

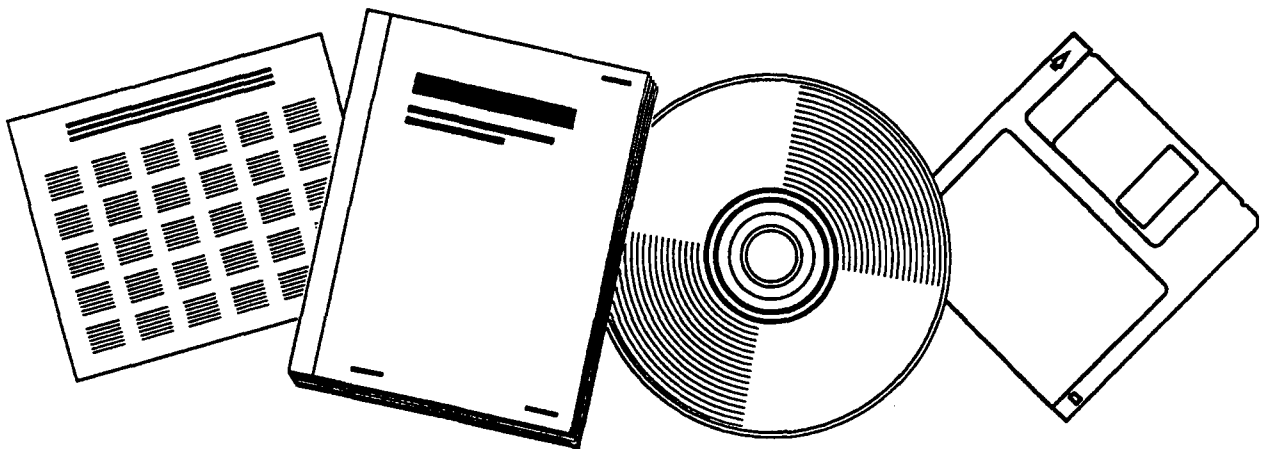


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TUZIGOOT BURIALS

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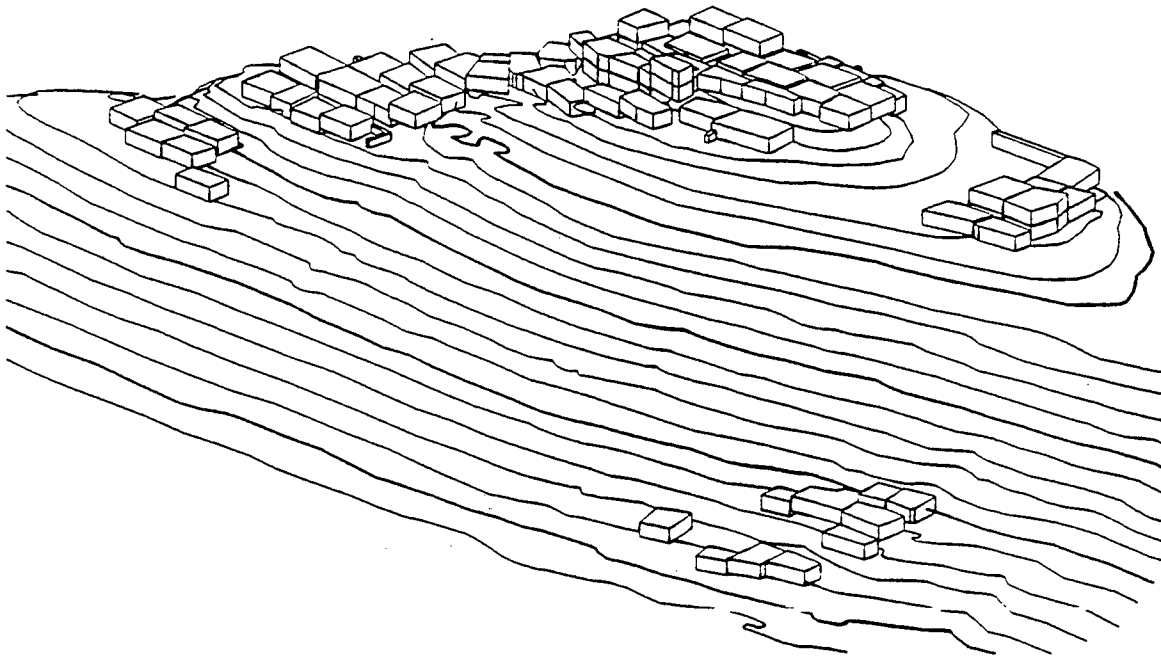
TUZIGOOT BURIALS

by



PB98-109929

Keith M. Anderson



Western Archeological and Conservation Center
National Park Service
U.S. Department of the Interior

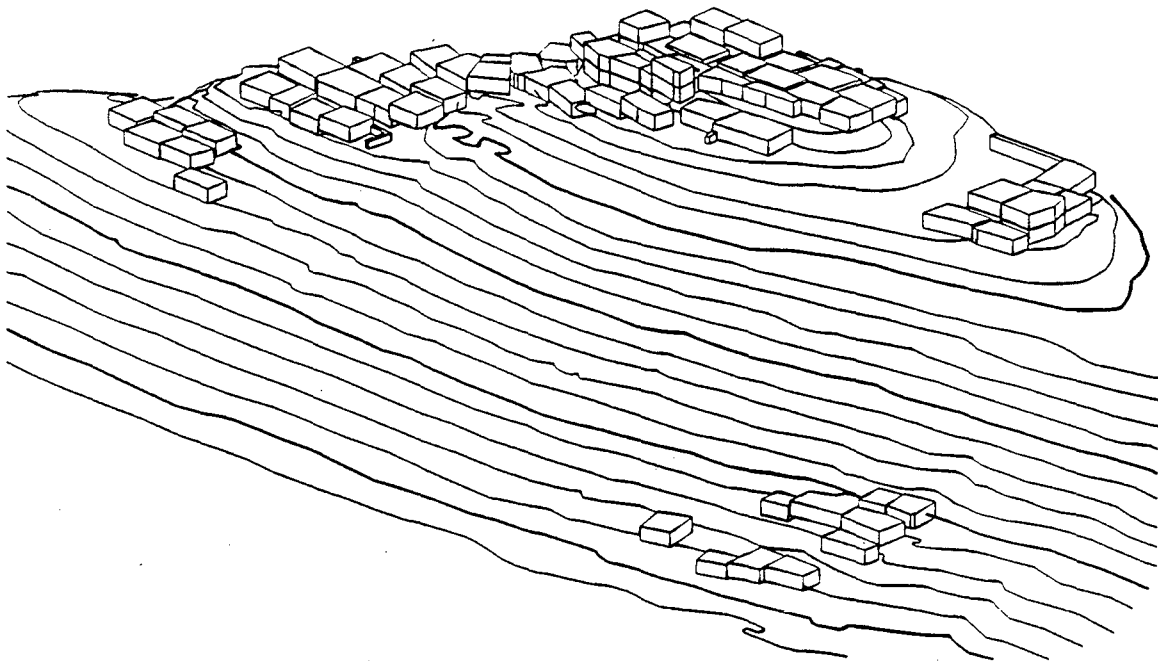
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ABSTRACT

Tuzigoot Pueblo is the type site for the Tuzigoot Phase of the Southern Sinagua Tradition and was occupied from c. A.D. 1140 to c. 1400. This report gives the results of re-analysis of data from burials excavated at Tuzigoot in 1933-1934. The purpose of the study is to abstract the organizing principles of social status, a subject of current archeological interest.

This project was conducted within constraints that would be imposed by repatriation of mortuary remains. Nearly all of the 411 burials excavated at Tuzigoot were reburied on site in 1934. Study has been deliberately restricted to data documented in field records, catalogue cards, and published descriptions. Records exist for 393 burials documenting---with some inconsistencies---orientation, age, sex, pathology, position, condition, depth, dimensions of grave, fill, and associated artifacts. Provenience is by room or undefined portions of slopes outside the pueblo; specific extramural burial locations were not recorded or mapped.

A series of bivariate tables indicate that the overriding principle of acquiring status was achievement rather than ascription. With advancing age individuals acquired an increasing number of objects, exotic as well as utilitarian. Burials with the greatest number of objects are predominantly adult males buried with their heads to the north in pole-covered pits. Objects commonly (though not exclusively) buried with these individuals were ritual objects (prayer sticks, quartz crystals), elaborate ornaments (turquoise pendants and mosaics, beads of argillite, shell and an unidentified black stone), obsidian arrowheads and other tools, and decorated pottery (predominantly Jeddito Yellow Ware). Infants and children were usually buried under room floors or in room fill; those buried outside in the adult cemetery show a slight tendency toward more and rarer objects in association. By analogy with ethnographic examples, general and Southwestern, burials in the extramural cemetery are interpreted as ritual events in which a lineage or the village participated; intramural burials represent family ceremony. Absence of locations and context burials limits inferences, but ranked lineages could fit the Tuzigoot situation. Neither community context nor mortuary remains convincingly support the existence of a distinct class of hereditary elites.

This study raises questions that can be addressed by restudy of the artifacts found with burials. More detailed artifact description and source analysis should be completed if objects are repatriated.

INTRODUCTION

When Louis Caywood and Edward Spicer excavated the pueblo of Tuzigoot in 1933 and 1934 the primary purposes of the project were to dig a large Verde Valley site, obtain museum collections, and provide employment during the Great Depression. While the analysis and report of that excavation are not as detailed or comprehensive as would be produced today, Caywood and Spicer did very well with in the limited funds and time allowed. One of its results was to recover over 400 burials, one of the largest mortuary samples from total excavation of a prehistoric southwestern site. According to the report, there were 411 burials discovered, comprising the remains of 429 individuals; field records are preserved for 393 of these.

In the six decades since Tuzigoot's excavation, archeology has changed significantly in method, technique and theoretical perspective. As with other aspects of archeological research, the study of mortuary remains has shifted from culture history to the evolution of social and economic systems; now there are signs of a pendulum swing back to historical reconstruction, though with continuing and more informed concern for the environmental, economic and social dynamics of change. During the last 15 years several burial populations from southwestern sites have been studied, or restudied, with the aim of abstracting the principles governing social status within the communities represented. A recurrent question has been whether prehistoric southwestern societies fit in the Band-Tribe-Chiefdom continuum modelled by Service (1971) and Fried (1967) and whether their social organization differed from surviving Indian communities. During the same period, physical anthropologists have also subjected prehistoric human remains to analysis and re-analysis, using increasingly informative techniques and strategies, to learn more of diet, disease and genetic relationships between past and present populations.

Simultaneously, an increasing concern by Native Americans over the remains of their ancestors has produced considerable public discussion with archeologists and physical anthropologists, and has resulted in laws governing the treatment of these remains (See Ubelaker and Grant 1989 for a summary discussion). One outcome of this concern is the Native American Graves and Repatriation Act of 1990 (P.L. 101-601). This law directs Federal Agencies and museums that are storing human remains and associated funerary objects to inventory them and identify their cultural affiliation. Tribal governments are to be consulted in this process, and if an Indian Tribe so requests, they are to be supplied by documentation of existing records and documents pertinent to the determination of geographical origin and cultural affiliation. If the affiliated tribe requests the return of culturally affiliated cultural items, they are to be returned, unless determined "indispensable for completion of a specific scientific study, the outcome of which would be of major benefit to the United States." Upon completion of this study, the items are to be returned within 90 days.

Although field records of the Tuzigoot excavation lack details that would be recorded today, Caywood and Spicer did attempt to follow a systematic procedure for recording the burials they uncovered, and the brief report they issued does not give all the information that they recorded. This report presents the results of an attempt to re-analyze this data from the perspective of current mortuary studies, which are relevant to the issues embodied in the Native American Graves Protection and Protection Act of 1990. Caywood and Spicer apparently foresaw the issues of today; upon completion of their excavation they reburied nearly all the Tuzigoot skeletal remains in the slope below the prehistoric pueblo, very close to the original cemetery (Louis Caywood, personal communication). Less than 10% of the osteological remains are in

archeological storage today. Thus, almost all the data we have on the burials is in the excavation notes and catalogue records; information on the graves and associated objects is in field notes, catalog records, and artifact collections. The present study has used only the field notes and catalog records; there has been no re-analysis of the objects.

If it is determined that prehistoric burials excavated in the future are to be reburied after field records are made, with perhaps brief laboratory analysis, future archeologists will find themselves in the same situation I was with this study---making the most out of previous recorded observations. This project gives us an opportunity to assess the utility of "old data" in addressing current research interests. What is there yet to do with the records and collections; do they comprise the subject for significant scientific research that justify continued curation of the artifacts recovered from the burials?

The report begins with a description of the Tuzigoot excavation project, reconstructing what we know of the extent and methods of field work and recording. Following that is a discussion of Tuzigoot Pueblo, its growth and surroundings. After this is a summary of the current approaches to analysis of prehistoric mortuary remains and the relevance of these approaches to the Middle Verde Valley. This is followed by an attempt to identify burial features and funerary remains that are associated with age or gender distinctions, key variables for inferring principles of status differentiation and grouping. The report concludes with an assessment of the potential of Tuzigoot burial records and objects for significant future research.

