# INTRODUCTION

*We have lived upon this land from days beyond history's records. . . . The story of my people and the story of this place are one single story.*
*—a Taos Pueblo man (Henry et al. 1970:35)*

This study explores the diverse and remarkable architecture created by Native American people living in the arid southwestern United States and northwestern Mexico between the early centuries of the Christian era and the present day. Their extraordinary achievements range from the cliff dwellings of Canyon de Chelly and Mesa Verde to walled compounds on the desert floor of the Salt and Gila Basin, from the stone monuments of Chaco Canyon to the adobe pueblos of the Rio Grande Valley, and from the solitary towers of Hovenweep to the grand trading center of Paquimé in Chihuahua. The volume analyzes and compares 132 ancient sites suggesting the breadth and variety of our architectural legacy in the Southwest.

## Physical Setting

The geographical area of the survey encompasses some 300,000 square miles (770,000 square kilometers), a territory more than 20 percent larger in size than the combined areas of Spain and Portugal. The territory extends from Coombs Village, Utah, in the north to the Cave of Las Ventanas, Chihuahua, in the south and from Main Ridge, Nevada, to the San José site in eastern New Mexico. The distances are roughly equivalent to those from Cleveland south to Atlanta and from Detroit east to Boston.

Much of the land within the study area is situated more than 5,000 feet (1,524 meters) above sea level. Some peaks in the southern Rocky Mountains reach altitudes of more than 14,000 feet (4,267 meters), while the terrain descends through low-lying desert plains to sea level along the shores of the Gulf of California. Temperatures range from well below freezing during winter months in the mountains and upland plateaus to well above 100 degrees Fahrenheit (38 degrees Celsius) on the Sonora Desert floor during summer months.

Dry climate characterizes the entire Southwest where water is the most critical resource. Rain and snow fall mostly in the uplands and mountainous interiors where warm, moisture-laden clouds release precipitation as they cool and rise. Numerous upland sources form the headwaters of the great rivers of the Southwest: the Rio Grande and its tributaries, which flow into the Gulf of Mexico, and the San Juan, Little Colorado, and Gila, which join the Colorado and discharge into the Gulf of California.

## Early Migrations

People of Asian origin probably entered the Western Hemisphere by way of a land bridge across the Bering Strait caused by the formation of glaciers, which lowered the sea level. Several opportunities to walk from Siberia to Alaska occurred between 23,000 and 8,000 B.C., and other opportunities occurred even earlier. The early migrants quite likely were hunters who followed wandering herds of mammoths and other large animals into North America.

The early hunters and gatherers are known as Paleo Indians. Some of their earliest remains are found at the Folsom site in northeastern New Mexico and Sandía Cave 15 miles (24 kilometers) northeast of Albuquerque. Distinctively fashioned projectile points, knives, scrapers, and other tools of stone and bone are associated with Paleo Indian sites where mammoth, camelid, giant sloth, and extinct forms of bison were killed and processed. Radiocarbon data for Clovis projectile points used by Paleo Indians yield dates between 9,500 and 9,000 B.C.

Camp sites of hunters and gatherers are very difficult to identify only a few years after they are abandoned. A high degree of mobility is characteristic of Paleo Indian groups, who presumably moved more or less constantly in search of their prey. By perhaps 5500 B.C. mammoths were extinct and other species of large animals were disappearing from the Southwest. These events necessitated the adoption of new strategies for subsistence.

The division of time between 5500 B.C. and A.D. 100 in the Southwest is called the Archaic Period. Hunting and gathering continued during the Archaic Period, but emphasis shifted to smaller game within limited ranges and the gathering of locally available foods. The cultivation of corn probably was borrowed from neighbors to the south sometime around 1500 B.C. (Corn, beans, and squash were domesticated in Mesoamerica sometime between 7000 and 3000 B.C.) With the introduction of cultivated crops in the Southwest, the Archaic people became more sedentary, storage practices were initiated, and the population over time may have begun to expand.

Broadly varying water management strategies were devised in highly diverse physical settings. For example, in some places small stone dams across drainageways formed holding ponds to retain storm water runoff, while in other locations agricultural terraces and gridded gardens were developed. Irrigation canals required a substantial investment of labor, favorable terrain, and frequent maintenance.

### Prehistoric Cultures

Agriculture sets the peoples of the Southwest apart from the roving bison hunters of the Great Plains to the east and the hunters and gatherers of California to the west and the Great Basin to the north. Although hunting and gathering continued to be important, agriculture began to promote sedentariness to the extent required for the eventual development of a distinctive type of architecture, an attainment unequaled by neighboring groups.

