arizona's vernacular dwellings
ARIZONA'S VERNACULAR DWELLINGS

by

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1 INTRODUCTION

1 Purpose of Report

This historic context report is designed (1) to define vernacular architecture and to apply this definition to Arizona's historic, domestic architecture, (2) to view Arizona's domestic architecture in an historic setting, (3) to graphically illustrate vernacular dwelling types so that researchers and preservationists can identify them, and (4) to recommend strategies for the preservation of these properties. Interpreting Arizona's historic, vernacular dwellings in an appropriate context gives meaning to these properties and subjects even the most mundane of them to consideration. This is a necessary step in the preservation of these commonplace and frequently overlooked properties.

To date there is no standard nation- or state-wide system for identifying vernacular property types. Since the mid-1970s large numbers of simple, mundane buildings have been inventoried through the intensive, statewide survey process promoted by the National Park Service. In general, because the traditional classification system has been based on style, vernacular architecture has been inadequately described or superficially evaluated. The single label "vernacular," treated as if it were itself a style, has been applied to a great number of dwellings regardless of significant differences among them (Wyatt in Wells 1986: 40-42). This study will attempt to provide a vocabulary and accurate description for the great variety of historic, vernacular dwelling types associated with the state of Arizona.

2 Methodology

To begin, an extensive literature search was necessary to define vernacular architecture and its expression within Arizona's primary ethnic traditions: (1) the Native American, (2) the Hispanic, and (3) the Euroamerican. In conjunction with the literature search, an
evaluation was undertaken of many historic properties in the state which might be typed as vernacular resources. Owing to time limitations, it was necessary to restrict the investigation to the dwelling (namely the place of residence, habitation, or abode) and to devise a research method for dealing with the enormous quantity of examples within this functional type. Representative sampling was the method selected to allow for evaluation of a portion of the state's properties from a reasonable cross-section of communities in Arizona, and, for a comparison, in nearby Sonora, Mexico. An exhaustive survey was not appropriate for this study and statistical modelling methods were not used, primarily because state inventory forms, the primary source of data, frequently precluded positive identification of vernacular dwelling types. Although the approach was intuitive, the representative sampling yielded sufficient data to support the conclusions.

Data on hundreds of properties were gathered from three sources: (1) site visits in the field, (2) previous inventory experience, and (3) files at the State Historic Preservation Office (the SHPO) in Phoenix. Research at the SHPO produced the bulk of the data and included survey and inventory reports of historic districts, communities and other state properties, National Register nominations, and individual survey forms to which photographs were attached. A number of communities known to have concentrations of historic dwellings were selected as study areas (see Fig 2.4). These included Ajo, Bacavi, Benson, Bisbee, Chandler, Clifton, Concho, Douglas, Eagar, Flagstaff, Florence, Fredonia, Glendale, Globe, Holbrook, Jerome, Kingman, Mesa, Miami, Naco, Nogales, Oracle, Patagonia, Phoenix, Pine, Safford, Show Low, Snowflake, St. Johns, Superior, Taylor, Tombstone, Tubac, Tucson, Willcox, Williams, and Yuma. Also, in the interest of researching regional examples and as the result of travel to Sonora, Mexico, small areas of the communities of San Ignacio, Imuris, Hermosillo, and Rayon were observed. The Native American reservations evaluated were the Navajo, the Hopi, the Fort Apache and San Carlos Apache, the Gila River Indian Community, the Papago (Tohono O'odham),
and San Xavier reservations. With the exception of Bacavi on the Hopi reservation, the SHPO archives yielded very little property survey or inventory work pertaining to the reservations. The investigation of Arizona's Native American vernacular dwellings was largely from a literature search and from the study of historic photographs at the Arizona State Historical Society Library and the Arizona State Museum, both in Tucson. In conjunction with a more extensive investigation of O'odham vernacular dwellings, the Gila River Indian Community was visited. The conclusions reached from the O'odham study revealed an urgent need for future research and historic preservation on the state's Native American reservations.

A major purpose of both the literature search and the evaluation of actual properties was to develop criteria for grouping vernacular dwellings into types. Potentially these same criteria would provide a means whereby researchers could determine yet unidentified types. As a major component in defining a type, scholars of vernacular architecture rely heavily on the floor plan, the plan of the building perimeter plus interior room configuration. Many historic, vernacular, domestic types, such as the "hall and parlor" and "foursquare," are named by the floor plan. However, the interior room configuration of the floor plan is not always easy to "read" from outside a building, the method by which surveyors ordinarily evaluate historic buildings. The plan's depiction is not required on state inventory forms although the footprint or the plan perimeter is sometimes included.

This study attempts to bridge the gap between the scholar's ideal and the surveyor's practice in the field by providing the information and graphic tools for reading dwelling types from their exterior form or morphology. Form serves as the basis for identifying vernacular dwelling types and reflects (1) examples of classificatory schemes based on morphology used in some guidebooks, and (2) the fact that geometric form is elemental to how the human eye perceives an object in space. Standards related to morphology have
been developed for the identification of vernacular dwelling types. These include describing the nature of (1) the building footprint, (the primary generator of the building's form), (2) the wall height, and (3) the roof form. Individual properties with morphological characteristics in common can be grouped into classes or types.

3 Vernacular Architecture Definition

In the preface to *Common Places*, an important anthology on vernacular architecture studies, Dell Upton and John Michael Vlach state that a "straightforward, convincing, authoritative definition (of the subject) has not yet been offered" and that many scholars attempt to define the vernacular by enumerating its types. It is, however, generally agreed that vernacular architecture is both commonplace and that it represents collective or group ideals. The term *vernacular* is often used in the field of linguistics to denote the common everyday language of ordinary people in a particular locality and this "ordinary" quality can be applied to architecture. The term *architecture* can be defined as the "built environment" consisting of buildings and spatial domains. Vernacular architecture is the ordinary built environment; "mere" unsophisticated, everyday building. It includes a great variety of cultural landscapes and building types and, as illustrated by the triangle in Fig. 1.1, comprises the overwhelming bulk of the world's structures (Rapoport 1969: 2, Upton & Vlach 1986: xv-xvi).

![Fig. 1.1 The Vernacular Triangle](image)

Scholars have attempted to clarify the nature of vernacular architecture by viewing the subject as part of a continuum of architectural production, a continuous whole whose parts cannot be separated. Jean Sizemore in *Ozark Vernacular Houses* uses folklorist Henry Glassie's tripartite identification of artifacts (such as buildings) as either "folk," "popular," or "elite/academic." Sizemore identifies folk and popular material as vernacular
and elite/academic as non-vernacular. Seen in terms of a continuum, there may be a blend of these three in any single building. Folk culture, one part of the continuum, is based on local tradition, the customs and practices transmitted from generation to generation through the collective memory of relatively homogeneous people like the Hopi in northeastern Arizona. Folk material is regional and varies greatly over space, that is, from locale to locale. Being traditional, it changes very little over time. Another part of the continuum comprises elite/academic culture (which produces high-style architecture) and is that of professionals who follow quickly changing, national or international standards of design. Academic material exhibits minor variations over space, being widespread in its occurrence, and major variations through time. Popular culture, mass or normative culture, fits into another part of the continuum and is based on ideals imported from beyond the local setting which are transmitted through the media (such as published plans) and through mass marketing of manufactured building components. Popular culture embodies the collective ideals of a group (ie. the Euroamerican "middle class") and similar to elite/academic, is widespread in its occurrence and varies greatly through time (Sizemore 1994: 4, 5).

Amos Rapoport in *House Form and Culture* defines vernacular architecture in terms of building process, the means of "designing and building," which depends upon the technological level and ideals of a group. Building processes include "primitive," "preindustrial," and "modern." "Primitive," henceforth named *early*, is the process of preliterate, isolated, self-contained societies, in which few building types with few individual variations are produced from memory by any average member of the group. There is little specialization in trades and the occupant is a direct participant in the building
process. Preindustrial is a process that is characteristic of societies aware of and influenced by the existence of a high culture, which are beginning to develop increasing specialization in trades. There are few building prototypes known by all and designed from memory. Variations in construction do occur but they affect individual structures rather than basic types. Buildings can be built by tradespersons but the owner/occupant shares the skills and is an active participant in the building process. Modern is the process which is associated with popular culture. It is identified by an increasing specialization in trades, number and complexity of building types, plus new building technology. Design is frequently from published plans and types are popularized through the media. The builder tends to possess specialized skills and the owner, frequently no longer a participant in the building process, is a consumer (Rapoport 1969: 1-8). Although in one sense these building processes may imply a technological and idealogical evolution over time within a single group, they also characterize differences in groups which may coexist simultaneously within the same region, a situation which occurred in Arizona from the 1850s until the 1930s, the time span chosen for this study. Aspects of these three processes can also blend in any single building.

4 Definition of Arizona's Vernacular Dwellings

This study will attempt to define Arizona's historic vernacular architecture (1) by approaching the subject in terms of a continuum and (2) by the identification of its types. As mentioned, because vernacular architecture includes an enormous number of properties within a range of functional types (including dwellings, community, commercial, agricultural, and industrial buildings), the focus of this study is limited to historic, vernacular dwellings. The chronological framework used to define "historic" ranges from the 1850s until the 1930s, a time span chosen to best illustrate the dynamic nature of the domestic vernacular in Arizona. This span includes the earliest (although perhaps
modernized) preindustrial examples discovered through the sampling up to the widespread California bungalow, the epitome of popular, industrialized vernacular.

Arizona's vernacular architecture represents the collective ideals of the groups that settled the region. (See Arizona as a Geographical and Cultural Region.) The major cultural traditions, both indigenous and imported, which are responsible for the content of Arizona's historic built environment include (1) the Native American, (2) the Hispanic, and (3) the Euroamerican. Native American are the cultures of the indigenous peoples, such as the Hopi, Navajo, Apache, Pima, and Tohono O'odham, who settled prior to the time of the Spanish contact and whose descendants comprise the Native Americans, some of whom reside on reservations, in various areas in and around Arizona at the current time. (See Native American Settlement.) Hispanic are the Spanish- and Basque-speaking cultures of the Spaniards, early Mexicans, Mexican Americans, New Mexico Hispanics, and Basques, who form a significant population group in Arizona today. (See Hispanic Settlement.) Euroamerican refers to the non-Hispanic cultures imported into Arizona beginning in the 1850s by immigrant Europeans and mainstream "Americans" whose ancestors, largely from Britain, Northern Europe, and Central Europe, first settled in areas east of Arizona and now form the majority population of the state. (See Euroamerican Settlement.)

To categorize Arizona's historic, domestic architecture, each ethnic tradition can be simplistically associated with a building process. Cultural interaction occurs when the ethnic groups adopt each other's forms and technology. To reiterate, while the elite/academic is not vernacular, the vernacular encompasses both folk and popular cultures. Folk culture includes (1) the early building process associated with Native Americans and (2) the preindustrial building process primarily associated with the Hispanics. Popular culture is represented by the modern building process of the
Euroamericans. To illustrate Arizona's vernacular domestic architecture in terms of a continuum, any single, historic dwelling may be placed somewhere on the following set of intersecting circles (Fig. 1.3). Within the time periods considered in this study, at any particular moment the early, preindustrial, and modern building processes existed simultaneously and also interacted, as shown by the overlaps. For example, Hispanic/Native American cultural interaction (hybridization) produced the so-called "Sonoran" dwelling types which combined Old World, preindustrial adobe construction technology and form with Native American mud roof technology. Hispanic/Euroamerican hybridization produced "Transformed Sonoran" dwellings which combined Euroamerican, wood-frame, pitched roofs with Sonoran, adobe walling.

Fig. 1.3 Cultural Interaction Diagram

5 Definition of Type, Form, and Style

Vernacular dwellings can be understood (and are understood in this report) as types. A type is a kind, class, or group of structures having distinguishing characteristics in common. Form or morphology is perhaps the most fundamental identifier of vernacular types and the attribute which most easily allows distinction between them. Properties that share a common shape can be grouped together as a type. Examples of types include the ovoloid-plan, domical k'ti, a former folk dwelling of the O'odham of southern Arizona and
Sonora, and the Euroamerican, square-plan, pyramidal dwelling. Form, the basic building envelope, is the product of the structure's footprint in combination with its wall height and roof form and is independent of structural materials and superficial "stylistic" detailing.

Basic morphological types should not be confused with "styles" which are generally associated with the academic/elite and Euroamerican popular cultures. Traditionally, the cornerstone of architectural classification has been *style*, a term used to describe a particular design tradition in terms of historical origins, basic design principles, and years of peak popularity. Most simply, styles are ornamental fashions based upon historically-based architectural traditions such as classical or medieval and they are connected to particular periods of time. On the other hand, "vernacular" describes folk and popular buildings of many different eras and forms. The term "vernacular" is not another style to be added to a list that includes such designations as "Queen Anne Revival," "Colonial Revival," and "Prairie." Vernacular types, easiest to understand when unadorned, can also be influenced by style. Within the vernacular range, style can mean the application of superficial ornamental detailing to common property types. Within the non-vernacular range, it can refer to the consciously-correct, architect-designed, specialist-built creations of the elite/academic culture. Understood in terms of a continuum, vernacular builders can adopt stylistic details of the elite and academic designers can add vernacular property types to their repertoire. It is important to distinguish between style and type because properties of the same type may be widely divergent in style while properties of the same style may be widely divergent in type.

6 Chapter Contents

The following text is organized in five general divisions. The first division, Chapter 2, Arizona as a Cultural and Geographical Region, maps areas in the state where vernacular architecture of the three primary ethnic traditions, the Native American, the Hispanic, and
the Euroamerican, occurs. The next three divisions focus upon the separate ethnic traditions, the Native American, Hispanic, and Euroamerican, and assign each three chapters describing (1) settlement, or the historic context, (2) settlement patterns and dwellings, or the historic, architectural context, and (3) types and forms, the dwelling types identified and graphically illustrated. The chapters on types and forms are "guide book" sections. Chapter 12, Preservation Strategies, the fifth division and final chapter, presents guidelines for the preservation of Arizona's historic, vernacular dwellings. A glossary of terms follows the text.
1 Introduction
In this study the historic vernacular dwelling types encountered in the sampling serve as physical evidence (artifacts) of both the cultural diversity and the cultural interaction of Arizona's indigenous, Hispanic, and Euroamerican traditions. Authorities believe that the determinants of vernacular form are primarily socio-cultural and thus ethnically-related and secondarily environmental. This chapter will map regions in the state where Arizona's Native American, Hispanic, and Euroamerican builders are known to have settled and where concentrations of historic vernacular dwellings plus their hybrids exist or are likely to be discovered. It will also place the study communities within Arizona's physical regions to illuminate possible environmental factors, such as locally available construction materials, that influenced the builders of historic, vernacular dwellings.

2 Socio-cultural and Physical Determinants of Form
Amos Rapoport, the noteworthy, multidisciplinary analyst of vernacular architecture, has developed the basic hypothesis in *House, Form and Culture* that dwelling form is primarily the result of a complex range of socio-cultural factors which characterize a group of people. Form is modified but not determined by what Rapoport considers to be secondary forces such as the physical environment and methods of construction. To illustrate this hypothesis Rapoport has compared the very different dwelling forms of the Hopi and Navajo, tribal groups located in the same environmental, plateau region of the Four Corners area which includes northeastern Arizona. The conical- or domical- shaped, folk dwelling of the Navajo known as the hogon, which is detached and affiliated with a dispersed settlement pattern, contrasts dramatically with the Hopi pueblo (village), mesa-top dwelling, a modular, cubical unit integrated into a tight cluster of similar units, characteristic of a people accustomed to communal living. In spite of the same physical
environment, socio-cultural factors which relate to the difference in origin and world view of these two tribal groups account for the dramatic contrast in dwelling form (Rapoport in Oliver 1969: 66-79). (See Native American chapters 3, 4, and 5.)

3 Arizona's Socio-Cultural Regions

3.1 Arizona Within Regions

To determine regions of ethnic settlement within the political boundaries of Arizona it is useful first to consider how the state fits into more extensive cultural regions. Wilbur Zelinsky, editor of This Remarkable Continent, a social and cultural atlas of the United States and Canada, describes a region as "any portion of the earth's surface, large or small, that stands apart from others in terms of a given characteristic or set of characteristics." To him, depending upon the characteristics under consideration, "differences within the region...are less than those between it and other places outside the region" (Rooney, Zelinsky, and Louder 1982: 3). Arizona is a political entity, a state with boundaries bordered by California, Nevada, Utah, Colorado, New Mexico, and Mexico (Fig. 2.1). Arizona is also a component of a larger cultural region in the United States perceived by its inhabitants and other members of the population at large to be the Southwest (Fig. 2.2). The Southwest is believed to have some relatively uniform, cultural characteristics brought about by the operation of historical forces, one of which is the cultural interaction over a long time span between indigenous peoples and Hispanic and Euroamerican settlers from other areas. Within the Southwest region, there are zones of primary and secondary cultural uniformity. Arizona is also included within what anthropologists call the Southwest I and II Native American culture areas, both of which extend beyond the present-day boundaries of the state (Fig. 2.3). The Southwest I zone includes linguistically similar peoples, such as the Athabascan Apache and Navajo and the Uto-Aztecan Tohono O'odham and Pima. The Southwest II zone includes the Uto-Aztecan
Fig. 2.1 Location and Political Boundaries

Fig. 2.2 The Southwest
(Adapted from Rooney, Zelinsky & Louder 1982:18)

Fig. 2.3 Native American Culture Areas
(Adapted from Nabokov & Easton 1989:7)
Hopi as well as the Tanoan, Tiwa, Tewa Towa, Keresan, and Zuni Puebloans of today's New Mexico (Nabokov & Easton 1989: 6). As shall be discussed, Arizona can also be divided into physical regions which pertain to wider geological, climatic, and vegetative zones in the western and southwestern United States and Mexico.

3.2 Regions Within Arizona

Figure 2.4 shows the towns, cities, Native American Reservations, and other settlements which comprise the representative sampling for this study. As explained in the project methodology, the representative sampling does not include all communities, reservations, and settlements within the state. The accompanying map series shows settlement zones or regions in Arizona occupied by Native Americans, Hispanics, Euroamericans, and Mormons, a significant Euroamerican subgroup with characteristic settlement patterns and dwelling types (Figs. 2.5, 2.6, 2.7, and 2.8). Areas of overlapping influence illustrate zones of cultural interaction where hybridization is likely to occur. Subsequent chapters will further describe what has been introduced on these maps.

4 Arizona's Physical Regions

Arizona's physical environment is characterized by great diversity which is caused primarily by dramatic changes in altitude and accompanying differences in climate. Although authorities disagree on the boundaries, they have identified three definite physical regions in the state (Fig. 2.9). The first region, in the west and south, comprises the desert plains and mountains of Arizona's portion of the Basin and Range physiographic province which extends from southern Oregon and Idaho down to Mexico and eastward into New Mexico and West Texas. The second region, the Mountain Highlands, is a belt of mountains and slender valleys in the central portion of the state. To the north is the Colorado Plateau, part of a province which extends into Utah, Colorado, and New Mexico. Arizona's land mass slopes downward from east to west and drains into the
Fig. 2.4
Study Communities
(The Representative Sampling)
Fig. 2.5 Regions of Historic Native American Settlement (Sampling Reservations)

Fig. 2.6 Region of Historic Hispanic Settlement
Fig. 2.7 Region of Historic Euroamerican Settlement

Fig. 2.8 Region of Historic Mormon Settlement
Fig. 2.9 Arizona's Physical Provinces
(Composite adapted from Chronic 1983:XIV, Comeaux 1981:19; Cross, Shaw & Scheifele 1960:91)
Fig. 2.9 Arizona's Physical Provinces
(Composite adapted from Chronic 1983, XIV. Comeaux 1981:19; Cross, Shaw & Scheifele 1960:91)
Colorado River through its principal tributaries, the Little Colorado River to the north and the centrally-located Williams and Gila rivers. The Gila is fed by the Salt River which originates in the Mountain Highlands, and by southern Arizona's northward-flowing Santa Cruz and San Pedro rivers.

4.1 The Climate and Vegetation
Arizona has three basic climates, namely desert, steppe, and highlands, classified according to precipitation and temperature, which pertain loosely to the three physical regions and more specifically to temperature, precipitation, and altitude-related conditions within each province. Approximately thirty percent of the state has a desert climate, fifty three percent has a steppe climate, and seventeen percent has a highlands climate. Annual precipitation varies from about three inches in the warm deserts to more than thirty inches in the cool highlands. The warm steppes are arid although they receive more precipitation than deserts. The cold steppes, confined to Arizona's northeastern corner, have cold, dry, windy winters and warm summers. Arizona also has three general classes of vegetation which relate to variations in the climate (Fig. 2.10). These include forests, grasslands, and deserts. Forests occur where soil remains moist throughout the year and consist of several vegetation zones which, ranging from highest degree of precipitation to lowest, include ponderosa/subalpine, pinon/juniper, and chaparral/oak. Grasslands require less precipitation and comprise the shortgrass plains of the north and the desert grasslands of the southeast. Deserts are regions of sparse vegetation with low rainfall. Arizona has a northern desert region and a Sonoran desert region (Cross 1960: 78-83, 155).

4.2 The Basin and Range
Arizona's Basin and Range region is characterized by linear mountain ranges, from a few hundred to more than ten thousand feet above sea level, which arise abruptly from broad valleys or basins. Most of these mountains, which display a northwest-southeast trend,
Fig. 2.10 Vegetative Communities
(Composite adapted from Comeaux 1981: 43, 47, 51)
formed through faulting, the breaks and up thrusts through fault-lines of formerly flat rock beds, and many are capped with pediments or ledges. Alluvial valley floors, some of which are more than thirty miles wide, range in altitude from one hundred feet near Yuma to five thousand feet in the southeastern portion of the state (Comeaux 1981: 22-24).

The Basin and Range can be further subdivided into two districts, the Sonoran Desert and the Mexican Highlands, identifiable by climate, vegetation, and other physical features. The Sonoran Desert, which is extremely dry in the southwest, the location of Yuma and Ajo, gradually becomes a vegetation-rich semi-desert in the south-central region containing Phoenix and environs, Tucson, Florence, most of the land area of the Tohono O’odham Reservation, the San Xavier Reservation, and the Gila River Indian Community. Sonoran Desert vegetation includes cholla, prickly pear, ocotillo, paloverde, yucca, creosote bush, mesquite, and desert willow trees. The Mexican Highlands region differs from the Sonoran Desert in that it has a larger percentage of higher mountains, greater precipitation, and rich grasslands suitable for ranching. The vegetation cover on mountain slopes fits into altitude-related zones which include chaparral/oak woodlands, ponderosa pine, subalpine and alpine species (Comeaux 1981: 22-27, 48-55). In the heart of the grasslands ranch country lie the communities of Oracle, Willcox, Safford, and Benson. The area is also mineral-rich and contains the silver mining town of Tombstone and the copper mining-related towns of Bisbee and Douglas.

4.3 The Mountain Highlands

The Mountain Highlands, also known as the Central Highlands or Transition Zone, is a diagonal band which forms a transition between the Basin and Range and the Colorado Plateau. Due to geological uplift forces, the Highlands are on average higher than the desert or plateau to the south and north. The fault-created mountains are more tightly spaced than those of the Basin and Range but they continue the basic northwest-southeast
orientation of the desert ranges. In places, exposed Precambrian and Paleozoic sedimentary rocks lie in horizontal bands like those of the Colorado Plateau. In this region, erosion caused by tributaries of the Gila, Salt, and Williams rivers has created steep-sided mountains, deep canyons, and shallow valleys. The Mountain Highlands contain the major valleys of central Arizona such as Chino Valley, Verde Valley, Tonto Basin, San Carlos Basin, Safford Valley, and Duncan Basin (Chronic 1983: 138-142, Cross 1960: 92).

The Mountain Highlands receive more precipitation than the other regions of the state. Forested with large stands of ponderosa pine and Douglas fir in the higher elevations, there are also considerable areas of piñon/juniper and chaparral/oak timbering. The Mormon-founded community of Pine is located within the ponderosa belt of this region. The Mountain Highlands are mineral rich, especially with respect to copper, and contain the mining communities of Jerome, Globe, Miami, Clifton, and Morenci.

4.4 The Colorado Plateau

The Colorado Plateau, the northern region, comprises approximately one third of the state. Known for its incomparable and visually striking landscape, this province consists of flat-topped mesas and plateaus at elevations above five thousand feet which are cut by deep canyons of the Colorado River system, like the Grand Canyon, or surmounted by volcanic peaks, the highest of which are the San Francisco Mountains. In geological terms, the entire area is an uplift of Paleozoic and Mesozoic-age sedimentary rocks, most of which lie in nearly horizontal beds. Thin layers of Cenozoic sedimentary and volcanic rocks cap these beds. Most authorities consider the Mogollon Rim, a nearly vertical cliff of one thousand to two thousand feet in places, lying on a fault line, to be the southern boundary of the Colorado Plateau region. Portions of the Rim are obscured in areas like
the White Mountains to the east which formed through lava flows (Comeaux 1981: 12, 13, Cross 1960: 74, 75, 89).

The Colorado Plateau can be further subdivided into three districts which include the Grand Canyon zone, the Black Mesa, otherwise known as Navajo/Hopi Country or the Four Corners area, and the Mogollon Slope. The Grand Canyon zone includes the canyon which extends approximately two hundred miles from the mouth of the Little Colorado River westward to the Grand Wash Cliffs which overlook the Basin and Range region. This zone also includes the Strip, a series of terrace-like high plateaus north of the Grand Canyon, the largest and highest of which is the Kaibab plateau. The Strip, isolated from the rest of Arizona by the Colorado River, has historic ties to Utah and includes the Mormon-founded community of Fredonia. The Arizona portion of the Navajo Reservation and the Hopi Reservation within it, covers most of the Black Mesa region which has two major features, the downward sloping Black Mesa and the upwarped Defiance Plateau. Landforms include plateaus, mesas, and buttes, especially noteworthy being the First, Second, and Third Hopi Mesas with their volcanic necks, the erosional remnants of volcanic rock. The Mogollon Slope is the southernmost region of the Colorado Plateau. It is a volcanic plateau which includes two major mountain areas, the San Francisco Peaks and the White Mountains, which spill over onto the Rim. (Comeaux 1981: 13-15, 21, 22, Cross 1960: 90-92).

With respect to climate, the Colorado Plateau includes warm desert in the canyon bottoms along the Colorado River, a cold winter desert along the Little Colorado River and in the Strip, a large zone of cool steppes in the Black Mesa area, and a considerable belt of cool highland just north of the Rim. Vegetation relating to these climatic conditions includes a large area of Great Plains grassland in the Black Mesa steppes, important to Navajo and Hopi sheep raising. A belt of coniferous, ponderosa forest stretches from New Mexico to
Williams in the cool highland climate area of the Mogollon Slope. Part of the Fort Apache Reservation and the communities of Williams, Flagstaff, Pine, and Show Low are located within this ponderosa zone, an important source of construction timber. Forest grasslands provide excellent cattle forage which has fostered Apache and Euroamerican cattle ranching activities in this zone.

5 Arizona’s Physical Environment and Dwelling Form

The physical environment of Arizona influenced the builders of dwellings to a greater or lesser degree and it is important to examine this environment, not as a major determinant of form, but as a modifying factor. Environmental factors relating to these regions, such as locally available materials, undoubtedly modified Arizona’s early indigenous and preindustrial Hispanic folk dwellings. Less subject to the physical environment were the industrialized, popular vernacular forms of Euroamericans, especially after the arrival of the railroad and the importation of building components. However, Arizona’s historic Euroamerican dwellings also relate to the physical regions in the state by the incorporation of a great range of locally available materials, such as rubble stone, as well as structural components industrially fabricated from local sawmills, stone quarries, and brick kilns.
1 Introduction

This chapter provides an historic background for Arizona's Native American, vernacular dwellings. The Native American cultural tradition is that of the indigenous peoples who settled in the region prior to European contact and who later came under the influence of Spaniards, Mexicans, and Euroamericans, outsiders who migrated into the area. The tribal groups included in this study are the Hopi, Navajo, Apache, Tohono O'odham, and Akimel O'odham (Pima). Their reservations, established by the United States government beginning in 1859, are regions within Arizona's three, very different, physical provinces where some members of these groups dwell in concentrations and where, during the time frame of this study, they built their domestic architecture (Fig. 2.5). These reservations lie within the Southwest I and Southwest II areas of linguistic and cultural similarity (Fig. 2.3). The relatively intact, historic culture of these peoples was a folk culture, that of common people whose tradition passes from generation to generation, and it was influenced by the physical environment. Over time, cultural interaction, especially between Native Americans and Euroamericans, became an increasingly strong force. The Native American folk and blended culture gave rise to the folk and hybrid dwelling types described in chapter 4, Native American Settlement Patterns and Dwellings.

2 Ancient Tribes (15,000 years ago to 1,000 BC)

The ancestors of modern Native Americans came to the New World from Asia by way of the Bering Strait. When they first set foot in the Arizona region is uncertain although humans may have lived in this area for 12,000 to 15,000 years. The Upper Palaeolithic peoples were the first to live in this area. They were unspecialized hunters and food gatherers who made wide use of animal skins and lived in semi-subterranean dwellings. Around 10,000 BC humans were known to specialize in killing big game such as...
mammoths with stone projectile points. Evidence of a mammoth kill, found along Greenbush Creek near Naco, Arizona, indicates the presence of prehistoric big game hunters in the area. As climatic changes and hunting drove large animals to extinction, humans altered their means of subsistence to one of small-game hunting and plant gathering, evolving into a culture known as the Desert culture, or the Cochise people. Desert culture people, whose record spans at least eight thousand years, migrated but returned to the same sites year after year. Their material culture included such items as bone fish hooks, bone awls, antler-tip projectiles, and stone tools for preparing plant-based foods. The Desert culture began to end around 2000 BC to 1000 BC (although among some tribes it survived until the nineteenth century) with the changes which occurred through the introduction of maize-based agriculture (Comeaux 1981: 59-63, Haury in Weaver 1974: 10, 11).

Around 2,500 BC, a domesticated cereal grain, a primitive form of corn or maize, came to the Desert culture people from Mexico where it had been the primary staple for several millennia. This new food, to which beans and squash were added, had a revolutionary effect upon the way of life of peoples who adopted it by transforming them into planters and food producers. Maize allowed people in the Southwest to lead a sedentary, agricultural life which meant free time to develop religion, arts, crafts, and permanent architecture. The earlier, semi-nomadic tribal structure was replaced by more complex, hierarchical societies or civilizations, referred to as the Classic cultures (Comeaux 1981: 63,64, Haury in Weaver 1974:11).

3 The Classic Cultures (ca. AD 300 - ca. AD 1300)
The Anasazi (ancestors of the Hopi), the Mogollon (possible ancestors of the Zuni), and the Hohokam (ancestors of the Pima and Tohono O'Odham) comprised the major Classic cultures in the Arizona area (Fig. 3.1). Each culture was associated with one of the three
physical provinces of Arizona and each culture experienced special hardships within these zones, the most important of which was securing adequate water. The Classic cultures developed slowly growing maize, beans, and squash, in a harsh region of scarce resources. Since the land was generally not ideal for agriculture, the practice of which was critical to their survival, they continued to hunt and gather. This mix of agriculture, hunting, and gathering became the subsistence norm of these peoples. The three Classic cultures also interacted through trade, the adoption of each other's traits, and other forms of contact (Comeaux 1981: 64, Haury in Weaver 1974: 12). The Classic cultures declined swiftly, apparently owing in part to a major drought from AD 1276-1299 which fostered internal strife. Also, by this time the Athabascans, warlike ancestors of the Apache and the Navajo, had migrated into the Southwest and possibly contributed to the Classic culture decline.

3.1 The Anasazi

The Anasazi culture developed on the Colorado Plateau, an arid region comprising vast stretches without arable land or easily accessible water. Probably originating from local Desert culture peoples known as Basket Makers, the Anasazi perfected specialized skills with respect to water and soil utilization, to produce foodstuffs sufficient to support their communities. They developed a method of flood irrigation without canals, building dams in convenient spots with the three primary crops, maize, beans, and squash, planted in the

Fig. 3.1 Classic Cultures (adapted from Haury in Weaver 1974:8)
dry soil behind. The Anasazi also constructed terraces into hillsides or planted near springs. Although this was a precarious type of agriculture subject to such disasters as flood destruction, drought, and excessive silting, it undoubtedly allowed for surplus in good years. The ability to store surplus food provided stability so that the population could expand, specialize in the arts, and develop complex religious, social, and political systems. The Anasazi also adopted cultural traits from Mexico by way of the Mogollon. They domesticated turkeys, grew cotton for weaving, and developed pottery to a high degree. From simple beginnings the Anasazi developed into a complex, ancient pueblo culture, that is, associated with compact village clusters frequently several stories high. Villages were built in caves sheltered by canyon cliffs or in the open, wherever land and water permitted. The best-known pueblo ruins associated with the Anasazi are in the Four Corners area. These include Mesa Verde in Colorado, Pueblo Bonito in New Mexico, and Keet Seel in Arizona (Comeaux 1981: 65-70, Haury in Weaver 1974: 20).

3.2 The Mogollon

The Mogollon, a very stable culture, lived in the Mountain Highlands province and the Mexican Highlands zone of the Basin and Range province, primarily along the present New Mexico-Arizona border in randomly-scattered, spread-out villages situated on ridges above their cultivated fields. Probably originating from the Desert culture people, the Mogollon culture was the earliest of the higher cultures in the Southwest and was probably responsible for the transfer of ideas from Mexico to other regional groups. The Mogollon excelled at making pottery and cultivated the same triad of crops as the Anasazi. Their major farming technique was field flooding. The mountains provided better access to water and plentiful game, but arable land was limited in the forest environment. Like the Anasazi, their subsistence was based not only upon agriculture but a mix of hunting as well as wild food gathering (Comeaux 1981: 70,71, Haury in Weaver 1974: 18,19).
3.3 The Hohokam

The Hohokam civilization lived in wall-encircled villages in south-central Arizona, part of the Basin and Range province. The Hohokam occupied the Sonoran desert and semi-desert portion along the Salt and Gila rivers. This highly-developed culture may have evolved out of the Desert culture but also may have pertained to a northward movement of people living in Mexico. The Hohokam actually may have been a blend of the two cultures. Master farmers, the Hohokam adopted many cultural traits from Mexico such as their elaborate irrigation system and the construction of ball courts and small, stepped pyramids. The most impressive accomplishment of the Hohokam was their vast network of irrigation canals which allowed the flourishing civilization to expand into the Salt River Valley and along the lower Verde Valley, granting some freedom of choice in village siting. The canals were constructed by human hand without the aid of wheels, metal tools, or draft animals. Very large, the canals were up to fifteen feet deep, ten to fifty feet wide, and up to thirty miles long. The magnitude of the Hohokam canal projects suggests a well-organized, controlled, and stratified society for centralization of authority was necessary to manage labor and water distribution (Comeaux 1981: 71-76, Haury in Weaver 1974: 12,13).