THE 1933-1934 PROJECT

The purpose of the original excavation of Tuzigoot Pueblo was very basic. As part of a larger effort under the direction of Byron Cummings to explore the prehistoric remains of Yavapai County, Caywood and Spicer were searching for "a promising site for excavation in the Verde Valley" and settled on Tuzigoot because "It was felt that its excavation would provide archaeological information in regard to the Upper Verde drainage which has heretofore been entirely lacking, no systematic excavation ever having been carried out in the region." (Caywood and Spicer 1935a:1)

At the time, Tuzigoot was on the property of the United Verde Copper Company, which granted permission for the dig and helped arrange for a crew of 8 men, paid out of Federal Emergency Relief funds from October 31, 1933 until November 24, 1933. At that time the crew was increased to 48 workers supported by the Civil Works Administration and work continued until June 1, 1934. The goal of the CWA project was "...the complete excavation of the ruin, its partial restoration, the preservation of floors and walls and the repair and preparation for display of all artifacts recovered." (Caywood and Spicer 1935a:1-2)

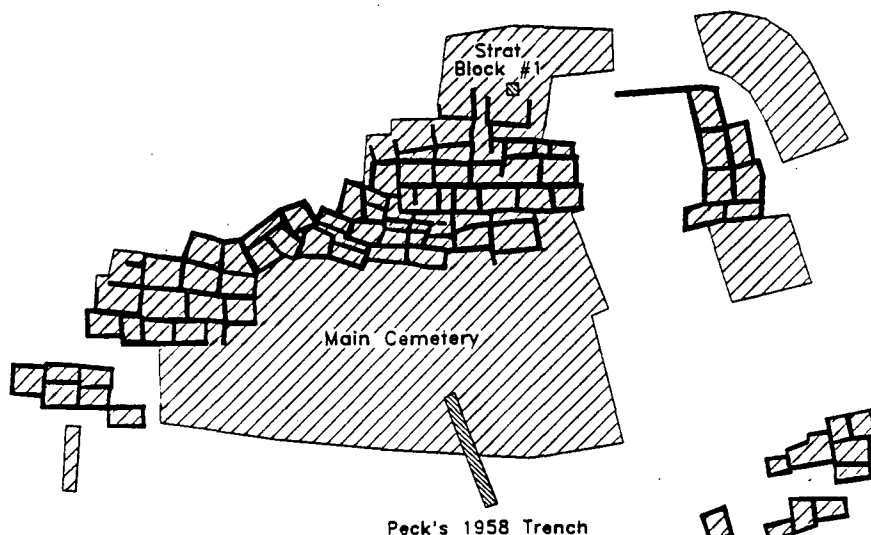
Prior to excavation, the evidence of occupation consisted of outlines of rooms and a variety of artifacts, the latter extending some distance down the east and west slopes. The trash deposits on these slopes had been dug by pot-hunters, with bones and offerings from burials scattered on the surface; initial excavation began on these slopes.

"With this clear evidence of burials in the refuse, the plan of excavation included first the trenching of the east, west, and north slopes below the pueblo with the object of uncovering what burials might be there. Trenches were begun on the east side near the base of the ridge, where no burials were encountered. From a distance of about forty feet below the easternmost rooms burials began to turn up and from this level along the whole eastern slope, trenches were run up the ridge some three feet apart. Burials were encountered to the very edge of the room and refuse proved to be at the deepest in occasional places about seven feet.

"On the west slope trenches were begun about thirty feet below what appeared to be the westernmost rooms. Below this point the slope was extremely steep and no debris had accumulated. The trenches, as they advanced toward the summit, revealed a profusion of burials and a series of wholly unexpected rooms, buried beneath as much as eleven feet of refuse.

"The gentle slopes surrounding the northernmost group of rooms were also trenched. The refuse accumulations here were slight, rarely attaining a depth of two and one half feet, and only one burial was encountered." (Caywood and Spicer 1935a:15)

The only existing map of excavations is a tiny pencil-drawn sketch, apparently submitted with a progress report, which shows trenches in the slopes as pencilled tick-marks. The approximate limits of excavation shown in Figure 1 are based on this sketch.



TUZIGOOT EXCAVATIONS

Figure 1

When excavation in the pueblo began, five room-groups were segregated, and within these the rooms were numbered in sequence (Fig.2). Notes on burials are organized using these group numbers, and it is assumed that burials from the slopes below the rooms were included within these groups. One group of burials is labelled "I-S" (Group I-South?) with no specific provenience given; presumably they are from the east slope. Excavation of the ruin itself was comprehensive; every room was dug to some extent, and floors were penetrated, often down to bedrock.

The typed field records reflect an attempt at consistency in documenting burials, but there is no record of excavation units or techniques. Burial notes vary considerably in amount of information, but the most complete ones give orientation, age, sex, pathology, position, condition, depth, dimensions, description of grave, fill, and artifacts. Categories of information are given in more detail in Chapter 4. While we lack explanation of artifact types and analytical references, the field records contain a significant amount of information that is not reflected in the published report. The chief drawback in this data is an inconsistency of recording that is probably due to different recorders. Burial notes from some groups of rooms are fairly complete, others are telegraphic.

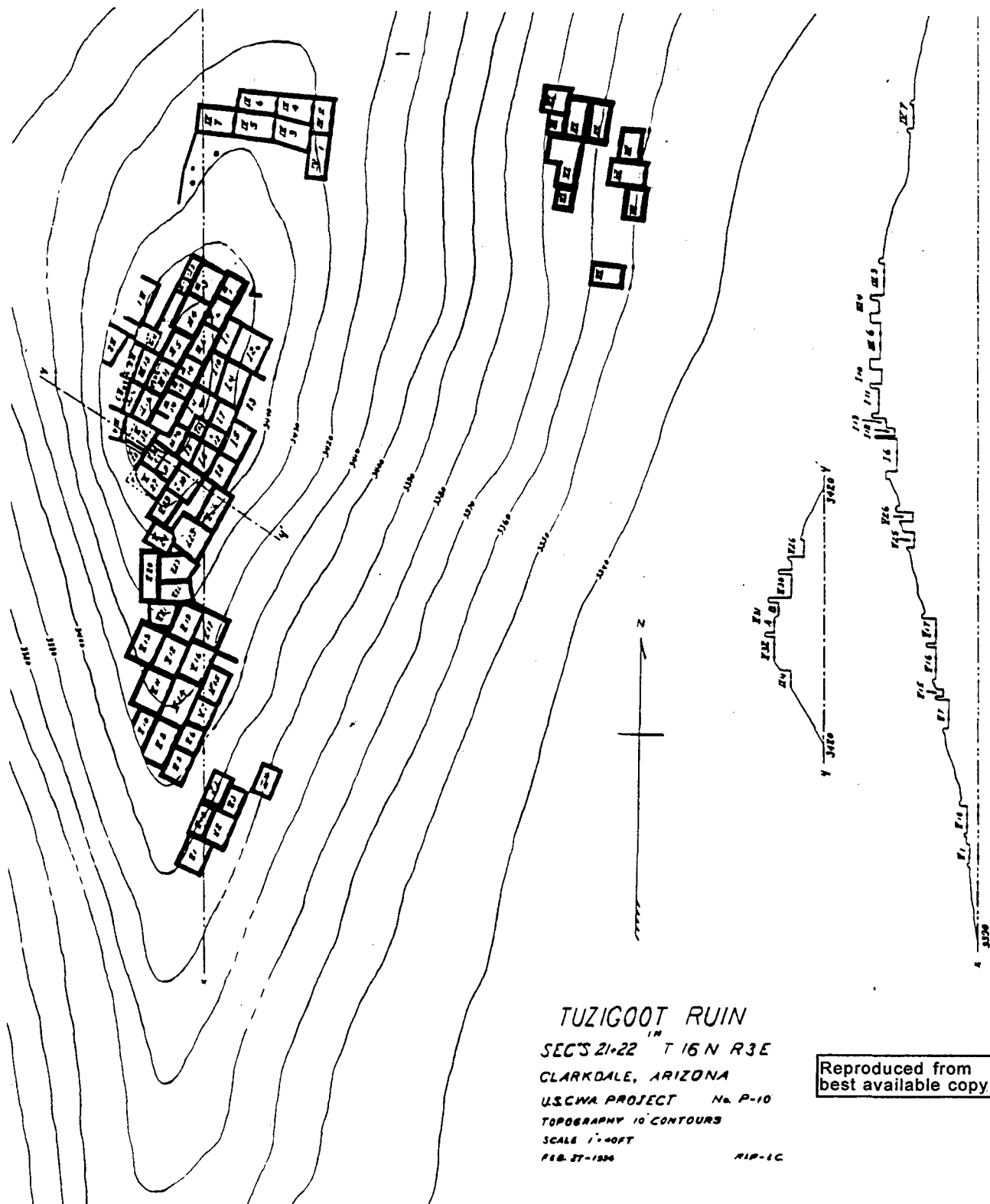


Figure 2. 1934 Plan and Section of Tuzigoot

There was less systematic recording of the rooms, information for which consists of narrative text of varying detail accompanied by small sketches. This information has been systematically extracted and combined with more recent observations and measurements and is published in Appendix 1 of Hartman's 1976 overview of Tuzigoot. In addition to intramural and extramural burials, it includes features, fill and miscellaneous notes. The latter include occasional references to superpositions of walls and midden, which give a few clues to the development and construction sequence of the pueblo.

Following excavation, all but a few skeletal remains were reburied in a large pit dug in the east slope below Tuzigoot, close to the main concentration of burials. A few osteological remains are curated at Arizona State University.

In their report, Caywood and Spicer give summary treatment to the burials, giving a few counts and abstracting modal patterns as was the practice of the time. The patterns were presented under the following headings: Number, Age Distribution, Location, Refuse Burials, Sub-Floor Burials, Orientation, Position of the Body, Protection of the Body, Slab Burials, Pole-Covered Burials, Body Wrappings, Face and Body Painting, Double Burials, Posthumous Disturbance, Offerings, and Deformation. In a little over 7 single-space typewritten pages, they provided a comprehensive summary of the inhumation practices at Tuzigoot and the range of variation within these practices.

The burials at Tuzigoot were all interments, either inside the pueblo or in the slopes outside. In the pueblo, they were found inside and outside of rooms, above or below floors or walls. Usually they were buried in extended supine position. Burial pits might be lined and/or covered with stone slabs. A smaller number were covered with wooden poles, or slabs and poles. Some bodies were placed in alcoves dug into slopes or banks, and these were often covered with stone slabs. A few bodies were wrapped in twilled mats. Green or blue pigment residue from face paint occurred in a few burials, and hematite pigment adhered to the matting over one young child. Double burials occurred in a few cases. The most common offering was pottery; the next most common objects were personal adornments: necklaces, bracelets of turquoise and shell beads, pendants of carved shell, turquoise, and turquoise mosaic. Bone awls occurred near the heads of a few burials, possibly hair ornaments. Utilitarian objects, not common, include stone axes, stone arrowpoints, a small bow and miscellaneous chipped stone objects. Even more rare were coiled baskets, prayer sticks and powdered azurite.

THE PUEBLO

Tuzigoot Pueblo is the type site for the Tuzigoot Phase of the Southern Sinagua tradition. It is an 86-room ruin atop a ridge overlooking the Verde River near Clarkdale, Arizona. The main body of the site consists of 69 contiguous rooms (Groups I-III,V) aligned with the ridge, generally oriented north-south. A separate block of 7 rooms (Group IV) oriented east-west lies approximately 60 feet (18 meters) north of these; the intervening space, partially enclosed by a wing-wall to the west, is assumed to be a plaza. Approximately 150 feet (c. 45 meters) downslope to the northeast is a block of 10 rooms (Group VI).

Tuzigoot sits at the east end of a holocene terrace along the north bank of the river (Figure 3). This terrace, formed by an oxbow diversion of the river, likely provided farmland. Riverine resources are available along the river and along the relict course of the oxbow forming Peck's Lake and Tavaschi Marsh. In addition to Tuzigoot, two other substantial sites of the Honanki-Tuzigoot Phase overlook this terrace. South of Tuzigoot and across the river is a 25-room pueblo, the Tuzigoot Extension. Approximately 1.4 miles (2.6 km) northwest of Tuzigoot are the much-potted but unexcavated remains of Hatalacva, which appears the same size as Tuzigoot; Tagg estimated 75 ground floor rooms for the pueblo. In addition, remains of several small dwellings, field houses and artifact scatters have been recorded and/or excavated along this stretch of the Verde, reflecting a variety of activities that have occurred here during the Sinagua occupation (Greenwald 1989, Tagg 1986).

In addition to the immediately available natural resources, Tuzigoot had mineral resources available, which undoubtedly attracted interest from other areas and figured in trade. Salt was mined near Camp Verde, and red argillite was mined near Dewey and in the Perkinsville Valley. Copper ores and derivatives were available from the Black Hills near Jerome, though no prehistoric mines are recorded (Fish and Fish 1977:8).

CHRONOLOGY OF THE SETTLEMENT

In Caywood and Spicer's original report, they inferred three periods of construction: 1) pre-A.D. 1000 to A.D. 1200; 2) A.D. 1200 to 1300; and 3) post-A.D. 1300. The construction sequence began, according to their interpretation, with four to eight rooms on top of the ridge and four rooms on the west slope. This posited twelve-room settlement lasted until period 2, when eight rooms, not identified by number, were built over the small rooms on the west slope. The final period was marked by construction on the south, north and east slopes (1935a:38-40). The evidence upon which they based their sequence was superposition of one room over another, refuse deposits above or below rooms, tree-ring dated ceramics, and two tree-ring dates of about A.D. 1200 from the roofs of rooms 3 and 4, group III.

