

THE SOCIO-RELIGIOUS ROLES OF BALL COURTS
AND GREAT KIVAS IN THE PREHISTORIC SOUTHWEST

by

Roger E. Kelly

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APPROVAL BY THESIS DIRECTOR

This thesis has been approved on the date shown below:

Richard B. Woodbury
RICHARD B. WOODBURY
Associate Professor of Anthropology

25 April 1963
Date

PREFACE

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ABSTRACT

Prehistoric ball courts in the Southwestern United States represent the northward transmission of a socio-religious trait from Mesoamerican cultures where the structures were used for ceremonial games and other religious activities. Southwestern ball courts are different in gross architecture, but may have been used for similar activities. The route of transmission may have been along the eastern foothill zones of the Sierra Madre Occidental of Mexico.

Within the Southwest, two types of courts, a smaller, elliptical Casa Grande type and a larger, dumbbell shaped Snaketown type, were built and used in the earlier phases of the Hohokam culture of southern Arizona. The former type was later spread to other Southwestern groups.

Ball courts are compared to great kivas of other Southwestern cultures as parallel inter- and intra-community socio-religious structures. In addition to gross architectural differences, both structures are postulated as serving different functions and usages. An inventory within the thesis lists characteristics concerning approximately 90 known Southwestern courts. The spread of ball courts from Mesoamerica northward offers an opportunity to study the transmission of architectural and socio-religious cultural patterns and the resultant change in those patterns.

CHAPTER 1

Introduction

Far removed from their greatest occurrence in Mesoamerica, ball courts represent a set of customs foreign to the prehistoric peoples of the Southwestern United States. In Mesoamerica, the area of their probable origin, these structures were special architectural features composed of small, flat areas enclosed by buildings and walls in which group ceremonies and ball games took place. To the peoples of Mesoamerica, these ceremonies and games were based in religion and mythology. Such activities associated with special structures were not a part of the culture history in the Southwest until the ball court complex was introduced from the south. Southwestern ball courts, then, reflect a foreign cultural influence from more than two thousand miles away.

Ball courts were not recognized in the Southwest until the excavation of two courts at Snaketown in 1935 (Haury 1937b). Prior to the work of Gila Pueblo at this important Hohokam site, the elliptical and dumbbell shaped depressed structures found in central and southern Arizona were thought by early workers to be water storage reservoirs, "sun temples," borrow pits, threshing floors, or some other architectural form. With the identification of the Southwestern courts and the recognition of Mesoamerican parallels exhibited by them,

archaeologists working in the American Southwest and in Meso-america faced a new and challenging problem.

This study deals with the identification of Hohokam ball courts in terms of the history of archaeological knowledge, their distribution in time and space, the diffusion of the concept into the Southwest, the role of ball courts in the prehistoric cultures, and a comparison of courts with great kivas in other Southwestern cultures as socio-religious community structures. Archaeological information will be supplemented by ethnological and geographical data in the discussions of these problems.

In addition to a synthesis based on available data, field work was carried out in an attempt to fill gaps in the descriptive information concerned with some ball court locations. Several sites having known ball courts or possible courts were visited. These courts were measured, surface collections were taken and analysed, and the relationship of the courts to habitation areas and local topography were noted. A suggested method for measuring unexcavated courts is described below.

Field Procedure

While the problem of field identification of ball courts is treated in a following chapter, a description of field procedures is in order. No attempt was made to inspect all known sites having undescribed ball courts because of

limited time, money, and available information of site location. However, several of the better known locations were re-visited in order to complete available facts. Several courts were measured for the first time: these ball courts were at the following sites; Arizona AA:12:57, Arizona BB:11:1, Arizona FF:7:2, Arizona BB:2:2, and New Mexico EE:5:1.

Measurements were taken along lines of greatest width and length which were usually the transverse and longitudinal axes. Interior width and interior length measurements were recorded at the same time as were exterior width and length. Average width of mounds may then be derived from the difference between exterior and interior width and exterior and interior length.

At least four datum points were established on each court to be measured. Two were along the longitudinal axis and two were located on the transverse axis. These datum points were placed on the crests of the enclosing mounds during survey work but they may be located on exterior or interior slopes; it is important to keep the points fixed and to note their location so that a plan may be drawn using triangulation methods. Often secondary datum points were established to determine form, size of semicircular end mounds, and amount of curvature of side unit mounds. The number of measuring stations is flexible and depends largely on the size and complexity of the court. Each point should be stationary and should be related to others by measurements. Orientation

was determined by magnetic readings of a Brunton compass along longitudinal axis. Human disturbance and natural erosion make precise measurements unnecessary at least on surface surveys. Arbitrary points on interior or exterior slopes are often needed.

Surface sherds were collected from court surface and general site surface wherever possible. Dating courts from surface collections is admittedly tenuous but sherd types may provide an end date for site occupation. Comparison of characteristics to known courts may indicate typological placement of a new structure.

Test excavations in ball courts should attempt to determine floor features, type and location of markers, relationship of facing or plastering of slopes to field surface, and sequences of construction or remodelling. Excavation beyond exploratory testing should follow published site plans (Johnson 1961b; DiPeso 1951; Mc.Gregor 1941).

CHAPTER 2

Introduction

The term "ball court" as used to describe certain structures in prehistoric Southwestern sites is misleading but necessary. Evidence in the Southwest will not support the definite correlation of ball courts with ball games as is possible in Mesoamerica, but prehistoric rubber balls have been found in the area of supposed Southwestern courts. These balls as reported by Haury (1937a) and Amsden (1936) were not found in courts and their use in a ball game is conjectural. Southwestern structures analogous to Mesoamerican courts have been called by the same term, accurately applied to the latter, but the basis for a Southwestern application is only in architectural similarities.

Definition of Ball Court

If all Mesoamerican and Southwestern structures of this type are called "ball courts," a wide variation in meaning results. A usable and valid definition must be based more on physical remains than on inferred usage but additional difficulties arise. A distinction should be made between Mesoamerican and Southwestern types of ball courts as the architectural differences warrant such a discrimination. Some archaeological, historical, and ethnohistorical information is applicable to Mesoamerican ball courts but not to those in the Southwest.

Archaeologists, therefore, use "ball court" for lack of another term, but limitations in meaning should be recognized.

A set of ball court terms has been devised by Satterthwaite (1944: 4-7) in order that features of New World courts could be compared, but most of the list cannot be applied to Southwestern courts. However, Satterthwaite's definition of "ball court," "field," and "markers" can be used. A ball court is defined by Satterthwaite (1944: 4) as "...a symmetrical or quasi-symmetrical arrangement of surfaces in more than one plane, especially designed for the playing of an aboriginal game involving the bouncing of a rubber ball against some of these surfaces." No qualifying mention is made of court shape or construction but the inclusion of phrases referring to a ball game cannot be supported by Southwestern data as certain as the Mesoamerican information. This definition of ball court could apply to Southwestern examples if it were to read as follows:

A Southwestern ball court is a symmetrical or quasi-symmetrical arrangement of unroofed surfaces in more than one plane which is conjectured to be especially designed for the playing of an aboriginal game involving a rubber ball or for some other group activity.

Southwestern courts may vary in characteristics such as floor features, orientation, temporal placement, and arrangement within a site as do Mesoamerican courts and thus a general definition is more inclusive than a more specific one.

Generally, Southwestern courts have at least two parallel

elongated earth mounds enclosing a depressed surface on which particular spots are located by special floor features. The parallel mounds may vary in length and height or may be nearly absent. No stone rings have been found and masonry is rare.

Architectural Terms

Satterthwaite (1944: 4) defined the "field" as "...an approximately flat and level surface adjacent to a ball court structure ["end unit" or "side unit" in this paper], all or part of which is supposed to have been used in playing". This statement will stand for Southwestern courts but it is understood that the "field" is enclosed by mounds and does not refer to areas outside the court.

Often the planes of a court contain certain features which Satterthwaite termed "markers" or "...specialized elements marking particular points or small areas on playing surfaces" (1944: 5). While he refers to rings, sculptured pieces tenoned to fit into vertical or sloping masonry walls, items imbedded in the field, or similar items, "markers" are usually simple floor features found below the surface of the field in Southwestern courts.

A few terms which are intended to describe only Southwestern courts are defined below: these definitions and those of Satterthwaite which are applicable are used throughout this paper.

The elongated mounds roughly paralleling the longest axis of a court and the shorter, curving mounds at either end of the field are called "side units" and "end units" respectively. In some southwestern courts, end and side units join to form the outline of a dumbbell: in others the side units curve inwardly to enclose an elliptical field. In some elliptical courts, the curving side units do not meet, and gaps are left. Side units are the same as "ranges" (A.L. Smith 1961: 115). "Playing alley" of Smith's terminology is comparable to field.

"Interior length" is the greatest measurement from the point of junction of the field surface with interior slopes of end units or with the interior opening of the gaps between side units. Usually this measurement is along the longitudinal axis which bisects the court into equal parts. Markers may be found near this axis. "Exterior length" is the greatest distance from the meeting of the surrounding ground surface with the exterior slopes of end units or with exterior openings of gaps between side units. "Interior width" is the same as interior length, but is near the transverse axis and involves only the side units. "Exterior width" is similar to exterior length but again refers to the meeting point of exterior slopes of side units with ground surface. Often a center marker will be placed in the field near the meeting of the transverse and longitudinal axes. Other structural characteristics of Southwestern courts should be described in relation to these

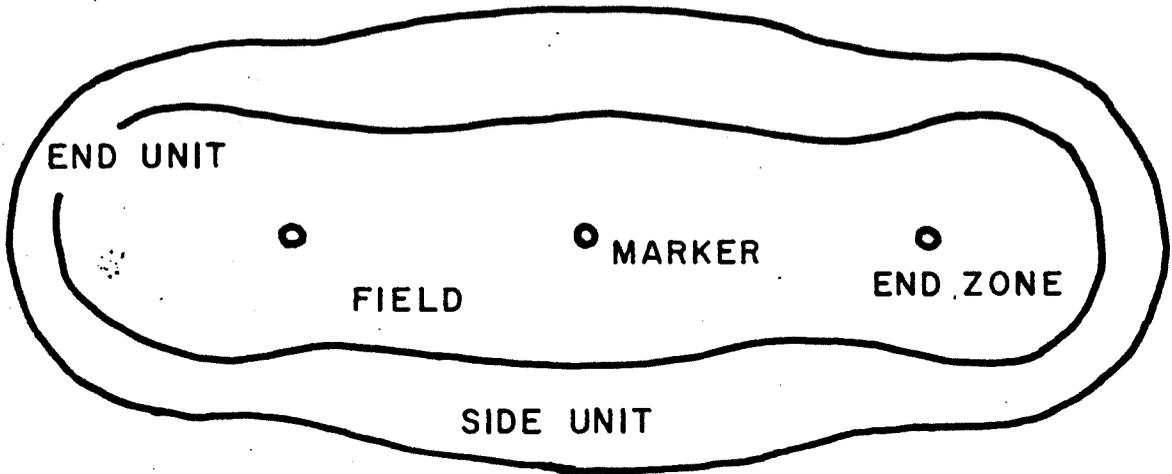
gross features (see Figure 1).

Identification of Unexcavated Courts

Using the approach of Watson Smith's discussion of the definition of pueblo kivas (W. Smith 1952: 154-65) published reports of fully excavated, partially excavated, and tested ball courts were compared to determine criteria used by investigators in establishing the existence of a ball court at a particular site. Fully excavated courts are few and are nearly all of the elliptical Casa Grande type (see page 12 for definition). The only excavated Snaketown type courts were at Snaketown (Haury 1937b: 37) and at the Citrus Site (Arizona T:13:2) as reported by Johnson and Wasley (1961b: 30-2) but others of this type have been tested. In each case of partial or complete excavation, various investigators relied on several characteristics to determine if an actual court existed. These general characteristics held in common by the investigated courts are as follows:

1. Markers consisting of stones, wooden posts, artifacts, postholes, or soft spots in the field at regular intervals, generally along the longest axis.
2. Plastered or smoothed surfaces of the field or interior slopes of side and end units.
3. Elliptical shape, often with roughly circular areas attached to either end.
4. Artificial appearance of side or end units in relationship to local drainage patterns and topography.
5. General size range compatible with either established types or known unusual courts.
6. Location near a habitation site.

SNAKETOWN TYPE



CASA GRANDE TYPE

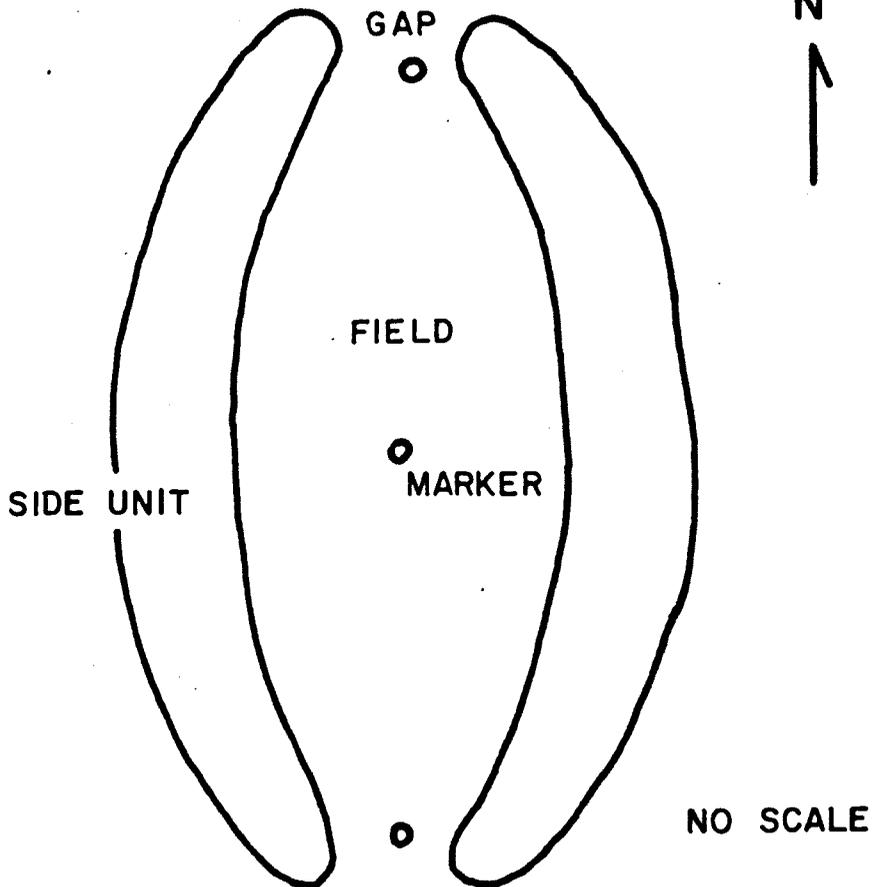


Fig. 1. Architectural Units of Casa Grande and Snaketown Courts.

Some tested or excavated courts possess particular differences in construction, types of markers, and orientation, but these differences are not sufficient to disqualify a structure as a ball court. Thus, to the excavators, variation was expected to fall within a range of known characteristics.

It must be recognized, however, that the most important and diagnostic criteria, the existence of markers of any type and a plastered or smoothed field, can only be determined by excavation. Surveyed courts must be identified solely on surface indications and these are more generalized than the specific excavated features. The problem of court recognition on the basis of surface survey must rest on characteristics of size, shape, relationship to local topography and other archaeological remains, and evidence for intentional construction. These criteria are further complicated by effects of natural erosion, human disturbance, and weathering of architectural remains.

Ball Court Typology

Detailed testing and excavation of the courts at Snaketown and in the Flagstaff-Winona area led to the establishment by Haurly (1937b: 45) of two classes of structures. An early, larger, east-west oriented court was termed the Snake-town type after the type site of Snaketown. A smaller north-south elliptical court type was called Casa Grande after the

Casa Grande National Monument where this type of court was investigated initially. Analysis of the ceramic associations from the two courts at Snaketown indicated that the Snake-town type dated A.D. 700-900 while the Casa Grande type dated A.D. 900-1100. Haury's description of both forms is shown in Table 1.

New evidence necessitates a re-definition of Haury's two basic types. Excavations in the Gila Bend area and surveys elsewhere have shown that orientation and size of known ball courts is more variable than was originally supposed (Johnson 1961a). While most Casa Grande type courts are small and are oriented in a general north-south direction, several examples are large and are variously oriented. Most Snake-town type courts are oriented east-west, but size difference is a new feature. Gross size and general orientation varies within and between both types, but form apparently was not such a variable: no known courts are hybrids in form.

Haury's typology is retained in this paper, but the use of his type name is meant to reflect form and relative age only: for example, Snaketown courts are modified I or dumbbell in form, usually oriented east-west, and were earlier than most Casa Grande courts. The addition of "large" and "small" to the Snaketown type name indicates comparative size which is variable through time and space. The Casa Grande type courts exhibit an elliptical form, but changes in size and orientation are evident in different times and at different

Table 1
 Characteristics of Southwestern Ball Courts *

	Snaketown Type	Casa Grande Type
Orientation	East-West	North-South
Shape	Modified I shape, ends of playing floor rounded: end units rounded	Oval, entrances in ends
Approximate length of playing floor	56 meters	22 meters
Length over-all	120 meters	25-30 meters
Width, between walls	19 meters	10 meters
Walls		Smoothed clay, sloping
Terrace at foot of wall		Absent
Stone rings in walls		Absent
Stones in floor	Three on long axis	Usually three features, not necessarily stone

* adapted from Haury 1937b: 45

locations. The value of fixed orientation of Hohokam ball courts does not seem to have been as important as originally believed (see Table 2).

The modification of Haury's typology and the data presented in Tables 2 and 3 are based on information from the inventory of known courts in this paper. Table 3 shows the two types of courts and their varieties in chronological location and in geographical distribution. General orientation and average size of each type is indicated; however, certain facts need amplification. The later Casa Grande type (after A.D. 1000) varies from 74 to 23 meters in exterior length and from 12 to 28 meters in exterior width but are generally north-south in orientation. Most of these later elliptical courts average 30-40 meters in exterior length and 15-30 meters in exterior width.

The establishment of four ball court varieties reflects all known data but there is only one example of the initial small Casa Grande type court of Gila Butte phase. These four varieties of ball courts are similar to those briefly described by Schroeder (1962). Basing a typology on single or few specimens is admittedly hazardous and it is recognized that the sequence shown in Table 3 may be modified. Discussion of these varieties, their spatial and temporal placement, and the general distribution of courts in the Southwest is found in Chapter 6.

Table 2
Orientation of Some Southwestern Ball Courts

Inventory Number	Court Type	Orientation *:Magnetic North **:True North
2.	Casa Grande (Small)	10°W
4.	Casa Grande (Small)	8°W
6.	Casa Grande (Small)	29°W
7.	Casa Grande (Small)	30.5°W
8.	Casa Grande (Small)	10°W
9.	Casa Grande (Small)	14°W
10.	Casa Grande (Small)	16°W
12.	Casa Grande (Small)	4°W
13.	Casa Grande (Small)	5°W
21.	Casa Grande (Small)	43°E
22.	Casa Grande (Small)	2°W
23.	Snaketown (Small)	110°E
24.	Casa Grande (Small)	10°W*
26.	Casa Grande (Small)	16°W
45.	Casa Grande (Small)	12°W
46.	Snaketown (Large)	<u>ea.</u> 105°E
55.	Casa Grande (Large)	92°E*
57.	Casa Grande (Small)	45°E
58.	Casa Grande (Large)	40°W*
58.	Casa Grande (Small)	45°W*

Table 2 Continued

Inventory Number	Court Type	Orientation
54.	Casa Grande (Large)	28°W
54.	Casa Grande (Large)	28°W
66.	Casa Grande (Large)	13.5°W
71.	Casa Grande (Small)	2°E
75.	Snaketown (Small)	75°W**
76.	Casa Grande (Large)	50°W**
77.	Casa Grande (Small)	3°E*
85.	Casa Grande (Large)	3°E*

Table 3

Tentative Sequence of Southwestern Ball Courts

Phase	Date (A.D.)	Court Type	Location	Orien- tation	Average Size
Soho	1100-1300	Small and Large Casa Grande	Gila-Salt Easin, northern Arizona	N-S	Variable
Sacaton	900-1100	Small and Large Casa Grande	Gila-Salt Basin, Middle Verde River, southeastern Arizona	N-S	Variable
		Small Snaketown	Gila Bend, Tucson	E-W	70x30m.
Santa Cruz	700-900	Large Casa Grande	Peripheral areas	NNW-SSE, E-W	30x15m.
		Large Snaketown	Gila-Salt Basin	E-W	120x33m.
Gila Butte	500-700	Small Casa Grande	Peripheral areas (Gila Bend, Globe)	NE-SW	26x14m.

CHAPTER 3

Introduction

The recognition of Southwestern ball courts is a recent event compared to the first description of the unusual depressions. Misidentified by early investigators, the depressions were recognized in 1935 as Southwestern counterparts to Mesoamerican ball courts by archaeologists familiar with both areas.

Pre-Snaketown Theories

Prior to 1935, ball courts were interpreted as structures serving any of several postulated functions. One of the first investigators to mention the problematical depressions, Bandelier (1884: 69) called them "tanks." During the Salt River Valley excavations of the Hemenway Southwestern Archaeological Expedition in 1887-1888, the Expedition's leader, Frank H. Cushing, termed the oval depressions found near the ruins "sun temples" and "reservoirs" (Cushing 1890: 165-7).

Cushing's reservoirs were large open ended depressions while sun temples were smaller structures completely enclosed by mounds. He believed the latter were once covered with wicker, poles, coiled reeds, and clay roofs and had central hearths. Cushing postulated that the pueblo kivas were survivals of these roofed sun temples, a view followed

later by Turney (1924: 5). Mindeleff (1896a: 246) related that Cushing excavated one sun temple and found "sitting stones," "traces of upright logs which formed the outer wall of the structure," and a "fire hole" in the center. That Cushing did investigate one structure is corroborated by Fewkes (1912: 111-2) but Cushing may have excavated a pit-house and not a ball court. No other tested or excavated court has contained those features. Sylvester Baxter, the Expedition's Secretary, agreed with Cushing's ideas and believed that the sun temples were ceremonial in use (Baxter 1888: 16).

Hodge (1893: 329) held to the reservoir theory as did Bandelier (1890: 34) who noted that the depressions were to be found near most prehistoric ruins in southern Arizona. Matthews (1893: 146), however, agreed with Cushing's initial theory of the roofed sun temples. To Mindeleff (1896a: 246), the depressions were possibly borrow pits or threshing floors. Hough (1907: 17) was the first investigator to suggest a similarity between the elliptical depressions and pueblo kivas as village religious buildings. Moorehead (1906: 97-8), Huntington (1911: 457-8), and Fewkes (1912: 111-2) believed the structures to be reservoirs. Later, Huntington (1914: 4) termed the depressions "ceremonial precincts."

Pinkley's excavations in the depression near the Great House at Casa Grande National Monument and in others during 1918-1919 did not resolve the problem but furnished additional

data as to construction, floor features, and a fresh look at the possible function (F. Pinkley 1935: 383, 455-62). The relationship of Pinkley's work to the 1935 Snaketown excavations is discussed below.

In 1924, O. A. Turney's popular booklet, The Land of the Stone Hog, contained the following interesting but doubtful theory:

...the menhir-like Sun Temples passed from a depressed, hardened, bowl-shaped floor, with a fire-hole in the center covered with a slab, and gems beneath, all surrounded by a breast-high, elliptical wall, and it gradually took on deeper construction, higher walls, and a roof of tree trunks, and ultimately developed into an underground kiva with the elaborate Fire worship of their present day descendents, the Hopi tribe (Turney 1924: 5).

No cultural continuum from the prehistoric Hohokam to the Hopi has been demonstrated and pueblo kivas have an earlier and separate origin than ball courts.

Most depressions were not strategically located to be reservoirs, Turney noted, but some might have been clay borrow pits (1929: 24, 58). E. T. Pinkley (1926: 16-7) described the depressions as "tribal ceremonial places" and noted, as did her husband in 1919, that the size of the structures varied with the size of the settlement. The Gladwins (1929: 117; 1930: 170) called the depressions "bowls" or "sun temples" and believed they were of ceremonial function. These terms were used in Gila Pueblo's archaeological site survey records in the pre-1935 period.

Thus, in the archaeological literature before the Snaketown excavations, ball courts were thought to be sun temples, reservoirs, threshing floors, or borrow pits by various investigators. By 1925, most archaeologists thought the sun temple or ceremonial use theory was the most acceptable. It was thought that the lack of pueblo-type kivas in Hohokam ruins pointed to a ceremonial function (Turney 1930: 58). Pinkley's work of 1918-19, published only after the Snaketown discovery, reported the testing of three depressions and the determination of several facts previously unknown.

The Snaketown Excavations

Pinkley's deductions and theories had a factual basis in excavations not achieved before and were a stimulus for the Snaketown excavations (Haury 1937b: 36-7). Pinkley (1935: 388) believed the orientation, floor features, and location of the structures were related to the religion of the prehistoric Hohokam. Three courts were trenched by Pinkley; one between Compounds A and B in the Casa Grande National Monument (Ariz. AA:2:17; Ambler 1961: 15), the court at the Adamsville site (Ariz. U:15:1) and at a site four miles east of the Monument. While details of these structures differed slightly, Pinkley stated that these courts had the following common characteristics:

1. A floor, not quite elliptical but nearly so.
2. The floor slopes from its central point to its edges, the maximum being about 1.6 feet.

3. A stone is sometimes placed in the center of the floor.
4. A side wall pitches upward from the edge of the floor at an angle of about 37 degrees on the east and west sides, flattening as it runs toward the ends until, at the ends, it has a low enough angle to have been used for entrance and exit.
5. The longer axis of the floor and walls bears nearly due north.
6. The center of the floor is depressed below the desert level, but the top of the sloping sides rises several feet above the desert level (F.Pinkley 1935:461).

Beneath a center marker stone at the site between Adamsville and Casa Grande National Monument, a shell artifact and a piece of worked turquoise were found which were interpreted as offerings, thus supporting the theory of ceremonial usage (F. Pinkley 1935:461; E.T.Pinkley 1926: 17). With the evidence from three tested structures, Pinkley's ideas of function and usage of the depressions generally agrees with present day theories. As a conclusion to his work, Pinkley stated "My idea is that the mounds were gathering places for ceremony, games, or festivals" (F. Pinkley 1935: 388).

No further tests of the depressions were undertaken after Frank Pinkley's initial work and his unpublished report lay unused until Gila Pueblo began investigations at Snake-town in 1935. Interest in the structures continued, but complete excavation was probably deterred by the amount of earth to be moved for thorough investigation as Haury has remarked (1937b: 37-8). In the 1930's the disturbance of

sites by urban and agricultural expansion prompted the Gila Pueblo staff to investigate the two courts at Snaketown. Pinkley had tested three small north-south oriented courts, now included in the Casa Grande type, but Snaketown also contained a larger east-west depression as well as an example of the smaller north-south type. The former, Court I, was trenched in various locations and was excavated for half its length. Court II, the smaller one, was completely excavated. Pinkley's findings were confirmed by the discovery of a center marker and by constructional details similar to those of Court I. Different floor features were found in Court II, but a general similarity to those structures tested by Pinkley established a pattern. By analysis of ceramic stratigraphy, it was determined that the form difference of the two Snaketown courts was indicative of relative ages as Court I was found to be earlier than Court II (see Figures 2 and 3).

As work progressed, the realization of possible analogies with Mesoamerican courts developed. Haury (1937b: 38) stated that the opinion was as follows:

The size, sloping sides, the three stones aligned on the long axis, and the wide end units [of Court I] seemed more than merely suggestive of a possible alliance. For confirmation we turned to those who had a first-hand acquaintance with the courts of Middle America.

