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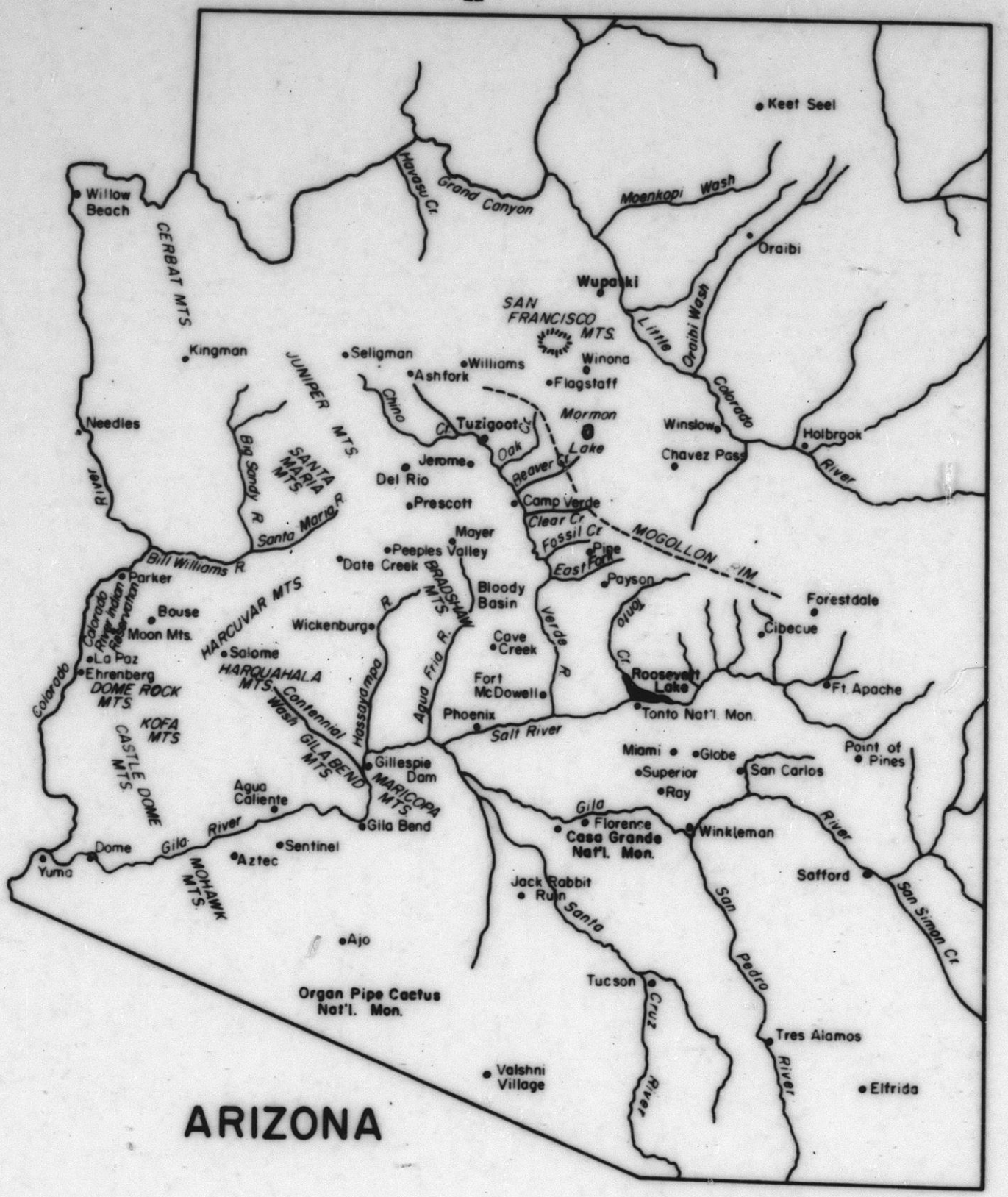
Keet Seel
Willow Beach
Havasu Cr.
Grand Canyon
Moenkopi Wash
Oraibi
CERBAT MTS.
Wupatki
SAN FRANCISCO MTS.
Little Oraibi Wash
Kingman
Seligman
Williams
Winona
Ashfork
Flagstaff
JUNIPER MTS.
Chino Cr.
Tuzigoot
Mormon Lake
Oak Cr.
Beaver Cr.
Winslow
Colorado River
Holbrook
Needles
Big Sandy R.
SANTA MARIA MTS.
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Del Rio
Chavez Pass
Prescott
Camp Verde
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Fossil Cr.
Pine
East Fork
MOGOLLON RIM
Payson
Mayer
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Bill Williams R.
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Fort McDowell
Roosevelt Lake
Ft. Apache
DOME ROCK MTS.
KOFA MTS.
CASTLE DOME MTS.
Phoenix
Tonto Nat'l. Mon.
Salt River
Miami
Globe
Point of Pines
Superior
San Carlos
Ray
GILA BEND MTS.
Gillespie Dam
MARICOPA MTS.
Agua Caliente
Gila
Florence
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INTRODUCTION

The Musuem of Northern Arizona has spent a number of years sponsoring archeological investigations which have led to defining the Sinagua culture in the neighborhood of the San Francisco Mountain area of northern Arizona. Gila Pueblo devoted considerable of its research to the definition of the Hohokam in southern Arizona. Dr. Colton, in his various publications on the Sinagua, also demonstrated that the Hohokam up to about 1125 A.D. and the Sinagua from 1125 to 1400 A.D. inhabited the middle Verde Valley, an area situated between the Gila Basin of southern Arizona and San Francisco Mountains of northern Arizona. Excavations by the Museum also demonstrated that a colony of Hohokam had settled in the San Francisco Mountain area around 1070 A.D., apparently having moved north from the Verde Valley.

In 1947, the writer advanced the hypothesis that some of the Sinagua, in the course of their expansion south into the Verde Valley, continued southward and settled with the Hohokam of the Gila Basin about 1150 A.D. This paper is an attempt to crystallize available data pertaining to these two groups. An attempt will be made to uncover the basic factors which allowed these two groups to live, apparently in close harmony, under varying situations and at different times in widely separated areas, and, if possible, to determine their eventual fate.

The Hohokam of the Roosevelt and Gila Basins and Verde Valley, prior to 1125 or 1150 A.D., lived in single unit jacals along streams,

irrigated their farmlands, manufactured red-on-buff decorated pottery, built ball courts, made use of roasting pits, dumped their refuse on trashmounds and cremated their dead. In contrast, the Sinagua of the Flagstaff area, after 1120 or 1130 A.D., erected small pueblos on elevated terrain, were dry farmers, manufactured a redware, rarely decorated pottery, first began using ball courts after 1070 A.D. (introduced to them by the Hohokam), lacked roasting pits, disposed of their refuse in sheet form or on a talus slope, and buried their dead in an extended position.

While stationed at Montezuma Castle National Monument in the Verde Valley, the writer took occasion on off-duty days to inspect prehistoric sites in the vicinity in an effort to interpret better the pre-history of the monument area. Arrangements were made with the Museum of Northern Arizona to sponsor this survey, and site numbers in their series were assigned to new sites encountered. The surface material recovered was deposited in their collections. This survey was carried on sporadically from November 1946 through January 1950.

Forty-one sites not recorded previously by the Museum were visited, as well as many others which had been recorded by various members of the Museum staff. The reconnaissance was restricted generally to the drainage of Beaver Creek on the east side of the middle Verde Valley. The survey material amplifies that portion of the data pertaining to the valley proper which Colton outlined in his report on the Sinagua (Colton, 1946). The tentative story

of the valley outlined herein, for which purpose the project was undertaken, has been compiled from all available sources touching on the prehistory of the middle Verde Valley. Data from the files at Tuzigoot and Montezuma Castle National Monuments have been incorporated with the permission of the National Park Service.

It was not until the survey material was completely studied and written in draft form that the potential of the data was realized. As a result, this report has been expanded beyond the original intended limits to encompass the entire region of the Arizona desert below the Mogollon Rim west to the Colorado River and from the San Francisco Mountains south to the Gila Basin. The data presented appear to indicate that the cultures of the above outlined area evolved out of a basic pattern which was affected at different times and to varying degrees by various intrusive patterns - the Hohokam and Sinagua.

In the first portion of the report dealing with the Verde Valley and up through the section on "Correlations and Discussions", I employ taxonomic terms in general use among Southwestern archeologists. Following this, however, new terms and definitions are introduced.

In May 1955, I submitted this report to the Museum of Northern Arizona. By August 1956 most of the investigators interested in the archeology of western Arizona were acquainted with the fact that I had described a new pattern. During the Pecos Conference, held in the above mentioned month, it was suggested that a root

name different from that of Yuman be assigned to the pattern. Hakataya was selected. No decision was reached at this meeting concerning the stems of the Hakataya Root (Schroeder, 1957, pp. 176-178). Those described herein are the views of the author.

ENVIRONMENT

The middle Verde Valley is situated between the high plateau land of the north with its comparatively low temperatures and high precipitation and the low desert of southern Arizona with its high temperatures and low precipitation. The southern portion of the plateau supplies the fast-flowing streams with water and material with which deep canyons have been cut through the sedimentary deposits bordering the Verde Valley. As the streams approach the center of the valley their grades diminish and cutting power decreases, resulting in broad shallow canyons where, in dry seasons, much of the water is absorbed by the soil or the heated air. During times of precipitation a large volume of water enters the Verde River which alternately washes out former flood plains and builds up new ones along its banks. Excess material is carried through the winding canyons and cuts through sedimentary and volcanic formations in the lower Verde, finally emptying into the Salt River.

Ancient faults on the west side of the Verde Valley have helped to form the Black Hills, which contain important mineral deposits in the Jerome area. In more recent times the valley proper was covered with water, forming a playa which was responsible for the formation of the salt deposits now evident near Camp Verde. After the playa drained, the streams that began to flow through the area cut shallow canyons into the limey sediments of the old

playa, and continued their flow to the south.

The lower Verde River, as it exists today, has a fall of 1500 feet from Camp Verde to McDowell, a distance of about 65 miles. It is hemmed in by high mountains and is broken by rapids along its course. The few flood plains along its course, which could be utilized for irrigation agriculture, are small areas, thus placing a natural restriction on the potential number of settlements on the stream proper. Moreover, sudden floods in these narrow canyons would cause considerable damage to tillable lands. The middle Verde area, with its wide valley and low terraces, is more conducive to settlement and agricultural pursuits. This is the region which was most heavily occupied by the aboriginal population and which has been settled by modern groups.

The valley is a large basin surrounded by the Black Hills on the south and west and by the Coconino Plateau on the north and east. The Verde River bends from northwest to south, flowing through the western portion of the valley, and is joined by several streams which come in from the eastern highlands. All of the streams are spring fed and are augmented by snow thaws and rains in the higher elevations. If irrigation were not practiced along these streams today, the larger courses would probably flow at a fair rate and continuously throughout the year. Today, Beaver Creek, which heads on the plateau, is partially dry along its lower reaches in the valley proper during the late summer months each year. In addition to the streams there are several large springs which offer a bountiful

supply of water, namely Montezuma Well, Page Springs, Spring Creek and Fossil Springs. It is evident from the above that there is, and probably was, an abundant supply of water in the valley.

The bottomlands and stream banks are lined with willow, hackberry, cottonwood and sycamore trees which rise over a heavy undergrowth of small plants. In the desert flats away from the streams other plants are common - scattered growths of mesquite, acacia, creosote and false palo verde along with other typical desert plants. At the foot of the mountains the vegetation consists of stands of juniper, oak, pinyon and pine with grasses in the open areas. Thus the local flora is sufficient to furnish timber for building or for fashioning wooden implements and, in addition, food, the latter including berries, nuts, beans, seeds, roots and greens. These plants also are a source of food for the wildlife, which included bear, turkey, deer, antelope and rabbit, the last three still surviving in the area.

The climate of the valley is typical of the marginal desert with high summer temperatures in the upper 90's and low 100's during the day and in the 60's during the night. In winter, the average temperature ranges from the 60's during the day to the 20's at night. Precipitation, though not common, occurs from January through March and July to September. Snow fall is light usually melting the day it falls. About 88 percent of the year the sky is clear or partly cloudy. The middle of April marks the beginning of the minimum growing season which is about 6 months long. The climate is one which an agricultural people would desire, particularly the

occurrence of late winter and late summer rains (Mahard, 1949; Allen, 1937; Spangle and Sutton, 1949; Sutton, 1952; Hinton, 1878; McKee, 1945).

In review, we find the valley contained everything necessary to support an aboriginal economy. Water was present for irrigation and domestic use; wild plants and animals were sufficient to supplement farm products; building material was plentiful; salt was present; and in addition, clays for pottery making and ores for paint pigments occurred locally.

HISTORY OF THE MIDDLE VERDE VALLEY

Early Spanish contacts indicate the Yavapais were in sole possession of the Middle Verde Valley from 1583 to 1605. From 1662 to 1775, though no one entered the area from Spanish settlements situated in southern Arizona or New Mexico, various sources continued to refer to the Yavapais as the occupants of the region. Not until the 1850's and 1860's do we have any definite reference to the Apaches in any portion of the Verde Valley (Schroeder, 1952a; 1952b; and 1959).

Modern Yavapais claim their ancestors formerly occupied land on the east side of the Verde and up Beaver Creek as well as a considerable area west of the Verde River. They state that the river became the boundary between them and the Apaches after the latter came into the valley. This situation appears to have existed when Anglo-American settlement began in the late 1860's.

The Yavapais and Hopis relate various origin stories and legends pertaining to the valley which indicate former occupation in the area by some of the ancestral elements of both. The Yavapais say that the people of the first generation came from under the ground, having originally lived at the bottom of a great hole in the Redrock country (perhaps Montezuma Well according to one narrator). The Southeastern Yavapais claim origin in the San Francisco Mountains near Flagstaff. They relate that a split, which occurred later in the Verde Valley, separated them from the Northeastern Yavapais. Gifford stated that his evidence indicated that the Yavapais were

not in the Verde Valley much over 400 years (Gifford, 1932, pp. 243, 247; 1933, pp. 349, 403-404; 1936, p. 251).

In the early 1600's, Zárate Salmerón wrote that beyond the Hopi country Oñate found ruins, ditches and ore dumps. "And when they asked the Indians what ruins were those, they replied that it was a tradition of the elders...that it was many ages before that a great number of people had passed there...to settle in new worlds, traveling to the south. And that they had gone so far that it was never known of them whether they were alive or dead."(Zárate Salmerón, 1626, p. 181). Since the Indians were referring to the pueblos and irrigation ditches in the valley, which we now know date between 1150 and 1400 A.D., it is quite possible that they may have been referring to the southern move of the Sinagua pattern (as a people rather than stimulus diffusion) to the Gila Basin.

The Hopis state that one of their group came out of the earth, through hollow tule reeds, in the vicinity of Casa Grande. It was arranged that each clan would go north from that area by a different route. The Rabbit and Water clans stopped for a while in the Verde Valley where they dwelt in pueblos before proceeding to the Hopi country. One such group was thought to have lived at Montezuma Well until they gave a snake dance. This broke an important tabee since such dances must never be held near water. The pueblo of Montezuma Well was subsequently abandoned. Another informant stated a chief evicted the people because of the licentiousness of the women there.

The Hopis have another story about Montezuma Well. It seems a snake came out of the ground where the Well is located. He held his head up and, while looking around, lime water came up to engulf him.

The water then drew back into the hole. Later, Indians came along and built homes in the ledges on the side of the hole and one day the water rose again and buried the lower houses. The surviving people in the upper houses then left the Well (Tuzigoot and Montezuma Castle National Monuments files).

Interestingly enough, Corbusier reported that the Hopis claim some of their people left the Verde Valley five "old men age" due to a drought and fatal epidemic. An old man they figure as 70 years (Corbusier, 1886, pp. 276-277). Thus 350 years plus the age of Corbusier's informant, about 50 years, would total 400 years before Corbusier's day (1872) or about 1472 A.D. This is very close the estimated end date of 1450 A.D. for the pueblo-like occupation in the middle Verde Valley.

The Hopis also state that two clans of the Water People, the Sun and Sun-Forehead clans, were among the last groups to join them, that they came from the south, and had no priests or ceremonies (See Mindeleff, 1896, pp. 188-189; Fewkes, 1898, p. 531; and Nequatewa, 1936, pp. 85-102 for other legends). Perhaps this implies that these clans had no kivas and associated ceremonies as found among the Hopis, a combination lacking among the prehistoric Sinagua. Thus oral tradition indicates that elements of Hopis and Yavapais played some part in the prehistoric occupation of the middle Verde Valley.

Shortly after the Anglo-American settlers came into the valley from Prescott in the early 1860's, the army followed. By 1873, the Yavapais and Apaches in the area were brought under control and the settlers expanded their farming in the bottomlands, unmolested

by the Indians. The copper mines at Jerome and the salt deposit at Camps Verde served to support commercial enterprises for many years. However, ranching and agriculture were the mainstays. In recent years many of the ranches have been developed into winter resorts. Aside from moderate-sized towns, no large concentrations of population have developed.

The first reference to the archeological remains in the middle Verde Valley was made by Espejo in 1583, when he referred to the ruined pueblos (Hammond and Rey, 1929, p. 106; Reed in Bartlett, 1942, p. 30). In the middle 1800's stories of ruins were brought out of the valley, and the first such statement in print is contained in Whipple's report of 1854. He stated that according to trappers ancient ruins were said to be scattered over the entire length of the Rio Verde. Similar information was reported by General Palmer in 1867 for both the upper and lower Verde (Whipple, 1854, p. 93; Whipple, 1856, pt. 3, pp. 14-15; Bell, 1869, Vol. II, p. 187). The first descriptions of any of the ruins and their contents were made by Hinton and Mearns (Hinton, 1878; Mearns, 1890). In the 1890's, Mindeleff conducted a survey of the lower and middle Verde Valley (Mindeleff, 1896). About the same time Fewkes reported on his visit to the region (1895), and in the early 1900's he completed a survey of the upper Verde Valley (Fewkes, 1896, 1898 and 1912b).

Morris published on his finds at the salt mine near Camp Verde in 1928 (Morris, 1928). A few years later, Gila Pueblo, in an effort to determine the northern boundary of the Hohokam culture of southern Arizona, made a reconnaissance of the valley (Gladwin, W. and H. S., 1930a).

In 1933, Jackson wrote a master's thesis referring to several ruins in the area. (Jackson, 1933), and later he and Van Valkenburgh reported on the excavations of the lower ruins at Montezuma Castle National Monument (Jackson and Van Valkenburgh, 1954). In 1935, Caywood and Spicer published on their excavations at Tuzigoot and also on their findings in two ruins in west-central Arizona, one of which was situated on the western fringe of the Verde Valley (Caywood and Spicer, 1935; Spicer and Caywood, 1936). Colton devoted one chapter of his report on the Sinagua to those who moved into the Verde Valley (Colton, 1946). The writer briefly compared the culture of the area with the Classic Period pattern on the lower Salt River near Phoenix, suggesting the two were closely related. Additional papers concerned with various aspects of Verde Valley archeology have since been published (Schroeder, 1947, 1948, 1949a, 1951b, 1953c). Two reports summarizing site excavations carried on by Shutler and one study on material from a cave in Sycamore Canyon have recently become available (Shutler, 1951, 1952; Dixon, 1956).

Archeologically, the Verde Valley offers numerous sites for study, but unfortunately many of them have suffered considerably from vandalism. In the early days of settlement after the subjugation of the Yavapais and the Apaches, the latter group soon learned of the desire their conquerors had for prehistoric pottery. Not being able to gain much subsistence from their reservation lands, they supplemented their income by digging in the ruins and bringing in pottery vessels in exchange for groceries. They apparently

exhibited no particular fear of the dead in this practice, though today few Apaches would venture to dig a grave of any sort. Most of the material so removed left the valley, going to fairs where the specimens were later sold or passed into private hands. Considerable digging has been undertaken in recent years by local amateurs who have built up large collections. Fortunately some of the material is fairly well documented and may be a potential source of study.

Ceramics

The ceramic manifestations of this survey are considered first, since the chronological aspects of the prehistory of the valley are based solely on the associations tabulated in Figure 1. The sites are arranged on the figure in relative chronological order (from left to right) on the basis of the pottery associated. The pottery types are listed along the left side from early to late (top to bottom). The large numbers in the next column indicate the ceramic patterns of the middle Verde Valley and should not be confused with the patterns set up for the Flagstaff area by Colton.

All pottery types listed on the chart have been described except for the few in Appendix II (Colton and Hargrave, 1937; Colton, 1941; Gladwin and Gladwin, 1934; Gladwin, et al, 1937; Schroeder, 1954a; Colton, 1958). The great majority of types represented are intrusives and fall into the general time periods as indicated on Figure 1. Indigenous pottery is represented by five types - Verde Brown, Verde Red, Tuzigoot Plain, Tuzigoot Red and Rimrock Plain, the latter representing an Apache type. Decorated indigenous types are rare (Colton, 1946, pp. 304, 308). Gila White-on-red may represent a local type.

The analysis revealed temper variations among some of the types and, for purposes of study, these are listed separately under one type heading (see those listed under Tuzigoot Plain and Tuzigoot Red). These variations, as well as other types included for

comparative purposes, are listed in Figure 2.

The local red cinder-tempered variety of Sunset Red, which in the Flagstaff area is always tempered with black cinders, appears to be a southern variant of the described type and is herein called Beaver Creek Red. The color difference in temper is due to the use of cinders from deposits in the Verde Valley that have been exposed for a period considerably longer than those of Sunset Crater. These older cinders have been oxidized to a red color. This is the only difference, aside from distribution, between Sunset Red and Beaver Creek Red.

Verde Brown is the major plainware at Hohokam sites in the Verde Valley, all of which date before 1125 A.D. This type usually exhibits fair amounts of mica, and resembles Gila Plain of southern Arizona. In Sinagua sites containing post-1125 A.D. intrusives, Verde Brown also occurs, but usually exhibits no mica. In most cases, this variant is the dominant utility pottery between 1125 and 1250 A.D. in the middle Verde Valley. The sand temper of Verde Brown contrasts with the fragment temper of Tuzigoot Plain as indicated in Figure 2. It appears that Verde Brown represents a development out of Gila Plain of the Gila Basin. Verde Red is mainly associated with post-1300 A.D. intrusives, but does seem to occur occasionally prior to 1300 A.D.

No apparent explanation is evident for the temper variations in Tuzigoot Plain and Red. It is noted, however, that the quartz-temper varieties of these two types are less common than the fragment-

tempered types. Both Tuzigoot Red and Plain occur in almost all post-1125 A.D. sites along with Verde Brown. Verde Brown appears to be the dominant plainware up to about 1250 A.D. and Tuzigoot Plain usually thereafter. However, they both are present between 1150 and 1400 A.D.

Thus we have an interesting pattern - a single utility type in pre-1125 A.D. sites (Verde Brown) and two utility types at sites dating between 1125 and 1400 A.D. (Verde Brown and Tuzigoot Plain). Two redwares (Verde Red and Tuzigoot Red) occur after 1300 A.D. and perhaps for a short period prior to 1300 (see MA 4611 and 4640 for Tuzigoot Red and Verde Red). Tuzigoot Red, occurs without Verde Red in sites dating between 1150 and 1250 A.D. In addition, Beaver Creek Red is present up to 1300 A.D.

On the basis of the ceramic data recovered, and assuming continuity of types within a ware, a new ceramic series is herein proposed for the Verde Valley as indicated in Figure 2. It is suggested that Verde Brown be removed from the already established Verde Series of Alameda Brown Ware and be replaced by the new type Tuzigoot Plain. It is also proposed that Verde Brown and Verde Red be assigned to a new series in Hohokam Plain Ware for which the name Beaver Creek Series is suggested. This series represents the indigenous plainware in the Verde Valley, which appeared prior to 1150 A.D. Tonto Red (not slipped, but made of a reddish brown clay), which would be better named Tonto Brown, differs in having a rougher finish and coarser temper consisting of feldspar, quartz and mica, and a slightly browner color. It is felt that this type also should be

included in Hohokam Plain Ware rather than Alameda Brown Ware.

A feature of particular interest in Verde Valley ceramics is the occurrence and association of trade pieces of Tusayan and Little Colorado White Wares. The former seem to be more common in pre-1200 A.D. sites. Whether this indicates the Anasazi population to the north, from where these wares were obtained, was undergoing a population shift, or trade channels from the Verde Valley simply moved from the north to the northeast after 1200 A.D. is an unsettled question. At any rate, the Anasazi ceramic intrusives from the Little Colorado River, near Winslow and Holbrook, gradually became dominant over those of the more western Tusayan White Ware center located in northeastern Arizona.

Events in the Flagstaff area may well have been the chief factor influencing this shift in ceramic trade. After the eruption of Sunset Crater in 1064 A.D., many Anasazi as well as others were drawn to or near the area by the moisture-retaining cinder deposits which made farming in this once arid region quite attractive. These particular Anasazi manufactured Tusayan White Ware. In the early 1200's, however, the region of the cinder fall apparently began to undergo depopulation (Colton, 1946, p. 266; 1949, p. 24), probably due to the drought conditions which began about 1215 A.D. and culminated in the prolonged drought of 1276-1299 A.D. (Schulman, 1956, p. 58).

The Anasazi, who left in the early 1200's apparently moved north into the Tsegi Canyon country near Kayenta, in which region

Colton has indicated there was a sudden increase in population between 1225 and 1250 A.D. (Colton, 1939, p. 59). It appears that the Anasazi withdrawal north along with the continued depopulation of the Flagstaff area by the Sinagua, who were moving east into the Chavez Pass area and south into the Verde Valley, removed both the source of Tusayan White Ware and the middlemen who traded it into the Verde Valley. It seems quite likely that the Sinagua who went east toward Chavez Pass may have been the group that was instrumental in trading Little Colorado White Ware from the Little Colorado River area to the Verde Valley.

It was among material from sites previously recorded by the Museum, where additional collections were made on this survey, that the earliest decorated pottery in the valley was observed, types of the Pioneer Period from the Gila Basin.* The Hohokam, however, do not appear to have settled in the Verde Valley in any large numbers. None of the Hohokam sites is known to have survived in the Hohokam tradition after about 1150 A.D.

The first evidence of Sinagua pottery in the Verde Valley is the association of occasional sherds of Tuzigoot Plain and Tuzigoot Red on Hohokam sites which exhibit no evidence of occupation after about 1150 A.D. This correlates fairly closely with Colton's approximate date of 1125 A.D. set for the initial entry of the Sinagua in

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* Roland Richert and Milton Wetherill of the Museum of Northern Arizona recently recorded additional Pioneer Period material north of Clarkdale, Arizona.

the middle Verde Valley (Colton, 1946, p. 304).

The occurrence of Verde Brown as the only plainware in Hohokam-like sites prior to 1150 A.D. and its similarity to Gila Plain, would seem to imply that it was a development related to Gila Plain. Since pure Verde Brown sites occur prior to 1150 A.D. and sites of mixed Verde Brown and Tusigoot Plain occur after 1150 A.D., it appears that some of the earlier inhabitants remained in the valley after the Sinagua entry of 1125 A.D., but no longer maintained village sites of their own pattern separate from the Sinagua after 1150 A.D. Moreover, since Verde Brown predominates until 1250 A.D., it appears that the original indigenous people were the dominant population element during this period of mixture.

In some cases pueblos exhibit Verde Brown almost to the exclusion of Tusigoot Plain and vice versa, up to the end. The dominance of Verde Brown at MA 462A, and its association with Verde Red and compound architecture, gives the site a definite Gila Basin Classic Period cast. Further, the associations here with post-1300 A.D. intrusives indicate that Verde Brown survived as late as did Tusigoot Brown. The ceramic situation, as well as other evidence discussed further on, suggests that the Sinagua pattern became dominant in the 1200's, but that two groups lived in the valley between 1150 and 1400 A.D. Some of the pueblos were dominantly Sinagua (Tusigoot Plain) and others dominantly the descendants of the local Hohokam-like people (Verde Brown), judging by the two utility types involved.

Since the completion of this report, Peck undertook a survey of the East Fork of the Verde (Peck, 1956). He reported Verde Brown along this stream associated with intrusive decorated types dating before and after 1150 A.D. Tusigeot Plain only occurred near the mouth of the stream where it joins the Verde River. This suggests that some of the original occupants of the Verde Valley, the makers of Verde Brown, remained on the East Verde River when the Sinagua came south from the Flagstaff area.

Finally, a historic pattern is represented in the middle Verde Valley by Rimrock Plain (an Apache Ware dating post-1750 A.D.?), occasional intrusive Hopi sherds (19th Century), and one Rio Grande (Sia Pueblo) sherd (1700-1750 A.D.)* plus the known presence of Yavapais.

Architecture and Other Features

It is to be noted that the various types of sites recorded on this survey, when arranged chronologically according to their ceramic manifestations as in Figure 1, reveal an architectural sequence. Some of the cave sites and sherd areas may represent pre-1150 sites, but since associated datable intrusives are lacking, they have all been placed together in the 1130-1150 group.

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* Identified and dated by Stanley Stubbs, Laboratory of Anthropology, Santa Fe, New Mexico.

The pre-1125 A.D. sites contain many features typical of the Hohokam - ball courts, trashmounds and sherd areas, the latter probably representing house areas. However, the association of the above with Verde Brown instead of Gila Plain, the presence of intrusive Hohokam red-on-buff pottery, and the occurrence of two and four-post houses as opposed to the two-post houses of the Hohokam of the Phoenix area, suggest that the local inhabitants either adopted some Hohokam traits or a group of Hohokam joined them, but not at every site. The presence of a few Sinagua sherds at these sites indicates that they survived until and slightly after the Sinagua influx of about 1125 A.D. For the sake of convenience in this report, the above sites will be designated by the term Hohokam.

At about 1150 A.D., Hohokam sites were replaced by boulder sites and small pueblos located on hilltops or in caves, each containing a few rooms (Figures 3, 4, and 5a). Between 1200 and 1250 A.D. these same types of sites were occupied and it appears that the small pueblos gradually increased in size, for after 1300 A.D. only large pueblos, with nearby boulder and cave shelter sites, and a single compound are architecturally represented (Figure 5b). The architecture accompanying the historic pattern, aside from Yavapai huts, is not known. Rimrock Plain has been found mainly in cave sites which contained Sinagua pueblos, and Hopi sherds have been recovered only in or along washes (none designated as sites).

Irrigation ditches are evident at pre-1150 A.D. sites such as NA 3527, also at Montezuma Well (Figure 6) and at NA 4631. Some

of the sites situated near the head of the ditch at Montezuma Well exhibit evidence of pre-1150 A.D. occupation (NA 4616 and 4622), a situation not encountered in the sites further up ditch (included under NA 4609). This would seem to indicate that the ditches were introduced by the Hohokam, saw continued use and extension after the Sinagua arrived on the scene, and are perhaps evidence of continued occupation by the Hohokam among the Sinagua. The latter, prior to 1125 A. D., were not irrigation farmers. NA 4631 exhibits rectangular "garden plot" outlines in the bottomlands associated with the ditches. These are formed by single rows of boulders which enclose areas from 5 by 8 feet to 14 by 24 feet in size (Plate 1). Similar outlines are evident at NA 3527, but apparently have been considerably disturbed by cattle pasturing in the area. NA 3527, apparently a pure Hohokam site, would indicate a pre-1125 A.D. beginning date for rock-outlined "garden plots".

Two previously unrecorded Casa Grande type ball courts were found at NA 4626 and 4643, and those at NA 3527 and 3528 were revisited.* All but the court at NA 4626 exhibit a small aperture at either end of the oval embankment, which leads to an apron on the exterior. The small court at NA 4643 reveals an exposed line of rocks at intervals alongthe edge of the floor area at the foot of the embankment.

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* Schroeder, 1949a; 1951b; 1949b. Richert and Wetherill have since recorded a Snaketown type ball court north of Clarkdale.

The courts at NA 4643, 3527 (which appears to have a platform on one side), and 3528 have pre-1100 A.D. pottery associated. That at NA 4626 has sherds dating about 1100 A.D. plus, this being the only one that may have been associated with a Sinagua site in the valley. The other courts occur at Hohokam sites.

Large trashmounds occur at Hohokam sites only - NA 3527, 4616, 4633 and 4643. None yields decorated ceramics with beginning dates later than about 1150 A.D.

Boulder rooms are associated with small and large pueblos (Plate 2 and Figure 6), and in all cases are situated above or within probable or definable farmlands. Normally, these structures are rectangular one- or two-room affairs, the walls consisting of unshaped rocks. No mortar was employed in their construction as far as can be ascertained, and a doorway or opening is always evident. Occasionally one wall projects beyond the limits of the structure as though intended for a windbreak, being similar in this respect to some Cohonina structures (Hargrave, 1938, Figures 9-11; McGregor, 1951, Figures 18-19; Smith, 1952, Figures 13 and 19). Perhaps a perishable superstructure was employed and these dwellings were seasonally occupied in connection with farming activities. Pottery is scarce around these features and dates from 1150 or perhaps slightly earlier to post-1300 A.D.

NA 4629 (Figure 7) exhibits architecture slightly different from the above structures. One feature is reminiscent of sites around Mayer, Arizona (Schroeder, 1954a). It is merely a rectangular stone outline with rounded corners formed by widely separated rocks. The

structure with which it is associated is somewhat like the above described boulder sites, but larger. The sites around Mayer exhibit outlines similar to the smaller structure, but the rocks forming the perimeter are usually more closely spaced and often form more of an oval.

Roasting pits, 4 to 6 feet in diameter, are found in the flats below several Sinagua sites, usually in a locality where agave is present today (Plate 3). Only one such pit was recorded at an unquestionable Hohokam site. These features were noted at NA 1268, 2806A, 4605, 4616B, 4626E, 4638, 4639, and 4645C. None is large like the mescal pits at NA 4615 and Palatki, which are ascribed to the Apaches or Yavapais. These smaller pits are not known in the Sinagua area around Flagstaff. Their occurrence near Sinagua sites dating after 1150 A.D. in the Verde Valley, coupled with the ceramic situation (two plainwares), might indicate a link with the pre-1150 A.D. inhabitants, or may be coincidence.

The post-1150 A.D. architectural (pueblo) traits, listed in Figure 8, may represent a false impression due to the restricted nature of the survey. However, the chronological associations of the traits listed compare well with previously recorded data from other known sites of the valley. The small pueblos of pre-1250 A.D. are scattered throughout the valley in all types of locations, but always on an elevation above the neighboring terrain. The large dwellings, which developed after 1250 A.D., also are restricted to elevated spots, but only along the streams.

The ceramics of the large sites in almost all instances indicate that these pueblos were established prior to 1300 A.D. and were abandoned by about 1450 A.D. It is also observed that the sites which did survive after 1300 A.D. are restricted in almost every case to a high point near a stream with an unobstructed view in all directions. The exceptions in every instance are so situated that access from the side where a view is lacking is almost always impossible, or at least difficult.

Only the large pueblo sites exhibit so-called defensive features (such as parapets, approach walls, low doorways, floor windows and lack of exterior entries) and reveal pre- and post-1300 A.D. ceramics. One exception, however, is Palatki (MA 3209), a small pueblo with an end date of about 1250 A.D., as indicated by its pottery. It exhibits sealed doorways and small windows near the floor, both possibly indicative of defensive architectural practices (Plate 4). Either this site away from a stream managed to survive for a short period after 1250 or defensive architecture, if such it was, was first employed between 1250 and 1300 A.D.

Several of the large pueblos exhibit one large, usually detached, room with fairly good masonry (above average for the Verde Valley) near the main dwelling (Plate 5). The use or function of these features is not known. They might have been roofed, since large cottonwood trees were available in the nearby bottomlands.

The pueblos rarely exhibit good coursed masonry. Sandstone and limestone slabs were used when available, but even walls of

such material seldom reveal a given area that might be considered as well coursed. Irregular boulders and river rocks are common in many walls, and large vertical standing slabs or up-ended boulders often were employed to form the base of the walls. Excessive amounts of mortar are evident in walls that have been protected from the elements and in some instances it appears that the rock is merely a filler for a mud wall. Wherever unexposed portions of these pueblo dwellings are examined in cave sites, plaster is evident on both surfaces of the walls.

Many of the sites in the valley, particularly those that were occupied after 1300 A.D., cover an extensive area. Often the farmlands, boulder rooms, and irrigation ditches extend as far as one or more miles from the pueblo.

Among other features recorded were three mescal pits (earth ovens), all located on the borders of the valley. Two in the north (one below NA 5111 and another near Palatki) are at the foot of the red sandstone cliffs, near Sinagua sites. The other is situated high on the eastern slope of the valley, along a natural pass, relatively close to a Sinagua sherd area. These associations may be genuine or merely coincidental. No sherds were recovered from the area of the pits themselves.

A series of pictographs in the vicinity of Palatki was visited. The great majority of elements consists of geometric designs. There are a few human figures. These pictures are painted in red or white or a combination of both (Plates 6 and 7). The black figures at this site are thought to be historic, since the horse appears to be

represented in several cases.

Petroglyphs were recorded at NA 4627, 4628 and 4638 (Figure 9). Those of NA 4627 are on two large rocks along a trail on the west side of Beaver Creek, about a mile north of the Beaver Creek Ranger Station. These all depict animals, insects and man. NA 4628 is almost a mile south of the same Ranger Station on the east side of the creek. The Indians took advantage of a small sandstone cliff at this point and literally covered it with a variety of geometric, animal, human and other figures (Plates 8 and 9). Some are similar to those of NA 4627. A small group of petroglyphs was recorded in a small cave on Red Tank Wash (NA 4638), about 2.5 miles southwest of Beaver Creek Ranger Station. These are similar to some of those at NA 4628. At none of these sites was pottery directly associated. Nearby ruins suggest probable 1125 to 1400 A.D. dates. Other petroglyph sites are reported to exist up toward the head of Beaver Creek.

It is interesting to note that all pictographs (painted) reported in the valley to date are located along the base of the red rocks on the north and west margins of the valley.

Artifacts

The tools and other materials recovered came from Sinagua or mixed sites, and as no diagnostic artifacts were found at the pre-1150 A.D. Verde Brown sites, definite trait comparisons between the two cultural groups cannot be made on the basis of this survey. Since previous surveys and excavations have not been concerned with distinguishing between the artifacts of the Hohokam and Sinagua, the

need for a detailed comparative study is urgent, particularly so in view of the prehistoric developments that occurred in central Arizona. An attempt to fill this need is undertaken in another section of this report.

