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**Archeological Reconnaissance of Southern Utah**  
By JULIAN H. STEWARD

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# ARCHEOLOGICAL RECONNAISSANCE OF SOUTHERN UTAH

BY JULIAN H. STEWARD

## INTRODUCTION

Archeological investigations by Judd (1926) and by the present writer (Steward, 1933, 1933a, 1936) in the Northern Periphery of the Southwest, that is, in northern and western Utah, had revealed numerous remains of a prehistoric culture the main features of which were derived from the Anasazi or Basket Maker-Pueblo cultures of the San Juan River drainage. But whereas the cultures of the latter area are known to have developed through at least four comparatively distinct chronological periods—Basket Maker (II), Modified Basket Maker (III), Developmental Pueblo (I and II), and Great Pueblo (III)<sup>1</sup>—present data indicate but two periods in the Northern Periphery. Neither true Basket Maker nor Modified Basket Maker is present. The early period, though Basket Maker in such features as ceramics and stress on clay figurines and anthropomorphic petroglyphs (which largely faded out in the San Juan Pueblo cultures), already contains some Developmental Pueblo elements, especially a jacallike pit lodge. The late period merely brought the addition of such San Juan Pueblo II elements as rectangular houses, intensive horticulture, ceramic features, and probably some brachycephalic people. In the entire portion of Utah which lies north of the Fremont River in the east and which falls within the Great Basin in the west, only these two periods are known.

The outstanding problem of the Northern Periphery, therefore, was to discover the place and manner in which those culture elements which had been chronologically differentiated in the San Juan area had become blended into a single culture and spread northward into the Northern Periphery. Theoretically, there should be found a region with the two following cultural stages: First, a Modified Basket Maker culture lacking any Pueblo influence; second, a culture retaining certain elements of the first (which, in the San Juan area, faded out after the close of the Basket Maker periods) but having in addition certain early Pueblo elements. Work by Judd (1926) and

<sup>1</sup> These terms are from Roberts (1937). Numerals in parentheses refer to the old terminology, i. e., Basket Maker II, III, etc.

Nusbaum (1922) had shown that the cultures in the vicinity of Kanab in southern Utah were chronologically differentiated much as in the San Juan area, which ruled out that region as the source of the special Northern Peripheral culture.

In order to shed light on this problem as well as to explore areas which were blanks on the archeological map, the writer undertook two trips in southern Utah in 1932 for the University of Utah. One trip was made in company with B. O. Hughes of Ann Arbor, Mich., R. F. Hosmer of Los Angeles, Maurice Howe of Salt Lake City, and Delbert Riggs of Kanab, Utah. Traveling with pack outfit, the party thoroughly explored the region of the lower Paria River and Johnson Canyon, east of Kanab. The observations made on this trip form the first part of this paper.

The other trip was made in company with Hughes, Charles Kelly of Salt Lake City, and Hoffman Birney and John Shoemaker of Philadelphia. It was only through sharing expenses with the last three that the expedition was possible. Traveling by boat, 23 days were spent exploring Glen Canyon of the Colorado River between the Fremont River in central-eastern Utah and Lee's Ferry in northern Arizona. Description of the archeology of this region forms the second part of the paper. The writer wishes to express gratitude to his companions on both trips, particularly to Hughes, who assumed responsibility for much of the reconnaissance on the second trip.

The archeological collections obtained are in the Museum of Anthropology at the University of Utah. Numbers of specimens recorded in this paper are those of the museum catalog.

## PART 1. THE JOHNSON CANYON AND PARIÁ RIVER REGION

### SITES VISITED

The lists of sites visited follows. The numbers refer to those on the map.

*Site 1.*—Mouth of Molly's Nipple Canyon. Petroglyphs and plain pottery, probably Basket Maker.

*Site 2.*—1½ miles west of Potter's ranch. A large cave with three circular houses, having slab foundations and adobe, straw, and horizontally laid rocks above; two were excavated. Artifacts: Mostly plain and black-on-white sherds. A few sherds of corrugated ware and of unbaked clay; metates and mullers. Site is early (pls. 43, 44).

*Site 3.*—½ mile south of Potter's ranch. No architecture. Sherds like those of site 2.

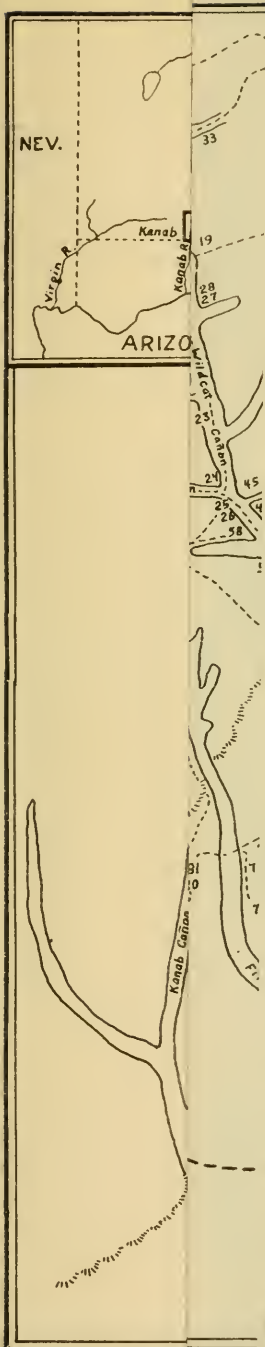
*Site 4.*—1½ mile south of Potter's ranch. Three masonry cliff houses. Corrugated and black-on-white sherds. Petroglyphs in one cave.

*Site 5.*—100 yards south of site 4. Plain sherds scattered on hillside.

*Site 6.*—200 yards south of site 5. Plain sherds and small slab cists.

*Site 7.*—South side Molly's Nipple Canyon, ¼ mile south of Kitchen cabin. White animal and anthropomorphic pictographs in rock shelter.





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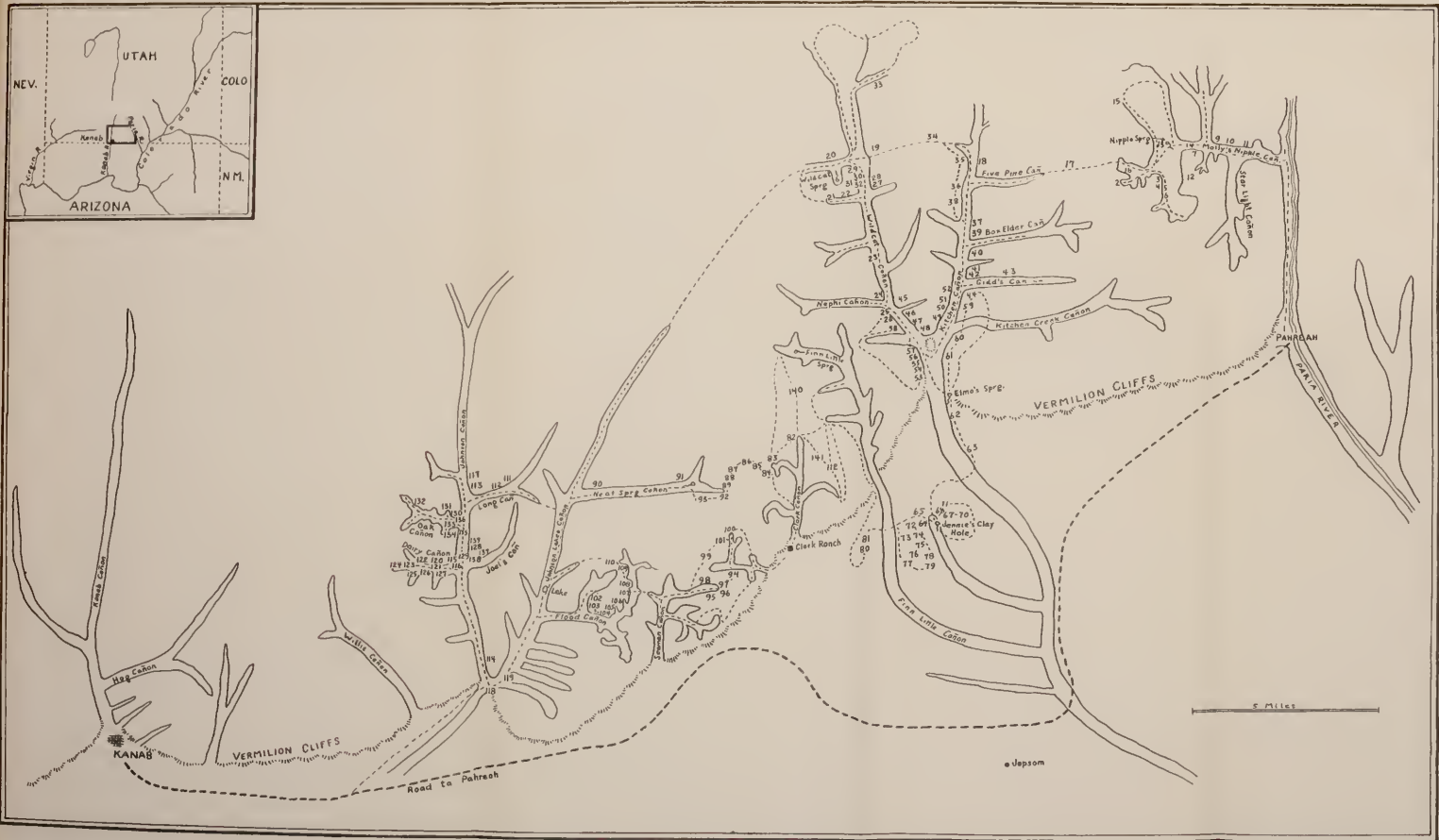
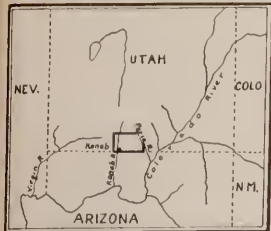


FIGURE 26.—Sketch map of the Johnson Canyon-Paria River region.



*Site 8.*—Head of canyon, directly opposite (south of) Kitchen cabin. Cave with one crude circular stone house.

*Site 9.*—Back of Averett's cabin. Late sherds and traces of houses.

*Site 10.*— $\frac{1}{2}$  mile east of site 9, on promontory formed by Molly's Nipple Canyon and small side canyon. Sherds and stone "hoes" collected.

*Site 11.*—Cave just under rim rock between sites 9 and 10. Traces of stone walls.

*Site 12.*—Cave at head of draw, southwest of Kitchen cabin. Plain sherd collected.

*Site 13.*—Potter's ranch. Sherds and stone hoes scattered over sand hills.

*Site 14.*—Molly's Nipple Canyon just below Potter's ranch. Stone hoes and sherds in canyon bottom.

*Site 15.*— $\frac{1}{2}$  mile northwest of Riggs' ranch. Paria gray sherds in cave.

*Site 16.*— $\frac{1}{4}$  mile east of site 2 where trail to Kitchen cabin leaves main canyon. Sherds and flints scattered on hillside.

*Site 17.*—West of summit of trail from Molly's Nipple Canyon to Five Pines Canyon. Plain sherds and flints scattered on waterless flat.

*Site 18.*—East side of Kitchen Canyon,  $\frac{1}{2}$  mile north of Five Pines Canyon. Traces of stone and adobe walls. Plain and corrugated sherds (pl. 45, a).

*Site 19.*—On hillside where trail drops into Wildcat Canyon opposite Wildcat Spring. Plain sherds.

*Site 20.*— $\frac{1}{8}$  mile north of Wildcat Spring. Two small caves with traces of stone and adobe walls. Plain and corrugated sherds.

*Site 21.*—1 mile south of Wildcat Spring at head of small canyon running east into Wildcat Canyon. Paria gray, and Basket Maker black-on-gray sherds.

*Site 22.*—North side same canyon,  $\frac{1}{4}$  mile east of site 21. Small rock shelters containing layers of cedar bark, pine needles, and sand. No artifacts.

*Site 23.*—West side Wildcat Canyon, sandy knoll north of Nephi Canyon. Plain and corrugated sherds, metates, and mullers.

*Site 24.*—North side mouth of Nephi Canyon. Sherds and arrow points.

*Site 25.*—South side of mouth of Nephi Canyon. Remains of masonry and cists; abundant sherds of late types. Also metates and mullers.

*Site 26.*—200 yards south of site 25. Remains of slab cists on hillside; sherds.

*Site 27.*—East side Wildcat Canyon opposite canyon with sites 21, 22. Two caves with evidence of occupation and a semicircular stone and adobe granary under ledge near top of cliff.

*Site 28.*— $\frac{1}{4}$  mile north of 27, east side Wildcat Canyon. Cave with water seep containing 18 inches of stratified ash and flint chips.

*Site 29.*—West side Wildcat Canyon,  $\frac{1}{8}$  mile south of Wildcat Spring. Rock shelter with pictographs in white, cream, and black.

*Site 30.*—300 yards south of 29. Cave containing corrugated and plain sherds.

*Site 31.*—Above site 30. Small cave walled up to form granary.

*Site 32.*—100 feet south of site 30. Rock shelter with late sherds and flints.

*Site 33.*— $\frac{1}{2}$  mile north of site 30, in draw on east side Wildcat Canyon. Rock shelter containing sherds and flints.

*Site 34.*—West side of Kitchen Canyon, 200 yards north of Five Pines Canyon. Sherds and flints scattered over small knoll.

*Site 35.*—Opposite Five Pines Canyon. One metate and flint chips.

*Site 36.*—300 yards below site 35, west side of canyon. Occupied cave with flint chips.

*Site 37.*—East side Kitchen Canyon, 200 yards north of Box Elder Canyon. Caves and rock shelters containing masonry walls, also circular stone and adobe house (pl. 45, d).

- Site 38.*—West side of Kitchen Canyon, 200 yards north of site 37. Rock shelter containing charcoal and worked flints.
- Site 39.*—Junction of Kitchen and Box Elder Canyons, a knoll covered with nine slab cists, traces of more cists, sherds.
- Site 40.*— $\frac{1}{2}$  mile south of site 39. Petroglyphs and pictographs in white.
- Site 41.*—Kitchen Canyon,  $\frac{1}{4}$  mile north of Gidd's Canyon. Knoll covered with 13 or more slab cists and houses. Sherds collected.
- Site 42.*—North side of mouth of Gidd's Canyon. Knoll covered with approximately 13 slab cists and houses. Sherds and metate collected.
- Site 43.*—North side of Gidd's Canyon, 250 yards from mouth. Flint workshop on small hill.
- Site 44.*—Hill, junction of Gidd's and Kitchen Canyons, south side mouth Gidd's Canyon. Possibly cists; sherds.
- Site 45.*—Knoll, Wildcat Canyon, east side,  $\frac{1}{4}$  mile below Nephi Canyon, chipped flints, sherds, and metate.
- Site 46.*—East side Wildcat Canyon, 300 yards below site 45. Sherds, worked flints, and muller fragment collected.
- Site 47.*—Wildcat Canyon,  $\frac{1}{4}$  mile south of site 46. Sherds and flints on small hill.
- Site 48.*—On sand knoll at junction of Wildcat and Kitchen Canyons. Several coursed masonry houses grouped around large circular depressions, possibly kivas. Also slab cists. Metates well worked. Sherds of late types.
- Site 49.*—West side Kitchen Canyon,  $\frac{1}{4}$  mile above site 48. Sherds and slab cists.
- Site 50.*—On small knoll opposite mouth of Kitchen Creek. Sherds, metate, and chipped flints.
- Site 51.*—300 yards north of site 50. Nine slab cists, sherds, and chipped flints on knoll, 30 feet high, west side of Kitchen wash.
- Site 52.*—On knoll 200 yards north of site 51. A cist, sherds, and chipped flints.
- Site 53.*—West side of junction of Kitchen and Wildcat Canyons, on knoll 50 feet high. Four rectangular masonry rooms form a semicircle around the north side of a circular depression, probably kiva. Also two slab cists, sherds, metates, and mullers, of late types.
- Site 54.*—200 yards north of site 53. A slab cist and late type sherds. Probably is part of site 53.
- Site 55.*— $\frac{1}{4}$  mile north of site 54. Late types of sherds on knoll.
- Site 56.*—300 yards above site 55. Small slab cist and plain sherds.
- Site 57.*— $\frac{1}{4}$  mile north of site 56. Sherds and chipped flints.
- Site 58.*— $\frac{1}{2}$  mile north of site 56. Small cist, sherds, and metate fragment.
- Site 59.*—East side Kitchen Canyon, 300 yards above Gidd's corral. Sherds, flints, and small slab cist.
- Site 60.*—On knoll  $\frac{1}{4}$  mile south of Gidd's corral. Coursed masonry, rectangular house and slab cists or houses. Sherds and flints.
- Site 61.*— $\frac{1}{4}$  mile south of site 60. Slab cist and sherds.
- Site 62.*—Small knoll south of Elmo's Spring. Sherds, flints, and metate.
- Site 63.*—1 mile south of site 62. Plain sherds and flints scattered on knoll.
- Site 64.*— $\frac{1}{4}$  mile west of Jenny's Clay Hole. Flint workshop and plain sherds.
- Site 65.*— $\frac{1}{4}$  mile south of site 64, east bank of Finn Little Canyon. Knoll with thousands of sherds, flints, and metates. No evidence of houses.
- Site 66.*— $\frac{1}{2}$  mile northeast of Jenny's Clay Hole. Flint-chipping station.
- Sites 67-70.*—Located on large flat  $2\frac{1}{2}$  miles east of Jenny's Clay Hole. Sherds and flint-chipping sites cover the flat.

*Site 71.*— $\frac{3}{4}$  mile northeast of Jenny's Clay Hole. Knoll about 30 feet high with four slab cists and sherds (pl. 45, f).

*Site 72.*— $\frac{1}{4}$  miles west of Jenny's Clay Hole facing Finn Little Canyon. Rectangular houses with coursed stone walls, grouped in semicircle on north side of circular depression.

*Site 73.*— $\frac{1}{4}$  mile southwest of site 72. Coursed stone-wall houses and slab cists. Late pottery types.

*Site 74.*— $\frac{1}{4}$  mile east of site 73. Two coursed stone houses.

*Site 75.*— $\frac{1}{4}$  mile southeast of site 74. Two rectangular coursed stone houses and slab cist.

*Site 76.*—300 yards southeast of site 75, or  $\frac{1}{2}$  mile from Finn Little Canyon. Five rectangular coursed stone houses grouped around semicircle. Late pottery types.

*Site 77.*— $1\frac{1}{2}$  miles southwest of site 76. Slab cists. Sherds: Plain, black-on-white. No corrugated sherds.

*Site 78.*— $\frac{1}{2}$  mile east of site 76. Five coursed rectangular stone houses grouped around circular depression. Late pottery types.

*Site 79.*— $\frac{1}{2}$  mile southeast of site 76. Scattered sherds and worked flints.

*Site 80.*— $\frac{1}{4}$  mile west of Finn Little Canyon. Three rectangular coursed stone houses around circular depression. Late pottery types.

*Site 81.*—300 yards north of site 80. Three rectangular coursed stone houses in semicircle on north side of circular depression. Also stone slab cist.

*Site 82.*—East side Clark Canyon. Five rectangular coursed stone houses and slab cist.

*Site 83.*— $\frac{1}{4}$  mile southwest of site 82. Rectangular coursed stone houses and slab cist (pl. 45, b).

*Site 84.*—200 yards east of site 83. Rectangular coursed stone house and cists.

*Site 85.*— $\frac{1}{2}$  mile northeast of site 84. Four rectangular coursed stone houses in semicircle on north side of circular depression.

*Site 86.*— $\frac{1}{2}$  mile northwest of site 85. Five slab structures on knoll top.

*Site 87.*—1 mile west of site 86. Large rectangular slab structure on knoll top. Sherds: Plain, black-on-white.

*Site 88.*—300 yards southwest of site 87. Scattered sherds and flints.

*Site 89.*— $\frac{1}{4}$  mile west of site 88. Small slab cist, sherds, and flints.

*Site 90.*—At mouth of Neaf Springs Canyon. Two slab cists and plain sherds.

*Site 91.*—Cave opposite Neaf Springs previously dug. Sherds, muller, and corn cob found.

*Site 92.*—Head of Neaf Springs Canyon. Scattered plain and black-on-white sherds, metate, and muller fragments.

*Site 93.*— $\frac{1}{4}$  mile southeast of Neaf Springs on south side of canyon. Scattered sherds and flint chips. Sherds and other evidence of occupation were scattered in the general vicinity of Neaf Springs.

*Site 94.*—On point above head of Seaman Canyon. Four rectangular coursed stone houses. Late pottery types.

*Site 95.*—Head of Seaman Canyon. Rectangular coursed stone house. Late pottery types; flints.

*Site 96.*—200 yards northeast of site 95. Rectangular structure of slabs, outside of which was a coursed stone wall (pl. 45, e).

*Site 97.*—150 yards northwest of site 96. A structure like that at site 96.

*Site 98.*— $\frac{1}{2}$  mile northeast of site 97. Large rectangular stone house on knoll.

*Site 99.*— $\frac{1}{2}$  mile northwest of site 98. Scattered sherds, flints, metate, and muller.

*Site 100.*— $\frac{1}{2}$  mile north of site 98. One small slab cist, plain sherds, and flints.

- Site 101.*— $\frac{1}{2}$  mile east of Johnson Lakes Canyon. Two slab cists, sherds, and flints.
- Site 102.*—On small knoll  $1\frac{1}{2}$  miles east of Johnson Lakes Canyon,  $4\frac{1}{2}$  miles north of Flood Canyon. Slab cist, sherds, and flints.
- Site 103.*—North edge of Flood Canyon,  $\frac{1}{4}$  mile south of site 102. Slab cist, sherds, and flints.
- Sites 104-107.*—On north rim of Flood Canyon. Scattered sherds and flints and probably several house ruins.
- Site 108.*— $\frac{1}{4}$  mile north of site 107. Two slab cists. Sherds: Plain and black-on-white. Worked flints.
- Site 109.*—On knoll west of upper end of Flood Canyon. Three slab cists, sherds, flints, and metate.
- Site 110.*— $\frac{1}{3}$  mile northwest of site 109. Traces of ruins on large flat knoll. Late pottery types.
- Site 111.*—1 mile up Long Canyon. Cave containing two masonry wall houses and pictographs in blue-green, purple, and red. Also sherds and flints.
- Site 112.*—On flat between Finn Little Canyon and Clark Canyon. Scattered plain and black-on-white sherds and flints.
- Site 113.*—At junction of Long and Johnson Canyons. Three circular slab and adobe houses 8 feet in diameter each. Previously excavated. Sherds.
- Site 114.*—Knoll with two masonry rooms and cave, 200 yards above junction of Flood and Johnson Canyons. Sherds.
- Site 115.*—In Dairy Canyon, north side on sandy knoll 50 feet high,  $\frac{1}{2}$  mile west of Alvin Judd's ranch. Traces of coursed stone walls and slab cist containing burial. Flints and sherds scattered about.
- Site 116.*—At Alvin Judd's ranch, Johnson Canyon. Rectangular masonry houses, cists and slab-lined kiva (?). The kiva was partly excavated.
- Site 117.*—Petroglyphs of zoomorphic and anthropomorphic figures on wall in James Bunting's corral on east side of Johnson Canyon  $\frac{1}{4}$  mile north of Long Canyon (pls. 46, 47).
- Site 118.*—Knoll  $\frac{1}{4}$  mile south of Neaf Hamblin's ranch. Slab cists.
- Site 119.*— $\frac{1}{3}$  mile east of Neaf Hamblin's ranch. Several coursed stone houses and slab cists. Traces of two flexed burials. Sherds, flints, and metate fragments.
- Site 120.*—North side Dairy Canyon, sandy knoll 1,000 feet west of site 115. Slab cist, sherds, and flints.
- Site 121.*—50 yards north of site 120. Dumbbell-shaped petroglyphs on ledge.
- Site 122.*—Sandy knoll north side of Dairy Canyon, 1,000 feet west of site 121. Ruins of coursed stone masonry houses and refuse heap. Late pottery types, flints, and muller fragments.
- Site 123.*—Dairy Canyon,  $1\frac{1}{2}$  miles from Judd ranch at junction of north branch and main canyon. Coursed stone houses on sandy knoll. One bowl and two corrugated pitchers found.
- Site 124.*—Dairy Canyon  $\frac{1}{4}$  mile southwest of site 123, north side of main canyon. Slab cist, black-on-white sherds, and flints.
- Site 125.*—Junction of upper forks of Dairy Canyon. Scattered sherds.
- Site 126.*—South side Dairy Canyon 2 miles west of Judd ranch. Sherds, slab cist, and muller.
- Site 127.*—South side Dairy Canyon 1 mile west of Judd ranch. Muller fragments.
- Site 128.*—On bluff north side of mouth of Joel's Canyon. Petroglyphs on ledge.
- Site 129.*—North side mouth of Joel's Canyon, bluff overlooking Johnson's Canyon. Traces of stone and adobe walls and sherds.
- Site 130.*—North side of mouth of Oak Creek. Zoomorphic, anthropomorphic, and geometric petroglyphs on wall (pl. 48).



*Site 131.*—Rock shelter just above site 130. Remnants of masonry walls and disturbed burials. Sherds: Plain, corrugated, black-on-white. Geometric petroglyphs.

*Site 132.*—North side Oak Canyon  $\frac{1}{2}$  mile from site 131. Cave with masonry walls and geometric petroglyphs inside.

*Site 133.*—South side mouth Oak Canyon. Geometric petroglyphs on ledge.

*Site 134.*— $\frac{1}{4}$  mile south of site 133. Sandy knoll inside canyon with scattered sherds.

*Site 135.*—Sandy knoll south side junction of Oak and Johnson Canyons. Scattered sherds.

*Site 136.*—Sandy knoll north side of junction of Oak and Johnson Canyons. Scattered sherds.

*Site 137.*—On knoll  $\frac{3}{4}$  mile east of Johnson Canyon opposite mouth of Dairy Canyon, north side of Joel's Canyon. Masonry-wall traces and slab cists.

*Site 138.*—Hillside north of Joel's Canyon. Remnants of three coursed masonry houses.

*Site 139.*—Rock shelter east side Johnson Canyon north of mouth of Joel's Canyon. Sherds and debris.

*Site 140.*—On flats between head of Clark Canyon and Finn Little Canyon. Slab cist and plain sherds.

*Site 141.*— $\frac{1}{2}$  mile northwest of site 112 on flats. Scattered sherds and flints.

*Site 142.*—Cave with traces of masonry walls. Near mouth of Dairy Canyon, north side. Sherds.

*Summary.*—Sites were found throughout the entire region explored, but increased in number toward Johnson Canyon, that is, in the better water localities. Evidence of several periods is clear. These periods are roughly comparable to the Basket Maker II, III, and Pueblo I and II periods of the San Juan drainage. Basket Maker II sites, however, are extremely rare. Sherds of unbaked clay found in site 2 may indicate Basket Maker II. Absence of pottery at slab houses is certainly no proof of Basket Maker II, for several masonry houses also had no associated ceramics. Sites with a basically Basket Maker III (Modified Basket Maker) culture are fairly common, especially in the western part of the region explored. Remains of this culture comprise slab cists and larger slab structures which have been interpreted as houses. The associated pottery is usually a plain ware, Paria Gray, and a Basket Maker style of primitive black-on-gray, though later styles also occur at a few slab sites.

Early Pueblo or transitional sites have structures with crudely coursed stone walls erected over slab foundations. The pottery wares resemble those of the preceding period.

The late period has a culture roughly like that of the San Juan Pueblo II period, having rectangular coursed masonry structures and corrugated and black-on-white pottery. Late sites are more numerous than those of the other periods, most of the sites in Kitchen, Wildcat, Finn Little, Johnson Lakes, and Johnson Canyons being of this type. The typical site has several rectangular rooms (probably houses) of coursed masonry forming a semicircle around the

northern side of a circular depression which probably contains a kiva. Pottery types are Johnson corrugated, Tusayan black-on-white, Tusayan black-on-red, Tusayan red, Johnson gray-tan, and a small amount of Tusayan polychrome.

Late sites are generally on sandy knolls or other low eminences. Habitable caves frequently contain traces of late type masonry walls. Basket Maker and early Pueblo or transitional sites are often near the late sites or are on canyon rims.

Petroglyphs and pictographs are fairly numerous in the region and apparently date from all periods. They have stylistic features peculiar to the region.

