THE SAWMILL SITE

A RESERVE PHASE VILLAGE

PINE LAWN VALLEY

WESTERN NEW MEXICO

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FIELDIANA: ANTHROPOLOGY
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Preface

The Sawmill Site (formerly referred to as the Fox Farm Site [Martin, Rinaldo, and others, 1952, p. 9]) is located in Pine Lawn Valley in the Apache National Forest near Reserve, Catron County, west central New Mexico. During the 1951 and 1952 Chicago Natural History Museum Southwest Archaeological Expeditions, a large kiva or ceremonial room and part of the masonry pueblo were excavated under my supervision. In 1954 Mrs. Eloise Barter directed further testing in the pueblo in order to obtain more data on the age of the structure. All the work was carried on under a permit issued to Chicago Natural History Museum by the Forest Service, United States Department of Agriculture, and with the permission of Mr. George Sisemore, tenant in 1951, and Mr. Emil Rothlisberger, Jr., tenant in 1952 and 1954.

I wish to thank President Stanley Field, the Board of Trustees, and Colonel Clifford C. Gregg, Director, whose interest and co-operation made the work possible. I am grateful to Dr. Paul S. Martin, Chief Curator of the Department of Anthropology and Director of the Southwest Archaeological Expeditions, and Dr. John B. Rinaldo, Assistant Curator, Archaeology, for their advice and encouragement during the excavation and analysis of the material; to Mrs. Eloise Barter for supervising the 1954 excavations; and to Miss Lillian Ross, Associate Editor, Scientific Publications, for assistance in preparing the manuscript.

The work could not have been carried on without the assistance of the following members of the camp staff: Miss Elizabeth Morris, Mr. Arnold Besser, and Mr. Stanley Jones in 1951; Mr. W. T. Egan, foreman, Miss Vivian Broman, Miss Marjorie Kelly, Mr. Alain Petit, Mr. David Mabon, Mr. Wayne Gaines, and Mr. E. D. Hester in 1952; Mr. Dudley Thomas and Mr. George Dunham in 1954; and Mrs. Martha Perry, cook. Thanks also are due the men of Reserve who dug for us: Messrs. Clyde Jones, Juan S. Armijo, Michael Snyder, Wayne Spurgeon, Abe Jiron, William Menghis, and John Menghis. Mr. J. R. Clarke, of the Moraine Box Company, cut down the trees growing in the kiva and thus simplified our excavation problems.

Photographs of the site were taken by Mr. Thomas P. Alder. Surveying was done by the author, but the site maps and plans, as well as the charts,

were drawn by Mr. George Thompson and Mr. Philip Young. Animal bones recovered from the site were identified by Mrs. Dorothy Foss, osteologist, and rocks and minerals were analyzed by Dr. Robert Wyant, Curator, Economic Geology, of the Museum staff.

Elaine A. Bluhm

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FIG. 1. Map showing location of Pine Lawn Valley and other Mogollon sites with large rectangular kivas.

I. The Sawmill Site

LOCATION

(Figure 2)

The Sawmill Site (referred to as the Fox Farm Site by Martin, Rinaldo, and others, 1952, p. 9) is located in Pine Lawn Valley (Sec. 14, Twp. 7 S., Range 20 W.), near the town of Reserve in Catron County, west central New Mexico.

Mr. Brigham Arnold first reported the site during an archaeological survey for the Museum in 1940. It was referred to as Site no. 7 (Martin, 1943, pp. 257–258), and was described as a Type 3 or Small Pueblo site, including, in addition to the pueblo, a large "circular depression about 40 feet in diameter and four to five feet in depth at the center" with masonry walls. Sherds collected from the surface indicated it was one of the late sites in the valley.

Excavation and further study have revealed a rectangular ceremonial room with an L-shaped pueblo of perhaps 8 or 10 rooms on the west side. The village is located on the edge of the mesa on the east side of Dry Leggett Arroyo. People in the area say that the arroyo was a running stream throughout the year as recently as 75 years ago, and during the 1952 season it ran until mid-August. South of the site Arnold located a spring which supplied water for a small fox farm located on the land in the 1930's. Level land to the north and east of the kiva would have been suitable for agriculture at the time the site was occupied.

METHOD OF EXCAVATION

Excavation of the large ceremonial room was begun in June, 1951. A line, oriented 25° south of east was extended across the depression, beginning well outside it on the west side. After stakes were driven in at 5-meter intervals along the line, a test trench 1.8 meters wide was begun. The test trench extended from 5.5 meters west of the west wall to the east wall. When both these walls had been located the trenches were turned south until the south wall was encountered. In 1952 the trench along the east wall was extended to locate the north wall of the structure.

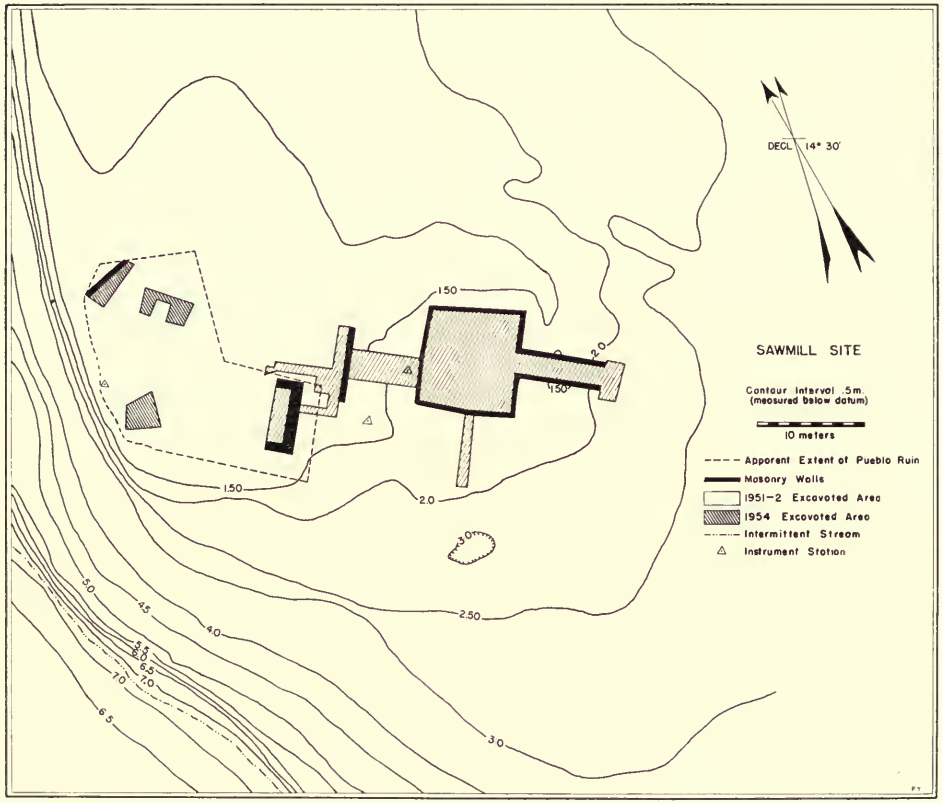


FIG. 2. Map of Sawmill Site, showing kiva, pueblo, and excavated areas.

Fill inside the kiva was removed in three stratigraphic layers: (1) humus layer, from 15 to 20 cm. of loose soil and leaf-mold containing very few sherds and artifacts; (2) fill layer, varying from 20 cm. in thickness in the center to 45 cm. thickness near the west wall and containing dark brown soil, sherds, stone artifacts and near the walls many rocks apparently once part of the upper part of the kiva wall; and (3) floor layer, the 15 cm. of dark brown soil with sherds and artifacts found on the floor above the sterile yellow clay.

The interior of the structure was divided into blocks with a grid, for convenience in excavating and later mapping. Sherds and tools from these units were catalogued and analyzed separately, and when no significant differences were found the material was combined.

During the 1951 season the soil from the test trench and part of the section south of it was removed. At the end of the season part of this fill was put back to protect the walls and floor during the winter. Before resuming digging in June, 1952, all of the trees inside the structure were cut down. Then the protective fill, replaced the year before, was removed and the task of cleaning the room completely was resumed.

Because of the size and depth of the structure, the problem of removing the fill, including many large rocks, was a difficult one. One section of fill was left in place as a wheelbarrow ramp until all the rest had been removed, and the final section was removed through the ramp entrance. Most of the fill layers and all of the floor layers were screened in a screen built over the dump pile. The screen box was built with roller-skate wheels which ran on a wooden track. This made the screening process much easier and faster.

During the course of excavating the ramp entrance a curious structure of recent but unexplained origin was encountered. As we were removing soil from the inner end of the entrance passage, a wooden box with concrete inside was encountered 0.7 meter in from the inside end of the entrance and 30 cm. below the surface (70 cm. above the entrance floor). The box was actually the end of a wooden flume that extended for 2 meters to a concrete dam 10 cm. thick, 90 cm. high and 2.5 meters wide, and then extended beyond the dam for 2 meters. When the dam was placed across the entrance, it was probably the only low place in the earth banks around the depression. The construction of the dam in no way disturbed the aboriginal features of the room, for it did not go deep enough to disturb the floor of the entrance and it was built to fit within the masonry walls on either side of the entrance. It would seem that someone had wanted to use the depression as a tank, but we could not discover when the dam was built.

While troweling the floor of the kiva, along the south wall, we found postholes which extended half way under the wall. Later, similar features were found under the east wall, in the west end of the north wall, and along the entrance walls. After excavation of the kiva was complete, part of the north wall was removed and similar postholes were found there, completely covered by the later masonry. Apparently the room had once had walls of posts placed at intervals, perhaps with branches and adobe in between, although no evidence of the latter was found.

The early pits or postholes along the west wall (fig. 3) may have represented some of the postholes for the back wall of the first structure. The only evidence suggesting this is the fact that as they were cleaned out, there was dark fill below light yellow fill in each case. This could have resulted if the pit in which the structure was built had been enlarged on the west side, and if some of the fill dug out during that process had fallen or had washed on top of the old postholes.

When the large room was completely cleared, the initial test trench was widened and extended back toward the pueblo. Parts of two pueblo rooms were excavated there. At the end of the test trench about at the 0 stake, a wall was encountered, which apparently represents the base of a wall of a room (Room A) abandoned before the pueblo as a whole was deserted. Only the one wall was found, although study of the profile of the test trench indicated where the opposite side of the room probably had been located. The second room (Room B) was the room closest to the ceremonial room inside the pueblo. About half of this room was cleared. Fill and floor layers in Room B were removed as one unit. Postholes were uncovered in the floor of Room B and also in the floor of the test trench east of Room A and outside the kiva.

Another trench, 6.5 meters long, was dug south of the kiva to gather additional evidence about the construction of the kiva.

In the summer of 1954 it was decided to return to the site and test some rooms at the other end of the pueblo in order to obtain a larger sherd collection from the pueblo and to determine, if possible, whether one part of it was occupied much later than the other. Two pits were sunk in the north end of the pueblo, designated as Rooms C and E, and one along the arroyo to the west, referred to as Room D (fig. 2). No wall was found at the west side of Room D, and it seems likely that the wall there has been washed away by the arroyo. Time did not permit digging a trench connecting Rooms C and E; however, there appeared to be a ridge of rock between the two, so they are regarded as two rooms rather than parts of a large one.

Careful excavation revealed two floor levels in Rooms C and D and perhaps three in Room E. Postholes were located in the lower floors in Rooms C and D, and a firepit was encountered in floor 1 of Room D.

II. Architecture

THE KIVA

(Figures 2–7)

Construction: A large rectangular pit ca. 1.5 meters deep, with slightly outward-sloping walls, dug into basic yellow clay subsoil. Earth from pit piled up around the sides to depth of perhaps 45 cm. (Feature 1, fig. 7).

Shape: Rectangular.

Dimensions: Early post structure: length, 10.5 meters; width, 7.2 meters(?).

Late masonry structure: length, 10.5 meters; width, 8.7 meters.

Walls: Early post structure: posts set at intervals around walls (interstices may have been filled with plaster and brush).

Late masonry structure: rough masonry of unshaped unsorted boulders, similar to those found in arroyo, and occasional mano and metate fragments; boulders set in adobe clay mortar with sherds included. Quality of masonry varies from place to place in wall (fig. 6). No direct evidence of plaster, but mass of adobe clay near base of wall suggested that surface was once heavily coated.

Wall thickness, 20–50 cm.

Standing height, 1.0–1.5 meters.

Probable room height (estimate based on fallen rock inside kiva), 2.5 meters.

Entrance: Ramp to the east, lined with posts set at intervals in early structure; later masonry-lined. Entrance oriented 40° 50′ south of east.

Length, 8.2 meters.

Width at inner end, 2.1 meters; at outer end, 1.8 meters.

Incline rises at average of 5°–7°, abrupt short slope at inner end (fig. 4).

Floor: Plastered, thin coat on native clay. Two floor layers 6 cm. apart in some places; upper floor level seems to coincide with bottom of rock wall along east side of kiva.

Posts: Posts in three large postholes on long axis and two large holes on either side of entrance on east side may have been main roof supports. Large rocks in three central postholes probably used to support posts. Postholes 0.10 to 1.0 meter in diameter at intervals along walls and en-

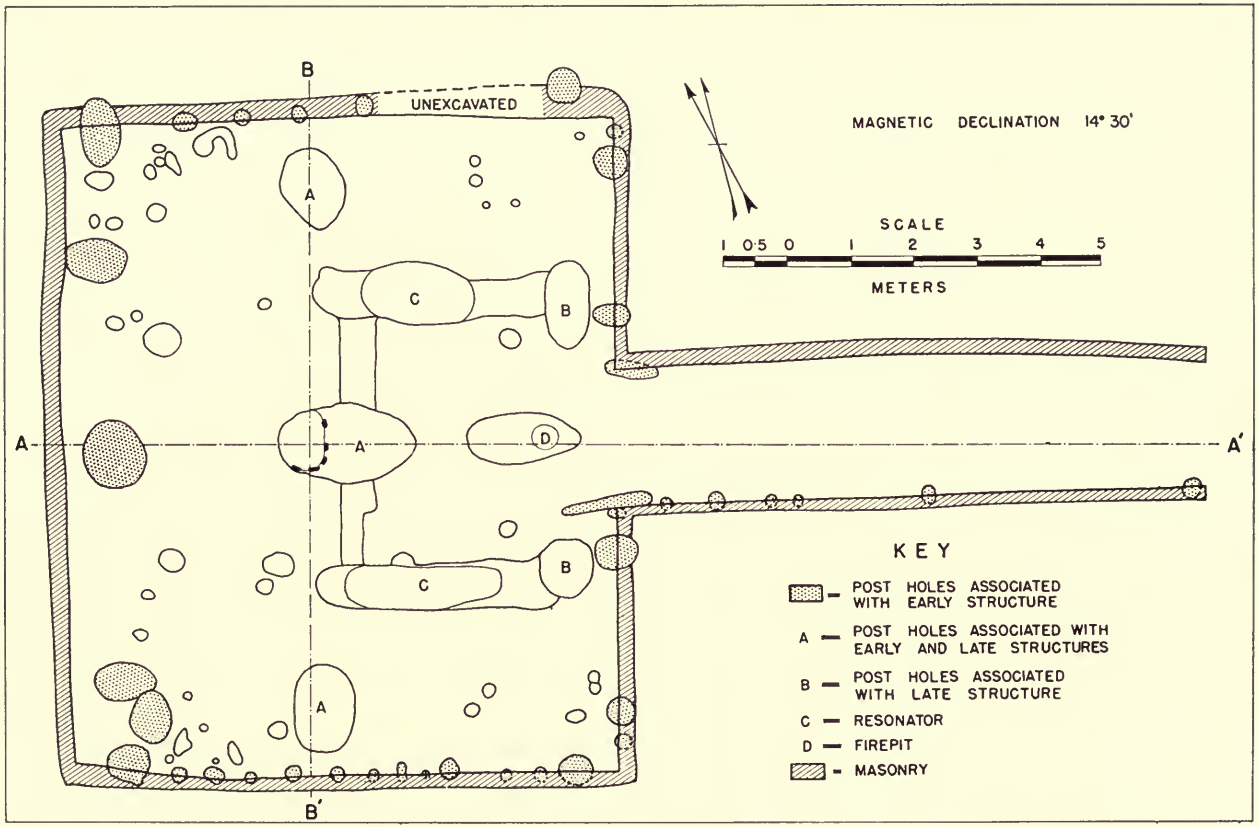


Fig. 3. Plan of Sawmill Site kiva.