Figure 10 lists the provenience of artifacts and miscellaneous material recorded on the survey. All finds are similar to or duplicate those described in previous reports concerned with the region (Caywood and Spicer, 1935; Jackson and Van Valkenburgh, 1954; Colton, 1946), with the possible exception of the stone anvil from NA 4641, a site known to have been occupied by the Apaches at the turn of this century. However, the presence of a few sherds of Verde Brown and Tuzigoot Plain indicates prior use of the area, thus raising some question as to the exact association of the anvil.

In addition to the artifacts listed, the following milling stones were noted: two bedrock mortars adjacent to the bed of Red Tank Wash just south of the Beaver Creek Ranger Station road, and a trough metate in a large boulder near the corral of Soda Springs Ranch immediately east of NA 4641. These bedrock milling stones apparently are rare locally, no others having been reported in the past. Similar bedrock metates have been observed in the Prescott area (Gifford, 1936a, p. 280; Schroeder, 1954a).

THE CULTURAL PATTERN OF 1125 TO 1400 A.D. IN THE MIDDLE VERDE VALLEY

Present evidence indicates that scattered Hohokam-like settlements existed only along the river terraces of the middle Verde Valley up to around 1150 A.D. About 1125 A.D. the Sinagua began to move into the valley proper, coming in from the edge of the valley or the plateau above. Ceramic associations indicate that after 1150 A.D. sites were located on elevated benches or ridges, in open canyons or foothills, in ledges or on slopes of the escarpment which surround the north and east portion of the valley, on top of the open plateau above, and mesa tops.

The geography of the region reveals two topographic zones. In the valley the level desert flats are broken with limestone mesas and buttes, erosional remnants of the former playa bed. It is on top of these elevations, where the caprock is breaking down, that one finds building material for masonry structures, not in the flats. It was actually the most convenient spot to build. Along the edge of the valley, on the north and east, one encounters rolling foothills and open canyons against the sandstone and volcanic capped cliffs. It is on elevated spots at the base of these cliffs and in the eroded foothills that one again finds building materials and sites. The Sinagua selected different but always elevated house sites in these two zones, apparently due to the location of building materials.

In the valley proper there may have been additional factors

affecting site location. The temperature on top of the buttes is eight degrees warmer at night in the winter than in the neighboring bottomlands. The first light of day as well as the last is seen on the buttes, and this may have meants saving in firewood, both for heat and light. The insects of the creek bottoms seldom reach the elevated spots, which may have been another attraction. Also a view of the farmland was always assured. The problem of drainage was simplified on the elevated sites, as was the disposal of trash down the slopes. There were many definite advantages to living on the higher spots.

The small pueblos, regardless of locale, reveal many features in common. Caywood and Spicer have pointed out that between 1050 and 1300 A.D. (their dates) all of the pueblo ruins in the valley and its borders were small. They listed 52 sites of this period containing a total of 256 rooms, an average of 5 rooms to a site. Woods Canyon Ruin, with 30 rooms, probably was one of the largest constructed at this time (Caywood and Spicer, 1935, pp. 10, 13). No matter where these sites were located, with rare exceptions, one can always view the probable farmlands from the dwellings. To date, no evidence of defense is noted in these small pueblos (such as combinations of outer protective walls, peep holes, small doorways, parapets, lack of outside doorways, etc.). In fact, open settlements are the rule.

Unless one considers location on a hill a defense mechanism in itself, there is no evidence of hostility between 1125 and about 1250 A.D. in the middle Verde Valley. Further, there is nothing in

surrounding areas which indicates pressure on the inhabitants of the valley. From the north and northeast quantities of pottery were traded (Schroeder, 1947, pp. 235-236). Shell came up from the south. From the west a fine red shale used in making ornaments was brought in from the Del Rio area, north of Prescott. The region to the northeast of the valley proper was occupied by the Sinagua up to and on top of the escarpment (Colton, 1946, p. 304; Bartlett, 1939). Trade lanes evidently were open in all directions. If these sites in the valley originally were erected on hilltops for defense, the evidence is yet to be forthcoming.

These people simply built small pueblos on elevated sites, probably to overlook their farmlands (Plate 10) and perhaps the surrounding area. Prior to about 1250 A.D., according to present evidence, no effort was made architecturally to defend the pueblo or the site of the pueblo. The Hohokam before them, lived on the terraces along the streams where they could irrigate their farms. The Sinagua pattern exhibits a definite tendency to settle on elevations in the desert and in the foothills, where they could have practiced dry farming only, or along streams. In those cases where sites near streams were selected, the small Sinagua pueblos were located on hills away from Hohokam-like settlements already situated on the adjoining terraces (Schroeder, 1951b, pp. 61-63 for such an example).

One might argue that the Sinagua were forced to utilize mesas and buttes along the streams, since at the time of their entry the Hohokam evidently occupied the relatively few terraces available. This does not seem to have been the factor involved. Several elevated pueblo sites adjacent to streams are far removed from any

known Hohokam sites, and Sinagua sites away from streams are similarly situated. It appears that the practice of selecting sites above the general terrain was a part of the cultural expression - either a desire to overlook the farmlands, to eliminate problems of drainage, or to take advantage of the caprock for building material. The site locale of the Sinagua pattern contrasts with that of the Hohokam, who depended on wood, thatch, and mud from the river bottom land for their dwellings on the adjoining terraces.

The lack of ceramic pattern7 (composed of 1250-1300 A.D. pottery types in the Verde Valley) in the above-discussed small Verde Valley pueblos indicates that they were abandoned by 1250 A.D., if the sherd collections can be considered as representative. The one post-1250 A.D. Jeddito Black-on-yellow sherd that occurs at one small pueblo site, could have been deposited after the site had been abandoned. Two other small pueblo sites each exhibit one sherd of Verde Red, a type, though not common, that is found most often in large sites.

Sometime prior to the importation of Jeddito Black-on-yellow pottery (1325-1600 A.D.) into the Verde Valley, many small pueblos were abandoned, all of which are away from the streams. The pueblos in the central portion of the valley along streams, however, continued to be occupied and increased in size. In regard to sites along streams after 1300, Caywood and Spicer found that 15 pueblos, 3 cliff dwellings and a cavate totaled 708 rooms, an average of 47 rooms per site as compared to 5 before 1300 A.D. (Caywood and Spicer, 1935, p. 13). One cannot consider this increase in the size of the pueblos along the streams solely the result of a few people occupying a site over many years. Tusigoot offers evidence to the contrary. After remaining a

small pueblo (less than 20 rooms) for some time, 97 rooms were added in the last phases of building (Ibid., pp. 38-40). The reduction in the number of sites in the entire valley area between 1250 and 1300 A.D., as well as in the size of the area occupied, and the greater size of the surviving pueblos along streams are definite indications of concentration or regrouping.

The locales abandoned at this time, areas without flowing streams, lack water today, aside from a few scattered small springs and intermittent washes.* Irrigation would have been impossible at these sites and there is no indication that springs were utilized for farming at any site away from the streams. Dry farming only could have been practiced.

The time of the abandonment of the small pueblos away from the streams coincides with the increasing dessication of the 1200's (Schulman, 1956, p. 58). Colton has pointed out that the Flagstaff area, also occupied by the Sinagua, was undergoing depopulation at the same time, and has suggested that many of the people emigrated into the Verde Valley at this time (Colton, 1949, pp. 24-25). Thus, the data recovered on this survey suggests that a number of the Flagstaff Sinagua may have moved south in the 1200's, as Colton has postulated.

The area favored after 1300 A.D., as indicated by sites exhibiting Jeddito Black-on-yellow pottery(Figure 11), contained several spring-fed streams (which today are partially dry in their

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* Fewkes, 1896, p. 564 remarked on his troubles hauling water to Palatki, one of the pueblos away from the streams. See also Fewkes, 1898, pp. 549, 558.

lower reaches in late summer months, due to large modern irrigation projects upstream). Many evidences of pre- and post-1300 A.D. irrigation exist along these streams, Montezuma Well being the most obvious. A limestone sink here furnished the occupants with a permanent supply of water at the probable rate of 1,500,000 gallons a day, which is the present figure. Surface indications of prehistoric irrigation were visible at Tuzigoot in the 1880's.*

Another site (NA 4631), about one mile upstream from the Well, still exhibits rectangular boulder-lined fields and ditches covering several acres. A similar situation occurs near the mouth of Clear Creek and at other sites below Camp Verde (Mindeleff, 1896, pp. 238-243). Fewkes recorded others (Fewkes, 1898, pp. 549-550). Sherd collections from the pueblo sites bordering these irrigated farmlands have dates ranging from 1150 to 1400 A.D. Thus the spring-fed streams of the valley proper provided the means by which the inhabitants could survive during the droughts of the 1200's.

The sites containing ceramic evidence of occupation after 1300 A.D. have one feature in common. Various aspects of architectural defense are exhibited. At Montezuma Well the scattered

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* I am grateful to Dr. Gordon Ekholm for allowing me to have access to this information which is contained in Dr. Edgar Mearns' field notes on file at the American Museum of Natural History, New York.

settlement of pre-1300 A.D. evidently concentrated into one large pueblo (NA 1273) and a few nearby caves. The north end of the pueblo had no doorway in the wall. The east side was situated on the edge of an 80 foot bluff and the west side on the edge of the Well. Only the south end was exposed. Other sites that were located along streams between 1150 and 1300 A.D., and which were occupied until 1400 A.D., were converted into "forts", apparently around 1300 A.D. or slightly before. Tusigeot, Montezuma Castle and others exhibit various features such as loop holes and small doorways. Parapet or protective walls were erected and some earlier entries were sealed (Caywood and Spicer, 1935, p. 34; National Park Service files, Montezuma Castle). Tusigeot, after its last stage of rebuilding, revealed only five doorways, the remaining rooms apparently having been entered through roof hatches. The post-1300 A.D. compound (NA 4624) on Clear Creek, already referred to, is further indication of stress. There is no ruin in the Verde Valley bearing evidence of occupation between 1300 and 1400 A.D. which does not exhibit defense features in its construction or take advantage of a natural site which afforded protection. Something definitely was amiss.

The natural question arises. Since the people of the valley concentrated along the streams between 1250 and 1300 A.D., against whom were they defending themselves? Available statistics already mentioned suggest the most probable answer. An increase from 5 rooms per site prior to the advent of defense features in architecture to

47 afterwards is evidence of overcrowding. The abandonment of dry farming areas in favor of already occupied irrigated areas probably placed a great strain on the small and relatively few available bottomlands along the streams. Under such conditions, both housing and farmlands would have been abnormally taxed and considerable competition would surely have arisen between factions or villages for the use of arable lands. On this basis, the reason for defense appears to have been internal - too many people and not sufficient farmland for the area involved. Perhaps the two factions in the valley, the descendants of the pre-1150 inhabitants who remained in the valley after 1150 A.D., and the Sinagua (including the late arrivals) drew apart and came to blows. This period of stress evidently lasted until about 1400 A.D., at which time the Sinagua culture pattern collapsed in the middle Verde Valley.

Perhaps one of the most interesting cultural developments exhibited in the valley between 1300 and 1400 A.D. is the village pattern. Most of the sites that survived beyond 1300 A.D. covered an extensive area (see Figure 12). The pueblo on an elevated site formed the nucleus of the farming village. Boulder rooms, along ditches or on terraces or slopes above farmlands, or in the farmlands proper, were scattered between the village center and the farms. Caves or high points bordering the bottomlands were used for shelter or points of vantage over the fields. Sometimes as much as two miles seperated the pueblo from the farmland.

From the mouth of Beaver Creek one can proceed upstream

from one village to the next, all with the same pattern and all practically joining one another's bounds, the seperation of sites being primarily due to topography. This was not realized at the time of the survey when the various features were assigned different site numbers. The extent of these sites is roughly outlined by broken lines on the accompanying map (Figure 12). It is more than interesting to note that modern ranches in the area coincide rather closely with the prehistoric village sites, particularly in regard to the division of the arable land along the creek, an allotment probably influenced by the natural topography.

One other point bears comment. The ceramic situation already discussed reveals the existence of a plain pottery type, dating between 1125 and 1400 A.D., which aside from the lack of mica, is the same as the pottery of pre-1125 A.D. -- Verde Brown. There also are non-ceramic traits of the pre-1125 A.D. period which persist after that date, all of which were foreign to the Sinagua culture of the Flagstaff area, namely irrigation ditches, bed-rock mortars and possibly roasting pits. In addition, other traits are noted which either were introduced to the Sinagua of the Flagstaff area by the Hohokam after the eruption of Sunset Crater, when a colony of Hohokam settled at Winona around 1070 A.D., or appear to be foreign to the Sinagua. These traits include occasional dolicocephalic skulls at Tuzigoot, shouldered pottery vessels, carved stone and ornate shell work.

The elements listed above seem to indicate that a number of

the Hohokam traits survived in the Verde Valley. There is no doubt, however, that these traits were subordinant to those of the Sinagua by about 1150 A.D.

A COMPARISON OF HOHOKAM AND SINAGUA TRAITS IN THE MIDDLE VERDE VALLEY

The partial survey of the middle Verde Valley discussed herein, along with other data published in previous reports dealing with this area, suggests that the prehistory of the middle Verde Valley region involves the same cultural elements and patterns that are found in the San Francisco Mountains in the north (Sinagua) and the Salt-Gila River areas in the south (Hohokam). The valley exhibits small quantities of material culture of the Pioneer and Colonial Periods, and a greater quantity of the Sedentary Period of the Hohokam. After 1125 A.D. the Sinagua pattern rapidly replaced that of the Hohokam.

This valley, however, was not the most northern point of Hohokam expansion. McGregor demonstrated that a colony of Hohokam reached Winona, east of Flagstaff, after the eruption of Sunset Crater (about 1064 A.D.). By 1120 A.D. the identity of this colony is lost as none of the distinctive Hohokam traits introduced survived (McGregor, 1941). The Winona site, so far as known, marks the northern limit of Hohokam expansion. The final disappearance of this colony and its traits coincides with the beginning of the southern expansion of the Sinagua into the Verde Valley, around 1125 A.D.

In a few brief papers (Schroeder, 1940, 1987, 1952c, 1953a, 1953c) I have partially reviewed the data, contained in one unpublished report (1940), on the Hohokam Classic Period in the Gila Basin. These articles suggest that the Sinagua pattern, in its southward expansion

via the Verde Valley, also entered both the Salt River and Gila River areas south of the mouth of the Verde River. I attempted to show that the Sinagua merged with the Hohokam, beginning about 1150 A.D. in the Phoenix region. Wherever these two groups or patterns met, the Sinagua always dominated - completely at Winona where the Hohokam colony lost its identity or moved out, almost completely in the Verde Valley where some Hohokam traits survived, and blending in the Gila-Salt area where a greater, but not dominant, proportion of Hohokam traits survived. In short, the degree of Sinagua dominance seems to have decreased in proportion to the distance removed from the San Francisco Mountains. This is what one would logically expect to happen at various points between any two culture centers. The significant factor in this case, however, is that the Sinagua pattern, a relatively simple pattern of material traits compared to that of the ornate Hohokam culture, appears to have dominated, materially speaking, that of the Hohokam in their "home area" in the Gila Basin. This is a feat the Hohokam at an earlier date could not accomplish in the Sinagua homeland (at Winona).

The Museum of Northern Arizona has demonstrated that the people of the San Francisco Mountain area, after the eruption of Sunset Crater, were exposed not only to the culture of the small Hohokam colony at Winona, but also to Mogollon and Anasazi groups. Between 1070 and 1120 A.D. these three groups retained sufficient of their culture so as to be identified by three separate foci by McGregor (Colton, 1946, p. 259; Colton and Hargrave, 1937, pp. 44, 49-52; Colton, 1941, pp. 28-29; Smith, 1952, pp. 177-178; McGregor, 1941). By 1120 or shortly thereafter, the Sinagua pattern

incorporated the traits derived from these three foci. The most obvious introduced traits were redware from the Mogollon and pueblo architecture from the Anasazi (McGregor, 1941).

The accompanying trait list, Figure 14, has been drawn up in order to distinguish, and at the same time graphically present, the distribution of Hohokam and Sinagua traits in time and space. Periods within the two cultures were selected for comparison rather than phases, as the changes between the latter are not as broad and significant.

Certain mechanical difficulties in arranging the traits in the chart are obvious and these must be considered in analyzing and determining their values. Since the beginning and end dates of these periods of Sinagua and Hohokam developments do not coincide, time overlaps do occur, but in most instances are minor. Moreover, the beginning and end dates of some of these periods are not well established.

The Sedentary Period (900 to 1150 A.D.) Gila Basin traits of the Hohokam are compared to those of the Sinagua between 1070 and 1120 A.D. The latter range represents the first time developed Hohokam traits appear in quantity within the Sinagua region. As far as present evidence is concerned, it should be recognized that a concentration of Hohokam traits appears only in the Winona area during this period, and that only a scattering of these traits are reported in other Sinagua sites of the same horizon in outlying areas. The same may be said of the Mogollon and Anasazi traits, though some of their traits were more widely accepted by the Sinagua.

The post-1120 A.D. traits of the Sinagua are in turn compared with the post-1125 A.D. Verde Valley cultural development, and the latter in turn with the traits of the post-1150 A.D. Gila-Salt River areas.

The first comparison on the chart, the pre-700 A.D. Pioneer Period of the Gila-Salt area and the pre-1070 A.D. Sinagua, may appear to be out of line in view of the divergence of dates and other factors. The reason for the selection of these two time periods for comparison is given below.

At Snaketown, the type site of the Hohokam, three intrusive pottery types were recovered in association with Gila Butte phase material - Lino Black-on-grey, San Francisco Red and Forestdale Smudged. These have been assigned end dates of pre-750 A.D., pre-1000 and at least pre-800 A.D. respectively. On the basis of these associations, Gila Pueblo originally dated the Gila Butte phase between 500 and 700 A.D., proceeding on the premise that phases lasted 200 years (Gladwin, et al, 1937, Figure 105). Thus the Pioneer Period end date was placed at 500 A.D.

The stratigraphic tests in trashmounds in the vicinity of Phoenix, revealed seven intrusive pottery types associated with the Gila Butte phase (Schroeder, 1940, Figure 11). It will be noted (see Figure 13) that most of these same types also occur in the Santa Cruz and Sacaton phases that followed. In all instances, except for White Mound Black-on-white and Medicine Black-on-red, these types are more common in the later two phases. Since the intrusives

at Snaketown and in the Salt River Valley were removed, in most cases, from trashmounds by means of artificial blocks, associations of several phases can be explained as having occurred along planes of contact between phases within the artificial blocks.

On the basis of these associations, in 1940 I raised the beginning date of the Gila Butte phase to 600 A.D. rather than raising the end date. In this, perhaps, I was prejudiced by the then accepted dating at Snaketown. I now feel, that the Gila Butte phase should be revised upward mainly because there is nothing in the intrusives to indicate a pre-700 A.D. date for several of the earliest black-on-white intrusives.

The revised dates selected for the Gila Butte phase must of necessity overlap the beginning dates of the later intrusives and the end dates of the earlier types mentioned above, except for two instances. These exceptions, Black Mesa Black-on-white and Tusayan Black-on-red, appear to be strays from later material. These two types are good "Pueblo II" status (900-1100 A.D.) types in the Flagstaff region as well as in the Verde Valley, as indicated by Colton's ceramic patterns in the San Francisco Mountains and the results of the partial survey in the middle Verde Valley reported herein. Moreover, as further indication of their later association, these two types occur more commonly with Sacaton phase material (900-1150 A.D.) in the Salt River Valley (Figure 13). Thus, when the dominant associations of the remaining five intrusive types and their known associations in other areas are considered, we must revise the dating of the Gila Butte phase to between 700 and 800 A.D. The three intrusive types

at Snaketown also fit within this range. This in turn raises the end date for the Pioneer Period toward 700 A.D.

Since Gladwin postulated that the Pioneer Period was a Mogollon development contemporaneous with the post-700 A.D. Hohokam Colonial Period, rather than a period preceding the Colonial Period (Gladwin, 1948, p. 236 and Figure 58a), perhaps some may doubt the advisability of selecting a 700 A.D. end date for the Pioneer Period. The stratigraphic tests in the Salt River Valley in 1938 and 1939 brought out two points in this regard. Pioneer Period ceramics always occurred under Gila Butte Red-on-buff and rarely occurred with later pottery in the sites tested or surveyed. The only cases of association were instances where Gila Butte phase material lay in contact with Pioneer Period debris. I have already demonstrated (Schroeder, 1951a, p. 265) that there was no Pioneer Period material associated with Santa Cruz phase material, which opposes Gladwin's postulation that such was the case. In the next section of this report evidence is cited to show that there was no such association with the Gila Butte phase as well.

The pre-700 A.D. Sinagua material of the Cinder Park Focus is not compared with the pre-700 A.D. Hohokam culture of the Pioneer Period in Figure 14. This was not done for two reasons. Only one site of the Cinder Park Focus has been excavated. The culture represented at this site appears to be a mixture exhibiting Anasazi traits and some Anasazi pottery, with Sinagua paddle-and-anvil pottery being dominant. In the brief preminary report on this site is a concluding statement that the inhabitants shared many cultural traits

in common with the late Basket Maker while possessing others of their own (de Laguna, 1942, p. 56). The house type was oval to rectangular in plan with a long ramp entry. The exterior of the pit was lined with poles like contemporaneous Hohokam and later Sinagua houses, not slab-lined and circular like typical Anasazi sites. Floor cists and a wattle and daub deflector near the entry were uncovered in two houses and an irregular alcove off to one side of another house, these being apparently good Anasazi traits (Colton, 1946, pp. 243-246).

The above situation is somewhat comparable to that of the Flattop site, excavated by Wendorf in the Petrified Forest National Monument. He describes this site, which he dates pre-600 A.D. as one of Anasazi occupation. However, only pottery thinned by the paddle-and-anvil technique was associated, which he indicates may have been intrusive. The analysis of the materials of the Flattop site suggests a close correlation with the Anasazi Basket Maker II including projectile points, metates and slab-lined cists (Wendorf, 1953, p. 75).

These situations on the northern periphery of the area of paddle-and-anvil thinning indicate mixture occurred between the paddle-and-anvil pottery groups and their scrape-thinning northern Anasazi neighbors prior to 700 A.D. Sinagua developments in the San Francisco Mountain area, between 700 and 1070 A.D., exhibit less Anasazi influence, in fact practically none, as compared to those of the Cinder Park Focus.

Present data on the Sinagua between 700 and 1070 A.D. reveals

little or no change in the roster of culture items, and nothing during this same period indicates other than casual, rare trade relations with the Colonial Period (700-900 A.D.) Hohokam of the Gila Basin. The Sinagua traits of this period were first compared with the Colonial Period and then with the Pioneer Period of the Hohokam. The results were rather surprising. There was a high correlation between the pre-1070 A.D. Sinagua and the pre-700 A.D. Hohokam traits, but little with those of the Hohokam Colonial Period of 700 to 900 A.D. Mainly because of this startling agreement, the Pioneer Period rather than the Colonial Period traits of the Hohokam were used for purposes of comparison. The probable explanation for this situation will be discussed after dealing with the trait list (Figure 14).

One other important point should be noted. Since the Snaketown phase of the Hohokam exhibits pairs of traits, such as two house types, two ceramic patterns etc., an arbitrary decision was made in the placement of these traits on the charts. All elements of the Snaketown phase, which occur in previous Pioneer Period phases, are classed as Pioneer Period traits. The remainder or new traits, which appear for the first time in the Snaketown phase, and in the Gila Butte phase that followed, are assigned to the Colonial Period.

On close examination of Figure 14, one notes the following concerning the various time divisions within the trait list.

A - PIONEER HOHOKAM AND PRE-1070 A.D. SINAGUA

Shared traits

Architecture - a square, timbered jacal or house in a shallow pit with an inclined ramp and four post supports for a flat roof.

Disposal of the dead - cremation and ashes scattered. (I am assuming cremation for both and particularly the Sinagua of this period as only one possible burial has been reported that may date prior to 1070 A.D.).

Shell - plain Glycymeris bracelets, whole shell objects.

Stone - pottery anvil, 3/4-groove axe (?), hammerstone, hoe (?), unifacial one-hand mano, full trough metate, portable mortar, pestle, chipped knife, point lacking or rare.

Clay - shallow and hemispherical bowls, globular wide-mouthed jars with low or no neck; small ball; coiled, paddle-and-anvil thinned pottery with a light polish; firing was uncontrolled.

Traits only among Sinagua

Central firepit

Traits only among Hohokam

Firepit near entry; shell pendants and rings; carved shell; stone effigy vessel; stone bowl; heavy-walled pottery vessel (?); vase; red-on-brown painted, incised or applique decoration on pottery.

Remarks

Practically all pre-1070 A.D. Sinagua traits are found in the Pioneer Period. The latter contains a greater variety of shell work (due to its proximity to the source of material?), a wider representation of stone and pottery containers, and the practice of decorating pottery, probably due to influences out of Mexico.

B - NEW TRAITS AMONG HOHOKAM BETWEEN THE END OF THE PIONEER PERIOD AND 1070 A.D., NOT SHOWN SEPARATELY ON THE TRAIT LIST. (This category covers the Colonial Period and a good portion of the Sedentary Period. Only rarely do any of these traits appear in the pre-1070 A.D. Sinagua area. Asterisks apply to Section C which follows.)

Architecture - a rectangular jacal with wall posts and a gabled roof supported by 2 posts*, and ball courts*.

Disposal of the dead - pit and urn cremation in trash*.

Shell - carved bracelets, variety of bead types*, trumpet, technique of etching, incising*, painting* and overlaying* shell.

Stone - anvil, double-bitted axe, plain* or carved* basalt cylinder, disc, miniature axe, mosaic mirror, paint mortar, whetstone, barbed point, carved stone*, two-legged stone with knob*, pallette*.

Agriculture - irrigation canals

Clay - Figurine, shouldered jar*, triped vessel, shouldered, rectangular and recurved* bowls, red-on-buff pottery.

Metal - copper bell*

Other - trashmound*, weft-warp open weave*

Remarks

Little of the Colonial Period culture as yet as been found in the Verde Valley. (See Breternitz, 1958)

Many of the above Hohokam traits appear to have been derived from Mexico. These are the traits marked "south" in the 900-1150 A.D. column of Figure 14. Most of these traits, however, were introduced to the Hohokam between 700 and 900 A.D.

C - HOHOKAM TRAITS INTRODUCED TO POST-1070 A.D. SINAGUA IN THE FLAGSTAFF AREA.

In addition to the traits of section B above, marked with an asterisk, the following Pioneer Period traits (so far not recorded among the Sinagua prior to 1070 A.D.) were introduced to the Sinagua around 1070 A.D.:

Firepit near entry, shell disc beads, plain and effigy shell pendants, shell ring, carved shell, stone bowl, stone effigy vessel, heavy-walled pottery vessel and applique decoration.

Remarks

New Hohokam traits appeared for the first time in the Sinagua area along with traits of the Mogollon and Anasazi. By 1120 A.D. the Hohokam traits in the Sinagua area were practically submerged by the culture blend that developed in the area.

D - POST-1070 A.D. SINAGUA TRAITS NOT FOUND AMONG THE PRE-1150 A.D. HOHOKAM

Architecture - masonry lined pit house

Disposal of the dead - extended burial*, pole-covered* or recessed* grave.

Stone - smooth cylinder

Deformation - occipital* (perhaps, since this deformation differs from the Anasazi lambdoid type, its origin may date prior to 1070 A.D., for which period skeletal material is lacking in the Sinagua region.)

Remarks

Again only a few traits among the Sinagua are not found among the Hohokam, and these may have resulted from Mogollon and Anasazi contacts after 1070 A.D.

E - ANASAZI AND/OR MOGOLLON TRAITS INTRODUCED TO POST-1070 A.D. SINAGUA BY 1120 A.D., AND NOT FOUND AMONG PRE-1150 A.D. HOHOKAM. (Asterisks apply to section F which follows.)

Architecture - pithouse with alcove, hatch entry, deflector and ventilator; small surface masonry pueblo with contiguous rooms*, side entry*, T-doors*, lack of roof supports in the floor*, posts embedded in masonry walls*, and use of cavates*.

Disposal of the dead - flexed burials (intrusive) and sub-floor burial* in pueblo.

Wood - cradle board (perhaps pre-1070 A.D.)

Shell - tinkler*, inlay (?)*

Stone - full groove axe, polishing pebble*, lignite, arrow smoother*, basalt cylinder*.

Clay - polished* and slipped* pottery, redware*, smudging

Remarks

These new traits adopted from the Anasazi and Mogollon altered the local culture to the extent that the Sinagua pattern (in the San Francisco Mountain region mainly) was easily distinguished around 1120 A.D. and later by the combination of polished and smudged paddle-and-anvil redware, extended burial, lack of indigenous decorated pottery (rare exceptions), and use of pueblo architecture.

F - POST-1120 A.D. SINAGUA TRAITS INTRODUCED INTO THE VERDE VALLEY (1125 A.D.) AND THE GILA BASIN (1150 A.D.).

All traits marked with an asterisk under D and E above.

Remarks

The Sinagua introduced their newly adopted traits to the Verde Valley and Gila Basin, beginning around 1125 A.D. and 1150 A.D. respectively.

SUMMARY

The pre-1070 A.D. Sinagua, on the basis of the above comparisons of traits, appear to have little or no cultural affiliation with the Mogollon which is contrary to McGregor's postulation (McGregor, 1951, p. 23). To all appearances the Sinagua were a northern branch of the Pioneer Period culture that was far removed from influences emanating from Mexico. As a group on the northern periphery of the Hohokam area, they did not receive the assortment of southern traits adopted by the Gila Basin Hohokam until a colony from the Verde Valley migrated north to join them at Winona around 1070 A.D.

By about 1120 A.D., the Hohokam traits at Winona were submerged almost completely by the local Sinagua culture which, between 1070 and 1120 A.D., was altered considerably by additional traits brought into the area by Anasazi and Mogollon groups. They, like the Hohokam, had been attracted to the newly created farmlands resulting from the 1064 A.D. eruption of Sunset Crater.

The concentration of different groups in the small ash-covered area, between 1070 and 1120 A.D., probably brought about an unbalance which caused some of the Sinagua to withdrew to the south into the Verde Valley, beginning about 1125 A.D., where they introduced their altered culture. This altered culture also, after 1120 A.D., spread to other portions of the Sinagua region, but not to all outlying portions. The withdrawal to the south apparently was gradual, since these same traits continued to exist in the San Francisco Mountain region itself well into the 1200's (Colton, 1946, p. 266). The traits the Sinagua intreduced to the Verde Valley around 1125 A.D. replaced those of the Hohokam. This same pattern reached the Gila Basin about 1150 A.D., where a blending of Hohokam and Sinagua traits occurred. This blending continued until about 1300 A.D. after which date and up to 1400 A.D. or so the Sinagua elements, as at Winona and in the Verde Valley, dominated (Schroeder, 1940, p. 154; 1952c, p. 321).

In brief the Pioneer Period pattern of traits extended from the Gila Basin into the San Francisco Mountain area. Around 700 A.D. the former or southern region was affected by an influx of new traits from Mexico, which formed a new pattern that was basic to the Colonial and Sedentary periods. None of these new traits were introduced to

the northern groups near Flagstaff at this time. A later intrusion, this time in the north, occurred shortly after the eruption of Sunset Crater. Hohokam, Anasazi and Mogollon peoples introduced their patterns to the Flagstaff area at this time. The blend that resulted here (between 1070 and 1120 A.D.) was carried south by groups emigrating from the San Francisco Mountain region, finally reaching the Gila Basin area by 1150 A.D.

Before proceding with additional correlations, two other aspects related to the Hohokam move northward and the later Sinagua spread south should be considered. Could the latter move south represent a large scale migration of Hohokam people who had adopted the Sinagua culture of post-1070 A.D.? What are the physical types of the groups involved?

So far we do not have evidence of other sites in the Flagstaff area, similar to Winona with its Hohokam pattern, which might have contained a large percentage of Hohokam people. For the sake of discussion, however, one might postulate that there were two or three more sites like it. Regardless, by 1120 A.D. the Hohokam material culture in the region of the San Francisco Mountains was no longer recognizable as a pattern, though certain traits continued. The descendants of the Hohokam colony could conceivably have formed a part of the group that went south about 1125. However, when one refers to Colton's population estimates of the Flagstaff area, it appears extremely doubtful that the Hohokam descendants formed all or even the majority of the migrants.

Population estimates of prehistoric areas are admittedly difficult and often are open to question. However, such data, even though perhaps faulty, may provide some indication of relative

population density. Colton has estimated a maximum population of 8,416 lived in the San Francisco Mountain region between 1120 and 1200 A.D. By 1300, only 612 Sinagua remained (Colton, 1949), these having apparently concentrated in the Chaves Pass region to the east. Thus, there are some 7,800 people to account for, that left this area. Judging by the appearance, between 1125 and 1150 A.D., of a pattern similar to that of the Sinagua in the Verde Valley and Gila Basin, these 8,000 (roughly) people could only have gone south.

We have no population estimates on the Gila Basin with which comparative correlations might be made, aside from those compiled over 50 years ago. These figures applied only to the lower Salt River Valley and were based on the amount of agricultural lands thought to have been under irrigation during the Classic Period. The resulting population figures ran from ½ to 1 person per irrigated acre. Total population ranged from 50,000 to 300,000 (Patrick, 1903, pp. 6-8; Hodge, 1893, pp. 324-330; Turney, 1929, pp. 48, 72-73; Robinson, 1919, p. 18; Matthews, 1893, p. 147; Carlick in Turney, 1929, p. 9; Cushing in Turney, 1929, p. 11). These estimates, I believe, are far above the probable figure, and the following comments are offered on the Salt River Valley specifically.

Around 700 A.D., with the introduction of irrigation, the Hohokam gathered into rancherias. The stability of the culture of this period, the presence of a ball court at certain larger villages with postulated socio-ceremonial controls associated, and the evidence of trade contacts suggest a "rural" type of existence with a few main supply and/or ceremonial centers as opposed to the scattered population of the previous Pioneer Period.

During the Sedentary Period that followed, ditches were lengthened and the number of sites increased (according to survey evidence). These changes along with the appearence of a new type of ball court, present now in about twice as many villages as compared to the preceding period, would seem to indicate that some of the natives in the "rural" areas were attracted to these centers by the more stable food supply and other factors favoring "urbanization". They perhaps added to the population sufficiently to permit the development of an additional number of villages or "city states", each with its own ball court or ceremonial center. The ornateness of the culture of this period, the territorial expansion of the Hohokam up the Verde River and into the Flagstaff area and the widespread trade suggest an expanding culture, no longer "rural" in type, which geared itself to include extra-local needs. This, to me, represents the true classic period of the Hohokam. Many of the traits were Mexican derived.

The Classic Period is marked by the influx of the Sinagua, as already indicated. By about 1250 or 1275 A.D., prior to the almost complete submergence of Hohokam traits, the Salt River Valley probably contained the maximum population ever to have lived in the region in prehistoric times. During the 1200's the villages took on the aspects of large centers, each with a central edifice (house mound). By 1300 A.D., decadence set in. Luxury items were dropped in favor of more practical elements. Hunting and gathering items were more common. In short, the Sinagua pattern dominated. Trade contacts appear to have fallen off considerably and compound walls were erected around their towns as though for protection, perhaps due

to inter-village strife brought about by the stress which also led to the loss of luxury items in their culture. Evidence points to a population decline setting in during the 1300's (Schroeder, 1953d).

As far as actual population figures are concerned, one must of necessity begin with known data, and work back in time. In 1909, in the Salt River Valley, prior to the construction of reservoirs upstream, there were 151,083 acres of Class A agricultural land available. It would have taken over 40,000 miners inches of water, figuring 48 miners inches per quarter section of land, to irrigate 151,083 acres. Without reservoirs, the maximum normal flow of the Salt River averaged 58,000 miners inches (Decision and Decree). For the sake of this discussion, I am overlooking the fact that the spring flow is most important for irrigated crops, and am assuming that it was sufficient for the acreage involved, and continued to be so throughout the growing season.

Known prehistoric canals in the valley could have serviced just about six townships of land. This means 216 sections of 138,240 acres, <u>if</u> all canals were used during the Classic Period. Thus, if all available land had been farmed, let us say 140,000 acres, each of the 27 known "cities" would have farmed an average of 5185 acres each. If we figure 13 acres per person (Phoenix figure in 1910, prior to the construction of reservoirs) to take care of waterlogged land, salt flats, living areas, etc., this would give us a figure of 400 people per "city" or about 80 families of 5 each. The 27 "cities" then would total about 10,800 people, a total far below the estimates of some 50 years ago.

On the basis of the above I would estimate a maximum population of 12,000 in the Salt River Valley around 1300 A.D. or 55 people (11 families) per square mile in the restricted area of 216 square miles, most of which was under irrigation. Working backwards now, prior to the arrival of the Sinagua, I believe the less concentrated villages in the valley during the Sedentary Period would have totaled about 9,000. The figure for the Colonial Period probably was somewhat below that of the Sedentary Period.

Now let us refer again to Colton's population estimates. There were some 8,000 people to account for who began to leave the Flagstaff area sometime before 1200 A.D. The Sinagua pattern spread south in the 1100's into the Verde Valley, Bloody Basin, and into the middle Gila Basin. If we assign 3,000 of the 8,000 to the Salt River Valley to account for the estimated increase between 1150 and 1300 A.D., the remaining 5,000 could account for the increase in population and the appearance of the Sinagua pattern in the Verde Valley (2000?), Casa Grande area (2000?), and Bloody Basin (1000?).

The proportion of the population increase in the Gila Basin, from 9,000 at 1150 A.D. to 12,000 around 1300, jibes rather closely with the proportion of introduced extended burials (over 100) to the old style cremations (between 300 and 400) recovered at Los Muertos in Classic Period associations, 1150 to 1400 A.D. (Haury, 1945, pp. 44, 49).

Kroeber estimated the historic Piman population, which included the Papago, to have been 10,600 at contact times, with a density of 1 person per 3 square miles (Kroeber, 1934, table 1). To estimate

the density of the total Classic Period population is practically impossible at present, but judging from the total area in which Classic Period sites occur, the density figure of 12,000 for the Salt River Valley under optimum conditions, prior to 1300 A.D., would not be far out of line when compared to Kroeber's 1 person per 3 square mile estimate of historic times. While we cannot consider population data of this type as being very exact, they do suggest that a sizable group moved out of the Flagstaff area, and that it was much too large to have represented descendants of the Hohokam colony at one, two, or three Winonas only.