Depredations have left few sites of interest unharmed. Caves especially have been dug. Many sites, however, would repay careful excavation, particularly the late-period masonry rooms with associated depressions, which have been little molested.

## VILLAGES AND ARCHITECTURE

### SLAB STRUCTURES

Slab structures occur alone at some sites but at others belong to villages of rectangular masonry houses. As the pottery associated with the former is a black-on-gray and Paria gray, both distinctly Basket Maker wares, most of these slab-structure sites clearly belong to a culture which in ceramics and architecture closely resembles the Basket Maker III of the San Juan. A survival of the use of such structures into later times, however, is demonstrated by such sites as 41 and 42, where later wares, including corrugated pottery, are found.

These sites are revealed by the tops of vertically set stone slabs projecting above the ground surface. Although no excavation was undertaken, the stones outline structures which, judging from a few that are partially eroded, were probably dug 2 or 3 feet deep. Small, circular cists associated with these were probably storage bins or fire pits of some kind. Larger cists, ranging up to 7 and 8 feet in diameter, may, however, well have been houses, for the grouping of half a dozen or more such structures in compact clusters must indicate small communities. Similar structures in the Zion Park region which are slab-lined, side and bottom, seem to have been small domiciles (Wetherill, 1934). The limited number and extremely small size of these houses, however, shows that such communities were probably family groups or lineages.

Most of these sites are in canyon bottoms, on sandy knolls which rise 10 to 30 feet above the nearby wash. Such locations are near arable and well-drained land, but are by no means protected.

The important data on the slab-structure sites are tabulated below. Field sketches of sites 39, 41, 42, 86, and 87 are reproduced in figures 27 to 31.

TABLE 1.—*Slab structures*

Site	Structure	Diameter	Shape	Structure	Diameter	Shape	Remarks
26	A	7 ft.	Circular				
39	A	5 ft. 6 in. × 8 ft. 6 in.	Oval	F	3 ft.	Circular	Village (?). Sherds and traces of other cists nearby. C has stone floor, 8 inches deep.
	B	6 ft. × 8 ft.	do.	G	3 ft.	do.	
	C	6 ft. × 8 ft. 9 in.	do.	H	2 ft. 6 in.	do.	
	D	6 ft. 6 in.	Circular	I	3 ft. 6 in.	do.	
	E	7 ft. 2 in.	do.				
41	A	5 ft. 6 in.	do.	H	3 ft.	do.	A, D, C, E, F contain charcoal.
	B	6 ft.	do.	I	3 ft.	do.	Traces of other cists.
	C	7 ft. × 10 ft.	Rectangular	J	3½ ft.	do.	
	D	6 ft. 3 in.	Circular	K	3 ft.	do.	
	E	7 ft. × 9 in.	Oval	L	3 ft.	do.	
	F	5 ft. 6 in. × 8 ft.	do.	M	3 ft.	do.	
	G	6 ft.	Circular				
42	A	5 ft. × 7 ft.	Oval	F	6 ft. × 8½ ft.	Oval	Traces of several other cists.
	B	4½ ft.	Circular	G	3 ft.	Circular	
	C	5½ ft.	do.	H	3 ft.	do.	
	D	6 ft.	do.	I	2½ ft.	do.	
	E	5 ft. × 8 ft.	Rectangular	J	2½ ft.	do.	
49	A	7 ft. 6 in.	Circular				Probably belongs with village, site 48, ¼ mile away.
51	A	7½ ft.	do.	D	7 ft.	do.	
	B	2½ ft.	do.	E	3½ ft.	do.	
	C	3½ ft.	do.				
52		7 ft.	do.				
56		3 ft.	do.				
59		4½ ft.	do.				
71	A	7 ft.	do.	C	4½ ft.	do.	Basket Maker pottery (pl. 45, f).
	B	5 ft.	do.	D	2 ft.	do.	
77	A	4 ft.	do.	C	6½ ft.	do.	Basket Maker pottery.
	B	5 ft.	do.	D	6 ft. (?)	do.	Do.
86	A	5½ ft.	do.	D	7 ft. × 8 ft.	Rectangular	
	B	6 ft.	do.	E	2 ft. 3 in.	Circular	
	C	8½ ft.	do.				
87	A	6½ ft. × 21 ft.	Rectangular	B	7 ft.	do.	A apparently subdivided. Basket Maker pottery.
89		3 ft.	Circular				Near site 87.
90	A	4 ft.	do.	B	4 ft.	do.	Plain sherds only.
100		3 ft.	do.				
108	A	2½ ft.	do.	B	5 ft.	do.	
109	A	2 ft.	do.	C	2 ft.	do.	¼ mile from last.
	B	5 ft.	do.				
140		3½ ft.	do.				

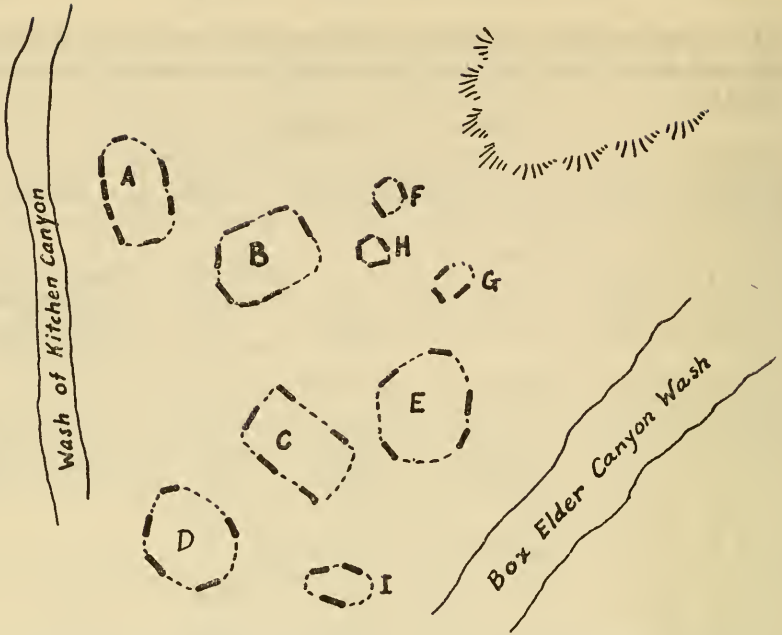


FIGURE 27.—Sketch map of slab structures, site 39, Kitchen Canyon.

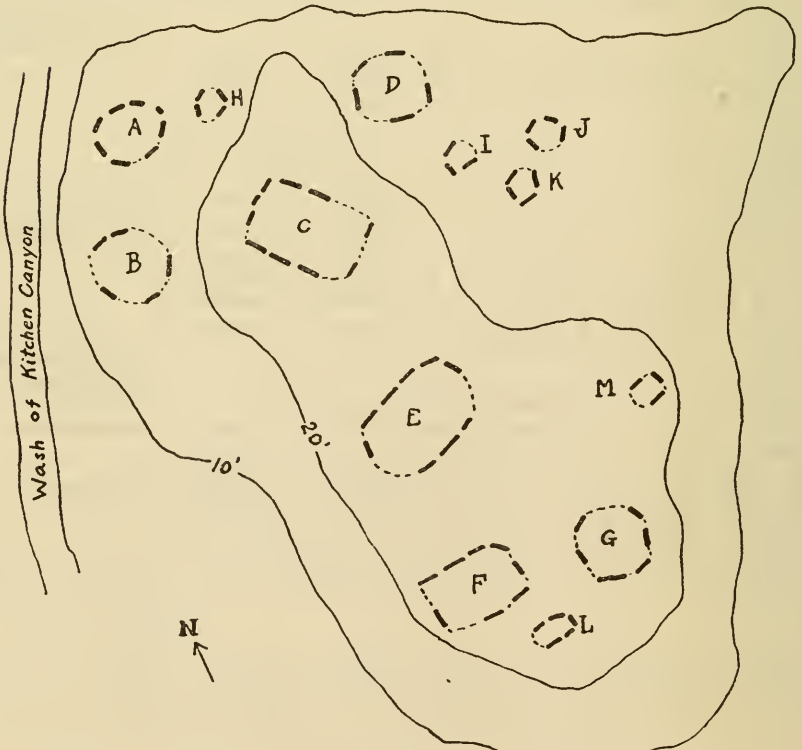


FIGURE 28.—Sketch map of slab structures, site 41, Kitchen Canyon.

ADOBE WALL PIT LODGES

Site 2, a cave (fig. 32, pls. 43, 44), contains three circular pit lodges. A (pls. 43, *a*; 44, *a*) is 10 feet 8 inches. B (pl. 43, *b*) is 9 feet 6 inches, and C, 8 feet 6 inches in diameter. All are nearly identical in con-

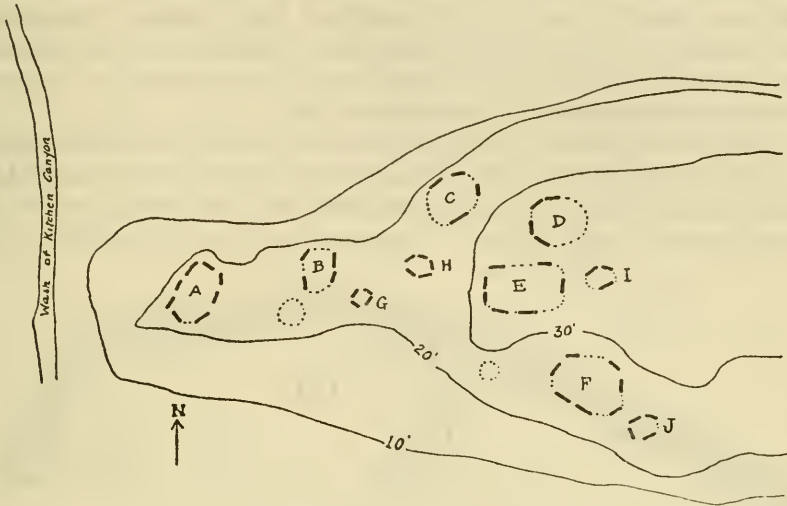


FIGURE 29.—Sketch map of slab structures, site 42, Kitchen Canyon.

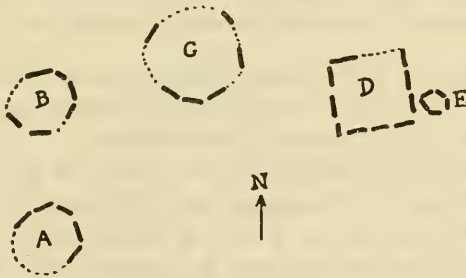


FIGURE 30.—Sketch map of slab structures, site 86, near Clark Canyon.



FIGURE 31.—Sketch map of slab structures, site 87, near Clark Canyon.

struction. A was excavated: Pit, 3 feet deep, circular, paved with sandstone flagstones; pit edge lined with 12 to 14 vertical slabs each 1 inch to 4 inches thick, 2 feet wide, 3 feet tall; floor and wall plastered with red adobe. Wall, averaging 8½ inches wide, carried above

pit, consists of a few horizontal stones laid in much adobe; layers or courses are 4 inches to 6 inches thick, each rounded on top; adobe in wall is reinforced with chopped grass and sticks or long fibers running horizontally; highest point now standing is 7 feet 3 inches above floor. Door: Southeastern side, bottom being about ground level; sides are rounded ends of wall; width, 3 feet 7 inches, slab under door stands 2 feet 1½ inches above floor. No fireplace, but fire had been in middle of floor. Unburned adobe lumps with pole impressions suggest horizontal pole-and-adobe roof.

An adjoining circular house, C, 8 feet 6 inches outside diameter, was built probably before A. Floor, 1 foot 11 inches below floor of A. Wall is similar to A, having a slab-lined base and small number of stones in much adobe above. Door, east side, was 2 feet wide, with

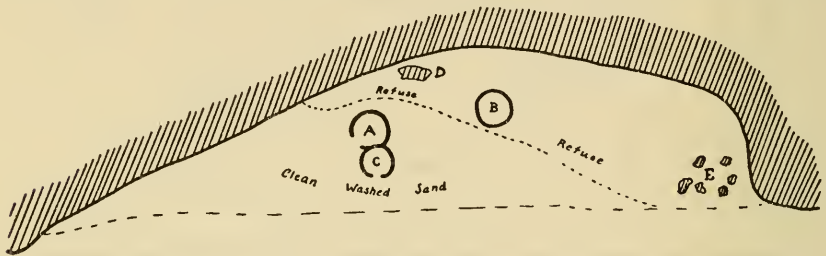


FIGURE 32.—Sketch map of cave, site 2, Molly's Nipple Canyon.

A, B, C, Circular houses; D, rock with rubbed depressions; E, sandstone blacks, roughly outlining a circle,

horizontal slab sill 4 feet 6 inches above floor, or 1 foot 6 inches above slabs. Walls of C, which was not completely excavated, did not show above cave floor previous to excavation.

These houses are probably of the period of the late Paria gray and Basket Maker black-on-gray pottery, although few sherds to date them were found. A Tusayan black-on-red pitcher (fig. 41) within 1 foot of the floor of house A, together with the beginnings of masonry in the upper walls suggests influence from Tusayan, Pueblo II, not yet fully implanted locally; in short, a transition to the local masonry house period. It is by no means impossible, however, that some of the slab structures at the out-of-door sites described above had walls like these, for such walls are very perishable. Wetherill (1934) found some slab structures which had slab-lined floors and possibly crude masonry walls, in the Zion National Park region. Were the site 2 houses subject to erosion, only a ring of slabs would remain.

#### RECTANGULAR MASONRY HOUSES

In the latest building style masonry was used in rectangular, 1-room houses. Foundations of walls show that rectangular sand-

stone blocks were carefully selected and laid in even courses. As a rule each room stands alone, although but a few feet from its neighbor. Only rarely were two or more rooms joined end to end, a practice which, if consistently followed, would have saved the builders an appreciable amount of labor. Transitional sites or perpetuation of slab lining in late houses was seen at sites 96 and 97 (pl. 45, *e*) where vertically set slabs lined the inside of rectangular masonry wall rooms. No doubt excavation would have revealed this at other sites.

The transition from slab to masonry houses was not abrupt. Several slab-house sites have corrugated and other late pottery types, showing that the full force of the Pueblo II influence emanating from the Kayenta district was not effective at once. Masonry fol-

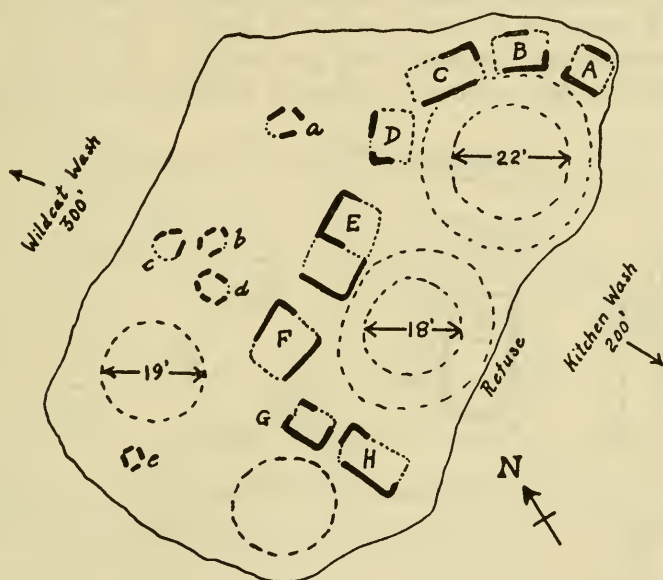


FIGURE 33.—Sketch map of masonry houses, depressions, and slab structures, site 48, Wildcat Canyon.

lowed but did not immediately replace slab structures, e. g., site 60, figure 34. In fact, slab cists and possibly occasional slab houses belong also to the latest, most fully developed masonry-house settlements. In one instance, site 115, a cist accompanying a masonry house contained a burial.

There is nothing to indicate that, as in parts of the San Juan and in the Flagstaff region, these earliest masonry structures were primarily granaries. On the contrary, that they exceed the slab structures in size points to their use as dwellings. If, as in the Flagstaff region (Hargrave, 1930), the depression held a subterranean house, to which the masonry rooms were accessory granaries, one must assume

a tremendous excess of storage space. It is impossible to believe with Wetherill (1934) that the absence of fireplaces in such rooms in the Zion Park region proves them to have been granaries for the adjoining subterranean house. Clearly, the aggregate of rooms with accompanying sites and kiva excavated by Smith in the Zion Park region (Smith, 1934) represents a village unit of the Johnson Canyon type, the living quarters being full-fledged Pueblo II style masonry houses.

The typical masonry-house village consists of three to half a dozen separate rooms grouped so as to form a semicircle around the northern side of a circular depression, which undoubtedly contains a kiva (figs. 33, 35, 36). Each of these conventional house groups must have held a definite social unit, which, judging by its size, could not have exceeded a family or lineage of 20 or 30 people. Because the size of these settlements was very little greater than that of the Basket Maker slab-house settlements, the social development concurrent with

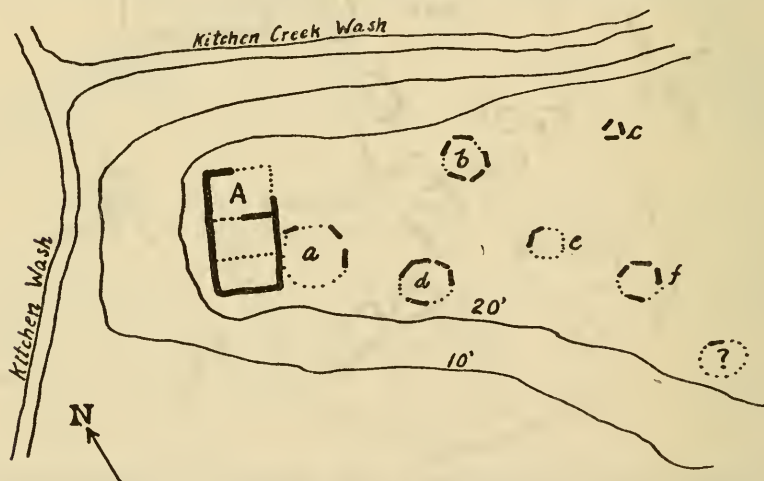


FIGURE 34.—Sketch map of masonry house and slab structures, site 60, Kitchen Canyon.

the introduction of masonry is merely implied in a more definite planning of the village. There was, however, a denser population for there are more masonry than slab villages. Larger communities of the late San Juan Pueblo II and III types, though no doubt ecologically possible, did not occur. Many of these independent aggregates were so close together—a few hundred yards apart—that to have concentrated in larger communities would have entailed no practical difficulties. The only amalgamation of two or more settlements is at site 48 (fig. 33), where nine rooms were arranged around two depressions.



The following table summarizes the more important data concerning these sites. Capital letters represent rectangular masonry houses; small letters, slab structures. Measurements are in feet.

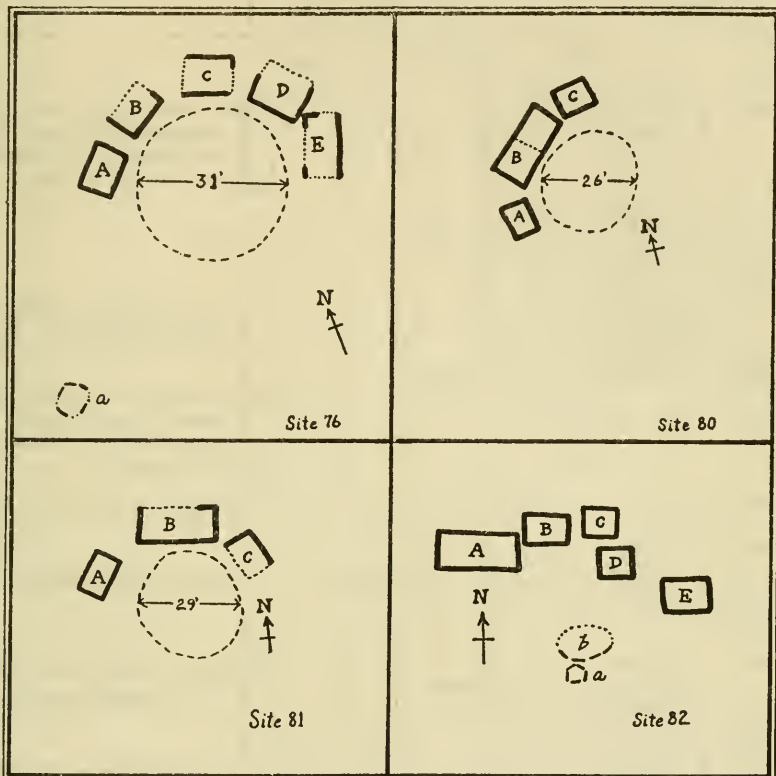


FIGURE 35.—Sketch maps of masonry houses, depressions, and slab cists, sites 76, 80, 81, and 82, Finn Little and Clark Canyons.

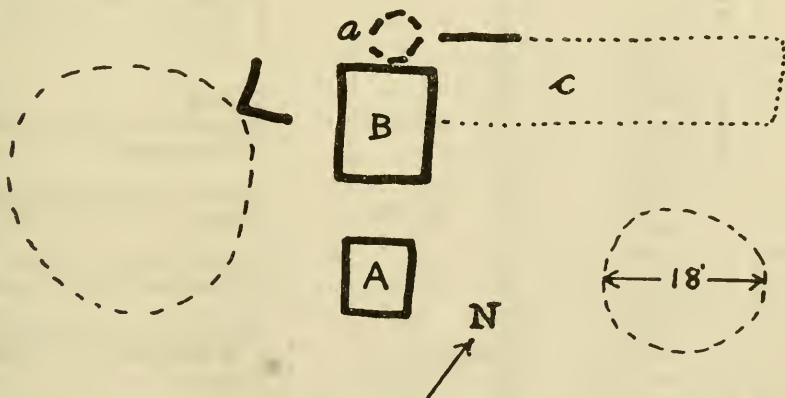


FIGURE 36.—Sketch map of masonry houses, depressions, and slab cist, site 119, Johnson Lakes Canyon.

TABLE 2.—Data on house sites

Site	Rectangular masonry houses	House dimensions	Diameter depression	Slab structures	Diameter	Remarks
		<i>Feet</i>	<i>Feet</i>		<i>Feet</i>	
25		8×15				
48	A	8×7	22	a	3½	On knoll about 60 feet high between junction Wildcat Canyon and Kitchen wash. Other cists and flint workshop nearby.
	B	8×8		b	2	
	C	8×12		c	3	
	D	7×7		d	3	
	E	9×18		e	2½	
	F	8×10	18 (?)			Fig. 33.
	G	6×6				
	H	7×10				
53	A	8½×12	23	a	6	On knoll about 55 feet high, west of Wildcat wash. Site 54, a cist, probably is part of this.
	B	8×12		b	5	
	C	8×9		c	3	
	D	8×12				
60	A	12×27	None	a	9	On knoll. Slab house <i>a</i> seems under A, probably earlier? Masonry house was probably subdivided (fig. 34).
				b	5½×6½	
				c	4	
				d	8	
				e	3½	
				f	6	
61				a	3½	¼ mile from site 60; may belong with it.
72	A	8×9	36	None		Room C probably subdivided.
	B	7½×10				
	C	8×21				
	D	8×8				
73	A	7½×9	None	a	6	On knoll ¼ mile southwest of site 72. No definite arrangement.
	B	8×8		b	2½	
	C	9×10		c	4	
				d	8	
				e	7	
				f	5	
74	A	8×12	None	None		On knoll ¼ mile east of site 72.
	B	8½×14				
75	A	8×10	None	(?)	3½	On knoll ¼ mile southeast of site 74.
	B	9×17				
76	A	7×9	31	None		300 yards southeast of site 75; ½ mile from Finn Little Canyon wash (fig. 35).
	B	7×8				
	C	8×9				
	D	9×11				
	E	7×13				
78	A	8×10(?)	33	None		On knoll. Arrangement like site 76 (fig. 35). Refuse to south.
	B	8×12				
	C	8×10				
	D	9×14				
	E	7×11(?)				
80	A	7×8	26	None		Room B is probably subdivided (fig. 35).
	B	8½×19				
	C	8×8				
81	A	7½×9	29	a	6	300 yards from site 80. Room B probably subdivided (fig. 35).
	B	8×21				
	C	8×9				
82	A	12×26	None	a	4	On knoll. Lacks usual semicircular arrangement and depression (fig. 35).
	B	9×12		b	7½	
	C	8×8				
	D	8×8				
	E	8×9				
83	A	8×10	None	Pl. 45, b		¼ mile from site 82.
	B	6½×9½				

TABLE 2.—Data on house sites—Continued

Site	Rectangular masonry houses	House dimensions	Diameter depression	Slab structures	Diameter	Remarks
		<i>Feet</i>	<i>Feet</i>		<i>Feet</i>	
84	A	8×8.....	None.....	a.....	5	} 200 yards east of site 83.
	B	8×10(?).....				
85	A	8×8(?).....	22	None.....		
	B	7×8.....				
	C	7½×13.....				
	D	8×8.....				
94	A	10×12.....	None.....	None.....		} Lacks semicircular arrangement and depression. Closely grouped. Room long axes east-west.
	B	8×9.....				
	C	(?).....				
	D	9×10.....				
95	A	8×26.....	None.....	None.....		} Room A probably subdivided. Probably 2 other rooms in arrangement like site 94.
	B	(?).....				
	C	(?).....				
96	A	4×5.....	None.....	None.....		} 200 yards from site 95. Has vertical slab lining base of inside of wall.
97	A	3×4.....	None.....	None.....		} 150 yards from site 96. Construction like site 96.
98	A	8×22.....	None.....			} 1 house only.
102	--	(?).....	None.....		2½	
114	A	8.....	None.....	None.....		} A is circular. Only plain and black-on-white pottery.
	B	9×10.....				
116	A	4×4.....	16	a.....		} Not typical arrangement. Depression held circular slab room.
	B	6¼×13.....				
	C	6×8(?).....				
	D	6×8(?).....				
	E	6×8(?).....				
119	A	7½×8.....	18	a.....	4	} C probably subdivided into several rooms (fig. 36).
	B	10×12.....				
	C	7×42.....				
137	A	5×8.....	(?).....	a.....	4	} Rooms A and B, joined end to end. Lacks semicircular arrangements.
	B	7×8.....				
	C	8(?)×16.....				
	D	(?).....				
138	A	(?).....				
	B	(?).....				
	C	(?).....				

It is probable that the depression of each house cluster contains a kiva. Site 116 had such a depression on the southern side of a random group of at least 5 rectangular masonry houses, 4 small slab cists and one small slab house (?). A small amount of excavation to ascertain whether a structure were present in the depression revealed a circular room, approximately 16 feet in diameter, with a clay floor 3 feet deep on the uphill side, 1 foot 10 inches deep on the downhill, the pit edge lined with vertical slabs. Excavation was not carried far enough to reveal interior features. The depression accompanying Smith's masonry village at Shonesburg in the Zion Park region had a subterranean structure, possessing, however, most of the conventional features of a kiva (Smith, 1934): Slab-edged bench, ventilator,

deflector, and central firepit. Following is a summary of the ratio of rooms to each depression (kiva ?).

Number of rooms to kiva (?) in masonry groups:

Site 48.....	4:1	Site 81.....	3:1 (or 4:1)
Site 53.....	4:1	Site 85.....	4:1
Site 72.....	4:1	Site 116.....	5:1
Site 76.....	5:1	Site 119.....	3:1
Site 78.....	5:1	Site 137.....	4:1
Site 80.....	3:1 (or 4:1)		

Apparently the diffusion of Pueblo culture which first introduced late ceramic types, then masonry houses, also brought the tendency to community standardization, but before large, composite villages developed the cultures disappeared.

The locations of these sites are similar to those of the slab structure sites. Knolls in canyon bottoms were preferred, but some are above the cliffs overlooking the canyons. There is a marked concentration of these toward the west, especially in Johnson Canyon, where greater water supply and fertile canyon bottom alluvium must have enticed an agricultural people.

#### MASONRY CLIFF HOUSES

It is but natural that suitable caves should have been used for houses or granaries by the occupants of the masonry villages. The important data concerning these are summarized below.

*Site 4.*—Several small caves, partially walled with horizontal masonry; also retaining walls for floor. Late period.

*Site 11.*—Somewhat similar to site 4.

