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The Sheep Island Site and the Mid-Columbia Valley

By DOUGLAS OSBORNE, ALAN BRYAN, and
ROBERT H. CRABTREE

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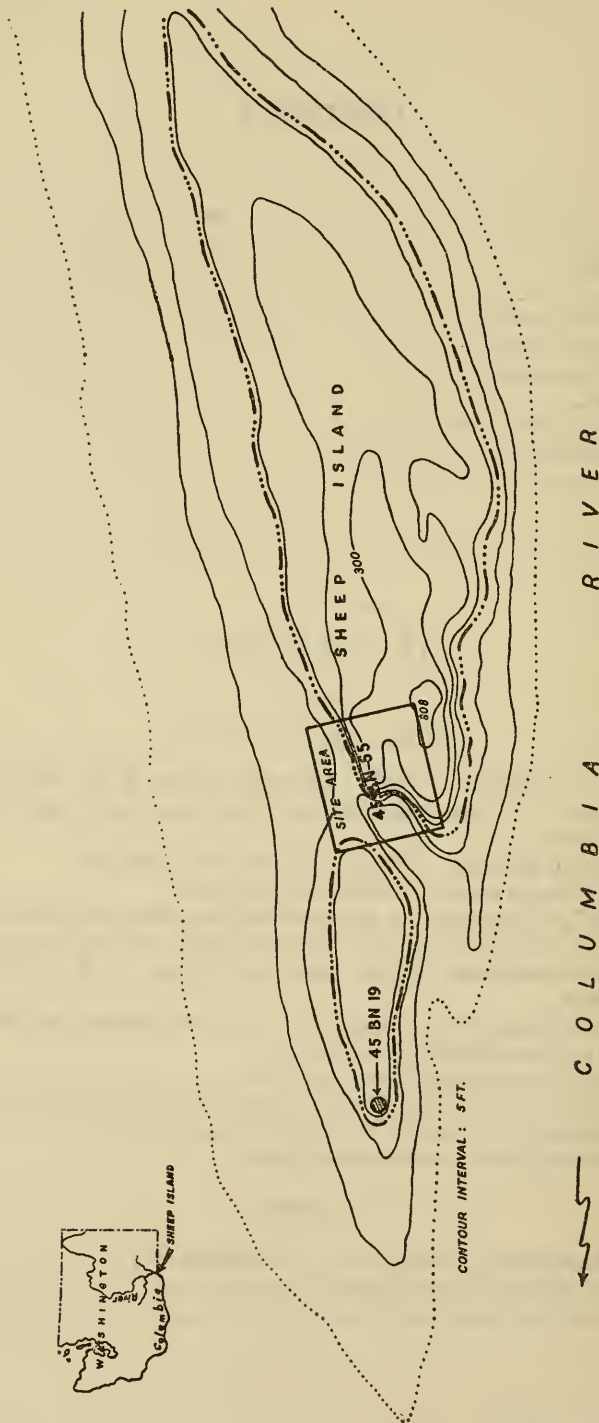


FIGURE 41.—Map of Sheep Island showing location of excavation area.

THE SHEEP ISLAND SITE AND THE MID-COLUMBIA VALLEY

BY DOUGLAS OSBORNE, ALAN BRYAN, AND ROBERT H. CRABTREE¹

INTRODUCTION

The Sheep Island (45-BN-55) excavations were completed in 1950 by a River Basin Surveys crew under the direction and part-time supervision of Douglas Osborne. Thomas A. Garth (1952) had worked there previously. During his period of excavations he found and removed, except small perimeter sections, two cremation pits. He found, beneath the pits, uncremated burials (the first burial stratigraphy in that immediate area), some of which he removed and some of which he dug out and reburied.

This report continues the description of the Sheep Island burial complex, and offers a collation of Garth's and River Basin Surveys' data. Further, a brief examination of Garth's methods and conclusions (for which see Garth, 1952) is made; neither fits with the thinking of many ethnologists or archeologists as they presently perceive the problems of the Plateau.

Acknowledgments.—The authors gratefully record the services of the two scientists of the University of Washington, Dr. V. Standish Mallory of the Department of Geology, who identified shell, and Dr. Arthur D. Welander of the Department of Fisheries, who identified fish bones. Victor Clausen and Natalie Burt, then a student in the Department of Anthropology, University of Washington, thin-sectioned and identified stone material. Carolyn Osborne did drafting and darkroom work and checked many pounds of ambroid-consolidated sand in a vain attempt to find textile remnants. Dorris Ackelbein typed the manuscript. Rodger Heglur, then a student in the Department of Anthropology, University of Washington, did the physical anthropology. James Jaquith was responsible for the excavation during Osborne's many absences on inspection trips during the busy summer of 1950. He did well, indeed, with this disturbed site.

Osborne has been responsible for the laboratory supervision, the collation of data, and the final preparation of the manuscript. Bryan

¹ Revised manuscript submitted May 1959. The Sheep Island investigations were part of the general salvage program for the McNary Reservoir area.

did the laboratory analysis and was in charge of the preparation of maps and drafting. Crabtree assisted in bringing together the material that appears in the section headed "Previous work, discussion, and critique" and in organizing the descriptions of chipped artifacts; he also organized the Appendix.

THE REGION

The best discussion of that part of the northwestern United States, called the Plateau by anthropologists and the Columbia Intermontane Province by physiographers, is to be found in the report by Freeman, Forrester, and Luper (1945). According to these writers Sheep Island is in the Columbia Basin Subprovince, the Yakima Folds section. The area is structurally a basin, surrounded by mountains. The bedrock of the basin is probably Miocene basalt. In the Yakima Folds section narrow ridges of upfolded basalt and equally narrow, downfolded valleys alternate. These run east-west, extending east from the Cascade Mountains. Of these sharp ridges the Horse Heaven Hills extend the farthest east and are cut by the Columbia River at the magnificent watergap called the Wallula Gateway. The Gateway is some 9½ miles above Sheep Island.

The topography is youthful; the last uplift was Pleistocene and the sediments are Pleistocene and Recent. Soil accumulations, except flood plain material, are probably largely eolian. Flood plain accumulations are uneven. Loamy fine sands (Harper et al., 1948) alternate with areas of scabland and, close to the water, with remnants of surface expressions of sand, gravel, and cobblestone bars. Away from the flood plain the soils vary in depth and in the quality of the drainage. North of the Columbia River, in the region of Sheep Island, the drainage in general is good, or perhaps too good; the land stands high above the water table, the soil mantle is thick, while to the south the scablands are lower, the soil mantle thinner, and the water table closer to the surface. Areas of alkali and numerous moisture-loving plants indicate both poorer drainage and more water.

The climate is continental, semiarid. The rain shadow of the Cascades allows only enough rain and snow to fall during the winter to permit a luxuriant spring and early summer growth of grasses, bush, and weeds. Late summer and fall is a period of dryness and browning landscape. The years are usually temperate; summers are hot, and subzeros winters are not unusual.

In aboriginal times luxuriant grass growth appears to have covered the floodplain and adjacent areas. Plowing and overgrazing have brought about a change so that now bunchgrass and other grasses have given way to brome grass (or cheatgrass), mustard, Russian thistle, etc. Sagebrush and rabbitbrush, too, have become components of the new plant association. Planted trees, cottonwoods and poplars, and

self-sown cottonwoods and willows, together with driftwood from up-river lumbering operations, have changed radically the appearance of the great valley where Lewis and Clark were often unable to find firewood.

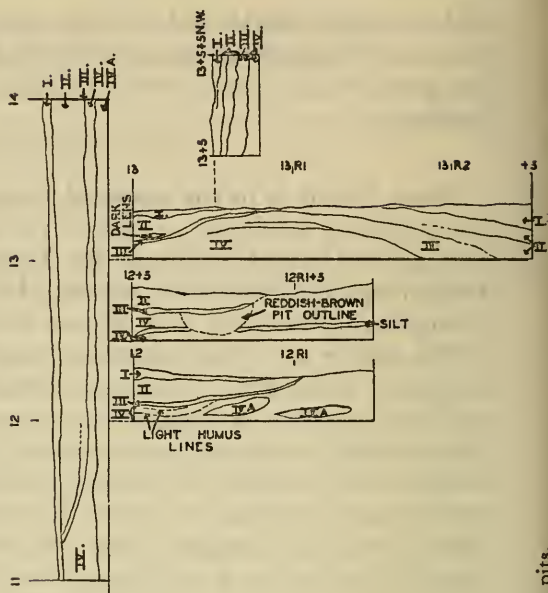
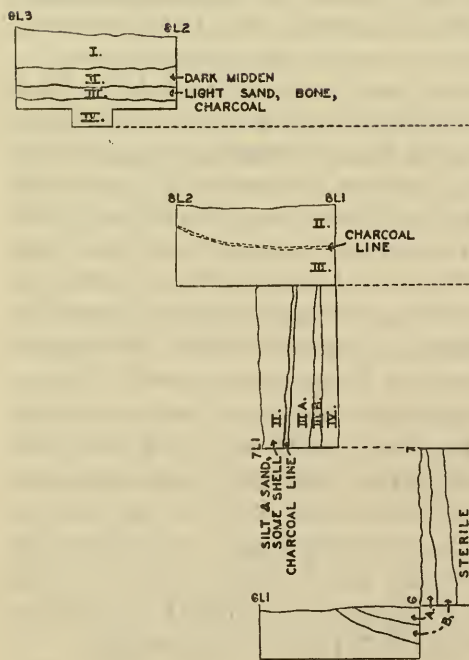
THE INDIANS

Sheep Island is in the range of the ethnographic Umatilla tribe. No published ethnography exists of a northeastern Sahaptin tribe, such as the Umatilla, although Dr. Verne F. Ray (1936, p. 109) has worked with them for many seasons. He has yet published no formal ethnography, but many data appear in his 1942 distribution study.

The earlier aboriginal culture of the Umatilla, like that of their neighbors (Nez Percé, Yakima, Cayuse), became masked by an amazing complex, or series of complexes of culture traits from the Plains, which penetrated nearly every phase of their culture. This acculturation took place, apparently, from the second quarter of the 18th century well into the 19th. In a report by Osborne (1957) is described an archeological site (45-BN-3) inhabited during this period which shows a melange of material traits pointing at once toward the old untainted Plateau culture stratum, toward the Plains overlay (Ray, 1939, p. 3), and toward the period of the early fur trade. Both Sheep Island archeological manifestations, the cremation pits sketchily described by Garth and the burials, were prehistoric. There appears to be no reason why they should not be assigned to the earlier true Plateau culture that Ray discusses in his 1939 publication. Only the briefest of ethnographic summaries, from Ray's work and from the interpretation of excavation results, need be given here.

The people were fishers, hunters, and gatherers, probably in that order. Roots and tubers, wild fruits, and seeds were not as important here as were seeds to the south in the Basin. Stone chipping, at least during the period of the burials, did not compare with that which produced the later agate "jewel points," those deeply barbed projectile points which have indubitably caused the looting of more sites than have any other artifacts in the West except the decorative ceramics of the Southwest. Stoneworkers of the earlier period still preferred the less brittle, tougher chalcedonies and fine-grained basalt. Percussion chipping does not stand alone but may have been preferred. Projectile types and knives were not exactly the same as in later periods but are sufficiently similar so that one cannot infer any great change in weapons. Greenstone (jadite, nephrite, etc.) celts, not uncommon later tools, had not yet appeared as far south as this on the scene or at least were not found in the deposit at Sheep Island. These celts are obviously not a basic Plateau trait and probably came into the northern Plateau (and thence to the southern) from the Lower Fraser or possibly from the Coast, Borden (1951, p. 45) to the contrary.

PROFILES
45 BN3S
SMITHSONIAN INSTITUTION,
RIVER BASIN
EXCAVATIONS
SUMMER 1950



- I. COARSE STERILE SAND
- II. LIGHT MIDDEN - FINE SAND, SILT
- III. FINE COMPACT SILT, SAND
- A. FINE SANDY FILL
- B. LIGHT AEOLIAN MATERIAL
- IV. COARSE STERILE BAR SAND
- A. VERY COARSE SAND
- B. LAYER ONE OF CREMATION PIT
- C. LAYER TWO OF CREMATION PIT

FIGURE 42.—Profiles of deposits in Sheep Island excavation pits.

Most dwellings, although not an aspect of 45-BN-55, appear to have been rounded or rounded-rectangular in ground plan, mat-covered lodges. Often the floors of these lodges were sunk 1 or 2 feet, and sometimes more, below the surface, at least for winter living. The superstructures were not, however, the sturdy, permanent things that were an aspect of the semisubterranean dwellings to the north (the Canadian Plateau).

Nonmaterial traits of the past may be inferred from the old, pre-Plains Plateau culture. Political structures were presumably loose, atomistic, and changing. Leadership may have been generally hereditary. The people were probably peaceful (although burial 17 may not agree), lacked a developed social stratification, and eschewed competition. Female puberty rites, if we can continue to read back, were not stressed; the vision quest, even then partly formalized, was an all-important life experience, at least to the male.

SITE STRATIGRAPHY

Because of the previous excavations by Garth at BN-55, and a certain amount of collector's activity between the period of his excavations and those by the River Basin Surveys in 1950, it was not possible to get complete profiles at the site. The disturbed nature of the surface is shown in plate 47, *a*; figure 41 contours do not express such minor features. This lack of profiles is unfortunate, as a thorough knowledge of the relationships between river deposition and the cultural picture would have been of interest and might well have had far-reaching value. However, there can be no quarrel with Garth's interpretation of cultural sequences (Garth, 1952); remnants of the cremation pits were found by the River Basin Surveys crew. Also, the profiles made in 1950 do give a coherent, if sketchy, picture of the site (pl. 47, *b*). A discussion of the pedologic composition of the site follows. The profiles of figure 42 should be consulted as the description is read.

Stratum I.—This was a much disturbed layer of coarse, sterile, recent sand overlying the graves and, in many places, the midden material. It appears more as a masking superficial cover than as an aspect of the structure of the excavated area. In the northwest part of the dig, on the 9-line, it is 2.0 to 2.5 feet thick and appears to gain in depth as it extends west and upward. It is uniform from stakes 11 to 14 along the centerline, and fades, as one goes south over what appears to be a buried small swell and swale in the site, along the 13-line. At 13R2 this stratum again expands in depth.