Photographs of the excavations were sent to Mesoamerican specialists and during the summer of 1935, W.D.Strong, S.G. Morley, and A.V.Kidder personally visited the Arizona site.



Fig. 2. Court I at Snaketown as Excavated by Gila Pueblo. Courtesy of the Arizona State Museum.



Fig. 3. Court II at Snaketown as Excavated by Gila Pueblo. Courtesy of the Arizona State Museum.

The recognition of structural similarities between Mesoamerican and Southwestern courts was "somewhat of a shock" (Haury 1937b: 38) and the event has been called "the most revolutionary discovery of the past few years in the field of Southwest archaeology" (Chard 1940: 7). Certain artifacts such as copper bells and mosaic plaques had been found previously, but a different architectural pattern and its cultural implication did present many "new angles" as Haury (1937b: 38) remarked. The distance from the cultures of Mesoamerica to the Hohokam, approximately 1500 miles, was lengthened shortly after the Snaketown discovery by the location of almost identical Casa Grande type courts in the Flagstaff-Winona region of northern Arizona (McGregor 1936).

A comparison of Southwestern courts to those of Mesoamerica "was sufficiently close as to leave no doubt as to common origin" (Haury 1937b: 45-6). But such a close comparison between recognized Southwestern courts and between Mesoamerican and Arizona courts raised questions of function, use, area of origin, and route of diffusion into the Southwest. Haury (1937b: 45-6) outlined three possible situations of origin; (1) from Mesoamerica northward, (2) from the Southwest to Mesoamerica, and (3) from a third as yet unknown source. It was thought that the first possibility was the most valid because of the lateness of the Arizona courts when compared to the earliest known Mesoamerican examples, and that no area having courts before either the Hohokam or

Mesoamerican cultures was known. The addition of other traits such as copper bells, known to be of southern origin, increased the probability of the first hypothesis.

The use of the Arizona courts was thought to have been possibly similar to the ceremonial games of the Maya and Aztecs as known from early historical records, but no evidence for or against this assumption was found. As to the function and place of the courts in Hohokam culture, Haury (1937b: 48) stated "...that ball courts should have been bound up with religion goes without saying....This would seem basis enough to infer a similar practice among the Hohokam."

Post-1935 Work

After the Snaketown discoveries and the subsequent recognition of ball courts in the Southwest, additional courts were found in northern Arizona (Mc.Gregor 1936; Colton 1940a, 1940b) and the term was used in site survey records of Gila Pueblo, the Arizona State Museum, the Museum of Northern Arizona, and the Pueblo Grande Museum.

Various workers became interested in the ball court problem. Corbett's thesis (1939) provided a brief survey of data known at the time. Schroeder's 1940 inventory of known courts showed 46 excavated and surveyed locations. Chard's paper, issued in 1940, was a detailed summary of pertinent literature concerning courts, their distribution, and their significance. Chard estimated seventy courts in Arizona as

a result of his examination of the literature. He warned against over-enthusiasm by stating "...we must be on guard lest ball courts start turning up under every bush"(Chard 1940: 11). This warning is still useful and should be heeded in field situations. In discussing possible court use, Chard cautioned against reconstructing the cultural role of courts from the finds of rubber balls or on ethnographical and historical information. Such statements of use were inferential and were to be so considered. The origin and possible transmission routes of the concept were mentioned but Chard made no judgements except to admit that the problem was enigmatic and that conclusions were to be reserved until more data were accumulated.

Gillian's survey of known Mesoamerican courts as related to those at Snaketown contained the following statement;

It is probable that they have an archaic origin, from southern Mexico, since at Uaxactun, in Guatemala, and at Monte Negro in Oaxaca are found a few ball courts of the type of those in Arizona, with sloping walls and without rings, in sites of the cultures preceding the Maya and the Zapotec (Gillian 1939: 214) [my translation].

Kelly, in her 1943 paper, "West Mexico and the Hohokam," doubted that the Arizona ball courts were diffused northward along the west Mexican coast because none have been found from that area but that there were some modern ball games in Sinaloa and Nayarit which required no prepared courts (Kelly 1943a:215). Haury (1945a: 63) classed the appearance of ball

courts in Arizona as a "Secondary Element" within a large group of traits which moved northward at different times and via different routes. He postulated that the coastal areas of Sonora and Sinaloa were probably major regions of routes following the northward flowing river valleys (Haury 1945a: 67).

Schroeder's 1949 treatment of the implications of Hohokam ball courts was the first detailed examination of possible functions of the courts within the Hohokam culture. The change from Snaketown to Casa Grande types within the Hohokam culture and the spread of the latter court form was postulated as being stimulated by a change in use and ceremonial value to a simpler function, thus making the idea more acceptable to non-Hohokam peoples (Schroeder 1949a: 33). The distribution and architectural similarities between the two Southwestern types of courts and between the Mesoamerican structures was also discussed.

Stern's monograph, Ball Games of the Americas, surveyed aboriginal ball games of all types throughout the New World. Accounts of Mesoamerican games were described in detail as were ball games of northwestern Mexico in their environmental settings. Stern's discussion of Southwestern courts relied on published excavation reports of Gila Pueblo and the Museum of Northern Arizona, Chard's summary, and Schroeder's 1949 paper. Several interesting facets of the distribution of ball games which may apply to prehistoric Southwestern peoples were

included in Stern's conclusions. Stern found that in many cultures a ball game served as an outlet for bellicose warriors in time of peace and that such games were most common among agricultural peoples having some mechanism of political integration (1950: 96). However, Stern (1950: 97) stated that "...there is no overall homogeneity in religio-ceremonial content [of New World ball games] that would permit the postulation of a powerful cult as the vector for the ball game in its spread." Stern's work is the only synthesis of New World ball games of various types in differing cultural and ecological environments.

Ferdon's survey of Mexican architectural forms found in the Southwest dealt briefly with ball courts. Ferdon (1955: 21,24,30) postulated a coastal transference of Mesoamerican architectural features by actual contact of specific groups of foreign people, such as the organized Aztec trading groups, pochteca, with southern Arizona peoples in late pre-historic times.

Schroeder's 1955 discussion and comparison of Maya and Hohokam courts and their architectural characteristics indicated that the southern Arizona courts most closely resembled the Highland Maya type prior to A.D. 900. He postulated a coastal route of diffusion of a generalized modified I type court from the Guatamala region bypassing the Valley of Mexico to the American Southwest. Later, the smaller, north-south form diffused from Mesoamerica northward

again along the coast but achieved greater distribution, especially in the Southwest, because of secularized usage, not a primary religious use associated with the earlier courts (Schroeder 1955: 156-61). Schroeder postulated a coastal route from the ethnological reconstruction of the peoples of northwestern Mexico by Beals (1932) who found many traits common to the coastal region and the American Southwest.

A ball court excavated by Wicke (1957: 37-76) in Oaxaca was similar to others from that Mexican state. Comparisons were made by Wicke to the two courts at Snake-town and to other Mesoamerican examples. Recent reports by Johnson and Wasley (1961a,b) described results of field work at sites with ball courts near Gila Bend, Arizona. One court excavated was determined to be one of the earliest in the Southwest (see Figure 4). An unpublished synthesis of Hohokam culture by Sayles (1962) contained a summary of Southwestern ball courts by myself and an interesting functional hypothesis of the role of courts in Hohokam social organization by Sayles.

Since the Snaketown excavations and the discovery of ball courts in northern Arizona, other courts have been tested or excavated. In southeastern Arizona, Sayles (1945: 31-2) found an oval shallow depression without side units or floor markers at the San Simon site which resembled structures in Gila-Salt Valley area and was called a ball court. At the Tres Alamos site, Tuthill (1947: 40) excavated a court which

was hybrid in size but was basically a Casa Grande type court. Tuthill found 69 complete or fragmentary stone paddles in the fill of the court which might have been used in a game (Tuthill 1947: 41,82,Plate 28). Near the Tres Alamos site, DiPeso (1951) excavated a Casa Grande type court which was similar to others of that type.

Near Tucson, at the Hodges Ruin, a small Snaketown type court was thoroughly tested (Kelly 1940). A Casa Grande type court at Pueblo Grande in Phoenix has been partially restored as an outdoor exhibit (see Figure 5).

The identification of Southwestern ball courts was based on architectural characteristics which were strikingly similar to Mesoamerican structures. It was postulated that the concept originated in Mesoamerica and had entered the Southwest in some way by a yet unknown route. After the recognition of the Southwestern structures as ball courts, workers tested, excavated, or surveyed numerous court locations and became interested in reconstructing the role of ball courts in Southwestern prehistoric cultures. The present paper represents a continued interest in the problem.



Fig. 4. Ball Court at Arizona T:13:9 (Rock Ball Court Site). Courtesy of the Arizona State Museum.



Fig. 5. Ball Court at Arizona U:9:1 (Pueblo Grande). Bench at left is artificial walkway. Courtesy of Pueblo Grande Museum.

CHAPTER 4

Introduction

With the recognition of ball courts at Snaketown by Southwestern and Mesoamerican archaeologists, the problem of the transmission of this trait complex into the Hohokam area was raised. It is generally agreed that Southwestern courts are of Mesoamerican derivation but other possible solutions should be kept in mind. Haury (1937b: 45-6) has presented two additional working hypotheses: (1) ball courts originated in an unknown culture area, then became established in both Hohokam and Mesoamerican cultures; (2) ball courts were first developed in the Hohokam area and later moved south. A fourth possibility is the independent invention of courts or of structures which coincidentally contain similar features.

No support for a third area of origin, as yet unknown, has been found and it is highly doubtful that a prehistoric culture having ball courts has remained undiscovered. A north-south movement of the concept is disproved by the existence of Mesoamerican courts at Copan of an earlier date than those in southern Arizona (Stromsvik 1952). While it is known that the Hohokam modified the concept, at least architecturally, the original stimulus was from outside their homeland.

Independent invention would require the coincidental development of special structures containing specific features which could be confused with those characteristics of Meso-

american courts. Such development is highly unlikely in view of the complexity of the trait and the existence of other items known to be of southern origin. The hypothesis for a southern source, then, has more factual support than the other alternatives.

Mesoamerican Ball Courts

Much information concerning Mesoamerican courts has become known. No attempt will be made here to synthesize all these data as many facts are irrelevant to a discussion of Southwestern courts. Papers by A.L. Smith (1961), Alegria (1951), Borhegyi (1960), Krickeberg (1948), Satterthwaite (1944), Schroeder (1955), Acosta (1940), Blom (1932), and Stern (1950) contain summaries of court locations, form classifications, and information on ball games and their symbolism.

It is logical to assume that the origin of ball games and ball courts was in an area where native rubber plants grew. Borhegyi (1960: 57) suggested that the most likely place of origin would be in the lowland rainforests of Central America. Stern (1950: 5) added that while rubber producing plants are most common in rainforests, the occurrence of similar species stretches from the Gran Chaco of Argentina to the American Southwest. Stromsvik's belief that ball games and courts were first developed in Central America is supported by his excavations of the courts at Copan in the Guatamala lowlands (Stromsvik 1952: 187,212). The Copan structures

are the oldest architectural evidence of ball courts, dating at about A.D. 200-300 (Stromsvik 1947: 50), but Stromsvik (1952: 212) believed the architectural complexity of the superimposed buildings indicated an older tradition of court building not found at Copan. The courts were open-ended, and embedded in the parallel masonry side units were six carved stone animal heads. Along the longitudinal axis, three stone markers were laid in one field level.

In the Pre-Classic horizons of the Tlatilco site in the Valley of Mexico, the ball game and possibly the ball court were apparently known. Figurines of ball players equipped with protective belts and gloves and shown in a playing stance were recovered from this important burial site (Porter 1953: 25, Plate 4:D). It is not known if the lowlands of Central American or the Valley of Mexico was the actual area of initial development of the ball game and court.

In Mesoamerica, the Guatemalan Highlands seem to contain more ball courts than any other area of equal size (A.L. Smith 1961: 120). For this region, Smith has established five court types from 132 examples, but no courts have been found which could be placed before the Late Classic period, A.D. 600-900 (A.L. Smith 1961: 120). In order to discuss Mesoamerican courts and their relationship to Southwestern examples, it is necessary to state Smith's typology:

Open-end: No end zones defined by masonry walls.
Open-end a: Open-end court with one end leading

into an adjoining plaza that normally has an altar platform in its center.

Enclosed: High walls defining end zones with stairways leading out at either end. Profile has a level bench top and a steeply sloping wall with a vertical modling at the top.

Enclosed a: Walls defining end zones. Profile has a sloping bench top and a vertical playing wall.

Palangana: Rectangular enclosure with surrounding walls of even height. No end zones.

Miscellaneous: Ball courts that do not fit any of the above types (A.L. Smith 1961: 125).

Smith (1961; 102) stated that he did not include orientation in the criteria of these types because no customary pattern seems to have been followed. However, Schroeder (1955) and Borhegyi (1960) included orientation in their respective papers. In temporal placement, courts of the open-end, palangana, and enclosed a types were common in Late Classic times, a period of great ball court popularity. Open-end a courts were used predominately in the Post-Classic period, A.D. 600-900, while enclosed courts were constructed in Protohistoric and Historic times, A.D. 1200-1525 (A.L. Smith 1961: 120-1,125).

In popular treatments of Mesoamerican ball courts and ball games, Borhegyi (1960) and Schroeder (1955) furnished brief surveys of court distribution for the rest of Mesoamerica. A lowland Maya type, **exemplified by the superimposed Copan** courts, was common in the rainforests of Guatemala, southern Yucatan, and British Honduras. Usually oriented north-south, this type continued in use to the end of the Classic period and was generally similar to Smith's open-end and open-end a

categories. Borhegyi (1960: 58) described a Highland Maya court type which would include Smith's palangana and possibly enclosed types. The Highland Maya courts were popular in the Late Classic period and were generally oriented east-west.

Around A.D. 1000, a new type of court, the southern Mexican Highlands form, developed in that area. The field was below ground surface and was in the form of a capital I or double T. The Southern Mexican Highland category is similar to Smith's enclosed type of the Guatemala highlands in that both types have sloping walls.

In the Post Classic period, Schroeder (1955: 158) described a Lowland Mexico type which corresponds to Smith's vertical walled enclosed a type. This was the court which the Spanish saw in use among the Aztec and Maya. Table 4 summarizes the general sequence of Mesoamerican ball court development and equates the typology of Smith with those of Borhegyi and Schroeder.

In general architectural features, the enclosed a type of Smith and the Highland Maya courts of Borhegyi and Schroeder most resemble the Southwestern Snaketown type. No Mesoamerican courts are similar to the Southwestern Casa Grande type.

Thus, Mesoamerican courts appear to have originated in simple open-ended types of the Maya lowlands which may be dated in the late Pre-Classic and early Classic transition

Table 4

Comparative Typologies of Mesoamerican Ball Courts

Period	Date (A.L. Smith 1961)	Smith	Type	Schroeder, Borhegyi	Examples	Orientation
Proto- Historic	A.D. 1525- 1200	Enclosed <u>a</u>	Open-end <u>a</u>	Lowland Mexico	Chichen Itza Tenochtitlan	N-S
Post Classic	A.D. 1200- 900	Open-end <u>a</u> (Enclosed?)		Lowland Mexico	Chichen Itza Tenochtitlan	N-S
				Southern Mexican Highlands	Tula, Monte Alban	
Late Classic	A.D. 900- 600	Palangana Enclosed Open-end		Highland Maya		E-W
				(Lowland Maya?)		
				Lowland Maya	Copan	
Early Classic	A.D. 600- 300			Lowland Maya	Copan	N-S

period. Ball games and probably ball courts at earlier times may be inferred from the figurines in the Valley of Mexico, and from architectural complexity of the earliest courts at Copan. In the late Classic period, ball courts spread to the Maya Highlands and several types were in use. Later in Post Classic times, courts spread to the southern Mexican Highlands and to lowland Mexico. During Protohistoric and Historic times, courts were found in the Valley of Mexico, the southern Mexican highlands, Yucatan Peninsula, and along the eastern coast of Mexico. In western and northwestern Mexico, courts have been found but their temporal placements have not been determined. (see Figures 6 and 7).

Routes of Transmission

Three routes of transmission of ball courts from Mesoamerica to the American Southwest are possible: (1) a coastal avenue along the tropical lowlands of Guerrero, Michoacan, Jalisco, Nayarit, Sinaloa, and Sonora; (2) a route from the Veracruz area through San Luis Potosi, Zacatecas, Durango, and Chihuahua; (3) an eastern mountain foothill corridor within Guanajuato, Aguascalientes, Zacatecas, Durango, and Chihuahua. No one route has been agreed upon by students interested in Mesoamerican-Southwestern cultural relations. Sauer and Brand (1931: 115-6), Ferdon (1955: 24), Schroeder (1955: 159), Ekholm (1940: 322), and Beals (1943: 196) supported a coastal route. Kelly (1943a: 215), Haury

Fig. 6. Ball Court Sites of Western Mexico.

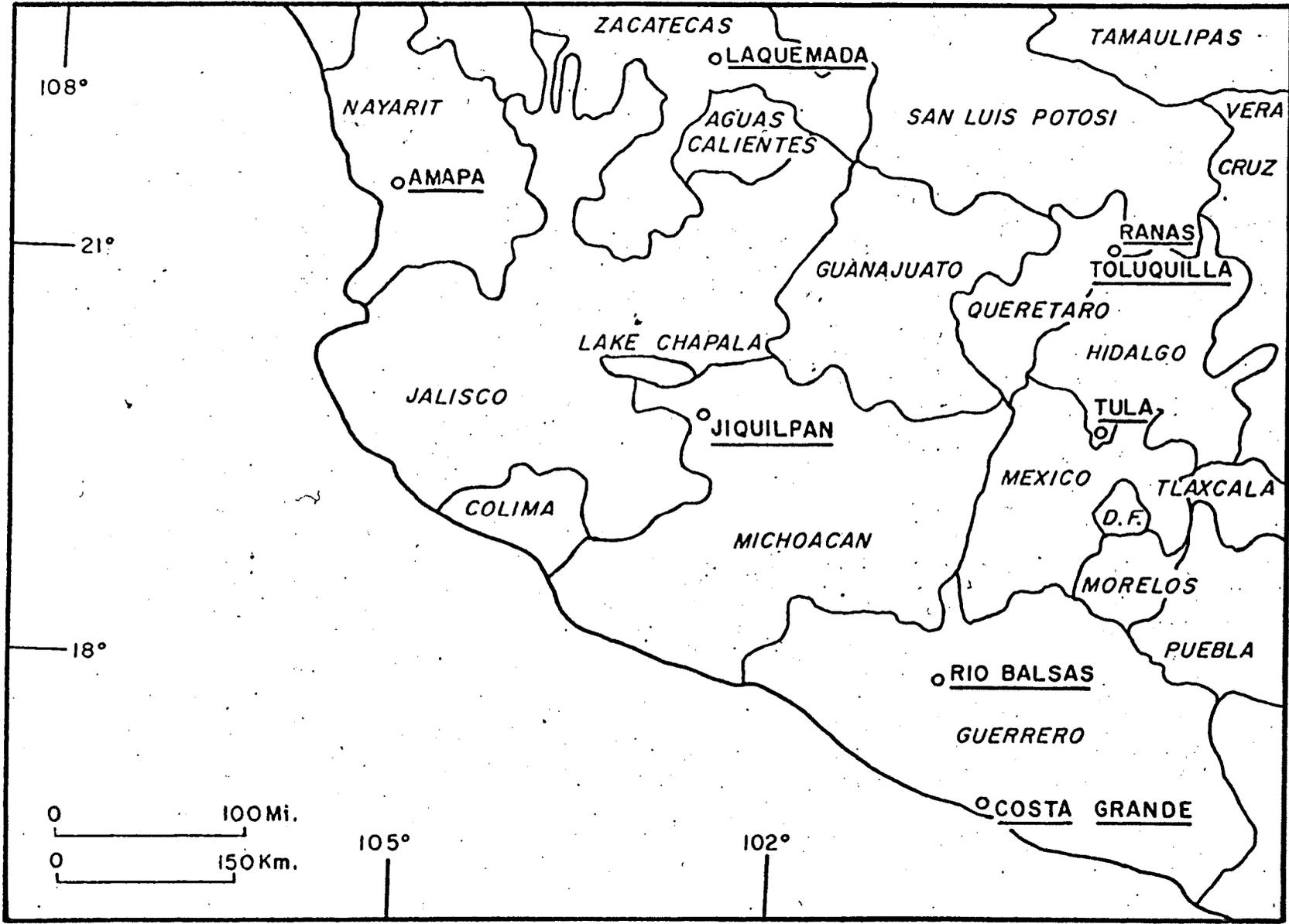
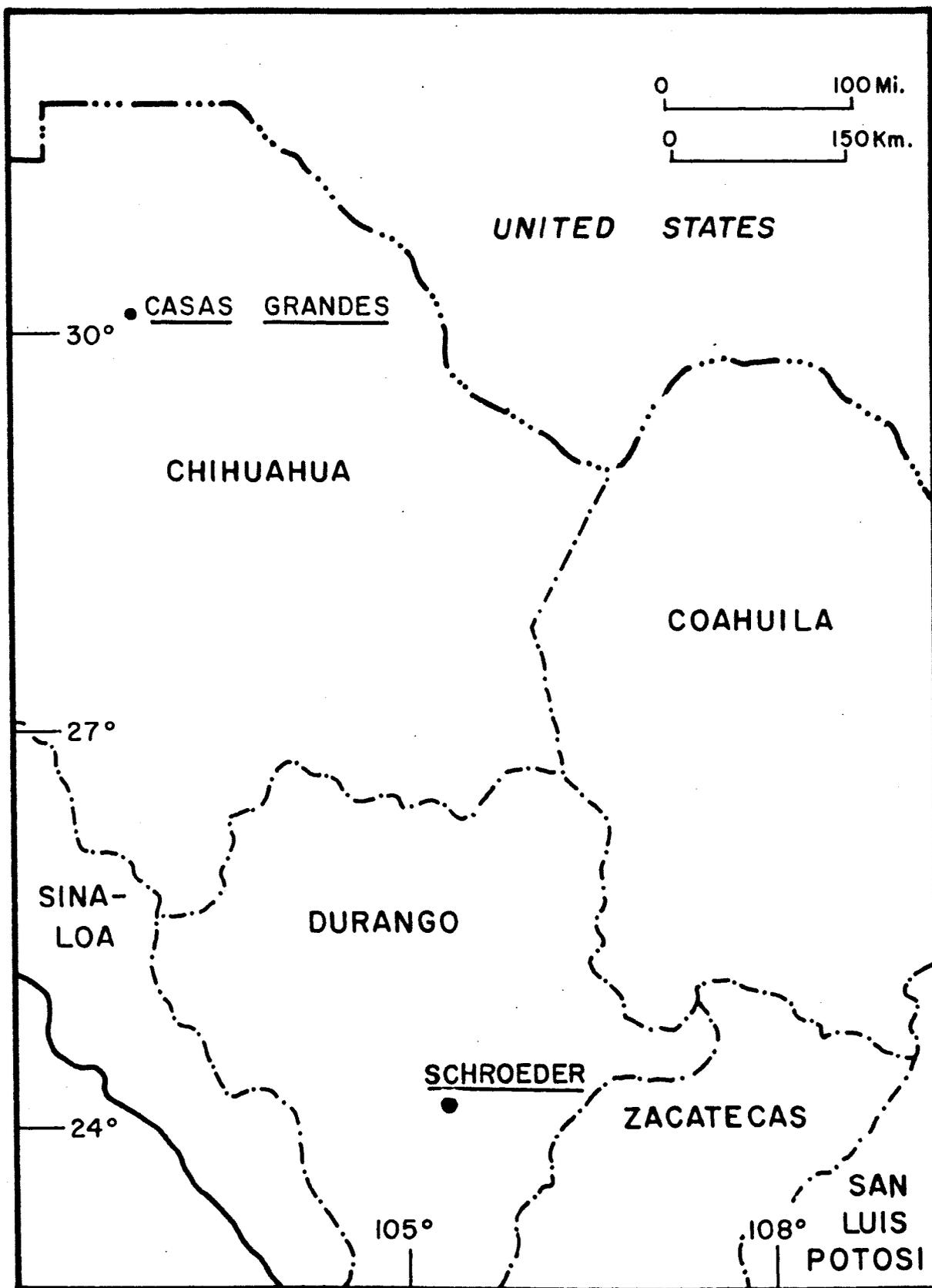


Fig. 7. Ball Court Sites of Northwestern Mexico



(1945a: 67; 1962: 127), and Kelley (1956: 139) thought a mountain corridor was the likely route.

A transmission of the court complex from the Gulf of Mexico coastal areas is least likely because no cultural traits from that area have been found in the Southwest. The ball court concept reached the Gulf Coast too late to have been a source for the Hohokam structures. No relation is seen between the lacrosse and similar games of the Indian groups of the Southeastern United States and the inferred prehistoric Southwestern ball game. Possibly the Hohokam and the Southeastern games did originate in Mesoamerica at an early time, but subsequent divergence has resulted in very different structures and presumedly different games.

Thus, two alternatives remain for consideration: a mountain foothill corridor and a coastal route. Each route could have been traversed with equal ease and it is possible that various traits were transmitted at different times via either route (Haury 1945a: 203).

Geographical Factors of Northwest Mexico

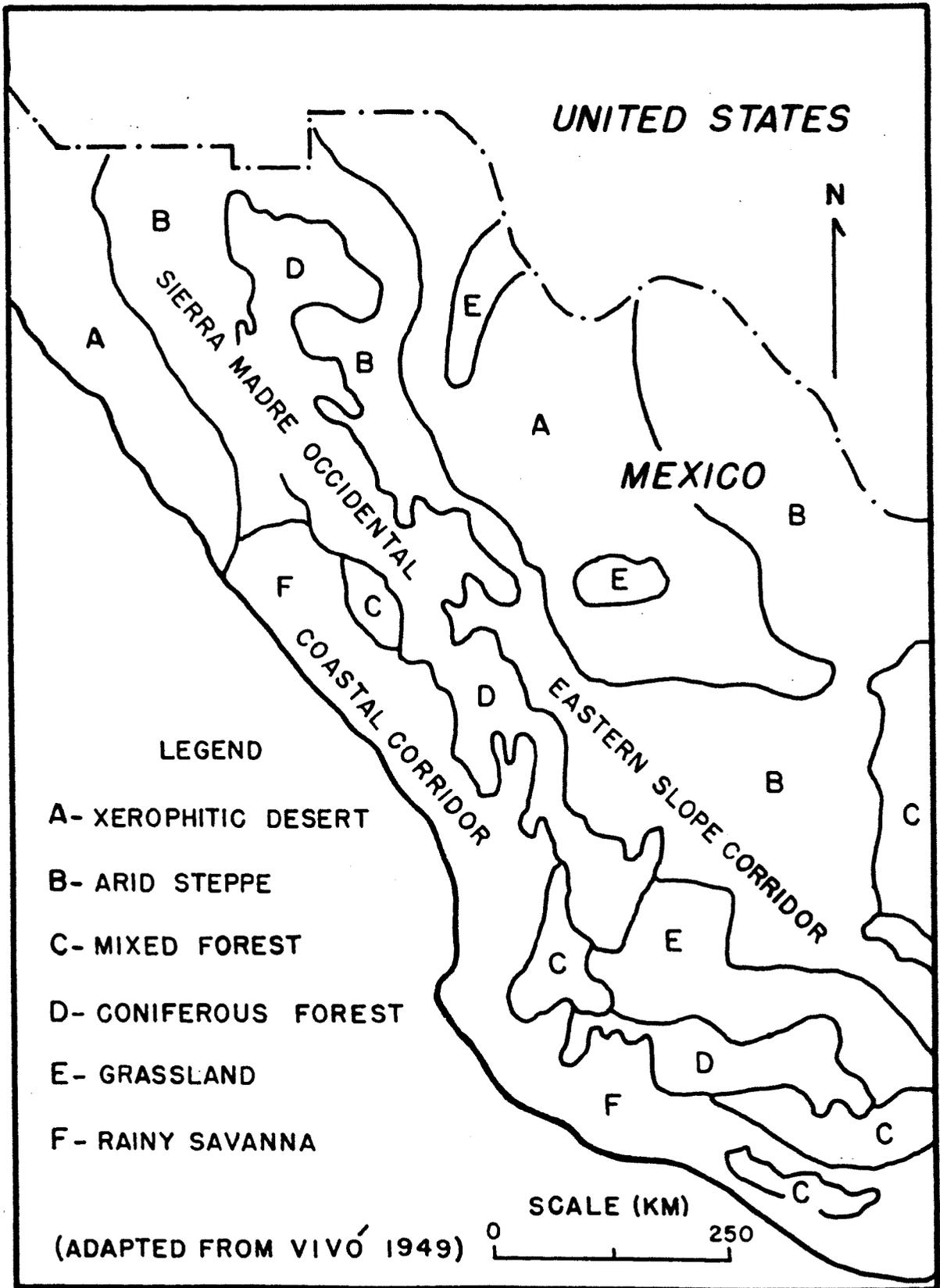
It is very likely that cultural transmission between the Southwest and Mesoamerica took place in the vast and largely unknown intervening area of western and northwestern Mexico. In this Pacific region of Mexico, a great northwest trending chain of mountains, the Sierra Madre Occidental, reaches from the highlands of central Mexico to the International Border.