*Site 18.*—Suggestion of former masonry walls in a cave; also late pottery types (pl. 45, *a*).

*Site 20.*—A small cave; contained traces of a wall of stone and adobe reinforced with sticks; also late pottery types.

*Site 27.*—Traces of masonry in dwelling caves, and semicircular masonry granary, 7 feet diameter, in ledge.

*Site 31.*—A granary somewhat similar to last.

*Site 37.*—Rock shelters and caves (pl. 45, *d*); one wall to fill cave entrance, of alternating adobe and courses of stones, each 2 inches thick, 6 inches to 14 inches long, 7 inches wide; window, 18 inches high, 13 inches wide, with stone sill and log lintel; accompanied by small granaries of walled-up crevices, the walls usually having windows; also traces of a circular house, 8 feet 6 inches diameter of similar construction. This type probably preceded true masonry houses.

*Site 111.*—Cave with two masonry granaries, each about 6 feet in diameter, 4 feet high, built against cliff.

*Site 129.*—Traces of masonry and cists in cliffs.

*Site 131.*—Traces of masonry in cave.

*Site 132.*—Small cave with mouth once closed by 12-foot wall; other traces of masonry.

*Site 8.*—A cave; one room crudely indicated by roughly piled rocks. No pottery.

## POTTERY

The pottery of the Johnson Canyon and Paria River region has few distinctive features or novel types. The majority of the wares are so similar to well-known wares that it would but add confusion to the already formidable list of Southwestern pottery types and obscure historical connections to coin new terms merely to distinguish minor local variations. For example, that tempering is almost invariably sand in this region that contains little but sandstone is not surprising and does not seem sufficient reason to distinguish by a new name a ware that is identical, except for temper, with a ware which is common elsewhere. New wares are named, therefore, only when there is no previously known ware to which they can be assigned, and when the number of sherds is sufficiently great and their characteristics sufficiently well defined to have significance. Scores of sherds were not readily assignable to any of the wares listed below. Perhaps some are variants of these wares, perhaps some are new types.

In the tabulation at the end of this paper, pottery has been entered as E, early; T, transitional; L, late. Early wares are Basket Maker black-on-gray and Paria gray. Transitional wares are probably Sevier black-on-gray and perhaps North Creek black-on-gray. Late wares are Tusayan black-on-white, Tusayan black-on-red, Tusayan red, Tusayan polychrome, Johnson gray-tan, and Johnson corrugated.

*Unbaked clay vessels.*—Site 2 yielded 10 sherds (11728 and 11716) of unbaked clay. These are about three-eighths of an inch thick, tempered with cedar bark; some bear impressions of coiled basketry on their exteriors. Vandals had despoiled this site, destroying any stratification and removing any other specimens. Similar sherds were found by Nusbaum (1922) in DuPont Cave, north of Kanab. Site 120 had a single unbaked, untempered rim sherd associated with a late, fired ware.

*Basket Maker black-on-gray.*—Paste firm; excessive sand and occasionally dark (igneous?) temper which projects through both surfaces. Interior: Smoothed but not polished. Exterior: Rough, sometimes bearing fugitive red and frequently burned. Background: Brownish gray. Designs: Narrow lines, simple forms similar to San Juan and Little Colorado Basket Maker black-on-gray (fig. 37); Shapes: Bowls. Type site, 2, near Potter's Ranch. Occurrence: Mainly in slab structures, associated with Paria gray.

*Sevier black-on-gray.*—The absence of sufficient distinguishing minutiae to differentiate the ware of certain sites in this area from the black-on-gray of western Utah, described elsewhere (Steward, 1936, pp. 13-16), makes it inadvisable to coin a new term. This ware, apparently limited to bowls, has black on unslipped gray bowl interiors, the bowls having roughly smoothed or corrugated exteriors. It occurs here at transitional and late sites.

*North Creek black-on-gray.*—This ware, named and described by Spencer (1934, p. 74), has a very limited occurrence in this region. It is distinguished by a feldspar temper and a gray color and occurs at one or two sites that seem to be early.

*Tusayan (Virgin) black-on-white.*—The most common painted ware at late sites is clearly related to and no doubt derived from Tusayan black-on-white. Spencer's Virgin black-on-white (1934, p. 75) appears to be essentially the same ware. It has sand temper, fairly dense paste, a white slip, usually decoration with broad lines, and sometimes corrugated exteriors of bowls. Forms: Bowls with



FIGURE 37.—Rim sherds and designs on Basket Maker black-on-gray. Numbers indicate sites in Johnson Canyon-Paria River region.

rimms more frequently rounded or bevelled than square (fig. 42); a few ollas; only one ladle, which is of the bowl-and-handle type, from site 142. Designs: Broad lines, elements including straight lines, triangles, dots, dotted edges, and considerable diagonal hachure, like the black-on-red designs. (See figures 38 and 39.) Occasionally Basket Maker designs survive, even on corrugated bowls, site 41.

*Tusayan black-on-red.*—This ware does not vary sufficiently from that of Tusayan to warrant a new name. Paste: Gray to brick color. Temper: Relatively little, mostly quartz with occasional small

amount of sherd. Exterior: Smoothed, rarely slipped and polished; sometimes has more or less fugitive red wash, probably applied before firing. Interior: Slip, which is more orange and less polished than Tusayan ware. Forms: Bowls, with rims like those of black-on-white (fig. 42); seed jars; ollas; pitchers. One pitcher (fig. 41), with designs more like black-on-white designs. Designs: Predominately parallel



FIGURE 38.—Rim sherds and designs on Tusayan (Virgin) black-on-white bowls. Numbers indicate sites in Johnson Canyon-Paria River region.

hachure in rectilinear figures (fig. 40), which are of a thinner, less permanent black than on Tusayan ware. Spencer's Middleton black-on-red seems to differ from this mainly in consistent lack of slip and absence of sand temper (Spencer, 1934). Occurrence: At practically all later sites, with Tusayan (Virgin) black-on-white, corrugated, etc., and masonry houses.

*Tusayan red.*—A ware like last, lacking designs (possibly sherds are from undecorated portions of bowls).

*Tusayan polychrome.*—This was probably made locally or nearby as it usually has quartz rather than sherd temper, as in Arizona. Paste: Red to gray. Inferior to Arizona ware, the red in designs being thick and somewhat fugitive. Designs on bowl interiors; exteriors have somewhat fugitive red slip (fig. 40).

*Paria gray.*—Closely resembles Sevier desert and Great Salt Lake



FIGURE 39.—Half of Tusayan (Virgin) black-on-white bowl, site 123, Dairy Canyon.



FIGURE 40.—Rim sherds and designs on Tusayan black-on-red and polychrome bowls. Numbers indicate sites in Johnson Canyon-Paria River region.

gray, to which it may be ancestral. Paste: Coarse, dark gray. Temper: Large quantities of quartz sand and some dark (igneous ?) particles. Thickness, averages five thirty-secondths of an inch to three sixteenthths of an inch. Interior, poorly smoothed. Exterior: Smoothed, sometimes almost polished. (This polish and lack of designs, distinguish it from Basket Maker black-on-gray). Sometimes has fugitive red. Forms: Mostly flaring-mouth ollas with collars, like the Sevier and Great Salt Lake gray, which distinguishes





FIGURE 41.—Tusayan black-on-red pitcher, site 2, Molly's Nipple Canyon. Height, 5½ inches.

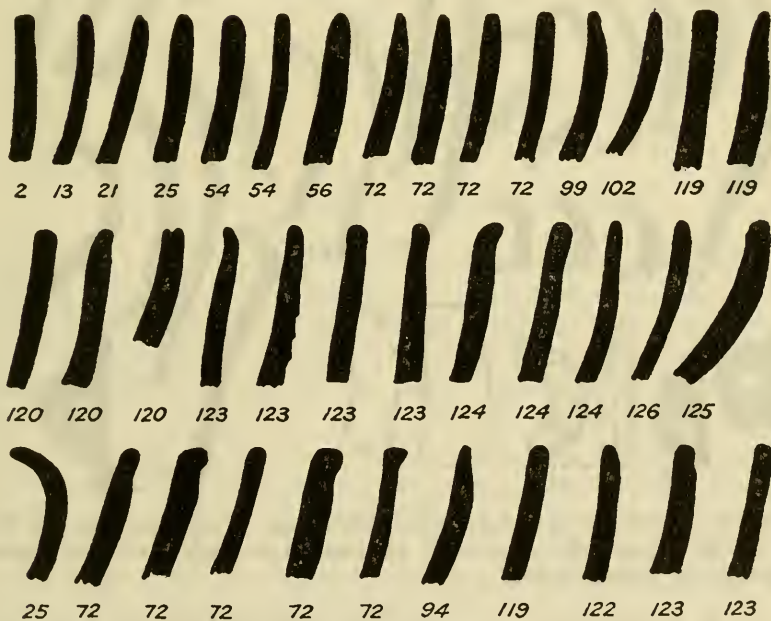


FIGURE 42.—Bowl rims. Upper two rows, Tusayan black-on-white. Bottom row, Tusayan black-on-red. Numbers indicate sites in Johnson Canyon-Paria River region.

the shapes from the later Johnson gray-tan (figs. 43, 44); two of these had mouths  $7\frac{1}{2}$  inches and  $8\frac{1}{2}$  inches in diameter; some deep bowls with thin lips (fig. 45). Occurrence: A Basket Maker and perhaps



FIGURE 43.—Rim sherds and handles of plain ollas. Paria gray: Sites 2, 3, 5, 9, 10, 21, 37, and 87. Remainder are Johnson gray-tan. All from Johnson Canyon-Paria River region.

very early Pueblo ware, associated with Basket Maker black-on-gray, e. g., at sites 2, 3, 5, 51, 116. Type site: 2.

*Johnson gray-tan*.—An extremely variable ware, somewhat like Johnson corrugated but thicker, more variable in temper often including sherds, and greater in color range, varying from gray to tan.

Interiors are smoothed, lacking horizontal striations of corrugated ware and rarely showing more than fine scratches. Temper roughens both surfaces. Forms: Ollas, including wide and small-mouth (fig. 43), the latter being characteristic. There is considerable variation in these neck shapes (fig. 44), some approximating the Paria gray flaring-mouth olla forms. Some bear small vertical handles, which are either perforated lugs or a short strip with one end fixed, the other bent down (fig. 43). This belongs to the latest, masonry-house period.

*Johnson corrugated.*—Paste gray or brownish gray to tan. Temper: Large amount of quartz sand; occasional trace of sherds. Interior: Smoothed and striated. Exterior: Variable; plain coils; coils pinched and tooled, i. e., stick punched; alternating bands of pinched and plain; or partially obliterated. Occurs with Tusayan (Virgin) black-on-

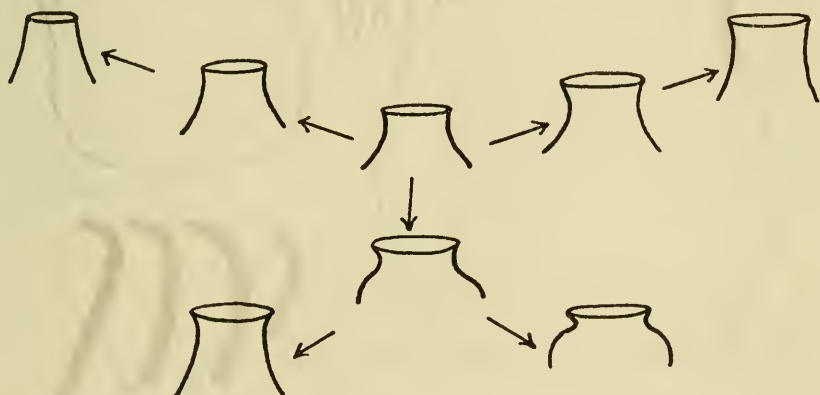


FIGURE 44.—Variations in rims of plain ollas.

white at late masonry pueblo sites. Corrugated ware from Zion National Park region associated with similar black-on-white ware and masonry houses is identical with this. Forms: Wide-mouth ollas, with rims slightly curved over to outside; some have short handle attached vertically under rim and turned down (fig. 46); or made of three interwoven strips of clay, site 65. A specimen in the Judd collection at Kanab measured: Height,  $12\frac{1}{4}$  inches; greatest diameter,  $12\frac{1}{2}$  inches; greatest circumference, 3 feet  $9\frac{1}{4}$  inches; outside diameter of orifice,  $5\frac{1}{2}$  inches; inside diameter of orifice,  $4\frac{3}{4}$  inches. A few small pitchers. This belongs to the latest, masonry house period.

*Red-on-tan.*—One sherd only (11907)<sup>2</sup> of this novel ware, site 142. Paste: Coarse, tan. Temper: Quartz.

*Incised ware.*—Mr. Neaf Hamblin of Kanab has 3 similar pots found by him in a grave a few miles southeast of Johnson Canyon. One of these, 11904, loaned the University of Utah, is totally unlike the other wares found in the region, but closely resembles "Jemez

<sup>2</sup> Numbers of specimens are those of the catalog of the Museum of Anthropology, University of Utah.

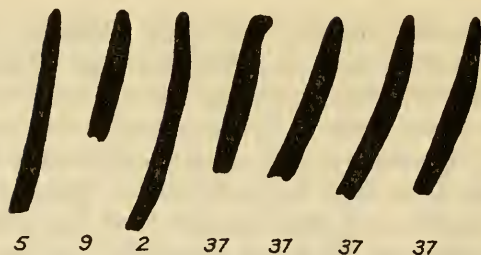


FIGURE 45.—Rim sherds of Paria gray bowls. Numbers indicate sites in Johnson Canyon-Paria River region.

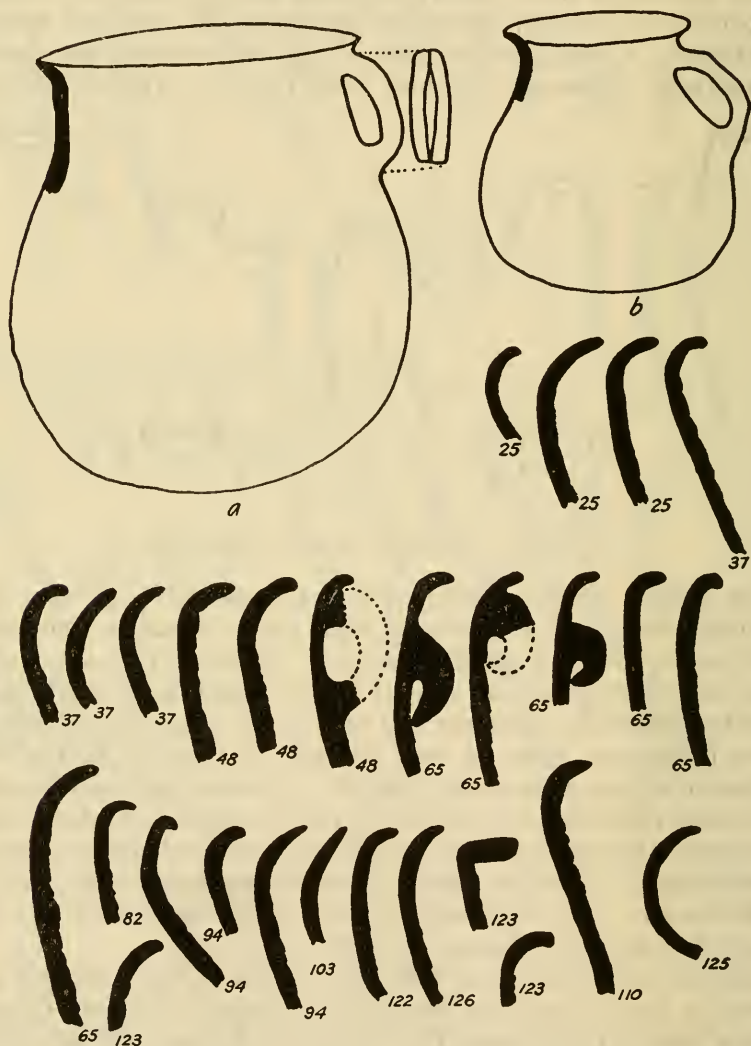


FIGURE 46.—*a*, *b*, Johnson corrugated pitchers, site 123, Dairy Canyon. *a*, 5 $\frac{1}{8}$  inches tall. Corrugated olla rim sherds. Numbers indicate sites in the Johnson Canyon-Paria River district.



TABLE 3.—Major kinds of pottery occurring at different sites—Continued

Site	Plain gray		Corrugated		Black-on-white		Black-on-red		Red		Polychrome		Black-on-white-corrugated		Fugitive red		
	Total sherds	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
31	3	0		3													
32	27	22	81.4	1	3.7	4	14.9										
34	55	52	94.5	0		3	5.5										
36	6	4		1		1											
37	49	16	32.6	28	57.3	3	6.1									2	4
39	25	24	97	0		1	3										
41	72	64	88.8	2	2.7	6	8.3							2	1.2		
42	43	39	90.7	1	2.4	3	6.9										
44	7	5		1		1											
45	7	3		1		2											
46	148	48	32.4	69	46.6	31	14.1	7	4.7	3	2.2						
47	13	3		3		5		1						1			
48	536	110	20.5	194	36.1	140	26.1	46	8.5	33	6.1	1		12	2.2		
49	18	15		0		2		0		1							
50	18	12		6		0											
51	25	21	84	0		4	16	0									
52	26	25	96	0		1	4										
53	236	92	38.8	64	27.6	34	14.4	22	9.3	20	8.3	0		4	1.6		
54	144	49	34	40	27.7	25	17.3	19	13.2	7	4.8	1				3	2
55	132	71	53.8	52	39.3	5	3.8	0		4	3.1						
56	20	15		1		4		0									
57	15	7		0		0		7				1					
58	23	20	87	0		3	13										
59	8	5		2		0				1							
60	49	30	61.2	10	20.4	4	8.2	5	10.2								
61	14	0		8		5				1							
62	30	13	43.3	13	43.3	3	10	1	3.4								
63	14			10		2		1		1							
64	6	1		1		3		1									
65	258	31	12	154	59.9	8	3.1	24	9.6	30	11.2	2	.7	9	3.5		
66-70	300	298	99.3			2	.7										
71	43	42	97.9			1	2.1	0									
72	172	42	24.4	60	34.8	25	14.5	18	10.4	22	12.7			5	3.2		
73	190	47	24.7	78	41	26	13.6	17	8.9	22	11.8						
76	222	59	26.5	83	37.3	26	11.7	19	8.5	31	13.9			4	2.1		
78	209	49	23.4	73	34.9	26	12.4	23	11	37	17.6	1	.7				
79	10	2		4		2		2									
80	247	73	29.5	91	36.8	28	11.3	33	13.3	22	9.1						
82	21	4		13		0		3				1					
83	23	1	4.5	10	43.4	12	52.1										
85	20	0		11		6		3									
87	13	9		0		4											
92	2	0		2(?)		0											
93	2	0		2(?)		0											
94	265	93	35	86	32.4	33	12.8	29	10.8	22	8.3	2	.7				
95	186	41	22	83	44.6	20	10.7	23	12.3	19	10.4						
98	8	4		2		2											
99	20	3		8		3		2		2						2	
102	13	5		5		3		0									
103	12	4		7		0		0						1			
110	323	68	21	137	42.4	52	16.1	26	8.1	37	11.4	3	.1				
111	20	9		8		3		0									
113	12	4		4		4		0									
116	11	11		4		0		0									
119	95	3	3.2	57	60	25	26.3	(?)		10	10.5						

TABLE 3.—Major kinds of pottery occurring at different sites—Continued

Site	Total sherds	Plain gray		Corrugated		Black-on-white		Black-on-red		Red		Poly-chrome		Black-on-white corrugated		Fugitive red	
		Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
		120	121	98	81.3	7	5.7	14	11.4	0		1	.8	0		1	.8
122	44	8	18.1	16	36.3	20	45.4	0									
123	82	0		64	78	18	22	0									
124	15	7		1		7		0									
125	19	1		8		7		2		1							
126	74	0		68	92	6	8	0									
131	18	11		6		1		0									
137	11	0		8		0		0		2		1					
139	3	3		0		0		0									
140	12	10		1		1		0									
142	40	8	20	13	32.5	16	40	2	5	1	2.5						

Objects made of potsherds.—A number of sherds were ground to roughly oval shape, perhaps for scoops or pot scrapers. These are: 11709, a fragment bearing fugitive red from site 25; 11830 and 11831, fragments from plain red sherds from site 65; 11876, a fragment made from a black-on-white sherd from site 99; 11849, 2 complete specimens made from plain gray olla sherds from site 73, the larger being 3½ inches long, 1½ inches wide, and 11851, a similar fragment from site 73.

TABLE 4.—Sherds ground to circles  
[Measurements in inches]

Site	Catalog No. <sup>1</sup>	Ware	Diameter	Diameter hole	Remarks
25	11710-1	Black-on-white	1½		No hole.
25	11710-2	do	2½		Do.
48	11804	do	1½		Do.
48	11804	do	1½		Do.
48	11804	do	1		Do.
48	11804	Red	1¾		Do.
48	11804	do	1¾		Do.
48	11804	Plain gray	1¼		Do.
48	11804	do	1½		Do.
48	11804	Red	2	½	
56	11819	Black-on-white	1½		Do.
65	11829	Red	1¾	¼	
71	11841	Plain gray	1½		Do.
72	11840	Red-on-orange	1¾	¼	
72	11840	Black-on-red	1½	¾	
72	11840	Corrugated	1¾	¼	Broken.
72	11840	Red	2±	¾	Do.
73	11850	Brown-on-brown	1½	¾	
73	11851	Plain gray	1½		No hole.
96 (?)	11868	White	1¼	(?)	
115	11912	Plain gray	1¾	¾	Broken.
115	11913	do	2½		No hole.
119	11893	Black-on-gray	1¾		Do.
119	11893	Brown-on-gray	1¾		Do.

<sup>1</sup> Museum of Anthropology, University of Utah.

A number of sherds were ground to circles, some but not all being perforated in their centers with small holes. These are tabulated on page 309, the measurements being in inches.

### SUBSISTENCE

*Domesticated plants.*—There is no evidence to prove that horticulture belonged to the earliest period as specimens of domesticated

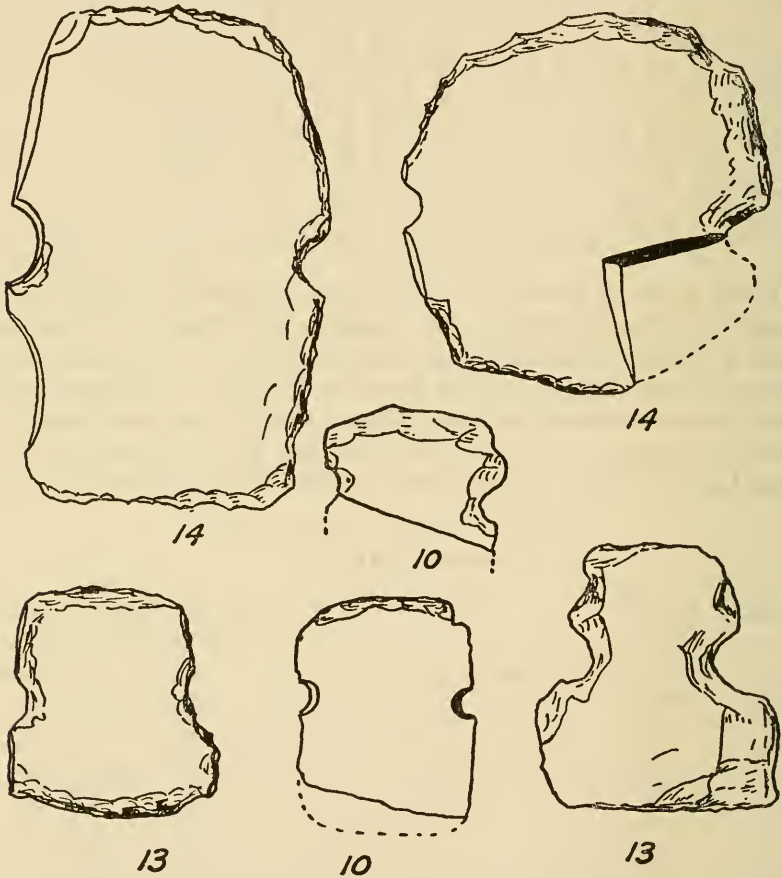


FIGURE 47.—Chipped sandstone "hoes." Numbers indicate sites in the Johnson Canyon-Paria River region. The largest is 12 inches long.

plants came only from caves which had been disturbed by previous digging.

Site 2 yielded 15 specimens of maize, complete ears ranging from  $1\frac{1}{4}$  inches to  $5\frac{3}{8}$  inches in length and having usually 6 but sometimes 4 or 5 double rows of kernels. Sites 18, 37, 98, 113, and 131 also had similar maize.



Site 2 also yielded three small, yellow, nondent kernels of maize, a squash stem, and fragments of squash or gourd, and a red bean. Site 98 contained a brown bean (11874).

"Hoes."—Sites 10, 13, and 14 yielded several thin slabs of sandstone heavily impregnated with iron. The edges were chipped and

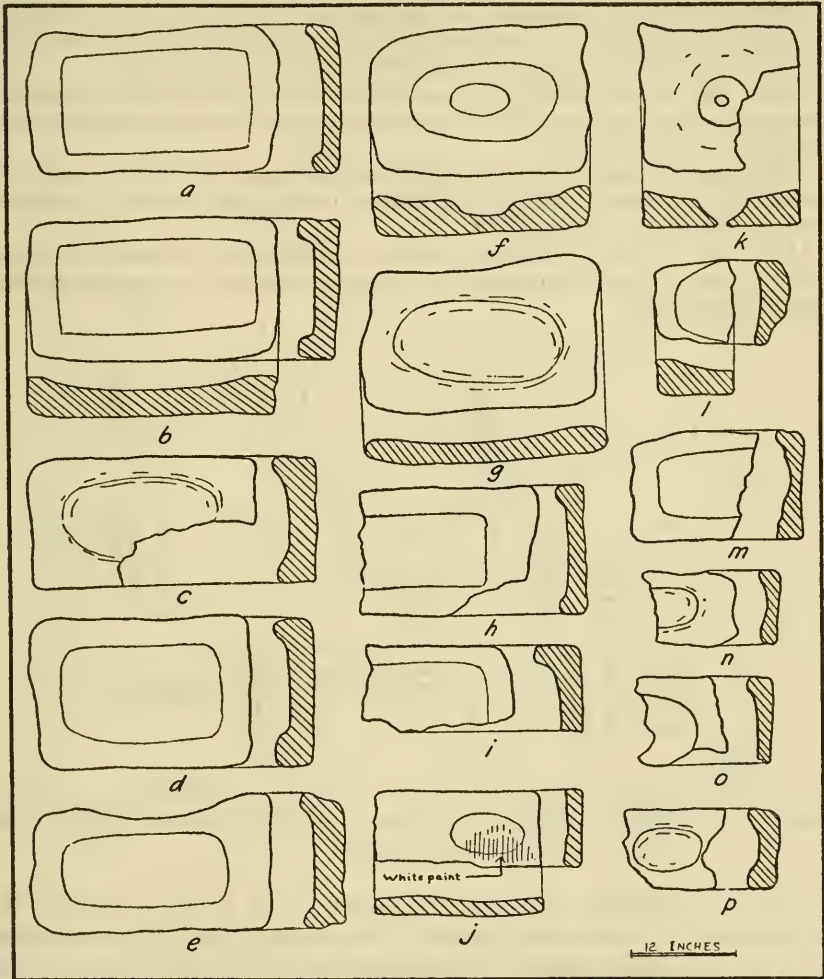


FIGURE 48.—Metates

a, b, g, h, i, m, Site 45; c, site 58; d, site 73; e, site 79; f, site 42; j, k, site 2; l, site 10; n, o, site 53; p, site 62. Johnson Canyon-Paria River region.

notched (fig. 47), as if they had been hafted as hoe blades, although there is no proof of this. A number were strewn in a meadow which would have made an excellent cornfield. Gillin (1938, fig. 25) found a somewhat comparable object in Nine Mile Canyon in northeastern Utah.

11770, site 14, iron sandstone; length, 12 inches; width, 8 inches in center, tapering to 6 inches at each end; thickness,  $\frac{3}{8}$  of an inch to  $\frac{1}{2}$  of an inch; notch cut in middle of each side, 1 inch deep, 2 inches wide; edges crudely chipped from both sides to sharpness.

