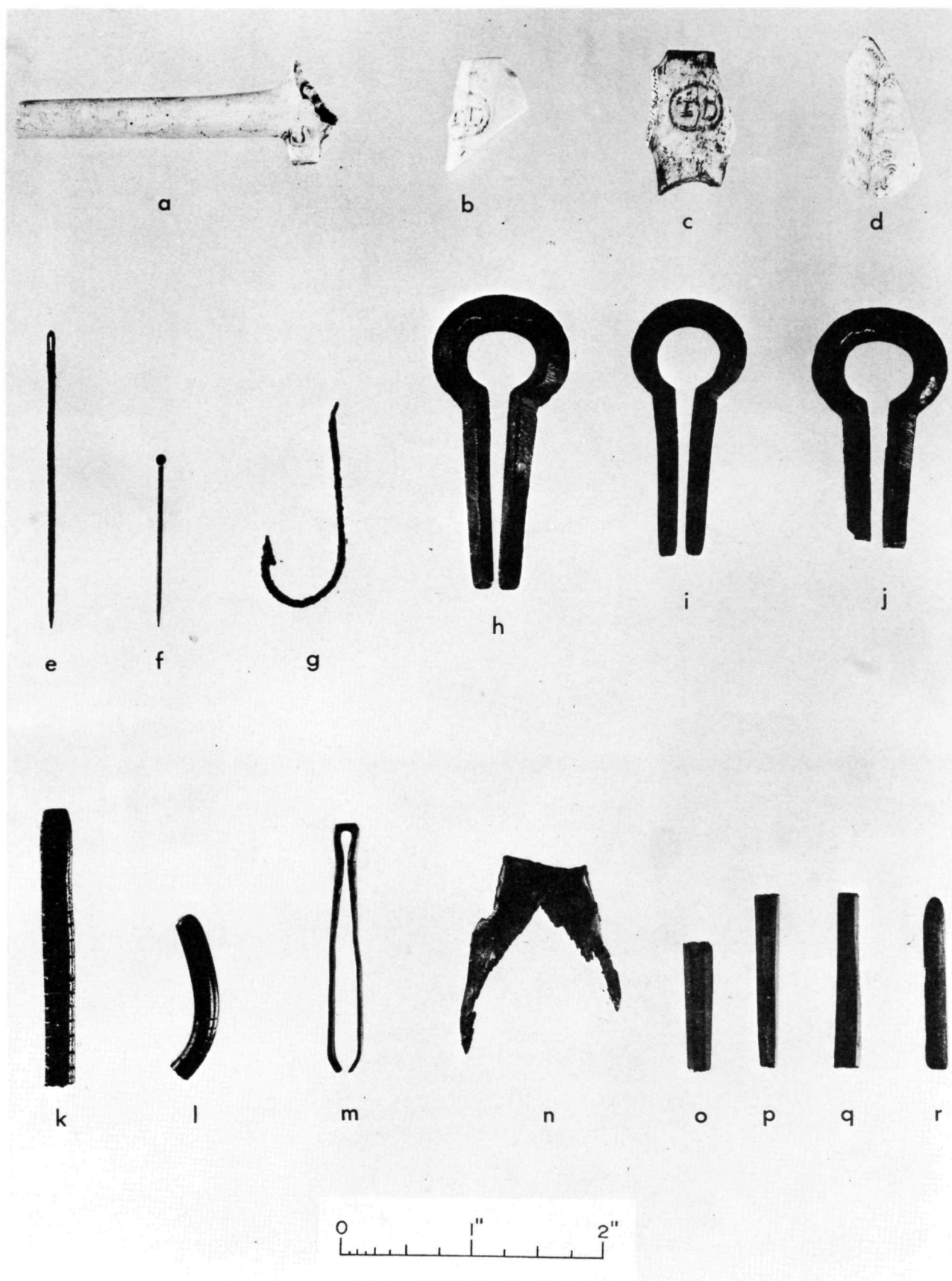


Fig. 25.--Trade goods and miscellaneous items.