Colton's figures indicate a population of about 875 in the Flagstaff region up to 1050 A.D. Between 1050 and 1120 A.D. he estimates an increase of about 2,900 probably brought about by the influx of Hohokam and an early segment of Anasasi and Mogollon groups. This would mean an average of slightly less than 1,000 for each of the three groups. If anything, the Hohokam may have made up less than one-third of the new comers to the San Francisco Mountains, since they came from a greater distance. Colton's estimated increase of almost 5,000 between 1120 and 1200 A.D. probably was due mainly to the influx of outlying Sinagua groups along with later Mogollon and Anasasi increments, and a local rise in population rates which normally accompanies better farming and living conditions. It was also during this period that Prescott Branch and Cohonina Branch people came into the area. This also is the period when all Southwestern groups began to cluster into "city states".

On the basis of these figures, admittedly not conclusive,

it appears that the maximum of less than 1,000 Hohokam, who might have entered the Flagstaff area between 1070 and 1120 A.D., certainly could not have formed the major portion of the people who moved south to introduce the Sinagua pattern to the Verde Valley and Gila Basin. This doubt applies particularly when one considers that the Sinagua pattern also was introduced to the west of the Verde River (Bloody Basin). The fact that the Sinagua and Hohokam sites in the Gila Basin were separate for a brief spell at the beginning of the Classic Period (and the same appears to have occurred in the Verde Valley) suggests further that the newcomers were quite different at least culturally. Perhaps the newcomers were not only culturally different, but physically as well.

If the Hohokam were a foreign group to enter the Southwest in any great numbers, there always is the possibility that they may have represented a physical stock different from other Uto-Aztecans in the Southwest. The fact that they practiced cremation decreases the chances of our obtaining such data. However, there is one approach remaining that may prove fruitful. Since extended burial was introduced or appeared in the middle Verde Valley and Gila-Salt areas after 1100 A.D., when the Sinagua pattern spread southward, perhaps some of the Hohokam also took up this practice leaving us the skeletal material necessary for such a determination.

With this possibility in mind a check was made of the reports on skeletal material from the Tuzigoot and Los Muertos excavations. Due to the fact that these analyses differed in methodology and techniques, mainly because of the number of years intervening

between these two studies, I found it practically impossible to make many correlations between the two upon which one could depend with any degree of certainty. Moreover, the sample from the middle Verde is too small to be of any comparative value. However, two rather interesting points were noted.

Fosberg stated "In summary, the Indians of Tusigoot were large headed with rather small faces, were of medium height and a much slenderer build than that of the Pecos Indians. The variations they show from the Indians of the prehistoric Southwest suggest that there may have been physical differences which are possibly correlated with some cultural difference." (Fosberg in Caywood and Spicer, 1935, p. 119). If the small sample upon which this statement was based is representative of the 1100 to 1400 A.D. population of Tusigoot, it must be assumed this group represents the Sinagua. However, if it is not representative of the group, then we have no way of knowing whether the skeletons and their variations represent elements of the Sinagua, of the Hohokam, or of a group native to this area prior to the arrival of the Hohokam or Sinagua patterns.

Matthews pointed out that a number of the skulls recovered from Los Muertos in the Gila exhibited the os incae bone, comparable percentagewise only to material from Peru (Matthews, 1893, pp. 187-190). Could these represent the Hohokam element? If so, how much, if any, do the skeletons of skulls exhibiting the inca bone differ from other associated skeletal material in the Gila-Salt region? Is there skeletal material in the Gila-Salt comparable to that of the middle Verde Valley and San Francisco Mountains that represents a Sinagua people? Is there

also a prehistoric physical type in any of these regions that compares with the historic Yavapais or Pimas or other neighboring Yuman-speaking or Piman-speaking groups?

This problem of the physical types of central Arizona should prove to be an attractive project to the physical anthropologist. Since the archeological evidence indicates that several cultural groups are involved in the prehistory of the middle Verde and Gila-Salt areas, the skeletal material from these regions should be re-studied with the thought in mind that the variations involved may represent different groups or possibly even physical stocks, rather than variations of one local indigenous people of one stock. If the answer were known, many of the problems and discussions, which follow herein, might be less involved and on a more secure footing.

CORRELATIONS AND DISCUSSIONS

The foregoing comparisons of traits of the Sinagua and Hohokam point to a need for a revision of concepts concerning the prehistoric cultural developments and relations in central and southern Arizona. Only by reexamining the evidence related to the problem can we hope to construct a suitable frame on which to arrange the data. To accomplish this end, it is essential first to reestablish the facts that resulted from excavations at the site of Snaketown on the Gila River. This is necessary since Gladwin has questioned the original deductions of the 1937 excavations relating to the chronology as well as the cultural status of the Pioneer Period (Gladwin, 1948, pp. 109-110, 228, Fig. 58).

The Salt River Valley stratigraphic survey of 1938-1939 in southern Arizona provided supporting evidence to indicate that the Pioneer Period material underlay that of the Colonial Period and was not contemporaneous with the entire duration of the Gila Butte phase as Gladwin postulated in 1948. Though Estrella and Sweetwater Red-on-gray sherds of the Pioneer Period were scarce in the Salt River Valley tests, they appeared mainly at the base of the trash-mounds in blocks containing the greatest percentage of Snaketown Red-on-buff, the pottery representing the last phase of the Pioneer Period. Gila Butte Red-on-buff sherds of the following Colonial Period capped all three of the above types, though Snaketown Red-on-buff was found mixed to some extent with Gila Butte Red-on-buff.

Because of the occurrence of several traits in pairs in the Snaketown-Gila Butte phase transition, such as red-on-gray and red-on-buff pottery, square 4-post houses and rectangular 2-post houses, etc., I suggested that a new people, the Hohokam, entered the Gila Basin at this time with a new pattern of traits which replaced that of the indigenous Pioneer Period group (Schroeder, 1940, p. 140).

Several aspects concerning Gladwin's suggestion of the possibility of the comtemporaneity of the Pioneer and Colonial Periods have already been discussed (Lehmer, 1950, pp. 415-418; Woodward, 1950, pp. 172-173; Schroeder, 1951a, pp. 263-265), and one example has been cited to show that no overlap existed between the Pioneer Period and the Santa Cruz phase of the late Colonial Period (Schroeder, 1951a, p. 265). The same lack of association can be demonstrated for the Gila Butte phase of the early Colonial Period. The one instance of soil stratigraphy encountered in the trashmounds tested in the Salt River Valley stratigraphic survey, in 1938-1939, fortunately pertains to the problem at hand. A pier test in a trashmound at Pueblo Grande revealed six distinct soil horizons, totaling 2.25 meters from top (level 1) to bottom (level 6). The sherds from each level were analyzed with the results shown below (Schroeder, 1940, Figure 3 and Appendix VI).

Level	% of red-on-buff in each level to total red-on-buff	Percent of red-on-buff by phase in each level			Contents of strata
		Santa Cruz	Gila Butte	Snaketown	
1	30.5	46.8	52.5	.7	Sand, gravel, ash, charcoal
2	5.0	38.1	61.9		Fine sand
3	21.5	8.9	91.1		Sand, gravel and charcoal
4	22.8	12.9	85.7	1.4	Sand, ash and charcoal
5	18.2	7.8	92.2		Sand, gravel and charcoal
6	2.0	10.0	90.0		Fine sand

As can be noted, layers 2 and 6 were composed of fine sand and were practically sterile culturally. The decline of Gila Butte Red-on-buff from bottom to top (levels 6 to 1) is accompanied by a corresponding increase of Santa Cruz Red-on-buff. During the course of the deposition of this material (which, incidentally, vividly illustrates how an early pottery type survives after the introduction of a new decorative treatment), a few sherds of Snaketown Red-on-buff were deposited in layers 4 and 1. Dumping from new construction, kids playing or similar circumstances could easily explain the presence of these few sherds. This example does not indicate contemporaneity of the Pioneer and Colonial Periods during this period of change between dominant (92%) Gila Butte and early Santa Cruz (46%) times.

In his attempted revision of the chronology of the two early periods, Gladwin postulated that the traits, particularly ceramics,

of the Pioneer Period were representative of the Mogollon Culture, and that the Colonial Period, which he considered to be contemporaneous, represented the beginning of the Hohokam development (Gladwin, 1948, pp. 235-236). I agree, as previously indicated in 1940, that the Hohokam development began with the Gila Butte phase. However, the assignment of the Pioneer Period to the Mogollon does not bear up under the evidence. In making his statement, Gladwin completely overlooked the whole pattern of the Pioneer Period culture and based his conclusions on ceramics alone, which to him appeared to represent the Mogollon tradition. Similarly he disregarded the internal evidence pertaining to the Pioneer Period paddle-and-anvil thinned pottery (as opposed to the hammered or scraped thinning of Mogollon wares), which Haury went to some lengths to describe in the original Snaketown report. Wheat goes even further and suggests the Pioneer Period, like the Mogollon, developed out of the pre-ceramic Cochise culture, but ceramically was affected by different influences than were the Mogollon.(Wheat, 1955, p. 231). As will be brought out later, there appears to be no relation between the Cochise and Pioneer Period people.

Haury stated that Vahki Red of the Vahki phase was finished by the paddle-and-anvil technique (Haury, in Gladwin, et al, 1937, pp. 204-205). In describing Estrella and Sweetwater Red-on-gray types which followed, he remarked that light hand- and tool-polishing was employed (Ibid., pp. 194, 200). Gila Plain was also finished in the same manner (Ibid., p. 208). In his summary statement, the

basic method of finishing was described as paddle-and-anvil (Ibid., p. 228). Aside from the coincidence that redware occurred among the Mogollon and Hohokam, there is nothing to indicate that the pottery of the Pioneer Period was a product of a Mogollon group. Early Mogollon ceramics exhibit other surface treatments such as the use of a high polish and dimpling (on redware) and scoring (on plainware), traits lacking in the Pioneer Period.

Gladwin pointed to the rarity of Pioneer Period pottery in Gila Pueblo's survey material, only two sites being represented (Gladwin, 1948, p. 59). In the Salt River Valley survey, of 16 trashmounds tested, 7 revealed Pioneer Period material at the base of the mound. The pottery types ranged from .1 percent in the Estrella phase, from .3 to 4.4 percent in the Sweetwater phase and from .4 to 12.1 percent in the Snaketown phase. Four additional sites recorded on the survey exhibited Pioneer Period sherds on the surface. This makes a total of 11 out of the 94 sites recorded bearing this early material (Schroeder, 1940, Appendix I). The representation of this period is not rare as far as occurrence among sites in the Salt River Valley is concerned (11.5%), but the material is usually scarce in quantity when found. In addition, Charlie Steen has reported pure Pioneer Period sites close to the base of hills near Casa Grande (Personal communication).

As noted above, Pioneer Period Gila Plain often exhibits light tool polishing. The same holds true for the paddle-and-anvil thinned plainware of the San Francisco Mountains (Rio de Flag Brown) which at present is dated from about 600 to 1070 A.D. (Colton and

Hargrave, 1937, p. 161 and Colton, 1946, p. 253). Thus, prior to 700 A.D. paddle-and-anvil pottery with light polishing occurs over a large area which does not exhibit any diagnostic Mogollon traits.

The distribution of the admittedly little-known Pioneer Period is from Safford on the east to Phoenix on the west and from Tucson on the south possibly to the middle Verde Valley on the north. This period has an end date, as already indicated, of about 700 A.D.

Our scant knowledge of the cultural manifestations prior to 700 A.D. in the San Francisco Mountain area near Flagstaff is derived from the Cinder Park Focus, which exhibits several Anasasi traits associated with a pottery complex composed mostly of paddle-and-anvil brownware (Rio de Flag Brown), already referred to.

It is during the Snaketown-Gila Butte phase transition (the end of the Pioneer Period and the beginning of the Colonial Period) in the south that stone carving and non-utilitarian objects of stone and shell are first found in any quantity in southern Arizona.* The first use of trashmounds at this time replaces the earlier method of disposing of rubbish in sheet form (Haury, in Gladwin, et al, 1937, pp. 28, 41; Schroeder, 1940, pp. 137-138). This suggests either the development of a more sedentary village pattern, an increase in population, or a purposeful attempt at

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* These data concerning the above transition and change can readily be checked in Gladwin, et al, 1937 and Schroeder, 1940. It is not felt that these are of sufficient concern to this report to be taken up in detail here.

sanitation brought about by closer living. During the Snaketown-Gila Butte phase transition both the early square flat-roofed and the new rectangular gabled (?) roof houses occur together (Sayles, in Gladwin, et al, 1937, Figures 32-35). During this transition there was a considerable increase in the number of sites and in the quantity and diversity of cultural material. Much of the latter exhibits a Meso-American flavor. The above facts, along with other changes, prompted me to suggest in 1940 that other people of a culture complex, with traits foreign to those of the local natives, entered the Gila Basin near the end of the Snaketown phase. Through cultural shuffling, various traits were adopted, rejected, or developed to form the Gila Butte phase.(Schroeder, 1940, p. 140).

This new development apparently was restricted to the Gila Basin and did not immediately diffuse north into the Verde Valley in any quantity. However, during the late Gila Butte phase and the following Santa Cruz phase, there was an extension of the Hohokam culture up the Salt River to the Roosevelt Basin and west to Gila Bend (Brandes, 1956; Haury, 1932, p. 6, Gladwin, 1930b).

When the traits of this same time range (700 to 900 A.D. plus) in the San Francisco Mountain area are considered, as indicated in Figure 14, there is about 70 percent agreement between them and the earlier pre-700 A.D. Pioneer Period traits of the Gila Basin. The Pioneer Period is known to have been present in the Gila Basin and decorated types of this period also occur in the middle Verde Valley. Our only evidence of the same time period in the San Francisco Mountain area is a site containing a mixture of

Anasazi traits and southern paddle-and-anvil pottery, the latter being similar to that of the Pioneer Period of the Gila Basin. It is not unreasonable to postulate that the pre-700 A.D. population of the San Francisco Mountains possibly may represent the northern limit of the Pioneer Period Culture. This would help to explain the great similarity between the post-700 A.D. traits in the Flagstaff region and the pre-700 A.D. traits of the Gila. This implies that the Pioneer Period Culture of pre-700 A.D. was basic not only to the Gila Basin and probably the Verde Valley, but to the San Francisco Mountain area as well. In addition, this situation implies that after 700 A.D., the Pioneer Period pattern in the north remained practically unchanged until a much later date.

The Sedentary Period of the Gila Basin (900-1150 A.D.) represents an ornate development out of the previous Colonial Period. Present data indicate this development diffused into the Verde Valley with greater impact than the Colonial Period, as discussed herein. By 1070 A.D., this pattern reached Winona, east of Flagstaff, where a colony of Hohokam settled side by side with the local people (McGregor, 1937, pp. 48-51). By 1120 A.D., however, the traits introduced into this northern area by the Hohokam colony were submerged almost completely.

Colton has pointed out that the newly created farmlands, resulting from the 1064 A.D. eruption of Sunset Crater, attracted several groups (Hohokam, Mogollon and Anasazi) close to or into the Flagstaff area and that they altered the local pre-1070 A.D. culture pattern of the Sinagua to a considerable extent. A polished and smudged, intrusive, coil-scrape redware, Winona Red, probably

introduced by a Mogollon group, resulted in the local development of Sunset Red, the first local paddle-and-anvil redware. For the first time, with one possible exception, inhumations are associated with sites in this area. Posts embedded in masonry walls, masonry ventilators and deflectors appeared locally for the first time in pit-house dwellings and, shortly after 1120 A.D., small surface masonry pueblos were erected (Colton, 1946, pp. 259; Colton and Hargrave, 1937, pp. 44, 49-52; Colton, 1941, pp. 28-29; Smith, 1952, pp. 177-178.) Thus, by 1120 A.D., the local pattern, considerably altered by association with other peoples who entered the area, no longer resembled that of pre-1070 A.D. This newly developed pattern thus resulted from a mixture of different cultural groups, and is referred to herein as the Sinagua Pattern. The local development, prior to 1070 A.D., is herein considered to be the northern limit and development of the Pioneer Period.

To date no inhumations or cremations have been recovered from pre-1070 A.D. sites in the San Francisco Mountain area, with one possible exception already mentioned. The appearance after 1070 A.D. of extended burials among the Sinagua, a trait not known to occur even among the pre-1070 A.D. Anasazi or Mogollon, except for rare isolated cases, might be explained as follows. This hypothesis would imply scattered ashes or platform type cremations (not interred) locally, prior to 1070 A.D. This would be prior to the influx in the Flagstaff region of the Mogollon and/or Anasazi who buried their dead in a flexed position. After the contact with the Mogollon and Anasazi, the Sinagua may have decided to accept inhumation for the

disposal of their dead. If they did so, they may have retained their original ceremonial ritual over the body in an extended position. This would have been the case prior to cremating the body, judging from Pioneer Period "crematory trenches" and four-post crematory pits of the 1100's at Nalakihu and Winona (King, 1949, p. 67ff; McGregor, 1941, pp. 266-267, 294) as well as from historic platform type cremations employed until recently by the Yumans in the Southwest. If the ritual was of any length, and not accomplished soon after death, rigor mortis would have set in and flexure would have been difficult.

Colton has demonstrated that the Sinagua pattern began to appear in the Verde Valley about 1125 A.D. In 1940 I indicated that these same traits as a pattern entered the Salt River Valley about 1150 A.D. At that time I ascribed the new traits to the Salado (Schroeder, 1952c, pp. 320-321) on the basis of Gladwin's hypothesis. However, he placed the Salado entry at a later date, around 1300 A.D. (Gladwin, W. and H.S., 1929, pp. 37, 70-71; 1933, p. 6; 1935, p. 264).

The various traits introduced into the Gila Basin around 1150 A.D. are included in Figure 14, wherein correlations are made with the Sinagua. Unfortunately, the Salado have never been described other than in a tenuous form, so that a similar trait-by-trait comparison cannot be undertaken. However, some of the traits ascribed to the Salado, most often mentioned in the literature, can be compared with those of the Sinagua and the Classic Period traits in the Gila Basin.

As originally defined by Gladwin, the Salado came into the Roosevelt Basin from the north east, with ceramic traits he ascribed to the upper Little Colorado drainage (Ibid., and Gladwin, W. and H. S.,

1934, chart opposite p. 22; 1935, pp. 212-216; Haury, 1945, p. 208). Ceramically, the Salado as described employed a scrape thinning technique as opposed to the Sinagua paddle-and-anvil thinning. The Roosevelt Basin has most often been referred to as a Salado stronghold. Yet, sherds recovered from National Park Service stabilization work conducted by Steen in the Upper Ruin at Tonto National Monument exhibit a high percentage of utility paddle-and-anvil pottery (Tonto Brown) and lesser amounts of scraped corrugated pottery (Steen, Ms.). Similar work by Pierson in the Lower Ruin revealed 33 to 100 percent of the plain pottery in the various rooms was Tonto Red (Brown), an unslipped paddle-and-anvil plainware (Pierson, 1952). These types do not meet the described ceramic criteria for the Salado group.

Perhaps the most obvious ceramic difference aside from thinning techniques, between the Salado of the Roosevelt Basin and the Sinagua is the relative lack of an indigenous polished and smudged redware without corrugations in Salado sites in the Roosevelt Basin. This is one of the strongest indications that the new pattern of traits introduced to the Gila-Salt region around 1150 A.D. came from the Verde, where such pottery is common. Smudged redware with exterior corrugations (Salado Red) is fairly common in the Roosevelt Basin, and relatively rare in the Gila-Salt.

As yet, no definite group of ceramic types has been established as being basic to the Salado category. Even among decorated types, referred to as Salado, we find discrepancies. For example, Salado Red is common in the Sierra Ancha region east of the Roosevelt Basin, yet the few pieces of Gila Polychrome associated were stated to be

intrusive (Haury, 1934, pp. 137-138). These two pottery types occur together in the Roosevelt Basin, where they have been considered as Salado types (Gladwin, W. & H. S., 1929, pp. 37, 70-71; 1933, p. 6; 1935, p. 264). Salado Red is virtually absent in the Gila where Gila Polychrome is fairly common (Schroeder, 1952c, p. 329). By virtue of the above inconsistencies in numerical associations, it appears that these types, which are so frequently identified as Salado, may not be related. Until the cultural associations of these so-called Salado types are established, their status as intrusives or local types in the Roosevelt Basin cannot be determined.

"Gila Polychrome" has been found to be quite common at the Kuykendall site near Elfrida in southeastern Arizona, the fine tempering material being no different from that of the indigenous paddle-and-anvil thinned plainware at that site (Personal communication, Jack and Vera Mills and Lyndon L. Hargrave). The "Gila Polychrome" of the Roosevelt Basin (with its coarse temper) and at Casa Grande (with its rounded quartz temper) also is thinned in the same manner.* It is quite obvious that much future study will be necessary to determine which of the temper variations were indigenous to various areas.

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* Personal rechecking of Beshbagowah collection, through the courtesy of the city of Globe, Arizona, (This material was excavated by Irene Vickery) and rechecking at Casa Grande by Lee Abel and Sallie Van Valkenburgh.

The slipped red exteriors of some of the Pinto and Gila Polychromes from the site of Beshbagowah (Globe, Arizona) have all the appearance of Gila Red (much mica and obvious polishing marks) to which the general design style of Roosevelt Black-on-white has been added to the interior. Other Gila Polychrome and the Tonto Polychrome exteriors are similar to Salt Red, with additional developed design motiffs added in black and white. It should also be pointed out that much "Gila Polychrome" is not slipped red on the exterior. A detailed restudy of Gila Polychrome is essential before the implications of locality of manufacture can be accurately expressed (Schroeder, 1957a).

If the Salado came from the upper Little Colorado River drainage as Gladwin suggested or had their origin in the Forestdale area, certain architectural problems also arise. The lack of kivas in the Roosevelt Basin then is surprising. Perhaps future work may show that certain rectangular rooms were employed for ceremonial purposes similar to those of Canyon Creek, east of the Roosevelt Basin (Haury, 1934, pp. 52-54). In addition, Gladwin has suggested that the Salado in the Roosevelt Basin first made use of compounds in the Roosevelt phase (1100-1250 A.D.) (Gladwin, W. and H. S., 1935, pp. 215-218). Without excavation or other supporting data to indicate whether the compound appeared as early as 1100 A.D. in the Roosevelt phase, this point cannot be settled at present. However, village

compounds appeared in the Gila Basin between 1250 and 1300 A.D. (Schroeder, 1953a, p. 178), in the Tucson and San Pedro areas about 1300 A.D. (Hayden, 1957, p. 194; Tuthill, 1947), and in the Verde Valley, as indicated herein, around 1300 A.D.* In view of other data, including the use of house or small site compounds by the Hohokam in the Gila Basin prior to 1150 A.D., it seems that village compounds, as I have indicated elsewhere in more detail, may have diffused from the south from the Gila Basin into the Roosevelt Basin (Schroeder, 1953a, pp. 178-182; 1947, p. 237), and thus not be a Salado trait.

One element that appears to have been shared by both the post-1070 A.D. Sinagua and Salado is that of extended burial. However, one difference in burial customs has been suggested. It has been often said that the Salado oriented their dead with the head to the east, a practice not regularly recorded among the Sinagua. A critical analysis indicates that orientation to the east does not occur in any regular pattern among the Classic Period Gila Basin burials nor among the Salado (See Appendix III).

Another strong argument against a Saladoan entry of about 1100 A.D. into the Roosevelt Basin from the upper Little Colorado area is the lack of flexed burials in the Roosevelt Basin, the method employed in the upper Little Colorado region up to about 1100 A.D. at least.

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* Di Peso, 1953, p. 260 erroneously dates the appearance of village compounds in the Salt River area at 1150 A.D.

Haury listed other traits "during the contact period" (1300 A.D.- his date) of the Hohokam and Salado to indicate "the more outstanding tangible differences in culture" between the two groups (Haury, 1945, pp. 207-208). The comparisons he makes, however, do not include several traits (Sinagua) that did exist in the Salt River Valley prior to 1300 A.D., the inclusion of which would result in even less tangible differences between these two groups.

The traits he omitted, from his "Hohokam" heading (which includes data up to 1300 A.D.) are deformed brachycephalic head forms, extended inhumation, polishing stones and adobe walls (post-reinforced). In addition, Haury lists compound walls as a Salado trait borrowed by the Hohokam (the situation may have been just the reverse as indicated in the foregoing discussions), three-quarter-grooved axes for both, and other traits, a few of which are not differences <u>per se</u>, but only of relative quantity or degree (such as finishing techniques). The traits under his Salado heading that definitely differ from those of the Hohokam are in most cases those which were "selected from unmixed sites farther east" (Ibid., p. 208), evidently from the Canyon Creek and the Sierra Ancha country. And yet, Haury states that the few pieces of Gila Polychrome recovered in the latter area were intrusive (non-Salado).

The traits that Haury labels "distinctive" of either Hohokam or Salado are in most cases commonly associated with neighboring areas which have a common boundary with either the Roosevelt or Gila Basin areas <u>but not with both</u>. Among the Hohokam of the Gila Basin he lists such "distinctive" traits as griddles, Mexican type

spindle whorls, carved stone, and stirrup crushers. These appear to have diffused into southern Arizona from Mexico. "Distinctive" traits he lists for the Salado of the Roosevelt Basin, such as turkeys, multi-storied structures, coil-scrape pottery, cane cigarettes, pahos and proto-kachina, undoubtedly came in from the north or east. In neither case are the "distinctive" traits local developments, nor need they have been introduced by actual migration in either area, since an entire pattern of traits that might be representative of a new group of people does not appear to have been introduced at the same time.

Gladwin's original listing of traits for the Roosevelt and Middle Gila Phases of the Roosevelt Basin is composed to a great extent of Gila-Salt Basin items. In fact, most of the traits on the list are found in the Gila-Salt area prior to 1250 A.D.*

In summarizing the above we find by way of contrast that both paddle-and-anvil and some corrugated utility wares occur in the Roosevelt Basin, but little plain redware, and only the paddle-and-anvil technique is found in the Gila Basin where plain redware is common. This is an indication that the Salado did not enter the Gila, since corrugated or scrape thinned utility wares, which have been ascribed to the Salado, are lacking.

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* Gladwin, W. and H. S., 1935, pp. 216-220. Gladwin, et al, 1937, p. 265, explained "Salado traits in the Gila Basin prior to 1300 A.D. as due to an increasing fusion during the 13th century." Haury, 1945, p. 204, stated the main impact of the Salado was not felt until "about a century later" (1250 A.D.).

The occurrence of a Mogollon-derived, brown corrugated utility pottery at Tonto National Monument in combination with the decorated types associated, as well as other traits, has led to the suggestion that a small pueblo (Mogollon) group from somewhere east of the Roosevelt Basin (not the Little Colorado River drainage) came into that area and lived side by side with the apparently dominant paddle-and-anvil ceramic group. I prefer to believe that there was considerable contact and trade with a Mogollon-derived pueblo people to the east (since much corrugated pottery was also traded into the Verde Valley where it can be shown to have been intrusive). This situation seems most probable, since pueblo (Mogollon or Anasazi) traits, such as kivas, flexed burials and dominance of coil-scraped pottery, are lacking in the Roosevelt Basin.

In short, the Salado as described is not a single culture pattern, but a mixture of indigenous and some intrusive traits. Moreover, extended burial with heads oriented to the east and scrape thinned Gila Polychrome are not the norm, so cannot be considered as basic Salado traits. Trade alone can account for the few traits in the Roosevelt Basin that are foreign to the Hohokam or Sinagua of post-1150 A.D. If two patterns actually did exist side by side in the Roosevelt Basin and the pattern moved into the Gila Basin, one would expect the situation would have been similar to that of the Hohokam and Sinagua living together at Winona Village as well as in the middle Verde Valley and in the Gila Basin. The Sinagua <u>pattern moved as a pattern</u> into more southern areas. The pattern of the Roosevelt Basin has not been found in the Gila Basin. In fact, it

appears that there is no such thing as the Salado pattern as described by Gladwin.

What then is the pattern of the Roosevelt Basin and from where did it come? It may well have developed in place out of an indigenous group, with acquisitions from the Sinagua of the Pine-Payson area and/or Mogollon-derived pueblos after 1100 A.D. This would account for a lack of redware, kivas, local decorated pottery tradition, and other Sinagua and Mogollon traits as well as for the presence of paddle-and-anvil plainware, extended burials and quantities of intrusive decorated types and corrugated pottery.

To date we have no definite evidence of a movement of Sinagua into the Roosevelt Basin or Agua Fria Valley, only into the Verde and Gila-Salt where the complete Sinagua pattern occurs. In contrast to the presence of two associated plainwares in both the Verde and Gila-Salt, suggesting contemporaneous occupation by two groups, the Agua Fria and Roosevelt areas each exhibit only one utility plainware - Wingfield Plain and Tonto Brown respective. These were in vogue from at least 900 A.D. up to and beyond 1400 A.D. Thus, these cultures were indigenous in their respective areas at least 400 years before Gladwin's postulated Salado influx of 1300 A.D.

Plain redware occurs in the Verde and Gila-Salt and also to the west in the Bloody Basin (along with most of the other Sinagua traits), but it never did reach the Agua Fria or Roosevelt areas where a part of the pattern, such as masonry structures and extended burial, is evident after about 100 A.D. Present evidence suggests that the Salado were an indigenous group in the Roosevelt Basin

that was influenced by a Gila Butte phase Hohokam intrusion, and later, from 1100 to 1400 A.D., by contact with neighboring Mogollon-derived pueblo people on the east. Certain influences from the Gila-Salt are evident throughout. The name Salado might well be retained for the Roosevelt Basin, but the development and cultural pattern should be redefined.

Up to this point taxonomic terms in general use among Southwestern archeologists have been employed, when referring to central Arizona archeology. It now becomes necessary to redefine some of these terms, if the prehistory is to be interpreted along lines such as the evidence indicates.

When Gila Pueblo set up its system of naming the various stages of the culture they described as the Hohokam, they found the material fell conveniently into four periods - Pioneer, Colonial, Sedentary and Classic. In 1940 I suggested that the sudden development of the culture of the Colonial Period was brought about by an influx of a new people, perhaps culturally related to those of the Pioneer Period (Schroeder, 1940, p. 140), and thus I disagreed with the idea of a continuous local cultural development from the Pioneer into the Colonial Period. Because of the pairs of traits that occurred at the time of this change, it does not appear probable that the dual character of the pattern was induced by internal culture growth.

In 1948, Gladwin, also recognizing a sharp break between these same two periods, proposed that the Pioneer Period represented a Mogollon group living contemporaneously with and along side of the Colonial Period Hohokam (Gladwin, 1948, pp. 75, 235-237), the weakness of which hypothesis has been pointed out in foregoing discussions. In 1953, I pointed out that the Pioneer Period was basic to the general area from the Gila Basin (Casa Grande-Phoenix area) north into the San Francisco Mountain region.

In 1940 I also indicated that many of the socalled Salado traits appeared around 1150 A.D. in Gila-Salt area, not at 1300 A.D. as Gladwin postulated. In 1947, I further suggested that the Classic Period was a development resulting from the entry at 1150 A.D. of a group of people from the Verde, other than the Salado (Schroeder, 1940, p. 150; 1947, pp. 230-231; 1953c), thus disagreeing with the Salado theory of a 1300 A.D. entry. In brief, in contrast to Gila Pueblo's concept of four chronological periods locally induced and evolved by the Hohokam, plus a late Salado entry in the mid-Classic Period, I have attempted to show that the evidence indicates that the local pattern of the Pioneer Period (pre-700 A.D.) was culturally dominated by an intrusive pattern (Hohokam, heavily loaded with Meso-American traits) at the beginning of the Colonial Period, but only in the southern limits of the region exhibiting Pioneer Period culture, the point of contact. During the Sedentary Period which followed, the culture became more ornate, a portion of the development apparently having been influenced to some extent by additional Meso-American traits.

This pattern in turn was overrun by a northern pattern (Sinagua) in the Classic Period (1150 to 1400 A.D.), the dual nature of several basic traits again suggesting that there was a direct contact and mixture of peoples. These three patterns, in the order listed above, are hereafter referred to as follows: The Hakataya Root (basically the traits of the Pioneer Period), the Hohokam stem or branch of an unidentified root (traits of the Colonial and Sedentary Period) and the Sinagua Pattern (post-1120 A.D. Sinagua

traits introduced to the Hohokam around 1150 A.D.).

I do not wish to complicate Southwestern terminology by introducing a new taxanomic name. As used herein, Hakataya is comparable to Yuman. Archeologically we have not yet proved that all of the desert cultures called Yuman by Rogers and Gladwin can be related to the historic Yumans. Several investigators have expressed their disagreement with the use of the term Yuman because of its implications, feeling that we should not apply a name to a prehistoric culture implying historical connection with a historic group - at least not until such lineal connections have been proven. On the basis of priority naming, perhaps Gladwin and Rogers' Yuman root should be accepted, particularly since the implications involved apparently are proving out in several cases where recent, more detailed work has been undertaken (Schroeder, 1952e; 1957b; Dobyns, 1956; Schwartz, 1956). I also believe that Colton's term "Patayan Culture" should be restricted to a stem designation for the Upland Arizona prehistoric area of the Yuman complex, and that the term "Laquish Culture", coined by Rogers, be restricted as a stem to the riverine groups below Hoover Dam. The cultures of these two areas differ from one another, but basically are related to the Yuman root.

The Hakataya Root, as employed in this paper, is a suggested replacement for the term Yuman. It represents a group of traits that appear to be basic to all of the cultures of the "Yuman" root on the lower Colorado River and in western and central Arizona in ceramic times only, as well as those in the California desert and the

northern portion of Lower California. In short, the traits of this pattern are those that survived from the earliest horizons of prehistoric ceramic times into historic times, probably among Yuman groups. Or putting it another way, this is the folk culture of the region which at one time or another was affected by complex cultures.

The traits that distinguish the above mentioned three patterns from one another are listed in Figure 15. The differences are quite obvious when set down in this manner. Such differences, however, are not easily distinguished in phases containing a mixture of two different groups of people, unless one examines the cultural patterns involved in terms of time and space. Today we have more comparative data with which to work than did Gila Pueblo in 1936. Nevertheless, Gila Pueblo's report on the excavations at Snaketown reveals some interesting data suggestive of the hypothesis offered herein. The authors recognized certain differences between the Pioneer and Colonial Period traits (Gladwin, et al, 1937, pp. 79, 96, 188, 192, 256-257) which were not readily explained.

An attempt to reconstruct the prehistoric developments of western Arizona, on the basis of the three patterns outlined in Figure 15, is presented below. The region involved is confined by the Mogollon Rim on the east, the Colorado River on the north, the lower Colorado River and beyond on the west and the Gila River on the south. There are admitted gaps in time and cultural data, due, I believe, mainly to a lack of excavation in much of the area concerned. No specific consideration is being given herein to the Hakataya west of the lower Colorado River.

Before presenting this hypothesis I wish to point out the

growth of this idea. In 1936, Lyndon Hargrave first advanced hints of this expression, basing his hypothesis on the occurrence throughout the desert of paddle-and-anvil thinned pottery, plus the probability of the association of cremation and jacal structures. Unfortunately, he never published these thoughts which he expressed on several occasions. However, two statements appear in articles which he and Colton coauthored, that indicate this line of thought. "With the exception of the Gila (Ceramic) Series, all other series presented herein in Alameda Brown Ware are believed to have resulted from a northern extension of Hohokam influence. As the central focus for this diffused influence is approached, more and more similarity to the parent stock might be expected to be seen." (Colton and Hargrave, 1937, p. 173). "Ceramic knowledge of peoples in the San Francisco Mountain region, from west and south, possibly was derived from Hohokam peoples. Few examples of Hohokam Buff Ware have been found on the plateaus of northern Arizona, but techniques of construction, and a number of other cultural characters, are dominant in some northern localities south of the Little Colorado River." (Ibid., p. 157). His use of the term Hohokam included the Pioneer Period.

Gladwin, in 1930, recognized a superficial resemblance between the Hohokam and the culture of the area along the lower Colorado River. He postulated a connection between the Prescott Branch and the lower Colorado River area by employing the term Yuman (Gladwin, W. and H. S., 1930b, p. 158; 1934, p. 15). In his study, however, he failed to note the distinguishing traits between the culture of the Gila Basin and the lower Colorado River region. For this reason

he confused the site at Bouse, Arizona, which he labeled Hohokam rather than Yuman (Ibid., p. 153; Rogers, 1945, p. 178; Schroeder, 1952d, p. 50).

Colton, in 1939, combined the Cohonina and Cerbat Branches with the Prescott Branch under the term Patayan, thus tentatively tying them in with Gladwin's Yuman, a theoretical concept which Colton considered reasonable (Colton, 1939, pp. 22-23; 1945, p. 120). In 1952 I pointed to the similarity of the culture along the entire length of the lower Colorado River to that of the Upland Arizona area, referring to the entire pattern as Yuman (Schroeder, 1952d, pp. 53-54). The following outline will attempt to demonstrate that the cultural subdivisions of this entire area are to be equated with the Hakataya Root.

The first known occurrence of the Hakataya pattern (Pioneer Period traits) is in the Gila Basin, from about Gila Bend on the west to Safford on the east. It appears to have been present in the Verde Valley as indicated by the presence of similar decorated ceramic types. As already suggested by the data in Figure 14, this pattern was present in the Flagstaff region by 700 A.D. Decorated ware is relatively rare in this pattern except during the late Pioneer Period, and is restricted to the southern portion of the above outlined region, probably due to influences out of Mexico (Haury, 1941, p. 68). Around 700 A.D., the Hohokam pattern was introduced into the Gila Basin and dominated the basic Hakataya between Gila Bend and Safford.

The occurrence of certain traits on the lower Colorado River

suggests that the decoration of the ceramic tradition of the Hakataya spread northwest, probably coincident with the influx of the Hohokam, or perhaps slightly later. Poorly executed red, broad-lined, nested chevrons and other designs on a warm gray, unslipped background occur in the area between Yuma and Parker in association with a paddle-and-anvil thinned plain brownware. These design elements, which are found in the Gila Basin prior to 700 A.D., Rogers considers to be the earliest on the lower Colorado River. The surface association of intrusive Santa Cruz Red-on-buff sherds from the Gila Basin with lower Colorado River pottery (Rogers, 1945, p. 185; Schroeder, 1952d, p. 57) indicates that these decorative elements of the southern Hakataya reached the Colorado River near Blythe no later than 800 to 900 A.D. (dates of Santa Cruz phase). The poorly executed designs in turn seem to have diffused to the Prescott area from the lower Colorado River, where they appear on Verde Black-on-gray, some time after 900 A.D. Still later, similar sloppy designs occur in white on Sinagua redware types, but again such decoration is rare.