The Sierra Madre Occidental chain is rugged throughout its length and may only be crossed at certain localities. The length and height of the mountain mass causes different climatic zones on its eastern and western slopes and its relative impenetrability has resulted in cultural differences as well.

The states of Michoacan, Jalisco, Nayarit, and Sinaloa are tropical in climate with mild winters and hot, rainy summers (Lister 1955: 7). While most of the Pacific coast of the Sierra Madre Occidental range may be included in a tropical classification, tropical flora and fauna decrease near the Sinaloa-Sonora border. Except for the foothills in the eastern areas of Sonora, much of the state is desert similar to southwestern Arizona (Brand 1936: map).

In the higher elevations of the mountain mass, pine and fir forests grow above 7000 feet. At lower elevations on the western and eastern foothills (3000-7000 feet), an oak-juniper-yucca association is found. On the Pacific side, this foothill zone merges with the tropical environment of the coastal states, but the eastern foothills blend into mesquite grasslands of Durango and Chihuahua. These two wide eastern slope zones, the oak-juniper-yucca and the mesquite grasslands, continue southward into the **Mesa Central** of Mexico, particularly the states of Zacatecas, Guanajuato, Queretaro, and Aguascalientes (Brand 1936, 1937; Lister 1955; David A. Henderson, personal communication: see Figure 8).

Fig. 8. Environmental Zones of Northwest Mexico.



Probably neither side of the Sierra Madre Occidental would present difficulties to people traveling on foot. On the coast, several rivers would have to be crossed, but the Yaqui and Sonora Rivers could be followed northward upstream. There are fewer rivers on the eastern side, but the Tunal, Zape, and Conchos River Valleys were centers for dense aboriginal populations (Kelley 1956: 129). One student of the area believes the eastern slope would be the easier route for aboriginal travel because of a greater number of springs in the foothills (Ronald R. Ives, personal communication).

Thus, the geography of northwest Mexico is dominated by a long rugged northwest-trending mountain chain, flanked on the west side by a narrow coastal tropical zone, and on the east side by semi-arid and arid plateau country. Ecological zones and their succession in descending elevations are most marked on the coastal side where pine forests and humid areas of mangrove, palm, and cyprus are separated by a narrow belt of oak-agave-juniper mixed forest. On eastern slopes, the transition from high elevation pine forests through oak-agave-juniper to mesquite grasslands and the Chihuahua desert is slow and gradual.

Northwestern Mexican Archaeology

Archaeological knowledge of western and northwestern Mexico has been slow in accumulation. Work in the area has increased only in the last three decades and the history of

cultures is just beginning to become known. Papers by Lister (1955), Kelly (1943a), Kelley (1956), Kelley and Winters (1960), and Ekholm (1940) have summarized the archaeology of western and northwestern Mexico but many problems remain to be solved. For the purposes of this paper, attention will be focused on the reported occurrence of ball courts and the areas of cultural similarity to the Hohokam which indicate a coastal or foothill route of transmission of the court concept.

Archaeological surveys in Sonora by Noguera (1958) and Fay (1956) and investigations by others have not located ball courts in that state. No courts are known in Sinaloa (Kelly 1943a: 215) but several important sites have been excavated. A court has been found at Amapa in Nayarit: it has an I outline, sunken field, and sloping interior surfaces, but is probably Post-Classic in date (Meighan 1959). A ball court in the coastal area of Guerrero has been located (Armillas 1948: 75). A second possible court was found by Osborne (1943: 62) in northern Guerrero and a court near Lake Chapala was located by Noguera (1944: 41) (see Figure 6 for locations).

Two ball courts were located at Tula and one has been excavated by Acosta (1940). Sites in the state of Queretaro, Ranas and Toluquilla, contain five and two courts respectively (Noguera 1946: 344). The famous site of La Quemada in Zacatecas contains an I-shaped court (J. Charles Kelley, personal communication) which is not the structure Batres (1903: 29) believed to be a court. The structure

found in northwestern Durango by Mason (1937: 139) was determined not to be a ball court (J. Charles Kelley, personal communication).

At the Schroeder site near Durango City, a probable court was excavated which could be assigned to the Ayala Phase (approximately A.D. 450-700), a period of the probable transmission of the court concept into the Hohokam culture (Kelley and Winters 1960: 549). Recent excavations at Casas Grandes in northern Chihuahua have disclosed a modified I formed court: in addition, in the foothills near Casas Grandes other courts have been found but no facts are known (Charles DiPeso, personal communication).

Most of these courts are not in coastal locations and little is known concerning the courts in Guerrero and Queretaro.. Most courts in northwest Mexico now known appear to be too late to be indicative of prototypes to Hohokam structures. But the Schroeder court indicates that ball courts may have been used in northwest Mexico at the time of the supposed transmission of the concept northward.

Evidence for the Coastal Route

Proponents of a transmission route within the coastal regions have supported their hypothesis with the following points:

1. The presence of historic and prehistoric agriculturalists along the coast who would have greater receptivity to a ball court concept than the less sedentary peoples of the inland plateau area.

2. The inferred existence of avenues of trade and contact along the rivers of the coast with Southwestern groups as evidenced by the Indian-guided Spanish explorers entering the present United States via a coastal route.

3. Historic reference to ball games played by the coastal tribes, especially the Acaxee, Cahitan, and Nayarit groups.

4. The work of Beals (1943, 1932) showing cultural similarities between coastal and Southwestern groups.

These points have weak support with respect to the transmission of the ball court concept. While excavations in coastal sites have established a sequence of complex cultures, recent work in the eastern foothill zone has revealed the existence of complex sedentary agricultural cultures who inhabited the area from Zacatecas to Chihuahua (Kelley 1956; Kelley and Winters 1960). The view that the interior area of northern Mexico was only occupied by non-sedentary groups has been modified by new work.

The early Spanish explorers were guided by Indians along coastal trails which were presumedly used in prehistoric times as well. Cultural influences did filter into southern Arizona via a coastal route but only after A.D. 1000 (Haury 1950b: 17-8) and it is doubtful if ball courts were transmitted along the same route as the Spanish later used.

Valuable ethnographical descriptions of ball games have been collected from coastal groups, but since these groups used only flat cleanly swept areas, it is doubtful if the Hohokam received specialized architectural influences from coastal cultures. Perhaps the coastal ball games originated in areas further south in Protohistoric times.

Cultural similarities between Southwestern and coastal peoples have been investigated by Beals, but his work was limited to the contact period. In prehistoric times, late cultural similarities between the Hohokam and coastal groups have been found (Haury 1950b: 17-8) but at the time of the transmission of the court complex from the south, the Hohokam had greater cultural similarity to the cultures of the eastern foothills of the Sierra Madre Occidental range (Kelley 1956, A. S. Johnson 1958).

Evidence for the Eastern Foothill Route

The hypothesis of an eastern foothill corridor can be supported by the following points:

1. General geographical and environmental continuity from the Mexican Mesa Central area to the International Border.
2. The existence of cultures bearing marked similarities to the Hohokam in these geographical areas.
3. The existence of ball courts in the Mexican Mesa Central area and along the eastern slopes of the Sierra Madre Occidental.
4. The existence of courts in southeastern Arizona.
5. The evidence of the transmission of several cultural items of great antiquity from Mesoamerica to the American Southwest along a mountain corridor (Haury 1962: 127).
6. A general architectural similarity of early Southwestern courts to those of the Mexican Mesa Central area and of the eastern foothill region.

Reference has been made to the environmental continuity which extends from the Guanajuato-Queretaro region through Zacatecas to Durango and Chihuahua. While the culture history of much of this area is not understood, large sites are evidence of complex cultures extending from Tula to Durango. If South-

western courts were derived from any of these cultures, an environmental change which might have affected the non-material aspects of the concept would not be as necessary as in a coastal transmission.

Of the several prehistoric cultures in northwest Mexico, the Chalchihuites of Durango seems to most resemble the Hohokam culture at the time of ball court dispersal (A. S. Johnson 1958). To comparable items of ceramics and certain artifacts, the ball court can be added as a cultural similarity between the Chalchihuites and Hohokam cultures (Kelley and Winters 1960: 552). The Schroeder site court may be indicative of the establishment of the concept in the Chalchihuites culture and other courts are to be expected. Along with the later courts at some Mesa Central sites, courts in the Casas Grandes area of northern Chihuahua may reflect a continuity of the concept in the foothill corridor or a late spread of a different court form from areas to the south. The existence of courts at these various sites, albeit late in time, does indicate a transmission of the court complex via the eastern slopes of the Sierra Madre range.

Several courts are known in southeastern Arizona. While none are impressively early, these examples are located in similar environmental zones to those farther south and earlier courts from southeastern Arizona are to be expected. The courts now known in this area are probably results of Hohokam influence after the establishment of courts in southern

Arizona and are not temporally intermediate examples.

A general mountain corridor with its environmental continuities and relative ease of movement was the probable avenue of the northward transmission of domesticated maize, other crops, ceramic technology, and the cultural transition from food collecting to food production (Haury 1962: 127). Again, the environmental characteristics of the Sierra Madre, at least in lower elevations, was conducive to the northward transmission of important cultural traits.

In architectural form, Southwestern and Mesoamerican ball courts are different. But the lack of masonry construction among the Hohokam can be attributed to the absence of suitable building materials and the non-utilization of masonry in other construction projects. If Snaketown type courts were to be reconstructed of masonry, they would resemble known courts of Mesoamerica, especially those found in northwest Mexico.

Thus, the postulated route of transmission along the eastern foothill zone of the Sierra Madre Occidental range has several supportable points not contained in the coastal theory. However, cultural influences from the coast did in fact reach the Southwest but only after A.D. 900-1000 (Haury 1950b: 17-8). Recent discussions of archaeologists interested in the American Southwest and northwest Mexico indicate a consensus regarding an eastern foothill zone of cultural exchange between both areas (Nicholson 1962: 618; Haury 1962:

127).

Source Areas for Southwestern Ball Courts

With the examination of possible routes of transmission in mind, possible source areas for the court concept may be discussed. Two major possibilities are indicated by the evidence and by interpretation of that evidence. With the placement of the Schroeder site court in a period of probable transmission, perhaps Hohokam courts can be traced to the Ayala phase of the Chalchihuites culture. Courts may have been transmitted from a lowland Maya area to the Mesa Central area, bypassing the Valley of Mexico. Once in the Mesa Central, especially in the present states of Queretaro, Guanajuato, Aguascalientes, and Zacatecas, at a period just prior to the founding of Tula, the concept of ball courts may have spread to the American Southwest and to the Chalchihuites cultures. Since little is known about pre-Toltec occupation of those states, this possibility cannot be supported. With respect to Southwestern courts and the available evidence from Durango, an area of origin for Hohokam courts might be expected to lie in the Mesa Central or western regions of Mexico.

Mechanisms of Ball Court Transmission

The concept of the ball court and its associated activities, function, and usages could not be transmitted from one culture to another as easily as a traded artifact. An

architectural form and the meaning of that form must have required group acceptance and not the acceptance of a few persons. To build, use, and attach meaning to ball courts on a large scale would have required group activity, receptivity, acceptance, perhaps modification, and integration of the concept into existing cultural patterns. That the Hohokam culture contained ball courts derived from Mesoamerica is proof of this cultural receptivity and acceptance but such integration of the concept may have been slow or fast and may have involved small groups initially and later the total society.

The trait complex of the ball court as it is known in prehistoric Southwestern cultures may be discussed as a trait-unit intrusion (Lathrap 1956: 19). Such a complex may be classified as a specific type of trait-unit intrusion, that which results in fusion with subsequent emergence of new traits which had no antecedents in the receiving culture (Lathrap 1956: 8). Ball courts, then, represent the intrusion of a trait into a culture which had no such item previously but which integrated the trait as a dominant feature in some segment of the cultural pattern.

The ball court concept and its transmission to the Hohokam area may be viewed as a product of primary, secondary, or stimulus diffusion (Hawkes 1954: 165; Kroeber 1940). Primary diffusion involves a change in demographic situations ranging from full invasion to momentary, short-lived culture

contacts (MacWhite 1956: 165). Secondary diffusion of traits is similar to stimulus diffusion but involves the transmission of traits from the originating culture to intervening groups, and finally to a recipient culture. Kroeber (1940) has discussed possible situations wherein a receiving culture accepts the stimulus of a foreign trait complex but modifies it to better integrate with existing patterns. Each type of diffusion may be a correct evaluation of the spread of the ball court idea, but primary and stimulus diffusion seem most applicable.

MacWhite (1956: 18) has outlined several demographic conditions pertaining to primary diffusion situations:

- I: Foreign Agents of Acculturation
 - A. Insular Situations
 - 1. Visits of specialist groups...of greater or less duration but who do not settle permanently.
 - 2. Foreign traders.
 - B. Contiguous Situations
 - 1. Visits from specialist groups.
 - 2. Visits from all levels of population.
 - 3. Hostile incursions.
- II: Native Agents of Acculturation
 - A. Insular Situations
 - 1. Specialist groups...returned after visits to foreign lands.
 - 2. Warriors returned after raids in foreign lands.
 - B. Contiguous Situations
 - 1. Specialist groups...who have close contacts with neighboring groups.
 - 2. Whole of population has contact with neighboring groups.(adapted from MacWhite 1956: 18).

It is felt that two other possibilities in MacWhite's outline, Invasion and Immigration, cannot be supported by the evidence of Hohokam history even though DiPeso (1956) has seen

the Hohokam as an intrusive culture. If DiPeso is correct, ball courts would then be not a foreign concept to the Hohokam and the occurrence of these structures in the Southwest could be explained as a result of invasion or migration. Since DiPeso's interpretation has not met the criteria of migrations proposed by Rouse (1958: 64), the Hohokam are considered to be a native Southwestern group with varying amounts of Mesoamerican cultural veneer at various time periods (A. E. Johnson 1962).

Of MacWhite's situations listed above, all but IB2 and IIB2 are likely possibilities. Since evidence of settlements by large groups of southern peoples is lacking, it is inferred that ball courts were introduced by small specialist groups. Any such group would have to have knowledge of the court, its symbolism, and a game or other activities and would have to sufficiently influence pre-existing Hohokam culture to cause receptivity and desire for the court trait complex. A foreign specialist group would have to successfully proselytize the Hohokam and would have to replace existing socio-religious patterns. Such situations of active, directed religious change are rare in New World aboriginal culture history.

Schroeder (1956: 308) has suggested that professional trading parties similar to the Aztec pochteca may have brought Mesoamerican traits including the court concept into the area of the Hohokam. However, it is interesting to note that from the information contained within the historic Florentine Codex,

the pochteca apparently disliked the players of the ball game or tlachitli and guests at a feast were admonished not to play the game (Anderson and Dibble 1959: 41-2). The Florentine Codex contained much information about the Aztec trading groups and their function, but no description or representation of the pochteca playing ball exists within the document. It may be that Toltec trading groups did participate in the ball game, but the Aztec evidence indicates a negative conclusion. Thus, on the basis of little ethnohistoric evidence, the suggestion that pochteca-like trading groups were the mechanism for the transmission of the court concept to the Hohokam is questionable.

Visits to the Hohokam by foreign specialists, especially traders, certainly may have been possible. Such groups would probably not bring pottery, household goods, or distinctive shelters, and would stay for a short time. But it is doubtful if such traders would attempt religious conversion and changes in ceremonial patterns of their customers. Perhaps a more likely possibility is MacWhite's category of native agents of acculturation.

The introduction and integration of the ball court concept would be more successful if initiated by the Hohokam themselves. A possible mechanism for this introduction and acceptance could have been Hohokam groups trading with a foreign society, perhaps the Chalchihuites culture, which possessed the ball court. The Hohokam may have traded shell

artifacts, palettes, or worked turquoise for copper bells, pyrite mirrors, or parrots. Pendergast's study of Mesoamerican and Southwestern distribution of metal artifacts shows that the occurrence of copper bells in both areas indicated that major finds of certain types are in the Southwest, the Chalchihuites area, and in the Mesa Central region (Pendergast 1962: Figure 6). Ideas could have been unintentional items of exchange as well.

Kroeber's formulation of stimulus diffusion may be coupled with a native agents of acculturation hypothesis. The stimulus for the ball court concept could have been the witnessing of a game, ceremony, or some activity by Hohokam visitors and the re-interpretation of the event once the traders returned home.

Secondary diffusion is the least possible situation although future investigations may prove otherwise. No courts except the little-known locations near Casas Grandes have been found between the areas of Hohokam and Chalchihuites cultures. Evidence for sedentary agriculturalists in northern Durango and Chihuahua has been found but apparently they did not have ball courts (Kelley 1956: 132-6).

A distance of about 1000 miles separates the Chalchihuites from the Hohokam area. A one-way trip could have been accomplished in 40 to 50 days if 20 miles a day were traveled. Supplies could probably be restocked from local agriculturalists in the intervening area but it is doubtful

if such trips were frequent. Perhaps Hohokam traders derived higher status positions by making such trips. If this were true, innovations from them would carry more value than from persons of lower status (Barnett 1952: 65).

Conclusions

On the bases of geographical continuities and archaeological evidence, a transmission route along the eastern foothill region of the Sierra Madre Occidental is postulated. Other routes have been examined, but greater likelihood of the proposed route is indicated by several points of support. Kelley has stated that the available evidence indicates that

The general picture is one of Meso-american cultures advancing northward along a restricted [eastern mountain foothill] corridor representing a unique ecological zone.... There appears to have been a virtual continuum of sedentary cultures from the central Mexican area into the southwestern United States early in the second millennium A.D.; the hypothesis of a cultural hiatus separating the Meso-american cultures from those of the Southwest no longer seems tenable... (Kelley 1956: 139).

Source areas for Southwestern ball courts cannot be located as yet, but either a Chalchihuites or Mesa Central origin is likely. Transmission of the trait complex may have been via specialized groups traveling northward to the Hohokam or Hohokam parties moving southward along foothill trails. A foreign group would have to know the trait complex well and would have to make it acceptable to the Hohokam. From ethnographical records, the professional Aztec traders seemed to have lacked participation in court activities and thus trans-

mission by similar trading groups is questionable. A more likely possibility is that Hohokam traders or other special groups were stimulated by the trait complex in cultures of the southern areas and therefore could easily spread a modified version in their own culture.

CHAPTER 5

Introduction

Excavations by Gila Pueblo personnel and others in the Gila-Salt River Basin of southern Arizona have shown this area to be the homeland of the Hohokam culture and a sequence of Hohokam cultural development has been established (Figure 9). While Gladwin and other workers have questioned this chronology, recent excavations by the Arizona State Museum have demonstrated that phase dates in the sequence are generally correct (Johnson and Wasley 1961a,b,c).

Interpretative Approach

Sears' recent paper (1961) provides an approach for the interpretation of prehistoric social and religious systems by the examination of several areas of material remains - settlement patterns, ceremonial structures, grave offerings, specialized artifact manufacture, and artistic representation. Cultural interpretations of Southwestern ball courts may be based on similar categories of data.

MacWhite's levels of archaeological interpretation are also applicable to this topic (MacWhite 1956). He has emphasized that the higher levels of interpretation are logically more reductive than deductive and are consequently more hypothetical. MacWhite (1956: 4,5) would probably see the interpretation of the cultural role of ceremonial structures as a

Figure 9
Hohokam Cultural Sequence*

Period	Phase	Dates (A.D.)
Classic	Civano	1300-1450
	Soho	1100-1300
Sedentary	Sacaton	900-1100
Colonial	Santa Cruz	700-900
	Gila Butte	500-700
Pioneer	Snaketown	300-500
	Sweetwater	100-300
	Estrella	B.C 100- A.D.100
	Vahki	300-100 B.C.

* adapted from Ambler 1962 and Haury 1937b

combination of (1) a lower level of simple inference from material remains as behavioral and ideological aspects of culture and (2) a higher level of interpretation which is the determination of the significance of the previous simple inferences in sociological terms. MacWhite would view ball courts initially as evidence of group behavior in construction and use; secondly, a ceremonial function of the court would be inferred, and finally, group behavior and ceremonial use would be interpreted as cyclic religious gatherings, daily rituals, or other possibilities. By realizing these interpretative steps, each further removed from the factual material remains than the previous one, the investigator may also guard against confusing fact with inference.

Linton (1936: 402-6) has proposed two theoretical ideas which are of value to this paper. To Linton, "usage" means a relationship of items in the natural world to those of the cultural world: a tree is cut and it is used in hogan construction (Linton 1936: 404). While this concept cannot be strictly applied to ball courts, "usage" in this paper means the modification of the natural environment to form a cultural item which was utilized by people in various ways. A ball court is thus a modification of the natural environment which resulted in a special location for social, religious, or political events involving any number of people. Meanings attached to ball court usages may be quite varied at different times and in different situations. The concept of "function" is

considered to be what the anthropologist or outsider sees as the role of a trait in a culture (Linton 1936: 404).

In the discussion of ball courts in the Hohokam and other Southwestern cultures to follow, the approaches of Sears and MacWhite and the theoretical concepts of Linton are used. Courts are described in terms of categories similar to Sears', interpreted using MacWhite's approach, and summarized in Linton's terms.

Settlement Pattern

While no detailed study of Hohokam settlement pattern exists, Haury (1956) offers a general view. The major determinants of Hohokam settlement pattern were available water and agricultural land. As agricultural peoples, the Hohokam were sedentary but were not bound to riverine locations. By building canal systems leading from the Gila and Salt Rivers, the Hohokam were free to irrigate and utilize tracts of fertile terrace lands. In some locations, however, topographic factors did not allow large canal systems and here the Hohokam remained near the streams. In the Papago Reservation area, Hohokam sites are found along large washes where flood-water farming could be practiced (Haury 1950b: 14).

Hohokam occupation in the Gila-Salt Basin can be generally described as dense rural settlements of single or multiple family villages which were scattered along canals and were probably surrounded by large irrigated fields. Village

size seems to have resulted from population density and local geographical factors affecting agricultural land and the location of canals (Haury 1956: 7). Most villages were composed of randomly placed houses, located some distance apart. Refuse mounds and other features such as earth ovens were scattered among domestic structures. House types changed through time but were usually open to the east. At a later date, walled compounds and house mounds were built.

No typology for Hohokam settlement pattern has been proposed. While this problem is beyond this paper, two types of settlements are briefly described below. Most Hohokam sites may be classed as "non-centered villages" - those exhibiting random location of houses, trash mounds, and other structures including ball courts. "Centered villages" are few and are defined as those having a loosely organized layout centered in some way: examples of this type are the Citrus Site (Arizona T:13:2; Johnson and Wasley 1961b: 40-3), the Gatlin Site (Arizona Z:2:1; Johnson and Wasley 1961b: 19-20), and the Paloparado Site (Di Peso 1956: 220).

Only the Citrus Site (Johnson and Wasley 1961b: Figure 2) and the Gatlin Site (Johnson and Wasley 1961b: Figure 10) are centered village sites having ball courts. At the Citrus Site, a Snaketown type court was located about 150 meters southeast of a plaza which was surrounded by ten houses and two trash mounds. The Gatlin Site was composed of 22 mounds, approximately aligned along three northwest-southeast axes, a

platform mound (Wasley 1960), two ball courts, and two houses. One ball court was about 200 meters east of the platform mound and both buildings were units in two axial alignments of structures. An unfinished "practice" court is located one-half mile northeast of the platform mound (Johnson and Wasley 1961b: Figure 2).

Because of the lack of domestic structures, the possibility that some of the mounds were house platforms, and the association of a ceremonial platform mound with ball courts, the Gatlin Site is postulated as a religious center (Johnson and Wasley 1961b: 22). If it is a religious site, perhaps the center of ceremonial activities was between the platform mound and the nearby ball court. Both structures were in use during the Sacaton phase (Wasley 1960: 261).

Unlike Mesoamerican ball courts which were usually associated in a definite ceremonial center with other religious buildings, Southwestern courts are generally on the peripheries of settlements and are not in a relationship to other ceremonial structures. Possible exceptions are the Gatlin Site and Wupatki Ruin in Wupatki National Monument. Courts may be near trash mounds or other remains but there seems to have been no planned relationship to these units. At the time of ball court popularity, no other community ceremonial structures were built with equal frequency. In a later period, Soho phase, Ferdon (1955: 16) has suggested that the rectangular faced mounds topped by buildings may

have been Southwestern counterparts to Mesoamerican temple structures which may have taken the place of ball courts.

Thus, Hohokam settlement pattern is characterized by unorganized placement of house clusters, refuse mounds, and other structures over wide areas. Such village patterns continued for most of Hohokam history. Non-centered village sites varied in size but composed dense rural populations along rivers or canal systems. Not all villages had ball courts, but when courts were associated with larger multi-family settlements, they were located in peripheral places to the living and working areas. A few sites could be classed as centered villages: one of these may have had a focus of ceremonial activities which included the use of a ball court.

Construction Technology

Hohokam construction may be classed as habitational, agricultural, food preparation or storage, and ceremonial. Each type required different materials, skills, and amounts of manpower. In terms of required manpower to initiate, build, and finish a project and the length of time for this process, canal systems would be the most complex, followed by the later compounds and house mounds, other water control devices, ball courts, houses, and finally earth ovens or other small units. Tools used in the construction of these items were undoubtedly axes, mauls, hoes, baskets, and digging sticks.

The probable sequence of ball court construction was

begun by clearing plants and rocks away from a suitable area. After digging a depression and dumping the excavated earth on either side to form side or end units, markers were installed. Finally the field and interior slopes were coated with caliche plaster. Baskets could have been used to move earth and carry plaster. Digging sticks, hoes, mauls, and axes were probably used in excavating depressions and mining caliche from borrow pits. Each type of court required different amounts of manpower but a small Casa Grande type court could have been built by the same techniques and tools as a larger Snaketown type court.

