STRATIGRAPHIC EVIDENCE FOR A CULTURAL CONTINUUM AT THE POINT OF PINES RUIN

by

Elizabeth Ann Morris

A Thesis submitted to the faculty of the Department of Anthropology in partial fulfillment of the requirements for the degree of MASTER OF ARTS in the Graduate College, University of Arizona

1957

Approved: Raymond H. Thompson, Date
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Point of Pines is located about 60 air miles east of Globe, Arizona, due south of the great southward projecting bend of the Black River. The University of Arizona Archaeological Field School has conducted excavations in the area every summer since 1946. Its efforts have been concentrated on the Point of Pines Ruin, designated Ariz: W:10:50, in the Arizona State Museum Survey System (Wasley 1957). The physiography, ecology and a portion of the completed excavations have been covered in detail by Wendorf (1950) and Wheat (1954).

The focus of this study is a part of the Point of Pines Ruin where remains of the entire occupation from perhaps A.D. 1250 to 1450 are found in superposition. The surface remains consist of the debris of a small late pueblo characterizing the final occupation. These remains overlie a succession of earlier occupations in the large ruin. An attempt will be made to show the developmental nature of this span of habitation in terms of a cultural continuum.

The Point of Pines Ruin is located on a partially-wooded ridge, extending a quarter of a mile out on to the grass-covered expanse of Circle Prairie. On it are
three small isolated houseblocks which represent the final occupation. They are designated Ariz. W:10:50 A, B, and C (Fig. 1). Ariz. W:10:50 A has been reported by Wasley (1952), 50 B is included in this paper, and 50 C has been only partially excavated. There are five other small sites of equal antiquity in the immediate area, one of which, Ariz. W:10:51, has been described by Wendt (1950). These late sites were probably derived from a breakup of the population of the large Point of Pines Ruin into smaller social groups.

In Ariz. W:10:50 B twelve rooms, as well as the portions of the earlier rooms lying directly underneath, have been excavated. Each of these rooms constitutes a stratigraphic column, from surface to sterile soil, that includes material remains for the entire occupation. The positions of the remaining 20-25 rooms were determined for the uppermost levels. Each room was excavated separately, by levels varying in thickness from .20 to .70 M. Artifacts and sherds found within .10 M. of the floors were considered to be floor contact material. In some cases, the walls of earlier rooms crosscut the area beneath the latest rooms whose walls determined the limits of the individual units of excavation. The segments of the lower rooms which were too small to work in were left undisturbed. Consequently, the cultural deposits immedi-
Fig. 1. Map of the Point of Pines Ruin.
ately above sterile soil were not so completely sampled as those in the upper levels.

Each room was mapped according to the grid system established for all of the Point of Pines Ruin. Excavation records were kept for each room, and preliminary analyses of the material culture were completed at the field school. Pottery fragments were typed and counted, and a small representative sample was selected to bring back to the Arizona State Museum in Tucson. To reduce the transportation problem most of the stone artifacts were measured and drawn in the stone catalog file, but most of the specimens were left at Point of Pines. All other artifacts were cataloged and brought back to Tucson.

My work on the analysis of Ariz. W:10:50 E, would have been impossible had it not been for the willing advice and assistance of Emil W. Haury, Raymond H. Thompson and Wilma Kaemlein. I am grateful to L.F.H. Lowe, Christy Turner, Ann Stofer and Sally Spencer for assistance in preparing the manuscript. For suggestions regarding the preparation and presentation of the analysis I am indebted to James C. Gifford. Most of all, I am appreciative of the students who accomplished the actual excavation of the site, cataloged their finds, and prepared the room sheets upon which this report is based.
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Joan Steffens
Patricia Thompson
Meredith Treene
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INTRODUCTION

The Problem

Ariz.W:10:50 B is a late block of rooms located on top of the remains of structures which represent a considerable time span. The total depth of the cultural debris indicates an occupation dating from about A.D. 1250 to 1450. The purpose of the present study is to provide an accurate portrayal of the cultural development indicated by this accumulation.

The temporally distinct occupation layers under Ariz. W:10:50 B were identified primarily by their superposition and secondarily by the associated ceramic and architectural remains. These remains constitute the best available sample of the continuous accumulation resulting from the entire Mogollon-Pueblo occupation in the Point of Pines Ruin.

The majority of the pottery types are used as listed in Colton (1955); some are awaiting description. Many of the undescribed varieties are temporal or regional variations of previously defined types. Mention will be made of their affiliations and a final description left to the publication of the report on the Point of Pines Ruin.
Previous excavations in this ruin have resulted in the establishment of a series of temporally distinct phases, identified on the basis of the qualitative presence or absence of certain constellations of pottery types (Fig 2a). Prior to the excavations in Ariz. W:10:50 B, all of these phases had not been found in clear stratigraphic position. Most of them are in the process of definition with the exception of the final or Point of Pines phase which has been described by Wasley (1952). Any attempt to define the earlier phases before the great body of material culture from the Point of Pines Ruin is analysed would be premature. Rather, emphasis will be placed on the sequence of ceramic, artifactual and architectural evidence to portray their continuity with the later portions of the cultural development. It is believed that this will provide a more accurate synthesis of the situation than a phase system can provide. This late development has been termed the Mogollon-Pueblo cultural continuum (Fig. 2b).

Alternative Methods of Analysis

In Ariz. W:10:50 B each surface room constitutes the upper portion of a stratigraphic column of earlier remains 2 to 5 M. in depth. This accumulation provides a record of cultural development for the site. A phase
Fig. 2. Graphic comparison of the phase system to the Mogollon-Pueblo Cultural Continuum.
system has limited utility in the interpretation of such a record. It segments the material remains into temporally isolate parts. Where the archaeological evidence consists of the contents of several sites of short occupation, the assignment of temporal order involves the juggling of discrete assemblages of cultural remains. Phase units have extensive utility in terms of isolating temporal and geographical areas of shared cultural attributes. They represent a useful medium for describing and comparing the details and complexity of prehistoric remains. However, the gradation from one assemblage to another is not so clearly portrayed as in a situation where an equivalent cultural development is found in direct superposition and the occupation is represented as a continuum. The excavations in Ariz. W:10:50 B have supplied this kind of evidence.

Some of the earliest archaeological investigations in the Southwest assessed the variety of architectural and ceramic remains as a reflection of distinct classes of a single society (Hewitt 1908). Chronological and seriation methods developed since this time have provided the temporal perspective that we utilize today. In many regions the march of progress has been traced in extensive detail.

This development has had as its most basic set of
tools a number of interrelated taxonomic systems segmenting the material culture complexes and their component parts into entities with limited regional and temporal distribution. These units are of the utmost value in correlating developments within a single region, and between two or more regions. On a framework built of these groupings, the cultural progression of southwestern prehistory has attained a poignant depth. The continuing refinement of taxonomic units for relatively well-explored areas, and the organization of material culture complexes for unknown areas, is evidence of the usefulness of this method of analysis and the continuing interest in studies of this nature.

Inherent in this method is the failure to present prehistoric development as more than a series of precisely defined contiguous rather than continuous units. Taxonomic typology makes use of contemporaneously occurring types of material culture. The fact that archaeologists are able to distinguish groups of specimens on the basis of their material and dimensional attributes, would seem to indicate that the manufacturers of those articles were attempting to approach some cultural norm. The manifest or latent function of this norm is unimportant at this stage of the analysis.
Taxonomic arrangements group various members of typological series into units or phases that have regional or temporal significance. This significance is apparent to the analyst, because he has access to materials of some temporal range. The people who furnished the artifacts for this range were unaware of the development, at least in the terms of the complexes which we recognize. As a result, lacking a major intrusion, most and possibly all of the material culture attributes in this situation represent a cultural continuum. The artificial segmenting of the continuum has a certain utility but must not be considered an end in itself. The value and limitation of taxonomic method have been described before. Kidder (1936.xx) states in reference to a parallel situation:

"The division of the Glaze ware of Pecos into chronologically sequent types is very convenient and, superficially, satisfactory arrangement. For some time I was very proud of it, so much so, in fact that I came to think and write about the types as if they were definite and describable entities. They are, of course, nothing of the sort, being merely useful cross-sections of a constantly changing cultural trait. Most types, in reality, grew one from the other, by stages well-nigh imperceptible."

The stratigraphic columns underlying the surface of Arizona present an unparalleled opportunity to explore the nature of the change in the Mogollon-Pueblo cultural traits in the Point of Pines area.
THE METHOD OF DATA PRESENTATION

In determining a method of data presentation, two major methodological approaches can be considered. The first, as used by DiPeso (1953), includes an introductory statement meant for the general reader, followed by a tabulation of data to be used by the research analyst. Wheat (1956:430) states:

"The value of publishing the basic data cannot be over-emphasized, for they constitute the permanent result of the excavation. Many of the raw data are printed ... so that someone who does not have access to the collections has the essential material for further synthesis and comparison. This method of presentation is a successful solution to the problem of providing in the same publication both the details needed by the specialist and the general material which the non-specialist wants."

When this sort of description is used the data can be re-organized by each reader according to his interests. The presentation of details of this kind has utility in establishing phases, and with the aid of ethnographic data, in reconstructing the cultural activities implied by each class of artifacts.

Another approach to this problem involves a similar description of each class of artifacts, but limits the tabulation of data to those specimens whose material and dimensions were not closely controlled by the structure and function of the raw material and the tool.
For instance, the listing of the lengths of bone awls, a function of the size of the leg of a deer, wear and sharpening, with an inevitably limited range, has little interpretive potential. On the other hand, the forms of newly sharpened awls reflects a cultural preference with a possibly functional utility.

An infinite variety of detail on some classes of artifacts is significant in terms of areal and temporal identifications. This reporting of great detail has been converted into a methodology by some workers and extrapolated to all classes of artifacts. The outcome is immense expenditure of time and a few potentially useful results. The pursuance of "method for methods sake" can see the obscurance of the relative importance of those classes of artifacts whose dimensional attributes have considerable cultural significance.

The choice of which artifact classes to describe fully and which to generalize should be left to the discretion of the worker, for it depends on his ability and his familiarity with the materials. This method reduces the time spent in the laboratory analysis and the space utilized in the finished report necessary to present the significant data. An examination of both of these methods, in view of the problem at hand, has proved to the writer that the latter one has a distinct utility.
The categorization of the stone and bone tools is based on the types established by Wendorf (1950), Wasley (1952), and Wheat (1954) in previous studies on the Point of Pines region. Certain elaborations are required by the materials available. These types constitute no great departure from most of the designations in use in the Southwest today. The dimensions believed to be culturally significant are included in the appendices. The frequencies of the types are plotted according to room and level (Figs. 3, 7). The extensive variation in the size of the levels precludes the quantitative comparison of artifacts from one level to another. However, it was thought that a comparison of occupational periods and of rooms might reveal a culturally significant distribution, particularly a quantitative variation with temporal significance. There is, however, no discernible pattern in the stone and bone tool collection. Apparently the maximum information that can be derived from a description of these data is a definition of types. In many cases the tool type is functionally and taxonomically determined by the material, so no further analysis based on the localization of artifacts of various compositions was conducted. The distribution can be utilized for a qualitative rather than a quantitative association.
### Table: Provenience of Bone Artifacts

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**Fig. 3.** Provenience of bone artifacts.
In an effort to present the ceramic analysis as definitively as possible the numbers of each type in each level are listed (Figs. 4,6). The percentage composition was plotted for each level. The existing difference in depths of floor and fill levels was negated by deriving percentages of each type per total number in the level. It was hoped that from the averaging of type constellations in terms of per cent values time periods could be derived. Ideally, this constellation of types in their relative abundance would have temporal significance and would lead to interpretations regarding the amount of pottery manufactured locally, and possibly the number of pieces in use at any one time. Actually, the percentage constellations from floor levels, determined to be of a given phase by the presence or absence of certain pottery types, showed no patterning and so is not included in this report. This lack of consistency can be attributed to an intentional or accidental original distribution, to the small number of sherds in floor levels, and to variations in sherd identification among different workers.

The reasons for the lack of information to be gained by the derivation of percentage figures, also precludes the use of statistical methods of analysis on data of this sort. The major prerequisites for the use of statistics
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Fig. 4. Ceramic analysis according to room and level.
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<th>Room 5 Fill Fl. 1</th>
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<td>Polychrome</td>
<td>El Paso Poly</td>
<td>Gila Poly</td>
<td>Pinto Poly</td>
<td>Maverick Mt. Polychrome</td>
<td>Gila Black on-red</td>
<td>Pinadel Black on-white</td>
<td>Tularosa White on-red</td>
<td>Kinabba Red</td>
<td>Brown Plain</td>
<td>Plain Corrugated</td>
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Fig. 5  Provenience of whole and restorable vessels.
|------|------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|

Fig. 6. Trade sherd analysis by room and level.
|--------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
in ordering archaeological data would include an adequate sample of equivalent data. An adequate sample would be one large enough to show the true nature of the data. Equivalent data would involve consistent causal variables of occurrence. The lack of isolating the effects of these variables renders the statistical analysis of archaeological data of rather doubtful interpretive utility.
... it had become increasingly evident that the surest archaeological results were to be derived from the study of pottery.

A.V. Kidder

Introduction

The lack of material and functional sensitivity in the cultural debris within the range of time involved, leaves the non-utilitarian decoration of pottery to record the passage of time. The decorated types, with the exception of the Maverick Mountain Series, were generally intrusive in the Point of Pines area. The utility types, that is, the plain and corrugated wares were locally manufactured. The extensive elaboration of the corrugated ware is probably unequaled elsewhere in the Southwest.

Potsherds were collected and sorted in the field according to published or laboratory types. They were then counted and a sample selected to return to the Arizona State Museum. Figure 5 shows the distribution by type of the whole and restorable vessels found in the various levels.