Stratum II.—Again, this component of the soil profile was deeper in the northeastern part of the excavation. It becomes less definite along the 11-14 part of the centerline, possibly because this was once

a small swale, sloping downstream (southwest). It is weakly developed as one goes over the hump of the small buried swell, along the 13-line to the south, and expands sharply from about 13R2 on.

Stratum III.—This is the most dubious and controversial layer on the profiles. It is clear enough at the northwestern section where it is separated from stratum II by a charcoal line or thin level. In accordance with Garth's idea, this is interpreted as cremation pit debris. Still at the L1-line, 7 to 8, this stratum is divided into two: A, a fine sandy fill, and B, a very fine silt that was interpreted in the field when this short profile was drawn (it was one of the first) as eolian material. It is possible that it is partly so, but, since the remaining profiles have been made, it would seem more likely to have been water deposited.

This stratum was truncated somewhere between 8L2 and 11 centerline and from there it dips sharply below the surface to about 2.5 feet at 14 centerline. It is here a compact, fine silt layer about 2 inches thick. It climbs sharply south along the 13- and 12-lines and is again truncated by the hillock or rise of heavy bar sand (st. IV). It is not certain that it reappears around 13R2, but the bar sand in that section has light streaks within it which may be parts of this stratum or, more likely, an expression of stratum II.

Stratum IV.—In the field this stratum was called bar sand. It could generally be differentiated by its coarseness. As it represents successive periods of deposition, probably flood, the amount of segregation varies. This stratum became increasingly coarse with depth as was demonstrated by the several deep pits that were dug to insure our exhaustion of the deposit. The subdivision IVa indicates sections where the gravelly nature of the deposit was especially obvious on the profiles. Along the 12-line this coarse deposit appeared as lenticular in cross section. On the 12 plus 5 to 12R1 plus 5-line is an actual division of IV from IVa by a thin compact silt deposit, generally about 0.2 feet thick. This silt level and stratum IV were penetrated here by a reddish brown pit outline that contained burial 17. Stratum III, the most widely traceable of the compacted silt levels, was deposited after the burial. Along the 13-line, prominent at 13R1, is shown the stratum IV swell or small buried hillock or ridge.

Portions of the cremation pits not fully cleared out by Garth were completed in 1950. Fragments of his pit I (fig. 43) that do not appear on the profile sheet were about 0.5 foot thick and overlay the strata that contained the burials. Parts of pit 2 at stake 6 centerline were divided into two layers by a vague sandy and ashy line. This stratigraphy may have been localized in that section of the pit. It is, therefore, largely presumptive.

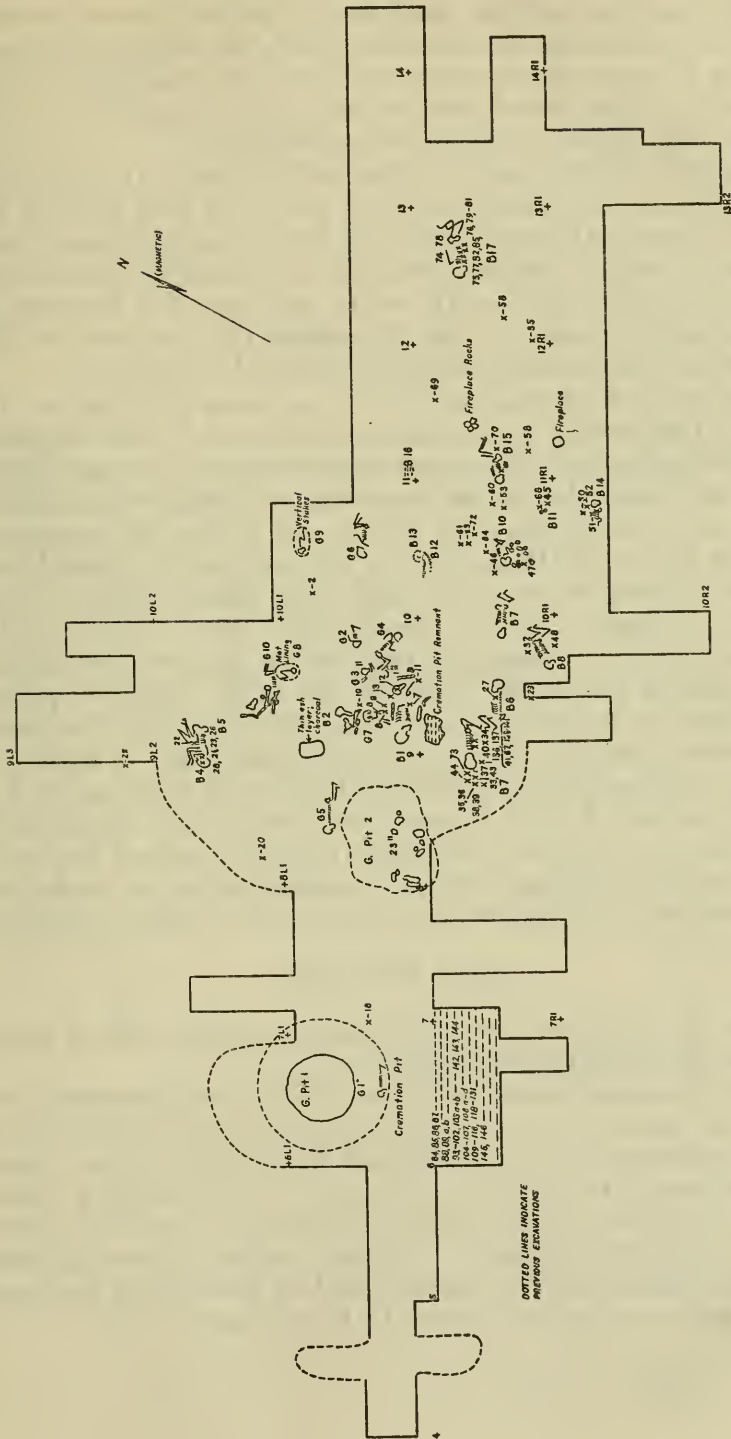


FIGURE 43.—Diagram of the excavations at Site 45-BN-55.

All burials that could be placed stratigraphically were in stratum IV. The presumption that all others were in the same level is strong. Stratum III is thought to represent a later flood stage which covered the burials. This is demonstrated only once, unfortunately, on the profile. The top three strata cover the burials.

Plate 47, *b*, a photograph of the profile between 11 plus 5 feet centerline and 11R1 plus 5 feet, shows a depth of about 4 feet on the T-rod. Stratum IV runs from 0 to 2 feet, stratum III is at 2 feet, stratum II roughly between 2 and 3 feet, and stratum I above 3 feet. The gentle rise of stratum III to the right indicates the swale or hillock now truncated. At the left stratum III dips down into the old swale. The superficial nature of stratum I is obvious.

The cremation pits appear to have been in use while stratum III was the local surface and perhaps after stratum II was deposited. There are no data as to their exact position relative to the last deposition. Our data indicate that the island was abandoned as a burial place for a period after the burials and before the cremations. Whether this was for the duration of only one flooding or lasted for a number of years is uncertain. The burial change, in view of the apparent cultural continuity, seems rather abrupt if stratum III represents only one season. A profile along the centerline through the cremation pits would have told the story. Osborne's present belief, based on an intimate knowledge of the site, is that there was a respectable lapse of time between inhumation and cremation at BN-55. A large number of the burials—Nos. 17, 15, 14, 11, 10, 9, 8, 6—and probably Nos. 13, 12, and 7 were placed in the small rise or swell which ran grid north and south (magnetic northeast and southwest) along the R1-line. This was probably before the swale along the centerline and L1-line was filled in and certainly before cremation.

THE BURIALS

Below is a listing of the burial information for each of the 16 burials removed by the Smithsonian crew.

Table 1 lists pertinent data on these 16 burials and also for those removed by Garth. The sex and age of Garth's burials (of which the first three, brought to the University of Washington for examination, are not keyed to the published series) are taken from Garth (1952). All other physical anthropological information given here rests on work done by Rodger Heglar. Heglar's studies of these and other skeletal remains from the Plateau have been presented as a master's thesis, which we hope will eventually be published.

TABLE 1.—Data on 17 burials removed at Sheep Island

BURIALS REMOVED BY SMITHSONIAN CREW AND GARTH (G 1-10)

Burial No.	Orientation	Burial type	Artifacts	Sex	Age	Condition of preservation	Stratum	Deformation	Knees and position	Remarks
1.	SW	Semiflex	Yes	Male	Adult	Poor	IV		Right side and back	Mat? Fire? Fire?
2.	Disturbed	Disturbed	No	Female	do	do	IV?			
3.	do	do	No	Male	do	Fair	IV?	FO	Left side	Mat.
4.	SSW	Full flex	Yes	do	Young adult	do	IV?			
6.	NE	Semiflex	Yes	Female	Adult	Poor	IV	FL	Right side	Mat? Bark?
7.	SW	do	Yes	Male	do	do	IV	FL	Left side	
8.	SSW	do	Yes	Female	Young adult	Fair	IV	FO	Back	
9.	SW	do	No	Male	do	Good	IV	FO	Back and right side	
10.	SSW	do	Yes	Infant	do	Fair	IV		Back?	
11.	SW	do	Yes	do	do	do	IV		Back	
12.	SW	do	No	do	do	do	IV		?	
13.	Disturbed	Extended	No	do	do	Poor	IV?		Back, knees right	
14.	NE	Disturbed	Yes	Infant	Adult	Good	IV		Left, knees west	
15.	SW	Semiflex	Yes	Male	Middle-aged adult	Fair	IV	FL		
16.	NE?	do	Yes	Infant	do	do	IV?		Prone, knees east	Cedar slab.
17.	SW	do	Yes	Male	Infant	do	IV			
G1.		do	do	Adult	Child	do				
G2.		do	do	do	do	do			Primary burial?	
G3.		do	No	Male	Adult	do			Second?	
G4.	SE	Flex	Yes	Female	do	do			Knees east	
G5.	W	Legs flex	No	Female?	do	do				Fire.
G6.		Semiflex	Yes	?	Adult	Poor				Planks over knees.
G7.	W	do	Yes	Male	Adult female	do				
G8.	W	do	No	do	do	do			Back, east	
G9.	W	do	do	Child	do	Poor		O(?)	Back, knees north	
G10.	W	Flex, probably semiflex	Yes	Male	Adult	do			do	Mat.

Table 2, prepared by Heglar, gives sex and age of the burials. There are 18 burials, including 3 of Garth's.

TABLE 2.—*Burials, age, and sex*

Age	Male	Female	Total	Percent
Infant (3-3 yrs.)			5	27.8
Child (4-6 yrs.)				
Child (7-12 yrs.)				
Adolescent (13-17 yrs.)				
Subadult (18-20 yrs.)				
Young adult (21-35 yrs.)	2	1	3	16.7
Middle aged (36-55 yrs.)	1		1	5.5
Old aged (56-75 yrs.)		1	1	5.5
Others	5	3	8	44.5
Total	8	5	13	100.0

¹ Burials Nos. 5 and 13 are omitted.

A few remarks categorizing the burial complex as we see it are in order. Orientation is prevailingly (even among the infants) south-west. Garth records this as west and the actual result is the same: the heads lay downstream, as the Columbia, here, flows slightly south of west. Garth records one burial with a southeasterly orientation; the River Basin Surveys crew removed three northeasterly ones. The former is not readily explainable; the latter three would appear to be simply a reversal of the burial bundle by attendants who went absently about their business. Heavy swathing, probably a mat, is an inferred culture trait; it would obscure the bodily features of a burial bundle.

Semiflexure is the preferred burial type. This contrasts with presumably earlier extended burials at 45-BN-15 (Crabtree, 1957) and later more fully flexed post-cremation ones at 45-BN-3 (Osborne, 1957). Artifacts were usual. Of the eight infants and children in Garth's and our series, four had nonperishable artifacts. The proportion with respect to sex is about the same as with the adults: 5 males of 11 and 2 females of 5. With the surprising exception of burial 10 (pls. 51, *a*; 51, *b*, 47), shell gifts were preferred for the very young. The pestle killed by breaking into three pieces is a usual culture trait in later trade times, although not usually seen with infants. Dentalia and a single shell pendant, rectangular, with three holes along one side and one on the other (pl. 54, 68), were the other nonperishable artifacts with infants. The body was usually laid on the back, or back with the legs directed to one side. This position was more obvious with the infants, although adults were usually partly on the back; the semiflexure caused a distortion. One prone burial (No. 17) is unusual in this, as in other aspects. It is possible that the individual's death by violence is associated with his unorthodox burial position. Probable matting remnants, bark, evidences of fire, and presence of pits as an aspect of the graves all give hints as to the burial pattern. Fronto-lambdoidal and fronto-occipital deformation

were probably, culturally, identical. All those showing deformation were in the adult ranges. Four males and two females are listed. The series is probably too short to indicate a cultural preference.

Burial 1.—Adult male, orientation to southwest, semiflexed on right side and back; poor condition. Inclusive in stratum IV. Scattered human bones nearby; a grave may have been disturbed by this burial. Evidences of matting, charcoal, and ash appeared in the grave. Apparently the body had been wrapped in mats; there may have been a fire near the grave and the fire debris may have become included in the grave fill purposely or accidentally. Artifacts with the skeleton were grouped on left side and back of skeleton. One projectile point lay in chest area. Field specimen Nos. 45-BN-55 burial 1 (dimensions are metric; w=width, th=thickness, and l=length):

/8. (Pl. 54, 8.) Diorite war club head or arrowshaft smoother (?) (9.5 cm. l, \times 3.8 w \times 3.2 th, wt. $\frac{3}{8}$ lb.).

/9. Porphyritic trachyte war club head or arrowshaft smoother (?) (9.11 \times 4.9 w \times 4.0 th, wt. $\frac{9}{16}$ lb.).

/6. Chalcedony projectile point (pertinent information on chipped pieces appears in table 3).

/11. Basalt.

/12. (Pl. 52, a.) Jasp-opal projectile point.

/10. (Pl. 52, b.) Bone splinter awl or punch, blunt tip broken.

Burial in square 9CL, 2.5 feet north, 1.3 west, surface depth 2.0 feet, datum depth 8.2 feet.

Burial 2.—Adult female, poor condition, partially disturbed by collector's digging, probably inclusive in stratum IV; a Kleenex box lay with and under some of the bones. There were indications of a squarish pit dug into a level which showed a slight accumulation of charcoal. No artifacts; presumably looted. Burial in square 9CL, 3.0 north, 5.0 west (grid directions). Surface depth 2.0, datum depth 8.2.