4 General Characteristics of Native Americans in the Arizona Region (AD 1700-1859)

Prior to 1859, when the reservation enclavement of Arizona's Native Americans began, the major agricultural groups and descendants of the Classic cultures were the Hopi in northern Arizona and the Tohono and Akimel O'odham (Pima) in southern Arizona. (The culture of the eastern Puebloans, which may have also been influenced by the Anasazi, was centered along the Rio Grande in New Mexico.) Many of the indigenous groups in the Arizona area, which did not have the high level of civilization of the former Classic cultures, still lived in the Desert culture stage. Around AD 1100 (though scholars disagree about that date) the ancestors of the Navajo and the Apache began to arrive in
the Southwest. Also hunters and gatherers, these people were Athabascans, whose origins were northwestern Canada and central Alaska. They migrated southward across the Great Plains and along the eastern foothills of the Rocky Mountains, developing their characteristic Navajo and Apache cultures when they settled in the Southwest. Frequently there was conflict between the invading Athabascan speakers and the earlier agricultural cultures (Comeaux 1981: 76-80).

The Native American tribal groups selected for this sampling, the Hopi, Navajo, Apache, Tohono O'odham, and Pima, differed in their way of life but they had certain economic and political traits in common. To a greater or lesser degree, they had a common practice of agriculture which ranged from the barest supplement to hunting and gathering to a much more extensive level. They recognized no private ownership of land which was revered and utilized communally. Individual communities within the tribes were economically and politically independent of each other. Although they traded among themselves there was no market system and while tribal groups of the same dialect might band together temporarily for warfare, no community maintained military or administrative control over another (Spicer 1962: 8). In spite of these features in common, Arizona's Native American tribes had linguistic differences. The two major language divisions in the Arizona area were Uto-Aztecan and Athabascan. The Hopi, Tohono O'odham, and Pima all spoke different, related languages of the Uto-Aztecan stock which was made up of Indian languages spoken from southern Mexico to the borders of Montana and Wyoming (Kelly 1963: 1). Within each tribe there were also different dialect groups. The Navajo and Apache pertained to the Athabascan stock of Native American languages spoken from the Arctic down the northwestern Canadian coast into California and the Southwest I culture area of present-day Arizona.
These indigenous peoples also differed with respect to their economies. The Native Americans in the sampling fit into three economic categories defined by Edward Spicer, anthropologist and author of *Cycles of Conquest*, to be (1) rancheria peoples, (2) village peoples, and (3) band peoples. The dominant cultures of the Sonoran Desert region were rancheria peoples, the Tohono O'odham (Papago) and Akimel O'odham (Pima), for whom farming was a major activity. They lived to a greater or lesser degree in dispersed rancherias, groupings of kin-related household complexes which were generally separated from other groupings. Unlike the ranchería peoples, the Hopi in northeastern Arizona and Puebloans along the Rio Grande, were village peoples who lived in very compact settlements or pueblos. Their economy was intensive irrigated and dry farm agriculture. Band peoples, like the Navajo and Apache, were nomadic peoples who did not have fixed settlement locations although they tended to associate themselves with general areas in which they ranged. With the exception of the Chiricahua Apache, who did not practice agriculture, Arizona's band peoples farmed at a minor subsistence level (Spicer 1962: 12-14). The introduction of the horse transformed the band peoples into skillful marauders and raiding became an economic mainstay for them.

4.1 The Ranchería Peoples: The Tohono and Akimel O'odham

Today the terms Pima and Tohono O'odham (Papago) connote ethnic differences associated with distinct, politically-established reservations, however these differences are artificial for historically both groups were part of a larger "Pima nation." Although scholars disagree, there is some consensus that there was a genetic or cultural connection between the Pima and earlier, more socially advanced Hohokam peoples in the Gila and Salt river valleys. The O'odham were self-sufficient, desert-dwelling, rancheria cultures concentrated in the Sonoran Desert portion of the Basin and Range province. Each settlement had a civil leader and one or more shamans, practitioners believed to have curative, weather-control, or war-prevention powers. The basic unit of O'odham social
organization was the patrilineal extended family which in earlier times was affiliated with a clan, an affiliation later difficult to trace in O'odham society (Ezell in Sturtevant, Vol. 10 1983: 149, 151).

There were three types of ranchería society classified according to subsistence and settlement patterns, with social complexity increasing toward the east where there was increased rainfall and surface water. These were the (1) western, centrally-based nomads, the Sand Papago, living between the Gila Mountains and the Ajo Mountains, an area of less than five inches of annual rainfall; (2) the central farmers, (ancestors of today's Tohono O'odham), who practiced winter-summer migration (transhumance) between the Ajo Mountains and the Baboquivari Mountains in an area of between five to ten inches of annual rainfall and; (3) the eastern, riverine, sedentary Pima, ancestors of today's Gila River Pima, called "Sobaipuris" by the Spaniards, living in an area of ten to fifteen inches of rainfall annually between the Baboquivari Mountains and the San Pedro River valley. Living in one of North America's hottest climates, the less sedentary O'odham were forced to "follow the water," and practice a seasonal migration pattern. Family groups spent July and August in so-called field villages, taking advantage of the brief monsoon season to plant beans, cotton, and corn. After the harvest, they wintered at "well villages" near

4.2 The Village Peoples: The Hopi

Before AD 1150 the Hopi began to settle in pueblos on mesas that stem southward from the Black Mesa in the Colorado Plateau province of northeastern Arizona. Here they subsisted upon the classic mix of agriculture, hunting, and gathering. The origin of their ancestors appears to be uncertain but according to Hopi migration myths, Classic culture immigrants may have entered the area from prehistoric settlements to the south, southwest, or the north. Also around 1300, following the desertion of many ancient pueblos coinciding with increasing pressure from the Navajo, late Classic culture survivors may have fled to the Hopi area (Rapoport in Oliver 1969: 67). The earliest settlement was Shongopovi (before 1150) on the Second Mesa, followed by Oraibi (1150) on the Third Mesa. Mishongnovi, on the Second Mesa was settled around 1200. Walpi took position on the First Mesa in 1417. The other Hopi Pueblos were founded after contact with the Spaniards (1629) and later (Scully 1975: 303-305).

There are twelve Hopi pueblos today in which a complex, clan-organized society still thrives (Fig 3.3). The matrilineal clan, under the leadership of a female head and her brother, was, and is, the most basic principle of Hopi social organization, pervading all aspects of civic and religious life. The two most important functions of the Hopi clan have
been its ownership of land and its stewardship of religious ceremonies and sodalities, ceremonial brotherhoods.

4.3 The Band Peoples

4.3.1 The Navajo

The primary ancestors of today's Navajo (Dine) were Athabascan-speakers who migrated southward from western Canada. Though little is known of the early culture, the proto-

Navajo probably subsisted by hunting, fishing, and gathering. The earliest identifiable area of settlement is known as Dinétah ("Navajo Country") in northwestern New Mexico and the San Juan area of adjacent Colorado. The Navajo gradually spread to the Rio Grande area where they came in close contact with Puebloans who had been influenced by Spaniards. The Navajo apparently acquired the use of the horse, the traits of goat and sheep herding, weaving with wool, additional food plants and techniques of cultivation, pottery-making methods, the use of stone masonry, matrilineal clans, and complex ceremonialism from this exchange. A combined farming-gathering-hunting strategy encouraged rapid population growth and the establishment of flood farms in the lower-elevation areas. Around 1629, the Spaniards began applying the term Navahnu, Tewa Puebloan for "valley fields" or "to take from the fields" to this group of Athabascans who lived in the proximity of the Rio Grande pueblos. The Navajo's
existence at that time was more or less sedentary, based upon farming with seasonal moves to hunting and gathering areas (Jett in Noble 1992: 3, 4, 331).

Between 1716 and 1720, Utes and Comanches raided the Dinétah driving the Navajo from the San Juan valley into areas to the west and southwest. With their sheep, goats, and horses, the Dine spread into the Colorado Plateau region of northeastern Arizona and southern Utah (Fig. 3.4). Continuing pressure from the Utes and hostilities with the Spaniards caused the Navajo to retain a seminomadic, defensively mobile lifestyle in which gathering, hunting, and the raising of mobile livestock was favored over farming (Comeaux 1981: 170, Jett in Noble 1992: 332).

4.3.2 The Apache

After their arrival in the Southwest, Athabascan speakers divided into groups. The Apache split into six distinct groups scattered between either Arizona and the Great Plains or present-day Texas and New Mexico. Those who established themselves to the east along the Texas/New Mexico border, like the Mescalero and Jicarilla groups, were buffalo hunters. The two important groups in Arizona were the Western Apache, who practiced minimal subsistence farming, centered around the White Mountains and westward in the Mountain Highlands province, and the Chiricahua Apache in southwestern New Mexico and southeastern Arizona in the Mexican Highlands zone of the Basin and Range province (Fig. 3.4). Each of these groups subdivided into smaller, totally independent bands. The basic social unit of the Apache was the compact, traveling band under the leadership of a single headman. Apache society was also matrilineal with female-based kinship ties. The Apache existed from hunting and more important, raiding, which they learned from the Native Americans of the Great Plains after the acquisition of the horse (a Spanish-introduced trait). The Apache were much feared as skilled warriors and marauders (Comeaux 1981: 172, Nabokov & Easton 1989: 338).
5 Cultural Interaction: Contact with the Spaniards and Mexicans: 1539-1854

5.1 The Spanish Program

The first Europeans to explore the region of New Mexico and northern Arizona were Spaniards. Though their arrival in New Mexico dates to the mid-sixteenth century and they interacted with the Hopi after 1629, it was after 1700 when the Spaniards instituted the mission system in southern Arizona that the greatest degree of cultural exchange occurred. According to Spicer, the Spaniards' intent or "program" was to "civilize" the New World's indigenous peoples whom they considered to be barbarians. Through military coercion, persuasion, and demonstration, native peoples were to accept Spanish regal authority, law, language, and Roman Catholicism, to follow a sedentary village life, and to practice "civilized decencies." The Spaniards also expected native peoples to work, both as a moral discipline, and to support the colonial enterprise. The eventual goal of the program was to produce loyal Spanish citizens after a very gradual, transitional period of acculturation. The mission community served as a primary instrument of acculturation. A typical mission community was a group of three or more Native American villages transformed through (1) reducción, resettlement into concentrated groups, (2) food improvement (through the introduction of livestock and crops such as wheat and fruit trees), (3) craft production, and (4) church-based community organization under the authority of a missionary (Spicer 1962: 281-283, 292). In the southern Arizona region, Spaniards established several missions such as Guevavi, Tumacácori, and San Xavier del Bac to acculturate native peoples and to foster Hispanic colonization. (See Hispanic Settlement.)

While the process of acculturation had considerable impact in the more densely populated heartland of today's Mexico, the Spaniards were only able to influence a limited number of desert-dwelling O'odham peoples in their zone of their contact in today's southern...
Arizona. Unable to influence directly the nomadic western and migratory central bands of O'odham, the Spaniards instead focused upon the sedentary, agricultural tribes of "Sobaipuris" and other Pima cultures settled near the missions and visitas, sub-missions without resident priests. Influenced by the acculturated Pima, and later by the Sonoran O'odham peoples fleeing north after the Mexican independence of 1821, most Pima eventually adopted a form of Christianity, a blend of traditional beliefs with Roman Catholicism. Directly or indirectly they adopted the new plants, especially wheat, and livestock (cattle and horses) that the Spaniards had introduced (Comeaux 1981: 189, Kelly 1963: 7,8).

The Spaniards had very little direct success with the band peoples although indirectly their influence was transformative. The Apache had been transformed into marauders by the Spanish-introduced horse which enabled them to secure Spanish-introduced livestock and produce from raiding. Convinced that the warlike Apache could never be civilized, Spaniards resorted to bribery and corruption to subdue some Apache groups in peace camps. The Spaniards influenced the Navajo (to whom they also introduced the art of silversmithing) primarily through Puebloan contact in the Rio Grande area. The Navajo became subsistence shepherders as well as horseback-mounted raiders.

The very early attempts of the Spaniards to establish missions in 1629 among the western Puebloans, the Hopi, related to their campaign to dominate and Christianize the Rio Grande Puebloans. Puebloans in their compact communities proved resistant to acculturation and the Spaniards frequently resorted to coercion in the form of forced labor and execution. Reacting to this oppression, all Puebloans, including the Hopi, united to stage a successful uprising in 1680 forcing the Spaniards to depart the region for a decade. After the rebellion, a reshuffling of pueblo sites took place. Perhaps fearing Spanish retaliation, the Hopis relocated Walpi, Shongopovi, and Mishongnovi to the mesa peaks.
Shipaulovi, on the Second Mesa was founded after 1680 as was Hano on the First Mesa which was settled by fugitives from the Spaniards from the New Mexico pueblo area. Later Hopi Sichomovi filled the space between Hano and Walpi. In spite of their eventual return to the Rio Grande area and their later intrenchment in southern Arizona, Spaniards were never able to exert appreciable influence upon the Hopi.

5.2 The Mexican Program (1821-1854)

The Mexican program was based upon the liberal ideology of an independence movement which culminated in Spain's loss of its colonial empire in 1821. (See Hispanic Settlement.) According to Spicer, during Mexico's chaotic fifty year rule, when such "civilizing" institutions as missions were allowed to decay, Mexican leaders adopted measures intended to solve adjustment problems of the native peoples which eventually created a serious threat to the national unity. Native peoples were granted full Mexican citizenship without a special "Indian" status, were expected to integrate politically into the state by setting up their own municipal governments, and were to receive privately-owned parcels of land equitably distributed for the support of families. Excesses of land beyond individual needs, much of which had been assigned to native peoples under the mission system, were to become state property. Many native peoples, however, wishing to maintain tribal separatism and follow their communal land occupancy patterns, did not desire citizenship privileges, and perceived these policies to be a form of oppression intended to divest them of most of their land. Serious uprisings occurred especially among the Yaqui and Mayo in the region of present-day Sonora. Mexicans reacted with military force and by colonization steadily forcing native peoples off their lands and into Mexican towns and haciendas (landed properties) as laborers (Spicer 1962: 334-340). These pressures caused many O'odham peoples to flee north into the region of present-day southern Arizona where the collapse of the missions and presidios (garrisons) plus the
steadily increasing hostility of the Apache caused many Pima to abandon their mission lands.

6 Cultural Interaction: Contact with the Euroamericans (1854+)

6.1 The Euroamerican Program

In spite of nearly two centuries of Spanish and Mexican influence on Arizona's Native Americans, modern Native American life relates most strongly to the period of Euromerican contact. As a result of the 1848 Treaty of Guadalupe Hidalgo, which officially ended the war between the United States and Mexico, and the Gadsden Purchase of 1854, the territory now including present-day Arizona became part of the United States. All indigenous peoples became subject to policies, laws, and regulations formulated in Washington D.C. Like the Spaniards, Euroamericans considered most Native Americans, with the exception of sedentary, agricultural peoples such as the Gila River Pima, to be warlike barbarians in need of "civilizing" influences. According to Spicer the Euroamericans at first had no clear civilizing mission with respect to Native Americans. The goal of Spain's primarily religious focus and Mexico's political one was to integrate native peoples as fully-participating citizens into the larger Hispanic sphere. In contrast, the Euroamerican intention was not to create United States citizens but to segregate Native Americans through enclavement on reservations (largely non-existent during the Hispanic era), zones where, under the paternalistic care of an Indian Bureau agent (a "superintendency"), cultural transformation, most significantly through economic improvement, could occur. Economic improvement involved the digging of wells, the expansion of irrigated farming as a means of livelihood, livestock husbandry especially with respect to sheep and cattle raising, and the production of crafts. Trading posts sprang up and the trader (usually Euromerican) played an important role in interpreting for the Native Americans the way of life now surrounding them. Euroamericans also hoped
to force change through compulsory, off-reservation, boarding-school education and the suppression of Native American religious ceremonies through Protestant and Catholic missionary activities, but there was no attempt to encourage Native Americans to participate in government, a practice which did not occur until the 1930s. The reservation, crystallized into a social institution by the 1890s in the Southwest, significantly altered native forms of local group organization and in many cases, the native way of life. Especially disruptive was the confinement imposed on the nomadic, raiding Apache and the destruction of the former organization of Gila River Pima rancheria villages.

For native peoples, the two important instruments of cultural interaction were (1) the agency town, and (2) the Euroamerican town. The agency town was a distinct type of community which was a focal point of Native American contact with Indian Bureau officials, other Euroamerican employees, and traders. The agency town housed the Indian Bureau superintendent, a member of an organized government hierarchy, who facilitated technical assistance, secured pupils for compulsory education, and protected native peoples from encroaching Euroamerican settlers. Native American employees, likely to have relocated nearby, also participated in this type of contact community. Trader's stores, hospitals, schools, and various mission churches were characteristic of agency towns. Typical agency towns in Arizona were Sells on the Tohono O'odham Reservation, Sacaton on the Gila River Reservation, San Carlos, Fort Apache, and White River on the Apache reservations, Keams Canyon on the Hopi Reservation, and Fort Defiance, Shiprock, and Window Rock on the Navajo Reservation. After the turn of the century, an increasing number of Native Americans, adopting the trappings of Euroamerican life, lived and worked in a number of Arizona's Euroamerican communities such as Tucson and Phoenix. Although off-reservation life could be permanent it was commonly temporary.
with Native Americans regarding the reservation as their true home (Spicer 1962: 353-358).

6.2 Arizona's Native American Reservations

During the era of the great "Indian Removal," thousands of native peoples living in the eastern United States had been forced by Euroamerican settlement pressure to relocate west of the Mississippi River. During this time, Euroamericans began to develop a policy of "peace through isolation," the enclavement of "dependent domestic nations" on reservations. In an 1823 Supreme Court decision, the government had been granted the right to set aside lands from the public domain for the benefit of particular groups of Native Americans, removing from the latter any claims to title of the land. The United States, adopting English policy, considered native peoples to be foreign powers with whom treaties for coexistence were to be made but who were not entitled to land ownership. By 1850, when present-day Arizona was included in the Territory of New Mexico, the concept and the institution of the reservation was still being worked out. (Fontana in Weaver 1974: 35, Spicer 1962: 344,345). Not long after Euroamericans arrived in the Arizona region, they began to establish reservations by treaty, act of Congress, or presidential Executive Order. Resistant Native Americans, most notably the band peoples, the Navajo and Apache, had to be subdued by military force before enclavement could succeed. Boundaries as they exist today for the Pima (the Gila River Indian Community), the Tohono O'odham (the Tohono O'odham and San Xavier Reservations), the Hopi (the Hopi Reservation), the Apache (the Fort Apache and San Carlos Apache reservations), and the Navajo (the Navajo Reservation) developed gradually through numerous modifications (Walker & Bufkin 1979: 42).
6.2.1 The Tohono O'odham and the Pima Reservations

The traditional land of the Gila Pima was an extensively cultivated zone centrally located along the Gila River. An act of Congress in 1859 established Arizona's first reservation, an area not to exceed one hundred square miles, which was for the Pima and Maricopa peoples along the Gila River. In 1869, an additional 81,000 acres increased the reservation to 145,000 acres. This reservation was extended in 1882 and 1883, and the boundaries altered again between 1911 and 1915 (Walker & Bufkin 1979: 43, 44, 45). The lands of the Tohono O'odham were among those south of the Gila River which were added to the United States by the Gadsden Purchase. For a considerable period of time these vast, underpopulated desert areas west of Tucson were considered available for Euroamerican settlement, especially by ranchers. The exception to this was the compact settlement of Tohono O'odham around the San Xavier Misión for whom a reservation was established in 1874 by Executive Order. Approximately 71,000 acres of land near the Santa Cruz River were included for this reservation. A second reservation was established at Gila Bend in 1882. The present Tohono O'odham Reservation (former Papago Reservation), established in 1911, is the second largest reservation in the United States consisting of 2,774,500 acres which also evolved through a series of Executive Orders and Congressional acts (Kelly 1963: 9-11).
NAVAJO 6.2.2 The Hopi Reservation

The three thousand square mile Hopi Reservation was established in 1882 and included the Hopi mesa-top villages established prior to 1150. The Executive Order which created this reservation stated that it was intended not just for the Hopi but other Indians at the discretion of the Secretary of the Interior. The result of that order was a bitter dispute over land use between the Hopi and Navajo, a dispute which has continued up to the present time. In 1958, Land Management District No. 6 was set up for Hopi exclusive use, while the remainder of the Hopi Reservation was designated as a "joint use" land. After the establishment of the reservation, when fortification was no longer necessary, other Hopi settlements developed below the mesa tops. In the late nineteenth century, Moenkopi was replanted below Tuba City. Oraibi began to split into factions, and suburbanized New Oraibi grew beneath it. Hotevilla and Bacavi were founded by "hostile" exiles from Oraibi in the early twentieth century (Scully 1975: 303-306, Walker & Bufkin 1979: 44).

6.2.3 The Navajo Reservation

The Navajo of northeastern Arizona, militarily defeated in 1864, were deported for four years to an unhealthy reservation, the Bosque Redondo on the Pecos River in New Mexico. Though this reservation experiment was a failure, significant cultural contact occurred and the Navajo acquired knowledge of many Euromerican tools and techniques at that time (Jett in Noble: 333). In 1868 the Navajo were allowed by treaty to return to a reservation in northwestern New
Mexico and northeastern Arizona, part of their traditional Colorado Plateau homeland. Over the years, the Navajo Reservation grew in size, in Arizona eventually encircling the lands that, in 1882, had been reserved for the Hopi. The reservation today lies primarily in northeastern Arizona, northwestern New Mexico, and southeastern Utah and has grown to encompass approximately 25,000 square miles, the largest geographical area of single-tribe occupancy in the United States (Jett & Spencer 1981: xv, Walker & Bufkin 1979: 44).

6.2.4 The Apache Reservations

In 1870 the War Department recommended the establishment of the White Mountain Reservation for the Apache in the Mountain Highlands physical province, in addition to earlier temporary reservations set up near military camps, such as Camp Grant. In the early 1870s, the Army also established a reservation for the Chiricahua Apache in the southeast corner, the Mexican Highlands zone, of the state. In 1872 upon recommendation of a member of the Board of Indian Peace Commissioners, Vincent Colyer, the San Carlos division of the White Mountain Reservation was implemented, increasing the size of the earlier reservation boundaries and incorporating two agencies under the names of Fort Apache and San Carlos. At this time other Apache reservations such as Camp Grant and Chiricahua were abolished. The policy during the mid-1870s was to concentrate Apaches, including Chiricahuas, and other tribal groups such as Yavapais, on the administratively-divided White Mountain Reservation, regardless of the fact that by tradition, hostilities existed between many of the bands. Over the years the White Mountain Reservation, which included the San Carlos division, was reduced in size owing to Euroamerican farming and mining pressures. In 1896, the White Mountain Reservation was formally
divided into two reservations. The northern half is known today as the Ft. Apache Reservation and the remainder, the San Carlos Reservation (Walker & Bufkin 1979: 42, 43, 44).

7 Arizona's Native Americans in the Twentieth Century

The federal government controlled the lives of the Native Americans until the middle 1930s, when changes fostering Native American self-initiative occurred under the influence of John Collier, Commissioner of Indian Affairs. Part of his program was implemented in the Indian Reorganization Act which contained provisions for the protection of land holdings, Native American control of resources, the establishment of tribal self-government, federally-chartered tribal business corporations, and a loan fund for economic development. Though Indian Reorganization Act was meant to solve Native American social and economic problems through self-initiative, government funding was inadequate for the training and resource development necessary to implement the program. World War II was the second important event in the recent history of Arizona's Native American population. Military service and employment in war industries exposed young Native Americans to the opportunities that existed off the reservation in the industrialized society of the Euroamerican majority. However, after the war, many Native Americans returned home jobless and prompted the introduction of welfare programs into their villages (Kelly 1963: 13, 14).

Today the Pima occupy three reservations: the Gila River Indian Community, the Salt River Reservation, and the Ak-Chin Reservation, a joint Pima/Tohono O'odham farm. The Pima, true agriculturists by tradition, were cultivating Spanish-introduced wheat as well as their native crops by the time the Euroamericans reached the area. Encroachment by Euroamerican farmers, however, especially in the form of damming, restricted the dependable flow of water in the Gila River and seriously threatened Pima agriculture. To
remedy this situation, Congress authorized the building of the Coolidge Dam which supplies water to irrigate some of the cultivated acreage on the reservation. The Tohono O'odham are on three reservations, the San Xavier, Gila Bend, and Tohono O'odham reservations. The San Xavier Reservation has been characterized as a "Native American suburb" owing to the high level of acculturation and the fact that many of its residents work in nearby Tucson. The Gila Bend Reservation, owing to a U.S. Army Corps of Engineers flowage easement on ninety percent of the land, has no permanent structures, little agriculture, and no industry (Comeaux 1981:188). On the Tohono O'odham Reservation, tribal members engage in some farming, cattle ranching, and off-reservation wage work on farms and ranches. The Tohono O'odham are skilled basket weavers and are involved in the handcraft production industry.

The Hopi, the most resistant to acculturation of all tribes, still practice their traditional religion and many prefer to live in traditional dwellings, though this is rapidly changing Especially among the young. The Hopi still pursue agriculture and have about 12,000 acres under cultivation with all the traditional crops, such as corn, beans, melons, squash, and pumpkins remaining important. Introduced field crops such as wheat and watermelon are also important. Some fields are watered beneath springs and others by flood irrigation but there has also been adoption in this century of modern well method irrigation. The Hopi have also increased their herds of sheep and cattle. Silversmithing is the most important handcraft. The strife with the more numerous and more politically powerful Navajo over the joint-use land continues (Comeaux 1981: 178-179).

Reservation life put Navajos and traders into contact, fostering the Navajo handcrafts industry including silversmithing and woven wool rug production. Reservation-induced improvements also transformed the Navajo from subsistence pastoralists, a trait adopted from the Puebloan/Spanish contact, into commercial sheep raisers participating in the
larger United States economy. The flourishing sheep-raising industry declined drastically in the 1930s and 1940s owing to government-mandated stock reduction aimed at conserving range damaged by overgrazing. Stock reduction forced many Navajo to seek wage work as compensation. Many Navajo continue to live by low-income, traditional means, a mixture of subsistence pastoralism and agriculture, which frequently includes a pattern of transhumance or seasonal residence based upon the demands of sheep herding and agriculture. Many are also on welfare and there is an increasing gap between educated, relatively highly acculturated Navajos, and traditionalists who lack formal education (Jett 1981: 7).

The Apache, when confined to reservations, took up cattle ranching. Today the land supports a 15,000-head tribal herd of primarily Hereford cattle. The Apache tightly control the number of cattle to prevent overgrazing and have an organized system of livestock cooperative associations managing grazing land at both high and low elevations. The 800,000-acre forest of ponderosa pine, spruce, and fir supplies lumber for the Fort Apache Timber Company, an important source of tribal employment and revenue. Tourism and recreation is the third significant industry with respect to the sale of hunting, fishing, and camping permits, the leasing of cabins as well as operating the ski facility at Sunrise Park (Comeaux 1981: 173,174, Tiller 1996: 202, 203).
1 Introduction

According to Virginia and Lee McAlester "the most truly American folk houses are those that were built by the native inhabitants before Europeans discovered and occupied the North American continent." The O'odham, Hopi, Navajo, and Apache were regional, folk cultures in which religion, symbolism, and mythology were closely linked. Nature was revered and there were close ties between group members and the physical environment. Settlement patterns varied from temporary residence in nomad camps to permanent residence in compact villages. Dwelling types, persistent forms passed from generation to generation, were in sympathy with the world view of the group. These dwellings were the result of the early building process, that of self-contained societies in which few individual variations were produced from memory by any average member of the group. The structures were hand-made, built from locally-available materials from the physical provinces where the tribes dwelled. With the exception of the Hopi pueblo dwellings of sandstone, many of these early folk dwellings, built of characteristic structural systems from impermanent materials, no longer exist. In this study, the inclusion of the earliest Native American vernacular dwellings which pertain to the O'odham, Hopi, Navajo, and Apache, is to illustrate the folk portion of the vernacular spectrum, the result of the early building process. This study, enhanced by site visits to the Gila River Indian Community and the Tohono O'odham Reservation, is weighted towards the O'odham culture and dwellings.

Much of Arizona's Native American historic, domestic vernacular in existence today is hybrid, reflecting cultural interaction with the Euroamericans. The Navajo dwelling known as the *hogan*, though very much in use at present, has undergone dramatic changes in function and construction technology. The O'odham "Pima sandwich" construction
technique, applied to traditional and non-traditional dwelling types, is a modification of an earlier indigenous frame and walling technique which substitutes industrialized vernacular materials for the natural ones formerly used. The O'odham use of adobe technology, an Hispanic trait adopted by Euroamericans, continues today. The Hopi village of Bacavi, built in 1908-1909 and not typical of the earlier pueblo complexes, contains one-story, contiguous-walled rowhouses which utilize building components supplied by the Indian Bureau.

2 Native American Settlement Patterns

2.1 Settlements of the Classic Cultures

2.1.1 Anasazi Settlements

The Anasazi culture evolved from early Desert culture peoples known as the Basket Makers who occupied caves in the Four Corners area around 200 BC. Around AD 300, the time when archaeologists identify them as early Anasazi, these peoples began to live in villages composed of one- or two- family, detached, circular pit houses, which were semisubterranean, earth dwelling chambers, usually accompanied by a few storage pits. Over time these spaces became more specialized. Gradually the Anasazi moved from the pit-house-village stage into above-ground, "unit pueblos." (The term "pueblo" is Spanish for "town" and refers to ancient or modern, cliff-side, mesa-top, or plains-located communal villages built by Native Americans of the Southwest or to the tribal groups which occupy these villages [Rapoport in Oliver 1969: 66].) The unit pueblos of the early Anasazi had surface houseblocks composed of rectangular rooms with shared walls and specialized religious rooms above or below ground level. From this point, the Anasazi gradually developed the skills to construct monumental houseblocks, specialized food preparation and storage chambers, separate kivas (socio/ceremonial chambers), ceremonial
plazas, road networks, and water controls which characterized their elaborate stone-and-adobe city-states of the Classic period, from AD 1100 to 1300. Archaeologists associate the Classic-era proliferation of the kiva, generally round in configuration, with the possible emergence of a clan form of social organization. The kiva served as a meeting chamber for a larger kin group which occupied adjacent rooms in the pueblo (Nabokov & Easton 1989: 352, 357).

Skillfully constructed of locally-available sandstone, timber, and other materials, the forms of the Anasazi pueblos, in ruins today, were harmonious with their high desert environment. Pueblos appeared to extend naturally from cliffs, pinnacles, and canyon walls of the Colorado Plateau province. Mesa Verde in southwestern Colorado and Chaco Canyon in northwestern New Mexico were major centers of organization linked to smaller, outlying pueblos. Some pueblos were quite large, such as Pueblo Bonito in northwest New Mexico which covered more than three acres and at its peak probably accommodated more than 1,000 people. The fully-developed Anasazi village form was very compact, frequently several stories high, with houseblocks laid out on the site in different configurations such as L, D, or U. All openings faced the interior of the complex. An overall generic settlement pattern emerged with an exterior space to the front of a row of multipurpose habitation and storage rooms. Special ritual or communal chambers were located in the front of the row while storage rooms were located at the "back" (Saile 1989: 49-55).

During the period of decline in the late thirteenth century in which all the Classic cultures experienced chaos, migration, and reconsolidation, Anasazi survivors, perhaps traveling as intact clans, settled in the upper Rio Grande basin as well as around the Black Mesa area of northeastern Arizona, coalescing as the incipient Hopi. Hastily constructed villages of this transitional period were not of the construction standard of the Anasazi culture during
its fluorescence. Kin Tiel, a transitional period village near present-day Holbrook, Arizona, was apparently built around 1275. Kin Tiel's houseblocks were split into two sections, very much like present-day Taos Pueblo. The pueblo also featured square rather than round kivas, similar to the rectangular kiva form adopted by the Hopi (Nabokov & Easton 1989: 364).

2.1.2 Mogollon Settlements

Dating from shortly before 300 BC Mogollon settlements were located generally on defensible mesa ridges above cultivated land where this society raised corn, beans, and squash, in the region of the rugged plateau and mountains of central Arizona and southwestern New Mexico. Unlike that of the Anasazi, the Mogollon village form consisted of randomly scattered, detached, single-family habitations. Containing from five to fifty semisubterranean dwellings or pit houses, Mogollon settlements were strengthened on the exposed side by masonry walls. Special sunken or completely subterranean ceremonial structures were located in the midst of the settlement or on its periphery. Villages grew larger and by AD 800, some were constructed on the level lowlands. Very large rectangular kivas, Great Kivas, sometimes forty feet long, were built in these valleys to accommodate larger communities. After AD 1000 cultural interaction with the Anasazi influenced the Mogollon to construct pueblo-form communities. The Mogollon settlement, Grasshopper Ruin, was a five-hundred-room, two-story, mortared-cobblestone, apartment cluster facing a central plaza. Mogollon villages were completely deserted by 1450 and their survivors may have been among those who founded Hawikuh, a Zuni pueblo (Comeaux 1981:70,71, Nabokov & Easton 1989: 353).

2.1.3 Hohokam Settlements

By about 300 BC, when the Hohokam archaeological record begins, the culture demonstrated strong evidence of Mesoamerican influence including a knowledge of canal
irrigation agriculture, techniques for building massive earthen walls, and rituals that required flat-topped pyramidal structures. Ovoid-shaped ball courts for playing games, were introduced later. Each Hohokam village was encircled by a mud wall, and the individual houses were scattered about randomly without apparent pattern or order. All houses were about the same size, regardless of the social hierarchy of the inhabitants.