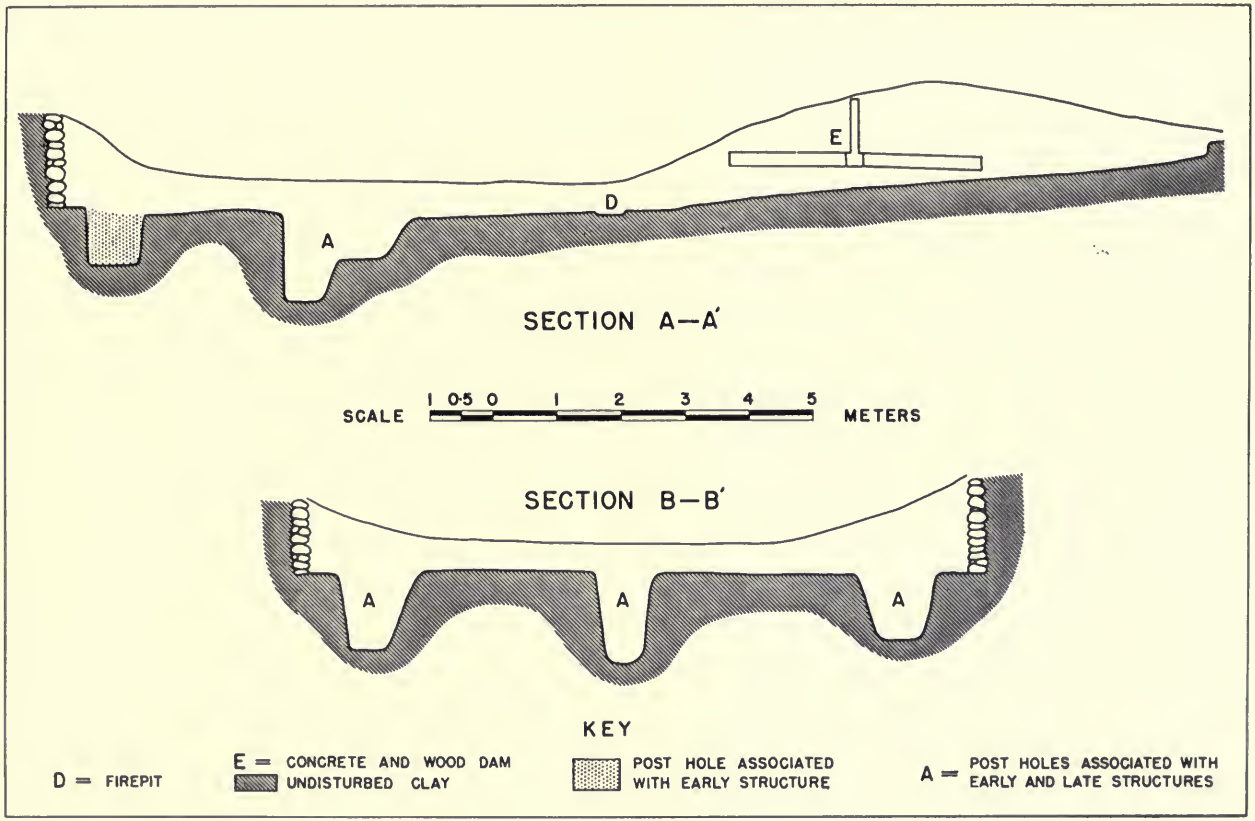


FIG. 4. Sections of Sawmill Site kiva.

FIG. 5. Sawmill Site kiva.

trance suggest walls of older structure. Scattered small postholes or depressions in floor may represent temporary racks, auxiliary supports, etc.

Firepit: Fired area 1.8 meters long, 0.8 meter wide in part of entrance with shallow pit 45 cm. in diameter at one end.

Resonators: Two troughs, one on either side of entrance in east half of room. Troughs shallow on ends and sides, sloping to maximum depth in center. Some flecks of charcoal in bottom suggest that troughs may have had wooden plank covers and served as foot-drums.

South trough: length, 3.5 meters; width, 0.74 meter; maximum depth, 0.55 meter.

North trough: length, 3.7 meters; width, 1.20 meters; maximum depth, 0.45 meter.

Shallow trenches 10 cm. deep connect resonator troughs and center posthole.

Roof: No evidence beyond posthole pattern, which suggests a ridge pole running north and south down length of room.

Phase: Reserve.

Comments: Very little change seems to have taken place in the outline of the kiva when the original post-lined structure was rebuilt. The entrance remained the same and the length of the room itself was unchanged, but the presence of yellow fill on top of the dark fill in the postholes along the

FIG. 6. West wall of Sawmill Site kiva. Meter stick for scale.

west wall suggests that the width was increased slightly. Along the east wall, where there are traces of two floors, the lower one is slightly below the level of the base of the masonry wall, while the upper one, 6 cm. higher, coincides with it. The same central postholes must have served as roof supports for both structures; there was evidence of only one firepit. Reasons why the room was rebuilt were not determined.

There is some suggestion that the structure may have burned, although such a fire must have taken place after it was abandoned, or at least after the contents were removed. In several places there were areas of fire-hardened plaster on the floor; along the east wall evidence of two successive floors was preserved by fire. In three places there were traces of burned beams or timbers on the floor—two over the south central posthole and one on the south side close to the east wall.

Two complete metates were found on the floor, one close to the center posthole, the other near the south resonator trough. Both were face down, and might have fallen from the roof when it collapsed. A metate fragment, found in the south resonator trough, fits a fragment found on the surface of the pueblo.

Small stone and shell beads, a copper ornament, and red and yellow ochre were the only evidence of "ceremonial" equipment in the room.

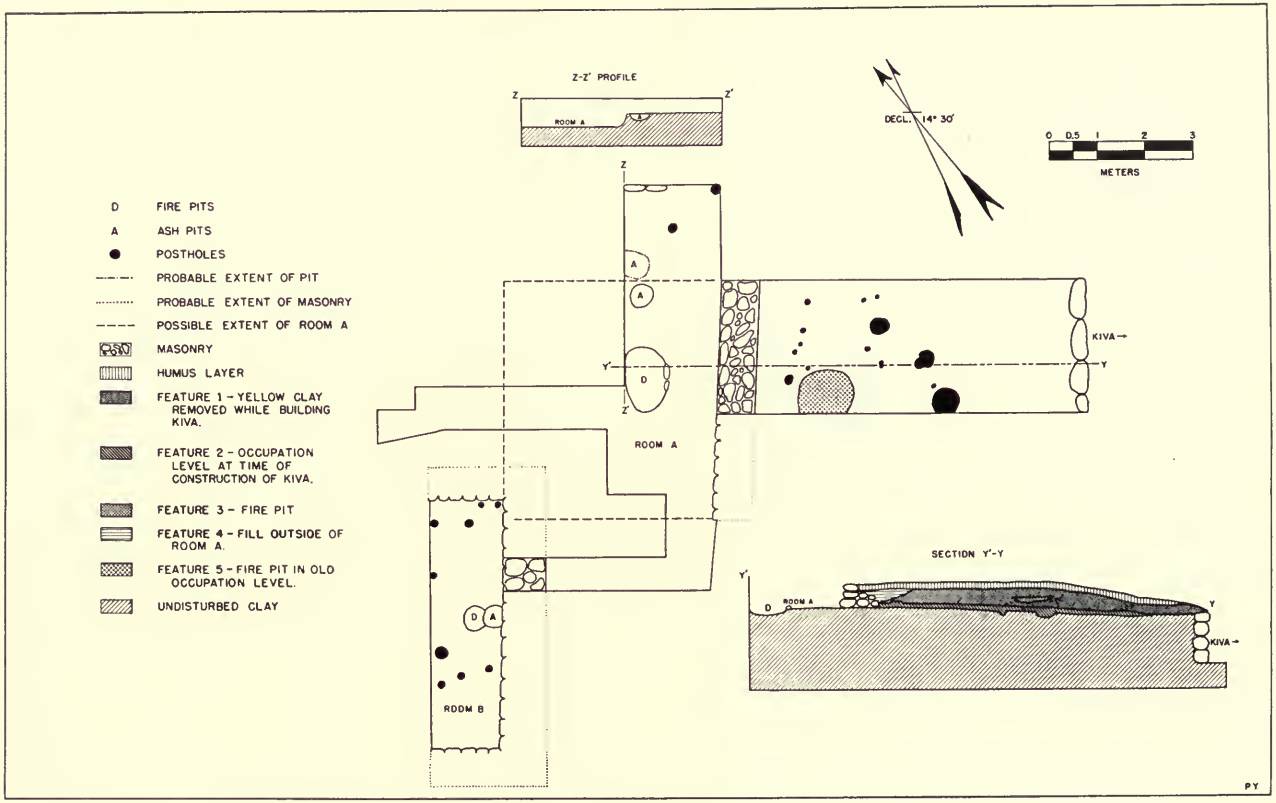


FIG. 7. Plan and sections of test trench west of kiva and pueblo Rooms A and B.

ROOM A

(Figure 7)

Shape: Rectangular(?).

Walls: Masonry; rough unshaped boulders with adobe clay mortar. Masonry wall found only on east side of room.

Dimensions: Length, 5.0 meters; width, 4.5 meters.

Floor: Hard yellow clay surface.

Firepit: Oval with two rocks set in east side, north and east of center of room. Length, 1.4 meters; width, 0.8 meter; depth, 0.12 meter.

Ashpit: Oval, north of firepit, along north wall of room, filled with light gray powdery ash. Length, 50 cm.; width, 45 cm.; depth, 15 cm.

Entrance: Unknown.

Phase: Reserve.

Comments: While the eastern limit of Room A was well defined by the low masonry wall still *in situ*, the northern, southern, and western limits were estimated by study of the profiles of the trenches which bisected the room; in both trenches the floor area appeared to be below the level of the fill outside the room (see section z-z′, fig. 7).

It is probable that Room A was abandoned before the rest of the pueblo and that the rocks from the northern, southern, and western walls were removed for use elsewhere.

Study of profile y-y′ (fig. 7) revealed that Room A was built either just before or shortly after the construction of the kiva, as the floor of Room A and Feature 2 (the old occupation level prior to the digging of the kiva) were on the same level. That Room A was in use after the kiva was excavated is indicated by the fact that the fill from the kiva (Feature 1) did not cover the masonry wall; this area between the slope of Feature 1 and the base of the east wall of Room A was filled in later (Feature 4).

ROOM B

(Figure 7)

Shape: Probably rectangular, only partially excavated.

Walls: Masonry; rough, of unshaped boulders with adobe clay mortar, found along north, south, and east limits of rooms.

Dimensions: Length, 5.2 meters; width, incomplete, 1.5 meters excavated.

Floor: Hard yellow clay surface.

Firepit: Round, close to east wall. Diameter, 50 cm.; depth, 6 cm.

Ashpit: Oval; cuts into east side of firepit, adjacent to east wall of room. Length, 50 cm.; width, 40 cm.; depth, 14 cm.

Posts: Ten in floor; diameters, 14 to 30 cm.; depths, 12 to 29 cm.

Entrance: Unknown.

Phase: Reserve.

Comments: Room B, which appeared on the surface to be closest to the kiva (there were no surface indications of Room A, which presumably was abandoned early) was tested only. Therefore the western limit of the room and the shape cannot definitely be determined. Fill and floor layers were removed together as a unit from this test, and are grouped together in the pottery and artifact charts. However, sherds and artifacts from the final troweling and cleaning of the floor were counted separately.

ROOMS C, D, AND E

(Figure 8)

Shape: Not determined from test trenches in rooms.

Walls: Masonry wall on north side of Room C made of unshaped boulders with adobe clay mortar. West wall of Room D not found, presumably washed away by stream in arroyo. No other walls located.

Dimensions: Rooms only tested; no room dimensions obtained.

Floors: Room C: floor 1, a hard, gray layer 55 cm. below surface, unplastered, uneven; floor 2, 10 cm. below floor 1, hard, gray, unplastered layer at contact with basic clay.

Room D: floor 1, uneven, compact, dark gray layer, 55 cm. below surface; floor 2, 25 cm. below floor 1, hard, even, unplastered, gray layer at contact with basic clay.

Room E: floor 1, hard, level, 60–65 cm. below surface, uneven, reddish in color; floor 2, possible floor about 30 cm. below floor 1, a hard layer containing refuse; floor 3, hard, compact layer at contact with basic clay.

Firepit: Associated with Room C, floor 1; a pit 23 cm. deep dug into the fill between floors 1 and 2, originally probably rectangular, 50 cm. long and 35 cm. wide, later expanded to irregular shape, with maximum length of 85 cm.; width, 50 cm. Original pit had plaster on bottom and side, bottom almost resting on floor 1; later expanded pit plastered only around rim. When excavated, bottom portion of pit filled with heavy concentration of ash; ash deposit in top part less uniform.

Posts: Room C: two postholes 15 cm. in diameter and 35 cm. deep associated with floor 2; one contained partially burned post.

Room E: one posthole 30 cm. deep, containing charcoal and decayed wood associated with floor 2 or 3.

Entrances: Unknown.

Phase: Reserve.

Comments: Rooms C, D, and E were tested during the 1954 season in order to obtain additional ceramic material from the pueblo rooms for

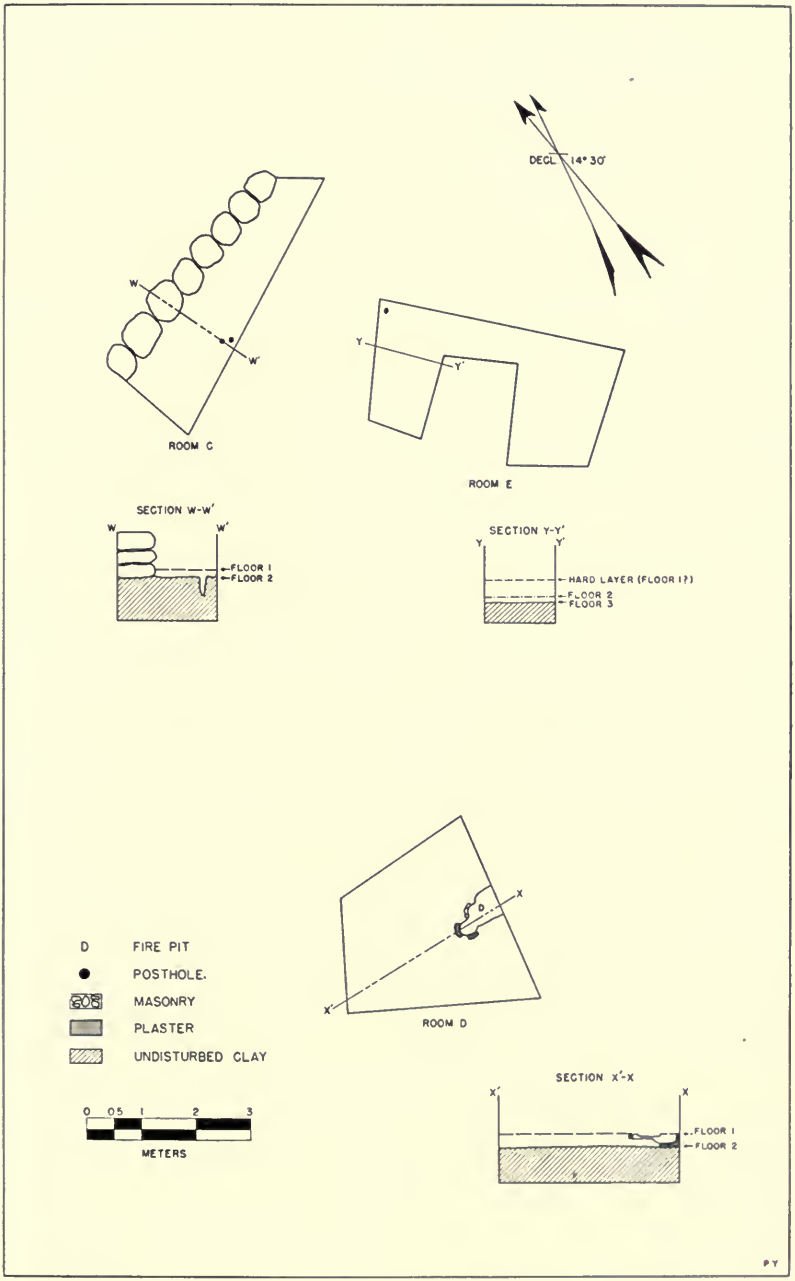


FIG. 8. Plan and sections of pueblo Rooms C, D, and E.

comparison with the kiva. Time did not permit more thorough exploration of architectural features of the rooms.

TEST TRENCH WEST OF KIVA

Several features were located outside of the previously defined rooms in the initial test trench and its later extensions west of the kiva. The following have been mapped on the plans and profiles (fig. 7):

Feature 1: The stratum of hard, light brown clay removed during construction of the kiva and piled up around the pit. It contained some sherds and artifacts.

Feature 2: The original old humus and occupation layer prior to the construction of the kiva. This dark stratum had a high concentration of sherds and artifacts. Postholes, ranging from 12 cm. to 60 cm. in diameter and 10 cm. to 20 cm. in depth, and a firepit (Feature 5) were dug into the basic clay from this layer. These postholes and the firepit represent either extra-mural features or traces of an early jacal room constructed on the site before the kiva.

Feature 3: An oval firepit, 50 cm. long, 35 cm. wide, and 10 cm. deep, filled with ash and surrounded by fire-hardened earth and a few fire-cracked stones, located in Feature 1. Two projectile points and 16 sherds were found in this pit. Probably this feature represents a single fire built beside the kiva during its construction.

Feature 4: The dark fill between the sloping clay ridge around the kiva (Feature 1) and the east wall of Room A. This fill accumulated after the upper part of the wall of Room A had fallen, because it lies on top of the rocks.