Burial 3.—Adult male, fair condition, partial, disturbed probably by same diggers who found previous burial. No artifacts. Square 9LI, 4.0 north, 2.0 west, surface depth 3.5, datum depth 8.9, probably inclusive in stratum IV.

Burial 4.—(Pl. 49, a.) Young adult male, fronto-occipital deformation, fair condition, complete, orientation south-southwest, fully flexed, on left side, arms crossed in front. Inclusive in stratum IV, ovoid grave. Matting had been wrapped around the body and was traceable over and around the body. BN-55, burial 4 artifacts:

/22. Small, crude basalt point on right tibia (2.0 cm. 1 \times 0.9 w \times 0.4 th).

/23. (Pl. 52, a.) Large basalt chipped piece probably a knife; in front of face.

/21. (Pl. 52, a.). Same; in front of face.

/26. (Pl. 52, b.) Flat antler gaming piece with an eye design; in front of face (8.1 cm. 1 \times 2.0 w \times 0.6 th).

Two antler pieces, large deer or elk, lay in front of the chest and over the right arm bones. They were decayed and we were unable to preserve them sufficiently for study. The same is true of antler and wood fragments over the lower chest. Perishables were apparently regular grave furnishings. Square 8LI, 5.7 west, 9.7 north of 8LI. Surface depth 3.0, datum depth 7.1.

Burial 5.—Registered, in the field, as an infant. It lay only a foot back (east) of burial 4. *Dentalla* shells (45-BN-55/25) were found with it. In the laboratory it was found that the bones were not human. It is reasonable to

assume that they were part of a food deposit with burial 4. The presence of the shell links the bones to that adjacent burial which was well furnished.

Burial 6.—Adult female, fronto-lambdoidal deformation, head northeast, semi-flexed on right side, left arm along back, face north. Inclusive, oval grave, stratum IV; poor condition; incomplete. Strips of cedar bark 2-3 inches wide and 1-2 feet long lay lengthwise over the body. Artifacts:

/27. (Pl. 52, *a.*) Projectile point altered to chalky state (by fire?). Volcanic ash and fragments of pumice on upper chest.

/30, /31. Fragments of bark and/or grass from over rib case and left forearm.

Mussel shells were found beneath the burial, and fragments of bark lay over it. A piece of barely recognizable antler lay in front of the skeleton. Square 9RI, 2.5 north, 4.5 west, surface depth 2.5, datum depth 9.4.

Burial 7.—(Pl. 48, *a.*) Adult male, fronto-lambdoidal deformation, orientation southwest; semi-flexed on left side and back, hands at pelvis, arms at sides; poor condition, incomplete. Inclusive in stratum IV, bar sand in an oval pit. A mussel shell lay under the right elbow. Definitely below remnants of cremation pit. Compacted organic material from over the left elbow appears to have been grass, unwoven. Artifacts:

/33. (Pls. 48, *b.*; 52, *b.*) Bone needle, point end missing (14.6 cm. plus 1, 0.9 w × 0.6 th). Diameter of biconically drilled eye 0.4 on one side, 0.5 on other. Deposited with artifacts 35, 36, 37, 39, 41, 43, 44, 67, 73, immediately above the head.

/34. Bits of organic material, could not be analyzed.

/35. (Pl. 48, *b.*) Projectile point or knife, opal, asymmetrical base.

/36. (Pl. 48, *b.*) Beaver incisor chisel, 6.8 l × 0.8 w.

/37. (Pl. 52, *b.*) Bipointed bone object, possible gaming piece (7.2 l × 1.3 w × 0.8 th).

/39. (Pl. 48, *b.*) Antler wedge or scraper. Bit end ground from both sides, scratches perpendicular, across long axis. (8.1 l × 4.6 w × 0.8.)

/40. (Pl. 48, *b.*) Longitudinally concave-convex bone tip end fragment, possibly fragment of one of the two valves of a 3-piece compound harpoon. (3.6 l plus, 0.9 w × 0.2 th., near right elbow.)

/41. (Pl. 48, *b.*, 52, *b.*) Bone object, 2-pronged, U-shaped, inside of U and inner prongs concave. 3.7 cm. l × 1.9 w × 1.0 th. × 1.0 between prongs.

/42. (Pl. 48, *b.*) Jasper projectile point, same type as No. 136, not localized, fragmentary.

/43. (Pl. 48, *b.*) Blade or scraper, chalcedony, pressure worked on both sides of one edge and rough pressure or percussion on other edge.

/44. (Pl. 48, *b.*) Blade, chalcedony, worked on one side of three.

/67. (Pl. 48, *b.*) Lamellar blade, chalcedony, secondary pressure retouching.

/73. (Pl. 48, *b.*) Antler wedge fragment, base missing, tapered to blunt tip.

/136. (Pl. 48, *b.*) Projectile point, jasper, directly beneath right mastoid.

/137. (Pl. 48, *b.*) Projectile point, chert, beneath right mastoid.

/138. (Pl. 48, *b.*) Stem end of 2-piece steatite pipe, under right elbow.

Diameter at base 2.1 cm., at stem end 0.9. Hole diameter 0.9 to 0.5 cm.

/139. (Pl. 48, *b.*) Bone point, probably point for compound toggling harpoon. Under right elbow, oval cross section. (6.3 l × 1.1 × 0.6 th.)

/140. (Pl. 48, *b.*) Blunt point fragment of bone, tip of awl or point of harpoon. Diameter 0.8 cm. at greatest. Near right elbow.

/141. (Pl. 48, *b.*) Antler wedge fragments. Cut base, bit missing. Near right elbow.

Squares 9R1 and SRI, 9R1: 6.0 west, 0.7 north, datum depth 6.3 feet.

Burial 8.—(Pl. 49, *b.*) Young adult female, fronto-occipital deformation, orientation south-southwest, semiflexed on back, arms at sides, hands at pelvis, knees to right. Fair condition, fairly complete. Oval pit grave inclusive in stratum IV. There was a dark line above the burial, possibly a remnant of the cremation pits. Artifacts:

/32. (Pl. 52, *a.*) Knife, agate, at left elbow.

Square 9R1, 7.5 north, 1.8 west, surface depth 2.0, datum depth 6.4.

Burial 9.—Young adult male, fronto-occipital deformation. Good condition, complete, orientation southwest, semiflexed on back and right side, knees to right, arms at sides, hands by pelvis. Beneath a level of charcoal, probably part of cremation pit; inclusive in bar or beach sand stratum IV, pit not visible. Artifacts: None. Squares 10R1 and 9R1, 10R1: 0.0 north, 4.0 west, surface depth 3.0, datum depth 0.9.

Burial 10.—(Pl. 51, *a.*) Infant, orientation south-southwest, semiflexed on back, knees to right, hands at pelvis, fair condition. Inclusive in bar sand, stratum IV. Artifacts:

/46. Pecked basalt fragment, unknown use, possibly broken bowl, 0.5 foot west of head, 6.4 l \times 2.8 w \times 1.3 th. (association open to question).

/47. (Pl. 51, *b.*) Large basalt pestle, in three pieces, 0.4 foot southeast of head. 38.5 cm., central diameter 6.1 cm., tapers to blunt tip, flat bottom with chips broken off, probably by use. Weight $4\frac{1}{6}$ lbs.

Square 10R1, 4.0 north, 3.5 west, surface depth 2.7, datum depth 9.8.

Burial 11.—Infant, orientation southwest, on back, flexed, fair condition, inclusive in bar sand, stratum IV. Artifacts:

/65. Four pieces of dentalium, three long about 3.0 cm., one short bead 0.9 cm. found scattered along skeleton.

/68. (Pl. 54.) *Haliotis* (species?) pendant 1.9 l \times 1.3 w \times 0.15 th. Three perforations, sagittal incision on one side. This item was examined by Dr. V. Standish Mallory, Department of Geology, University of Washington.

Square 10R1, 7.8 north, 0.7 west, surface depth 1.5, datum depth 8.9.

Burial 12.—Infant, orientation southwest, on back, extended, arms at sides; knees slightly flexed and elevated, poor condition, incomplete. Inclusive in sand, stratum IV. Artifacts: None. Square 10R1, 4.0 north, 9.0 west, surface depth 1.3, datum depth 8.7.

Burial 13.—Adult, sex questionable, disturbed (probably by infant burial 12). Probably inclusive, stratum IV, fair condition, incomplete. Artifacts: None. Square 10, 10R1, 4.5 north, surface depth 1.8, datum depth 8.3.

Burial 14.—Infant, orientation northeast, semiflexed on back, arms at sides, knees to right. Inclusive in bar sand, stratum IV. Excellent condition for infant. Artifacts:

/50. Five dentalia, around right wrist.

/51. Seven dentalia around left wrist.

/52. Necklace of 36 dentalia. All had sufficiently moved in the earth so that details of stringing were not apparent.

Square 10R2, 7.5 north, 7.5 west, surface depth 1.0, datum depth 9.5.

Burial 15.—Middle-aged adult, male, orientation southwest, semiflexed on left side, hands beneath face, knees to left, in coarse bar sand, stratum IV. A river cobble lay at the head, possibly not an association. Artifact:

/62. Two dentalia, broken or cut, length 1.3 and 1.1 cm, below chin.

Square 11R1, 2.7 north, 4.4 west, surface depth 1.2, datum depth 8.7.

Burial 16.—Infant, orientation northeast (?), fair condition but incomplete. Stratification questionable, probably IV. Cedar slab, end burned, lay over the body. Artifact:

/59. Cedar fragment.

Square 11; 0.8 north, 0.4 west, surface depth 2.0, datum depth 8.7.

Burial 17.—(Pl. 50, *a.*) Adult male, orientation southwest, semiflexed, prone, knees to left, arms folded and hands at head. A pit line, reddish brown, was visible around parts of the burial. It was roughly oval; was inclusive in stratum IV. There were three concentrations of basalt chips near the burial: at the knees, near the pelvis on left side, and near the right shoulder. Artifacts:

/74. (Pl. 50, *b.*) Projectile point, chalcedony, embedded in lumbar vertebra.

/75. (Pl. 50, *b.*) Projectile point, jasper, in lower abdomen area.

/76. (Pl. 50, *b.*) Projectile point, opal, base missing, lower abdomen.

/77. (Pl. 50, *b.*) Projectile point, obsidian, tip, tang and part of base missing, lower abdomen.

/78. (Pl. 50, *b.*) Projectile point, black jasper, lower abdomen.

/79. Projectile point, jasper, tip, tang, and base broken. Sides almost parallel, tangs flaring, lower abdomen.

/80. (Pl. 50, *b.*) Projectile point, opal, lower abdomen.

/81. (Pl. 50, *b.*) Projectile point, jasper, lower abdomen.

/82. (Pl. 50, *b.*) Projectile point, jasper, tip and base missing, lower abdomen.

/83. (Pls. 50, *b*, 52, *b.*) Bone implement, tip broken, tapers to chisel-shaped base, length 7.5 plus, possibly fish spear part, on back, upper thorax.

Square 12R1, 6.5 north, 6.5 west, surface depth 2.6, datum depth 10.2.

This individual was obviously killed by the numerous arrows fired into him, one of which became embedded in the bone of a central lumbar vertebra. The type, number, and broken condition of points, probably a result of fighting and death struggles, are of interest. The bone implement may have been used as a stabbing weapon. Nine points appear to have taken effect on this unfortunate, three have tip, a tang, and base broken; on one the base only has been fractured. Like burial 15 it is an atypical interment.

To the above listed series have been added three burials which Garth brought to the Washington State Museum and which Heglar measured. They were an aged female, a female, and a male. We have no data which enable us to match these with the burials described by Garth (1952).

ARTIFACTS WITH THE BURIALS

An examination of the soil and burial stratigraphy convinces us that the burials all stem from one cultural horizon. Artifacts taken from the graves may, therefore, be considered as a cultural and temporal unit. Differences, however, appear among the burials themselves that will indicate either cultural change or decided individual preferences during the inhumation period.

For example, the pieces found with burial 4 set it off from the others, at least from the viewpoint of the chipped stone. The large basalt blades (pl. 52, *a*, /21 and /23) had not been previously asso-

ciated with a burial complex. Their occurrence, at the nearby mainland site 35-UM-7 (Osborne and Shiner, 1949), under a solid stratum of mussel shells, left no doubt as to the antiquity of the forms from burial 4, and others. The blades, such as /23 and /21, were presumably knives or tips of spears or lances. The use of the bow and arrow, coincidentally with the manufacture of the basalt blades (at least in the period of burial 4 when basalt was employed) had not been certain before the artifact shown as plate 52, *a*, /22 was found. This point, was no doubt similar to the ones used during later cremation times. It had been broken at the corners and points. It was examined by Dr. George Goodspeed, of the Department of Geology, University of Washington. He stated that it is extremely fine material from the sides or top of a flow.

The gaming piece (pl. 52, *b*, /26), found with burial 4, indicates that the hand games so characteristic of the Northwest have great chronologic depth. When we have more finds of this type a study of gambling on both archeological and ethnologic levels will be in order.

Burial 4 artifacts were discussed first because of the generally locally conceded earlier types of the associated artifacts. Burial 1, to be considered next, also had a basalt point (pl. 52, *a*, /11) but the facies of the artifact is different. As far as we are aware the deep basal-indented, long-eared, triangular points (pl. 52, *a*, /6) chalcedony and jasp-opal, do not occur in basalt. These are the points or knives that Garth (1952) and others call "mule ears."

We are, in the Plateau, in the beginning stages of use of the binomial system of designation for points and knives. Tentatively, we are inclined to accept this picturesque name that Garth's collector's use for this type, which is probably a knife, and call it the Columbia Mule Ear knife (see Appendix). To the senior author it is an antecedent form of a later, widely spread pentagonal type with a shallow or no basal notch, weaker ears or none, short, straight shoulders similar to that of the left side of plate 52 *a*, /6, and either incurving or excurving sides.

The bone piece, plate 52, *b*, /10, is not certainly an awl. Its condition renders a diagnosis impossible. We have called the two items shown in plate 52, /8 and /9 (also found with burial 1, a male) war club heads. They are similar to the items that Spinden (1908, p. 187, pl. VIII, 33) calls digging-stick handles. It has also been suggested that they were used as shaft smoothers, although this seems dubious.