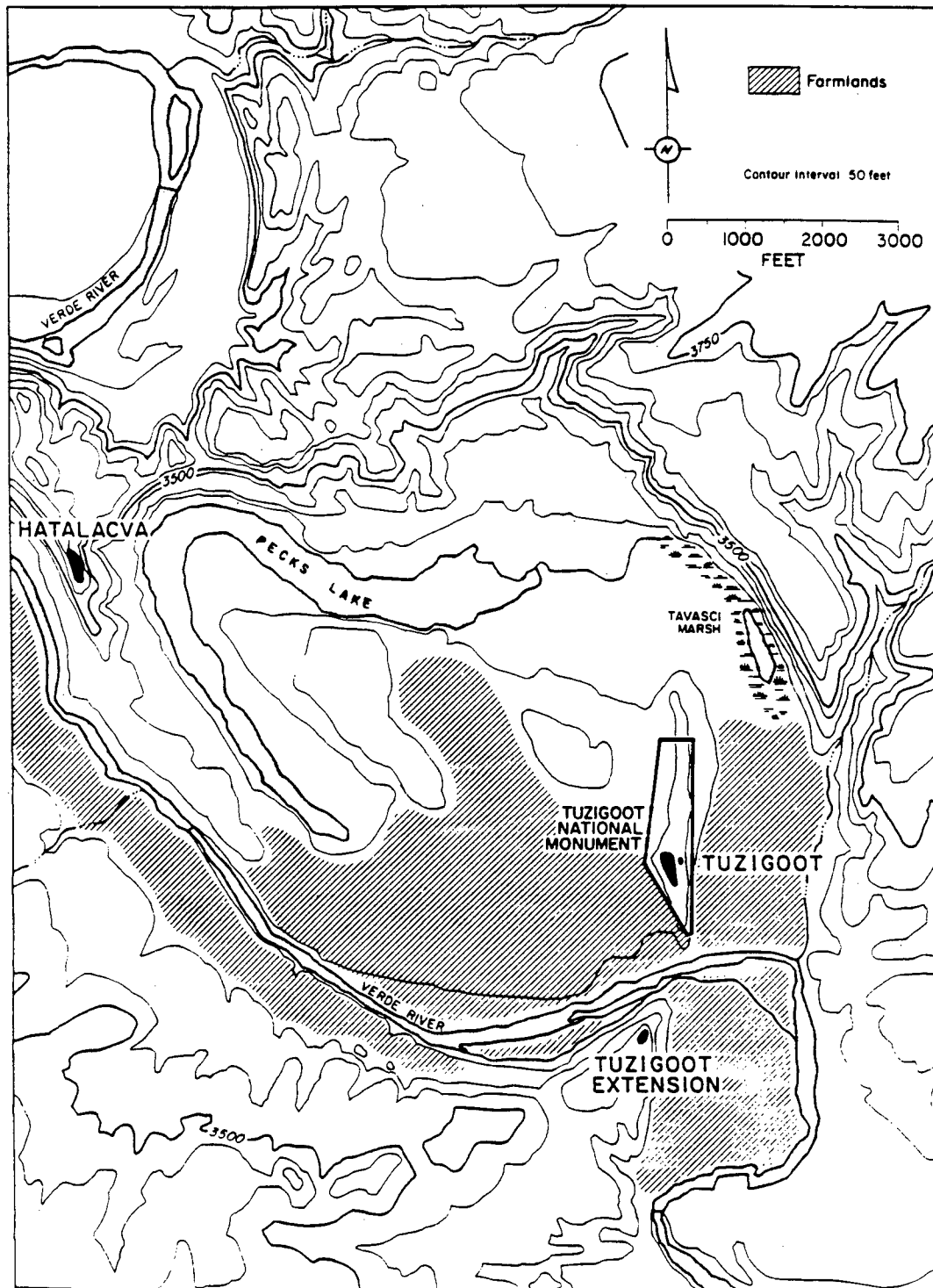


Figure 3. Tuzigoot Surroundings
(After Hartman 1976)

Since then, 28 tree-ring dates have been obtained, spanning A.D. 1137 to A.D. 1386 (Bannister, Gell and Hannah 1966:12-14).

Table 1
Tuzigoot Tree-Ring Dates

Group I, Room 2 (?).....	1352p - 1386vv
Group I, Room 12.....	1263fp - 1366vv
Group II, Room 3.....	1086p - 1136v
	1076p - 1137rB
	1131p - 1177r
	1138p - 1178r
	1142 - 1178r
	1148 - 1221r
Group II, General.....	1099 - 1144vv
Group II, Room 5.....	1148p - 1182v
	1155p - 1184vv
Group III, Room 10.....	1132 - 1185vv
Group III, Room 13.....	1108 - 1155vv
	1146 - 1180vv
	1123 - 1181vv
	1130 - 1185r
	1150 - 1185r
Group IV, Room 1.....	1344 - 1380vv
	1327 - 1386vv
	1344 - 1386r
Group V, (?).....	1196 - 1242vv
	1281 - 1314v
	1206 - 1316vv

The earliest date supported by these tree-ring dates and pottery types is A.D. 1140. The dated decorated pottery reported from excavations by Caywood and Spicer (1935a:48), and a later trench up the east slope by Fred Peck (1959), grouped by period of manufacture, is shown in Tables 2-6. (The type names come from the reports, and records; they have not been verified by inspection of the vessels and sherds.) Only 2.3% of the decorated sherds belong to types that could have been made prior to A.D. 1050; 46.9% span the period A.D. 1100 to A.D. 1300. These are primarily Anasazi types, which would fit with the post- A.D. 1140 date indicated by the tree rings; this is the best estimate for first construction at Tuzigoot. The remaining 50.8% mark the period A.D. 1300 to A.D. 1400; these are predominantly Jeddito Yellow Ware types.

Table 2
Tuzigoot Decorated Pottery, A.D. 1300-1400

<u>Type</u>	<u>Caywood & Spicer</u>		<u>Peck</u>	<u>Total Sherds</u>
	<u>Sherds</u>	<u>Vessels</u>	<u>Sherds</u>	
Jeddito Black-on-Yellow	734	15	29	763
Bidahochi Polychrome	40	4	3	43
Bidahochi Black-on-white	23	3	11	34
Homolovi Polychrome		2	6	8
Homolovi Black-on-red			2	2
Winslow Polychrome*	70	5		70
Winslow Black-on-orange	43	5		43
Four Mile Polychrome		2		2
Gila Polychrome	6			6
Gila Black-on-red	6			6
<u>Tuwiuca Black-on-orange</u>			14	14
Total				991

Table 3
Tuzigoot Decorated Pottery, A.D. 1250-1300

<u>Type</u>	<u>Caywood & Spicer</u>		<u>Peck</u>	<u>Total Sherds</u>
	<u>Sherds</u>	<u>Vessels</u>	<u>Sherds</u>	
Kintiel Black-on-orange			1	1
Pinedale Polychrome	1			1
Kayenta Black-on-white	17	1		18
Kayenta Polychrome	3			3
<u>Klagetoh Polychrome</u>	3			3
Total				26

*Probably Homolovi Polychrome (Colton 1965:17)

Table 4
Tuzigoot Decorated Pottery, A.D. 1100-1300

<u>Type</u>	<u>Caywood & Spicer</u>		<u>Peck</u>	<u>Total Sherds</u>
	<u>Sherds</u>	<u>Vessels</u>	<u>Sherds</u>	
St Johns Polychrome	10			10
Tusayan Black-on-white	41			41
Tularosa Black-on-white	4			4
Tusayan Polychrome	37			37
Citadel Polychrome			1	1
Flagstaff Black-on-white	253	2	69	322
<u>Walnut Black-on-white</u>	427	2	14	441
Total				856

Table 5
Tuzigoot Decorated Sherds, A.D. 1050-1200

<u>Type</u>	<u>Caywood & Spicer</u>	<u>Peck</u>	<u>Total</u>
Dogoszhi Black-on-white		1	1
Tusayan Black-on-red	29	1	30
Showlow Black-on-red	4		4
Total			35

Table 6
Tuzigoot Decorated Sherds, A.D. 725-1130

<u>Type</u>	<u>Caywood & Spicer</u>	<u>Peck</u>	<u>Total</u>
Deadman's Black-on-gray	7		7
Black Mesa Black-on-white	15	1	16
Deadman's Black-on-red	12	1	13
Kana-a Black-on-white	8	1	9
Total			45

One can only approximately reconstruct Caywood and Spicer's stages of construction of Tuzigoot on the basis of their field records. They did not specify which rooms were the first built, or the evidence upon which they based the original core pueblo. The records show that rooms III-7 to III-9 preceded rooms III-4 and III-5, which were built atop the walls of three smaller rooms downslope. Four other rooms, I-2, I-7, V-30 and V-31, were built on earlier walls, and a number of rooms were built over refuse deposits on the crest of the ridge and on the east slope.

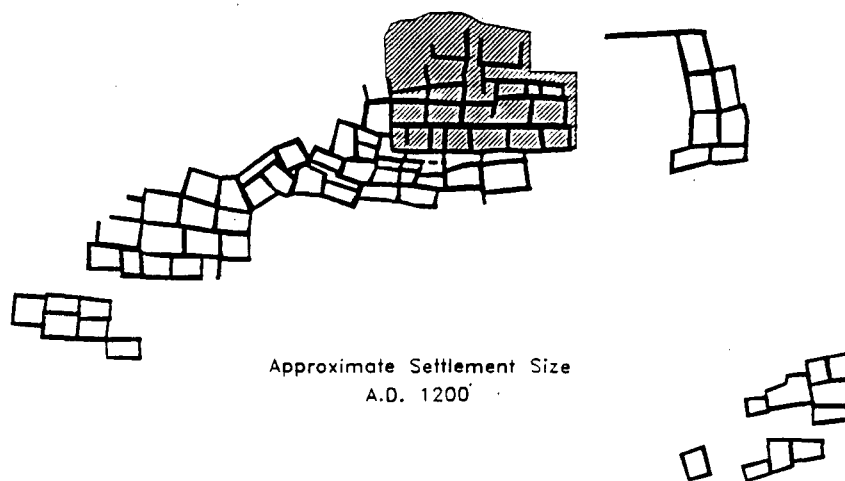


Figure 4.

The distribution of tree-ring dates by room and group (Table 2) is in accord with Caywood and Spicer's posited second stage of occupation, with cutting dates indicating construction between

A.D. 1137 to A.D. 1221. The extent of the small pueblo during this time is unknowable, but it evidently was on the ridge crest and the western slope (Figure 4), and had 12 or more rooms; in this block, 10 hearths were recorded. Using one hearth as an indication of a nuclear family of five members, the population of the pueblo at this time was about 50. While some rooms in this original core settlement were abandoned by A.D. 1400, others apparently continued in use.

The tree-ring dates and their horizontal distribution indicate that Tuzigoot Pueblo reached its maximum size rather quickly in the 14th century, during which it appears that the site population increased by four or five times its previous size. There are 12 tree-ring dates for the room-blocks which were added down-slope at the north, east and south: only one (1242VV) precedes A.D. 1300. Field notes state that the downslope walls of Group VI sit on 6 to 12 inches of cultural debris, including ash and sherds. Jeddito Black-on-orange was found at the lowest levels, down to 5 feet, in fill outside rooms. This indicates that Group VI rooms were built late in the Tuzigoot sequence. The pueblo appears to have reached its maximum size by about A.D. 1390, (Figure 5) by which time all the western downslope rooms were abandoned and under refuse deposits. At this time at least eight rooms within the pueblo had also been abandoned and had burials within the refuse in the rooms. These abandoned rooms form a cluster in the east-central portion of the pueblo. This area of the settlement also included rooms without hearths, possibly storerooms, and what appear to have been unroofed enclosures. Thus, at the final occupation of Tuzigoot there appears to have been a sizable area of standing rooms and space in the middle of the pueblo that was not used for habitation. There were 40 hearths recorded for the remaining ground floor rooms in groups I-V, and likely seven more for group VI. At five persons per hearth, this gives an approximate population of 235, which agrees with Hartman's (1976:37) estimate of 225; Caywood and Spicer's (1935a:40) estimate of 450 appears too high. The uncertainty of a population estimate is compounded by the likelihood that not all living rooms were used for living at the same time, and the fact that perhaps 14 rooms had two stories and one had three stories.

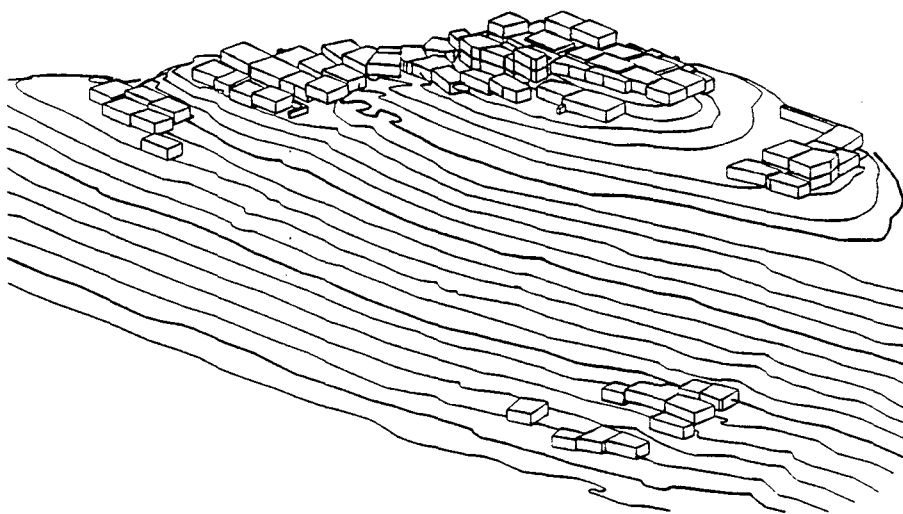


Figure 5. Tuzigoot Pueblo, A.D. 1400

CONTEXT

The Settlement

While the presence of a perennial stream with lush riparian growth gives the Middle Verde Valley an appearance of rich resource potential, the degree to which this stream supported farming is unknown. The valley is the northernmost extension of the upper Sonoran zone, associated through many centuries with the Hohokam and canal irrigation in the Gila and Salt Valleys. However the Middle Verde floodplain, while eminently tillable, is relatively narrow and has few remains of canal irrigation (Fish and Fish 1977; Greenwald 1989; McGuire 1991; Tagg 1986; Wells and Anderson 1988). Hohokam connections and communities in the Verde terminated well before the founding of Tuzigoot. By the 13th century, trade in pottery was with the Sinagua and protohistoric Hopi of the north and east, rather than the Classic Hohokam (Pilles 1984). While canals, waffle gardens, check dams and other techniques for conserving water and soil for maize gardening are scattered along the Middle Verde, the ecotonal situation of the drainage, with close access to a variety of resources and a relatively short growing season, indicates an eclectic and ample subsistence base (Pilles 1984; Fish and Fish 1977; Greenwald 1989).

Although much of the presumed sustaining area of Tuzigoot has been obscured by development and the mine tailings below the pueblo, and direct evidence of diet is limited, what is known from limited excavation and survey points to a mixed gardening and collecting economy drawing from the river valley and surrounding uplands. The domestic corn-beans-squash triad and probably cotton were cultivated (Pilles 1984). Tuzigoot residents probably gathered agave on the field peripheries and uplands and captured some fish and waterfowl along the river. A variety of animal remains from small rodents to deer are represented in the small sample available from excavation (Caywood and Spicer 1935a).