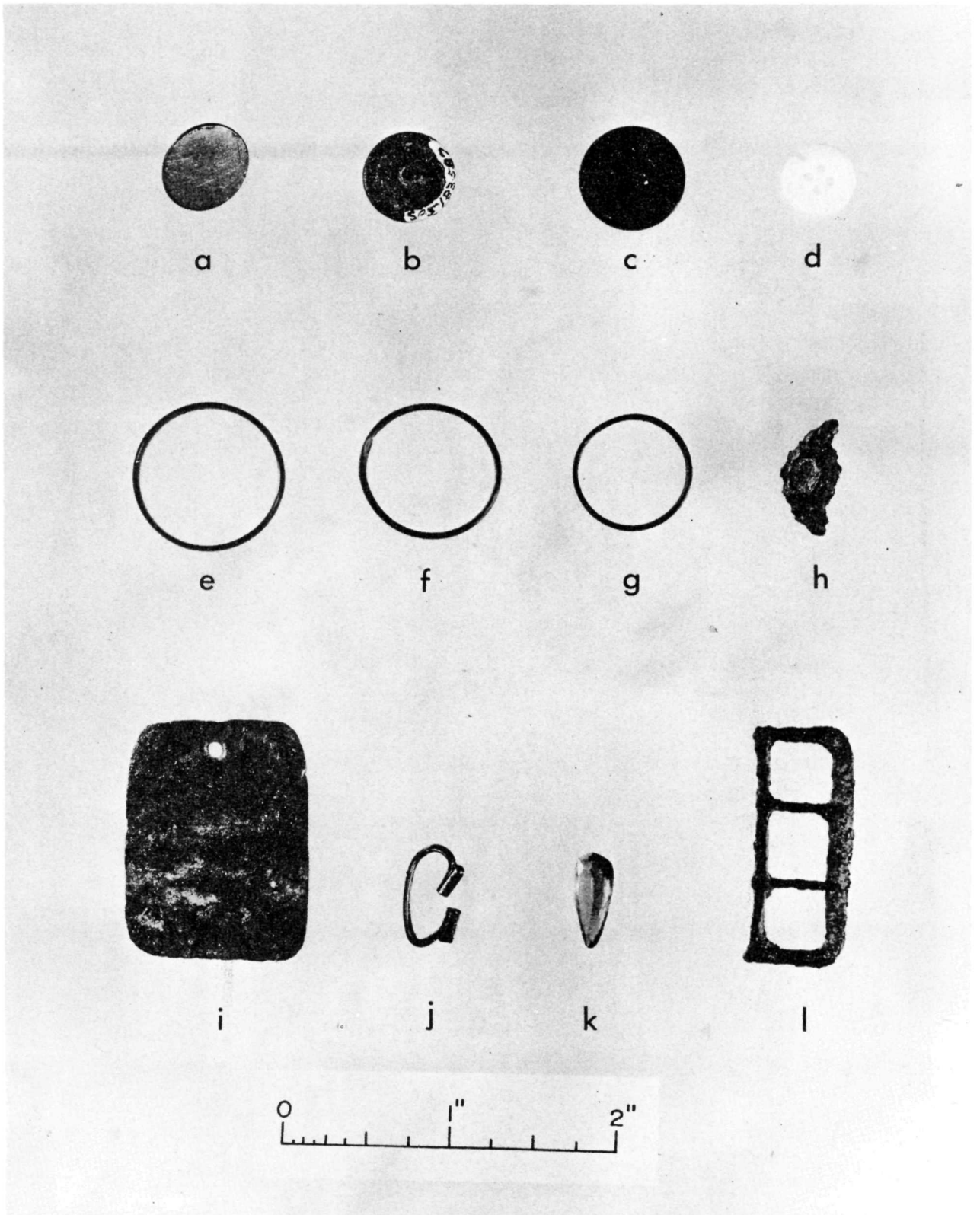
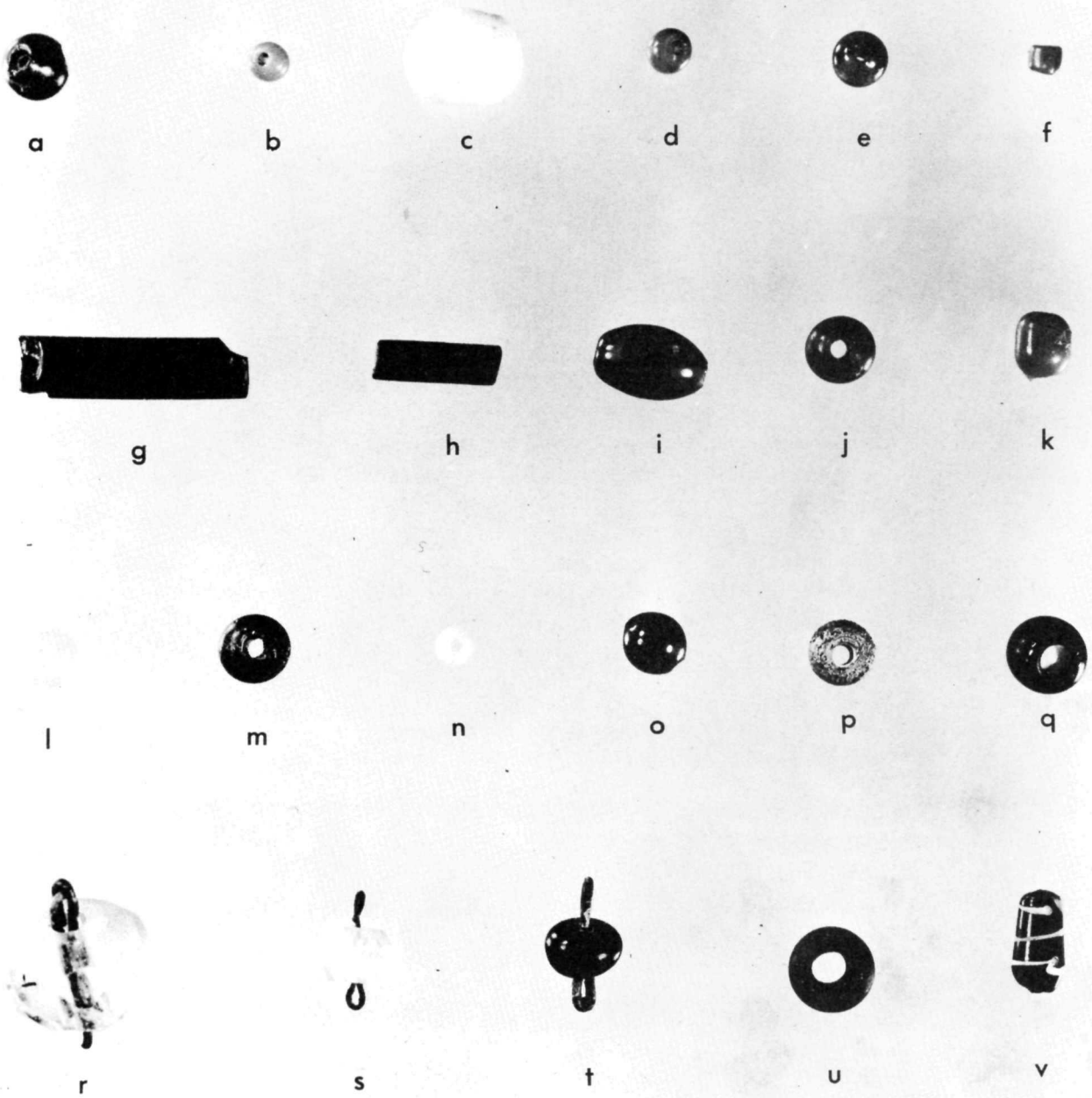


Fig. 26.--Items associated with personal adornment.