The notched, large, basalt point with expanding, incurved base (pl. 52, *a*, /11) had not previously been found in a cultural association, although points of the type are not rare. None has been found, to our knowledge, with contact material. They are probably arrow points but differ widely from the others at Sheep Island.

Burial 7 yielded a number of interesting artifacts. First, there were fragments of several antler wedges. Plate 48, *b*, /73, /141, and /39 were the most photogenic pieces. At least one of these wedges, /141, was 8 or 10 inches long. This is evidence of woodworking, or at least wood splitting. Items /37 and /139, plate, 48 *b*, are bipointed, heavy bone. They may have been projectile points, barbs, or the central piece of the compound toggling harpoon so usual in the Northwest. The eyed needle, /33, is typical of the shorter mat needles. Although the mat needle is essentially a woman's tool, this one was found with a male. Fragmentary points, /140 and /40, may be needle points, awl fragments, or points of pieces such as /139 or /37. Beaver teeth chisels or gravers, /36, appear to be an ubiquitous tool. The U-shaped piece, in poor repair, is one of our minor local mysteries. Items of this type have been found the length and breadth of the Columbia valley. We have no defensible theories as to their use.

The short, wide, lamellar flakes, /44 and /67, chalcedony, may have been cutting edges or blanks for projectile points. A number of pieces which were interpreted as chipping material were found with burial 7, including a fragment of a nodule of brown jasper. Item /38, jasp-opal, is unfinished as is /43, chalcedony. Item /35 may be a finished knife of the type illustrated by Barth (1952, fig. 36, *o*). If so it is rather more crude than most of its type. The conclusion is not improbable that burial 7 was buried with his chipping kit. The steatite pipe stem is of the type described by Garth (1952, p. 49, and illustrated in fig. 38, *e*). Numbers /136, /137, and possibly /42 (jasper, chert, jasper) may well represent a precontact form. They are elongate but with the square notches and shoulders, and rectangular, small stems that characterize several of the points from the cremation pits (pl. 55, *a*, /108a) and some to be described from burial 17. A statement as to their relationships is not in order here. They have been found on the lower Snake River in a large precontact housepit village (45-FR-5). Point /42 (pl. 48, *b*) may be of a different type or may be an awl (Garth, 1952, fig. 36, *j*). All in all the finds from burial 7 have been most helpful in establishing the complex of its period. When the archeology of the Plateau enters a more synthetic phase such data may be employed much more fully than here.

Burial 8, a female, has a single artifact, a Columbia Mule Ear knife, agate (pl. 52, *a*, /32). One wonders if its excurvate edges are not an aspect of the original shape of the pieces and if the incurving ones of No. /6 could not be the result of repeated sharpenings. In that event the straight shoulder sections would form at the region of hafting. A knife might well be buried with a woman.

Burial 10, an infant with a long basalt pestle, killed, has been mentioned. As with all of its type this pestle has a square-cut bottom or working face. Three large scars of flakes broken off from the bottom,

and numerous small ones, indicate occasional rough use. It is thought that these pestles were used with wood mortars and with flat stone mortar bases such as the surface find (pl. 54, *x*) possibly fitted with basketry hoppers. Spinden (1908, p. 187, pl. VI, 18) and others record this trait for the Nez Percé and other Plateau groups.

Burial 15, an adult male, is unusual in that the associated artifacts were a few scraps of dentalium, a garnish usually reserved for burials of the very young.

Burial 17 is of interest not only because of his unfortunate death but because of the associated artifacts. Nine points were presumably shot into the lower torso of this male. One of them, shot from the right, and slightly from the rear and above, penetrated the depth of the point into the body of a central lumbar vertebra. Eight of the points, including the one in the bone, are illustrated in plate 50, *b*. The points are typologically a unit. Although there may have been a subdistinction between such items as /78 and /75, with its deeper notches and longer barbs, it is likely that individual differences in chipping techniques, or material, are the true explanations. The barbs of /81 have been broken from the piece. It is obvious that these points are also typologically the same as the series illustrated in plate, 55 *a*, /84, /105, /108 *a-d*. Although such points occur among the later classic Columbia "jewel points" with their deep corner or basal notches, raking barbs, and perfected chipping, it has so far appeared to be true that they are alone in the earlier sites. Whether they may be looked upon as a prototype of the later points, or a completely independent, but very similar, albeit more crude, type remains to be seen; presumably they are the former. It is of interest that basalt points of this type were in use at Sheep Island in the later cremation times, yet that these points of the same type, shot into the earlier burial, were all cryptocrystallines. Basalt chipped work has, as was stated, been taking its place as generally archaic in the area. The simple, perhaps too simple, explanation for this situation would be that burial 17 was killed by a neighboring group, specializing in the cryptocrystallines, while the conservatives in the region of Sheep Island, although they partook of the same cultural traditions, still clung to basalt as the proper stone for points. Concentrations of basalt chips were found with the burial. They may or may not have been buried with him.

Again, on a wholly tentative basis, without an adequate knowledge of vertical or horizontal or cultural distribution, but firm in the conviction that things must start sometime, and it may as well be now, we are going to name the type. The name proposed here is Wallula Rectangular-Stemmed. The data that we have appear in Appendix 1.

The long, slender bone implement (pl. 50, *b*, /83) was at first thought to be a fishhook barb. It is possible that, in view of the situation, it may be a weapon.

Other than the dentalia which were often associated with infants (when they had nonperishable grave goods) a *Haliotis* pendant was found with burial 11. It will be of interest if further sites show a correlation of shell and infants. Such a situation might hark back to a period when dentalium shells were beads and not money. This occurrence of *Haliotis* at an early level in the Columbia Valley speaks connections to the south or west that might be looked upon as cultural straws in the wind. It is not possible to state whether the shell is a Californian or Northwest coastal species; it is probably the latter.

An aspect of the burial pattern, which cannot be well delineated, partly because of the loose sand in which the burials lay, is the nature of the shrouding. Enough fragments of matting were observed with the bones to indicate that wrapping in mats was standard burial practice. Sometimes, perhaps, a wood cover or bark covering of the corpse may have served. Fire remains associated with the grave are too few to enable us to suggest the use of the element in a mourning ceremony.

ARTIFACTS FROM THE MIDDEN

Strictly speaking, true midden in the sense of living accumulation was absent at BN-55. No animal bone was found. There was, however, a disturbed stained fill both above and below the silt levels that is here called midden. Other than numerous flakes, some fragments, and two chipped pieces (pl. 54, /2, /29) all the artifacts found in the general fill were heavy digging tools or choppers. The chipped pieces are so few that they may have resulted from graves disturbed possibly by the Indians, or they may have been lost. Artifact /2, a basalt point, is the same type as plate 52, *a*, /11, which had a burial association. The quartzite piece (pl. 54, /29), probably a knife blade, is an unusual artifact. The type has been found nearby in a contact site (45-BN-3, Osborne, 1957, fig. 3, Ikd, p. 75). The piece is percussion chipped; the edges and point are dulled intentionally, or at least so it appears. No wear facets or areas of use chipping can be seen on the peculiar piece.

The heavy tools, probably nearly all quickly made digging aids, hammering or chopping tools, were not numerous. All were no doubt used in working around the burials or cremations (and sheds, if such ever existed). Garth (1952, p. 50, fig. 39) calls the implements that are illustrated in plate 53, *a*, /25 and /48, hand adzes and suggests that they were used in canoe manufacture. We find ourselves in

complete disagreement with this and feel that the tools were used in digging. They are not at all the types that one can visualize as having been used in fine carpentry. Of course, no tools that fit well with our present conceptions of canoe makers' adzes were found at 45-BN-55, nor were the artifact series usually found at a dwelling-midden site present there. It is entirely possible that the site, at least the burial portion, existed before the fine jadeite, anthophylite, and serpentine adzes, or techniques of their manufacture, began to infiltrate the area from the North. These fine adzes probably hark back to the wood-working coast of British Columbia, or the near coast and, as has been stated, are certainly later in the Plateau than our earlier finds. The tools that Garth calls basalt adzes (Garth, 1952, pl. 50) are presumably the objects that we call choppers.

The heavy, often nondescript, hand tools of the varieties shown in plate 53, *a*, /69, /56, /45a, and plates 54, and 53, *b*, /20 all have rough, battered and/or percussion chipped edges. Possibly the digging tools (pl. 53, *a*, /25 and /48) were large choppers rather than digging tools. In any event these rough and ready tools are not rare on any Columbia River site. They have obviously served a variety of purposes. Often it is difficult to be sure whether or not the splintered edge is the result of intentional chipping or is splintering from hammering blows. We see these heavy tools as a wide and deep aspect of Plateau culture and recognize them as worthy of intensive study, at least after more data are accumulated.

Plate 53, *a*, /63 and /70, are typical hammerstones; plates 51, *b*, /18, and 54 show the top, tri-pointed, of a mallet pestle. It shows evidence of heat and is indubitably a cremation pit piece. One artifact not illustrated should be mentioned. It is an amphibolite, elongate cobble (36.5 cm. long by 10 cm. thick) which shows the beginning of reduction to a long pestle. It is roughly triangular in cross section, and broad bands of pecking, down the corners of the triangle, illustrate the method of stone working employed.

ARTIFACTS FROM THE SURFACE

The lower end of Sheep Island, together with the southern beach, formed a moderately good hunting ground for coarse artifacts.

Plate 53, *b* (exclusive of item /20) is devoted to the pieces from the island surface. It is of significance that the tools from near the water's edge were all net sinkers of the 2- or 4-notched varieties, or were coarse, igneous-flake cutting edges. Three typical ones are illustrated in plate 53, *b*, /5d, /5h, /5f. Presumably the large flakes, all stone pieces easily found and sharpened or otherwise prepared on the beach, functioned in scaling and cleaning fish after they were netted or speared. A central fragment of a fairly large obsidian

blade, at least 4 inches long, was also picked up on the surface. Obsidian is not found on the shingle beaches of the Columbia, as are most of the cryptocrystallines that were used.

The small mortar and short pestle (pl. 51, *b*, /5a and /5b) are not unusual items. The mortar was flattened on the bottom but had no pecked depression as has the illustrated surface. The depression shows a use surface, so the object is not merely an unfinished piece.

As far as materials are concerned jasper leads for the burials: Jasper (6), chalcedony (5), basalt (4), opal (3), and jasp-opal, obsidian, chert, and agate each have 1 occurrence. For the cremation pits, basalt (6), jasper (4), opalite (3), and chalcedony, flint, obsidian and petrified wood, 1 each, is the order of preference as reflected by our data. It appears that these are aspects of the same series although if all chipped artifacts, flakes, scrapers, and other artifacts are considered, it is noted that basalt and opalite were preferred by the cremators, while the people who buried had more catholic tastes. This count does not fit with our belief that basalt was preferred in the older periods and calls attention to the need for further examination of the concept.

The weights unanimously indicate smaller and lighter points and blades for the later cremation period. This is also true if the various large blades are eliminated from consideration, largely because of the large points /136 and /137, the Mule Ears /6, /32, and /12 and the large basalt point /11. However, the general run of points, cryptocrystalline, with burial 17 ran heavier than the basalt series from cremation pit 1. There can be small doubt that this indicates a process of change in weapons, probably a refinement of the bow and arrow complex.

CREMATION PITS

Superimposed upon figure 43 are outlines of the cremation pits as furnished us by Garth in 1951. Garth has in his possession profiles of these pits, and has given us copies of them. There is little that we can add to these figures and to Garth's report (1952, pp. 40-43). There were, when the River Basin Surveys crew opened the site, some undisturbed portions of the two cremation pits remaining. They were near stakes 6 and 7CL (Garth's pit 1) and near stake 9CL (pit 2). The remnant of pit 1, a fragment of the periphery or edge, was a rough rectangle about $2\frac{1}{2}$ feet by $2\frac{3}{4}$ feet. This fill was arbitrarily divided into two levels (A and B) which were up to 10 to 12 inches thick. The undisturbed remains of pit 2 lay below 12 to 14 inches of disturbed soil. This small deposit was only about 1 foot by 9 inches by 6 inches deep.

The number of objects found in the pits (20 in pit 2, 122 in pit 1) form an insufficient base for a discussion of that aspect of burial cul-

ture. The data which we have should, however, be offered and added to that of Garth's (1952). Plate 55 illustrates the categories of material which we screened from the remnants of the cremation pits or found, obviously subjected to fire, nearby. They may be presumed, for archeological purposes, to be from a cultural unit. The division of the remnants of cremation pit 1 into two layers proved unnecessary.

Projectile-point-preferred materials were obviously basalt and opalite. From the meager collection it would appear that stemmed forms were largely restricted to basalt and obsidian, while oval and larger blades (which may or may not have been stemmed) were of opalite, jasper, chalcedony, etc. Opalite, of course, is not tolerant of the high temperatures which in no wise injure the basalt. Hence the latter may be overstressed here.

Descriptions are to be found in the lengthy captions accompanying plate 55, which illustrates most of the objects found in the pit remnants. Specific information concerning the projectile points can be found in table 3.

The oval points and the diagonal or square-notched points with various stems and side curvatures, in basalt or cryptocrystallines, are what Osborne now regards as an "upper middle" in the Middle Columbia projectile points developmental sequence. These varieties lasted into the modern period and are, in even small collections, found with the late highly refined and symmetrical points with deep basal or corner notches, smoothly incurvate sides and parallel-sided or expanding stems.

The hole in the slate piece (/112) is biconically drilled. The bone items are nondescript. The parallel, usually encircling grooves or cuts on several pieces is the only decorative form shown (cf. /112, pl. 55, *a*). Both working objects—antler wedges, projectile points, awls, needle or skewer—and personal decoration pieces—beads and combs, pendants or bracelets—are represented.

Ninety-six plain bird-bone beads, of the types of /122, plate 55, *b*, form the major part of the artifact recovery from the cremation pit remnants. Eighteen dentalium shells or fragments and one olivella fragment complete the shell inventory. A piece of hematite (BN-55/147), crumbly and solidified by fused sand but otherwise unaltered, appears to have been an included paint offering.

The great heat of the fires is evidenced in a number of ways. Large pieces of cryptocrystalline were thoroughly altered to a splintery light-gray material indicating that they had been held at red heat for a few moments. Bones were warped and lumps of sand several inches in diameter were fused. One such piece, found on the surface, had fused within or beneath a burning fabric, possibly a fine coiled basket. Distortion of the semimolten sand has been sufficient, unfortunately, so that it is not possible to certainly diagnose the piece.