The sites in and surrounding a relict oxbow (Peck's Lake) and the adjacent floodplain show perhaps 700 years of Hohokam/Sinagua occupation (Caywood and Spicer 1935a; Greenwald 1989; Tagg 1986). During Honanki/Tuzigoot times there were two medium-sized pueblos (Tuzigoot, Hatalacva), a smaller pueblo (Tuzigoot Extension), 1-3-room field houses or outlying dwellings, canal segments and open work areas sharing an estimated 1200 acres of arable land (Hartman 1976:26-27; Tagg 1986:22). Recent detailed recording and excavation has documented a roasting pit or horno probably for cooking agave, and a cluster of rock piles of possible agricultural function; these are of Tuzigoot Phase age or later (Greenwald 1989). It is reasonable to assume that there was frequent interaction and cooperation between the three pueblo settlements such that they formed segments of a single community. Further research might illuminate more clearly the relationships between them; superficially, Tuzigoot and Hatalacva appear similar in size and structure and both have a single plaza. Pilles (1984) infers that one room in Tuzigoot is a kiva, presumably room III-14, which has a sunken central section; an alternative interpretation is that it is simply a variant of a dwelling type common at Montezuma Castle (Wells and Anderson 1988; Jackson and Van Valkenburgh 1954). In the perspective of the larger Middle Verde settlement system, these pueblos would rank as second-order communities; Pilles has suggested that three sites of 200 or more rooms, spaced 18-20 miles apart, may have been the dominant communities in three districts of equal size within the Valley (Pilles 1986). Tuzigoot probably played an intermediary role in the collection and exchange of local minerals: the argillite found at Tuzigoot was quarried in the Chino Valley, c. 25 miles west (Bartlett 1939;

John Madsen, personal communication; Elson and Gunderson 1992), salt was presumably quarried c. 20 miles down valley at Camp Verde (Morris 1928); the closest copper mineral source was probably Black Hills, to the south, from which malachite, azurite and turquoise may have been available (Greenwald 1989). Pilles (1986) has suggested that the Verde had potential for a surplus of cultivated foods and cotton, which may have been traded to less fortunate communities on the Mogollon Rim. Items traded into the Middle Verde were obsidian from the Flagstaff area (Pilles 1986), shell from the Gulf of California, pottery from the Prescott Area (Prescott Gray Ware) and an as yet unidentified source between the Verde and the Hopi Villages (Jeddito Yellow Ware) presumably in the vicinity of Chavez Pass or Anderson Mesa (Ronald Bishop, personal communication). On balance, then, the Middle Verde was an area seemingly rich in resources, with little need for exotic goods or supplemental foodstuffs. The one exception was shell, which was one of the most common items of adornment. In the network of trade, Tuzigoot would seem to have been simply one link in a chain of exchange between communities lying along the river valley, without exclusive control of any one resource. The primary problem of intervillage coordination and cooperation would appear to have been the apportionment of farming lands and hunting/collecting territories within the Peck's Lake sustaining area.

Mortuary Analysis

In recent years, burials from a number of prehistoric sites and localities have been studied in an effort to increase understanding of evolving horticultural society in the Southwest. These burials represent prehistoric communities occupied between A.D.1000 and A.D.1400, during which period the general demographic trend, with regional variations, was an increase in population and geographic dispersal, followed by reduction in territory and aggregation of settlement. Current research is focussed on abstracting components of prehistoric society and economy, and the principles of organization by which intra- and intercommunity relations were maintained (cf. Upham 1982; Crown and Judge 1991). Recurrent topics of discussion are centralization and hierarchical ranking of settlements, from which are inferred leadership classes who exercised authority over these social, economic and political relationships. Commonly, studies with this focus question the egalitarian character traditionally ascribed to native southwestern societies, though there are arguments on both sides (Wilcox 1991).

In the last 20 years, archeological analysis of mortuary remains has been structured by the approach originated with work by Saxe (1970), Binford (1971) and Brown (1971), framed within the ethnologically-derived evolutionary model developed by Service (1971) and Fried (1967). The underlying premise is that the treatment of the dead reflects the status or collection of statuses (social person) occupied by the individual in life; it is assumed that systematic analysis of mortuary remains can abstract these statuses and permit reconstruction of the principles of social ordering in the extinct society. This has had a seductive appeal for archeologists interested in the social dimensions of prehistoric communities, and a number of mortuary populations have been studied with this intent. Building on Service and Fried's evolutionary scheme, at the core of which is the Band-Tribe-Chiefdom-State sequence, Peebles and Kus (1977) postulated archeological correlates to these levels of development and tested them against Mississippian cultures in the eastern U.S. This and similar models have been the basic framework for a number of mortuary studies. At issue in particular has been egalitarian vs. ranked status, with the assumption that achieved status is characteristic of egalitarian bands and tribes, while ascribed ranked status is associated with chiefdoms.

Currently, a dominant research focus is the search for evidence of evolution in sociopolitical complexity, scale, and organization, placing southwest archeology in the context of general evolution from pre-horticultural societies to the state. Most recently, there is a shift away from a typological approach that relegates the subject society to the appropriate band-tribe-chieftdom pigeonhole, toward attempts to identify the internal differentiation of societies and the decision-making mechanisms within them. These attempts are developed within the large body of data on prehistoric climate, subsistence, trade and settlement distribution that has accumulated in the southwest in recent decades (Flannery 1972; Lightfoot 1984; Sebastian 1991; Redman 1991). A common concern of most studies, implicit or explicit, has been whether the prehistoric horticultural groups in the southwest were analogous to surviving communities---particularly the Pueblos---or whether they exceeded them in development (Upham 1982; Whitely 1988; Wilcox 1981).

The relevance of mortuary studies to this question, as usually posed, is the presence of achieved status implying band or tribal organization vs. ascribed status characteristic of the chieftdom. The former signifies social position accomplished during the individual's life span; the latter reflects status conferred at birth by virtue of membership in kin groups or families occupying positions of prestige and authority. It is assumed that achieved status is manifest in mortuary remains by the association of valued objects or features which increase in number and significance with the age of the individual; children have few or none, while elder adults have the most. It is also assumed that males have more and/or better things than females, since male leadership was the rule in such societies. By contrast, in societies of ascribed status a small number of individuals of all ages and both sexes are set apart from the rest by special burial goods, distinguished by greater numbers and/or quality. These segments of the population may also be set apart physically from the rest of the population.

Expectedly, research results have been mixed, depending on the sample, methods, and logic employed. What has seemed to be a potentially elegant line of inquiry has proved to be more equivocal in result than might have been expected, with a great deal of statistical analysis but not always conclusive results. Some sites, such as the Virgin Anasazi site of Lost City (Lyneis 1992) and the Mimbres period Mattocks site (Gilman 1990) conform well to an egalitarian model, with a tendency for more materials to be found in association with adult burials. The large late Mogollon site of Grasshopper Pueblo (Whittlesey 1978) and smaller Northern Sinagua sites (Hohmann 1983) are more equivocal, though they also appear egalitarian in nature. Two localities, Casas Grandes in Chihuahua, Mexico (Di Peso et al. 1974; Ravesloot 1988) and Chaco Canyon, New Mexico (Akins 1986) almost certainly had discrete ascribed statuses occupied by members of an elite group, and the presence of such a class is supported by context. Casas Grandes was a sizeable town comprising discrete precincts associated with distinctive craft specializations or classes; distinctive burials, adult and adolescent, were found in special locations within these precincts. Chaco burials of all ages with rich accompaniments were found in Pueblo Bonito in two clusters of rooms apparently dedicated to mortuary and sacred uses. Pueblo Bonito is the largest site in a system of hierarchically ranked settlements whose origins and sociopolitical organization have as many interpretations as there are Chacoan scholars, but there is general agreement on centralization of control (see Crown and Judge 1991). Analysis of Hohokam mortuary remains has not progressed as far as in other parts of the Southwest, because large samples of data have not been as systematically collected (Mitchell 1991; Wilcox 1991), but Wilcox has inferred that a leadership class resided on platform mounds during the late Classic period, and his arguments are convincing; the question of ascribed vs. achieved status seems not to have been

addressed. To date, mortuary studies only indicate that some adult individuals possessed more, and more exotic, things.

Given these past results, it may appear redundant to repeat such analysis at Tuzigoot. However, the nature of the records and the sample does provide potential for useful study, adopting a perspective grounded on an ethnologic base rather than an abstract evolutionary one. In particular, data are amenable to a reconstruction of change in status with age. Because it was completely excavated and the village had a clearly identified cemetery, Tuzigoot probably provides as valid a sample of the original population as any southwestern site that has been dug. Further, while we do not have well-documented criteria used for aging and sexing the skeletons, this was attempted with some refinement by Caywood and Spicer. Hence, the 393 skeletons for which we have records have the potential for giving us a picture of status transitions, as represented by mortuary treatment and associations, and not just a simple sub-adult/adult dichotomy. Age may not be exact, but this sample gives a more refined basis than most cases for tracing the process of status acquisition as the individual matured.

For purposes of analysis, the mortuary remains of Tuzigoot are viewed as the expression of 1) the status of the individual as indicated by grave accompaniments, both in number and in kind; and 2) the social groupings concerned with the individual's death as indicated by grave location. The use of grave accompaniments to abstract class or status groupings is a common element in most mortuary studies. The use of grave location is not so commonly used, though its implications were systematically developed in 1971 by Binford in a review of 40 examples representing hunters and gatherers, shifting agriculturalists, settled agriculturalists and pastoralists. In examining the aspects ("dimensions") of mortuary practices associated with these subsistence categories he concluded that the degree of separation of infant and child from those of adults was an expression of the level of corporate involvement, depending on the presence of inherited social position. In societies where social position is not inherited, infants and children were buried separately from the adults, either under house floors or in locations peripheral to the village. This because mortuary rites are carried out by the immediate family, the only group within which the child has established duty-status relationships. The burial of adults in public space involves greater participation by the wider group in which duty-status relations have been established. By extension of this argument, children with ascribed membership in such group would be buried in the public cemetery, with more corporate involvement. Locational distinctions as a manifestation of larger kin groupings were also noted, with clans, kindreds or lineages buried in separate locations, often with grave orientations differing with each group, aligned with solar reference points significant in the groups's origin myth (Binford 1971: 21-22).

The recorded ethnography of southwestern Pueblos, not included in Binford's sample, conforms to this pattern, with distinction between child and adult burial locations. In pueblos, burial of adults appears to have been attended by a relatively small number of kin; burial of infants and children was accomplished by the parents (Parsons 1939:68-76; Stephen 1936:394,491,826,951, 1005; Simmons 256-257,261,270,313). In Santo Domingo, Cochiti and Zuni stillborns or babies dying before baptism were buried in the house; Isleta stillborn were buried in a cave; stillborn and unbaptized infants at Zia and Taos were buried outside of town; Hopi children who died at Oraibi before they could be initiated into kachina societies were buried in crevices in the cliffs (Kidder 1958:281).

The Tuzigoot field records list artifacts and attributes which can be used in comparing age categories for status distinctions. Locational data are less specific but also usable. In the press

of time, Caywood and Spicer were unable to record provenience in greater detail than group and/or room. Neither did they describe or draw profiles. While locations for burials outside the pueblo were not individually plotted, as a unit they comprise the most public burial location; the least public were burials under room floors. Intermediate between these are burials within the confines of the pueblo but not below the floors; presumably in most cases these were placed in abandoned rooms. Thus the Tuzigoot locational data can be arrayed in three increments of increasingly public locales against which burials of individuals of different age can be compared. Unfortunately, since burials outside rooms must be considered as a single unit, there is no way to isolate distinctive locations where separate groups like clans, kindreds or lineages might have been buried.

ASSOCIATIONS WITH AGE, SEX AND LOCATION

The Burial Population

Age

The representation of age in the Tuzigoot mortuary sample is a manifestation of life expectancy in the pueblo. This determined how well each age group is represented and, in turn, the confidence with which we can speak of changes in status with age.

Caywood and Spicer (1935a:94) reported the following age distribution:

Infant (under 6)	170
Child (6-15)	87
Sub-adult (15-21)	11
Adult (21-50)	118
Old (Over 50)	19
Undetermined	<u>24</u>
Total	429

The distribution used in this report, based on the field records, is:

Newborn (Less than 6 months)	51
Baby (7 months to 2 years)	53
Child (3-6)	91
Youth (7-12)	24
Sub-adult (13-16)	9
Adult (17+)	101
Old Adult (45+)	<u>26</u>
Total	355

Two age categories have been added, and the ages used were changed in an attempt to reflect the biological and cultural increments of growth that would be more appropriate to the Tuzigoot community than the Anglo cultural framework employed by Caywood and Spicer. If this is a valid sample, less than half of Tuzigoot children survived the age of 6, but if they reached the age of 12 they had a very good chance of attaining adulthood. As the sample representing the transition from child to adult (age 13 to age 17) in the Tuzigoot is very small, this limits the evidence for changes in status that occurred during this 4-year period.

While the almost total excavation of Tuzigoot and the slopes below it would seem to support the assumption that the burials represent the village population, there is one identifiable bias, discussed in their report. Prior to excavation, Tuzigoot had been the scene of "much illicit digging....judging from the great number of disturbed graves encountered, from the number of human bones that had been left lying on the surface by previous diggers, and from the accounts of operations by local pot-hunters themselves, it would seem that a conservative estimate for the number of previously removed burials would be about one hundred and fifty." (Caywood and Spicer 1935a:94)

Assuming that pot-hunting concentrated in the cemetery area and the upper levels of the pueblo, it is probable that the vandalized burials had a higher proportion of adult burials than the sample excavated from Tuzigoot, which recovered a number of sub-floor infant and child burials. To derive the most representative population profile, admittedly still a soft estimate, I have taken the estimate of 150 burials and distributed them according to the age categories found above room floors and outside of the pueblo. These figures have been added to the 355 for which field notes give the age, which results in the proportions shown below.