3 Historic Settlement Patterns of the Sampling Tribal Groups

3.1 O'odham Settlement Patterns: Villages and Household Complexes

The aboriginal O'odham adapted to the environment of the Sonoran Desert by establishing settlement patterns which varied with the availability of water. These included (1) the One Village pattern of the sedentary Akimel O'odham (Pimas) who lived in the vicinity of a permanent water supply, the Gila River, (2) the Two Village pattern of the Tohono O'odham, a seasonal mode where people moved between summer field villages and winter mountain wells, and (3) the No Village pattern of the migratory Sand Papago who lived in the driest, western portion of the Sonoran Desert (Fontana in Sturtevant ed. 1983: 126-133). These settlement patterns can be understood in terms of a continuum ranging from a concentration of household complexes (the One Village pattern) to dispersed (the No Village pattern) in which the spatial distribution was dependent upon the availability of resources. In general, however, settlements were camp-like areas interspersed with unclaimed patches of nature or cultivated fields depending upon the circumstances (Bahr 1983: 178). For example, during the Hispanic era, the most densely concentrated One-Village Pima occupied at least seven rancheria villages, ranging from one to seven hundred inhabitants, along the Gila River. The villages were located ten to fifteen miles apart and individual household complexes within these villages were scattered hundreds of yards apart, separated by agricultural fields (Layhe ed. 1986: 6).
Though difficult to document before the 19th century, among the One and Two Villagers, related kin undoubtedly lived within close proximity in household complexes of a spatial configuration which promoted intimate interaction within the extended family. Groupings of household complexes, which varied in number and degree of concentration, formed villages headed by a chief. The camps of the Tohono O'odham were smaller than those of the Akimel O'odham and settlements varied with respect to the number and types of buildings. In an ideal situation, family household complexes, in which each family or unmarried adult had a habitation for storing personal property, also included structures, such as cooking enclosures and women's menstrual lodges (the O'odham practiced a menstrual taboo) which kin used in common. In turn, a group of household complexes forming a small village shared a communal building, a public meeting place (council house) also used for ceremonial occasions (Bahr 1983: 180, Fontana 1964: 39).

Euroamerican encroachment, particularly the diversion of water by farmers upstream of the Pima and the agricultural improvement program for reservations adopted by the United States government significantly disrupted the traditional, tribal settlement pattern. Implemented by the Indian Bureau agent, beginning in 1914 the allotment assigned to Pima families ten acre plots of irrigable land plus ten acre plots, commonly some distance away, of unirrigable range. This approach, which the federal government saw as the “normal” way to live, was designed to reinforce the small subsistence farming which had been traditional among the Pima, the Tohono O'odham, and other tribal groups. This early twentieth-century pattern, which fragmented traditional village life and is no longer in effect today, can be observed at the Gila River Indian Community. Tamarisk-shaded household complexes, some now in ruins, reflect the spacing imposed by the allotment program (Layhe ed. 1986: 7, Spicer 1962: 544).
3.2 The Hopi Settlement Pattern

In contrast to the dispersed ranchería pattern of the O'odham, the traditional Hopi settlement pattern concentrated its households in very compact, agricultural villages mostly on mesatops overlooking matrilineal-clan-owned fields below. Continuously occupied, these pueblos are today part of a larger setting in which agriculture occupies a position of central importance, although wage earning has modified this. Widely scattered, irrigated terrace gardens and flood-irrigated and dry-farmed fields are as much a part of the cultural landscape today as they have been for centuries. At the present time, some fields are irrigated by modern well methods. Traditional native crops such as corn (planted in bunches and not rows), beans, melons, squash, and pumpkins are important as well as introduced crops such as wheat. The Hopi also cultivate fruit trees (Comeaux 1981: 178). Although the pueblos are permanent settlements built (until recently) of stone, adobe and timber, some Hopi have farmhouses and settlements in the surrounding area and only seasonally occupy the pueblo.

In a distinct, arid landscape of powerful visual impact in the Colorado Plateau province, most of the Hopi villages are mesa-top pueblos constructed of sandstone which resemble land forms and are built on bare rock, immediately on the edges of vertical cliffs. A pueblo's resemblance to the surrounding land form is said to manifest the Hopi cosmology, the sacred link between village and the gods. The foundation dates of the twelve Hopi pueblos range from before 1150 A.D. to the early twentieth century. Although the pueblos vary in form, the earliest pueblos such as Oraibi and Walpi have certain features in common, most significant being the closely-built, communal relationship of dwelling units and other social spaces. These pueblos consist of rectangular dwelling and storage rooms with thick stone walls, arranged pyramid-fashion in terraced, compact, multi-story, flat-roofed, clusters around some form of open space, either a shaped plaza space or an interval (path) between household blocks. Plazas, important for religious dance
ceremonies, contain the sacred underground, rectangular-plan kivas. The kiska or passageway penetrates the pueblo mass. Variations are represented in the site plan layouts and vertical massing which reflect different degrees of concentrated clustering. Walpi, located on a narrow mesa, is a nearly solid mass, which steps back in terraces to reach a maximum of four stories in places. Walpi's kivas are located in the elongated east plaza. Neighboring Hano and Sichomovi have more open forms in which low, one-story household blocks define elongated plaza hollows (Rapoport in Oliver 1969: 68, Scully 1975: 317).

Bacavi was founded as the result of the Oraibi Split of 1906. Serious factionalism had developed in Oraibi between the "Hostiles," the more traditional faction, and the "Friendlies," who were more conciliatory to Euroamerican influences learned from reservation life. Hostiles were eventually forced from Oraibi which led to the immediate or eventual founding of five villages, including Bacavi in 1908 or 1909. Bacavi, the smallest of the Hopi villages, lies on the eastern edge of the Third Mesa, in the juniper woodland vegetation zone, although the area is largely depleted of junipers at present. Overlooking its irrigated terrace gardens, the historic core of Bacavi consists of linearly-arranged, one-story, flat-roofed, sandstone rowhouses adjoining a central plaza (kiisonvi). In 1910 two underground kivas were constructed southwest of the plaza. By 1915 newer rowhouses appeared north and south of the plaza. Later historic era construction tended to be single-family residences, a pattern which continued into the modern era (Stein 1996: Sec. 7, pp. 2,3).
3.3 The Navajo Settlement Pattern

Once assigned to the Navajo Reservation and established as subsistence or commercial sheepherders, the Navajo adopted a pattern of dispersed settlement and seasonal migration that they followed with modifications in northeastern Arizona with their small, scattered farms and mobile livestock resources. The matrilocal family, the basic homestead group, operated as an economic unit sometimes affiliating with related neighboring homestead groups (coresidential kin groups). Communities comprising several homestead groups formed around specific trading posts. The Navajo did not own land but inherited rights to use land. Former communal pasture lands became "customary-use areas" with one family holding grazing privileges. Later this became a formal grazing permit system (Jett in Noble 1992: 333).

The Navajo developed several patterns of seasonal migration depending upon the relative importance of herding versus farming. Where farming prevailed, families set up summer homesteads near lowland fields while some family members took the flocks to highland "sheep camps." In the winter, these families moved to intermediate elevations where piñon and juniper firewood was plentiful. Where pastoralism prevailed, small, lowland fields would be planted in the spring, generally left untended by family members who would move livestock into the higher country pastures. They returned to the valleys for fall harvest to winter in lower country (Jett in Noble 1993: 334).

Navajo migration patterns involve the establishment of two or more homesteads with permanent dwellings plus, in some cases, temporary sheep camps. The number of dwellings in a homestead varies. A typical homestead might include one dwelling for the parents and their unmarried children as well as a separate dwelling for each married daughter's family. Single adult relatives, or large numbers of children might live in additional dwellings. Other structures might include a shade (or *ramada*), corrals, animal
shelters, storage buildings, outdoor fireplaces, ovens, a sudatory (a sweat house for ceremonial purification), and an outdoor toilet. Dwellings are spaced apart with no discernible arrangement pattern. Before World War II, multi-room dwellings hardly existed and people needing to be housed were accommodated by additional, separate, one-room units (Jett in Noble 1993: 334).

3.4 Apache Settlement Patterns

Prior to enclavement on the Apache reservations, the basic social unit of the Apache was the small, traveling band under the authority of a headman. As their hunting and raiding threatened Euroamerican settlers, they remained highly mobile units to outmaneuver Mexican and U.S. troops pursuing them. Therefore Apache settlements were impermanent and consisted of hastily-constructed shelters (Nabokov & Easton 1989: 338). Since the Spanish policy of reducción or concentration had not influenced the Apache, they had never been accustomed to living in compact, permanent settlements until the establishment of the reservation under U.S. jurisdiction. Two patterns developed on the Apache reservations; one of concentration of the Apache around the agency towns, Whiteriver, Fort Apache, and San Carlos, and the other of dispersal into smaller communities such as Cibecue and McNary. Agency towns represented the greatest degree of concentration while small community dispersal within the confines of the reservation meant an increase in rural settlement, a trend which contrasted greatly with the strong urbanizing tendency among Euroamerican Arizonans outside the reservations. Around the agency towns the Apache, like the other native peoples in Arizona, constructed homes which were commonly Euroamerican-influenced, makeshift, simple, rectangular types, arranged in irregular fashion near the government buildings. (Spicer 1962: 468, 469).
4 Native American Dwellings

4.1 Introduction

4.1.1 General Principles of the Early Building Process

The folk dwellings of Arizona's prehistoric and historic Native American societies were basically of two types: (1) single-cell, single-family dwellings in temporary, seasonal, or permanent camps, and (2) permanent multi-family, cluster dwelling rooms pertaining to pueblos. The Classic cultures utilized both types at different stages of their development. The O'odham, Navajo, and Apache occupied detached dwellings while Hopi families occupied rooms, apartment-style, integrated into pueblo houseblocks. The cultures shared a belief that the dwelling was sacred and employed ritualistic, prescribed methods in its construction. Building types persisted from generation to generation and change was strongly resisted. Single-family dwellings were replicated, not added to, when spatial demands increased. Pueblo clusters increased in a modular, additive fashion.

The morphology or form of Arizona's Native American domestic architecture comprised (1) the domical, (2) the conical, (3) the rectilinear, and (4) the rectilinear cluster, as shall be described in the following chapter, Native American Forms. The structural systems utilized to create these forms included (1) the bent frame (2) the bent frame combined with post and beam, and (3) the post and beam and (4) the compression shell. The conical Apache dwelling known as the wickiup exemplified the bent frame, a system where bent saplings supported a covering of vegetative material. The domical O'odam folk dwelling, the ki, combined the bent frame, to support the exterior covering, with an interior post and beam structural frame. The rectilinear, enclosed frame folk dwelling of the O'odham, known as the jacal, was a post and beam structure. In compression shell architecture, which included the rectilinear-clustered Hopi pueblo and some domical forms of the
Navajo hogan, the building material comprised both structural support and covering. Materials of construction were completely dependent upon what was locally available in the physical province of tribal occupancy. Local materials included mud, stone, timber, saplings, bark, reed, fiber, and brush (Nabokov & Easton: 1989: 16). Walling systems varied and included structural stone masonry and corbelled logs, wattle and daub lathing in framed structures, and lashed vegetative and earth cladding.

4.1.2 General Principles of the Hybrid Building Process
Adobe bearing wall structural technology, introduced by the Spaniards and adopted for Native American (especially O'odham) use by the Euroamerican reservation superintendents, was an imported tradition. The O'odham also adopted adobe as a walling infill material substituting for traditional wattle and daub in their post and beam frame dwellings. Euroamerican industrialized building components and systems, such as dimension lumber and balloon framing, were incorporated into Native American traditional architecture. A blending of Native American with Euroamerican technology resulted in the creation of "Pima sandwich" construction on the O'odham reservations. The Euroamerican pitched frame roof, used to transform earlier mud-clad roofed dwellings or in new construction, was increasingly added to the repertoire. With respect to form, hybridization also meant the creation of more complex, multi-room plans, the abandonment or alteration of earlier single-cell or two-room dwellings.

4.1.3 The Extent of Early and Hybrid Dwellings in Arizona Today
With respect to the existence and continued use today in Arizona of dwelling types pertaining to the early building process, it is assumed that, with the exception of the Hopi pueblos, and some of the more permanent Navajo hogan variants, few historic examples survive. Most of these structures were built of impermanent materials, for summer and winter camps. Replicas of indigenous dwellings can be studied in a Native American-
operated, open-air, heritage park at the Gila River Cultural Center near Sacaton, Arizona. Though such modern-day replication is inauthentic, the museum offers a useful educational opportunity.

Stephen Jett and Virginia Spencer, authors of *Navajo Architecture*, documented the continuing but rapidly declining use of the earliest, impermanent conical, forked pole hogan on the Navajo Reservation in the 1970s. Since World War II massive Euroamerican influences have transformed Navajo domestic architecture. The balloon frame dwelling, mobile and pre-engineered homes have become the predominant housing choices among Navajo today. The hogan has largely changed its function, now serving principally as a supplemental dwelling, a storage structure, and a ceremonial site. Polygonal plank-sided hogans, balloon frame examples, and hogans of concrete block exemplify the adoption of contemporary Euroamerican construction technology (Jett in Noble 1992: 343,344).

Early 1900s dwellings, such as two-room, enclosed frame, wattle and daub buildings and earlier Pima sandwich structures found on the Gila River reservation still exist, commonly in deteriorated condition. Although some new houses of sandwich construction continue to be built, these more traditional types are being replaced rapidly by a vigorous new housing construction program and are in danger of disappearing. A few Apache wickiups, which probably serve ceremonial and not dwelling purposes, have been sited recently. The author also saw a child-sized, newly-constructed wickiup near the Fort Apache day school, no doubt part of a cultural awareness project undertaken by Apache students.
5 NATIVE AMERICAN TYPES AND FORMS

1 Types and Forms
Arizona's historic Native American dwelling types include: (1) O'odham ki, jacal, ramada, and "traditional house" (two-room enclosed rectangular frame), (2) Hopi pueblo dwelling, (3) Navajo hogan, and (4) Apache wickiup. The types, which are assigned their commonly accepted names, pertain to a group of structures having morphological characteristics in common. For example, the basic building envelope of the O'odham ki is domical and generated from a circular plan. On the other hand, the O'odham jacal is the product of its rectangular footprint, modest wall height, and flattish roof form.

2 Prehistoric Domestic Architecture: Pit-House Dwellings of the Classic Cultures
The first domestic structures of the Anasazi were pit houses, low walls built around a shallow, circular pit. The semisubterranean dwelling was common at that time in North America and it may have originated in Asia. A timber post-and-beam frame supported the roof. In most areas, entrance was gained to early pit houses through a sloping side passage or an antechamber with a roof or side entrance. Some early dwellings may have also had a central roof hatchway entrance. Mogollon dwellings were commonly single-cell, pit-house structures with floors excavated up to three feet deep and an interior post and beam framework. The sides of the pit formed walls. The roof structure, a layered assemblage of smaller sticks and earth-clad brush, was supported by the heavy log post-and-beam frame. Without true walls, the roof slanted outward to the ground beyond the edge of the pit. Most dwellings had either a ramped entryway or a roofed one, accessed by a ladder through a smoke hole. Near the entryway was a square, stone-rimmed hearth. The construction and plan of Mogollon pit houses varied. Post locations differed and plans were either D-shaped, ovoid, or rectangular (Nabokov 1989: 353). As studied in Snaketown, Hohokam dwellings were of two types. Set in pits about a foot and a half
deep they were either based upon rectangular plans with vertical posts placed around the perimeter or upon rounded-corner, squared plans with four large center posts to support the heavy log, branch, reed, and mud roofs. A fire pit was located near the end of the entryway. The shape of the dwellings varied through time, but towards the end of the Hohokam period, tended to be ovoid or elliptical. Most of the houses were built of mud-plastered wattle and daub (Comeaux 1981: 72).

Fig. 5.1 Classic Culture Pit Houses (Nabokov & Easton 1989: 353, 357)

3.1 Dwellings of the Tohono O'odham and Akimel O'odham

In developing a model from 1853 to 1920 for a Pima household complex, a spatially discrete unit of structures, activity areas, and objects used by a single family, archaeologists Billy Garrett and Scott Russell identified five primary types of structure including (1) the roundhouse (ki), (2) the open rectangular frame (ramada), (3) the enclosed rectangular frame, (4) the brush kitchen, and (5) the adobe house. They did not
include the council house or the women's menstrual lodge, two types which they did not encounter in their study (Garrett & Russell 1983:11-25).

Among the O'odham, the activity of "dwelling" occurred both within and outside of structures and functions normally associated with "house," such as sleeping, socializing, eating, craftwork production, and storage of goods, took place in different locations within the complex. The well-swept yard was an important dwelling space, part of the built environment which was no less significant than the individual buildings (Brittain 1981: 8). For example, food preparation took place under the ramada, in the brush kitchen, in the storehouse, in the ki or in the open. Most of the activities associated with the household complex, other than the construction of buildings, which was the role of men, were performed by women. While each structural type had a strong association with one or two major activities, it also had secondary functions. For example, the enclosed rectangular frame, usually identified as a storehouse, also served as a living quarters, a living room, or a kitchen, a kosi (from cocina, the Spanish word for kitchen) (Brittain 1981: 5).

For the purposes of this study, two basic types of habitation associated with the early Pima household complex and a third later type, which has both traditional and hybridized variants, will be considered. The two early types had a basic post-and-beam structural system, a universal principle employed for millennia on this earth. A frame of four forked posts and two primary log beams, constructed of locally-available mesquite or cottonwood, became the fundamental building unit of
O'odham construction. To this basic frame was added a layer of secondary beams and then an assemblage of material such as ocotillo ribs, brush, creosote bush, grasses, and finally earth. One domestic property type was the semi-subterranean, domical odis ki (odis meaning "round-domed" and ki meaning "house") generated from a round or ovoid plan and resembling an overturned wash basin in shape (Russell 1908: 153). Within this form existed the above-mentioned rectangular, primary support frame of four crotched-wood posts and two horizontal beams. The second type, also based upon the fundamental frame, had a rectangular plan. This form was either enclosed by a variety of walling materials or left open to create a ramada, a shade arbor. When enclosed by walling such as wattle and daub, a mud and stick lathing technique, it became a modest, rectangular structure known as a jacal (Spanish for "hut"). The third type of dwelling, commonly called the "traditional house," was a larger example of the enclosed frame system.

3.1.1 The Ki: (Domical Bent Frame Plus Post and Beam) (p. 19)

The ki was a folk type and its circular- or ovoid-plan-generated domical form and structural system with minor variations were replicated, as is characteristic of Rapoport's early building process, whenever a new abode was required by any member of the group. Among the O'odham, there were prescribed ways of creating the ki. The role of construction was relegated to the men of the household, generally with the help of their male kin. Women assisted by gathering materials and feeding the men, in payment, while construction was underway.

Some scholars have related the ki to the pit house of the Hohokam culture but ethnologist Frank Russell believed there was no relationship and that analogies could be found with tribal dwellings distant from the territory of the Pima (Russell 1908:153). Assuming that ultimate origins for the ki are not determinable, there is little doubt that the ki was the
predominant residential structure among the O'odham during the 19th century (Garrett & Russell 1983:14). This aboriginal domical dwelling was found among the O'odham in Arizona and northern Mexico into the early decades of the twentieth century. The last of these *kiki* disappeared in the 1930s in Arizona (Van Willigen 1970:1).

The structural sequence, using locally available materials, differed between the Tohono and Akimel O'odham because of vegetation differences where they settled. The O'odham excavated approximately eighteen inches below grade to create a floor. Then the structural system, bent frame combined with post and beam, was begun. Four forked posts of cottonwood or mesquite (depending upon availability) were set in the ground three or four meters apart, with two heavy beams in the crotches. Lighter cross poles were laid on the beams, completing the central framework to create a flat ceiling. For the walls, the bent frame component, light willow or ocotillo ribs were set half a meter in the ground around the periphery of the circle. Their tops were bent in to lap over the central roof poles, and horizontal stays were lashed to them with willow bark. The wall ribbing was then covered with brush or straw which was lashed into place with horizontal stays. Earth was heaped upon the roof to a depth of fifteen or twenty centimeters (Russell 1908:154).

The construction process described above was a dry process in which water was not used for housebuilding. Abundant, lightweight, dry materials could be gathered by men, women, and children. A special carrying basket known as a *kia'ha* was used for transporting these materials. Larger framing members, such as mesquite or cottonwood posts, were secured by burning scrubby trees off near the roots and shaping with stone axes (Underwood 1951:15). Wet construction processes, such as the fabrication of adobe bricks, were not used among the O'odham, especially in areas lacking adequate water, until the introduction of wells by the United States government. When the O'odham
needed mud, such as in wattle and daub construction, they undoubtedly scooped earth which had been soaked by rain (Brittain 1981:4).

A Pima myth described the creation of the First House or original ki. Black, Blue, White, and Reddish Measuring Worms divided to form the structural support members and wall ribs. A Blue Gopher covered the ki with brush, symbolizing clouds, and finally with a layer of earth from four gopher holes. From the door of this First House, Blue Gopher scattered seeds magically to create the first grasslands and cultivated fields (Nabokov 1989: 342).

3.1.2 The Jacal and Ramada (Enclosed and Open Rectangular Frame) (pp. 20-21)

The ramada, a square or rectangular, flat-roofed, vernacular structure, constructed of four or more forked posts, usually open on all four sides, supporting beams, small sticks, arrowweed, and other vegetative material and topped with earth, were built by most or all Southwest tribes. The ramada (or enramada in Spanish) was a simple frame used as a shade structure and for dwelling purposes. Still widely used today, it is generally agreed that the ramada has aboriginal origins. Among the Navajo, the flat-roofed shade may have represented a Puebloan-refugee introduction, a vestige of former pit house construction (Jett & Spencer 1981: 41). The O'odham ramada could be enclosed by lightweight brush or by living ocotillo on one or more sides, as observed by Richard Brittain in the 1970s, to serve as a shelter from dust. An example of cultural interaction, simple, partially enclosed ramadas were adopted by the Jesuits to serve as temporary churches for the instruction of the O'odham, Yaqui, and other tribal groups under Hispanic influence (Spicer 1980: 24). The ramada commonly accompanied the O'odham ki or other enclosed habitations.
The jacal, based upon the same rectangular frame of forked uprights and beams, can be thought of as a ramada with walls. The term "jacal" is thought to derive from Nahuatl xacalli which meant "house of straw." The jacal was a vernacular, one-room folk type with a form generated from a rectangular plan, low walls, and either a gabled or flattish roof. Variations generally occurred with respect to walling and roofing materials employed but the basic form of this type was replicated throughout Mexico and the Southwest. References to jacaless were mentioned in early Spanish accounts of the northern border region and appear to be among the earliest dwelling types erected by settlers (Arreola 1993:158).

Authorities disagree on the origin of the jacal because the type was built by Hispanics as well as native peoples. The jacal employs the same basic post-and-beam frame found in the pit-house, ramada, or ki. Filling in the walls of this basic frame was undoubtedly a logical development among indigenous peoples. Thus the jacal was most likely a Native American artifact adopted by Hispanics for temporary shelter. Hispanics were probably responsible for the diffusion of this type from parts of southern and central Mexico to the northern borderlands (Arreola 1993:158). The use of wattle and daub in the region later to become Mexico is also considered to be a structural procedure of pre-Columbian, and not European, origin (Moya Rubio 1982: 61).

Variants of the flat-roofed jacal were found in southern Sonora and northern Sinaloa and were associated with the Mayo, Yaqui, and Pima of that area. These structures had flattish, sod- or earth-clad roofs (created by stacking and lashing local materials) supported by vertical forked poles (horcones), and were walled with any number of materials ranging from wattle and daub to stone chinking (West 1974:124-125). These structures were very similar to the one-room, enclosed rectangular frame of the Pima of today's southern Arizona which was used as a dwelling, living room, storehouse, and
kitchen (kosi). Early photographs show that the O'odham jacal was frequently associated with a ramada which was either attached like a porch or free-standing nearby (Brittain 1981:5). A larger (commonly two-room) nineteenth- and early-twentieth-century vernacular dwelling and possibly storage type, using the same structural system of forked posts and beams, infilled walls, and flattish roof, appears to have evolved from the simple jacal.

3.1.3 The "Traditional House" (Two-Room Enclosed Rectangular Frame) (p. 22)

Early photographs taken by William Dinwiddie, who documented the Tohono O'odham, and Daniel Boone Lindermann, who photographed the Pima, indicate that considerable changes in domestic architecture occurred by the turn of the century. Most buildings were rectangular in plan, appeared larger, capable of growth by accretion, and, in cases, incorporated prefabricated building components characteristic of industrialized, mass vernacular. At this time, another dwelling type appeared. This was the two-room enclosed rectangular frame, generated from a rectangular plan of two, presumably unspecialized rooms. Walls were low and the flattish roof, supported by a larger framework of commonly six or more forked poles with beams, was apparently the traditional stack of branches clad with brush and earth. There is evidence in the photographs of the incorporation of some milled lumber components, an occasional post or beam, frequently "replacing" one or more of the natural structural members. Richard Brittain observed the use of steel piping for beams among the Tohono O'odham. Walling varied and included the most traditional wattle and daub, adobe infill (not to be confused with adobe bearing wall construction), and stone. Later variants of this domestic type, built of the Pima sandwich construction technique, were probably
introduced in the 1920s as shall be described. Flattish-roofed dwellings of this same form, which may have been constructed of adobe bearing wall technology with no framework, also appear in some early photographs at the Arizona State Historical Society Library. Hispanicized, parapet-walled, two-room examples also have been identified. In the traditional fashion, the ramada was frequently associated with many of these two-room dwellings in the early photographs.

The most traditional of the two-room enclosed rectangular frame dwellings in the photographic sampling had wattle and daub walling which apparently varied in mode. Willow or ocotillo lathing was installed either vertically or horizontally and generally coated by an outer and inner skin of mud mixed with straw. Two modes of lathing predominated in the Lindermann photographs. Each gave the dwelling a striped appearance. One variant showed vertical lathing with four principal horizontal stays or cross-ties. The other employed very closely spaced horizontal lathing members. The mud coating was commonly missing or in need of repair.

The phrase "Pima sandwich house" describes any dwelling type built of Pima sandwich construction. The Pima sandwich technique is an adaptation of the former ocotillo and mud walling system and it frequently utilizes Euroamerican-influenced industrialized building components. Unlike wattle and daub, a lathing technique, the sandwich system is puddled earth; mud shoveled between spaced, horizontal stripping of ocotillo or thin dimension lumber nailed to a structural

Fig. 5.3 Pima Sandwich Construction (Comeaux 1981: 192)
framework of posts. The posts, heavy timber members such as four by fours or railroad ties, are placed at the corners and along the walls in strategic locations, especially flanking doors and windows. Roofing may be either of the traditional, flattish, thatched variety or of pitched balloon frame construction.

The Pima sandwich technique has been applied to both the two-room enclosed rectangular frame as well as more complex, non-traditional forms. This mode of construction has been used since the 1920s to build dwellings that incorporate industrialized structural components. In the 1970s, in a study undertaken by John Van Willigen, most new construction, which was not part of government-sponsored development, was of the Pima sandwich variety. In the traditional O'odham fashion, dwellings of this system are built by the men of the household, their male kin and any others willing to volunteer. As payment, they are fed by the women of the household during the construction process.

3.2 The Hopi Pueblo Dwelling (p. 23)

The Hopi pueblo dwelling relates to houseblocks located in the Hopi villages on Black Mesa. The dwelling was, and is, a grouping of rectangular-plan room units (belonging to a Hopi household) which are clustered and stacked like sugar cubes in multi-story situtations or linearly arranged in rowhouses, within a larger pueblo houseblock. Roofs are flat and walls are planar surfaces with protruding drainspouts and log roof beams. The Hopi social organization is based upon a female-centered kinship and clan system and the household, consisting of a woman, her husband and unmarried children, married daughters, and their families, is the fundamental economic and social unit (Rapoport in Oliver 1969, 71). Dwellings are owned by the women and the clan owns the springs, gardens, and land. Clan organizations are politically prominent and residence patterns
within the pueblo at large are frequently dictated by relationships in the extended family. The household grouping usually occupies a set of adjoining rooms near the mother's abode, placed side by side or on top of one another. When spatial needs increase, new, contiguous rooms are built to accommodate this growth (Nabokov 1989: 367, Rapoport in Oliver 1969: 71). A typical cluster dwelling might contain sleeping rooms, multipurpose cooking/sleeping rooms, a corn-grinding space, and various store rooms. Corner fireplaces occur in some rooms. Rooftop terraces comprise an important domain for socializing and working. Apparently dwellings were once accessed from the ground level by ladders through roof hatches, a practice which was discontinued when door openings were cut into walls. Ladders and exterior stairways are still used to access rooftops and interior ladders are used to access upper story rooms.

Pueblo culture is highly integrated, with religion, symbolism, and mythology closely linked to social organization and everyday life. Central to the Hopi world view is the overall harmony of man and nature in which the whole landscape and everything in it, including the dwelling, is sacred. Hopi house-building customs emphasize the sacredness of the domicile and its materials of construction. Ordinary members of the group by tradition have built and continue to build their own dwellings, participating in the centuries-old, prescribed steps of the customary construction process. The process is a collective undertaking of the extended family with gender-based roles. Among the Hopi, the man and his clan mates measure for the foundation, gather and haul earth, and collect the materials of construction (rock, timber, brush, and water). Once the foundation has set, Hopi women construct the walls with fitted sandstone shaped by the men. Women chink the stones with mud adobe, then mud-plaster the surfaces of the walls. At intervals during the construction process, work pauses for the proper placement of prayer sticks and offerings within the structure. The men place the heavy log roof beams and work with the
women to complete the roof structure and roofing (Nabokov 1989: 370). Today many Hopi dwellings have been reroofed with metal and other moisture-resistant claddings.

In the compression shell structural system, the Hopi construct the load-bearing walls and roofs, which also serve as upper story floors, to carry the weight of rooms and occupants above. For this structural system foundations are stone and walls are comprised of a stone rubble core faced with roughly split sandstone laid in an uncoursed, rubble masonry pattern with mud for mortar. The historic roofing structure consists of peeled conifer (such as juniper) log beams (lestavi). (Wood, a precious commodity, was cut traditionally in distant forests in the San Francisco Mountain area, packed in on mules, trimmed, and aged for a year). Rarely thicker than one foot in diameter, beams are spaced approximately two feet on center. A second layer of lighter, peeled cross beams (hoahu) follows, then a third layer of dogwood or saltbush poles (hunvi). This assemblage is capped by a juniper bark layer (lapu) then a final layer of compacted earth (nayavu) sloped for drainage (Nabokov & Easton 1989: 370, Stein 1996: Sec. 7, p.7).

Single-story, rowhouse dwellings in the historic core of Bacavi are hybrids. (Bacavi, one of the youngest and smallest villages on the Hopi Reservation, was established between 1909 and 1911.) Not stacked like earlier pueblo dwellings, the low, sandstone masonry rowhouses contained some building components, such as wood doors and double-hung windows, provided by the Indian Bureau. Secondary buildings, such as piki huts, where traditional Hopi bread is produced, coal bins, and storage buildings are located near these rowhouses (Stein 1996: survey form).

3.3 Dwellings of the Navajo

Throughout the course of their development the Navajo constructed several variants of the hogan, their single-cell folk dwelling. Functionally the same, the hogan forms,
structural systems, and materials of construction vary to a considerable degree. This study will focus upon three of the hogan variants: (1) the conical forked-pole hogan; (2) the corbeled-log hogan; and (3) the cribbed-log hogan. As documented by Stephen Jett and Virginia Spencer, once confined to the reservation, the Navajo also began to construct pitched-roofed variants of Euroamerican-influenced, rectangular dwellings of stone, cribbed-log, or other materials. Further research is required to determine if some of these pre-1930s structures constitute types and, similar to later traditional and hybrid dwellings of the O'odham, many of these may need to be documented from a historic preservation point of view.

Canadian Athabascans inhabited conical dwellings supported by a three-pole frame against which secondary poles were sloped and lashed. The exterior was enclosed with hides, bark, brush, or boughs, secured by additional poles. Archaeological evidence of the Dinétah phase (around 1400-1696) suggests the practice of constructing this northern-type, conical dwelling. It is not known whether these structures were earth-covered, as were later hogans. Probably the application of earth cladding was a trait adopted from the Río Grande Puebloans during the period of cultural blending (1696-1770). Covering poles with juniper bark and earth transformed the earlier tipi-form dwelling into the conical forked-pole hogan, the most common Navajo dwelling type until the early decades of this century. The corbeled-log hogan also appeared during the time period of the conical forked-pole hogan. It was a dome-shaped dwelling created by corbelling logs which were piled in even-tiered, increasingly-smaller layers (Jett in Noble 1992: 335, 36).

Navajo interaction with Hispanics in the New Mexico area may have led to cultural blending and generated a new hogan variant, the cribbed-log hogan, eventually the most popular hogan over wide areas. In Spanish colonial times, German-speaking Silesian miners working in central Mexico introduced cribbed-log technology, alternately stacked
those used to construct the roof. Log structures are usually chinked with limbs, brush, twigs, or other wood pieces, with grass, weeds, corn husks, stones, plastic, cloth, and sheet metal. Tamped damp earth is the final chinking. Some hogans are entirely clad with earth while others have earth-clad roofs. Masonry hogans, usually of sandstone, are also constructed. In modern times, planks and dimensioned lumber, usually from the tribal sawmill, nails, tarpaper and roll roofing, chicken wire, cement, adobe bricks, fired bricks, and cinder blocks have come into use (Jett & Spencer 1981:15-17).

3.4 Dwellings of the Apache

The Apache, who split into tribes as they entered the Southwest, used two traditional, major dwelling types. The buffalo-hunting Apache of the east adapted the straight-sloping-side, hide-covered tipi of the Plains tribes, although they did not group their dwellings into characteristic, circular encampments. The westernmost Apache, those that settled in the Arizona region, adopted the *wickiup* (which they called "kowa"), a refinement of the old brush shelter that was part of their subarctic heritage. Prior to confinement on the reservation, the dwellings of the highly mobile Apache were very quickly-constructed, impermanent shelters of grass and brush. When pursuing reservation life, the Apache constructed larger and more permanent versions of their folk dwelling (Nabokov & Easton 1989: 338). Although recent sitings have been reported, the wickiup is now rarely seen and has been replaced as a dwelling by the Euroamerican-influenced wood-frame house. Further research is required to evaluate types of historic domestic architecture, other than the wickiup, evident on the Apache reservations today.
There are two wickiup variants, the domical and the conical, both of which are generated from roughly circular plans and oriented so that the entry faces east. The domical wickiup, ordinarily built at temporary camps for short-term use, utilized a bent frame structural system in which four to eight, two-inch-diameter, supple, sapling poles were embedded in the ground then bent so that the tops, which were lashed together, overlapped approximately one yard, forming intersecting arches. The conical wickiup, the principal, more permanent dwelling variant at base camps, was beehive shaped. The pointed roof was created by lashing three or four substantial, curved, implanted poles with seven-inch-diameter bases about eight to twelve inches below their tips. A variant of the conical wickiup was straight-sided and tipi-shaped (Donaldson & Welch n.d: 94).