The entire sherd sample was subjected to the intensive analysis just described in an effort to extract the
greatest possible amount of information (Figs. 4, 5, 6).
The presence or absence of certain decorated pottery types,
and to a lesser extent, the relative quantities of these
types in a given level provided the most sensitive indica­tion of cultural change. The types which are useful in
this analysis comprise the White Mountain Red Ware (See
below). The majority of pottery types will be used as
listed in Colton (1955). These listings and a brief de­
scription of the diagnostic characteristics and affiliations of each type will be presented in the following
section. A final definition will be left to the publica­tion of the report on the Point of Pines Ruin.

Pottery Types

White Mountain Red Ware (Colton & Hargrave 1937:102)

White Mountain Series. 1.

Houck Polychrome:

Hawley 1936:49.
Colton & Hargrave 1937:121.

Black, often glaze, on or­
angish red. Interior designs,
paneled solid and hatched
triangles, and scrolls. Out­
lined in white. Exterior
slipped white or left unslip­
ed with large coarse designs
painted in red.

1. St. Johns and Houck polychromes listed as members
of the sherd tempered Red Series of the Shiwanna Red Ware
in Colton 1955, are included here in the White Mountain
Series, as in Colton 1937, in recognition of their tempo­
ral and stylistic developmental affiliations in the Point
of Pines area.
St. Johns Polychrome:
Haury 1932.
Hawley 1936:49.
Smiley, Stubbs and Bannister 1953:58.

St. Johns Black-on-red:
Undescribed.

Springerville Polychrome:
Undescribed.

Pinedale Black-on-red:
Colton & Hargrave 1937:106.

Pinedale Polychrome:
Haury 1932:421.
Hawley 1936:71.
Colton & Hargrave 1937:107.

Cedar Creek Polychrome:
Undescribed.
Smiley, Stubbs & Bannister 1953:58.

Same as Houck Polychrome, but exterior slipped red and white geometric designs painted with finger or brush. Temporal relation to Houck unknown.

Same as St. Johns Polychrome, without white paint. Probably contemporaneous.

Same as St. Johns Polychrome with addition of black glaze in exterior design. Probably transitional between St. Johns and Pinedale Polychrome.

Glazed black-on-red. Interior design neatly executed, paneled solid and hatched triangles, scrolls common. Common exterior designs, as isolated units. Develops out of St. Johns Black-on-red.

Like Pinedale Black-on-red with addition of white to interior and exterior designs.

Glazed black-on-red. Scrolls and large solid and hatched elements on interior. No wide framing line at rim. Exterior design a continuous band with geometric design. White used to outline interior and balance exterior designs. Transitional between Pinedale and Four-mile polychromes.
Fourmile Polychrome:

Haury 1934.
Haury 1936:72.
Smiley, Stübbbs & Bannister 1953:56

Glazed black-on-red. Scrolls and large solid and hatched elements over whole interior. Wide black framing line on interior of rim. Framing lines for hatched areas thicker than hatched lines. Exterior design a continuous band of geometric design. White used to outline interior designs and balance black in exterior designs. Fourmile-F a common component. Outgrowth of Cedar Creek Polychrome.

Willow Mountain Polychrome:

Undescribed.

Similar to Fourmile Polychrome with addition of a purplish color to the black and white on red.

Showlow Polychrome:

Colton & Hargrave 1937:111.

Same as Fourmile Polychrome with addition of large white slipped areas, often with isolated black designs on white. Contemporaneous with Fourmile Polychrome.

Kinishba Polychrome:

Cummings 1940:87.

Red and greenish black on creamish tan. Interior and exterior designs, layout basically geometric. (Fig. 8b).

Point of Pines Polychrome:

Wendorf 1950:43.
(Defined as Fourmile Polychrome, Point of Pines variety)

Like Fourmile Polychrome, with poorly executed designs and design layout. Brown paste local to Point of Pines area, with leucite-tuff inclusions. Consistently later than Fourmile in the Point of Pines area. (Figs. 9, 11, 12, 13, 14, 15, 16, 17)
Fig. 8. a. Maverick Mountain Polychrome bowl frag. Rm. 6-2a, Fl. 5. Diam. 24 cms. Depth 16 cms. Stippling indicates red slip.

Fig. 9. Point of Pines Polychrome jar. Rm. 6, Fl. 1.
Greatest diam. 27 cms. Depth 15 cms.
Fig. 10. Kinishba Red jar. Rm. 1, Fl. 1. Diam. 27 cms. Depth 22 cms. Note kill holes on side. A third kill hole is on the bottom.
Fig. 11. Point of Pines Polychrome bowl. Rm. 10.
Fl. 1. Diam. 23 cms. Depth 8.5 cms.
Stippling indicates red slip.
Fig. 12. Point of Pines polychrome bowl. Rm. 5. Fill levels 1-3. Diam. 31 cms. Depth 13 cms. Stippling indicates red slip.
Fig. 13. Point of Pines polychrome bowl. Rm. 5. Fill levels 1-3. Diam. 22.5 cms. Depth 11 cms. Stippling indicates red slip.
Fig. 14. Point of Pines Polychrome bowl. Rm. 5. Lev. 2. Diam. 28 cms. Depth 11 cms. Stippling indicates red slip.
Fig. 15. Point of Pines Polychrome bowl. Rm. 5.
Fl. 1. Diam. 22.5 cms. Depth 9.5 cms.
Stippling indicates red slip.
Fig. 16. Point of Pines Polychrome bowl. Rm. 5.
Lev. 2. Diam 23.5 cms. Depth 10 cms.
Stippling indicates red slip.
Fig. 17. Point of Pines Polychrome bowl. Rm. 5. Fill levels 1-3. Diam. 32 cms. Depth 15 cms. Stippling indicates red slip.
Maverick Mountain Series

Maverick Mountain Polychrome:
Undescribed.

Maverick Mountain Black-on-red:
Undescribed.

Nantack Polychrome:
Undescribed.

Prieto Polychrome:
Undescribed.

Tucson Polychrome:
Hayden (in press)

Black and white on dark red. Black stripes and hatching of rectangular or triangular panels. Elements outlined in white. Rare white on exterior.

Same as Maverick Mountain Polychrome, without addition of white. Probably contemporaneous.

Red and black on tan. Black used to border red broad lines and for hatching.

Red and white on tan. Red broad lines form design, bordered with white.

White and black on polished red slip. Black fires to a golden tan, always in broad lines, bordered with white.

Roosevelt Red Ware (Colton & Hargrave 1937:85).

Pinto Polychrome:
Hawley 1936:77.
Colton & Hargrave 1937:87.

Black and white on red. Interior slipped white, with black design. Centers open. No framing line at rim, solid and hatched triangle, scrolls and stripes. Rarely white exterior designs. Occurs before and during early manufacture of Gila Polychrome. (Fig. 18)

Gila Polychrome:
Hawley 1936:78.
Colton & Hargrave 1937:90.
Haury 1945:63-80.

Black and white on red. All over design of solid scrolls and tapering triangles. Some hatching. Wide black framing line at rim.

1. (Colton 1955) Ultimate allocation dependent on final study of types involved.
Fig. 18. Pinto Polychrome bowl. rm. 1. Fl. 4.
Diam. 22 cms. Depth 10.5 cms. Stippling
indicates red slip. Note white exterior
design.
Fig. 19. Gila Polychrome bowl frag. Rm. 3. Lev. 1
Diam. ca. 27 cms. Depth ca. 14 cms.
Fig. 20. Gila Polychrome bowl. Rm. 3. Lev. 1.
Greatest diam. 23 cms. Depth 12 cms.
Stippling indicates red slip.
Gila Black-on-red:
Haury 1945:65.

Tonto Polychrome:
Hawley 1936:79.
Colton & Hargrave 1937:90.
Haury 1945:63-80.

Same as Gila Polychrome without white slip.

Same as Gila Polychrome, with white slip applied to only part of decorated surface to produce a white and black on red design, or red applied over the white for the same effect. Contemporaneous to later existence of Gila Polychrome and ranging somewhat later in time.

Cibola White Ware. (Colton 1955:18)

White Mountain Series.

Reserve Black-on-white:

Tularosa Black-on-white:
Nesbitt 1938:139.
Rinaldo & Bluhm 1956:177.

Pinedale Black-on-white:
Haury 1931:62.
Colton & Hargrave 1937:24.

Balanced solid and hatched triangles in rectangular and triangular panels. Some scroll elements.

Design similar to Reserve Black-on-white, but more intricate and precise. Some designs lack hatching. White slip often crackled. Outgrowth of Reserve Black-on-white.

Glaze black on white. Designs more intricate and better executed than Tularosa Black-on-white. Few balanced solid and hatched triangles; scrolls and interlocking stepped elements common. Outgrowth of Tularosa Black-on-white. (Fig. 21)

Intrusive Decorated Types.

Zuni Area.

Heshotauthla Polychrome:
Like St. Johns Polychrome with glaze black.
Hawley 1936:76.
Colton & Hargrave 1937:113.
Fig. 21. Pinedale Black-on-white bowl. Rm. 1. Fl. 4. Diam. 21 cms. Depth 8 cms. Stippling indicates grey unslipped exterior. Note white finger-marks as decorative elements.
Wallace Polychrome:  
Colton & Hargrave 1937:114.  

Zuni parallel to Pine- 
dale Polychrome. (?)

Hopi Area.

Jeddito Black-on-yellow:  
Hawley 1936:73.  
Colton & Hargrave 1937: 
150.  

Black-on-yellow. Interior 
geometric and life form 
designs. Sometimes exter-
tor geometric designs.

Kayenta Black-on-white:  
Kidder 1924:71.  
Hawley 1936:38.  
Colton & Hargrave 1937: 
217.  

Black on white. Heavy geo-
metric designs, little 
white showing. Designs 
described as "checkerboard" 
and "Mosquito bar".

Holbrook Black-on-white:  
Colton & Hargrave 1937:235.  

Heavy black designs on 
crazed white slip.

Globe Area.

San Carlos Red-on-brown:  
Undescribed.  

Red on brown, smudged in-
terior. Designs in small 
solid stepped triangles or 
ticked lines.

Gila Valley.

Sacaton Red-on-buff:  
Haury 1937:171.  

Red on buff. Free elabo-
rate designs using lines 
solid triangles, circles, 
fringe, scrolls, life forms. 
Large open designs.

Casa Grande Red-on-buff:  
Gladwin 1933:22.  
Haury 1945:51-63.  

Red on buff. Smaller styl-
ized designs, more formal 
than in Sacaton. Lack of 
life forms, fringe and 
wavv line designs. Out-
growth of Sacaton and Sa-
lado design styles.
Chihuahua.

Ramos Polychrome:

Hawley 1936:97.
Sayles 1936:45.

Southern New Mexico.

El Paso Polychrome:

Stallings 1931:comp.

West-Central New Mexico.

Tularosa White-on-red:

Rinaldo & Bluhm
1956:173.

Mangus Black-on-white:
(Mimbres Boldface Black-on-white)

Cosgrove 1932:76.
Haury 1936:22.
Hawley 1936:62.

Mimbres Classic Black-on-White:

Cosgrove 1932:72.
Hawley 1936:62.
Smiley, Stubbs & Bannister 1953:58.

Black and red on cream. Fine parallel lines and solid geometric elements. Very neatly executed.

Sloppy watery maroon and black on brown. Thin ware, with thick flaring rim. Exterior polishing marks evident. (Fig. 22)

White on red exterior. Designs in band below rim fillet or rim. Lines only in geometric patterns. Interior smudged. (Fig. 23 b)

Black on white slip over brown paste. Designs geometric and poorly executed, usually in band below rim.

Black-on-white slip over brown paste. Hatched and solid geometric and figures; life forms. Very neatly done.
Fig. 22. El Paso Polychrome jar frag. Rm. 10. Fl. 1.
Diam. ca 35 cms.
Fig. 23. a. McDonald Painted Corrugated jar. Rm. 1.

b. Tularosa White-on-red bowl design. Rm. 4.
Fl. 1. Interior smudged. Stippling indicates red slip.
Plain Ware Types.

Alma Plain:
Haury 1936:32.  
Haury 1940:69.  
Hawley 1936:104.  
Nesbitt 1938:137.  

Reserve Smudged:
Nesbitt 1938:97.  

Alma Incised:
Haury 1936:40.  
Hawley 1936:106.  

Kinishba Red:

Kinishba Red Smudged:
Undescribed. Smudged variety of Kinishba Red possibly occurring only at Point of Pines.  

Fillet Rim Types.

Reserve Fillet Rim:

Tularosa Fillet Rim:
Kidder 1924:98.  
Gladwin 1934:18.  
Wendorf 1950:121.  

Imitation Tularosa Fillet Rim:
Undescribed.  

Plain brown bowls and jars, polished, unslipped.  

Polished brown exterior, intentionally smudged interior.  

Plain polished brown, with incised line decoration. Simple geometric forms.  

Plain red slip over brown paste. (Fig. 10)  

Plain brown bowl, often smudged. Two or three plain corrugated fillets left on exterior just below rim.  

Plain brown bowl, often highly polished, often smudged. Two or three indented corrugated fillets left on exterior just below rim.  

Plain brown poorly polished bowls. Parallel diagonal scoring just below rim.
McDonald Grooved Corrugated: Plain and indented corrugated with deep wide grooves pressed into the corrugations in crude geometric patterns. Grooves painted white.

The Method of Analysis.

The examination of the relative quantities of corrugated and plain sherds, from various positions in the stratigraphic column, revealed a lack of change during the period represented. This consistency is apparent for individual types and for corrugated and plain sherds as a whole. About 15 per cent of all pottery from all levels, are plain and fillet rim types. About 75 per cent of all sherds from all levels are corrugated types. The remaining 10 per cent of the sherds are decorated types.

The types within the White Mountain Series of the White Mountain Red Ware present a continuous variation within the time involved. The great majority of these types, with the exception of Point of Pines polychrome, are assumed to have been traded into Point of Pines from the Showlow area. Some sherds of each type have brown paste with leucite tuff inclusions and are presumed to be of local manufacture.
Corrugated Types.

Point of Pines Plain Corrugated; (and Plain Corrugated Red):

Mentioned in Breternitz, Gifford & Olson 1957.