Table 7
Adjusted Age Categories

	<u>N</u>	<u>%</u>
Newborn	64	12.7
Baby	73	14.5
Child	124	24.6
Youth	34	6.7
Sub-Adult	14	2.8
Adult	156	30.9
Old Adult	<u>40</u>	<u>7.9</u>
	505	100.1

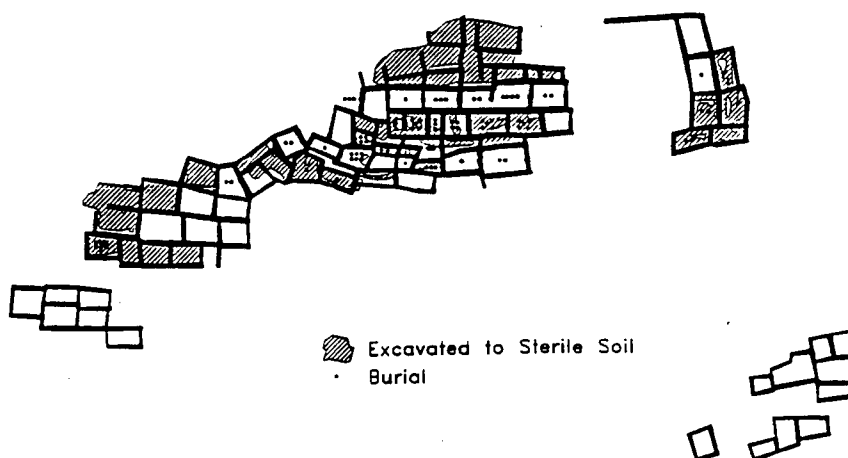


Figure 6. Subfloor Excavation and Burials

For purposes of comparison with other populations, "Sub-Adults" (including all sub-adults and younger) comprised 61% of the Tuzigoot mortuary remains. As shown in Figure 6, there are still rooms in the pueblo that have not been excavated to bedrock, and it is likely that a few infant

burials still remain, which would increase the proportion of infants and children. Nevertheless, the Tuzigoot sample appears to be within the range of other large southwestern sites, as shown in Table 8.

Table 8
Percentage of Sub-Adults
from Selected Southwestern Sites

Grasshopper Pueblo	66%	(Hinkes 1983)
Tuzigoot	61%	
Gran Quivira Mound 7	59%	(Reed 1981:75-77)
Lost City	53%	(Lyneis 1992)
Pecos Pueblo	40%	(Kidder 1958:283; Table VI)
Casas Grandes	39%	(Raveslout 1988; Di Peso et al. 1974:Vol.8:357)
Northern Sinagua (Angell- Elden Phases)	32%-38%	(Hohmann 1983)

Clearly, with such variation in samples, any comparative demographic studies should carefully examine both the prehistoric context and archeological excavation strategy to determine if different samples are in fact comparable. If a significant segment of the population (for example, children and infants) were buried away from the main cemetery the sample will be biased; sampling error will also occur if excavation concentrates on one component of the site at the expense of others. In the case of Tuzigoot, we can be reasonably confident that the second error did not occur; with the exception of some subfloor fill, Tuzigoot has been totally excavated. For purposes of comparing different age-categories and cultural associations for patterns of status differences, the Tuzigoot sample appears to be a good one. For comparison with other studies, another methodological variable needs to be taken into account: age categories are not standardized, and often the criteria of aging skeletons has been no more explicit than at Tuzigoot. This is not a problem as long as studies focus on general trends of aging; it does preclude accurate comparisons of specific age-groupings of more refinement than "sub-adult" (generally those younger than 18 to 20) with "adults" of greater age.

Sex

Sex identification for the adult category is as follows: 43 male; 24 female; 34 not determined. Sex identification for the old adult category is: 12 male; 10 female; 4 not determined. Sex was not determined for ages younger than adult.

Burial Features

Burial Location

Caywood and Spicer state that 250 burials out of 429 were in the refuse deposits on the east and west slopes below the pueblo. Most of these were adults but 93 were under 15 years

of age. Of 171 individuals buried under room floors, only three were adults (Caywood and Spicer 1935a:95). The field notes are not clear on which extramural burials within groups I through V are on the slopes, but they do indicate that 144 out of 375 were found within rooms. Age and location were recorded for 199 burials (Table 9).

Table 9
Burial Location, by Age

<u>Age</u>	<u>Inside Rooms</u>			<u>Outside Rooms</u>
	<u>Under Floors</u>	<u>Above Floors</u>	<u>Other</u>	
Newborn	27	8	11	5
Baby	16	1	8	28
Child	30	3	13	42
Youth	6	1	4	10
Sub-Adult	0	0	2	7
Adult	0	2	5	88
Older Adult	0	1	1	19
Total	76	15	42	199

Newborns were rarely (10% of total) buried outside rooms, and usually were buried in pits dug through room floors. Older children, from 6 months to 12 years, were as likely to be buried outside rooms as inside; only one-third of those over 2 years old were buried below floors. After approximately age 12 they were almost always (91%) buried outside in the adult cemetery.

Type of Grave

Records describe modification of grave pits by stone slab linings and/or covers and/or pole covers.

Table 10
Grave Construction, by Age

<u>Age</u>	<u>Total Burials</u>	<u>Slab Linings and/or Covers</u>	<u>Pole Covers</u>
Newborn	51	15	1
Baby	53	9	0
Child	91	20	1
Youth	24	10	1
Sub-Adult	9	2	0
Adult	101	4	15
Older Adult	26	7	5

Slab-covering was not common, and was usually a feature of child burials. Slab-lined burials were rare, but showed the same pattern. With few exceptions, poles were used to cover adult burials, and were more common for males than females.

Table 11
Grave Construction, by Sex

<u>Sex</u>	<u>Total Burials</u>	<u>Slab Lining/ Covers</u>	<u>Pole Covers</u>
Male	57	5	14
Female	35	3	4

Burial Orientation

In their report, Caywood and Spicer state that the majority of burials were aligned north-south, with those with heads to north approximately the same as those with heads to the south; they felt that this was because burials were aligned with the ridge for practical reasons. By their count, 9 burials were oriented east and 3 were oriented west. They found that subfloor burials pointed in all directions, though somewhat more commonly to the south. In general, sub-floor burials were laid parallel to the wall nearest them, with the majority being near the east wall (Caywood and Spicer 1935:97). Table 12 gives data from the field records, showing orientation of burials by age groups.

Table 12
Orientation of Burial, by Age

<u>Age</u>	<u>North</u>	<u>South</u>	<u>East</u>	<u>West</u>	<u>Total</u>
Newborn	10	10	5	7	32
Baby	16	23	3	7	49
Child	27	35	4	6	72
Youth	5	11	4	3	23
Sub-Adult	4	4	1	1	10
Adult	50	39	2	0	91
Older Adult	7	15	2	0	24
<u>Age Unknown</u>	20	11	0	0	31
Total	139	148	21	24	332

There are 288 burials for which age is recorded; only 45 of these are oriented east or west. It is clear that the preferred orientation was north-south. Newborns were more likely to be buried in an east-west orientation than other groups; adults rarely deviated from a north-south orientation. As Caywood and Spicer infer, this was a practical matter; adults were commonly buried on the slopes where east-west burial would take significantly more work. For those categories (adult, older adult) for which sex was distinguishable, there was a preference for males to be oriented

with the head to the north, and females to be oriented with the head to the south (Table 13). This gender difference may account for the preponderance of old adults having the head to the south, since there were more old females than old males. Table 14 shows that old females were usually buried with head to the south.

Table 13
Orientation of Burial, by Sex

<u>Sex</u>	<u>North</u>	<u>South</u>	<u>East</u>	<u>West</u>	<u>Total</u>
Male	31	19	2	0	52
<u>Female</u>	<u>11</u>	<u>20</u>	<u>2</u>	<u>0</u>	<u>33</u>
Total	42	39	4	0	85

Table 14
Orientation of Old Adult Burials, by Sex

<u>Sex</u>	<u>North</u>	<u>South</u>	<u>East</u>	<u>West</u>	<u>Total</u>
Male	6	5	1	0	12
<u>Female</u>	<u>1</u>	<u>7</u>	<u>1</u>	<u>0</u>	<u>9</u>
	7	12	2	0	21

Burial Goods

The total of all objects accompanying individuals by age at death is shown in Table 15, and distribution of objects by gender is shown in Table 16.

Table 15
Burial Goods, by Age

<u>Age</u>	<u>Burials</u>	<u>Burials with Artifacts</u>		<u>Artifacts</u>	<u>Artifacts /Burial</u>
		<u>#</u>	<u>%</u>		
Newborn	51	6	11.8	7	.14
Baby	53	17	32.1	23	.43
Child	91	30	33.0	43	.47
Youth	24	11	45.8	16	.67
Sub-Adult	9	1	11.1	1	.11
Adult*	101	55	54.5	118+	1.17+
Old Adult	26	10	38.5	27	1.04
Total	355	130	36.6	235+	.66+

The maximum number of artifacts in a single burial in each age category follows the same trend: Newborn - 2; Baby - 2; Child - 4; Youth - 3; Sub-Adult - 1; Adult - 13 (one burial with a cache of chipped tools and debitage undoubtedly had more, but individual items were not counted); Old Adult - 7. By a gross count of all types of artifacts combined, it appears that there are three general age categories differentiated by the associated quantities of artifacts: newborns (0-6 months), children (6 months to 12 years), and adults. Newborns had few artifacts, and adults had the most. In this situation, as in others, the sub-adult category is too poorly represented for valid interpretation.

Table 16
Burial Goods, by Sex

<u>Gender</u>	<u>Burials</u>	Burials with Artifacts		<u>Artifacts</u>	<u>/Burial</u>
		#	%		
Male*	57	30	52.6	87+	1.53
Female	35	13	37.1	22	.63

Table 16 shows that adult males were buried with significantly more artifacts than adult females; the maximum of number of artifacts with a male burial was over 20; six was the most found with a female. As with orientation, this pattern may account for the smaller number of artifacts with old adult burials, since old adult females outnumbered old adult males.

These differences become more meaningful when different artifact classes, signifying differences in use, symbolism and scarcity, are tabulated by age and sex categories.

Ornaments

The dominant ornamentation consists of jewelry: beads of shell or stone ; shell rings; shell bracelets; shell anklets; pendants suspended from the neck or ears; and shell tinklers. The most common materials were shell, followed by turquoise, red argillite, and "black stone". Objects ranged in complexity from simple shell bracelets to very long strings of shell, argillite, black stone and/or turquoise beads; the most elaborate objects were turquoise tesserae glued in mosaic patterns on shell.

Table 17, giving associations of jewelry with age without reference to complexity or materials used, shows that possession of jewelry was a function of age. Newborns had virtually none; only one in 51 burials had jewelry (three glycymeris bracelets) definitely adorning the body. Two others had objects in the fill, not definitely in association with the burials. Individuals older than 6 were significantly more likely to have jewelry.

*(Includes one male adult burial with all artifacts exceeding 13 by an unspecified number.)

Table 17
Jewelry, by Age

<u>Age</u>	<u>Burials</u>	<u>Burials with Jewelry</u>		<u>Objects</u>	<u>Objects/Burial</u>
Newborn	51	3	(5.8%)	3	.06
Baby	53	8	(15.1%)	10	.19
Child	91	9	(9.9%)	9	.10
Youth	24	8	(33.3%)	11	.46
Sub-Adult	9	1	(11.1%)	1	.11
Adult	101	16	(15.8%)	29	.29
Older Adult	26	5	(19.2%)	9	.35

The maximum jewelry objects by age group were: newborn 1; baby 2; child 1; youth 3; adult 7; older adult 3. Hence the quantitative distribution follows three increments: Newborn; 6 months to 6 years; 7 years and older. Examining items of jewelry in more detail, by materials used, shown in Table 18, the pattern remains essentially the same but with some more subtle differences accompanying growth. Only shell objects were found with newborns; older infants had some turquoise and one had a turquoise mosaic pendant; those between ages 3 and 14 might have occasional argillite beads. Only adults have black stone beads and, with the exception of the above mentioned baby burial, are the only burials with turquoise mosaics. Because beads were not counted for every burial, it is not possible to compare quantity of these items; however, those that are described in detail indicate that adults had more the most complex adornments (see Appendix).

Table 18
Materials Used in Jewelry, By Age

<u>Age</u>	<u>Shell</u>	<u>Turquoise</u>			<u>Black Stone</u>	<u>Total</u>
		<u>Turquoise</u>	<u>Mosaic</u>	<u>Argillite</u>		
Newborn	4					4
Baby	16	8	1			25
Child	17	4		2		23
Youth	10	5		2		17
Sub-Adult	1					1
Adult	60	16	7	4	8	95
Older Adult	5	5				10
	113	38	8	8	8	175

Looking at the type of objects worn, (Table 19), it appears that there is little difference from one age group to another. The apparent exceptions are that anklets were found only with babies, necklaces were definitely identified only with individuals over 6 years of age, and Conus tinklers and ear pendants were found only with adults.

Table 19
Types of Jewelry

Age	BR	P	B	EP	R	A	N	T	Total
Newborn	3		1		1				5
Baby	9	9	1		1	5			25
Child	15	5	3						23
Youth	2	6	7				3		18
Sub-Adult		1							1
Adult	36	31	9	11	3		2	2	94
Old Adult	1	2		2					5
	66	54	21	13	5	5	5	2	171

(BR=Bracelet; P=Pendant; B=Beads; EP=Ear Pendant; R=Ring; A=Anklet; N=Necklace; T=Tinkler)

One other trend is noticeable for type and material of objects of jewelry; the older adults (with a predominance of females) are noticeably less well adorned than younger adults and older children.

Sex

In those burials for which sex was recorded, there is a significant difference in frequency between male and female adornments (Table 20). Females infrequently had jewelry although one woman was elaborately decorated; she wore a multicolored bead necklace with three turquoise mosaic frogs, a turquoise pendant with black beads, and shell bracelets. This was more complex adornment than the average male.

Table 20
Jewelry, by Sex

	<u>Burials</u>	<u>Burials w/ Jewelry</u>	<u>Pieces</u>	<u>Pieces/ Burial</u>	<u>Range</u>
Male	57	11 (19.3%)	22	.39	0-7
Female	35	2 (5.7%)	4	.11	0-3

Pigment

Although Caywood and Spicer state that eight individuals had red and green pigment on the facial bones, this information is not in the notes. Twelve burials had granular or powdered mineral in some form, either blue, green or red paint, azurite, malachite, or sulfur. This material

occurred with newborns (2), babies (2), young children (1), youths (2), and adults (2, one female burial, one without sex recorded).