Construction time of ball courts is unknown but a rough estimate may be based on the following example. A small Casa Grande court measuring 35 meters in exterior length, 15 meters in exterior width and one meter deep (approximately the size of Court 1 at the Gatlin Site) would require the excavation of 475 to 525 cubic meters of earth. If ten men removed 50 cubic meters of earth per day (assuming that each man moved one-half cubic meter of earth per hour for a ten hour day), the excavation of a depression and the mounding of the side units could have been accomplished in nine or ten days. A caliche plaster coating for the field might require about 52 cubic meters of material. Raw caliche might take one or two days to mine, several days to prepare, and a few days to apply.

Even though these estimates have no factual basis, they do seem to indicate that small courts could have been construct-

ed by a dozen men in about two weeks of steady work. Woodbury's discussion of canal-building technology contained the assumption of the removal of one cubic meter of earth in one day by a single worker (Woodbury 1961: 556). If this estimation is more correct, a small court could have been constructed in approximately two months by ten men.

Larger Snaketown type courts may have employed several score workmen, but even the largest court was probably built in six or eight weeks. It is likely that court construction took place during winter months when less agricultural labor was needed. Ball courts undoubtedly needed maintenance because rains would soften the caliche plaster, wash earth onto the field, and perhaps create standing pools of water. Court maintenance would need only a few men once the court was constructed.

Social Organization

Construction projects of the Hohokam such as ball courts, canals, and the later compounds and house mounds imply a well integrated social organization. The complex canal systems are excellent examples of environmental adaptation and modification by primitive agriculturalists. Haury's opinion concerning the implications of these achievements is instructive:

The outstanding achievement of the Hohokam with political consequences and implications was the

development of their irrigation system. The planning, construction, and maintenance of these ditches reflect some degree of centralized authority, possibly in the nature of an intervillage council. At the same time, the inference can be drawn that villages were under strong political leadership, for labor recruitment would have been at this level (Haury 1956: 8).

As Ferdon (1959: 12) has shown, soil, terrain, and temperature in the Hohokam heartland were suitable for productive primitive agriculture. But the lack of sufficient precipitation resulted in the classification of that area as "sub-marginal." However, Hohokam culture was "...of a much higher order than its sub-marginal agricultural environment would presuppose" (Ferdon 1959: 12) because canals were prime adaptive mechanisms making possible the development of the Hohokam culture. Canals also may have been a cultural response to an increasing population which began to expand in riverine locations as pre-canal floodwater farming became increasingly effective.

As mentioned above, only after successful development of canal systems could the Hohokam utilize fertile terrace lands and move away from the river banks. After such technological developments, water rights, agricultural territoriality, and regulated land utilization would be necessary. Such controls could have been enforced by Hohokam law without political organization in a manner similar to the agricultural regulations of the terrace-building Ifugao in central Luzon as described by Barton (1919). It is possible that Hohokam agri-

cultural controls were based on law and tradition without an over-all political organization.

The construction of canals, ball courts, and other projects must have been sufficiently organized to produce effective and useful structures. As Haury (1956: 8) has suggested, labor might have been organized by village councils working together perhaps with a temporary construction leader. Woodbury (1961: 557) believed there was little evidence to indicate a central authority for canal-building and that the canal technology was simple enough to have been organized on the village level. If the Hohokam were organized by an over-all political hierarchy, one would expect evidence of a seat of power in the form of a large village, unusual architecture, or perhaps a centrally located socio-religious center.

Another facet to the problem of Hohokam social organization may be reflected in ball courts. Sayles (1962) suggested that ball courts could have served as headquarters for groups of young men who participated in games and who composed a warrior corps. Such a group might have been a labor force which built canals or ball courts by the directions of a village council or leader. A vigorous ball game would keep the men in fighting condition in the same way as did the running races of historic Southwestern tribes described by Culin (1907: 665-8).

It must be recognized that statements concerning Hohokam social organization and the role of canals and ball courts as integrative community construction projects are conjectures and inferences of a high level. Each village was probably not completely autonomous or independent and village councils may have organized local work forces for ball court construction. Several councils may have temporarily pooled manpower and skill for larger projects.

Intervillage Social Interaction

All Hohokam peoples presumably spoke the same language and were members of the same general culture. Ball courts could have been used as gathering places for divisions within Hohokam society - extended families, clans, moieties, whole villages, or lineages. Events for such gatherings might have been games, dances, or ceremonies and may have been peaceful or warlike. Stern's observation that ball games could be substituted for warfare might be applicable to the Hohokam (1950: 97). Warfare among agricultural villages would easily result in much damage to crops, houses, and canal systems which would affect all settlements. Perhaps the ball court was an outlet for the maintenance of agricultural territoriality, a method to decide violations of law or custom, or even may have a correlation with boys' puberty rites in which young men prove themselves by a game-ordeal (Stern 1950: 96). Other

possibilities are equally valid as there is no evidence of such usages. Mesoamerican courts and their associated games were more religious than social in meaning than these suggested usages of Hohokam courts.

A possible parallel for Hohokam ball courts is the interesting inter-village game played by the Acaxee who occupied the mountainous area between Culiacan, Sinaloa and Durango City, Durango (Beals 1932: 113; 1933: 11-3). According to an account of a missionary in the Acaxee area during the closing years of the sixteenth century, a game involving a rubber ball as big as a man's head was played between villages. A special court which consisted of a flat, well-cleaned area bounded by two low walls about a yard in height and shaped like a bench was constructed. This court was said to be the first structure erected in a new village. Intervillage games were arranged by challenges from one village to another but no motive for the challenges were given. One village might send a challenge to several other settlements but the home team had to face all comers. While the home players were conditioning and being prepared, stakes to be betted were assembled. These items were sent to the challenged village who equalled the amount. Bows and arrows, silver, hats, shoes, or other articles of clothing were often wagered.

For three successive nights a dance was held in the

court of the home village by its inhabitants. Each dance was begun with two warriors in full war regalia mounting the court walls and shouting loudly. Simultaneously a line of old men entered the court in silence, followed by women. Both groups joined and began to dance and sing songs of encouragement, boasting of the valor of the home team. These dances and songs lasted for about three hours. During the day, the women prepared a feast which was to be eaten by the home and visiting villagers.

On the third night, a final dance was held but the players danced and sung all night. At dawn, two warriors again climbed the court walls, the dancers and singers entered, but as the dance was begun, the visiting villagers advanced toward the court. The visitors were equipped for war and began to shoot blunt arrows at the two warriors on the walls and throw balls of thorns and thistles at the home villagers. The home village retreated from the court and it was occupied by the visitors. But the challenging team rushed the visitors from the court with great noise and the players took their places to begin a game. This description is of a "Christian" group and the game may have been different in precontact times.

Another account describes the unexpected arrival of a missionary at a pagan Acaxee village:

In another village, when the Father arrived, he found them [the villagers] playing a ball game...

and in the batney [a West Indies term for ball court used by the Spanish], or plaza of the game, there was placed on one side an idol in the form of a man, and on the other side a root very well known by the Indians of New Spain, which is called Peyote...(Perez de Ribas 1645: 486).

These and other ethnographic accounts will be discussed below but these two contact period examples are instructive. In both cases a special structure was used and it appears to have occupied a central place in Acaxee village planning. The intervillage contest has overtones of hostilities between villages but no actual warfare and loss of life took place. Perhaps intervillage games among the Hohokam were similar to these Acaxee reports but a definite association cannot be made.

Items of Special Manufacture

The talents of Hohokam craftsmen in working shell and stone are well known. Shell was carved and etched into beads, pendants, and bracelets but none of these artifacts were related to the ball court. Stone paint palettes and small vessels were carved but again no evidence of association with ball courts is known. Copper bells, traded from southern sources, may have been used in costumes for ball court activities but no evidence of this use has been found.

However, within the Hohokam heartland, three native rubber balls have been found (Haury 1937a: 282-3,287). Two specimens of dubious provenience have since disappeared but

a third ball was studied. The ball was found near Toltec, Arizona and was associated with Sacaton phase artifacts; on this basis, Haury assigned a date of A.D. 1000 to the ball (Haury 1937a: 288). Weighing about 7 ounces, the ball was about 18 centimeters in diameter. A chemical analysis determined that it was made from natural rubber similar in organic composition to rubber bearing plants of North America (Haury 1937a: 286). A possible source could have been plants of the Guayula type which grow widely in northwestern Mexico (Lloyd 1911: 6). As noted above, these balls were not found in association with a ball court and their use in a ball game is inferential. Smaller rubber balls may have been used in a kicking race just as historic Southwestern Indians used a mesquite ball or billet (Culin 1906: 665-8).

In the excavation of Southwestern ball courts, only at the Tres Alamos site were unusual artifacts associated with a court (Tuthill 1947: 41-2). At this site, 69 complete and fragmentary stone paddles were found in the fill of the court. These stone paddles varied from 4 to 11 inches in length and all had handles. The paddles may have been used in some way to hit a ball as Tuthill (1947: 42) suggested but if a large ball was used, the thin paddles would probably break. Perhaps the association was unrelated or fortuitous.

Trumpets manufactured from Strombus sp. shell have been recovered from several Southwestern sites including the Snaketown site (Haury 1937c: 147), at Los Muertos (Haury 1945

159), and at other sites (Boekelman 1936). These trumpets and those made of other univalve species may have been used in ball court ceremonies, but shell trumpets were also used in the Anasazi culture (Boekelman 1936: 27).

It must be recognized that the probability is low of recovering special artifacts from unroofed ball courts because the courts were undoubtedly used only on certain occasions and it is doubtful if artifacts would be left in the courts. Important items of religious paraphernalia may have been perishable.

Artistic Expression

Other than special items such as shell and stone artifacts, Hohokam artistic expression is found in pottery designs and motifs, petroglyphs, and figurines. No figurines or petroglyphs of ball court players have been found to date. A possible suggestion of ball court activities is the lines of dancing figures painted on certain Hohokam pottery types (see Fig. 10). These figures seem to be dancing in a line or circle and are usually depicted in a certain stance, holding hands. Some dancing figures are equipped with baskets, tump-lines, and curved staffs. To ask if these figures represent the building of a court or a canal system or if the baskets symbolize fertility and plentiful harvest is interesting but speculative.

If the Hohokam did not have a linear or circular



Fig. 10. Hohokam "Dancing Figures" on Santa Cruz Red-on-Buff Sherds from Snaketown. Natural Size.

dance with participants joining hands, it is doubtful if such a dance pattern would have been represented. The association of such dances and ball courts has no basis except in general simultaneity of occurrence and that the two cultural traits often occur at the same site. Further analysis of this design motif might result in more information as to its meaning.

Symbolism of the Ball Court and Ball Game

Several possible social usages of Hohokam ball courts have been mentioned above. If Southwestern courts were used only for religious rites, there is no evidence of the ceremonials as there is no actual evidence of social usages. Data from Mesoamerica supply several examples of possible Hohokam ceremonial meaning, however.

Among the Aztec, major dieties such as Quetzalcoatl (culture hero), Tezcatlipoca (war-like god), and Tlaloc (rain god) were pictured as players, gods of the court, or dieties honored by games and ceremonies (Stern 1950: 64). Fertility gods such as Xipe Totec (god of sacrifices), Coatlicue (earth goddess), and others were also associated in some way with ball courts (Stern 1950: 64). Ceremonial games seemed to have bases in the duality of certain dieties or their various representations, competitive or hostile relations between dieties or groups of supernatural beings, and in nourishment of fertility of natural resources by sacrifice (Stern 1950: 70-1). There appears to have been a close association of Mayan courts

with an act of decapitation which may have been symbolized by the vanquishing of a moon diety by a rising sun god (Krauth 1961: 197). Some of these symbolic values attached to Mesoamerican courts may have had a part in Hohokam religion.

Ball courts may have also resembled a mythological "known world". Dutton (1959) has suggested that diagonal lines drawn in a modified I or true I shaped court represented the solstice points of the sun and that these lines marked world quarters. Dutton has suggested also that the depressed field and the mounded side and end units represented levels in an underworld which were terraced according to a hierarchical arrangement.

Such a complex sun-oriented symbolism is possible for some Hohokam courts, and might be applicable for all examples, but no evidence exists except an east-west orientation of some early courts. Markers along the east-west longitudinal axis of courts might have been symbolic of the sun's path in the sky (Schroeder 1940: 43-4) but such a correlation with north-south courts is difficult. Schroeder has suggested that north-south courts might be aligned with Polaris, but little work has been done with this possibility (personal communication). No other theories having greater likelihood have been suggested as additions to these various postulated symbolic associations. If the Hohokam ball courts were associated with any symbolism, it is doubtful if it will become known. Any of these known associations may apply to Southwestern courts

in full or in diluted form.

Ball Games in the Historic Period

Mention has been made of two ethnohistoric games among the now extinct Acaxee of Durango and Sinaloa. Other groups in northwestern Mexico are known to have played ball games in a manner similar to the Maya and Aztec further south. Stern (1950: 34-63), Blom (1932), and Krickeberg (1948) have supplied general descriptions and symbolic association of the Maya and Aztec games. Only data from the northwestern Mexican states is described here because if the Hohokam did have a ball game, it might resemble most the area of nearest occurrence. But information from northwestern Mexico lacks time depth, adequate description, and comparability of details.

In the coastal area of Nayarit, Isabel Kelly witnessed a modern game in the Acaponeta Valley (Kelly 1943b). The game had been frequently played before 1930 but thereafter it was only played on certain fiesta or saint's days, Sundays, and Saturday of Easter Holy Week. The playing area or taste was about eight meters long and two to three meters wide: it was not modified in any way but simply swept clean. Teams were composed of two to five men who played the game as semi-professionals. Their trainer was called 'the owner of the game' and he received a portion of the winnings as compensation. Team members were expected to train conscientiously, abstain from intercourse before a game, drink only liquids, and to

bathe after a match.

Both men and women betted heavily on the games, but no intervillage contests took place except between professional teams. Scoring was complex: points were tallied if the ball was not returned, or bounced out of bounds, or if the ball touched any part of the body except the hips or thighs. Kelly believed that the Nayarit game was either a survival of an old form or a simplified version of a later game. Krickeberg (1961: 170-1,176) has figured several scenes of a similar game in southern Sinaloa.

Among the Cahitan groups, in the early 1900's the Yaqui were observed playing a game which involved hitting a ball with the hips (Lloyd 1911: 5). No other details are known, but Beals (1943: 34) has described a ball game among other Cahitan speakers. The game was played on a cleanly swept plaza area called a batei, a corruption of the West Indies term batey used by the Spanish. The plaza was also called el tlachtli which is the same as the Nahuatl word for ball court (Anderson and Dibble 1959: 41). The plaza was about 50 by 8 meters and was bisected by a transverse center line. Ibarra (1960: 312) stated that the name of the game is la hulama, also called ule (Beals 1943: 34), and it is still played in the Sinaloan municipios of Mazatlan and Concordia. A team was composed of four, six, or eight men according to Beals (1943: 34) while Ibarra (1960: 312) reported a five man team. Bets were placed on games but information on

ceremonial activity associations and intervillage games is unavailable.

An apparently similar game is simply called pelota or as reported by Ibarra (1960: 321), male. This game, once played in the Guasave, Nio, Morocorito, and Tamazula municipios, is apparently found only in Morocorito and Badiraguato municipios presently (Ibarra 1960: 312). A ball about three inches in diameter and weighing about 450 grams was used. The players struck the ball with the forearm wrapped in a bandana. Propelled by a batting action, the ball was said to fly 40 to 50 yards (Judd 1940: 432). Usually the ball was batted on the fly, but it could be returned from a bounce. A foul was committed if the ball touched any other part of the body. One to four men constituted a team; Judd (1940: 432) reported a game witnessed in Morocorito, Sinaloa during 1923 in which four players composed a team.

In the interior plateau of Mexico, the Otomi (Stern 1950: 76-7) and Guachihil groups (Vivo 1946: 326) are said to have played the ball game. Several courts are located in the state of Queretaro (Noguera 1946: 344) which derives its name from the Tarascan word for ball court (Stern 1950: 76; Krickeberg 1961: 371).

No evidence of a ball court game north of the Yaqui River has been found. Of interest, however, is the explanation of the Snaketown type courts at Snaketown that Haury gained from Pima workmen (Haury 1937b: 48-9). The Pima regarded

this court as the dancing place of the mythological Bat Man, who attended dances with Soho or Elder Brother, another culture hero to the Pima. Haury's informants related that the Snaketown court was built up by the dust kicked by advancing and retreating lines of dancers. These dancing lines seem to parallel the Acaxee example to some extent.

Most Southwestern tribes are known to have played a kick race in which small wooden balls or billets were thrown by the players' feet as teams raced along a prescribed path (Culin 1907: 665-8). This game occurred among the Tarahumara, Opata, and Cahitan groups also. Intervillage races among the Opata, Papago, and Tarahumara were accompanied by betting and magic to insure success (Culin 1907: 672-77). The only point of resemblance of kicking races to ball court games is the non-use of hands to strike or propel the ball. If the kicking race had antecedents in a ball court game, all possible playing rules were forgotten except the non-use of hands. Since ball courts were immovable architectural units, a game in them would also be stationary and would not be similar to a more mobile cross-country race.

While these descriptions and reports of ball games in the northwestern Mexican states do show the persistence and spread of the game in areas between the American Southwest and Mesoamerica, one may only state that the Hohokam game may have been similar.

Conclusions

Ball courts in the culture of the prehistoric Hohokam present several characteristics not found in the cultural role of Mesoamerican courts. Hohokam courts are architecturally different in gross characteristics but do contain striking parallels in the specific number and placement of markers, and the plastering of inside surface of courts. However, courts of the Hohokam culture do not play a central role in village layout and with two exceptions, are not associated with other socio-religious structures.

Very little information can be derived from special Hohokam artifacts or Hohokam artistic expression. The use of rubber balls in a ball game is inferred and copper bells, stone paddles, or other unusual artifacts may have had some significance in court usages. That ball courts were important to the Hohokam is shown by the great number and frequent occurrence of them. It is perhaps more meaningful to assign a series of possible social usages rather than religious interpretations on the basis of their marginal location in Hohokam villages and the lack of specific ceremonial artifact associations. Several possible usages have been indicated, but the existing data will allow little more than guarded inferences at high levels of interpretation as to function, use, and importance of ball courts in Hohokam culture.

CHAPTER 6

Introduction

The greatest occurrence of Southwestern ball courts is in the Gila-Salt River Valleys. From this area, the court concept spread in all directions except southwest (see Figure 11). Northern courts are found in the Verde River Valley, in the Flagstaff-Winona area, and near Wupatki National Monument. To the east, examples have been reported from the Safford and Globe areas, and from Point of Pines. In southeastern Arizona, three courts have been excavated and others have been surveyed. A possible court in Hidalgo County, New Mexico, may be the first example from that state. Courts are found in the Santa Cruz and San Pedro River Valleys but none have been located in the Papago Indian Reservation. To the west, several courts have been excavated in the Gila Bend area. Near Prescott, two doubtful courts were surveyed. These widely scattered locations involve the Mogollon, Hohokam, and Sinagua cultures but at different times and with different types of structures.

Ball Court Inventory and Quadrangle Map Locations

The inventory presented below itemizes characteristics of each known court; site locations are shown on maps of each pertinent quadrangle in the Arizona State Museum survey system (Wasley 1957) (see Figure 12). A key (Table 5) provides

Fig. 11. Temporal Expansion of Southwestern Ball Courts

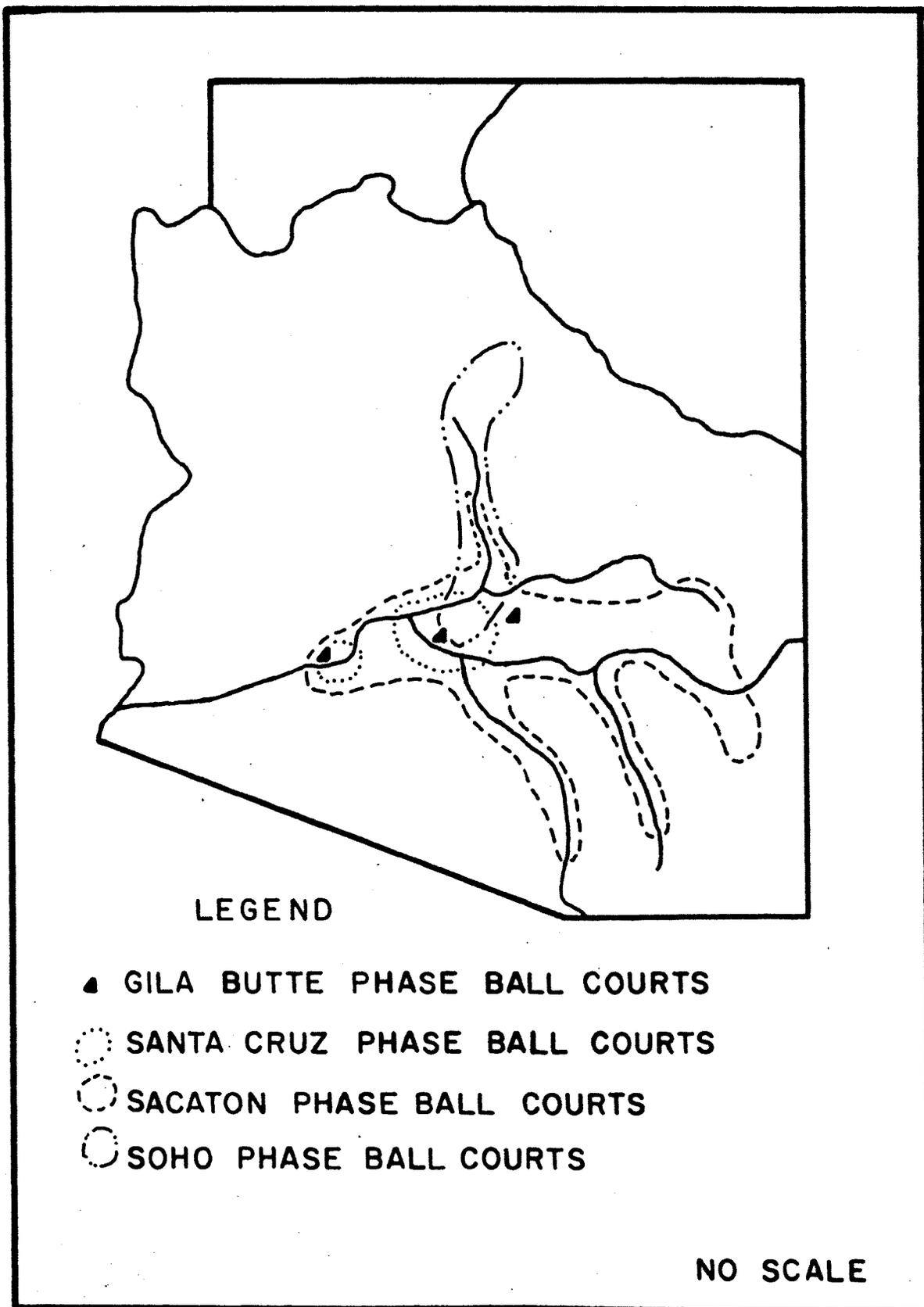
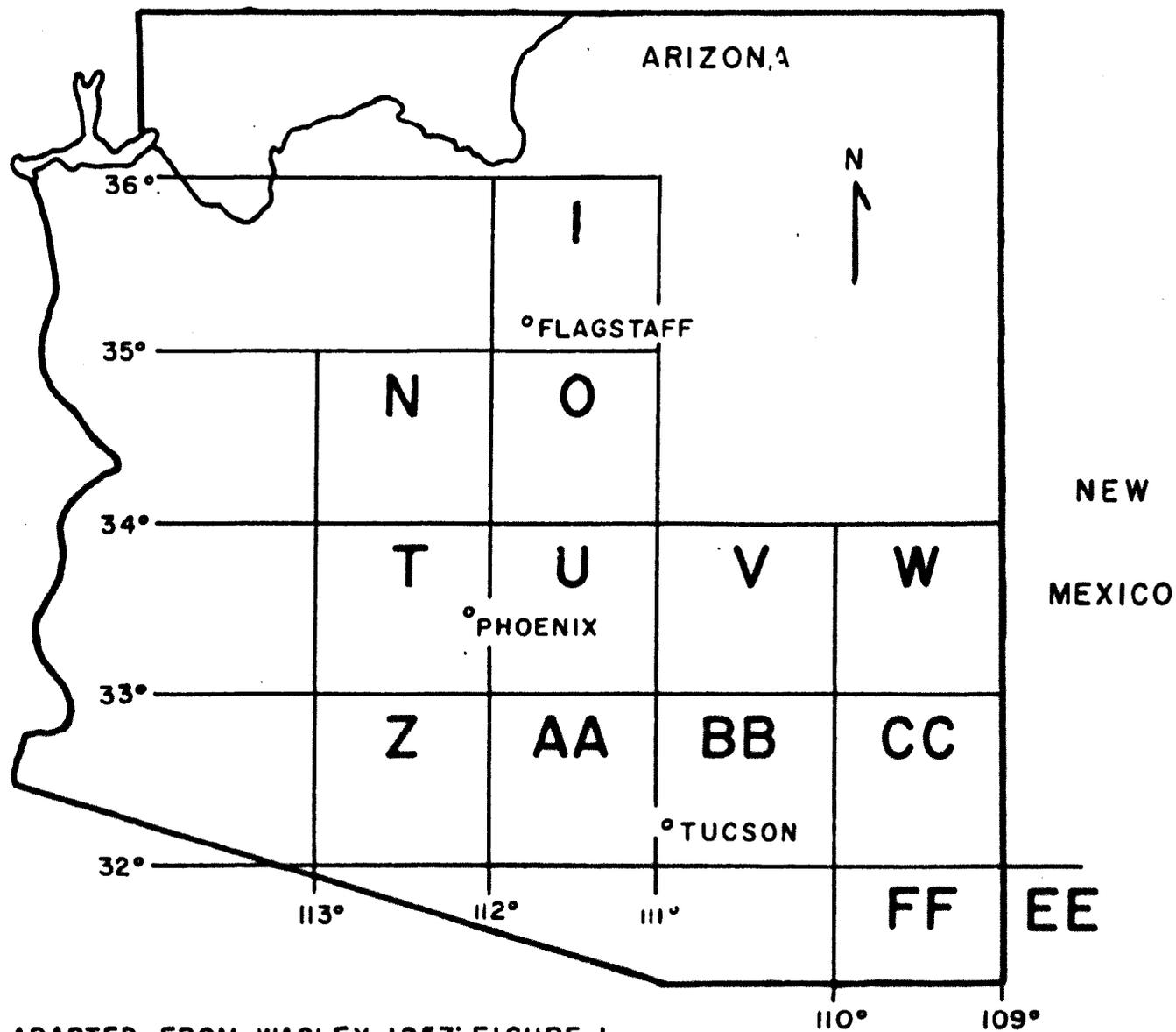


FIG. 12. Location of Selected quadrangles



ADAPTED FROM WASLEY 1957: FIGURE 1

a map and inventory number for each court location, the proper quadrangle, and site designations assigned by various institutions. A closed triangle on quadrangle maps indicates a Casa Grande type court, an open triangle indicates a Snake-town type court, and an open circle indicates a court of an unknown type. To keep the inventory up-to-date, a card file has been established by the Arizona State Museum. The addition of court locations will keep the inventory current.

The Spread of Ball Courts in the Southwest

A postulated development and spread of Southwestern courts may be roughly sketched. In Gila Butte phase or earlier, the concept entered the Southwest in a modified form from Mesoamerica. Small Casa Grande type courts were constructed in the Gila Bend area and probably in the Gila-Salt Basin as well. These courts were not uniformly oriented to cardinal points but large east-west Snaketown type courts were built during the later years of the Gila Butte phase in the homeland of the Hohokam. If Gladwin's identification of the two large Vahki phase houses at Snaketown as ceremonial pit structures is correct, ball courts may have replaced these structures early in Hohokam history (Gladwin 1948: 118). The more peripherally located small Casa Grande type courts, measuring about 26 meters in exterior length and 14 meters in exterior width, were dwarfed by the slightly later large Snaketown type courts (120 meters by 33 meters).