Feature 5: The firepit, ca. 120 cm. in diameter and 10 cm. deep, intruding into the basic clay from the original occupation layer (Feature 2).

Ashpit: An oval pit ca. 70 cm. long, 56 cm. wide, and 14 cm. deep, north of Room A, filled with loose gray ash.

Postholes: Two postholes in the trench north of Room A; 20 cm. in diameter and 10 to 13 cm. in depth.

TEST TRENCH NORTH OF ROOM B

Trench 2.6 meters long west of the western possible limit of Room A and north of Room B; part of the western extension of the test trench west of the kiva.

TEST TRENCH SOUTH OF KIVA

The following features were found in a test trench extending 6.5 meters from the south wall of the kiva:

Feature 1: The hard brown clay removed during construction of the kiva and piled up around the pit (corresponds to Feature 1 in the trench west of the kiva).

Feature 2: The original old humus layer on which Feature 1 was piled (corresponds to Feature 2 in the trench west of the kiva).

TEST TRENCH EAST OF KIVA ENTRANCE

Test trench 8.7 meters long and 1.7 meters wide, immediately adjacent to eastern end of kiva entrance. Humus layer stripped from area to determine old ground level.

DISCUSSION

The small amount of excavation in the pueblo rooms at the Sawmill Site indicated that the masonry architecture there was much like that of the previously excavated Reserve Phase pueblos (Martin, Rinaldo, and Antevs, 1949, pp. 126–129; Martin and Rinaldo, 1950b, pp. 416–448). The masonry was poor and varied; the walls were constructed of unshaped boulders. The rooms usually had firepits.

The large ceremonial room, or kiva, was of greater interest, because few such structures had been reported, and therefore most of the effort during the two seasons was concentrated on it. The survey, by Brigham Arnold, revealed that this was the only such structure in the immediate vicinity of Pine Lawn Valley. One other was excavated at the Wheatley Ridge Site on the Hudson Ranch (SW$\frac{1}{4}$, Sec. 26, R. 19 W., Twp. 6 S.), four miles west of Reserve, New Mexico (Rowe, 1947).

The Wheatley Ridge room (House 7) was the largest in the village. It was about the same size (10.8 by 9.3 meters) as the Sawmill Site kiva, with a long ramp entrance (9.0 meters) extending to the east. The floor was about 1.2 meters below the ground and the walls were masonry-lined. The posthole pattern was similar to that of the Sawmill kiva, with major roof supports located on the long axis and other postholes along the east and west walls. The firepit was directly in front of the entrance. No other floor features such as pits or floor grooves were reported. There were four small postholes close together along the south wall, but their purpose is not known.

On the basis of dendrochronology, by Gladwin, the occupation of the Wheatley Ridge Site has been estimated at about A.D. 870 to 936. On the basis of the pottery seriation by Rinaldo (Martin and Rinaldo, 1950a, pp. 372–373) houses fall in the late San Francisco and Three Circle phases, with House 7, the last house in the Wheatley Ridge series, falling close to the middle of the Three Circle sequence. This makes the Wheatley Ridge

kiva slightly earlier than the Sawmill Site, which has some Reserve Black-on-White pottery and more textured wares (see Chapter III).

Two other kivas, similar in size and plan, were found by Hough (1907, pp. 53, 55–57) in the Blue River Valley. Both are rectangular, with entrances on the east. At Site 62 the pueblo was east of the kiva; three stone pueblos were found north of Site 49. Hough did not excavate either of these rooms, but in 1951 members of the Chicago Natural History Museum expedition visited Site 62. Its surface appearance was almost identical with that of the Sawmill Site. Before excavation, the fallen walls which covered the sloping banks of the depression in the Sawmill Site kiva somewhat suggested a sloping wall, but excavation revealed vertical walls lining the pit. Therefore Hough's description of the kivas as having sides "laid up with stone built on a slight slant" (Hough, 1907, p. 53) and his drawing showing this construction (fig. 19) are viewed with some skepticism, but aside from this there is no doubt about the similarity of the structures.

The problems of origin and definition of the kiva have been discussed by many authors. For purposes of comparison here, I wish to use the term "kiva" as Smith (1952, p. 162) pointed out it has often been used before: a room or house which by virtue of size, construction and/or interior features differs from other houses in the village and may have served a ceremonial function. When employing this loose definition, several houses which may be considered kivas can be found in Mogollon sites.

Smiley (1952, p. 22) points out that the great kiva was "one of the outstanding architectural features of the early Mogollon peoples." He suggests that House 5 from the Bluff Site, dating ca. A.D. 300 (Haury and Sayles, 1947, p. 45), and the Bear Ruin kiva, dated ca. A.D. 670, in the Forestdale Valley, Arizona (Haury, 1940, pp. 43–47) may be early great kivas. To this list may be added Pithouse A, Pine Lawn Phase, SU Site (Martin, 1940, p. 14); Pithouses 9 and 19, Circle Prairie Phase, Crooked Ridge Village (Wheat, 1954); Pithouse K, San Francisco and Three Circle phases, Turkey Foot Ridge (Martin and Rinaldo, 1950a, p. 284); House 10, Three Circle Phase, Harris Village (Haury, 1936a, p. 61); House 7, Three Circle Phase, Wheatley Ridge Site (Rowe, 1947); and the Sawmill Site kiva.

All of these houses are larger than the others in their villages. Shape of the structures is not uniform; it changes with the passage of time. The majority of those occupied before A.D. 700, for example, Pithouse A at the SU Site, House 5 at the Bluff Site, Pithouse 9 at Crooked Ridge Village, and the Bear Ruin kiva, are rounded. The majority occupied after A.D. 700, for example, Pithouse K at Turkey Foot Ridge, House 10 at the Harris Village, House 7 at Wheatley Ridge, the Sawmill kiva, and the two kivas in the Blue River Valley, are rectangular. This change in shape of

ceremonial architecture parallels the trend in domestic architecture for the Mogollon (Martin, Rinaldo, and Antevs, 1949, fig. 78).

All of the houses in the latter group except Pithouse K have long ramp entrances extending to the east. All of the former group and Pithouse K have shorter stepped entrances or perhaps roof entrances. All except three structures have floor grooves, although the pattern of the grooves varies; the exceptions are those at the Wheatley Ridge, Harris Village, and Bluff sites.

It would seem, therefore, that the Sawmill Site kiva, which is rectangular in shape, with a long ramp entrance to the east and floor grooves, represents a continuation of the trend in ceremonial architecture established as early as the Pine Lawn Phase. Present evidence suggests that not only the concept of the great kiva but also floor grooves (or resonators or vaults) in kivas were first developed in the south and diffused to the north, where they first appear at a later date.

The assumption that the floor grooves served as resonators is based on comparison with later kivas and historic records. Two of the four late kivas at Point of Pines (Smiley, 1952, pp. 36, 47, 67) had foot-drum type sipapus which Smiley compares to a Hopi one at Shipaulovi described by Mindeleff (1886–87, pp. 121–122). Smith described a slab-covered sipapu of similar shape in the kiva Room 3 at Crack-in-Rock (Smith, 1952, pp. 73–74). Parsons also describes a single plank resonator at Acoma and paired plank-covered resonators used in the court at Zuñi during the scalp dance (Parsons, 1939, pp. 382–383).

At the Sawmill Site, the general shape of the grooves, which are shallow around the edges and then cut down to a deeper area in the center, is comparable to those illustrated by Smiley and Smith, although those at the Sawmill Site are larger. The shallow shelf may have supported the plank cover, to make it level with the floor. If the grooves in the later Mogollon kivas were resonators, then perhaps those in the earlier ones served that function, too.

III. Pottery

A total of 14,566 sherds was recovered from the Sawmill Site during the 1951, 1952, and 1954 excavations; 9,212 sherds came from the kiva and the remainder from the rooms and test trenches. The following pottery types are represented in that collection:

INDIGENOUS TYPES

Alma Plain (Haury, 1936b, p. 32; Martin and Rinaldo, 1950a, p. 359). Total: 7,922 sherds.

Alma Rough (Martin, 1940, pp. 78–80, and 1943, p. 238). Total: 920 sherds.

Alma Punched (Haury, 1936b, p. 39) (fig. 9, *b*). Total: 57 sherds.

Alma Incised (Haury, 1936b, p. 40) (fig. 9, *d*). Total: 8 sherds.

Alma Incised, Smudged Interior; variety of Alma Incised with polished smudged interior. Total: 1 sherd.

Alma Pinched; probably a variety of Alma Punched, with pinch-type decoration, vertical rows of indentations possibly made by impressing nails of thumb and forefinger in clay and dragging them toward one another (fig. 9, *a*). Total: 6 sherds.

Alma Scored (Haury, 1936b, p. 38; Martin and Rinaldo, 1950a, p. 359). Total: 42 sherds.

Alma Neck Banded (Haury, 1936b, p. 36). Total: 8 sherds.

Three Circle Neck Corrugated (Haury, 1936b, p. 36; Martin, Rinaldo, and others, 1952, pp. 60, 80). Total: 304 sherds.

Neck Corrugated, Punched Body; variety of Three Circle Neck Corrugated with punched decoration below corrugation on body of vessel. Total: 1 sherd.

Reserve Plain Corrugated (Rinaldo and Bluhm, 1956). Total: 1,776 sherds.

Reserve Plain Corrugated, Smudged Interior (Rinaldo and Bluhm, 1956). Total: 52 sherds.

Reserve Indented Corrugated (Rinaldo and Bluhm, 1956). Total: 36 sherds.

Reserve Indented Corrugated, Smudged Interior (Rinaldo and Bluhm, 1956). Total: 12 sherds.

Reserve Incised Corrugated (Rinaldo and Bluhm, 1956). Total: 393 sherds.

Reserve Incised Corrugated, Smudged Interior (Rinaldo and Bluhm, 1956). Total: 5 sherds.

Reserve Punched Corrugated (Rinaldo and Bluhm, 1956). Total: 34 sherds.

Tularosa Patterned Corrugated (Rinaldo and Bluhm, 1956). Total: 2 sherds.

Tularosa Patterned Corrugated, Reserve Variant (Rinaldo and Bluhm, 1956). Total: 14 sherds.

Tularosa Fillet Rim (Gladwin, W. and H. S., 1934, p. 18; Kidder, 1924, p. 98; Martin, Rinaldo, and others, 1952, p. 65; Wendorf, 1950, p. 121). Total: 3 sherds.

San Francisco Red, Saliz Variety (Haury, 1936b, pp. 28–31; Martin, 1940, pp. 80–81, and 1943, p. 240). Total: 203 sherds.

Reserve Smudged (Martin, Rinaldo, and Antevs, 1949, pp. 187–188; Martin and Rinaldo, 1950a, pp. 359–360, and 1950b, pp. 500, 534; Nesbitt, 1938, p. 139 [under Reserve Plain Ware]). Total: 1,678 sherds.

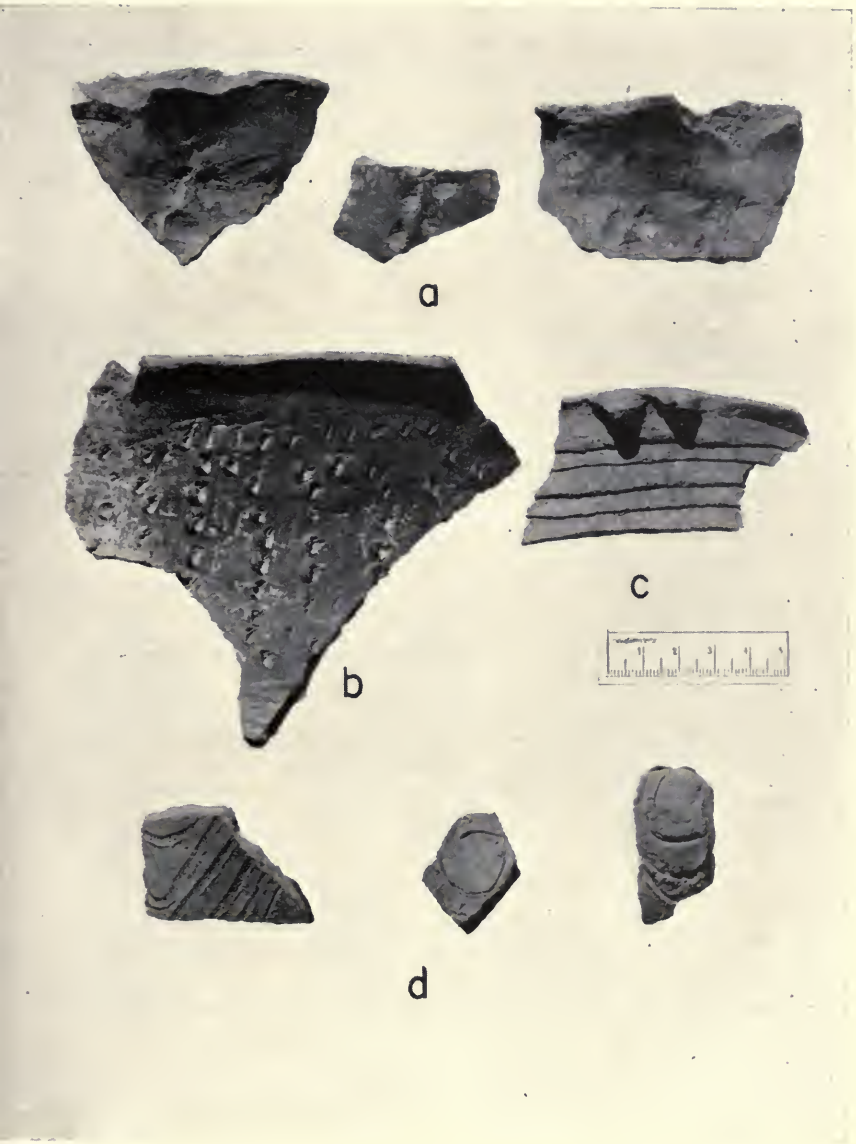


FIG. 9. Textured sherds: *a*, Alma Pinched; *b*, Alma Punched; *c*, Reserve Plain Corrugated rim sherd with double-node lug handle; *d*, Alma Incised. Scale in centimeters.

Mimbres Bold Face Black-on-White (Cosgrove, H. S. and C. B., 1932, p. 76). Total: 480 sherds.

Mimbres Classic Black-on-White (Cosgrove, H. S. and C. B., 1932, pp. 72–75). Total: 42 sherds.

Reserve Black-on-White (Martin and Rinaldo, 1950b, pp. 502–519) (fig. 10, top). Total: 158 sherds.

Brown Interior, Red Slipped Exterior; light brown sherd with polished interior and thin red slip on exterior. Total: 2 sherds.

Black-on-Brown; sherd of Mimbres paste, with a black line on interior surface. Total: 1 sherd.

Unclassified Black Slip; brown ware sherd with polished black slip on interior surface; places not covered by slip are red. Total: 1 sherd.

TRADE TYPES

Lino Gray (Colton and Hargrave, 1937, pp. 191–192). Total: 1 sherd.

Kiatuthlanna Black-on-White (Roberts, 1931, pp. 130–149; Gladwin, 1945, pp. 41–42). Total: 13 sherds.

Red Mesa Black-on-White (Gladwin, 1945, pp. 56–57; Martin and Willis, 1940, pls. 66–67). Total: 61 sherds.

Puerco Black-on-White (Gladwin, W. and H. S., 1931, pp. 24–26; Martin and Willis, 1940, pls. 70–73). Total: 1 sherd.

Chacoan Black-on-White; white sherds of Chaco type paste, but too worn to determine type. Total: 8 sherds.

White Mound Black-on-White (Gladwin, 1945, pp. 22–23). Total: 1 sherd.

Wingate Black-on-Red (Gladwin, W. and H. S., 1931, p. 29). Total: 2 sherds.

Indeterminate Black-on-White; small fragments of white sherds with no design showing. Total: 318 sherds.

The following whole and restored vessels were also recovered from the site:

Reserve Black-on-White vessel:

Cat. no. 263339: Duck effigy pot decorated with band of opposed solid terraces on neck, parallel zigzag lines representing feathers on sides, and inverted V's suggesting pinfeathers on front (fig. 11).
Provenience: Room A, fill along wall.
Dimensions: Height, 17.6 cm.; width, 15.4 cm.; length, 20.1 cm.

Alma Plain Miniature vessels:

Cat. no. 262448: Shallow bowl with straight sides (fig. 12, *c*).
Provenience: Kiva fill.
Dimensions: Height, 2.3 cm.; diameter, 5.4 cm.

Cat. no. 261134: Shallow bowl with out-flaring sides (fig. 12, *b*).
Provenience: Kiva fill.
Dimensions: Height, 3.0 cm.; diameter, 6.8 cm.

Cat. no. 263338: Deep bowl with slightly incurving sides (fig. 12, *a*).
Provenience: Kiva fill.
Dimensions: Height, 5.7 cm.; diameter, 8.0 cm.

Cat. no. 263340: Conical vessel with single perforation in center of bottom and eight V-shaped notches along rim (fig. 12, *e*).
Provenience: Room B, fill.
Dimensions: Height, 3.3 cm.; diameter, 11.0 cm.