Ritual Objects

These are "prayer sticks" and quartz crystals. What Caywood and Spicer called prayer sticks were sets of wooden stick fragments less than 3 inches long and 1/4 inch in diameter, painted green or blue. The report describes "a half dozen" from two graves; field notes list a third burial with prayer sticks but does not describe them. One set of sticks was found with an adult of undetermined age; sex or age was not given for the other associations. Quartz crystals came from two adult male burials.

Utilitarian Objects

Twelve burials had tools or weapons; eight were adults or older adults, two were youths and two were children. Five adults had sex identified; all were males buried with arrowpoints. One male burial had "a great number of obsidian flakes, chips, knives, 2 arrowheads, drills etc., 2 large bone awls, too disintegrated to save or measure." A "double-blade axe" was found with a male burial, and four bone awls were found with another. An arrowpoint was found with one youth and another had a bone awl; one child had a bow and the other had a broken rabbit radius awl.

Pottery Vessels

One hundred one burials had 135 pots, the age distribution of which is shown in Table 21. Newborn infants were rarely associated with vessels; adults were most likely to have pots buried with them. Males and females were equally likely to be buried with pots, but males averaged slightly more pots than females (Table 22).

Table 21
Burials With Pots, by Age

<u>Age</u>	<u>Burials</u>	<u>Burials With Pots</u>	<u>Pots</u>	<u>Pots/Burial</u>
Newborn	51	3 (5.9%)	3	.06
Baby	53	10 (18.9%)	11	.21
Child	91	22 (24.2%)	29	.32
Youth	24	5 (20.8%)	6	.25
Sub-Adult	9	0 (0.0%)	0	.00
Adult	101	50 (49.5%)	70	.69
Older Adult	26	11 (42.3%)	16	.62
Total	339	101 (28.0%)	135	.40

The maximum number of pots per individual: newborn 1; baby 2; child 4; youth 2; adult 4; older adult 2.

Table 22
Burials With Pots, by Sex

<u>Gender</u>	<u>Burials</u>	<u>Burials With Pots</u>	<u>Pots</u>	<u>Pots/Burial</u>
Male	53	30 (56.6%)	49	.92
Female	27	15 (55.5%)	20	.74

The most pots with a male burial was 4, the most with a female was 3.

Thirty-four of 149 typed pottery vessels from burials are decorated, and presumably were imports from other areas. Although decorated pots were found in small numbers with all age classes except newborns and subadults, more were found with adult males than any other group.

Table 23
Decorated Pots, by Age

<u>Age</u>	<u>Burials</u>	<u>Burials with Pots</u>	<u>Pots</u>	<u>Pots/Burial</u>
Newborn	51	0 (0%)	0	.00
Baby	53	1 (1.9%)	1	.02
Child	91	1 (1.1%)	1	.01
Youth	24	2 (8.3%)	2	.08
Sub-Adult	9	0 (0.0%)	0	.00
Adult	101	16 (15.8%)	21	.21
Old Adult	26	3 (11.5%)	5	.19

Table 24
Decorated Pots, by Sex

<u>Sex</u>	<u>Burials</u>	<u>Burials With Pots</u>	<u>Pots</u>	<u>Pots/Burial</u>
Male	57	13 (22.8%)	16	.28
Female	35	6 (17.1%)	6	.17

Summary

The overall pattern of burial associations at Tuzigoot indicates accumulation of possessions with age. Newborn infants were clearly a class apart; usually buried in pits in the floors, with nearly random orientation, they rarely had offerings of any kind. Older children, like the newborns, were occasionally covered by rock slabs; this practice was seldom followed for adults, who occupied nearly all the pole-covered burials pits. Individuals over 12 were never buried below floors and were almost exclusively buried outside the pueblo. With increasing age, there was a greater preference for north-south orientation. This was probably a correlate of burial in the slopes outside the pueblo, as Caywood and Spicer have suggested. With advancing age there was an increase in occurrence of grave goods, as well as in variety and number of objects per grave. Adult male burials showed some preference for laying the head to the north; female burials showed a preference for the head to the south. A few adult burials were laid with the head to the east, but never to the west. With some exceptions, the same kinds and materials of artifacts are buried with children as are found with adults. No class of artifacts are extremely common in burials; pots are the most common items, and they occur with only 30% of the burials (34% of individuals older than newborns). Adults had more grave goods, average a greater number of artifacts and show a greater likelihood for scarce objects in burials. Adult males are the most commonly found with ornaments, particularly ritual objects, tools and decorated pots. Features and trends that appear to go with the three or more objects per burial (see Appendix) are:

1. Male interments laid with the head to the north in pole-covered burials.
2. Ritual objects (prayer sticks, quartz crystals).
3. Elaborate jewelry with turquoise pendants, turquoise mosaics, black stone beads.
4. Chipped obsidian arrowheads and other tools.
5. Decorated pottery.

It is a common assumption that visible symbols of rank are associated with elite classes, and this convincingly occurs in the southeastern U.S. (Brown 1971). What constitutes a "visible symbol" is, of course, a culture-bound judgement; we can assume that any perceptible object could be symbolic, no matter how small or simple. Jewelry can be assumed to have been worn commonly; "ritual objects," if correctly identified, would be visible only in restricted circumstances. In any event, the unspoken assumption in making such judgements is that rarity equates with symbolic importance. Rare objects occur primarily with adults at Tuzigoot.

Age Associations and Location

As described above, artifact associations and grave features indicate incremental increases of objects with increasing age, plus some qualitative distinctions between adults and sub-adults. Does this same pattern hold true in the spatial distribution of burials, paralleling the ethnographic data discussed in the previous chapter?

While the field records do not allow us to plot the locations of burials, it is possible to compare those from rooms with those with no room numbers, presumably from the cemetery

slopes outside the village. It is also possible to group those found below floors as a unit. As discussed earlier, newborns were nearly always placed in sub-floor pits; older infants and children were less likely to be buried in this location as they grew older. This parallels the Pueblo Indian ethnographic practice. On a broader ethnographic base, this pattern has some universality in the widespread practice of segregating children from adults at burial, reflecting the fact that children are not fully recognized and participating members of society, and have uncertain life expectancy. Consequently, it is expectable that they would be less frequently buried in the adult cemetery, as is the case in Tuzigoot. Tables 25 and 26 show the associations of artifacts with individuals up to 12 years old sub-floor burials, within-room burials, and those outside the pueblo.

Table 25
Location of Sub-Adult Burials with Artifacts

	<u>Subfloor</u>	In Rooms, Not <u>Subfloor</u>	<u>Extramural</u>	<u>Total</u>
Newborn	2	2	2	6
Baby	1	3	13	17
Child	10	4	16	30
Youth	3	4	4	11

Table 26
Artifact Frequency by Age and Location, Sub-Adults
(Artifacts per Burial)

	<u>Subfloor</u>	In Rooms, Not <u>Subfloor</u>	<u>Extramural</u>
Newborn	.08	.10	.60
Baby	.07	.40	.64
Child	.37	.40	.58
Youth	.43	1.40	.50

Children age 2 to 6 with artifacts were more likely to be found in the cemetery, and those in the cemetery had more artifacts than those in rooms, but this was not an exclusive trend. Beyond these quantitative differences, there were qualitative differences manifest in type of artifacts found. Subfloor burials had only shell ornaments (rings, bracelets, beads) and raw copper minerals (azurite, malachite), with the exception of one youth with a string of "stone beads" around its neck. Burials of 2- to 12-year-olds within the pueblo but not below floors had in addition occasional turquoise pendants, a turquoise mosaic pendant, argillite ("red stone"), a broken rabbit radius awl, and one decorated pot. The same age group in the cemeteries had the same

assemblage plus turquoise and argillite beads, a relief carved shell bracelet, a broken arrow point, a miniature bow, and several decorated pots.

As indicated earlier, the evidence seems strongest in support of achieved status, with the general principle of increased acquisition of valued objects with age. If status were clearly and definitely ascribed, it would be most unequivocally demonstrated if the young were buried in the public cemetery, and a distinguishable category were exclusively or predominantly accompanied by objects symbolizing special status. There is a trend in this direction, but it is not an exclusive difference; the principle of more things, and more valued things, with increasing age, shows in all locations. The important threshold appears to be the passage past newborn status, at which time the more exotic materials (turquoise, argillite, carved shell) were worn, and pots and tools were more likely to be included in the repertoire. The young appear to be most commonly buried within the confines of the family (dwelling) unit, though not exclusively. By analogy with the ethnographic sample, this group would correspond to those not initiated into village membership, signified in historic pueblos by baptism or katchina society membership. In Tuzigoot, this is the age when burial in the public cemetery increases significantly. This conforms largely but not entirely to the pattern we would expect from ethnographic records for societies in which position is not inherited.

The interpretation of the Tuzigoot data could best be strengthened by comparison with a series of other burial populations in the Southwest. While a number of such populations have been studied, most have limitations because of 1) incomplete sampling; 2) undefined excavation boundaries; or 3) data presentation that is not comparable to Tuzigoot. One recently reported site that is comparable is the Main Ridge community at Lost City, recently re-analyzed and reported by Lyneis (1992).

Main Ridge is a Virgin Anasazi settlement in the Moapa Valley, Nevada, composed of small pueblo units dispersed along the crest and flanks of three adjacent ridges, in an area approximately 600 meters (650 yards) square. The site dates at approximately A.D. 1050-1100, the final period of Anasazi occupation north of the Colorado River. It was extensively excavated by Mark Harrington in 1924-25 (Harrington 1937; Shutler 1961), and although Harrington did not map the limits of his excavation, Lyneis considers that it was a complete and representative excavation. Lyneis has examined architecture, ceramics and burials to determine if the site comprised a single community, rather than a series of non-contemporary small settlements. She concludes that it was a single egalitarian community of at least 100 inhabitants, in which the primary organizational units were families or small groups of families. Structures were for habitation or storage, with no evidence of public architecture.

As part of her study, Lyneis examines variation in mortuary pattern for evidence of social differentiation. Forty-five burials were recovered from the Main Ridge settlement, from intramural and extramural locations. Those within rooms were in the floor, and in abandoned houses. Outdoor burials were in ash or trash dumps or wherever there was sufficient soil, usually on the ridge slopes.

Distribution of grave associations by age category (determined by Harrington in the field) and location is shown in Table 27.

Table 27
Age and Location of Burials
at Main Ridge

<u>Age</u>	<u>Outside</u>	<u>In Rooms</u>	<u>Associations</u>	
			<u>Mean</u>	<u>Range</u>
Infants	5	6	4.7	2-12
Children	6	4	5.2	1-13
Young Adults	1	1	6.0	3-9
Adults	6	10	6.2	1-21
Mean Associations	4.8-5.3	6.2-7.0		
Percent with Valued Items	18-50	42-100		

Burial accompaniments Lyneis judged "valued items" include dogs, pots, shell or turquoise pendants and beads, bone dice, and (in one case) a basalt-and-bone pipe. There appears to be no significant difference in kind of associations from one age group to another.

Using Harrington's sex identifications, which could not be evaluated because the skeletal material is not available, the males have more objects (9.6 items per burial) than females (6.0 items per burial).

Comparing Main Ridge with Tuzigoot, the two appear to be in obverse relationship, with burial associations and locations at the former site supporting Lyneis' conclusion that the basic social unit was the single or extended family which was the participating group in burial ritual for all ages. Whether or not the village was a tightly integrated community, it can be inferred that the community did not participate in, or view, mortuary rites. At Tuzigoot, on the other hand, it appears that in most cases the very young were buried within the family circle, while adults and most older children were buried in public, presumably with the participation of a larger social unit. However, there are infants and children buried in the public ceremony, and these tended to have more things, and more exotic things, in association. Therefore we cannot exclude the possibility that there was some ascribed status, perhaps representing membership in ranked social groups, perhaps lineages or clans. Unfortunately, we cannot carry this analogy from Binford further to look for specific locations of such groupings; the lack of provenience records for burials outside the pueblo precludes it. What is demonstrated in comparison of Main Ridge with Tuzigoot is a difference in the significant social unit; at Main Ridge it was the family; at Tuzigoot it was the village.

There was social ranking at Tuzigoot, if material possessions are an indicator. Within the adult portion of the population, we have a range of accompaniments from none to the ample and exotic jewelry and Jeddito Yellow Ware placed with the well-publicized "priest." Clearly, there was unequal distribution of goods, and there had to be some individuals in a position to make decisions

on behalf of the village or important segments thereof. These are almost universal occurrences, and hardly surprising. The question relevant to current models is whether ranking derived from effort or birth. At Tuzigoot there is no demonstrable clustering of high status burials; the only distinguishable provenience units which might demonstrate clustering are the east slope within groups I and I-S and the west slope within group II. The most-endowed burials (those having 3 or more objects, listed in the appendix) occur in virtually the same proportion to the total number from the slope--9.6% on the east slope and 9.1% on the west slope. So neither slope appears to have been the preferred locality for a privileged segment of the village.

ASSESSMENT

Preceding chapters present the mortuary data from Tuzigoot and inferences from these data concerning status based on age, sex and location. This chapter will summarize the results of this study and discuss the information and research potential of the Tuzigoot collection.

Demographic Comparisons

There has been no attempt to carry out systematic demographic analysis with the Tuzigoot records, but it may have potential for comparisons with other mortuary samples. Ubelaker (1974:5) has listed these requisites for demographic study:

1. A knowledge of the completeness of the sample;
2. Information about the archeological associations of the sample;
3. A determination of the length of time the sample represents;
4. An adequate assessment of sex and age at death;
5. A proper selection of demographic methodology.

The sample is considered to be complete and unbiased, though the records could be more explicit in description of the limits of excavation. Archeological associations of the skeletons, funerary artifacts, and grave types were recorded, with some inconsistencies. One fundamental deficiency is the absence of location of individual graves outside of rooms. Lacking provenience more precise than the Group, it is impossible to look for clustering of burials that may represent discrete social units.

The tree-ring dates, dated decorated pottery types and (admittedly sketchy) architectural data provide an occupation span of A.D. 1140 to A.D. 1400. The village probably had no more than 50 residents prior to A.D. 1300. Its greatest size occurred in the following century, when peak occupation was about 235 people.