11766, site 10, iron sandstone; probably broken; length,  $6\frac{1}{2}$  inches; width, 6 inches, tapering to one end; deep notches in opposite sides, 3 inches from small end; thickness,  $\frac{5}{8}$  of an inch; edges partly chipped to sharpness.

11765, site 10, iron sandstone; one end broken; length,  $5\frac{1}{2}$  inches; width, 4 inches to  $4\frac{1}{2}$  inches; edge of end sharpened; remaining edges square; thickness,  $\frac{7}{16}$  of an inch; notches on opposite edges  $2\frac{1}{2}$  inches from small end.

11768, site 13, iron sandstone; squarish; length,  $5\frac{1}{2}$  inches; width, 5 inches; thickness,  $\frac{3}{8}$  of an inch to  $\frac{1}{2}$  of an inch; notches in middle opposite edges; edges mostly chipped to sharpness.

11769, site 13, fragment; iron sandstone; present length,  $3\frac{3}{4}$  inches; width,  $4\frac{1}{2}$  inches; edges sharpened except left side and broken end; notches on opposite sides, 2 inches from unbroken end.

11771, site 14, iron sandstone; circular, approximately  $9\frac{1}{2}$  inches diameter;  $\frac{5}{16}$  of an inch thick; edges chipped to sharpness; traces of two notches in edges opposite each other.

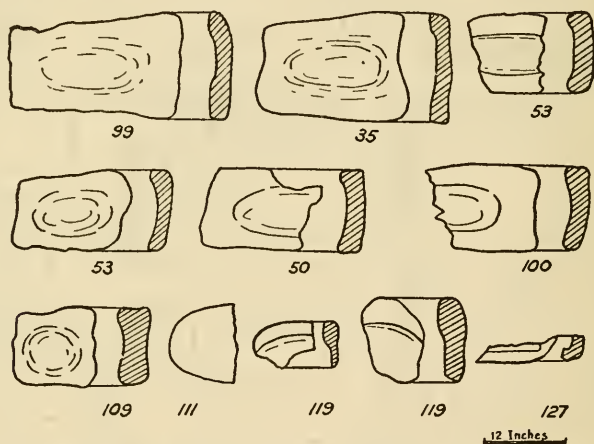


FIGURE 49.—Metates. Numbers indicate sites in the Johnson Canyon-Paria River region.

*Metates.*—Metates were of two styles, both being of sandstone, rectangular and moderately thick. The earlier type, A, generally has an ovoid, basinlike grinding depression (figs. 48, *c, f, g, j, l, n, o, p*; 49). The later type, B, is better squared and finished and has a rectangular grinding surface (figs. 48, *a, b, d, e, h, i, m*; 49). Some chronological overlapping of types is indicated, for example at site 45, where a specimen of type A was associated with a large number of type B.

Although deeply troughed metates of the Basket Maker type are known from the Zion Park region (Smith, 1934), the only specimen definitely of this type from our region is from site 142, which, judging by the masonry walls, was late. Another specimen at site 119 may

have been similar. Types A and B specimens bear slight resemblance to the Basket Maker style in having a broad rim. But in these specimens the rim completely surrounds the grinding surface whereas in Basket Maker specimens the rim bounds it on only three sides. Flat metates, designed for a bin, like those of the later Pueblo cultures, were absent from the region.

The metates illustrated in figures 48 and 49 are from field measurements and sketches. Difficulties of transportation prevented collection of specimens.

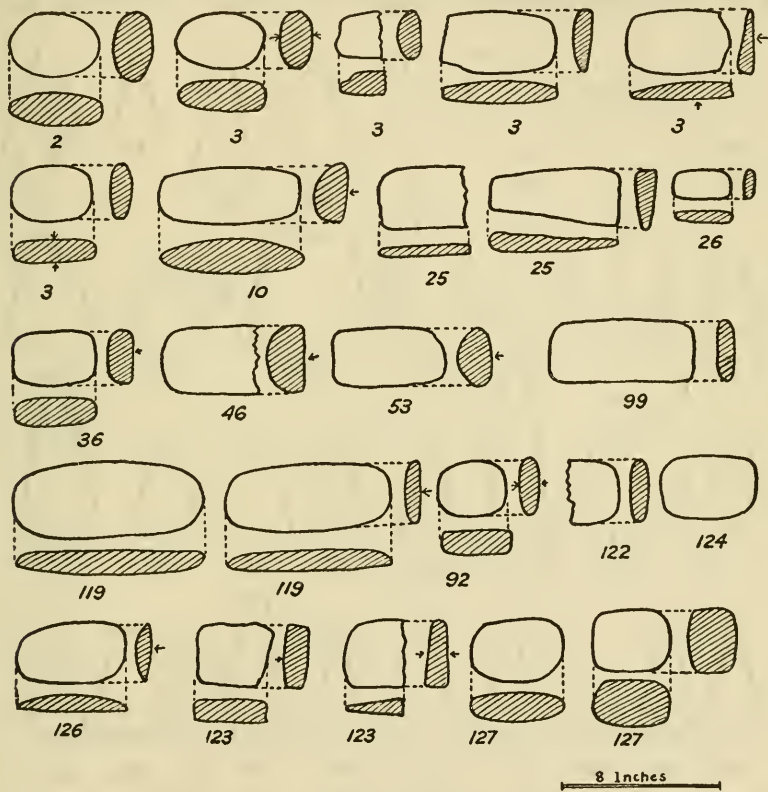


FIGURE 50.—Mullers or manos and cross sections of same. Numbers indicate sites in the Johnson Canyon-Paria River region.

*Mullers.*—Mullers, although extremely variable in shape and size, are usually between an oval and rectangle in outline. Those from early sites (fig. 50, sites 2, 3, 26, 92, 126, and 127) are smaller and more oval, thus being suited to the smaller and more oval grinding surface on the metate. Those from later sites are larger and more rectangular (fig. 50, sites 25, 46, 53, 99, 119) in keeping with the more definitely rectangular and flat depression on the metates. There is some

overlapping of the types, however. Although most cross sections are oval, wear has often produced a wedge shape. Many are pecked on the grinding surface as if they had been roughened from time to time. Some specimens are pecked on the side opposite that smoothed from grinding, as if this side were used for preliminary heavy grinding and smashing.

Figure 50 illustrates specimens measured in the field as well as those collected.

*Projectile points.*—Evidence of hunting is seen in petroglyphs as well as in projectile points. Many of the former, discussed below,

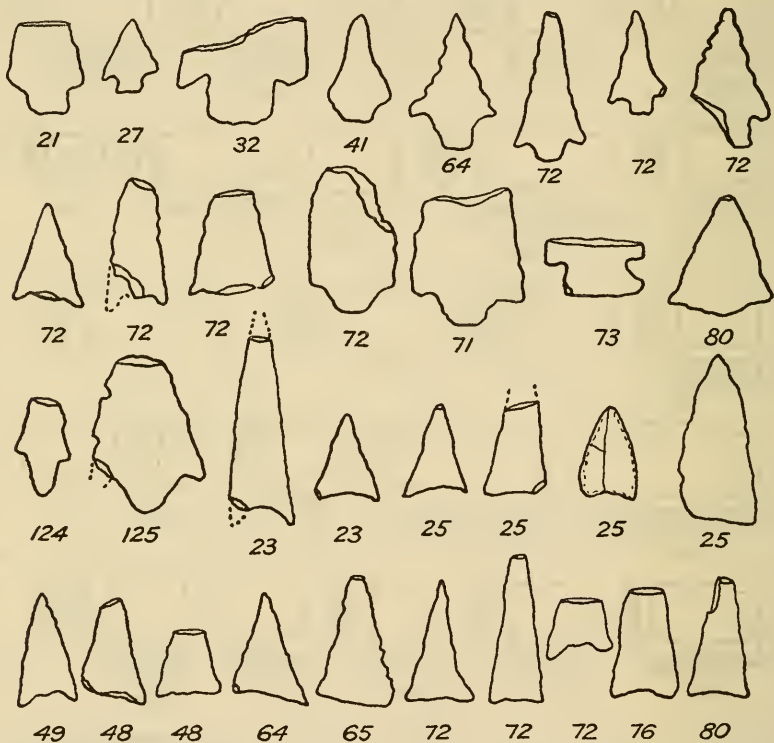


FIGURE 51.—Projectile points of chipped flint. Numbers indicate sites in the Johnson Canyon-Paria River region.

show clearly the bow and arrow. But as these can only be dated by inference, they have little value in the present connection.

Most projectile points are relatively small and are of flint, chert, jasper, and somewhat opalescent or translucent flint. Two types are distinguishable on the basis of presence or absence of notching (fig. 51).

Type A is notched from the corners of the base so as to leave a long, slender tang but no barbs. It varies from  $1\frac{1}{8}$  of an inch to  $1\frac{1}{2}$  inches in length. These occur more often at early sites. Only one specimen

(11852), site 72, is side-notched like Basket Maker atlatl dart points.

The later type B is a slender, triangular point with a concave base and no notches. These range from  $\frac{1}{8}$  of an inch to over  $1\frac{1}{4}$  inches in length. Several points from site 72, however, have a slight tang within the concave base. This site is also of interest in that both types A and B were found here although architecturally and ceramically the site is late. Site 64 also had both styles.

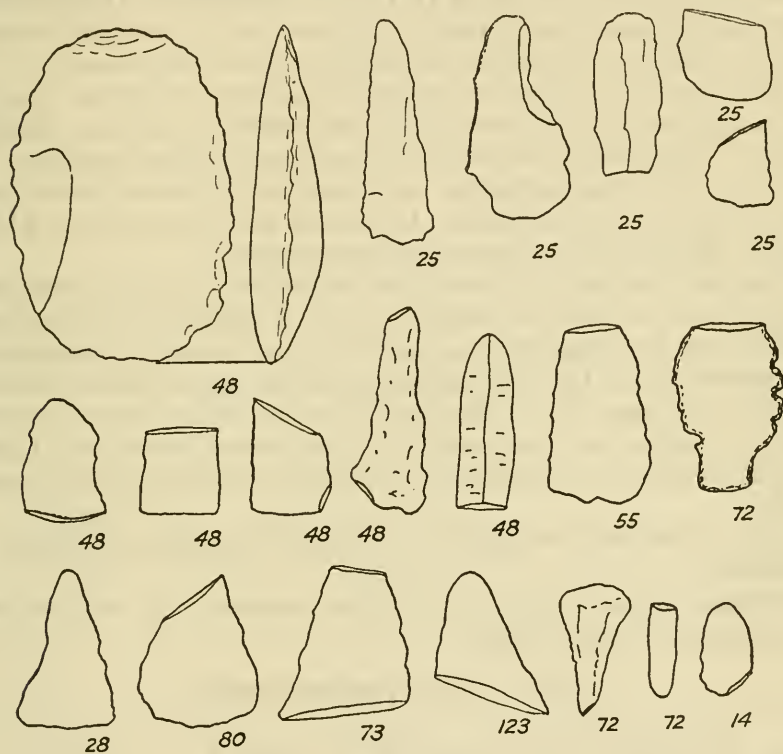


FIGURE 52.—Knives, drills, and scrapers. Numbers indicate sites in the Johnson Canyon-Paria River region. The largest is  $3\frac{3}{4}$  inches long.

### INDUSTRIES

*Axes.*—The only stone ax known from this region is in the Judd collection at Kanab. It is crudely shaped of brown quartzite, 7 inches long, 4 inches wide,  $1\frac{1}{4}$  inches thick. In place of a groove, it bears shallow notches on opposite edges. One end is sharpened, the other rounded, bearing a shallow notch.

*Knives, drills, and scrapers.*—Cutting implements are so variable that it is impossible to define types and often even to distinguish knives from scrapers. Most of the specimens, however, appear to have been knives, ranging around 2 inches in length. Some are triangular,

some roughly oval, some have squared butts, and others are extremely irregular, the shape not being consistent in any site. (See fig. 52.)

A number of small, oval flints are probably scrapers. Only one scraper (11746) from site 2 is a fragment which is retouched from one surface only, although this manner of chipping is very common elsewhere.

Several scrapers are mere irregular, unretouched flakes: 12048, 4 from site 25; 12050, 2 from site 41; 12052, 1 from site 51. Of particular interest is the large flake (11842, fig. 52) from site 72, which has several deep serrations or notches in the edge and shows great wear.

Two specimens, 11842, from site 72 appear to be drills. One is  $1\frac{1}{2}$  inches long,  $\frac{1}{16}$  of an inch wide at the butt with a slender, tapering point. The other is a slender point 1 inch long,  $\frac{5}{16}$  of an inch wide.

*Bags.*—The Judd collection at Kanab has a woven cotton bag from somewhere in the region. It contains seeds or leaves and white paint. There is also a fragment of cotton cloth.

*Baskets.*—No basketry was found at any site visited during the survey, but the Judd collection contains a complete coiled basket. Although it is not possible to assign this to any period, it is important in demonstrating the local occurrence of the usual Basket Maker-Pueblo technique. It is a flat bowl, 11 inches in diameter,  $2\frac{3}{8}$  inches deep. Foundation: 2 rods and bundle of crushed yucca leaf. Coils: Noninterlocking, 16 stitches per linear inch or 80 stitches per square inch.

Also in the Judd collection is a twilled ring basket,  $3\frac{1}{2}$  inches in diameter.

*Cordage.*—Data concerning the few fragments of cordage are summarized in table 5 below:

TABLE 5.—Data on fragments of cordage

Site	Catalog No. <sup>1</sup>	Number of plys	Direction of twist	Diameter	Material	Remarks
				<i>Inches</i>		
2.....	11718	2	Clockwise.....	$\frac{3}{32}$	Yucca.....	2 strands, weaver's knot.
2.....	11718	1	do.....		do.....	Tied square knot.
2.....	11718	1	do.....		do.....	Do.
2.....	11873	2	Counterclockwise.....	$\frac{1}{16}$	do.....	Do.
2.....	11752	1	do.....		do.....	Do.
2.....	11872	1	do.....		do.....	Do.
2.....	11738	2	Clockwise.....	$\frac{1}{16}$	Fiber.....	Laced through buckskin.
131.....	12046	2	do.....	$\frac{3}{32}$	Soft fiber.....	Do.
131.....	12046	2	do.....	$\frac{1}{16}$	Hard fiber.....	Do.
131.....	12046	2	do.....	$\frac{3}{32}$	Soft fiber.....	Do.

<sup>1</sup> Museum of Anthropology, University of Utah.

In addition to these, site 2 yielded several bunches of shredded yucca fiber and what is probably a yucca quid.

The Judd collection in Kanab has a human-hair rope from this vicinity. It is 3½ feet long and consists of 16 strands, each two-ply and all twisted counterclockwise. The end is formed by doubling the strands back on themselves and tying them at the point of doubling with a small cord.

*Textiles.*—Although no textiles were found, a lump of clay, 11890, site 116, bears an impression (fig. 53) which may have been made by a

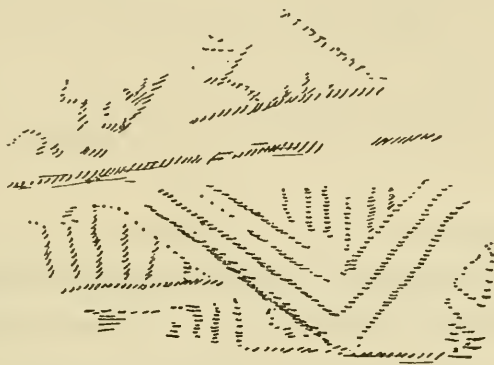


FIGURE 53.—Textile impression in adobe.

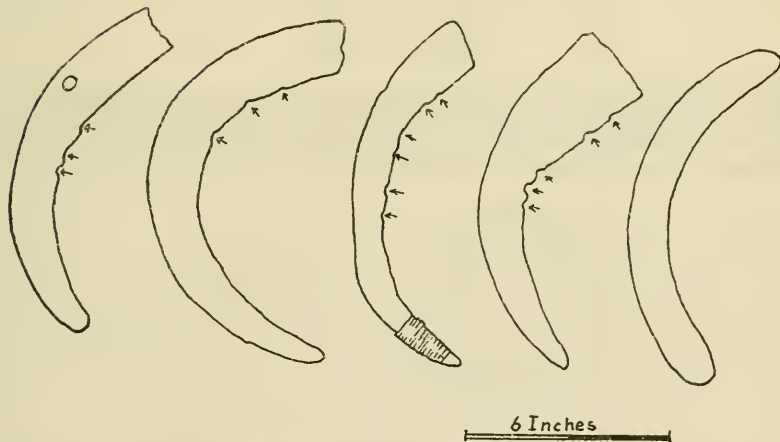


FIGURE 54.—Crescent ("sickles") of mountain sheep horn in the Judd collection at Kanab, Utah. Arrows indicate worn grooves.

sandal bottom of the ornamented type common in the Basket Maker III culture.

*Awls.*—11721, site 2, is a fragment of a very stubby, blunt awl. The Judd collection contains three awls tied in buckskin.

*Horn crescents.*—The Judd collection contains five flat, crescentic objects made of mountain-sheep horn (fig. 54). These resemble so-called sickles from certain Basket Maker sites and might be inter-

puted as sickles were it not for small, worn grooves on the inner edges which look as if cords had been drawn repeatedly across them. These range from  $8\frac{1}{2}$  inches to  $9\frac{1}{2}$  inches, tip to tip. One has its small end wrapped with cord. Another is perforated near the large end.

*Dippers.*—The Judd collection has three wooden dippers of the bowl-and-handle variety (fig. 55), taken from “cists in solid rock”

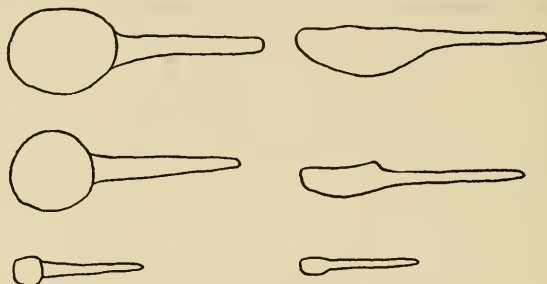


FIGURE 55.—Wooden dippers in the Judd collection at Kanab, Utah.

in a cave at the head of Dairy Canyon. The measurements of these are:

Bowl length, inches	Bowl width, inches	Bowl depth, inches	Handle length, inches
6	5	$2\frac{1}{2}$	8
$4\frac{1}{2}$	$4\frac{1}{2}$	$1\frac{1}{2}$	8
$1\frac{1}{2}$	$1\frac{1}{4}$	$\frac{3}{8}$	$5\frac{1}{2}$

*Hammerstone.*—The only hammerstone collected was from site 123 (11920), a fragment of water-worn quartzite pebble, about  $2\frac{1}{4}$  inches in diameter, having one edge used slightly for pecking.

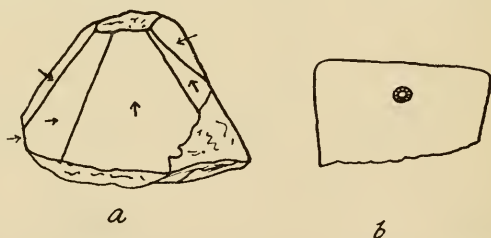


FIGURE 56.—Two quartz objects.

*a*, Quartzite lump (11744), site 2, Paria River region. Arrows indicate facets. *b*, Crystalline pendant (11894) site 119, Johnson Lakes Canyon.

### MISCELLANEOUS

*Stone objects.*—A sandstone slab (11739) from site 2 is approximately 6 inches square, its smooth upper surface bearing a pastel shade of greenish-blue paint.

An irregular quartzite lump (11744) from site 2 has several facets produced by rubbing (fig. 56).



A small sandstone slab (11730) from site 2 is covered with some substance, possibly resin.

Site 123 had a fragment of unworked petrified wood (11917).

*Ornaments.*—These included a half *Olivella* shell bored with a small hole (11720) from site 2 and an excellently trimmed and polished pendant fragment of semitranslucent crystalline stone (11894) (fig. 56) from the burial at site 119. The latter is 1½ inches wide, ¼-inch thick.

*Animal remains.*—Site 2 yielded several turkey feathers (11731, 11741) and site 4 several turkey (?) bones (11758).

Site 131 had a bundle of 45 hawk feathers, 12 inches long (11900), their butts bound together by a small, two-ply fiber cord wrapped six times around them.

### SKELETAL MATERIAL

The only skeletal material came from two partially exposed burials at site 119, which is of the latest period ceramically and architecturally. It is noteworthy that these are distinctly Basket Maker rather than Pueblo in type. Both skulls are adults, long and undeformed. One has a cephalic index of approximately 70, which may, however, have been deformed in the soil. It has high orbits, an occipital bulge and something of a ridge where the parietals join.

### PETROGLYPHS

*Site 1.*—A group of petroglyphs on the north side of the mouth of Molly's Nipple Canyon. Figure 57, *a*, group 3½ feet wide; *b*, 24 inches tall; *c*, 12 inches long; *d*, group 10 feet wide; *e*, 6 inches tall; *e*, group 4½ feet wide.

*Site 4.*—Petroglyphs on wall of masonry cliff house. Figure 57, *f*; pecked group 22 inches wide.

*Site 7.*—Figure 58, white pictographs in rock shelter: *a*, 7 inches wide; *b*, 4½ inches wide; *c*, 13 inches tall; *d*, group 18 inches wide; *o*, petroglyph 10 feet long.

*Site 29.*—Figure 58, pictographs in white and black, in small cave or rock shelter: *e*, *f*, white-on-black; *g*, creamy white, 12 inches across; *h*, 12 inches across; *i*, *j*, black; *k*, *l*, paper white group, 2¼ feet across; *m*, creamy white group, 2½ feet across.

*Site 40.*—Petroglyph 10 feet 8 inches long, on rock on floor of canyon; very similar to that at site 7. In addition, pictographs in white include zig-zags and rectilinear figures somewhat resembling pottery designs.

*Site 111.*—Figure 59, *a*, pictographs in Long Canyon in blue-green (plain), purple (shaded upward to left), and red (shaded upward to right) in cave associated with masonry rooms; *b*–*j*, petroglyphs. Figure 60, *a*–*f*, also petroglyphs.

*Site 117.*—Figure 61, petroglyphs on cliff in James Bunting's corral: *a*, group, 3 feet tall, pecked and rubbed smooth; *c*, apparently more recent than last, dull gray on faded black, 24 inches tall; *d*, like last, 12 inches tall; *e*, pecked 10 inches tall; *f*, incised group, double ended figure 13 inches tall; *g*, *h*, parts of same group of petroglyphs about 6 feet across. Plates 46, 47, large group of petroglyphs with last.

*Site 121.*—A group of four petroglyphs, dumbbell shape, each 18 inches long, 6 inches wide; also two spirals.

*Site 130.*—Petroglyphs stretching 100 feet or more along cliff on north side of mouth of Oak Canyon. Figure 62, portion of the group. Figure 63, *a*, group 8 feet across. Plate 48, continuous group, left to right.

*Site 132.*—Small group of petroglyphs, 24 inches wide, on wall inside masonry cliff house (fig. 63, b).

*Site 133.*—Figure 63, c-f, petroglyphs pecked on cliffs on south side of the mouth of Oak Canyon. Being 10 feet from the ground, they could have been reached only if the artist stood on something; but there were no signs of houses

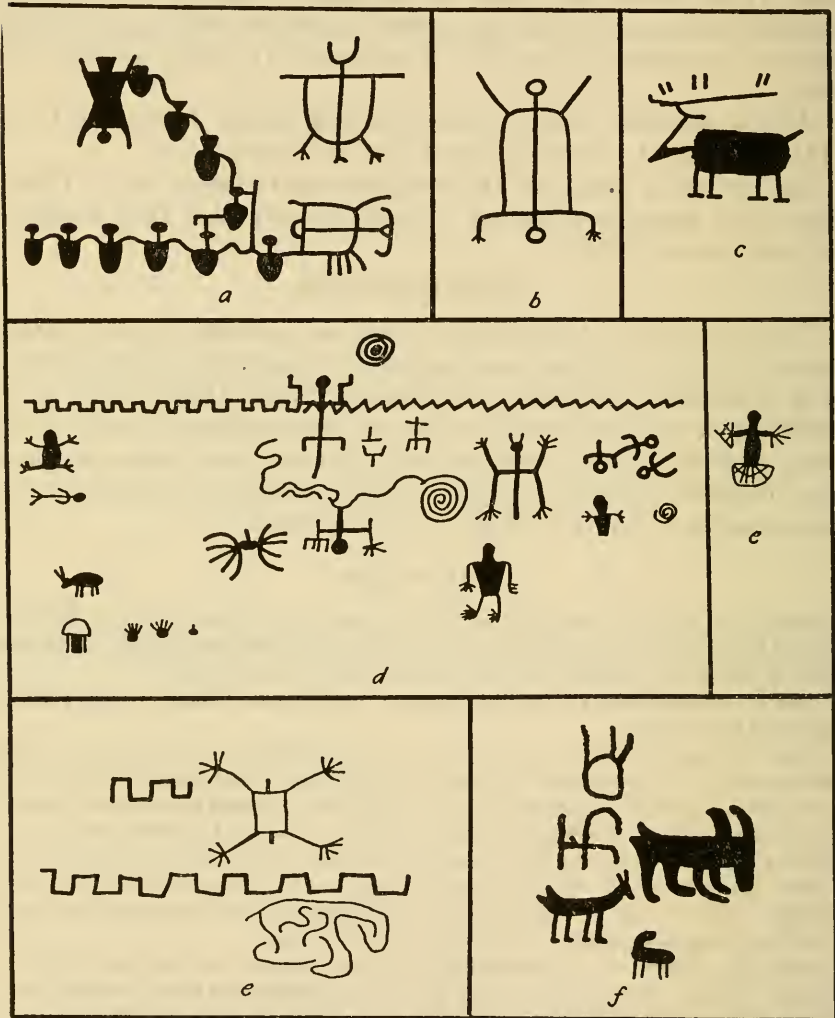


FIGURE 57.—Petroglyphs, a-e, site 1, and f, site 4, Molly's Nipple Canyon.

below them. c,  $3\frac{1}{2}$  feet wide, incised 1 inch deep; d, incised, 24 inches across; e, like last, 18 inches tall; f, 9 inches square.

*Site 141.*—Figure 63, g-k, petroglyphs.

The petroglyphs in this area resemble those throughout western America in possessing certain common elements (Steward, 1929): Spirals (especially site 117, pl. 47; site 111, fig. 60; site 1, fig. 57, d; site 29, fig. 58, k), concentric circles (site 117, pl. 47; site 130, pl. 48;

site 1, fig. 57, *d*), "sun disks" (site 130, pl. 48, fig. 63), wavy and zigzag lines (especially site 117, pl. 47; site 130, pl. 48; and elsewhere).