Like Reserve Plain Corrugated, in Rinaldo & Bluhm 1956, utilizing larger fillets and vessels. Generally coarse construction.

Point of Pines Indented Corrugated; (and Indented Corrugated Red):

Mentioned in Breternitz, Gifford & Olson 1957.

Like Reserve Indented Corrugated in Rinaldo & Bluhm 1956, utilizing larger fillets and vessels.

Point of Pines Patterned Corrugated; (and Patterned Corrugated Red):

Mentioned in Breternitz, Gifford & Olson 1957.

Like Tularosa Patterned Corrugated in Rinaldo & Bluhm 1956, utilizing larger fillets and vessels.

Prieto Corrugated:

Mentioned in Breternitz, Gifford & Olson 1957.

A form of indented corrugated where indentations are made with the thumb or finger-tip, producing large rows of round contiguous indentations. ("Fishscale Corrugated")

McDonald Corrugated Types.

McDonald Painted Corrugated: Colton & Hargrave 1937: 61. (Gen'l)

Plaint, indented and patterned corrugated vessels with white geometric designs painted over the exterior. (Fig. 23a)

McDonald Indented Corrugated:

Colton & Hargrave 1937: 61.

Patterned corrugated with indented corrugated portions painted white.
The White Mountain Series is included in the analysis of local types rather than be considered in that of the trade sherds because of its relative great quantity. It is believed that at a given time a certain portion of the ceramic component of the village was expected to be of these polychrome and black-on-red types. Trade vessels would be much rarer, almost accidental acquisitions.

The indigenous decorated types of the Maverick Mountain Series and the Roosevelt Red Ware showed no marked temporal variation. According to the current interpretation, the types within the Maverick Mountain Series were manufactured before the major occupation of the part of the pueblo beneath Ariz. W:10:50 B. Any sherds of these types associated with this pueblo are attributed to the redeposition of trash or heirloom pieces. The types within the Roosevelt Red Ware, Pinto, Gila, and Tonto polychromes, exhibit only a limited temporal preference in any situation. Generally speaking, Pinto Polychrome was the earliest type of this series and Tonto Polychrome was the latest. The question of the intrusive nature of all or part of the Gila Polychrome Series found at Point of Pines has been raised in a recent publication (Danson & Wallace 1956). It appears to have been made over a wide area, including Point of Pines.
In a non-definitive way, this is reflected in the stratigraphic situation that we are considering. On the other hand, the types within the White Mountain Series are present in relative abundance and exhibit a progressive and gradual change in decoration which diagnostically portrays a cultural continuum.

The earliest masonry walls are built on trash containing rare sherds of St. Johns and Houck polychromes. The floor levels within these walls and the overlying deposits of trash and later floors contain a relatively great quantity of White Mountain Series types. An index of development was read from the presence and absence of these types as well as the relative quantities. This index was established on the decorative technique utilized on pottery vessels. The characteristics for distinguishing between these types are given above. The significance of the development will be presented below. It will suffice here to say that the sequence from Pinon Polychrome with no wide interior framing line and isolated exterior design elements, to Cedar Creek Polychrome also with no wide interior framing line and continuous exterior decorative panel, to Fourmile Polychrome with a wide interior framing line and a continuous exterior decorative panel, is clearly demonstrated in each stratigraphic column.
Trade Sherds.

Trade sherds with the exception of the excluded White Mountain Series, are noticeably lacking in all except the uppermost floor and overlying fill levels. In this later period of time there are a few sherds from every known occupied area of the Southwest except the Rio Grande Valley. Figure 24 shows the distribution of the places of manufacture of these types. Whether or not they were transmitted directly from their place of manufacture to Point of Pines, or whether they were involved in a sequence of exchanges through intermediate areas is unknown. The fact that there is such a variety of trade vessels from such diverse areas indicates some sort of contact out of Point of Pines in a number of directions.

The few trade sherds in levels under the uppermost floors include both the Gila Valley and the Safford Valley varieties of Casa Grande and Sacaton Red-on-buff. Holbrook Black-on-white, Heshotauthla Polychrome and San Carlos Red-on-brown are also present in this fill in small quantities. Compared to the later period, there seems to be a general lack of intrusives. In the Zuni area, an undefined regional variant series of the White Mountain Series was being used. The diagnostic criteria for the identification of these types have not been examined. There is a general lack of other northern sherds.
Fig. 24. Map of source areas for trade ware in the latest period in Ariz. W:10:50 B.
Ceramic Summary.

The interpretation of the ceramic data is significant in terms of its portrayal of the developmental cultural sequence in the Point of Pines area. The small amounts of Tularosa phase and Maverick Mountain phase trash under the main pueblo are not present in sufficient quantities to do more than portray the distinct differences between these two complexes, and the difference between either of them and the overlying cultural remains. The orientation toward a separate decorated pottery complex is almost exclusive in each of these assemblages. This is, in one case, Tularosa Black-on-white; in another, the Maverick Mountain Series. In the final instance a temporal span of some depth is registered in the gradual transition from type to type. The lack of any abrupt change in the material culture makes this aspect of the evidence the most sensitive indicator of the passage of time (Fig. 25).
Fig. 25. The temporal significance of the ceramic analysis.
DATING

"Chronology is the thread upon which may be resting the beads of history as the archaeologist recovers them from the rubbish of centuries."

E.H. Morris

The Method.

The most suitable approach to the problem of dating Ariz. W:10:50 B is through a combination of the principles of stratigraphy, typological seriation and the occurrence of pottery types dated indirectly through the use of tree-ring dates derived from other sites where these pottery types occur. Certain aspects of this procedure are rather tenuous and the potential sources of error expand rapidly as the accident of association between certain tree-ring dates and specified quantities of various pottery types are extrapolated from one site to another.

This source of error may be at least partially eliminated by repeated duplication of the original association of tree-ring dates and pottery types, and by similarly increasing instances of occurrence in the area to be dated. Generally speaking, each of the occupation levels in a site will contain particular pottery types
in certain relative amounts. These constellations of types are presumed to be diagnostic of the occupation that produced and used them. It is perhaps unnecessary to emphasize that this repetitive constellation of types offers a more stable basis for dating the associated cultural material than the limited occurrence of a single type.

Several periods in the site which cannot be dated by associated tree-ring specimens are temporally placed by the occurrence of certain pottery types in stratigraphic and stylistic sequence, that are found with tree-ring material in the area of their manufacture.

The Temporal Placement

Datable tree-ring specimens have been obtained for the Maverick Mountain phase construction at Point of Pines. The Maverick Mountain trash under the architecture of the pueblo underlying Ariz. W:10:50 B, was presumably deposited by people who lived in the nearby Maverick Mountain rooms. This provides a bottom date for the building of the pueblo above it, that is somewhat more reliable than the extrapolation of dates from distant sites. The fact that the extended sequences and locally derived dates are internally and externally consistent lends validity to their use. In any case this is the only information available for temporal interpretation.
The Maverick Mountain Series sherds in the trash directly overlying native soil are found in floor contact of rooms that elsewhere in the pueblo are burnt. The carbonized roof timbers and supporting posts provide tree-ring dates from ca. 1260 to ca. 1300. Supposing a period of occupation after the building of these rooms, the pottery types probably do not date much after 1300 except as an occasional heirloom piece.

Tularosa Black-on-white, the diagnostic decorated type of the non-Maverick Mountain trash underlying Ariz. W:10:50 B, is dated at 1100 - 1250 (Rinaldo & Bluhm 1956:177). The McDonald Corrugated types collectively dated at 1150-1250 (Colton & Hargrave 1937:61) are relatively abundant in this trash but are represented by only a few sherds in the later remains. The Tularosa and Maverick Mountain deposits did not occur in superposition at any place under Ariz. W:10:50 B.

The White Mountain series (Colton & Hargrave 1937:104) offers the most diagnostic information available for the ceramic sample available in this site. With the exception of Point of Pines Polychrome, these types are intrusive at Point of Pines, probably being derived from the Showlow area. As was described in the ceramic section, there are a few White Mountain Series sherds made with local paste in most of the floor and fill levels.
Fourmile Polychrome has been dated at 1300-1400 (Colton & Hargrave 1937:109). At the Showlow Ruin it comprised three-fourths of all the pottery during the time of its dominance. This pueblo, which is one of the probable manufacturing centers for this type, is about 60 air miles north west of Point of Pines. It may have been the source for some of the pottery that was intrusive at Ariz. W:10:50 B. Haury and Hargrave (1931:40) describe the dating of Fourmile Polychrome by tree-ring specimens found in the Showlow area.

"The dating of Four-mile Polychrome is made possible by a number of cases of its association with timbers that yeilded cutting dates. The last big construction period in the Showlow Ruin extended over approximately 25 years prior to 1383. The latter date is the most recent cutting date found in over 1200 specimens gathered from various parts of the pueblo. It appears, then, that no major building was going on after 1383. In 15 rooms belonging to the period in question, Four-mile Polychrome was invariably present. This means that the pottery found in a room constructed in say 1375, would likely be post-1375, provided the associated pottery was not exotic but representative of local types at that time. The finding of Four-mile Polychrome in these 15 rooms places its time unquestionably as shortly after 1383, although it was present in rooms dating 1375 and may even have been in existence 25 or 30 years earlier. That it had not been developed by A.D. 1300 is shown by the results of excavations at Pinedale, where an antecedent form was in existence at that time, and Four-mile Polychrome was absent. Nor do we know exactly how long it survived after 1383. Showlow Ruin was probably abandoned at the close of the 14th or early in the 15th century just before
tury just before the Hopi Jeddito Black-on-yellow penetrated the region in any appreciable amount. In addition to its characteristic polychrome, Fourmile ruin contains an abundance of the Hopi yellow (Jeddito Black-on-yellow) which would place the abandonment of that site after Showlow. But how long after, we are not ready to say. The absence of Sikyatki Polychrome at Fourmile ruin implies its abandonment prior to 1450 A.D.

Fourmile Polychrome occurs with earlier tree-ring dates at the Canyon Creek Ruin (Haury 1934), these dates being 1323 to 1348; and at the Sierra Ancha Cliff Dwellings (Haury 1934) where the dates range from 1248 to 1347 A.D. The type collections of sherds from these sites exhibit only Fourmile Polychrome and no Cedar Creek Polychrome. Pinedale Polychrome previously described by the same author was not present.

Cedar Creek Polychrome can be temporally placed only by the relative position of its occurrence. It is similar to Fourmile Polychrome, and has an almost parallel occurrence with this type. The early preponderance of Cedar Creek Polychrome, is consistent in the sherd counts from all of the rooms in Ariz. W:10:50 B, and in the light of this evidence is seems reasonable to place its predominance somewhat earlier in time than Fourmile Polychrome. Floors of increasing depth under the uppermost one, show a gradually increasing ratio of Cedar Creek Polychrome to Fourmile Polychrome, and this is the typical condition
in the pueblo. Here, the type will be provisionally
dated at 1300-1375. This placement is supported by
the small number of Pinedale Polychrome sherds found
in the sites. Pinedale Polychrome, the antecedent of
Fourmile and Canyon Creek polychromes, is dated at
1250-1300 (Colton & Hargrave 1937:107). This is con-
sistant with its occurrence in Ariz. W:10:50 B, the
sherds appearing in the later levels probably being
the result of drift and heirloom pieces.

Showlow Polychrome represents a late variation of
Fourmile Polychrome, and is dated at 1300-1400 (Colton&
Hargrave 1937:111).

Pinedale and Fourmile black-on-red have only
slight temporal significance. Fourmile Black-on-red
occurs at the end of the existence of Fourmile Poly-
chrome and disappears when the polychrome type does.

**Dating Summary**

The vertical relationship of Maverick Mountain and
Tularosa phase trash, is not clearly defined in this
stratigraphic situation. There is no instance of their
superposition. It is known from other excavations in
the Point of Pines area, that the Tularosa phase mater-
ial is representative of a longer occupation in the area
than the Maverick Mountain phase.
About A.D. 1300, saw the initial building of the pueblo by people using Pinedale Polychrome. As the decorative technique in use developed through Cedar Creek Polychrome to Fourmile Polychrome, occupation continued over a gradually deepening deposit. About 1400, Fourmile Polychrome stopped coming into the area, and Ariz. W:10:60B was partially abandoned. The locally manufactured type of the White Mountain Series, Point of Pines Polychrome, was made and used in some of the rooms. The trash filling these rooms contain the great variety of trade wares described in the ceramic section, in addition to large quantities of Point of Pines Polychrome, indicating the use of these rooms as trash depositories while the last occupation continued in the immediate vicinity. The absence of post-1450 Zuni and Hopi types indicates abandonment of this area before that time.
ARCHITECTURE

"The excavations however have shown that we have not only ruin piled on ruin, but that the population kept shifting about from one part to another building and rebuilding."

A.V. Kidder

Building Sequence

The architectural remains under Ariz. W:10:50 B show no distinct periods of building. Rather, the individual rooms seem to have been added by gradual accretion. Quite possibly the floor levels in use at any given time varied in their vertical relationship to one another. The possible exception to this condition is in the remains attributed to the final occupation.

This uppermost series of rooms had nearly equivalent wall and floor depths, varying only by the contours of the existing underlying deposits. It can be attributed to the portion of the occupational continuum, immediately preceding the replacement of Fourmile and Cedar Creek polychromes by Point of Pines Polychrome. The rooms were built in blocks of two to four, so interlocked that precise overall sequence cannot be determined (Fig. 26.). This is additional evidence in support of contemporaneous or nearly contemporaneous building of the rooms.
Fig. 26. Plan and Sections of Arizona W:10:50 B.
Underlying the uppermost rooms are wall stubs of various heights and floors varying in depth, built on trash which overlies earlier architectural remains (Figs. 27, 28, 29, 30). Exceptions to this were found on the northern side of the area, where it is believed that there was a plaza preceding the final room-building period. Here the wall bottoms overlie successive layers of trash compacted into walking surfaces at close intervals. The 3 to 4 M. of cultural material on Ariz. W:10:50 B is composed of the remains of these partially-overlapping rooms. They represent extensions from the much larger Point of Pines Ruin to the west, as it expanded during this period.