The accuracy of age and sex determinations is unknown, though Caywood and Spicer obviously attempted to make close estimates, often to the year. Criteria for these determinations, other than references to tooth eruption and bone fusion, were not explicit. There was some consistency of format in recording, but since forms were not used, notations of skeletal characteristics were not standardized.

Comparative studies of mortuary samples from past excavations in the Southwest requires some caution, because of a frequent lack of standardized age increments, terminology, and explicit criteria for aging and sexing. Clearly such studies should not be attempted without the close assistance of physical anthropologists, unless one is trained both as archeologist and physical anthropologist. Akins' 1986 study of Chaco burials shows the potential of the latter. A common problem derives from contrasting "adult" with "sub-adult" (or equivalent) age dichotomies, which are not consistently or equivalently used. However, even these ill-defined categories indicate some potential for further research with existing collections and records.

Chapter 4 gives the proportion of adult to subadult burials from several sites which are quite variable, but four have over 50% sub-adults. This accords with Whittlesey's observation that subadults exceed adults in "...the majority of large, representative burial collections from the Southwest.." (Whittlesey 1984:17). Cemetery populations with less than 50% sub-adults at some sites may be due to sampling error; either sites were incompletely excavated or sub-adult burials were outside the immediate settlement. The former may be true at Casas Grandes, where excavation was restricted to an estimated 42.1% of the site, with only 11.5% being stripped (Di Peso et al. 1974, Vol. 4:198). The latter was probably true at Pecos; Kidder's excavations there appear to have been sufficiently extensive to sample the village proper (1958:Fig. 60) and he specifically excavated below floors and in firepits in search of infant burials, with no results. Infants may well have been buried in a location outside the pueblo--an alternative pattern practiced by some pueblos (Kidder 1958: 284-285). Hohmann's report on burials from various Sinagua sites in the Flagstaff area does not describe field sampling, and probably many Sinagua site records are unclear on excavation limits.

Those sites with more than half sub-adults appear to have been adequately sampled. Gran Quivira burials of all ages were found in rooms and excavation was comprehensive. There were 149 cremations removed in addition to the 361 inhumations from which the age figures were taken (Reed 1981:75); from Christy Turner's age determinations for 73 cremations, only 22% of these would be sub-adults (Turner 1981:119). If this proportion is projected to all 149 cremations and this is added to the total sample, the number of sub-adults is reduced, but only from 59% to 53%. The Grasshopper sample has been questioned by Cordell *et al.* (1987:568-573), who suggest that the high percentage of sub-adults reflects concentration of excavation within the pueblo at the expense of outside cemeteries which may have more adults. The same authors opine that "A ratio of subadults to adults of 40:60 is considered acceptable in archaeological populations (Jaffe and Medina 1979)." Rather than assume a burial sample is wrong if it is judged outside "acceptable" limits, it seems more productive to assess the validity of the archeological sample on objective grounds and consider evidence of deviation from normal limits as evidence of demographic shift. The fact that four out of the seven examples have subadults exceeding 50% suggests that these do in fact exceed the expected proportion for this age group in a healthy population.

Christy has commented that the percentage of Gran Quivira "children who died at 6 years or less was 33.7 percent (67/199)--a figure not much different from other large Pueblo Indian cemetery populations, nor from non-epidemic, pre-antibiotic times among living Pueblo Indians" (Turner 1981:120). At Tuzigoot, those judged 6 or less in age comprise 55% of the burial sample, considerably more than Christy's figure for healthy populations. Tuzigoot represents the final Sinagua occupation in at the Verde, a situation paralleling that of most of the other sites with a large proportion of sub-adults. This suggests a high infant mortality for these late sites, which may relate to their abandonment. This is clearly a significant topic for future studies of mortuary remains.

Evidence for Differences

Tuzigoot burials exhibit evidence of status ranking associated with advancing age. This parallels increased public participation in mortuary rites, as evidenced by the contrast between burials in and out of the village proper. The burials give no evidence of internal differentiation within the community and there is no difference between east and west slopes, in associations or burial types. There is also no recorded architectural evidence of internal differentiation; the

pueblo appears to be a straightforward collection of living rooms, with no distinctive localities with which one can associate any kind of special group or activity. However, the way the pueblo was dug and recorded imposes limitations on our knowledge of the internal structure of the settlement. The only distinctive pattern is the clustering of intra-mural burials in the village core (Figure 6), suggesting that these were the dwellings of village or kin-group founders, to which later-generation families living on the village periphery brought their children for burial; alternatively, this pattern may be an artifact of more thorough excavation in the central rooms.

In number of objects per burial, as well as in complexity and rarity of objects it is clear that adults had significantly more than the young. In addition, if Caywood and Spicer identified sex correctly, males acquired more of these objects than females. Specifically, turquoise mosaic jewelry, argillite, the mysterious "black stone," and decorated pottery (most commonly Jeddito Yellow Ware) were usually the property of adults, usually men. These objects were not found exclusively with adults, or with men; there were a few cases in which such objects were found with children, youths and women. One baby and one woman had exceptional quantities of exotic accompaniments. The few ritual objects came from adult burials (again, usually male), as did 10 of 12 cases in which utilitarian objects were found as funerary objects.

Taking the cemetery population as a whole, it appears that social ranking at Tuzigoot was by achievement rather than ascription, similar to the ethnographic situation in southwestern pueblos. However, the fact that a significant number of children were buried outside the pueblo in the public cemetery indicates participation in their interment by a larger social group than the family--either the whole village or a sizable segment of it. If so, it follows that children were recognized as members of this group at birth, or soon after. There is also a trend for children outside rooms to have more objects buried with them. This suggests some ascribed ranking, though the implications of this ascription are not clear. The baby and woman mentioned above might be interpreted as members of an hereditary "elite". However, without additional patterned or contextual evidence, they more likely represent exceptional events within a standard pattern of adult male and leadership, with possible ranked clans or lineages.

Inferences concerning leadership and rank depend not just on village structure and burial patterns, but on settlement context. Tuzigoot was one of a series of contemporary settlements strung along the Middle Verde, all of which had more or less equal access to essential resources. In the immediate vicinity of Tuzigoot (the "Peck's Lake Neighborhood") there were three settlements with access to farming land on the floodplain and natural resources there and on the uplands. These communities were potentially self-sustaining, and the primary focus of intervillage relationships was probably the apportionment of land and resources. There is no reason to infer exchange of goods to which Tuzigoot had sole access, a situation that might support elite ascribed statuses. More likely, the individuals who had acquired prized objects were probably those who came--during their lifespan--to assume importance as representatives of kin groups, sodalities or the village, during negotiation and interaction between villages. The prized objects found with these individuals (excluding crafts or religious symbols) would seem to be those items exchanged during interaction between equals. If "managerial elites" existed, which would be manifest in ranking of communities, it would be logical to look for them by comparing Tuzigoot with communities of greater scale, such as the large central villages named by Pilles. Mitchell (1991:124) offers a similar suggestion for study of Hohokam mortuary remains, and points out that a single village in a society with hierarchically ranked settlements would not represent the full societal structure; "...villages which occupy the middle to lower hierarchical site settlement levels will not reflect the full range of social stratification and hence, the burial populations will not

represent the full range of variability and ritual complexity (Hohmann n.d.)."

Since Binford, Saxe and their colleagues there have been a number of studies of prehistoric cemeteries and mortuary populations, with the intention of discerning hierarchical structure and status typology. In the Southwest, this effort appears to have concentrated on the search for hereditary elites assumed to have exercised control and decision-making in the community. The search is apparently motivated by chiefdom-envy arising from invidious comparison with the Southeast U.S., Central America, Europe, Polynesia, and other areas with bona fide claims; this usually has led to taxonomic pigeon-holing using Sahlins' and Service's polar types. This obscures the distinctive nature of individual communities, and limits usefulness of comparative study. It also ignores the caution by Sahlins that the tribal/chiefdom dichotomy represents "...but polar mutations of the tribal design.....the real world introduces many intermediate versions." (1968:27) By insisting on employing the taxonomic approach, we fail to use archeological data to illuminate the developmental transitions from the tribal condition to chiefdom. The situation at Tuzigoot appears one in which there was, within the general trend toward achieved status, some inequality of possessions. These may have included some transferred at birth, or at an early age, as symbols of ranked status. By comparison, the small number of older adults tend to have fewer and less elaborate grave goods; these could have been passed on to the younger generation when the living elders were no longer able to carry out status responsibilities conferred with group membership. These individuals may have represented families, kin groups or sodalities of greater than normal wealth and authority, but not necessarily distinguished by unique symbols or rank or--so far as we can tell--by distinct burial locations or types. In the context of the greater Southwest, this puts Tuzigoot at a level intermediate between the egalitarian family-centered organization of Main Ridge and the hierarchical systems inferred for Chaco and Casas Grandes, where a small proportion of distinctive burials occur in special locations. Perhaps stronger evidence of ascribed leadership status may be found in the mortuary remains of first-order Middle Verde villages. At the same time, researchers should be alert for evidences of the cross-cutting kin-groups and sodalities that characterize historic pueblos, and probably the prehistoric Sinagua.

Culture History

Though current archeological study tends to use evolutionary and adaptive frameworks, often muddled by modern political and social fads, culture history is still a valid consideration, especially to Native Americans. Does archeology support Hopi traditional ties to Tuzigoot, Montezuma Well and Montezuma Castle? The Hopi have visited all three sites for ceremonial purposes, and continue to visit Montezuma Well. According to interviews conducted during the last 19 years, 16 Hopi Clans claim the Well as an ancestral site (Anderson 1989). The primary archeological evidence for connection with the Hopi area is the presence of Jeddito Yellow Ware in Tuzigoot Phase contexts. A sample of Jeddito sherds is currently under analysis to determine their source; to date the results are inconclusive and no specific sources have been identified. If and when such sources have been identified, we will know where these vessels came from, but this will not necessarily identify Tuzigoot as an ancestral Hopi site.

Sourcing and Trade

The funerary accompaniments at Tuzigoot constitute a significant and distinctive sample

of artifacts that offer considerable potential for future research on prehistoric trade. While the Tuzigoot locality has for decades been presumed an important center for interaction drawn by the availability of mineral resources, there has been surprisingly little systematic study of their composition, source, and distribution in prehistoric sites. Just recently, refined analysis of argillite has confirmed that the Tuzigoot specimens come from the Del Rio quarry (Elson and Gunderson 1992). The composition and source of the "black stone" beads is unknown, and detailed study of turquoise and shell would undoubtedly provide important information about the community's trade network. Most of this material, or at least its most refined examples, come from burials; the materials from other contexts lack the research potential of the grave associations.

Ceramics offer another important resource for this research topic. While some X-ray diffraction analysis of Jeddito Yellow Ware sherds has been done, the clay source has not been determined, and none of the other wares have been studied. It is conventional wisdom that a shift in connections from the Flagstaff area to the Hopi region marks the Honanki-Tuzigoot transition. However, the source of Walnut Black-on-White, a common early trade ware, is now claimed as having its origins in the Little Colorado drainage (Douglass 1987). If this is true, indirect connections with the Hopi area were earlier than previously thought.

Documenting Collections

This study has examined only the report and records of the excavation of Tuzigoot, with the purpose of abstracting burial patterns relating to status and rank. This is by no means the only research problem that can be addressed by the records and the objects, and it would be presumptuous to try to foretell all possible research that might be accomplished with these materials. It is clear that the results of the Tuzigoot excavation, though nearly 60 years old, comprise a significant body of data. No other excavation of this magnitude has been accomplished in the Middle Verde drainage; at this time the Tuzigoot materials are the prime example for the period from A.D. 1200-1400. At some time in the future, a comparable excavation may be conducted under more rigorous and better-documented conditions, but even then the Tuzigoot collection will be an important and significant reference collection. In this study, all artifact types and descriptions have been taken from the report and field records. In the future, all descriptions and artifact categories should be checked and amplified, using the artifacts themselves.

In the near future, the National Park Service will negotiate with the Native Americans, presumably the Hopi, concerning the disposition of the mortuary remains and artifacts from the Tuzigoot burials. If it is decided that these materials be repatriated, the objects should be documented as thoroughly and as accurately as possible, with written descriptions, drawings and photographs, so that the data they contain may be used in future comparative studies. Specialists in each kind of material should be consulted, to develop a list of attributes necessary for current research. In addition, I would strongly recommend that small-sample analysis for sourcing of stone and lithic materials be accomplished. Knowing the origin of raw materials that were employed in the tools, containers and ornaments at Tuzigoot is not only of importance to archeologists. It also has the potential to recreate the routes and extent of movement and trade of the people who are considered to be ancestral to the Hopi. This is an area where archeology ought to be able to complement, and perhaps reinforce, Hopi legends and traditions.

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APPENDIX A

THE SAMPLE

There are records from 393 individual burials in the excavation notes; one exceptionally well-adorned burial from the east slope was not included in the notes but is described in an Arizona Highways article (Caywood and Spicer 1935b); this was added to the sample. The number of burials described in the field records does not match the totals shown in the handwritten analysis notes or in the report. The report gives a total of 429 burials; Caywood and Spicer's analysis notes give a total of 424; the reason for the discrepancy is unresolved.

Table 1.

	Excavation Notes	1934 Analysis Totals
Group I	79	77
Group I-S	105	108
Group II	68	67
Group III	60	61
Group IV	15	19
Group V	48	71
Group VI	<u>18</u>	<u>21</u>
	393	424

Over the years, other burials have been encountered in Tuzigoot, usually in the course of stabilization, and usually subfloor infant interments. I have elected not to include these, since the original excavation sample has a quantity of these, and since it is the intention of this project to assess the 1933-1934 data. It seems probable that the results of this study would be little altered by the inclusion of later data, although it would add a few subfloor infant burials to the sample.

THE DATA

The following are the categories of data which have been taken from Caywood and Spicer's field notes for use in this analysis. Computer field codes are given in parentheses. Data are available in printout or on floppy disks. They are stored in a flat file, using DB III Plus Software at Western Archeological and Conservation Center.

Burial Number within Group (NO) Field notes for each room group have a separate numbering series.