Centimeters

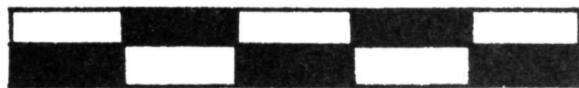


Fig. 27.--Glass, porcelain, and brass trade beads.

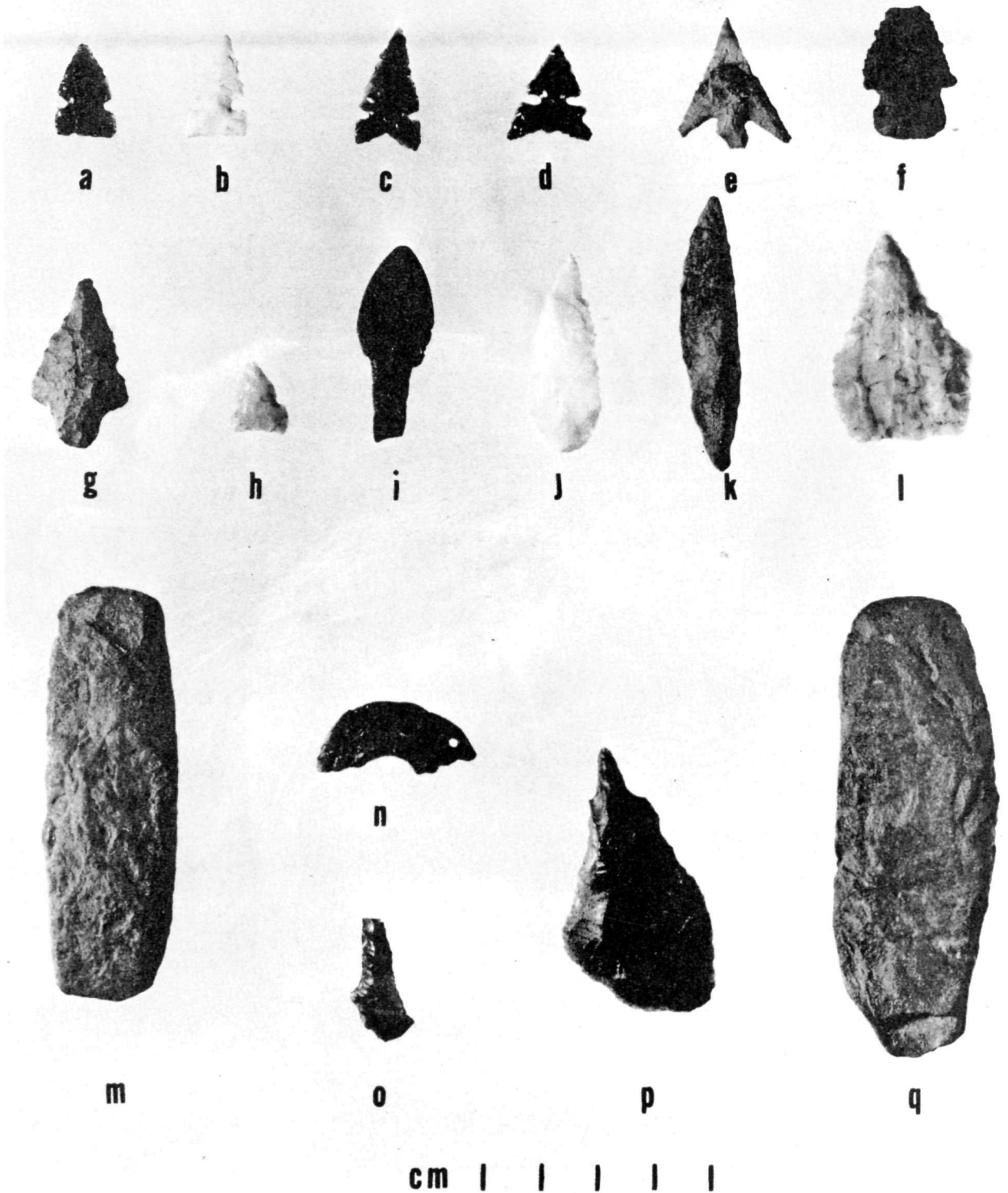


Fig. 28.--Indian artifacts recovered during the 1962 field season, including projectile points, drills, pipe fragment, and scrapers.