The ancient peoples employed digging sticks for cultivation, used grinding stones called *metates* and hand stones known as *manos*, and manufactured ceramics using the coil method rather than the wheel. Pit houses traditionally were built and used from very early times throughout most of the

Southwest. Eventually, rectangular surface structures with multiple rooms appeared both in aggregated villages and in dispersed settlements, and occasionally more sophisticated towns arose with unique forms of public architecture.

The ancient peoples of the Southwest appear to be heterogeneous in language and culture. Nonetheless, they lacked state-level societies, well-developed systems of writing and notation, and large urban centers with public architecture on the scale of such Mesoamerican centers as Teotihuacán, Monte Albán, or Tikal. In addition to food crops, the ancient peoples may have borrowed from Mesoamerica the knowledge of pottery making, certain irrigation techniques, and possibly some religious beliefs (Cordell 1984).

Throughout their prehistories the ancient people moved constantly between sedentariness and mobility, between regionally integrated centers with widespread economic and social systems and widely dispersed farmsteads and hamlets. Perhaps for this reason they did not develop an architecture that endured more than a season or so without maintenance. Their buildings may be viewed less as permanent structures than as byproducts of nature constantly in the process of returning to nature.

The four major cultural traditions usually associated with the ancient Southwest are the Patayan, Hohokam, Mogollon, and Anasazi traditions. To these a number of minor ones could be added. The Patayan people inhabited the lower Colorado River Valley from the Grand Canyon to its confluence with the Gulf of California, an area poorly known except for occasional farmsteads or hamlets widely dispersed in the arid landscape. The other three traditions, however, are better known and are associated with more or less distinctive architectural characteristics.

**Hohokam** The Hohokam tradition was centered in the Sonoran Desert of southern Arizona and the adjacent area of Sonora, Mexico. Characteristic Hohokam settlements were called *rancherias*, each of which consisted of a small group of detached houses occupied by members of the same family. A reversal of the general architectural rule occurred during the thirteenth and fourteenth centuries when compact, multistory great houses were built on the flood plain of the Salt and Gila rivers in the vicinity of Phoenix and Tucson.

The Spanish translation of great houses is *casas grandes*, an alternative name for the famous trading center of Paquimé in Chihuahua. Examples of Hohokam great houses in this study are Los Muertos, Casa Grande, and Pueblo Grande. The descendants of the Hohokam may be the present-day Tohono O'odham and Papago Indians, some of whom early observers found living near Casa Grande.

**Mogollon** The Mogollon cultural tradition occupied a vast area of southeastern Arizona and southern New Mexico and adjacent areas of Sonora and Chihuahua in northwestern Mexico. Early Mogollon settlements were *rancheria* communities composed of pit houses, such as Mogollon Village and

the Harris site in this study. After A.D. 1000 villages of compact surface room blocks replaced earlier pit house settlements in such areas as the Mimbres Valley of New Mexico and the uplands of central Arizona.

Early Mogollon settlements presented in this study include Cameron Creek, Galaz, Swarts, NAN Ranch, and T J Ruin. Later Mogollon villages and centers are represented by Turkey Creek, Kinishba, Grasshopper, Casa Malpais, Paquimé, and others. Mogollon settlements generally were abandoned before the Spanish *entrada* in 1540. Their descendants may have joined Hopi, Zuni, Acoma, Laguna, or other pueblos in the Rio Grande Valley.

**Anasazi** The remains of early Anasazi hamlets and farmsteads are found in northern New Mexico and Arizona, southwestern Colorado, and southern Utah and Nevada. Examples in this study include White Mound Village, Grass Mesa Village, Coombs, Badger House, Tohatchi Village, Alkali Ridge, and others. In time the Anasazi became the first group in the Southwest to develop compact villages having one or more multiroom surface blocks. Later room blocks often were several stories high and usually were grouped closely around one or more plazas, which frequently were rectangular in shape.

Some of the best known Anasazi sites in this study are situated in and around Chaco Canyon, Mesa Verde, Canyon de Chelly, the Hopi mesas, Zuni Pueblo, and the Rio Grande Valley. The northern and western Anasazi areas largely were abandoned during prehistoric times. The modern Pueblo Indians probably are descended from the Anasazi.

Obviously, no records exist to explain prehistoric beliefs systems, languages, or other cultural characteristics of the ancient peoples. Nevertheless, information gathered from present-day American Indians may yield valuable insights into the cultural traditions of their ancestors.

**Contemporary Southern Peoples** The vast territory of southern Arizona and northwestern Mexico includes fertile valleys, mountainous uplands, and inhospitable deserts. The American Indians who presently live in this area are agriculturalists who speak Uto-Aztecan languages and for the most part live in *rancherias*. Their settlement patterns quite likely resemble those of their ancient ancestors. In river valleys, houses are clustered more closely together and form larger communities than do settlements in the mountains or deserts.