The lowest of these walls are built on less than .50 M. of trash, which was deposited on native soil. In the center of the slight hill formed by the sterile soil were two alignments of basalt boulders, used as footing material for two masonry walls. These may represent the remains of a still earlier pueblo on the hill which could be attributed to the Tularosa phase by the presence of Tularosa Black-on-white, the absence of later White Mountain Series types and the characteristic boulder alignments around the wall bases. Additional evidence of some sort of human activity in the area, is the presence
Fig. 27. Lowest floor and wall stubs of Rms. 6-2a and 6-2b. Note post-hole and circular hearth in lower left corner.
Fig. 28. Lowest floor and wall stubs in Rm. 2.
Fig. 29. Superimposed walls in Rm. 1.
Fig. 30. Floor features in Rm. 5. Fl. 2. Note superimposed walls, slab fire-box, jar imbedded in the floor and manos.
of numerous small holes of shallow depth and irregular alignment in the native soil beneath the cultural remains that cannot be accounted for by natural action (Fig. 31). Around the edges of the sterile soil forming a small hill, the trash was characterized by the presence of Maverick Mountain Series sherds and a lack of Mogollon-Pueblo types. The significance of this specialized distribution will have to be interpreted in the light of evidence from the Point of Pines Ruin as a whole. Underlying Ariz. W:10:50 E, Tularosa and Maverick Mountain remains were not found in superposition.

Details of Construction

It was interesting to note that the same range in masonry styles were utilized throughout the Mogollon-Pueblo occupation of this portion of the site (Fig. 32). In other portions of the Point of Pines Ruin, a relatively distinct sequence of preferred styles is in evidence. Perhaps the position of these remains away from the center of the occupation on the east edge, and the lack of large scale organization and planning of the town's growth, accounts for the undifferentiated sequence. In any case, this would seem to indicate that the several masonry styles were known and in use during the entire period.

The walls were built of coursed masonry, consisting of rectangularly shaped fragments of tuff and long obloid
Fig. 31. Irregular surface of the sterile soil under Rm. 5-2a. Note superimposed walls.
Fig. 32. Masonry styles utilized in Ariz. W:10:50 B.
tuff building stones. These latter stones were sometimes scattered through a wall at random, and sometimes laid in a band across the length of a wall. See Figures 32 d, and 32 b, for illustrations of these types. The stones were laid with adobe cement and almost all of the rooms showed the remains of some plaster of the same material. This was poorly preserved and the presence or absence of successive layers could not be determined.

Most of the walls exhibited specialized footing material of various sorts. Figure 32 c, illustrates the use of closely spaced basalt boulders. Figure 32 d, shows the use of long tuff building stones set on end at intervals with the wide surface facing outward. The same type of construction is seen in Figure 32 e, where the stones have been placed with the narrow face outward. Figure 32 a, illustrates the use of basalt footing boulders of earlier times under a wall base. Long tuff building stones laid vertically for a base are seen in Figure 32 b. The wall pictured in Figure 32 f, has no specific footing material. It was the usual situation to find that the particular variety of footing material applied to only one side of the wall.

Most of the rooms contained from one to three doorways all or all of except one, being plugged up with rocks
and adobe. The hearths and pottery vessels which in some cases overlay the uppermost floor levels, represent collapsed roofs. Closed doorways and roof artifacts present the problem of a second story or roof occupation. In any case, it seems likely that the rooms without access through the walls would have an entry through the ceiling. The initial meter of cultural remains underlying the modern surface, was fallen wall material in every room excavated in Ariz. W 10:50 B. Whether this was building material from a second story or merely the result of the collapse of the uppermost portions of the walls of a single story is difficult to determine. In Room 6, an equivalent number of long tuff building stones were found in the fill and in the standing walls of the room, which stood to a height of 1 meter. In view of the existing evidence, it seems unlikely that a room in this pueblo would be two meters in height, but the assumption that the same number of long building stones would be used in each story is rather tenuous.

Diagnostic evidence as to the nature of the roof was found in several instances. In Room 2 adobe impressions of reeds and poles were found just above Floor 1. Just above the floor in Room 10 were chunks of fine-grained hard-packed adobe. The lower surfaces clearly showed the
imprint of narrow wooden boards of different thicknesses or overlapping one another. Lying on these were smooth peeled rods of 2-3 cms. in diameter, at unknown intervals. Probably the boards were supported on primary beams placed on or in the uppermost portion of the walls. Notches through the short axis of a long building stone may have held roof stringers, but none were found in position. The upper surface of the roof adobe was nearly smooth and well consolidated. It had baked in the sun, probably with considerable use by the people, to a hardness similar to that of a fired ceramic product. In Room 1 pieces of adobe with reed impressions were found in the fill just above the floor.

Post holes were found in most of the earliest floors with partially rooted juniper and oak posts in them (Fig. 26). Two rooms contained sets of metate bins. Figures 33 & 34 illustrate the bins found in Room 11, Floor 1.

The Kiva

"...it is never safe to abandon excavations until bedrock is encountered."

A.V. Kidder

A kiva was found beneath Room 10, on the north side of the pueblo (Fig. 35). Excavated into sterile soil it was probably located at the edge of the plaza dating from early Mogollon-Pueblo times.
Fig. 33. Floor features in Rm. ll. Fl. l. Note long tuff building stones as footing material in walls; metate bins and slab fire-box.
Fig. 34. Metate bins in Rm. 11, Fl. 1. Note sherd baffles.
Fig. 35. Floor features of Rm. 10. Fl. 1. Note corner storage bin, slab fire-box and floor contact artifacts.
The pronounced sag in the masonry wall between Rooms 7 and 9, as well as in the underlying trash, hinted at the presence of a deep substructure (Fig. 36). Circular in form, 2 m. in depth, its floor dipped very slightly toward the center, where the remanent of a post was found. Slightly to the southeast of the post was a large unshaped basalt slab, lying over a sipapu, 6 cms. deep and 13 cms. in diameter (Fig. 37). The stone was the only one found in the fill of the kiva. No evidence of plastering or smoke-blackening was found on the walls, which were hard, smooth and nearly vertical. Directly at the native soil level at the upper edge of the kiva walls were found two large holes, opposite each other, extending away from the excavation. These are interpreted as beam holes, since a log placed in them would be supported by the central post as well. At this same level carbonized wood fragments were found around most of the circumference of the kiva. Rotted remains of several timbers were found in the fill material near the floor. These are interpreted as secondary roof beams extending from the top of the dirt wall of the kiva to the central beam and forming a roof (Fig. 38). This roof would just clear the head of a person 5 ft. 6 in. tall.
Fig. 36. East wall of Rm. 1C and partially excavated Kiva 5. Note sag in masonry and underlying trash that indicates a deep sub-structure.
Fig. 37. Kiva 5. Note roofing material around circumference, top center; also beam holes, central post outline, and post remnant in addition to the stone sipapu cover.
Fig. 38. Kiva 5 and Room 10. Note layer of false sterile soil over roof material imbedded in trash which rests on true sterile soil in the center.
Fig. 39. Artist's reconstruction of Kiva 5.
Dating the kiva and explaining its shape present a problem. Other kivas in the Point of Pines region dating from the later portion of the Mogollon-Pueblo occupation are rectangular with benches (Smiley 1952). Kivas built by the Maverick Mountain people are deep and D-shaped with numerous floor features.

The ceramic evidence in the fill indicates an early Mogollon-Pueblo time of filling. In other words, Tularosa Black-on-white, Pinedale Black-on-white, Pinedale Polychrome and the Maverick Mountain series types are present in well-defined quantities. The corrugated pottery associated with these decorated sherds is of the late coarsely made Point of Pines types.

The trash overlying the roof remains around the edge of the kiva, contained sherds from the Maverick Mountain series and it was overlain by a layer of native soil, resulting from the excavation of the kiva. Seemingly, the kiva was dug after some Maverick Mountain trash had been deposited. It was abandoned and filled by early Mogollon-Pueblo trash possibly about 1330.

Architecture Summary

The Tularosa phase pueblo indicated by the alignments of boulders was probably the source of the portions of the trash immediately surrounding it, characterized by a very
small number of polychrome sherds from the white Mountain Series. These remains are typical of a stage of cultural development that was common in the Point of Pines region around 1100-1300.

The Maverick Mountain trash, deposited on sterile soil around the periphery of the Tularosa area, is characterized by locally manufactured polychrome sherds of the Maverick Mountain Series. This material is believed to be derived from a room block to the west of Ariz. W:10:50 B, built between 1261 and 1301 by a group of people from the Kayenta area of Northern Arizona. The temporal relationship between these cultural manifestations is unknown. The current interpretation, as used in this report, is given in Figure 1.

At some time during the latter portion of the Maverick Mountain occupation, or immediately following it, structures began to go up in the adjacent area made of coursed masonry of shaped tuff blocks. Rooms ascribed to this period of building, are characterized by utility wares which are locally manufactured and decorated types which are derived from the Showlow area to the northwest. This pueblo attained a relatively great size in what appears to be a short period of time, and spread to the east, over the Tularosa and Maverick Mountain trashy remains, under what was to become Ariz. W:10:50 B.
From time to time rooms were abandoned, partially filled with trash and new rooms built on top of them. These rooms differ little from the earlier ones except that posts are no longer found, the circular fire pits are replaced with slab-lined fire-boxes.

The uppermost series of rooms seem to have been initially built within a short range of time, and to have been the scene of a number of remodelings. On the lowest floors ascribed to these walls are found late decorated pottery types from the Showlow area. This occupation was a part of the final large period in the Point of Pines Ruin. The pueblo seems to have broken up into a number of small nearly contemporaneous separate segments and the intrusive decorated ware is replaced by local copies utilizing design styles similar to those of earlier times, with sloppy methods of shaping, decorating and firing.

Ariz. W:10:50 B is one of these segments. Utilizing the existing walls and covering the floors, a number of rooms were apparently stripped upon abandonment, while others were occupied to the end. Several rooms had floor artifacts disturbed only by the force of the collapsing roof. The presence of large quantities of the late degenerate pottery in the fill of some of the rooms and of quantities of stone tools in others, would seem
to indicate that most of the rooms were abandoned while occupation continued in nearby units. Two of the rooms had little cultural material in the fill that could not be ascribed to drift, and were probably occupied until the final abandonment of the area. This type of room is illustrated in Figure 35.
STONE ARTIFACTS

Due to the problems involved in transporting material to Tucson, most of the stone artifacts were cataloged in the field. Type specimens for each category were saved and entered in the Arizona State Museum collection. The illustrations of stone specimens in the section that follows are of these type specimens. The listing of numbers and dimensions in the description are summary presentations of the data in Appendix A. Wendorf (1950) and Wasley (1952) have described similar artifacts from the late time horizon.

Manos:

a. Two-hand uniface manos. (65 whole, 2 frags.)
   (Fig. 40 f)
   
   Material: Mostly vesicular basalt; some fine-grained basalt, sandstone, quartzite, welded tuff, and granite.

Ovoid to rectanguloid in shape, with parallel or slightly convex sides and ends. Corners and edges slightly to extensively rounded. Shaped by pecking. Grinding surface convex longitudinally and slightly convex laterally. Lengths from 14.9 to 29.5 cms. Mostly between 18.0 and 23.0 cms. Widths from 8.0 to 12.8 cms. Mostly between 10.0 and 12.0 cms. Thickness from 2.0 to 12.0 cms. Mostly between 4.0 and 5.0 cms.
b. Two-hand biface manos. (64 whole, 3 frags.)
(Fig. 40 e)

Material: Mostly vesicular basalt; some fine-grained basalt, sandstone, quartzite and welded tuff.

Roughly rectanguloid in shape. Sides and ends parallel or slightly convex, corners and edges slightly rounded, shaped by pecking. Grinding surfaces slightly convex longitudinally and laterally. Lengths from 11.0 to 26.0 cms. No grouping. Widths from 7.0 to 13.5 cms. Mostly between 10.0 and 12.0 cms. Thickness from 2.5 to 7.7 cms. Mostly between 3.0 and 5.0 cms.

c. Two-hand faceted manos. (3 whole, 3 frags.)

Material: Fine-grained and vesicular basalt.

Rectanguloid to ovoid in outline, with rounded corners and edges. Two grinding surfaces, meeting at an obtuse angle on one face. One specimen has an additional grinding surface on the opposite side. Flattened triangular cross-section. Length from 18.0 to 22.4 cms. Width from 9.5 to 10.6 cms. Thickness from 3.0 to 4.0 cms.

d. One-hand manos. (29 whole) (Fig. 40 a)

Material: Mostly quartzite and fine-grained basalt; some granite, welded tuff, sandstone and vesicular basalt.

Square to ovoid in outline, with rounded corners and edges, two slightly convex grinding surfaces. Length from 8.6 to 12.6 cms. Mostly between 9.0 and 11.0 Width from 7.0 to 10.7 cms. Mostly between 8.0 and 9.0. Thickness from 2.8 to 5.5 cms. Mostly between 3.5 and 4.5 cms.

Rubbing Stones

a. Scoria plastering stones. (8 whole)

Rectanguloid to irregular in outline. Rounded edges and corners, slightly convex sides shaped by pecking.
Fig. 40. Ground stone artifacts. Length of e, 19 cms. 

a, one-hand mano; b, rectanguloid rubbing stone; c, pipe; e, two-hand bifaced mano; 
f, two-hand unifaced mano.
Working surface flat to concave. From the fine mud in the vesicals on the working surface, these implements may have been used as plastering tools or floor smoothers. Length from 4.0 to 20.5 cms. Mostly between 10.0 and 13.0 cms. Width from 3.4 to 14.0 cms. No grouping. Thickness from 1.8 to 9.0 cms. Mostly between 4.0 and 6.0 cms.

b. Cuboid rubbing stones. (82 whole) (Fig. 41 d)

Material: Mostly fine-grained basalt and quartzite; some sandstone, welded tuff, limestone and scoria.