Apache society was matriarchal with the newly married man moving to his wife's home and owing allegiance to her family. Traditionally, it was the woman's job to build the wickiup. Construction began with the selection of an appropriately level, well-drained site. Then a shallow trench, approximately twelve feet in diameter, was excavated and framing saplings of locally-available juniper, mesquite, or tamarisk were set into the ground and lashed to create the above-mentioned domical or conical shape. Additional bent saplings were added as necessary. Horizontal stringers of cottonwood, oak, sumac, or willow were applied up to the peak. The thatched covering for the wickiup also depended upon locally available materials. The desert-dwelling Apache utilized yucca leaves, scrub, or rushes, while at higher elevations, the Apache used bear grass. A thin layer of grass, placed at the top of the thatching layers, permitted smoke to filter through from the hearth below. The outer base was skirted with dirt and traditionally an animal skin covered the entry. Under Euroamerican influence, the Apache adopted materials such
as bailing wire and cloth stripping for lashings and canvas coverings to protect against the prevailing winds. Homemade doors with hinges and padlocks were installed in wickiup entries (Comeaux 1981: 19:172, 173, Nabokov & Easton 1989: 338, 339).
FORM (domical)

FOOTPRINT
Circular, ovoid (excavated)

O'ODHAM

JACAL AND RAMADA

(ENCLOSED & OPEN RECTANGULAR FRAME)

FORM

ROOF
Flattish with overhang

WALLS
1 story

FOOTPRINT
Rectangular
(Jacal is excavated)

Jacal

Ramada

PLANS

Post

Jacal
(enclosed rectangular frame)

Beam

Crosspoles

Ramada
(open rectangular frame)
(roof framing above)
(adapted from Garrett & Russell 1983: 17)

Hopi Pueblo Dwelling

FORM
(rectilinear cluster)

ROOFS
Flat with parapet

WALLS
Multi-story stacked

FOOTPRINT
Irregular rectilinear

PLANS

1st Level
(hypothetical household grouping)

2nd Level

1. Old Orabi, Hopi Reservation.
   Photo: Photographer Unknown (courtesy Arizona Historical Society Library).
NAVAJO
HOGAN

FORMS
(conical or domical)

CONICAL FORKED POLE HOGAN

FOOTPRINT
Circular, subcircular with vestibule protrusion (excavated)

CORBELED-LOG HOGAN

FOOTPRINT
Circular (excavated)

FOOTPRINT
Polygonal (hexagon)

ROOF
Domical (corbeled-log), hipped pyramidal, or flat

WALLS
Perpendicular 1 story

PLANS

CRIBBED LOG HOGAN

CONICAL FORKED POLE HOGAN

(adapted from Nabokov 1989: 327)

CRIBBED LOG HOGAN

(adapted from Jett & Spencer 1981: 327)
1. Conical forked pole hogan.
   Photo: Photographer Unknown
   (courtesy Arizona State Historical Society).

2. Corbeled-log hogan.
   Photo: Photographer Unknown
   (courtesy Arizona State Historical Society).

3. Cribbed log hogan.
FORM
(domical or conical)

FOOTPRINT
Irregular circular

PLAN

1. Wickiup under construction. A light branch skeleton was covered with weeds or banggrass.

Photo: Nabokov & Easton 1989: 338.
6 HISPANIC SETTLEMENT

1 Introduction
Arizona's historic Hispanic cultural tradition pertains to Spanish and Basque-speaking settlers and includes Spaniards, early Mexicans, Mexican Americans, New Mexico Hispanos, and Amerikanuak (New World Basques) who entered the region starting with the Spaniards in the early 1600s. The zone of historic Spanish and Mexican settlement (Fig 2.6) is located south of the Gila River, being most concentrated along the Santa Cruz River, in Florence, and along the border, while that of New Mexican Hispano sheepherders lies in northeastern Arizona in the grass-rich country around Concho and beyond towards Flagstaff. The zone of Iberian Basque sheepherders who migrated from California is in the Flagstaff area. This chapter will present a brief history of Hispanic settlement starting with the earliest group, the Spaniards. However, of special importance is the phenomenon of cultural interaction which occurred after the arrival of the Euroamericans in the 1850s. Understanding this cultural interaction will explain the development of the Hispanic hybrid dwellings of the following chapter and the Basque hybrid bungalows of the chapter on Euroamerican dwellings.

2 The Spanish Era (1730s-1821)

2.1 Introduction
Spanish settlement in the New World occurred shortly after the initial discovery of the area by Europeans. First on islands in the Caribbean and Florida, Spaniards expanded westward, spurred on by rumors of wealth, and conquered Mexico in 1521. Reports of wealthy kingdoms to the north, the mythical Seven Cities of Cibola, fostered further exploration. From the Mexico City area Spaniards outfitted exploratory expeditions into today's southwestern United States. Failing to locate the hoped-for wealth, Spanish
expansion and settlement was delayed until the end of the sixteenth century when it first
developed along the Rio Grande in present-day New Mexico. From the Rio Grande,
Spanish influence spread briefly to the Hopi in what is now northeastern Arizona, but it
was not until the late seventeenth century that significant Spanish occupation, through a
system of Catholic missions protected by military garrisons, began to extend into the
southern portion of present-day Arizona. This settlement, which never probed farther
north than Tucson, was confined to the Santa Cruz valley and very minimally along the
San Pedro River. A precarious Spanish presence was confined to the Sonoran Desert for
rigorous Apache resistance prevented colonial expansion to the Gila River and points
further north.

2.2 Early Exploration and Settlement

2.2.1 The First Spanish Explorers

Responding to reports of the adventures of Alvar Nuñez Cabeza de Vaca, the first
European explorer into today's Southwest, and Fray Marcos de Niza, an explorer who
claimed he had discovered one of the Seven Cities of Cibola in the area, Francisco
Vásquez de Coronado led the major exploring expedition into the Arizona area. Launched
from Mexico City in 1540, authorities believe the expedition entered the southeastern
Arizona area, followed the San Pedro River northward, then turned northeast to cross the
White Mountains. The Coronado expedition spent several winters in the Puebloan area of
the Rio Grande valley and from this base launched other minor reconnaissance expeditions
into today's Arizona encountering the mouth of the Colorado River, the Hopi villages, and
the Grand Canyon (Officer 1987: 25, 26). Coronado's expedition failed to secure riches
but the presence of an important "commodity," a significant indigenous population,
encouraged eventual Spanish settlement in today's New Mexico and southern Arizona.
2.2.2 Spanish Settlement in New Mexico and Penetration Into Northern Arizona

In 1598 Spain expanded into the Rio Grande area of present-day New Mexico. The wealthy, powerful, Spanish heir to a silver fortune, Juan de Oñate, was sent to conquer and colonize, at his own expense, the area inhabited by the Puebloans. From this base Spaniards first attempted to penetrate today's northeastern Arizona. In 1629 Franciscan missionaries were sent to convert the Hopi to Catholicism. The friars who lived in the mesa-top villages were killed during the Pueblo revolt of 1680. Spaniards never successfully returned to the Hopi area and they lived along the Rio Grande in virtual isolation surrounded by bands of aggressive, wandering native peoples who by the mid-eighteenth century, mounted on horseback, had become dangerous foes. There was little Spanish expansion outside the area. Had the Spaniards not been expelled by the Hopi, Spanish colonization of today's Arizona might have come from the north instead of the south (Officer 1987: 4). (Very late, under Euroamerican jurisdiction, Hispanic penetration from New Mexico into northern Arizona occurred in the settlements of St. Johns, Concho, and Flagstaff).

2.2.3 Early Spanish Settlement in Southern Arizona

Prior to significant penetration of the mission or presidial systems into today's southern Arizona, opportunities for cattle ranching and more important, mining, attracted very modest Spanish settlement. By the late 1600s, a few settlers were grazing livestock near the headwaters of the Santa Cruz River. A Sonoran rancher and miner, José Romo de Vivar, who may have been southern Arizona's first Hispanic pioneer, was running cattle in the rich grasslands in the Huachuca Mountains (Sheridan 1995: 31). The most important stimulus to Hispanic settlement, which occurred in 1736, was the discovery of large amounts of visible silver near the mining camp called "Arizonac," approximately seventy miles south of Tucson. (The name "Arizonac," which may be of Pima or European origin, is commonly thought to be the origin of "Arizona.") Though large numbers of
prospectors arrived to this short-lived settlement, a few eventually moved northward as colonists (Officer 1987: 4, 5).

2.3 Institutionalized Colonization in Southern Arizona

2.3.1 Incentives for Spanish Colonization

For protection against external forces, namely, foreign encroachment and hostile Apache, Navajo and Comanche, Spain urgently needed to populate the continuously-threatened northern frontier. This was generally accomplished by using Spanish subjects and discouraging foreign immigration. Acculturated indigenous people and *gente de razón* (people of reason, of Spanish or racially-mixed descent, whose way of life was essentially Hispanic rather than Indian) were to fulfill this need (Weber 1982: 4, 159, 160). Inducements to settlement, besides the need to protect the frontier, were rivers, lands suitable for farming and ranching, and the presence of mineral wealth. Significant populations of native peoples, such as the Yaqui and O'odham in Sonora and the Puebloans in the Río Grande region, were essential to the Spanish colonial enterprise and their presence also attracted Spanish settlement. Ideally, indigenous peoples were to become productive citizens of Spain through acculturation. This was to occur through conversion to Catholicism, restructuring of native settlement patterns, and alteration of indigenous political and economic practices. "Civilized" indigenous peoples were to pay taxes and provide labor, a commodity in great demand, for Spanish military service, mining, farming, and civil projects.

2.3.2 Institutions for Spanish Colonization

The Church and the military were Spain's primary institutions of colonial expansion but there were also significant secular and legal contributors to the process. The *misión* (mission), the *presidio* (military garrison), the *pueblo* or *villa*, (the civil community; either
a city, town, or village), and the *merced* (land grant) all played roles, to a greater or lesser extent, in extending the Spanish domain in the Far North. When conditions allowed, all presidios and missions were expected to become civil communities. An important function of the mission, an organization for religious conversion, concentration, and acculturation of non-Christians, was to provide settled areas for migration. A mission assisted the Spanish crown by gaining control of an area and securing the allegiance of native peoples, thereby preventing foreign encroachment. The presidio, a walled fort strategically located at a site suitable for grazing and some agriculture, was generally manned by a captain, one or two officers, enlisted men and their families, and a number of civilians engaged in its support. Its purpose was to protect local Spanish settlements, missionaries, and friendly native peoples from hostilities as well as to prevent rebellions. Presidios, such as those at Arizona's Tubac and Tucson, were commonly located near missions and served as places of refuge which encouraged Hispanic and Native American settlement nearby. A pueblo or villa was an economic, governmental, and administrative center, like an ordinary town or settlement (Comeaux 1981:93-97). The Spaniards had requirements prescribed by the Laws of the Indies codified in 1681 concerning colonization of the New World which included town planning ordinances to guide the layout of these communities (see Hispanic Settlement Patterns and Dwellings). Such communities as Santa Fe, a market and distribution center along the Río Grande, and Alamos, a mining community in Sonora, were miniature urban centers which attracted an ethnically and occupationally heterogeneous population. The land grant was a legal instrument awarding to a settler a land parcel, usually of considerable size, for farming or ranching purposes.

2.3.2.1 The Sonoran Missions

In 1681 the Jesuit, Eusebio Kino, was assigned to work among the O'odham in the ecclesiastical zone known as the *Pimería Alta*, present-day northern Sonora and southern Arizona. Approximately 30,000 Native Americans lived in this area. Kino's mission
system consisted of the core missions, most important of which was the "mother mission," Nuestra Señora de los Dolores, the western missions, such as Caborca, and the northern missions (Fig 6.1) which included San Xavier del Bac and Tumacácori (Comeaux 1981: 99-101). During Kino's lifetime, these northern missions neither attracted Hispanic settlement nor for several decades did they support permanent priests (Officer 1987: 30). Later they incorporated modest populations of O'odham which fluctuated greatly in number owing to the decimation of disease, enemy depredations, and rebellion. Compared to missions further south in the heartland of New Spain, these northern missions did not flourish. A blow to the Spanish mission system occurred in 1751 with the Pima rebellion, from which the Jesuits never recovered. Their missionary period ended in 1767 when the Jesuits, who were considered too powerful politically, were expelled from all areas controlled by Spain. The Spanish Crown allowed the Franciscan order to replace the Jesuits but Franciscans were unable to enjoy the power of their predecessors. Nonetheless two magnificent mission churches were constructed in what is now southern Arizona under Franciscan authority. According
to popular tradition, San Xavier del Bac was begun around 1783 by Fray Juan Bautista Velderrain and completed in 1797 by Father Llorens. Construction on San José de Tumacácori began in 1802 and the church was dedicated in 1822 (Officer 1987: 8).

2.3.2.2 The Sonoran Presidios

Spain's bastion of frontier defense was a line of presidios, manned by small units of cavalry. In the southern Arizona region the presidios founded at Tubac and Tucson were the most significant ones (Fig. 6.1). The Crown responded to the Pima rebellion by establishing a presidio in 1752 in Tubac, three miles north of Tumacácori. The establishment of Tubac presidio fostered modest settlement and by 1757 there were several hundred residents in the area (Officer 1984: 4). The year 1776 initiated an era of increased militarization which resulted from fundamental transformations of colonial administration under Spain's Bourbon Reforms. The King of Spain named José de Gálvez Minister of the Indies. Gálvez implemented plans to restructure the Far North to deal more effectively with hostile tribes and facilitate Hispanic colonization. The new minister structured the Provincias Internas (the Interior Provinces) which included New Spain's six northern provinces ranging from Texas to the Californias (Fig. 6.2). The Provincias Internas were placed under the direct jurisdiction of the Spanish Crown (Officer 1987: 53). One official, the comandante general, was

Fig. 6.2 Provincias Internas Showing Pimeria Alta Region (Adapted from officer 1987:52)
given broad military power to take decisive action against all antagonists, the Russians on
the Pacific Coast, the British in the Mississippi Valley and hostile Native Americans.
Presidial realignments were part of the Bourbon Reforms. Thus in 1775 military
authorities decided to relocate the presidio of Tubac to the site of San Agustín de Tucson
(Sheridan 1995: 35, 36). The transfer of troops left Tubac virtually unprotected and many
gente de razón moved. By 1783, no Hispanics and only a few O'odham were residing in
the Tubac area.

Increased militarization and a cynical peace policy fostered an era of pacification and
expansion in the southern Arizona region. Under Gálvez's instructions of 1786, the
military was able to secure a temporary peace with the Apache, first by incorporating
traditional native foes as soldiers and second by creating peace camps where some Apache
became economically and militarily dependent under an effective policy of rationing
defective firearms, liquor, tobacco, and other goods. The peace camp, or establecimiento
de paz, became one of the cornerstones of the Spanish Apache policy (Officer 1987: 62,
Sheridan 1995: 37, 38). As a result of the Gálvez policy, Tubac was regarrisoned in 1787
by a company of eighty troops comprising Pima soldiers and Spanish officers. The re-
establishment of Tubac contributed significantly to increased settlement in the area.
Between 1790 and 1821, during this relatively peaceful period, the Hispanic population
grew, abandoned mines reopened, and farming and ranching expanded.

2.3.2.3 The Spanish Land Grants

Another instrument for colonization Spaniards utilized was to award grants or mercedes
of land to potential farmers (haciendados) and ranchers (rancheros). Although most land
grants within the present boundaries of Arizona were awarded during the Mexican era
after 1821, the Spanish government granted a few prior to that time. By the 1730s a few
families raised cattle (and possibly held title to mercedes) in the vicinity of Guevavi, Arivaca, and in the Sopori region. Arizona's first recorded land grant owner was Toribio de Otero, a farmer who received title to land in 1789 near Tubac presidio. This grant was in exchange for military service, a Spanish practice implemented in 1772 to stimulate colonization. Hispanic pobladores (settlers) also petitioned for grants of mission land abandoned by the O'odham. In 1807 the Tumacácori-Calabazas grant was awarded in the vicinity of Tumacácori with the provision that it be returned to the O'odham should they reoccupy the land (Officer 1987: 66, 82, 83).

2.4 Hispanic Settlement at the End of the Spanish Era

During the end of the Spanish era, Hispanic Arizona flourished modestly until Spain ceded the New World colonies as a result of the Wars of Independence. By 1821 the area probably held somewhat over 1,000 gente de razón, a substantially smaller population than Texas, New Mexico, and California. Nearly all were confined to a small area along the Santa Cruz, in or near the military establishments of Tucson and Tubac. Tucson supported approximately 400 inhabitants, not counting peaceful Apache (Apaches mansos) and O'odham peoples in small rancheria settlements nearby. Upstream, approximately 400 gente de razón lived around Tubac and 75 near the mission of Tumacácori. Outside the range of the forts, a few adventurous pioneers lived a precarious, interrupted existence growing crops and raising livestock on land grants or operating small mines in outlying areas during times of peace (Officer 1987: 2, 3, Weber 1997: 4).

Small communities like Tucson and Tubac were both military garrisons and civilian, agropastoral communities. Resident soldiers kept the Apache at bay and protected the vecinos, civilian residents or near-by settlers, who grew crops such as wheat, corn, beans, and squash on fields irrigated from the Santa Cruz and raised cattle, horses, and sheep to
support the presidios. These garrison communities and other settlements such as Guevavi along the Santa Cruz were multi-ethnic centers. Soldiers were likely to be of every racial category encountered in New Spain's "melting pot" society which included Native American allies. Presidial officers tended to be full-blooded Spaniards or their descendants. From this latter group, a small aristocracy formed which was linked to Sonoran centers of power and included such families as the Elías González, Urrea, Comadurán, Zuñiga, and Pesqueira. These families intermarried, established business partnerships, and fought for control over Sonoran military and economic affairs. One native Tucsonan, General José Cosme de Urrea, nearly became Mexico's president during the turbulent civil war period of the Mexican Republic era (Sheridan 1995: 19, 38, 39).

3 The Mexican Era (1821-1854)

3.1 Introduction
Paralyzed by the Napoleonic invasion of 1808, confronting her own liberal political factions, and subjected to rebellions throughout the New World, Spain could no longer effectively administer her empire. Following a decade of revolt, which began September 16, 1810, with Padre Hidalgo's famous Grito de Dolores, or call for independence, Spain ceded her rule to Mexico in 1821. Underpinning the Wars of Independence was the liberal, republican ideology of the French and American Revolutions. The former colony of Spain became an independent republic, the United States of Mexico, and nearly all people, gente de razón and otherwise, became full-fledged citizens entitled to private ownership of land and representation in their government. Under the Constitution of 1824, today's southern Arizona was incorporated into the state of Sonora and Sinaloa (Fig. 6.3) but later pertained to Sonora after a split from Sinaloa.
According to David Weber in *The Mexican Frontier 1821-1846*, implementation of the ideals of the independence movement proved impossible and Mexico faced decades of turmoil while her leaders sought to create a new order, a situation which profoundly affected the frontier. It was an era of economic chaos, anticlericalism, civil war, and the politicization of the Mexican army. The Mexican center failed to hold and its isolated frontier suffered extreme neglect allowing the mission and presidial systems to collapse. Mexican leaders were unable to establish viable political institutions for the frontier, to subsidize urgently-needed colonization, or to defend and provide for pobladores spiritually and economically. The afflicted frontier was confronted with the renewal and unremitting persistence of Apache hostilities plus ever-increasing foreign influence, especially that caused by the colonial expansion of the United States.

During the Mexican era, Hispanic pobladores in today's southern Arizona, unable to expand owing to conflict with the Apache, remained precariously situated in previously-settled areas along the Santa Cruz or they briefly occupied new land grants which they were forced to abandon by the 1830s. Mexican chaos and an ever-increasing interaction
with Euroamericans forged a unique frontier society accustomed to extreme hardship yet open to new opportunities. Neglected by and isolated from the core in Mexico City, frontier society became self-sufficient, regionalistic, and responsive to foreign influences. David Weber (1997) characterizes this type of society as "marginal" with "ambivalent loyalties." During this time, opportunities for interaction, especially trade, with Euroamericans increased and this contact eventually led to the formation of a hybrid society, especially in Tucson after Mexico ceded the Arizona region to the United States in 1854.

3.2 The Effect of the Decay of the Frontier Institutions on Mexican Settlement

3.2.1 The Increase in Apache Warfare

The Hispanic Native American policy was by tradition assimilationist. Native peoples, citizens according to Mexican law, were expected to live peacefully in settlements, lured if necessary by trade and gifts, key elements of pacification. Depleted of funds from internal political discord, independent Mexico was unable to continue an effective Native American policy on the frontier and could no longer "purchase" peace nor maintain alliances. The Apache found new economic partners through connections with unscrupulous Euroamerican traders who provided a market for livestock and human captives in exchange for high quality arms and munitions. Euroamerican trade thereby upset the balance of power in the region and contributed to greatly increased Apache depredations on frontier settlements. Northern Sonora suffered the most of all Mexican frontier territories from unremitting Apache warfare, the outcome of which rarely favored the Hispanics whose harsh life worsened considerably under Mexico's jurisdiction. Farms and ranches, which had proliferated in northern Sonora in the late eighteenth century, were abandoned by the 1830s. Thus under independent Mexico, the Apache not only
checked Arizona's Hispanic expansion but forced some settlers to retreat (Officer 1987: 3, 4, Weber 1997: 87-120).

3.2.2 The Decline of the Presidios

During this period of increasing Apache strength to the north and chaos at the center, independent Mexico tried to retain the presidial system as organized by the Spaniards but was unable to prevent the decay of the remote frontier garrisons. The responsibility for defense fell largely upon the frontier settlers themselves. Ironically, the military had become the nation's most powerful institution. Top-heavy with officers, many of whom became corrupt power-seekers, the military drained the national budget and forsook the public good for private gain. Ordinary soldiers were inadequately supplied, morale declined, desertion rose, and units failed to maintain their legally-authorized strength (Weber 1997: 110). Very late in the Mexican era, the government sensed the urgent need to populate as well as shield the frontier from Yanqui encroachment and Apache depredations and designed a scheme to convert presidios into military colonies. These were to be military outposts as well as agrarian settlements which would grant veterans plots of arable land following a six-year tour of duty. Barely implemented along the frontier because of governmental instability and financial insolvency, the scheme nonetheless impacted the presidio of Tucson creating serious land tenure problems by assigning to soldiers land already under cultivation by Mexican settlers (Sheridan 1986: 27).

Both southern Arizona presidios were adversely affected by the chaos of the Mexican era. Although reduced in strength, Tucson presidio managed to survive this turbulent time. Tubac presidio was supposed to be manned by eighty-eight soldiers but on some occasions could muster less than one dozen men. It survived tenuously until 1849 when the post was abandoned and its residents fled to Tucson after a major Apache attack. During this
time the deteriorated facility served as a resting station for Forty-Niners, hordes of
*Yanquis* (Yankees) and Mexican Gold Rush fortune-seekers traversing the overland route

### 3.2.3 The Collapse of The Missions

The Church played a strong role during the initial phase of frontier expansion and was the
key instrument for extending Mexico's northern frontier. However, the Church was
unable to maintain its power in the Far North. Ideological opposition, federal policies, the
effect of military power struggles on mission economies, and an acute shortage of priests
contributed to a rapid decline of the frontier missions. Liberals believed missions were
antiquated institutions which oppressed Native Americans and which contributed to the
Church's immense wealth and political power. Financial difficulties along the frontier
related to struggles in the core where the state borrowed, confiscated, or placed levies on
Church property. An acute shortage of priests along the frontier was greatly exacerbated
when the federal government ordered the expulsion of all Spaniards from Mexico in 1827

When military officers in 1828 ordered the removal of the Spanish-born Franciscans, the
missions at Tumacácori and Bac a fatal blow and never again under Mexican rule had
resident priests. After expelling the priests, the state government assigned overseers
(*mayordomos*) to administer mission lands. These inept administrators allowed
deterioration of fields, depletion of livestock herds, and usurpation of Native American
land and water by local Hispanics. Hispanics in the environs of Tucson and Tumacácori
purchased for paltry sums or simply appropriated land they desired. (Officer 1987: 114,
115, 127).
3.2.4 The Rise and Fall of the Mexican Land Grants

Although the Spanish government had granted a few Arizona land grants, most were awarded under Mexican rule and this practice vastly extended the Mexican domain. Much of the excellent grassland in the Santa Cruz and San Pedro valleys and the lands south of the Chiricahua Mountains ended up in the hands of elite, politically prominent, northern Sonora families, such as the powerful Elías-González, who invested private capital in cattle ranching ventures. In 1822, the Ortiz family received San Ignacio de la Canoa between Tubac and today's Sahuarita. In 1823 San Bernardino near modern Douglas was granted to Lieutenant Ignacio Pérez and in 1825 León Herreros acquired San José de Sonoita. Ramón Romero and heirs received San Rafael de la Zanja in the San Rafael Valley in 1825. Between 1826 and 1831 other significant properties, Buenavista, Babocomari, San Rafael del Valle, San Juan de las Boquillas y Nogales, and Tres Alamos were awarded. Some of these grants were for land formerly belonging to missions since the collapse of the Franciscan missions had meant the collapse of O'odham land tenure. However, the Mexican proprietors themselves soon were forced to abandon the ranches owing to severe Apache depredations. This situation continued until peace was restored under United States jurisdiction. The Mexican elite eventually lost these holdings to Euroamerican land-and-cattle companies after the 1880s (Officer 1987: 106-110, Sheridan 1997: 48, 49).

3.3 Contact with the Euroamericans (1854+)

3.3.1 The Intersection of the Two Frontiers

As explained, during the brief period of hegemony from 1821 to 1854, Mexico was not stable, prosperous, or powerful enough to populate or protect its northern frontier. This weakness, which contributed to the extreme neglect of Mexican pobladores, occurred just when westward-moving Euroamericans, backed by their blatantly expansionist
government, were seeking virgin rivers, abundant land, and new markets and were
beginning to show great interest in the northern portions of Mexico's domain with its
rivers, abundant land, and new markets. Mexico's expansion to the north intersected
dramatically with the westward movement of the United States. To Weber (1997) a
frontier is a "social phenomenon, representing an interaction between man, his institutions,
and the physical and spatial environments of an area of low population density where two
cultures or nations meet." This intersection of two frontiers was both an opportunity and
a threat to Mexico and its northern frontier population. The opportunity allowed
pobladores to forge new economic, demographic, and cultural links to the United States.
This was the beginning of a process which culminated in the political incorporation
between 1845 and 1854 of the Mexican frontier into the United States of America (Weber
1997: xvii, 276-282).

3.3.2 Changes in Frontier Society Due to Contact

Two types of change dramatically altered frontier society after 1821. Social and
institutional changes, which emanated from Mexico's core, brought democratic institutions
and economic opportunities to the Far North, allowing local elites to participate in politics
and have greater access to capital and to inexpensive land. The second type of change
resulted from the new ideas, technological advances, and commercial opportunities that
contact with Euroamericans offered. In essence, as Mexico broke free from the
restrictions of Spain's mercantile economy to become economically dependent instead
upon England, France, and the United States, the frontier settlers mirrored this tendency
by turning to the United States to obtain necessities and luxuries. Spain had protected its
own manufacturers and merchants by requiring that all trade be conducted within the
empire, excluding foreigners. Trade had to be routed through Vera Cruz and owing to
heavy transportation costs and excise taxes, items were very costly by the time they
reached the frontier. Spain had also discouraged local initiative by preventing the
manufacture of certain goods. Under independent Mexico, the northern frontier was opened to foreign capital, local manufacture, and foreign trade. Mexican and Euroamerican merchants shifted the commercial orientation of the frontier from Mexico to the United States (Weber 1997: 122-125).

3.3.3 Characteristics of the Frontier Society
What frontier settlers perceived as neglect from Mexico contrasted greatly with the interest Euroamericans showed toward the region. Settlers of the periphery began to drift away or actively rebel from the central government which they felt had abandoned them. The poverty of most pobladores undoubtedly encouraged a pragmatic approach and a corresponding disregard for the interests of the nation. The distance from the core and the weakness of Mexico's conservative institutions left frontier society more fluid and more receptive to the local, increasingly Euroamerican-influenced environment. A major impetus for contact was the California gold rush of 1849 which brought many Euroamerican wayfarers through Tucson and Tubac en route to the Pacific. The marginal, ambivalent, and, in cases, rebellious Mexican frontier society was becoming closer to that of the Euroamerican frontier physically, politically, economically, and socially (Weber 1997: 273-285). Intervention by Yanqui invaders was not strongly resisted by the border population in southern Arizona and elsewhere. The population both lacked the means and perhaps the desire to resist. Later, in communities like Tucson, the border population integrated socially and interacted culturally with the newly-arrived Yanqui settlers, creating a truly hybrid society.
4 The Euroamerican Era (1854 to Present)

4.1 Introduction

Between 1845 and 1854, through annexation, conquest, and purchase, the United States acquired more than one million square miles of Mexico's national territory. This acquisition included today's Nevada, Utah, much of Colorado, parts of Oklahoma, Kansas, and Wyoming as well as the areas that became California, Arizona, New Mexico, and Texas. Hispanic Arizona lay in the zone of the 1854 Gadsden Purchase, that land south of the Gila River which would allow for a level, all-weather rail route to the Pacific. In 1863, Hispanic Arizona was incorporated into the Territory of Arizona. By the time of the Gadsden Purchase, Apache hostilities were extreme, Tubac had been practically abandoned, and the missions and large ranches lay deserted. The small garrison town of Tucson had persevered through decades of Apache warfare, the Wars of Independence, and the chaos of the emerging Mexican Republic. Occupation by United States forces undoubtedly promised protection from the Apache and other advantages. Most Tucson residents (tucsonenses), typical ambivalent border people, may have welcomed the Gadsden Purchase (Sheridan 1986: 31, Weber 1997: xv, 275).

In general, early Euroamericans in the area held ethnocentric prejudices about the people they had recently defeated in a self-serving war. Euroamerican capitalists believed Mexicans had not been capable of realizing Arizona's potential and that a superior order, based upon Euroamerican institutions and ideals, was necessary. Prior to the Gadsden Purchase, the Sonoran frontier was very poor. After 1854 Euroamerican capital entrenched itself in the area, especially in the mining industry and mercantilism, and Euroamericans, though at first a minority, gradually secured economic, political, social, and cultural dominance over the pobladores of the border and the ever-increasing tide of
Mexican immigrants. This process varied depending upon the circumstances. In the worst case, especially in the mining industry, Mexicans were badly exploited and persecuted. Serious class and racial tensions developed between Euroamerican mine owners and Mexicans who comprised the large, accessible, low-paid workforce needed to make mining profitable. On the other hand, for approximately three decades following the Gadsden Purchase in Tucson, the Euroamerican minority harmoniously integrated itself through marriage, business partnerships, and demographic proximity with the Mexican majority. A similar situation occurred in the new Territorial town of Florence. In Tucson, this social integration prevailed until the arrival of the Southern Pacific railroad when Euroamericans began to dominate and segregate themselves demographically and in all other respects (Sheridan 1986: 34-39).

4.2 Mexican and Euroamerican Interaction in the Mining Industry

Before the Civil War, in the vicinity of Tubac and Patagonia, Euroamerican entrepreneurs such as Charles D. Poston, who set up a mining operation in the abandoned presidio of Tubac, employed Mexicans to work in the mines. Mexicans also numbered among the fortune-seekers who drifted into Arizona after working the California gold mines. The first permanent Mexican and Mexican-American population to develop north of the Santa Cruz settlements centered around placer gold deposits along the lower Colorado and Gila rivers. After the Civil War, when Euroamerican mining activities began in earnest, Spanish-speaking miners worked in the Mountain Highlands region, in Globe and the Clifton-Morenci area. Although frequently suffering from strong anti-Mexican prejudice and living in ethnic enclaves, Mexicans and Mexican Americans were important to the mining industry and eventually lived in nearly all of Arizona's mining towns (Comeaux 1981: 153, 154).
4.3 Biculturalism: Mexican and Euroamerican Interaction in Tucson and Florence

Tom Sheridan's study of tucsonenses (1986) and Harris Sobin's study of the community of Florence (1977), which was first established by Euroamericans in the 1860s and attracted a vital Mexican population, shed light on the phenomenon of the biculturism which prevailed during the first Territorial decades. This cultural hybridism was reflected on many levels including the realm of material culture, the dwellings and other artifacts built by this society. (See Hispanic Settlement Patterns and Dwellings.)

4.3.1 Tucson

Tucson experienced an initial population loss with the departure of the Mexican presidial soldiers and their families in 1856 but was not immediately overwhelmed by Euroamerican immigrants (Sheridan 1986: 2). Instead a few men like Sam Hughes, Hiram Stevens, Charles Meyer, Solomon Warner, and Pinckney Randolph Tully arrived and prospered by learning to coexist with the pre-established Mexican community. Tucson became a tiny mercantile community where Mexican and Euroamerican teamsters, traders, and artisans mixed on a relatively equal basis and became mutually interdependent through fighting the Apache, intermarriage, and business partnerships (Sheridan 1986: 33). This early biculturism fostered integrated settlement. However, very gradually and in spite of their numerical inferiority, Euroamericans began to gain hold of most of the economic, political, and professional power in the community and become the dominant ethnic group, and this phenomenon began to manifest itself demographically. Eventually Euroamericans dominated numerically as well to become the largest population group in the community.

Two classes of Mexicans lived in Tucson at the time Euroamericans began to settle in the community. Among the tucsonenses was a middle class elite consisting of families such as the Eliases, Oteros, Pachecos, Leones, and Ruelas who had been rooted in southern Arizona since Spanish colonial times. Other members of this elite, such as the Ochoas,
Aguierres, Samaniegos, and Carrillos immigrated to Tucson from northern Mexico. Tucson's Mexican elite ran large businesses, founded ranches in southern Arizona, and held important political offices. This elite intermingled with Tucson's Euroamerican elite, the aggressive, young male entrepreneurs who came seeking their fortune on the frontier (Sheridan 1986: 38). Other than the elite, however, some tucsonenses were native-born farmers who owned and worked the irrigated fields in the vicinity of the community, but most Tucson Mexicans were of the working class and they experienced society on a different level than the Mexican elite. They occupied a subordinate position, constantly reinforced by an influx of working-class Mexican immigrants, and they comprised an inexpensive and abundant supply of labor for the growing community (Sheridan 1986: 4). Tom Sheridan labels this phenomenon, which manifested itself in all aspects of Mexican working class society, "institutionalized subordination." This inequality between Tucson's Mexicans and Euroamericans gradually led to enclavement, or the formation of large neighborhoods (barrios) along ethnic lines.