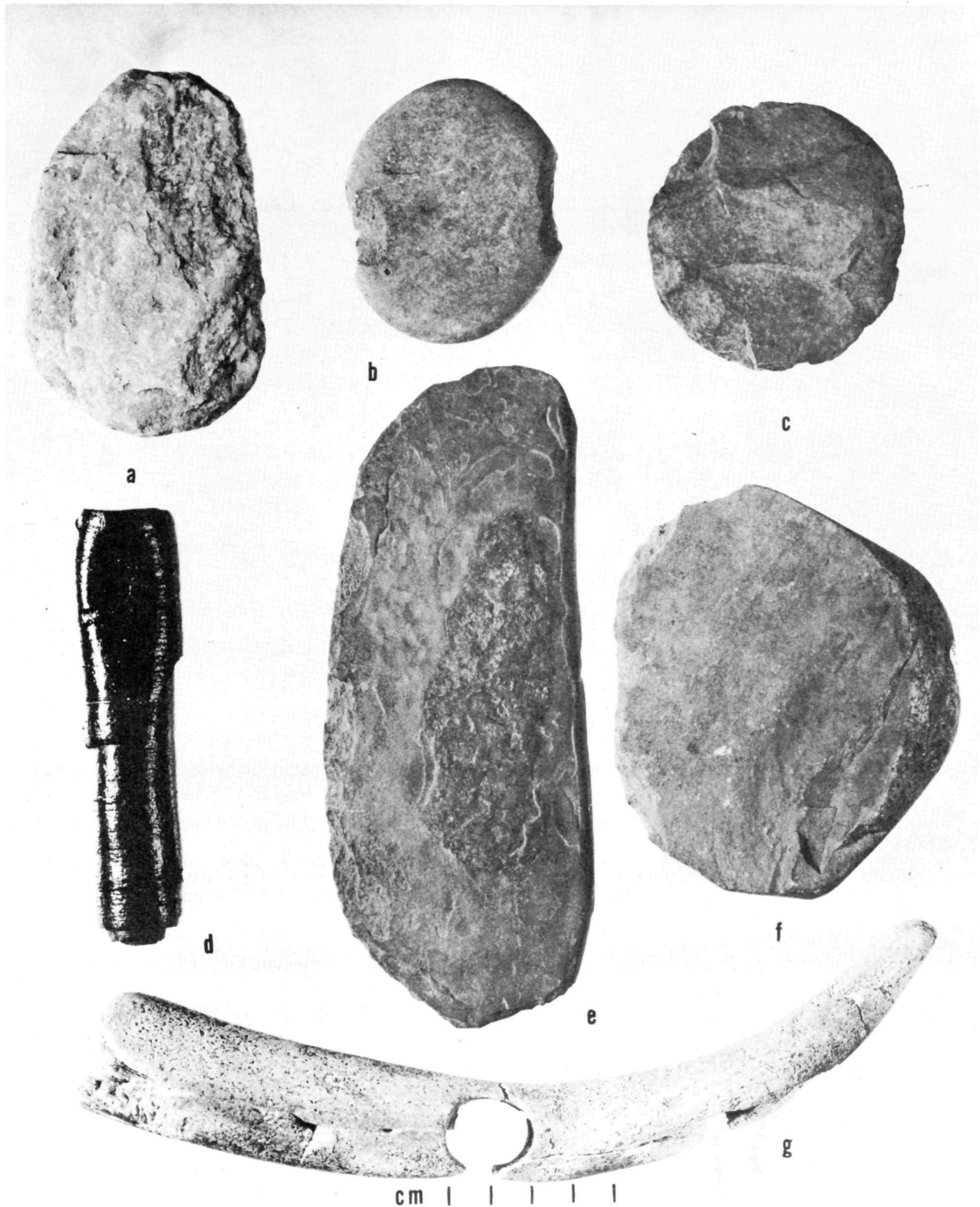


Fig. 29.--Indian artifacts recovered during the 1962 field season, including scrapers, sinker, birch bark roll, and an antler digging stick handle.