TABLE 3.—*Projectile points and blades*

No.	Weight	Dimensions (<i>L</i> × <i>w</i> × <i>th</i>)	Material	Type and association
45-BN-55/2	5.4	5.2×4.4×0.6	Basalt	Large stemmed point (general fill).
/6	12.2	4.7×2.2×0.6	Chalcedony	Columbia Mule Ear knife (burial 1).
7	(?)		Altered	Wallula Rectangular Stemmed point (burial 1).
/11	5.5	4.2×2.1×0.4	Basalt	Large stemmed point (burial 1).
/12	3.5	4.2×2.1×0.4	Jasp-opal	Small Columbia Mule Ear? (burial 1).
/14	(1)	7×7×0.6	Chalcedony	Point (burial 1).
/16b	6.7 (app.)	7×1.7×0.7	Opalite	Large oval point (cremation pit 2).
/16c	(1)	3.7×2.4×0.6	Flint	Point or knife (cremation pit 2).
/16d	(1)	7×7×0.6	Petrified wood	Probably knife (cremation pit 2)
/19a	(1)	3.6×3.1×0.5	Jasper	Blade (cremation pit 1).
/19b	(1)	3.0×2.2×0.7	Chalcedony	Point or knife (cremation pit 1).
/21	48.9	10.6×4.2×0.6	Basalt	Large blade (burial 4).
/22	(1)	2.0×7×7	do	Wallula Rectangular Stemmed point (burial 4).
/23	(1)	6.5×3.5×0.5	do	Large blade (burial 4).
/27	(2)			Burial 6.
/32	10.2	4.6×4.4×0.6	Agate	Columbia Mule Ear (burial 8).
/35	19.5	6.8×2.8×1.2	Opal	Unfinished? point or blade (burial 7).
/42	(1)		Jasper	Point (burial 7).
/43	(3)	8.3×3.5×1.1	Chalcedony	Blade or scraper (burial 7).
/44	(3)	4.9×4.1×1.0	do	Scraper or blade (burial 7).
/67	(3)	4.2×2.8×0.3	do	Burial 7.
/74	1.0 (app.)	2.8×1.5×0.3	do	Wallula Rectangular Stemmed (burial 17).
/75	.9	2.8×1.5×0.3	Jasper	Do.
/76	(1)	7×1.3×0.4	Opal	Do.
/77	(1)	7×7×0.3	Obsidian	Do.
/78	1.5	3.3×1.1×0.4	Black Jasper	Do.
/79	(2)	7×7×0.4	Jasper	Point (burial 17).
/80	.8	1.8×1.1×0.3	Opal	Wallula Rectangular Stemmed (burial 17).
/81	1.1	2.8×1.1×0.4	Jasper	Do.
/82	(1)	7×1.0×0.3	do	Do.
/84	.5	2.1×1.2×0.15	Basalt	Wallula Rectangular Stemmed (cremation pit 1).
/105	.8	2.6×1.3×0.3	do	Do.
/108a	.6	1.9×0.9×0.2	do	Do.
/108b	.8	2.4×1.0×0.3	do	Do.
/108c	(1)	7×1.0×0.25	do	Do.
/108d	(1)	7×0.9×0.2	do	Do.
/109	(1)	7×0.9×0.5	Obsidian	Wallula Rectangular Stemmed? (cremation pit 1).
/126	2.6	7×1.9×0.4	Opalite	Probably broken, point (cremation pit 1).
/127	(1)	7×1.2×0.5	do	Oval point (cremation pit 1).
/128	(1)		Jasper	Knife? (cremation pit 1).
/129	(1)		do	Knife (cremation pit 1).
/130	(1)		Opalite	Knife (cremation pit 1).
/131	(1)		Jasper	Large point? (cremation pit 1).
/136	3.4	6.2×1.1×0.5	do	Long point, variant of Wallula Rectangular Stemmed? (burial 7).
/137	2.9	5.6×1.0×0.4	Chert	Do.

¹ Broken material.

² Altered and eroded.

³ Blade.

Another piece of fused sand shows the impression of a flat board. It is only one-half inch square, not large enough to be admitted as evidence as to burned structures.

OSTEOLOGICAL AND ORGANIC REMAINS

No certain deposits of food or of bones which may have been food remains were recorded with the burials or in the fill. Fish bones were, however, found rarely throughout the deposit. No differences of asso-

ciation as to burial areas, stratigraphy, or section of the deposit existed. They are therefore listed below as of the whole site. Dr. Arthur D. Welander identified them for us. The pharyngeal teeth of cyprinid fish related to carp or squawfish, probably chub (*Mylocheilus caurinus*), are represented; vertebrae of Cyprinidae and Catosomidae (suckers), three caudal vertebrae of a large salmonid, probably *Oncorhynchus tshawytscha* (chinook salmon), and miscellaneous bones were represented. These bones may have been left by the Indians or they may well be jetsam.

PREVIOUS WORK, DISCUSSION, AND CRITIQUE

Garth's paper (1952), although vitiated by a lack of the ground plans, profiles, photographs, and other data, that are so necessary to an understanding of an archeological manifestation, has brought forth some interesting factual data. A large number of errors, many of them admittedly minor, and the use of long discredited speculative works together with weak or peculiar methodologies have combined to present in his paper an interpretation of the middle Columbia that is at strict variance with that of other workers. Inasmuch as no addendum to his report has appeared to rectify or point out any of these conditions, it appears that this is the logical place to present (or rather to re-present) the more widely held interpretations. First, however, the errors in his report must be corrected or indicated:

1. Figure 40, p. 46, tribal and archeological map. The map appears to have been taken from Spier (1936). The work of Ray (1936) and Ray et al. (1938), the latter published at the invitation of Spier, offer more recent and consequently more thorough data on tribal boundaries. Garth lists Ray et al. (1938) in his bibliography. Had he made use of the work outlined therein he would, for example, have noted that the Lohim are a dubious quantity (*ibid.*, p. 392).

2. Garth uses the River Basin Surveys trinomial system of site designation which he assumes, I believe correctly, to be well enough known not to need explanation. However, 45-BN-19, in the inset (fig. 41), is used to designate the site dug by Garth, properly 45-BN (Benton)-55. Site 45-BN-19 is a small superficial manifestation at the extreme lower end of the island. The Rabbit Island site, 45-BN-15, is incorrectly listed by Garth as 45-WW-15 in his text (p. 43) and in figure 40. Figure 41, last line, lists site 45-BN-54. Presumably "53" is meant, as 45-BN-54 was never excavated. There is not the slightest propriety in lumping BN-3 and -53 in analysis. BN-3 was a late contact midden and burial site; BN-53 an earlier house pit site only. Data on these sites could have been obtained; they have since been published (Osborne, 1957).

3. This may be carping, but for the record it should be pointed out that "islands composed of fine sand" (Garth, 1952, p. 40) are not so. All have heads and cores of cobbles and gravels probably clustering about basalt outcrops. Those that are known to the authors appear to have well-defined and anciently developed stratigraphy of sand, gravels, clay, mixed soils, and such materials.

4. In addition, a dubiousness concerning the acceptance of Garth's "cremation floors" (pp. 41, 48) must be expressed. These were, without much doubt.

natural, compacted, silty deposition levels which occurred over the whole of BN-55 from 1 or 2 feet to $4\frac{1}{2}$ feet in depth. It is probable that the tops of the cremation pits coincided with one of these deposition layers; a photograph, taken by Garth, but not published, of a cut across one of his "floors" shows the same pedologic situation as plate 47, *b*, of this paper. In the absence of further data they cannot be considered as a cultural trait.

5. References to the cordage and basketry found are unfortunately lacking in the type of data needed. The rod armor might have been more fully described. The string-twined basketry, a peculiar term in view of the well-developed terminology descriptive of basket weaves, was given to Carolyn Osborne for analysis. Unfortunately, she was not informed that there was a publication contemplated and, having a backlog for analysis, did not examine the piece immediately. It is not a hat, but is the bottom of a Sally Bag (Mason, 1904, p. 439, pl. 168). There is no indication from the Weltfish paper that the basketry which she mentions was of the same type (Weltfish, 1932, pp. 113-114).

It is Osborne's present belief that Garth is on the right track when he connects the cremation pits and shed depositories, and the former had so stated this belief in 1950 (since published, Osborne, 1957). However, the evidence now available, and Garth's is certainly the only excavation evidence, is insufficient to establish the connection. The mud dauber nests are certainly corroborative but as evidence they alone cannot staunch the holes in a leaky methodology which permitted excavation of a unique site without the amassing of the type of objective records generally required.

6. On page 49 the word "gorget" is used rather than "gorge" which is presumably intended.

7. Also page 49. The greenish stone, most often used for pounding tools in the area is diorite. Granite is occasionally used. The other pestles are likely andesite.

8. Also page 49. It should be pointed out that red mercuric oxide is not stable and sublimation destroys the pigment. Consequently it is not possible that the red pigment on the cremated bones could have been other than ferric oxide, unless the bones received post-cremation attention from the Indians.

9. The tool that Garth calls a basalt hand adz (p. 50, fig. 39, *a*) which has been found farther up and down the River has been thought by us to be a digging or crude chopping tool. There are no ethnographic data that will help us here.

10. Garth refers several times to "flinty rocks" (p. 50, *passim*). The cryptocrystallines used by the later cultures of the area were largely chalcedonies, agates, jaspers.

11. There is probably small need to point out the errors on page 51. It is doubtful if many American archeologists would use the old Strong system of projectile-point classification if they were seeking to demonstrate "refined cultural relationships." The Juniper Island site, as Garth mentions, should not be treated as a unit in analysis. None of the material from that site was properly removed. The logic of employing an unknown and dubious quantity as a control, and then placing in the doubtful category any groupings of projectile points that are similar may be syllogistic but it certainly lacks any aspect of scientific analysis. An error in figure 41 has been pointed out (above, No. 2); it is probably not necessary to question the validity of comparing burial artifacts and selected material from midden excavations of differing periods. Too, the double listing of 45-WW-5 is confusing.

Garth lists Osborne (1949) as his source for data on 45-BN-3 and 45-BN-53 (incorrectly listed as BN-54). He has a point total of only 26 from these two

sites. In plate IV of Osborne's report (1949) are illustrated 38 chipped-stone pieces; there are 26 to 28 that Garth might have used for his figure 41. He appears to have considered the illustration an adequate sample of illustrated artifacts from the two sites. Had he turned to Osborne's page 36 he would have found further data and a statement as to the actual number of points found, together with a brief categorization of them.

12. It would be of distinct service to workers in the field of Plateau archeology to know what the rectangular shell lip pendants (not illustrated) are. None of the present authors recognize the artifact.

The section above was concerned largely with errors or minor criticisms of Garth's presentation. There follows an examination of what seems, at least at the present, the more serious disagreements between him and other workers in the area. No doubt many of these points will have been noted by other readers.

1. First is the question of exposure "probably on a platform" (p. 41) and painting of the bones with red ocher. None of the bones from the area seen by us indicate a painting although there is a staining which might well have been due to a liberal sprinkling of red ocher during or before the cremation ceremonies. It hardly need be pointed out that the structures of exposure platforms, red ocher painting, and cremations that Garth has reared will not support its own weight, to say nothing of becoming a foundation for a Sahaptin cremation complex. Later (p. 55), Garth appears to have realized that exposure (probably on platforms?) is out of place in the region, for he suggests a possible Plains origin. This is more possible but is of course far more recent than the cremations that he described on page 41.

The University of Washington excavations at Rabbit Island, superintended by Crabtree (Crabtree, MS., 1957) and supported by the National Park Service and Washington State College in 1951 and by the University in 1952, uncovered a cultural and natural stratigraphy:

1. Extended burials with a crude chipped-stone industry, all generally below a hard calichelike layer; (2) above, with burial pits occasionally partly penetrating the caliche layer, was a later complex of flexed interments accompanied by stone artifacts similar to those usually found with historic or late prehistoric burials. It would be of help to have something more of the burial stratigraphy of Garth's child burial (p. 44), but its slight depth (1.6 feet) and burial in compacted sand indicate that it cannot be associated with the old extended burials as Garth attempted to do. The error of inferring close cultural relationships from an "abundance of red ocher" (p. 44) is an old one in Eastern American archeology. It is not necessary that it be repeated in the West. Too, an abundance of coloring here in the Plateau would be considered only a moderate expression elsewhere.

2. Garth (pp. 46-47) has interpreted the Townsend reference incorrectly (Townsend, 1905, vol. 21, p. 282). The conical stacks of wood that Townsend saw were described by travelers from the Fraser River to the Columbia. They appear to have been, thus, a widespread but late burial manifestation. Townsend, therefore, did not mean shed-like structures, as Garth (p. 47) would have it. Osborne (in 1950, published 1957) listed references for this burial type and has speculated that it might be an aspect of the widespread truncated conical wood cist burial (*ibid.*, p. 52) which are often burned off above the burial. Were the sides of these cists extended above ground a small conical structure would result.

It is unfortunate that Garth has not made his data on Wallula burial practices available (see his p. 47). They might be of assistance to other workers.

3. On page 47 he makes the statement that the Nez Percé "seem to have been gradually adopting the Salish type of hollow burial as found among the Flathead." Preceding sentences do not clarify the statement; both the terms used and the suggestion of diffusion need much more full discussion although a reference to the Flathead source (Turney-High, 1937) might have helped the reader puzzle out some of the meaning.

4. Pages 47 and 48 contain a series of traits which supposedly connect the handling of the dead in the burial shed of just precontact time with more recent Wallula and Yakima practices. Wrapping of the dead (widespread in North America, found with the flexed burials of a number of excavated sites in the Plateau), "extended position on the back" (data on this must be presented or developed before it can be accepted), "readjustment of the bones" (largely a speculative development) are listed as traits which were presumably old and have persisted. That the latter trait led to cremation or secondary burial is partly contradicted by Garth's quotation from Lewis and Clark (pp. 45-46). In this the explorers mention a "pile of bones" near the center of the depository shed. The reasoning which connects "exposure in canoes" (really canoe burial; Ray, 1938, pp. 48, 74-76), the above-listed traits, and a recent Wallula burial method felicitously called "exposure" underground (p. 48), in order to prove that the Wallula and Yakima once exposed, carries no conviction. The data as used are open to question, as has been seen.