Room Number (RM) Burials recorded within rooms:

Group I

Room 2	5
Room 4	1
Room 5	2
Room 7	9
Room 8	2
Room 9	8
<u>Room 12</u>	<u>2</u>
Total	29

Group II

Room 2	1
<u>Room 3</u>	<u>1</u>
Total	2

Group III

Room 2	6
Room 3	2
Room 4	4
Room 5	2
Room 6	7
Room 8	1
Room 10	5
Room 11	4
Room 13	6
Room 14	7
Room 15	1
Room 16	3
Room 17	3
<u>Room 18</u>	<u>2</u>
Total	53

Group IV

Room 1	1
Room 2	2
Room 3	2
Room 4	2
Room 5	4
Room 6	2
<u>Room 7</u>	<u>1</u>
Total	14

Group V

Room 5	11
Room 22	2
Room 24	7
Room 25	1
Room 26	1
Room 28	4
Room 29	1
Room 30	14
<u>Room 31</u>	<u>7</u>
Total	48

Group VI

Room 1	1
Total	147

Vertical Relationship to Room Floor or Wall

<u>Below floor, or under floor level</u> (UF) This includes burials which were put in pits dug through the floor, or for which relationship with the room is not clear.	81
<u>Before floor</u> (BF) Burials below floor which were specifically observed to have been interred before the room was built.	8
<u>Above Floor</u> (AF) Burials placed in fill above the floor.	16
<u>Over Wall</u> (OW) Over wall. Burials below which there were wall remains.	3
<u>Under Wall</u> (UW) Under wall. Burials above which are room walls.	4

Direction (DIR) Direction toward which the head and upper body points: E, W, N, S, or O for points in between, with explanation in the notes.

East	21
West	23
North	139
South	148

Make Details of the grave's construction:

Slab-covered (SC)	58
Slab-lined (SL)	8
Slab-lined and covered (SCL)	3
Slab-lined and pole-covered (SLP)	1
Pole-covered (PC)	25
Walled Alcove (AW)	3

Body Wrapping (WRAP) Twilled mat wrapping or covering over the body. 39

Condition (COND) Evidence of disturbance or pothunting (D). 46

Age and Sex Identification For purposes of this analysis, all but two of Caywood and Spicer's identifications are used without independent confirmation. The remains of two individuals matching field records are curated. One was identified by Caywood and Spicer as a "very old male"; current records describe it as a male of 35 to 55. The other was identified as "adult male"; current records describe it as an adult, male (low probability).

<u>Sex</u> (SEX)	Male (M)	55
	Female (F)	34

Age (AGE) Age estimates in the notes may be given for specific years, for a span of years (as in 9-10 or 10-15), or terms like "newborn" or "infant" or "child" may be used; for infants or children there may or may not be observations on tooth eruption ("milks," "no milks," "permanent") and epiphysial fusion. For older individuals the terms "adolescent," "adult" or "old adult" are used. The validity of the recorders' judgments can only be accepted as they are. Walter Birkby of the Arizona State Museum has provided a substantial list of references for age & sex characteristics which would have been available to Caywood and Spicer in 1933-34 (Dwight 1890,1905; Emmons 1913; Martin 1914; Parson and Box 1905; Wilder H.H. 1920).

Age categories used for this analysis have been modified somewhat from Caywood and Spicer's. They gave a single category for individuals under six years of age at death; these have been subdivided into three age groups. Caywood and Spicer's "old" category, which was for individuals over 50, has been modified to "older adult" starting at age 45. Categories used in this study and numbers of burials for each are given below:

<u>Newborn</u> (N) Less than 6 months, identified in field notes by age or by "no milks" (i.e., no milk teeth) or "no teeth"	51
<u>Baby</u> (B) Seven months to 2 years.	53
<u>Child</u> (C) Three to 6 years.	91
<u>Youth</u> (Y) Seven to 12 years.	24
<u>Sub-adult</u> (S) Thirteen to 16 years.	9
<u>Adult</u> (A) Seventeen and older. This probably overlaps with the next category.	101
<u>Old adult</u> (O) Forty-five years or older.	26
Total	355

Grave Goods

Ornaments (JLRY) This includes beads, bracelets, necklaces, pendants which are not counted separately, but which have descriptions entered as notes. 61

Pigment (PGM) Pigment includes red, blue or green paint, azurite, malachite and sulfur. Presence or absence is noted. 12

Ritual Objects (RIT) prayer sticks, quartz crystals, or galena ore. 5+

Tools (TLS) Utilitarian objects. Flakes, flaked stone arrowheads, and other bifacial tools, a ground stone axe, and bone awls. (Plus one burial with a probable flaking kit: "chips,

flakes, knives, arrowheads, bone awls.)

21

Total Pots (POTS) Up to four pots were found in a single burial.

154

Pottery Types There are 154 pots recorded, 148 of which were given type or ware designations in the field:

<u>Brown</u> (B) (includes "plain brown", "red-brown", or "yellowish-brown")	16
<u>Black-on-Gray</u> (BG)	4
<u>Black interior</u> (BI) (includes burnished black interior)	7
<u>Black</u> (BL) (includes plain black)	3
<u>Black-on-Orange</u> (BO)	2
<u>Black-on-Red</u> (BR)	3
<u>Black-on-White</u> (BW)	4
<u>Gray</u> (G)	1
<u>Hopi</u> (H) (includes "Old Hopi" or "Old Hopi Red-on-Orange")	5
<u>Jeddito</u> (J)	8
<u>Plain</u> (P)	48
<u>Red</u> (R) (includes "plain red" and "red plain")	39
<u>Verde Polychrome</u> (VP)	3
<u>White and Brown</u> (WB)	1
<u>White-on-Red</u> (WR)	2
<u>Kayenta Black-on-White</u> (KY)	1
<u>Polychrome</u> (PC)	<u>1</u>
Total pots typed in field notes	148

The catalog records of vessels in the collections show, expectably, some discrepancies between field classifications and laboratory identifications. Undecorated brownware categories, in particular, overlap frequently. Brown, black, red and plain may include Tuzigoot Brown, Tuzigoot Red or Verde Brown. Black interior vessels include Tuzigoot Red and Sunset Red.

The decorated vessels match more closely, although there is some discrepancy between field and laboratory identifications.

<u>Field Identification</u>	<u>Catalog Record</u>
Black-on-Gray	Prescott Black-on-Gray
Black-on-Orange	Bidahochi Polychrome
Black-on-Red	Chavez Pass Black-on-Orange, Winslow Orange Ware, Winslow Polychrome
Black-on-White	Flagstaff Black-on-White, Bidahochi Black-on-White "Black-on-White"

Hopi	Jeddito Black-on-Yellow, Bidahochi Polychrome
Jeddito	Jeddito Black-on-Yellow
Verde Polychrome	Winslow Polychrome
White-on-red	Tuzigoot White-on-red
Polychrome	Winslow Polychrome

Pottery forms (FM)

<u>Bowl</u> (B)	132
<u>Ladle</u> (Ladle)	2
<u>Jar</u> (J) (includes "olla")	13
<u>Pitcher</u> (P)	3

Pottery size Although no measurements are given, notes give two sizes:

<u>Small</u> (S)	27
<u>Large</u> (L)	8

Basket (BSK) Presence or absence noted. Descriptions are in notes. 4

APPENDIX B

DATA FROM BURIALS WITH THREE OR MORE ARTIFACTS

Record#	GP	RM	NO	DIR	SEX	AGE	JLRY	TLS	POTS	TP1	TP2	TP3	TP4	TOT	NOTES
4	I	0	4	N	M	A	0	0	3	J	P	P			3 AGE/SEX: MALE. EPHIPHYSES OF FEMUR (DISTAL) & RADIUS (DISTAL) NOT FUSED. ABOUT 21.
39	I	0	39	S		0	1	0	2	BW	J				3 JLRY: 2 TURQUOISE EAR PENDANTS
45	I	0	45A	N	M	A	1	2	0						3 APPARENTLY DOUBLE BURIAL WITH 45B. JLRY: TURQUOISE BEADS AT RIGHT FOREARM. TLS: 2 OBSIDIAN ARROWPOINTS AT PELVIS.
54	I-S	0	45	N	M	A	1	0	2	BO	B				3 JLRY: 1 SMALL CONUS SHELL OVER PELVIS.
99	I-S	0	31	N	M	A	0	0	3	B	VP	WR			3
109	I-S	0	42	N		A	0	3	0						3 TLS: 3 OBSIDIAN ARROW POINTS OVER FEET.
121	I-S	0	77	N	M	A	3	0	0						3 PROBABLY DISTURBED BY #72 OR #73. JLRY: 1. 20 SHELL PENDANTS ON PELVIS. 2. 20 TURQUOISE BEADS AROUND RIGHT WRIST; 20 SHELL PENDANTS OR BEADS ON RIGHT WRIST. 3. 20 SHELLS ON LEFT WRIST. AGE: ADULT - ALL EPIPHYSES FUSED.
163	I	9	58	E		Y	3	0	0						3 JLRY: 1. AMPHISSA AND DOUBLE-CUT OLIVELLA BEADS FROM NEAR ANKLES. 2. AROUND RIGHT WRIST=STRING OF RED STONE BEADS AND TURQUOISE PENDANTS. 3. AROUND LEFT LOWER ARM - 5 GLYCIMERIS BRACELETS. PGM: FROM KNEES TO HIPS - RED PAINT POWDER IN THICK MASS MASS COVERING FRAGMENTS OF TWILLED WEAVE MAT. AGE: CHILD, 8 YRS OLD, LATERAL PERM INCISORS IN.
222	II	0	48	S		A	2	0	1	R					3 JLRY: BEADS ON RIGHT ARM. 2 SHELL BRACELETS ON LEFT ARM. PGM: LARGE PIECE OF SULPHUR NEAR RIGHT ARM SHOWING CLOTH IMPRESSIONS. AGE: 40-50.
224	II	0	50	N	M	0	1	0	2	P	P				3 JLRY: TURQUOISE PENDANT.
333	II	0	59	N			1	0	1	BR					3 JLRY: SHELL BEADS. PGM: JAWS COVERED WITH GREEN. RIT: PRAYER STICKS TO RIGHT OF HAND. BSK: BASKET WITH AZURITE IN IN.

Record#	GP	RM	NO	DIR	SEX	AGE	JLRY	TLS	POTS	TP1	TP2	TP3	TP4	TOT	NOTES
20	I	0	20	N	M	0	3	0	1						4 JLRY: CARVED SHELL BRACELET, LOWER ARM; 3 TURQUOISE PENDANTS AT EACH EAR. AGE/SEX: ADULT, MALE (40-50)
34	I	0	34	S			4	0	0						4 JLRY: TURQUOISE MOSAIC ARM BAND; MINUTE BLACK & WHITE BEADS AT NECK; TURQUOISE MOSAIC PENDANT AT EACH EAR. RIT: BLUE PAINTED PRAYER STICKS ABOVE LEFT SHOULDER.
46	I	0	45B	N	M	0	1	1	2	P	P				4 APPARENTLY DOUBLE BURIAL WITH 45A. JLRY: TURQUOISE PENDANT AND BEADS AT RIGHT WRIST. TLS: DOUBLE-BLADE AXE AT RIGHT FOREARM.
67	I-S	0	66	N		C	0	0	4						4 POTS: 1 SMALL BOWL, FACE UP, TO RIGHT OF JAW INCL SMALL OLLA INSIDE IT. 1 BOWL BEHIND FIRST WITH DIPPER INSIDE IT.
192	II	0	20	N		C	0	2	0						4 TLS: BOW ACROSS BODY FROM RIGHT SHOULDER TO LEFT FOOT. ONE ARROW.

Record# GP RM NO DIR SEX AGE JLRY TLS POTS TP1 TP2 TP3 TP4 TOT NOTES

32 I-S 0 11 N M A 2 0 2 BW VP

5 RIT: SMALL QUARTZ CRYSTAL BETWEEN FEMURS.

JLRY: TWO TURQUOISE IN PENDANTS BESIDE HEAD.

1 1/2 TURQUOISE PENDANTS ON CHEST.

Record# GP RM NO DIR SEX AGE JLRY TLS POTS TP1 TP2 TP3 TP4 TOT NOTES

11 I 0 11 S F A 3 0 3 P P J

6 JLRY: NECKLACE, RED, BLACK, WHITE BEADS W/ 3
TURQUOISE MOSAIC FROGS ON GLYCIMERIS; TURQUOISE
PENDANT, BLACK BEADS; GLYCIMERIS
BRACELETS.

SEX/AGE: FEMALE (?) SMALL BONES AND FEMUR HEAD.
ADULT

Record# GP RM NO DIR SEX AGE JLRY TLS POTS TP1 TP2 TP3 TP4 TOT NOTES

11 I 0 61 S M A 1 5 0

7 TLS: 1 HORN, 4 BONE AWLS, 1 ARROW POINT.

JLRY: 1 OLIVELLA SHELL. IN DEBRIS LODGED IN NOSE.

AGE/SEX: VERY OLD, MOLARS GON AND ALV. PROCESS
FUSED OVER. MALE.

Record# GP RM NO DIR SEX AGE JLRY TLS POTS TP1 TP2 TP3 TP4 TOT NOTES

44 I 0 44 N M A 2 ? 1 R

? JLRY: SMALL SHELL PENDANT BY RIGHT EAR. TLS:
"GREAT NUMBER OF OBSIDIAN FLAKES, CHIPS, KNIVES, 2
ARROWHEADS, DRILLS ETC. AMONGST FLAKES= 2 LARGE
BONE AWLS, TOO DISINTEGRATED TO SAVE OR MEASURE"
IN FILL OF GRAVE NEAR BODY: RIT: GALENA (?) ORE,
PART OF QUARTZ CRYSTAL. JLRY: RING OF PIPESTONE.

374 I 0 M A 7 0 4 P P J J

11 JLRY: On left arm, 13 shell bracelets "of
exquisite workmanship". On right arm, an armband
of 140 turquoise beads and 560 black stone beads.
Near each ear and on chest, "beautifully worked
turquoise mosaics representing frogs—each one
had in the center a piece of polished pipestone".
Necklace of many red and black stone beads. across
feet, a string of shell beads 24 feet long
(Caywood and Spicer 1935a—Arizona Highways
article).

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