Alma Punched vessel:

Cat. no. 261140: Small jar with sharp angle at shoulder; vertical lines of punctate decoration from shoulder to rim (fig. 12, *d*).
Provenience: Kiva fill.
Dimensions: Height, 3.3 cm.; diameter, 5.5 cm.

FIG. 10. Painted sherds: top row, Reserve Black-on-White; remainder, Mimbres Black-on-White. Scale in centimeters.

DISCUSSION

The 14,566 sherds from the Sawmill Site were analyzed by room and layer or feature. The numbers and percentages of the types for each provenience are given in Table 1. Alma Plain, Reserve Plain Corrugated, and Reserve Smudged were the main utilitarian types. Some Three Circle

FIG. 11. Reserve Black-on-White duck effigy pitcher. Height, 17.16 cm.

Neck Corrugated and a trace of Reserve Indented Corrugated occurred at the site. Mimbres Classic Black-on-White and Mimbres Bold Face Black-on-White are regarded as the indigenous decorated types, because they are derived from Three Circle Red-on-White and Mogollon Red-on-Brown, which preceded them. Reserve Black-on-White seems to be derived from northern types and is one of the innovations introduced during the Reserve Phase, along with masonry surface pueblos and some stone, bone, and other traits.

Comparison of the percentages from the floors of the pueblo rooms and kiva revealed very slight differences. The percentages of plain and textured utilitarian types and of painted types are much the same. There are more Mimbres Black-on-White sherds than Reserve Black-on-White in most of

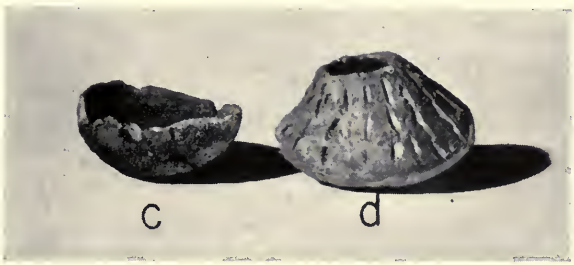


FIG. 12. Miniature vessels: *a*, Alma Plain miniature bowl; diameter, 8.0 cm.; *b*, Alma Plain miniature bowl; diameter, 6.8 cm.; *c*, Alma Plain miniature bowl; diameter, 5.4 cm.; *d*, Alma Punched miniature jar; diameter, 5.5 cm.; *e*, Alma Plain miniature bowl; diameter, 11.0 cm.

the rooms and the kiva. The kiva yielded a slightly smaller percentage of Reserve Smudged sherds than the pueblo, but the general uniformity leads to the conclusion that all of the Sawmill Site was occupied at one time. Furthermore, the similarity between the sherd counts from the kiva floor and Feature 2, the old occupation level before the construction of the kiva, indicates a period of stability of ceramics from before the construction of the kiva until its abandonment, however long this may have been.

Percentages of pottery types from the Sawmill Site as a whole were plotted on a bar graph and compared with graphs from other sites (fig. 13). Instead of a comparison of the sites room by room, as had been done before (Martin and Rinaldo, 1950b, p. 531), the room counts were combined and sites were compared. Three Pines Pueblo was divided into two units: the jacal structure and the pueblo rooms. Totals of the Three Circle pithouse floor counts were used for the SU Site and Turkey Foot Ridge, where the sites were occupied for more than one phase. As a result of this comparative analysis, the Sawmill Site was placed early in the Reserve Phase sequence (fig. 13).

This seriation represents the sequence of abandonment of the pueblos rather than that of construction. The uniformity of the seriation of Reserve Phase sites suggests that they were abandoned within a relatively short span of time. It is also assumed here that the sites were occupied, at least in part, simultaneously. Perhaps the best evidence for this is the floor by floor seriation (Martin and Rinaldo, 1950b, p. 531), wherein floors of Wet Leggett and Three Pines alternate, and later Wet Leggett floors and South Leggett floors alternate. This suggests that rooms from these pueblos had been occupied and were being abandoned at the same time. When the floors of Rooms A and B and the kiva were fitted into this series, they clustered together at the same point that they appeared in the site seriation, suggesting that the Sawmill Site may have been abandoned somewhat more abruptly and earlier than the others.

When the ceramics of the Sawmill Site and the other Reserve Phase pueblos are compared, two points of interest are apparent. First, there is a larger percentage of the Mimbres Black-on-White types at the Sawmill Site than at the other Reserve Phase pueblos and Mimbres types are more popular than Reserve Black-on-White. Second, more trade sherds were present at the Sawmill Site than were found at the others.

The possibility that the Sawmill Site might be early—representing a transition stage before Mimbres wares were completely replaced by Reserve Black-on-White—seems unlikely because Mimbres types continue on into the Tularosa Phase at Starkweather Ruin (Nesbitt, 1938, p. 93) and at Higgins Flat Pueblo (Martin, Rinaldo, and others, 1956). Another possible explanation is, of course, personal preference of the inhabitants. Re-

lated to this is the third possibility that the smaller sites were occupied by the recent immigrants from the north, while the Sawmill Site was occupied by the indigenous population. The preference for Mimbres painted types over the Reserve Black-on-White at the Sawmill Site would represent, therefore, the continuation of the tradition established during the preceding Three Circle Phase, while the reverse at the other sites would indicate the introduction of the new traits.

The presence of the trade types at the Sawmill Site might be a function of its place in the community. It is one of the largest sites, and if it were the community center of the valley, more of the trade might have been carried on there, rather than at the smaller outlying pueblos.

Only six whole or restorable vessels were recovered from the Sawmill Site and five of these were miniatures. The Reserve Black-on-White duck effigy is similar to one from the Starkweather Ruin (Nesbitt, 1938, pl. 302), which also has inverted V's on the breast to suggest pinfeathers.

Miniature vessels occur occasionally in Mogollon sites. Perhaps the most interesting one from the Sawmill Site is the conical bowl with notched rim which is perforated in the center. The shape and notching are reminiscent of a stone bowl from Pithouse D at the Twin Bridges Site (Martin, Rinaldo, and Antevs, 1949, fig. 73, *c*). The reason for the perforation in the bottom is not known. Cosgrove reports miniature ceremonial vessels of various shapes, perforated for suspension, from the Swarts Ruin (Cosgrove, H. S. and C. B., 1932, pl. 88), but they are perforated on the sides rather than on the bottom. Perforated plates were found at Los Muertos, but they are larger and flatter and the perforations are confined to the edges (Haury, 1945, p. 111).

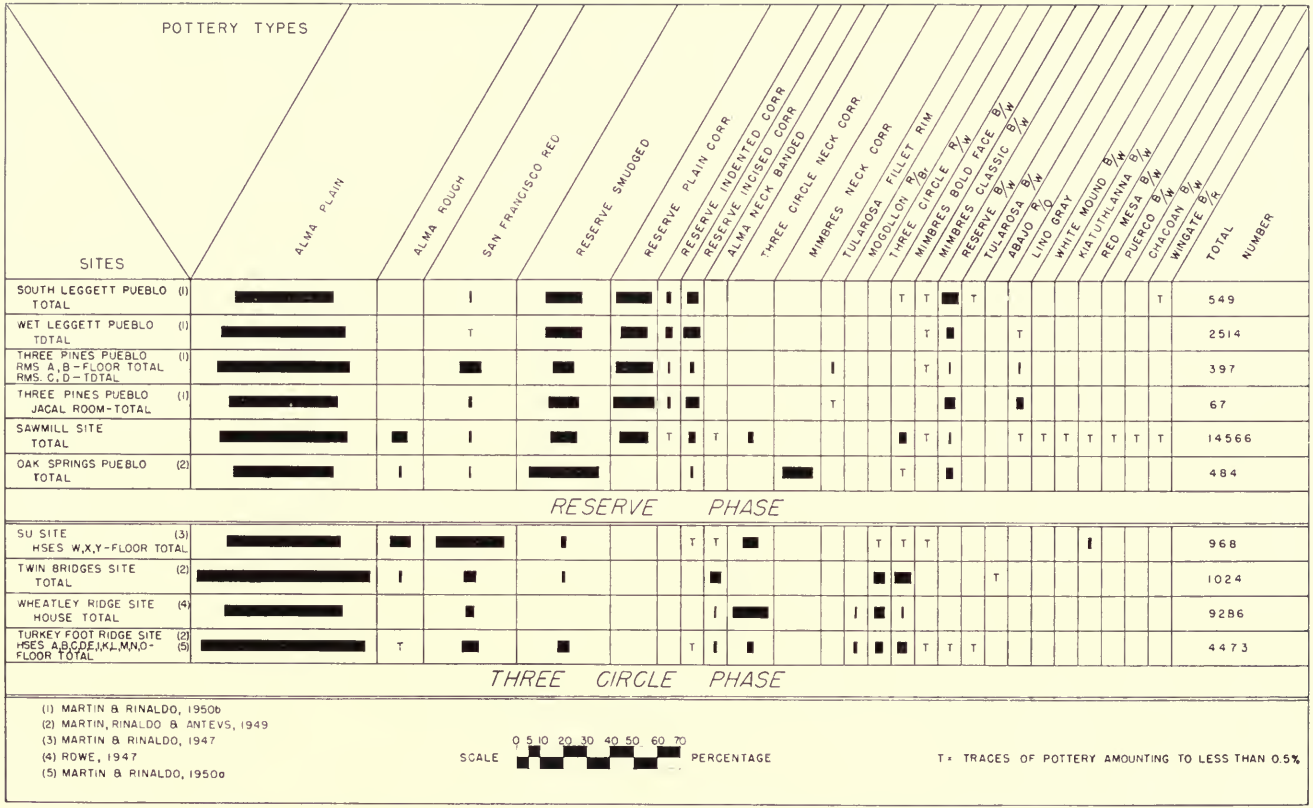


FIG. 13. Chart showing relationships of principal indigenous and trade pottery types in sites of Three Circle and Reserve phases in the Reserve area.

TABLE 1.—SHERD ANALYSIS, SAWMILL SITE

KIVA

	Humus		Fill		Floor		Removing wall	
	No.	%	No.	%	No.	%	No.	%
Alma Plain	141	54.65	3433	51.91	1240	54.92	40	48.20
Alma Rough	53	20.54	648	9.80	137	6.07	..	.....
San Francisco Red	1	0.39	115	1.74	39	1.73	..	.....
Reserve Smudged	10	3.88	726	10.98	241	10.67	11	13.25
Alma Incised	...	.....	3	0.05	2	0.09	..	.....
Alma Neck Banded	...	.....	....	.....	2	0.09	..	.....
Alma Punched	...	.....	14	0.21	11	0.49	..	.....
Alma Scored	1	0.39	19	0.29	6	0.27	1	1.20
Reserve Incised Corrugated	1	0.39	171	2.58	59	2.61	1	1.20
Reserve Incised Corrugated, Smudged Interior	...	.....	....	.....	1	0.04	..	.....
Reserve Plain Corrugated	37	14.33	768	11.60	264	11.69	13	15.67
Reserve Plain Corrugated, Smudged Interior	...	.....	41	0.62	5	0.22	..	.....
Tularosa Patterned Corrugated, Reserve Variant	...	.....	5	0.08	3	0.13	..	.....
Reserve Punched Corrugated	...	.....	18	0.27	5	0.22	...	.....
Reserve Indented Corrugated	...	.....	14	0.21	7	0.31	..	.....
Three Circle Neck Corrugated	2	0.78	136	2.06	34	1.51	6	7.23
Neck Corrugated, Punched Body	...	.....	1	0.02	....	.....	..	.....
Tularosa Fillet Rim	...	.....	1	0.02	1	0.04	..	.....
Reserve Black-on-White	...	.....	57	0.86	44	1.95	2	2.41
Wingate Black-on-Red	...	.....	....	.....	2	0.09	..	.....
Unclassified, black slip	...	.....	....	.....	1	0.04	..	.....
Lino Gray	...	.....	1	0.02	....	.....	..	.....
Kiatuthlanna Black-on-White	...	.....	4	0.06	3	0.13	..	.....
Mimbres Bold Face Black-on-White	...	.....	218	3.30	77	3.42	6	7.23
Mimbres Classic Black-on-White	...	.....	8	0.12	1	0.04	..	.....
Red Mesa Black-on-White	...	.....	34	0.51	12	0.53	3	3.61
Chacoan Black-on-White	...	.....	....	.....	7	0.31	..	.....
Indeterminate Black-on-White	12	4.65	178	2.69	54	2.39	..	.....
Total	258	100.00	6613	100.00	2258	100.00	83	100.00

TABLE 1.—SHERD ANALYSIS, SAWMILL SITE (*continued*)

ROOM A

	Fill		Floor	
	No.	%	No.	%
Alma Plain	1032	60.00	203	53.15
Alma Rough	29	1.69	1	0.26
San Francisco Red	20	1.16	6	1.57
Reserve Smudged	193	11.22	52	13.61
Alma Incised	2	0.12	...	.....
Alma Neck Banded	1	0.06	...	.....
Alma Punched	4	0.23	...	.....
Alma Scored	6	0.35	4	1.05
Alma Pinched	6	0.35	...	.....
Reserve Incised Corrugated	72	4.19	8	2.09
Tularosa Patterned Corrugated	1	0.06	...	.....
Reserve Plain Corrugated	213	12.37	63	16.50
Reserve Plain Corrugated, Smudged Interior	....	.....	2	0.52
Tularosa Patterned Corrugated, Reserve Variant	2	0.12	...	.....
Reserve Punched Corrugated	2	0.12	2	0.52
Reserve Indented Corrugated	5	0.29	...	.....
Three Circle Neck Corrugated	41	2.38	5	1.31
Reserve Black-on-White	17	0.99	5	1.31
Kiatuthlanna Black-on-White	....	.....	1	0.26
Mimbres Bold Face Black-on-White	53	3.08	16	4.19
Mimbres Classic Black-on-White	3	0.17	1	0.26
Red Mesa Black-on-White	1	0.06	4	1.05
Chacoan Black-on-White	1	0.06	...	.....
Indeterminate Black-on-White	16	0.93	9	2.35
Total	1720	100.00	382	100.00

TABLE 1.—SHERD ANALYSIS, SAWMILL STYLE (*continued*)

ROOM B

	Fill		Troweling floor	
	No.	%	No.	%
Alma Plain	126	46.83	23	53.48
San Francisco Red	3	1.12	..	.....
Reserve Smudged	51	18.96	5	11.62
Alma Neck Banded	...	.....	2	4.65
Reserve Incised Corrugated	19	7.06	1	2.33
Reserve Plain Corrugated	32	11.90	4	9.30
Reserve Plain Corrugated, Smudged Interior	3	1.12	..	.....
Reserve Punched Corrugated	...	.....	1	2.33
Reserve Indented Corrugated	...	.....	1	2.33
Three Circle Neck Corrugated	12	4.46	..	.....
Reserve Black-on-White	2	0.74	..	.....
Mimbres Bold Face Black-on-White	10	3.71	3	6.98
Mimbres Classic Black-on-White	3	1.12	1	2.33
Red Mesa Black-on-White	3	1.12	..	.....
Indeterminate Black-on-White	5	1.86	2	4.65
Total	269	100.00	43	100.00

ROOM C

	Fill to Floor 1		Floor 1		Floor 2	
	No.	%	No.	%	No.	%
Alma Plain	54	54.55	8	88.89	28	62.23
Reserve Smudged	15	15.15	..	.....	9	20.00
Alma Incised, Smudged Interior	..	.....	..	.....	1	2.22
Reserve Incised Corrugated	3	3.03	1	11.11	..	.....
Reserve Plain Corrugated	11	11.11	..	.....	..	.....
Reserve Plain Corrugated, Smudged Interior	..	.....	..	.....	1	2.22
Three Circle Neck Corrugated	3	3.03	..	.....	..	.....
Reserve Black-on-White	7	7.07	..	.....	4	8.89
Mimbres Bold Face Black-on-White	3	3.03	..	.....	1	2.22
Puerco Black-on-White	1	1.01	..	.....	..	.....
Indeterminate Black-on-White	2	2.02	..	.....	1	2.22
Total	99	100.00	9	100.00	45	100.00

TABLE 1.—SHERD ANALYSIS, SAWMILL SITE (*continued*)

ROOM D

	Fill to Floor 1		Fill to Floor 2	
	No.	%	No.	%
Alma Plain	92	52.28	169	44.80
Alma Rough	1	0.57	...	.....
San Francisco Red	3	1.70	...	.....
Reserve Smudged	26	14.77	95	25.20
Alma Scored	...	.....	1	0.27
Reserve Incised Corrugated	8	4.55	16	4.24
Reserve Incised Corrugated, Smudged Interior	...	.....	4	1.06
Reserve Plain Corrugated	28	15.91	44	11.66
Tularosa Patterned Corrugated, Reserve Variant	1	0.57	1	0.27
Reserve Punched Corrugated	3	1.70	1	0.27
Reserve Indented Corrugated	1	0.57	3	0.80
Reserve Indented Corrugated, Smudged Interior	...	.....	12	3.18
Three Circle Neck Corrugated	2	1.14	7	1.86
Reserve Black-on-White	1	0.57	7	1.86
Kiatuthlanna Black-on-White	...	.....	1	0.27
Mimbres Bold Face Black-on-White	6	3.40	13	3.45
Mimbres Classic Black-on-White	...	.....	1	0.27
Red Mesa Black-on-White	1	0.57	1	0.27
Indeterminate Black-on-White	3	1.70	1	0.27
Total	176	100.00	377	100.00