4.3.2 Florence

Florence was one of the first Euroamerican settlements founded in the Gadsden Purchase. It developed from a post-Civil War scattering of Euroamerican and Mexican ranchos which coalesced into a settlement known as Florence by 1868 when Levi Ruggles, Indian agent for the O'odham and Maricopa, purchased a claim which he subdivided into the area which is today the oldest part of town. The community gained significance in the Territory as a trade as well as regional and federal administrative center. It was the site of the first federal Land Office in the Gadsden Purchase and the county seat after the creation of Pinal County. The discovery of a nearby body of silver ore at the Silver King Mine prompted a population boost when Florence became the major trading center for the area's mining communities. The establishment of the Florence Canal and Land Company in 1886, which implemented a large-scale irrigation scheme southwest of town, also created
an influx of settlers. After the turn of the century, in 1909, the Territorial Penitentiary was transferred from Yuma to Florence, and a series of dams were constructed along the Gila River encouraging settlement by ensuring a dependable water supply for agriculture and the town's uses (Sobin 1981: Sec. 8, pp. 3-5).

A bicultural pattern developed in Florence from the beginning, in spite of its purely Euroamerican origins. Similar to Tucson, in 1870 Florence's Hispanic population was much larger than its Euroamerican one, a trend which gradually reversed itself over the years. Although numerically inferior, from the start Euroamericans held the economic power and prominent political positions and were the early professionals of the community. Euroamericans also worked as miners, teamsters, saloon keepers, merchants, blacksmiths and carpenters. The Mexican population was comprised of miners, grocers, butchers, ranch hands, masons, store clerks, farmers and farm laborers. However, in Florence there were several prominent Mexican community leaders, merchants, and ranch owners (Sobin 1981: Sec 8, p. 6). In early Florence, biculturism appears to have fostered an enduring pattern of integrated settlement, not the formation of ethnic enclaves as in Tucson.

4.4 Biculturism: Hispano and Mormon Interaction in Concho
Descendants of the original Spanish settlers in the Puebloan area of New Mexico, known as Hispanos, became a powerful group politically and economically. Largely owing to isolation and external threats, they remained primarily in the area in which they first settled until the Euroamerican period when they expanded into northwestern New Mexico, southern Colorado, Arizona, and elsewhere. Their expansion efforts occurred at a time when they were forced to compete with Texans and other Euroamericans for new land. Hispanos first expanded into Arizona around St. Johns and Concho in the short grass
plains region of the Little Colorado River which, since the 1870s, had become a zone of considerable Mormon colonization activity. (See Euroamerican Settlement.)

Although the origins of Concho are disputed, Solomon Barth, an entrepreneurial Polish immigrant and military supplier operating from Cubero, New Mexico, probably hired Hispanics to assist when he secured the contract to supply Fort Apache in Arizona. Hispanics may have later named the community "Concho" from the Spanish word for "sediment" which possibly refers to the local, adobe-producing but difficult-to-drain, dense, clay soil. Concho's Hispanic colonists, who originated from northwestern New Mexican towns, were brought in to raise grain and sheep. The Hispano pioneers, such as Manuel Antonio Candelaria, Presiliano Archunde, and J. F. Chavez, developed a strain of Spanish merino sheep ideally suited to this region of Arizona. They prospered as commercial shepherders, grazing their sheep herds far from Concho during different seasons of the year, until the Great Depression of the 1930s which destroyed Concho's sheep industry (SWCA 1992: 9, 10, 22).

As part of Brigham Young's wasteland settlement strategy to claim sectors of the American frontier for Mormonism through trade-linked, self-sufficient towns, Mormons from Utah colonized the Little Colorado River area in northern Arizona. Mormon colonists, largely farmers, arrived in Concho in 1879, the year they purchased the J. F. Chavez ranch and expanded to include an estimated thirty to forty families under Elder Bateman H. Wilhelm. Named Erastus, after Erastus Snow, who was in general charge of regional colonization, the community became a ward, an ecclesiastical, political, and social unit of the Latter Day Saints church. The Mormons engaged in farming but undoubtedly owing to Concho's poor soil they were not very successful at this pursuit and began to leave the area. By 1890, the Mormon colony contained only nineteen families. Erastus became known as Concho and was divided along ethnic lines into the Mormon settlement
"Upper Concho" and the Hispano settlement "Lower Concho" or "Concho." Mormons eventually left Concho and much of their land was purchased by Hispanos (SWCA 1992: 11, 13, 14).

4.5 Biculturism: Basque and Euroamerican Interaction in Flagstaff
Sheep raising became an important Arizona industry beginning in the 1870s especially after droughts and land pressures forced many in the California sheep business to move their operations east and north. As mentioned, large herds were also brought into the Concho area by Hispanos. By 1890, sixty percent of Arizona's established sheep ranches were located in Coconino County. Large Euroamerican-owned sheep raising outfits recruited Hispanos and immigrant Basques, a distinct European ethnic group originally from the Pyrenees Mountain region of northern Spain and southern France, to care for the thousands of sheep in the region. New World Basques, called Amerikanes, participated in sheep raising in Argentina and Uruguay in the early 1800s and in California after 1848. They were among the California sheep herders who migrated to northern Arizona. Many of them frequently took their pay in shares of a herd and eventually built up large flocks of their own. Most sheep herders of Basque heritage settled in or near Flagstaff, becoming a small but significant group in the largely Euroamerican community. The unmarried tended to live in Basque-populated boarding houses while the married herders lived in ethnic enclaves in Flagstaff's southside (Woodward and Wilcox 1998: Sec. 8, pp. 24-27).

4.6 Mexicans and Mexican Americans in Arizona and the Southwest (Late 1800s to the 1930s)
The Mexican and Mexican American population in the Southwest grew rapidly during the latter decades of the nineteenth century. Between 1870 and 1880, the Spanish-speaking component of Arizona's population more than doubled from 4,348 to 9,330. After 1870, though many Mexicans and Mexican Americans worked in the copper mines, most found
employment as agricultural workers, especially in the Salt and Gila valleys and by the late 1870s, half the population of Phoenix and Florence was Spanish-speaking. This population tended to live in towns and villages, commuting to the fields, a tradition that continues today. After 1900, the growth of the Mexican and Mexican-American population in the Southwest was spectacular. By 1930, probably one out of every ten Mexican citizens, attracted by the political stability and dynamic economy, was living in the United States. The great Mexican Revolution from 1910 to 1917 caused many citizens to leave Mexico. World War I created a booming war economy with a demand for Mexican labor which continued into the 1920s. The United States government did little to discourage this migration but problems caused by the depression of the 1930s forced many Mexicans to leave during that era. Since World War II, the influx of both legal and illegal Mexican immigrants continues to contribute to the expanding economy of the United States (Comeaux 1981: 152-163).
1 Introduction

The Hispanic tradition is characterized by recognizable settlement patterns from the urban scale down to the individual dwelling in its own setting, or housescape. Though several types of settlement were established in the very limited area of meager Spanish and Mexican occupancy in the southern Arizona region, very little architectural evidence remains today, with the exception of some ruins and the two mission churches, to document this Hispanic presence (Officer 1987: 7, 8). As shall be explained, most of the earliest evidence of Hispanic settlement was produced under United States jurisdiction during an era of vigorous cultural interaction between frontier Mexicans and Euroamericans. Nearly all of Arizona's early Hispanic settled areas, and the dwellings associated with these, such as Tucson's adobe rowhouses, are hybrids, the product of this cultural blend. Later evidence of Hispanic settlement in northern Arizona, that of New Mexican Hispanos in Concho and Basque sheepherders in Flagstaff, also represents hybridization. In the twentieth century, as more and more Mexican Americans began to adopt Euroamerican dwelling types, they added their ethnic mark in subtle ways to these otherwise non-Hispanic buildings.

The primary focus of this chapter will be upon the process which occurred and the forms which resulted when Hispanic and Euroamerican settlement patterns, dwelling types, and technology blended. To understand hybridization, it is necessary to understand the cultural components of this process and this chapter will discuss Hispanic settlement and Native American-influenced Hispanic dwelling forms before Euroamerican contact as well as the Euroamerican contribution. In southern Arizona the process of hybridization accelerated after the arrival of the Southern Pacific Railroad in the 1880s and endured well into the twentieth century.
2 Hispanic Settlement Patterns

2.1 Summary

During the Hispanic era, several types of settlement were associated with Spanish and Mexican colonizing activities in southern Arizona. The most important of these were missions, presidios (military and civilian agropastoral communities), ranchos, and haciendas. Along the Santa Cruz River, no typical, planned, Hispanic civil community developed such as nearby Ures, in northern Sonora, Mexico. (Arizona's presidial settlements grew into towns after Euroamerican contact and became hybrids, not true examples of Hispanic planning). One basic principle associated with Hispanic planning was the cultural preference for arranging structure to enclose a plaza or courtyard. The idea of courtyard enclosure with modular building units or high walls, and, in most cases, access to the plaza through a zaguan or covered entry, manifested itself at every level of settlement in New Spain and the Mexican Republic; from the colonial city and the mission and presidio complex to the urban and rural dwelling. This courtyard tradition, which suited the Spaniards' and Mexicans' needs for defense and their cultural preference for living in close proximity to neighbors and relatives, also served as protection from the elements in the Southwest. The courtyard ideal, which developed vigorously in northern Sonora and further south in the Hispanic heartland, was rarely fully realized in frontier Arizona, especially in urban development.

2.2 The Mission Complex

The ruin of the mission of Tumacácori, an example of a well-developed mission complex, illustrates the Hispanic concept of enclosed courtyard. Tumacácori was sited for defensive purposes and to enhance its visual prominence (thereby symbolizing its importance in the colonial enterprise) near the Santa Cruz River, its source of irrigation. Surrounded by a thick adobe wall, the complex included the Baroque-inspired, adobe sanctuary and an open courtyard area for assemblage. Within the enclosure were dwelling
quarters for the priest and resident Pimas, storage and dining facilities, granaries, schoolrooms, and shops. In addition, the complex contained gardens, a cylindrical, adobe funeral structure, and a small graveyard. Outside the mission walls were a Native American settlement, irrigated, cultivated fields, corrals, orchards, and vineyards. Animals, generally fenced in, grazed on range near the mission (Comeaux 1981: 93).

2.3 The Presidio Community

Founded to protect nearby mission settlements from Apache depredations, Tubac and Tucson were garrisons and agropastoral communities supporting a military and civilian population. Sited for defense and near the Santa Cruz River, during the Spanish and Mexican Republic eras these communities developed into massive-walled enclosures in close proximity to cultivated, possibly fenced fields which were irrigated by acequias (ditches). Outside the presidio walls, a few Hispanic vecinos resided in fortress-like dwellings near small wickiup settlements of Apaches Mansos and O'odham peoples in kiki. Though today little remains of either presidio, archaeologists and historians have constructed likely descriptions of these settlements.

2.3.1 Tucson Presidio

The Tucson presidio, based upon the courtyard principle, was enclosed by adobe walls three feet thick at the base which rose ten to twelve feet high around a quadrangle approximately three hundred yards on each side. Within the enclosure were the commandant's residence, a guardhouse, a small chapel, storerooms, and offices. The enclosure walls were further thickened by the construction of soldiers' quarters and stables along the inner perimeter, the roofs of which were used by sentries. The main gate, a type of zaguan over which a platform for the cannon was built, opened on the Camino Real, now Main Street, in downtown Tucson (Sonnichsen 1987: 22-24). To the west of the presidio lay a number of irregularly-shaped, cultivated fields which demonstrated the
symbiotic relationship between the presidio and floodplain agriculture (Sheridan 1997: 58).

2.3.2 Tubac Presidio

Archaeological investigations have revealed that Tubac developed in two distinct areas, or barrios (neighborhoods), separated by a large wash extending east to west. Apparently the north barrio featured a plaza on which the presidio structures and the Church of Santa Gertrudis de Tubac were sited. The south barrio included another plaza surrounded by most of the community's buildings (Janus 1992, Sec. 7, pp. 1, 2). The historian Henry Dobyns (1959) documented the architectural evolution of Tubac presidio through several eras of its development. During the years 1752-1776, the dates spanning Tubac's foundation to its abandonment and relocation, the post apparently lacked a presidial wall. Based upon a map constructed by army engineer J. de Urrutia, the settlement included seventy-one structures not including the church, headquarters, and captain's quarters. Among these were probably a warehouse, stores, workshops, and troopers' barracks. There were almost certainly livestock corrals within the settlement. Urrutia's map also illustrated the location of the principle irrigation ditch, the acequia madre, which watered the fenced, cultivated fields located between the presidio community and the Santa Cruz River. From 1787-1848, the dates spanning the regarrison of Tubac by a Pima company to its abandonment due to Apache attack prior to Yanqui occupation, a massive, adobe, presidial wall appeared. During this era, earlier adobe dwellings may have been reoccupied and some new ones, such as the house of Toribio de Otero, Arizona's first recorded land grantee, may have been added. However, as the Mexican era progressed, the wholesale deterioration of dwellings occurred due to the gradual collapse of the presidio (Dobyns III 1959: 649-654).
2.4 The Hacienda

The hacienda was a landed property, imported from Spain, which served in the New World as a plantation, farm, ranch, or estate. The National Register-listed San Ysidro Hacienda, currently in ruins, is located in the vicinity of Yuma on rising ground overlooking the valley of the mouth of the Gila River. Allegedly established in the 1860s by José María Redondo, a naturalized U.S. citizen from a prominent Sonoran family, the farm represents one of the first extensive irrigation systems in Arizona not related to indigenous construction. Around 1,500 acres were irrigated by the canalization of the Gila River. The hacienda once consisted of adobe buildings including a main house, a two-story flour mill, stables, a carriage and harness house, plus laborers' quarters. The headquarters were enclosed by a great adobe wall with arched gateways. Dwellings for approximately one hundred Yaqui families were located outside the walled enclosure (AZ State Parks San Ysidro 1975). Drawings reconstructing the site, plans, and elevations, based upon existing ruins of the San Ysidro Hacienda, were produced by Janus Associates in 1983. Given its ruined state, the use of the enclosed courtyard of this property is difficult to determine.

2.5 The Colonial Town

Though no typical town based upon Hispanic planning principles developed in southern Arizona, it is useful to understand these principles in order to compare the ideal with the hybrid, as exemplified by post-1854 Tucson and Tubac. Under Spanish rule, the Laws of the Indies of 1573 stipulated strict guidelines for colonial town planning. In the New World, Spaniards implemented an idealized, orderly city plan, based more upon Roman than Iberian precedents, in which a regular grid system was generated from the plaza, or town square. This urban-scale courtyard was commonly a park for social gathering. Sites bordering the plaza were reserved for the town sanctuary and important government buildings, symbolizing the link between the Church and Crown (Van Slyck 1998: 2). Also
lining the plaza, arranged directly on property lines, were shops and the contiguous-walled dwellings of the elite. Throughout the grid, Hispanic planning incorporated the enclosed courtyard principle at the urban block level and at the scale of its most elemental unit, the individual courtyard dwelling. The ideal colonial city plan is exemplified by the nearby community of Ures in Sonora, Mexico (Fig. 7.1).

![Diagram](image.png)

Fig. 7.1 Ures, Sonora. Urban-scale courtyard ringed by rowhouse blocks and church

3 Territorial Hybrid Settlements

After the arrival of the Euroamericans in southern Arizona, two general categories of bicultural settlement evolved: (1) the communities of Tucson, Tubac, and Concho which had Hispanic origins but were influenced by Euroamerican planning principles and economic forces, and (2) new Euroamerican-founded and platted settlements such as Florence, Nogales, and Douglas, which had significant Mexican populations and incorporated Hispanic settlement principles at the urban-block level in some subareas. Many of the state's stock of Hispanic and Hispanic/Euroamerican hybrid dwellings in existence today can be found in these settlements.

3.1 Hispanic-founded Communities: Tucson, Tubac, and Concho

3.1.1 Tucson

Tucson grew from the presidial hub, the extent of legislated Hispanic planning, which was roughly bounded by today's Pennington, Church, Washington, and Main Streets. Unlike the controlled development of an ideal New World Hispanic city, bicultural Tucson's early growth appears to have been determined by a blend of Mexican and Euroamerican
capitalism, Euroamerican townsite imposition, ethnic inequality, and Mexican cultural patterns. Early Tucson did not have an orderly grid plan originating from a central plaza and apparently little public control governed the street pattern, an irregular, non-rectilinear network (Giebner & Sobin 1972: 24). Three plazas in close proximity developed during these early decades. The Plaza Militar and the Plaza de las Armas, created by the bisection of the original presidio, were located to the north of the Plaza de la Mesilla, later known as the Church Plaza. In 1871, the Euroamerican-controlled town council petitioned Congress to grant Tucson a townsite patent, which included the site of the original presidio. In 1877 the City of Tucson was incorporated with an engineered plat. This townsite plat, which included early Tucson's former irregular lots and blocks plus its plazas, undoubtedly created new opportunities for investment and set the stage for the rampant real estate speculation which followed to produce the regular, typically Euroamerican, grid-pattern adjacent to the city core (Johns & Strittmatter 1991: 16, 17).

Although Tucson's plan did not reflect the Hispanic ideal, the individual, irregularly-shaped blocks were ringed with a commercial and residential mix of contiguous-walled, flush-front, adobe structures built up to the front property line, a Hispanic cultural trait. In the early years, this pattern was also adopted by Euroamerican settlers. Exemplifying the courtyard principle at the urban block level, the arrangement of structure at the perimeter left an open area for communal use in the center of the block. The Sanborn map of 1909 (Fig. 7.2) shows urban blocks in the vicinity of the Church Plaza (the former church and its plaza, a gathering place for the Mexican community, was by this date the Hotel San Augustine) ringed by rowhouse dwellings mixed with lodging structures, saloons, restaurants, and other building types. Large walled areas to the center of the block appear to have been generally for communal use.
A demographic pattern of ethnic enclavement, caused by political and economic inequality, began to develop in the early years of ethnic interaction. While Euroamericans and a few of the Mexican elite moved into the presidial district, Tucson's commercial and residential hub, most Mexicans built their homes south of this center, the initial stages of the development of major Hispanic enclaves or barrios. By the 1880s, this Mexican portion south of town was known as the Barrio Libre (Sheridan 1986: 79, 80). Euroamericans continued to control the core from which they moved in an eastward direction. By the end of the nineteenth century most Mexicans lived south of the core, but there were also Mexican barrios north of downtown, the largest of which became known as Barrio Anita (Fig. 7.3) (Sheridan 1986: 125).

3.1.2 Tubac

Tubac presidio was in a state of deterioration, with less than thirty habitable structures and very few remaining Mexican settlers, when Euroamericans reestablished the settlement in the late 1850s and 1860s to suit themselves. Hybridization in this settlement was the
adoption and modification of Hispanic building types by both ethnic groups in combination with Euroamerican town planning efforts. Apparently portions of the presidial captain's quarters and barracks were habitable for use by members of Charles D. Poston's mining and exploration company. Reports around 1859 of the existence of a hotel, mercantile stores, and a news press may have indicated reuse of existing buildings or new construction. In the late 1870s Tubac was occupied by entrepreneurs Henry Glassman, Isaac Goldberg, T. Lillie Mercer, and Sabino Otero, who founded businesses in the settlement (Janus 1992, Sec. 7, pp. 2, 3). (Sabino Otero's family association with Tubac dated back to the 1780s.)

Tubac's citizens developed two townsite plats and one amended plat for the greatly altered presidio. The first plat of 1882 was a transposition of a fifty-eight block grid aligned to fit the entrepreneurs' building locations. This plat did not relate to the existing buildings, such as the ruin of Santa Gertrudis church. Apparently Tubac's citizens did not build according to this plat but produced a new one in 1913 which reflected the existing conditions of the settlement as it had developed since the 1850s. As in Tucson, existing conditions did not allow the imposition of a typical Euroamerican, rectilinear grid and the 1913 plat map showed twelve large, irregularly-shaped blocks divided by existing roads and the Santa Cruz River (Janus 1992: Section 7, p. 3). Tubac's historic district (Fig. 7.4) comprises the central area of Tubac townsite and includes structures that allegedly date back to the 1850s, the era of Charles D. Poston's mining interests. Bicultural influences are seen.
in the adoption by both ethnic groups of Hispanic dwelling types and building emplacement in the community.

3.1.3 Concho

Concho's sheep ranchers customarily maintained town houses in Concho and simpler ranch houses on the range. The town houses of the Hispanics were built in a tight cluster in the northeast portion of the community. In 1890 the Hispano pioneers filed an irregular, quilt-pattern, one-hundred-sixty-acre Concho townsite plat. Three subsequent plats were added in 1907, 1912, and 1916, linking Upper and Lower Concho (Fig. 7.5) and reflecting the fact that Hispanic Concho was gradually absorbing Mormon Concho. However, it is of interest that blocks and lots became more standardized over time. This probably was due to an early survey undertaken by the Mormons which staked out the community along City of Zion guidelines. (See Euroamerican Settlement Patterns and Dwellings.) These utopian Mormon "farm village" planning guidelines, which called for wide streets and square blocks, are reflected most clearly in the Sunshine Addition (SWCA 1992: 16) (See Euroamerican Settlement Patterns & Dwellings). The current historic resource survey map (Fig. 7.6) documents a community that is much less densely populated than such platting would allow.

Fig. 7.5 Concho Additions 1890-1916 (SWCA 1992:17)

Fig. 7.6 Concho Historic Resource Survey Map (SWCA 1992)
3.2 Euroamerican-founded Territorial Settlements: Florence, Nogales, and Douglas

3.2.1 Florence

Historic Florence was a community situated in a relatively level, extensively irrigated agricultural setting, which blended Euroamerican planning and building types with Hispanic settlement principles and building types in numerous locations throughout the surveyed townsite. Florence Townsite Historic District (Fig. 7.7) includes the core of the community's late nineteenth- and early twentieth-century governmental, commercial, and residential development. Founded in 1868 by Levi Ruggles, who designed a grid of 125-foot square blocks and 60-foot wide streets for the level terrain, Florence developed a dense business district of contiguous, one-story structures along the town's Main Street. The density of this commercial core decreased as non-commercial, primarily residential land uses prevailed. Land set aside for the community included a plaza for the second Pinal County Courthouse of 1891, the "courthouse square," and spaces for educational, religious, and recreational use (Sobin 1981: Sec. 7, pp. 1-5). Illustrating cultural interaction, Harris Sobin (1977) identified Hispanic and hybridized vernacular traditions in Florence by noting streetscapes of zero-lot-line rowhouses and detached dwellings of adobe in the residential and mixed-commercial townsite blocks.

Fig. 7.7 Florence Townsite Historic District (Sobin 1981)
3.2.2 Nogales

Located directly on the international border, Nogales, Arizona, was a Euroamerican-founded, border-station community, noted for its customs brokerage business, which developed into a major transnational shipping center connected by rail and highway to Mexico. First settled in 1880 as a trading post, the community's growth flourished after 1882 as the site where the New Mexico and Arizona Railroad east of Nogales connected with its affiliate, the Sonora Railway Company, Ltd. from Guaymas. In 1910 and 1911 Southern Pacific purchased these lines and completed a direct route connecting Tucson and Nogales, fostering further growth. Also of vital economic importance to Nogales was the establishment in 1910 of nearby Camp Steven D. Little to secure the border during the years of the Mexican Revolution (Janus Nogales 1984, Sec. 8, pp. 1-11).

Like Tucson, Tubac, and Florence, Nogales had a Mexican elite and a significant Mexican population, however, Euroamericans made the major town planning decisions. Nogales was incorporated in 1893 but problems concerning the validity of the Los Nogales de Elías land grant claim prevented the granting of clear title to the townsite patent and plat until 1899 (Janus Nogales 1984: Sec. 8, p. 6). The difficult terrain, a small, alluvial floor along the Nogales Wash encircled by moderate to steeply sloping hills, and probably the need to accommodate preexisting ownership patterns and construction since 1880, must have precluded the possibility of a regular grid plan. Like Tucson and Tubac, Nogales' lots and blocks were rarely rectilinear as illustrated in the map of the Crawford Hill Historic Residential District (Fig. 7, 8).

Fig. 7.8 Southeast Portion of Nogales Crawford Hill Historic District (Janus Nogales 1984)
part of the Nogales Multiple Resource Area nomination. Similar to the previously-mentioned communities, streetscapes range from those which are purely Euroamerican in character to those which are hybrids. Hybridization is especially evident along Bradford Street which is lined with zero-lot line, adobe rowhouse development.

3.2.3 Douglas

Douglas was established in 1901 as the site of copper mining smelters built by the Phelps-Dodge and Calumet and Arizona Mining Companies. Situated on the border between Arizona and Mexico, this commercial and rail transport support community served mining interests in the Bisbee area and those in nearby northern Sonora. Douglas flourished between 1901 and 1930, the height of the copper mining boom. During this era, opportunities to work in the smelters and railroad yards attracted a relatively large population of single men, undoubtedly largely Mexican, and this population influx created a need for modest-income workers' housing. Speculative builders began to construct inexpensive rental apartments, some of which exhibited Hispanic land use patterns (Laird 1985, 1987: Sec. 8, pp. 1,2). Town planners had laid out the community in a regular Euroamerican-pattern grid and the area designated today as the Douglas Sonoran Historic District (Fig. 7.9) which comprised several blocks of flush-front, zero-lot line, rowhouse buildings, was part of this grid. The historic district is a hybrid in that it combines Euroamerican town planning with Hispanic, city-block-level land utilization.
4 Hispanic Hybrid Dwellings

4.1 Summary

Arizona's Hispanic hybrid vernacular dwellings are those which developed regionally through cultural interaction, first between Spaniards and Native Americans, and later between Hispanics (Mexicans, Hispanos, and Basques) and Euroamericans. Hispanic hybrids comprise dwellings which, although modified by non-Hispanic influences, commonly possess predominant, recognizable "Hispanic" morphological and building emplacement traits. The "Sonoran Tradition" is the label assigned by historic architect Harris Sobin (1977) and others for the earliest cultural exchange, which produced Spanish/Native American hybrids. This tradition blended regional Native American roof construction technology and materials with Spanish, vernacular, domestic architecture, the product of an Old World, preindustrial, adobe, folk-building process. New Mexico's early Hispano tradition, labeled "Spanish Colonial" by SWCA (1992), also blended the roofing method of local indigenous peoples, slightly different from that of the Sonoran area, and added non-adobe walling materials to the repertoire. Much later, in a cultural interaction which produced a tradition named "Transitional" by Harris Sobin (1977), hybridization occurred through the incorporation of Euroamerican roof forms, floor plans, and industrialized building materials into otherwise Hispanic dwellings.

4.2 The Sonoran (and Hispano) Tradition

Spanish, Mexican, and Hispano vernacular dwellings of the sort encountered in southern and northeastern Arizona, were rectilinear-plan, flat-facade, flat-roofed, adobe, detached or rowhouse types constructed by a preindustrial building process with roots in prior Mesopotamian- and Mediterranean-influenced, Moorish Spain. (The Spanish colonists also had gable-roofed, domestic architecture which was dominant along the California coast and the region around Saint Augustine, Florida. The parapeted, flat-roofed variant was dominant in southern Arizona and along the Rio Grande [McAlester & McAlester
This flat-roofed variant first spread by means of cultural diffusion from Spain to Mexico, where it was reinforced by an indigenous flat-roofed tradition, then northward to the Sonoran region as well as other areas of Spanish influence along the frontier (West 1974). In the Sonoran region and along the Rio Grande, modifications of a regional Native American derivation apparently occurred with respect to the structure and form of the flat or flattish roof.

4.2.1 Sonoran (and Hispano) Construction Technology

In the Pimería Alta and Pimería Baja, the arid desert climate, necessity for defense, scarcity of building materials, and the presence of the indigenous rancheria cultures gave rise to Sonoran construction technology. A synthesis of Spanish sun-dried, adobe-masonry walling and earth-clad timber roofing of tribal groups such as the Yaquis, Mayos, and Pimas, the Sonoran method, as employed by the Spaniards and later Mexicans, probably first developed in the seventeenth and eighteenth centuries (Sobin 1977: 98). Up to the early 1880s, the Sonoran system of construction, which maximized the use of earth and natural materials throughout the building, prevailed. In northeastern Arizona, New Mexican Hispanics also used locally available materials for walling, such as stone rubble and adobe, which they combined with Puebloan-influenced roofing. Other than roofing and material variants, Hispano construction technology was basically identical to Sonoran.

The contribution of Native Americans to Sonoran and Hispano construction technology was the regional, indigenous roof system. In the Sonoran area, the Pima and other closely-related rancheria cultures constructed jacales and ramadas based upon a simple, crotched-post and lintel frame which supported a roof assemblage of cottonwood or mesquite rafters, twigs, reeds, grass, and a final layer of earth. (See Native American Settlement Patterns and Dwellings.) The Spaniards and Mexicans added both the jacal
and the ramada to their repertoire and apparently adapted the indigenous roof assemblage to their own adobe bearing wall structural system. The Hispanics called the beams *vigas* and the cross ribs, *savinas*. This adaptation manifested itself in two modes. The roof structure was either embedded into the adobe walls and drained by means of *canales* (drain spouts) penetrating parapets or, as seen in early photographs, the "eaves" of its flattish form extended slightly beyond the exterior face of the walls in the typical fashion of O'odham jacal construction. The Hispano variant of this roofing system, as manifested in ruins in the Concho area, allowed the vigas to penetrate beyond the face of parapeted walls, a trait common among the Puebloans in the Rio Grande region.

Although the Spaniards used other materials when available, such as logs and stone rubble, the major contribution they brought with them into the Southwest was the adobe bearing wall structural system using form-cast, sun-dried bricks. Adobe, a word of Arabic origin, means "earth from which unburnt bricks are made" but is also used to describe the sunbaked bricks themselves. Adobe walls for domestic construction ranged from eighteen to twenty-four inches thick. The Spaniards learned adobe technology from their cultural affiliation with the Moors who entered the Iberian peninsula in the eighth century. The Moors, through innumerable intermediaries, had learned the technique from ancient Mesopotamia. (The idea of using adobe for brick was a very logical concept no doubt arrived at independently in several different parts of the world. Recent research has uncovered the use of pre-molded earthen bricks in certain areas of the Western Hemisphere such as Mexico, South America, as well as the Southwestern United States [Bunting 1976: 9, Sobin 1977: 97-98].)
According to Chris Wilson in his study of New Mexican hybrids, two useful ways to understand Hispanic planning are to consider the Hispanic ideal, the courtyard dwelling, or to emphasize the individual unit, the room (Wilson in Pratt & Wilson 1991: 110). The Hispanic courtyard dwelling, which in urban settings shared a common wall with its neighboring courtyard house, was and is ubiquitous in towns like Ures, Sonora (Fig. 7.10). This dwelling type dated back to the atrium dwelling of the Roman Republic and Empire and probably took root in Spain during the period from about 200 BC to AD 400 when Spain was a major Roman colony. The Moors, who ruled parts of Spain for more than 700 years, reinforced the tradition of the courtyard dwelling, a private inward-facing compound (Stewart 1974: 3, Spears 1986: 29-30). The Hispanic courtyard dwelling did not materialize in its fully-realized form in Arizona’s hybrid communities. It is, however, useful to keep the ideal in mind when evaluating the modular, additive, Hispanic planning process which produced Sonoran dwellings. Given the right set of circumstances, builders strove to enclose a courtyard as they gradually added individual rooms to a dwelling.

The basic building unit was a single room; a rectilinear, often square, building block usually about ten to sixteen feet in the direction of the span of the vigas which was commonly the shorter dimension of the room. A family began with this single, self-sufficient room which had a single door on one of its long sides. The Hispanic room or *sala* was spacious, in terms of floor area and ceiling height, and multifunctional, housing all household activities like cooking, eating, bathing, sleeping, and entertaining, within its envelope. In the absence of bathrooms, families used outdoor privies. When needed, for example, when a newly-married son brought his bride to live in his father’s dwelling, the
family constructed new room modules, linearly arranged and essentially like the first with individual exterior doors. Frequently there were no interior connecting doors and circulation took place outdoors under porches after Euroamerican framing materials became available (Giebner & Sobin 1972: 23, Spears 1986: 28, Wilson in Carter 1991: 88).

Free-standing or contiguous-walled Sonoran dwellings were the result of the modular units being arranged in a variety of configurations (Fig. 7.11). The most basic was the single cell or one-room dwelling. A one-room-deep (single-pile), single-file string

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Fig. 7.11 Hispanic (Sonoran and Transitional) Plans

categorized dwellings with two or more rooms parallel to the street. A similar, linear string of rooms applied to urban, "shotgun plan" rowhouses, of the sort found in Tucson, where the entrance from the street was on the narrow front end and growth occurred
toward the open center of the city block. Compound plans resulted when the linear strings bent at right angles to form L or U configurations, partially enclosing a court. Early Hispanic dwellings tended to be single-pile arrangements. Plans which introduced a second pile to generate dwellings which were two-rooms deep, such as the *casa cuadrada* (foursquare house) and the double-pile, zaguan (central-hall) dwelling, undoubtedly reflected Euroamerican influences. (See Euroamerican Settlement Patterns and Dwellings.) Since the Hispanic tradition was additive, modifications tended to occur which greatly altered the original dwelling. Thus, many dwellings standing today most likely had simpler shapes before being enlarged or otherwise modified.

4.2.3 Sonoran Exteriors

Sonoran dwellings were visually wall-dominant structures with their flat roofs generally obscured from ground-level view by parapets, which, in cases might be capped by fired brick copings. Protruding canales indicated the roof level beyond. In those cases utilizing a flattish roof with overhangs, which ruled out the need for canales, the eaves of the roof assemblage were visible. Sonoran facades were flat and patterned with deep, small openings. The thick, exterior walls were tall, reflecting the fact that interior rooms were frequently around fourteen feet high. These 18- to 24-inch-thick walls rose from a variety of early foundation systems which ranged from direct contact of the wall with earth in a shallow trench to a more permanent, fieldstone base. Until the early 1880s in Hispanic frontier and Euroamerican territorial outposts, wall faces were either left uncoated, exposing the raw adobe bricks to the elements, or mud coated, requiring frequent recoating. In the late nineteenth century lime plaster was utilized increasingly to refine and protect adobe dwellings. This practice was shared by Hispanics and EuroAmericans but probably reflected Euroamerican influence owing to the development of the limekiln along with other industrialized processes at that time (Garrison Evolution n.d: 2). Each room commonly had its own exterior, wood batten door positioned near the interior.
surface of the thick wall. The shuttered, unglazed windows were flush with exterior wall surfaces. Door and window openings were spanned with mesquite lintels and framed with wood jambs.