Plainware of the Hakataya also occurs in the north, but without indigenous decorated pottery. Paddle-and-anvil brown wares occur in the San Francisco Mountains prior to 700 A.D., (Colton, 1946, p. 247), in the Cerbat Branch country, situated in present-day Walapai country, probably prior to 750 A.D., (Colton, 1939, p. 24; Schroeder, 1952e), and, as brought out in this report, in the Verde prior to 750 A.D.

The Cohonina Branch, in the present day Havasupai region, exhibits elements of this pattern around 700 A.D. The earliest plain-ware here is gray brown. The ceramics of this branch, however, was affected at an early date by neighboring Anasazi, from whom design elements, scrape-thinning technique in some cases combined with paddle-and-anvil, and a firing method that resulted in a light gray background, were borrowed. However, the use of a slip was not adopted.

The Prescott Branch, situated south of the Cohonina, west of the Verde Valley, and east of the lower Colorado, exhibits the beginnings of the Hakataya Pattern at least by 750 A.D., the culture being a hybrid between those of their neighbors. The plain pottery was dark gray to which chevrons and other crudely executed designs later were added. Decorated vessels were not common (Colton, 1939, pp. 30-31; Gladwin, W. and H. S., 1930b, pp. 159, 161).

Another indication of the relationship of this branch to that of the Hakataya in the Casa Grande-Phoenix region is the rod form type of figurine. Haury suggested that the presence of this type of figurine after 700 A.D. in the Prescott region might be accounted for by diffusion out of the Gila Basin in pre-Gila Butte (pre-700 A.D.) times (Haury, in Gladwin, et al, 1937, p. 240). However, if the Hakataya were basic to the entire region, it is not necessary to postulate diffusion to the Prescott area. It appears rather that the Hakataya north of the Gila survived after 700 A.D. unaffected by the developments of the Colonial Period (700-900 A.D.) Hohokam in the Phoenix area.

In summary, paddle-and-anvil gray-brown pottery appears to

have been basic to the area outlined above. Poorly executed designs on unslipped plainware, evidently influenced by Mexican contacts, appeared first in the Gila Basin. Similar decoration diffused to the lower Coloredo River by 800 A.D., to the Prescott area by about 900 A.D., and to the Sinagua at a later date. The paddle-and-anvil pottery of the Cohonina, however, was affected by the Anasazi at an early date.

Between 700 and 800 A.D. the new intrusive Hohokam pattern of the Gila Basin extended its trade to the east, north and northeast (Gila Butte Red-on-buff having been recorded as far distant as Forestdale and Point of Pines) (Haury, 1941, p. 79; Wheat, 1954, p. 171). This trade evidently followed some of the routes established by the Hakataya, since Pioneer Period pottery also occurs as trade pieces in these same regions.

Slightly before 800 A.D. and during the transition between the Gila Butte and the Santa Cruz phases, the Hohokam pattern established itself by actual moves to the east on the upper Santa Cruz River at the Paloparado Site (Di Peso, 1953, pp. 219ff), on Ranch Creek, on the Salt River near the mouth of Tonto Creek (Haury, 1932, p. 6; Brandes, 1956), in the Roosevelt Basin, to the west near Gila Bend and to the north in the Verde Valley (Colton, 1946, p. 247 (Site NA 3996B); Gladwin, W. and H. S., 1930a, p. 196 and 1930b). Trade also extended to the west to the lower Colorado River area below Parker (Rogers, 1945, p. 185; Schroeder, 1952d, p. 57).

After 900 A.D. the Hohokam pattern reached its greatest

state of ornateness, and expanded its teritorial limits to its maximum extent. The Verde Valley was the main recipient of the new pattern at this time as indicated in this report. By 1070 A.D. the pattern moved further north, from the Verde Valley to Winona in the San Francisco Mountain area. Also during this period (900-1150 A.D.) quantities of Sacaton Red-on-buff were traded to the lower Colorado River from the Gila Basin by way of an established trail across the desert from Gila Bend through Bouse to the Moon Mountains. Occasionally pieces of this pottery also were traded as far north as Willow Beach, a few miles below Hoover Dam (Schroeder, 1952d, pp. 53, 56). Quantities also reached the Prescott Branch area (Gladwin, W. and H. S., 1930a, pp. 189, 196).

In those places where the Hakataya existed, unaffected by the Hohokam prior to 900 or 1070 A.D. (in the present day Walapai Plateau and San Francisco Mountain area) indigenous decorated pottery was lacking. The one exception was the Cohonina, who were influenced by the Anasazi.

Aside from foreign traits such as are found among the Cohonina, basic traits of the Anasazi and Mogollon are lacking throughout the entire range of the Hakataya pattern up to about 1100 A.D. Certain traits of these two groups, however, first made their appearance in the area of the San Francisco Mountains along with those of the Hohokam pattern shortly after the 1064 eruption of Sunset Crater. The cultural mixture that ensued resulted in the Sinagua pattern.

As previously outlined, this Sinagua pattern moved south

into the Verde Valley around 1125 A.D. and into the Gila Basin about 1150 A.D., where it dominated the local cultures in the 1200's. Also about 1150 A.D. some elements of the Sinagua pattern diffused into the Prescott area, probably from the Verde Valley (Gladwin, W. and H. S., 1930a, p. 200; Colton, 1939, pp. 31-32; 1946, pp. 255, 305; Caywood and Spicer, 1936, p. 72), (extended inhumation and pueblo structures, slipped redware being rare). At about the same time or slightly later, some Sinagua ceramic elements also spread from the Gila Basin into the lower Colorado River area below Parker (slipped redware, polishing, smudging) (Schroeder, 1952d, pp. 50-51).

In the 1200's, it appears that a series of regressions occurred among most of the Hakataya groups. The Cerbat Branch is no longer identifiable after the early 1200's. During the same period the Cohonina apparently gave up the use of stone buildings and also discontinued decorating pottery (Colton, 1939, pp. 24, 28). Both of these groups were to the west of the Sinagua. Though little is known of the Agua Fria and Prescott regions, there is nothing associated with the pueblo structures that indicates occupation beyond the early 1200's (Ibid., p. 32; Schroeder, 1954a).

In the above cases, the lack of later estimated dates for these groups may be due solely to the absence of trade pottery with dates after the early 1200's. Prior to 1200 A.D. the Sinagua imported considerable quantities of Anasazi pottery and in turn dispersed much of it to the west and south. This is the material that has provided dates up into the 1200's. Since the Sinagua began to withdraw from the San Francisco Mountain region in the 1200's,

as brought out in previous discussions, their exodus may explain the lack of Anasazi trade pieces dating after the early 1200's among the sites in the above mentioned areas.

Thus, from 1150 up to 1400 A.D., while the criteria of traits used to distinguish certain Hakataya groups (in the Verde and lower Colorado River areas) are altered by the introduction of the Sinagua pattern, other Hakataya groups (Cerbat, Cohonina, Prescott and Agua Fria) are no longer definable after the early 1200's, because of the apparent disappearance of the traits which formerly represented their cultural signature. This may have been due to the droughts of the 1200's which could have caused some of these branches that adopted pueblo style living in marginal areas to reject this way of life sooner than others. None of the sites west of the Mogollon Rim exhibit evidence of occupation after about 1400 A.D. We are forced to conclude that the inhabitants left the areas concerned or reverted to their earlier type of existence, namely the Hakataya pattern which lacked decorated pottery, pueblo structures, slipped redware and extended burial.

At the beginning of the historic period we find this same desert area populated with Yuman groups living by the Hakataya pattern. In the short interval between 1400 and the late 1500's, it does not seem logical to assume that the region was repeopled by several new groups who established themselves in those areas where they were first observed by the early Spanish explorers. We have absolutely no evidence that such a replacement occurred. Moreover, the fact that the Yavapais told Oñate in 1604 that the people who built the

pueblos in the Verde Valley had moved southward many ages ago, indicates that the Yavapais were long time residents in the area.

The Hakataya pattern is in evidence among the historic tribes of the desert region being considered. It appears that the groups that had come under the influence of the Hohokam and Sinagua patterns in prehistoric times simply returned to their former style of living. This hypothesis is strengthened by the fact that several of the historic groups exhibit a few traits of the patterns to which they had been exposed in prehistoric times.

Some of the traits exhibited by the historic desert tribes, which in most cases are evident in archeological situations, are listed in Figure 16. The upper half of the chart contains the traits of historic tribes held in common with the prehistoric Hakataya pattern before it was affected by the Hohokam and Sinagua. The lower half of the chart lists the remaining traits of the historic groups that also occur archeologically, but not in the prehistoric Hakataya pattern portion of the chart. The Gila Pimas are included with the historic Yuman groups for comparative purposes. Note the differences between them (marked with an asterisk).

One of the traits listed in the Hakataya portion of the chart is of sufficient interest to single out here, namely platform cremation. Crematory pits were noted at Snaketown in the Pioneer Period, though no evidence of post supports that might have supported a platform were uncovered at the site (Gladwin, et al, 1937, pp. 96-100). These features were not recorded in any of the Hohokam periods (700-1150 A.D.) at this site. However, 4-post cremation pits, dating between

1070 and 1120 A.D., were reported at NA 2133 (Winona Village) and NA 2098 nearby (McGregor, 1941, pp. 266-267, 294), and also at Nalakihu in the 1100's (King, 1949, pp. 67ff). Similar cremation pits should be expected in the intervening areas wherein I have postulated cremation up to 1070 A.D. It is quite possible, however, that 4-post cremations were introduced to the Flagstaff region by peoples of the Prescott Branch, who also migrated into the cinder fall region in the 1100's. These Prescott people may have obtained this trait from the Hakataya on the lower Colorado River, if 4-post cremations were as common on the river prior to 1070 A.D. as they were in historic times.

Of particular interest is the oval or rectangular house with rounded corners, outlined with rock. It occurs alone or close to prehistoric pueblo structures and is fairly common in the upper Agua Fria (Gifford, 1936, p. 271; Schroeder, 1954a), Globe district*, and less so in the middle Verde Valley drainage, and in the upper Verde, where Fewkes reported round and oval rock outlines within compound walls (Fewkes, 1912b, pp. 210-212, plate 98, figure 66). Similar outlines occur in pueblo courtyards in the Pine-Payson country. The association of many of these house outlines with pueblos dating between 1150 and 1400 A.D. coincides closely with the historic range of the Yavapais.

The presence of the non-Hakataya traits in the lower half of Figure 16 remain to be explained. The ceramic traits, such as controlled firing with the resulting red-on-buff decoration, high polishing and slipped redware, are found only among the historic groups who live in areas which in prehistoric times were most heavily

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* Survey conducted by Ray Brandes, 1956.

affected by the Hohokam pattern and/or the later Sinagua pattern in the Gila Basin area. Also, rancheria style villages seem to be found only among those people who continued to depend on agriculture in a riverine environment.

It seems fairly obvious that the majority of the Hakataya traits survived into historic times. The additional non-Hakataya historic traits associated probably stem from prehistoric times as a result of contacts with other patterns. The prehistoric riverine groups on the lower Colorado River (Laquish stem) appear to have accepted, from the prehistoric Hohokam and Sinagua patterns, controlled firing of pottery and redware. The prehistoric Upland Arizona people (Patayan stem) on the other hand were affected mainly by the Sinagua pattern or the Anasazi. It seems that in all cases these prehistoric Hakatays returned in great part to their own pattern between 1200 and 1400 A.D., and retained only a few traits from other patterns to which they had been exposed.

In previous reports or articles I have indicated that some of the prehistoric groups apparently became historic tribes. The Amacava Branch below Hoover Dam and on the Mohave Desert probably evolved into the historic Mohaves, the Cohonina possibly into the Havasupais (Schwartz in 1956 published an article summarizing his dissertation which supports this hypotheses), the Cerbat into the Walapais (Dobyns, 1956, suggests a similar continuity), and the Prescott Branch perhaps into a branch of the Yavapais which has since lost its separate identity (Schroeder, 1952e, table 25, and 1953b, p. 50). King's evidence at Nalakihu and Schwartz's summary of the culture

in Cataract Canyon suggest that the Prescott Branch shifted north in the late 1100's (King, 1949, p. 146; Schwartz, 1956, p. 81), so perhaps my earlier suggestion that they became Yavapais will not hold. I now suggest the correlations listed below.

The two stems of the Hakataya Root, presently identifiable, are distinguished by the following traits which are differences due in many cases to environmental rather than indigenous cultural factors:

LAQUISH (Riverine)	Trait	PATAYAN (Upland Arizona)
	Ceramics	
Lower Colorado Buff Ware (early brown types to which buff types were added through Hohokam influence)		Unnamed Plain Ware (including Prescott Gray, Verde Brown, Tonto Brown, Wingfield plain, Aquarius and Cerbat Brown, the early brown of the Cohonina and Rio de Flag Brown)
Decoration in red (introduced by Hohokam)		Decoration in black (introduced by Anasazi to some groups)
Uncontrolled, later controlled firing		Uncontrolled firing throughout
Sedimentary clays		Residual clays
Slipped pottery late		No slipped pottery
	House	
Rock encircled, round, domed jacal lacking roof supports, later replaced by square, 4-post jacals		Rock encircled, round, domed jacal lacking roof supports, later replaced in part by oval to rectangular outlined house without roof supports and in part by square or rectangular jacals with roof supports
	Food economy	
Heavy reliance on river inundation for crops		Reliance on use of spring flow and moist bottomlands for crops, when grown. Irrigation introduced by Anasazi.
Little reliance on hunting, but more on gathering		Heavy reliance on hunting and gathering

LAQUISH	Trait	PATAYAN
	Village pattern	
Scattered dwellings in semi-permanent village for most operations		Impermanent location due to seasonal cycle of food gathering, except for winter home area
	Ceremonial	
Gravel cleared figures and stone windrows		Race tracks?
	Extralocal contacts	
Primarily Hohokam (post 800 A.D.?) and some Sinagua, post-1150 A.D.		Primarily Sinagua (post-1150 A.D.) and Anasazi in extreme north (post-750 A.D.)

The various branches of the Hakataya vary from one another in several respects culturally, as described in the literature or in the accompanying text. The prehistoric ceramic plainware types of each branch and the historic representatives of these branches are tentatively correlated as follows:

ARCHEOLOGICAL BRANCH	CERAMIC TYPE	HISTORIC GROUP
(Laquish Stem)		
Palo Verde	Tumco Buff	Yumas
Anacava	Parker Buff	Mohaves
Gila Bend*	Gila Bend Plain?	Maricopas
Lower Gila*	Palomas Buff	Opas
La Paz	Needles Buff?	Halchedomas
?	?	Cocopas
"Gila-Salt"	Gila Plain	absorbed in Gila-Salt triangle ca. 1300 A.D.
(Patayan Stem)		
"Agua Fria"	Wingfield Plain	Western Yavapais
"Verde"	Verde Brown	NE Yavapais

* Unpublished manuscript by Schroeder and Ezell, 1959.

ARCHEOLOGICAL BRANCH	CERAMIC TYPE	HISTORIC GROUP
"Roosevelt" (or Salado)	Tonto Brown	SE Yavapais
Prescott	Prescott Gray	(assimilated by Cohonina? in 1200's)
Cerbat	Aquarius Brown & Cerbat Brown?	Walapais
Cohonina	Unnamed brown, later Deadmans Gray	Havasupais?
Sinagua (to 1070 A.D.)	Rio de Flag Brown	(assimilated by new pattern by 1120 A.D.?)

On the basis of the above correlations, the apparent persistence of the Hakataya and its various subdivisions in Arizona, with little change in territorial limits, indicates a strong cultural-environmental balance. This is especially true when the intrusions of the Hohokam (makers of red-on-buff) and Sinagua (makers of Tusigoot Plain and Red), which were cast off, are considered. Perhaps this is better expressed in another way. It appears as though the Hakataya was the basic folk culture of the region; that it was exposed to two complex cultures*, the Hohokam and Sinagua; that with the collapse of the complex cultures, the folk culture emerged again and that those groups most closely involved in the contacts with the complex cultures retained a certain amount of complex culture traits. The accompanying maps and chart illustrate the history of the Hakataya and their

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* I use these terms in a manner similar to Borhegyi as defined in his paper, 1956, p. 354.

neighbors in Arizona.(see figure 17).

The natural implication one might derive from the above rather sketchy outline is that the Hakataya pattern was that of Yuman-speaking peoples, who in prehistoric times occupied the area where their descendants were found in historic times. The possible effects on or alterations to the early language in the Gila Basin, wrought by the introduction of the Hohokam pattern and later by the Sinagua pattern, are difficult to estimate. I previously suggested that the historic Gila Pimas are basically a Piman-speaking Sobaipuri group that overran the inhabitants of the Gila-Salt area around 1450 A.D., with the result that only a few of the Gila Basin prehistoric traits of the local area survived into historic times (Schroeder, 1952b, pp. 165-167).

It, of course, is possible that the Hohokam pattern with its Mexican-like traits was one introduced by Uto-Aztecan speakers. If the Hohokam pattern was that of a Uto-Aztecan-speaking group, a language barrier would have existed between them and the people of the Hakataya pattern. The language differences also may be the reason why the cultural expansion of the Hohokam out of the Gila Basin took so long to reach the San Francisco Mountain area in the north.

I previously pointed out, the spread of the ball court to the north into the Flagstaff region may have been retarded due to a clash of religious or ceremonial concepts (Schroeder, 1960b, p. 32). Such disagreement may have applied also to other trait differences as well. So a different language may have been a factor that slowed the Hohokam pattern in its expansion north.

On the basis of the foregoing, the pre-1070 A.D. Hakataya in

the Flagstaff area also could have been Yuman speakers, since they are herein included in the Hakataya Root. After 1070 A.D., however, they came in close contact with the Hohokam, Anasasi and Mogollon colonies drawn into the area by the fertile lands created by the ash fall from Sunset Crater. The Hohokam, as postulated above, possibly spoke a Uto-Aztecan tongue. The neighboring Anasazi, if we can judge by the surviving Hopi in the same general area, probably spoke a Shoshonean tongue. The Mogollon, perhaps used a related Uto-Aztecan tongue, since the Hohokam pattern seems to have had close contact with the Mogollon to the east at the time of its earliest appearance in the Gila Basin.

The pre-1070 A.D. Yuman-speaking Sinagua of the Flagstaff area (comparatively few- 875 according to Colton (Colton, 1949, p. 24)) probably were completely assimilated by the Uto-Aztecan intrusions into the area. By 1125 A.D., the people of the Sinagua pattern probably spoke a dialect of Uto-Aztecan, since all three intrusive groups probably spoke related languages. The Sinagua pattern of 1120 A.D. reached the Gila Basin an estimated 30 years after its formation in the San Francisco Mountain area (1120 to 1150 A.D.). This contrasts with the spread of the Hohokam colonies which took about 100 years to move north into Roosevelt Basin, 200 years before moving in any numbers into the Verde River (900 A.D.) and 370 years to reach Yuman-speaking Hakataya in the San Francisco Mountains (1070 A.D.). The spread south occurred rapidly probably because it passed through areas wherein the Uto-Aztecan Hohokam had previously established a language foothold prior to 1070 A.D. Thus, the Florence-Phoenix area probably was mainly Uto-Aztecan during the Classic Period (1150-1400 A.D.).

Sometime after 1400 A.D. additional Uto-Aztecan speakers (Mogollon derived Piman) apparently came into the Florence-Phoenix locale from the San Pedro-Santa Cruz area. These newcomers introduced additional traits in the form of a pattern. It began with the sporadic introduction to the Gila Basin, during the Classic Period (1150-1400 A.D.), of flexed burials and a large amount of tradeware (Tanque Verde Red-on-brown) from the San Pedro-Santa Cruz area. This is indicative of contact between the two regions prior to 1400 A.D. Gila Pima legends relate of visits in prehistoric times by a people from the east and also of later attacks from the east that brought about the downfall of the villages in the Florence-Phoenix region. This probably occurred around 1400 A.D., at the close of the Classic Period.

The breakdown or replacement of the culture in the Gila Basin at the end of the Classic Period is quite evident. Up to 1400 A.D. continguous rectangular mud-walled houses or individual jacal units, terrace farming, cremation and extended burial, and rare decorated ware (unpolished) were the norm. The historic Gila Pima traits in the same region (round houses, bottomland farming, flexed burial and polished decorated ware) are completely different. These latter traits appear to have been introduced as a complete pattern (by an actual migration) from the San Pedro-Santa Cruz area, where these traits did occur prior to and after 1400 A.D. (Schroeder, 1952b, pp. 165-167; Di Peso, 1956, Figure 77; 1958, Figures 3 and 24 (Bidegain Ruin, etc.).

Some of the Classic Period traits, however, survived in this region (occasional cremation, extended burials, etc.), indicating

that the influx from the east did not completely replace the local inhabitants. This also is born out by Gila Pima legends, wherein some claim origin in the Gila Basin (these descended from the Classic Period occupation) and others state they came from the east (those who introduced the historic Gila Pima pattern, which exhibits several Mogollon derived traits such as polished pottery, flexed burial, etc.). Other legends indicate that some groups claim that the large house mounds and compound structures of the Classic Period were those of their forefathers (these being the descendants of the Classic Period group), while others (descendants of those who introduced the historic Pima pattern around 1450 A.D.) state they were built by several people not related to them (the latter being the Sinagua and Hohokam patterns not related to the San Pedro-Santa Cruz pattern that came in from the east).

ETHNOLOGICAL SITUATIONS IN RELATION TO THE PREHISTORY OF THE HAKATAYA ROOT

If the preceding outline is close to the actual events as they occurred, the region and the cultural development of the Hakataya and its interchange with other patterns should prove to be an interesting field for current theories pertaining to archeology, ethnology, physical anthropology, and language in the Southwest. Such concepts as rates of culture or language change, trait diffusion and survival, culture and environment, cultural regressions, etc. could be tested over a time range never before available in the Southwest. Intangible traits such as kinship systems, ceremonies and rituals, language, social organization, etc. might be traced back into prehistoric times and patterns.

The following treatment of historic groups in Arizona, is an attempt to relate ethnological data to the prehistoric developments outlined in the foregoing discussions.

A Pima-Papago-Hopi

Drucker noted important parallels between the Pima-Papago and Western Pueblo groups, concluding that these indicated potent influences in one direction or another. He also pointed out that these similarities were mainly in the non-material field, which may be partially accounted for by the differences in geographical setting (Drucker, 1941, p. 224). Underhill pointed to western Pueblo and Piman resemblances in birth and death practices, girls' puberty ceremony, and the segregation and purification of the scalper. She remarked that

the striking identities, which appear now and then between the Pimans and Hopis, do not have a wide distribution and must date from a late period of contact after the Western Pueblos had evolved their complex ceremonial organization (Underhill, 1939, pp. 272-273). Parsons also listed numerous Pima-Papago and Pueblo parallels, the Pimas, however, exhibiting weaker analogies with the Pueblos. She suggested that perhaps movements of prehistoric groups between the north and south may have brought about the historic parallels (Parsons, 1939, pp. 989-990, 992-1104, 1026-1027).

The similarities between historic Hopi and Pima-Papago groups may well have been brought about in late prehistoric times by the move south in the 1100's of the Sinagua pattern, which contained a number of Pueblo traits from the Hopi area. If historic Western Pueblo (Hopi) traits are weaker among the Gila Pimas than among their Papago neighbors to the south, as Parsons suggests, we must assume that a change occurred among the Gila Pimas, since they are located between the Hopis and Papagos. The postulated influx of the pattern from the Santa Cruz-San Pedro area (partial Mogollon-derived Sobaipuri Pimas), which overlaid that of the Classic Period in the Gila Basin after 1400 A.D., would account for the change. It replaced or submerged most of the earlier Gila Basin Sinagua-derived Pueblo traits. The Papago area, only slightly affected by the influx from the east, retained its pueblo-derived traits.

B Yavapai-Apache

Unfortunately, the relations of these two groups have been considered by ethnologists in a late historic context only. The

following indicates that the roots of the Yavapais extend well back in time, and are closely related to the story of the Sinagua and Hakataya.

Gifford pointed out that there were several traits among the Southeastern Yavapais not found among the River Yumans and he suggested they were derived from the Apaches. The following is a list of the traits mentioned (Gifford, 1932, p. 249): bands, matrilineal non-totemic clans, stringent marital rules, mother-in-law taboo, types of personal names, non-eating of fish, house type, sweat house, developed basketry, buckskin clothing, boots, drum stick with circle head, underworld origin of mankind, mana in turquoise, bullroarer to summon spirit impersonators and masked religious performances for curing. I would like to point out that several of the above traits could have been prehistoric traits introduced into the Roosevelt Basin by the Sinagua and/or a Pueblo pattern that may have influenced the area in prehistoric times. In turn, the surviving Hakataya of the Roosevelt Basin (Southeastern Yavapais) may have introduced some of these traits to the Apaches, rather than the reverse. This would seem more reasonable since a number of the traits listed above are basically Pueblo derived and not Apache.

Gifford stated, in addition, that many of the Southeastern Yavapai traits he would derive from the Apaches are also found among the Northeastern Yavapais and in lesser numbers among the Western Yavapais (Gifford, 1936a, p. 323). The fact that the least number of such traits occur among the Western Yavapais, who, incidentally, rarely

were not in contact with the historic Apaches, also parallels the prehistoric date. This western area, namely the Agua Fria drainage, in prehistoric times was the least affected by the full Sinagua pattern.

The Southeastern Yavapais, of course, no doubt obtained some Apache traits during their close association with the Apaches on the San Carlos Reservation in the late 1800's, or possibly in the late 1700's, when the Apaches expanded west against Yavapai territory - particularly matrilineal non-totemic clans, a feature lacking among other Yavapais. Several of the traits Gifford lists, however, such as bands, and sweat houses, are common to all Yavapais. It also appears that the Apaches borrowed from the Yavapais for their developed basketry rather than the reverse (Robinson, 1954, pp. 72, 79, 83, 84, 97).

The Yavapai house type, which Gifford lists as a possible Apache derived trait, is either rectangular with rounded corners, oval, or circular with a closed dome, rather than circular with poles projecting through the top like that of the Western Apache wikiups. As described by Gifford, the Northeastern Yavapai house was built with poles bent over to form a dome, with an oval floor plan averaging about 10 by 20 feet, being 6 to 7 feet high in the center. Rocks were laid on the ground at the base of the poles to act as a support to prevent their slipping out (Gifford, 1932, p. 203; 1936a, p. 271), a feature lacking in Apache houses.

Prehistoric oval stone rings of this size and form have been recorded around Mayer, Arizona, in association with pueblo structures and ceramics (Wingfield Plain) dating about 1150 A.D. or later (Schroeder, 1954a). A similar outline was recorded in the

Verde Valley (NA 4629, see Figure 7) dating between 1150 and 1250 A.D. with Tuzigoot Plain and Verde Brown associated. Others, both oval and circular, also have been recorded in the upper Verde by Fewkes, already referred to, and in the Pine-Payson area associated with pottery dating after 1150 A.D. Still others occur in the Globe area. Thus, the Yavapai oval or round house could not be a recent innovation obtained from the Apaches. These examples certainly suggest that Gifford's list of Yavapai traits, supposedly derived from the Western Apaches, should be reexamined.

Yavapai legends concerning their dispersal in prehistoric times parallel the movements of the prehistoric Sinagua. They claim origin in the San Francisco Mountain area. From there, the Southeastern Yavapais relate, they moved south into the redrock country on the east side of the Verde Valley opposite Jerome (just as the Sinagua did). Due to disagreements there was an additional split and the Southeastern Yavapais moved to the south and the Western to the west (Gifford, 1932, pp. 243, 247; 1933, pp. 403-404; 1936a, p. 251) (the same areas affected by the Sinagua pattern - the Roosevelt Basin and the Bloody Basin).

These legends of a Yuman people seemingly refute the previously discussed Uto-Aztecan language hypothesis pertaining to the Sinagua and Hohokam. The archeological data, however, actually tend to clarify the situation. The occurrence after 1125 A.D. of two utility pottery types existing side by side in the Verde (area of the Northeastern Yavapais in historic times), as well as the survival of other traits of pre-1150 A.D. times that were foreign

to the Sinagua pattern, indicate that two groups were living together in the Verde. These were the Sinagua (makers of Tuzigoot Plain) and the postulated indigenous (Yuman-speaking) people (makers of Verde Brown) of the Hakataya Root.

When the Sinagua pattern or people finally left central Arizona around 1400 A.D., the Hakataya (Yuman speakers), whose culture survived side by side with the Sinagua up to 1400 A.D., apparently remained and evolved into the Northeastern, Southeastern, and Western Yavapais. They may well have preserved in their culture, through intermarriage in prehistoric times with the Sinagua, stories of having come from the north.

In contrast to the above, the Yavapais have no legend of displacing earlier inhabitants (Gifford, 1932, p. 243) which seems to be in agreement with the above hypothesis that the Hakataya Root was basic in the three areas discussed above. Still more interesting in the field of legend is another story mentioned previously, which suggests that the Sinagua were a separate group that passed through the Verde while it was occupied by Yavapai ancestors. In 1604, when Oñate asked the Yavapais who constructed the pueblos and ditches then in ruins in the Verde Valley, he was told that "many ages before" people had passed through these parts, moving southward, and they did not know what became of them. This certainly falls into the archeological situation.

It appears that the Yavapais could well be the descendants of that portion of the original Hakataya that developed in the Bloody Basin, Verde Valley and Roosevelt Basin. The Yavapais, like their probable Hakataya ancestors of pre-1150 A.D., cremated their dead,

built pole and brush houses and practiced small scale farming on river bottom lands. They may well have retained certain prehistoric Sinagua traits, which Gifford suggests were Apache derived in historic times, just as they apparently retained legends relating to the Sinagua.

This brief discussion on the Yavapais is merely one example of what might turn up in the course of reanalyzing ethnological data in relation to the problems of the Hakataya, with the above outline of prehistoric developments in mind.

C River - Upland Arizona Yumans

In considering the overall pattern on a larger scale than divisions within the Yavapais, it is noted that Drucker has pointed out (Drucker, 1941, p. 222) that a taxonomic study of Yuman traits as a whole indicates that there are no distinctive traits, aside from the language, common to the three Yuman divisions set up by Gifford (Gifford, 1936a, pp. 321 ff), and to them alone. Drucker noted that the southern California Yumans share a few complexes of distinctiveness with the River or Upland Yumans of Arizona; that the River (lower Colorado River) Yumans appear highly distinctive, though many of the diagnostic complexes represent specializations of practices common through nearby regions; and that Upland Yumans (Walapais, Havasupais, and Yavapais), while they exhibit many elements common to low-grade hunting-gathering cultures of North America, have links with the River Yumans and Athapascans, being basically Southwestern with some Great Basin influence.

When we compare Drucker's statement with the archeological data of the lower Colorado River area, it appears that much of the variation among these Yuman groups may be due to considerable and

varying amounts of cultural exchange in prehistoric times. Outside contacts appear to have been the foremost stimuli for these varied developments. The prehistoric Amacava below Hoover Dam (historic Mohave area) were influenced by the prehistoric southern Nevada Pueblo-like culture and by Pacific Coast trade contacts across the Mohave-Pacific trail, as indicated by a study of Willow Beach material (Schroeder, 1952e, pp. 202-203, 210-211). The area between Blythe and Parker on the Colorado River (which I previously suggested may have been the original locale of the Maricopas prior to their leaving the Colorado River about 1300 A.D.) was quite heavily influenced ceramically in early prehistoric times by the Hohokam (Schroeder, 1952d, pp. 53, 57). Other traits might have been involved, such as Carter's suggestion that the River Yumans obtained agriculture from the Hohokam (Carter, 1945, section on Gila-Colorado corn and p. 60).

When we examine the archeological situation in the Upland Arizona region, one finds that the Cohoninas (in the historic Havasupai area) exhibit several traits that were borrowed from the Anasazi (Pueblo), a situation reflected to some degree among the historic Havasupais (Spier, 1928, table 1, pp. 213-215). The Cerbat Branch of northwestern Arizona (historic Walapai area), so far as is known, received little influence from outside patterns and apparently had little direct contact (with the exception of prehistoric and historic Paiute) with other than their immediate Hakataya neighbors. These latter apparently acted as buffers between the Cerbat Branch and other non-related patterns.

The above noted prehistoric contacts (Pueblo and Great Basin,

in addition to late historic Athapascan influence on the southeastern Yavapais already discussed) may explain the extreme variation among the Upland Yuman groups to which Drucker refers. At the same time the factor of isolation from foreign patterns may explain why the Walapais and Diegueños, two widely separated groups, appear to resemble one another so closely. If such is true, the Walapai and Diegueño culture probably is closer to that of the prehistoric Hakataya than other surviving Yumans.

Eggan has stated that the Havasupais, Walapais and Yavapais form a related series with a common background but show variations in mode of existence and contacts with other groups (Eggan, 1950, p. 322). Kroeber has indicated that a close language similarity existed between the Walapais and the Akwaalas of southern California (Kroeber, 1925, p. 797). The latter tribe also appears to have been another one of the groups isolated from neighboring patterns by their Yuman neighbors. Kroeber summed up his thoughts by stating that he considered the River Yuman culture as a specialized development out of an original Yuman culture, shared by them with the Seri and Upland Arizona Yumans, which he referred to as the Seri-Walapai substratum (Kroeber, 1931, pp. 51, 54-55). The above discussions suggest that present archeological information relating to the Hakataya of Arizona, though admittedly sparse, has reached the stage where it manifests leads that foreshadow the answers to the historic Yuman situation.

D Upland Arizona Yumans - Great Basin

Spier expressed the belief that the Upland Arizona Yumans were

essentially Great Basin rather than Southwestern in their make-up (Spier, 1928, pp. 84-85; 1929, p. 214). Drucker disagreed with Spier, stating that many of the similarities Spier referred to are not Great Basin determinants, but rather are elements commonly found in most low-grade hunting-gathering cultures of western North America. He pointed to the long list of differences, some of major rank, between the Upland Arizona Yumans and Shivwits Paiutes and suggested that the common elements they share may represent an overlay (Drucker, 1941, p. 233). Spier's treatment of the comparison of the culture of the Havasupais with that of the Great Basin is on a broad general basis, and not specific in the sense discussed by Drucker and Gifford. The same holds true for his comments concerning the relationships between the Maricopa-Yuma and Pima-Papago groups. In order to be of any value for purposes of archeological interpretation and possible developmental relationships with which we are concerned, discussion must of necessity treat with the specific rather than the general.

Stratigraphic evidence at the prehistoric site of Willow Beach, below Hoover Dam on the Colorado River, has shown that this region, used for camp sites by the Amacava Branch (prehistoric Mohaves), was abandoned sometime after 1150 A.D. and replaced by a "Shoshonean" pattern (Schroeder, 1952c, pp. 170-180, 207-208; 1952d, pp. 48, 52). Archeological data on the north side of Lake Mead in southern Nevada, near Overton, in the Moapa Valley, in southwestern Utah and southwestern Colorado (Schroeder, 1954b, p. 8; Rudy, 1954, pp 4-5; Schroeder, 1955), all indicate a post-1150 A.D. entry of the "Shoshonean" pattern (Schroeder, 1953d, p. 66). It appears that

the same is evident in other parts of Utah, though Steward, in his discussions of the situation, felt that it was other than a "Shoshonean" pattern that replaced the earlier cultures of Utah. However, he estimated that this replacement occurred after 1100 A.D. (Steward, 1937, pp. 83-86).

The new pattern (Shoshonean), introduced into the area to the north and west of the bend of the Colorado River in Arizona, southern Nevada, and eastern California, exhibited paddle-and-anvil pottery with conical bases, lateral and base-notched points and the use of caves and a circular brush hut for shelter. A portion of the area covered by this new prehistoric pattern was on the west side of the Colorado River immediately west of the Cerbat and Amacava Branches. These latter two branches appear to represent the ancestral development of the Walapais and Mohaves (Coues, 1900, p. 353). Such a long association between the Shoshoneans and these two Yuman groups would allow for a considerable amount of trait exchange. This, in turn, might well have been the basis for the confusion which led Spier and Drucker to different interpretations regarding Great Basin influences on the Upland Arizona Yumans.

E Piman-River Yumans

The archeology of southwestern Arizona indicates that there was a long period of contact between the two basic groups of this region. Haury has pointed to the evidence of Ventana Cave where, in pre-ceramic times, the San Dieguito-La Playa culture of southern California was first dominant but later was overshadowed by the pre-ceramic Cochise pattern from southeastern Arizona (Haury, 1950

p. 532; Rogers, 1939, pp. 27-44). The surface finds at Organ Pipe Cactus National Monument correlate with the data pertaining to the pre-ceramic levels at Ventana Cave (Schroeder, 1951c; Ezell, 1954).

Kroeber, in 1929, had set up a Gila-Yuman-Sonoran ethnological province as opposed to that of the Pueblos, but he admitted the anomalous position of the Pimas (Kroeber, 1928, pp. 379-380; 1931, p. 50). His Gila-Sonoran concept may be valid for purposes of ethnological comparisons, but the fact that it might apply satisfactorily to historic groupings need not insure that the same relationships held in prehistoric times. Haury has demonstrated, with the above referred to archeological data, that the pre-ceramic stages of Ventana Cave in Papagueria exhibit first a dominance of a western (Pinto) culture, then an intrusion of an eastern (Cochise) culture, which finally dominated. Ezell has indicated that a cultural boundary existed between the lower Colorado River and the Sonoran region in prehistoric ceramic times, roughly along a north-south line passing through the Ventana Cave region. He also presents an equally strong argument for this same line of cleavage in historic times (Ezell, 1954). This particular line is one over which ethnologists have had considerable discussion.

Spier commented on the many similarities between the River Yumans and the Pima-Papago group which tended to link the latter with the sphere of the Yumans on the lower Colorado and Gila Rivers. He concluded that the Maricopa culture was "a lower Colorado culture resembling the Pima to no greater degree than the Pima themselves resembled the lower Colorado peoples." A few years later he suggested that the lower Colorado culture province should be

expanded to include the Gila River tribes, Yuman and Piman (Spier, 1933, p. x; 1936, p. 13). However, Gifford indicated that Spier's alignment was not tenable, and that instead of a single lower Colorado-Pima-Papago culture area, there were two, Piman and Yuman, that abutt. Drucker also pointed to the many differences between these two groups on which basis he concluded the Pima-Papago alignment must be considered as separate from the River Yumans (Gifford, 1936b, p. 681; Drucker, 1941, p. 244).