In Santa Cruz phase times, the peripheral Casa Grande type courts increased in length while the Snaketown type courts remained stable. The larger Casa Grande type courts in the Gila Bend area attained an east-west orientation while examples on the eastern periphery were nearly north-south in orientation. Around A.D. 1000, small and large Casa Grande type courts, generally oriented north-south, were constructed throughout southern Arizona, but a smaller version of the Snaketown type had reached some marginal areas (Gila Bend and the Tucson Basin). At this time, during the Sacaton phase, the Casa Grande type courts were constructed in greater numbers than the Snaketown type.

In the following Soho phase, A.D. 1100-1250, Casa Grande courts of various sizes and orientations were used in the Gila-Salt Basin and in peripheral locations as distant as the Wupatki Pueblo. Snaketown type courts were not built.

Thus, the initial development of the concept in the Southwest was expressed by two different forms occurring in different locations; the small Casa Grande type in areas peripheral to the Hohokam centers in the Gila-Salt Basin where the larger Snaketown type courts were used. Later, the size and orientation of the larger type influenced the elliptical marginal courts in these characteristics. In the Sacaton phase, Snaketown type courts became smaller in peripheral centers and were superseded by Casa Grande type courts in the Hohokam homeland. After A.D. 1000, only the

Casa Grande type remained but variations in size and orientation were common, especially in areas south of the Gila River. This reconstruction is to be considered to be tentative and may be modified by future data (see Table 3).

The greatest spread of Southwestern ball courts appears around A.D. 1000. Hohokam culture had achieved wide distribution at this time and in most areas ball courts accompanied cultural expansion. Natural routes along rivers were the avenues of this expansion and the spread of ball courts via river valleys reflects this fact.

In Gila Butte and Santa Cruz phases, small and large Casa Grande type courts and large Snaketown type courts were constructed in the Gila-Salt Basin and in the Globe, Tucson, and Gila Bend areas, all accessible by the Gila, Salt and Santa Cruz Rivers. Later in Sacaton phase times, small Snaketown and variable sized Casa Grande type courts reached into southeastern Arizona via the Gila and San Pedro Rivers and San Simon Creek. The Point of Pines example may have been transmitted from the Safford area or via the San Carlos River. Small Snaketown type courts reached the Gila Bend area by either a direct route or via the Gila River.

In Sacaton phase, the Snaketown type courts were discontinued and the Casa Grande type courts spread from the Gila-Salt Basin northward along the Verde River and Oak Creek Canyon to the Flagstaff area and to Wupatki National Monument slightly later. Apparently the concept reached

northern Arizona the latest and courts were probably in use in this region after they had been discontinued by the Hohokam.

Mechanisms for the transmission of the trait complex to non-Hohokam groups involved actual settlement of Hohokam people and less direct cultural contacts. At Winona Village, Mc.Gregor (1941: 281) demonstrated that a settlement had been established by a small group of Hohokam around A.D. 1000 in the area of the Sinagua culture. Apparently this group became assimilated by the Sinagua or returned to southern Arizona but some of their cultural traits including the ball court remained. Breternitz (1960: 27) stated that the Hohokam had moved up the Verde River by A.D. 1000 but by A.D. 1125, they were absorbed by Sinagua peoples or had returned to the south.

In southern Arizona, the Hohokam sites near Tucson, Redington, Gila Bend, and Globe are results of Hohokam colonization. A Hohokam-Mogollon culture blend was found at San Simon and Tres Alamos sites which may be interpreted as Hohokam colonization in Mogollon areas. Courts at Point of Pines and in northern Arizona in post A.D. 1100 times seem to be products of less intensive cultural relations, probably trade. Items of Hohokam manufacture have been found at Point of Pines and the Hohokam probably served as middlemen in the transmission of Mesoamerican items to the Mogollon, Anasazi, and Sinagua.

As discussed in Chapter 4, Hohokam traders or settlers would have had to "sell" the court concept if they were the

innovators. If the Mogollon or Sinagua peoples themselves were the mechanism by which courts became a part of their culture for a short time, acceptance and modification would be more likely. Since less distance would be involved in prehistoric Southwestern culture contacts, the various groups probably had greater frequency of interaction than in general Southwest-Mesoamerica contacts.

Role of Ball Courts in other Southwestern Cultures

In discussions of the function and usage of ball courts in non-Hohokam groups, several factors must be taken into account: type of court, time of transmission, other community structures, location in settlement pattern, and artifactual evidence. Three non-Hohokam groups are considered: the Sinagua culture and the Black River and San Simon sub-groups of the Mogollon culture.

The Sinagua received the ball court from Hohokam groups based in the Verde Valley or in the Winona area. The time of transmission was after A.D. 1000 and the court type was mainly small Casa Grande type structures. The Sinagua seem to have had few community structures prior to ball courts; structures at Montezuma Well National Monument and NA 2385 (Breternitz 1960: 3,7) and the Wupatki dance plaza seem to indicate the use of large pithouses or special circular buildings. All Sinagua ball courts are marginally located in sites, often some distance from habitation areas. While

copper bells and other items of adornment have been found at Wupatki and other sites, no artifactual evidence in association with ball courts is available.

The Point of Pines court is interesting as it was found within a site which also had a small great kiva (James A. Neely, personal communication). This court, a Casa Grande type example, was assigned a Reserve piñasa date (A.D. 1000-1150) which is approximately the same age as the Casa Grande court at the San Simon site (A.E. Johnson 1961b: 566; Sayles 1945: 32). Great and lesser kivas were used throughout Mogollon culture history in the Point of Pines area and in other regions as mentioned in Chapter 7, but the ball court was apparently a short-lived intrusive trait. The Point of Pines court was located on the west end of the site (Arizona W:9:10), apart from habitation areas. No artifactual evidence associated with the court was found.

At the Tres Alamos site, a large Casa Grande court was excavated by Tuthill which dated around A.D. 900-1000 (Tuthill 1947: 38-43). The ball court was located about 250 feet north of two pithouse clusters which were surrounded by boulder circles. No community structures were found. The Tres Alamos remains were blends of Hohokam and Mogollon cultural traits with the former being most predominant (Tuthill 1947: 85). As noted above, 69 stone paddles were found in association with the court but not in habitation areas. Tuthill (1947: 41-3) believed they were possibly game equipment but their

occurrence has not been duplicated elsewhere. DiPeso (1951) excavated a Casa Grande type court located north of Pomerene, Arizona: no unusual artifacts were found.

Sayles's excavation of a Casa Grande court at the San Simon site is additional evidence of an eastward expansion of the court concept. This court was unusual in that no side units were found due to overlying occupation in aboriginal times which Sayles believed destroyed the court's side units (Sayles 1945: 31). No other community buildings or evidence of special artifacts were found. The court was dated to the Encinas phase and is nearby pithouses of that period during which time Hohokam influence was strongest in the San Simon area.

A possible court in Hidalgo County (New Mexico EE:5:1) may be the first ball court found in New Mexico. It is unusual in that it has no obvious side units but is similar to Casa Grande type examples. Surface sherds from the site (H15SAR62: School of American Research) indicate a post A.D. 1000 date but since little work has been done in the area, no other information is available. Little is known of the "sun temples" surveyed in the Prescott area (Gila Pueblo files): these structures may not be ball courts.

All non-Hohokam courts are of the Casa Grande type and all fall after an approximate date of A.D. 900-1000. The role of the ball court in other prehistoric cultures was evidently short-lived.

Such temporary use of courts when compared to the lengthy sequence of Hohokam courts can be interpreted as indicative of a modification in the role of the concept. Schroeder (1949a: 32-3) has postulated that the trait complex had undergone a transformation from ceremonial to secular usages and functions by A.D. 1000. Such a change resulted in the preponderance of Casa Grande type courts among the Hohokam at this time and had made the concept more acceptable to non-Hohokam groups. This hypothesis explains the late popularity of small and large Casa Grande type courts throughout Arizona but if this type was a secular version of the more ceremonial Snaketown type courts, a dichotomy in function and usage must also be applied to Gila Butte and Santa Cruz phase structures as well. Since court form was not hybridized as were size and orientation, such a dichotomy of usage may be correct.

Perhaps the earliest courts were used for less religious events and a later introduction of the Snaketown type became associated with ceremonial functions. An alternative theory holds that the initial courts were modified in form while elliptical courts lacking the more complex features were in use in areas peripheral to the Hohokam homeland, but the use and function of these courts were the same in both areas. Later, the popularity of the smaller Casa Grande type increased but played a more secular role which facilitated acceptance by non-Hohokam peoples.

Either theory may be valid as no evidence supporting

either idea has been found to date. Schroeder's idea of receptivity seems the best explanation of the short-lived acceptance of the ball court complex among non-Hohokam groups. Ball courts did not replace kivas or other structures in these cultures, but momentary acceptance does argue for a modification of the concept which was then more conducive to integration of the trait in differing cultural patterns. Usage and function of ball courts in other Southwestern cultures may well have been in relation to intra- or inter-community ball games or dances having little religious significance. Ball courts seem to have been "novelties" to these groups and the popularity of the unusual structures did not last.

TABLE 5
KEY TO SITES IN INVENTORY AND ON
QUADRANGLE MAPS

No.	Site	Name	Institution*	Quadrangle
1	NA 405	Wupatki Pueblo	MNA	I
2	NA 804		MNA	I
3	NA 1893	Cedar Ridge	MNA	I
4	NA 2132	Winona Village	MNA	I
5	NA 3254		MNA	I
6	NA 3369	Ridge Ruin	MNA	I
7	NA 3287		MNA	I
8	NA 3527	Clear Creek	MNA	O
9	NA 3528	Verde River	MNA	O
10	NA 3528	Verde River	MNA	O
11	NA 4008	Doney Park	MNA	I
12	NA 4626	Sacred Mt.	MNA	O
13	NA 4643	Watter's Ranch	MNA	O
14	NA 5212		MNA	I
15	NA 5228	Tapco	MNA	N
16	NA 5275	Coon's Ranch	MNA	N
17	NA 6292		MNA	I
18	NA 4372	Jones' Ranch	MNA	N
19	Prescott 6:7		GP	N
20	Prescott 6:9		GP	N
21	Ariz.T:13:9	Rock Ball Court	ASM	T
22	Ariz.T:14:14		ASM	T
23	Ariz.T:14:15		ASM	T
24	Ariz.T:16:9		ASM	T
25	Ariz.T:13:2	Citrus Site	ASM	T
26	Ariz.U:15:1	Adamsville	ASM	U
27	Ariz.U:9:1	Pueblo Grande	PG	U
28	Ariz.U:9:2		PG	U
29	Ariz.U:9:4	Casa de Mesa	PG	U
30	Ariz.U:9:5	Pueblo de Lehi	PG	U
31	Ariz.U:9:9	Pueblo Maroni	PG	U
32	Ariz.U:9:11	Pueblo del Monte	PG	U
33	Ariz.U:9:22	Los Muertos	PG	U
34	Ariz.T:12:6	Pueblo Viejo	PG	T
35	Ariz.T:11:1		PG	T
36	Ariz.T:16:2		PG	T
37	Ariz.B:2:8	Sears' Verde Ranch	GP	T
38	Ariz.T:13:2	Citrus Site	ASM	T

Table 5 Continued

No.	Site	Name	Institution	Quadrangle
39	Ariz.T:12:3	Villa Buena	PG	T
40	Ariz.T:12:3	Villa Buena	PG	T
41	Ariz.T:12:3	Villa Buena	PG	T
42	Ariz.T:12:4		PG	T
43	Ariz.T:12:4		PG	T
44	Ariz.T:12:2	St. Luke's Hospital	PG	T
45	Gila Butte 1:1	Snaketown	GP	U
46	Gila Butte 1:1	Snaketown	GP	U
47	Ariz.U:10:8	Higley	PG	U
48	Ariz.U:9:28		PG	U
49	Ariz.U13:2	Casa Blanca	PG	U
50	Pinkley's 3d Site			U
51	Gila Butte 5:39		GP	U
52	Gila Butte 5:41		GP	U
53	Gila Butte 5:13-18		GP	U
54	Ariz.Z:2:1	Gatlin Site	ASM	Z
55	Brandes No. 1			V
56	Brandes Nos.2-3			V
57	Ariz.W;9:10	Stove Canyon Site	ASM	W
58	Ariz.BB:2:2	Flieger Site	ASM	BB
59	Ariz.AA:16:25	San Xavier Court	ASM	AA
60	Casa Grande 9:5		GP	AA
61	Gila Butte 3:1		GP	U
62	Gila Butte 9:1	Sacaton	GP	U
63	Sacaton 2:1-4		GP	U
64	Sacaton 2:7		GP	U
65	Signal Peak 8:2		GP	AA
66		Tres Alamos Village	AF	BB
67	Ariz.BB:15:3		AF	BB
68	Ariz.CC;15:1	San Simon Village	ASM	CC
69	Ariz.BB:11:1	Redington	ASM	BB
70		Kervin		U
71	Ariz.AA:2:17	Casa Grande Nat.Mont.	ASM	AA
72	Ariz.BB:9:1	Romero Canyon	ASM	BB
73	Florence 4:3		GP	U
74	Florence 5:1		GP	U
75	Ariz.AA:12:18	Hodges' Site	ASM	AA
76	Ariz.AA:12:57	Los Morteros	ASM	AA
77	New Mex.EE:5:1	Animas Peak	ASM	EE
78	Ariz.BB:13:7	Martinez Hill	ASM	BB
79	Ariz.CC:1:4	Eden	ASM	CC
80	Ariz.V:13:8	Kearney	GP	V
81	Gila Butte 3:7		GP	U

Table 5 Continued

No.	Site	Name	Institution	Quadrangle
82.	Ariz.J:12:5		GP	AA
83.	Ariz.CC:2:3	Buena Vista	ASM	CC
84.	Ariz.CC:15:1		ASM	CC
85.	Ariz.FF:7:2	Kuykendall Site	ASM	FF

*

Abbreviations of Institutions:

ASM: Arizona State Museum

AF: Amerind Foundation

GP: Gila Pueblo

PG: Pueblo Grande

MNA: Museum of Northern Arizona

Table 6

Inventory of Southwestern Ball Courts: Location, Orientation, and Measurements.

Inventory Number	Location	Orientation *:Magnetic **:True	Exterior Length	Interior Length	Exterior Width	Interior Width
1.	T25N,R10E, S20	NW-SE	30.3m		18.3m	
2.	T25N,R8E, S35	10°W	36.6m	28.7m	18.3m	15.0m
3.	T24N,R8E, S1	N-S				
4.	T21N,R9E, S14	8°W	31.2m	28.1m	24.4m	14.7m
5.	T25N,R8E, S24		32.4m		18.3m	
6.	T21N,R10E, S7	29°W	40.0m	32.6m	28.5m	17.4m
7.	T21N,R10E, S7	30.5°W	38.5m	30.8m	28.5m	15.5m
8.	T13N,R5E, S15	10°W	33.0m		23.8m	
9.	T13N,R5E, S28	14°W	34.5m		25.0m	
10.	T13N,R5E, S28	16°W	64.1m		26.5m	
11.	T22N,R8E, S21	N-S	91 feet			
12.	T15N,R6E, S?	4°W	32.0m		23.8m	
13.	T14N,R5E, S1	5°W	30.5m		16.5m	

Table 6 Continued

Inventory Number	Location	Orientation	Exterior Length	Interior Length	Exterior Width	Interior Width
14.	T22N, R9E, S30	N-S?				
15.	T16N, R3E, S7	N-S				
16.	T17N, R3E, S23	N-S?	90 feet		45 feet	
17.	T23N, R8E, S?	N-S?				
18.	T13N, R1E, S?	N-S				
19.	T14N, R4W, S?					
20.	T14N, R4W, S?					
21.	T4S, R7W, S24	43°E		26.0m		14.5m
22.	T5S, R4W, S4	2°W		24.0m		16.0m
23.	T5N, R4W, S4	111°E		23.7m		9.5m
24.	T2S, R3E, S29					
25.	T5S, R6W, S9	110°E		60.0m		38.0m
25.	T5S, R6W, S9	N-S				
26.	T5S, R9E, S8	2°W		18.2m		10.3m

Table 6 Continued

Inventory Number	Location	Orientation	Exterior Length	Interior Length	Exterior Width	Interior Width
27.	T1N,R4E, S7	7°E	85 feet	82.5 feet	41 feet	37.6 feet
28.	T1N,R5E, S25					
29.	T1N,R5E, S27					
30.	T1N,R5E, S16	NE-SW	45.7m			
31.	T1N,R5E, S1	N-S?				
32.	T1N,R4E, S20	E-W?	60 feet			
32.	T1N,R4E, S20	N-S	32.0m		22.8m	
33.	T2S,R4E, S24	N-S	30.4m		15.2m	
34.	T1N,R3E, S29					
35.	T1N,R1E, S30	E-W?				
36.	T2S,R3E, S31					
37.	T7N,R6E, S?		130 feet		124 feet	
38.	T5S,R6W, S9	N-S				
39.	T1S,R1E, S12	N-S				

Table 6 Continued

Inventory Number	Location	Orientation	Exterior Length	Interior Length	Exterior Width	Interior Width
40.	T1S, R1E, S12	N-S				
41.	T1S, R1E, S12	E-W	110.0m	67.2m	27.4m	19.8m
42.	T1N, R2E, S34	N-S				
43.	T1N, R2E, S34	N-S				
44.	T1S, R1E					
45.	T3S, R4E, S4	12°W	25.0m	22.7m	15.0m	10.6m
46.	T3S, R4E, S4	ca. 105°E	120.0m	86.25m	33.0m	18.75m
47.	T1S, R7E, S31	E-W				
47.	T1S, R7E, S31	N-S				
48.	T2N, R5E, S30					
49.	T3S, R5E, S?	E-W	119.0m			
50.	T5S, R7E, S?	N-S		59 feet		33 feet
51.	T4S, R5E, S3, 4, 9, 10	E-W	200 feet		78 feet	
52.	T4S, R5E, S3, 4, 9, 10	N-S	100 feet		77 feet	
53.	T4S, R5E, S?	SE-NW	210 feet		100 feet	

Table 6 Continued

Inventory Number	Location	Orientation	Exterior Length	Interior Length	Exterior Width	Interior Width
54.	T5S, R4W, S17	<u>ca.</u> 28°W		<u>ca.</u> 33.0m		<u>ca.</u> 11.2m
54.	T5S, R4W, S17	28°W		33.0m		11.2m
55.	T1S, R16E, S?	102°E	90 feet		56 feet	
56.	T2S, R16E, S?					
57.	T2N, R23E, S?	45°E		23.5m		9.75m
58.	T7S, R16E, S4	45°W*	38.0m	26.0m	29.0m	14.0m
58.	T7S, R16E, S4	40°W*	63.0m	55.0m	32.0m	22.0m
59.	T1S, R13E, S9	N-S?				
60.	T7S, R4E, S27?	N-S	60 feet		35 feet	
61.	T3S, R5E, S17?					
62.	T4S, R5E, S15	N-S				
63.	T2S, R7E, S?					
64.	T2S, R7E, S35?					
65.	T7S, R7E, S21					

Table 6 Continued

Inventory Number	Location	Orientation	Exterior Length	Interior Length	Exterior Width	Interior Width
66.	T16S, R20E,	13°W	57.9m	51.7m	22.8m	
	S5?					
67.	T15S, R20E,	N-S	110.0feet	86.5feet	60.0feet	44.2feet
	S20					
68.	T12S, R27E,	ca. 45°W		20.0m		11.25m
	S33					
69.	T13S, R17E,	40°E*	83.0m	81.0m	31.0m	26.5m
	S16					
69.	T13S, R17E,	N-S	27.4m		12.2m	
	S16					
70.	T4S, R13E,		72 feet		48 feet	
	S?					
71.	T5S, R8E,	2°E	38.2m	24.3m	24.4m	14.1m
	S16					
72.	T11S, R14E,	E-W	50.0m			
	S34					
73.	T3S, R10E,	SE-NW	118 feet		100 feet	
	S11?					
74.	T3S, R10E,	NE-SW	35 paces		22 paces	
	S17?					
75.	T13S, R9E,	75°W**			31.0m	21.0m
	S21					
76.	T12S, R12E,	50°W**	74.0m	49.0m	42.0m	15.0m
	S17					
77.	T32S, R20W,	10°W*	45.0m	40.0m	18.5m	12.0m
	S9 (New Mexico)					

Table 6 Continued

Inventory Number	Location	Orientation	Exterior Length	Interior Length	Exterior Width	Interior Width
78.	T14S, R13E, S11?	N-S	150 feet		60 feet	
79.	T6S, R24E, S3	N-S	32.0m		20.0m	
80.	T4S, R14E, S35?		20.0m		14.0m	
81.	T3S, R6E, S21?					
82.	T12S, R12E, S?	E-W	225 feet		100 feet	
83.	T7S, R27E, S15?	N-S	15.0m		10.0m	
84.	T16S, R28E?, S?	N-S	40.0m		20.0m	
85.	T20S, R28E, S14?	10°W*	72.5m	65.0m	22.0m	10.0m

Table 7

Inventory of Southwestern Ball Courts: Dates, Markers, Sources, and Remarks.

Inventory Number	Date: (A.D.) Phase	End	Markers	Center	Source	Remarks
1.	1120-1200 Elden				Colton 1946:58	Tested
2.	1070-1120 Winona-Padre	S:4	Stones		Mc.Gregor 1936: 55-8	Tested:Clay plaster
3.	1070-1120 Winona-Padre				MNA files	Surveyed
4.	1070-1120 Winona-Padre			4 Stones	Colton 1946:183-5	Excavated
5.	1070-1120 Winona-Padre				MNA Files	Surveyed
6.	1070-1120 Winona-Padre			2 Stones	Mc.Gregor 1941: 85-6	Tested
7.	1070-1120 Winona-Padre	N&S:	posts in clay mass	2 Stones	Mc.Gregor 1941: 84-6	Tested
8.	900-1100 Camp Verde				Mc.Gregor 1941: 88-9	
9.	900-1100 Camp Verde				MNA files	Casa Grande type

Table 7 Continued

Inventory Number	Date: (A.D.) Phase	End	Markers Center	Source	Remarks
10.	900-1100 Camp Verde			MNA Files	Snaketown type Surveyed
11.				MNA Files Colton 1940a	Surveyed
12.	1125	None found	None found	Schroeder 1949b	Tested
13.	900-1100			Schroeder 1951	Surveyed
14.	Pueblo II-III			MNA Files	Surveyed
15.	Pueblo II			MNA Files	Surveyed
16.				MNA Files	Surveyed
17.				MNA Files	Surveyed
18.				MNA Files	Surveyed
19.				GP Files	Surveyed Court?
20.				GP Files	Surveyed Court?
21.	500-700 Gila Butte		10cm hole	Johnson and Wasley 1961a: 13-6	Excavated See Fig. 4

Table 7 Continued

Inventory Number	Date: (A.D.) Phase	End	Markers Center	Source	Remarks
22.	900-1100 Sacaton		pebble	Johnson and Wasley 1961a: 45-7	Excavated: another court destroyed
23.	900-1100 Sacaton		20cm hole	Johnson and Wasley 1961a: 48-9	Excavated: sloping ramps, notches in east end unit
24.	900-1100 Sacaton?			ASM Files	Surveyed: same as No.36?
25.	900-1100 Sacaton	W: hearth with post hole		Johnson and Wasley 1961b: 50-2	Excavated: interior slopes cobble paved
26.	900-1100? Sacaton?		large stone	Pinkley 1935	Tested: arti- facts beneath marker
27.	1100-1300? Soho?	N&S: small pebble	large stone	PG Files	Reconstructed: see Fig. 5
28.				PG Files	Destroyed: more than one court?
29.				PG Files	Probably gone

Table 7 Continued

Inventory Number	Date: (A.D.) Phase	End	Markers Center	Source	Remarks
30.				PG Files	Destroyed
31.				PG Files	Destroyed?
32.				PG Files	Both courts destroyed
33.				PG Files	Destroyed
34.				PG Files	Destroyed?
35.				PG Files	Destroyed?
36.				PG Files	same as No.24?
37.				GP Files	Surveyed
38.				Johnson and Wasley 1961b: 40, 50	Destroyed Casa Grande type court
39.				PG Files	Surveyed
40.				PG Files	No data
41.				PG Files	No data
42.				PG Files	Destroyed?

Table 7 Continued

Inventory Number	Date: (A.D.) Phase	End	Markers Center	Source	Remarks
43.				PG Files	Destroyed?
44.				PG Files	Destroyed
45.	900-1150 Sacaton	N: soft spot S: long pebble	sherd cache	Haury 1937b	Excavated: see Fig. 3
46.	500-900 Gila Butte- Sacaton	E: stone W: stone	stone	Haury 1937b	Excavated: see Fig. 2; twice repaired
47.				PG Files	Surveyed
48.				PG Files	Destroyed
49.				PG Files	Surveyed: destroyed?
50.				Pinkley 1935	Tested: destroyed?
51.				GP Files	Destroyed?
52.				GP Files	Destroyed?
53.				GP Files	Destroyed?