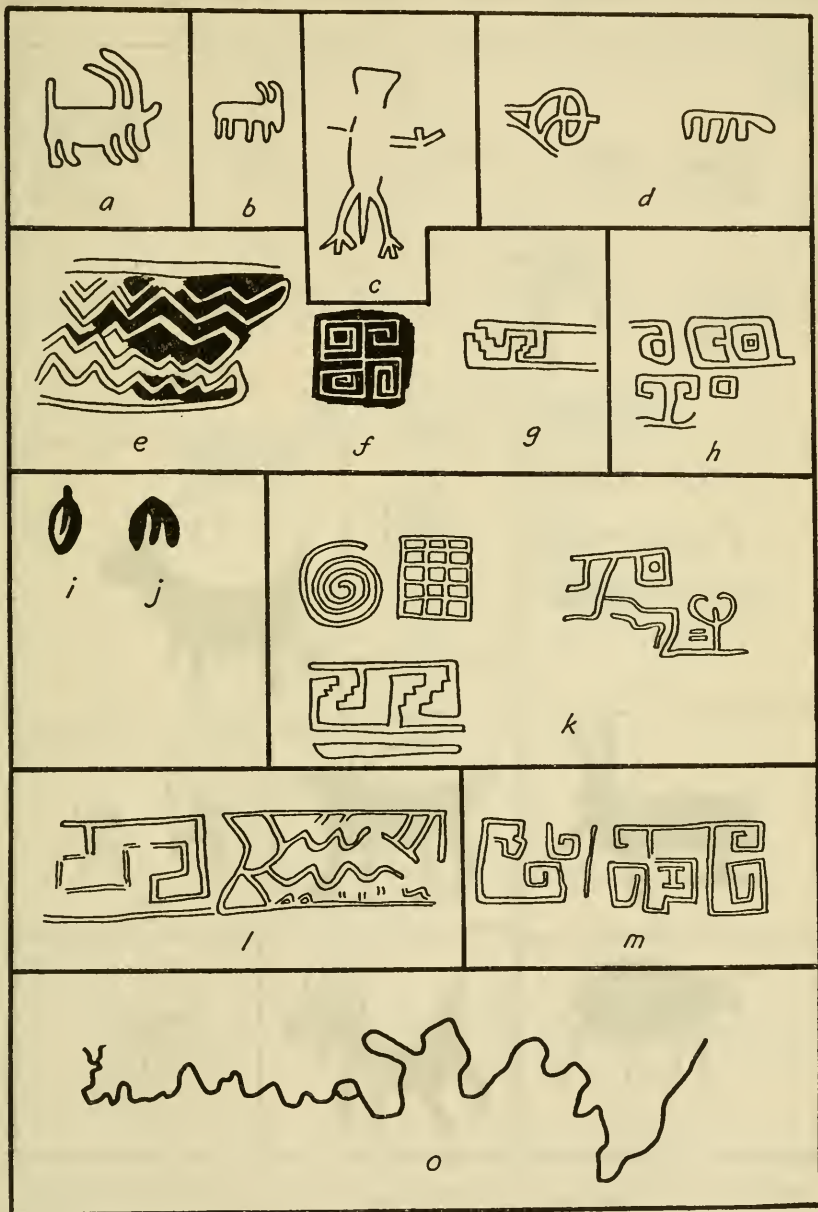


FIGURE 58.—Pictographs, *a-d, o*, site 7, Molly's Nipple Canyon, and *e-m*, site 29, Wildcat Canyon.

The most common realistic picture is a square-shouldered, anthropomorphic figure, derived from a simple style which started in Basket

Maker II times.<sup>3</sup> Several variations of this were at site 1 (fig. 57) and site 117 (fig. 61). A peculiar, probably local, style at each of these sites is a "double-ended" figure with a head at the top and

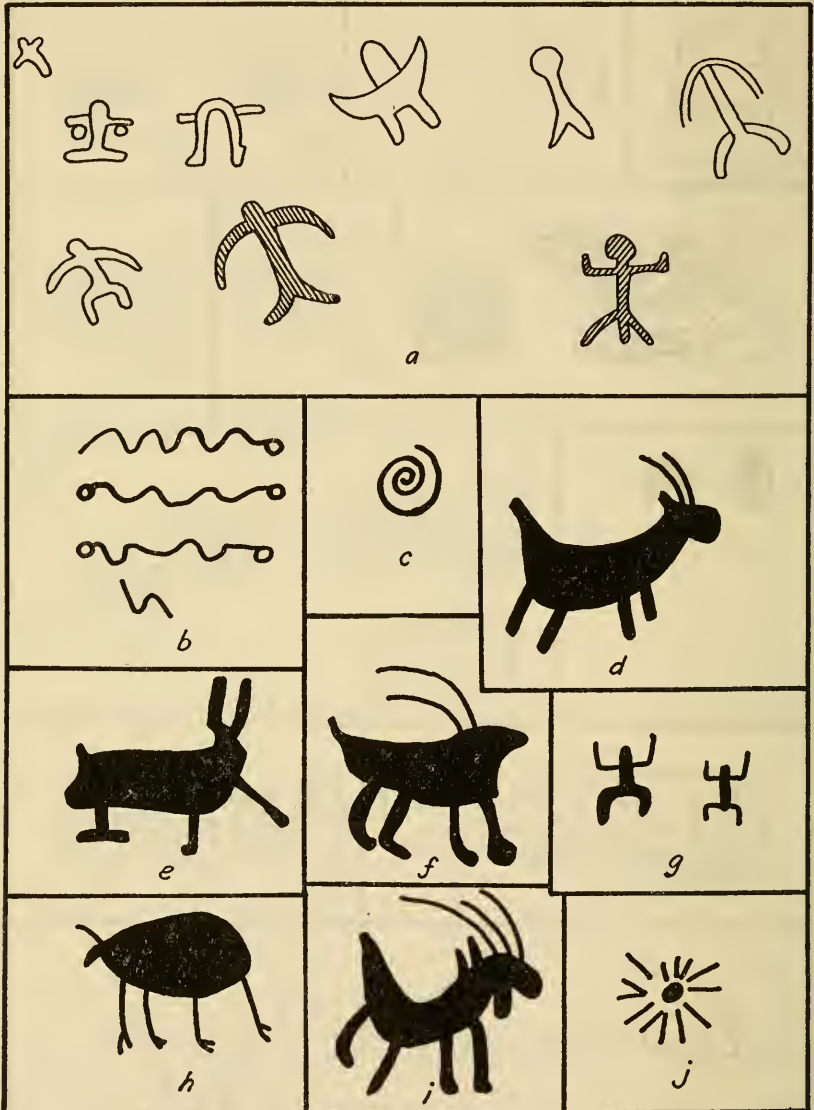


FIGURE 59.—Pictographs and petroglyphs, site 111, near Johnson Canyon.

bottom (fig. 57, *b*, *d*, *e*; fig. 61, *f*). Other forms derived from the square-shouldered figure occur at site 7 (fig. 58), site 111 (fig. 60), site 130 (pl. 47), and site 130 (figs. 62, 63; pl. 48). Although most of

<sup>3</sup>For example, in Dupont Cave, Kane County, Utah.

these appear to be Basket Maker drawings, their association at site 130 with representations of the bow place them as Pueblo. Special attention should be called to the hunchback flute player at site 130 (fig. 63, *a*). Of particular interest are the hunting scenes depicting use of the bow at site 130 (pl. 48), and site 141 (fig. 63, *h, k*). Several peculiar, highly conventionalized anthropomorphic pictographs were at site 111 (fig. 59, *a*).

Several animal species in varying styles are distinguishable with reasonable certainty: Mountain sheep (site 1, fig. 57; site 7, fig. 58, *a*; site 111, fig. 59, *d* (?), *e* (?), *f* (?), *i* (?); site 117, pl. 47; site 130, pl. 48; and site 141, fig. 63, *h*); possibly some antelope; deer or other antlered quadrupeds (site 1, fig. 57, *c*; site 111, fig. 60, *a, e*; site 117, pls. 46, 47; site 130, fig. 62, *a*; pl. 48); a bison (site 117, pl. 46); various other



FIGURE 60.—Petroglyphs, site 111, near Johnson Canyon.

quadrupeds; a centipede (site 130, pl. 48). Snakes may be represented at several sites.

Human or bear footprints appear at site 1 (fig. 57, *d*) site 117 (pl. 47), and site 130, (fig. 62, *b*, pl. 48). Site 130 (pl. 48), has a human hand. Site 111 (fig. 60, *f*), site 117 (fig. 61, *g*), and site 130 (fig. 63, *a*) have bird tracks.

Several sites had geometric designs which appear to have been derived from pottery ornamentation, especially site 29 (fig. 58, *e-m*; also site 130 (pl. 48).

## PART 2. GLEN CANYON OF THE COLORADO RIVER

Glen Canyon comprises the 170 miles of tortuous Colorado river gorge which lies between the mouth of the Fremont (Dirty Devil) River in Utah and Lee's Ferry, Ariz. Although the river is relatively

calm through this stretch, and lacks such rapids as make Cataract Canyon above and Marble Canyon below dangerous to travel, the gorge is narrow and sheer cliffs rise out of the water for stretches of miles leaving few sites which were suitable for aboriginal occupation or which could have been reached without adequate boats: The gorge walls rise several hundred feet to a rolling sandstone plateau

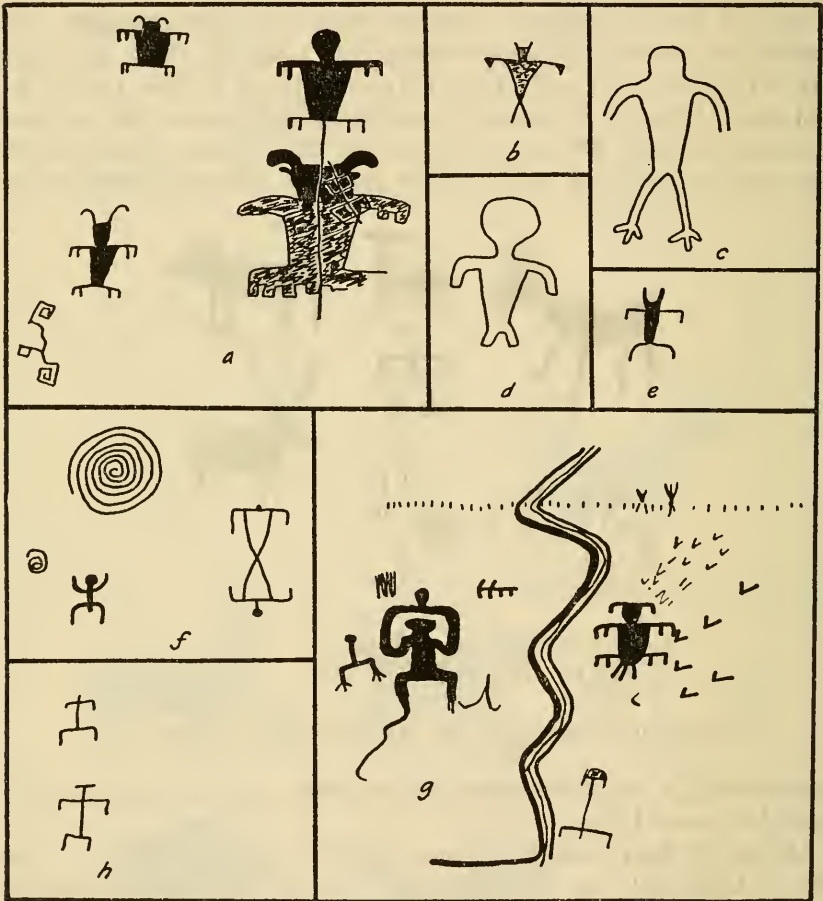


FIGURE 61.—Petroglyphs, site 117, Johnson Canyon.

which is so dissected with deep, narrow canyons that it is almost impossible to traverse it. The side canyons entering the upper 15 or 20 miles of Glen Canyon are fairly broad and contain a relative abundance of Pueblo sites, but below this they come in as box canyons which are flooded and filled with quicksand during high water in the Colorado, and which are too narrow through several miles of their lower reaches to have permitted any kind of settlement. Undoubtedly

these have many sites where they broaden out some miles back from the river, but in most instances it proved impossible to explore them.

The trip required 23 days, July 1 to July 23, 1932, 19 days of which were spent on the river. July was chosen, as by that time the water in the Colorado River had passed its height and was said to be best for navigation. The party went via Torrey to the Trachyte ranch at the



FIGURE 62.—Petroglyphs, site 130, Oak Canyon.

eastern foot of the Henry Mountains by automobile. From here it was transported the remaining 30 miles down North wash to the river by wagon. Two portable canvas boats proved entirely adequate for river transportation. As the current averaged about 5 miles an hour, only 2 or 3 hours' travel each day covered the necessary distance.

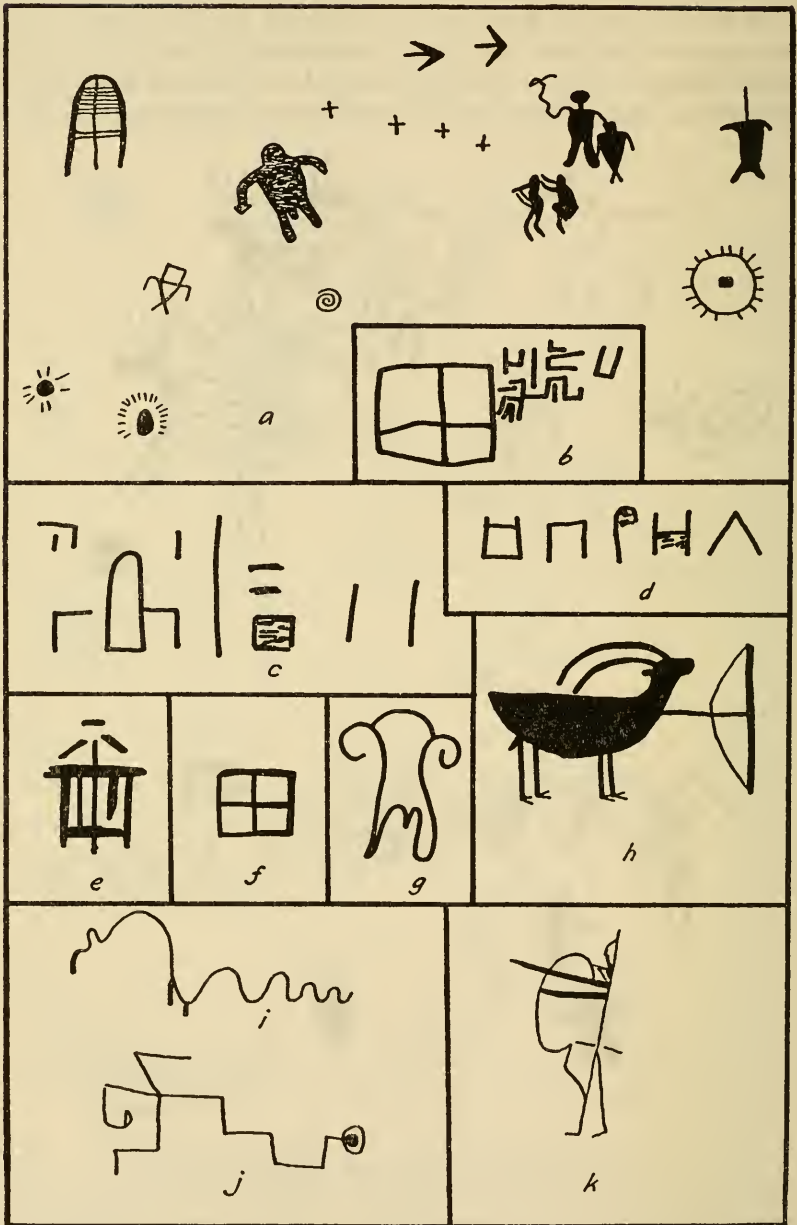


FIGURE 63.—Petroglyphs: *a*, Site 130; *b*, site 132; *c-f*, site 133, Oak Canyon; and *g-k*, site 141, near Clark Canyon.



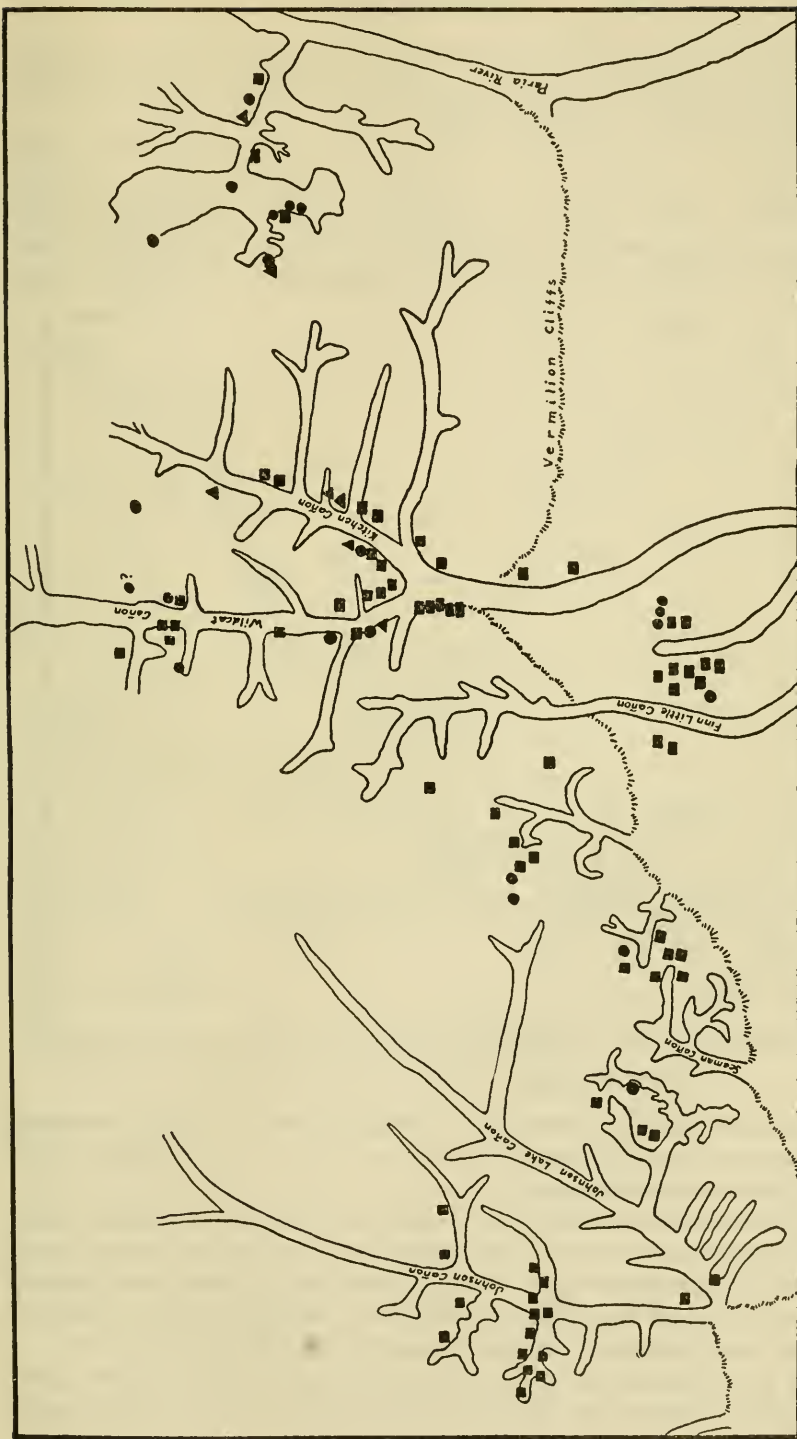


FIGURE 64.—Distribution of sites of different periods in Johnson Canyon-Paria River region: Circle is early (Basket Maker); triangle is transitional; rectangle is late (Pueblo).

## SITES VISITED

In North wash, about 10 miles below the wagon road, are a few rock shelters containing traces of occupation in the form of pottery sherds and charcoal but no house remains.

Among the sherds collected, 11996, was one corrugated. Two were bowl sherds, unpolished and unpainted. The remainder were probably from ollas, made of a medium fine paste containing a dark, igneous temper—probably a rock from the Henry Mountains. They are tan in color, and smooth, but unpolished. A few sherds are,

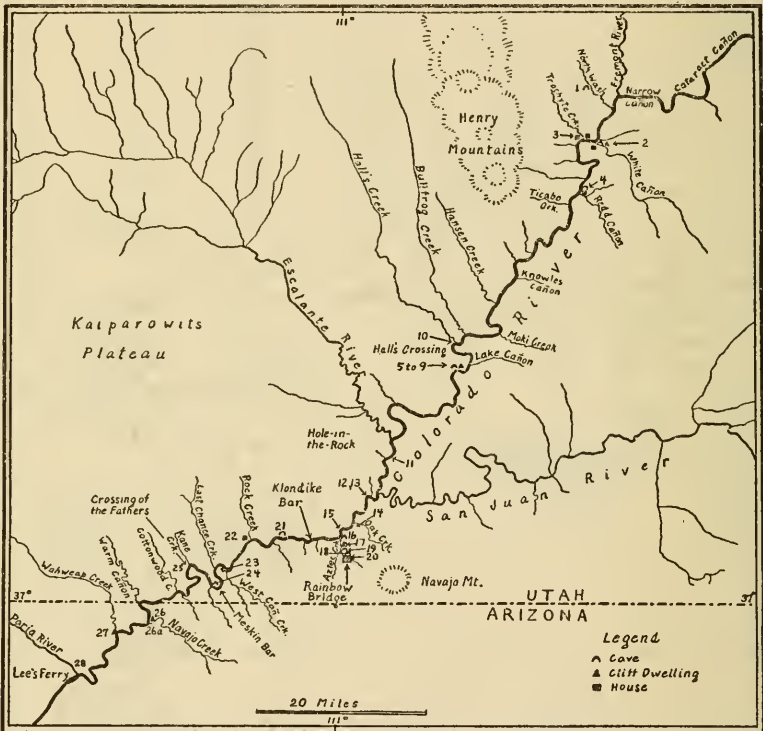


FIGURE 65.—Map of Glen Canyon, Colorado River.

however, polished and these are a dark gray with a slightly crackled surface, and greatly resemble the large ollas of western Utah. The vessel forms are not known.

From the same locality were: 11998, a fragment of a bone point, perhaps a blunt awl; 11997, fragments of three flint points made with a fair chipping technique; 11999, a number of large, very crudely chipped lumps of beautiful red and yellow streaked jasper. Some of the last may be rejects, others extremely crude scrapers.

*Site 1.*—A large cave in North wash about 12 miles from the Colorado River, situated on the western side of the canyon, facing south-

east. Along the top of the talus which slopes up to the rear wall under the cave's high arch is a series of 12 rooms built of crude masonry. These are either roughly circular or rectangular and in all cases the walls are simply piled rocks. At several places are worn spots on rocks which look as though they might have been formed by grinding axes.

Specimens included only corncobs and animal bone fragments. Not a trace of pottery was found.

On the cliff wall back of the first room is a large, elaborate kachina-like pictograph painted in red with white dots and beside it, a large quadruped (pl. 52, *a*). At other points are two pecked horned quadrupeds and a small, squared-shouldered, phallic female (?).

Below site 1 in North wash, the canyon affords little arable land and there was a corresponding absence of sites. At the mouth of North wash, however, were found small rock-shelters, which yielded a few potsherds like those found higher up in the canyon.

A trip was made on foot to the mouth of the Fremont (Dirty Devil) River but no further traces of aboriginal occupation discovered.

*Site 2, White Canyon.*—The party proceeded downstream to the mouth of White Canyon which enters the Colorado River from the east. Here are located the most extensive ruins in all of Glen Canyon.

The conspicuous feature is a large house standing about 300 feet above the river on the southern side of the tributary canyon (fig. 66, pl. 49, *a*). The house measures 22 feet 6 inches by 12 feet 6 inches, is of fair masonry, and must have had 2, possibly 3 stories, as the wall still stands at one point 15 feet 9 inches high. At four points along the southern wall, 7 feet 6 inches above the ground, were holes through which had passed the beams supporting the floor of the second story. The masonry is of carefully selected but untrimmed sandstone blocks which are fairly rectangular and are well laid, some parts of the walls being more or less coursed (pl. 49, *e*). Only small amounts of the cementing adobe remain. The average wall thickness is 1 foot 6 inches to 1 foot 7 inches, but this decreases to 1 foot 3 inches a short distance above the second floor.

The house is built on a narrow ledge of flat sandstone which drops away more or less sharply on each side, especially on the river side. That protection was a consideration in choosing this spot is shown by the wall which runs out from the eastern side of the house to the cliff edge. This was 18 inches thick, and although it is now mostly in ruins, it must have served to block thoroughfare along that side of the ridge. The other side, which is narrower with a steeper drop-off down the cliff, could have been defended from the house.

Just under the cliff edge on the eastern side is a small room tucked away under the cliff.

As the house is built on solid rock which could not possibly have been excavated for a kiva, it is probable that the circular enclosure at

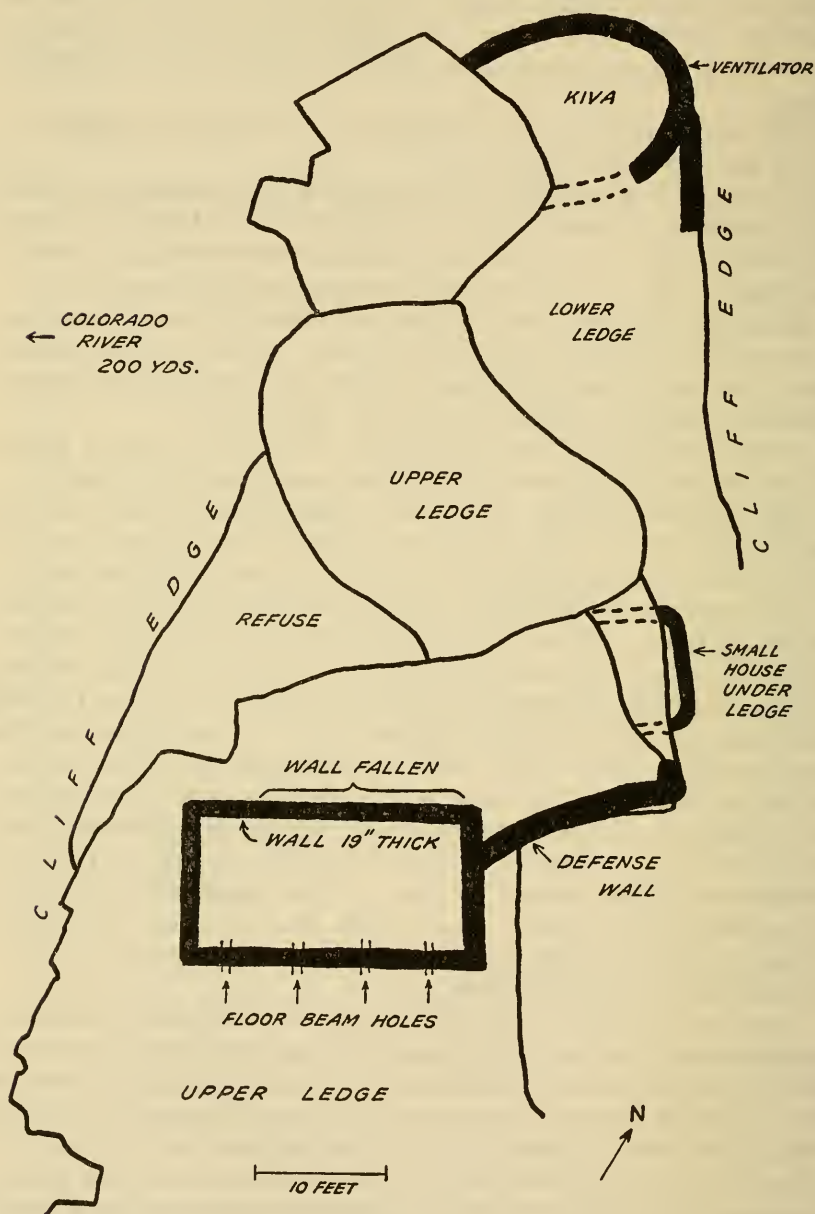


FIGURE 66.—Ground plan of large ruin and kiva, site 2, White Canyon.

the end of the ledge, 45 feet north of the house and built on a ledge slightly below it, served as kiva. The wall, 16½ inches thick, built

against the cliff, forms three-quarters of a circle. Its highest point is now 6 feet. A cleft in the southern side of the wall, one side being neatly squared, may be the remnant of the door. On the eastern side, 12 inches above the floor, is a square opening in the wall 12 inches high and 8 inches wide, which was no doubt a ventilator.

Slightly below the cliff edge of the western side is a foot or more of refuse.

Apparently this house was the center of a fairly large community, for just below it to the south and across the canyon to the north is a

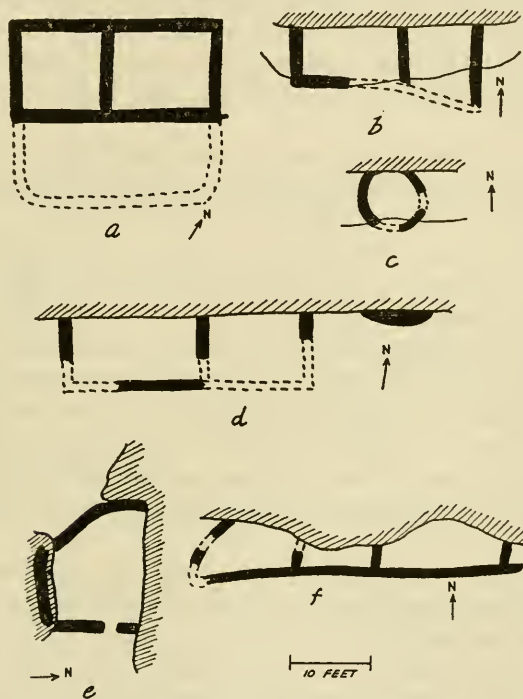


FIGURE 67.—House structures.