Riverine communities successfully practice flood-plain irrigation as they have for many generations. The architecture of houses and other structures varies considerably. For example, a Tarahumara *rancheria* might consist of several one-room log houses with adjacent grain-storage cabins, while a typical Papago residence is a dome-shaped brush structure with a slightly excavated floor and a nearby *ramada* shading an exterior work area.

Traditional Yaqui houses have flat roofs that bear on rectangular walls built of wattle and daub. A high cane fence typically encloses the area around each house, including its nearby *ramadas* and outdoor cooking areas. *Ranche-*

*rias* seldom are self-sufficient; family members often participate with others in communal work projects. Political organizations beyond the village level are rare for most groups, except in unusual circumstances involving regional interaction.

**Contemporary Northern Peoples** The present-day Pueblo Indians speak diverse languages but generally share a common culture. Most Hopi speak Uto-Aztecan languages, while the Zuni language seems to be related to the language spoken by some California peoples. The residents of pueblos in the Rio Grande Valley speak various dialects of unrelated Kersean and Tanoan languages. Other ancient languages have been lost in historic times.

Contemporary Pueblo Indians traditionally live in compact villages rather than *rancherias*. Built of both stone and adobe, the villages often consist of multistory room blocks usually fronting on a plaza or street. Lower floors of multistory pueblos customarily are used for storage, and rooftops frequently serve as additional work areas.

All traditional pueblos have at least one ceremonial room, known as a kiva, and most of them have several. The kivas of the Eastern Pueblo, which is to say those of the Rio Grande Valley, usually are round in plan and often are freestanding, partially subterranean chambers. The kivas of Acoma, Zuni, and the Hopi mesas customarily are rectangular in plan and frequently are incorporated into surface room blocks.

The basic unit of social organization in a Western Pueblo is a matriarchal household, which in turn belongs to a matrilineal clan. Clans control land and resources and are responsible for educational, ceremonial, religious, and other activities of the group. In prehistoric times the Western Anasazi typically lived in *rancherias* rather than compact communities.

By contrast the Tanoan-speaking pueblos of the Rio Grande traditionally are organized in extended families, which are associated with one of the pueblo's dual social divisions called a moiety. Children usually belong to their father's moiety, which in turn is responsible for coordinating the activities of the group. Members of the Keresan-speaking pueblos of the Rio Grande mostly have social organizations that bridge between Eastern and Western Pueblos.

The Navajo and Apache who live today in the Southwest are descended from Athapaskan-speaking Indians who arrived perhaps during the sixteenth century shortly before the Spanish *entrada*. Athapaskan languages also are spoken by American Indians who live in the inland valleys of central Alaska and northwestern Canada. Due to their relatively late arrival their contributions to the ancient architecture of the Southwest were limited.

### Presentation

The study is divided into five chronological periods, which again are subdivided into several geographical areas. The periods are:

Early settlements to A.D. 900
Regional developments, 900 to 1140
Unrest and adjustment, 1140 to 1300
Migration and consolidation, 1300 to 1540
Historic pueblos, 1540 to present

The chronological periods are intended to assist the reader in understanding the general character of architectural developments; they clearly are not intended to suggest a rigid separation of ideas devoid of continuity.

Such sites as Acoma and Oraibi probably were founded and occupied in the study's second chronological period and continue to be occupied today. To avoid repetition, the sites are discussed in only one period where clear reference is made to their full chronologies. The morphologies of other sites, for example, of Cameron Creek, changed significantly in time; their variations are noted in the texts accompanying their plans.

The sites in this discussion usually are associated with either Mogollon, Hohokam, or Anasazi cultural groups. The categories should not be viewed too narrowly since many sites have characteristics associated with more than one group. For example, thirteenth-century Mogollon sites in central Arizona sometimes show Hohokam influences from the south or Anasazi influences from the north, or both, and Chacoan outliers, such as the Village of the Great Kivas and Las Ventanas, seem to anticipate later architectural developments in Zuni sites.

General introductions precede each of the five chronological sections with the view of summarizing major architectural ideas. Each introduction closes with references to contemporary architectural developments elsewhere in North America and other places in the world. The study continues well into the historic period in order to examine the diverse architectural strategies the people of the Southwest adopted in coping with foreign ideas after 1540.

### Methodology

The sites presented in this survey illustrate chronological, geographical, and architectural diversity with the view of exploring the overall character of ancient southwestern architecture. Chronologically, the sites range from early *rancheria* settlements composed of pit houses to nineteenth-century Zuni farming communities. Some settlements are modest in scale and humble in character, while other sites demonstrate exceptionally high levels of architectural achievement. Texts accompanying the sites suggest, where possible, architectural ideas preceding or succeeding those under discussion.