Table 7 Continued

Inventory Number	Date: (A.D.) Phase	End	Markers Center	Source	Remarks
54.	800-1000 Santa Cruz- Sacaton	late floor only	basin	Johnson and Wasley 1961b: 5-10	Excavated: 2 floors
54.	800-1000 Santa Cruz- Sacaton			Johnson and Wasley 1961b: 11-12	Excavated: unfinished court
55.	500-800? Gila Butte- Santa Cruz?			Brandes 1957	Surveyed
56.				Brandes, personal communication	Surveyed
57.	1000-1150 Reserve		Metate fragment	Johnson 1961b	Excavated
58.	900-1100? Sacaton?			ASM Files	Surveyed
58.	900-1100? Sacaton?			ASM Files	Surveyed
59.				ASM Files	Destroyed

Table 7 Continued

Inventory Number	Date: (A.D.) Phase	End	Markers	Center	Source	Remarks
60.					GP Files	Surveyed
61.					GP Files	Surveyed
62.					GP Files	Destroyed?
63.					GP Files	Destroyed?
64.					GP Files	Destroyed?
65.					GP Files	Destroyed?
66.	900-1100 Casabel		S: stone		Tuthill 1947	Excavated: paddles in fill.
67.	1100-1150 late Sacation?		N: oak post S: 4 stones	5 stones	DiPeso 1951	Excavated
68.	1000 Encinas			burnt stone	Sayles 1945: 31-2	Excavated
69.	800-900 Rincon				ASM Files	Surveyed
70.					Johnston 1848	Not a court?
71.	900-1150? Sacaton?			stone	Pinkley 1935	Tested

Table 7 Continued

Inventory Number	Date: (A.D.) Phase	End	Markers Center	Source	Remarks
72.				ASM Files	Surveyed
73.				GP Files	Surveyed
74.				GP Files	Surveyed
75.	500-900? Colonial?		E: oval basin W: hammerstone	Kelly 1940: 14-6	Excavated
76.	900-1100? Sacaton?			ASM Files	Surveyed
77.				ASM Files	Surveyed
78.				ASM Files	Destroyed?
79.	900-1100? Sacaton?			Touhy 1959	Destroyed? adobe floor
80.				GP Files	Surveyed?
81.				GP Files	Surveyed?
82.				GP Files	Surveyed
83.				ASM Files	Destroyed
84.				ASM Files	Surveyed
85.				ASM Files	Surveyed

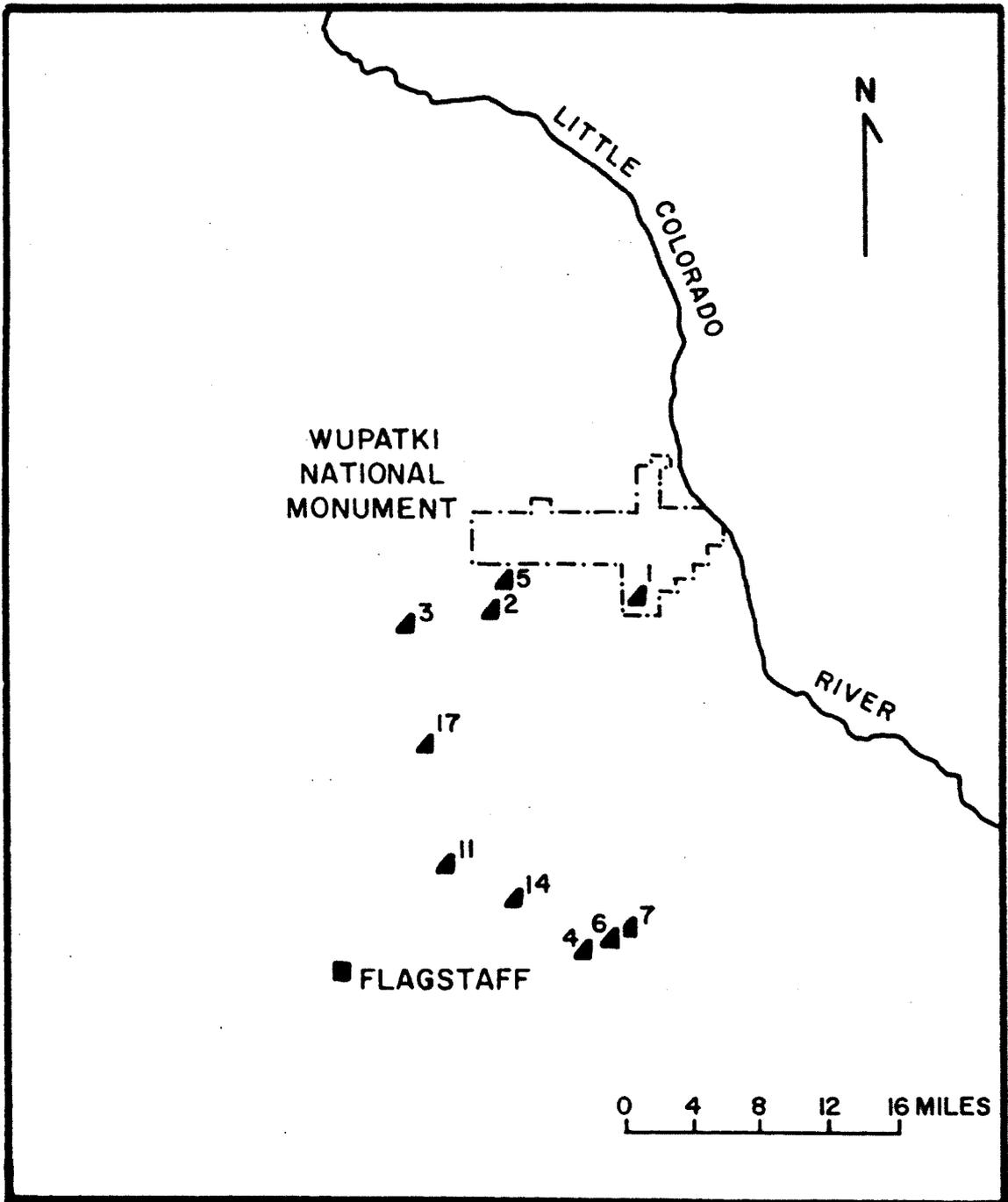


Fig. 13. Quadrangle I.

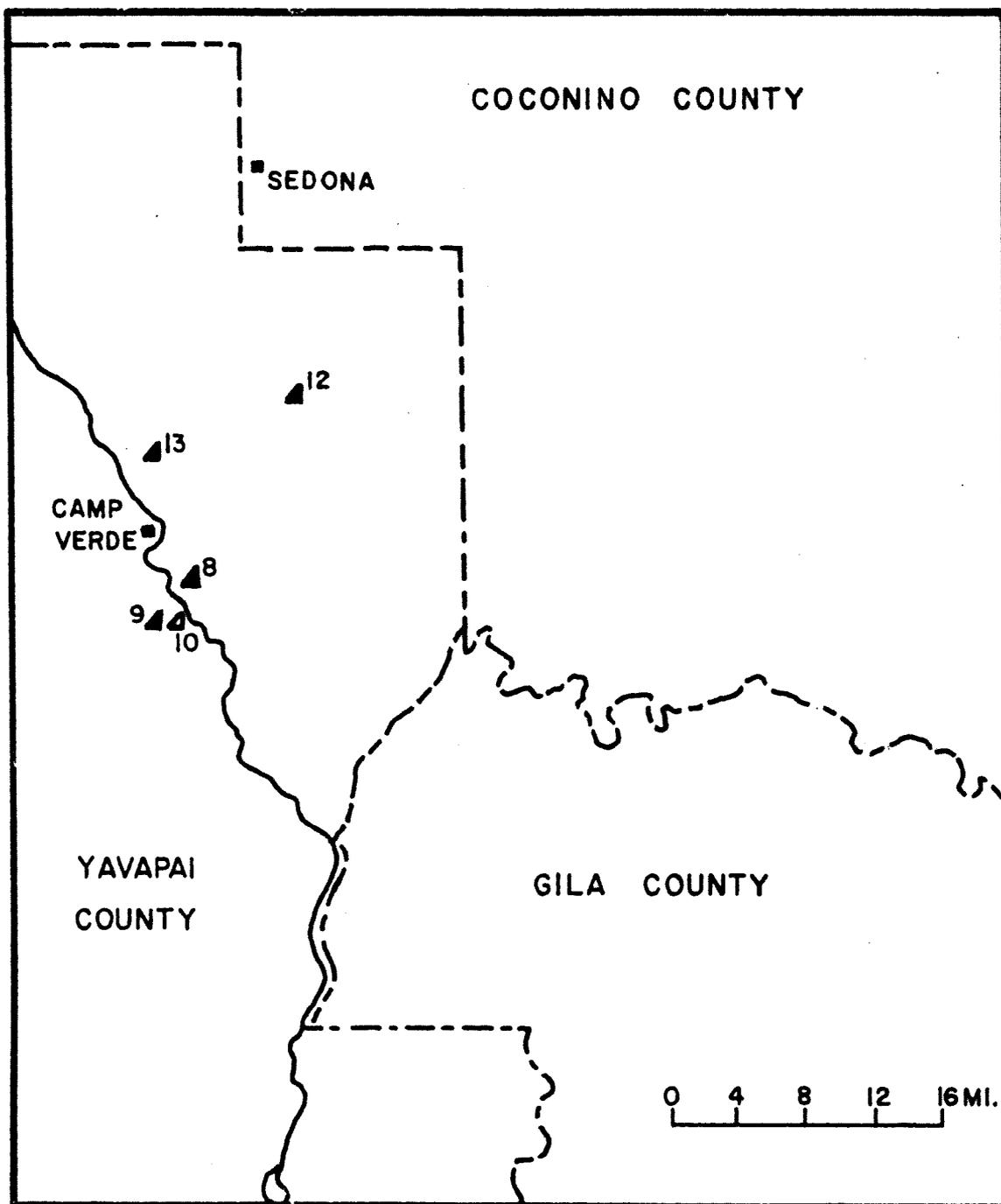


Fig. 14. Quadrangle 0

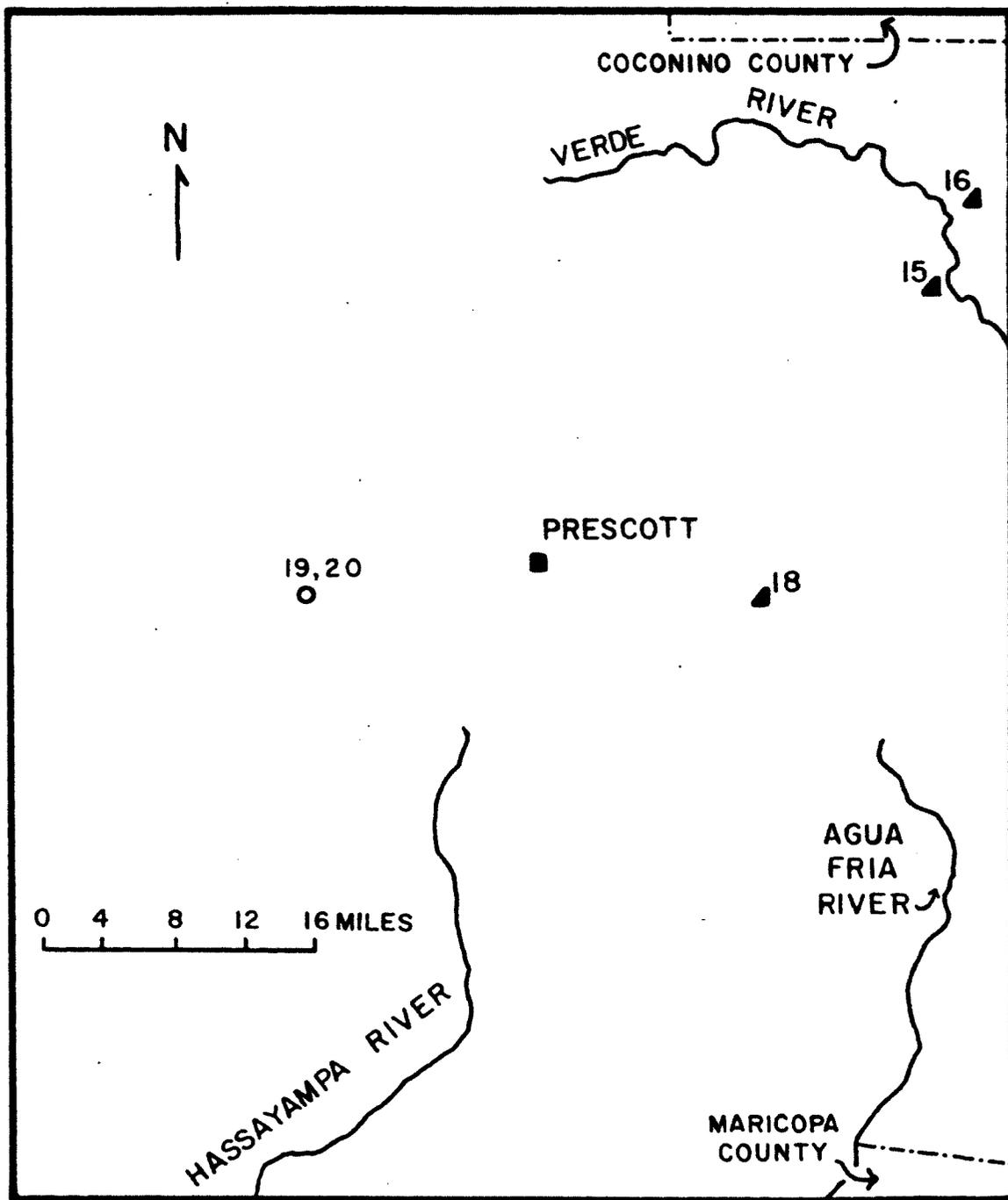


Fig. 15. Quadrangle N

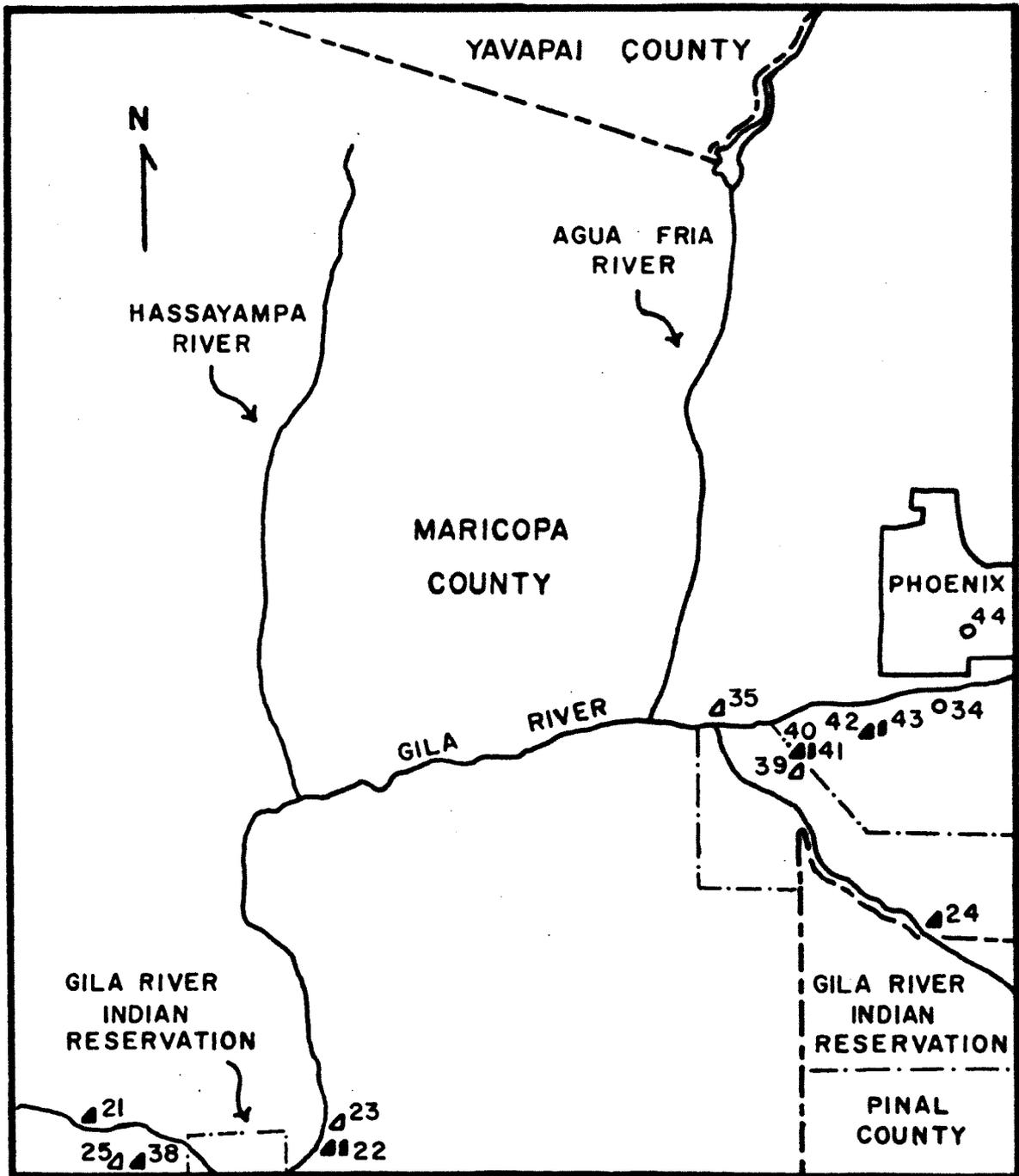


Fig. 16. Quadrangle T. Same scale as Fig. 13.

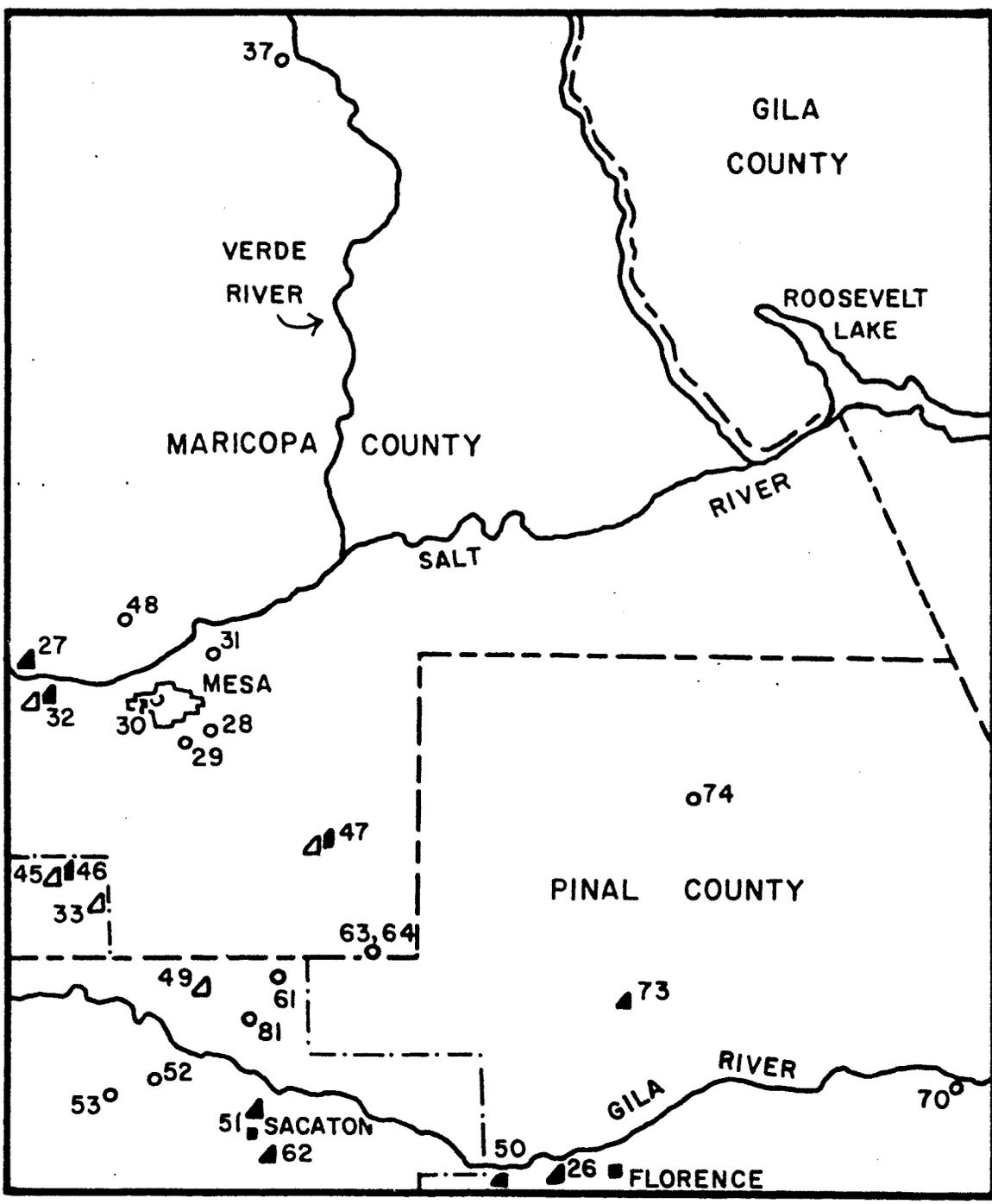


Fig. 17. Quadrangle U. Same scale as Fig. 13.

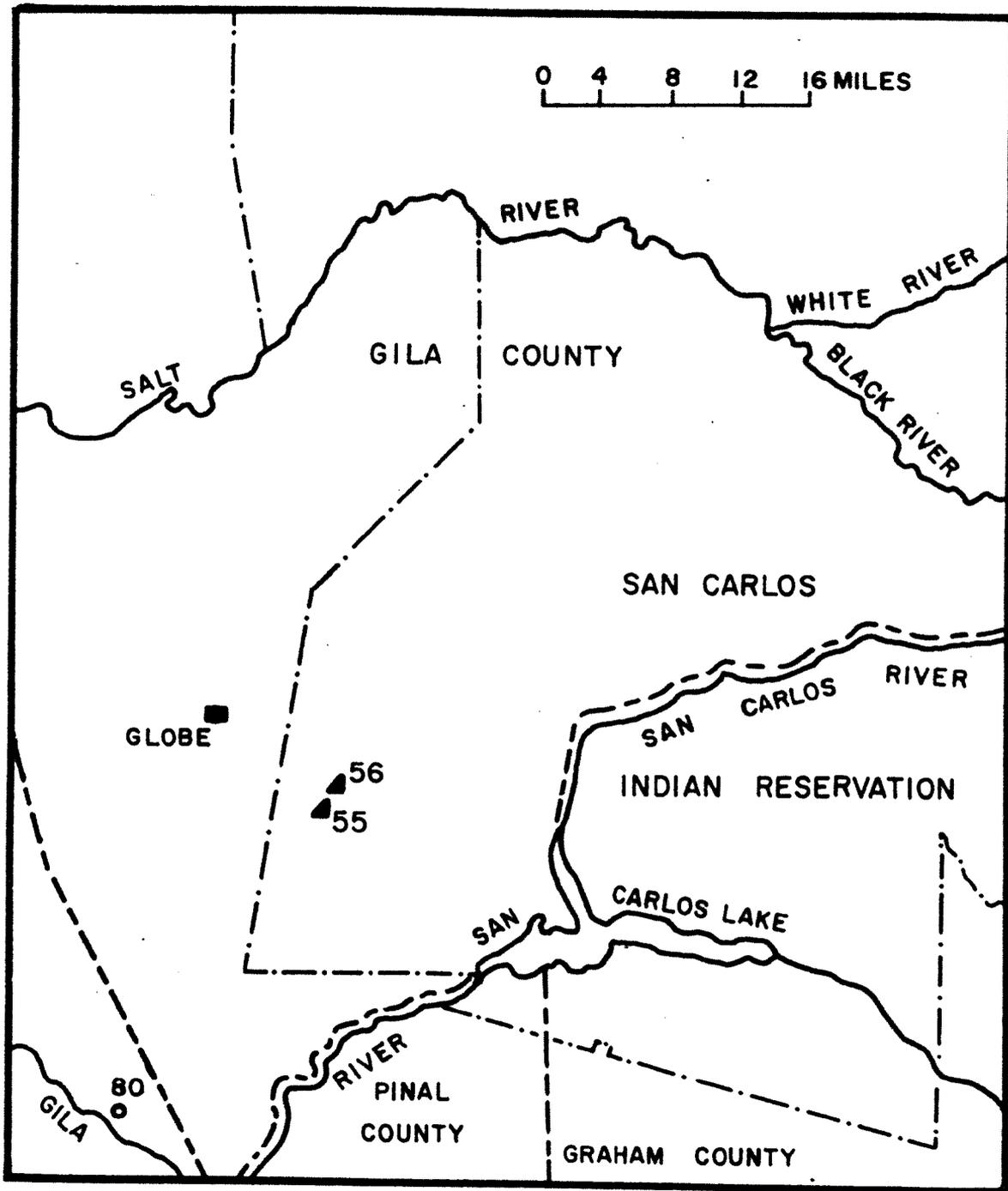


Fig.18. Quadrangle V.

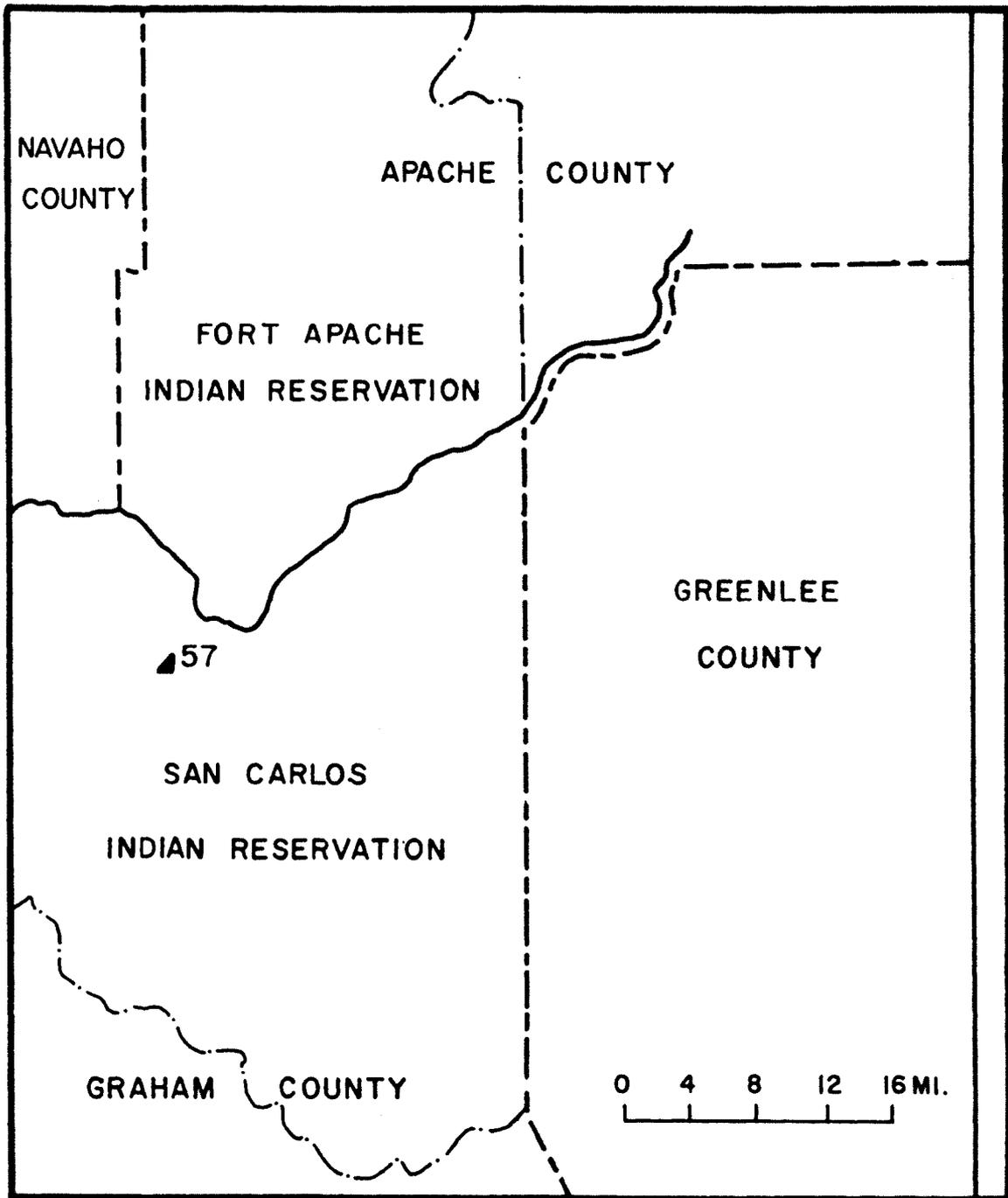


Fig. 19. Quadrangle W.