Ovoid to cuboid in outline, rounded edges and corners, a few are nearly parallel. One to six working surfaces, most specimens have two opposed, and less evidence of working on other faces. Some shaping by pecking, some by use. Length from 6.5 to 27.5 cms. Mostly between 10.0 and 12.0 cms. Width from 3.6 to 22.5 cms. Mostly between 9.0 and 12.0 cms. Thickness from 1.5 to 11.0 cms. Mostly between 3.0 and 7.0 cms.

c. Rectangular rubbing stones. (9 whole) (Fig. 40 b)

Material: No sorting apparent.

Ovoid to rectangular in outline, rounded edges and corners, a few are nearly parallel. One to six working surfaces, most specimens have two opposed. Some shaping by pecking, some by use. Length from 8.5 to 18.5 cms. Mostly between 10.0 and 12.0 cms. Width from 5.0 to 17.5 cms. No grouping. Thickness from 2.1 to 6.0 cms. Mostly between 2.0 and 4.0 cms.

d. Triangular rubbing stones. (14 whole) (Fig. 41 a)

Material: All except one columnar basalt, with triangular or hexagonal natural fracture.

One corner of triangle and the adjacent portions of the adjoining sides, highly polished through use. One specimen an ovoid river cobble of comparable size and shape, showing signs of similar use. Length from 4.5 to 12.4 cms. Mostly between 4.5 and 7.1 cms. Width from 2.8 to 4.9 cms. Mostly between 3.0 and 4.5 cms. Thickness from 1.9 to 6.4 cms. No grouping.
e. Polishing pebbles. (21 whole)

Material: Quartz, chalcedony, fine-grained basalt and andesite.

Ovoid to round river pebbles, with high natural polish on entire surface. Some show signs of having been used as hammerstones. Some show grinding facets from use. Length from 2.7 to 10.0 cms. Mostly between 4.0 and 6.0 cms. Width from 1.7 to 5.5 cms. Mostly between 3.6 and 4.1 cms. Thickness from 1.0 to 3.7 cms. Mostly between 2.0 and 2.5 cms.

f. Stone discs. (3 whole)

Material: Tuff, granite and vesicular basalt.

Discs shaped on entire surface by pecking and grinding. Sides and edges slightly convex, corners rounded. One specimen has a deep concavity in the center of each side. Diameter from 5.1 to 26.3 cms. Thickness from 2.2 to 5.0 cms.

Pecking stones. (2 whole)

Material: Tuff and basalt.

Sub-rectanguloid in outline, partially shaped by pecking and use. Opposed faces have pecked indentations. Ends show considerable battering. Length from 8.2 to 16.2 cms. Width from 5.6 to 10.0 cms. Thickness from 4.6 to 6.8 cms.

Hammerstones. (13 whole)

Material: Mostly quartz; some chalcedony, fine-grained basalt and vesicular basalt.

Round to cuboid in shape, formed through use. Edges and surfaces show extensive scarring through use. Length from 5.3 to 9.3 cms. Mostly between 6.5 and 8.5 cms. Width from 4.7 to 9.0 cms. No grouping. Thickness from 2.8 to 8.8 cms. No grouping.
Fig. 41. Ground stone artifacts. Length of d, 9.8 cms. 
a, triangular rubbing stone; b, saw; c, hoe; 
d, cuboid rubbing stone; e, stone disc.
Metates.

a. Slab metates. (23 whole, 2 frags.)

Material: Mostly vesicular and fine-grained basalt; some quartzite, sandstone and welded tuff.

Rectangular in outline, edges rounded to parallel. Amount of shaping varies. Corners rounded. Grinding surface concave on both axes. In about half of the specimens one end is considerably thicker than the other. Length from 20.2 to 55.0 cms. Mostly between 35.0 and 45.0 cms. width from 19.2 to 36 cms. Mostly between 25.0 and 30.0 cms. Thickness from 3.5 to 20.0 cms. Mostly between 10.0 and 12.0 cms.

b. Trough metates. (7 whole)

Material: Mostly basalt, some granite and welded tuff.

Full trough metate, trough open at both ends. Ovoid to rectangular in shape, variation in amount of shaping on sides and bottom. Trough slightly concave in both axes. Length from 33.0 to 51.0 cms. No grouping. Width from 26.5 to 34.0 cms. No grouping. Thickness from 9.0 to 16.0 cms. Mostly between 10.0 and 15.0 cms.

c. Closed-end trough metates. (1 frag.)

Closed-end trough metate, oval in shape. Two grinding surfaces worn on opposite faces, both concave on both axes.

Grinding slabs.

a. Amorphous lapstones. (18 whole, 2 frags.)

(Fig. 42 a,b)

Material: Welded tuff, Fine-grained basalt, quartzite, sandstone, tuff and scoria.

Round to rectangular slabs, with one grinding surface concave on both axes. Extensive variation in amount of shaping on edges by pecking. Several of these had mineral paints on the working surface. Length from 7.0 to 37.0 cms. Mostly between 11.0 and 25.0 cms. Width from 3.8 to 21.6 cms. Mostly between 10.0 and 21.6 cms. Thickness from 1.5 to 9.0 cms. Mostly between 3.0 and 5.0 cms.
b. Reused manos. (6 whole)

Material: Fine-grained basalt, vesicular basalt, welded tuff, quartzite.

Rectanguloid to ovoid, two-hand, unifaced or bifaced mano with concave working surface on one side. Manos show signs of extensive use before modification. Length from 17.5 to 24.0 cms. No grouping. Width from 9.4 to 12.0 cms. Mostly between 11.0 and 12.0 cms. Thickness from 2.0 to 4.4 cms. Mostly between 3.5 and 4.4 cms.

Mortar (1 whole, 3 frags.) (Fig. 42 c)

Material: Tuff, welded tuff and fine-grained basalt.

Irregular to round boulders with great variation in shaping of bottom and sides. Grinding surface concave, and considerably deeper than the concavity of a grinding slab. Shape ovoid to round. Two fragments indicate a rectanguloid depression. Length 11.5 to 27.0 cms. Width 7.0 to 24.0 cms. Thickness from 4.2 to 11.0 cms. Depth of concavity 1.5 to 2.3 cms.

Reused building stones (5 whole)

Material: Tuff.

One or two ovoid to round grinding surfaces on long tuff building stones, shaped by pecking. Ovoid in shape, edges rounded. Depression formed by pecking and use. Length 25.0 to 79.0 cms. width 6.5 to 23.0 cms. Mostly between 22.0 and 23.0 cms. Thickness 2.5 to 12.0 cms. Mostly between 9.0 to 12.0 cms. Depth of depression .8 to 5.0 cms. Diameter of depression 7.0 to 13.0 cms.

Building stones.

Material: Tuff.

a. Notched building stones. (1 whole)

Fig. 42. Ground stone artifacts. Length of a, 16.5 cms. 
a, amorphous lapstone; b, amorphous lapstone; 
c, small mortar.
b. Grooved building stones. (1 whole)

Material: Tuff.

Long tuff building stone, ovoid in shape, edges rounded by pecking. Pecked groove down one corner, almost full length on the long axis. Length 61.0 cms. Width 22.6 cms. Thickness 9.5 cms.

Axes

a. Three-quarter grooved axes. (42 whole, 2 frags.)
(Fig. 43 a,f)

Material: All fine-grained basalt, some black, some with red and white inclusions.

Rectangularoid to ovoid in shape, shaped by pecking and grinding. Most bits are short and thick, widest next to groove. Groove at right angles to long axis, not present on flat bottom of axe. A few have long slender bits. Polls vary in complexity, shaped by pecking, some polished. Some show signs of extensive battering on the cutting edge. Most specimens seem to have been polished all over. Length from 6.9 to 20.0 cms. Mostly between 9.0 to 12.0 cms. and 14.0 to 16.0 cms. Width from 3.0 to 8.0 cms. Mostly between 6.0 and 8.0 cms. Thickness from 1.8 to 11.0 cms. Mostly between 5.0 and 7.0 cms.

b. Three-quarter grooved axes, ridged groove. (1 whole)
(Fig. 43 b)

Material: Fine-grained basalt.

Three-quarter grooved axe as in class a., with distinct ridge between groove and poll. Poll is symmetrical in shape, formed by pecking. Length 10.2 cms. Width 5.0 cms. Thickness 3.7 cms. Length of bit 5.0 cms.
c. Three-quarter grooved double-bitted axe. (1 whole) (Fig. 43 c)

Material: Fine-grained basalt.

Poll ground to a cutting blade, groove placed near poll end. Otherwise shaped like axes in class a. Length 8.6 cms. Width 5.6 cms. Thickness 2.6 cms. Length of bits 3.8 and 2.5 cms.

d. Chipped full-grooved double-bitted axe. (1 whole) (Fig. 43 d)

Material: Welded tuff.

Full groove fashioned by grinding. Axe ovoid to slightly diamond shaped, formed by pressure flaking. Secondary chipping through use on both points. Length 14.5 cms. width 6.7 cms. Thickness 4.2 cms.

e. Chipped double-bitted axe, edges notched. (1 whole) (Fig. 43 e)

Material: Dark brown chalcedony, thick white patina on surface.


Mauls

a. Double-headed ovoid mauls. (4 whole) (Fig. 44 b,d,)

Material: Fine-grained basalt, one welded tuff.

Ovoid to rectanguloid in outline, shaped by pecking and grinding. Ovoid to rectanguloid in section. Two three-quarter grooved, two full grooved; groove formed by grinding, placed medially. Ends flattened by use. Length from 8.1 to 14.0 cms. width from 6.9 to 9.5 cms. Thickness from 4.4 to 7.1 cms.
Fig. 43. Ground and chipped stone axes. Length of d, 14.4 cms. a, f, three-quarter grooved; b, ridged three-quarter grooved; c, double-bitted three-quarter grooved; d, double-bitted full grooved chipped; e, double-bitted notched chipped.
b. Reused mano mauls. (2 whole) (Fig. 44 a)

Material: Fine-grained basalt and welded tuff.

Reused uniface and biface manos. Both have ground notches placed medially on edges. One has pecked groove on one face. Length 14.0 and 14.8 cms. Width 7.2 and 8.0 cms. Thickness 3.0 and 2.6 cms.

c. Reused three-quarter grooved axe mauls. (3 whole) (Fig. 44 e)

Material: Fine-grained basalt and welded tuff.

Reused three-quarter grooved axe mauls, bit battered by bumping to heavy flat end, intentionally or by use. Otherwise resembles axe class a. Length 7.4 to 12.8 cms. Width 4.8 to 7.8 cms. Thickness 3.3 to 5.0 cms. Length of bit 3.5 to 6.5 cms.

Arrowsnath smoothers.

a. Reused rubbing stone: arrowsnath smoothers. (15 including fragments.) (Fig. 45 b,d,f)

Material: Mostly fine-grained basalt, some quartzite limestone and vesicular basalt.

Reused rubbing stones, rectanguloid to round in outline. Edges and faces nearly parallel, shaped by pecking and grinding. Depth and number of grooves vary. Long axis of groove in one plane. Grooves are cylindrical in shape, parallel or transverse to the long axis of the stone. Diameter of grooves standardized at .7 cms. Length from 5.0 to 11.3 cms. Width from 3.5 to 9.1 cms. Thickness from 1.7 to 5.0 cms.

b. Unshaped arrowsnath straighteners. (11 whole) (Fig. 45 e)

Material: Fine-grained basalt, some quartzite and limestone.

Pebbles and unshaped stones, rectangular to round in outline. Edges and sides not shaped. Depth and number
Fig. 44. Ground and chipped stone artifacts. Length of d, 13.2 cms. a, reused mano, maul; b, d, double-headed ovoid mauls; c, chopper; e, reused three-quarter grooved axe maul.
of grooves vary. Long axis of groove in one plane. Grooves cylindrical in shape, may be parallel or transverse to the long axis of the stone. Diameter of groove standardized at .7 cms. Length from 5.3 to 12.7 cms. Mostly between 8.0 and 9.2 cms. Width from 3.8 to 8.3 cms. Mostly between 4.0 and 6.4 cms. Thickness from 1.4 to 4.3 cms. Mostly between 2.5 and 4.3 cms.

c. Convex grooved arrowshaft smoothers. (3 whole) (Fig. 45 h)

Material: Fine-grained basalt.

Round to rectangular in shape, shaped by pecking and grinding or unshaped. Grooves cylindrical in shape. Depth varies, section along bottom of groove is convex, to a varying extent. Diameter of groove standardized at .7 cms. Groove parallel or transverse to long axis. Length from 8.0 to 9.1 cms. Width from 3.3 to 3.9 cms. Thickness from 3.3 to 3.9 cms.

d. Long pumice arrowshaft smoothers. (4 whole) (Fig. 45 a,g)

Rectangular in outline, shaped by grinding. Single groove, cylindrical in shape, parallel to long axis of stone, diameter standardized at .6 cms. Edges and faces nearly parallel, corners rounded. All specimens are pumice. Length from 4.9 to 10.5 cms. Width from 1.7 to 5.3 cms. Thickness from 1.0 to 2.8 cms.

e. V-shaped grooved arrowshaft smoothers. (5 whole) (Fig. 45 c)

Material: Fine-grained basalt.

Rectangular to ovoid in outline, shaped through pecking and grinding. Single V-shaped groove, varying in depth and width. Underside of one specimens shows extensive use as smoother. One specimen has standard round-bottomed groove on one side. One is a triangular rubbing stone, with the groove parallel to the long axis. Length from 5.8 to 6.8 cms. Width from 2.4 to 6.0 cms. Thickness from 1.1 to 3.0 cms.
Fig. 45. Arrowshaft smoothers. Length of g, 10.3 cms. 
a, g, long pumice; b, d, f, reused rubbing stone; 
c, v-shaped groove; e, unshaped; h, shaped 
and unshaped, convex grooved.
Stone Cylinders

a. Ungrooved, stone cylinders. (4 whole, 2 frags.)

Material: Mostly vesicular basalt, one scoria.