Eggan summed up the situation by stating the lower Colorado Yumans and Pima and Papago had been subject to acculturation over a long period of time and that it was difficult to interpret the variations in their social structure (Eggan, 1950, p. 322).

Archeological data already referred to indicate contact between the Colorado River groups and the Piman area on the Gila River began in pre-ceramic times and that these contacts have been continuous since about 800 A.D. In addition, recent evidence suggests that the ancestors of the Maricopas left the lower Colorado River and settled near Gila Bend sometime after 1300 A.D. (Schroeder and Esell, 1959).

The fact that the Piman language was spoken by individuals of Yuman-speaking tribes, below the Gila-Salt River junction in early historic times (Kino in Bolton, 1948, Vol. I, pp. 128, 246, 480; Fewkes, 1912a, p. 44), indicates that a strong influence from the east had been operating on these Yuman-speakers, or that a long period of contact had existed between the two language groups. The similarity between Maricopa and Gila Pima ceramics and other traits, which already has been pointed out by several investigators

(Bandelier, 1890, p. 257; Curtis, 1908, Vol. 2, p. 106; Rogers, 1936, pp. 33-34; Spier, 1933, p. 41), as well as the comingling of these two groups near Gila Bend (Schroeder, 1952b, pp. 161-163), are further indications that there was a potent factor in operation that led to the acceptance of Piman traits by the Yumans and vice versa.

Evidently friction between groups on the lower Colorado River was the prime factor which led to the mixture of Yuman and Piman traits on the lower Gila River. The historic documents record several Yuman population shifts. In the 1820's, the Halchidhomas (and some Kohuanas) left the lower Colorado River, and by the 1830's, a number of them joined the Pimas, and in the 1840's, the Maricopas living near Gila Bend moved east among the Pimas.

It probably was at this time that the Pimas and the Yumans who joined them exchanged ceramic traits and other items, which led to the many similarities between the two groups. It appears that the major ceramic traits were contributed by the Halchidhomas, since the only red-on-buff and black-on-red pottery designs similar to that of the historic Maricopas and Pimas occurs on the lower Colorado River in the locale vacated by the Halchidhomas. This type of material is not known to exist in the Gila Bend or Pima regions prior to the mid-1800's (Schroeder 1952b, pp. 160-165; 1952d, p. 32, Figures 3 & 5; Schroeder and Ezell, 1959).

The complex prehistoric and historic interchanges between the groups on the lower Colorado and Gila Rivers probably is responsible for the above discussed differences of opinions among ethnologists. Archeological data definitely separate the Yumans and Pimas.

Recent mixture has clouded the situation for the ethnologist.

F Pima-Papago-Sobaipuri

Withers originally suggested that the archeological development of ceramic times in the southern part of the Papago Reservation area may have been a buffer between the Hohokam of the Gila Basin and the Trincheras group in Sonora, and that it was at variance with the Hohokam in many respects, particularly in burial by inhumation and in decorated pottery types (Withers, 1944, pp. 42, 46). Haury later suggested that the ceramic culture of Papagueria represented another aspect of the Hohokam which he called the Desert Hohokam as opposed to the River Hohokam in the Gila-Salt Valleys (Haury, 1950, pp. 468, 547).

In support of his theses of a Desert and River Hohokam, Haury presented a comparison of the traits of the two groups and suggested a relationship did exist between them. Aside from the fact that several major traits were not in agreement, (some of which Haury himself pointed out) - cremation among Hohokam as opposed to flexed burial in Papagueria, gabled roofed houses versus flat roofed dwellings, compound villages against open sites, unpolished decorated ware as opposed to polished decorated ware with smudged interiors, troughed metates versus flat metates, lack of redware and presence of redware, etc.- certain of the traits selected by Haury were not clearly considered in regard to the time element and culture patterns (Haury, 1950, pp. 15, 318-319, 468, 547; Withers, 1944, pp. 38, 40, 46). As a result, his comparison fails to demonstrate the existence

of a basic pattern common to his Desert and River Hohokam. The same weakness applies to the use of similar trait lists by Di Peso and Wendorf (Di Peso, 1953, p. 258; Wendorf, 1953, pp. 170-172). The accompanying figure (18) deals with the same regions and indicates, when the element of time is considered, that two very different basic patterns are represented by the Hohokam and the prehistoric people of Papagueria.

Moreover, the early practice of flexed inhumations in pre-pottery levels at Ventana Cave correlates with the flexed burials of the Cochise and later Mogollon to the east. This same method was employed in the ceramic levels at Ventana Cave. The earliest morphological type at Ventana Cave is described as a "Basket Maker"-like undeformed long head which is quite similar to the majority of those in the ceramic levels. A similar skeletal type was found to be early at San Simon in southeastern Arizona (Haury, 1950, pp. 461, 463; Gabel in Haury, 1950, pp. 497, 507, 519; Brues, 1946, pp. 24-25; Sayles, 1945, p. 62).

In late prehistoric times in Papagueria "pueblo" morphological types occur and they are buried in an extended position in the same horizons containing flexed burials. Interestingly enough, Gabel's skeletal studies indicate the dominant and continuous "non-pueblo" skeletal element of Ventana Cave is close to that of the modern Papago (Haury, 1950, pp. 356-357, 547; Gabel in Haury, 1950, p. 507). Thus, it appears that the late "pueblo" type skeletal remains were a late intrusion, the early type having survived into historic times. This correlates well with the cultural pattern throughout,

and suggests, along with the traits of Figure 18, that the culture of Papagueria, which is basically Cochise derived with Mogollon additions, was distinct and separate from that of the Hohokam and Sinagua at all times.

The trait list of the early ceramic phases of the Ventana Cave culture is much closer to that of the San Pedro area than to the Hohokam and for this reason it is suggested that the prehistoric culture of Papagueria be referred to by a name that has a connotation other than a desert Hohokam. Perhaps Di Peso's Ootam may fit the bill. There is nothing to indicate that the Hohokam drifted into the desert where they culturally degenerated or stagnated due to environmental conditions, such as Haury implies (Haury, 1950, pp. 356-357). One would expect a development rather than a regression, since all other neighboring areas were culturally progressing at this time. Withers' and Scantling's (Withers, 1944; Scantling, 1940) studies in Papagueria indicate advancement and expansion, not degeneration or stagnation.

The interplay of culture patterns in southeastern Arizona, where the historic Sobaipuris lived, is complex. Sayles' work on the prehistoric San Simon Branch of this region has shown a Mogollon development in the early phases followed by the late introduction of Hohokam traits (Sayles, 1945, pp. 65-66, 68). Slightly west of here Fulton, Tuthill and Di Peso have shown a strong Hohokam influence came into play after 800 A.D. along the San Pedro and Santa Cruz Rivers. After this date Mogollon and Hohokam traits either occur side by side or form a blend in this region (Fulton and Tuthill, 1940, pp. 62-64; Tuthill, 1947, pp. 83-86; Di Peso, 1953, pp. 255-256; 1956).

Up to this time Papagueria apparently was only slightly affected by the cultures of the San Pedro Valley or the Gila Basin, and its indigenous Cochise derived culture continued to develop. Shortly after 800 A.D., however, the first of Mogollon influences came into play. Redware appeared in Papagueria (Withers, 1944, p. 40), indicating influence from the San Pedro Valley, the nearest source of redware at this date. Withers, Scantling, and Ezell also have suggested additional later influences in Papagueria from the Trincheras region to the south, and from the lower Colorado River (Ibid., pp. 41-42; Scantling, 1940, pp. 36-37, 48; Ezell, 1954).

Hayden's work at the University Ruin, near Tucson, has demonstrated that another set of traits were introduced into southeastern Arizona about 1300 A.D. - house mound, post-reinforced dwellings and compound walls (Hayden, 1957, pp. 194-196). These could only have been traits derived from the Sinagua-Hohokam blend that developed in the Florence-Phoenix area prior to and around 1300 A.D. After this date compounds were adopted throughout this eastern area as shown by Tuthill at Tres Alamos and Di Peso at several sites, several of which survived into historic times (Tuthill, 1947, pp. 18, 85-86; Di Peso, 1953, p. 261, Figure 33). Elements of the Sinagua pattern easily could have reached the San Pedro River either from the Florence-Phoenix region or the Safford Valley, where Classic Period traits occur (Fewkes, 1904, p. 175).

This process of culture exchange also worked in the opposite direction. The Gila-Salt region between Florence and Phoenix began to exhibit eastern (San Pedro-Santa Cruz) traits about the same time

or possibly slightly earlier. Between 1200 and 1300 A.D. Tanque Verde Red-on-brown from the San Pedro-Santa Cruz area began to appear as trade ware in the Gila-Salt area (Gladwin, 1928, p. 25, items 8 and 9; Schroeder, 1952c, p. 330, Figure 1 and Table 9). Occasional flexed burials, another eastern trait, also appeared for the first time. On the basis of eastern traits first appearing in post-1200 A.D. Gila-Salt sites, their more common occurrence between 1300 and 1400 A.D., and the dominance of eastern traits in historic times among the Gila Pima, I suggested an eastern Piman (Sobaipuri) move to the Gila sometime after 1400 A.D. (Schroeder, 1952b, p. 167).

Between 700 and 1200 A.D. we have three patterns in southern Arizona - in Papagueria (Cochise derived), on the San Pedro (Hohokam and Mogollon derived) and on the Gila (Hohokam-Mexican derived). Each differs from one another so much during any one of the time horizons considered that their basic traits cannot be fitted into one basic pattern at any one period of time. However, around 1300 A.D., many Gila-Salt traits diffused east to the San Pedro-Santa Cruz, and several of the eastern traits appeared in the Gila-Salt. The end result of this exchange of traits in late prehistoric times was to build up a pattern in the San Pedro-Santa Cruz and Gila-Salt areas that more closely resembled one another than either one resembled that in Papagueria.

In historic times, the Gila Pimas shared much in common with the Sobaipuris of the east, so much so that Kino in his reports of the early 1700's did not readily recognize any differences between the Sobaipuris and Gila Pimas. This is suggested, for example, by his remark that Captain Humaric (a northern Sobaipuri on the San

Pedro River) and others he referred to as Sobaipuri Pimas from the villages of San Andreas and La Encarnacion (villages on the Gila near Casa Grande) were undertaking a common enterprise.

On another occasion Kino said "I travelled...to Casa Grande ...and to the Rio Grande, or Rio de Hila, which issues from the confines of New Mexico through Apacheria, and comes to these our Pima Sobaiporis, and afterwards flows more than 100 leagues to the west by the Cocomaricopa and Yumas..." Thus he again classed the Gila Pimas and Sobaipuris together.

On his return from another trip down the San Pedro and Gila Rivers and up the Santa Cruz River, Kino said "Hearing that we had found more than 7000 Pima Sobaipuris so friendly," etc., (Bolton, 1948, p. 202; 1916, pp. 443-444, 447-448 Italics are mine) referring to the entire route along these streams. Thus, it seems the differences between the Gila Pimas and the Sobaipuris were of such little consequence that they did not impress Kino, who often classed the two together. Admittedly not much of an ethnologist, Kino frequently failed to distinguish between related tribes.

There are several recent studies that indicate the Sobaipuris and Gila Pimas resemble one another in many respects and that they form a group culturally distinct from the Papagos. Mason, in referring to Pima-Papago relationships, stated that the distinction between the two is cultural, rather than linguistic (Mason, 1950, p. 4). Underhill has indicated, as has Parsons, that these two groups held much in common, and yet differ in several respects (Underhill, 1939, pp. 272-273; 1946, pp. 327-336; Parsons, 1928, p. 458). Beals classed

the Pimas with the Sobaipuris and considered the Papagos as a limited Pima (Beals, 1934, pp. 1, 4).

The archeological data again appear to demonstrate that much of the trait similarity evident in the historic Piman tribes of southern Arizona resulted from heavy cultural exchange in late prehistoric times. In this case, the Hakataya played no part. However, the developments of the Hohokam and Sinagua, and their influences on their neighbors in Papagueria and along the San Pedro and Santa Cruz Rivers, contributed greatly to the historic situation wherein the culture of the Gila Pimas and Sobaipuris resembled each other so closely.

C Concluding Remarks

The above discussions attempt to demonstrate that the various archeological trait comparisons relied upon in the past have been strictly taxonomic. By the use of the herein suggested approach of a scheme of patterns, which considers traits both in time and space, we have a historical basis on which to work, as well as a means for comparing prehistoric patterns with ethnological data.

These discussions suggest that the patterns and traits that diffused through the Southwest in prehistoric times tended, by late prehistoric times, to eradicate many differences which existed during earlier ceramic phases among the various prehistoric cultures so far recognized. The historic cultures of Arizona, even after having undergone considerable mixture in prehistoric times, still retain sufficient diagnostics by which they can be separated into three main divisions comparable to those of prehistoric times - the Yuman (Hakataya),

Piman (Mogollon derived), and Pueblo (Anasazi) groups. In addition we have more recent migrants, the Shoshoneans who appeared around 1150 A.D. on the north and west and the historic Arizona Athapascans who came in from the east after 1600 A.D. The prehistory outlined herein suggests that the major prehistoric cultural developments gained their impetus through extra-local contacts - the Amacava through coastal trade and contacts with the southern Nevada Pueblo-like groups; the Gila Basin area through the influx of the Hohokam pattern; the Sinagua pattern through mixture of the Hohokam, Anasazi and Mogollon colonies that entered the San Francisco Mountain area, etc.

Many may disagree with some or many of the implications brought out in the correlations considered, but it is evident that the archeologist and ethnologist in the Southwest no longer can disregard the work of one another. Since one of the goals of archeology is the reconstruction of history, one cannot overlook ethnological data. If the ethnologist is to explain certain incongruities in his data, he will have to examine the archeological background for possible answers. The factors of time and space must continually be considered in relation to patterns, whether they be prehistoric or historic.

The paucity of data pertaining to the early historic period presents one of the main obstacles to developing a smooth transition between the cultures of prehistoric and historic times. Much material has been lost forever in the Gila Basin where agricultural expansion and real estate developments have taken their toll. Most opportune in this respect are the various Indian Land Claims cases now in process.

They have presented the anthropologist with the opportunity to examine in detail the historical documents pertaining to the areas now occupied by the tribes in question. The full story can only be told through the combined efforts of the archeologist, historian and ethnologist.

It seems to me that the time has come when the archeologist should refer to people instead of pigeon holes in his reports. In short, more meat should be placed on our archeological bones. Very few Southwestern reports leave one with the feeling that he has read about some people. The usual reaction is a recognition of a new taxonomic data. Patterns in time and space must be distinguished before folk and complex cultures can be separated. Only by sorting the details of several patterns and weighing them on the scales of time and space will we be able to reconstruct history.

ADDENDUM

Since the manuscript, including the maps of Figure 17, was completed in 1954, it was circulated among a number of anthropologists and was discussed in seminars at the University of Arizona. Di Peso's report, The Upper Pima Indians, published by the Amerind Foundation in 1956, presents a concept similar to that expressed herein. However, a comparison of the two reveals considerable difference in factual data and interpretation. Future investigations will expose the weak spots and bolster the strong points of each. Only in this manner can we secure the frame on which we fit the facts.

APPENDIX I

Brief Site Descriptions

NA 4605 (Figure 11) Sherd area and roasting pit situated 1 mile below ridge occupied by NA 2806 and 1/4 mile north of Clear Creek.

Probably was a camp site connected with bottomland farms utilized by inhabitants of NA 2806. Ceramic patterns - 5, 6, and 8. Dates - ca. 1150-1300 A.D. plus.

NA 4606 Small cave containing one room and small storage area. Overlooks small area of bottomland on Beaver Creek. Walls of unshaped limestone laid up with considerable mortar. Extended burial was reported to have been removed from this site.

Probably a farm outlook connected with Montezuma Castle 1/2 mile distant. Ceramic pattern - 6. Dates - pre-1250 A.D.

NA 4607 (Figure 11) Boulder room atop small knoll. Located 1/4 mile northeast of NA 4605 and almost 1 mile below NA 2806. Unshaped limestone rock walls, 1 to 2 feet high, dry laid.

Probably a farm outlook of NA 2806 connected with bottomland farms 1/4 mile below. Ceramic pattern - ?. No sherds in vicinity. Dates - post-1130 A.D.?

NA 4608 (Figure 4) High flat hilltop with 60 foot wall along west side of caprock, the only direction of access. Dry wall of unshaped limestone, 12 to 16 inches thick, with no evidence of having been built higher than 1 foot above the caprock on hill. One jog in wall near center at which spot there is an opening.

Probably a farm outlook for bottomlands immediately below and

to the east which were probably associated with NA 4611, about 1 mile to the north. Ceramic pattern - ? One sherd of Tuzigoot Red. Dates - post-1130 A.D.

NA 4609 (Figure 6) A series of boulder rooms (Plate 2) and rockshelters on the slopes of a small mesa projecting into the farmlands at Montezuma Well and Rimrock Ranch, all situated a few feet above the prehistoric irrigation ditch leading to the bottomlands. Boulder rooms are composed of unshaped limestone rock walls 1 to 2 feet high. One rockshelter in a ledge has a wall 40 feet long and about 3 feet high on its front edge.

Probably all farm outlooks for the sites at Montezuma Well 1/4 to 1/2 mile to the east. Ceramic patterns - sherds not common. Those collected indicate a few sites closer to the head of the ditch have pre-1130 A.D. beginning dates while the remainder began about 1130 A.D. Three contained a few pattern 8 sherds (post-1300 A.D.) and two contained a single Rimrock Plain sherd each (post 1750 A.D.).

NA 4610 Rock shelter above flats which could have been dry-farmed near Montezuma Well. No architecture. Slab metates, unshaped, and hammerstones.

Probably a camp site. Ceramic pattern - ? Date - ?

NA 4611 (Figures 3 and 5) Double cave, one of which contains pueblo rooms and storage niches, directly above Beaver Creek. Walls 22 inches thick, of unshaped limestone in heavy mortar laid up on each side with rubble fill in center. Plastering evident. Conventional doorways. Woven textile bag with black and white design, on exhibit at Montezuma Castle, came from this site.

The people of this pueblo probably tilled the land to the south, constructed NA 4608, and formed part of the occupation in the cave NA 4642. Ceramic pattern - ? Dates - post-1150 A.D. though no sherds of pattern 5 or 6 were recovered. One sherd of Apache Plain Ware found, probably post-1750 A.D. occupation. (See Plateau, April, 1956, for report on this site by Lloyd Pierson where it is designated as NA 4007C).

NA 4612 Boulder covered knoll, containing a few rectangular boulder outlines, at bend in Beaver Creek and above bottomlands.

Probably farm outlooks connected with Montezuma Well 1/4 mile to the south. Ceramic pattern - ? Dates - ? Only Verde Brown was recovered here.

NA 4613 (Figure 6) Small smoke-blackened cave with no sign of architecture. Floor partially covered with roof fall and partially cleaned out by drainage running through cave from mesa above.

Possibly a camp site for a farm outlook for flats below which could have been dry-farmed. This site is just north of the northmost ditch from Montezuma Well. Ceramic pattern - 2. Sherds rare. Dates - pre-1100 A.D.?

NA 4614 Sherd area and nearby clearing 50 x 200 feet, in open juniper area.

Ceramic pattern - ? Dates - post-1150 A.D.?

NA 4615 Large mescal pit 25 feet in diameter. No culture associated. Situated 100 yards northeast of NA 4614 with a view of that portion of the Verde Valley south of Camp Verde.

NA 4616 (Figure 6) A-low trashmound, B-sherd area and roasting pit and C-sherd area above irrigation ditch, at Montezuma Well.

Probably a Hohokam site. Ceramic patterns - 1, 2, 3, and 5. Dates - probably post-900 to 1150 A.D. plus.

NA 4617 (Figure 6) Boulder rooms of limestone slabs on end, roughly 8 feet square, on edge of mesa overlooking prehistoric ditch and farmlands. No culture associated.

Probably a farm outlook.

NA 4618 Two mazes (?) 50 feet apart at mesa edge overlooking farmland and prehistoric ditch, at Montezuma Well. Considered as mazes as these are the only two concentrations of river worn rocks (about 20 stones each) on the entire mesa. Probably much disturbed by cattle. No definite design or pattern evident. No culture associated.

NA 4619 Cavates west of Montezuma Castle exhibiting plastered cave walls, storage niches, prepared caliche floors, rimmed and unrimmed circular firepits, caliche ridges dividing floor areas, T-shaped door, wood lintel, and double faced walls with rubble fill and mortar containing charcoal and grasses.

Ceramic pattern - 8. Date - post-1300 A.D. Verde Brown was the only plainware recovered.

NA 4620 Burial ground in flats west of Montezuma Well. All burials removed by former owners were reported as extended with no apparent orientation pattern. One burial yielded 33 vessels, but more often they contained few or no offerings. Some burials were partially covered with a large rock slab and usually the slab had a hole cut in it which was placed over the face. Some skulls as well as a few mandibles bore green stains in various spots. Occasionally an arm bone was similarly stained. Black (galena?) stains often were noted

in the elbow region.

Graves consisted of a burial pit with an undercut to one side in which the body was placed. This undercut was sealed with 3 or 4 large slabs of rock on end, and the interstices were filled with caliche. Only the pit proper was filled.

Ceramic patterns - 6, 7, and 8. The presence of only post-1150 pottery types is significant. The following vessels were identified by Katharine Bartlett of the Museum of Northern Arizona in May 1939 shortly after the resident owners had excavated in the burial grounds.

Flagstaff Black-on-white	1	
Wupatki or Kayenta Black-on-white	7	
Walnut Black-on-white	7	
Bidahochi Polychrome	3	
Winslow Rlychrome	2	
Jeddito Black-on-orange	2	
Citadel Polychrome	1	
Tusayan Black-on-red	1	
Jeddito Black-on-yellow	10	
Elden Corrugated	1	Parens are mine.
Red with black interior	47	(Tuzigoot Red?)
Brown ware like Winona Brown	11	(Verde Brown?)
Salado Red (?)	8	(Verde Red?)
Salado White-on-red	1	(Gila White-on-red?)

NA 4621 (Figure 6) Two small caves above prehistoric irrigation ditch and farmlands.

Probably farm outlook. Ceramic patterns - 2 and 3. Dates - pre-1150 A.D.

NA 4622 (Figure 6) Two large caves above prehistoric ditch and farmlands. Larger of two formerly was completely walled up and exhibited one doorway. A disturbed extended burial (incomplete) was recovered from the cave according to the former owners of the property. Two low trashmounds occur in front of the larger cave.

Probably a combination dwelling and farm outlook. Ceramic patterns - 2, 3, 5, and 6. Dates - post 900 to 1250 A.D. Five sherds of Apache Plain Ware also recovered.

NA 4623 (same as NA 4609) error in field notes.

NA 4624 Rectangular compound of 33 rooms plus, on top of mesa, enclosing a court. Wall base composed of a few courses of flat lying limestone slabs over which river boulders were laid in mud mortar with rubble fill in center.

Compact defensive (?) compound containing quantities of Verde Red, perhaps erected by a group from the Salt River Valley. Ceramic pattern - 8. Dates - post-1325 A.D.

NA 4625 Small pueblo (A) on a butte with nearby one room structure (C), sherd area (B) and cleared area (D) 150 x 15 feet without pottery. Pueblo walls of rock and double faced, apparently rubble filled.

Small pueblo site with only dry farming possibilities. Ceramic patterns - 5 and 6. Dates - probably 1150 to 1250 A.D.

NA 4626 (Figure 5) Three pueblo units (A) on top of mesa totaling about 41 rooms, about a dozen terraces (C) which apparently were artificial bases for perishable house structures on the slope of the mesa, Casa Grande ball court (B), roasting pits (E), extended burials on mesa slopes and sherd areas (D and F) under caprock. Ball court

tested in 1948. (See Schroeder, 1949).

Large village. Ceramic patterns - 5 through 8. Dates - 1150 to 1400 A.D.

NA 4627 (Figure 9) Few petroglyphs on two large rocks along a trail on the west side of Beaver Creek. No culture associated.

NA 4628 (plates 8 and 9, and Figure 9) A large number of petroglyphs (A) on a small sandstone cliff, and boulder rooms (B) some distance to the north on the east side of Beaver Creek.

Boulder rooms, probably farm outlooks for NA 4626. Ceramic pattern at B - ? One Jeddito Black-on-yellow sherd recovered along with sherds of no pattern value. Dates - ? No culture associated at petroglyph site.

NA 4629 (Figure 7) Two stone outlined areas. One rectangular area with rounded corners outlined with a single row of rocks, placed 6 to 24 inches apart, exhibits an opening on the west. It is similar in shape to those of the Mayer, Arizona region. (See Figure 7 and Schroeder, 1954a). The other is an outline composed of a low cluster of rocks which forms a rectangle with an opening on the north end of the east side. A recess is situated on the north end of the west side. One-tenth of a mile to the east is another cluster of rocks, circular in shape, about 12 feet in diameter, without any opening and without pottery.

Possibly a farm outlook for a dry farming site down the slope. Ceramic patterns - 5 and 6. Dates - post-1150 to 1250 A.D.

NA 4630 (Figure 6) A cave containing several pueblo rooms and an opening that leads to the underground waters of Montezuma Well flowing

to the outlet.

Perhaps a ceremonial cave as the former owners report painted sticks (pahos?) from this cave. Ceramic pattern - 5. Dates - probably post-1150 A.D.

NA 4631 (Plate 1) Boulder-lined fields with boulder rooms on low terrace alongside Beaver Creek. Walls of rooms 3 courses high. Rooms about 10 x 12 feet with openings on west side. Ditches 2 feet wide outlined with rocks. Field subdivided by rocks into patches 5 to 14 feet wide and 8 to 24 feet long. Terraces on southeast portion of field 4 to 8 inches above one another.

Ceramic pattern - ? Dates - probably post-1150 A.D.

NA 4632 Outline of a few rooms on ridge overlooking farmlands alongside Beaver Creek near Montezuma Castle.

Probably a farm outlook for Montezuma Castle. Ceramic patterns - 6, 7, and 8. Dates - post-1250 to 1400 A.D.

NA 4633 Site of Fort Lincoln. Sherds recovered from the general area indicate refuse of a Hohokam occupation in this area along the Verde River. Ceramic patterns - 2 and 3. Dates - about 900 to about 1130 A.D.

NA 4634 - NA 4637 (See Schroeder, 1954a, sites around Mayer, Arizona).

NA 4638 (Figure 4) This site consists of four contiguous rooms in a line of which only a double row of flat lying sandstone slabs, one course high, remain. Apparently all the walls of this small pueblo have been robbed by historic settlers. A small cave shelter containing a few petroglyphs (Figure 9) is situated in the east wall of Red Wash immediately west and below the low mesa on which the site is located. A roasting pit (Plate 3) is evident in the low swale to the south of

the site. The south side of the mesa below the site exhibits several outcroppings of sandstone.

Aside from one sherd of Verde Brown, and 10 sherds of Tuzco Buff (?) a piece of abalone shell was recovered. Ceramic pattern - ? Dates - probably post-1150 A.D.

NA 4639 One boulder room (?) and several roasting pits at the southwest base of the hill containing Montezuma Well.

Ceramic pattern - ? Dates - probably post-1130 A.D. Many of the sherds could have washed down the slope of the hill from the pueblo above.

NA 4640 (Figure 3) Small pueblo of 6 rooms on top of a small butte with 3 dry-wall outlines around and against the caprock of the butte. No stream in vicinity.

Ceramic pattern - 5. Dates - post-1150 A.D.

NA 4641 Historic Apache site - about 1903. Aside from modern utensils the following were recovered: broken, shallow basin metate, plano-convex scraper and crude knife. Obscure depressions outlined with scattered stones, wikiup outlines, about 8 feet across are evident. Four Sinagua sherds and a small section of low wall indicate prehistoric occupation here. Wall of room apparently was robbed by Apache for use around the base of the wikiups.

NA 4642 (Figure 5) Two small cave shelters probably used in connection with farmland adjoining Beaver Creek a short distance to the west.

Ceramic patterns - 2 and 3. Date - about 900 to pre-1130 A.D. Ten sherds of Rimrock Plain were also recovered.

NA 4643 A Hohokam site, on the terrace above farmlands along Beaver Creek, containing a Casa Grande ball court, trashmounds, sherd areas (house areas) and rock piles.

Ceramic patterns - 1, 2, 3, and 5. Dates - pre-900 to 1150 A.D. (See Schroeder, 1951b).

NA 4644 Vague gravel outlines, on a low sandy terrace alongside a dry creek, and isolated rock clusters. Chert and obsidian chips only. No historic articles. No sherds. Yavapai?

NA 4645 (Figure 11) Two large pueblos on top of a ridge overlooking farmlands alongside Oak Creek. Possibly eastmost pueblo was 3 stories high in spots. Gila Polychrome and San Carlos Red-on-brown, not recorded elsewhere on the survey, occurred here.

Ceramic patterns - 5 and 8. Dates - post-1250 A.D.

A little over 1/2 mile south of this site, near Spring Creek, boulder outlines and a roasting pit are evident.

Ceramic patterns - 2 (?), 5, and 8. Date - ? Apparently occupation was more or less continuous in this area from pre-1130 A.D. on.

Sites previously recorded by the Museum of Northern Arizona from which additional sherd collections were made and included in Figure 1.

NA 1268 Large pueblo on mesa edge overlooking bottomlands of Oak Creek at Cornville. Appears to enclose a court. Ceramic pattern - 8. Dates - 1300 to 1400 A.D.

NA 1271 Small pueblos in two ledge cavities in west side of Montezuma Well, 2 rooms each. Ceramic patterns - 5 and 6. Dates - 1150 to 1250 A.D.

NA 1273 (Figure 6) Large pueblo on a hill, on the rim of Montezuma Well. Large detached open (?) structure is situated on south side. Beaver Creek flows below. Access from one side only. Ceramic patterns - 5 (?), 7, and 8. Dates - probably 1250 to 1400 A.D.

NA 1274 (Figure 6) Small pueblo on a hill, on the rim of Montezuma Well. Exposed on three sides. Beaver Creek flows below. Ceramic patterns - 5 and 6. Dates - 1150 to 1250 A.D.

NA 1275 Large pueblo on hill overlooking large expanse of bottomlands along Beaver Creek. Large detached open (?) structure (Plate 5) on south side. Ceramic patterns - 5 through 8. Dates - 1150 to 1400 A.D.

NA 2806 (Figure 11) Large pueblo and series of cavate dwellings on top of ridge overlooking bottomlands of Clear Creek. Boulder outlines of rooms near farmlands. Ceramic patterns - 5 through 8. Dates - 1150 to 1400 A.D.

NA 3527 A large Hohokam site exhibiting a ball court, several trash-mounds, irrigation ditch, boulder-lined fields and boulder outline (?). Ceramic patterns - 1 through 3. Dates - pre-900 to 1150 A.D.

APPENDIX II

Description of New Pottery Types

HOHOKAM PLAIN WARE

Beaver Creek Series

Distinguished from Gila Basin Series by its abundant, coarse sub-angular temper and smaller quantities of mica evident on the surface, and fragments are lacking.

Verde Brown (revised)

Similar to Gila Plain except as follows:

Date: pre-750 to 1400 A.D.

Temper: Abundant sub-angular quartz sand and occasional feldspar varying in size but mostly large, with occasional small black inclusions, occasional copper colored mica flake, and other rare miscellaneous inclusions. Mica fairly common to rare to absent, seemingly more common in pre-1125 A.D. associations. Surface finish: usually roughly smoothed though often rough, and temper usually evident. Evidence of coarse smoothing around jar necks on occasion. Not polished. Forms: jars only (?) Surface color: tends to range between warm gray and brown. Interiors occasionally blackened.

Verde Red (new type)

Similar to Verde Brown except for the addition of a red slip and a polished surface. Polishing occasionally occurs in patterns as on Gila Red. Slip not always definite, perhaps impacted. Bowls only form recorded. Dates pre-1300 to 1400 A.D. Resembles Salt Red in most respects except temper.

ALAMEDA BROWN WARE

Verde Series

Type: Tuzigoot Plain (new type)

Synonym: Has been confused with Verde Brown.

Named by: A. H. Schroeder for Tuzigoot Pueblo.

Type Specimen: Examples at Museum of Northern Arizona, AT8865, 8866.

Type Site: Tuzigoot Pueblo, N.A. 2733.

Stage: Pueblo III-IV

Time: 1150-1400.

Description: Constructed: paddle and anvil. Core color: gray, red, brown, often carbon impregnated. Fired: oxidizing atmosphere at a low temperature, probably below 700° C. Carbon not burned out. Outside surface of jars usually oxidized. Temper shape: irregular. Temper: Very fine (.1 mm) quartz sand, sometimes slag like. In this base are larger angular fragments, usually sparse or medium-abundant, of many different materials, which appear white, gray, tan, red, brown or black. Texture: usually a fine base with medium or coarse temper. Temper can only be seen clearly if the carbon is burned out at a temperature of 800° C. When this is done, root holes are evident in many of the sherds, showing that the clay source was probably a soil. Vessel walls: crumbling, 6 mm to 14 mm. Surface color: buff, reddish brown, brown, black. Surface finish: smooth, often polished. Surface texture: sometimes scraping marks, slightly bumpy. Forms: jars and bowls. Rims: IB3 jars, bowls, jars out flaring, IB 9.

Comparison: Verde Brown has quartz and feldspar temper.

Range: Middle Verde Valley, Arizona.

Remarks: Oxidizes buff to orange - many varieties could be selected based on temper, but of little apparent significance.

Cultural Association: Honanki and Tuzigoot Foci, Sinagua Branch.

Tuzigoot Red (revised)

As Tuzigoot Plain except for addition of red slip and polished surfaces. Smudging fairly common.

Tuzigoot Plain (variety)

As Tuzigoot Plain except for temper. Temper: fine angular quartz and occasional varying amounts of soft appearing dark fragments or feldspar. Rare black cinder sometimes evident.

Tuzigoot Red (variety)

As Tuzigoot Red except for temper. Temper: medium to fine quartz with small amounts of either feldspar or dark fragments. Rare piece of hornblende, black cinder or volcanic glass. Limestone fragment extremely rare. Sometimes bits of mica seen on surface.

Remarks: The fragment variety temper of Tuzigoot Red and Plain might well have been derived from breccia conglomerate which occurs in the valley. It consists of porous dark red, light red, brown, orange, yellow and gray volcanic fragments (tuff), gray rock (limestone?), and angular white quartzite cemented together with minute rounded quartz sand both clear and colored. Occasional numbers of large waterworn transparent quartz and bits of gray rock containing red fragments are also evident. These various materials do occur as temper in varying proportions and combinations in Tuzigoot Plain and Red. In some

vessels medium sized dark porous fragments predominate accompanied by small to no amounts of angular white rock and little to no medium to large quartz. Fragments are usually red though often are gray. Angular clear quartz is sometimes evident, possibly representing crushed fragments of large waterworn quartz broken in the process of grinding the temper.

The quartz variety temper has proportions in reverse to the above, quartz sand, angular or subangular, and occasional irregular fragments of other rock, fragments, and sometimes mica. Various integrades occur between these two extreme types.

Rim forms noted on jars of Tuzigoot Plain and Red include IB3, IB4, IC3, IB10, and IA10 (common) and on bowls include IA3 (common), IA4, IA10, IB1, and IB3.

Rio de Flag Series

Beaver Creek Red (variety of Sunset Red)

Temper: abundant medium-sized red cinders with occasional quantities of white fragments, volcanic glass or black cinders. Quartz rare. Otherwise similar to Sunset Red.

APACHE PLAIN WARE

Verde Series

Rimrock Plain (new type)

Constructed: coil-scrape. Fired: oxidising atmosphere. Temper: abundant small to fine clear angular quartz, visible on surface as pin points of light. Core: black to gray. Carbon streak: none. Texture core: gritty. Fracture: semi-shattering. Surface

finish: exterior very gritty. Jar neck indented with vertical finger nail or sharp tool impressions encircling neck as a band. Interior and exterior scraped or coarsely smoothed. Surface color: black to gray. Fire clouds: none. Forms: jars only (?) Rims: (?) Decoration: band or bands of fingernail or tooled indentions around neck. Range: only known from a few sherds in the Verde Valley. Remarks: considered to be Apache on the basis of decorative treatment around the neck and suggestion of a conical base on two sherds. Date - probably post-1750 A.D.

APPENDIX III

BURIAL PRACTICES OF CENTRAL ARIZONA

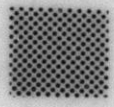
Quite often it becomes necessary to reanalyze certain traits of the prehistoric Indian groups of the Southwest. This is especially true, when new data become available which suggest that the distribution of the trait is different from that previously proposed or the time range is similarly affected. The purpose of this section is to reconsider the information we now have on one type of burial practice that occurs in central Arizona.

At present we recognize two broad types of burial customs among prehistoric groups within present Arizona - cremation and inhumation (burial without burning). Between 700 and 1100 A.D. cremation generally was restricted to the area enclosed by the Gila River on the south, the Mogollon Rim on the north and east and the mountains west of the California Desert on the west. Elsewhere inhumation was practiced (see map a). There are several variations in unburned burials, but here we are primarily concerned with burials wherein the body was laid out fully extended, rather than with the knees flexed up to the chest. Extended burials seem to appear rather suddenly in the eastern portion of the region outlined above (see map b), wherein cremation was common prior to 1070 A.D.

Burying the dead in an extended position first appeared as a general culture trait among the Sinagua of the Flagstaff area, around 1070 A.D., or possibly earlier. This method of disposing of the dead later spread southward into the Verde Valley, Bloody

Captions for maps

Distribution of Burial types in Arizona

Key: blank - cremation,  - flexed burial

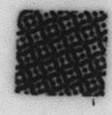
 - extended burial

Fig. a - prior to 1050 A.D.

Fig. b - between 1070 and 1150 A.D.

The western limits of flexed burials in southern Arizona are not definitely known. The eastern limits of extended burials may have been closer to the Little Colorado River in the northern portion of the area shown, by 1150 A.D. Since no inhumations have been recovered in western Arizona prior to 1070 A.D., cremation has been assumed.