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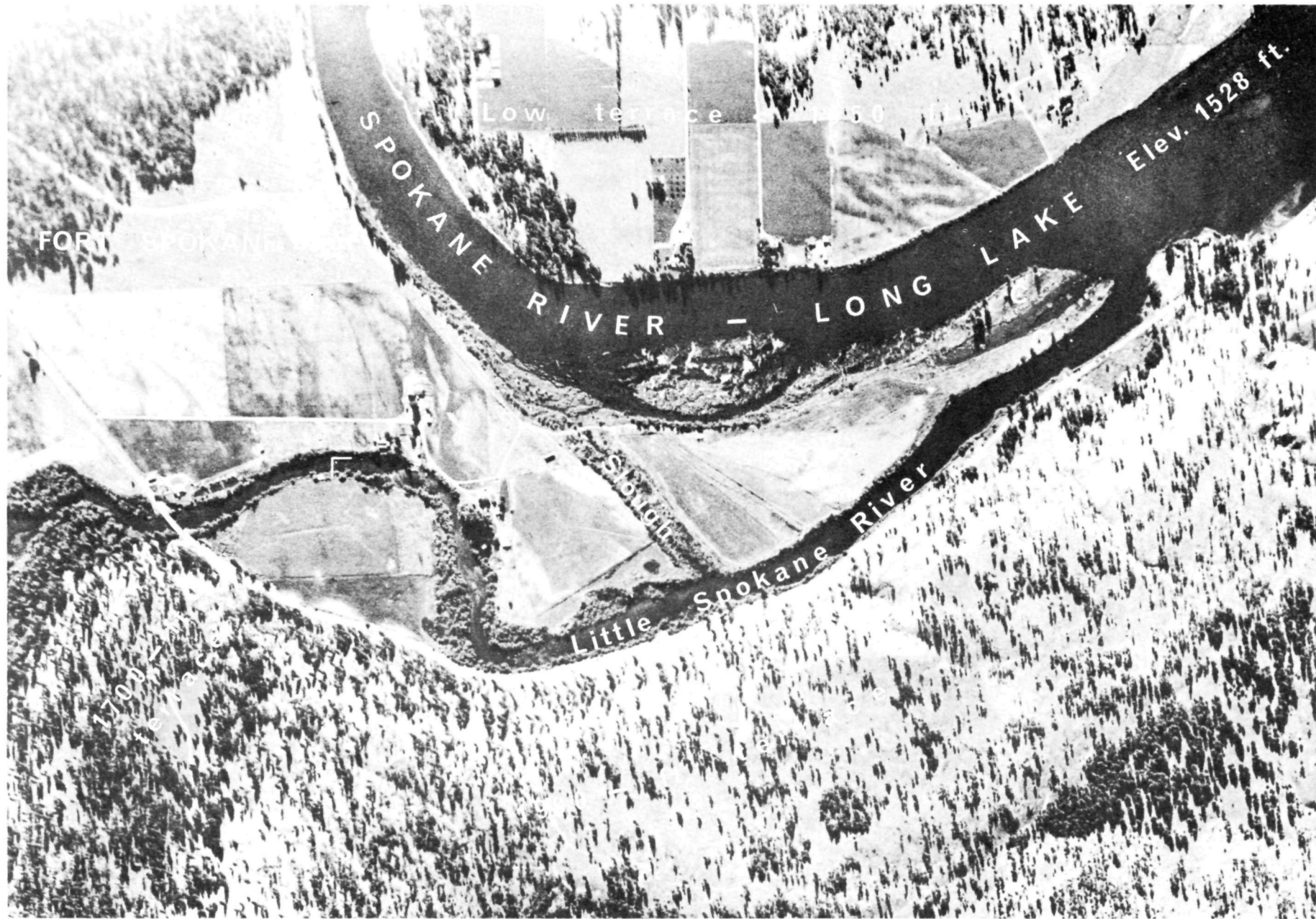
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APPENDIX A

NOTES ON THE GEOLOGIC SETTING OF THE FORT SPOKANE-
SPOKANE HOUSE ARCHAEOLOGICAL SITE, WASHINGTON

By

ROALD FRYXELL



NOTES ON THE GEOLOGIC SETTING OF THE FORT SPOKANE-
SPOKANE HOUSE ARCHAEOLOGICAL SITE, WASHINGTON

by Roald Fryxell

Purpose of the Investigation

Stratigraphic studies undertaken in conjunction with archaeological work at the Fort Spokane-Spokane House site (Smithsonian survey system number 45-SP-5) are concerned with the occupation of two trading posts, which together represent the first permanent commercial establishment in what is now the State of Washington. The earlier of these, established in 1810 by the North West Company, was known as Spokane House. The precise location of Spokane House remains unknown, but it is thought to have been near the site of Fort Spokane, which was established two years later by the Pacific Fur Company of John Jacob Astor. Shortly after, Astor sold out to the North West Company, which moved into Fort Spokane and abandoned the original Spokane House site. In 1821, the North West Company merged with the Hudson Bay Company, which maintained the trading post until 1826 (summarized by Combes, this report). The stockade area of Fort Spokane (Figure 1), and remains of associated structures were partially exposed by Caywood (1954) prior to the present study.

Field examination of trench walls exposed during archaeological excavation of the Fort Spokane-Spokane House site (45-SP-5) was made September 7-9, 1962 for the following purposes:

1. To record through detailed technical description the nature of deposits recording both geologic and human events at the site.
2. To preserve a representative example of site stratigraphy through removal of a column of sediment using soil "monolith" techniques.
3. To assess the stability of present stream channel-floodplain relationships, and thus evaluate the suitability of certain areas for occupation at the time of historic use.

Fig. 1 (at left).--Physiography of the Fort Spokane-Spokane House archaeological site, at the confluence of the Spokane and Little Spokane Rivers. Both streams flow northward, to the right in this picture (the long dimension of the photograph spans a distance of approximately 1.4 miles). Areas tested archaeologically as possible sites for the location of Spokane House are indicated by letters A, B, and C (see also Combes, this report, Fig. 3). This photograph reproduces a portion of vertical air photo AAN 191-21, USDA Commodity Stabilization Service, series of July, 1957.

Geologic Setting

The site of the Fort Spokane and Spokane House trading posts lies on the outer edge of a broad meander of the Spokane River just below the point at which it is joined by the Little Spokane (Figure 1). The immediate site of Fort Spokane occupies an alluvial flat with low relief on the southeast bank of the river, at an elevation of 1,530-1,540 feet above sea level. The total significant range in elevation at the site of the trading posts is less than 10 feet, and seldom more than 5, although natural floodplain-stream channel relationships are partially obscured by a slight raise in water level caused by damming of the Spokane River in 1911 for hydroelectric power. The reservoir created by this project is known as Long Lake, and extends upstream approximately to the site area. This area has been mapped most recently as part of the Clayton topographic quadrangle (U.S. Geological Survey, 1944) at a scale of 1:62,500, with a contour interval of 25 feet.