Ovoid stone cylinders shaped by pecking and grinding. Ends rounded. Possibly phallic symbols. Length from 10.0 to 20.0 cms. Diameter from 3.0 to 7.4 cms.

b. Grooved, stone cylinders. (6 whole)

Material: Scoria, and some fine-grained basalt.

Grooved stone cylinders, shaped by pecking and grinding. Ends rounded, narrow groove variously located. Length from 4.0 to 9.3 cms. Diameter from 1.8 to 3.0 cms.

Tuff balls (3 whole)

Round to ovoid tuff balls, shaped by pecking and grinding. Some surface irregularity. Diameter from 4.6 to 5.5 cms.

Slabs (12 including frags.)

Material: Mostly sandstone; some fine-grained basalt, tuff and quartzite.

Ovoid to rectanguloid in outline, usually parallel surfaces and edges shaped by grinding. Some specimens show natural fracture. Some slabs have two or more notches on an edge. Two specimens natural spalls. Length from 18.0 to 80.0 cms. Width from 11.0 to 49.0 cms. Thickness from 1.8 to 8.4 cms.

Hoes (11 whole) (Fig. 41 c)

Material: Basalt.

Irregularly shaped thin spalls. Parts of one or two surfaces ground to form cutting edge. Striations parallel to long axis of cutting edge. Length from 10.0 to 21.0 cms. Width from 8.0 to 12.5 cms. Thickness from .6 to 2.7 cms.
Saws (4 whole) (Fig. 41 b)

Material: Pumice.

Semi-lunar to rectanguloid in outline. Shaped all over by grinding, one edge sharpened, exhibiting parallel striations. Other edge thicker and ground almost flat. Length from 4.8 to 14.0 cms. Width from 4.2 to 6.5 cms. Thickness from .8 to 1.1 cms.

Pipe (1 nearly whole) (Fig. 40 c)

Material: Vesicular basalt.

Conical exterior outline, with flattened ends. Shaped by grinding. Bore shows evidence of drilling from both ends, both edges thin and rounded. Length 6.9 cms. Diameter 3.4 cms.

Misc. ground stone


c. Flattened ovoid tuff pebble, shaped by grinding, groove setting off nubbin on one end. Length 7.2 cms. Width 5.0 cms. Thickness 1.8 cms.

Firedogs (2 whole)

Material: Basalt.

Large river cobbles. Some striations on some surfaces. Length from 13.2 to 22.0 cms. Width from 10.8 to 13.0 cms. Thickness from 11.4 to 11.5 cms.
Projectile points.

a. Concave based projectile points. (7 whole)
   (Fig. 46 a)

Material: Chalcedony; some obsidian.

Thin, triangular in shape, base markedly concave. Pressure flaking on entire surface, with secondary chipping on edges. Length from 1.8 to 2.4 cms. Width from 1.0 to 1.8 cms. Mostly between 1.0 and 1.4 cms. Thickness from .2 to .5 cms. Mostly .2 cms.

b. Slightly concave based projectile points. (9 whole)
   (Fig. 46 b)

Material: Chalcedony, some obsidian.

Thin and triangular in shape. Base slightly concave. Pressure flaking on entire surface, with secondary chipping on edges. Length from 1.8 to 2.6 cms. Mostly between 1.8 and 2.2 cms. Width from .8 to 1.1 cms. Thickness from .2 to .5 cms.

c. Straight based projectile points. (4 whole)
   (Fig. 46 c)

Material: Chalcedony and obsidian.

Thin and triangular in shape. Base straight. Entire surface pressure flaked, secondary chipping on edges. Length from 1.6 to 2.7 cms. Width from 1.0 to 1.3 cms. Thickness .2 to .4 cms.

d. Pointed stemmed projectile points. (1 whole)
   (Fig. 46 d)

Material: Obsidian.

Triangular blade, nubbin base, rounded on end. Base widest at contact with blade. Pressure flaking over entire surface, secondary flaking along edges. Length 3.1 cms. Width 2.0 cms. Thickness .4 cms.
e. Square based projectile points. (2 whole) (Fig. 46 e)

Material: Obsidian.

Triangular blade, flat base, non-flaring stem, of lesser width than base of blade. Shaped by pressure flaking over whole surface, secondary chipping on edges. Length 2.4 to 3.0 cms. Width 1.7 to 2.1 cms. Thickness 14 to 6 cms.

f. Flaring stem concave based projectile points. (2 whole) (Fig. 46 f)

Material: Obsidian.

Triangular blade, shallow side notches, flaring sides of base, deeply concave lower edge. Shaped by pressure flaking with secondary chipping along edges. Length from 1.8 to 2.5 cms. Width from 1.1 to 1.8 cms. Thickness from .2 to .7 cms.

g. Flaring stem slightly concave stemmed projectile points. (2 whole) (Fig. 46 f)

Material: Obsidian.

Triangular blade, sides flare slightly at base. Stem flaring with slightly concave base. Shaped by pressure flaking, with secondary chipping along edges. Length from 2.1 to 2.5 cms. Width 1.1 to 1.8 cms. Thickness from .2 to .7 cms.

h. Side-notched small tanged projectile points. (2 whole) (Fig. 46 g)

Material: Chalcedony and obsidian.

Long triangular blade, shaped by pressure flaking. Secondary chipping on edges. Side notches placed near base, tang expands toward base. Length from 2.3 to 3.0 cms. Width 1.0 to 1.2 cms. Thickness from .4 to .5 cms.
Fig. 46. Chipped stone artifacts. Length of k, 4.8 cms. a-i, projectile points; j-k, blades; l-n drills; o-cc, tanged blades.
i. Side notched large tanged projectile points.  
(2 whole) (Fig. 46 h)  

Material: Chalcedony.  

Triangular blade shaped by pressure flaking, secondary chipping on edges. Side notches placed closer to center than base. Base slightly concave, tang expands toward base. Length from 1.5 to 2.7 cms. Width from .7 to 1.4 cms. Thickness .2 cms.

Drills  

a. Plain-shafted drills. (3 whole) (Fig. 46 k)  

Material: Chalcedony.  

Shaft a slender ovoid in shape, fine secondary chipping on entire surface. Section through shaft, ovoid to square. Working point long and slender, base slightly smaller than shaft of drill. Length from 2.2 to 5.0 cms. Width .5 to 1.2 cms. Thickness from .3 to .7 cms.

b. Winged-base drills. (4 whole) (Fig. 46 n)  

Material: Chalcedony.  

Slender shaft, abruptly widening flange at base. Base small, roughly shaped. Fine secondary chipping on the edges of shaft. Shaft ovoid to rectanguloid in section. Length from 3.8 to 5.1 cms. Width from .4 to .6 cms. Thickness .4 to .5 cms.

c. Expanding base drills. (4 whole) (Fig. 46 m)  

Material: Chalcedony and obsidian.  

Expanding base, natural flake only slightly altered. Chipping on point, no distinct shaft. Length from 2.0 to 6.0 cms. Width from 1.5 to 4.2 cms. Thickness from .4 to .8 cms.
Blades

a. Leaf-shaped blades. (8 whole) (Fig. 46 k)

Material: Chalcedony.

Roughly triangular in shape, of varying lengths. Formed by pressure flaking, varying amount of secondary chipping along edges. Bases straight, slightly convex and slightly concave. Length from 2.4 to 7.6 cms. Width from 1.4 to 3.3 cms. Thickness from .4 to .8 cms.

b. Stemmmed blades. (5 whole) (Fig. 46 j)

Material: Chalcedony, one obsidian.

Trianguloid blade, varying in length. Carefully formed by pressure flaking, secondary chipping along edges. Corner notches, slightly expanding tangs, with convex base. Length 3.4 to 6.0 cms. Width from 1.9 to 3.4 cms. Thickness from .5 to .6 cms.

c. Tanged blades, diagonal cutting edge. (3 whole) (Fig. 46 aa, bb)

Material: Chalcedony.

Tanged blade, one or two cutting edges placed at an angle to long axis of tool. Natural flake or shaped by pressure flaking. Fine secondary chipping on cutting edge(s) and tang. Tang straight or concave based and sided. Length 4.1 and 5.6 cms. Width 3.6 to 4.1 cms. Thickness .5 to .6 cms.

d. Tanged blades, opposite cutting edge. (3 whole) (Fig. 46 o, cc)

Material: Chalcedony, one obsidian.

Tanged blade, one cutting edge transverse to long axis of tool at opposite end from tang. Some shaping by pressure flaking. Fine secondary chipping on cutting edge and tang. Tangs thick, straight or slightly convex sided, with convex base. Length 2.3 to 5.8 cms. Width 1.0 to 3.5 cms. Thickness .2 to .8 cms.
Flakes.  (8 whole)  (Fig. 47 b)

Material: Chalcedony.

Unworked spalls of the type made into flaked tools. Some show secondary chipping through use on the thin edge. Length from 3.3 to 7.6 cms. Width from 2.2 to 4.4 cms. Thickness from .8 to 1.9 cms.

Scrapers.

a. Flake scrapers.  (1 whole)

Material: Chalcedony.

Rough heavy flake, percussion chipping on both surfaces to form cutting edge on two sides. Length 7.0 cms. Width 6.0 cms. Thickness 1.8 cms.

b. Flake scrapers, secondary chipping.  (16 whole)  (Fig. 47 a,c,f,)

Material: Chalcedony; some obsidian.

Random flakes, some intentional secondary chipping on edges. Thicker, larger and intentionally altered flakes. Length from 3.0 to 7.0 cms. Width from 1.8 to 6.0 cms. Thickness from .1 to 1.2 cms.

c. Snub-nosed scrapers.  (3 whole)  (Fig. 47 d)

Material: Chalcedony.

Rough heavy flakes, with percussion chipping along end and side, in nearly a vertical axis, to form cutting edge. Length 4.4 to 8.0 cms. Width from 4.0 to 8.0 cms. Thickness from 1.2 to 3.0 cms.

Choppers.  (2 whole)  (Fig. 44 c, Fig. 47 e)

Material: Chalcedony.

Large core implements, crude percussion flaking on one side and edges. Lengths from 6.5 to 11.0 cms. Width from 5.6 cms. to 9.5 cms. Thickness from 3.5 to 5.0 cms.
Fig. 47. Chipped stone artifacts. Length of e, 10.8 cms. a, c, f, secondarily chipped flake scrapers; b, flake scraper; d, snub-nosed scraper; e, chopper.
Turquoise beads.  (19 whole, sev. types)

Turquoise beads shaped by grinding. Two large specimens, ovoid, perforated through small end. Tiny specimens, cylindrical, perforated through center. Diam. .2 to 1.0cms.

Mosaic fragments.  (5 pieces)

Rectangular to square, polished turquoise. Some have beveled edges. Length 2.0 to 4.0 cms.

Stone pendant.  (1 whole) (Fig. 48 c)

Rectangular piece of soapstone, surface flat and edges parallel, corners sharp. Perforated at center of one end near edge. Length 2.2 cms. Width 2.0 cms.

Lignite button.  (1 half) (Fig. 48 f)

Fragment of a round flat lignite button. Shaped by grinding. Edges round and symmetrical. Center of back raised and a hole drilled under the raised portion from each side, extending into the body of the button. The holes meet and presumably a tie was passed through the channel. Piece highly polished. Diam. 6.6 cms. Thickness 1.0 cms.

Minerals.

Azurite, malachite, hematite, specular hematite, kaolin, chrysocolla and limonite lumps were found throughout the trash. Most exhibited several rubbing surfaces.

Crystals.

Quartz crystals, were relatively abundant, mostly being found in the trash. Occasional specimens of calcite in crystalline and stalactite form, gypsum and opalescent chalcedony were found.
Fig. 48. Bone and antler tools; and jewelry. Length of k, 21.3 cms. a, e, cut bone; b, c, cut shell pendants; d, shell effigy frag.; f, lignite button frag.; g, incised bone ring frag.; h, shell tinkler; i, specialized tool of antler; j, antler wrench; k, long bone beamer.
BONE ARTIFACTS

Bone artifacts were cataloged in the Arizona State Museum collections and brought to Tucson. The majority are deer bones, with scattered occurrences of those from turkey and a heavier animal, possibly bear. Most of these specimens were found in trash, probably representing lost or discarded items.

Awls

a. Ulna awls. (12 whole, 3 frags.) (Fig. 49 g, h, i,)

Unaltered proximal ends of deer bones. Rather broad blade ground to point. Variation from long thin sharp points to short stubby blunt points. Length 9.0 to 15.0 cms. Mostly between 10.0 and 12.0 cms. One unaltered ulna, 24.3 cms.

b. Metapodial awl, head unworked. (1 frag.)

Deer metapodial with unworked head.

c. Metapodial awl, head worked. (3 whole) (Fig. 49 j)

Deer metapodial, head carved or incised. Hole drilled through long axis of head. Shape of head stylized one has criss-crossed incised lines around head. Length 11.4 to 13.0 cms.

d. Metapodial awl, head split, unsmoothed. (5 whole, 1 frag.) (Fig. 49 k)

Split, unsmoothed proximal and distal ends of deer metapodials. Length 10.0 to 15.3 cms.
e. Metapodial awls, head split, smoothed. (5 whole)

Split proximal and distal ends, smoothed by grinding. Length 11.0 to 23.6 cms.

f. Split bone awls. (15 whole) (Fig. 49 m)

Head smoothed past recognition. One specimen has serrate notching across head for decoration. One has incised, parallel lines transverse to long axis of shaft. This specimen has a hole incompletely drilled through head. Length 7.5 to 28.0 cms. mostly between 10.0 and 18.0 cms.

g. Splinter awls. (9 whole) (Fig. 49 b)

Awl fragments of varying thicknesses, with one or two ends sharpened by grinding. Length from 7.0 to 14.0 cms. Mostly between 10.0 and 18.0 cms.

h. Tip fragments. (8 frags.) (Fig. 49 f)

Unidentifiable bone awl tips.

i. Awls with perforated heads. (3 whole) (Fig. 49 c)

Split and smoothed heads shaped by grinding. Perforations through least thickness transverse to long axis. Length 11.0 to 18.0 cms.