4.2.4 Sonoran Interiors

Individual Sonoran rooms were spacious in length, width, and height. After fabric became available through trade, muslin lined the high ceilings of some dwellings. Sonoran floors, which were placed directly on the ground with little or no subflooring preparation, varied from packed earth to adobe brick, fired brick, tile, or flagstone (Nelson ed. 1978: 3). Sonoran fireplaces were of the bee-hive type, built of adobe, and placed in the corner of the room. Interior partitions were generally a single wythe of adobe brick. Sometimes homemade whitewash or jaspe was applied to wall surfaces.

4.4 The Basque Tradition

When Basque sheepherders settled in the Flagstaff area after the mid-1880s, they brought with them the knowledge of rural folk houses called jauregiak in the Euskaldunak provinces of Spain and France. Basque jauregiak date back to the sixteenth century. This type had a large rectangular plan, frequently two-story walls with a low pitched gabled roof. On the gable facade, a large, central doorway provided wagon access to a large room called the eskaratza. Behind this room were implement/fodder storage spaces, bedrooms, and a kitchen. The second story, or half story loft, served as granary/storage room but also included living quarters for the married heir. Fenestration was usually symmetrical with the central window or door at the gable head. Many jauregiak were constructed of stone with a wood frame second story (Woodward 1998: Sec. 8, p. 31). In Flagstaff Basques constructed a jauregiak-influenced type of bungalow, a variant of an international, popular vernacular dwelling. (See Euroamerican Types and Forms.)
4.4 The Transitional Tradition

Fostered by the arrival of the United States military after the Civil War and the railroad in the 1880s, significant hybridization occurred through cultural interaction between Arizona's Hispanics (Mexicans, Hispanos, and Basques) and Euroamericans. Cultural interaction involved the gradual incorporation of Euroamerican plans, roof forms, styles, industrialized materials, and techniques into otherwise Hispanic types. This blending of Hispanic, preindustrial, folk vernacular with Euroamerican, industrialized (mass), popular vernacular in individual buildings, characterizes what is called locally the Transitional tradition. Transitional hybridization reflects the multi-cultural society that flourished in Arizona during Territorial era.

The Euroamerican influence in the hybridization process was transformative. Euroamericans had an ethnocentric view of the superiority of their own architecture and technology. Early visitors to Tucson described Sonoran dwellings as flat, cheerless, monotonous, dingy, and delapidated mud boxes (Officer 1987: 10, 11). They looked forward to the day when "...the rude and unattractive mud front...[would] give place to the stately mansion with pedestal and column" (Sheridan 1986: 55). Though Hispanics and Euroamericans alike created the hybrids of this period, the Euroamerican impetus to "modernize" forced the modification of existing structures and fostered new construction in the same vein. As Sobin (1977) pointed out about Florence, Hispanic hybrids continued to be produced well into the twentieth century, simultaneously with numerically-dominant Euroamerican types. Many early Sonoran properties in Tucson, Florence, and elsewhere, were transformed by the addition of pitched roofs and other Euroamerican-derived modifications. The term "transformed Sonoran" has been used by Arizona surveyors to identify this type of modification. Another form of hybridization occurred through the substitution of industrialized walling materials for the traditional adobe. In Douglas, parapet-front, flat-roofed rowhouses, built around 1910, were Hispanic in form yet
constructed of gypsum cast stone, a Euroamerican, industrialized material. Another form of hybridization was the creation by Basque settlers in Flagstaff of their unique, Iberian-influenced dwelling similar to the bungalow, the epitome of Euroamerican popular culture.

4.4.1 Transitional Construction Technology
The basic makeup of the flat, thick, adobe wall remained the same as that of the Sonoran tradition but newly constructed walls of Transitional buildings were often set on continuous stone foundations, raised to allow for the construction of a crawl space. The new mode fused Hispanic materials and walling technology with nineteenth-century Euroamerican building techniques, especially for roofing and porches (Sobin 1977: 119). Euroamericans were associated with the post-Civil War, industrialized building process, also known as "mass vernacular," which was characterized by increasing specialization in trades and new technology. Largely facilitated by the development of new machinery, mills, and factories to produce building components and the proliferation of the railroad for distribution, mass vernacular was associated with "modernization," hence rapid change. Most important with respect to transitional dwellings was the application of the Euroamerican balloon frame technique and the use of dimensioned lumber, prefabricated lumber millwork, manufactured hardware, and fittings along with traditional adobe walling. (See Euroamerican Settlement Patterns and Dwellings.)

Transitional builders replaced many of the heavy, leaky, Sonoran mud roofs. They either created a new flat roof or, more common, a new, wood-shingle-clad, pitched roof of lightweight, dimensioned lumber. The balloon frame technique permitted longer spans while using less materials in the construction of the gabled or hipped roof. Rafters, usually two by fours or two by sixes, were pocketed into the interior face of the adobe wall, every two to three feet. Horizontal ceiling joists tied each pair of rafters together and permitted the construction of attic floor decks and wood tongue-and-groove ceilings in more
carefully finished dwellings. Closely-spaced lathing of flat, thin, wood strips was nailed to the rafters to support wood shingles. Later, builders substituted corrugated metal roofing for wood shingles (Sobin 1977: 122, 125).

4.4.2 Transitional Siting and Plans

Euroamerican urban lot utilization, which commonly placed detached dwellings within setbacks some distance from property lines, contrasted greatly with the Hispanic zero-lot-line tradition. In most cases Transitional dwellings, especially transformed Sonoran types with preexisting siting, continued with Hispanic emplacement. However, builders began to locate some Transitional rowhouses and detached dwellings back from sidewalks. Some of the basic Transitional plans remained the same as the more linear variations of the Sonoran, with major axes of buildings either parallel or perpendicular to streets (Sobin 1977: 122). However, many of these were later modified by additions or newly constructed so that they more closely resembled Euroamerican massed plans (Fig. 7.11). Euroamerican plans differed greatly from Hispanic ones by introducing hallways and room specialization, creating public and private spaces and functions, a change from the flexible, multipurpose Hispanic room unit (Wilson in Pratt & Wilson 1991: 112). Though many early Transitional dwellings lacked kitchens and bathrooms and had cooking areas and privies in rear yards, these spaces were gradually added to dwellings during the process of modernization.

The Euroamerican contribution of greatest impact to Arizona's vernacular Transitional tradition was the introduction of the central hall which produced the zaguan plan. The symmetrical, Euroamerican central hall dwelling, based upon Classical Revival principles imported from the East, was introduced into the Southwest after the Civil War by the military (Sobin 1977: 102). Transitional dwellings utilized the central hall in single- or double-pile plans. Another very common Euroamerican plan which proliferated in
Arizona especially after 1880 was the foursquare. The Euroamerican foursquare had a pyramidal, hipped roof but the Transitional foursquare could start out as parapeted, flat-roofed dwelling to which a pitched roof could be added. (See Euroamerican Settlement Patterns and Dwellings.)

4.4.3 Transitional Facades

Although some Transitional dwellings retained their parapets, the most common change to the traditional Sonoran facade was the transformation created by the addition of pitched roofs, altering the former wall-dominated appearance to one of tall wall plus visible roof. In some transformed Sonoran examples, beneath the new roof, unusable canales continued to protrude through the walls as evidence of the former flat roof. Door openings remained identical to those of the Sonoran tradition, though builders installed Euroamerican-type, fabricated, paneled doors with moldings in these openings. Transitional window openings tended to have larger proportions to accommodate simple, glazed, mill-fabricated, wood double-hung, or casement windows. Lintels and casings were of dimensioned lumber (Garrison Evolution n.d: 3). The exterior faces of the walls were coated with lime plaster, sometimes scored or even painted to resemble more fashionable, Euroamerican fired brick, and there are also known examples in Florence of adobe walls completely obscured by a veneer of fired brick.

Another Euroamerican-inspired change to the traditional Hispanic adobe facade responded to the need for weather protection from the intense desert sun and rain. Transitional builders, using balloon frame techniques, constructed drop-shed porches, wrap-around verandas, arcades, and pents on existing Sonoran dwellings and in new buildings. Tucson's rowhouses featured light-weight, shading structures in the form of attached, sloped pents or toldos over windows and entrance doors, along public street facades, or along walls facing rear courts or garden areas (Giebner & Sobin 1972: 24).
Agnesa Reeve and Chris Wilson have documented at great length instances in New Mexico of the superficial application of Euroamerican stylistic details, such as Queen Anne spindlework porches, or of the development of Euroamerican-inspired, compound-plan forms with respect to Transitional dwellings. The facades of these New Mexico cousins, to a greater or lesser degree, may appear to be those of Euroamerican dwellings, such as the gable-front and wing (see Euroamerican Settlement Patterns and Dwellings) although their plans have evolved from very Hispanic, linear origins. These practices undoubtedly occurred in Arizona, however no clear examples have been found in the sampling undertaken for this study. Surveyors should be alert to the fact that some Euroamerican-appearing dwellings may have strong Hispanic roots.

4.4.4 Transitional Interiors
The most significant alteration to Transitional interiors was the increasing functional specialization of rooms to meet changing needs; the subdivision into parlors, bedrooms, kitchens, and bathrooms, was brought about in part by additions and repartitioning, sometimes of wood frame, during remodeling. Instead of flooring laid directly on the ground, transitional floors were likely to be wood framed over the crawl space. Transitional ceilings remained high or in some cases, were lowered two to four feet, and were either cloth or wood tongue-and-groove. Instead of the corner placement of Sonoran, beehive fireplaces, those used in Euroamerican-influenced, Transitional dwellings tended to be in the center of transverse crosswalls (Garrison Evolution n.d: 3, Sobin 1977: 125).

4.6 Mexican American Housescapes
Daniel Arreola (1981) has described a combination of traits to identify the Mexican American "housescape," a detached, single-family dwelling and its immediate surroundings in an urban barrio in the Southwest. The Mexican American-occupied dwelling is
commonly a Euroamerican, popular vernacular type, such as a bungalow, separated by setbacks from neighboring properties, conceptually unlike the "zero-lot line," courtyard dwelling of Mexico. Mexican Americans place their ethnic stamp by the almost continuous extent of front-property enclosure through various fence types, the use of brilliant color on house exteriors, and occasional, front yard religious shrines. Fences on the property line, even if of chain linking, "allude" to enclosure.
1 The Types

Types include: (1) Sonoran (and Hispano) single-cell dwelling, (2) Sonoran and Transitional "shotgun-plan" rowhouse, (3) Sonoran, Hispano, and Transitional linear-plan dwelling, (4) Sonoran and Transitional compound-plan dwelling, (5) Transitional zaguan-plan dwelling, and (6) Transitional massed-plan dwelling. While nearly all Hispanic dwellings in existence today, with the exception of those in ruins, are hybrids (Transitional to some extent because they have undergone Euroamerican-derived modernization), surveyors need to exercise judgment in identifying them. Properties with pitched roofs, including the so-called "transformed Sonorans," are clearly Transitional. Parapeted, flat-roofed examples of Sonoran form built of non-traditional materials, or which have Euroamerican-derived floor plans, are also Transitional. However, it is common practice to label "Sonoran" those parapeted, flat-roofed examples with traditional plans which are built of traditional materials, such as La Casa Cordoba in Tucson, in spite of some Euroamerican modifications like millwork windows.

1.1 Sonoran and Hispano Single-Cell Dwelling (p. 9)

The sampling uncovered one example, in ruined condition today, of what was undoubtedly a much more common early form; the single-cell dwelling comprising the unit-cube, basic building block of Hispanic planning. This dwelling is located in a semi-rural setting in Concho. (In Concho, the 1870s-vintage, one-room boxes housed the earliest Hispano settlers, who converted them to outbuildings when they became more prosperous [SWCA 1992].) The box-like form of the single-cell generates from a small square (around fifteen by fifteen feet) or rectangular, unpartitioned plan. The walls, which are in ruins, were once approximately ten feet high. The roofs were once flat, behind parapets.
Concho's single-cell dwelling has raw adobe walls rising from a sandstone rubble foundation. Sandstone is a locally-available material frequently found in Conchos's historic dwellings (SWCA 1992: 25). There is a slightly raised plank threshold at the door but the floor beyond is apparently at grade or only slightly above. The plank door, beneath a hand-hewn lintel, is typically inset into the deep, adobe wall. A heap of stones reveals the ruined condition of a former fireplace chimney. A typical New Mexican, non-Sonoran trait is seen in the hand-hewn, squared vigas which protrude from the wall face.

1.2 Sonoran and Transitional "Shotgun-Plan" Rowhouse (pp. 10-12)

In this sampling, Arizona's shotgun-plan rowhouses occur in Douglas, Florence, Nogales, and Tucson. Their typical setting is zero-lot-line emplacement on an urban, rowhouse block. (However, some Tucson rowhouses are set back from the sidewalk and some Nogales rowhouses are sited so that they are aligned along a parking area and perpendicular to the street.) Serial rectilinear subunits generate their forms. Shotgun-plan rowhouses comprise one or more contiguous-walled dwelling units (depending upon property ownership), each of which has two or more linearly-arranged rooms oriented so that the street entrance is on the narrow, front end. These individual units are grouped in two manners. They either grow "organically," as seen on early Tucson maps and diagrams in a study supervised by Robert Giebner and Harris Sobin (n.d.) in an irregular, rectilinear pattern, or they are identical, rectangular-plan subunits, built at one time, of a self-contained building which has a rectangular footprint. Shotgun-plan rowhouses generally have tall (fifteen foot plus) Sonoran walls either parapeted, at least along the street facade, or capped with shed, gabled, gabled-shed, or gable-on-hip Euroamerican-type roofs. Parapeted examples frequently have shed drainage to the rear and therefore do not require
canales. Undoubtedly, most flat-roofed examples occupied today have newer-vintage, replacement roofs.

Shotgun-plan facades in the sampling reveal foundations that are commonly of stone, although those of the industrialized, Douglas rowhouses may be of concrete. In some cases, interior floor levels appear to be raised one step high to allow a wood frame floor system inside. Others floor levels are at threshold level. Some of the Sonoran-form, parapet-front rowhouses of the Douglas Sonoran Historic District have cast gypsum walls. Other Douglas examples have the customary, plastered-adobe walling found in Florence, Nogales, and Tucson. Exterior walls of adobe rowhouses are typically flat with a pattern of inset, paneled doors and wood, double-hung windows which are flush to the exterior face of the wall. Douglas rowhouses combine a flush door and window under a single, cast-concrete lintel. Because of proximity to the sidewalk, porches and other frame structures tend to pertain to the rear of shotgun-plan rowhouses or may appear in the form of toldos, the pent shade structures still found in Tucson.

1.3 Sonoran, Hispano and Transitional Linear-Plan Dwellings (pp. 13-14)

This study has uncovered single-pile, linear-plan Hispanic hybrid dwellings in Concho, Florence, Nogales, Tubac, and Tucson. Examples have also been found in Tombstone and Patagonia. Sampling dates range from around 1875 to 1909. Either detached or contiguous-walled, this type can be found directly on the property line on urban, rowhouse blocks, detached and set-back on irregular lots, or in open, semi-rural settings. Similar to shotgun-plan rowhouses, Arizona's linear-plan, Hispanic hybrids are generated from linear strings of two or more rooms. In contrast to the shotgun-plan dwellings, however, these properties are aligned so that they are parallel to the street. Again, similar to the shotgun-
plan dwellings, individual rooms are arranged in two manners. They are either built at one time, as part of a self-contained, rectangular-plan building, or they grow organically in an irregular, rectilinear pattern, sometimes with variation in floor levels. Being single-pile, these properties often grow by shed additions to the rear. In the typical Hispanic fashion, walls tend to be in the fifteen-foot-high range but Concho's example appears to have walls which are no higher than nine feet. Sonoran-form, linear-plan dwellings have the typical full or frontal parapets and flat roofs. Although hipped and shed examples exist, the most common pitched roof form for this dwelling type is gabled, which is appropriate for the single-pile width. Harris Sobin (1977) has assigned the label "Early Transitional" to Florence's gable-roofed, single-pile, adobe dwellings with zero-lot-line emplacement.

Most foundation, walling, and opening rhythm details of linear-plan, Hispanic hybrids are similar to those of shotgun-plan rowhouses. A notable exterior feature is the presence of multiple doors which pertain to each room and sometimes give the mistaken impression that an individual dwelling is multiresidential. In cases, growth can be read from the exterior by noting wall joints and variation in threshold level. This study has uncovered some unusual walling materials in addition to the traditional plastered adobe. Concho's two-room dwelling has rubble stone walling and the Cosgrove House in Florence has a veneer of fired-brick covering its former, plastered adobe walls.
1.4 Sonoran and Transitional Compound-Plan Dwelling (pp. 15-17)

This type of dwelling, either in its detached or rowhouse form, has been found in historic districts in Florence, Tubac, and Tucson. Compound-plan rowhouses commonly occur at zero-lot-line on urban blocks while detached dwellings might occur in semi-rural or rural settings. This form was common for early Hispanic ranch houses and there is an excellent example, Dos Lomitas, in Organ Pipe Cactus National Monument. Compound plans are produced by the gradual addition when needed of linear strings of rooms which are usually one unit wide (and frequently not identical in size) so that they resemble in shape the letters L or U. In some cases, one of the spaces can serve as a zaguan. Compound-plan dwellings, which partially enclose courtyards, sometimes grow by adding a second series of rooms at the courtyard side, becoming two units wide. Tucson's Telles House has evolved such a plan. (A dwelling can also add rooms to become a rectangular, massed plan.) In rowhouses, the L or U configuration orients towards the courtyard or rear while in detached dwellings this configuration may be front-facing. In typical Sonoran fashion, tall walls generated from compound ground plans are capped by flat roofs with parapets while Transitional walls may support pitched, usually gabled roofs, as exemplified by Tucson's Telles House.

Exterior details of compound-plan dwellings are similar to those of other Sonoran and Transitional forms. The vacant, detached, L-plan Dos Lomitas ranch house in Organ Pipe Cactus National Monument, built by Mexicans in 1920 for R. L. Gray, Sr., has a characteristic Sonoran mud roof and earth floor. In the case of rowhouses like Tucson's 1870s-vintage Casa Cordoba, which has been restored and converted to a museum, because each interior room frequently has its own exterior door plus window, facade openings commonly resemble the inset-door, flush-window rhythm of shotgun-plan
rowhouses. A similar pattern of openings occurs on the courtyard-facing walls. Foundation stem walls are of stone. Wall surfaces are commonly plastered, with the exception of Casa Cordoba which was restored to its earlier, exposed adobe state. Owing to proximity to the street, frame porches are missing from building fronts but likely along walls lining the courtyard. Dos Lomitas ranch house has a wrap-around ramada supported by crotched mesquite posts.

1.5 Transitional Zaguan-Plan Dwellings (pp. 18-20)

In this sampling, examples of Transitional zaguan (central hall)-plan detached or rowhouse dwellings have been found in Tucson and Florence. This type generally, but not always, has zero-lot-line, urban rowhouse block emplacement. Transitional regardless of form because the presence of the central hall is a Euroamerican influence, zaguan-plan dwellings are commonly double-pile (two rooms deep) but can also be single-pile. Not counting additions, like later, frame kitchens and bathrooms to the rear, the form of this type is generated from a rectangular plan, generally symmetrically divided so that identical-sized rooms line either side of the central hall. The single-story, street-facing, parapeted walls of Tucson's historic, double-pile, zaguan-plan rowhouses, which were built by affluent owners, are up to sixteen feet tall. Other examples have walls approximately eleven feet high. Typical of the Transitional tradition, the forms are either flat- or pitched-roofed.

Other than the typical stone foundation (plus crawl space), the flat, adobe facade, details of the openings, and the fired brick copings on parapets, the most notable exterior feature of this dwelling type is generally, but not always, the symmetrical balance created by windows flanking a central door. Tucson's Fish-Stevens Houses, a connected pair of adobe dwellings in the El Presidio Historic District, demonstrate perfect facade-opening
symmetry in the north house while the south house has two windows to one side and one window to the other of the zaguan. Another interesting example in the same district is a vacant, raw-adobe, double-pile, zaguan-plan, rowhouse dwelling, allegedly built in the 1880s, which appears from its facade to have undergone plan modifications to produce its present configuration. The dwelling may have developed in stages from what was once a two-room, shotgun-plan rowhouse, its south portion. The original door was filled in and a central hall, the main building entrance, plus two flanking rooms to the north, one step lower with a separate entry, were added. The original flat roof with parapets was transformed by a gable-on-hip. Harris Sobin (1977) illustrates a single-pile, zaguan-plan dwelling in Florence, the Edmond Bouviolle House, built in 1899, which had a Sonoran facade later modified by plan enlargements for room specialization and the addition of a gabled roof.

1.6 Transitional Massed-Plan Dwelling (pp. 21-23)

Arizona's Transitional massed-plan dwellings are those which have plans that are more than one room in both width and depth. In the sampling they occur in Florence, Nogales, and Tucson. They tend to be rowhouses or detached dwellings set at zero-lot-line but there are some set-back examples. Some of these are generated from self-contained, rectangular Euroamerican-derived plans. The casa cuadrada is a dwelling based upon the Euroamerican foursquare plan. Other plans observed in early 1900s-vintage, Nogales Bradford Street rowhouses feature Euroamerican hall and room specialization. The study supervised by Robert Giebner and Harris Sobin (n.d.) documented an irregular, not purely rectilinear massed-plan rowhouse in Tucson. Harris Sobin (1981) studied examples in Florence of basically square dwellings which grew from earlier linear configurations. Wall
heights of the Transitional massed-plan dwelling vary but those of the Nogales flat-and pitched-roofed rowhouses tend to be somewhat shorter than typical.

Harris Sobin (1977) documented an example of a detached, set-back casa cuadrada in Florence, the A. J. Doran house, which other than its square plan, had typical Sonoran features such as high parapet walls with canales and a corner fireplace in one of the four rooms. Transformed after 1890 by the addition of a frame mansard roof and an altered fireplace, the dwelling resembled a typical Euroamerican pyramidal except for its higher walls. (See EuroamericanTypes and Forms.) Massed-plan rowhouses in the Nogales Crawford Hill Historic District are a mixture of single- and multi-family residences, some of which are not contiguous-walled but closely spaced and interconnected by four-foot walls. Observed on site, each unit of a vacant Nogales duplex rowhouse, theoretically two rooms wide and three rooms deep, appeared to contain a parlor from which a hall led to the more private bedroom, bathroom, and kitchen spaces to the rear.
SONORAN & HISPANO
SINGLE-CELL DWELLING
(Sampling Date: 1870s)

FORM

FOOTPRINT
Square or rectangular

WALLS
1-story (≤ 10')

ROOF
Flat with parapet

PLAN

ELEVATIONS

FORM

FOOTPRINT
Rectangular (self-contained building) or irregular rectilinear (organic)

ROOF
Flat with parapet or pitched

WALLS
1 story (±15')

PLANS

5-Unit Plan
(self-contained building)
[Denier Tenement House/White Apartments, Florence (Sobin 1981)]

Organic Plan
(individual contiguous-walled units)
SHOTGUN-PLAN ROWHOUSE

ELEVATIONS

Front
(self-contained building)

Side
(self-contained building)

Front
(organic, contiguous-walled units)

Side
(organic, contiguous-walled units)

ROOF VARIANTS

Pitched
(gable-on-hip)

Flat or Pitched
[with full or partial (possibly stepped) parapets or gabled-shed roof)]

PORCH VARIANTS

Toldo
(wall-mounted pent)
Sonoran-form Transitional rowhouse. Multi-unit, self-contained building with cast gypsum block walls.
Photo: Laird 1985 (courtesy SHPO).

Photo: J. Strittmatter.

Transitional rowhouse with plastered adobe walls and gabled-shed roof.
Photo: J. Strittmatter.

Denier Tenement House/White Apartments.
Self-contained Sonoran building to which a gable-on-hip roof was added. Canales are still visible. (Sobin Florence Survey 1981).
Photo: J. Strittmatter.
SONORAN, TRANSITIONAL & HISPANO
LINEAR-PLAN DWELLING
(Sampling Dates: ± 1875-1909)

FORM

FOOTPRINT
Rectangular (self-contained building) or irregular rectilinear

WALLS
1 story (± 9’ to 12’)

ROOF
Flat with parapet or pitched

PLANS

Double-Room (self-contained dwelling)

Multi-Room (organically growing dwelling)

ELEVATIONS

Front (self-contained dwelling)

Side (organically growing dwelling)
ROOF VARIANTS

Flat
(with full or partial parapets)

Pitched
(usually gabled; frequently added to former flat roof)

Shed

PORCH VARIANTS

Ramada
(see Native American Types and Forms)

Drop-Hipped


SONORAN & TRANSITIONAL COMPOUND-PLAN DWELLING
(Sampling Date ±1860-1898)

FORM

FOOTPRINT
Compound rectilinear

WALLS
1 story (±15')

ROOF
Flat with full or partial parapet; pitched; flat plus pitched combined

PLANS

L-Plan (plus court)
(Solomon Warner House, Tucson)
(Adapted from Wilson 1976, Fig. 5)

U-Plan (plus court)
ELEVATIONS

Front

Court View (L-Plan)

Court View (U-Plan)

ROOF VARIANTS

Flat
(with full or partial parapets)

Pitched
(gabled or hipped)

Flat and Pitched Combination

PORCH VARIANTS

Toldo
(wall-mounted pent)

Drop-Shed
(on court facade)


   Photo: National Park Service 1994 (courtesy SHPO).
TRANSITIONAL
ZAGUAN-PLAN DWELLING
(Sampling Dates: 1880s-1899)

FORM

ROOF
Flat with parapet or pitched

FOOTPRINT
Rectangular

WALLS
1 story (11′-15′)

zaguan
(cenral hall)

PLANS

Double-Pile Zaguan-Plan
(El Presidio Historic District, Tucson)

Single-Pile Zaguan-Plan
[Florence, Bouviolle House, transformed by later additions. (Sobin 1977: 115)]
ELEVATIONS

Front
(parapeted, double-pile, zaguan-plan dwelling) (symmetrical facade with central entry)

Side
(stepped parapet)

Front
(parapeted, single-pile, zaguan-plan dwelling) (canales signify drainage to front)

Side

ROOF VARIANTS

Flat
(with partial parapets)

Pitched
(gable-on-hip)

Flat
(with full parapets)

PORCH VARIANTS*

*All observed examples are porchless.


TRANSITIONAL
MASSED-PLAN
DWELLING
(Sampling Dates: 1884-1909)

FORM

FOOTPRINT
Rectangular, square, or irregular

WALLS
1 story (11'+)

ROOF
Flat with parapet or pitched

PLANS

Triple-Pile Duplex
(Nogales, Bradford Street)
(observed on site)

Foursquare
[Florence, A.J. Dorn House
(Sobin 1977: 116)]

Irregular
[Tucson, Barrio Historico,
(Giebner et al. 1972)]
ELEVATIONS

Front
(triple-pile duplex)

Side

Front
(foursquare or casa cuadrada)

Side

ROOF VARIANTS

Pitched (gabled)

Flat (with full or partial parapets)

Pitched (hipped)

PORCH VARIANTS*

*All observed examples are porchless.


1 Introduction

The Euroamerican tradition imported into the Arizona region flourished after the cessation of Native American hostilities and the arrival of the railroad in the early 1880s. This tradition is characterized by recognizable settlement patterns which served as settings for Euroamerican domestic architecture. Euroamericans populated the Arizona region largely through land speculation, the practice responsible for the rapid nineteenth-century development of the continent. With the exception of ranchers and farmers, who lived dispersed on rural landholdings, Arizona's Euroamericans tended to be urban dwellers, living in concentrated settlements, some of which grew into sizeable towns or cities.

The most typical Euroamerican settlement pattern was the expandable grid city plan, the layout employed in nearly all communities, regardless of origin, studied in the representative sampling. The Mormons also imported a type of grid, the City of Zion plan, which they used to lay out many of their Arizona communities. Exceptions to the grid occurred among communities established on very difficult terrain. Organic, non-rectilinear town plans were used for mining towns in mountainous terrain, namely Jerome and Bisbee, and line village communities, like Pine, laid out under conditions of physiographic constraint in narrow river valleys. The vernacular ranch settlement pattern was a rural, cultural landscape which typically included a complex of buildings and structures related to the personnel working the ranch and more remote structures, pastures, and grazing land associated with cattle raising.

Besides illustrating the grid and ranch settlement patterns, the primary focus of this chapter is to demonstrate historic, Euroamerican, vernacular dwelling types largely as examples of popular culture associated with the modern building process. Although some
of the types were based upon earlier folk precedent and others were purely the product of industrialization, they were popular because they were imported from beyond the local setting and were, at the time of their adoption in the Arizona region, widespread in occurrence throughout the more populous areas of America. Some were designed from published plans. The bulk of Arizona's historic, Euroamerican, domestic architecture was built through a modern, industrialized building process which contrasted dramatically with the regional Native American early and Hispanic preindustrial practices. It also contrasted with an earlier Euroamerican preindustrial process responsible for folk dwellings back East.

2 Euroamerican Settlement Patterns

2.1 Grid-Plan Communities

The tendency to employ the grid in both land and town planning dated back to Thomas Jefferson's Land Ordinance of 1785 which authorized the surveying of the western territories into six-mile-square townships, each of which was bounded by north-south and east-west lines. Other parallel lines divided each township into thirty-six square sections of 640 acres each. This Land Ordinance represented traditional and Enlightenment idealism accentuating the importance of rational order and precision. The grid had deficiencies, such as the need for "section corrections" because meridians converge upon a sphere, and the fact that surveyors did not avoid natural obstacles in laying out section lines rendering some parcels less valuable. Roads followed section lines (possibly leading through swamps and over hilltops) to avoid boundary disputes. Surveyors only made exceptions, producing fractional townships or sections, when they reached navigable rivers or Native American reservations. In spite of its deficiencies, the grid was effective in ordering land for sale or settlement and by 1860 it objectified national order in rectilinear
rural and urban space in the United States (Hommann and Stilgoe in Johns & Strittmatter 1996: 18).

The grid allowed for the extraordinary land speculation of the nineteenth century. Alexander Hamilton, the nation's first Secretary of the Treasury, created the fundamental mechanisms and climate for the capitalism that fostered this. As perfectly rectangular parcels of land could be bought, sold, and registered promptly, the grid very much suited the congressional objective of rapid land disposal. The grid was perhaps the only system that could have resulted in the speedy settlement of the continent but it had marked, often negative results in land and city planning. The grid, the "speculative ground plan," fitted a quick parceling of the land and a quick sale. Artistically uninspired, grid plans were applied too often to unsuitable terrain (Hommann in Johns & Strittmatter 1991, 19).

The urban grid can be thought of as a vernacular ordering device imported to territorial Arizona by settlers from other parts of the United States familiar with its principles, largely for speculation. In spite of great similarities, it is useful to note that grids varied from community to community in Arizona, especially with regard to individual lot and block size, the configuration of lots within blocks, the absence or presence of alleys, and land utilization involving the percentage of improvable land compared to street area. In addition, the lot and block configuration of subsequent subdivisions within an individual community frequently varied from that of the original townsite even when roads followed the initial alignment. Although the grid system was the basis for the "lot and block" legal description of properties, frequently ownership patterns did not stick to the confines of the original grid. Individual lot development within the block became increasingly restrictive with time as the typical Euroamerican practice of building detached dwellings within prescribed setbacks evolved. At first, in early-founded townsites such as Florence and Tombstone, apparently there were few restrictions, at least with respect to front property
line setbacks. Later, especially in the rapidly growing communities of Tucson and Phoenix, subdivision developers began to impose minimum value of improvement and setback (not to mention racial) restrictions as controls. Finally, as communities across the state adopted zoning codes in the 1930s, legally-sanctioned restrictions monitored by a Board of Adjustment prevailed.

2.1.1 Tombstone: A Grid-Plan Mining Community

Today's community of Tombstone is located in Sections 1, 2, 11, and 12, Range 22E or Township 20S, part of the enormous gridiron of land ordering formulated in 1785 to determine the spatial organization of two-thirds of the present United States. Within this larger grid, the city grid plan was a natural choice for the site known as Goose Flats later to become the 320-acre Tombstone Townsite, platted by the Tombstone Townsite Company in 1879. On Goose Flats, as elsewhere in the Territory of Arizona, the grid was imposed upon terrain which, bisected by washes, was not entirely suited to its rigidity. The streets running in one direction were given names such as Safford, Fremont, Allen and Tough Nut, while streets running in the opposite direction were given numbers. The streets were laid out to be seventy-five feet wide with the exception of Fremont, which at eighty feet was intended to be the major thoroughfare. In spite of questionable title to township lots and disputes with mining companies owning land beneath the townsite, the community grew rapidly and added two subdivisions, grid-plan Bowman Addition in 1881, and the small, irregular Survey Addition in the same year. The Tombstone Historic Residential Inventory area lies within the original townsite and the two 1881 additions. The Tombstone Base Map (Fig. 10.1) shows this very regular grid pattern. (The non-grid portions are later resubdivisions of the original layout.) Townsite blocks are 300 foot square and lots are laid out in a key technique which varies among blocks (Fig. 10.2). Lots are 30' by 120' except key lots which are 30' by 50.' Blocks 1 through 5 are 228' by 300'. There are no alleys for utility purposes (Johns & Strittmatter 1996: 9, 10). The
Tombstone, Arizona, Historic Residential Inventory Area Map (Fig. 10.3), drawn to show actual property lines in 1996, reveals how property owners commonly purchased parcels generally larger than and comprising portions of the originally-platted lots. The inventory revealed that there were few restrictions during the early years of residential development regarding setbacks and building emplacement on the lots.
Menlo Park Neighborhood, comprising several subdivisions which make up a Multiple Property Area nomination, was platted after the turn of the century. More sophisticated than Tombstone, it is characteristic of later subdivision development in Arizona. The principal subdivision plat, Menlo Park, was developed by Henry E. Schwalen, a gentleman afflicted with tuberculosis who had come to Tucson from Wisconsin to regain his health. This plat was recorded in 1913 (Fig. 10.4). Menlo Park's blocks were rectangular, and they had utility alleys which formed I or T configurations. Menlo Park was the first subdivision in Tucson with cast iron water lines. Schwalen's son, Harold Christy Schwalen, a civil engineer, laid out all drainage and water lines. Menlo Park was also considered to be the first subdivision in Tucson with carefully controlled building restrictions. As the city of Tucson did not adopt a zoning code until 1930, the founders of
the development controlled development with deed restrictions on the properties. For example, a 1916 bargain and sale deed on one Menlo Park property obliged the owner and his heirs to construct a building valued at not less than $2,000, set back not less than thirty feet from the front property line, and to refrain from selling said premises to people of color (Johns & Strittmatter 1991: 33, 34).