*a*, Plan of ruin at site 3, Trachyte Canyon; *b-f*, houses on the northern cliff of White Canyon, site 2; *b*, house 2; *c*, house 5; *d*, houses 3 and 4; *e*, house 1; *f*, house 7.

series of cliff rooms. Although the latter may, and in some cases very likely do, antedate the large house, it is probable that in the later days of the community the large house was erected as a place of refuge.

Room 1, on the northern side of the canyon, is built between the cliff and a large boulder 11 feet out from it. Masonry walls enclosed the openings, but a door 18 inches wide is left on the eastern side (fig. 67, *e*). On the back wall of the room are two round-bodied, kachinalike petroglyphs faintly pecked. One of these is shown in figure 72, *e*.

Structure 2, like the last, is built under an overhanging ledge. The walls, 15 inches thick, of rather poor masonry, enclose two rooms, one about 13 feet by 6 feet 6 inches, the other, east of this, 8 by 9 feet. At the base of the partition between the two and against the cliff is an opening 19 by 24 inches. There also seems to have been a doorway between the two rooms at the outer end of this partition, and another leading outside from the outer wall of the eastern room (fig. 67, *b*). Room 2 is 50 feet east of room 1.

Structure 3, 150 yards east of last, is enclosed by walls 18 inches thick. There seem to have been two rooms, one about 8 by 16 feet, the other about 8 by 12 feet (fig. 67, *d*).

Structure 4 is a platform of masonry forming a semicircle against the cliff, about 8 feet long and 6 feet deep, and built 5 feet above the ledge.

Room 5 is just east of the last and is a small, circular granary, 6 feet in diameter and 3 feet 4 inches high, built in under a ledge (fig. 67, *c*).

Room 6 is a natural cave in a large crevice finished into a room by the addition of a few feet of masonry wall. It is 30 feet deep and averages 8 feet in width.

Structure 7, 50 yards east of the last, has an outer wall 10 to 14 inches thick parallel to the cliff, behind which are three rooms, the western one very irregular but approximately 5 by 10 feet, the next 3 by 8 feet, the eastern one 5 by 16 feet. Most of the outer wall had reached up to the ledge or roof above, but has now fallen. Between the first and second rooms is a passage 18 inches wide with a slab, 6 inches thick, as sill.

Other rooms had continued on east of the last, but the ledge, which is several hundred feet above the valley, had partially fallen away, leaving them inaccessible.

On the southern side of the canyon, just south of the large houses and under a ledge overlooking the Colorado River, are several more cliff rooms. The ledge on which they stand has, in several places, been built and levelled up with masonry. The walls seem not to have continued to the roof, but to have enclosed certain areas. Doors, however, lead from one to another (fig. 68; pl. 49, *b*).

*Pictographs and petroglyphs.*—A characteristic of the Northern Peripheral culture is a remarkable elaboration of anthropomorphic petroglyphs and pictographs. Probably originating in the square-shouldered and comparatively simple Southwestern Basket Maker pictographs, these attained greatest development in northeastern Utah where facial features and ornaments of both head and body are represented in detail. Site 2 at White Canyon is one of the southernmost localities where this style occurs. The White Canyon figures, though differing in some details from many to the north,

fall into this general class and are especially related to those on the middle Fremont River (Morss, 1931) and at Moab, farther up the Colorado River.

Along the northern side of White Canyon, between and above the cliff houses, there is a series of round-bodied, anthropomorphic petroglyphs having decorated bodies (figs. 72, 73, *a*; pl. 52, *e*). These are mainly pecked, some of the finer lines, however, being incised or rubbed. Other comparable circles which, however, are less clearly parts of anthropomorphic figures, are pecked on the rocks near the large ruins (fig. 75, *e*). In this group, the anthropomorphic figure was placed over the circle on the left which in turn was over the parallel lines with the dots between. Two groups (figs. 73, *c*, and 74, *f*) show concentric circles and the last also has a circle containing zigzag

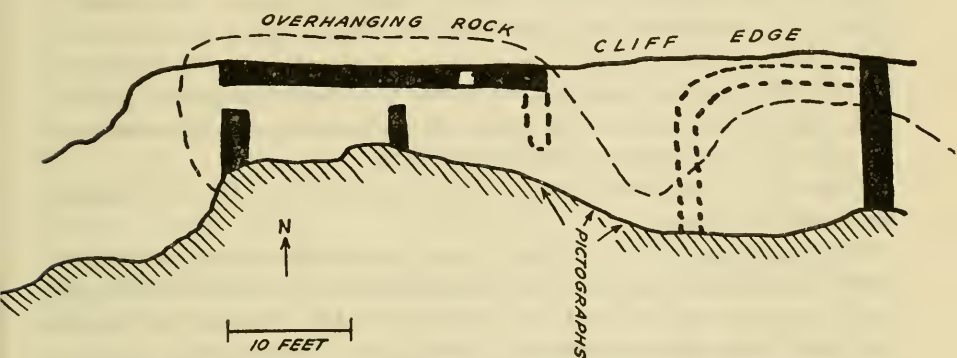


FIGURE 68.—Cliff houses south of the large ruin, site 2, White Canyon.

decoration. Other circles are painted. Plate 52, *d*, shows two complicated circles painted white. Where the paint has eroded from that on the left, rubbed lines appear, though this may be a recent bit of vandalism. Rubbed triangles appear above both figures. A red handprint appears in the center of each circle and two other red handprints, not shown in the plate, are on the cliff to the right. A circle made up of red, white, and yellow-buff lines appears in figure 75, *c*. All of these circles are approximately 3 feet in diameter.

Although no weapons are clearly depicted in association with these figures, the writer hazards the guess that they represent shields. Two ornamented, rawhide shields were found on the Fremont River where somewhat similar circular petroglyphs appear to represent shields (Morss, 1931). Figure 76 shows several circles on the cliffs at Moab which no doubt belong to the same class of objects.

Another type of anthropomorphic figure is square-shouldered and, though less elaborate than those to the north, clearly of the same general style. The central figure in figure 73, *b*, even has "tear streaks," a device common in the Uintah Basin. Those in figures 73, *c*, and 75, *d*, *e*, are of this style. The three figures in figure 75, *a*, *b*, are painted in white and yellow-buff. That in plate 52, *b*, has the same colors.

In addition to these anthropomorphic figures, several are of the complex curvilinear style common in the Great Basin. Two large groups of such petroglyphs are shown in figure 74, *a*, *e*. Although there is no proof whatever that the anthropomorphic and curvilinear styles were contemporary, it is probable that in western Utah and Nevada the latter, despite its great stylistic difference, was somewhat stimulated by the former. Small anthropomorphic figures, like those in figure 77, on the cliff near the bridge at Moab, occur in Idaho and Nevada beyond the Pueblo area in frequent association with the curvilinear style, and yet seem related to the Northern Peripheral anthropomorphs. It is possible, of course, that chronological differences are involved in these styles of anthropomorphs.

Plate 52, *c*, is a petroglyph, probably made by the Ute or Navaho, to represent a horse.

*Specimens from site 2.*—Pottery from the northern side of the canyon, 11987, comprises ware which is definitely Mesa Verde in general style and appears to be Pueblo II or early Pueblo III. Corrugated sherds are from large ollas of the San Juan types. Their paste is coarse, quartz tempered, and the coiling rather crude. Coils run 3 to 7 per inch. Eighty-five percent of the corrugated sherds have the coils "crinkled" or pinched at intervals. Some alternate several plain and several crinkled to give a banded effect. For 1 to 2 inches under the rim, the exterior is smoothed. The painted ware has a much finer paste and temper. Bowls have a plain grayish exterior, showing horizontal striations from the smoothing implement. Their interiors have a slip which is slightly grayish white, sometimes crackled, on which are painted designs in black which are Mesa Verde in style. Bowl rims are generally squared, the lip slightly projecting on the outside. Both ollas and bowls average 5 millimeters in thickness. Sherds from painted ollas and jars are like the bowl sherds, but the black design is usually painted on the polished surface which lacks a slip; sometimes, however, a white slip is present. Four sherds have deep, rich red exteriors; one is black-on-red.

The pottery from around the large ruin, 11989, is much like the last. Corrugated ware is slightly better made, somewhat darker, and a little thicker—7 millimeters. Ninety-eight percent of the 48 corrugated sherds are crinkled. Clay and temper in bowls also resemble 11987. The interiors have a slip which varies from paper



white to dark gray, like the ware of western Utah. Designs are in a good, solid black with good brushwork, and resemble Mesa Verde ware. A few are Kayenta style. Fine, parallel lines comprise a large portion of the designs. Twelve of fifteen rim sherds have one to five horizontal lines under the rim. Other forms include black and white ollas and ladles with solid handles.

Artifacts of chipped flint are very crude. 11988 is a roughly shaped blade having a more or less diamond-shaped cross section,  $2\frac{1}{4}$  inches long,  $1\frac{1}{4}$  inches thick,  $\frac{7}{8}$  of an inch wide, of red jasper. 11944, from the large house, is a similar point,  $2\frac{5}{8}$  inches long,  $1\frac{1}{4}$  inches wide,  $\frac{3}{4}$  of an inch thick, having both ends somewhat rounded. These are common in Glen Canyon and are certainly not projectile points. 11991 is a crudely chipped "pick" of white flint,  $3\frac{3}{8}$  inches long.

Three small corn cobs were found at the large house, 11995. Two had ten rows of kernels and were  $3\frac{1}{2}$  and  $2\frac{1}{4}$  inches long; the third had 12 rows of kernels.

The presence of this village, site 2, is probably to be explained by the several miles of arable land along the river shore and the thoroughfare to the central parts of San Juan County provided by White Canyon.

*Site 3, Trachyte Creek.*—Trachyte Creek empties into the Colorado River from the west, about 1 mile below White Canyon. Long stretches of tillable land made possible a village, the main ruin of which stands about 100 feet above the river and about 200 yards south of Trachyte creek. It had two main rooms, the western one measuring about  $9\frac{1}{2}$  by 10 feet inside, the other  $9\frac{1}{2}$  by 12 feet (figure 67, a). In front of, i. e., south, of these were possibly two other rooms, but all of the walls are entirely crumbled. It may in part have been two stories. Just south of the ruins is a circular depression about 30 feet in diameter which may have been a kiva or plaza.

*Specimens from site 3.*—Pottery, 11979, included a corrugated ware much like that at site 2, having a coarse, quartz temper and varying in color from gray to tan. The black-on-white ware was tempered with both chalcedony and a dark, volcanic rock. The clay is generally gray, but 11979-3 is two sherds of red clay. The interior slip on bowls varies from white to gray. Bowls are 4 to 5 millimeters thick. The black designs are slightly inferior in quality of color and brushwork. 11979-5 has the design in brown instead of black. (A specimen from near Blanding, San Juan County, has designs in both this same shade of brown and in black, showing that the brown is not simply a faded black.)

Other ware includes: 11979-1, having a red exterior and a chocolate-brown interior bearing red lines. 11979-2, 3, having plain exteriors and unslipped but polished orange interiors, bearing faint red and black lines. 11979-4, a bowl rim sherd, having a plain gray exterior

showing a thin wash of brown and a plain gray interior bearing brown lines.

Stone work includes: 11981-1, a crudely triangular, unnotched point,  $1\frac{1}{4}$  inches long; base width,  $\frac{1}{8}$  of an inch. 11981-2, fragment of a similar blade. 11981-3, a somewhat leaf-shaped point,  $1\frac{3}{8}$  inches long. All are gray flint. 11980, a red flint blade  $1\frac{5}{8}$  inches long,  $1\frac{1}{8}$  inches wide,  $\frac{5}{8}$  of an inch thick. The base is somewhat straight, possibly for hafting; the other end is worn diagonally, making a blunt surface  $\frac{1}{2}$  of an inch wide; elsewhere the edge is retouched to sharpness.

On the north side of Trachyte Canyon are several low rock shelters facing the river, under one of which was a masonry wall enclosing a low room about 8 feet in diameter. Nearby are several groups of

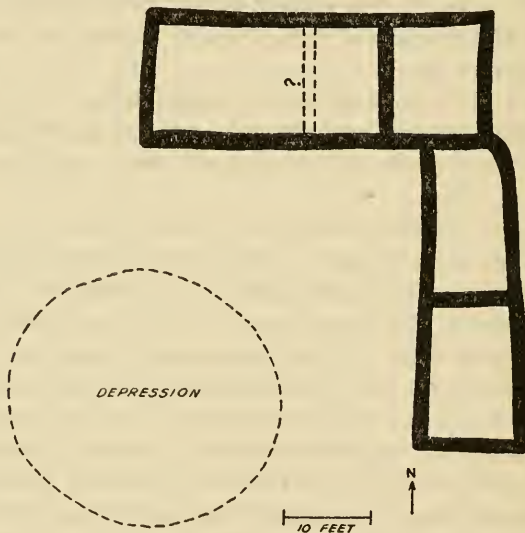


FIGURE 69.—Large ruin at Redd Canyon, site 4.

petroglyphs, some suggesting an early—possibly Basket Maker—style, others developed kachinalike anthropomorphs.

*Site 4, Redd Canyon* ("Red Canyon" on most maps).—Extensive flats along the Colorado at the mouth of Redd Canyon afforded possibilities of horticulture. A large ruin stands overlooking the river on the edge of a slightly higher plateau, about  $\frac{1}{4}$  mile north of Redd Creek (pl. 49, c, fig. 69). The main wing is 40 feet long, 15 feet 6 inches wide, and runs east and west. It contained two, possibly three rooms, and must have been two stories in height, for the northwest corner still stands 8 feet 1 inch high. The southern wing was apparently added later. It is 12 feet in average width, and 36 feet long, but only stood one story high as indicated by the smaller amount

of wall debris. Walls are 18 to 22 inches thick and of masonry similar to that in the large ruin, site 2.

In the angle of the two wings is a circular depression 30 feet in diameter and  $2\frac{1}{2}$  feet deep. Although a hastily dug exploratory trench failed to reveal walls or other features of construction, a kiva very likely existed there.

Under the ledge immediately below this ruin were several rooms built against the cliff, facing the river (pl. 51, *a*). There had been two, possibly three rooms, each two stories in height, for one wall still stands 11 feet 2 inches high and has the remains of three beams (probably cottonwood, one of which was collected) of the second floor at a height of 5 feet 6 inches. These walls are 18 to 24 inches thick and of fair masonry.

*Specimens from site 4, large ruin.*—Pottery, 11982, included: A corrugated ware like that at site 2 but having a temper of coarse quartz, chalcedony, and a dark, igneous rock; painted bowls with an interior slip varying from white to gray (a few had no slip) and decorated with black designs like those at site 2, except for a few sherds which had heavy, black designs resembling Kayenta styles; spherical ollas with short, recurving necks and black-on-white exterior decoration. Chipped flint included: 11984, the square butt of a white flint projectile point or knife.

*Specimens from site 4, cliff rooms.*—Pottery, 11985, included: A corrugated ware with paste like the last, but vessels which were extremely well made, with very regular coils which overlapped in shingle fashion more than is common, and with alternating bands of plain and crinkled coils, the crinkles being frequently exaggerated by pressing the depressions between them with the fingernail or a stick point (suggesting the "stick impressed" ware from Great Salt Lake); bowls of a fine paste tempered with chalcedony, bearing black interior designs on a finely crackled white slip or on a polished, unslipped gray. The designs are rather faint but in general resemble those at the large ruin.

Below Redd Canyon, the river canyon narrows. There are few stretches of arable river bottom and many of these are rendered inaccessible by the sheer cliffs which rise out of the river above and below them. It is reasonable to suppose that the Pueblo and Basket Maker Indians did not have such means of river transportation as to be able to reach them. No traces of aboriginal occupation could be observed from the boat at those few places which would have been suitable, although a cliff room reached by steps is reported from the vicinity of Bullfrog Creek which enters the Colorado 120 miles upstream from Lee's Ferry and another is stated to be near the river, 4 miles above Hall's Creek or just below the mouth of Bullfrog Creek. The greater part of a day was spent exploring the vicinity of Hall's

Creek (see site 10) but the deep gorges everywhere made it impossible to cover much territory.

*Sites 5 to 9.*—On the northwest bank of the river about 2 miles below Lake Canyon (111 miles above Lee's Ferry), where a few acres of tillable land parallel the river. Rolling sandstone domes, rising to 1,000 feet above the river, contain many caves, several of which have been occupied.

*Site 5.*—In the largest of these caves, opposite the middle of a long island. The only trace of occupation is a small levelled space with showings of charcoal and ash. The butt of a large, chipped flint point, 11935, notched slightly at the corners, was found here.

*Site 6.*—A long cave, well up on the cliff, containing several masonry structures. At its western end is granary A (pl. 49, *d*), built of a circular wall, 7 inches thick, which extends to the rock ceiling, 3 feet 6 inches above the floor in front. It has a door, 1 foot 4 inches wide and 24 inches tall with a stone lintel and sill; the sides of the door are coated with plaster (fig. 70, *c*). The doorway was covered with a neatly trimmed, rectangular stone slab. The cave floor has been levelled up by a retaining wall of crude masonry along the front of the cave. Twenty-nine feet east of granary A is a circular room built partly against the cliff, measuring inside 13 feet 4 inches across and 11 feet 6 inches from the cliff to the outside (fig. 70, *a*; pl. 50, *c*). This is semisubterranean although the walls in the front part extended several feet above the surface of the ground. Exactly opposite the cliff wall at the base of the house wall, is a ventilating opening 12 inches wide and 12 inches tall, the sides of which are formed of vertically set stone slabs (fig. 70, *b*), across which are sticks supporting a horizontal stone slab (fig. 70, *e*). This room was undoubtedly a kiva. A space about 14 feet long by 11 feet wide adjoining the kiva on the east was enclosed by a circular wall made up partly of stone slabs standing 3 feet 6 inches high and partly of masonry (pl. 50, *a*). There seems to have been a door in this about 8 feet out from the cliff wall; the remainder of the wall was made up of perpendicularly set slabs which have fallen. Twenty-two feet east of this room is a short wall running out 8 feet from the cliff, leaving a narrow passage between it and the retaining wall which ends here. Ninety feet east of this passage (telescoped in fig. 70, *a*) at the eastern end of the cave is granary B (pl. 50, *b*). It is semicircular, built against the cliff, and measures 4 by 6 feet. The door measures 18 by 18 inches and is built like that of granary A, except that the stone lintel rests on a horizontal stick (fig. 70, *d*).

*Specimens from site 6.*—Pottery, 11933, included: 5 corrugated sherds; 1 plain grey sherd having a fine paste and white (chalcedony?) temper; 1 red sherd having black designs outlined by white. Corn, 11930, included: 5 cobs  $2\frac{3}{4}$  to  $4\frac{1}{2}$  inches long having 8, 10, 12, 14, and 16

rows of kernels in pairs. Stone work included: 2 flat metates (fig. 71, *a*, *b*), each 11 inches long and 5 inches wide made of hard, coarse gray sandstone; 2 manos (fig. 71, *c*, *d*), each more or less rectangular in form and cross section, one being slightly grooved down each side for finger grips.

*Site 7.*—A small cave directly below site 6, having a small rectangu-

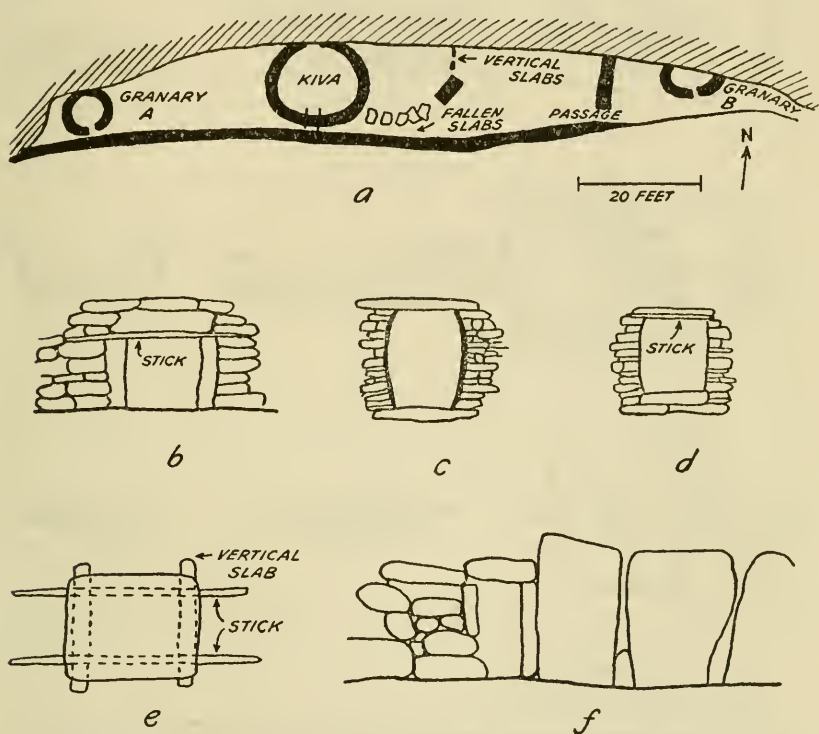


FIGURE 70.—Details of house structures at site 6 near Lake Canyon and site 22, Rock Creek.

*a*, Cliff rooms and kiva, site 6; *b*, ventilator in the kiva, site 6, near Lake Canyon; *c*, view from above of construction of ventilator in kiva, site 6; *d*, door to granary A, site 6; *e*, door to granary B, site 6; *f*, ventilator to kiva, site 22, Rock Creek, showing slab foundation to wall on right.

lar room, 9 feet 6 inches by 6 feet, scooped out of the earth on its steep floor. Ash beds occurred just under the floor surface.

*Specimens from site 7.*—Pottery, 11927, includes: Corrugated sherds of a light gray, tempered with fine, dark, igneous rock, 5 millimeters thick (one sherd is tan); bowl sherds of a fine reddish clay having a fine, chalcedony temper, well polished but not slipped, 4 to 5 millimeters thick, and painted with reddish brown designs. Stone 11928, includes: 4 very crudely chipped points like 11994, ranging from  $1\frac{1}{4}$  inches to  $2\frac{5}{8}$  inches in length,  $1\frac{1}{4}$  inches to  $1\frac{3}{8}$  inches in width, and one-half to three-quarters of an inch in thickness. They could

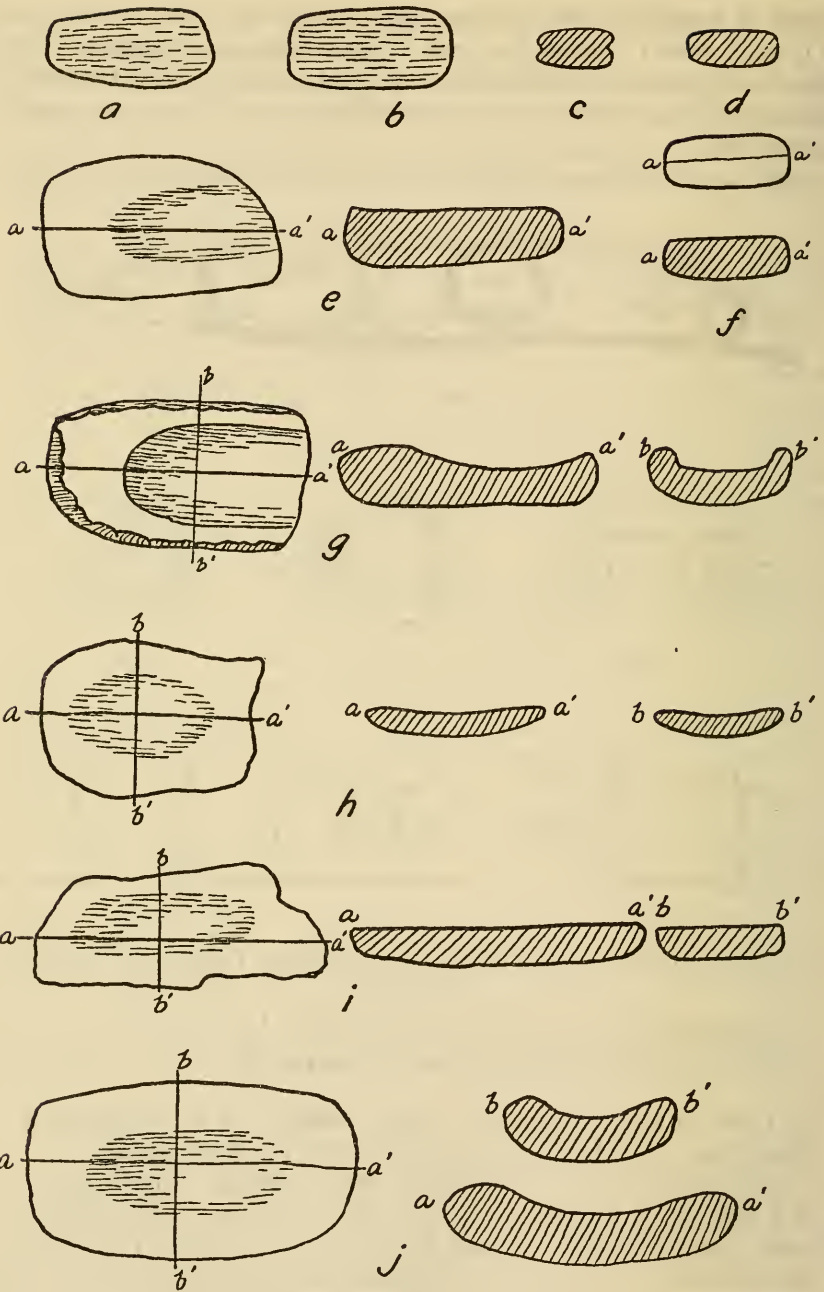


FIGURE 71.—Metates and manos or mullers, all drawn to same scale (*a* is 11 inches long).

*a, b*, Metates, *c, d*, manos, site 6, near Lake Canyon; *e*, metate, *f*, muller, site 9, near Lake Canyon; *g*, metate, site 11, near Escalante River; *h, i, j*, metates from site 22, near Rock Creek. The parallel hatched figures are cross sections through the metates and mullers.

not have been missile points and they show no wear as knives or scrapers. 11928 also includes 3 tips of what were probably arrow points and one rounded butt of an arrow (?) point.

*Site 8.*—A cave  $\frac{1}{2}$  mile east of the last containing on its western side traces of a very crude slab house 15 feet in diameter. A test pit produced one black-on-red sherd and a layer of grass at a depth of 6 inches, under which were 6 inches of ash. In the eastern part of the cave on an inaccessible balcony 20 feet high, were walls of both horizontally laid stones and vertically set slabs. A corrugated sherd was found just below this balcony.

*Site 9.*—Another large cave a quarter mile east of the last, containing the trace of a slab house. The pottery, 11936, is a curious ware of very fine, untempered, unbaked clay. Several sherds of the rim of a small, well-made olla with an orifice about 8 inches in diameter, were found here. The pot is too well made to have belonged to the early, unfired ware of the Southwest, and yet the clay and the fact of being unfired makes it totally unlike any known pottery of the Basket Maker or Pueblo peoples. Near the slab house occurred a sherd of corrugated ware. Specimens of stone included: 11938, a thick, crude, white flint point,  $1\frac{1}{4}$  inches long, with an irregular, unnotched base; 11939, the concave base of a very well made, triangular flint point the total length of which must have been about  $1\frac{1}{4}$  inches. 11940 is the fragment of a small corncob. A metate (fig. 71, *e*), was near the house. It was 16 inches long, about 4 inches thick, and had a slight concavity pecked out toward one end of the grinding surface. A muller (fig. 71, *f*) was 8 inches long, 4 inches broad, and 3 inches thick, rectangular in cross section and had been used on opposite faces for grinding. Both were of red sandstone.

*Site 10.*—A small cave just below the mouth of Hall's Creek. It contained the remains of a flint workshop but no artifacts.

Although caves are numerous along the river below these sites, few were accessible or near land which could have been farmed. Sites had been reported in the vicinity of the Escalante River, but attempts to explore this tributary were frustrated by a torrent brought down by a cloudburst.