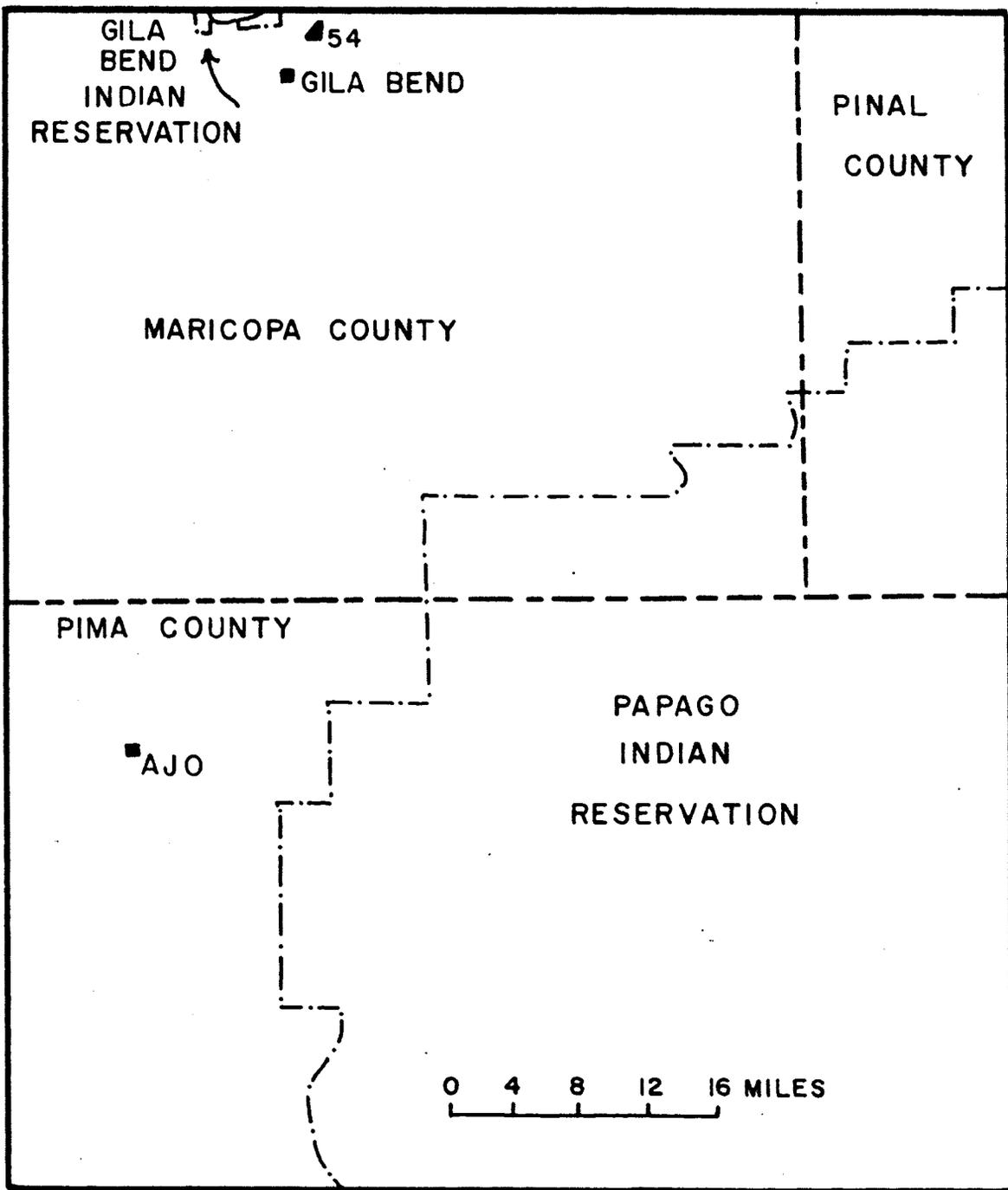


Fig. 20. Quadrangle Z.

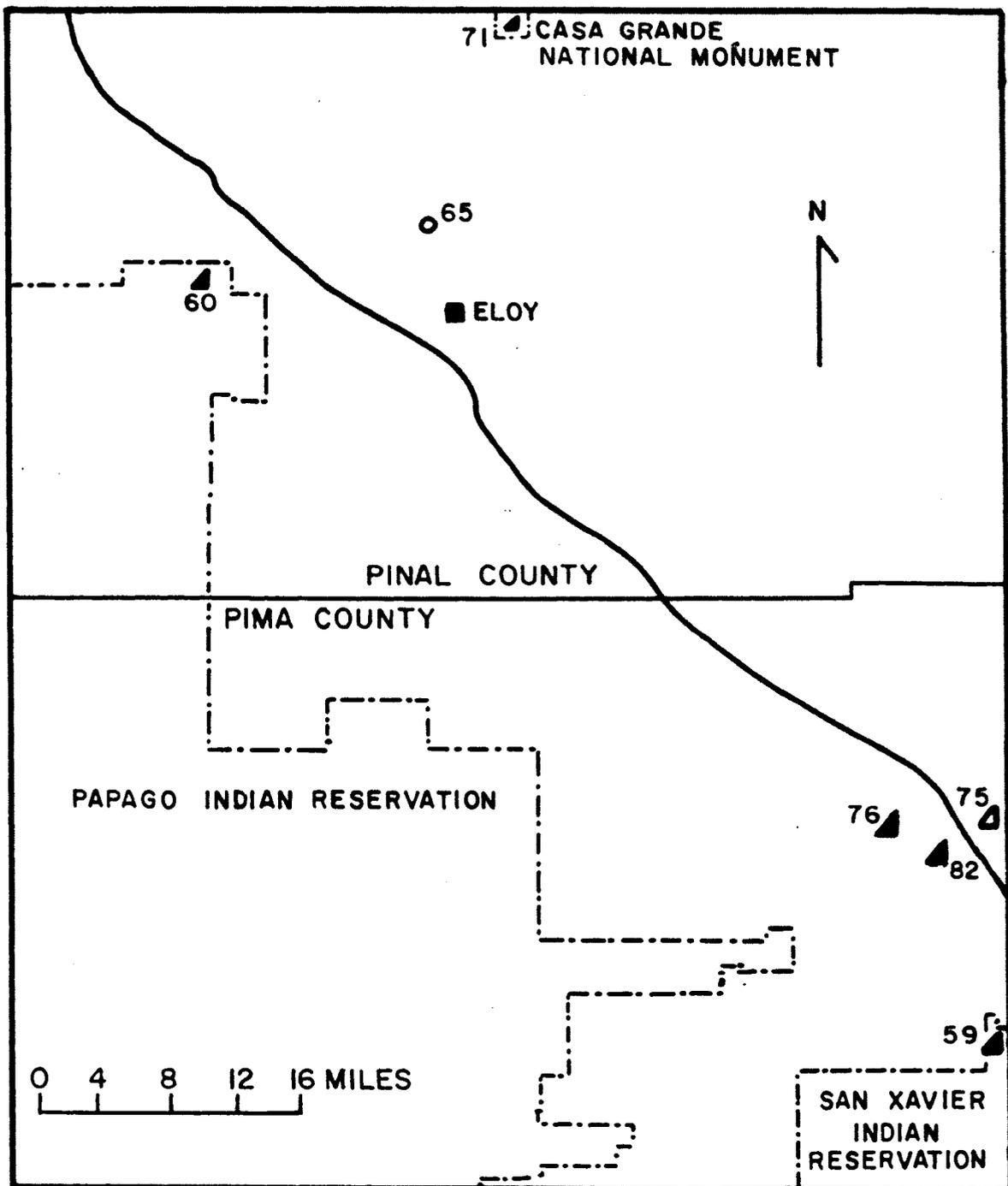


Fig. 21. Quadrangle AA.

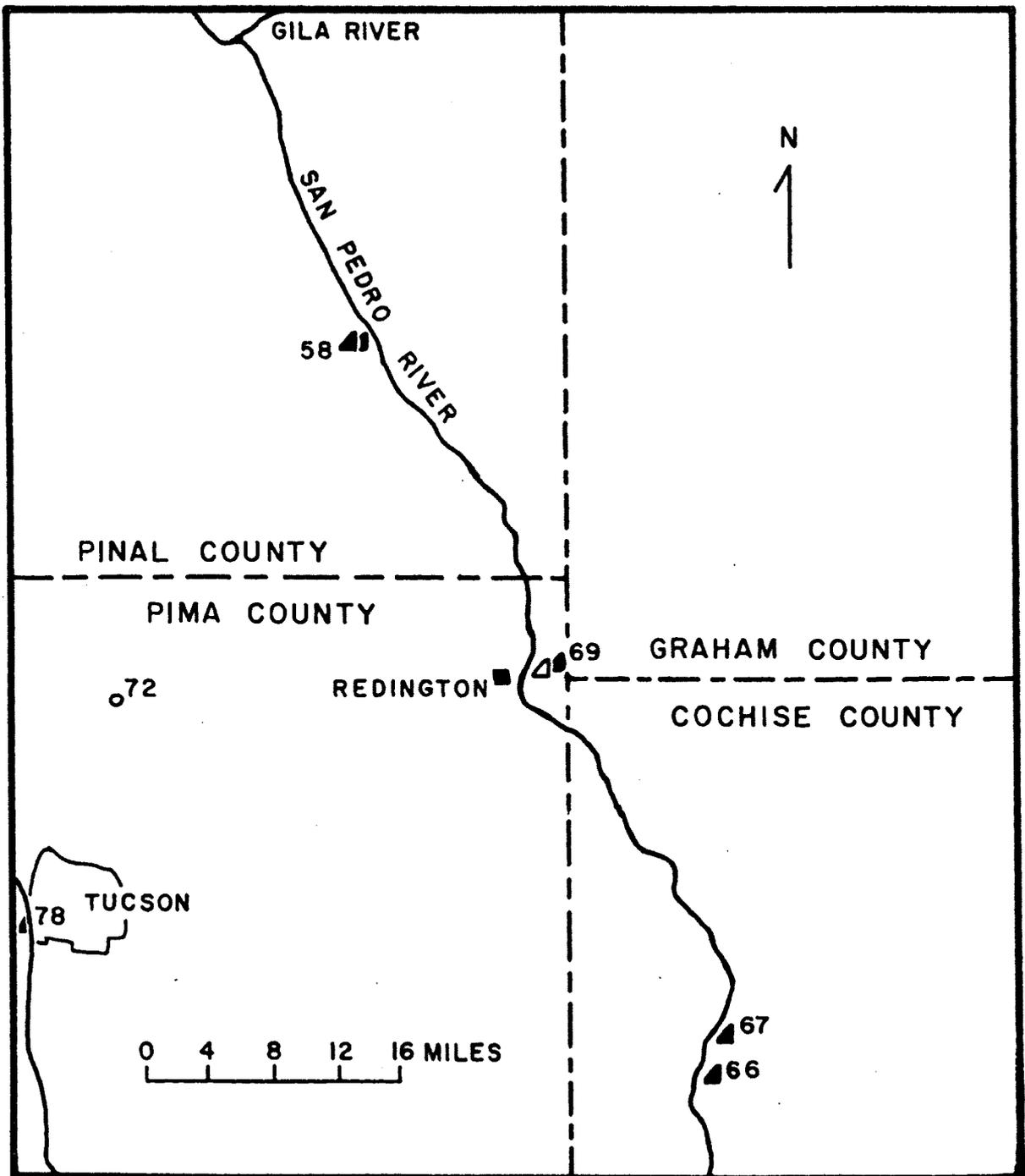


Fig. 22. Quadrangle BB.

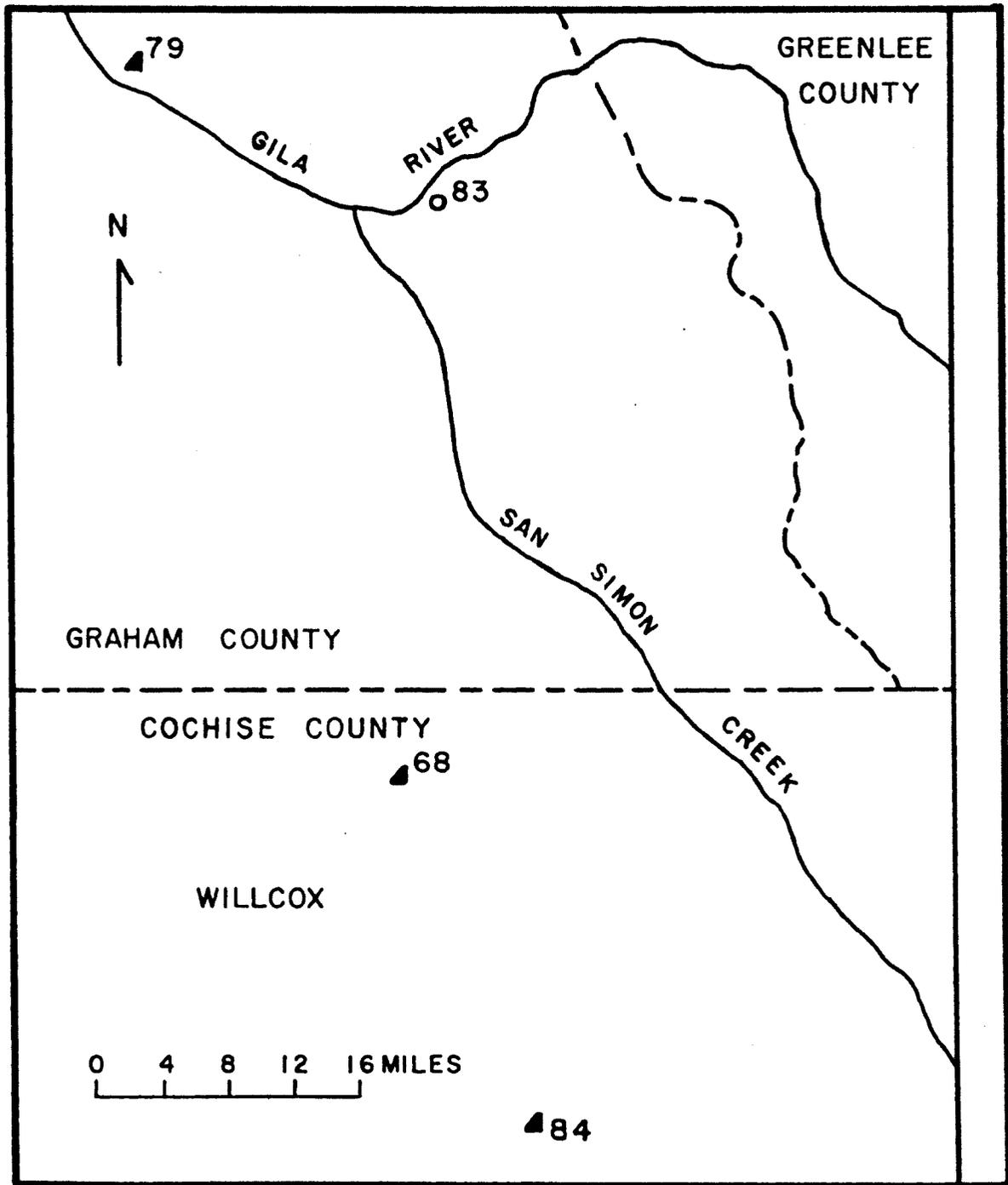


Fig. 23. Quadrangle CC.

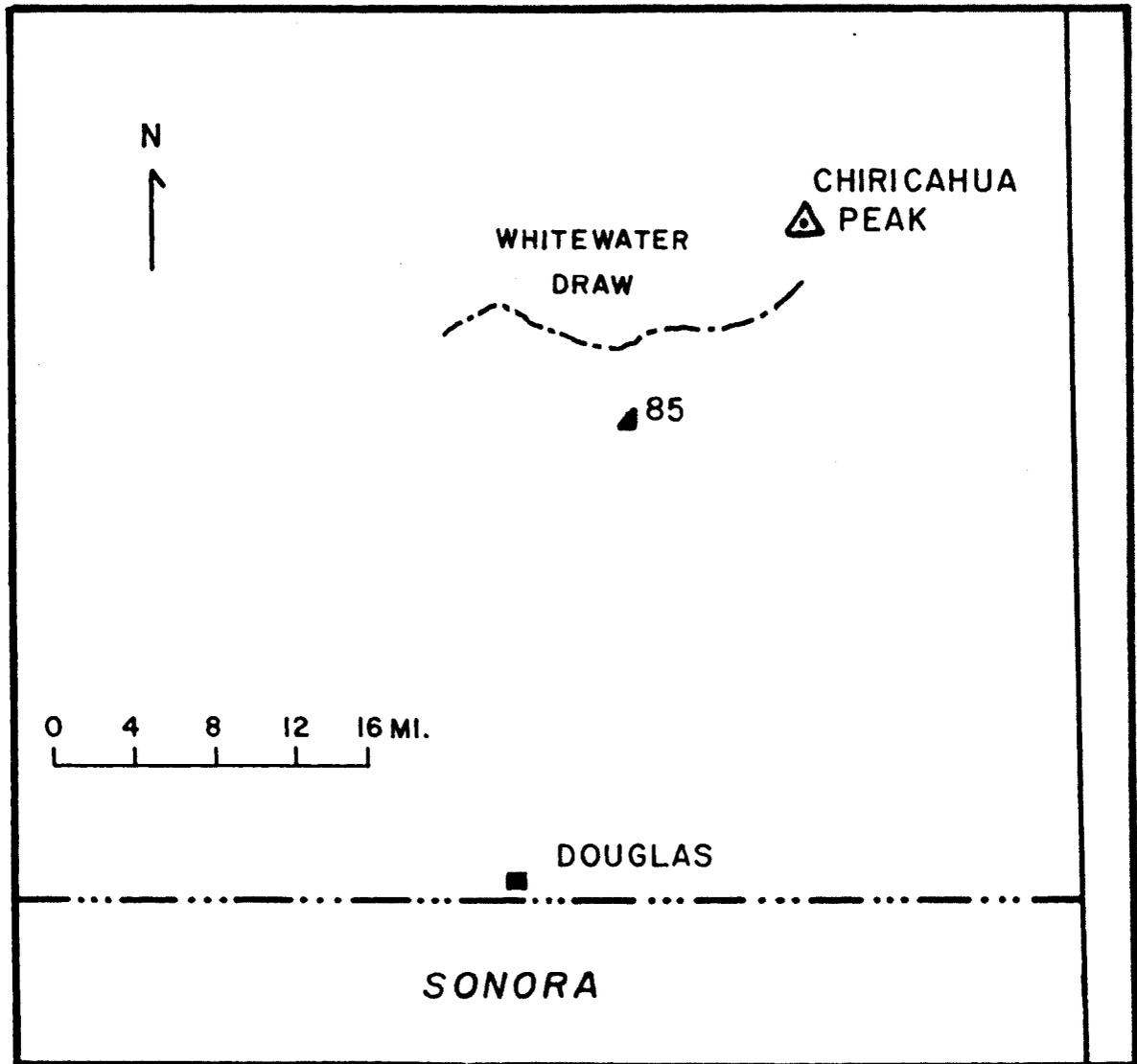


Fig. 24. Portion of Quadrangle FF.

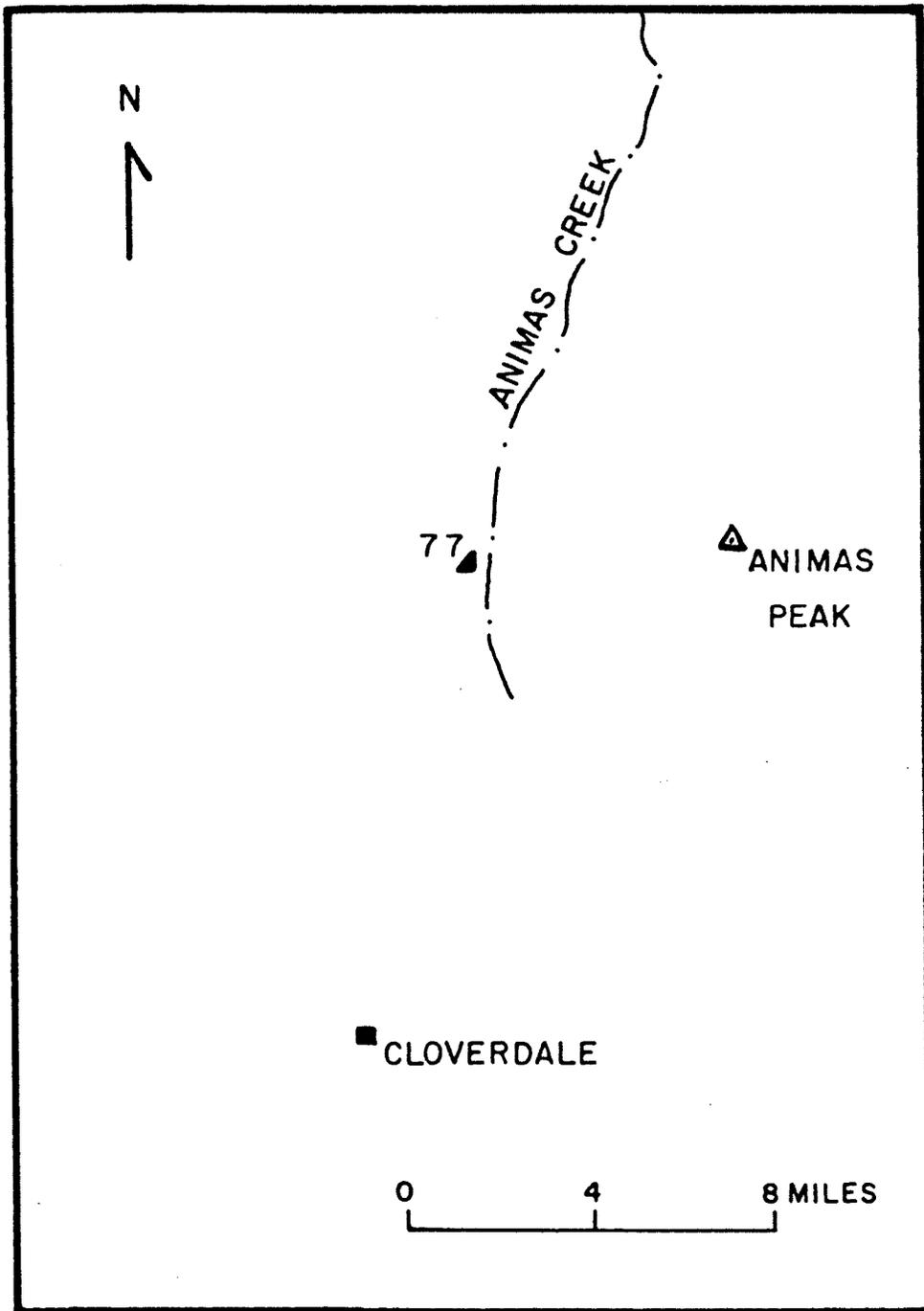


Fig. 25. Portion of Quadrangle EE (New Mexico).

CHAPTER 7

Introduction

Among other major cultures in the Southwest, various types of structures are considered to be ceremonial in function. The Mogollon culture utilized large kivas and occasionally "dance plazas" as did Anasazi peoples but the latter also built tri-walled structures and unique buildings such as Fire and Sun Temples of Mesa Verde National Park. Papers by Vivian and Reiter (1960), Reiter (1946), Hughes (1954), and Wheat (1955: 56-62) furnish syntheses of Mogollon and Anasazi ceremonial architecture.

Dance Plazas

Shallow, unroofed, circular dance plazas have been excavated in Anasazi sites in the Pagosa, Colorado area (Roberts 1923: 65) and at the Whitewater site (Roberts 1939: 126-9, 258). A Mogollon pit house village near Luna, New Mexico, contained a dance plaza (Hough 1919: 414-5). The Sinagua site of Wupatki Ruin also contained a circular masonry dance plaza (Colton 1946: 55-6). All dance plazas were unroofed and often lacked depth. Reiter (1946: 105, 109-12) stated that dance plazas were similar to great kivas in shape, single entrance, and communal use and construction but that the dance plazas had a separate history. Only in Wupatki National Monument do dance plazas and ball courts occur together. At the Wupatki Ruin, both structures may

have been used contemporaneously.

Most dance plazas were located near habitation areas within small sites but Roberts' Whitewater example was placed a short distance south of the main living area (Roberts 1939: 126). No special artifacts or representations of the dance plazas in artistic expression is known. That such plazas were used is evidenced by associated firepits, post holes, and other special features, but due to the rare occurrence of these unusual structures, little can be said except that the plazas served some communal function, presumably non-secular in nature.

Tri-Walled Structures

At Aztec National Monument, in Chaco Canyon, and in southwestern Colorado, circular tri-walled structures have been located (Vivian 1959). These buildings are concentric rings of two or more masonry walls and are often divided into rooms. Vivian (1959: 86) believed that these structures indicated the apogee of pueblo ceremonialism when such units possibly served to house priests or religious paraphernalia. Except for two examples, the double or tri-walled buildings were located near pueblo kivas and usually contained kivas within the concentric walls.

Unique Ceremonial Buildings

Two other ceremonial structures, the Sun Temple and

Fire Temple at Mesa Verde National Park are unique examples of Anasazi religious architecture. The excavation of the Fire Temple by Cassidy (1960) indicated that this building could be classed as a great kiva. Located in an overhang, the Fire Temple probably served nearby small pueblos, but was removed from them. It is one of two Mesa Verde structures which have great kiva characteristics: a possible second example is composed of a large open plaza in Long House, a Wetherill Mesa site, which contains floor features similar to the Fire Temple and to Chaco Canyon great kivas (Jervis D. Swannack, personal communication). The Sun Temple is composed of a patio surrounded by rows of rooms but has unusual features of architectural symmetry, lack of habitation debris, and the appearance of a planned layout. Within a half mile of the Sun Temple are twenty cliff dwellings.

Discussion of Dance Plazas, Tri-walled Structures, and Unique Structures

These various ceremonial buildings have several items of dissimilarity between themselves and between the types and Hohokam ball courts. Anasazi and Sinagua dance plazas are the simplest structures; only a slight or moderate circular depression is present and floor features are uncomplicated. Masonry walls were used only once in dance plaza construction; stone walls and a bench were built in the Wupatki example. When dance plazas are compared to ball courts, few similarities appear. With respect to settlement pattern, both have no fixed

position in village layout, but the plazas are usually nearer the habitation areas. Except for the Wupatki and Luna examples, dance plazas are shallower than ball courts but the simplicity of floor features in both types is similar. Form is a point of difference, but both types of structures lack roofs. Too little is known about dance plazas to pursue comparison.

Tri- and double-walled structures present similarities to and differences from Hohokam ball courts. In addition to architectural form and construction dissimilarities, these two types of non-secular buildings have different origins, postulated functions, and distributions. Insofar as both types were presumed results of community projects, ball courts and tri-walled structures are similar but gross differences outweigh points of resemblance.

Unique structures such as the Sun Temple and Fire Temple of Mesa Verde may find parallels in the equally unusual platform mound at the Gatlin Site (Wasley 1960). All of these structures are associated with other ceremonial buildings within particular sites and are near settlements. Possibly these unique structures with their associated ceremonial buildings formed a religious focus for surrounding settlements in both cultures. Beyond this general similarity, these three aberrant architectural units are distinct in form, location, and construction.

Great Kivas

The most common community religious building to non-Hohokam peoples was the kiva. Most kivas found in pueblo ruins are presumed to have been built by only a group of the extended family or clan size. Great kivas were larger, multi-family structures and were used contemporaneously with the smaller kivas but were less frequent in occurrence. Great kivas are an indigenous development in the Southwest, but it is possible that Mesoamerican influences will be recognized as work progresses (Olson 1960: 202). As with ball courts, kivas of all sizes vary in characteristics but variation is to be expected. Reiter (1946: 287) defined a great kiva as "...a circular, partially subterranean, southwestern 'town house' of non-secular usage, which is to be distinguished from other rooms within its vicinity on the basis of its significantly increased diameter."

Great kivas were in use from about the beginning of the Christian Era to about A.D. 1400 in the Mogollon culture (Haury 1950a: 38) but great kivas in the Anasazi culture lasted only until about A.D. 1200 (Vivian and Reiter 1960: 107). Mogollon great kivas are rectangular, eastwardly oriented, entered via a ramp, and have characteristic arrangement of roof support timbers. Anasazi great kivas are circular, are entered by antechambers, are oriented north-south, and have features such as masonry benches, wall niches, deflectors,

and masonry floor vaults (Martin and others 1962: 64-8). Present day Southwestern Pueblo Indians do not use great kivas but hold their dances and ceremonies in village plazas which may have taken the place of large kivas (Haury 1950a: 35).