The Menlo Park Neighborhood was also included under the first zoning ordinance of the City of Tucson. By 1930, municipalities across the United States were adopting zoning codes. Tucson's Ordinance 647 divided the city into districts and imposed regulations, restrictions, and prohibitions for the promotion of public health, safety, morals, and general welfare. The ordinance governed the erection and use of buildings as well as their
alteration. It limited their height, bulk, and percentage of lot occupancy, established yards, side clearance, and setback lines, and created a Board of Adjustment to monitor this. (The City of Tucson no longer uses the same historic designations as were set out in the first zoning code.) One such residential class, CR, was a sanitorium district designation for residents with communicable diseases such as tuberculosis which afflicted many of the early health seekers who came to Tucson. Parts of the Menlo Park Neighborhood were zoned CR (Johns & Strittmatter 1991: 34).

2.2 Mormon Communities

The typical, historic Mormon settlement is recognizable by certain features, some of the more important of which include (1) village life ordered by the City of Zion Plan, (2) the location of agricultural buildings within townsites, (3) roadside irrigation ditches, (4) the establishment of a ward chapel, and (5) the presence of a large number of trees (Comeaux 1981: 146).

Mormonism's founder, Joseph Smith, planned that all followers should live in villages and commute to their fields, a farm village pattern of settlement. The farm village land occupancy pattern was as old as the practice of agriculture and usually the result of occupation by a homogeneous group having ethnic, religious, or other ties. The farm village was common in Europe but not in the greater United States which was at that time developing a pattern of individual homesteads on separate farms. The farm village was an effective pioneering device and was well suited for land requiring irrigation. It afforded protection from attack and facilitated social interaction (Nelson in Johns & Strittmatter 1996: Ch. IV, p. 3). Arizona's Mormon settlements, such as Snowflake/Taylor, Pine, and Mesa, Arizona, were typical farm villages.
Mormon city planning derived from Smith's design for the City of Zion, which was a utopian concept for an ideal, perfect city. Mormon towns in the West followed the later

"Nauvoo modification," the plat for the City of Zion as adopted by the Mormons when they settled Nauvoo, Illinois. A City of Zion was to cover one square mile and be divided into forty-two blocks; each block consisting of ten acres with twenty lots per block. Agricultural plots were to be located north and south of the townsite. Mesa, located in an ideal, flat site, adopted a modification of this City of Zion plan. Its square mile townsite included thirty-six square blocks with eight lots per block (Fig. 10.5). Roads were 132' wide and the blocks measured 660 square feet. Each block had eight one-and-one-
quarter-acre lots which faced in alternating directions from one block to the next. Settlements such as Snowflake, Fredonia, and Show Low platted townships of much smaller proportions based upon the City of Zion plan. Fredonia's 160-acre townsite plan (Fig. 10.6), much smaller than that of Mesa, was based upon Mormon church leaders' predictions that Fredonia could support around twenty-five families. The street width of Fredonia was only sixty-six feet instead of the customary 132' and the townsite included nineteen approximately square blocks of four lots each and five irregular-sized blocks. (Hamilton 1995:13, 16, 17, SWCA, Fredonia, 1996: 35, Woodward 1993: 21).

In Eager and Pine, Arizona, townships were laid out in an atypical, linear configuration. Pine's pioneers established their community at the base of the Mogollon Rim, in the arable valley of Pine Creek within the enormous ponderosa pine forest comprising one quarter of the land area of the state. Due to physiographic constraint, a relatively narrow valley which had to allow for agriculture, Pine was not suitable for the City of Zion grid. Instead, Pine developed as a line village community, a pattern characteristic of French land tenure in which the settlement develops along one principal street. As seen in the Pine Historic Resources Inventory map (Fig. 10.7), most of the homes of pioneer settlers were concentrated on elongated lots in a linear fashion orienting north and south, along the old Pine main street (today's State Route 87) and northeast along today's Pine Creek Canyon.
Drive. The adjacent fields extended behind the residences (Nelson in Johns & Strittmatter Pine 1996: Ch. IV, p. 3).

Fig. 10.7 Central Portion of Pine Inventory Map (Johns & Strittmatter, Pine 1996)

It was a Mormon characteristic to place stock barns, chicken coops, pig pens, hay barns, sheds, granaries, and other outbuildings on the rather large town lots which were, in part, devoted to farm use. This tradition developed in Nauvoo to prevent vandalism of barns located outside the confines of the community. It was also a common European tradition in such countries as Germany and Switzerland (Comeaux 1981:148). A close relationship between agricultural and domestic buildings within the townsites can still be found in Pine, Fredonia, and St. Johns.

The use of small, shallow irrigation ditches, which today frequently appear as weed-filled slots recognizable as ditches only by the headgates, was another Mormon settlement trait.
In order to farm the desert, Mormons had to learn irrigation techniques and the control and management of water became a central part of their existence. Mormons learned to fit canals, settling ponds, and dams to a variety of sites. Building canals was an integral part of town planning and ditches were used for culinary purposes and for watering the town dwellers' orchards and gardens. Ditches often involved great expense and continuing labor with respect to sediment removal and periodic repairs necessitated by floods and washouts (Comeaux 1981:148, Johns & Strittmatter 1996: Ch. 4, p. 4). Mormon communities such as Fredonia and Pine, Arizona, had a well-developed system of irrigation ditches, some of which are still in use today.

In the hierarchy of Mormon religious building types, including temples and tabernacles which served large Mormon communities, the local ward chapel or meeting house was the most common building type. The meeting house/ward chapel, located in the center of town, was a typical feature of every rural Mormon settlement. Many of the first meeting houses were temporary structures, such as single-room, log buildings, which were later replaced by permanent buildings. Generally of a more permanent material such as brick or stone and sometimes styled, these structures contrasted with Protestant churches in that they had spires without crosses (Comeaux 1981:149, Johns & Strittmatter 1996: 6).

Another typical trait of the Mormon landscape was the presence of a large number of trees. The Lombardy poplar and Italian cypress are often associated with Mormons as well as the placement of many fruit trees around the homes. In Pine, this historic cultural landscape, much of which still remains, consisted of rows of mulberry trees along the main road, junipers along the cross road, and apple orchards on individual properties.
2.3 Ranch Settlements

Early cattle ranches were historic rural landscapes in areas where natural cattle forage was available. Ranches generally included a headquarters complex of domestic, agricultural, and utilitarian buildings plus other structures such as stock tanks, corrals, and windmills associated with livestock raising. This complex related to nearby and remote orchards, pastures, grazing land, and natural springs (Collins 1996: 74, 75). Ranches, regardless of size, were settings for a number of vernacular property types including dwellings for the owner’s family (in modest cases) and bunkhouses for hired hands. An excellent region of small-scale, historic cattle ranches with vernacular domestic architecture is in the Canelo Hills area around Elgin in today’s Santa Cruz County.

3 Euromerican Vernacular Dwellings

3.1 Introduction

Arizona’s historic, Euroamerican vernacular dwellings were imports brought into an area dominated by prior Native American and Hispanic traditions. Although the overwhelming bulk of Euroamerican domestic architecture reflected popular culture, there were some folk precedents. Appearing first in the pioneer stages, frequently as hand-made log cabins or structures of adobe, created by a culture aware of industrialized building processes, changing fashions, and more complex dwelling types, Euroamerican domestic architecture rapidly increased in sophistication once the technological means developed to allow this, especially after the arrival of the railroad. Closest to the folk portion of the vernacular spectrum were some dwelling types with simple single-cell and linear plans which were based upon earlier, preindustrial, European/Eastern American folk types. These types Euroamericans modified in the Arizona environment either by utilizing local materials and technology, such as adobe, or by incorporating modern industrialized building technology. Many of the simpler forms were constructed by owner-builders, probably using plans
drawn from memory. Also imported into the Arizona territory were popular vernacular, non-folk types, the nineteenth-century massed- or compound-plans resulting from the new building technology such as the balloon frame (see following), plus a bewildering array of "styles." More complex to build, these dwelling types were increasingly fabricated by builder specialists, not owners, sometimes using imported, published plans. In the purely popular range of the spectrum, the internationally dispersed bungalow arrived in Arizona. This was due to knowledge of national (and international) trends gleaned from publications, increasing complexity of plan reflecting the home owner's desire for greater privacy and comfort, and the adoption of a type that suited rapid, Euroamerican, middle-class suburbanization. Proliferating throughout the region, the bungalow was largely the product of speculative developers, who employed published plans. The owner, no longer a participant in the building process, became a consumer.

3.2 Euroamerican Folk Dwellings

To identify Arizona's Euroamerican vernacular dwellings, it is first necessary to understand the folk portion of the spectrum. The areas where some of these types first originated were known as cultural source areas. According to vernacular architecture scholar and geographer, Fred B. Kniffen, by "1790 there were, culturally speaking, three well-defined source areas on the Atlantic seaboard: New England; the Middle Atlantic, centering on southeastern Pennsylvania; and the lower Chesapeake, centering on Tidewater Virginia" (Kniffen in Upton & Vlach 1986:10). From these source areas, or cultural hearths, folk forms evolved which spread by means of cultural diffusion throughout what became the United States. In the following section, types identified in italics, are those that occur in Arizona in modified form. They will be further described in the following chapter, Euroamerican Types and Forms.
New England was an area of board- or shingle-clad, heavy timber frame (not log) construction. In this region, primarily settled by the British, a series of frame house forms evolved which at first included the simple one-room, hall cottage. Other early forms included the two-room-wide, central-chimney types; the hall and parlor and two-story I house. These were common folk forms in 17th century England. In the early 18th century, these plans expanded to the rear to give increased interior space more suitable for cold, confining winters, resulting in one-and-a-half-room-deep, central-chimney saltbox and Cape Cod dwellings. By the mid-18th century, massed plans (two-rooms deep), began to dominate the New England building tradition and, with the introduction of the two-story Georgian-plan house, center-halled folk plans with paired end chimneys became common. In the early 19th century, when the Greek Revival style made accentuated front gables fashionable, simple gable-front folk houses proliferated. These folk forms spread by the process of cultural diffusion as New Englanders migrated northward and westward from the core area in the late 18th and 19th centuries (Kniffen in Upton and Vlach 1986:10-12, McAlester & McAlester 1981: 78).

The Middle Atlantic folk building area, which had the most widespread influence of all three, was located along the Atlantic seaboard, beginning in the middle colonies (Pennsylvania, New Jersey, Delaware, and Maryland). Artifacts from this cultural hearth then spread to the south-central United States as far as east-central Texas. In the area of initial occupancy, Germanic immigrants from heavily-wooded areas of central and northern Europe introduced German, square-hewn log construction technology and a short-lived, central-chimney, three-roomed, continental house. As this tradition spread to central Pennsylvania and the Appalachian Mountains, Germanic settlers were joined by Scotch-Irish and English pioneers who adopted log building technology and adapted it to their familiar one-room-deep linear folk forms with external chimneys. The greatest contributions of the Middle Atlantic source area were the English I-house and German log
The earliest English colonists of the coastal Tidewater South used post construction with no foundation. Most seventeenth-century vernacular dwellings were impermanent, lightly-framed earthfast structures built directly on ground or erected in postholes. The source of this type was England. More permanent, brick masonry buildings appeared among the affluent in the eighteenth-century (Carson et al. in St. George 1988: 113). The earliest colonists built primarily linear-plan hall and parlor dwellings or I houses. Because of milder winters, there was less emphasis on enlarging plans to create more interior space. Enlargements tended to occur in the form of one-story shed extensions. One-story dwellings were more common than in the North and massed plans were rare. By the late 18th century, the shed-roofed, full-width front porch, protection from the sun and frequent thunderstorms, was an innovation which became universal (McAlester & McAlester 1981: 80-82).

3.3 Euroamerican Popular Vernacular Dwellings

Popular culture embodies group ideals which are transmitted through the media and imported from beyond the local setting. In the nineteenth century, the construction of massed- and compound-plan types, initially made possible by the roof-spanning and flexible-plan properties of the balloon frame (see following), proliferated through published pattern books and mail-order-plan supply journals like *Ladies' Home Journal*. These included the L-plan, *gable-front-and wing cottage* and the square-plan, hipped-roofed *foursquare house* as well as the complex-plan *bungalow*. It was possible to order complete sets of construction plans by mail and, after the turn of the century, to order ready-cut houses shipped by rail from distant fabricators for on-site assemblage. From the 1890s to the 1930s, as EuroAmericans across the nation began to demand comfortable,
convenient dwellings with modern plumbing and other amenities, the bungalow became the most common, internationally-disseminated, popular vernacular type, frequently built from published plans or ready-cut kits.

4 General Planning Principles

With the exception of the earliest, simple, one- and two-room dwellings which were based upon folk precedent and lacked such amenities as indoor plumbing, popular vernacular plans were characterized by an increase in floor area accompanied by room specialization. This was motivated by the growing demand for comfort, privacy, and convenience in domestic architecture. Euroamerican popular vernacular plans rapidly increased in complexity during the last two decades of the nineteenth century through the 1930s, introducing specialized rooms such as kitchens, bathrooms, bedrooms, and living rooms, sometimes separated from each other by hallways. Once it became possible to modernize them, earlier, simpler dwellings were modified by remodelling and additions to include such spaces as kitchens, bathrooms, and sleeping porches.

5 The Issue of Style

Historic, vernacular dwellings were frequently ornamented by decorative detailing from one or more of the styles associated with the academic/elite and popular cultures prevalent during the nineteenth and early twentieth centuries. In Arizona these styles were found in the entire continuum of architectural production which ranged from the academic/elite designs of architects to the popular vernacular creations of non-specialists such as contractor/builders. The most common stylistic detailing pertained to (1) the Queen Anne Revival, (2) the Colonial Revival, and (3) the Spanish Colonial Revival. Dwellings of the Queen Anne Revival style, one of the Victorian-era styles popularized by pattern books from 1876 to 1910, can be identified by a steeply-pitched, irregular-shaped roof (usually with a dominant front gable), textured wall surfaces, an asymmetrical facade with a
partial- or full-width porch wrapping around one or both sides. Textured walls were created by the use of patterned shingles, bay windows, cantilevered wall extensions, and brackets. Spindlework detailing was common on porches and gables (McAlester & McAlester 1989: 263-266). Queen Anne-inspired detailing applied to vernacular dwellings was generally in the form of spindlework at the porch and cornice line or the addition of a bay window. L-plan vernacular dwellings were the most common recipients of Queen Anne-inspired stylistic detailing. The Colonial Revival, a style which replaced the more elaborate Queen Anne Revival, was popularized in the United States following the 1893 World's Columbian Exposition in Chicago. Colonial Revival facades tended to be symmetrical with windows, usually in pairs, balancing centrally-located doors. Decorative detailing accentuated the entry which commonly featured overhead fanlights or sidelights. In Arizona, Colonial Revival detailing was most commonly applied to square-plan, pyramidal roofed, one- and two-story vernacular dwellings. Roof eaves were boxed (enclosed) and centrally-placed, hipped or gabled roof dormers were common.

The Spanish Colonial Revival pertained to the late nineteenth- and early twentieth-century revival movement in the United States. Employing decorative details borrowed from the entire history of Spanish architecture, the style was unified by the use of arches, courtyards, plain stuccoed wall surfaces, form as mass, and Spanish or Mission tile roofs, all derived from the Mediterranean region (Easton & McCall 1980: 87). In Arizona, the Spanish Colonial Revival was heavily represented in early twentieth-century Phoenix and Tucson subdivisions and elsewhere. Like its contemporary the bungalow, Spanish Colonial Revival-influenced dwellings were examples of popular culture which spread by contractor/builders using published plans. Spanish Colonial Revival dwellings had more complex, room-specialized plans with modern amenities.
The Euroamerican, popular vernacular tradition is associated with the modern, industrialized building process, a post-Civil War phenomenon common throughout the rapidly-expanding United States which was characterized by an increasing specialization in trades and in the number and complexity of building types, plus new building technology. In the nineteenth century this process was facilitated by a developing distribution and communication system, the invention and patenting of a great number of machines and manufacturing methods, and the development of mills and factories to produce building products. At first manufacturing was tied to the processing of local resources, such as local lumber mills, as in early Arizona communities like Pine and Flagstaff, or brick kilns, as in Phoenix, Tucson, and Florence, but with the rail it became possible to import fabricated components from elsewhere in the nation.

The "mass vernacular" or industrialized process was associated with new building technology and was identifiable by the use of commercial, machine-made materials like dimensioned lumber, prefabricated lumber millwork (windows, doors, trim, and moldings), standard-size bricks, cement and plaster, corrugated iron roofing, large panes of glass, manufactured hardware, and fittings like doorknobs, hinges, and ventilating louvres assembled into vernacular buildings. Other new components included stoves, gas fixtures, and plumbing fixtures. In the industrialized building process, change was prevalent, both in the tendency for types to wax and wane in fashion, and in the alteration of existing dwellings by the addition or removal of wings or appendages, such as rear shed extensions or porches. Change also occurred in the addition, removal, or modification of ornamental components to make dwellings conform to fashion.
6.2 Industrialized Structural Technology

Euroamericans brought their repertoire of structural techniques, learned elsewhere, when they settled in Arizona. However, the dwelling types that were constructed at the time of initial settlement were generally handmade artifacts using local materials. At first, Euroamericans readily adopted the preexisting, Hispanic adobe masonry technology in the desert regions and in the mountainous areas, where timber was plentiful, built their structures of logs. Later, most of Arizona's Euroamerican domestic architecture was built from processed materials. The principle structural system adopted by Euroamericans in Arizona for domestic architecture was bearing wall with a pitched, light wood frame roof. The bearing walls were built by (1) wood construction techniques including light wood framing, horizontal timber, and box construction, (2) masonry construction of adobe, stone, or industrially-fabricated masonry units, and much less common, (3) reinforced, concrete.

6.2.1 Wood Construction Technology

Traditionally, wood has been the most dominant building material used in American construction. Throughout history, Euroamericans have known three general methods of wood construction technology, (1) with framed walls, (2) with walls of closely-set vertical timbers and (3) with walls of horizontal timbers. The second method, the employment of vertical posts, planks, and timbers for structural walls is associated with French settlement areas and not relevant to this study.

6.2.1.1 Wood Framing

Many of Arizona's historic, Euroamerican, vernacular dwellings were built of mill-processed, light timber framing, especially, but not exclusively, in the Mogollon slope
portion of the Colorado Plateau province and nearby Mountain Highlands, areas where lumber mills were established near communities such as Williams, Flagstaff, Showlow, and Pine, owing to the abundance of ponderosa and fir. The railroad allowed the distribution of regionally-processed timber into parts of Arizona lacking in forests and the importation of non-local sources of wood, as in the case of Benson, where most of the stock of historic, domestic architecture was built of California redwood brought in by the Southern Pacific.

Light timber framing, the balloon frame, an American invention used primarily for residential construction, marks the point at which industrialization began to penetrate housing and has been associated with the rapid build-up of the West. The balloon frame, so named because of its lightness, involved the substitution of thin plates and studs, running the entire height of the building and held together only by nails, for the ancient, expensive method with mortised and tenoned joints. The invention converted building in wood from a skilled craft into an industry. The balloon frame coincides with the improvement of sawmill machinery and the mass production of cut nails. According to historian Sigfried Giedion, the balloon frame was invented by George Washington Snow, (1797-1870) an assessor, surveyor, alderman, lumber dealer, building contractor and educated civil engineer living in Chicago. The first balloon frame structure, St. Mary's Church, was built in 1833 in Chicago (Giedion 1977: 352-353).

In historic balloon framing, a horizontal plate (sill) was laid directly upon the foundation, either a wood post and beam system, upright logs, or a stone or brick stem wall. Upright studs were nailed to the sills, generally at sixteen inches on center. A top plate, generally the support for ceiling joists and roof rafters, was nailed to the studs. Internal and external sheathing was then applied directly to the studs, frequently in the form of horizontal tongue and groove siding outside and wood strip lathing for plaster on the inside. Many
examples of early balloon frame construction can still be found in Arizona. Compared to the current practice, it is notable that the size of earlier framing members was often smaller and the spacing often greater.

6.2.1.2 Horizontal Timber Construction

When pioneers first arrived to settle in forested areas in Arizona, they constructed semi-permanent structures for residential and other use from locally-available ponderosa or fir logs which, when laid horizontally, formed bearing walls. Many of the first buildings including dwellings, one-room school houses, Mormon meeting houses, and ranch lodgings were of the single-cell or one-room variety. Although replaced by larger, more permanent buildings when resources allowed, in some cases, as documented in Pine, Arizona, these early log structures were incorporated into later frame dwellings. Some of Arizona's log structures still stand in various states of repair in rural as well as community settings.

Horizontal timber construction, a method in which individual logs are placed horizontally above each other, is found throughout the New World. Horizontal log construction in America has European precedent dating back to prehistoric times. Buildings with horizontally-laid, timber walls fastened at each corner by notches apparently originated in the Middle Stone Age in northern Europe. Seashore dwellers of today's Denmark, southern Sweden, and northern Germany probably invented log construction technology. Prehistoric log construction was characterized by the use of round logs, notched on top or both sides, a foot or more from the end of the log. Several ethnic groups, such as the Swedes and French (but not the British) introduced log construction into North America. However, the German-speaking immigrants, called the "Pennsylvania Dutch," who settled in the Pennsylvania colony in the 1700s, are considered to be responsible for the introduction of log construction and this influence has been most evident on the frontier.
Pennsylvania Germans used horizontal log construction of the type which may still be found in Bohemia, Moravia, and Silesia. Pennsylvania was a "melting pot" where settlers of various ethnic identities mingled and participated in cultural exchange. In the true vernacular tradition, once implanted, the German-inspired style of log construction was adopted by other ethnic groups, especially the English, Welsh, and Scotch-Irish. As mentioned, German log construction technology was also adopted by the Spaniards who brought it to New Mexico where it was then adopted by the Navajo (Jordan 1978: 23, 24, Upton & Vlach ed. 1986: 102, 173).

In historic, horizontal wall construction there were two basic methods. In French America, the use of a corner, as well as intermediate posts was employed. Known as piece sur piece, the vertical supports allowed for construction with short, squared logs or planks, in an even-tiered pattern. In the German tradition, the most common, corner posts were not utilized. Instead, timbers were notched at the ends so that they became interlocked with an alternating-tier pattern. Pennsylvania German and subsequent American log work was characterized by logs notched near the end, eliminating the overhang and producing a boxed corner. In the German tradition, logs were usually squared, split, and faced or planked. They were hewn for several reasons, the most important being that hewn logs produced a tighter, more finished building. Spaces between the logs were "chinked" with clay, stones, poles, or shingles (Upton & Vlach ed. 1986: 173). In general, round logs were employed for semi-permanent residences (such as log cabins hastily built at the time of initial settlement) or for less important agricultural buildings and out-buildings. Hewn logs were applied for more carefully constructed buildings. A variety of corner-timbering techniques was employed, which also related to the degree of finish that was required.
The corner notch, the key to log construction, was the joint attaching logs from adjacent walls. The notch was load bearing and secured the walls laterally. In historic examples, there were several types of corner notching, all of European origin, which varied in complexity and in ability to secure corners. The simplest form of notching was the saddle notch, usually employed on round logs with notching on both sides (double) or on either the top or bottom (single). This form was often employed for less carefully constructed buildings. Other forms of corner-timbering included V-notching, diamond notching, full dovetailing, half dovetailing and square notching. The dovetail, both full and half, was the most difficult to execute. This method effectively locked in both directions, produced a box corner and was usually employed on hewn logs. All forms of notching, except the square form, locked the logs, eliminating the necessity of nailing or pegging (Upton & Vlach ed. 1986:169-173).

6.2.1.3 Box Construction

A relatively unknown form of industrialized construction known as box construction was a popular and less expensive alternative to balloon framing in many parts of the country. Although not documented on state survey forms studied in the sampling and difficult to discern from a building's exterior, it was most likely employed in Arizona's historic, domestic, vernacular architecture as well. In box construction, heavy timber sills, to which floor joists could be attached, were placed on a foundation. Wide boards, such as one-by-twelves, were nailed vertically to form corners connected by two-by-four members nailed horizontally at the top. Additional vertical boards were nailed to the outer faces of the sill and the upper two-by-fours to create a single-thickness, flimsy wall without framing. The structure was tied together by ceiling joists. Cracks between the planks could be covered with narrow battens of wood. Horizontal wood siding or composition siding could be applied for weather-proofing. Box construction, if not employed in the primary dwelling, was often found in appendages and outbuildings. A dwelling of box
construction was simple, inexpensive, rapid to construct, and easily moved. Throughout the late nineteenth and early twentieth centuries, dwellings of this structural system proliferated in mining communities, lumber company towns, and railroad workers' settlements (Sizemore 1994:156-159).

6.2.2 Masonry Construction

Masonry is an assembly or combination of small building units, such as adobe bricks, fired clay bricks, cast concrete blocks, or stones, that are set in a mortar of plastic mud or cementitious material to form walls and other building elements. Masonry construction, especially of fired clay bricks, was a very common walling system for Euroamerican domestic architecture in the Arizona region.

6.2.2.1 Euroamerican Use of Adobe

Euroamericans adopted adobe technology, at first from necessity, and employed it to construct dwellings which closely resembled Hispanic models or to build their own vernacular types. Initially Euroamericans adopted the basic, very thick (around eighteen inches), typically Hispanic, adobe wall system, and generally employed continuous stone foundations. Adobe walls were lime plastered. Later, during the era when popular culture proliferated in Arizona, Euroamericans built complex-plan Southwest Revival-styled dwellings from adobe. The thick adobe walls were thinned to ten or twelve inches, and encased in gypsum-based plaster. Reinforced concrete foundations, concrete sills, steel lintels, and reinforced concrete bond beams were incorporated into the adobe wall system (Garrison Evolution n.d: 2-4). Many communities, such as Tucson, Naco, Nogales, and Tombstone, contain numerous examples of stuccoed adobe, Euroamerican vernacular dwellings. The practice of building with adobe continues today with the introduction of technological improvements, such as stabilizing components, into the adobe mixture. (See Hispanic Settlement Patterns and Dwellings.)
6.2.2.2 Stone Masonry

In Arizona, the Euroamerican use of stone after 1870 was sporadic and primarily for public buildings. The use of stone as a structural walling material for domestic architecture has been relatively rare in the representative sampling undertaken for this study although it was commonly used for foundations and small garden and retaining walls. Other than local fieldstone which required no processing, industrially-processed stone necessitated the opening of local quarries and the means to transport the material.

Stone used in masonry construction, discovered in the sampling, included sandstone, tuff (or tufa), dacite, and vesicular basalt. Stone masonry, classified by refinement in shaping and by the arrangement of courses in a wall, included unshaped stones (rubble) and shaped stones (ashlar). These stones were generally laid in coursed or random patterns.

There are three primary classes of rock (1) igneous which originates from molten material (magma) which pushes through the earth's crust as volcanic rock, (2) sedimentary which originates from remains of rocks broken by weathering, erosion, or water and is deposited generally in horizontal strata, and (3) metamorphic which originates as other rocks altered by long-term heat and pressure, generally deeply below the earth's surface (Chronic 1983: 13-17). Tuff, dacite, and vesicular basalt are igneous stones that vary in chemical composition. Vesicular basalt, a very fine-grained black or grey volcanic rock with a high proportion of iron and magnesium, was a very common, historic, structural material employed in the Basin and Range province near Tucson and was obtained from local quarries west of the city center. Sandstone, a sedimentary rock, may be quarried in several forms including "massive" and "flaggy." Massive sandstone, of uniform composition throughout its considerable depth, when worked into blocks is a suitable structural material. Flaggy sandstone, frequently called "flagstone," consists of strata split into thinner layers suitable as a paving or ornamental fascia material. Sandstone occurs in a wide range of colors, from shades of purple, brown, red, grey, yellow, cream, and white.
The coloring chemical is iron, generally in company with manganese. Sandstone, found in several places in Arizona, was quarried in the Colorado Plateau province primarily near Prescott and Flagstaff (Schujman in Boyle 1976: 28, 29).

6.2.3 Industrially-fabricated Masonry
Brick is clay or shale fabricated by processes in which it is molded, dried, and fired in kilns. There are several brick types but the most commonly used in vernacular construction are common brick (for general use) and face brick (with carefully-made faces to be used in exposed, finished construction. Brick is used in bearing wall construction. In historic construction practices, bricks are generally laid up in two stacks (wythes) forming a wall that is eight or more inches thick. This double-brick construction can be used to form cavity walls, two parallel walls with a dead air space between, or solid walls which are tied together by a course of bricks called headers (Walter in Boyle 1976: 46, 47).
11 EUROAMERICAN TYPES AND FORMS

1 Introduction

The following discussion presents the basic historic, Euroamerican, vernacular dwelling types introduced into the Arizona region and the variety of designations used to name them. The most commonly agreed upon designations, such as "foursquare house" are assigned to name identical types encountered in Arizona. In this scheme, dwelling form or shape, the product of the structure's footprint plus its walls and roof form, is the major identifying characteristic and this is graphically illustrated. Structure, the means or material of construction, is of secondary importance. For example, in Arizona the basic single-room dwelling, the hall cottage, can be constructed of logs, sawn lumber, adobe, or other materials. One- or one-and-one-half-story dwellings will be called "cottages" while two- or two-and-one-half-story dwellings will be called "houses." The basic type will be described as well as appendages (additions, porches, etc.) likely to have modified it over the years.

2 Footprint Groups

The footprint, the ground plan or outline of the building's perimeter walls, is the fundamental generator of building form. For the sake of illustration, the ground plan can be broken down into a pattern of roughly room-sized modular units which may or may not correspond to actual interior room configuration. Euroamerican dwelling ground plans are either (1) linear, (2) massed, or (3) compound. Linear footprints are one-unit in width or depth. "Single-pile" is the term commonly used to describe those which are one-room deep. Massed plans have a width and depth of more than one unit. Massed plan examples which are two-rooms deep are called "double-pile." Compound plans, also called irregularly massed plans, are created by combining linear and massed plans into right-
angle-based shapes which frequently resemble the letters L, T, or U. The following
diagram, adapted from McAlester & McAlester, illustrates the basic footprint groups.

![Footprint Groups Diagram](image)

Fig. 11.1 Footprint Groups (Adapted from McAlester & McAlester 1984: 22,23)

3 **Linear-Plan Dwellings**

Linear-plan cottages and houses are modest, one-room deep or wide structures with
rectilinear footprints, wall heights ranging from one- to two-and-one-half stories, and
pitched roofs (generally gabled or hipped). Linear-plan dwellings are rooted in folk
tradition and pertain to the cultural source areas mentioned in Chapter 10. This category
begins with the one-room-square- or rectangular-plan cabin known as the hall cottage. It
includes single-pile double-room dwellings such as the hall and parlor, the double-cell, and the central-hall. These three share in common a rectangular footprint oriented with the entry on a wide side and a side-gabled or side-hipped roof form. The linear-plan shotgun has a narrow-side-frontal, rectangular footprint and most commonly a front-gabled roof form. These types have been found in the representative sampling of historic, vernacular dwellings. The I house, a single-pile, two-room-wide, two-story, vernacular type prevalent in the East, Southeast and the Midwest, was a favorite among the Mormons. No true two-story I house has been found in the sampling of Mormon-settled communities in Arizona although a one-and-one-half-story variant has been encountered.

3.1 Linear-plan Dwelling Appendages
Owing to their shallow depth, linear-plan dwellings are frequently enlarged by structural appendage, either as part of the original construction or as a subsequent addition. Appendages, which provide additional living and storage space, are commonly to the rear but may also appear to the side of the primary unit. The very common shed appendage abuts the rear wall of the primary unit and is parallel to it. It is generally structured with a shed roof, an extension of the primary roof either at the same or at a different pitch. The L appendage extends outward from either the left or right rear of the primary unit while the T is generally centered on the rear. These appendages perpendicular to the primary unit frequently have pitched roofs which join with the primary roof (Jakle et. al. 1989:124).

Another form of appendage frequently added to the primary single-pile unit is the porch, a roofed but incompletely walled living space. The origin of the common Euromerican porch is debated but its type is rare in Europe where such a space is known as a verandah (Britain), a galerie (France), portal (Spain), or loggia (Italy). The porch was undoubtedly adopted because of the heat and thunderstorms of the New World. Porches became
common during the colonial days, when French and English colonists in the warmer, southern colonies added verandas or galleries to their dwellings. The occurrence of large porches on linear- and massed-plan dwellings spread and by the late nineteenth and early twentieth centuries they became a distinctive feature of the architecture of the United States. There was an enormous variety in size, shape, and placement as well as number of porches per dwelling. By the mid-twentieth century, however, with the advent of air-conditioning, the use of the porch became much less prevalent (McAlester and McAlester 1989: 52).

Porches on linear-plan dwellings are commonly shed-, or hipped-shed-roofed structures attached to the primary structure at the wall end and supported on posts at the open end. These porches are often independent of the main roof structure; however there are numerous cases where porches are created by roof extensions. Gables can be extended and eaves can be lengthened either at the same or a different pitch to provide shelter. Even for such modest dwellings, the more extensive wrap-around or veranda type porch can also be utilized. The porch is sometimes enclosed when additional living space is required. In some cases, weather protection over doors and windows is provided by simple attached, sloped pents. In Arizona, across all environmental zones, the need for protection from the sun and severe storms is clearly a priority. Thus porches are very common appendages pertaining to vernacular dwelling types.