TABLE 1.—SHERD ANALYSIS, SAWMILL SITE (*continued*)

ROOM E

	Fill to Floor 1		Floor 1		Fill below Floor 1	
	No.	%	No.	%	No.	%
Alma Plain	111	54.13	13	48.17	50	61.75
Alma Rough	1	0.49	..	.....	1	1.23
San Francisco Red	2	0.98	..	.....	..	.....
Reserve Smudged	40	19.51	6	22.22	16	19.75
Alma Punched	4	1.95	..	.....	..	.....
Reserve Incised Corrugated	5	2.44	..	.....	1	1.23
Reserve Plain Corrugated	23	11.22	4	14.81	9	11.11
Tularosa Patterned Corrugated, Reserve Variant	...	.....	1	3.70	..	.....
Reserve Indented Corrugated	2	0.98	..	.....	..	.....
Three Circle Neck Corrugated	6	2.93	1	3.70	1	1.23
Reserve Black-on-White	2	0.98	..	.....	1	1.23
Mimbres Bold Face Black-on-White	7	3.41	1	3.70	2	2.47
Mimbres Classic Black-on-White	...	.....	1	3.70	..	.....
Indeterminate Black-on-White	2	0.98	..	.....	..	.....
Total	205	100.00	27	100.00	81	100.00

TABLE 1.—SHERD ANALYSIS, SAWMILL SITE (*continued*)

TEST TRENCH WEST OF KIVA

	Humus		Feature 1		Feature 2		Feature 3		Feature 4		Feature 5	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Alma Plain	59	63.41	259	62.72	218	57.53	11	68.75	110	58.20	63	66.31
Alma Rough	1	1.08	15	3.63	10	2.64	..	.....	16	8.47	..	.....
San Francisco Red	2	2.15	2	0.48	2	0.53	..	.....	6	3.17	..	.....
Reserve Smudged	5	5.38	29	7.02	35	9.23	..	.....	17	8.99	9	9.47
Alma Incised	..	.....	...	.....	...	.....	..	.....	1	0.53	..	.....
Alma Neck Banded	..	.....	...	.....	...	.....	..	.....	...	.....	3	3.16
Alma Punched	..	.....	5	1.21	11	2.90	1	6.25	...	.....	1	1.05
Alma Scored	..	.....	...	.....	2	0.53	1	6.25	...	.....	..	.....
Reserve Incised Corrugated	1	1.08	8	1.94	3	0.79	..	.....	1	0.53	..	.....
Reserve Plain Corrugated	17	18.28	45	10.90	71	18.74	..	.....	18	9.53	14	14.74
Tularosa Patterned Corrugated, Reserve Variant	..	.....	1	0.24	...	.....	..	.....	...	.....	..	.....
Reserve Indented Corrugated	..	.....	2	0.48	1	0.26	..	.....	...	.....	..	.....
Three Circle Neck Corrugated	2	2.15	8	1.94	9	2.37	3	18.75	2	1.06	2	2.11
Reserve Black-on-White	..	.....	2	0.48	1	0.26	..	.....	1	0.53	..	.....
Kiatuthlanna Black-on-White	1	1.08	...	.....	1	0.26	..	.....	...	.....	..	.....
Mimbres Bold Face Black-on-White	1	1.08	15	3.63	2	0.53	..	.....	11	5.82	3	3.16
Mimbres Classic Black-on-White	..	.....	13	3.15	8	2.11	..	.....	...	.....	..	.....
Black-on-Brown	1	1.08	...	.....	...	.....	..	.....	...	.....	..	.....
Indeterminate Black-on-White	3	3.23	9	2.18	5	1.32	..	.....	6	3.17	..	.....
Total	93	100.00	413	100.00	379	100.00	16	100.00	189	100.00	95	100.00

TABLE 1.—SHERD ANALYSIS, SAWMILL SITE (*continued*)

TRENCH NORTH OF ROOM B

	No.	%
Alma Plain	80	55.56
Reserve Smudged	24	16.67
Reserve Incised Corrugated	6	4.17
Tularosa Patterned Corrugated, Smudged Interior	1	0.69
Reserve Plain Corrugated	19	13.19
Three Circle Neck Corrugated	3	2.08
Reserve Black-on-White	1	0.69
Mimbres Bold Face Black-on-White	6	4.18
Mimbres Classic Black-on-White	1	0.69
Indeterminate Black-on-White	3	2.08
Total	144	100.00

TRENCH EAST OF KIVA ENTRANCE

	No.	%
Alma Plain	87	68.52
San Francisco Red	1	0.79
Reserve Smudged	6	4.72
Brown Indeterminate, Red Slipped Exterior	2	1.57
Reserve Incised Corrugated	2	1.57
Reserve Plain Corrugated	11	8.66
Three Circle Neck Corrugated	2	1.57
Kiatuthlanna Black-on-White	1	0.79
Mimbres Bold Face Black-on-White	10	7.87
Indeterminate Black-on-White	5	3.94
Total	127	100.00

TABLE 1.—SHERD ANALYSIS, SAWMILL SITE (*continued*)

TEST TRENCH SOUTH OF KIVA

	North End test		Feature 1		Feature 2	
	No.	%	No.	%	No.	%
Alma Plain	47	68.11	43	59.73	182	56.17
Alma Rough	..	.....	2	2.78	5	1.54
San Francisco Red	..	.....	..	.....	1	0.31
Reserve Smudged	6	8.70	5	6.94	46	14.20
Alma Punched	..	.....	..	.....	6	1.85
Alma Scored	..	.....	..	.....	1	0.31
Reserve Incised Corrugated	1	1.45	5	6.94	...	.....
Reserve Plain Corrugated	11	15.94	7	9.72	50	15.43
Reserve Punched Corrugated	..	.....	..	.....	2	0.62
Three Circle Neck Corrugated	3	4.35	5	6.94	9	2.78
Tularosa Fillet Rim	..	.....	..	.....	1	0.31
Reserve Black-on-White	..	.....	1	1.39	3	0.93
Kiatuthlanna Black-on-White	..	.....	..	.....	1	0.31
Mimbres Bold Face Black-on-White	..	.....	3	4.17	13	4.00
Mimbres Classic Black-on-White	1	1.45	..	.....	...	.....
Red Mesa Black-on-White	..	.....	1	1.39	1	0.31
White Mound Black-on-White	..	.....	..	.....	1	0.31
Indeterminate Black-on-White	..	.....	..	.....	2	0.62
Total	69	100.00	72	100.00	324	100.00

TABLE 1. SANAMLE SITE (continued)

TOTAL

	No.	%
Alma Plain	7922	54.37
Alma Rough	920	6.32
San Francisco Red	203	1.39
Reserve Smudged	1678	11.52
Brown Interior, Red Slipped Exterior	2	0.01
Alma Incised	8	0.06
Alma Incised, Smudged Interior	1	0.01
Alma Pinched	6	0.04
Alma Punched	57	0.39
Alma Neck Banded	8	0.06
Alma Scored	42	0.29
Three Circle Neck Corrugated	304	2.09
Reserve Incised Corrugated	393	2.70
Reserve Incised Corrugated, Smudged Interior	5	0.03
Tularosa Patterned Corrugated	2	0.01
Tularosa Patterned Corrugated, Reserve Variant	14	0.10
Reserve Plain Corrugated	1776	12.19
Reserve Plain Corrugated, Smudged Interior	52	0.36
Reserve Indented Corrugated	36	0.25
Reserve Indented Corrugated, Smudged Interior	12	0.08
Tularosa Fillet Rim	3	0.02
Reserve Punched Corrugated	34	0.23
Neck Corrugated, Punched Body	1	0.01
Reserve Black-on-White	158	1.08
Unclassified, black slip	1	0.01
Black-on-Brown	1	0.01
Kiatuthlanna Black-on-White	13	0.09
Mimbres Bold Face Black-on-White	480	3.30
Mimbres Classic Black-on-White	42	0.29
Puerco Black-on-White	1	0.01
Red Mesa Black-on-White	61	0.42
White Mound Black-on-White	1	0.01
Indeterminate	318	2.18
Wingate Black-on-Red	2	0.01
Lino Gray	1	0.01
Chacoan White	8	0.05
Total	14,566	100.00

IV. Stone, Bone, Shell, and Clay Artifacts

PROJECTILE POINTS AND BLADES

(a) Small, shallow lateral notched, straight base as wide as shoulder; some with serrate edge (fig. 14, *e–h*). Total 4.
Material: Obsidian.
Dimensions: Length, 1.6, 2.0, 1.7, 2.3 cm.; width, 0.9, 1.1, 0.9, 1.4 cm.; thickness, 0.3, 0.3, 0.2, 0.3 cm.

(b) Small, lateral notched, convex base, serrate edges, base narrower than shoulder (fig. 14, *k*). Total 1.
Material: Obsidian.
Dimensions: Length, 1.8 cm.; width, 1.1 cm.; thickness, 0.2 cm.

(c) Shallow lateral notched, convex base and convex edges; base narrower than shoulder; one with serrate edges (fig. 14, *l*, *m*). Total 2.
Material: Flint, obsidian.
Dimensions: Length, 2.3, 3.8 cm.; width, 1.6, 1.7 cm.; thickness, 0.6, 0.7 cm.

(d) Shallow lateral notched, convex base, straight or concave edges (fig. 14, *n*). Total 1.
Material: Chalcedony.
Dimensions: Length, 2.8 cm. (tip missing); width, 1.8 cm.; thickness, 0.4 cm.

(e) Small, shallow lateral notched, convex edges, concave base with ear-like barbs; base as wide as shoulder (fig. 14, *i*). Total 1.
Material: Obsidian.
Dimensions: Length, 1.9 cm.; width, 1.2 cm.; thickness, 0.3 cm.

(f) Small, diagonal notched point with down-raking barbs; convex base and straight edges; base narrower than shoulder (fig. 14, *j*). Total 1.
Material: Obsidian.
Dimensions: Length, 1.9 cm.; width, 1.4 cm.; thickness, 0.2 cm.

(g) Small, leaf-shaped blades, convex base and edges (fig. 14, *a–c*). Total 4.
Material: Obsidian.
Dimensions: Length, 2.7, 2.1 cm., 2 fragments; width, 1.6, 1.3, 1.9, 1.6 cm.; thickness, 0.3, 0.6, 0.2, 0.4 cm.

FIG. 14. Projectile points. Scale in centimeters.

FIG. 15. Blades: top row, bifacially chipped; bottom row, thin leaf-shaped. Scale in centimeters.

(h) Small, triangular blade with straight base and edges (fig. 14, *d*). Total 1.
Material: Obsidian.
Dimensions: Length, 1.7 cm. (tip broken); width, 1.0 cm.; thickness, 0.4 cm.

(i) Large, leaf-shaped blades, bi-convex in cross section, chipped on both surfaces; secondary retouch on both surfaces and edges (fig. 15, top). Total 8.
Material: Quartzite, jasper rhyolite, flint, diabase.
Dimensions: Length, 2.7–5.1 cm., average, 4.2 cm.; width, 1.3–3.2 cm., average, 2.5 cm.; thickness, 0.4–1.1 cm., average, 0.7 cm.

(j) Thin, leaf-shaped flakes, slightly plano-convex in cross section; fine secondary chipping along edges on one or both sides (fig. 15, bottom). Total 2.
Material: Diabase, flint.

Dimensions: Length, 3.5, 3.9 cm.; width, 2.3, 1.7 cm.; thickness, 0.3, 0.4 cm.

(k) Tips of projectile points or blades; convex edges. Total 2.
Material: Obsidian.
Dimensions: Length, 2.3, 2.3 cm. (both fragments); width, 1.8, 1.6 cm.; thickness, 0.3, 0.6 cm.

DRILLS

(a) Slender, tapering shaft, bi-convex in cross section; crudely shaped to point by secondary retouch along edges (fig. 16, *b*). Total 1.
Material: Flint.
Dimensions: Length, 3.4 cm.; width, 1.1 cm.; thickness, 0.5 cm.

(b) Thin, oval flake, tapered to point at one end; steep secondary retouch on alternate edges (fig. 16, *c*). Total 1.
Material: Flint.
Dimensions: Length, 3.3 cm.; width, 2.0 cm.; thickness, 0.6 cm.

GRAVERS

Long, thin, tapered, concavo-convex or curved blades, struck from cores, roughly triangular in cross section, with steep secondary retouch along narrow blunt point; occasional secondary retouch on long edges (fig. 16, *f*). Total 4.
Material: Chalcedony.
Dimensions: Length, 4.7, 3.7, 2.8, 5.0 cm.; width, 0.7, 1.2, 0.8, 1.4 cm.; thickness, 0.5, 0.9, 0.4, 1.1 cm.

KNIVES

(a) Random flakes, no regularity of outline; some secondary chipping on one or more edges, possibly from use (fig. 17, *b*, *c*). Total 81.
Material: Flint, quartzite, rhyolite, chalcedony, obsidian, jasper, diabase.
Dimensions: Length, 1.4–5.2 cm., average, 2.9 cm.; width, 0.9–4.0 cm., average, 2.1 cm.; thickness, 0.2–1.1 cm., average, 0.6 cm.

(b) Slender, concavo-convex flakes; some secondary chipping along edges, possibly from use (fig. 17, *d*). Total 22.
Material: Chalcedony, obsidian, flint, quartzite.
Dimensions: Length, 1.9–5.6 cm., average, 3.6 cm.; width, 0.7–2.4 cm., average, 1.6 cm.; thickness, 0.3–1.2 cm., average, 0.5 cm.

SIDE SCRAPERS

(a) Small, random, relatively thin flakes, without regularity of outline; percussion chipping on one or both surfaces, some secondary chipping

FIG. 16. *a*, hollow-edged scrapers; *b*, *c*, drills; *d*, *e*, saws; *f*, gravers. Scale in centimeters.

FIG. 17. *a*, small, random flake scrapers; *b*, *c*, random flake knives; *d*, concavo-convex flake knives. Scale in centimeters.

along edges which may be from use (fig. 17, *a*). Total 38.
Material: Flint, jasper, quartzite, diabase, chalcedony, rhyolite, obsidian.
Dimensions: Length, 2.6–5.5 cm., average, 4.1 cm.; width, 1.9–4.3 cm., average, 2.8 cm.; thickness, 0.5–1.8 cm., average, 1.1 cm.

(b) Rough, thick flakes without regularity of outline, percussion chipping usually on one surface at steep angle to produce cutting edge (fig. 18, *a*, *b*). Total 39.
Material: Diabase, flint, jasper, quartzite, rhyolite, chalcedony, obsidian.
Dimensions: Length, 2.7–8.5 cm., average, 5.2 cm.; width, 1.8–6.0 cm., average, 3.8 cm.; thickness, 0.7–2.7 cm., average, 1.6 cm.

(c) Plano-convex flakes, rounded in outline, percussion chipping at steep angle producing somewhat serrated cutting edge (fig. 18, *c*). Total 1.
Material: Quartzite.
Dimensions: Length, 4.1 cm.; width, 3.7 cm.; thickness, 1.7 cm.

(d) Large, thick flakes, generally rounded in outline, plano-convex in cross section; percussion chipped along one surface at steep angle to produce cutting edge (fig. 19, *a*, right). Total 2.
Material: Diabase.
Dimensions: Length, 7.0, 7.9 cm.; width, 6.1, 5.9 cm.; thickness, 3.0, 2.4 cm.

(e) Large, thick flakes, percussion chipped on both surfaces to produce cutting edge; occasionally part of original surface intact (fig. 19, *a*, left). Total 13.
Material: Rhyolite, diabase, flint, quartzite.
Dimensions: Length, 5.8–7.5 cm., average, 6.8 cm.; width, 4.5–6.5 cm., average, 5.4 cm.; thickness, 1.8–4.4 cm., average, 2.6 cm.

END SCRAPERS

(a) Rough, thick flakes, plano-convex in cross section; percussion chipped at steep angle across end to produce cutting edge (fig. 18, *d*). Total 1.
Material: Diabase.
Dimensions: Length, 5.8 cm.; width, 5.6 cm.; thickness, 1.6 cm.

(b) Large, thick flakes, plano-convex in cross section; percussion chipped at steep angle across end to produce cutting edge (fig. 19, *b*). Total 4.
Material: Diabase, flint.
Dimensions: Length, 6.6, 6.7, 7.0, 6.8 cm.; width, 5.2, 4.8, 5.1, 4.0 cm.; thickness, 2.4, 2.6, 2.0, 1.2 cm.

FIG. 18. *a*, *b*, rough, thick side scrapers; *c*, serrate-edged scraper; *d*, end scraper. Scale in centimeters.

HOLLOW-EDGED SCRAPERS

Small flakes with concave edges; secondary chipping along concave edge (fig. 16, *a*). Total 2.

Material: Chalcedony.

Dimensions: Length, 3.2, 3.2 cm.; width, 2.2, 1.6 cm.; thickness, 0.8, 1.0 cm.