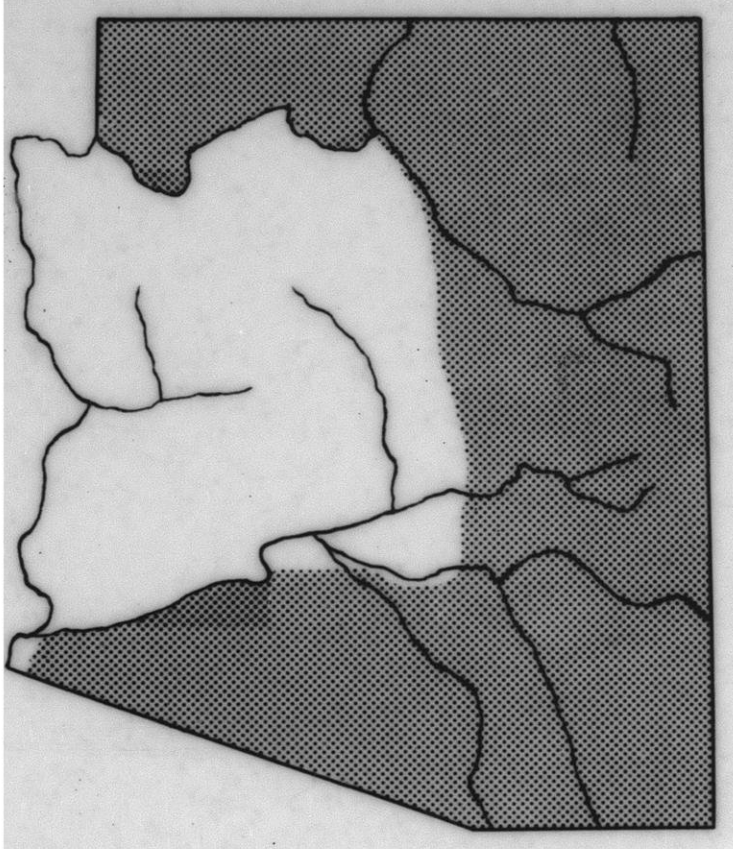


Fig. a

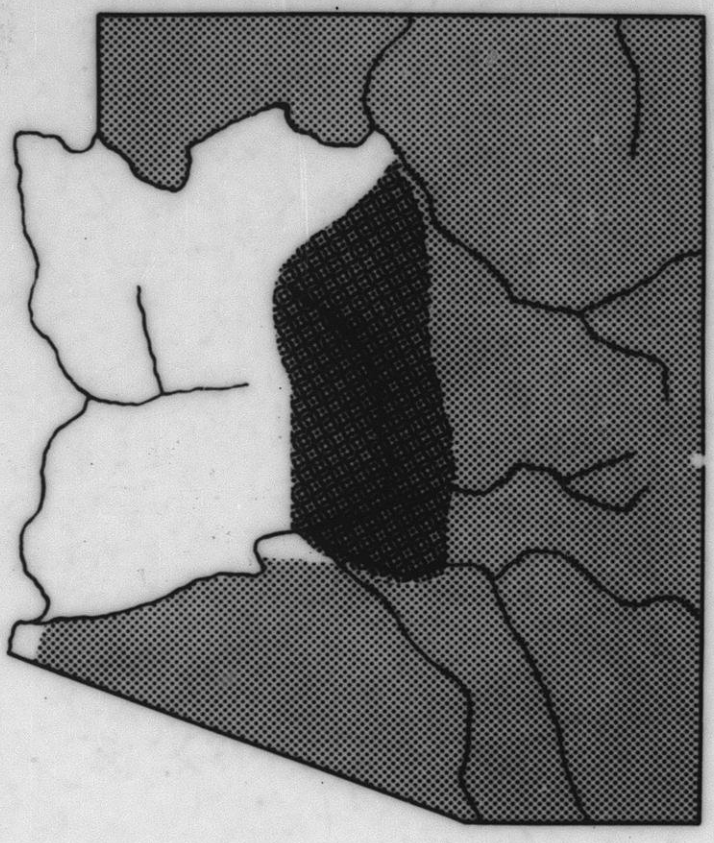


Fig. b

Basin, Roosevelt Basin, Salt River Valley and Gila Basin (Colton, 1946, p. 304; Schroeder, 1952c, pp. 320-321, 334).

In the past, it has been maintained by some that the extended burials of the Roosevelt Basin, which was considered to be the home area of the "Salado", were interred within the plazas or patios and rooms of the dwellings rather than in trash dumps and that the head was usually oriented to the east (Gladwin, 1935, p. 216; Haury, 1945, p. 64). This practice, if it holds true to form, would set the "Salado" burials apart from all other extended burials of the Sinagua, who usually interred their adult dead in trash, sometimes in patios, plazas or cemeteries and rarely in rooms, with the head pointed toward any cardinal point. Only children of the Sinagua were buried in the rooms. A review of the literature pertaining to the Roosevelt Basin indicates that the "Salado" method, as described above, is not as common as has been thought and, moreover, "Salado" burials do not occur in any regular pattern.

It is necessary to go into some detail to prove this point, but such discussion is essential if one is to establish whether or not extended "Salado" burials can be distinguished from any other. This review is especially needed since I have already cast doubts on the identification of the "Salado" in the Roosevelt Basin as described by Gladwin, as well as the postulated Salado move into the Gila Basin (Schroeder, 1952c, 1953a), also proposed by Gladwin (Gladwin, 1935, p. 212). Let us first consider the occurrence of this type of burial in southern Arizona, where cremation also was practised at the same time.

Extended inhumations, along with other new traits, first appear in the cremating Hohokam area of the Phoenix region about 1150 A.D. Three extended burials with heads to the east, without any offerings associated, were uncovered in trashmounds in the course of a survey in 1938 in the Salt River Valley. All were intrusive in trashmounds capped with Sacaton phase material (900-1150 A.D.). These burials undoubtedly belong to the Classic Period (1150 to 1400 A.D.) but cannot be assigned to either one of the two phases of this period because of the lack of any associated pottery (Schroeder, 1953d, p. 174).

The situation at Pueblo Grande, near Phoenix, is summarized by Hayden as follows (Hayden, J., 1949, personal communication): Away from the village compound, inhumations lay with heads to the east, north, northeast and west, accompanied by non-"Salado" redwares and/or degenerate Sacaton Red-on-buff Hohokam vessels (late Sacaton to early Soho phase, about 1150 A.D.). On the house mound within the compound, orientation was controlled by the direction of the wall along which the body was placed. Thus, some were north and south, some east and west. Heads were in either direction. These burials were accompanied by Salt Red vessels (not a "Salado" pottery type) of the late Classic Period. In a patio four burials with heads to the east were accompanied by Salt Red offerings. Burials were common around the shoulder of the mound. Turney also recorded one on top of the mound in the northwest corner with the head to the south and the body partly covered with a large stone slab (Turney, 1929, pp. 106-107).

Haury stated that inhumations at Los Muertos in the Salt River Valley were "customarily" laid with the heads to the east and that they were often under floors and plazas (Haury, 1945, pp. 44 and 50; Matthews, 1899-1900, pp. 216-217). Red-on-buff, polychrome, red and plain vessels accompanied these burials. Thomas J. Goodwin, who worked with Cushing at this site, said that burials were laid with the heads to the south (Turney, 1929, p. 87). Judging from the ruin plans of Los Muertos, the orientation of burials often was dictated by wall alignment, and that sequential interment of later burials, especially in courts, apparently depended on the alignment of the first burials (See Haury, 1945, for various ruin plans). Bandelier and Matthews stated that nearly all children were buried about the hearths of the floors (Bandelier, 1892, p. 450; Matthews, et al, 1893, pp. 148-150). No burials were reported in trashmounds at Los Muertos, yet at Casa Grande and in the Salt River Valley they do occur in such places. Though Haury mentions no cemetery, the owner of Los Muertos stated that the Indians must have buried their dead in rows as they were so thick that, in plowing, the skulls fell to the right and left (Turney, 1929, pp. 85-86). The picture of burial practices at Los Muertos is a varied one.

Others have reported varying practices in the Salt River Valley. Moorehead uncovered 3 out of 7 burials at Las Colinas (Kalfus Ruin) with bodies oriented east-west (Moorehead, 1906, p. 98). Turney reported 2 from Pueblo Viejo with heads oriented to the west. At Casa de Loma a cemetery was found north of the main building, and of nearly 200 pieces of pottery removed, 3 were Gila Polychrome and one was red-on-buff, the remainder apparently being plain or redware. Bodies at

the burial ground of La Ciudad were oriented to the west, east, and occasionally north. Pottery accompanied the majority of interments (Turney, 1929, pp. 77, 81-82,100).

Along the Gila River, Fewkes uncovered a few burials in the compound at Casa Grande National Monument. One, with the head to the east and accompanied by offerings, was in a room and one, without any offerings, was in a plaza. Orientation was not noted on the latter. In trenches put down in a trashmound east of Compound B, the remains of several skeletons were uncovered in an extended position, but information concerning orientation and offerings is lacking. Fewkes stated that, in general, skeletons were found in houses, plazas, and mounds and that those in plazas of Compound A and in rooms in the southwest angle were not accompanied by mortuary offerings. Almost all burials were extended. He remarked that no cemeteries were found (Fewkes, 1912a, pp. 93, 108, 111, 117, 118).

At Adamsville Gladwin noted extended burials lacking offerings with heads oriented to the east and one to the south. The latter was one found on charred timbers (ceiling?) which rested on a floor, perhaps not a true burial (Gladwin, 1928, p. 18).

Thus no definite pattern can be assigned to the burials of the Gila Basin other than that interment was extended, either in trash or within the dwelling area, offerings were often lacking, adults were oriented in various directions, and children were found buried under floors.

Reference is now made to the Sinagua burials in the Verde Valley where "Salado" pottery types are lacking. At Tuzigoot National Monument adult burials occurred mainly on the east and west slopes of

the hill and were extended in refuse, with north-south orientation, perhaps dictated by the slopes in which interment took place. Of 171 sub-floor burials, also mostly north-south, since they were usually placed along the east wall, all but three were of children. Of 9 burials found in a wide area of refuse, 7 had heads to the east and 2 to the west. Only 28 percent of the burials contained offerings, all of which were redware (Caywood and Spicer, 1935, pp. 95-98).

At Montezuma Well, a detached portion of Montezuma Castle National Monument, a burial ground in the flats below the hill containing the well was used for adults, and the majority of the burials were accompanied by redware offerings and tradeware from the Anasazi. Orientation was mainly north-south, with some lying east-west. Children, however, were buried adjacent to the small pueblo along the exterior wall. In this case it would have been impossible to inter them under the floors as the pueblo rested on bed-rock. Orientation here is northwest-southeast, dictated by the alignment of the pueblo wall*.

At Montezuma Castle the adults were buried in the fill of nearby caves and under ledges. Heads were either to the east or west, alignment being dictated by the ledge in which the bodies were placed. Child burials occurred under floors in the lower ruin, while in the Castle one floor had apparently been purposely raised to accommodate a child burial, and another child was placed outside the

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* Permission has been granted by the National Park Service for use of the file data referred to in this paper.

dwelling on a ledge. The former had its head to the west and the latter to the east.* Because of the fact that this was a multi-storied dwelling, and the floor either rested on a natural rock ledge or formed the ceiling for a room below, it was practically impossible to bury children under a floor. Thus again, local circumstances seem to have dictated the place and method of burial.

At Clear Creek Ruin, as well as at others in the Verde Valley where pot-hunters have taken their toll, adult burials occur in the rubbish, on the slopes of the hills on which the pueblos stand or in the flats below. Orientation varies according to the side of the hill in which the body was placed. Evidence left behind indicates that these were adult burials. Children apparently were usually buried under the floors of the dwellings as at Tuzigoot and the lower ruin at Montezuma Castle. The majority of pot-hunters usually avoid digging in the collapsed rooms, where much stone must be removed, and this may account for their finding few child burials.

The Verde Valley burials reveal no pattern of orientation other than that dictated by the slopes or ledges in which interment took place or the walls along which children were buried. Bodies were laid down in extended position, offerings were often lacking, adult burials occurred in a variety of locations either in burial grounds, patios, or trash on the slopes of hills, and children were buried under the floor or adjacent to the pueblo.

Attention is now directed to the Roosevelt Basin, the

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* Jackson and Van Valkenburgh, 1954 and National Park Service files at Montezuma Castle.

"Salado" area. Schmidt pointed out that burials around the shores of Roosevelt Lake occurred in trashmounds and were oriented east-west (Schmidt, 1926, p. 641). These contained "onionware" (Gila Red) and black-on-white pottery offerings (Roosevelt phase, 1150 to 1300 A.D.).* Gladwin, however, stated that Roosevelt phase burials were not in rubbish, but in cemeteries in compound enclosures (Gladwin, 1935, p. 216). Farther south between Miami and Superior (at Togetsoge, a Gila Polychrome site of the Middle Gila phase, about 1300 A.D. plus), Schmidt reported child burials under floors and adult burials in a common burial ground. A few women were found buried under the floors. Bodies were extended and oriented north-south, never east-west (Schmidt, 1926, pp. 638-639). Haury remarked that at Besh-ba-gowah, near Globe, dead were interred below floors or in small court enclosures (Haury, 1945, p. 64). Vickrey reported that the dead of Besh-ba-gowah were not oriented in any particular direction, though the majority did have the heads to the southeast and east. She further noted that the most common place of burial was under patio floors or open courts and that burials in earlier patios were found beneath rooms built later (Vickrey, 1939, p. 21). Pierson reported three extended burials, each oriented in a different direction, in the lower ruin at Tonto National Monument (Pierson, 1952, p. 127).

Summarising the Roosevelt Basin region according to Schmidt, we find extended burial with east-west orientation in a pre-polychrome

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* Schmidt, 1928, pp. 300-302; Gladwin, 1935, p. 213, estimated that the Roosevelt phase ranged from 1100 to 1250 A.D.

site and north-south in a later polychrome site. In the former phase, burials were in trash, and in the latter, adults were buried in cemeteries and children under house floors. Against this we have Gladwin's statement that throughout the entire time interment was made under floors, in court enclosures, and in cemeteries, but not in trashmounds. No consistent orientation to the east is evident.

An additional trait should be noted to complete the survey of extended burials in central and southern Arizona. Occasionally, at Montezuma Well, Tuzigoot, and the lower ruin at Montezuma Castle graves have been found which had been dug down and then undercut to one side. Slabs had been placed on the face of the undercut, in which the body had been placed, to seal it (National Park Service files at Montezuma Well; Caywood and Spicer, 1935, pp. 95-97; Jackson and Van Valkenburgh, 1954). Hayden reported a few burials at Pueblo Grande where the burial pit was dug alongside a massive wall and then a partial undercut was made into the wall, in which cavity the body was placed. He noted a similar find at the University Ruin in Tucson. Matthews reported a similar practice at Los Muertos (Hayden, 1941, pp. 134-135; Turney, 1929, p. 16, quoting Matthews). Russell observed that the Pimas in historic times dug an undercut grave, sealing the undercut with timbers instead of a slab or stone (Russell, 1908, p. 193). No undercut burials have been reported as yet from the Roosevelt Basin. Since such burials are not too common in the above areas, perhaps they may yet turn up in the Roosevelt Basin.

Though there is much to be desired regarding our knowledge of the burial practices of the Verde, lower Salt, Roosevelt, and middle Gila Valleys, there is nothing to indicate that the burial practices of the "Salado" area (Roosevelt Basin) differed from the Sinagua method (Verde Valley). A close agreement between the middle Verde Valley and Salt River Valley customs is noted in burials. Perhaps this is due to recent detailed work in these two areas. Future work may reveal that all three of the above mentioned regions may contain more closely related erratic burial practices than present evidence would indicate. It appears that the burial practices of the "Salado" in the Roosevelt Basin were actually as haphazard as those of the Verde Valley and middle Gila River. The disagreement between Schmidt's and Gladwin's observations seems to indicate such a possibility.

It is known that social and religious practices as well as available burial areas often have a bearing on the method of interment, and this may account for some of the variations noted. For example, the Pima in historic times cremated warriors in the field rather than interring them unburned at home (Idem., p. 194). Further, the Pima medicine men were said to have been buried in a sitting position or extended on the stomach (Fewkes, 1912a, footnote, p. 118; Woodward, 1949, p. 147; Brown, J. R., 1869, p. 113). Fewkes reported an extended burial on a floor in a room at Awatovi, quite different from the common Hopi practice of interring in a seated position in a burial ground (Fewkes, 1896, pp. 572-573; Thompson in Putnam, 1879, p. 323; Beaglehole, 1935, pp. 11-12). Probably a host of such

varying practices could be cited to demonstrate the effects of social or religious customs on burials.

Undoubtedly certain religious beliefs prompted the prehistoric people of central and southern Arizona to inter their children in or close to their home since this was the general practice. However, it appears that adults were buried either in trash, caves where available, cemeteries or in courtyards, their orientation varying according to local circumstances. Present evidence suggests that the people of the Roosevelt Basin had the same extended burial pattern as other groups in central Arizona, though there is some indication of an east-west alignment pattern in the pre-polychrome phase.

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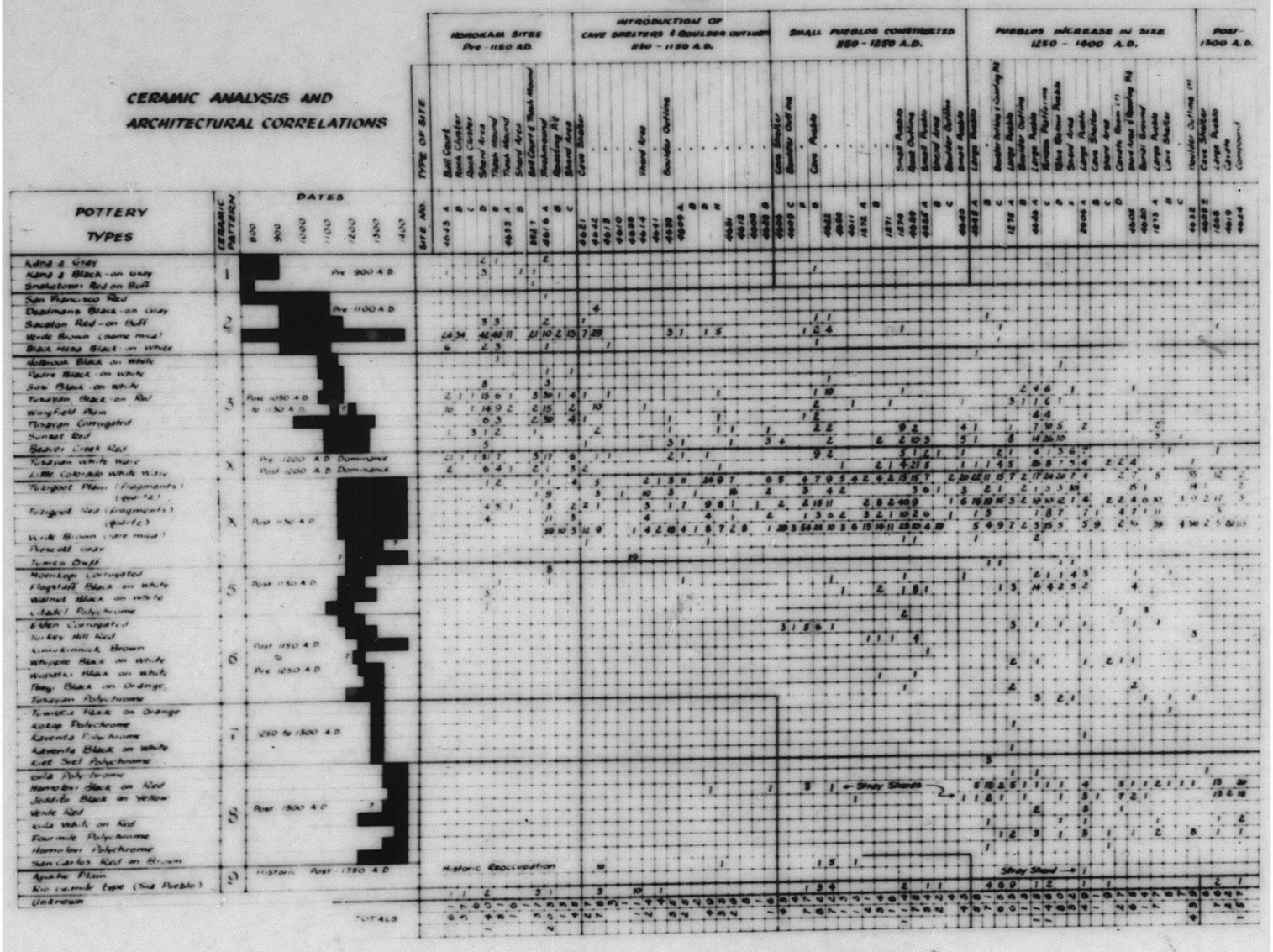


Fig. 1 Ceramic Analysis and Architectural Correlations

		POTTERY TYPE		TEMPER										REMARKS
				Quarts	Feldspar	Mica	Red fragments	Black cinders	Light fragments	Red cinders	Volcanic sand	White fragments		Key to temper x - dominant s - some o - occasional r - rare v - varies
HOHOKAM PLAIN WARE	Beaver Creek Series	Verde Brown		x	s	v	r	r						Quarts and feldspar dominant
		Verde Red		x	s	o	r	r						
ALAMEDA BROWN WARE	Verde Series	Tuzigoot Plain	(a)	r			o		x					Quarts and/or light fragments dominant
			(b)	x			o		s					
		Tuzigoot Red	(a)	r			o	o	x	s	s	o		
			(b)	x		r	r	o	r					
	Rio de Flag Series	Beaver Creek Red	(a)					s		x	o			Red cinders dominant
			(b)					o	o	x	o			
		Sunset Red	(a)					x			r			Black cinders dominant
			(b)				o	x	o	o	s	r		

Figure 2 - Temper variations in plain and redwares

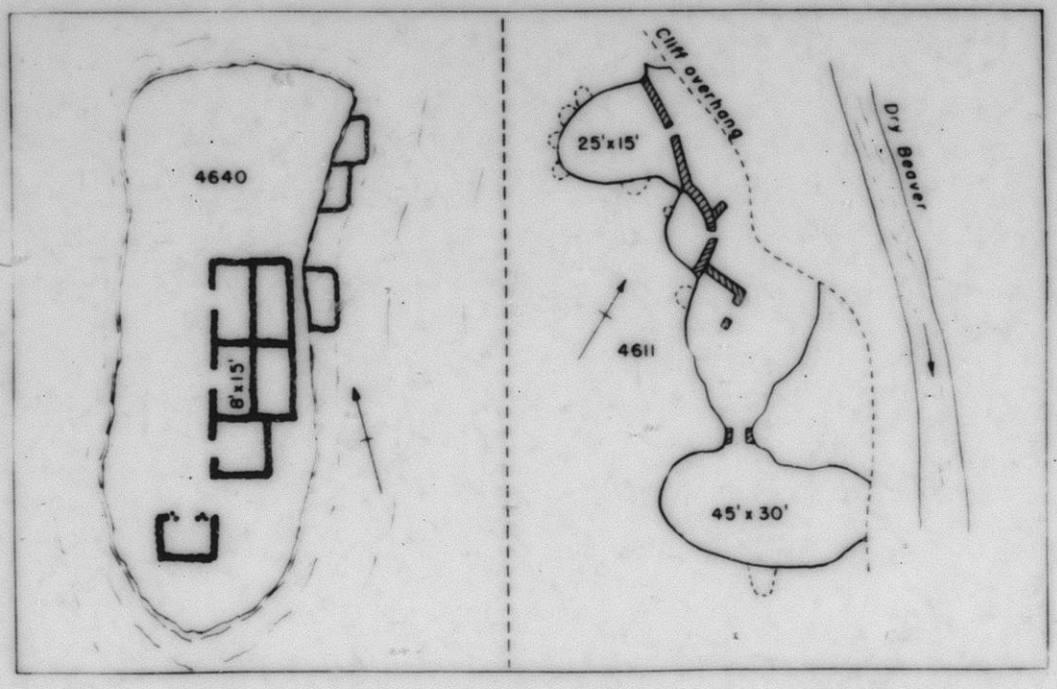


Fig. 3 Sketch plans of small pueblo sites, on butte and in cave (NA 4640 and NA 4611)

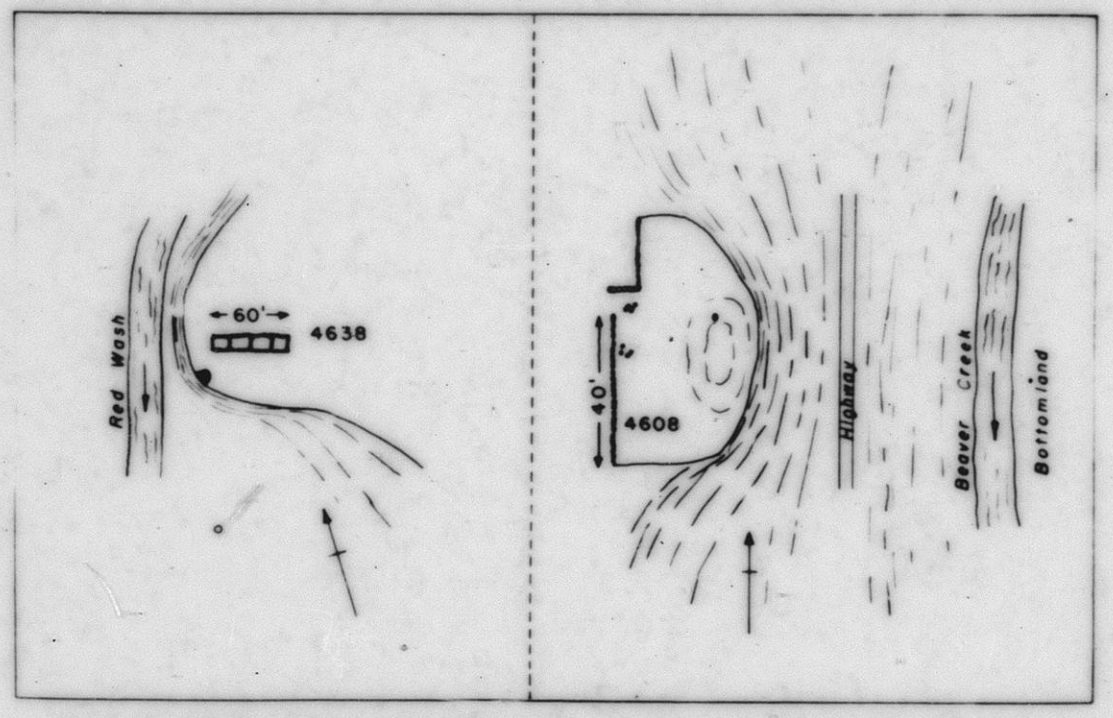


Fig. 4 Sketch plans of small pueblo site on terrace and of boulder outlook (NA 4638 and NA 4608)

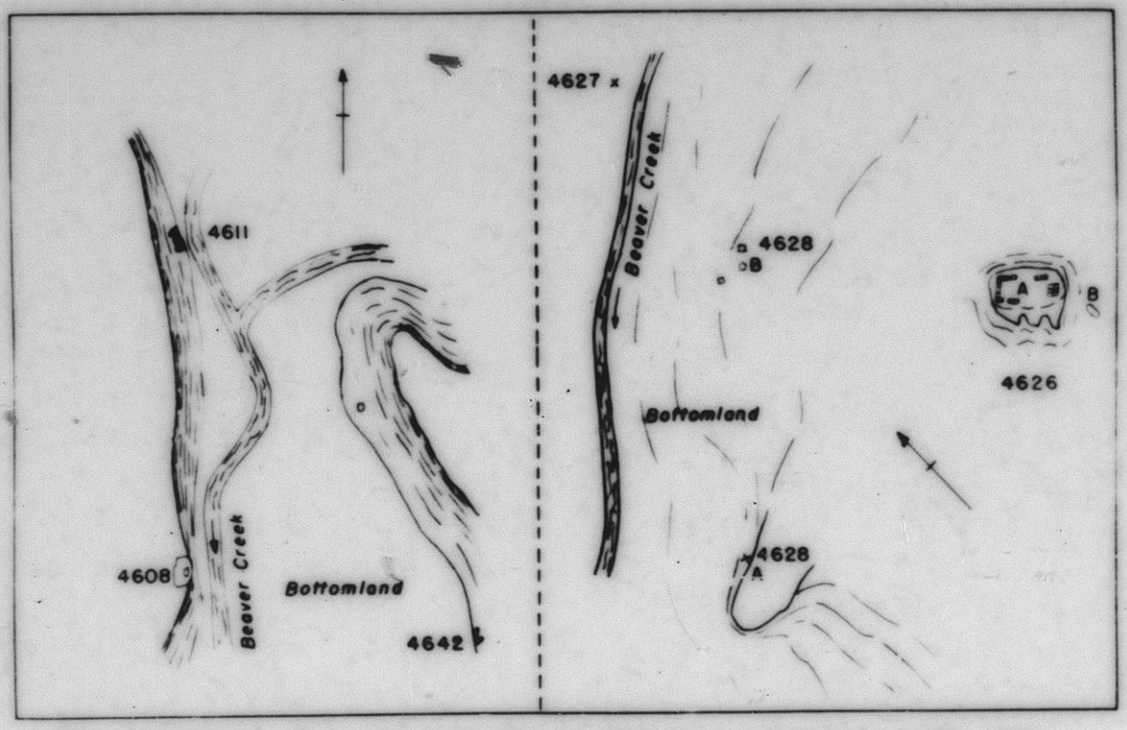


Fig. 5 Sketch plan of small cave pueblo site and large pueblo site (NA 4611 and NA 4626)

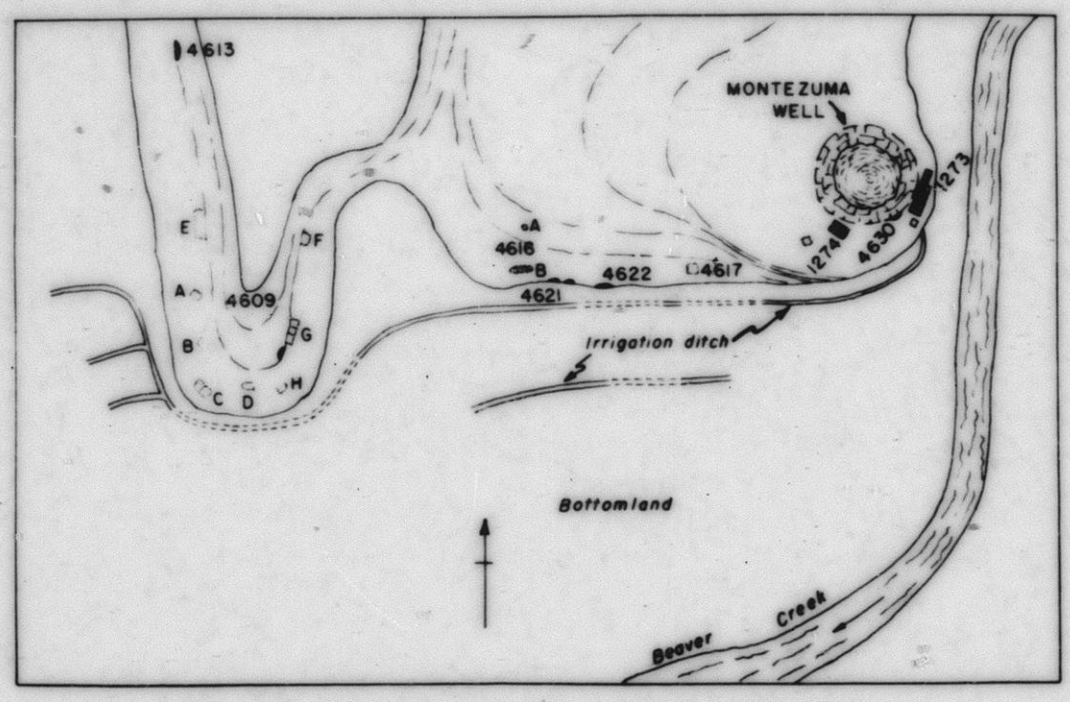


Fig. 6 Sketch plan of sites at Montezuma Well

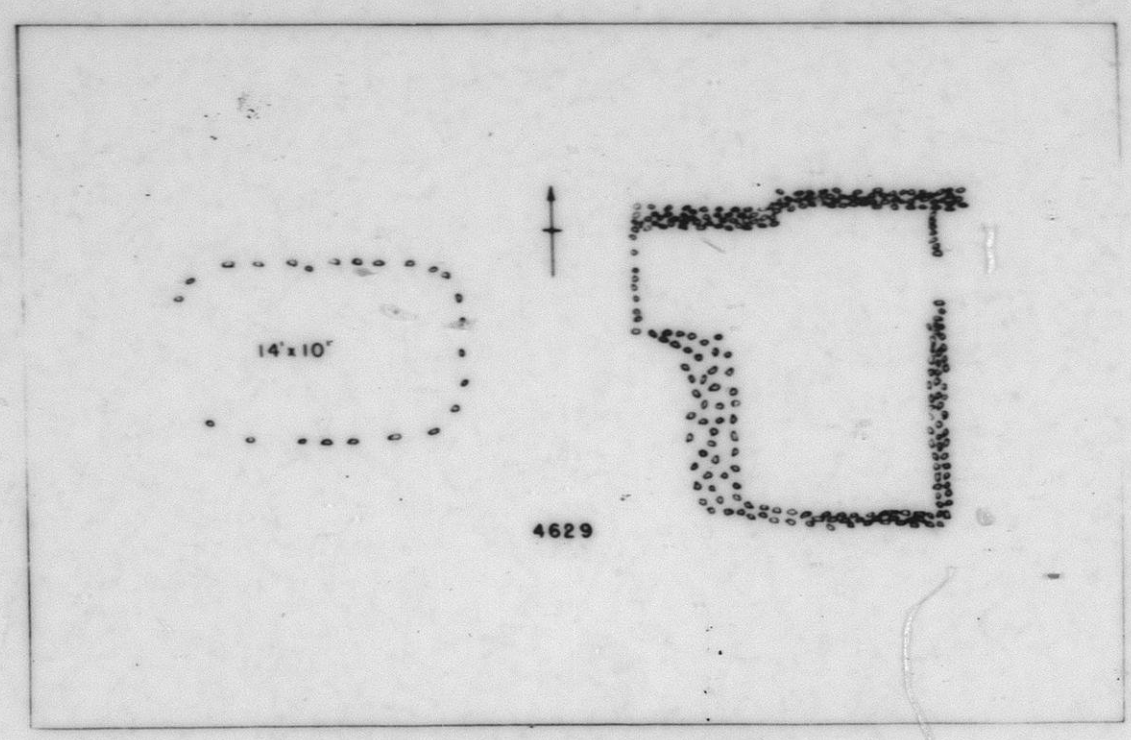


Fig. 7 Sketch plan of NA 4629

	SITE	In elevated cave or ledge	On butte, point or ridge	Plain door	T-Door	Small door	Detached rooms	Interior plaza	L-shaped pueblo	Defense wall	Sealed door	Boulder rooms	Site on stream	Site on desert	Irrigation ditch	Jacal terrace
Small Pueblo	NA 1271	x										?	x		x	
	1272	x										?	x		x	
	1274		x									?	x		x	
	3209	x									x			x		
	4606	x										?	x			
	4611	x		x									x			
	4622	x										?	x		x	
	4625		x									x		x		
	4630	x		x								?	x		x	
	4640		x											x		
Large Pueblo	1268		x				x	x					x			
	1273		x									?	x		x	
	1275		x				x					x	x		x	
	2806		x	x	x	x	x			x		x	x			
	4624		x					x					x			
	4626		x					x				x	x		x	x
	4645		x						x				x			

TRAIT

Figure 8

Post-1125 A.D. Architectural Traits

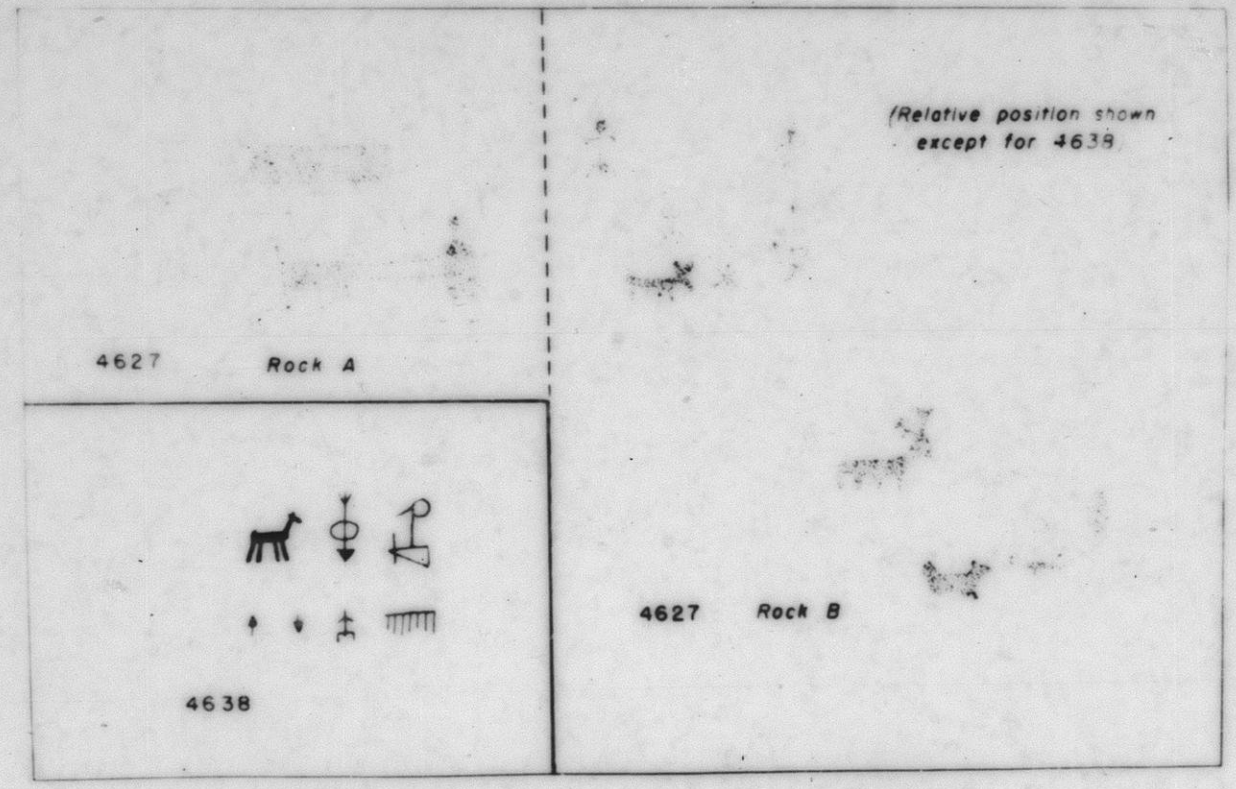


Fig. 9 Petroglyphs at NA 4627 and NA 4638

ARTIFACT	SITE	4616	4621	4639	4609A	4609H	4630	4614	4641	4610	4638	4611	4642	4622	4645A	1273A	4626	4625A	1275A	4626A	4626C	2806A	4620	4619	1268	4624	REMARKS
Anvil, stone									x																		
Metate, trough				x								x	x		x					x		x		x		all of malpais
, basin									x				x														
, slab										x																	
Mano, shaped				1							1		1		1				1	1		1			1		(1) - uniface
, unshaped					2												2								1	1	(2) - biface
Hammerstone										x			x														
Pottery anvil																			x								mushroom shaped
Scraper																		x									
Axe, 3/4 groove																	x										
Point, side-notch					x								x														
, Cohonina													x														
Drill, fragment								x																			base missing
Knife, percussion		x																									of jasper
Galena, unworked																							x				
Abalone shell											x		x														
Gypsum																x											
Other shell															x												
Salt																x											
Worked sherd																					x						
Spindle whorl																x											spherical
Mat, twilled weave													x														
Textile							r						x														(r) - reported
Sandal, twill							r						x														
Painted reeds - Pahos?							r																				
Paddle, wood							r																				
Quids - Yucca			x										x	x										x			
Corn			x				x						x	x	x									x		x	
Squash													x				x										
Bean							r							x													
Walnut, black			x										x	x	x												