As summarized by Reiter (1946: 287), kivas, both small and large, served many functions; sleeping quarters on certain occasions, preparation of ceremonies and religious paraphernalia, training place for young male members, and a sacred place for ceremonial events. Most great kivas, tri-walled structures, and unique buildings such as the Mesa Verde Sun Temple were constructed of masonry as were the pueblo villages of the Anasazi and Mogollon cultures. However, prior to A.D. 1000, early Mogollon great kivas were simply pit structures resembling domiciliary pithouses but were built on a larger scale and contained different floor features (Wheat 1955: 61). After about A.D. 1000-1100, Anasazi influence caused several important changes in Mogollon culture including a change from pithouse-like great kivas to semi-subterranean, rectangular, ramp-entered, masonry structures (Olson 1960: 202).

Great Kivas and Ball Courts

Perhaps the greatest degree of similarity among Anasazi-Mogollon -Hohokam ceremonial architecture can be found in a ball court-great kiva comparison. But a comparison of these two types of structures contains problems of over-

simplification due to the variants within each type. All great kivas as well as all ball courts cannot be strictly compared except in general terms.

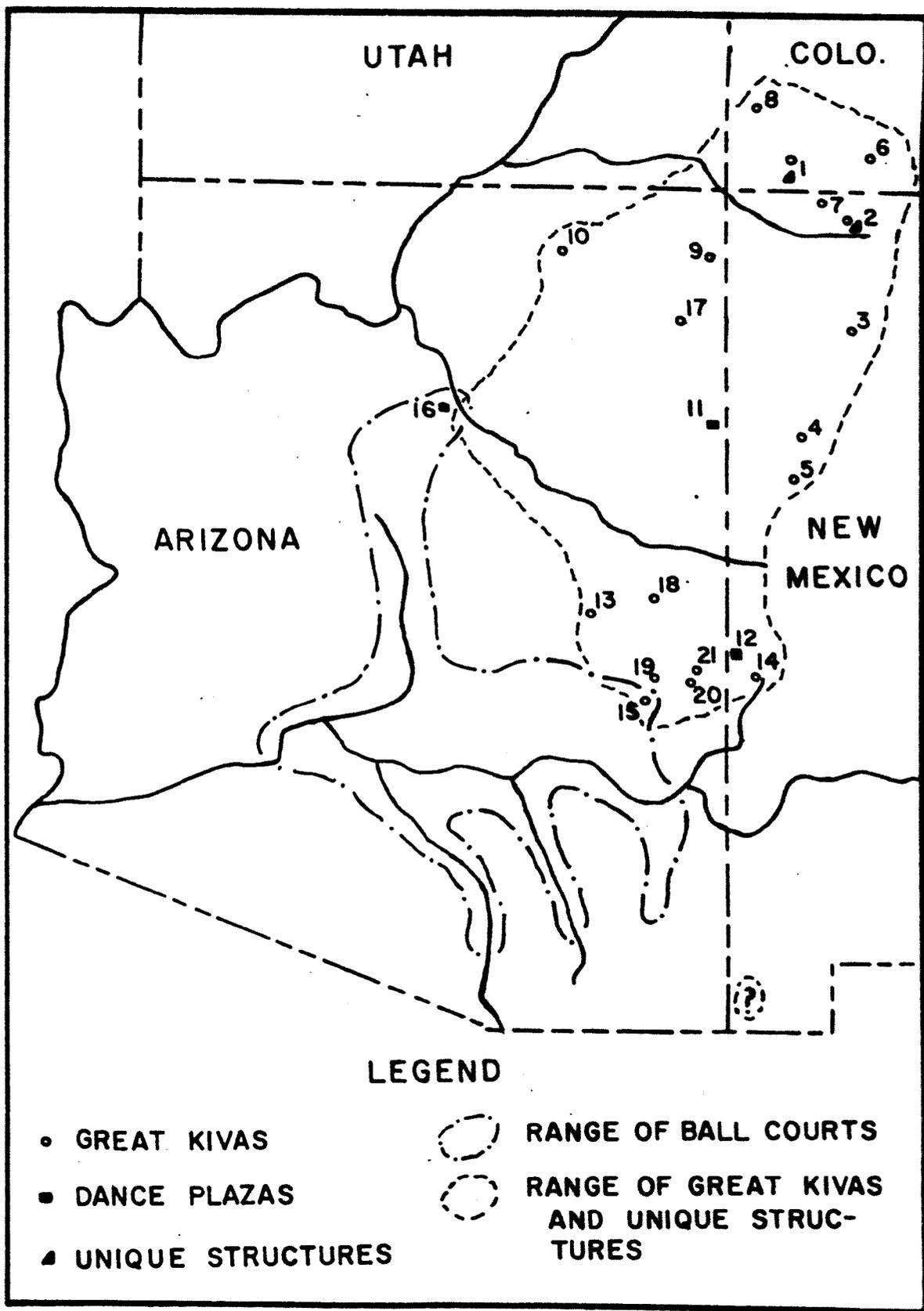
Ball courts and great kivas were in use contemporaneously throughout most of their respective histories, but ball courts were introduced about 300-400 years later than the probable beginning date for great kiva use. Present evidence seems to indicate a Mogollon origin of great kivas (Hughes 1954: 231; Smiley 1952: 22; Wheat 1955: 213) but Vivian and Reiter (1960: 99) point out that early Mogollon great kivas are quite variable in characteristics and thus any evolutionary comparison is difficult.

The mutually exclusive geographical distribution of ball courts and great kivas is indicative of different cultural patterns in communal buildings (see Figure 26). It has been postulated that ball courts were similar to great kivas in fulfilling a function as community gathering places for religious occasions (Cummings 1953: 71; Johnson 1961b: 567). Since there is no available ethnographic information which can be directly associated with either type of structure, proof of this hypothesis must rest on inferential conclusions. Such conclusions may be based on categories of information similar to those of Sears (1961) which were used in the preceding discussion of the cultural role of ball courts in Hohokam culture. Topics of discussion applicable to great kivas are construction, placement in settlements, artifactual

Fig. 26. Relative Distribution of Great Kivas, Dance Plazas, Unique Structures, and Ball Courts within the Southwest (adapted from Vivian and Reiter 1960: 4; Olson 1960: 186).

Key to Numbered Sites

1. Mesa Verde National Park
2. Aztec National Monument
3. Chaco Canyon National Monument
4. Fort Wingate
5. Nutria
6. Blue Mesa
7. La Plata
8. Cahone Canyon (Ackman-Lowry area)
9. Broken Flute Cave
10. Juniper Cove
11. Whitewater
12. Luna
13. Forestdale
14. Pine Lawn
15. Point of Pines
16. Wupatki National Monument
17. Cross Canyon
18. Hooper Ranch
19. Dry Prong
20. Foote Canyon
21. Hough No. 62



association, and representation in artistic expression.

Construction Technology

In form and construction, great kivas reflect local building techniques as do ball courts. The construction of neither type of building involved foreign practices; that is, both pueblos and great kivas were masonry and the Hohokam utilized mounded earth in house and ball court construction. The rectangular and circular forms of pueblo rooms and small kivas were repeated in great kivas. The oval or elliptical ball courts cannot be compared with Hohokam houses in this way because the forms of the two types of ball courts were probably imported with the court complex. The construction of great kivas and ball courts is dissimilar, then, because of cultural building preferences and differences in origin.

These two types of religious buildings indicate communal aspects of initial planning and construction, maintenance, and subsequent use. Great kivas of the Anasazi and Mogollon types would require more labor and planning than most Hohokam ball courts. In great kiva and ball court construction, approximately the same tools were undoubtedly used, but masonry kiva walls would require more labor than the mounding of earth side units in ball courts. Stone would have to be collected and possibly dressed. Timbers to support heavy roofs would require transportation and preparation for installation. The excavation necessary to achieve the re-

quired subterranean quality of great kivas was often laborious and difficult (Vivian and Reiter 1960: 83; Olson 1960: 190). Interior items such as niches, floor features, carved stone disc bases for roof supports, or wall murals were probably correctly installed under direction of a person who knew their value or esoteric meaning.

In general, great kivas would require longer time for construction, the collecting, stockpiling, and preparation of different sorts of building materials, and more workers doing different jobs than ball court construction. Smaller kivas could have been built by clan or kiva society members but great kivas may have been inter-clan projects.

Placement in Settlements

With respect to placement within a site, some great kivas were on marginal locations as were ball courts, but others were incorporated into pueblo room blocks and were tightly integrated into site architecture. Separate great kivas were constructed as complete units, apart from pueblo room blocks, and probably served several communities. Bluhm (1960: 544) stated that the lack of small kivas in the Pine Lawn Valley of west-central New Mexico and the scattered great kivas throughout the area "...suggests the possibility of some over-all intra-valley or community integrating force." Bluhm does not see the integration of these settlements as equalling "...the over-all organized community activity which

must have been necessary to construct and maintain the large network of irrigation canals found in the south" (Bluhm 1960: 544). A suggestion was made in Chapter 5 that the Hohokam canal system does not necessarily mean an over-all political organization as Bluhm believed: if it did not, intra-community relations and organization among the Mogollon and Hohokam might be approximately equal in complexity. A pattern of separate great kivas scattered among settlements apparently existed in Chaco Canyon also.

A series of separate, ramped, rectangular great kivas extends from Reserve, New Mexico to Point of Pine in east-central Arizona (Olson 1960: 186). These kivas fall within Reserve and Tularosa Phases (A.D. 1000-1300), a time of greatest Anasazi influence in architecture and great kiva construction (Bluhm 1960: 541). Haury (1950a) has described a sequence of great kivas for the Forestdale Valley near the northern boundary of the Fort Apache Indian Reservation. The oldest great kiva in this area, dated at A.D. 300-400, was similar to a large pithouse, but later examples contained specialized features, lost their separateness, and finally became an open plaza completely enclosed by rooms by A.D. 1300-1400 (Haury 1950a: 38). This change from pit structure to open plaza probably caused three modifications which might have significance in the cultural role of Forestdale great kivas. Incorporation into a pueblo room block resulted in a change in shape from round to rectangular and the proximity of

the plaza to living areas made the plaza essentially secular in use (as are modern Pueblo streets and plazas). This secularization made roofing and subterranean construction unnecessary (Haury 1950a: 35).

Well known separate great kivas include the Chaco Canyon examples of Rinconada, Pueblo del Arroyo, Chetro Ketl, and others (Vivian and Reiter 1960), the restored Aztec example (Morris 1921), and at the Cross Canyon site near Ganado, Arizona (Olson 1962). All of these separate great kivas from the Mogollon area, Chaco Canyon, and other Anasazi regions may be interpreted as Bluhm has suggested. All great kivas are associated with pueblos of various sizes and with lesser kivas.

Reiter (1946: 289) has suggested that great kivas provided sufficient space for the more important community ceremonies while in the smaller kivas lesser religious rites were performed. Such a suggestion has merit in interpreting the existence of great kivas in sites together with small kivas. Perhaps Reiter's "town house" concept is correct; great kivas could then be described as large community structures in which the more important ceremonies requiring more participants could be performed. The smaller kivas would still have important functions as suggested by Reiter but certain usages would apply to great kivas only.

Great kivas incorporated in pueblo architecture are few. No great kivas in Chaco Canyon were within a pueblo, but many medium and small kivas were integral parts of pueblos

(Vivian and Reiter 1960: 83). Since the abandonment of the great kiva in Chaco Canyon was earlier than in the Forestdale or Point of Pines areas, we do not know if Chaco great kivas would have eventually been constructed as a part of pueblo architecture.

The integration of great kivas into pueblos did occur in the northern Mogollon area as Haury's Forestdale sequence indicates and it occurred at Point of Pines also (Gerald 1957). If the interpretation of the recently excavated Long House plaza as a great kiva is valid, perhaps incorporation of a large ceremonial place into living quarters occurred at Mesa Verde. If separate great kivas were abandoned for intramural locations, and if secularization of the ceremonial place resulted from this incorporation, a transition would be easy to the familiar streets or plazas of pueblo settlements today as Haury has suggested (1950a: 35).

Artifact Association

A brief search of reports concerning great kivas at Chaco Canyon, Point of Pines, southwestern Colorado, Aztec National Monument, and at the Higgins Flat and Hooper Ranch sites revealed that artifacts of probable ceremonial function have been found in association with these structures. Artifacts used in daily life were also found in these sites, but only "ceremonial" items will be considered here.

In the Aztec great kiva, Morris (1921: 133-4, 120)

found worked bits of turquoise, a rough sphere of copper ore, and shell beads in a floor vault and in a hole in the kiva floor. A semilunar polished stone was recovered near one end of a floor vault (Morris 1921: 120).

In the famous Rinconada great kiva at Chaco Canyon, fragments of two copper bells and 328 beads were found on the floor and another copper bell fragment was recovered from a subfloor trench (Vivian and Reiter 1960: 24). Great Kiva II at Chetro Ketl pueblo contained ten sealed wall niches: in each were found strings of beads and turquoise pendants (Vivian and Reiter 1960: 29). Great Kiva III, at Chetro Ketl also, contained a sealed sipapu which contained two fossil shells, two quartz pebbles, bird bones, and turquoise bits (Vivian and Reiter 1960: 49). In the fill of the great kiva at Kin Nahasbas pueblo, a complete pipe or "cloud blower" was found which resembled those found at Pueblo Bonito. A pipestem fragment and 21 disc beads were also recovered from this kiva (Vivian and Reiter 1960: 58-9).

The two great kivas at a Basketmaker III site in the Ackmen-Lowry area (Site 1) were dated at A.D. 700-860 (Martin and Rinaldo 1939: 460). Great Kiva II, possibly classed as a dance plaza, produced only projectile points and knives. But a pipe, a stone cube, and a pendant as well as utilitarian artifacts were recovered from Great Kiva II which might also be described as a dance plaza (Martin and Rinaldo 1939: 350-9,430).

In west-central New Mexico, at the Higgins Flat site, two Tularosa Phase great kivas were superimposed. In addition to common artifacts, a clay animal effigy, two oval painted pebbles, three miniature Alma Plain vessels, three beads, and two lumps of pigment were recovered from the excavation of these structures (Martin, Rinaldo, and Barter 1957: 21,41).

Recently, Martin and associates discovered a carved and painted stone effigy in a special floor crypt at the Hooper Ranch great kiva (Martin and others 1962: 64-74). This great kiva had characteristics of both Mogollon and Anasazi structures, dated in the late A.D. 1200's, and was one of the largest rectangular great kivas to be excavated (Martin and others 1962: 213-5). The stone effigy, interpreted as a possible image of a female cult deity, was found in a floor crypt which was protected by a doughnut-shaped slab and a smaller covering slab. It is the first such image to be found in a great kiva. With the effigy was a miniature black-on-white jar containing a red stone, six black beads, five white beads, and one blue-green bead. These might be symbols of cardinal direction colors (Martin and others 1962: 71). The unusual crypt, suggestive of a great kiva in miniature, the large size of the great kiva, and the location of the structure in the Hooper Ranch site make this structure unlike others. Martin stated that "the presence of the Great Kiva [and its cult deity ?] might signify some sort of supra-village organiza-

tion made up of priests from satellite towns who were responsible for major rites held within this eminent and august structure"(Martin and others 1962: 222).

At the Point of Pines Ruin, a turquoise bead and a copper bell were found on the floor of Great Kiva II. In the rooms surrounding this Great Kiva II, two parrot skeletons, one hawk burial, and a large number of pigment lumps were found (Gerald 1957: 96-7).

While this list of items found in great kivas does not exhaust the reported occurrences, it is representative. Other religious or unusual items have been recovered in room or small kiva excavations.

Artistic Expression

As with Hohokam ball courts, little artistic evidence is available concerning great kiva usage in either Anasazi or Mogollon cultures. Mogollon and Anasazi pottery designs carry no hints and no informative petroglyphs have been found. Kiva wall murals have been discovered, recorded, and analyzed but except for the Mesa Verde Fire Temple, no great kiva wall murals are known. Cassidy reported that the walls of the Fire Temple were painted with geometric designs and possibly a representation of the hunchback flute player, Kokopelli (Cassidy 1960: 77).

Conclusions

Hohokam, Anasazi, and Mogollon ceremonial architecture is as different as the cultures themselves. Dance plazas, ball courts, tri-walled structures, and kivas of various sizes all served a variety of functions - religious, social, and perhaps habitational. While the relative frequency of Anasazi or Mogollon religious structures favors a comparison of kivas to ball courts, greatest information may be derived from a great kiva - ball court comparison. Such a treatment of structures built to serve multifamily, intercommunity, or intracommunity organizations can best reconstruct prehistoric socio-religious life on an inter-cultural level.

Great kivas and ball courts are contrasted by both obvious and subtle differences but are also allied by parallels. Cultural preferences in construction and sources of origin of the respective types of structures are the greatest points of contrast. Great effort in late great kiva construction is contrasted with a change from larger to smaller ball courts among the Hohokam. Perhaps this is indicative of smaller groups using the later ball courts while larger groups were building and using the later great kivas.

While the spread of ball courts is discussed elsewhere in this paper, the respective distribution of these two types of structures deserves mention here. The lack of geo-

graphical overlapping cannot be considered as indicative of cultural isolation. Trade between the three major Southwestern cultures must have involved the realization of differing cultural practices but apparently few cases of religious or ceremonial acculturation occurred. The respective distributional patterns of great kivas and ball courts were closest in the Point of Pines area (Johnson 1961b) and perhaps in the Wupatki region. But the court concept in these areas had been culturally filtered by transmission from the Hohokam region. This change was possibly enough to transform the basic meaning of the idea but was not sufficient to replace large and small kivas with ball courts.

The location of earlier great kivas within sites resembles the unplanned placement of ball courts. This similarity is probably a function of pithouse use in all three cultures, especially in early times. Pithouse villages, by nature of the unit-quality of each habitation, were usually in a scattered layout. But as contiguous walled pueblo rooms were built, living areas were consolidated and lesser kivas were often incorporated into an architectural block. At a later date, some great kivas were finally enclosed by rooms which produced changes in these structures in some regions. Not all great kivas were in a close relationship to pueblo buildings. Examples such as Rinconada and possibly Fire Temple were placed in separate locations purposefully. The function of such separate great kivas, built at a time when lesser kivas were

within pueblos, may have been to provide a special structure removed from habitation areas for more important ceremonies. By contrast, throughout most of Hohokam culture history, villages of shallow pithouses were constructed; the scattered quality of the various architectural units in these villages persisted until late Hohokam periods.

Ball courts and great kivas have the greatest similarity in the peripheral location of both types of structures during the periods of pithouse living. This parallel was likely a result of the non-contiguous scattered quality of pithouses. Such a village layout persisted longer in the Hohokam culture than in the Anasazi or Mogollon cultures. As pueblo dwellings became the habitation pattern of the latter groups, their ceremonial structures became variable in size and presumedly in relative importance. Smaller kivas were constructed close to living areas, but while Anasazi great kivas remained separate structures (often purposefully removed from pueblos), late Mogollon great kivas were incorporated into habitation buildings.

When compared to the relatively static location of Hohokam ball courts, great kivas underwent more changes of placement within sites. Perhaps the socio-religious values of ball courts remained unchanged (at least in the Hohokam homeland) while great kivas lost their sacredness in the Mogollon culture and Anasazi great kivas gained ceremonial-esoteric meanings. Perhaps the various usages of Hohokam

ball courts remained roughly the same throughout their history. Great kivas became centers of intercommunity religious focus while lesser kivas continued to serve particular settlements, clan groups, or ceremonial organizations. Such a difference in function of great and lesser kivas seems to have taken place in the Pine Lawn Valley (Bluhm 1960: 543), in the Springerville, Arizona area (Martin and others 1962: 222) and possibly in Chaco Canyon, Point of Pines, Forestdale, and Mesa Verde areas.

In terms of special artifacts associated with ball courts and great kivas, more paraphernalia, perishable and non-perishable, was apparently used in the Mogollon and Anasazi structures. It may be that more small items were lost in great kivas than in ball courts. However, because of the recovery of ceremonial items purposefully left in great kivas, a greater manipulation of sacred or semi-sacred objects is likely. Rubber balls, costumes using copper bells, or stone paddles may have been personal property among the Hohokam and would not be left in a ball court.

Since great kivas are all-weather structures which were protected during all seasons, it is probable to infer greater use of them than of the exposed ball courts. The recovery of sacred and utilitarian artifacts from great kivas supports this postulate when contrasted to the paucity of items from ball courts.

Artistic expression among the three major prehistoric

cultural groups leave little opportunity for interpretations concerning their respective community religious structures. Possibly this lack may be a result of the absence of media suitable for representations of ceremonial activities or an unwillingness to depict events in paintings, petroglyphs, or drawings.

The hypothesis of functional parallelism exhibited by ball courts and pueblo great kivas as community religious structures is supported by a detailed comparison of each architectural form in terms of construction, placement in sites, postulated function and usages, and specialized artifact associations. Due to the variety of great kivas in various cultural situations, comparison and examination is difficult and often over-simplified. To various prehistoric pueblo dwelling peoples, great kivas undoubtedly fulfilled different functions and were associated with different usages.

In general, ball courts are interpreted as having an intravillage function and possibly major intervillage usages. The function of ball courts as intravillage integrative devices may be supported by the probability of village construction and the numbers of courts accompanying habitation areas. Since ball courts have no fixed location within sites except on settlement margins, apparently there was no customary spot for court construction. Either the Hohokam wanted to remove a ceremonial structure away from habitation areas as did some Anasazi and Mogollon groups or the structure was

not important enough to be a focus for the settlement. Usages, social and ceremonial or both, at the intervillage level are inferred largely from ethnographic reports, but courts could have been used for intravillage events as well as activities between villages.

Anasazi great kivas seem to have primary intervillage function and usages. Mogollon great kivas apparently begun as intravillage structures, but changed to intervillage functions and usages.

It is admitted that these conclusions are at high levels of archaeological interpretation. Data supporting the validity of these statements will be difficult to excavate and correct answers will be more difficult to derive. However, this examination of two dissimilar prehistoric religious community structures may serve to sharpen the focus on the problem.

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CHAPTER 8

Introduction

The problems posed by Southwestern ball courts cannot be solved with present data. An examination of available evidence reveals gaps and limitations in present knowledge which should be corrected by future work. Perhaps this paper contains more new questions than solves old ones but the approach used here and the postulated answers may serve as guides for future research.

Ball Court Definition

A general definition of Southwestern ball courts is based on a modified definition of Mesoamerican examples. A Southwestern ball court is an unroofed near-symmetrical arrangement of architectural planes in which group activities (possibly a ball game) took place. Several architectural features link Mesoamerican and Southwestern structures together as variations of the same concept, but respective differences of form, construction details, applicable data, and inferred usages requires a discrimination. A general definition is proposed because differences of particular features in both Mesoamerican and Southwestern structures vary widely.

The identification of unexcavated courts in the field rests on general characteristics of size, form, association

with habitation areas, and evidence for intentional construction. Specific characteristics such as markers, plastered interior surfaces, and other features are determined by excavation.

Transmission of Ball Courts into the Southwest

Geographical factors favor the western and northwestern portions of Mexico as the region of Mesoamerican-Southwestern prehistoric cultural exchange. The concept of the ball court is thought to have been transmitted northward along an eastern foothill corridor of the Sierra Madre Occidental range. Hohokam courts may have originated in the Chalchihuites culture of Durango or in cultures of the Mexican Mesa Central area. Archaeological evidence indicates a close tie of the southern Arizona Hohokam with those groups inhabiting the eastern foothills of the Sierra Madre Occidental and the Mesa Central of Mexico at the time of the supposed northward transmission of the concept.

Mechanisms of this transmission from Mesoamerican areas cannot be determined by present archaeological evidence. The introduction of the concept to the Hohokam could have been the result of Mesoamerican specialist groups entering what is now southern Arizona, but this mechanism is questionable on the bases of the probable character, composition, and limited impact of such groups. A more probable mechanism is Hohokam specialist groups receiving stimulus while in other cultures.

Role of Ball Courts in Hohokam and other Cultures

As a non-indigenous trait in the Hohokam culture, ball courts derived from Mesoamerica are interpreted as community structures integrated into Hohokam life by village construction, possible social usages, and inferred function. The function of ball courts is interpreted as an integrative device on the intravillage level primarily, but several villages may have been connected by ball court usages. The intravillage integrative function of courts is expressed by the gross numbers of the structures, their probable construction by relatively small groups, and their association with habitation areas. The possible usages of ball courts include religious or secular ball games, dances associated with rites of passage or fertility ceremonies, mock hostile games and dances, or a combination of these activities.

Ball courts among non-Hohokam peoples seem to have been only a novelty and were less important to them than among the Hohokam. The ball court in other Southwestern cultures was short-lived and did not displace other community socio-religious structures such as great kivas, dance plazas, and smaller kivas.

Distribution of Ball Courts within the Southwest

After the initial introduction of the court concept, the idea spread within the Hohokam area and later to other Southwestern groups. Present evidence indicates that modi-

fied Mesoamerican structures became established during Gila Butte phase (A.D. 500-700) or slightly earlier in the center and on the peripheries of the Hohokam homeland. Casa Grande and Snaketown court types were in use at this time and both types continued to play a role in Hohokam culture until the Sacaton phase (A.D. 900-1100). During this later phase, Casa Grande type courts of variable size and orientation became dominant and were transmitted to other groups to the north, east, and southeast of the Hohokam culture.

The spread of the concept was accomplished by (1) Hohokam colonies living in other areas and (2) less direct, diffusive contacts. It is postulated that in these situations the Hohokam concept had partly lost its religious value and thus was more readily acceptable to peoples of differing ceremonial patterns who were the innovators in their own cultures.

Approximately ninetyball courts are known in the Southwest. The greatest concentration of courts is in the Gila-Salt River Valleys where agricultural and urban expansion has doubtlessly destroyed many structures. All known courts except one are within the present state of Arizona.

Comparison of Ball Courts and Great Kivas

Among the various kinds of ceremonial architecture within other prehistoric Southwestern cultures, great kivas are an appropriate comparison with ball courts. Differences of

form and construction are reflections of cultural preference and source of origin of these dissimilar types of community socio-religious buildings. Anasazi and Mogollon great kivas are different in architectural details but most examples would have required greater group effort to build than Hohokam ball courts.

The simultaneous existence of great kivas and lesser kivas in many Anasazi and Mogollon sites is not paralleled by diminutive ball courts although a few Hohokam sites have multiple courts. This fact seems to indicate that a greater importance was placed on great kiva activities which involved larger groups than the smaller kivas could contain. The lesser kivas were probably used for less important events. No such hierarchy of ceremonial buildings is indicated by ball courts except as possibly reflected by the gradual abandonment in later periods of the Snaketown type courts for the Casa Grande type.

While ball courts are postulated to have intervillage usages and an intravillage function, great kivas of Anasazi and Mogollon cultures had both intervillage functions and usages. More religious paraphernalia was apparently associated with great kivas than with ball courts.

Future Work

It would be trite to state that more ball courts should be excavated. In such a distributive and interpreta-

tive study as this paper, that conclusion is foregone. More excavated and surveyed courts in the Southwestern, Mesoamerican, and northwest Mexican areas will provide a larger sample on which to base general syntheses. Archaeological surveys along the proposed route of transmission should help solve some existing problems.

The spread of the ball court concept as a complex of specific traits provides an opportunity to examine situations of socio-religious change in prehistoric cultures and the modification, acceptance, or rejection of introduced foreign traits. Comparison of ball courts to other ceremonial community structures tests the methodological framework of Sears and MacWhite as well as providing cultural comparisons. Future work will undoubtedly add to archaeological knowledge and advances in methodological approach will make possible better interpretations of evidence in the reconstruction of the socio-religious segments of prehistoric cultures in the American Southwest.

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