*Site 11.*—"Hole in the Rock," the site of the crossing of Mormon pioneers headed for San Juan County. A perfect "Utah type" metate (fig. 71, *g*), was observed here, but as no other traces of aboriginal occupation were noted and as the location seems quite unsuited for a puebloan people, it is possible that the pioneers who spent some time in this locality had transported the metate from the western part of the State.

*Site 12.*—On the northern side of the river 2 miles below the mouth of the San Juan River. A huge cave contains traces of the walls of three circular houses, 12 to 18 feet in diameter, and two more or less

rectangular houses, about 9 feet square, built partly of vertically set slabs tilting outward and partly of irregular shaped, roughly piled stones (pl. 50, *d*). A rough wall across the top of the ascent to the cave was undoubtedly for defense. Near the circular rooms are three small storage bins built of both vertically set and horizontally laid stone slabs chinked with mud. Bin A (pl. 50, *f*), is 2 feet 6 inches in diameter, 16 inches high. It was built of horizontally laid stones on a large, flat rock, and was roofed with poles, straw, and adobe. Bin B (pl. 50, *e*), is rectangular, enclosed by four vertically set slabs, measures 27 inches by 32 inches, and is 22 inches deep. Bin C is like B, measures 18 inches by 20 inches and is 18 inches deep. All three had evidently been looted in aboriginal times.

Test pits in the houses and other parts of the cave yielded no artifacts except several basketry fragments, 11941. These are coiled, the foundation being flattened rods, one-sixteenth of an inch thick and one-eighth of an inch wide, and a small bundle. The coils are noninterlocking but stitches are sometimes split. There are 6 rods and 9 stitches per linear inch.

*Site 13.*—On the western bank of the river, about  $\frac{1}{2}$  mile south of the last, at the base of the cliff just north of a small, unnamed canyon. Walls of crudely piled stones, 1 to 2 feet high, enclose six different rooms.

*Specimens from site 13.*—Pottery, 11945, includes: A corrugated ware of coarse clay; black-on-white bowls with typical Kayenta designs, a sherd of which has the remnant of a handle; two sherds of black-on-red ware; one sherd black-on-unslipped white. Stone includes: 11949, fragments of projectile points including one with a notched base; 11943, an elongated pebble of greenstone probably used as a whetstone; 11944, a "throwing stone" of a type common on the Columbia river—a water-worn pebble, chipped so as to leave one end smooth; 11942, a more or less oblong mano,  $5\frac{1}{4}$  inches long,  $3\frac{1}{2}$  inches wide,  $1\frac{1}{8}$  inches thick shaped by pecking and used on opposite faces. 11948 is a corncob fragment.

*Site 14.*—This site, at the mouth of the first canyon entering the river from the east below Oak Creek, yielded a few sherds, 11950, including: A light gray, thin (4 millimeters thick) corrugated ware and a thin, highly polished but unslipped black-on-white ware reminiscent of Kayenta ware. 11951 is a thick, crudely chipped flint blade,  $2\frac{1}{4}$  inches long, like 11994.

*Site 15.*—A small cave (pl. 51, *d*), on the west bank about 1 mile above Aztec Creek and about 20 feet up the cliff, containing a rough masonry wall 4 feet high built to retain a levelled floor. Pottery, 11952, found below this included: Four sherds of a coarse, sand-tempered, plain, gray ware; one black-on-white sherd; one handle of



the semiloop variety used on Kayenta bowls. 11953 is the rounded butt of a small flint point.

*Site 16.*—The site comprises several masonry structures in the cliffs at the mouth of Aztec Canyon (leading up to Rainbow Natural Bridge). Three of these are shown in plate 51, *b*. That on the left is 4 feet 6 inches wide and stands 5 feet 2 inches high. Apparently a wall about 18 inches thick had been built on three sides of this and then the core filled in with rock, though this could not be ascertained without tearing down the structure. The central block is 2 feet 8 inches wide and stands 4 feet high. Six inches out from the cliff and 4 feet above the ground is a rectangular hole 7 inches wide and 4 inches high, running through the wall. The wall on the right is 4 feet thick and the outer part stands 6 feet 3 inches. The outer 4 feet 3 inches of this was apparently built as an isolated block and then later connected with the cliff wall. A large, tumbled block of masonry is just to the right of the last. These four structures could scarcely have been walls for rooms, but no other use can be suggested. West of these are three walls running out from the cliff, which probably enclosed three rooms. Just east of them is a large cave, part of the floor of which has been levelled off by building a crude masonry retaining wall. Fragments of what may have been a room evidently have been rearranged by white men.

Specimens had been pretty well removed from this site. Pottery, 11954, included: One corrugated sherd; five sherds of a plain gray ware with a coarse chalcedony and quartz temper; one black-on-red sherd with a finer paste.

A mountain sheep (?) pecked between two of the large masonry structures is one of the few petroglyphs encountered below site 4.

*Site 17.*—On a small flat on the northern side of Aztec Creek about  $1\frac{1}{2}$  miles upstream from the river. Here are two slab cists (pl. 51, *e, f*), one 3 feet, the other 2 feet 6 inches in diameter. The first is 2 feet, the second 14 inches deep; both have floors of slabs. Only sand and charcoal were found in them.

*Site 18.*—In Aztec Canyon just below the mouth of "Bridge Creek" where three or four rooms on a ledge under an overhang are demarked by low, very crude masonry walls. Artifacts comprise only one plain, gray pottery sherd and a few flint chips.

*Site 19.*—In "Bridge Creek" canyon,  $\frac{1}{4}$  mile east of the last. A wall 2 to 3 feet high had been built up to obtain a level place on a narrow ledge, about 5 feet wide and 15 feet long. Scarcely traceable stone walls divide off three rooms. Across the canyon are two more similar rooms.

*Site 20.*—A small cave in a canyon north of Rainbow Bridge. Two crude slab houses, about 12 feet in diameter, had been built against

the cliff wall. No artifacts were found and the site had been badly dug by pot hunters.

Aztec Canyon evidently had too little arable land to support a population of any size. The few sites there seem to have been hastily erected and only temporarily inhabited.

*Site 21.*—On the northern shore of the Colorado River about 2 miles below Klondike Bar. A cave contains a rough ring of stones, probably a house, but no artifacts.

From Aztec to Rock Creek there are no other signs of aboriginal occupation except occasional flint chips.

*Site 22.*—A cave on the western side of the river about  $\frac{1}{8}$  mile below Rock Creek, at the base of the cliff. A semicircular stone wall built against the cliff makes a room 13 feet long and 9 feet deep. The top of the wall was flush with the ground although originally it probably extended a foot or more higher. Excavation showed that the earliest floor to this room had been 5 feet deep, but that the structure had fallen, the older wall material on the floor had been levelled and a new floor made 18 inches above the other. The base of the western part of the wall was of vertical slabs (among them a large metate). The remainder of the western and all of the eastern wall were built of very crudely laid stone blocks which were untrimmed, uncoursed, and not even coated with plaster inside the room. At the base of the wall, opposite the cliff, was a ventilator demarked by vertical slabs on each side and one on top (fig. 70, *f*). It was 17 inches high, averaged 9 inches in width, and ran out an unknown distance. A bed of charcoal and ash 6 inches deep was on the floor about 2 feet from the ventilator, but no definite fireplace nor deflector had been built. Immediately outside the room was 3 feet of refuse which thinned to 1 foot about 10 feet away. It is probable that the room was originally, at least, semisubterranean.

*Specimens from the lower house level, site 22.*—Pottery, 11959, includes: Corrugated sherds; bowl sherds of an unslipped light gray ware bearing crudely painted black designs. All pottery is of a coarse, sand-tempered paste. 11957 is several squash seeds. 11956, fragments of gourd or squash rind. 11959, several small corncobs, one having eight rows of kernels. 11958, a hank of human hair. 11960, a fragment of a braid of human hair made up of nine strands, each strand being two-ply and twisted clockwise. 11962, two tips of chipped flint points. 11971, a more or less oval-shaped implement (scraper?) of chipped gray flint,  $2\frac{1}{8}$  inches long, 1 inch wide. 11972, two unnotched, more or less squared butts of two chipped points. 11967, bundle of twisted grass.

*Specimens from the upper house level, site 22.*—Pottery, 11969, includes: A light brownish or grayish corrugated ware of coarse paste and with rather irregular coils, some of which are crinkled; bowls of a

light gray clay, painted with narrow irregular lines on a polished but generally unslipped interior. One sherd is untempered, though baked, and may have been a small, unfired pot which was accidentally burned. 12004, ladle of mountain-sheep horn with a somewhat warped bowl,  $4\frac{1}{4}$  inches long,  $5\frac{3}{4}$  inches wide,  $2\frac{1}{4}$  inches deep, and a handle  $\frac{1}{2}$  inch in diameter and  $5\frac{1}{2}$  inches long, which bends back to form nearly a semicircle. 11973, the end of a sandstone mano,  $4\frac{1}{8}$  inches wide,  $\frac{3}{4}$  inch thick, with a rounded end; it had been used on opposite faces. 11968, complete corncobs which range from  $5\frac{1}{8}$  inches to 7 inches in length, with the exception of one which is only  $3\frac{1}{8}$  inches

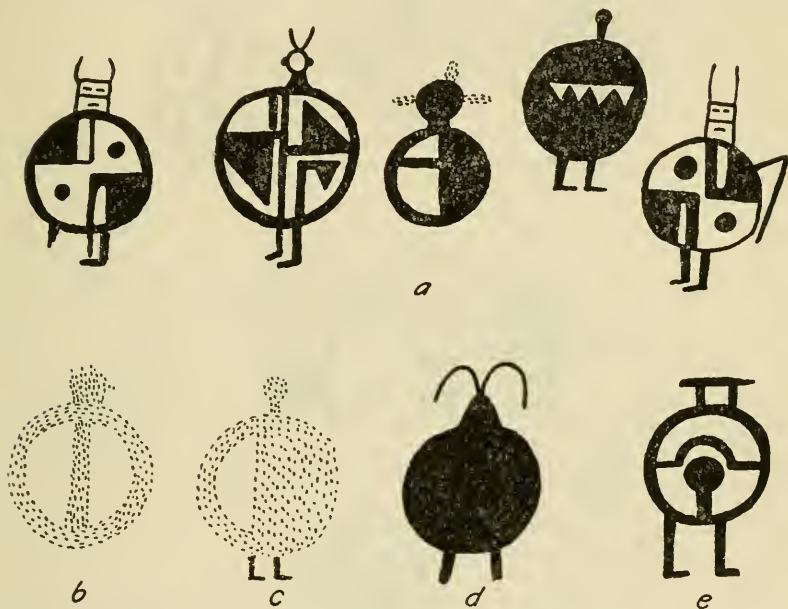


FIGURE 72.—Petroglyphs at site 2, White Canyon. Each figure is about 3 feet tall.

*a*, Natural group of 5 figures; *b*, *c*, very faintly pecked.

long; 2 have 12, 2 have 14 rows of kernels. 11970, several gourd fragments. A number of metates were observed but not collected (fig. 71, *h*, *i*, *j*). These and others are similar having a very shallow central basin entirely surrounded by a flat rim 2 to 3 inches wide. Some are shaped by pecking, like figure 71, *j*, which was set into the house wall as one of the foundation stones; others are irregular in outline. In figure 71, *h* is 16 inches long, 2 inches thick; *i* is 21 inches long, 3 inches thick; *j* is about 22 inches long, 4 inches thick and has an unusually deep basin as shown in the cross section. Two other fragments had no definite basin but were used over the entire upper surface. Only that in figure 71, *j*, was found inside the house.

*Site 23.*—On the San Juan side of the river. A fragment of a rectilinear petroglyph had been pecked against the cliff back of a long flat just below West Canyon Creek. The location, though seemingly suitable for native occupation, had no other traces of settlement, except a crude petroglyph of a horse, probably of Navaho or Ute origin.

*Site 24.*—Meskin Bar, 45 miles above Lee's Ferry, has much tillable



FIGURE 73.—Petroglyphs at site 2, White Canyon.

*a*, Natural group near house number 2; each figure 3 feet tall. *b*, Group south of large ruin; central figure is 34 inches tall. *c*, Anthropomorphic figure, snake, and circles form group near last; 44 inches tall. *d*, Lizard painted white, about 12 inches long.

land, but of several caves suitable for occupation, only one had been used. The floor had been levelled and showed traces of fire.

*Site 25.*—At the "Crossing of the Fathers." Only a single sherd of a plain, gray olla was found near Kane Creek.

*Site 26.*—At the mouth of Navajo Creek which flows in from the east 25 miles above Lee's Ferry. On a ledge in the cliff north of the creek is the remnant of a stone-and-adobe wall granary. Near this

was found the rim sherd of a flaring-mouth olla of pinkish clay. It was tempered with exceedingly coarse quartz particles which project

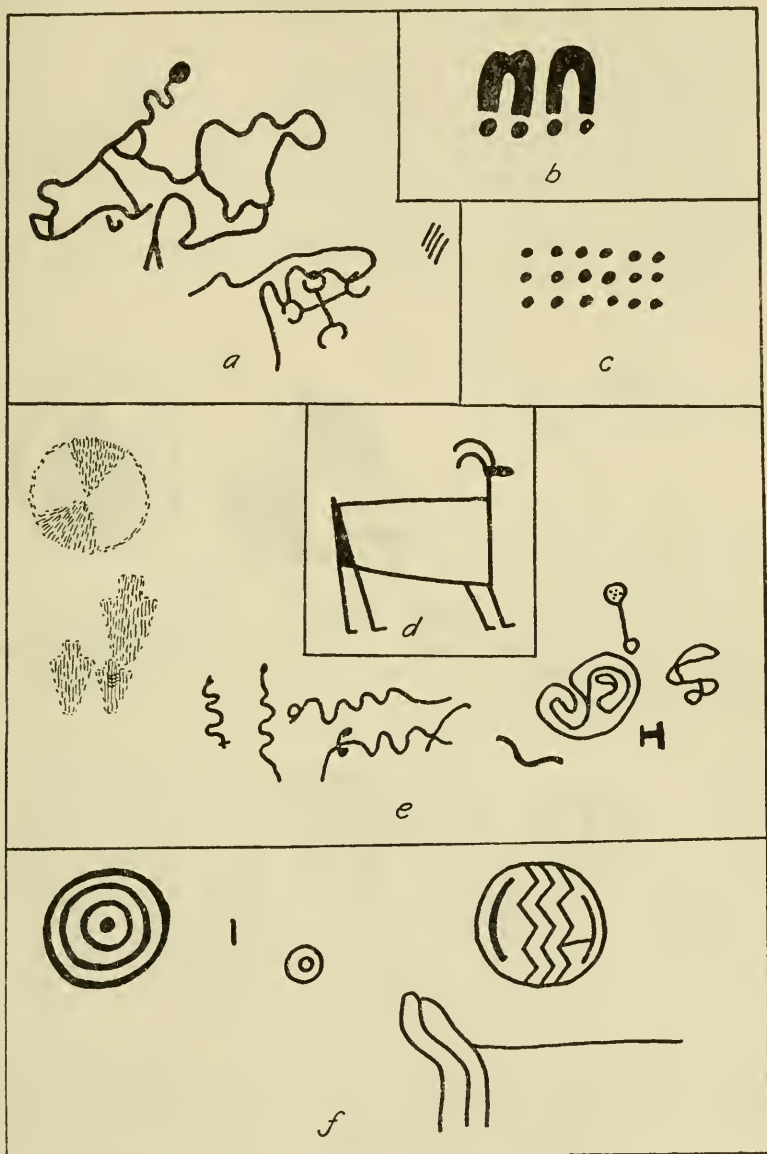


FIGURE 74.—Petroglyphs at site 2, White Canyon.

*a, e*, Curvilinear style.

through the surface of both sides of the sherd. Sherds from this vicinity, 11963, also included several of very light gray ollas which

were in form like corrugated ollas, but none of which were corrugated, and three bowl sherds of finer paste with black designs on a white slip. 11964 is a fragment of a polished "blade" of hard, gray, volcanic rock,  $2\frac{1}{4}$  inches wide,  $\frac{1}{2}$  inch thick with rounded edges.

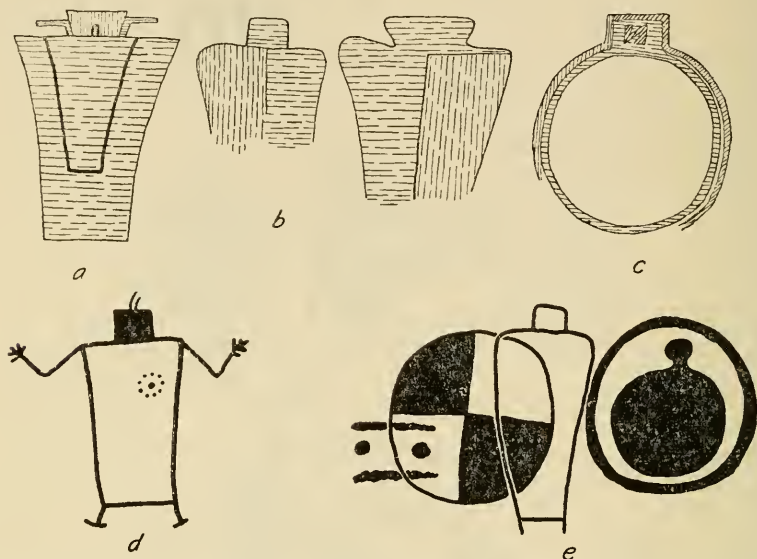


FIGURE 75.—*a, b, c*, Pictographs, and *d, e*, petroglyphs, at site 2, White Canyon. Horizontal shading, white; vertical shading, yellow; diagonal shading, red. Each figure is about 3 feet tall.

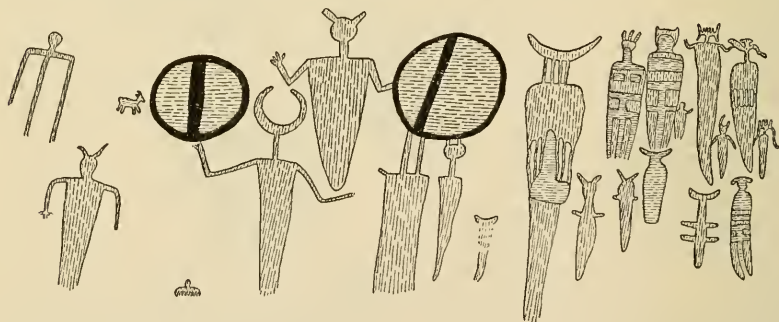


FIGURE 76.—Pictographs near Colorado River, on highway north of Moab, Utah. Natural group, largest figure being about 7 feet tall. Horizontal shading, white; vertical shading, brown; solid, black.

Sherds, 11965, marked the site of a camp or habitation on the southern side of Navajo Creek. Five are of corrugated ware made of a fine, firm paste; six are small fragments of a black-on-white ware suggesting Kayenta styles; one is a grayish brown-on-red. 11966 is a chipped-flint projectile point, corner-notched,  $1\frac{1}{4}$  inches

long and  $\frac{3}{4}$  inch wide. Pottery from this site in the possession of other members of the party includes plain cream colored and orange sherds which evidently are olla fragments.

*Site 27.*—This site comprises two caves on the western river bank just below the mouth of Wahweap Creek, 17 miles above Lee's Ferry. These show no traces of human occupation, however, except two petroglyphs of anthropomorphic figures with excessively large hands and feet.

*Site 28.*—Although there is much excellent farm land at the mouth of the Paria River, evidence of aboriginal occupation is suprisingly scant. On the northern side of the Paria River, about  $\frac{1}{2}$  of a mile from its mouth, however, is a ruin which has almost disappeared. Its



FIGURE 77.—Petroglyphs by highway bridge over Colorado River, near Moab, Utah.

Groups a and b about 30 feet up cliff; each figure about 10 inches tall. Group c on boulder near creek; group is 8 feet broad.

main wing runs east-west and is 50 feet long. A southern wing, 40 feet long, runs off from the western end of this. Pot sherds, 11974, were fairly abundant. Eighty-seven percent of 167 sherds gathered at random are corrugated. Corrugated ware is a brownish gray to light tan; some pieces show a coarse quartz temper, others are finely tempered. It is well made and varies from  $2\frac{1}{2}$  to 8 coils per inch. Nearly 90 percent of the sherds are crinkled in some degree. One sherd has, just under the rim, two tiny nobbs or handles,  $\frac{1}{4}$  of an inch apart, which project  $\frac{3}{8}$  of an inch. Of bowl sherds, five have a white interior slip bearing black designs, five have an interior slip ranging from bright orange red to deep, brownish red with black designs. Twelve sherds are plain gray. 11977 is a small, triangular white flint arrow point,  $\frac{3}{8}$  of an inch long,  $\frac{3}{4}$  of an inch wide across the base.

## PART 3. CONCLUSIONS

*The Johnson Canyon and Paria River region.*—Summarizing the data in the accompanying table, it is found that of 36 sites having only slab structures, 11 have early pottery (Paria gray and Basket Maker black-on-gray), 4 have transitional or overlapping pottery types, and 9 (and possibly 2 others) have late pottery types. Some of the last sites could belong to house groups of the late period which were not located or could mark minor encampments. Judging, however, by sites 39, 41, 42, and 72, which seem clearly to be slab-house villages and yet contain Johnson gray-tan, Johnson corrugated, and Tusayan black-on-white pottery, advanced ceramic styles reached the region before pueblo masonry architecture was used. Of 34 sites having masonry architecture, 31 had definitely late pottery (black-on-red, corrugated, Tusayan black-on-white, and Johnson gray-tan), although occasional early wares or features of early wares, especially design elements, survived into this phase.

TABLE 6.—*Cultural contents of sites*<sup>1</sup>

Site	Pottery	Masonry house cluster	Masonry cliff house	Slab structures	Metate type	Petroglyphs	Projectile type	Remarks
1.....	O	O	O	O	O	×	-----	
2.....	O	O	O	×	A	-----	-----	Transitional house.
3.....	E	O	O	O	-----	-----	-----	
4.....	L	O	×	O	-----	×	-----	
5.....	E	O	O	×	-----	-----	-----	
6.....	E	O	O	×	-----	-----	-----	
7.....	L	O	O	O	-----	×	-----	
8.....	O	O	O	(?)	O	O	-----	Crude stone house, cave.
9.....	T	×	O	O	O	O	-----	
10.....	E	O	O	O	A	-----	-----	"Hoes."
11.....	O	O	×	O	O	O	-----	Cave.
12.....	O	O	O	O	-----	-----	-----	Do.
13.....	E	O	O	O	-----	-----	-----	"Hoes."
14.....	×	O	O	O	-----	-----	-----	Do.
15.....	E	O	O	O	-----	-----	-----	Cave.
16.....	×	O	O	O	-----	-----	-----	
17.....	E(?)	O	O	O	-----	-----	-----	
18.....	L	×	O	O	-----	-----	-----	
19.....	E(?)	O	O	O	-----	-----	-----	
20.....	L	O	×	O	-----	-----	-----	Do.
21.....	E	O	O	O	-----	-----	A	
22.....	O	O	O	O	-----	-----	-----	Rock shelter.
23.....	L	O	O	O	-----	-----	B	
24.....	E	O	O	O	-----	-----	-----	
25.....	L	×	O	×	-----	-----	B	
26.....	E	O	O	×	-----	-----	-----	
27.....	O	O	×	O	-----	-----	A	
28.....	E	O	O	O	-----	-----	-----	
29.....	O	O	O	O	-----	×	-----	
30.....	L	O	O	O	-----	-----	-----	Cave.
31.....	L	O	×	O	-----	-----	-----	Cave, granary.
32.....	L	O	O	O	-----	-----	A	Cave.

<sup>1</sup> T, transitional pottery; ×, element present; E, early pottery; L, late pottery; A, B, metate types described on pp. 299-309; O, element absent.



TABLE 6.—*Cultural content of sites—Continued*

Site	Pottery	Masonry house cluster	Masonry cliff house	Slab structures	Metate type	Petroglyphs	Projectile type	Remarks
33	O	O	O	O				
34	E	O	O	O				
35	O	O	O	O	A			
36	T-L	O	O	O				Do.
37	L	O	X	X				Do.
38	O	O	O	O				Rock shelter.
39	L	O	O	X				
40	O	O	O	O		X		
41	T-L	O	O	X			A	
42	T-L	O	O	X	A			
43	O	O	O	O				Flint workshop.
44	L	O	O	(?)				
45	L	O	O	O	B			
46	L	O	O	O				
47	L	O	O	O				
48	L	X	O	X			B	
49	L(?)	O	O	X			B	
50	L	O	O	O	A			
51	E	O	O	X				
52	T	O	O	X				
53	L	X	O	X	A			
54	L	X(?)	O	X				
55	L	O	O	O				
56	L	O	O	X				
57	L	O	O	O				
58	T	O	O	X	A			
59	L	O	O	X				
60	L	X	O	X				
61	L	O	O	X				
62	L	O	O	O	A			
63	L	O	O	O				
64	L	O	O	O			A, B	
65	L	O	O	O			B	Sevier black-on gray associated.
66	(?)	O	O	O				Flint workshop.
67	E	O	O	O				Scattered sherds and flints.
68	E	O	O	O				Do.
69	E	O	O	O				Do.
70	E	O	O	O				Do.
71	E	O	O	X			A	
72	L	X	O	O			A, B	
73	L	X	O	X	B		A	
74	(?)	X	O	O				
75	(?)	X	O	X				
76	L	X	O	O			B	
77	E	O	O	X				
78	L	X	O	O				
79	L	O	O	O	B			
80	L	X	O	O			A, B	
81	T(?)	X	O	X				
82	L	X	O	X				
83	T-L(?)	X	O	X				
84	O	X	O	X				
85	L	X	O	O				
86	E	O	O	X				
87	E	O	O	X				
88	X	O	O	O				
89	X	O	O	X				
90	E(?)	O	O	X				
91	X	O	O	O				Cave.
92	L(?)	O	O	O				

TABLE 6.—*Cultural content of sites*—Continued

Site	Pottery	Masonry house cluster	Masonry cliff house	Slab structures	Metate type	Petroglyphs	Projectile type	Remarks
93.....	L (?)	O	O	O				
94.....	L	X	O	O				
95.....	L	X	O	O				
96.....	O	X	O	O				Slab and masonry.
97.....	O	X	O	O				Do.
98.....	L	X	O	O				
99.....	L	O	O	O	A			
100.....	E (?)	O	O	X	A			
101.....	X	O	O	X				
102.....	L	(?)	O	X				
103.....	L	O	O	X				
104.....	X	(?)						Scattered sites.
105.....	X	(?)						Do.
106.....	X	(?)						Do.
107.....	X	(?)						Do.
108.....	E (?)	O	O	X				
109.....	X	O	O	X	A			
110.....	L	X	O	O				
111.....	L	O	X	O		X		Granaries ?; special metate.
112.....	E (?)	O	O	O				
113.....	L							
114.....	X	X	O	O		O		
115.....	L	X	O	X				Burial in cist.
116.....	E	X	O	X				
117.....	O	O	O	O		X		
118.....	O	O	O	X				
119.....	L	X	O	X	A			Also burials.
120.....	L	O	O	X				
121.....	O	O	O	O		X		
122.....	L	X	O	O				
123.....	L	X	O	O				
124.....	L	O	O	X			A	
125.....	L	O	O	O			A	
126.....	L	O	O	X				
127.....	O	O	O	O	B			
128.....	O	O	O	O		X		
129.....	X	X	O	O				
130.....	O	O	O	O		X		
131.....	L	O	X	O		X		
132.....	O	O	X	O		X		
133.....	O	O	O	O		X		
134.....	X	O	O	O		O		
135.....	X	O	O	O		O		
136.....	X	O	O	O		O		
137.....	L	X	O	O				
138.....	O	X	O	O				
139.....	E (?)	O	O	O				Rock shelter.
140.....	L	O	O	X				
141.....	O	O	O	O		X		
142.....	L	O	X	O				Basket Maker metate.

The cultures encountered in the Johnson Canyon and Paria River region fall into the following chronological order:

1. *Basket Maker*.—Although there is little evidence of this in the Johnson Canyon and Paria River region, it is well represented in DuPont Cave (Nusbaum, 1922) and in other caves, dug by ranchers in the vicinity of Kanab.

2. *Basket Maker slab-house culture (Derived Basket Maker)*.—This is characterized by slab houses and cists, arranged in small clusters and by "early" pottery—Basket Maker black-on-gray and Paria gray.