Each site appears on a background grid 100 feet (30.5 meters) square. North is oriented consistently toward the top of the page. Shadows generally are cast at forty-five-degree angles toward the northwest, or within fifteen degrees of northwest where required for enhanced graphic clarity. The reader may discern the heights of buildings by the length of the shadows; for example, one-story structures cast roughly 10-foot- (3-meter-) long shadows, two-story structures cast about 20-foot (6-meter) shadows, and so forth.

Key plans accompany a number of sites in order to indicate the extent of architectural developments beyond the gridded format. The scales of key plans vary, but the direction of north is consistently oriented toward the top of the page. Small grids within the key plans refer to the areas within the plan presented on the study's standard grid. Sites presented on two adjoining pages generally show the plans of adjacent architectural elements. In the case of Palo Parado, however, the north and south halves of the gridded plan slightly overlap.

### References

The accompanying bibliography lists additional sources of information on subjects of interest to students of ancient southwestern architecture. Subjects on which much has been written include the morphology of pit houses and kivas, wood frame structural systems of the prehistoric Southwest, masonry styles and techniques of the Anasazi, ball courts and earth platforms of the Hohokam, dendrochronology and other dating techniques, theories of abandonment, and other matters.

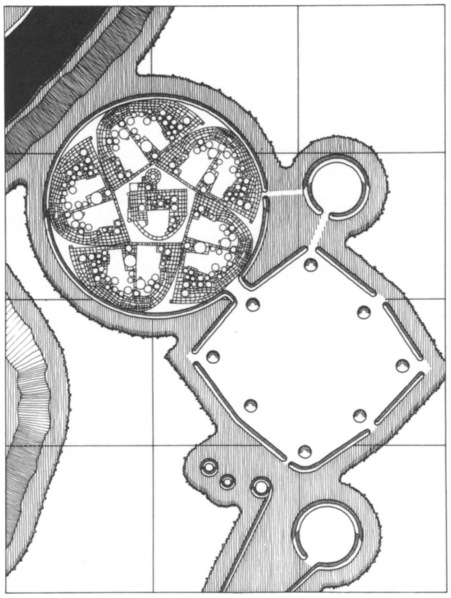
Adolph Bandelier's classic *The Delight Makers* vividly reconstructs the life and times of a prehistoric community in the upper Rio Grande area. Although the account is fictional, it is the most nearly authentic portrayal of its type available. Willa Cather's *Death Comes for the Archbishop,* also a novel, imaginatively depicts the lives and aspirations of Americans, Mexicans, Europeans, and American Indians living in the Southwest during the nineteenth century.

Linda Cordell's *Prehistory of the Southwest* gives a comprehensive overview of the subject from the point of view of a distinguished anthropologist. The Smithsonian Institution's *Handbook of North American Indians,* Volume 9, edited by Alfonso Ortiz, contains a wealth of historical and anthropological information. Victor Mindeleff's *A Study of Pueblo Architecture in Tusayan and Cibola* remains a classic study of traditional Hopi and Zuni architecture.

*Anasazi Ruins of the Southwest in Color,* by William M. Ferguson and Arthur H. Rohn, is a well-illustrated and highly informative volume on the subject. Another excellent study of Anasazi architecture is Stephen H. Lek-

son's *Great Pueblo Architecture of Chaco Canyon.* The late Charles C. Di Peso's series entitled *Casas Grandes: A Fallen Trading Center of the Gran Chichimeca,* Volumes 1–3, remains the most comprehensive study available on the fascinating subject of Paquimé and its environs.

*Pueblo Style and Regional Architecture,* edited by Nicholas Markovitch, et al., presents a number of instructive essays on the subject by knowledgeable architects and educators. The National Park Service, Bureau of Land Management, and U.S. Forest Services often publish descriptions of ancient ruins within their jurisdictions; the descriptions generally are concise and accurate and often contain information of interest to students of ancient architecture.



### Comparative Scales

One of the most pronounced differences between the prehistoric architecture of the Eastern United States and that of the Southwest is scale. For example, the relative sizes of the well-documented monuments of Chaco Canyon are very small in comparison with ancient monuments of the Ohio Valley. To illustrate the relative scales, a diagram is presented here showing the plans of Pueblo Bonito and Pueblo del Arroyo superimposed at the same scale on the plan of High Bank (Morgan 1980:17), a prehistoric earthwork near Chillicothe, Ohio.

The circular enclosure of High Bank has a diameter of some 1,050 feet (320 meters). In plan D-shaped Pueblo Bonito measures overall about 310 by 505 feet (95 by 154 meters). The diagram shows the plans of five buildings the size of Pueblo Bonito placed within High Bank's circular enclosure, with space remaining in the middle for Pueblo del Arroyo. The High Bank background is a grid 656 feet (200 meters) square, not to be confused with the standard 100-foot (30.5-meter) square grid used elsewhere in this study.

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