5. On page 50, next to last paragraph, there is given a short list of traits that suggest cultural stability for a period in the Sheep Island to Wallula area. There can be no disagreement as to the stability. It went, however, much farther north. With the possible exception of the peculiar two-piece pipes, Garth's short list would have been at home, at least as far up river as the Wenatchee area, just short of 150 miles north and deep into the area of Salish speakers.

6. None of us has been able to follow Garth's reasoning in his comparison of point types (p. 52). The old Wilson-California Strong system of point classification is too insensitive to bear a comparative load such as Garth puts upon it. Furthermore, it is hardly necessary to point out that complexes from individual sites should be compared, not isolated aspects such as points judged similar. The second column in the table makes an approach toward the reduction of site remains to percentages. A careful reading of the material following the table helps little. Garth discredits a comparison of a low total site with a high total but accepts the reverse. It would not seem that there would be an appreciable difference in significance. The low totals and type of processing (fig. 41) should cast doubt enough. His statement that the "similarity between Wallula and Berrian's Island seems also to be significant" (column 1, middle) is reversed at the bottom of the same column where he states that "Sheep Island and Wallula culture manifestations are decidedly different from those of the historic cedar cist people" (Berrian's Island, Osborne, 1957). The closest percentage correspondence that he has is, as a matter of fact, the Sheep Island burials and the Berrian's Island (45-BN-3 lumped by Garth with 45-BN-53).

7. Garth's assignment of the differing cedar cist and Sheep Island burials to different linguistic groups is close to being anthropological sin. Cedar-lined grave cists, polished celts, thick-stemmed heavy pipes, and sandstone arrow smoothers do not, without further digging and distributional studies, point to the Salish of the upper Columbia. As a matter of fact sandstone and tufa arrow smoothers are not conspicuous in the sites excavated so far in historic Salish territory, and, furthermore, long thin-stemmed pipes are found in the cedar cists. Of course Lewis and Clark did not report bands of Salish and Sahaptin interspersed along the Columbia from The Dalles to the Snake (p. 52, column 2). True, the peoples were not warlike, and trading and visiting Salish groups must have often appeared along that part of the river. However, a bold statement that would lead one to believe co-existence in the area is not in order. Garth was wise to use a question mark when he described Hunt's "Akiechies" as Salish (Rollins, 1935, pp. 302-304). He was, of course, following Teit (1928, p. 94). Ray et al. (1938, p. 393) state that "Akai-chie seems to be *a'kaitei*, 'people who eat salmon,' a Bannock word for Sahaptins. . . ." Again Ray et al. (1938) should have been consulted as well as Teit (1928, p. 94) before accepting the latter's equation of "*Stia'kEtux* or *Tia'kEtux*" (the former is properly *Stia'kETEmux*) with Akieches. Ray's (Ray et al., 1938, p. 393) Umatilla, Kittitas, and Wenatchi informants interpreted these terms independently as reference to a "semi-mythical people 'from the North, who appear at night in heavy fur clothing and steal things, then disap-

pear before daylight.' All denied that the term designated a tribe." The Umatilla and Kittitas (both Sahaptin) forms of the word (*ibid.*, p. 393) indicate that there can have been no misunderstanding.

On the same page (*ibid.*, p. 393) the word *Tuschepaws* or a variant is parenthetically localized as the "Flatheads or a band thereof." Hodge (1910, p. 853) lists the group seen by Lewis and Clark as probably Kutenai; Gatschet states that Tushipa is a Shoshoni term for tribes living to the north of them, including the Nez Percé as well. It appears, according to Livingston Farrand, that the Lewis and Clark usage would have included "Walla Walla and possibly other Sahaptins." A number of usages of the word are given in the Handbook. None points to real identification with a Salish group except Hohilpe which Ray et al. (1938, p. 389) suggest as Colville.

As to the *NekETEmeuw*, concerning whom Garth repeats Teit's (1928, p. 96) "tradition," Ray et al. (1938, p. 392) failed to find confirmation of the existence of the group, or of any Salish group at The Dalles. His Umatilla informant, however, suggested the Umatilla term *nik'atimiuw*, "persons who do not act sensibly," as applied to an alien people. It may well have been a usual reference to the aboriginal transients of the great Dalles trading center.

On page 53, Garth indicates his reasons for believing that the Pishquitpah or Pishquow were Wenatchi or Yakimaized Wenatchi. Hodge (1910, pp. 262, 263), who used the same sources as Garth, equates the Pishquow with the Wenatchi and the Pishquitpah with the Sahaptin. Ray et al. (1938, pp. 389-90, note 19) cogently suggest that the term is Sahaptin and cannot be identified with the Salishan Wenatchi.

No information appears to be available to cast further light on the Met-cow-we which Garth identifies as the Methow from the lower Methow River north of Wenatchee. Ray et al. have no data on them but he found no evidence of Salish in the southern area, as has been mentioned. Certainly the true Methow were not "true horse Indians" as Garth states.

8. Garth lists (p. 53) as evidence for a Salish migration into the Yakima and Middle Columbia valleys: Rock slide graves, cist graves lined with cedar boards and rock and, apparently, the carved figure illustrated by Smith (1910, pp. 133, 160-161). First it should be pointed out that these cremations (Sahaptin according to Garth) do not contain contact material. Many of the pit and cedar cist burials do. Hence there is, here, a temporal relationship. Yet there is not as far as we are aware, other than Garth's Walla Walla (Wallula) (p. 47) and the Wahluke and Sundale (pp. 44, 54) and a few other secondary burials and partial cremations, any evidence of the ways by which the large Sahaptin population of the area disposed of their dead, despite a very full survey and much excavation in the McNary

reservoir. The obvious conclusion is that the Sahaptin buried their dead in the pits or cists and the many burials found or reported were Sahaptin. This is a more sensible solution than a postulated migration and an assignment of archeological traits to a linguistic group.

Also, there are facts of distribution that do not tally with Garth's theory. Collier and his associates found no cist type or rock-slide graves above the confluence of the Spokane and Columbia (Collier, Hudson, and Ford, 1942, p. 42), although this area is deep in Salish territory. The antler figure found by Smith does not impress us as being in a "Plains-type dress." Its relationships to the probably improperly called ghost art of the Columbia are indubitable but that art style is ancient and one that was highly developed and certainly centered in The Dalles-Columbia region long before the time that Garth assigns (early historic) for his Salish migration into the area. It would thus controvert his contentions.

9. Strong exception must be taken to the statement (p. 54) that historic Salish culture is "widely divergent" from either the historic Sahaptin or that of the cremation pits. The only wide divergencies would be between the late Sahaptin-Plains cultural overlay and a conservative Salish group such as the Okanagan. Ray (1939, p. 149) points out that—

in the American Plateau, a linguistic transition occurs, this time involving the Salish and Sahaptin stocks. The boundary crosses the Plateau laterally about two degrees (180 miles) south of the Canadian boundary. Thus the primary cultural division in the Plateau runs parallel to the primary linguistic boundary but nearly two hundred miles north of it! The linguistic boundary itself in no way corresponds to cultural transitions, even of a secondary order.

Possibly the Sahaptin exposed their dead recently; if so, it was probably part of what Ray (1939) calls the Plains overlay. It would seem likely that the cremation pits were Sahaptin inasmuch as they are found in Sahaptin country, but for no other reason. Ethnographers would, one can be sure, be happy to have the data which led Garth to list British Columbia cremation practices (Carrier?) as late. Garth says (p. 54) that there is little evidence of a prehistoric Salish culture in the area; we know of none, and, frankly, have not the slightest background for determining the older manifestations, so far found, as either Salish or Sahaptin.

Also on page 54 Garth lists a series of traits "common to historic Sahaptins and the cremation complex." They may be briefly reviewed here as a finale to this section. Exposure of the dead was very possibly a Sahaptin trait but it was certainly not common to all Sahaptin; its association with the cremations is largely conjecture and should be so labeled. Ray (1942, p. 216, element 5677) lists mat wrapping as almost Plateau-wide, being absent only in northern groups (Carrier, Shuswap, Chilcotin); it has, thus, both a Salish

and Sahaptin distribution. Coffins are another question, and speculations on their period and distribution would serve no purpose here. Our feeling that red ocher is not a diagnostic trait in the Plateau has been expressed. Stemmed "arrowpoints" are surely not diagnostic of the Sahaptin. A site near Wenatchee (Salish territory) has about 80 percent of stemmed points. Chief Joseph Reservoir (Osborne et al., 1952) yielded more stemmed than other kinds. So did The Dalles-Deschutes area and much, for that matter, of western North America. One would need to be far more specific and would need to use a more sensitive typology than Garth's to prove as close a connection as he has postulated. Leaf-shaped blades, polished bone points, hand game bones in sets, and soft string-twined basketry (if by this Garth means soft twined bags and wallets) are all Plateau-wide traits in both historic and protohistoric levels.

One last word: Appreciation is tendered Osborne by Garth for criticism of the manuscript which resulted in the paper. Osborne read part of it, but not all that was published, as a research report turned in to Dr. Erna Gunther, at her request. He made criticisms which, as far as he can recall, were ignored in the published paper.

A FINAL STATEMENT

From our point of view little can or should be added to the foregoing. When Garth's and our data concerning the site itself are considered together, the differences that exist seem to fade in the one body of observations. It is unfortunate, however, that a single investigator could not have exhausted the site. The revisiting of a site, such as this, is often necessary, but data gathered cannot compare in sensitivity with those resulting from one thorough-going excavation. However exact we may consider our techniques they need supplementing by the half intuitive, half experience-resulting judgments and thought combinations that can come best only from working fully on an undisturbed site. Especially is this necessary in the shallow sites along the unstable banks of the Columbia.

With the above in mind, plus a caution as to comparisons between cremation and inhumation from the viewpoint of preservation of different materials (flints, opalite, shells, perishables, etc.), it seems wiser to let the matter rest with Garth's and our descriptions.

SPECULATIONS

Speculating, when it proceeds from a moderately broad base of acquaintanceship with a problem, may serve a valuable purpose. At least in a situation such as this it makes available some synthetic thinking which might be of value later and which may lead to more

mature theorization and the formulation of problems. It provides trial balloons which may be sniped at or observed.

There is slowly accumulating in the Plateau a backlog of excavations which, as they are written and published, will draw the thinking and working hours of more and more anthropologists into problems that are now largely esoteric. Sites that can give information on cultural sequences in the most easily readable manner, by stratigraphy, are few here. Consequently our knowledge of material culture changes, even limited local ones, are few. There does seem to stand out, however, as an aspect of very old local culture, the basalt industry which made use of large blades, large points, and, in its terminal phases, points of the Wallula Rectangular-Stemmed type made of basalt that probably led directly to the finer, exaggerated, later Columbia points.

Some data on the basalt forms are given here; other information exists, which cannot well be presented in this report (Crabtree, MS, 1957). Basalt chipping has been an aspect of Northwest Indian culture in the Northern Plateau and Coast in recent times. It also flourished, apparently as a complex of greater age, in the Lake Tahoe region of the Central Sierra Nevada (Heizer and Elsasser, 1953). Certainly problems of magnitude exist here: Is the old basalt industry with which we are coming to grips in the American Plateau related to the use of that material in the North and on the Coast? If so, how? Is our material, or are both ours and the Northern and Coastal and the Californian, a part of an old and widespread complex? Can we add to this the material from the desert cultures (this paragraph was written in 1953) of California and some of the pieces sketchily recorded by Osborne in 1941? Following this line of thought, a plan for archeological work along the eastern slopes of the Cascades from Central California north through Oregon and the means to carry it out would certainly reveal many facts pertinent to the development of culture in the Plateau. The Sahaptin connections, through the Moale and Modoc (Jacobs, 1931, Introduction), provide a broad path which, though much overgrown, may still lead back to the origins of much of Plateau stock and culture. Perhaps recently perfected linguistic techniques will aid in this respect.

One thing is certain, that is that the tracing of separate Salish and Sahaptin cultural developments in the Plateau is not now an archeological problem. A great deal can be done historically with linguistic techniques, but the fact that the basic Plateau material culture was, as far as we know now, equally Salish and Sahaptin, renders a solely archeologic assignment of sites to speakers of either language group an impossibility. The archeologist's responsibility, at least here and now, is the historiographic study of culture growth and change in the area.

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APPENDIX

A trial binomial description of certain widely spread chipped items of the Plateau is offered. Perhaps, if useful, it will stimulate further work of this kind.

WALLULA RECTANGULAR-STEMMED

(Pl. 56, top row)

Outline: Triangular.

Cross section: Lens or planoconvex.

Edges: Straight or convex.

Base: Partial to complete shoulder notches or corner removal giving a more or less rectangular or slightly expanding stem.

Lengths: Approximately 2.0 cm. to 4.0 cm.

Widths: Approximately 1.0 cm. to 1.5 cm.

Thickness: 0.15 cm. to 0.5 cm.

L-W indices: 25-69.

Weights: 0.5 gm.-2.1 gm.

Material: Jaspers and chalcedonies generally preferred, basalt the preferred material at 45-BN-55.

Technique: Well controlled pressure flaking; commonly specimens of this type are semiunifaced.

Function: Projectile point, presumably with bow and arrow.

Geographical range: Specimens illustrated which seem to conform to this type: Chief Joseph (Osborne, Crabtree, and Bryan, 1952, fig. 110 *i, v*, and *aa*); Upper Rockshelter (Mills and Osborne, 1952, fig. 107 *o, u, z*); Dalles-Deschutes (Strong, Schenck, and Steward, 1930, pls. 14, *a-g*, 15, *a-m*). The description offered here is based on a series of 44 from the Pot Holes site near Trinidad, North-central Washington (Crabtree, MS., 1957) and 17 from 45-BN-55. Specimens illustrated in the Upper Columbia report (Collier, Hudson, and Ford, 1942) do not seem to conform to this series close enough to include them at the present time.

Historical range: All of the specimens from the Pot Holes site are associated with burials which have trade items of nonaboriginal manufacture (copper); the series from BN-55 is from definitely prehistoric horizons. It would seem then that this type flourished as a late Prehistoric to Early Historic type. Indications are, however, that it has a long history in the Plateau and possibly in adjacent areas.