CHOPPERS

(a) Thick, angular core implements, percussion flaked on two surfaces to produce cutting edge; part of original smooth, rounded core intact for grip (fig. 19, *c*). Total 3.

Material: Diabase.

Dimensions: Length, 6.4, 8.1, 10.1 cm.; width, 5.4, 5.1, 8.1 cm.; thickness, 3.1, 5.1, 4.2 cm.

(b) Thick, angular core tools, percussion flaked on two surfaces to produce cutting edge (fig. 19, *d*). Total 3.

Material: Diabase, quartzite.

Dimensions: Length, 7.3, 9.5, 10.2 cm.; width, 5.0, 8.5, 8.3 cm.; thickness, 5.6, 4.8, 3.6 cm.

HOE FRAGMENTS

Fragments of thin slabs of stone; some percussion chipping along one edge (fig. 20, *a*, *b*). Total 2.

Material: Slate.

Dimensions: Length, 8.3, 5.2 cm.; width, 5.8, 6.3 cm.; thickness, 0.9, 0.5 cm.

SAWS

Thin flakes with one edge retouched to produce shallow, serrated teeth, somewhat irregularly spaced (fig. 16, *d*, *e*). Total 2.

Material: Chalcedony, diabase.

Dimensions: Length, 5.1, 3.5 cm.; width, 2.8, 2.8 cm.; thickness, 0.5, 0.6 cm.

FRAGMENT OF WORKED SLAB?

Rectangular stone fragment, wedge-shaped in cross section, with some percussion chipping along thin edge; no evidence of alteration of surface. May be fragment of worked slab (fig. 20, *c*). Total 1.

Material: Rhyolite.

Dimensions: Length, 6.5 cm.; width, 5.0 cm.; thickness, 2.5 cm.

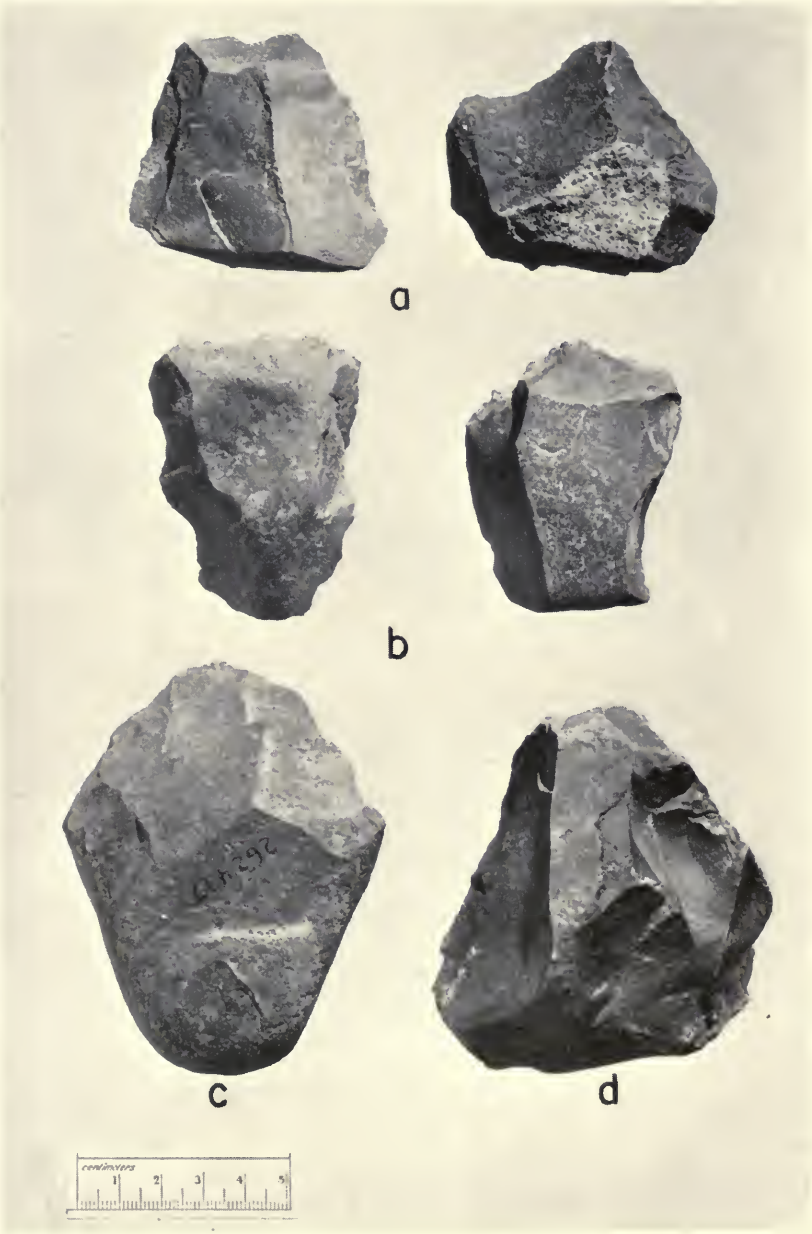


FIG. 19. *a*, large, thick side scrapers; *b*, large, thick end scrapers; *c*, *d*, choppers. Scale in centimeters.

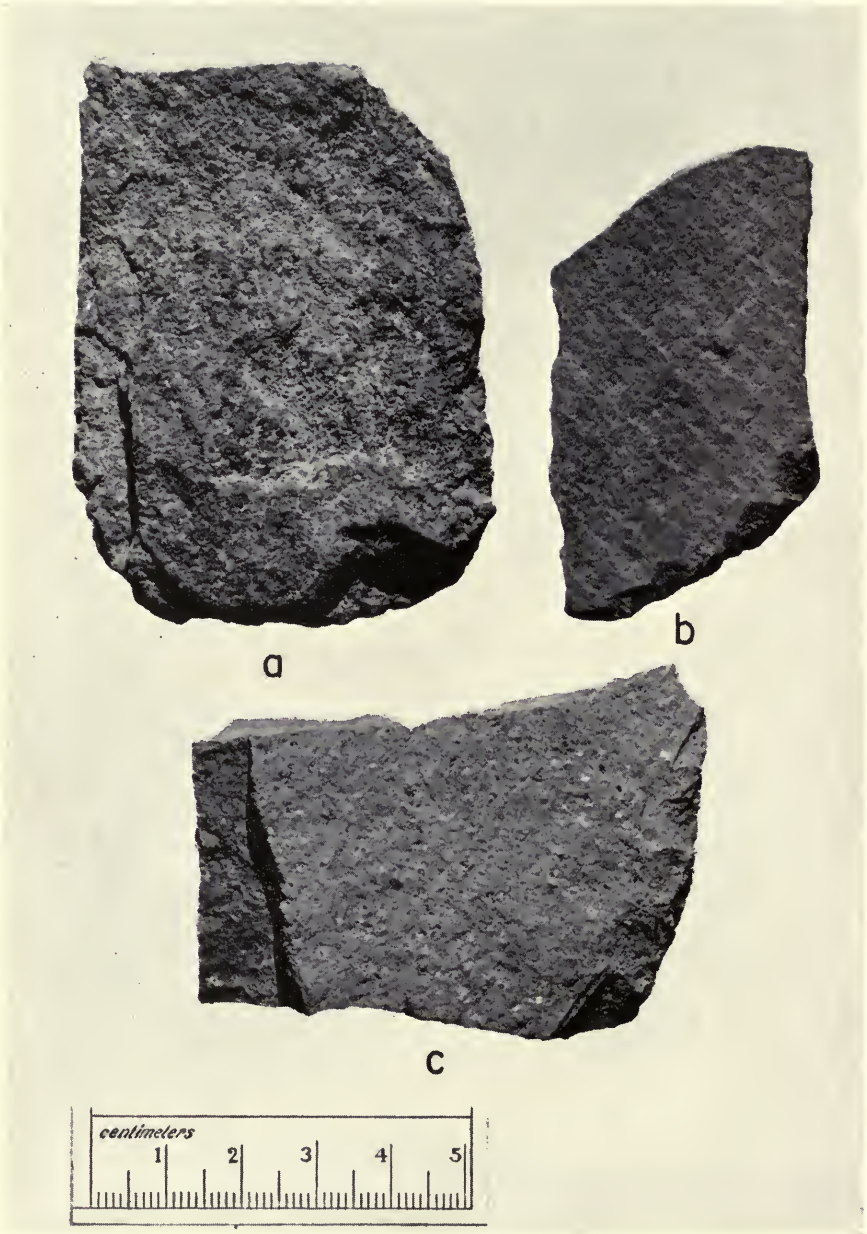


FIG. 20. *a*, *b*, hoe fragments; *c*, fragment of worked slab. Scale in centimeters.

MANOS

Single Grinding Surface:

(a) Rounded rectangular outline, plano-convex in cross section; grinding surface convex lengthwise, slightly convex crosswise (fig. 21, *b*). Total 2.
Material: Rhyolite.
Dimensions: Length, both fragmentary; width, 10.4, 8.5 cm.; thickness, 3.8, 3.1 cm.

(b) Rounded rectangular outline, wedge-shaped in cross section; grinding surface convex lengthwise, slightly convex crosswise (fig. 21, *a*). Total 3.
Material: Rhyolite, calcareous sandstone.
Dimensions: Length, 22.1 cm., 2 fragments; width, 9.8, 8.0, 10.7 cm.; thickness, 5.0, 3.1, 4.6 cm.

(c) Fragment too small to classify; grinding surface convex crosswise. Total 1.
Material: Diorite.
Dimensions: All fragmentary.

Two Grinding Surfaces:

(a) Oval outline, wedge-shaped in cross section; one beveled surface and base both used for grinding, both grinding surfaces flat (fig. 21, *c*). Total 1.
Material: Rhyolite.
Dimensions: Length, fragmentary; width, 8.4 cm.; thickness, 4.4 cm.

(b) Oval outline, triangular in cross section; one or both beveled surfaces and base surface used for grinding; grinding surfaces flat to slightly convex (fig. 21, *d*). Total 3.
Material: Calcareous sandstone.
Dimensions: Length, all fragments; width, 8.7, 7.0, 10.1 cm.; thickness, 2.7, 4.2, 3.4 cm.

(c) Fragment with two parallel smooth grinding surfaces. Total 1.
Material: Scoriaceous basalt.
Dimensions: All fragmentary.

RUBBING STONES

(a) Roughly oval to round in outline; single smooth rubbing surface slightly convex to flat. Total 5.
Material: Limestone, scoriaceous basalt, rhyolite.
Dimensions: Length, 7.9, 7.1, 7.8, 8.5, 4.8 cm.; width, 5.0, 4.6, 6.7, 5.2, 4.5 cm.; thickness, 3.9, 3.2, 3.3, 4.2, 2.6 cm.

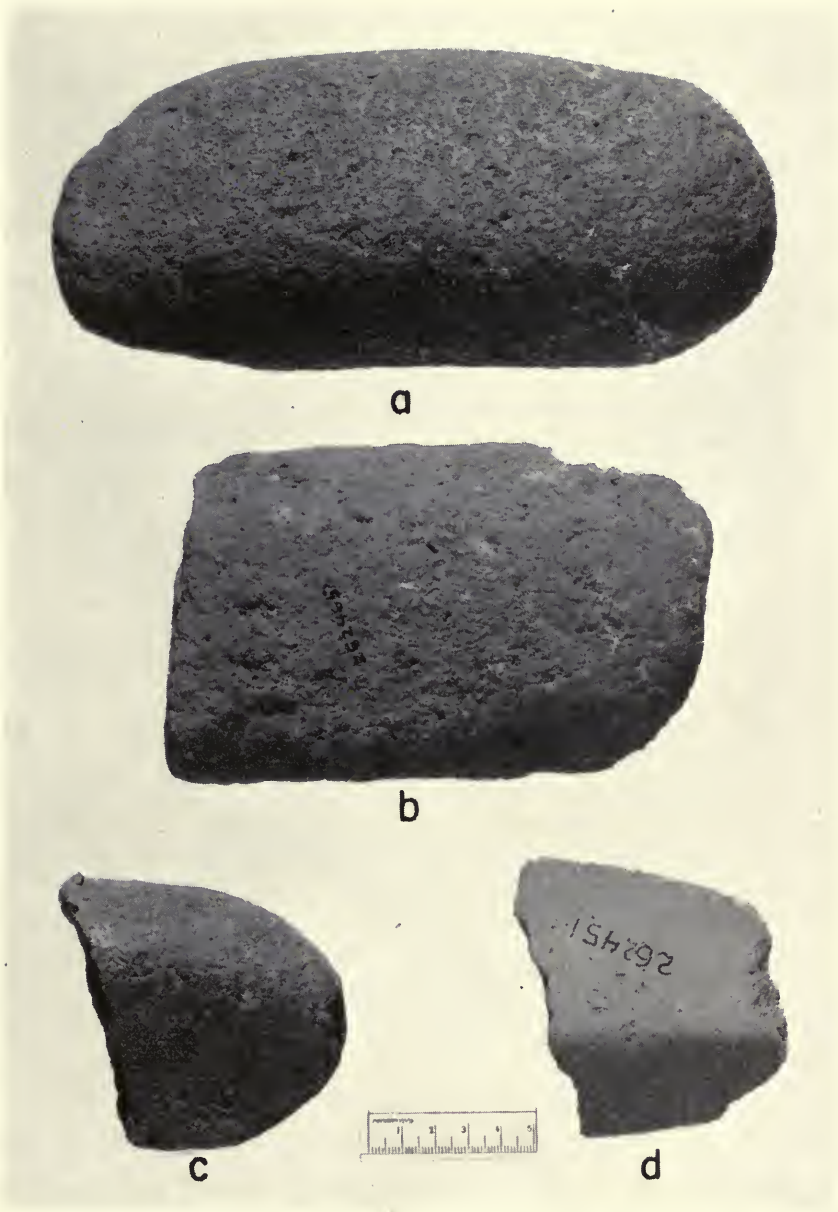


FIG. 21. Manos and fragments of manos. Scale in centimeters.

(b) Rectangular in outline; two smooth rubbing surfaces parallel. Total 1.
Material: Siliceous clay.
Dimensions: Length, 7.1 cm. (fragmentary); width, 7.0 cm.; thickness, 3.5 cm.

METATES

(a) Slab type, large slab, roughly oval in outline; sides and back unworked, smooth grinding surface slightly concave (fig. 22, top). Total 2.
Dimensions: Length, 51.0 cm., (one fragmentary); width, 38.0 cm., (one fragmentary); thickness, 14.0, 14.0 cm.

(b) Basin type, large rectangular block; smooth oval concave depression in one side; back and sides unworked (fig. 22, center). Total 1.
Dimensions: Length, 49.0 cm.; width, 35.0 cm.; thickness, 10.0 cm.; depth of basin, 2.0 cm.

(c) Trough type, trough open at one end only; large, roughly rectangular block, grinding surface smooth trough with slightly sloping sides, back and sides of block unworked (fig. 22, bottom). Total 1.
Dimensions: Length, 57.0 cm. (incomplete); width, 27.0 cm.; thickness, 10.0 cm.; depth of trough, 8.0 cm.

(d) Through trough type, large rectangular block; grinding surface smooth trough, open at both ends, with slightly sloping sides, back and sides unworked; specimen broken, 2 pieces recovered give complete dimensions. Total 1.
Dimensions: Length, 52.0 cm.; width, 35.0 cm.; thickness, 13.0 cm.; depth of trough, 6.0 cm.

(e) Fragments of trough metates too small to classify further. Total 5.
Dimensions: All fragmentary.

PEBBLE MORTAR

Roughly rounded pebble, plano-convex in section, with smooth concave depression in rounded surface; specimen fragmentary. Total 1.
Material: Rhyolitic clay.
Dimensions: Diameter, 10.7 cm.; thickness, 5.4 cm.; depth of depression, 4.3 cm.; diameter of depression, 6.7 cm.

STONE BOWL

Rounded pebble with deep, cup-like depression in one side; both exterior and interior surfaces worked (fig. 23). Total 1.
Material: Rhyolitic clay.
Dimensions: Diameter, 11.5 cm.; thickness, 8.0 cm.; depth of depression, 5.0 cm.; diameter of depression, 6.8 cm.

FIG. 22. Top, slab metate; length, 51 cm. Center, basin metate; length, 49 cm. Bottom, trough metate; length, 52 cm.

FIG. 23. Stone bowl; diameter, 11.5 cm.

MAUL

Oval stone with groove around the middle. Specimen is broken, but probably was full grooved (fig. 24). Total 1.

Material: Basalt.

Dimensions: Length, 15.9 cm.; diameter, 9.2 cm.

PITTED HAMMERSTONE

Ovoid stone with shallow pit in one flat surface. Total 1.

Material: Siliceous limestone.

Dimensions: Length, 8.9 cm.; width, 6.7 cm.; thickness, 5.8 cm.

STONE BALL

Small, rounded, stone ball. Total 1.

Material: Rhyolite.

Dimensions: Diameter, 2.3 cm.

FIG. 24. Grooved stone maul. Scale in centimeters.

STONE BEADS

(a) Thin flake of stone, trapezoidal outline; chipped along bottom, may be broken; perforated from both sides near top for suspension (fig. 25, *c*). Total 1.