Needles (2 whole) (Fig. 49 e)

Long slender ovoid to round bone shafts. Point at one end. Shaped by grinding, polished through use. Length: 7.6 to 11.5 cms. Diameter .3 to .4 cms.

weaving tools, perforated and unperforated. (3 whole) (Fig. 49 d, Fig. 50 a,b)

Blunt pointed tools, shaped by grinding. High polish on entire surface. All except one have perforated heads. Length 11.2 to 15.9 cms.
Fig. 49. Bone artifacts. Length of g, 24 cms.

- a, flesher;
- b, splinter awl;
- c, perforated head awl;
- d, weaving tool;
- e, needle;
- f, tip frag;
- g, unaltered deer ulna;
- h, i, ulna awls;
- j, head-altered metapodial awl;
- l, k, split metapodial awls;
- m, split headless bone awl.
**Hair ornaments.** (2 whole) (Fig. 50 d,e)

Deer scapula ground down until glenoid fossa forms head and slender slightly curved shaft ends in point. One specimen has 3 sets of 3 notches carved at even intervals in border of glenoid fossa and the coracoid process carved into a hook. The other has two perforations drilled in the glenoid fossa. Length 12.4 to 17.0 cms.

**Flesher.** (1 whole) (Fig. 49 a)

Long bone of a deer, frontal ridge ground to a sharp surface at a 45° angle to long axis of the bone. Length 6.0 cms. width 2.2 cms.

**Scrapers.**

a. Scapula scrapers. (3 whole, 2 frags.) (Fig. 50 f,g)

Deer scapula fragments ground to an oval to rectangular outline. One has parallel incised lines on one surface. Length 8.1 to 14.5 cms. width 3.2 to 5.0 cms. Thickness .2 to 1.4 cms.

b. Rib scrapers. (7 whole) (Fig. 50 i)

Deer rib scrapers, rectangular to ovoid in outline. Most edges ground. Length from 6.7 to 10.5 cms. width from 1.4 to 2.0 cms. Thickness from .4 to 1.3 cms.

**Beamers.** (3 whole) (Fig. 48 k)

Short, heavy long bones, with shafts whole or split, bearing sharp working edges shaped by intention or by use. Length from 20.2 to 22.0 cms. Width from 3.2 to 4.5 cms. Thickness from 2.2 to 2.7 cms.
Fig. 50. Bone artifacts. Length of a, 16.0 cms. a-c, weaving tools; d, e, hair ornaments; f, g, scapula scrapers; h, worked scapula; i, rib scraper.
Unidentified worked bone. (1 whole) (Fig. 50 h)

Section of deer scapula, ground and polished into rectanguloid shape with one end stepped.
Length 7.3 cms. Width 3.1 cms. Thickness 1.3 cms.

Tubes.

a. Deer bone. (2 whole)

Long bones of deer, grooved for cutting into rings by sharp cutting implement. Length from 7.0 to 9.5 cms. Width from 2.7 to 3.5 cms. Thickness from 1.8 to 3.0 cms. Distance between grooves .7 to 1.0 cms.

b. Turkey bone. (8 whole)

Long bones of turkey, grooved for cutting into rings, by a sharp object. Length from 4.5 to 14.0 cms. Width from 1.0 to 1.5 cms. Thickness from .7 to 1.7 cms. Distance between grooves .3 cms.

Rings.

a. Deer bone rings. (5 whole) (Fig. 48 g)

Finger-size, rings cut from the long bones of deer. Surfaces and edges smoothed by grinding. One specimen has incised decoration on exterior. Width from .5 to .9 cms. Outside diameter 1.8 to 2.1 cms.

b. Turkey bone rings. (2 whole)

Tubular beads, segments of turkey long bones cut with sharp implement. Edges smoothed by grinding. Width from 1.2 to 1.7 cms. Outside diameter .7 to 1.0 cms.

Dice. (5 whole)

Rectanguloid to ovoid fragments of bone, shaped by grinding, no surface incising. Length from 1.5 to 2.2 cms. Width from .7 to 1.0 cms. Thickness from .2 to .8 cms.
Duck effigy. (1 whole) (Fig. 49 n)

Trianguloid polished bone effigy (?), grooved with sharp implement into three lobes. Length 2.1 cms. Width 1.2 cms. Thickness 1.0 cms.

Bone pendants. (2 whole) (Fig. 48 a,e)

Fragment of deer scapula, ground smooth, to specific shape. One specimen is perforated. Length 3.5 and 7.1 cms. Width 1.1 and 2.0 cms. Thickness, both are .1 cms.

Deer pelvis (4 whole)

Portions of 4 deer pelvis, anterior edges slightly worn by grinding. Probably served as beamers.
These specimens, manufactured of shell, were obtained by trade from the Hohokam area. They were largely fragmentary and were scattered throughout the trash, probably representing lost or discarded objects.

**Pendants (1 whole) (Fig. 48 b)**

Fragment of bivalved shell (*Pectin ?*). Ovoid in shape, edges ground smooth, perforated near one end. Length 2.7 cms. Thickness .3 cms.

**Beads (1 whole)**

Fragment of abalone shell bead, ovoid in shape, formed by grinding, perforated at center of one end. Length 1.2 cms. Width 1.1 cms. Thickness .5 cms.

**Shell effigy fragment. (1 frag.) (Fig. 48 d)**

Fragment of shell bird (?), shaped by grinding. Length 3.6 cms. Width 1.7 cms. Thickness .4 cms.

**Shell bracelet. (1 frag.)**

Fragment of *Glycimeris* bracelet, perforated at articular end. Natural ribs of shell remain on exterior surface. Possibly part of a necklace. Diameter of ring ca. 5.5 cms. Thickness .3 cms.

**Turatella shell. (1 whole)**

No evidence of working. Length 2.7 cms.

**Tinklers (9 whole) (Fig. 48 h)**

Conus shells perforated at small end, no other working. Length 1.9 cms. Thickness 1.5 cms.
ANTLER ARTIFACTS

Flakers (16 whole)

Prongs of deer antlers used for pressure flaking of stone tools. Pointed ends have a scarred flattened surface, at transverse angle to the long axis of the tool.

Wrenches (2 whole) (Fig. 48 j)

Fragments of deer antler, with round perforations where antler flattens out at fork. Diameter of perforations .7 to 1.0 cms.

Specialized tool (1 whole) (Fig. 48 i)

Deer antler split where main prong branched. One end ground to symmetrical convexity, the other to a fine point. Length 19.0 cms.
CERAMIC ARTIFACTS

Miniature vessels.

a. Bowls. (4 whole and frag.) (Fig. 51 e,f,)

Formed by molding lumps of clay, often over finger end. Crudely smoothed on interior and exterior. One specimen formed by coiling. All vessels plain brown. Outside diameter 2.8 to 9.0 cms. Height 1.9 to 3.3 cms. Wall thickness .5 to .9 cms.

b. Jars. (3 whole and frag.) (Fig. 51 a)

Formed by molding lumps of clay. One specimen has two tiny neckbands. Exterior crudely smoothed. Greatest diameter 2.3 to 3.9 cms. Diameter at top of neck 1.1 to 1.8 cms. Height 1.8 to 2.3 cms.

c. Jar cover. (1 whole) (Fig. 51 c)

Hemispherical clay cup with nubbin on convexity. Diameter 2.0 cms. Height 1.6 cms.

Spindle whorls. (3 whole) (Fig. 51 h)

Sherds of various types ground to a disc, perforated centrally. Diameter 3.8 to 5.1 cms. Thickness .5 cms. Hole diameter .5 to .6 cms.

Worked sherds. (2 whole)

Oval to rectanguloid in outline, edges smoothed by grinding. Probably used as scrapers. Length 2.0 to 5.5 cms. Width .7 to 4.8 cms. Thickness .5 cms.

Sherd paint palette. (1 whole)

Convex interior surface of sherd covered with red paint, found with lump of hematite showing signs of grinding on it. Diameter 8.0 cms. Thickness .5 cms.
Effigies

a. Dog or wolf. (4 whole, 6 frags.) (Fig. 51 b)

Crudely molded out of clay. Almost all specimens have four legs, head, ears and tail clearly defined. Some have incised facial features. Most have perforations through the horizontal axis of figure, probably where a stem of grass was inserted that burnt out in the firing. Some specimens were more neatly finished than others. Most specimens too fragmentary to get adequate measurements. Specimens counted as fragmentary have no measurements taken. Total length from 3.6 to 5.2 cms. Height to ears from 2.5 to 2.9 cms. Height to back 2.4 to 3.2 cms.

b. Turtle (?) (1 frag.) (Fig. 51 g)

Ovoid in outline, incised diamond on back. Stubs of two legs and neck at one end, other end broken. Underside molded so incised surface appears to be a thin cover over a flat body. Length 5.6 cms. Width 4.0 cms. Thickness 2.2 cms.

c. Human head? (1 frag.) (Fig. 51 d)

Crude oblong lump of fired clay. Central ridge on long axis of one face could be a nose. Long flat depressions on either side of same face could be eyes. Length 6.6 cms. Width 3.1 cms. Thickness 2.5 cms.

d. Duck bowl effigy. (1 frag.) (Fig. 52)

Fig. 51. Ceramic artifacts. Diam. of f, 9.1 cms. 

a, miniature jar; b, dog or wolf effigy; c, miniature pot cover; d, human head effigy?; e,f, miniature bowls; g, turtle effigy frag. h, spindle whorl.
Fig. 52. Duck effigy bowl frag. Rm 8. Fl. 1.
Length 14 cms. Depth 6.5 cms. Polished brown plain ware, tail black, wings and spot between tail and rim are red.
PERISHABLE REMAINS

Due to the open position of the site and the subsequent exposure to the elements, perishable cultural material was only recovered in those rare instances where the material was charred.

Seeds or nuts. (12 whole and frag.)

A dozen charred specimens were found in a small burned area in the fill of a room. This may have represented the dumping of ashes from a hearth.

Twilled matting frag. (1 frag.)

Charred matting fragment found in ashy area. Over-2 under-2 weave, utilizing yucca leaves. Length 4 cms. Width 3.5 cms.
SUMMARY

This study deals with a portion of the Point of Pines Ruin where the remains of the entire occupation of the site are found in superposition. The purpose of the study is to provide an accurate description of the nature of the cultural development indicated by this accumulation. The interpretation of these remains in terms of temporally distinct phases, which are isolated by the excavation of individual units of shorter time span, presents the data in contiguous segments. A consideration of the same remains as an index to a cultural continuity makes possible a more accurate method of extracting the greatest amount of information regarding the nature of the occupation. At Ariz. W:10:50B and the portion of the Point of Pines Ruin underneath it, this occupation has been labelled the Mogollon-Pueblo cultural continuum.

It can best be interpreted by the lack of change in the major portion of the material culture. This lack of change is made meaningful because of the significant number of years indicated by the vertical depth of the debris on the site and the range of dates assigned to the pottery types.
A relatively small proportion of the ceramic remains presents the only opportunity to establish cultural segments with temporal significance. The types within the White Mountain Series, provide an orderly sequence of development in terms of the non-functional change in decorative styles. It does not seem that segments based on this decorative evolution present the cultural manifestations of the site in their true light. There is no significant change in the remainder of the decorated and utility wares during this span of occupation except for the contents of the trash of an earlier cultural period which underlies the pueblo.

The architectural remains present no clear stratification between the initial block of rectangular rooms of coursed masonry to the final structure several meters above it. Rather, there seems to have been a gradual accretion of new rooms over old ones. This accumulative construction seems to have followed no plan, so that the rooms are distinguishable only by their superposition.

The stone artifacts also reflect this lack of significant sorting in the vertical scale; specimens of all types are scattered randomly through all levels. The fact that the floors and fill in some of the rooms, contain numerous discarded tools, lends significant weight to the hypothesis of gradual depopulation and abandonment
as reported in Wendorf (1950) and Wasley (1952).

The identity of the early people to whom we attribute the Mogollon-Pueblo continuum will have to be based on evidence derived from excavations in the remainder of the Point of Pines Ruin. They may be the builders of the Tularosa phase village, who mixed with or learned traits from the intrusive Maverick Mountain people. They may represent an intrusive group from the north mixed with the local population. Whatever the derivation of the material culture complex of the Mogollon-Pueblo cultural continuum, it did not change significantly during the 200 year period before the area was abandoned.
APPENDIX A

Measurements of stone artifacts

The measurements included below are of artifact types the cultural significance of which would not be portrayed by maximum, minimum and central tendency figures. The types are listed as they are in the text, with reference to the description. All figures are in centimeters unless otherwise stated. The abbreviation F-g refers to fine-grained.