Remarks: The Pot Holes series is a much neater, coherent series than the smaller BN-55 one. The relationship of this type to the earlier Rabbit Island Stemmed (Crabtree, MS., 1957) has been suggested. The series illustrated in The Dalles-Deschutes report seems, in part, to bridge the gap between this type and the tentatively suggested Middle Columbia Basal-Notched. Presumably Wallula Rectangular-Stemmed is closely related to the Middle Columbia Basal-Notched. They are certainly partly contemporaneous and both are popularly included under the term "Columbia River Jewel Points" because of their fine workmanship and the colorful chalcedonies and agates of which they are made.

MIDDLE COLUMBIA BASAL-NOTCHED
(Pl. 56, middle row)

Outline: Triangular.

Cross section: Lens.

Edges: Straight—concave.

Base: Straight or convex, with corner or basal notches.

Lengths: Approximately 1.3 cm.—2.0 cm.

Widths: Approximately 2.2 cm.—1.3 cm.

Thickness: 0.2 cm.—0.5 cm.

L-W indices: 37-74.

Weight: 0.6 gm.—2.7 gm.

Technique: Very fine pressure flaking, uniface forms rare.

Material: Chalcedonies and jaspers heavily favored.

Function: Projectile point, certainly with bow and arrow.

Geographical range: Upper Columbia (Collier, Hudson, and Ford, 1942, pl. III, *t, v, x*); Chief Joseph (Osborne, Crabtree, and Bryan, 1952, fig. 110, *k, u*); Upper Coulee (Mills and Osborne, 1952, fig. 107, *p, q, w, aa, bb*); Dalles-Deschutes (Strong, Schenck, and Steward, 1930, pls. 14, *h-m*, 15, *o-z*); Pot Hole site 49 specimens, used as basis for this description—of these 23 had concave edges.

Temporal range: A fairly late type in its classic form becoming more distinctive in the latest sites.

Remarks: In some series it is difficult to differentiate this type from the Wallula Rectangular-Stemmed, at least the slightly variant forms, and as has been suggested, this presumably indicates historical relationship.

COLUMBIA MULE EAR, KNIFE
(Pl. 56, bottom row)

Outline: Triangular.

Cross section: Lens.

Edges: Straight, concave, convex.

Base: Concave, tending to an oblique angle.

Length: Approximately 4.0 cm.—7.0 cm.

Width: Approximately 4.0 cm.—5.0 cm.

Thickness: 0.5 cm.—0.8 cm.

L-W indices: 60-100.

Weight: 10 gm.—18 gm.

Technique: Pressure flaking for the final shaping, percussion for the roughing out of the piece; this is evident inasmuch as two specimens (of three) are semi-unifaced.

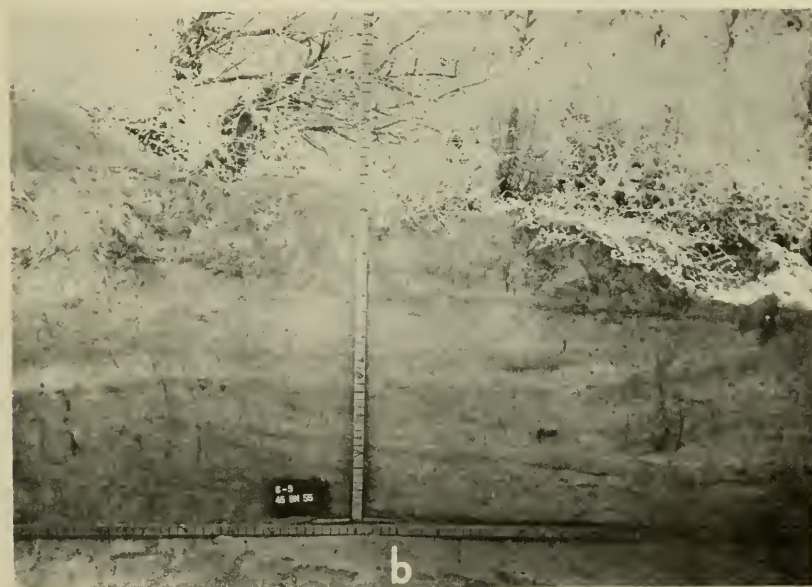
Material: Jaspers and chalcedonies.

Function: Presumably a knife, all specimens found with adhering haft remnants were knives.

Geographical range: A specimen from Pot Holes (WSM-9319); 2 from 45-BN-55; 11 noted in Dalles-Deschutes report, in which 2 are illustrated, called NBB (Strong, Schenck, and Steward, 1930, pl. 12, *j-k*). None evident in Upper Columbia.

Temporal range: Protohistoric or Early historic at Pot Holes, Prehistoric (late?) at BN-55.

Remarks: This may be a type related to the Pentagonal forms. Relationship, if any, to the long, leaf-shaped concave-based points, as at Pot Holes, not yet determined.



a, View of 45-BN-55 (WSW) downriver before River Basin Surveys excavation. *b*, Profile: stake 11 plus 5 feet, centerline to 11R1 plus 5 feet, looking east.

PLATE 48

a, Burial 7, to the south.

b, Burial 7, stratum IV, artifacts:

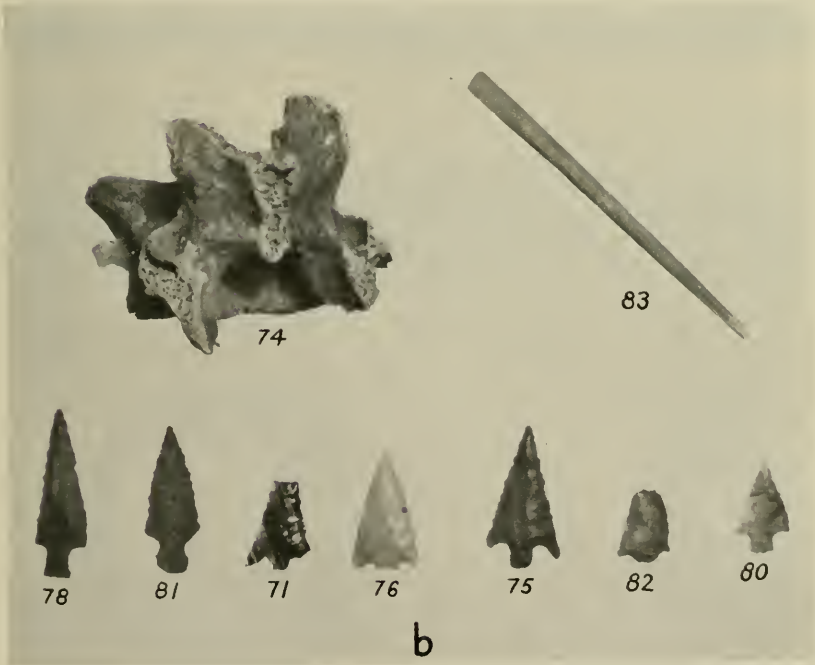
33. Bone needle, point missing, perforation biconical.
35. Opal projectile point or knife, 19.6 gm.
36. Beaver incisor (graver) fragment.
37. Bipointed bone object (gaming piece or fishspear prong) 7.2 cm.
38. Jasp-opal blade or scraper, unfinished.
39. Antler wedge fragment, one end ground.
40. Tip of bone or antler object.
41. U-shaped bone or antler object.
42. Jasper fragmentary projectile point.
43. Chalcedony blade or scraper, unfinished.
44. Chalcedony flake cutting or scraping edge.
67. Chalcedony lamellar blade, retouched on one side, large.
73. Antler wedge fragment, tip.
136. Jasper projectile point, 3.4 gm.
137. Chert projectile point, 2.9 gm.
138. Stem end of 2-piece steatite pipe.
139. Bone projectile point or barb, 2 ended.
140. Tip of a bone awl or projectile point.
141. Antler wedge fragment, bit missing, eroded.



a, Burial 7, to the south. b, Burial 7, stratum IV, artifacts.



a, Burial 4, to the east. *b*, Burial 8, to the south.



a, Burial 17, to the north. *b*, Selected artifacts, burial 17, stratum IV.

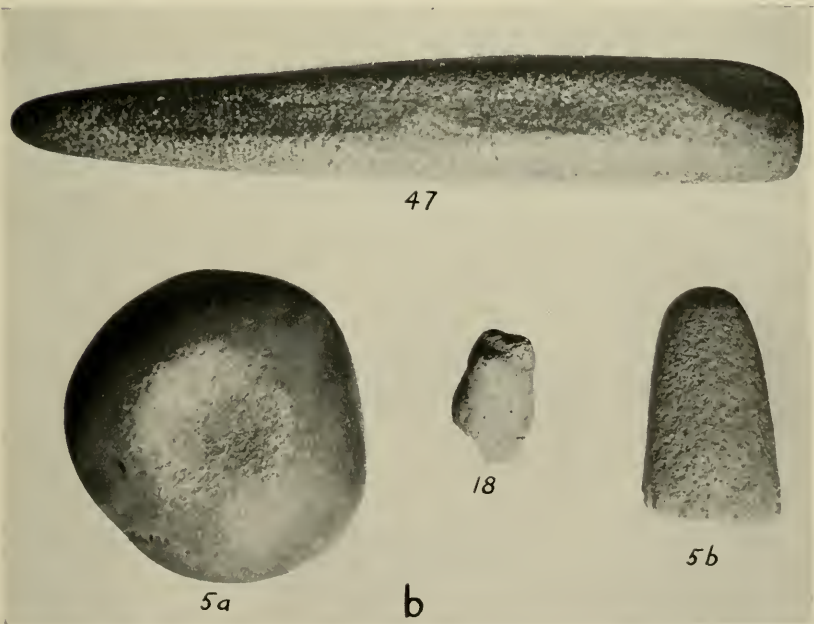
(For explanation, see following page.)

PLATE 50

- a*, Burial 17, to the north. Note unusual position, either variant burial custom or casual disposal.
- b*, Selected artifacts, burial 17, stratum IV (No. 83 is 7.5 cm. long):
74. Chalcedony point embedded in lumbar vertebra.
 75. Jasper projectile point, 0.9 gm.
 76. Opal projectile point base broken, 1.3 gm.
 77. Obsidian projectile point broken. (No. 71 on the plate should be No. 77.)
 78. Black jasper, 1.5 gm.
 80. Opal projectile point, 0.8 gm.
 81. Jasper, 1.1 gm.
 82. Jasper projectile point, broken.
 83. Pointed bone object, use unknown, tip broken; in appearance similar to a large herring rake barb of the Northwest Coast.

PLATE 51

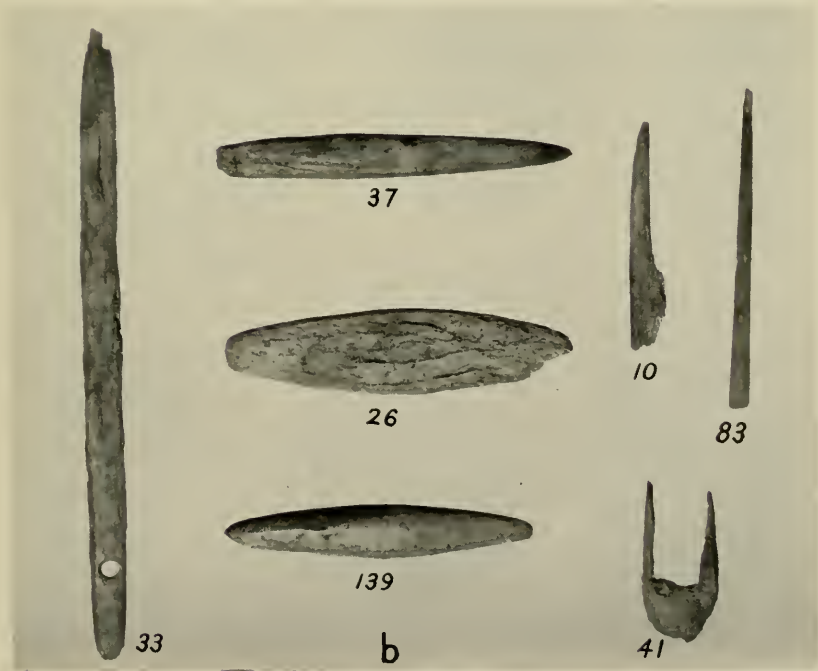
- a*, Burial 10, to the north, infant.
- b*, Mortar, pestles, and mallet pestle handle:
- 5a. Quartzite mortar, surface; flat pecked area on bottom.
 - 5b. Granite pestle, surface; $1\frac{1}{2}$ pounds.
 18. Granite hand maul or mallet pestle, top, 3 tips (see pl. 54) stratum I (?), $\frac{5}{16}$ pounds, small.
 47. Basalt pestle, burial 10, stratum IV, $4\frac{1}{16}$ pounds, 38.5 cm. long.



a, Burial 10, to the north, infant. *b*, mortar, pestles, and mallet pestle handle.

PLATE 52

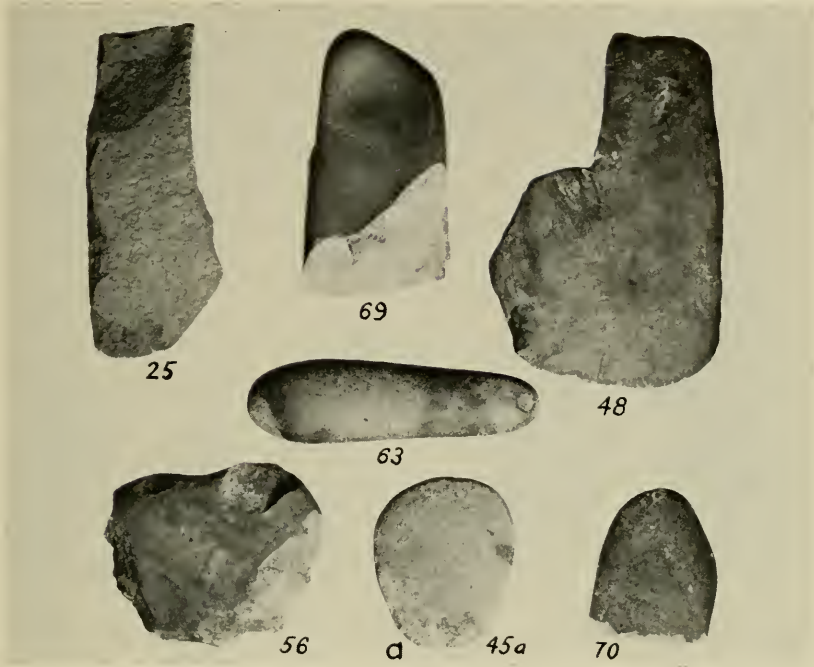
- a*, Projectile points and blades, burial associations. (Weights of unbroken pieces are given in grams. No. 21 is 10.6 cm. long.)
6. Chalcedony Columbia Mule Ear knife or point, burial 1, stratum IV, 12.2 gm.
 7. Projectile point altered to chalky state, burial 1, stratum IV.
 11. Basalt projectile point, burial 1, stratum IV, 5.5 gm.
 12. Jasp-opal projectile point, unusual form, Burial 1, Stratum IV, 3.5 gm.
 21. Basalt blade, burial 4, stratum IV, 48.9 gm.
 22. Basalt projectile point, fragment of base and tip missing, burial 4, stratum IV.
 23. Basalt projectile point or blade, burial 4, stratum IV.
 27. Projectile point altered to chalky state, fragmentary, burial 6, stratum IV.
 32. Columbia Mule Ear knife or point, agate, burial 8, stratum IV.
- b*, Bone objects from the burials:
10. Awl tip, burial 1, stratum IV.
 26. Bone gambling piece, burial 4, stratum IV, eye (?) design.
 33. Bone needle, point missing, burial 7, stratum IV.
 37. Bipointed bone object, game counter, fish spear piece (?), burial 7, stratum IV, broken.
 41. Bone object of unknown use, burial 7, stratum IV, badly eroded (see pl. 48, *b*).
 83. Bone object (see pl. 50, *b*) (?), burial 17, stratum IV.
 139. Bone point, central piece of compound harpoon point, burial 7, stratum IV.



a, Projectile points and blades, burial associations. b, Bone objects from the burials.