3. *A transitional period of uncertain nature*.—Late pottery types are appearing. Masonry is added to slab houses and perhaps to pit houses as at site 2.

4. *Pueblo culture*.—Houses are of coursed masonry, in caves or on knolls near washes. The most standardized and probably latest arrangement is half a dozen rooms forming a semicircle on the northern side of a kiva (?). No extensive amalgamation of these "units" into larger villages is observed. Slab cists and possibly houses accompany these clusters. No doubt slabs are occasionally used in masonry houses. Pottery wares are Tusayan (Virgin) black-on-white, Tusayan black-on-red, Johnson gray-tan, Johnson corrugated, with occasional intrusions of outside wares, such as North Creek black-on-white from the west (?), Sevier black-on-gray from the north. The metate is rectangular, having either an oval or, more commonly and perhaps later, a rectangular grinding basin.

Although Hayden (1930) claims Pueblo III pottery in southern Nevada, the writer knows of no trait in the Johnson Canyon-Paria River region which can be attributed to influence from Pueblo III of the San Juan cultures. In fact, he regards skeptically the occurrence of any such influence farther west. This does not, of course, provide proof that the latest cultures of these regions may not have been in part contemporary with the San Juan Pueblo III. It does, however, demonstrate that the latter had become less liberal in its contributions to neighboring areas by this time.

The number, size, and distribution of the various sites indicate appreciable ecological changes from period to period. Of 109 sites which can be dated by pottery or architecture or by both, 11 have slab structures and early wares, 14 early wares only and 4 slab structures only (the last, may, of course, be later), a total of 29 Basket Maker sites. Thirty-one have masonry structures and late wares, 10 masonry structures only, and 21 late pottery only, a total of 62. Add to this 11 slab sites with late pottery and the total is 73 late sites, or more than twice as many Pueblo as Basket Maker sites. The late sites, moreover, are generally larger than the early ones. Very rough calculations of floor space of all structures combined at slab-structure site 41, probably the largest of its kind, give 285 square feet, and at site 39, also unusually large, 234 square feet. The masonry house site 82, perhaps the largest, had a total of 665 square feet in rooms and cists, site 48 had 643 square feet, site 53 had 401 square feet, site 72 had 379 square feet, and many others are of equal size. Although later quarters may have been relatively more luxurious, a marked population increase is indicated, a doubling at least. This, no doubt,

was coupled with increasing importance of horticulture. Pueblo migrations may also have contributed to the increase; only skeletal material can settle this.

The distribution of early and late sites is shown in figure 64. A slightly greater proportion of Basket Maker sites in the northern and western portions of the area may correlate with greater importance of hunting to the culture. This possibility could perhaps be checked by a study of the distribution of game in the region and the mammalian remains in the sites.

Puebloan sites are naturally found in or near fertile canyon bottoms, but there is a surprising number of masonry houses variously situated on mesas, remote from present water sources. There were, in fact, few localities, however uninviting, that did not yield sherds, flints, and other evidence of human occupation.

*Glen Canyon.*—Although archeological evidence from this section of the Colorado River is very scant, a few positive conclusions appear permissible.

First, the river canyon and the neighboring terrain were too rugged and too limited in farming possibilities to attract any great number of agricultural people. Of nonagricultural people, there is no certain evidence. The Ute are known to have inhabited it very sparsely in recent centuries. Evidently its population was always sparse.

Second, most of the region cannot be definitely assigned to any geographical divisions of the Anasazi area. Comparison of these sites with those of other sections is somewhat handicapped by the scarcity of minor antiquities. It seems certain, however, that this region did not provide a source for the typical Northern Peripheral culture which was strongly implanted on the Fremont River (Morss, 1931) only a short distance to the north. Rather, it was a cultural depression into which influence had trickled from various directions. Some petroglyphs, especially at site 1, are definitely related to those of the Northern Periphery. Ceramic styles, however, affiliate it with both Mesa Verde and Kayenta more than with the north and west. Architecture also is San Juan and shows some influence even of the Great Period Pueblo which found here its northern limit.

In short, it appears mainly to have been a kind of no-man's land which had been very slightly settled by outposts from both Mesa Verde and Kayenta and which had come into contact with the Northern Periphery but had not strongly influenced it. Farther south, however, toward the Arizona border, the sites increasingly resemble those of the Kayenta district and of the Johnson Canyon-Paria River district, to which they are geographically contiguous.

*Summary.*—It had been hoped that these surveys would throw some light on one of the outstanding problems of the Northern Periphery—the problem of where the Basket Maker and Pueblo

cultures blended prior to their diffusion to the north. This survey seems to eliminate the regions under consideration.

The region east of Kanab in southern Utah is not related to the Northern Periphery. It is rather a part, both geographically and culturally, of the Lower Colorado Plateau, that is, the area of southwestern Utah and northwestern Arizona. Whereas the Northern Periphery had no Basket Maker as distinct from Pueblo culture, development on the Lower Colorado Plateau followed closely the San Juan sequence, showing strong Tusayan influence which is most recognizable in ceramics. Moreover, the cultural inventory of southern Utah does not correspond with that of the Northern Periphery, indicating that there was little contact between the two areas. The former lacked the "Utah type" metate, elaborate anthropomorphic clay figurines, and petroglyphs, stone balls, "Fremont moccasins," gaming (?) bones, and such ceramic features as stuck-on decoration, all typical of the north. The Northern Periphery, on the other hand, lacked such local features as ceramic styles, the turkey, developed kivas, and elaborate textiles.

Only two elements indicate a possible connection between the north and south: Sevier black-on-gray pottery and the jacal pit lodge. The former, which is scarce at Northern Peripheral sites in eastern Utah but very abundant in western Utah, may have originated in this area where, though it is not abundant, it seems to have been a trifle earlier than in the north. The jacal type pit lodge of the extreme north had been assumed to have come from the jacal type of the Early Pueblo culture of southwestern Colorado. It is conceivable, though unlikely, that it was an independent adaptation of shallow slab houses. Such slab houses are common in southern Utah and, though little is known about house types throughout eastern Utah, they appear again in Nine Mile Canyon in northeastern Utah (Gillin, 1938).

Present evidence also eliminates eastern Utah as the source of the Northern Peripheral culture. Like southern Utah, the region south of the Fremont River in eastern Utah lacks the specific northern traits, with a few minor exceptions, and is related instead to the San Juan area. If it contributed at all to the north, it was in passing on masonry architecture which marks the second phase of the Northern Peripheral culture.

It appears at present that the source of the original Northern Peripheral culture should be sought in western Colorado or extreme eastern Utah, a region which is virtually unknown archeologically.

It should also be added that to date central and southern Utah has not yielded a trace of the Promontory culture. This is a hunting culture, using the bow and making a distinctive pottery and is found

only in the Salt Lake basin. Negative evidence from other parts of Utah supports the belief based on the nature of this culture that it is of northern origin.

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*a*, Slab-lined floor and walls of pit house A, masonry walls showing above.

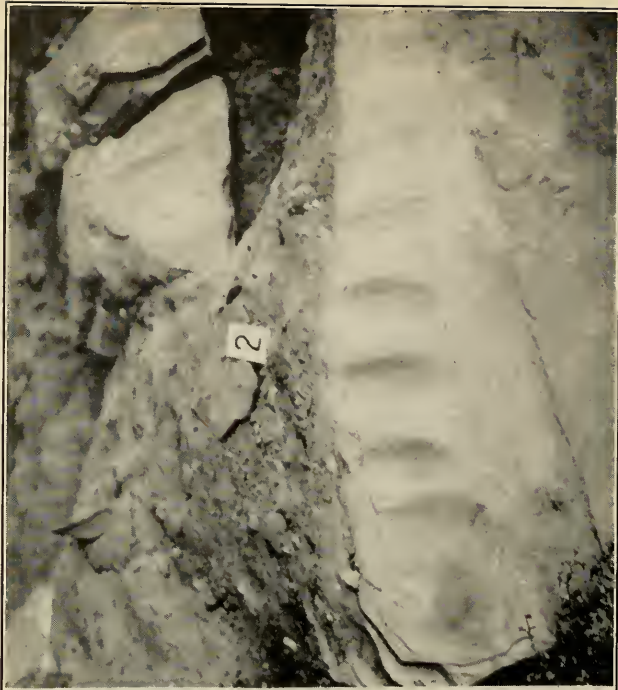


*b*, Section of house B wall.

SITE 2. MOLLY'S NIPPLE CANYON.



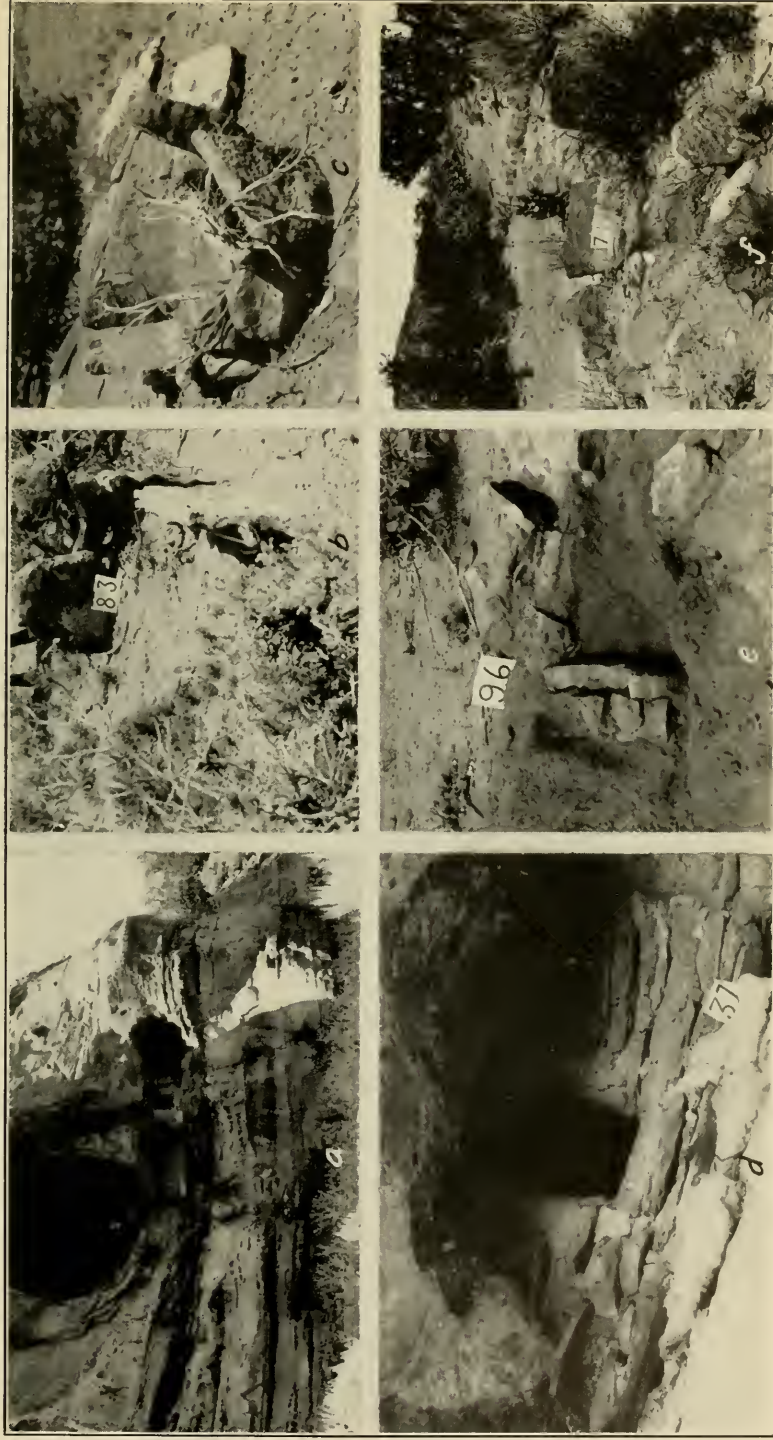
*a*, House A, doorway in foreground.



*b*, Rubbed grooves in rock.

SITE 2, MOLLY'S NIPPLE CANYON.



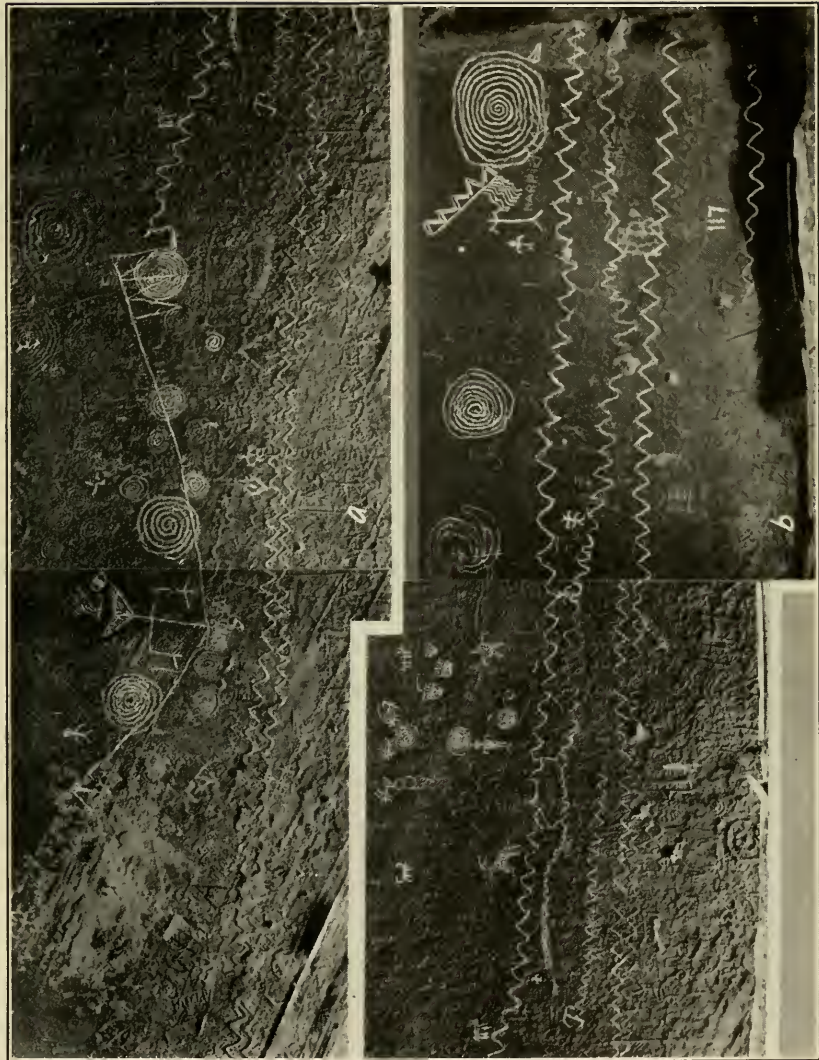


## MASONRY CLIFF HOUSES AND SLAB STRUCTURES.

*a*, Masonry cliff house, site 18, Nipple Spring. *b*, Slab structure, site 83, Clark Canyon. *c*, Typical slab cist. *d*, Masonry cliff house, site 37, Kitchen Canyon. *e*, Masonry wall surrounding slab structure, site 96, Seaman Canyon. *f*, Slab circle, site 71, near Wildcat Canyon.

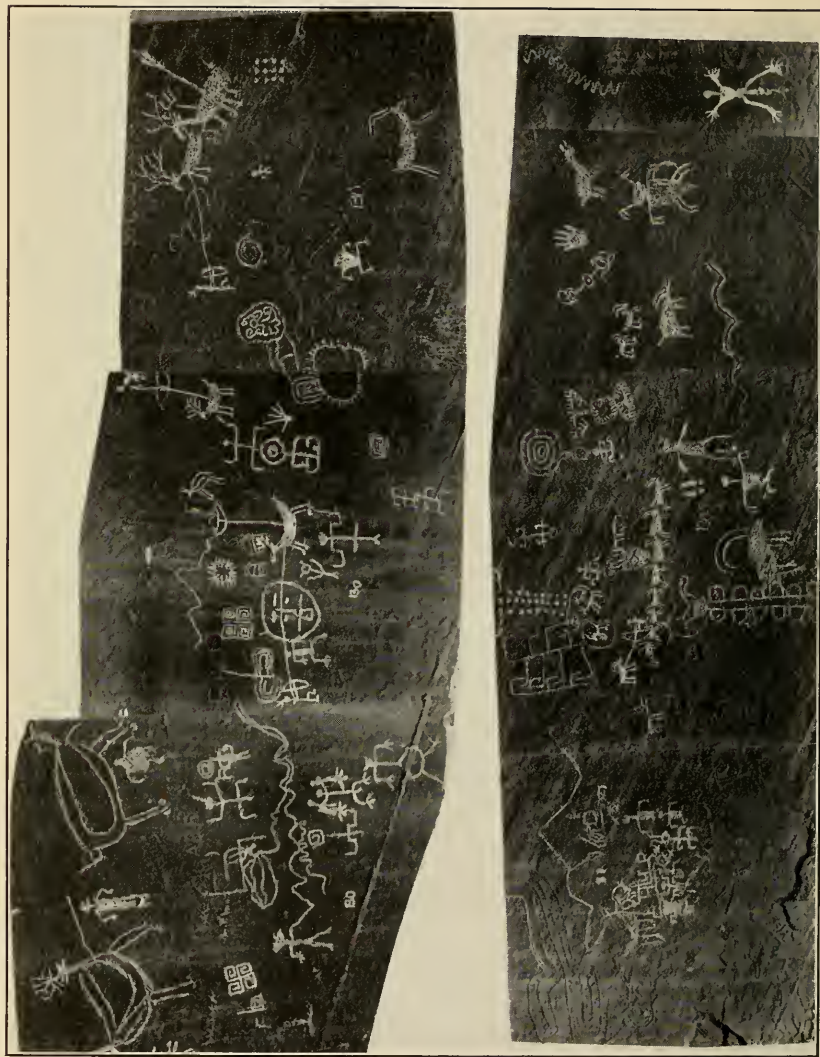


PETROGLYPHS AT SITE 117, JOHNSON CANYON, CHALKED.



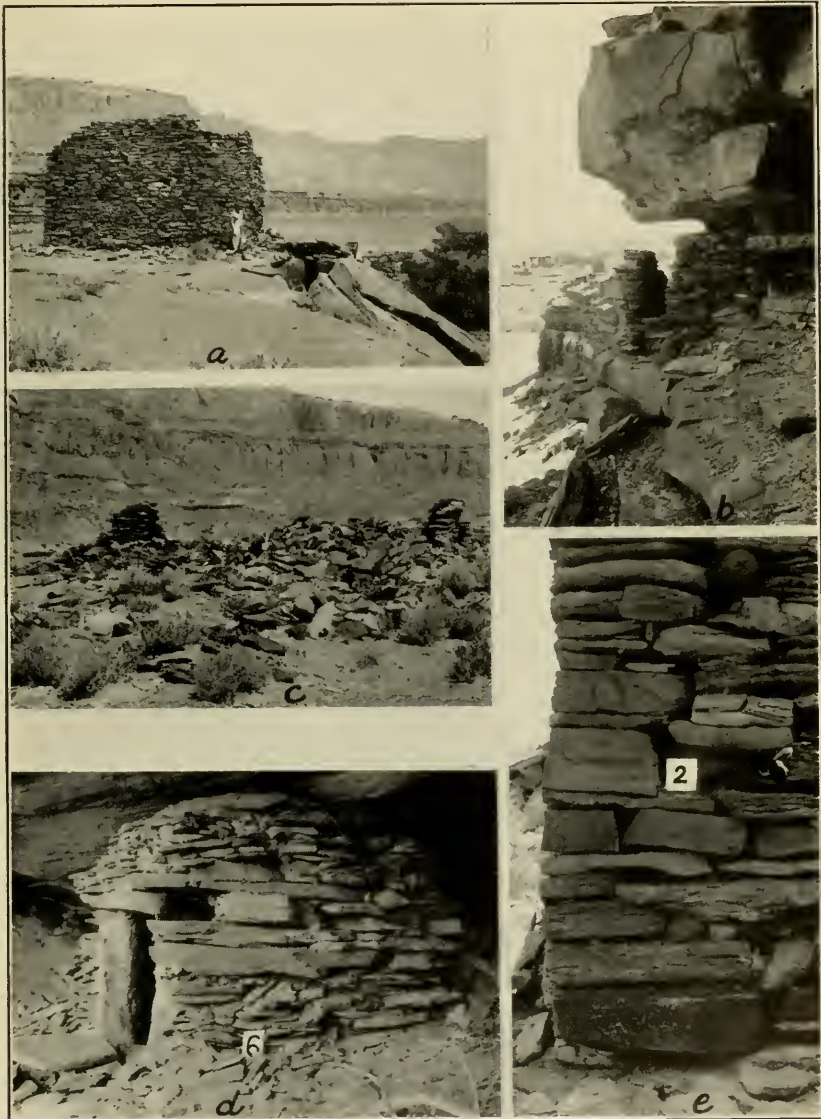
PETROGLYPHS AT SITE 117, JOHNSON CANYON, PARTIALLY CHALKED.

*a* and *b* form a continuous panel, left to right.



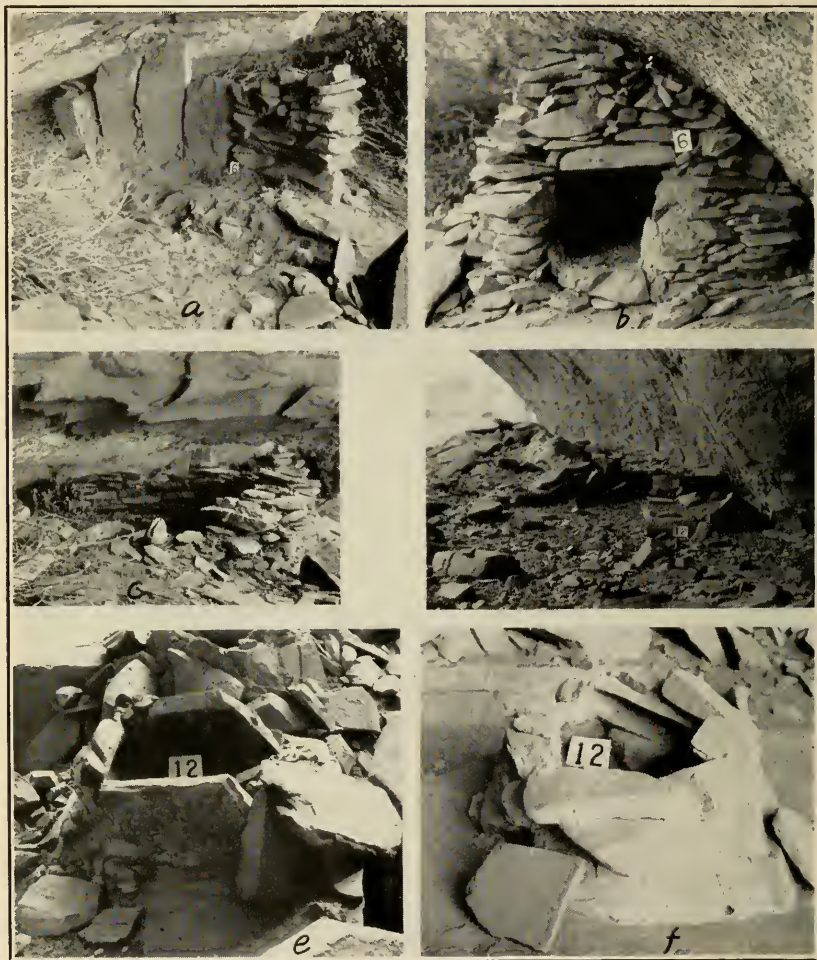
PETROGLYPHS AT SITE 130, OAK CANYON, PARTIALLY CHALKED.

These form a continuous panel, left to right, about 30 feet long.



## HOUSE RUINS.

*a*, Large house, site 2, White Canyon. *b*, Cliff house south of large ruin, site 2. *c*, Large ruin, site 4, Redd Canyon. *d*, Granary A, site 6, near Lake Canyon (door is on ground in front of doorway). *e*, Detail of masonry of large ruin, site 2.



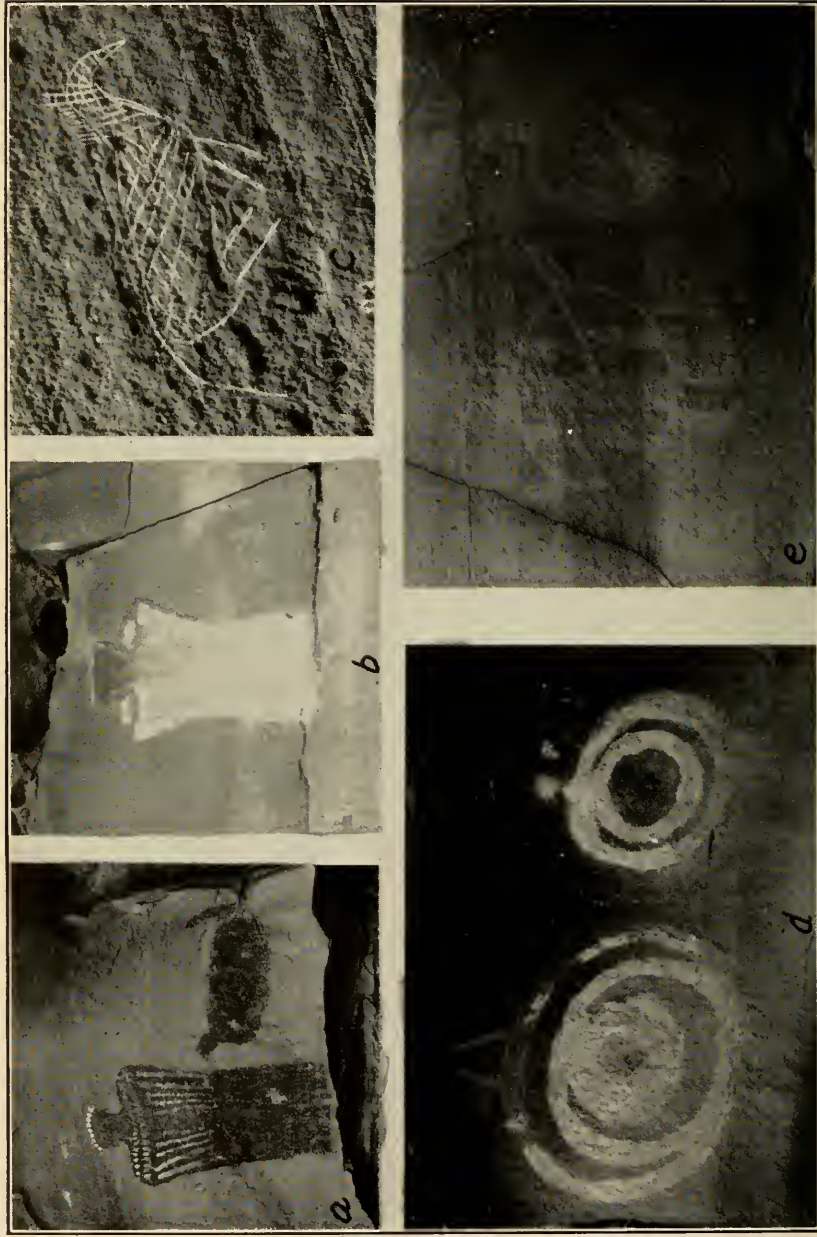
## SLAB AND MASONRY STRUCTURES.

- a*, Slab and masonry wall, site 6, near Lake Canyon. *b*, Granary B, site 6. *c*, Kiva, site 6.  
*d*, Crude house walls, site 12, below San Juan River. *e*, Bin B, site 12. *f*, Bin A, site 12.



## HOUSE TYPES.

*a*, Cliff house, site 4, Redd Canyon. *b*, Masonry walls, site 16, Aztec Creek. *c*, Semisubterranean house or kiva, site 22, Rock Creek. *d*, Cave with wall and leveled floor, site 15. *e*, *f*, slab cists, site 17, Aztec Creek.



PICTOGRAPHS AND PETROGLYPHS.

*a*, Pictograph in red and white, North Wash; *b*, *d*, pictographs, site 2, White Canyon; *c*, petroglyph, site 23, West Canyon Creek; lines are chalked.