No bedrock is exposed at the immediate site area, which is underlain entirely by glacial outwash and postglacial alluvium. Regionally, these Quaternary sediments are underlain by Paleozoic metamorphic and Mesozoic intrusive rocks, and by late Miocene and younger basalt flows and interbasalt sediments (Pardee and Bryan, 1926). Floodwater of catastrophic depth and velocity swept the Spokane area early during the last major (Wisconsin) glacial episode (Bretz, Smith, and Neff, 1956) and the flood stripped clean the scabland surface of the basalt plateau at Pine Bluffs, southwest of the historic site. Postflood glacial terraces of successively younger ages remain as remnants at about 1,900, 1,800, and 1,700 feet elevation. The upper terraces have been interpreted by Flint (1936) as part of a Wisconsin recessional outwash train; the terrace at 1,700 feet elevation probably was graded to the surface of Glacial Lake Nespelem (Pardee, 1918). Fort Spokane-Spokane House remnants lie on a still younger gravel flat cut into these terraces by late glacial and postglacial erosion of the Spokane and Little Spokane Rivers, and thus no alluvial deposits or erosion surfaces at the immediate location of the historic trading posts are older than postglacial. The absolute geologic age of the present stream channels eventually must be fixed by detailed local correlation of low-level terraces, many of which are now flooded west of the Fort Spokane site. Minor sedimentation has taken place historically in the slough, which had been a clear stream flowing to the Little Spokane until Long Lake reservoir was filled (O. A. Burnett, in Peltier, 1961: 35).

Physical Stratigraphy

Detailed stratigraphic descriptions were made of sediments at two locations within the area of archaeological excavations: one, at the western edge of the excavated area, to record undisturbed postglacial geologic stratigraphy exposed by a trench and test pit dug specifically for stratigraphic purposes; and a

second, within the area of trading post occupation, to record the character of midden deposits associated with the Fort Spokane historic site. Terminology used in these descriptions has been adapted from standardized pedologic terminology suggested by the Soil Survey Manual (USDA, 1951). Color designations are those of the Munsell Color System (Munsell Color Company, Inc., 1954). The sediments at these two localities were recorded as follows:

Detailed stratigraphic description No. 1 (45-SP-5, test area B, Trench 2; E. wall of square 290-300 N/266 E.)

<u>Depth below surface</u>	<u>Description of horizon or layer</u>
0-10 cm	Dark greyish brown (10YR 4/2 D, 3/2 M) gravelly loam; soft; very weak fine crumb; nonsticky, nonplastic when wet; many fine rootlets; probably represents A _p horizon; abrupt smooth boundary to:
10-32 cm	Dark greyish brown (10YR 4/2 D, 3/2 M) gravelly loam; soft; massive; fewer rootlets than above; probably represents A ₁ horizon; nonsticky, nonplastic when wet; gradational smooth boundary to:
32-90 cm	Greyish brown (10YR 5/2 D, 4/3 M) coarse sand; loose; massive; nonsticky, nonplastic when wet; occasional rootlets; clear smooth boundary to:
90-110 cm	Pale brown (10YR 6/3 D, 4/3 M) fine sand; soft; massive; occasional rootlets as above; clear smooth boundary to:
110-130 cm	Greyish brown (10YR 5/2 D, 4/3 M) pebbly coarse sand; soft; massive; roots as above; rock fragments appear to be admixed from gravel below; clear smooth boundary to:
130-150 cm plus	Oxidized cobbly gravel in dark brown (7YR 4/4 D, 3/2 M) coarse sand; matrix slightly hard; rootlets nearly absent; coarse fractions comprised almost entirely of granitic and metamorphic rock types; depth undetermined.
	Limit of excavation.

No cultural materials were removed from sediments in this section, which are truncated by historic fill lenses overlapping and thickening northward from this point in the direction of the river. The entire profile is noncalcareous; disturbance by rodents extends to the top of the gravel.

Detailed stratigraphic description No. 2 (45-SP-5, test area B, S. wall E. end trench 1; square 90-100 E.)

<u>Depth below surface</u>	<u>Description of horizon or layer</u>
0-6.0 in.	Dark greyish brown (10YR 4/2 D, 2/2 W) gravelly loam; soft; nonsticky, nonplastic when wet; weak fine platy in upper 1.5 in., weak medium to coarse platy below; abundant fine rootlets; includes scattered charcoal fragments and occasional cobbles with CaCO_3 coatings on one side only, randomly oriented; comprises A_p horizon of the present solum; clear wavy boundary to:
6.0-7.5 in.	Dark greyish brown gravelly loam; as above, but weak medium subangular blocky; with horizon above comprises layer of recently disturbed fill on which A_p has been imposed; clear, smooth boundary to:
7.5-12.7 in.	Greyish brown (10YR 5/2 D, 4/2 W) loamy sand; loose; single grain; includes scattered small pebbles but lacks the cobble-sized rocks of the material above; includes occasional fine rootlets; lower 1.5 in. contains disrupted small blocks of sediment from layer beneath, but otherwise lacks the indications of disturbance found above; may be an old A_p horizon; clear, smooth boundary to:
12.7-19.5 in.	Very dark greyish brown (10YR 3/2 D, 2/1 W) loamy sand; soft; nonsticky, nonplastic when wet; weak, medium subangular blocky; contains abundant cultural debris of historic age, including metal objects, trade goods, fragments of shell, bone, and fire-cracked rock; owes its dark color at this location to admixed charcoal from nearby hearths; comprises midden dating from occupation of trading posts at this site; abrupt, smooth boundary to:
19.5-24.0 in.	Very dark greyish brown (10YR 3/2 D, 2/2 W) gravelly loam; soft to slightly hard; moderate thick prismatic; occasional fine rootlets and scattered cobbles; may be remnant of the original A horizon; contains no cultural debris; clear, smooth boundary to:

- 24.0-35.0 in. Yellowish brown (10YR 5/4 D, 3/3 W) gravelly loam; hard; nonsticky, non-plastic but slightly coherent when wet; strong coarse prismatic; occasional fine rootlets; abundant pebbles and cobbles up to 3 in. diameter; contains no cultural debris; comprises B horizon of pre-occupational soil profile; clear, wavy boundary to:
- 35.0-40 in. plus Yellowish brown (10YR 5/4 D, 4/4 W) gravel alluvium; loose; single grain; consists of well-sorted pebble gravel with coarse sand to granule-sized matrix; includes occasional very fine rootlets, which are slightly more abundant than above; rock fragments include granite, cobbles up to 3 in. diameter of quartzite, and basalt; matrix is noncalcareous, but weak coatings of CaCO_3 appear on the undersides of pebbles and cobbles within the horizon, which comprises the C_{ca} of the original soil profile.

Limit of excavation.

The sediments described above may be separated into four general categories: deposits older than occupation of the site; midden resulting from use of the trading post in historic time; sediments which accumulated over the midden after the post was abandoned; and a recent fill plastered over the surface, probably as a result of levelling piles of backdirt left by previous archaeological excavations (Caywood, 1954). These layers and their relation to occupation of the site are illustrated diagrammatically in Figure 2. The stratigraphic section shown was collected and preserved by saturating it with vinylite resin, following a technique adapted from that of Smith and Moodie (Smith, McCreery, and Moodie, 1952). This section was removed from the spot at which detailed stratigraphic description No. 2 had been made.

Evidence for the age of these sediments is provided by their stratigraphic relationships and the materials included within them. Midden dating from occupation of the trading post site contains abundant cultural material in undisturbed position; the gravel alluvium beneath is devoid of cultural debris. Sediment directly overlying the midden is sandy in texture and lacks the large pebbles and cobbles present in other layers, and appears to be mostly windblown. However, this sediment contains occasional pieces of cultural debris, pebbles, and at its base, small clods of midden disrupted from the main occupational layer, all of which suggest disturbance by plowing after the area was farmed by homesteaders. Large pebbles and cobbles found in the upper 8 inches of sediment bear accumulations of calcium carbonate


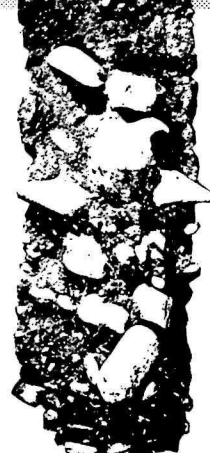
Depth below surface:	Stratigraphic section:	Deposit or soil horizon:	Relationship of stratum to occupation of Fort Spokane:		
0 inches		A _p (plow zone) horizons from grading operations	Disturbed artificial fill, probably from levelling of backdirt piles from earlier archaeological excavations	Deposits younger than occupation of the trading post	
		Artificial gravel fill below plow depth			
		Natural filling of gravelly sand; upper portion may have been plowed			Accumulation by wind and wash after trading post was abandoned
12.7 inches			Midden with charcoal from open fires		DEPOSITS FROM FORT SPOKANE TRADING POST, OCCUPIED 1812-1826
19.5 inches		Remnant of A ₁ soil horizon	Alluvium underlying original land surface on which Fort Spokane was built	Deposits older than occupation of the trading post; no cultural material present	
		B horizon of original soil profile			
		Gravel alluvium; C _{ca} horizon of soil profile			
40 inches +					

Figure 2. Physical stratigraphy of the Fort Spokane archaeological site, illustrated by a stratigraphic section removed from the south wall, east end of Trench 1, Area B, square 90-100 E., of 1962 excavations (Combes, this report). For a detailed description of stratigraphy, see Description No. 2, this section. Monolith is numbered WSU-62-W in the stratigraphic collection at Washington State University.

which could only have come from the C_{ca} horizon of the soil profile, and thus must have been turned up by excavations to a depth of more than 2 feet. Scattered items of cultural material and a surveying stake suggest that the excavation which mixed these materials was that made during the earlier archaeological studies of the site.

From examination of these deposits, it is clear that only one stratum of sediment directly records occupation of the site. Materials above this layer of midden are either naturally or mechanically reworked from it, and contain scattered items of cultural debris. For this reason further level-stripping of the site during excavation would have been pointless for either archaeological or geological information, and the stratigraphic studies supported an earlier decision to excavate and screen all sediments above the culturally sterile gravel in order to retrieve the largest possible number of artifacts remaining from occupation of the trading post.

Discussion and Conclusions

A major objective of excavations at the Fort Spokane-Spokane House site was to test possible locations suggested for the earlier Spokane House trading post. The diary of Alexander Ross (1849) places the trading post on an island at the confluence of the Little Spokane and Spokane Rivers, but thoroughly confuses the issue because the island shown on his map is 9 miles long. No such island presently exists. Alternate sites have been suggested by Peltier (1961) at the peninsula lying immediately between the two rivers, and bounded on the southeast by the present active slough (Area C, Fig. 1); and by Kingston (1948), at the broad flat a short distance east of the Fort Spokane site (Area A, Fig. 1). Any interpretation must consider the possibility of a major physiographic change due to shifting of the present stream channel from an earlier course, and the implications of such change or stability of the rivers regarding past suitability of a given area for use as a trading post.