PLATE 53

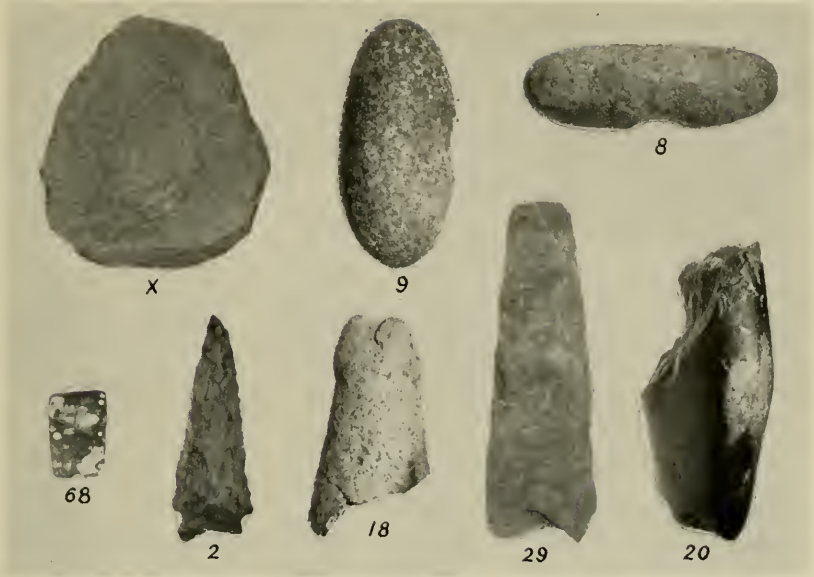
- a*, Choppers, hammerstones, digging tools from the general site fill. No. 25 is 18.1 cm. long:
- 25. Basalt digging tool or chopper, $1\frac{1}{16}$ pounds.
 - 45a. Basalt pebble chopper, $\frac{1}{2}$ pound.
 - 48. Quartzite digging tool or chopper, $2\frac{1}{16}$ pounds.
 - 56. Quartzite chopper, $1\frac{1}{4}$ pounds.
 - 63. Basalt hammerstone, $\frac{3}{4}$ pound.
 - 69. Andesite chopper, $1\frac{7}{8}$ pounds.
 - 70. Basalt hammerstone, $\frac{5}{8}$ pound.
- b*, Net sinkers and large flakes, and a chopper. All are surface finds except the chopper, No. 20. All are percussion worked. No. 5g is 7.0 cm. long, weights are given in pounds.
- 5d. Micaceous quartzite scraper or cutting edge, $\frac{1}{8}$ pound.
 - 5f. Felsite scraper or chopper, surface, $\frac{3}{8}$ pound.
 - 5g. Basalt 2-notched net sinker, $\frac{1}{8}$ pound.
 - 5h. Quartzite scraper or cutting flake, fragmentary.
 - 20. Basalt hammerstone-chopper, stratum II, $\frac{7}{8}$ pound (see pl. 54).
 - 132. Granophyre 4-notched net sinker, surface, beach, $\frac{7}{16}$ pound.



a, Choppers, hammerstones, digging tools from the general site fill. b, Net sinkers and large flakes, and a chopper.

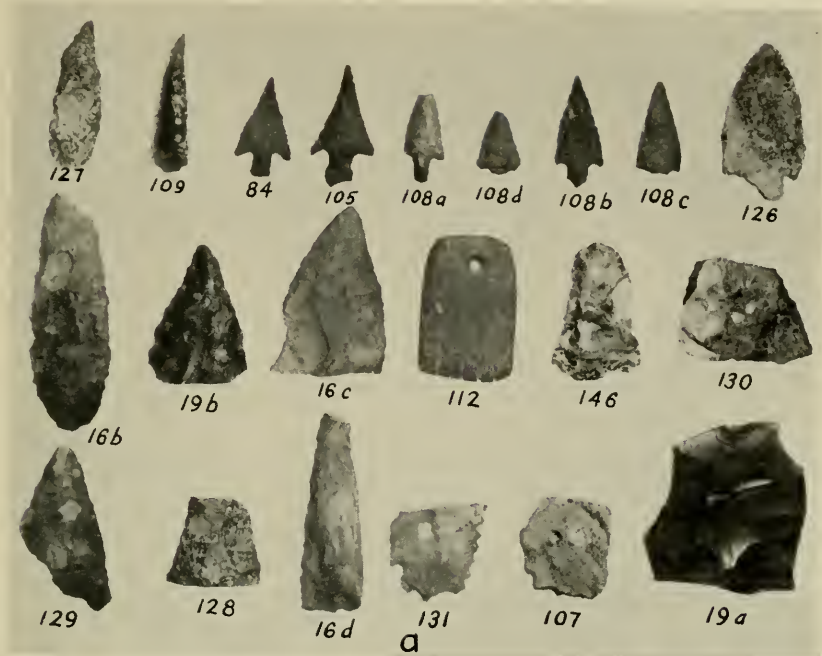
PLATE 54

- a*, Miscellaneous stone artifacts and shell piece. No scale.
- x. Food preparing stone, possibly hopper-mortar base, south beach, Sheep Island, vertical measurement $10\frac{1}{2}$ inches, basalt.
2. Basalt projectile point, general midden, 4.9 cm., 5.4 gm.
8. Diorite, war club head (?), burial 1, stratum IV, 9.5 cm. long, $\frac{3}{8}$ pound.
9. Porphyritic trachyte war club head (?), burial 1, stratum IV, 9.1 cm. long, $\frac{9}{16}$ pound.
18. Granite hand maul top fragment, tripointed, heat cracked, general midden, 8.0 cm. long (see pl. 51, *b*).
20. Basalt hammerstone chopper, general midden (see pl. 53*b*).
29. Micaceous quartzite chisel or scraper, general midden, 7.5 cm. long.
68. *Haliotis pendant*, burial 11, stratum IV, 4 holes, 1.9 cm. long.

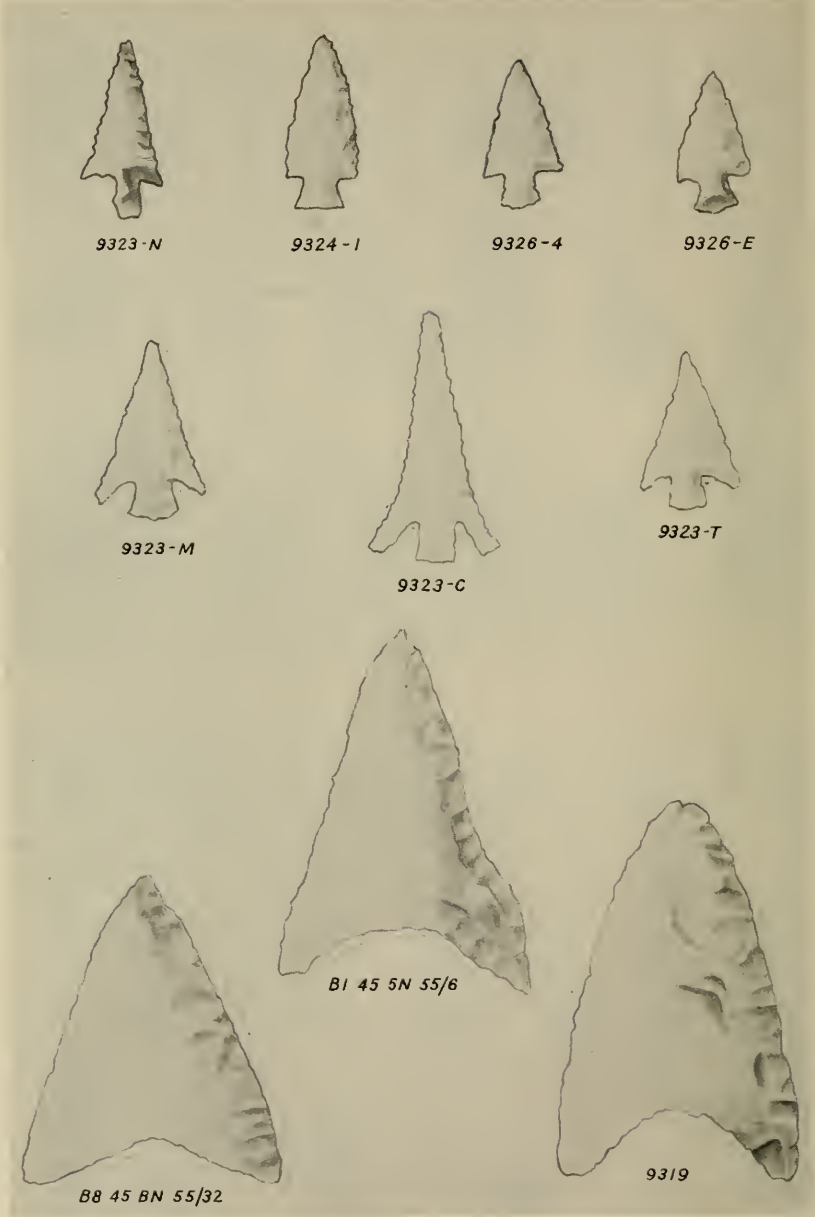


Miscellaneous stone artifacts and shell piece.

- a, Chipped and ground stone from the cremation pits, all showing fire action, No. 109 is 3.0 cm. long, weights in gm.
- 16b. Opalite projectile point (?), pit 2, broken.
 - 16c. Flinty projectile point (?), pit 2, broken.
 - 16d. Petrified wood point or blade fragment, pit 2.
 - 19a. Jasper blade or scraper fragment, pit 1.
 - 19b. Black chalcedony blade or point fragment, pit 1.
 - 84. Basalt point, Wallula Rectangular Stemmed, serrated, pit 1, layer B, 0.5 gm.
 - 105. Basalt point, probably same, pit 1, layer A, 0.8 gm.
 - 107. Opalite scraper fragment, pit 1, layer A.
 - 108a. Basalt point, Wallula Rectangular Stemmed, pit 1, layer B, ca. 0.6 gr.
 - 108b. Basalt point, same, pit 1, layer B, 0.8 gm.
 - 108c. Basalt point, pit 1, layer B, fragmentary.
 - 108d. Basalt point, broken, pit 1, layer B.
 - 109. Obsidian point, pit 1, layer B, fragmentary, tip curved (melted?).
 - 112. Incised shale pendant, pit 1, layer B.
 - 126. Opalite point, pit 1, layer B, fragmentary.
 - 127. Opalite point, pit 1, layer B, fragmentary.
 - 128. Opalite point, pit 1, layer B, fragmentary.
 - 129. Jasper point, pit 1, layer B, fragmentary.
 - 130. Opalite point, pit 1, layer B, fragmentary.
 - 131. Jasper point, serrated, pit 1, layer B, fragmentary.
 - 146. Opalite scraper (?), pit 1, fragmentary.
- b, Cremation pit 1, bone and antler pieces, all calcined. No. 97 is 4.6 cm. long.
- 85. Tip fragment antler wedge (layer B).
 - 86. Antler tool (wedge?) fragment (layer B).
 - 88. Head of needle or skewer (layer B).
 - 91. Incised bone fragment (comb?) (surface).
 - 93. Tip of valve of 3-piece toggle harpoon (?) (layer A).
 - 97. Bone awl fragment (layer A).
 - 98. Bead or short tube of bird bone (layer A).
 - 100a. Black (calcined) bone bead (layer A).
 - 100b. Black (calcined) bone bead (layer A).
 - 102. Fragment bone pendant (layer A).
 - 103a. Fragment bone pendant (layer A).
 - 103b. Broken bone pendant (layer A).
 - 110. Fragment (tip) bone awl (layer A).
 - 111. Tip antler wedge (layer A).
 - 113. Incised bone (chevrons) fragment (layer B).
 - 114. Incised bone fragment (layer B).
 - 119a. Bone bead, circling incision (layer B).
 - 119b. Bone bead, circling incision (layer B).
 - 119c. Bone bead, circling incision (layer B).
 - 119d. Bone bead, circling incisions (layer B).
 - 119e. Bone bead, circling incisions (layer B).
 - 122a. Bone bead (bird) (layer B).
 - 122b. Bone bead (bird) (layer B).
 - 122c. Bone bead (bird) (layer B).
 - 124a. Juniper seed beads } Carbonized (layer B).
 - 124b. Juniper seed beads }
 - 125a. Bone pendant fragment, drilled (layer B).
 - 125b. Bone pendant fragment, drilled (layer B).
 - 125c. Bone pendant fragment, drilled (layer B).



a, Chipped and ground stone from the cremation pits, all showing fire action. b, Cremation Pit 1, bone and antler pieces, all calcined.



Three Columbia Basin projectile-point types.

Top row, Wallula Rectangular-Stemmed. *Middle row*, Middle Columbia Basal-Notched.
Bottom row, Columbia Mule Ear, Knife.