Figure 10

Occurence of artifacts recovered

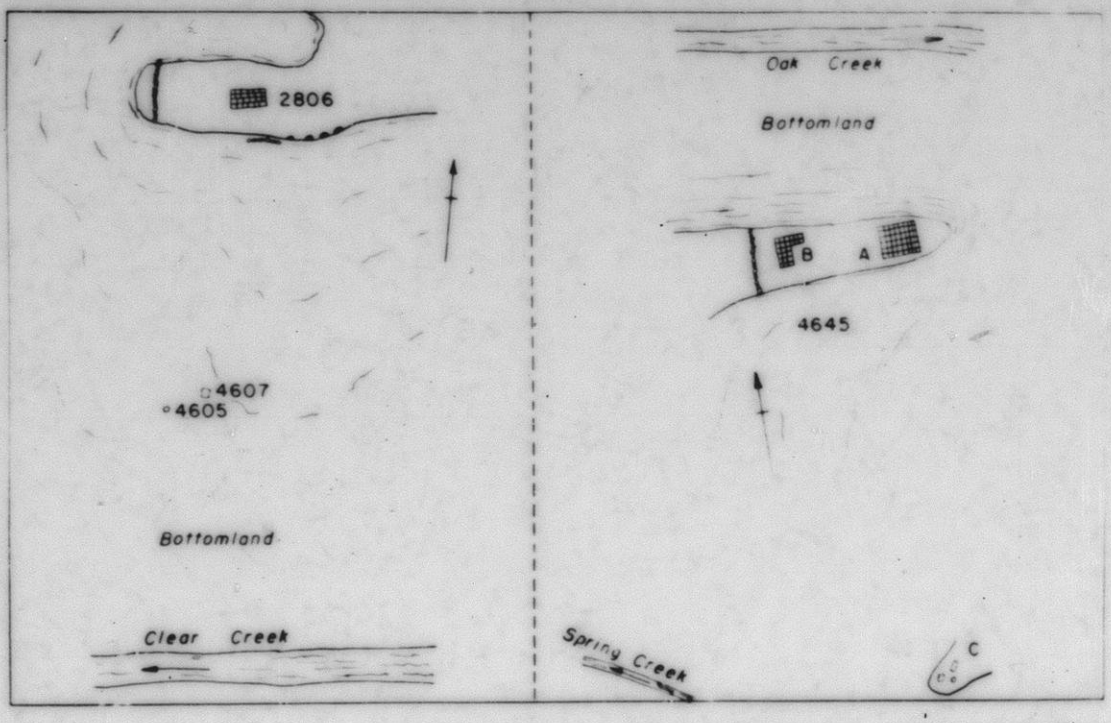


Fig. 11 Sketch plans of large pueblo sites (NA 2806 and NA 4645)

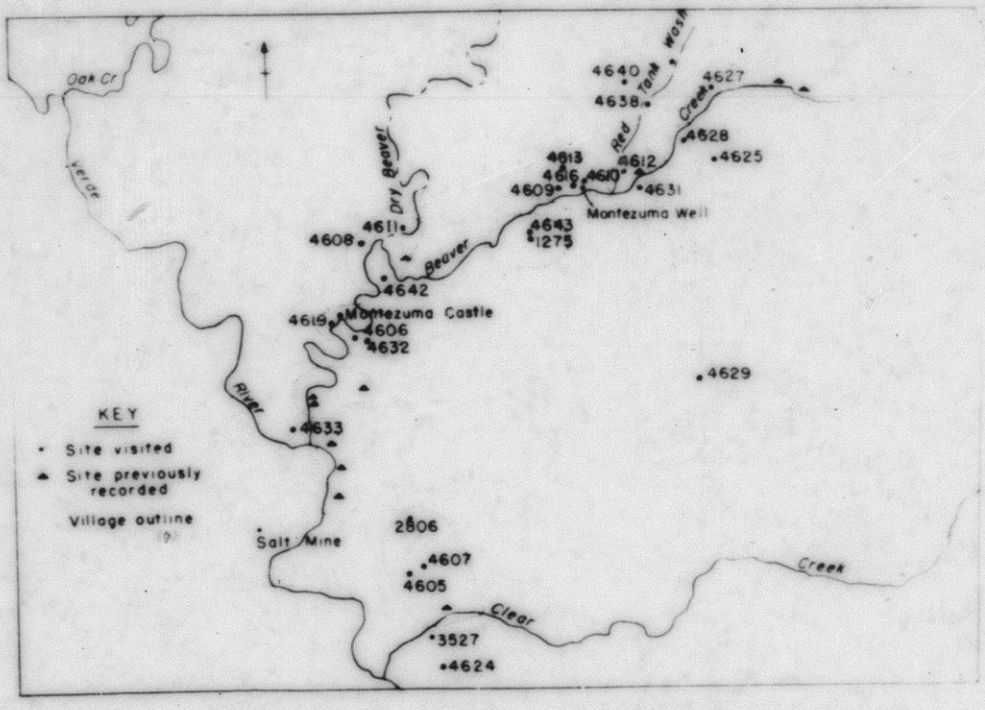


Fig. 12 Map of sites mainly along Beaver Creek drainage

POTTERY TYPES AND DATES	PHASES	Gila Butte 700-800	Santa Cruz 800-900	Sacaton 900-1150	Soho 1150-1300	Civano 1300-1400	Totals
White Mound B/W (pre-750)		2	1				3
Kana-a B/W (700-900)		2	5	2			9
Deadmans B/R (800-1060)		1	4	2			7
Deadmans B/G (700-1100)		1	5	7			13
Medicine B/R (800-1050)		1	1				2
Black Mesa B/W (900-1100)		1***	2	7			10
Tusayan B/R (1050-1150)		1***	1	6			8
Roosevelt B/W (1200-1300)**			1	4	5		10
San Carlos R/Br (1300-1400)					1		1
Salado Red (1150-1350)					1		1
Gila W/R (1200-1400)						1	1
Pinedale B/W (1250-1325)					2		2
St. Johns Poly. (1100-1200)					1		1
Pinedale B/R (1200-1300)					5		5
Pinedale Poly. (1250-1325)				1*	1		2
Fourmile Poly. (1350-1400)					1***	2	3
Jeddito B/Y (1325-1600)			1*				1
Mimbres Boldface B/W (900-1000)			1				1
Tanque Verde R/Br (1200-1400)					1	23	24

*probably stray sherds

**probably dates about 1125 to 1250

***probably due to plane of contact between two phases

Figure 13 - Association of Intrusives in the Phoenix Area (with current dating shown)

Figure 14

TRAIT LIST OF HOHOKAM AND SINAGUA BY PERIODS

Key

Basic - Traits basic to the Hohokam and Sinagua

A	Anasazi Trait
H	Hohokam Trait
S	Sinagua Trait
M	Mogollon Trait
North	Trait from north (south, etc.)
x	Present
r	Rare
-	Absent or Unknown
Blank	Unknown
-----	Traits introduced to the Sinagua by the Hohokam
.....	Traits introduced to the Hohokam by the Sinagua

Sources on Hohokam

Gladwin, et al, 1937
Schroeder, 1940
Haury, 1945

Sources on Sinagua

Colton, 1939
Colton, 1946

Culture	PIONEER PERIOD		SINAGUA	HOHOKAM	SINAGUA	SINAGUA	VERDE VALLEY	GILA-SALT VALLEYS
Time	Pre-700 A.D.		Pre-1070 A.D.	900-1150 A.D.	1070-1120 A.D.	Post-1120 A.D.	Post-1125 A.D.	Post-1150 A.D.
TRAITS								
ARCHITECTURE								
Timbered dwelling	x	Basic	x	x	x	-	-	x
Jacal, square	x	Basic	x	-	-			
rectangular	-		-	south H x----------x				x
Post holes	4	Basic	4	south H 2----------2				2
Firepit, central	-		x north	-	-			
near entry	x south		-	H x----------x				x
Floor depth	1-2'	Basic	1-3'	½-1½'	1-3'			½'
Floor size	15'	Basic	14'	10x22	12x25			
Ramp, inclined	x	Basic	x	-	x			
level	x		-	x	-			
step	-		-	H x----------x				
Entry to east	-		-	-	-			
Alcove	-		-	-	x A			
Roof, flat	x	Basic	x					
gabled	-		-	south H x----------x				x
Wall posts	-		-	H x----------x				
Stone-lined pit-dwelling	-		-		x A			
Pit-house, rectangular					x			
Post holes					0-?			
Firepit, off center					to east			
circular					x			
slab-lined					x			
Floor, depth					4'			
Roof, flat					x			
Entry, hatch					x A			
Ventilator, on east					x A			
Deflector					x A			
Posts in masonry walls					x A or M			
Floor cist					x			
Masonry walled surface house	-		-			A x.....x.....x		
Small unit						A x.....x.....x		
Large unit						A x.....x.....x		
Contiguous rooms						A x.....x.....x		
Wall, mud and rock						A x.....x.....x		
mud and post						r north x		
mud						south x		
Wall niche						x.....x		
Entry, side						A x.....x.....x		
T-door						A x.....x.....x		
hatch						A x.....x		
Roof supports						0 0-2		0
Firepit, circular, clay						x x		x
rectangular, slab						x		
Floor cits, pit						r		
jar						r		
Two level floor						x		

Culture	PIONEER PERIOD	SINAGUA	HOHOKAM	SINAGUA	SINAGUA	VERDE VALLEY	GILA-SALT VALLEYS
Time	Pre-700 A.D.	Pre-1070 A.D.	900-1150 A.D.	1070-1120 A.D.	Post-1120 A.D.	Post-1125 A.D.	Post-1150 A.D.
TRAITS							
OTHER FEATURES							
Roasting pit	x	-	x	-	-	x	
Ballcourt, Snaketown	-	-	south H x	-	-	-	-
Casa Grande	-	-	south H x----------x		-	-	-?
Trashmound	-	-	south H x----------x		-	-	x
Irrigation, terrace	-	-	south H x	-	-	x	x
bottomland	-	-	-	-	-	x	-
Cavate dwelling	-	-	-	-	A x.....x		-
Ceremonial cave	-	-	-	-	-?.....x.....x		
Housemound	-	-	-	-	-	-	x south
Courtyard dwelling	-	-	-	-	x?	x	x
Compound wall, house	-	-	x	-	x?	x	x
village	-	-	-	-	-	south x rare, late	x late
Compact dwelling	-	-	-	-	-	x late	x late
Multistoried	-	-	-	-	x	x	r (big house)
DISPOSAL OF DEAD							
Cremation, scattered ashes	?	Basic ?	-	-	-	-	-
urn	-	-	south H x----------x		-	-	x
in trash	-	-	H x----------x		-	-	x
in cemetery	-	-	H x----------x		-	-	x
Burial, extended	-	-	-	x S	x.....x	x.....x	x
in trash				x S	x.....x	x.....x	x
in cemetery				-		x	x
sub-floor, child					A x.....x	x.....x	x
adult						r	
slab covered						x	
pole covered					S x.....x		
plain pit				x S	x.....x	x.....x	x
in cist						x	
recessed chamber						x.....x	x
face painted						x	
Burial, flexed, intrusive				x A			x east
PHYSICAL TRAITS							
Skull, deformed, occipital				x S	x.....x	x.....x	x
undeformed			x?	x	x	x	x
brachycephalic				x	x	x	x
dolicocephalic				x	x	x	x
mesocephalic							
ANIMALS, DOMESTIC							
Dog	?	Basic x	x	x	x		
Parrot	-	-			x	x?	
Turkey	-	-	x		x	x	

Culture	PIONEER PERIOD	SINAGUA	HOHOKAM	SINAGUA	SINAGUA	VERDE VALLEY	GILA-SALT VALLEYS
Time	Pre-700 A.D.	Pre-1070 A.D.	900-1150 A.D.	1070-1120 A.D.	Post-1120 A.D.	Post-1125 A.D.	Post-1150 A.D.
TRAITS							
WOOD							
Arrow, foreshaft	-	-			x	x	x
shaft					x	x	x
point					x		
Bow	-	-			x	x	
Cane cigarette	-	-				x	x
with sash							x
Carved hand	-	-			x		
Ceremonial stick, hoof	-	-			x		
hand					x		
Ceremonial wand	-	-			x		
Corncob on stick	-	-			x		
Cradleboard	-	-			A x		
Digging stick	-	-		x	x		
Fire hearth	-	-			x		
drill					x		
Kachina	-	-					A x
Knife handle	-	-					x
Ladle	-	-			x		
Mortar	-	-				x	
Paddle	-	-	x			x	x
Paho, effigy	-	-					x
peeled stick						x	x
bow, notched						x	
no notches						x	
painted stick						x	x
roundel							x
twig							x
crook							x
Spatula	-	-	x				
Spindle whorl	-	-			x		
Spindle stick	-	-			x	x	
Weaving baton	-	-			x		
Weaving stick	-	-			x		
BONE ORNAMENTS							
Bead, disc	-	-				x	
cylinder	-	-				x	
Painted bone	-	-	x				
Ring	-	-	x				
Tube, incised	-	-	x				
carved			x				

Culture	PIONEER PERIOD	SINAGUA	HOHOKAM	SINAGUA	SINAGUA	VERDE VALLEY	GILA-SALT VALLEYS
Time	Pre-700 A.D.	Pre-1070 A.D.	900-1150 A.D.	1070-1120 A.D.	Post-1120 A.D.	Post-1125 A.D.	Post-1150 A.D.
TRAITS							
BONE IMPLEMENTS							
Awl, splinter	? Basic?	x	x	x	x	x	x
unmodified joint			x	x	x	x	
modified joint			x			x	
long			x				
short			x	x	x	x	
Chisel				x	x		
Dagger			x	x			
Dice					x		
Disc, perforated						x	
Flaker							x
Needle				x	x		
Notched bone (rasp)						x	
Spatula			x	x	x		
Tube, plain			x	x	x		
Whistle				x	x	x	
SHELL							
Bead, disc	x south	-	x----------x		x	x	x
cylinder			H x----------x				
bi-lobed			H x----------x		x		
whole	x Basic	x					
Bracelet, plain	x Basic	x	x----------x		x	x	x
carved			south H x				
Needle			H x				
Pendant, plain	x south		x----------x		x	x	x
effigy	x south		x----------x		x	x	x
Ring, glycymeris	x south		x----------x		x	x	x
conus							x
Scraper							x
Tinkler				x A ?	x		x
Trumpet			H x				x
Technique, carved	x south		x----------x		x	x	x
etched			south H x				
inlayed			-				x
incised			south H x----------x		x		
overlay			south H x----------x		x	x	x
painted			south H x----------x		x		x
paint-filled							x
MISCELLANEOUS							
Copper bell			south H x----------x		x		
Dressed leather					x		

Culture	PIONEER PERIOD	SINAGUA	HOHOKAM	SINAGUA	SINAGUA	VERDE VALLEY	GILA-SALT VALLEYS
Time	Pre-700 A.D.	Pre-1070 A.D.	900-1150 A.D.	1070-1120 A.D.	Post-1120 A.D.	Post-1125 A.D.	Post-1150 A.D.
TRAITS							
FIBER							
Cordage, cotton, yarn	-	-	south H x				x
S twist, 2 ply			x				
Z twist, 2 ply				x			
3 ply			x				
yellow							x
brown			x				
blue							x
black							x
white							x
red							x
Weave, plain	-	-	x----------x		x	x	x
twilled, 2/2			x				x
weft-warp, open			south H x			x	
Cordage, fiber	-	-		x		x	
Z twist, 2 ply		-		x		x	
3 ply				x		x	
S twist, 2 ply				x		x	
3 ply				x			
braided, 3 ply				x			
4 ply						x	
Cordage, feather	-	-			x		
Cordage, human hair	-	-		x		x	
Knot, fiber, square	-	-		x		x	
slip						x	
overhand				x		x	
hitch				x			
Matting, twill, 2/2	-	-	x		x	x	x
3/3	-	-		x	x	x	
Netting	-	-				x	
Pot rest (ring)	-	-				x	
Sandal, twilled	-	-	x	x	x	x	
wickerwork	-	-			x		
Basketry, coiled	-	-	x	x	x	x	x
1 rod & bundle					x		
2 rod			x				
2 rod & bundle				x	x	x	
2 rod & split rod					x		
3 rod					x	x	x
large bundle						x	
Basketry, twined	-	-				x	
Basketry, twilled	-	-			x		
Basketry, painted	-	-			x	x	x

Culture	PIONEER PERIOD	SINAGUA	HOHOKAM	SINAGUA	SINAGUA	VERDE VALLEY	GILA-SALT VALLEYS
Time	Pre-700 A.D.	Pre-1070 A.D.	900-1150 A.D.	1070-1120 A.D.	Post-1120 A.D.	Post-1125 A.D.	Post-1150 A.D.
TRAITS							
STONE, GROUND AND PECKED							
Adze							x
Anvil			x			?	
mushroom (pottery)		x	x	x	x	x	
Arrow smoother, single groove		x north		x north	x.....x		x
multiple							x
Axe, single bit, 3/4 groove	x Basic	x	x	x	x	x	x
full groove			A x	x	x	x	
double bit, 3/4 groove			south H x			x	x
full groove						x north?	
double groove						x	
ridges beside groove			H x				
Ball			x-----x		x	x	x
Bowl	x south		x-----?-----x				
Carved stone	?		south H x			x	x
Crusher			?				
Cylinder, basalt, plain					x.....x		
carved			south H x-----x		x	x	x?
smoothed					S x		
Dipper			x				
Disc, unperforated			H x-----?-----x				x
barrel-shaped			x				
Effigy (vessel or other)	x south		south H x-----x		x		x
Flesher			x			x	
Hammerstone	x Basic	x	x	x	x	x	x
Hoe	? basic?	x	x	x	x	x	x
Incised, stone	x		x				
slate	x						
Jar cover					x	x	x
Mano, rectangular	x Basic	x	x	x	x	x	x
1-surface	x Basic	x	x	x	x	x	x
finger groove				x north	x.....x		
2-surface						x	
Circular, plain		x	x	x	x	x	x
grooved			x			x	x
"1-hand"	x Basic	x	x	x	x		
"2-hand"		x north	x	x	x		
Maul, 3/4 groove			x		x	x	
full groove						x	
Metate, full trough	x Basic	x	x	x	x	x	x
one end closed				x north	x		
scoop-shaped trough						x west?	
basin		r			x	x	
slab		r	x	x	x	x	
Miniature axe			H x			x	
metate						x	
Mirro, mosaic			south H x				

Culture	PIONEER PERIOD		SINAGUA	HOHOKAM	SINAGUA	SINAGUA	VERDE VALLEY	GILA-SALT VALLEYS
Time	Pre-700 A.D.		Pre-1070 A.D.	900-1150 A.D.	1070-1120 A.D.	Post-1120 A.D.	Post-1125 A.D.	Post-1150 A.D.
TRAITS								
STONE, GROUND AND PECKED (cont'd)								
Mortar, bed rock							x west	
portable	x	Basic	x	x			x	
paint				H x		x	x	x
in metate							x	
Palette				south H x----------x		x	x	x
Pecking stone				x				x
Pestle, large	x	Basic	x	x			x	x
miniature				H x----------?----------x			x	x
Pipe, tubular							x north?	
Polishing pebble	x		x		x A	x.....x	x	
Reamer				x				x
Ring, large				south H x----------x			x	x
Rod				x				
Saw				?				x
Steatite vessel				x west				
Two legged stone with knob				south H x----------x				
Whetstone				x			x	x
STONE, FLAKED								
Chopper	?			x				x
Club							x west?	
Crescent				x				
Drill, flange base				x	x	x	x	x
no base	x				x	x	x	x
Knife	x	Basic	x	x	x	x	x	x
Pick					x		x	x
Point, lacking or rare	x	Basic	x					
Point, side notch				x	x	x	x	x
base concave				x	x	x	x	x
straight				x	x	x	x	x
edges serrated				x			x	x
base notched							x	
Point, no notch				x	x	x	x	x
long				x	x	x	x	x
short				x	x	x	x	x
serrated				x			x	x
Point, high side notch						x		x
Point, barbed				south H x			x	
Point, stemmed, diagonal notch				x				
Point, tanged				x				
Point, large stemmed, notched	r			x				
Scraper	x			x			x	x

Culture	PIONEER PERIOD	SINAGUA	HOHOKAM	SINAGUA	SINAGUA	VERDE VALLEY	GILA-SALT VALLEYS
Time	Pre-700 A.D.	Pre-1070 A.D.	900-1150 A.D.	1070-1120 A.D.	Post-1120 A.D.	Post-1125 A.D.	Post-1150 A.D.
TRAITS							
STONE, ORNAMENTS							
Bead, cylinder			x	x			x
disc	x		x	x	x	x	x
lignite						A x	
steatite			x west				
mud rock			x				
turquoise			x				
Bracelet			x	x			
Button, lignite				x A	x		
Ear plug			x				
Lip plug				x	x		
Nose plug			x	x	x		
Overlay, turquoise	x		x----------x		x	x	
Painted pebble						x	
Pendant, plain			x	x	x	x	x
effigy			x----------x				
incised			x				
carved		south H	x				
turquoise				x	x	x	
mud rock			x	x		x	x
Ring			x	x			
Toggle			x				
MINERALS							
Argillitic sandstone (mud rock)			x			x	x
Asbestos			x				
Azurite						x	x
Calcite						x	
Galina			x			x	
Hematite			x	x	x	x	x
Lac					x		
Lignite				x A	x		
Limonite			x	x	x	x	x
Magnetite						x	
Malachite			x			x	x
Mica			x				
Obsidian nodules			x			x	x
Pitch					x		
Quartz crystal	x		x	x	x	x	
Salt			x			x	
Schist			x				
Steatite			x west				
Turquoise	x		x			x	x

Culture	PIONEER PERIOD			SINAGUA		HOHOKAM		SINAGUA	SINAGUA	VERDE VALLEY	GILA-SALT VALLEYS	
Time	Pre-700 A.D.			Pre-1070 A.D.		900-1150 A.D.		1070-1120 A.D.	Post-1120 A.D.	Post-1125 A.D.	Post-1150 A.D.	
TRAITS												
CLAY, POTTERY	Plain	Decorated		Plain	Decorated	Plain	Decorated	Plain	Plain	Plain or red	Plain or red	Red
Bowl, hemispherical	x	r	Basic	x	-	x		x	x	x	x	r
outflare		r					x	-	-		x	
shallow	x	r	Basic	x		x	x	x				
straight-sided						H x						
incurved		r				x	x					
shouldered							x H					
rectangular							x H					
recurved							x	x				
Cup					-						x	
Dipper		r			-			r	r			
Effigy	x	r			-		r				x	
Heavy walled		r	south		-		x----------	r				
Jar, globular, wide mouth	x	r	Basic	x		x	x	x	x	x	x	
low neck	x	r	Basic	x		x	x	x	x	x	x	
no neck	x		Basic	x			r	r				
small mouth							r					
shouldered							x----------	x	x	x	x	
straight neck												x
Miniature vessel					-			x	x	x	x	
Pitcher				x	-	x		r	r	x	r	
Plate				x	-	x	x	r				
Scoop					-	x	x	r	r		r	
Seed-jar		r			-	x	x	r	r		x	
Tripod vessel					-	H x	x	south				
Vase		r	south		-	H x	x					
Handled, not pitcher					-	H x						
TECHNIQUES												
Firing, uncontrolled	x	x	Basic	x			-	-	-	-	-	
Paddle and anvil thinning	x	x	Basic	x			x	x	x	x	x	
Surface, smoothed	x	x	Basic	x			x	x	x	x	x	
polished	light		Basic	light			-	x	x.....	x.....	x	
slipped							-	x M	x.....	x.....	x	
Decoration, painted		red/gray			-		red/buff	-	-.....	-.....	x to -	
incised		x			-		x to -	-	-	-	-	
smudged							-	x M	x.....	x.....	x	
applique	x	south					r----------	r				
Smudged interiors	-	-		-	-		-	x M	x.....	x.....	x	

Culture	PIONEER PERIOD		SINAGUA	HOHOKAM	SINAGUA	SINAGUA	VERDE VALLEY	GILA-SALT VALLEYS
Time	Pre-700 A.D.		Pre-1070 A.D.	900-1150 A.D.	1070-1120 A.D.	Post-1120 A.D.	Post-1125 A.D.	Post-1150 A.D.
TRAITS								
CLAY OBJECTS								
Anvil, pottery								
Ball, small	x	Basic	x					
Bead					x			x
Comale (griddle)								south x H
Disc, rough edges				x	x		x	x
unperforated				x			x	x
part perforated				x				x
perforated				x	x		x	x
ground edges				x			x	x
unperforated				x			x	x
part perforated				x				x
perforated				x			x	x
Figurine, human, entire	x			H x----------r		r	x	r
head only				south? H x				
animal				H x----------r		r		r
Jar cover				x	r	r		
Pendant (sherd)				x				x
Pipe, tubular, short				x	r			x
Pot support, (trivet)				x				
Reel-shaped object				x				
Spindle whorl, pulley				south H x----------x		x	x	x
spheroid				south H x----------x		x	x	x
Worked sherd				x				
FOOD, VEGETAL								
Bean	?	Basic?	x		x	x	x	x
Corn	x	Basic	x	x	x	x	x	x
Fish				?	?			
Grass-seed							x	
Gourd (Lagenaria)						x	x	x
Mescal chew						x	x	
Squash			x			x		x

PATTERN TRAIT	HAKATAYA Pre-700 to historic times	HOHOKAM 700-1150	SINAGUA Post-1070-1400
Dwelling (Riverine)	Square jacal 4 roof supports Flat roof on supports	Rectangular jacal 2 roof supports Gabled roof	Solid wall structure No roof supports (?) Flat roof on walls
(Upland)	Roundish stone-outlined brush shelters	- -	- -
Disposal of dead	Cremation Ungathered ashes or platform cremation	Cremation Interred ashes (vessels)	Inhumation Extended burial
Ceremonial	Trail shrines and gravel alignments	Ball court	?
Ceramics	Paddle and anvil Light polishing Uncontrolled firing Unslipped Plain gray brown ware Red-on-gray (rare) Designs poorly done Little or no decorated Red ware rare	Paddle and anvil No polishing Controlled firing Slipped decorated Plain buff ware Red-on-buff Designs well done Much decorated No redware	Paddle and anvil High polishing Controlled firing Slipped red Plain brown ware No decorated? Designs rare Rare decorated Smudged redware
Figurine	Rod-like shape	Effigy shape	None
Village	Houses scattered Site on flats Sheet rubbish	Rancheria style Site on river terrace Trashmounds	Pueblo style Site on prominence Talus trash
Agriculture	Inundation farming	Irrigation farming	Dry farming
Mortar and pestle	Present	Absent?	Absent?
Roasting pit	Present	Modified Hakataya?	Absent
Food storage	Sealed vessels	Perishable granaries?	Storage bins
Stone techniques	Percussion and abrading	Variety and ornate	Chipping
Points, stone	Few, not common	Many, long	Many, short
Shell	Whole shell, mainly unaltered	Worked shell and variety of techniques	Mainly obtained by trade and seldom worked

Figure 15 - Comparison of the three archeological patterns occuring in central Arizona

PATTERN	TRAITS	GILA PIMA	COCOPA	KOHUANA	HALCHIDHOMA	YUMA	MARICOPA	MOHAVE	WALAPAI	KAVELTCADOM	WESTERN YAVAPAI	NORTHEASTERN YAVAPAI	SOUTHEASTERN YAVAPAI	HAVASUPAI
HAKATAYA	House, square jacal			x	x?	x	x	x	-	-	x			
	4 roof supports	x			x	x	x	x	x	x	x			x
	Flat roof (or hip)	*-			x?	x	-	x	-	-	x			
	House, circular	x			x	-	x	-	x	-			x	x
	Domed or conical roof	x			x		x	-	x	x	x	x	x	x
	House, oval	*-							x		x	x	x	
	Cremation	*s	x	x	x	x	x	x	x	x	x	x	x	x
	Surface or platform cremation	*s	x		x	x	x	x	x	x	x	x	x	
	Paddle and anvil pottery	x	x	x	x	x	x	x	x	x	x	x	x	x
	Light polishing	-					-	-						
	Uncontrolled firing	-	-				-	-						
	Red-on-gray brown	-	-		s	-	-	-	r		-	r	-	-
	Little decorated	*-			x	x	x	-	x	x	x	x	x	x
	Houses scattered	*-	x	x	x	x	x	x	x	x	x	x	x	-
	Site on flats	x	x	x	x	x	x	x	x	x	-	-	-	x
	Sheet rubbish	x	x		x	x	x	x	x	x	x	x	x	x
	Inundation, farming	x	x	x	x	x	x	x	s	x	x	x	x	x
	Chipped and abraded stone	x	x			x	x	x	x		x	x	x	x
	Whole shell					x	x	x				x		x
	Few points					x	x	x	x		x	x	x	x
	Mortar and pestle		x			x	x	x	x		x	x	x	x
OTHER	Pottery highly polished	*x					x	x	-		-	-	-	
	Controlled firing	x				x	x	x				x?		
	Redware	x	x			x	x	x						
	Red-on-buff	x	x		s	x	x	x	-		-	-	-	-
	Rancheria village	*x	x	x	x	x	x	x	-		-	-	-	x
	Site on mesa or in mountains	-	-	-	-	-	-	-	-		x	x	-	-

Key - s - some, r - rare, (-) - absent, x - present, blank - not known
*major differences between Pima and Yumans

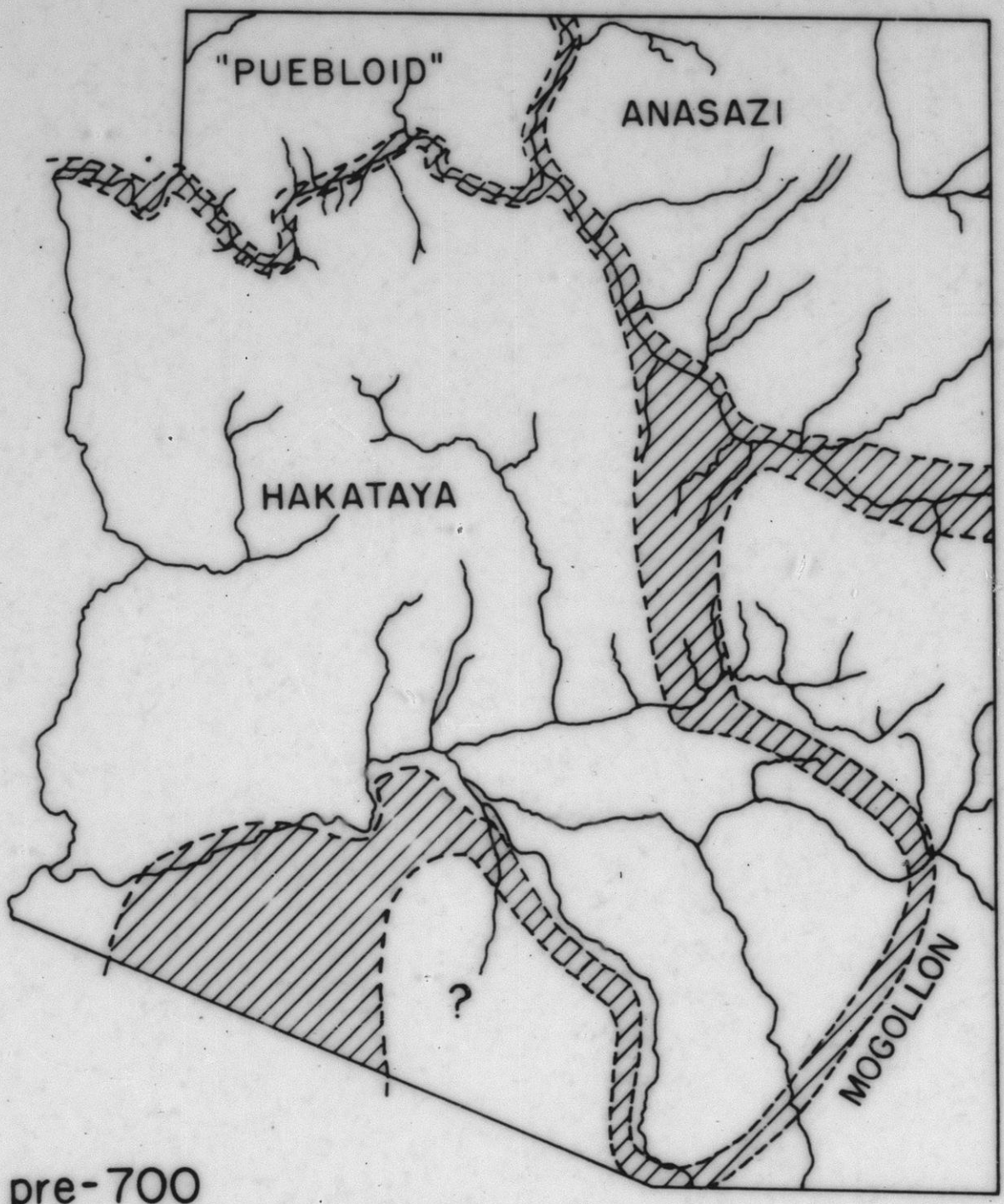
Figure 16 - Traits of the Historic desert tribes

Explanation of Figure 17

The following maps portray in sequence the major events that affected the Hakataya Root and neighboring areas in prehistoric times.

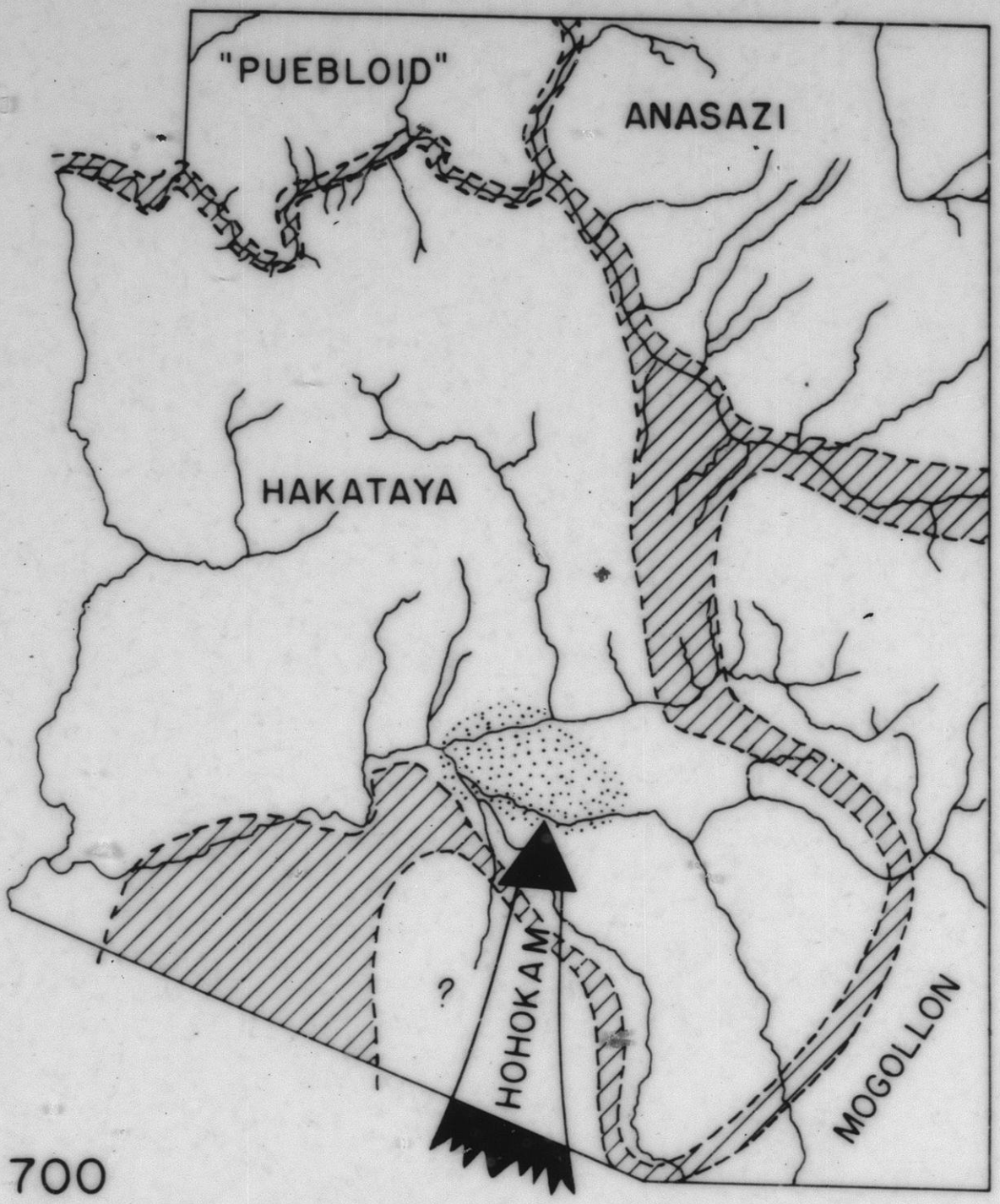
The hatched portions of the maps represent areas of blending or unknown data between roots, and no real degree of accuracy is intended. It serves to separate the roots for general purposes only.