The area suggested by Kingston is well-drained, lies above the present high water mark of the Spokane River, and from a geologic standpoint has been suitable for occupation for a period of time far exceeding the span of historic concern. Thus it would have been an acceptable possibility, though archaeological evidence does not support it as such (Combes, this report). In fact, there is much evidence to suggest that the peninsula favored by Peltier would not have been an attractive location during historic time. Even late in the summer, the water table lies only a foot below the surface, and the high organic content of soil A horizons exposed by archaeological test trenches reflects the influence of dense vegetation growing on a very poorly drained site. Moreover, the peninsula lies directly in the path of the full current of the Spokane and Little Spokane Rivers at flood stage, and the marks of recent flood currents across the

peninsula are recorded clearly on aerial photographs (see Fig. 1). The lack of cultural material of any kind (Combes, this report) suggests that Indian inhabitants of the area found this land no more attractive for settlement than have subsequent land holders.

An abandoned, minor channel southwest of the Fort Spokane stockade raises the question whether this channel may have been active within historic time, forming an island west of the Fort Spokane site (Area B, Fig. 1). If so, Spokane House may have been located in that vicinity. Again, archaeological evidence eliminates this area as a likely possibility.

Present relationships of Spokane River and topography at the immediate site location may be used to answer several questions regarding possible locations for Spokane House--first of all, whether the area of known occupation (Area B), lying between an abandoned slough and the present channel of the Spokane, may have been an island offering strategic defensive advantages as recently as the early 1800's; secondly, whether recent (i.e., post 1850) flooding may have buried any remains of Spokane House too deeply to be located readily by test excavations of moderate depth; and, thirdly, whether the present channel may have shifted so markedly as to have changed significantly the local setting, or to have destroyed any remaining trace of Spokane House.

Some indication of geologically recent trends in channel shifting is offered by the nature of the present stream bank, which next to the site is oversteepened and locally undercut; the opposite bank, in contrast, is gently sloping. Both profiles reflect expectable and typical conditions for the outer, actively cutting, and inner, "slip-off" slopes of a meandering stream. Any recent migration of this bend in the Spokane River channel, therefore, clearly has been downstream and toward the archaeological site, rather than away from it as recent abandonment of the slough would require. These relationships suggest that the answer to all three questions is "no," for the erosional environment of the site is one involving cutting rather than deposition (eliminating the probability of deep burial); the conclusion that this erosion has not significantly altered the historic appearance of the site is supported by the fact that excavations of the Fort Spokane stockade area fail to show truncation of known historic structures by erosion.

Conclusive evidence that the channel of the Spokane River has been stable in respect to the Fort Spokane stockade area during historic time is provided by stratigraphy exposed at the test pit made in the floor of the abandoned slough. At that location sediments including historic items stratigraphically overlie not only the culturally sterile alluvial gravel, but also an intervening windblown sand on which a weakly developed soil profile had developed before historic use of the site. Thus the slough, though it occasionally may be invaded from its western end by slack water during exceptionally high floods, has been closed at its upper end, abandoned by active currents, and filled by debris on which a weak soil profile had developed, before establishment of trading posts at the site.

Geologic evidence, therefore, shows that the immediate Fort Spokane-Spokane House site has not undergone significant topographic change in historic time through natural causes, either through erosion or shifting of the stream channel, or through deep burial of historic objects by natural sedimentation.

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APPENDIX B

SPECTROCHEMICAL ANALYSIS OF
ARCHAEOLOGICAL SAMPLES

By
C. E. Harvey

Research Report No. 63/14-78Spectrochemical Analysis of
Archaeological Samples

by

C. E. Harvey

for

WSU Department of Anthropology

14 May 1963

I ject No. W. O. 469tract No.nsor Project No.nsor Contract No.C. E. Harvey
SpectroscopistMark F. Adams, Head
Chemical ResearchDivision of Industrial Research
Institute of Technology

Washington State University

Pullman, Washington

Spectrochemical Analysis of
Archaeological Samples

Mr. John D. Combes of the WSU Department of Anthropology submitted seven glass fragments for total quantitative spectrochemical analysis. The results obtained on the seven glass samples are reported as percentage oxide of the individual elements in the following table.

TABLE 1

SEMI-QUANTITATIVE ANALYSIS ON GLASS SAMPLES

Element % as Oxide	SP5- 247	SP5- 342	SP5- 675	SP5- 780	SP5- 182	A29/ 805	SP5- 52
SiO ₂	Bal.	Bal.	Bal.	Bal.	Bal.	72.%	76.%
PbO	25.	--	--	--	20.	--	--
Na ₂ O	.1	8.5	4.	6.	.3	4.6	4.2
K ₂ O	10.	--	20.	4.	15.	4.2	4.4
CaO	.05	7.	3.5	4.	.05	--	--
MgO	.1	3.	1.5	4.	.05	.34	.70
Fe ₂ O ₃	.1	3.	.1	.6	.1	2.24	3.00
Al ₂ O ₃	2.	2.	.3	1.5	.5	13.8	9.6
MnO	.15	.1	.007	.03	.15	.063	.053
TiO ₂	.1	4.	.1	.1	.08	.29	.17
CuO	.02	.002	.004	.003	.01	.0058	.0053
Ag ₂ O	.003	--	--	--	.002	.0007	.0003
ZrO ₂	--	1.5	--	--	--	.032	.024
NiO	--	.004	--	--	--	.0033	.0037
BaO	.03	.02	.003	.015	.007	.17	.23
SrO	.003	.01	.004	.1	.002	--	--
Cr ₂ O ₃	.001	.01	.007	.01	.002	.011	.006
B ₂ O ₃	--	--	--	.05	.05	--	--