Material: Jasper.

Dimensions: Length, 0.8 cm.; width, 0.9 cm.; thickness, 0.25 cm.

(b) Small, thin discs of black and white stone, perforated through center for suspension (fig. 25, *h*). Total 9.

Material: Slate, jasper.

Dimensions: Diameter, 0.2–0.6 cm.; thickness, 0.05–0.2 cm.

COPPER ORNAMENT

Lump of copper ore, trapezoidal in cross section, square in outline; two grooves around it at right angles to one another, quartering specimen (fig. 25, *a*). Total 1.

Material: Cuprite.

Dimensions: Length, 1.6 cm.; width, 1.6 cm.; thickness, 1.1 cm.

FIG. 25. *a*, copper ornament; *b*, fragments of shell bracelets; *c*, stone bead; *d*, bilobed shell bead; *e*, shell ornament; *f*, *g*, shell disc beads; *h*, stone disc beads. Scale in centimeters.

QUARTZ CRYSTALS

Quartz crystals, many tapered toward point at one end; some with point battered, probably from use as drills. Total 13.

Material: Quartz crystals.

Dimensions: Length, 1.5–4.2 cm., average, 2.6 cm.; width, 0.8–1.8 cm., average, 1.3 cm.; thickness, 0.7–1.8 cm., average, 1.1 cm.

PIGMENTS

(a) Small, rounded lumps of yellow pigment. Total 16.

Material: Limonite.

Dimensions: Length, 1.4–8.3 cm., average, 4.4 cm.; width, 1.0–6.1 cm., average, 2.9 cm.; thickness, 0.6–5.3 cm., average, 2.0 cm.

(b) Small, rounded lumps of red pigment. Total 13.
Material: Hematite.
Dimensions: Length, 1.9–7.2 cm., average, 3.3 cm.; width, 1.5–5.5 cm., average, 2.4 cm.; thickness, 0.6–3.3 cm., average, 1.5 cm.

SPINDLE WHORLS

Discs cut from potsherds, perforated through center; edges worn smooth (fig. 26, *b*). Total 11.
Material: Mimbres Black-on-White, Reserve Smudged, Alma Plain pottery.
Dimensions: Diameter, 3.2–6.1 cm., average, 4.6 cm.; thickness, 0.3–0.7 cm., average, 0.5 cm.

WORKED SHERDS

Round to ovoid sherds with cut and smoothed edges (fig. 26, *a*). Total 13.
Material: Alma Plain, Mimbres Black-on-White pottery.
Dimensions: Length, 1.7–7.6 cm., average, 4.0 cm.; width, 1.5–5.5 cm., average, 3.7 cm.; thickness, 0.4–1.0 cm., average, 0.6 cm.

FOOT EFFIGY

Fired clay effigy in shape of foot with 5 toes; groove along base of toes on bottom of sole; broken, heel missing (fig. 26, *c*). Total 1.
Dimensions: Length, 3.0 cm.; width, 3.5 cm.; thickness, 1.0 cm.

MINIATURE ANIMAL EFFIGY FRAGMENT

Fired clay effigy with cylindrical body; three legs and head broken off (fig. 26, *d*). Total 1.
Dimensions: Length, 4.6 cm.; width, 2.7 cm.; thickness, 2.1 cm.

SHELL BEADS

(a) Bilobed bead; thin section of shell cut in shape of figure eight; one lobe perforated for suspension (fig. 25, *d*). Total 1.
Dimensions: Length, 1.2 cm.; width, 0.5 cm.; thickness, 0.2 cm.

(b) Small, thin shell discs, perforated through center for suspension; made of white or pink shells (fig. 25, *f*, *g*). Total 16.
Dimensions: Diameter, 0.2–0.7 cm.; thickness, 0.05–0.5 cm.

(c) Hook-shaped fragment of pink shell, perforated at one end, other end smoothed to blunt point (fig. 25, *e*). Total 1.
Dimensions: Length, 1.8 cm.; width, 0.3 cm.; thickness, 0.3 cm.

FIG. 26. *a*, worked sherds; *b*, fragments of spindle whorls; *c*, clay foot effigy: *d*, fragment of animal effigy. Scale in centimeters.

SHELL BRACELETS

Curved fragments of thin shell bracelets, ovoid in cross section (fig. 25, *b*). Total 2.

Material: Glycymeris.

Dimensions: Length, 3.7, 3.1 cm.; width, 0.6, 0.5 cm.; thickness, 0.2, 0.3 cm.

FIG. 27. Left, fragment of bone awl; right, flaker. Scale in centimeters.

BONE AWL

Head of bone intact, shaft split and tapered to point; tip broken (fig. 27, left). Total 1.

Dimensions: Length, 13.4 cm.; width, 3.4 cm.; thickness, 1.6 cm.

BONE FLAKER

Splinter of long bone with blunt point at one end (fig. 27, right). Total 1.

Dimensions: Length, 4.4 cm.; width, 1.1 cm.; thickness, 1.6 cm.

UNWORKED BONE FRAGMENTS

	Number of fragments
Homo sapiens	1
Bison	1
Antilocapra (pronghorn antelope)	2
Odocoileus sp. (deer)	8
Canis sp.	1
Vulpes (fox)	1
Urocyon (gray fox)	1
Lepus sp. (jack rabbit)	4
Citellus (ground squirrel)	1
Sylvilagus (cottontail rabbit)	1
Unidentified mammal	12
Meleagris (turkey)	4
Unidentified bird	3

DISCUSSION

(Figures 28–31)

A total of 332 stone, 2 bone, 20 shell, and 26 baked clay artifacts was recovered from the kiva, pueblo rooms, and test trenches excavated at the Sawmill Site. With few exceptions these tools represent types found in other sites or cave levels assigned to the Reserve Phase (Martin and Rinaldo, 1950b; Martin, Rinaldo, and others, 1952; Martin, Rinaldo, and Bluhm, 1954).

There are 247 chipped stone tools, most of which are knives and scrapers. Those two artifact categories grade into one another, but, in general, knives are smaller and thinner, and scrapers are thicker, often with a steeper angle of retouch. Secondary chipping on these tools frequently results from use.

The majority of these knives and scrapers represent types used throughout the Mogollon occupation in the area. Random flake knives outnumber the concavo-convex flakes, and side scrapers predominate over end scrapers at the Sawmill Site as well as other sites in the Reserve area. Hollow-edged and serrate-edged scrapers are in the minority here as at other sites. Both types have been found from early to late (Martin, Rinaldo, and others,

1952, pp. 167–168; Martin, Rinaldo, and Bluhm, 1954, p. 90). Choppers are also evidence of cultural continuity.

The two saws from the Sawmill Site are similar to those recovered from Wet Leggett and Three Pines pueblos (Martin and Rinaldo, 1950b, p. 484), and the San Francisco and San Francisco-through-Tularosa Phase levels of Tularosa Cave (Martin, Rinaldo, and others, 1952, p. 182). Their late distribution suggests that saws may be considered diagnostic of the later phases.

Projectile points, of all the chipped stone artifacts, exhibit the most variation through time, and therefore are perhaps the best to consider in assigning phases. Twenty-seven points and blades were found at the Sawmill Site. Many of the types also occurred in the other Reserve Phase pueblos in Pine Lawn Valley (Martin and Rinaldo, 1950b, p. 482) and correspond to those described by Rinaldo (Martin, Rinaldo, and Bluhm, 1954, p. 140) as "found most frequently in the late sites and levels assigned to the Reserve and Tularosa phases."

The two drills represent types found in both early and late levels in Tularosa Cave (Martin, Rinaldo, and others, 1952, p. 179). The four gravers from the Sawmill Site, however, are not like the usual flake type found in the Reserve area (Martin, Rinaldo, and others, 1952, p. 182) but are more like the scraper-gravers reported by Haury (1940, p. 109) from the Bear Ruin. The points on all of the Sawmill Site specimens are worn from use; only two have secondary chipping along the long edges, probably from use.

The two chipped hoes, the only agricultural implements recovered from the site, represent a type used throughout the occupation of the area (Martin, Rinaldo, and Antevs, 1949, p. 166; Martin and Rinaldo, 1950a, p. 346).

A total of 43 ground stone implements and ornaments was found during the excavation of the Sawmill Site. The majority were mano and metate fragments, some of which had been used as building stones in the walls of the kiva. The complete manos and measurable fragments were two-hand types. Two were plano-convex in cross section, but the majority were beveled, with wedge-shaped or triangular cross section (triangular cross section differs from wedge-shaped in that the longitudinal ridge of the former runs down the center of the mano, and there are one or two beveled grinding surfaces; in the latter the longitudinal ridge is off-center and there is only one beveled grinding surface). The beveled types of manos were also found in the late levels in the caves (Martin, Rinaldo, and others, 1952, p. 123) and in the Reserve Phase pueblos (Martin and Rinaldo, 1950b, p. 456).

The five rubbing stones with single grinding surfaces from the Sawmill Site are like those found in all phases of Mogollon occupation in the Reserve area. The one rectangular rubbing stone with two grinding surfaces is like those from Tularosa Cave (Martin, Rinaldo, and others, 1952, pp. 126–127).

The metates found at the Sawmill Site conform to types reported from other Mogollon sites. The majority were trough types, many of which were so fragmentary that it was impossible to tell if one or both ends were open. In the other Reserve Phase pueblos (Martin and Rinaldo, 1950b, p. 464) both trough types were found, and Rinaldo has indicated that they had a late distribution in the caves and cliff-dwellings, with the one end open type being replaced by the through trough type. Slab metates occur both early and late in the Mogollon sequence, but the basin type is the early type in the area (Martin, Rinaldo, and Bluhm, 1954, p. 107). It is interesting that examples of all three types—slab, basin, and through trough—were found face down on the floor of the kiva, suggesting that they fell from the roof when it collapsed.

The pebble mortar, stone bowl, and full-grooved maul are also types of ground stone tools which were employed throughout the Mogollon occupation of the area (Martin, 1943, pp. 194, 202; Martin and Rinaldo, 1950b, pp. 470, 480). The workmanship on the bowl from the Sawmill Site was fair; the surfaces were smoothed inside and out, but rubbing marks still show. The maul was found in the test trench west of the pueblo in a large posthole in Feature 2, the occupation layer prior to construction of the kiva. The maul is broken and may have been used as a base or wedge to support the post in the hole.

One small stone ball was found in the test trench south of the kiva. Stone balls occur throughout the Mogollon sequence (Martin, Rinaldo, and others, 1952, p. 144; Martin, Rinaldo, and Bluhm, 1954, p. 88) and are found in other parts of the Southwest. The use of these objects is unknown; they may have been associated with games or rituals.

Quartz crystals and paint stones also have a wide distribution in time in the Reserve area (Martin, 1943, p. 234; Martin and Rinaldo, 1950a, p. 354; Martin, Rinaldo, and others, 1952, p. 198). A large percentage of those at the Sawmill Site were found while we were troweling the floor of the kiva. They are the only ritual objects definitely associated with that structure.

Twenty-four small disc beads of stone and shell seem to represent late traits in the Reserve area. They have been reported from Starkweather Ruin (Nesbitt, 1938, pp. 108–109), Higgins Flat Pueblo (Martin, Rinaldo, and others, 1956), and the Swarts Ruin (Cosgrove, H. S. and C. B., 1932, pl. 70). The bilobed shell bead from the Sawmill Site is like those found in

the Harris Village (Haury, 1936a, p. 78) and Higgins Flat Pueblo (Martin, Rinaldo, and others, 1956). All of the shell beads, the copper ornament, and most of the stone disc beads were found while we were troweling the floor of the kiva.

The two thin *Glycymeris* shell bracelet fragments from the Sawmill Site are like those from other sites in Pine Lawn Valley. The type is found in sites dating from the Pine Lawn Phase (Martin, 1940, p. 68) through the Reserve and Tularosa phases (Martin, Rinaldo, and Bluhm, 1954, p. 90). The use of this shell is widespread in the Mogollon and Hohokam sites in the Southwest and indicates trade with the Gulf of California.

Only two bone tools were found in the Sawmill Site. The awl, with head intact and shaft split and tapered, is like those found in the Reserve Phase pueblos (Martin and Rinaldo, 1950b, p. 492) and is a common type throughout the occupation of the area. The bone flaker fragment resembles those found in early levels of the caves in the Reserve area (Martin, Rinaldo, and others, 1952, p. 188; Martin, Rinaldo, and Bluhm, 1954, p. 91), and later examples were found at the Swarts Ruin in the Mimbres area (Cosgrove, H. S. and C. B., 1932, pp. 60–61).

Eleven of the 26 baked clay artifacts are perforated sherd discs or spindle whorls and 13 are worked sherds with smooth edges. Both of these traits occur throughout the Mogollon occupation of the Reserve area (Martin, 1943, p. 230; Martin and Rinaldo, 1950a, p. 352, 1950b, p. 494; Martin, Rinaldo, and Bluhm, 1954, p. 91).

The baked clay animal figurine fragment resembles those from Oak Springs Pueblo (Martin, Rinaldo, and Antevs, 1949, p. 178), Tularosa Cave (Martin, Rinaldo, and others, 1952, p. 194), and Hinkle Park Cliff-Dwelling (Martin, Rinaldo, and Bluhm, 1954, pp. 91, 152). These figurines are from Georgetown and later phases. The foot effigy is broken, and what the complete figurine was cannot be determined. Stone feet with five toes were found in Tularosa Cave (Martin, Rinaldo, and others, 1952, p. 146) but they were complete in themselves. Stone animal figures from Higgins Flat Pueblo (Martin, Rinaldo, and others, 1956, p. 94) have straight legs without detailed carving of the feet.

The stone, bone, shell, and baked clay artifacts from the Sawmill Site represent types found in other sites assigned to the Reserve or later phases of the Mogollon occupation of the area. Most of the artifacts—the knives, scrapers, choppers, drills, hoes, rubbing stones, bowls and mortars, slab metates, bone awls, flakers, spindle whorls, worked sherds, shell bracelets, etc.—are found throughout the sequence and are indications of the cultural continuity Others—the saws, some projectile point types, beveled manos, trough metates, etc.—are associated only with the later phases of the occupation and indicate cultural change.

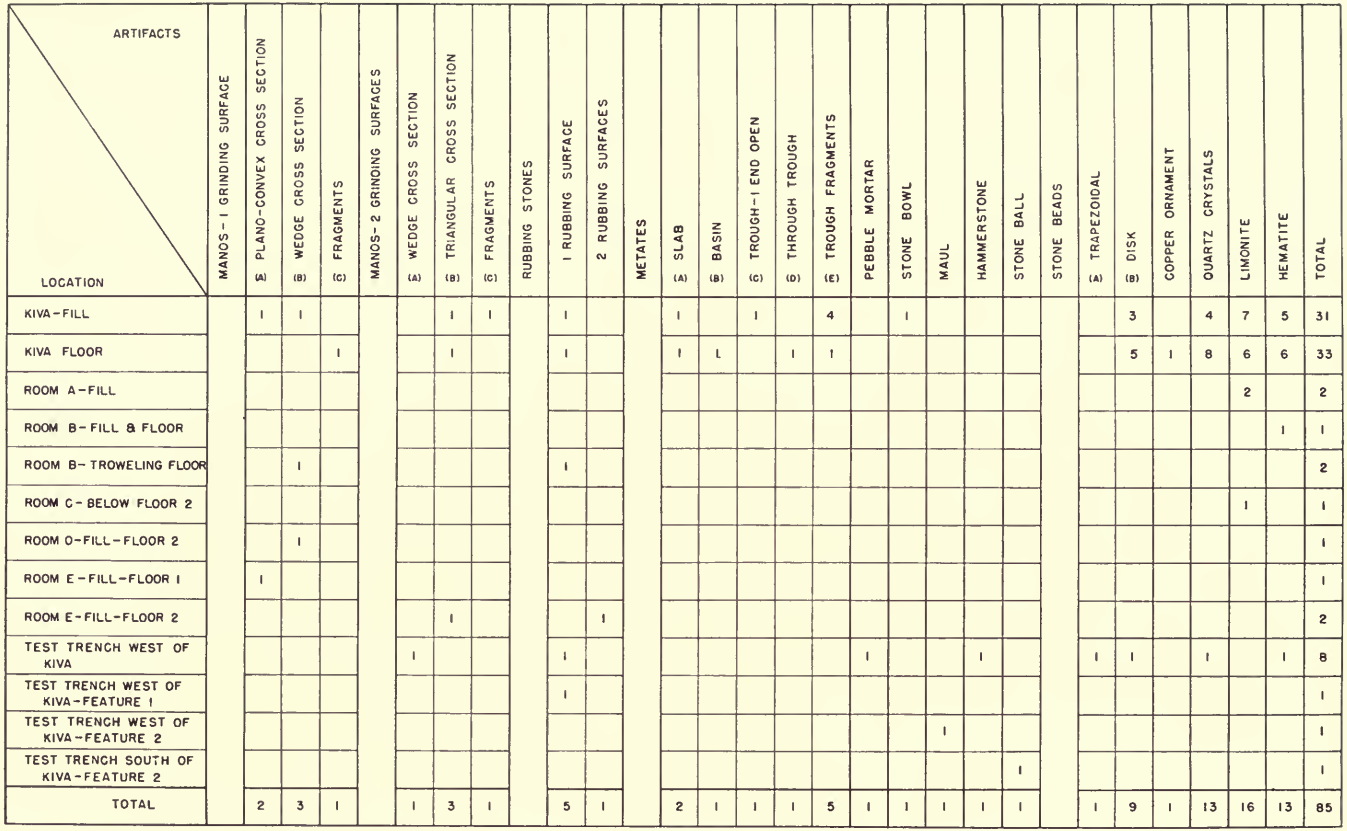
The distribution of the artifacts on the floors and in the features of the rooms contributes very little to our knowledge of the functional association of those tools at this site. One possible exception is the association of paint stones, quartz crystals and stone and shell beads, which might be considered part of ceremonial paraphernalia, on the floor of the kiva.