Manos.

d. One-hand manos. (29 whole) (Fig. 40 a) (see p. 79)

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Rubbing stones.

a. Scoria plastering stones. (8 whole) (see, p. 79)

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b. Cuboid rubbing stones. (82 whole) (see p. 81)

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Rubbing stones

c. Rectanguloid rubbing stones. (9 whole) (Fig. 40 b) (see p. 81)

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f. Stone discs. (3 whole) (see p. 82)

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Grinding slabs.

a. Amorphous lapstones. (18 whole, 2 frags.) (see p. 84)
(Fig. 42 a, b,)

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<td>F-g basalt</td>
</tr>
<tr>
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<td>2.0</td>
<td>Sandstone</td>
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<td>Tuff</td>
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<td>9.0</td>
<td>9.0</td>
<td>5.0</td>
<td>F-g basalt</td>
</tr>
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<td>Sandstone</td>
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<td>Scoria</td>
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<td>17.0</td>
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<td>Tuff</td>
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<td>9.0</td>
<td>Tuff</td>
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<td>15.0</td>
<td>9.0</td>
<td>F-g basalt</td>
</tr>
<tr>
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<td>20.0</td>
<td>9.0</td>
<td>F-g basalt</td>
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<tr>
<td>26.0</td>
<td>21.4</td>
<td>13.2</td>
<td>F-g basalt</td>
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</table>

b. Reused manos. (6 whole) (see p. 85)

<table>
<thead>
<tr>
<th>Length</th>
<th>Width</th>
<th>Thickness</th>
<th>Material</th>
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<td>F-g basalt</td>
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<tr>
<td>18.4</td>
<td>9.4</td>
<td>3.6</td>
<td>F-g basalt</td>
</tr>
<tr>
<td>20.0</td>
<td>11.0</td>
<td>5.5</td>
<td>Welded tuff</td>
</tr>
<tr>
<td>18.0</td>
<td>12.0</td>
<td>6.0</td>
<td>Ves. basalt</td>
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<td>11.0</td>
<td>2.0</td>
<td>Quartzite</td>
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<td>11.5</td>
<td>4.0</td>
<td>F-g basalt</td>
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</table>
Mortars. (1 whole, 3 frags.) (Fig 42 c) (see p. 85)

<table>
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<th>Thickness</th>
<th>Depth of Concavity</th>
<th>Material</th>
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<tr>
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<td>2.5</td>
<td>Welded tuff.</td>
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<tr>
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<td>7.0</td>
<td>6.8</td>
<td>1.5</td>
<td>Tuff.</td>
</tr>
<tr>
<td>27.0</td>
<td>24.0</td>
<td>11.0</td>
<td>2.5</td>
<td>F-g basalt.</td>
</tr>
<tr>
<td>16.0</td>
<td>8.4</td>
<td>7.0</td>
<td>2.2</td>
<td>F-g basalt.</td>
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</tbody>
</table>

Reused building stones. (5 whole) (see p. 85)

<table>
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<th>Length</th>
<th>Width</th>
<th>Thickness</th>
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<tr>
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<td>7.0</td>
<td>79.9</td>
<td>23.0</td>
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<tr>
<td>2.8</td>
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<td>45.0</td>
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<td>1.0</td>
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<td>55.0</td>
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<td>2.5</td>
</tr>
</tbody>
</table>

Mauls.

a. Double-headed ovoid mauls. (4 whole)(Fig. 44 b,d) (see p. 88)

<table>
<thead>
<tr>
<th>Length</th>
<th>Width</th>
<th>Thickness</th>
<th>Material</th>
</tr>
</thead>
<tbody>
<tr>
<td>14.0</td>
<td>9.5</td>
<td>7.6</td>
<td>F-g basalt</td>
</tr>
<tr>
<td>8.1</td>
<td>7.3</td>
<td>5.9</td>
<td>F-g basalt</td>
</tr>
<tr>
<td>9.5</td>
<td>6.9</td>
<td>4.4</td>
<td>Welded tuff</td>
</tr>
<tr>
<td>14.0</td>
<td>8.0</td>
<td>7.1</td>
<td>F-g basalt</td>
</tr>
</tbody>
</table>

Arrow shaft smoothers.

a. Reused rubbing stones. (15 including fragments) (Fig. 45 b,d,f,) (see p. 90)

<table>
<thead>
<tr>
<th>Shape</th>
<th>Length</th>
<th>Width</th>
<th>Thickness</th>
<th>No. of Grooves</th>
<th>Placement of groove to long axis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rect</td>
<td>6.8</td>
<td>5.6</td>
<td>1.7</td>
<td>1</td>
<td>Parallel</td>
</tr>
<tr>
<td>0void</td>
<td>7.0</td>
<td>5.6</td>
<td>3.3</td>
<td>1</td>
<td>P</td>
</tr>
<tr>
<td>0void</td>
<td>9.2</td>
<td>8.3</td>
<td>3.1</td>
<td>2</td>
<td>Transverse</td>
</tr>
<tr>
<td>Rect.</td>
<td>7.6</td>
<td>5.4</td>
<td>4.8</td>
<td>2</td>
<td>T</td>
</tr>
<tr>
<td>Rect.</td>
<td>11.3</td>
<td>8.2</td>
<td>3.6</td>
<td>2</td>
<td>T</td>
</tr>
</tbody>
</table>
Arrow shaft smoothers a, continued

<table>
<thead>
<tr>
<th>Shape</th>
<th>Length</th>
<th>Width</th>
<th>Thickness</th>
<th>No. of grooves</th>
<th>Placement of groove to long axis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rect.</td>
<td>5.4</td>
<td>3.5</td>
<td>1.8</td>
<td>1</td>
<td>Parallel</td>
</tr>
<tr>
<td>Ovoid</td>
<td>11.1</td>
<td>9.0</td>
<td>3.1</td>
<td>1</td>
<td>Transverse</td>
</tr>
<tr>
<td>Rect.</td>
<td>8.0</td>
<td>4.8</td>
<td>3.3</td>
<td>1</td>
<td>Parallel</td>
</tr>
<tr>
<td>Rect.</td>
<td>6.4</td>
<td>4.6</td>
<td>1.7</td>
<td>4</td>
<td>Transverse</td>
</tr>
<tr>
<td>Rect.</td>
<td>9.6</td>
<td>7.3</td>
<td>3.4</td>
<td>1</td>
<td>Parallel</td>
</tr>
<tr>
<td>Rect.</td>
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<td>6.8</td>
<td>5.0</td>
<td>2</td>
<td>Parallel</td>
</tr>
<tr>
<td>Rect.</td>
<td>7.6</td>
<td>7.1</td>
<td>4.6</td>
<td>2</td>
<td>Parallel</td>
</tr>
<tr>
<td>Rect.</td>
<td>10.0</td>
<td>6.2</td>
<td>3.0</td>
<td>2</td>
<td>Transverse</td>
</tr>
<tr>
<td>Ovoid</td>
<td>10.2</td>
<td>9.1</td>
<td>4.4</td>
<td>1</td>
<td>Transverse</td>
</tr>
<tr>
<td>Rect.</td>
<td>6.5</td>
<td>6.7</td>
<td>4.2</td>
<td>1</td>
<td>Parallel</td>
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</tbody>
</table>

Arrow shaft smoothers

b. Unshaped arrow shaft smoothers. (11 whole) (Fig. 45 e) (see p. 90)

<table>
<thead>
<tr>
<th>Shape</th>
<th>Length</th>
<th>Width</th>
<th>Thickness</th>
<th>No. of Grooves</th>
<th>Placement of grooves to long axis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ovoid</td>
<td>9.2</td>
<td>5.8</td>
<td>2.8</td>
<td>3</td>
<td>Transverse</td>
</tr>
<tr>
<td>Ovoid</td>
<td>11.2</td>
<td>3.8</td>
<td>3.8</td>
<td>1</td>
<td>T</td>
</tr>
<tr>
<td>Ovoid</td>
<td>9.0</td>
<td>5.3</td>
<td>2.8</td>
<td>3</td>
<td>T</td>
</tr>
<tr>
<td>Rect.</td>
<td>8.4</td>
<td>4.2</td>
<td>3.1</td>
<td>1</td>
<td>Parallel</td>
</tr>
<tr>
<td>Rect.</td>
<td>6.8</td>
<td>4.0</td>
<td>1.8</td>
<td>1</td>
<td>Transverse</td>
</tr>
<tr>
<td>Rect.</td>
<td>12.7</td>
<td>8.3</td>
<td>2.5</td>
<td>2</td>
<td>Transverse</td>
</tr>
<tr>
<td>Rect.</td>
<td>8.2</td>
<td>4.6</td>
<td>4.3</td>
<td>2</td>
<td>T</td>
</tr>
<tr>
<td>Ovoid</td>
<td>9.0</td>
<td>7.0</td>
<td>4.0</td>
<td>1</td>
<td>T</td>
</tr>
<tr>
<td>Ovoid</td>
<td>6.7</td>
<td>6.4</td>
<td>3.2</td>
<td>1</td>
<td>T</td>
</tr>
<tr>
<td>Ovoid</td>
<td>9.0</td>
<td>8.0</td>
<td>2.5</td>
<td>1</td>
<td>T</td>
</tr>
<tr>
<td>Ovoid</td>
<td>5.3</td>
<td>3.8</td>
<td>1.4</td>
<td>1</td>
<td>Parallel</td>
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</table>
Arrow shaft smoothers.

e. V-shaped grooved arrow shaft smoothers. (5 whole)  
(Fig. 45 e) (p. 92)

<table>
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<tr>
<th>Length</th>
<th>Width</th>
<th>Thickness</th>
<th>Parallel or transverse to long axis</th>
<th>Material</th>
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</thead>
<tbody>
<tr>
<td>6.8</td>
<td>4.5</td>
<td>3.0</td>
<td>Parallel</td>
<td>F-g basalt</td>
</tr>
<tr>
<td>6.8</td>
<td>2.4</td>
<td>1.1</td>
<td>Transverse</td>
<td>F-g basalt</td>
</tr>
<tr>
<td>5.8</td>
<td>4.3</td>
<td>2.3</td>
<td>T</td>
<td>F-g basalt</td>
</tr>
<tr>
<td>6.3</td>
<td>4.0</td>
<td>2.8</td>
<td>Parallel</td>
<td>F-g basalt</td>
</tr>
<tr>
<td>6.2</td>
<td>6.0</td>
<td>2.8</td>
<td>Transverse</td>
<td>F-g basalt</td>
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Stone cylinders.

a. Ungrooved. (4 whole) (see p. 94)

<table>
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<tr>
<th>Length</th>
<th>Diameter</th>
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<tr>
<td>10.0</td>
<td>3.0</td>
<td>Ves. basalt</td>
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<tr>
<td>10.7</td>
<td>3.5</td>
<td>Ves. basalt</td>
</tr>
<tr>
<td>10.0</td>
<td>3.7</td>
<td>Scoria</td>
</tr>
<tr>
<td>20.4</td>
<td>7.4</td>
<td>Ves. basalt</td>
</tr>
</tbody>
</table>

b. Grooved. (6 whole) (see p. 94)

<table>
<thead>
<tr>
<th>Length</th>
<th>Width</th>
<th>Distance from closest end</th>
<th>Material</th>
</tr>
</thead>
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<td>3.0</td>
<td>1.0</td>
<td>Scoria</td>
</tr>
<tr>
<td>5.3</td>
<td>2.8</td>
<td>2.3</td>
<td>Tuff</td>
</tr>
<tr>
<td>4.0</td>
<td>1.8</td>
<td>1.6</td>
<td>Tuff</td>
</tr>
<tr>
<td>5.4</td>
<td>2.7</td>
<td>1.5</td>
<td>Tuff</td>
</tr>
<tr>
<td>5.6</td>
<td>2.4</td>
<td>2.8</td>
<td>Tuff</td>
</tr>
<tr>
<td>9.3</td>
<td>3.0</td>
<td>2.0</td>
<td>F-g basalt</td>
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</tbody>
</table>
Slabs. (12 including frags.)

<table>
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<td>80.0</td>
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<td>34.6</td>
<td>25.0</td>
<td>4.5</td>
</tr>
<tr>
<td>70.0</td>
<td>49.0</td>
<td>3.0</td>
</tr>
<tr>
<td>18.0</td>
<td>11.0</td>
<td>1.8</td>
</tr>
<tr>
<td>31.0</td>
<td>20.0</td>
<td>3.0</td>
</tr>
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<td>24.0</td>
<td>4.0</td>
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<tr>
<td>29.0</td>
<td>28.5</td>
<td>8.4</td>
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<td>27.0</td>
<td>24.5</td>
<td>5.0</td>
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<td>22.0</td>
<td>19.5</td>
<td>5.7</td>
</tr>
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<td>33.0</td>
<td>5.0</td>
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<td>30.0</td>
<td>4.0</td>
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</table>

Hoes (11 whole) (p. 94) (Fig. 41 c)

<table>
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<th>Thickness</th>
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</tr>
<tr>
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<td>1.4</td>
</tr>
<tr>
<td>10.0</td>
<td>8.0</td>
<td>1.0</td>
</tr>
<tr>
<td>12.0</td>
<td>10.0</td>
<td>1.5</td>
</tr>
<tr>
<td>13.5</td>
<td>10.0</td>
<td>1.4</td>
</tr>
<tr>
<td>12.7</td>
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<td>.7</td>
</tr>
<tr>
<td>11.5</td>
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<td>.6</td>
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<td>2.7</td>
</tr>
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<td>12.5</td>
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<td>1.4</td>
</tr>
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<td>10.2</td>
<td>.8</td>
<td>.7</td>
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<td>12.0</td>
<td>.8</td>
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</table>

Saws. (4 whole) (see p. 95) (Fig. 41 b)

<table>
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<td>10.0</td>
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<td>1.0</td>
</tr>
<tr>
<td>6.0</td>
<td>6.0</td>
<td>1.0</td>
</tr>
<tr>
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<td>4.2</td>
<td>.8</td>
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</tbody>
</table>
APPENDIX B

Measurements of ceramic artifacts

Minature vessels.

a. Bowls. (4 whole and frag.) (Fig. 51 e,f,) (see p. 114)

<table>
<thead>
<tr>
<th>Outside diameter</th>
<th>Height</th>
<th>Wall thickness</th>
</tr>
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<tbody>
<tr>
<td>6.3</td>
<td>1.9</td>
<td>.5</td>
</tr>
<tr>
<td>5.2</td>
<td>1.9</td>
<td>.5</td>
</tr>
<tr>
<td>9.0</td>
<td>3.3</td>
<td>.9</td>
</tr>
<tr>
<td>2.8</td>
<td>2.1</td>
<td>.5</td>
</tr>
</tbody>
</table>

b. Jars. (3 whole) (Fig. 51 a) (see p. 114)

<table>
<thead>
<tr>
<th>Outside diameter</th>
<th>Height</th>
<th>Wall thickness</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.1</td>
<td>1.8</td>
<td>2.3</td>
</tr>
<tr>
<td>3.9</td>
<td>1.6</td>
<td>2.2</td>
</tr>
<tr>
<td>2.4</td>
<td>1.1</td>
<td>1.8</td>
</tr>
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Wasley, William W.

Wendorf, Fred

Wheat, Joe Ben

Wheat, Joe Ben