Root names are shown on the first map. Branch names are underlined. The Hohokam are represented by dots and the Sinagua by dashes.



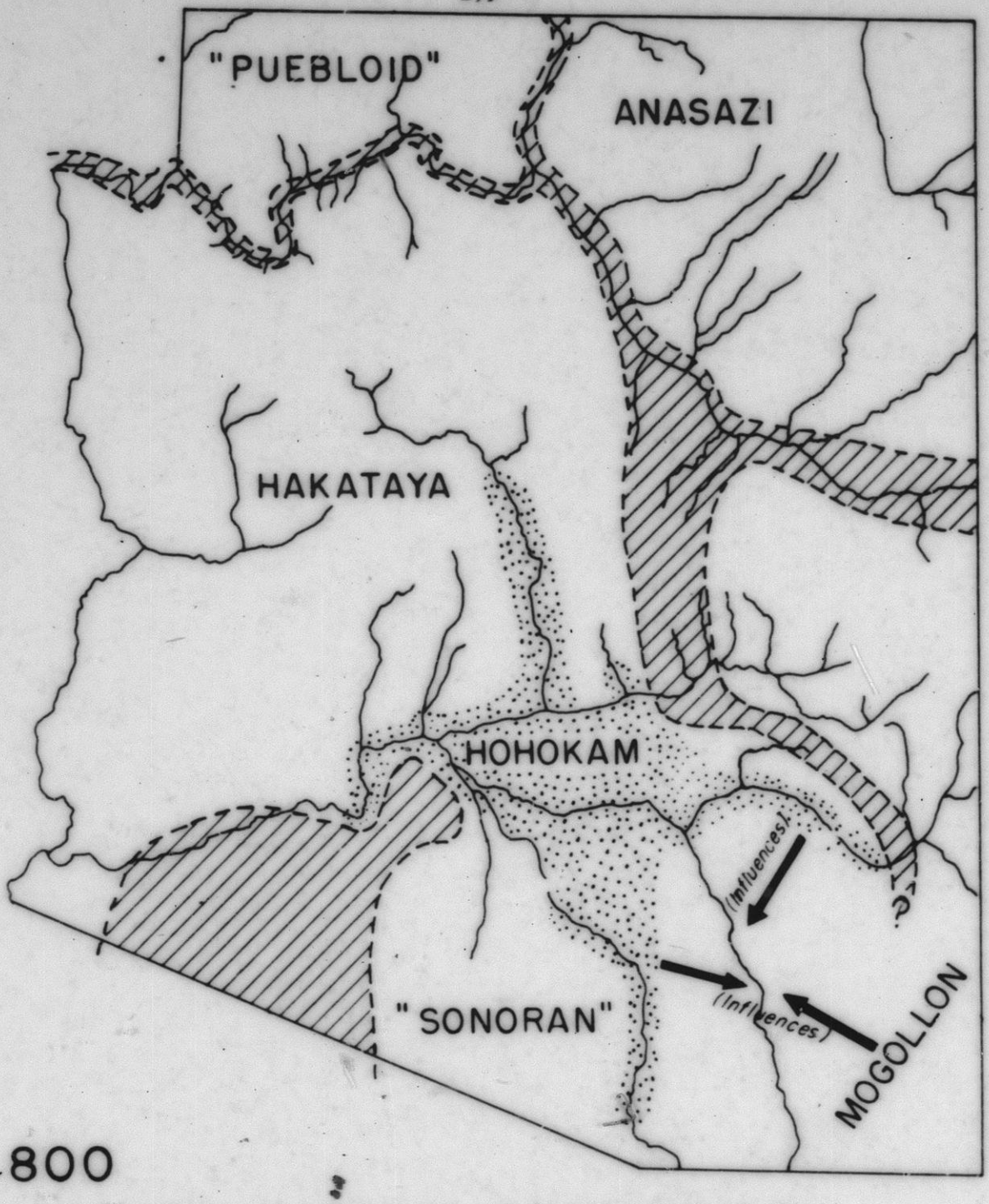
pre-700

The four basic roots in Arizona.

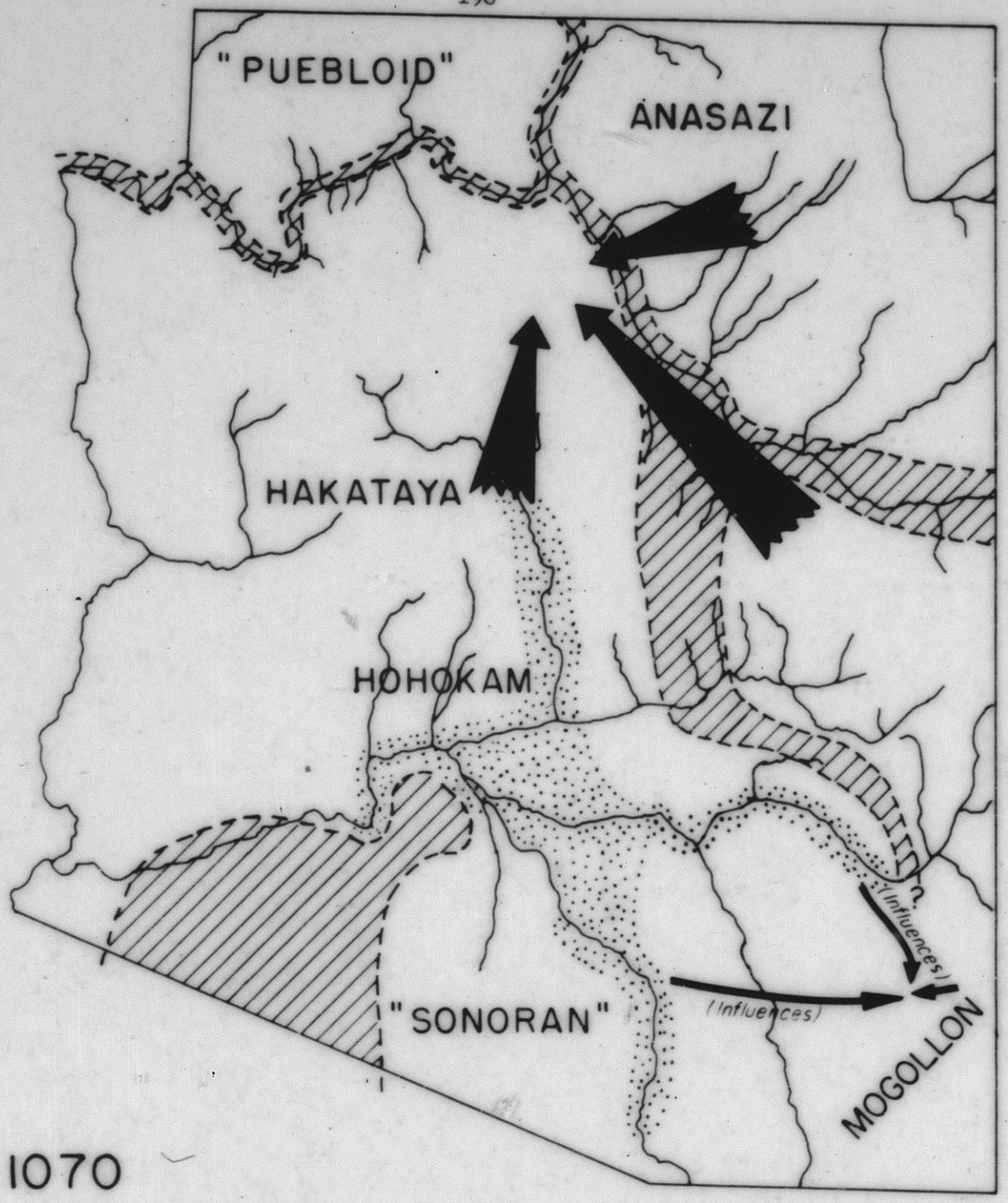


700

Influx of the Hohokam pattern

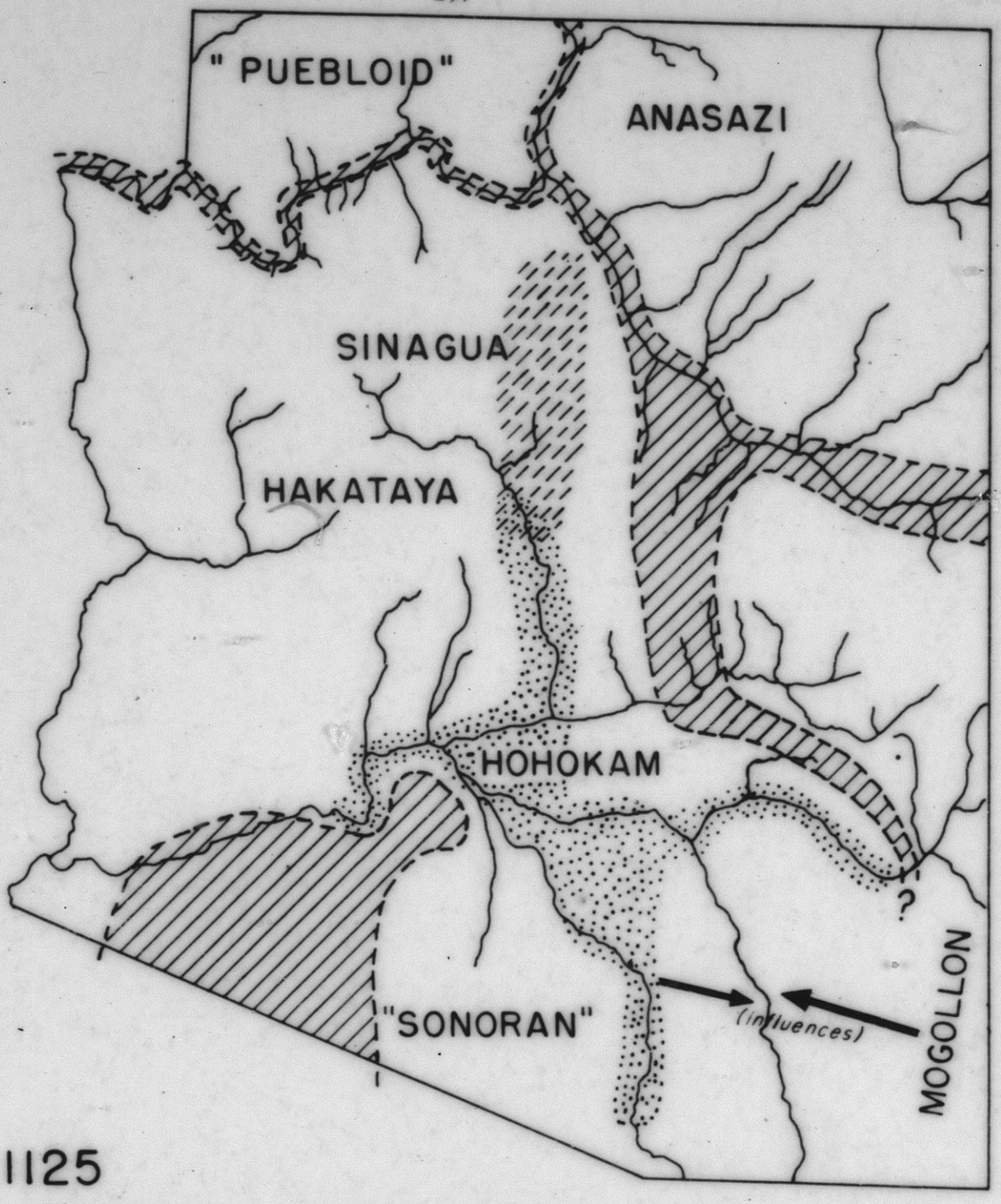


Expansion of the Hohokam and development of the "Sonoran" pattern.



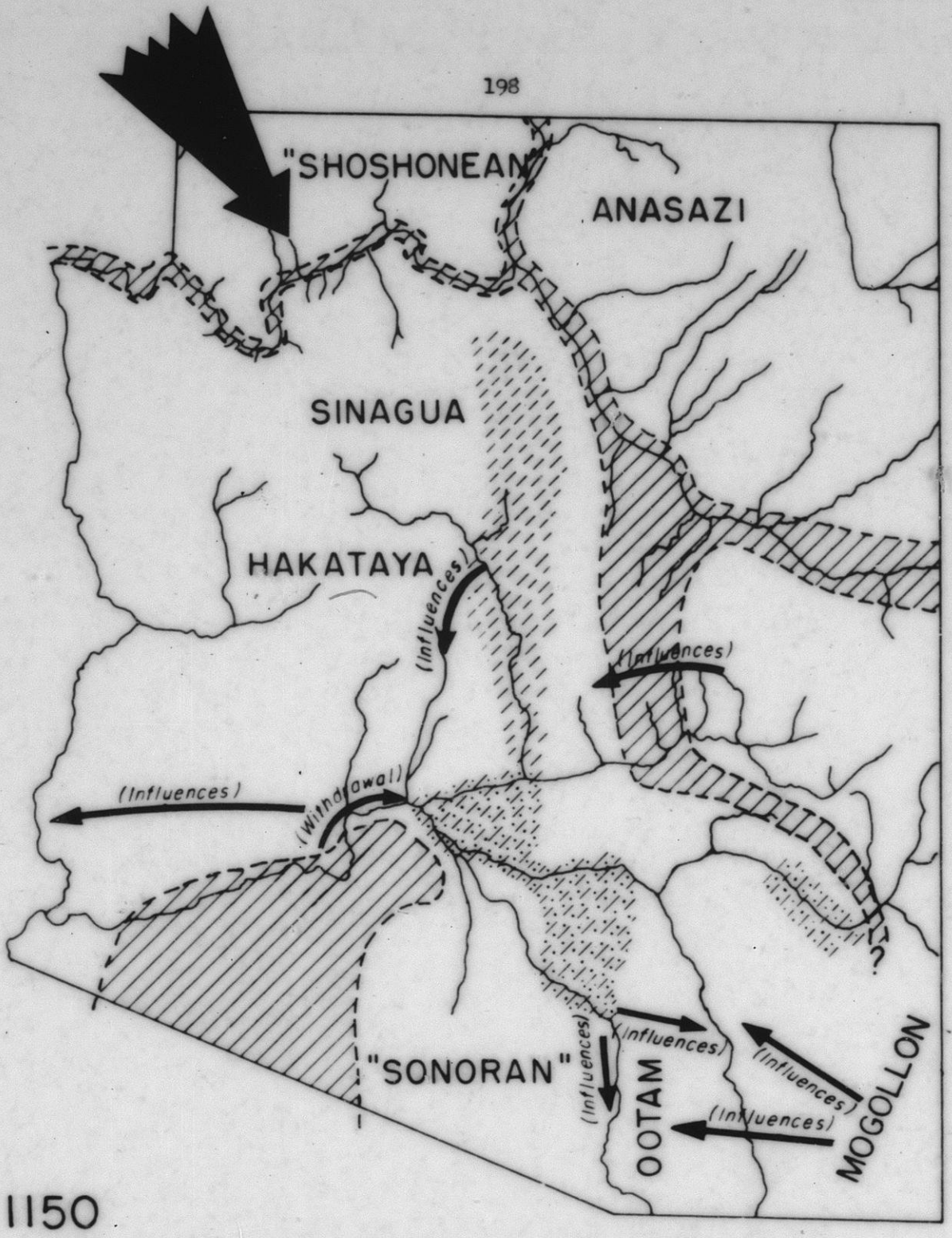
1070

Influx into San Francisco Mt. area which contributed to the Sinagua pattern.



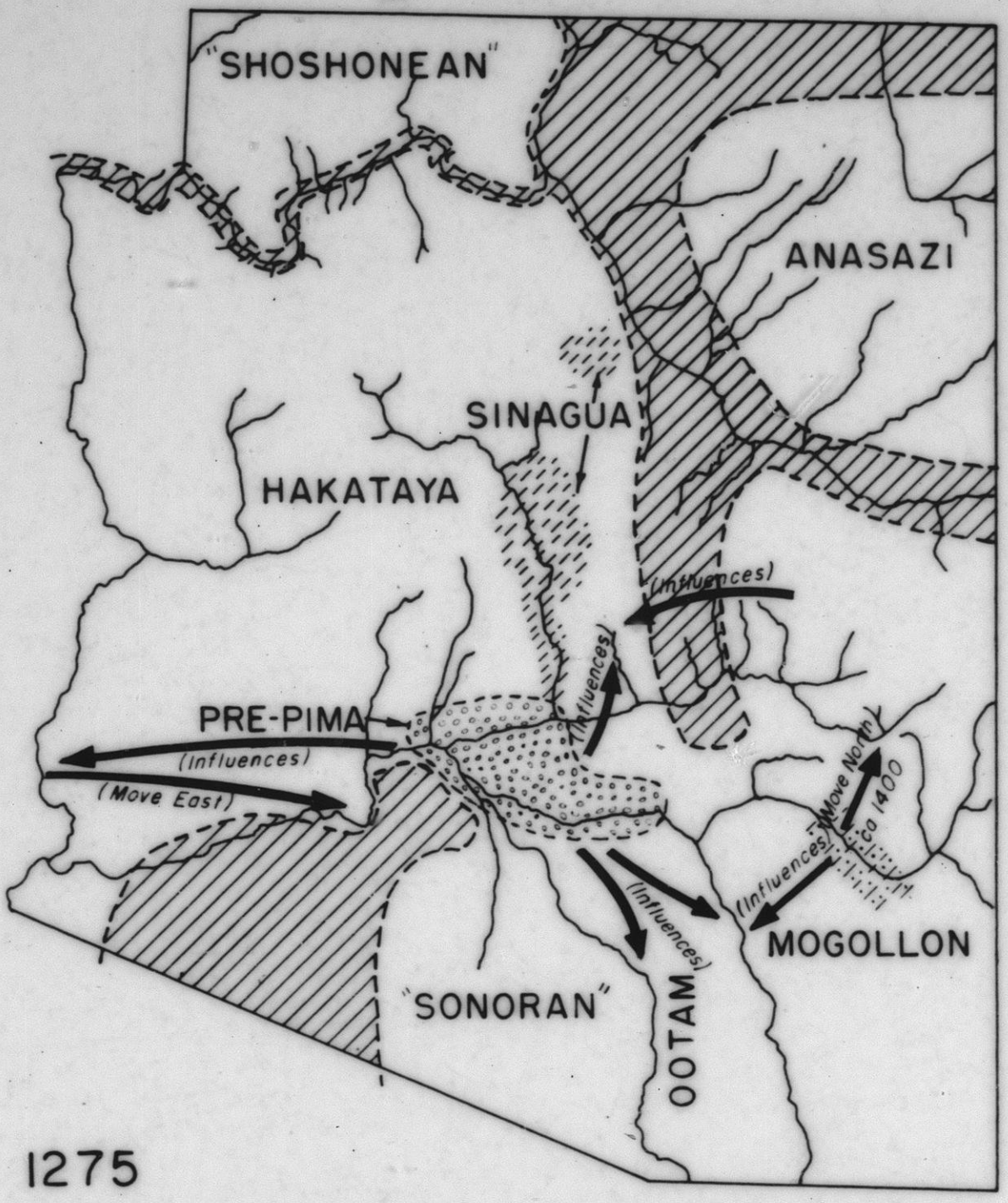
1125

Expansion of the Sinagua pattern.

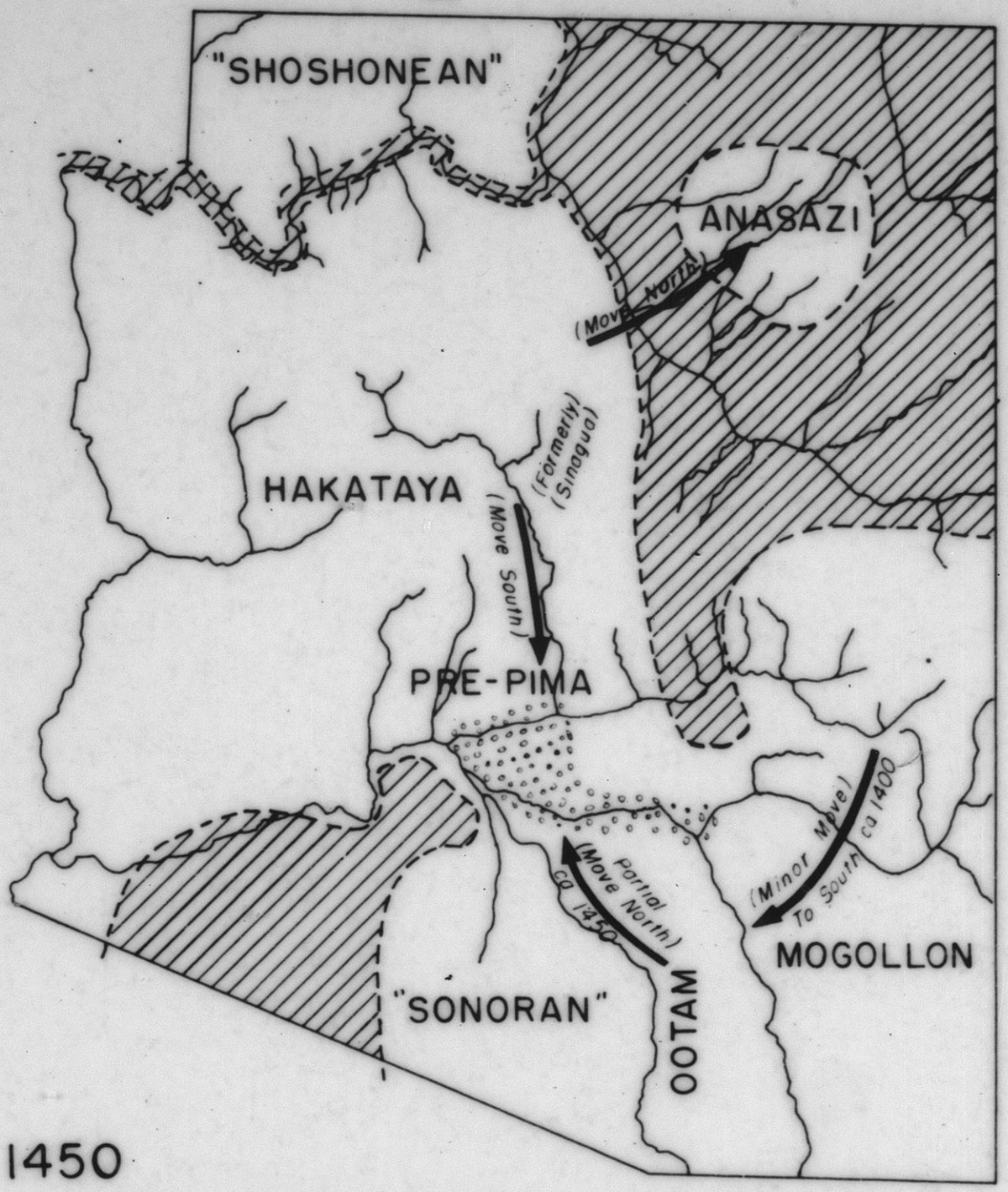


1150

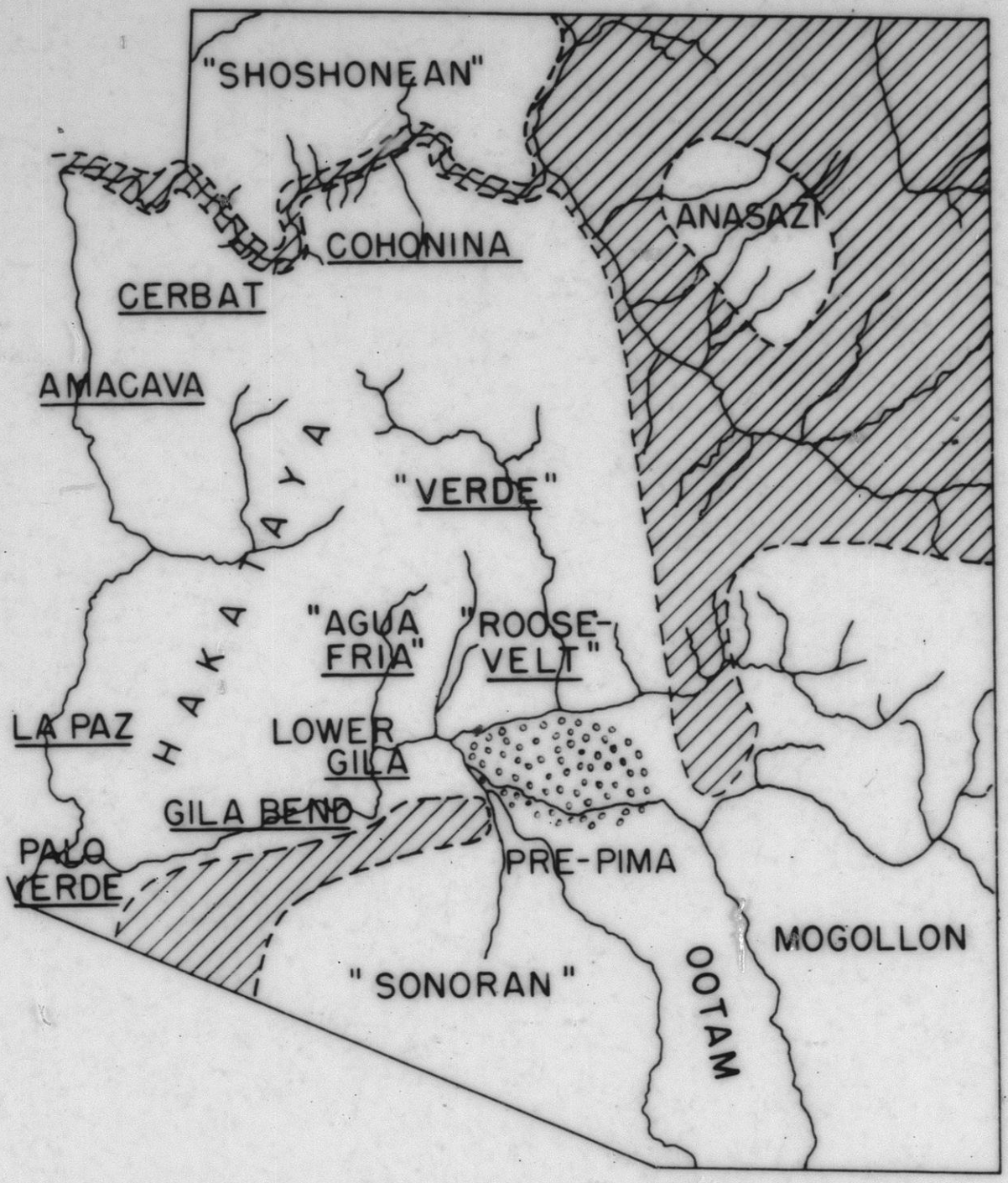
Influx of the "Shoshonean" Root, continued expansion of the Sinagua and blending with the Hohokam in the south, and development of the Ootam pattern.



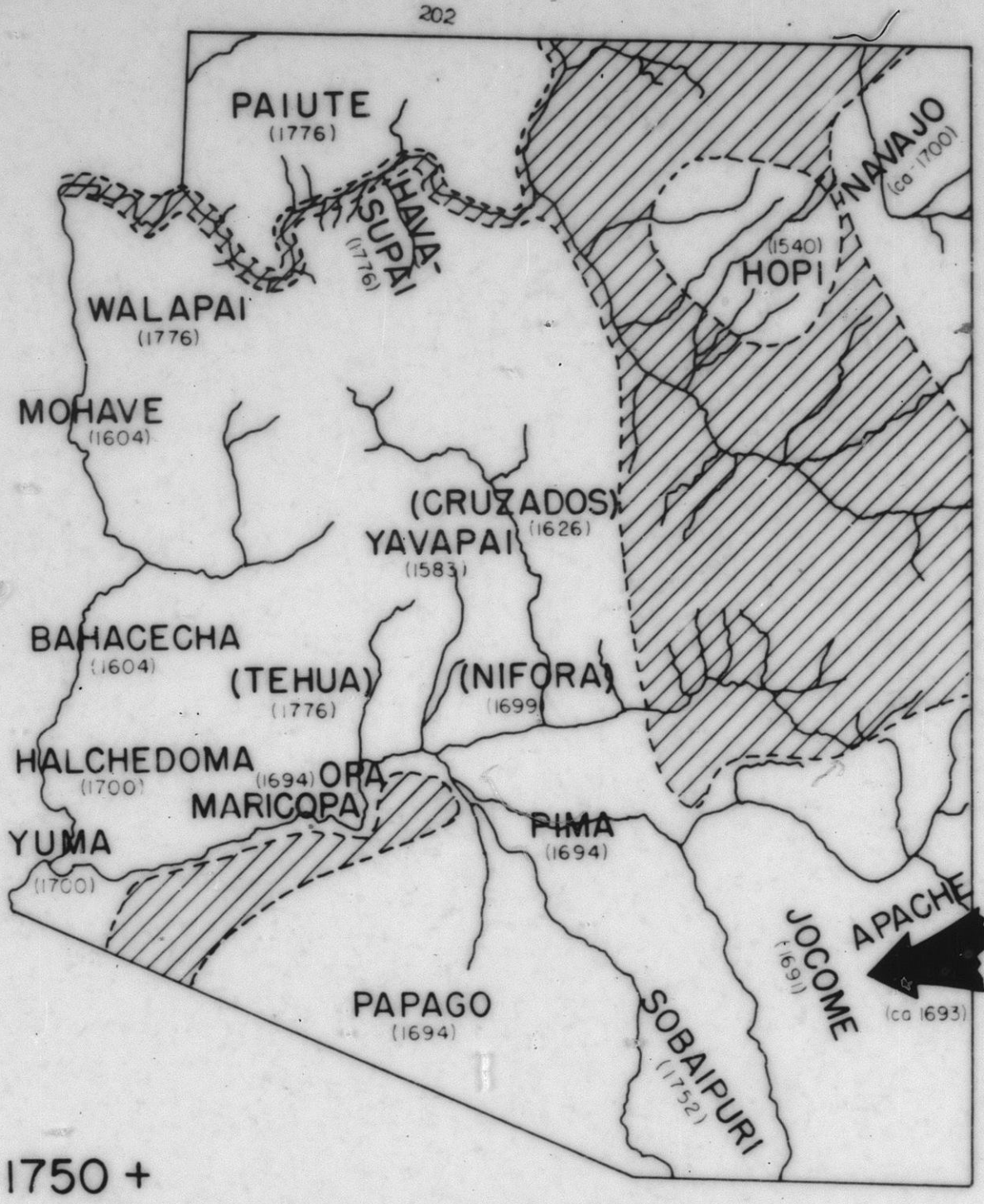
Contraction of the Anasazi and new Pre-Pima pattern which developed out of the Sinagua-Hohokam blend.



Continued contraction of the Anasazi, beginning of Mogollon contraction, and end of Sinagua pattern.

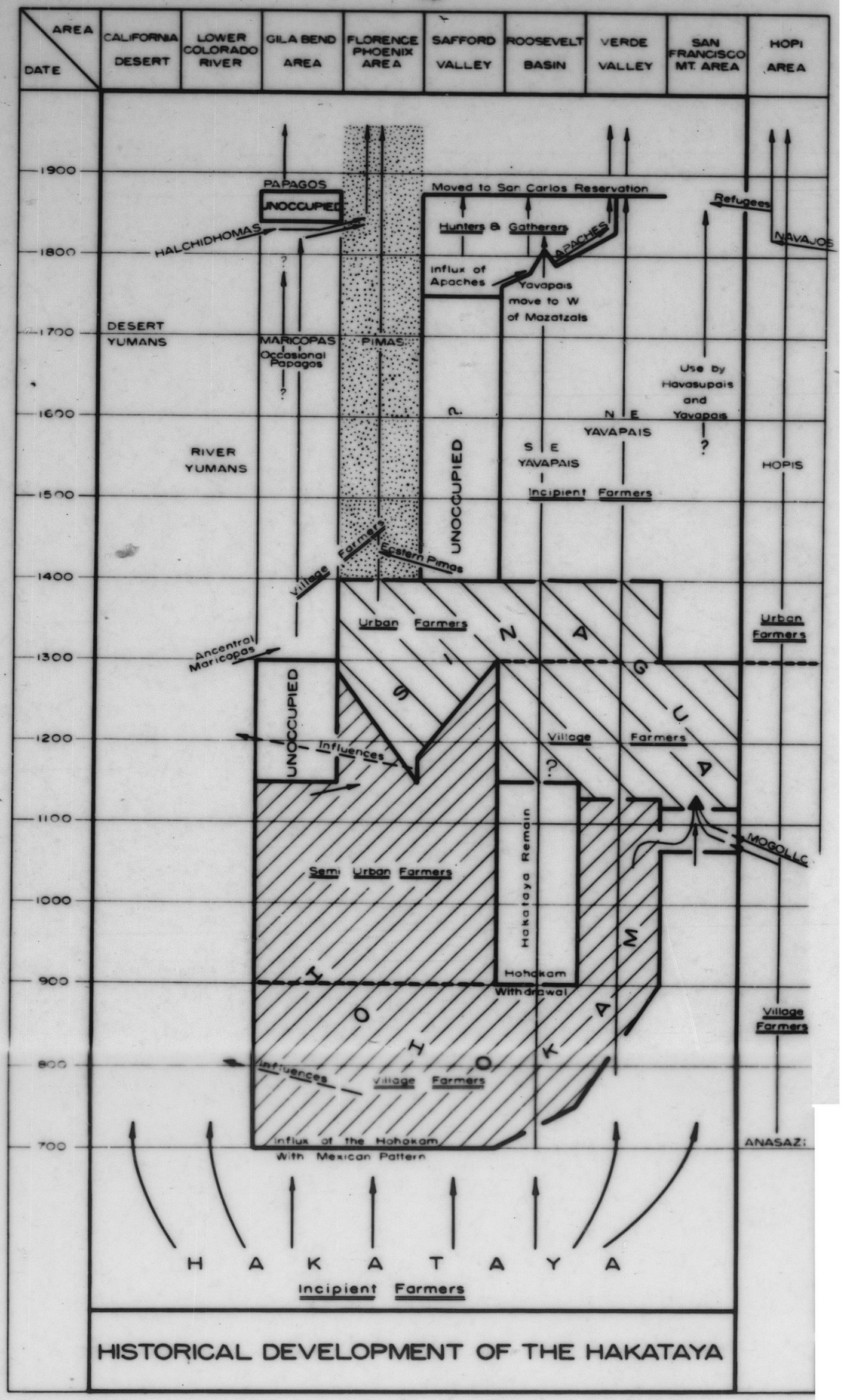


Late prehistoric branches (underlined) of the Hakataya and neighboring cultures, about 1450 A.D. (Compare with 1750+ map.)



1750 +

Tribal distribution - dates of first contacts, and Yavapai divisions shown in parens.



HISTORICAL DEVELOPMENT OF THE HAKATAYA

	Papagueria	Gila Basin
700 to 1150 A.D.	PAPAGUERIAN PATTERN	HOHOKAM PATTERN
	Flexed burial	Interred cremation
	Basin metate	Trough metate
	Redware	No redware
	Chipping industry poor	Ornate and varied stonework
	Balsa (?) farming	Terrace irrigation
	No ball courts	Ball courts
	Red-on-brown pottery	Red-on-buff pottery
	Limited point types and poorly made	Variety of point types and well made
	Shell rare	Shell abundant and ornately worked
	Figurines rare	Figurines common
	Rectangular, flat roof house with corner roof supports	Rectangular, gabled roof house with two central roof supports
1150-1275	CONTINUATION OF ABOVE PATTERN	SINAGUA PATTERN TRAITS INTRODUCED
	No house mounds	House mounds (from Mexico)
	Jacals	Post-reinforced dwellings
	Redware, no smudging	Redware, smudged
	Flexed burial	Extended burial
	Pre-1150 A.D. traits carry through	Loss of many pre-1150 A.D. traits
1275 to 1400	TRAITS ADDED BY SINAGUA INFLUENCE	HOHOKAM - SINAGUA BLEND
	Extended burial	Extended burial
	Post-reinforced walls	Solid earthen walls
	One possible compound	Compound villages
	Red-on-buff pottery smudged and polished	Red-on-buff pottery rare, and not smudged
Post-1700	PAPAGO	GILA PIMA
	Continuation of most of above traits, but house type changes	Most of above traits largely replaced by those from east (Sobaipuri?)

Figure 18

Comparisons of traits in Papagueria and Gila Basin from 700 A.D. into historic times.

1 Barber Photo (NA 4612)

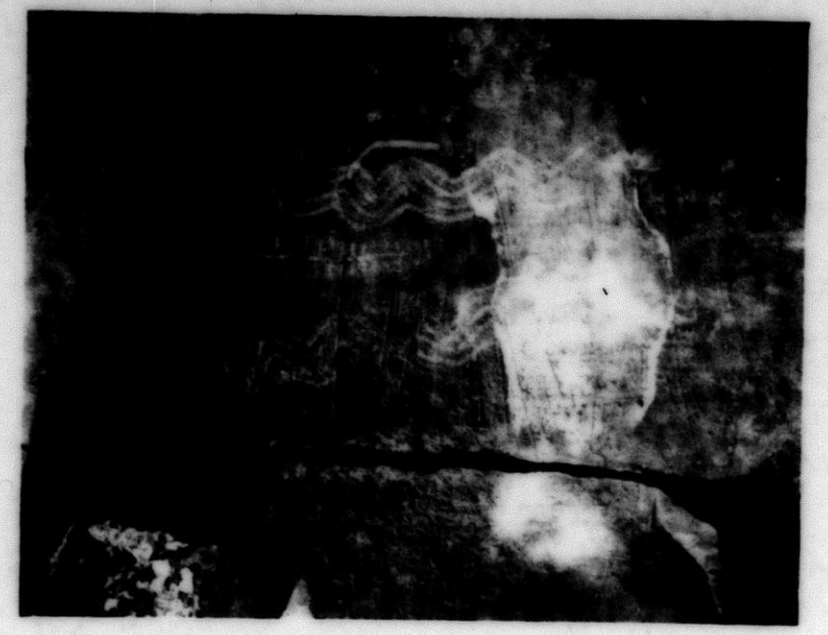
2 Boulder Room (NA 4609D)

3 Roasting Pit (NA 4631A)

4 Palatki Pueblo (NA 3209)

5 Detached Adobe (NA 1275)

6 Pictographs, Apache (?) (NA 3209)



7 Pictographs (NA 3204)

8 Petroglyphs (NA 4628)

9 [illegible]

10 View of present farmlands as seen from Palatki