PROJECTILE POINTS / LOCATION	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	TIP FRAGMENT	TOTAL
KIVA FILL	3		1			1	3	1	3	2	1	15
KIVA FLOOR			1				1		3		1	6
TEST TRENCH WEST OF KIVA				1					2			3
TEST TRENCH WEST OF KIVA — FEATURE 2		1										1
TEST TRENCH WEST OF KIVA — FEATURE 3	1				1							2
TOTAL	4	1	2	1	1	1	4	1	8	2	2	27

FIG. 28. Occurrence of projectile point and blade types by provenience. Letters in parentheses refer to types on pages 46–49.

ARTIFACTS / LOCATION	DRILLS	SHAFT TYPE (A)	FLAKE TYPE (B)	GRAVERS	KNIVES	RANDOM FLAKE (A)	CONCAVO-CONVEX (B)	SIDE SCRAPERS	SMALL, THIN (A)	SMALL, THICK (B)	SERATE EDGE (C)	LARGE, THICK, PLANO-CONVEX (D)	LARGE, THICK, BIFACE (E)	END SCRAPERS	SMALL, THICK (A)	LARGE, THICK (B)	HOLLOW EDGE SCRAPERS	CHOPPERS	CORE GRIP (A)	BIFACE (B)	SAWS	HOES	WORKED SLAB FRAGMENT	TOTAL
KIVA - HUMUS				1		6				3			1											11
KIVA - FILL			1			31	10		17	19	1	1	6			2	2		1	1			1	93
KIVA FLOOR		1		2		15	6		6	2		1	1		1				2	2				39
ROOM A - FILL						7	3		4	4			2			2						1		23
ROOM B - FILL & FLOOR						1																		1
ROOM C - FILL - FLOOR 1							1			1											1			3
ROOM C - FLOOR 2						1																		1
ROOM D - FILL - FLOOR 1						1																		1
ROOM D - FILL BELOW FLOOR 1										1														1
ROOM E - FILL TO FLOOR 1						1				1														2
ROOM E - FILL, FLOOR 1 - FLOOR 2									1												1			2
TEST TRENCH WEST OF KIVA				1		10	1		3	3			3											21
TEST TRENCH WEST OF KIVA - FEATURE 1						5			3	2														10
TEST TRENCH WEST OF KIVA - FEATURE 2						3				2							•							5
TEST TRENCH WEST OF KIVA - FEATURE 3							1															1		2
TEST TRENCH WEST OF KIVA - FEATURE 4									4															4
TEST TRENCH SOUTH OF KIVA										1														1
TOTAL		1	1	4		81	22		38	39	1	2	13		1	4	2		3	3	2	2	1	220

FIG. 29. Occurrence of chipped stone tools by provenience.



LOCATION \ ARTIFACTS	MANOS - 1 GRINDING SURFACE	(A) PLANO-CONVEX CROSS SECTION	(B) WEDGE CROSS SECTION	(C) FRAGMENTS	MANOS - 2 GRINDING SURFACES	(A) WEDGE CROSS SECTION	(B) TRIANGULAR CROSS SECTION	(C) FRAGMENTS	RUBBING STONES	1 RUBBING SURFACE	2 RUBBING SURFACES	METATES	(A) SLAB	(B) BASIN	(C) TROUGH-1 END OPEN	(D) THROUGH TROUGH	(E) TROUGH FRAGMENTS	PEBBLE MORTAR	STONE BOWL	MAUL	HAMMERSTONE	STONE BALL	STONE BEADS	(A) TRAPEZOIDAL	(B) DISK	COPPER ORNAMENT	QUARTZ CRYSTALS	LIMONITE	HEMATITE	TOTAL
KIVA-FILL		1	1				1	1		1			1		1		4		1						3		4	7	5	31
KIVA FLOOR				1			1			1			1	1		1	1								5	1	8	6	6	33
ROOM A-FILL																												2		2
ROOM B-FILL & FLOOR																													1	1
ROOM B-TROWELING FLOOR			1							1																				2
ROOM C-BELOW FLOOR 2																												1		1
ROOM D-FILL-FLOOR 2			1																											1
ROOM E-FILL-FLOOR 1		1																												1
ROOM E-FILL-FLOOR 2							1				1																			2
TEST TRENCH WEST OF KIVA						1				1								1			1			1	1		1		1	8
TEST TRENCH WEST OF KIVA-FEATURE 1										1																				1
TEST TRENCH WEST OF KIVA-FEATURE 2																				1										1
TEST TRENCH SOUTH OF KIVA-FEATURE 2																						1								1
TOTAL		2	3	1		1	3	1		5	1		2	1	1	1	5	1	1	1	1	1		1	9	1	13	16	13	85

FIG. 30. Occurrence of ground stone tools, quartz crystals, and minerals by provenience.

ARTIFACTS / LOCATION	BONE	AWLS	FLAKERS	SHELL	BRACELET	BEADS	(A) BILOBED	(B) DISK	(C) HOOK	CLAY	SPINDLE WHORLS	WORKED SHERDS	FOOT EFFIGY	ANIMAL EFFIGY	TOTAL
KIVA FILL			1		2						8	3		1	15
KIVA FLOOR							1	16	1			2			20
ROOM A – FILL		1									2	4			7
ROOM B – FILL & FLOOR												1			1
ROOM E – FILL – FLOOR 1												2			2
TEST TRENCH WEST OF KIVA											1		1		2
TEST TRENCH WEST OF KIVA – FEATURE 2												1			1
TOTAL		1	1		2		1	16	1		11	13	1	1	48

FIG. 31. Occurrence of bone, shell, and baked clay artifacts by provenience.

V. Summary, Conclusions, and Conjectures

The Sawmill Site, consisting of an L-shaped pueblo of eight or ten rooms and a large semi-subterranean ceremonial room with masonry-lined walls and long ramp entrance, is a Reserve Phase village located on the edge of Dry Leggett Arroyo near a stream and a spring, furnishing an adequate water supply, and also near level land that is suitable for agriculture.

The pottery types and stone tools from the site are similar to those from other Reserve Phase sites in the area. The plain and textured utilitarian pottery types and the Mimbres painted types are indicative of the ceramic continuity from the earlier Mogollon phases in the area. Reserve Black-on-White is the new pottery type of northern derivation.

The knives, scrapers, choppers, drills, rubbing stones, bowls, mortars, bone awls and flakers, worked sherds, and shell bracelets are also traits indicating cultural continuity, for all are found in earlier and later sites in the region. Saws, some projectile point types, beveled manos, and through trough metates are new traits introduced at this time.

While masonry pueblos represent another innovation during the Reserve Phase, the large rectangular ceremonial room seems to be part of a tradition established as early as the Pine Lawn Phase. The ceremonial room at the Sawmill Site was rebuilt once, for there is evidence that the first semi-subterranean room on the site had jacal walls, and that the masonry walls were added later. That the room was used for ceremonies cannot be definitely determined, but because it is large and differs from the surface dwelling rooms, we may assume that it had a special function. Two troughs in the floor are similar to resonator-troughs or foot-drums found in other prehistoric and historic sites. The only artifacts which were definitely associated with the room and which might be termed ceremonial were the paint stones, quartz crystals, and stone and shell beads found at random on the floor.

Because of lack of time very little excavation was carried on in the pueblo. Enough sherds were obtained to indicate its contemporaneity with the kiva, but there are not enough data to compare tool type ratios and estimate population.

Although the only direct evidence of agricultural activity at the site was two hoe fragments, there is ample evidence from Tularosa Cave to indicate

that the Reserve Phase occupants of the area were agricultural. The few animal bones found indicate some hunting, although it does not seem to have been an important activity at this site.

The people who inhabited the site traded widely. Shell bracelets represent indirect or direct trade with the Gulf of California. Sherds indicate trade with the people of the Puerco-Chaco area.

The pottery types also furnish clues to the time of occupation. On the basis of ceramic seriation, as well as lithic material and architecture, the site was assigned to the Reserve Phase. The trade sherds were from the Puerco-Chaco area, and Red Mesa Black-on-White was the predominant type. Gladwin (1945, p. 63) dates this type at about A.D. 870 to 930. Two sherds of Wingate Black-on-Red were found on the floor of the kiva. This type may be dated as early as A.D. 950 (Gladwin, W. and H. S., 1934, p. 20). If we judge from these two types it would seem that the site might have been occupied as early as A.D. 950.

This date is earlier than current estimate of the beginning date of the Reserve Phase, which is placed at A.D. 1000. The latter was largely a guess, based on some tree ring dates for earlier phases and estimates of the amount of time necessary for a phase. It is possible that estimates of 100 years, from A.D. 900 to 1000, for the Three Circle Phase have been too long. Dates, by Gladwin, for Three Circle Phase houses at Wheatley Ridge, which also has a large ceremonial room like that of the Sawmill Site, range from A.D. 911+ to 926+. A re-examination of trade sherds from the fill in Three Circle Phase pithouses at Turkey Foot Ridge, previously designated as "Chacoan" (Martin and Rinaldo, 1950b, pp. 377–388), indicate that there are 14 Kiatuthlanna Black-on-White and 32 Red Mesa Black-on-White. Therefore, the majority of the trade sherds from both the Three Circle Phase and Reserve Phase sites are the same type, so perhaps the time span between the two is shorter than was previously believed.

The relationship of the Sawmill Site to other Reserve Phase sites in the area is perhaps the most significant aspect of the problem of analysis. When Arnold discovered the site in his survey of the area in the vicinity of the SU Site, he noted that this was the only site with a large ceremonial room of this type, and suggested that it represented a ceremonial center for the period (Martin, 1943, pp. 257–258). Subsequent survey by Rinaldo has revealed no other late site in the Pine Lawn Valley with a similar kiva.

A total of 39 Reserve Phase sites has been reported from the southern half of Pine Lawn Valley (fig. 32). They are scattered on the low mesas along the arroyos and in the sheltered arroyo valleys. Six of these sites, including the Sawmill Site, have been excavated. The majority are small pueblos of perhaps 4 to 8 rooms; only 3 have as many as 8 to 12 rooms.

In addition, 9 sites, scattered along Dry Leggett Arroyo in the vicinity of the Sawmill Site, are small one or two room masonry structures without any sherds or with very few sherds. One of these (Site 27) was excavated (Martin, 1943, p. 256). While they cannot definitely be assigned to the Reserve Phase, it is possible that these masonry structures served as storehouses at that time.

Therefore, the southern part of the Pine Lawn Valley community, if that is what it was, consisted of a pueblo with a kiva which may have been at least in part a ceremonial center, 38 secular dwelling units, and 9 storehouses. The estimated number of dwelling rooms in this area, including those in the pueblo adjacent to the kiva, is 205.

If we assume an average of 3 people per room, which is approximately the average obtained for modern pueblos when the number of rooms on the ground plans is compared with the census figures (Stubbs, 1950), then there may have been as many as 615 people living in the southern part of the valley—considerably more than live there today.

The composition of this population is another interesting point for conjecture. Comparison of percentages of pottery types of the Reserve Phase sites indicates that the percentage of Mimbres types at the Sawmill Site is greater than at any of the other Reserve Phase sites. Furthermore, Mimbres types are more important at the Sawmill Site than Reserve Black-on-White.

It is possible, therefore, that the Sawmill Site was inhabited largely by the indigenous Mogollon descendants of earlier inhabitants of the Pine Lawn area, while Three Pines Pueblo, Oak Springs Pueblo, Wet Leggett Pueblo, and South Leggett Pueblo were occupied by small groups of immigrants from the north. These immigrants were the people who introduced masonry architecture and Reserve Black-on-White pottery.

There is no evidence of violence in the valley at this time. If this hypothesis—that the different units were occupied by different groups—is valid, then the association would have been a peaceful one. There were more sherds representing trade with the area to the north (Kiatuthlanna Black-on-White, Red Mesa Black-on-White, etc.) at the Sawmill Site than in the other Reserve Phase pueblos. If the Sawmill Site were the community center, it might represent the center of trading activity. That the Sawmill Site was not just a transitional site representing the period when Mimbres pottery was dying out is suggested by the fact that Mimbres pottery types were also found at Higgins Flat Pueblo, Starkweather Ruin, and Valley View Pueblo, all of which were occupied after this period.

Further excavation of Reserve Phase sites in the area would help to clarify this problem of peaceful migration versus replacement and shed more light on the possible community center in Pine Lawn Valley. That

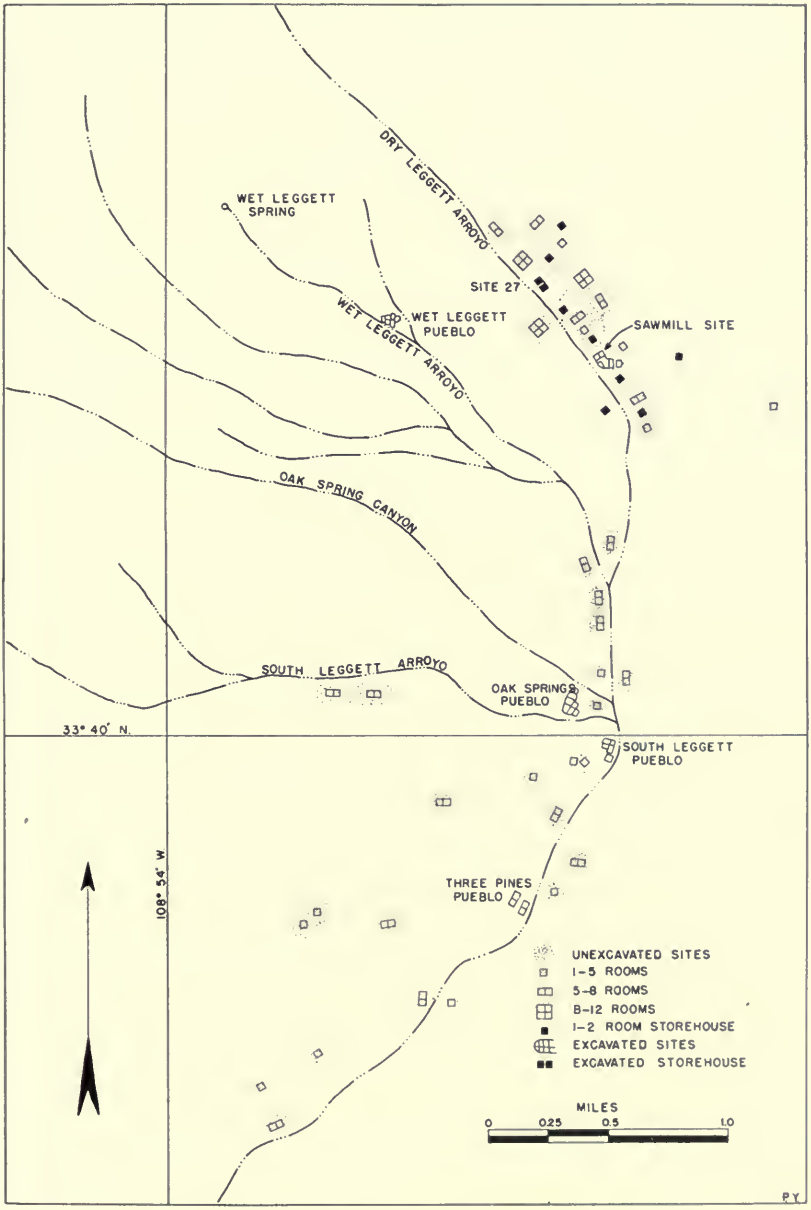


FIG. 32. Distribution of Reserve Phase sites in southern half of Pine Lawn Valley.

such conjectures depend almost exclusively on ceramic data is unfortunate, but the only evidence of possible migration consists of the pottery, the change in architecture, and a few new tool types. Skeletal material which might help to clarify the problem is lacking. Pottery is also, at present, our best basis for cross-dating, as the dendrochronology of the area still has to be worked on, and furthermore, all sites do not yield datable wood specimens.

If no Tularosa Phase sites are reported in Pine Lawn Valley in the future, then this Reserve Phase occupation is the last. Why the valley was abandoned, we do not know. Perhaps drought was one influencing factor. Or, the abandonment may have been one aspect of an as yet unexplained trend of movement at this time to larger, more compact, and more defensible villages. The Pine Lawn population may have moved into the area of the Starkweather Ruin or north of Reserve into the Apache Creek drainage. Further research, again, may be suggested as the source of solutions of these and other problems.

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