Porches were areas where decorative detailing was commonly applied. Simple vernacular dwellings were frequently decorated by the application of ornamentation, which related to historic styles in vogue at the time, either at initial construction or through later modification. Victorian-era detailing such as Queen Anne spindlework or Gothic Revival scrollwork was added to otherwise unadorned vernacular dwellings.
3.2 Hall Cottage (p.38)

Other Designations: Single-Pen House or Cabin, Hall House, Single-Cell or Square Cabin, One-Room House or Cabin

Often associated with pioneer settlement, the one-room hall cottage an elemental form of shelter and it is found in Arizona. It was built as a temporary and permanent dwelling type by settlers all over the United States during the American colonial era and later western frontier period. Its form is derived from a single-room-sized, square or rectangular footprint with walls usually single-story which are capped by a front- or side-gabled roof. There may be one exterior, masonry fireplace though this is rare in Arizona. Though commonly associated with log construction, one-room dwellings can be built of various materials such as logs, sawn lumber, bricks, stone, and adobe.

Not only associated with pioneer settlement, one-room cabins or cottages were also residential types popular throughout the nineteenth and early twentieth centuries and were often built by adding new Euroamerican structural techniques, such as balloon frame and box construction to the repertoire (Carter & Goss 1988:11, Jakle et. al. 1989: 106, 107, Sizemore 1994: 51). The single room provided the minimal living unit and the primary module to be subsequently expanded through room appendage. Many single-room cottages were enlarged by the extensions sideways, frontward, rearwards, and upwards. Appendages might include front and rear porches and a kitchen wing or shed. It was not uncommon for the original, single-room unit to form the core of a newer and larger house (Noble 1992: 105, Sizemore 1992: 52). The single-room hall cottage was also the architectural building block from which various other linear folk plans developed.

The representative sampling in this study uncovered relatively few extant hall cottages but the type is undoubtedly scattered throughout the state, most likely in unsurveyed rural
areas. Hall cottages of log (log cabins) are found in forested areas in Mormon-settled communities such as Eagar, Taylor, Pine, and Show Low, Arizona. Single-room dwellings of wood frame construction occur in such communities as Taylor and Eagar, Arizona. Gable-roofed hall cottages constructed of adobe have been found in St. Johns and, based upon historic photographs, were adopted by the Tohono O'odham. Most hall cottages in the sampling are in semi-rural settings, surrounded by fields. (Flat-roofed, parapet-front, single room dwellings of adobe have also been documented in Concho, Arizona, and are associated with Hispano settlement.)

3.3 Double Cell Cottage (pp. 39-40)

Other Designations: Double Pen

The double cell is a one-story, side-gable- (or side-hip-) roofed cottage of two adjoining rooms of approximately equal size. The footprint is rectangular and oriented so that the wide side is frontal. Double cell cottages and houses are sometimes the result of the addition of a second ground-floor room module to the existing single room. (This linear, additive practice of single-pile modules is also characteristic of the Hispanic tradition.) A connecting door is located in the interior partition and each room has a front door. The facade generally has two front doors and either two to four symmetrically arranged windows.

Scholars agree that this type originated in the British Isles, but differ on whether it was spread by the English in the Chesapeake Tidewater area or by the Scotch-Irish in Pennsylvania. Very prominent in Tennessee, it has been laled the Cumberland House (Sizemore 1994: 58-59). In Utah, the presence of two doors has often led to the conclusion that this form developed uniquely among Mormons for polygamous families.
However, the double cell is a very widespread type and multiple origins are possible.

In the representative sampling some structures that appear to be double cell cottages have been identified in Patagonia, Nogales, Phoenix, Tombstone, and Yuma. Double cell properties are read from the exterior by the presence of two doors and symmetrical facades. Owing to their double doors, some may be small duplex units or possibly mistaken for duplexes on their survey forms. Most of these structures are of adobe and in Nogales, Tombstone, and Yuma, are located on the front property line, reflecting either the Hispanic tradition of emplacement or the lack of typical Euroamerican, lot development setback restrictions.

3.4 Hall and Parlor (pp.41-42)

*Other designations: Hall-Parlor and Double-Pen Cabin*

The hall and parlor is the most common of the single-pile types and appears throughout the United States. The footprint is rectangular and oriented so that the wide side is frontal. The walls are one- to one-and one-half-stories high and the roof is most commonly side-gabled, though it can be side-hipped in form. There is sometimes an end chimney, or chimneys. The hall and parlor is a two-room dwelling composed of a single square room, the hall, and a smaller room serving as the best room, or parlor, attached to the side. The hall and parlor contains no separating, central hallway. Although the plan is asymmetrical and this asymmetry can be reflected on the facade, frequently the imbalance is disguised by a three-bay, symmetrical facade.

A traditional British folk type, the early hall and parlor dwelling was executed with heavy timber framing in New England, with lightly framed, post construction and later brick in
the Tidewater South, and with hewn log walls in the vast Middle Atlantic cultural hearth. The hall and parlor has been a persistent folk type with relatively little change since colonial times. When expanded by a front porch and rearward addition, it became the dominant pre-railroad folk type across much of the southeastern United States. After the expansion of the railroad, the hall and parlor was commonly constructed of light timber framed walls and still dominated much of the rural Southeast. Principal variations included differing chimney placements, porch sizes, porch roof shapes, and different patterns of rearward extensions for enlarging the interior space (Carter & Goss 1988:14, Jakle et. al. 1989: 114, McAlester & McAlester 1989: 94).

The representative sampling in this study uncovered a relatively large number of extant hall and parlor cottages. The type was possibly first introduced into Arizona by settlers from the Southeast. It is recognized by some Arizona surveyors and is being named "hall and parlor" on some survey forms. The sampling dates range from 1875 to 1933. As in the case of the double cell cottage, most hall and parlor examples are read from the exterior without verification of the interior and assumptions are generally made about its plan. Hall and parlor cottages in the sampling are constructed of wood siding-clad frame, stuccoed frame, stuccoed adobe, brick, and stone. Examples from the representative sampling have been found in Eagar, Flagstaff, Fredonia, Kingman, Patagonia, Pine, Phoenix, St. Johns, Taylor, and Tombstone. (It must be emphasized that this represents only a small portion of what is undoubtedly a widespread, historic, dwelling type in Arizona.) The most common settings for Arizona hall and parlors are urban and small town lots, though some are in semi-rural areas.
Other designations: Early or Pre-Classic I House, Classic I House

In the Mormon-settled communities of Concho, Taylor, St. Johns, and Fredonia there are several one-and-one-half-story variants of the true I house, a favorite among Mormons. These examples are not two full stories high and are strictly speaking cottages that appear tall enough to be I houses. They have well-developed lofts with wall dormers. Scholars differ on what constitutes a true I house. John Jakle has labeled two variants, the pre-classic and the classic I house. The early or pre-classic I house was a two-story version of the hall and parlor cottage. Although the floor plan, chimney placement, and appendages were variable, all pre-classic I houses had several qualities in common. They had side-gabled roofs and were at least two rooms wide, one room deep, and two full stories high. In the pre-classic I house rooms were unequal in size and this could reflect on the facade or be masked by a symmetrical arrangement of openings. Owing to its size, it became symbolic of economic attainment especially among agriculturalists (Kniffen in Upton & Vlach 1988: 8, 9). The classic I house as defined by John Jakle adds a Georgian-era-inspired central hall to the one-room depth, two-room width, and two-story height. It is this central-hall type that the Mormons adopted and brought with them to Utah during their era of colonization (Jakle et. al. 1989: 122).

This type has been very rare in the representative sampling. The very few properties which were named "I house" on survey forms were either two-rooms deep or didn't meet other requirements of the commonly-accepted definition of the type. In the sampling, the one-and-one-half-story variants are constructed of adobe or brick. In Concho, one modified I house, of adobe construction, was investigated in the field and found to be of the hall and
parlor plan with a central fireplace on the rear wall, a generous loft, and a rear appendage of adobe.

3.6 Central Hall Cottage (p. 45)

Other Designations: I Cottage, Central Passage

No examples of the modest, single-pile dwelling type, known as the central hall, have been positively identified by field investigation or among survey forms studied for this report. Similar to the double-cell and hall and parlor, the footprint is rectangular and oriented so that the wide side is frontal. The walls are one- to one-and-one-half stories high and the roof is most commonly side-gabled. Central hall cottages and houses differ from most of the previously discussed vernacular forms by the introduction of a central hall into a two-room ground floor plan. From the outside, the central-hall type is generally indistinguishable from the hall and parlor, although it tends to be larger in scale and more elaborate. Thus, among Arizona's stock of hall and parlor cottages, some are undoubtedly central hall in plan. With Georgian-influenced classical symmetry, the characteristic central hallway is flanked by a hall and a parlor. This dwelling type represents the legacy of Georgian stylistic influences on American traditional housing in the 18th century and may be understood as a modification of the earlier hall and parlor cottage. This type has a three or five bay facade (a central door with one or two sets of flanking windows). Chimneys, when present, can be end or centrally placed and sometimes on both walls of the central passage. The two-story version of this type is the classic I house. The central hall cottage is included here as an important type that requires further identification in Arizona (Carter & Goss 1988: 21, Jakle et. al. 1989: 118-119).
3.7 Shotgun Cottage (pp. 46-47)

Other Designations: The Gable-Front Cottage

The narrow, gable-front shotgun is a common dwelling type in Arizona and elsewhere in the United States, especially in the southeastern states. It can be thought of most simply as the hall and parlor cottage rotated sideways. Its linear-plan footprint is rectangular and oriented perpendicular to the street with the entry in its narrow end. In Arizona, walls of the shotgun cottage are one-story high and the roof form is either front-gabled or front-hipped. The shotgun is two or more rooms deep and, lacking internal hallways, has interconnected rooms. Middle rooms may have a side exterior door. The facade commonly has an off-centered entry with a single window although the entry can be centered with two flanking windows (Carter & Goss 1988: 52, Jakle et. al. 1989: 221, McAlester & McAlester 1989: 90).

The shotgun cottage is believed to have a southern origin; a material example of the cultural heritage of African Americans. The type is linked to West Africa and the West Indies. Imported to New Orleans in the early years of the nineteenth century by free blacks from the West Indies who were economically secure and technically skilled enough to build their own houses, the shotgun radiated out across the countryside from New Orleans (Vlach in Upton & Vlach ed: 1986:58-61).

The representative sampling in this study has uncovered shotgun cottages in Ajo, Benson, Fredonia, Globe, Nogales, Phoenix, Show Low, and Tombstone. The sampling dates range from 1882 to 1939. Structural materials have included horizontal-siding-clad frame, stuccoed frame, adobe, brick, and concrete block. The shotgun cottages are commonly built on narrow townsite lots, either set back or near the front property lines. They are
also sited on hillsides. Owing to their small size, shotgun cottages are frequently enlarged by shed appendages to the rear and occasionally to the side. Some shotgun cottages are porchless but most feature one of several porch variants. These include the full-width drop-shed porch, the full-width hipped porch, the central gabled pent, the offset shed pent, and the recessed porch.

3.8 Shotgun House (pp. 48-49)

Two-story shotgun houses, set into retaining-wall-contained hillsides, can be found in Nogales and Bisbee. One room wide and two or more rooms deep, this type has either a front-gabled or front-hipped roof. In Nogales, brick shotgun houses appear to be one-story cottages from the street level but they include a full lower story beneath constructed of reinforced concrete walls. The Bisbee example is a board-and-batten-clad frame house with an off-center entry to the first floor. An exterior stairway leads uphill to a second-story side entry.

4 Massed-Plan Dwellings

Massed-plan cottages and houses, dwellings with plans more than one unit deep and wide, have square or rectangular footprints, wall heights ranging from one- to two-and-one-half-stories, and generally gabled or hipped pitched roofs. The two-room-deep, double-pile dwelling was introduced into the English colonies during the eighteenth century and it has been a dominant architectural feature in the United States since. Massed-plan dwellings in Arizona fall into three general families: (1) rectangular plan cottages and houses in which the wide side contains the principal entry and which have side-gabled (or side-hipped) roofs; (2) rectangular plan cottages and houses in which the narrow side contains the principal entry and which have front-gabled (or front-hipped) roofs and, (3) square plan
cottages and houses in which one side contains the entry and which have front- or side-gabled or pyramidal roofs. Double-pile dwellings can also be extended by L, T, and shed appendage, generally sidewards or rearwards in the same manner of single-pile additions. In general, gable and hipped roof rectangular plans lend themselves to expansion more easily than do the difficult-to-expand squared plans.

As in the case of single-pile dwellings, porch types which are independent of the main roof are common with massed-plan dwellings. However, owing to the increased plan depth of these dwellings, recessed or inset porches incorporated under the primary roof can be constructed. The recessed porch is created when one or more external walls are omitted under the principal house roof. Generally, the unsupported corner(s) of such a porch roof will require a post. Owing to the increased size of these dwellings, more extensive porches, such as wrap-around verandas, frequently occur. Wrap-around verandas can also be incorporated beneath or constructed independently of the main roof.

4.1 Side-Gabled Massed-Plan Cottage (pp.50-52)

Other designations: Double-Pile Cottage, Georgian Plan Cottage, Zaguan Cottage (see Hispanic Types and Forms), Massed-Plan, Side-Gabled Cottage

There are numerous examples in Arizona of the side-gabled, double-pile cottage. It is a one- or one-and-one-half-story dwelling with either a side-gabled or side-hipped roof, the ridge line of which is parallel to the facade. One roof variant includes a cross gable dormer at the entry. The rectangular footprint is oriented so that one wide side is frontal. Though often associated with a Georgian-influenced central hall, the plan can also be generated by extending the hall and parlor or double cell types one unit to the rear. Side-gabled double-pile cottages vary principally in roof pitch and the size and placement of porches.
Massed-plan folk houses were common in pre-railroad America only in parts of the Northeast due to the early development of roof framing techniques allowing for spanning two-room depths. A double-pile, side-gabled type of structure with two rooms on either side of a central hallway and frequently, paired chimneys, often placed in an interior position, is also thought to have appeared at an early date along the Carolina-Georgia coast. This type was built in New England and Pennsylvania as well as in the South. After the railroad and with the adoption of industrialized vernacular building technology (i.e. the balloon frame), the side-gabled double-pile cottage, as well as other massed plan types, could be constructed easily. This type, with its larger and more flexible interior plan spread and replaced traditional one-room-deep types (Jakle et. al. 1988: 131, McAlester & McAlester 1989: 98). The double-pile central-hall floor plan is associated with the adobe, zaguan-plan dwelling (see Hispanic Types and Forms).

The representative sampling has revealed numerous examples of the side-gabled double-pile cottage across the state. The type is recognized by some Arizona surveyors under the name "national folk-massed side gable." Sampling dates range from 1876-1925. The type can be found in Ajo, Concho, Douglas, Eagar, Flagstaff, Florence, Kingman, Patagonia, Pine, Safford, St. Johns, Show Low, Taylor, Tombstone, Tucson, Williams, and Yuma. Materials of construction include adobe, log, frame, and brick. The type includes some interesting variants. A former parapet-front, double-pile dwelling of adobe, transformed by the addition of a side gabled roof, is located in Florence. Pine has a double-pile log dwelling with a partial wrap-around, roof-extension porch. Ajo has a number of 1915s-vintage, rectangular plan, side-gabled dwellings with wrap-around, inset screen porches. Constructed of redwood, they are either the work of a single contractor or mail-order models.
4.2 Side-Gabled Massed-Plan House (pp.53-54)

Other Designations: Double-Pile House, Georgian Plan House

Side-gabled double-pile houses are two- or two-and-one-half-stories high. The rectangular footprint is oriented so that the wide side is frontal and the dwelling is capped with either a side-gabled or hipped roof, with the ridge line parallel to the facade. The plan may be the classic Georgian "four-over-four" with paired rooms on either side of a central hallway. This classic plan, however, was frequently altered in the West and elsewhere to produce a variant in which the central passage runs only partially through the house, with three smaller rooms to the rear. Similar to the side-gabled single-pile cottage, the plan can also be generated by extending the hall and parlor or double cell types one unit to the rear (Carter & Goss 1988: 26, Jakle et. al. 1989: 131-133).

The two- or two-and-one-half-story, side-gabled double-pile house relates back to the New England cultural hearth where the "preclassical box" of four rooms each story began to prevail after around 1740 and the "classical box," which included the central hall, prevailed after around 1760. These folk dwellings were unadorned and spread beyond the original hearth area by cultural diffusion to the middle and southern colonies. Very early styled versions of the central-hall type (1700-1830), classified as "Georgian," reflected the influence of the Italian Renaissance (which emphasized classical details and symmetry) upon England. Georgian plan dwellings spread to the English colonies largely through architectural building manuals known as pattern books. A rebirth of interest in the styled Georgian occurred during the Colonial Revival movement from 1880-1955 (McAlester & McAlester 1989: 78-80; 142). Influenced by the unadorned and styled versions of the type, it was also imported into Arizona by settlers.
Two interesting examples of the vernacular side-gabled double-pile house can be found in St. Johns and Kingman, Arizona. Both are rare examples of two-story adobe construction. According to survey information, the St. Johns example was built in 1880 and the Kingman example was built in 1916. Both have central entries, therefore may have partial or full central hall plans. Neither of them have strictly symmetrical facades which is emphasized by partial-width, two-story porches.

4.3 Gable-Front Massed-Plan Cottage (pp.55-57)

Other Designations: Gable-Front, Small Temple-House

The gable- (and hip-) front massed-plan cottage is a very common vernacular dwelling type throughout the United States as well as in Arizona. This one- or one-and-one-half-story dwelling has a rectangular footprint with the narrow side, which contains the entrance, being frontal. Thus the axis of the front-gable- or front-hip-roofed dwelling is perpendicular to the street. The type is two rooms wide and two or more rooms deep. The facade is frequently three bays wide. Different floor plans may be employed, including the double-cell extended rearward and the side passage which was common in the nineteenth century. Twentieth century versions are likely to have a centrally located door but no hallway.

Both gable-front cottages and houses are associated with nuclear New England and its extensions to the north and west. Affiliated with the Greek Revival movement, which dominated styled dwellings during the period from 1825 to 1850, the front-gabled shape was similar to the pedimented facade of typical Greek temples. This trend led to simple gable-front, vernacular dwellings which proliferated after about 1825. The form became very common in the East and was especially suited for narrow, urban lots in rapidly
expanding northeastern cities. The modest, linear-plan relative (the shotgun), of African-American origins, proliferated in the South. Later many examples of the gable-front massed-plan type were contractor-built in subdivisions. In the popular tradition of media dissemination, from the 1890s to the 1930s, this type was among those that could be designed from published plans and was also available ready-cut through mail order. Without documentation it is difficult to determine mail order or prefabricated dwellings from site-fabricated, vernacular examples. Gable-front massed-plan dwellings are forerunners of the the popular vernacular, gable-front bungalow (Jakle et. al 1989:14, McAlester & McAlester 1989: 90).

Gable- and hip-front massed-plan cottages are very common in the representative sampling. The type is identified by Arizona surveyors under a variety of names including "front gabled," "national folk," "bungalow-influenced folk," and "bungalow." Sampling dates range from 1883 to 1939. They are found in Concho, Fredonia, Naco, Nogales, St. Johns, Taylor, Tombstone, Willcox, and Yuma. A variant to the front-gable can include cross gabled dormers. From the front, hip-front versions of the type may be mistaken for square-plan pyramidalss (see following) and it is necessary to investigate the relative width to length of the footprint and corresponding roof ridge length to determine the property's category. The front-hip can also be of the gable-on-hip variety. The dwellings are built of stone, frame, adobe, and brick. Porches are most commonly of the projecting drop shed or drop hipped variety though there are porchless and recessed examples. Those that have projecting gabled entry porches resemble bungalows and a grey area exists in how to identify them appropriately (see following).
4.4 Gable-Front Massed-Plan House (pp. 58-59)

This vernacular type is the two- or two-and-one-half story version of the gable-front massed-plan cottage and has the identical footprint and orientation. It can also have a front-gabled or front-hipped roof. Nineteenth-century examples tend to have a side hall serving a front door set to one side and opening directly to a straight staircase. This creates separate access to upper floors that might be rented out and allows enough space for the formal front parlor. Also influenced by the Greek Revival movement, scholars have associated these dwellings with New England, adjacent parts of the Northeast, and the Upper Middle West (Jakle et. al. 1989: 141-142).

The gable-front massed-plan house is rare in the representative sampling. Examples have been identified in Jerome, Nogales, Globe, and Williams. Dates range from 1891 to around 1909. A front-gabled example of adobe in Nogales has been labeled "indigenous." The hip-front example in Globe is labeled "Colonial Revival," a name which is commonly assigned by Arizona practitioners to unadorned vernacular types which have pyramidal or hipped roofs (see pyramidal cottage). Siding-clad, frame examples of the type in Jerome and Globe, which functioned as houses in the past, may now be duplexes. This is especially evident where, as in Jerome, exterior stairs lead to the second story. Porches range from one-story, full-width drop-hip, two-story, full-width drop-shed, and full-facade recessed (on a hip-front example) variants.
4.5 Square Cottage (pp. 60-61)

The square cottage is a double-pile cottage with a distinctive box-like form. The footprint is square, the walls are one to one-and-one-half stories, and the roof is either front-gabled or side-gabled. Square cottages frequently have four rooms on the main floor, but of unequal size and central halls are frequently absent. The type is much less common than the pyramidal roofed square plan cottage and it can be assumed that hip framing, rather than gable framing, is the more logical manner of roofing a square plan (see following) (Jakle et. al. 1989:138).

In Arizona, very few square cottages have been identified in the sampling. The type has been found in Patagonia, St. Johns, and Florence. Construction dates range from 1889-ca. 1920. [In Florence, a 33' x 33' square cottage (casa cuadrada) of Hispanic adobe walling, which originally had a flat earth roof, was transformed in 1941 by the addition of a low-pitch side-gabled roof. This has been called "transformed Sonoran" on the survey form. (See Hispanic Settlement Patterns and Dwellings.)] In St. Johns, there is a slightly rectangular, log square cottage, labeled "national folk" on its survey form. Its 20' x 25' dimensions suggest a double-pile plan, in the absence of positive identification of the interior. In Ajo, a number of 1915s squared versions of the previously-mentioned, redwood frame, side-gabled double-pile cottage with wrap-around, inset screen porch can also be found. These side-gabled examples also have central, cross-gable dormers. The perimeters tend to be within one or two feet of being square, averaging 38' wide by 39' deep. In Patagonia, there is a 1915 front-gabled, 30' x 30' square cottage of exposed adobe located on the front lot line. According to the survey form, it is part of the intact streetscape of 1910s and 1920s.
Other Designations: Foursquare Cottage

The typical footprint of the type is square or nearly square and oriented so that one of the sides is frontal. Above the one or one-and-one-half-story walls, the prominent pyramid-shaped (equilaterally hipped) roof is the distinguishing feature. The roof may be a perfect pyramid on a dwelling with a perfect square footprint, or there may be a slight ridge, either perpendicular to or parallel with the facade, associated with a slightly rectangular footprint. Sometimes, there are one or more roof dormers. Floor plans vary and the foursquare plan, with four rooms of unequal size, is common. Pyramidals may also have a central hall plan. Porches may be lacking, or of the recessed or projecting varieties. The pyramidal is a vernacular type which is frequently unadorned but may have stylistic details most commonly associated with the Colonial Revival (Jakle et al. 1988: 138).

The pyramidal is found in the communities of Benson, Concho, Douglas, Flagstaff, Florence, Fredonia, Globe, Jerome, Naco, Nogales, Patagonia, Phoenix, Safford, St. Johns, Taylor, Tombstone, Tubac, Tucson, Willcox, and Yuma. Sampling dates range from 1876 to 1891. The pyramidal found in Arizona may have multiple origins but authorities associate its type in the United States with the Southeast. It may have been influenced by a steeply pitched, pyramidal roofed, galleried cottage which was common in rural areas settled by French colonists in the South (McAlester & McAlester 1989: 124-127). Geographer Pierce Lewis indicates it may have been British or British colonial dating back to the Georgian era (the eighteenth century) and introduced into the Southeast. Though commonly called the "southern pyramidal," the type is also present in Australia and is therefore, strictly speaking, British colonial (Lewis 1975: 20-22). Folklorist Henry Glassie also associates the pyramidal type with the southeastern states.
but believes that it developed during the nineteenth century (Sobin 1977: 134). High style, pyramidal, galleried, plantation mansions as well as modest, pyramidal planter's cottages certainly appeared in the early 1800s, decades before the Civil War, in the South. Whatever and whenever the origin may be, a basic vernacular form which is today called the "pyramidal cottage" had become very common in southern port towns after the 1870s, from Texas to Florida and in the Mississippi River Valley. With a recessed, full-facade porch incorporated under the hipped roof, this type had a central-hall plan (Godwin 1992).

It can be surmised that the pyramidal cottage came to Arizona with southern settlers or it may have been brought from California after the Civil War by the army. It was used in some of the new army facilities, such as at Camps McDowell and Apache, near Florence. The central hall version of the square-shaped house plan was the standard for more prestigious buildings on army posts (Sobin 1977: 134-136). The pyramidal was also one of the types later associated with popular culture from the 1890s to the 1930s, marketed as a workers' dwelling and also available ready-cut through mail order. The type spread very rapidly during the early twentieth century.

The pyramidal is a very widespread dwelling type which has been found in Arizona through the representative sampling of properties. Sampling dates range from 1878 to the 1930s, with many built before 1915. This type has been assigned different names by Arizona practitioners. Some include "national folk-pyramidal," "square folkhouse" "indigenous," and "vernacular-pyramidal." Pyramids, especially those with symmetrical facades and roof dormers, may be labeled "Colonial Revival" or "Neo-colonial", though they are otherwise unadorned boxes. Typical settings are modest, urban and small town lots, semi-rural and rural areas (ranchscapes), and steep hillsides (in mining towns). Materials of construction include adobe (which is very popular for this type), frame, brick, stone, and precast rock-faced concrete block.
Roof forms include the relatively rare perfect pyramid, the slightly ridged pyramid, the truncated hip (with a flat plane on top), and the gable-on-hip pyramid. The latter is a very common variant and it normally contains louvered grills at the gable ends to facilitate ventilation. This is a very suitable roof type especially for Arizona’s hot desert climate zones. Some interesting cross-gable-on-hip examples have been found in Phoenix and Continental, near Green Valley. Floor plans vary from the foursquare to the full central-hall. Depending upon the plan, the entry may therefore be off-center or central. There may also be dual frontal entries; one for each of the front rooms. The foursquare can be the result of accretion as in a Florence example where a previously constructed, parapet-front, double-cell was "squared" by adding two rooms to the rear, followed by a pyramidal roof. This is a hybrid Transitional dwelling. An example of a partial central hall pyramidal, which has a second-pile tier of three rooms, rather than two has been found in Tucson's El Presidio Historic District. Some Arizona pyramidalas are porchless though most have some form of porch. Recessed porches can occur on one corner or be centered. The full-width recessed porch, similar to that of the southern pyramidal cottage, is less common. Most porches are full- or partial-width, drop-shed or drop-hipped.

4.7 Foursquare House (pp. 65-67)

Other Designations: The Box, Cube House, Double Cube, Plain House

This dwelling type is a two- or two-and-one-half-story, box-like structure with a square or nearly square footprint. The most common roof form is the hipped pyramid but the foursquare can also have a flat roof. The pyramidal-roofed examples frequently have at least one dormer which may be hipped, shed, gabled, or arched. The true foursquare has four nearly equal sized, partitioned spaces on each floor plus a side stairwell located in one of the rooms, not in a separate hall. A prototypical first floor might contain a hall plus staircase, living room,
dining room, and kitchen. The second floor might contain three bedrooms plus a bath. The plan may also include a central hall or partial central hall but houses with these plans are not "true" foursquares. The prototypical foursquare has a full-width, deep, plain, first-story porch. Like other vernacular dwellings, the foursquare is not a style, but a type. It is a frequently unadorned, basic box. It can also feature Prairie, Neoclassical, Colonial Revival, or Craftsman stylistic detailing (Jakle et. al. 1989: 140-141, McAlester & McAlester 1989: 100-101, Massey & Maxwell 1995: 29-33).

This house is associated with the central Corn Belt, the Middle West and the Northeast and it relates chronologically to the late nineteenth and early twentieth centuries, occurring before but spreading rapidly after 1890. The type declined almost completely by 1930. The foursquare was one of the new house types, along with the bungalow (see following), that evolved in and for new post-Victorian suburbs and was very popular in city fringes, suburbs, small towns, and rural areas. It symbolized massiveness and strength and was part of the trend towards restraint, a reaction to the excess ornamentation of the Victorian era (Gowans 1986: 84-89). Mostly avoided by architects because it was too limited, the type spread through magazines and house catalogues and could also be ordered ready-cut. Like its contemporary the bungalow, the foursquare house is associated with popular culture.

The foursquare house exists in Arizona but is rare in the sampling. Without inspection of the interior it is not possible to determine the presence of the true foursquare plan. Foursquares have been identified in Tucson, Phoenix, Patagonia, Bisbee, and Florence. Sampling dates range from 1884 to 1921. The type is known as "national folk-four square, "Colonial Revival," or "Neo-Colonial" on state survey forms. Materials of construction include adobe, frame, reinforced concrete, and brick. Interesting, two-story foursquares of exposed adobe can be found in Florence and Patagonia. Clearly the use of
adobe precludes any possibility of mail-order or prefabrication in the construction process. The William Clarke House, built in 1884 in Florence and part of the Florence Multiple Resource Area nomination, is currently in a ruinous state and being preserved through a stabilization grant. It is a very early example of its type. Early photographs reveal that this otherwise simple dwelling with a foursquare plan was adorned by an elegantly detailed projecting, side entrance porch and louvered bay window (Sobin 1977: 138). The Patagonia example, built in 1921 according to the survey form, is currently vacant with doors and windows boarded up. The truncated pyramidal roof, the first-floor central entry and second-floor central door (possibly once relating to a balcony) indicate a central-hall rather than foursquare plan. An unsurveyed, abandoned foursquare with thick, very straight walls which appear to be of poured concrete, has been field observed in Bisbee. It has a true foursquare plan on the ground floor. The off-center entry relates to what was undoubtedly a living room/dining room and there are also two bedrooms and a kitchen. The second floor is unobservable due to the condition of the deteriorated exterior stairs. The use of exterior stairs indicates that this foursquare may have had rental units on the second floor.

4.8 Bungalow

The bungalow is by far the numerically dominant dwelling type encountered in this representative sampling of Arizona’s historic, vernacular, domestic architecture. Sociologist and historian Anthony King in The Bungalow: the Production of a Global Culture convincingly portrays the bungalow, which spread rapidly throughout the capitalist world, as a physical, economic, social, and cultural phenomenon reflecting a “common culture,” the international, standardized one of the consumer-oriented world economy that began to develop in the last three decades of the nineteenth century (King 1984: 7). The dwelling type known by the term “bungalow” has been defined by several criteria and its documented history dates to seventeenth-century India. The banggolo or
bangla, a peasant’s hut of rural Bengal, was a low-roofed house of sun-dried brick, thatched or tile roofing, and porches all around. The British adopted the type in Bengal as a temporary, primitive dwelling. The term later signified a house for Europeans in India. In the nineteenth century, the term bungalow transferred to England where it referred to either a purpose-built holiday house, a simply-constructed, detached dwelling (sometimes having a porch), or a one-story dwelling. In the United States the term bungalow at first referred to a simple, rustic, summer residence for the upper class. Bungalow also meant a typical, early-twentieth-century, privately-owned, suburban dwelling for millions of middle class Americans. The bungalow was the origin of a phenomenon most strongly associated with California’s suburban explosion, especially that of the city of Los Angeles. What became known as the California bungalow resulted from a mild climate, a creative and entrepreneurial society, abundant cheap land made available by the electric tramway, and a strong economy (King 1984: 1-8, 133, 139, 141). The California bungalow was quickly adopted by Arizona contractor/builders.

As a cultural phenomenon, the bungalow movement was a popular one, spread by the media and occurring during the last two decades of the nineteenth century and the first quarter of the twentieth century. The bungalow signified the search for a modest, simple, artistic, and inexpensive American cottage. (Architects like the Greene brothers in Pasadena and Frank Lloyd Wright also followed this popular movement to design residences for the elite.) Social and cultural ideas underpinning the bungalow were inspired by the English Arts and Crafts movement of the 1880s. A rejection of the materialism of consumer society, Arts and Crafts adherents believed in unity with nature, the pursuit of simplicity, and handcraftsmanship. The ideas behind the Arts and Crafts movement were adopted in the United States by individuals such as Gustav Stickley, editor of The Craftsman, published between 1901 and 1916 to promote the bungalow by means of designs, plans, and discussions. Arts and Crafts ideas influenced both the
bungalow as a summer cottage and the bungalow as a suburban dwelling (King 1984: 134). Craftsman ideas included the employment of a low, sheltering roof, the nearly universal, prominent, front porch, natural materials such as stone, exposed structural members like roof rafters at eaves, decorative beams or braces under gables, and tapered porch columns frequently combining several materials. Craftsman interiors featured exposed ceiling beams and built-in elements of wood. The bungalow movement spread by means of an overwhelming flood of literature including pattern books, magazine articles, and advertisements. The best known mail-order plan supplier was *Ladies’ Home Journal*. After 1904 it was also possible to order ready-cut parts for on-site assembly of complete bungalows from suppliers such as Aladdin, Sears, Montgomery Wards, and Honor Built (Gowans 1986: 41-67). In Arizona, the known use of bungalow plans provided by a plan supplier was in today’s Caitlin Court Historic District, Glendale. Around 1915 in that community a partnership between a real estate agency and a lumber company promoted the sale of lots and construction of homes based upon plans supplied by Ye Planry, a California service (Janus 1991: Sec. 8, p. 8.17). The bungalow movement reached its zenith before World War One and declined afterward as standards became lower.

The bungalow in the United States was a transition in domestic architecture to the modern, twentieth-century, rationally-planned dwelling where interest focused upon a scientifically-arranged kitchen (King 1984: 143). Responding to sophisticated demands of suburbanites in the late nineteenth- and early twentieth-century for comfort, privacy, and convenience, typical bungalows had specialized rooms and included such spaces as well-equipped kitchens, living rooms, dining rooms, mud rooms, bathrooms, and bedrooms with closets. Built-in elements like bookcases and buffets were additional amenities.

In Arizona there are three principal variants of the California bungalow. Identified by Virginia and Lee McAlester by their roof forms, these include (1) the front-gabled
bungalow, the most prevalent type; (2) the side-gabled bungalow, the second most common type; and (3) the cross-gabled bungalow, the least common type. A rare, fourth variant, the hipped-roof bungalow, is also found in Arizona but is not included in this study.

4.8.1 Front-Gabled Bungalow (pp. 68-69)

In Arizona this one- or one-and-one-half-story bungalow variant is commonly generated from a simple rectangular, massed-plan footprint with the narrow side frontal. Room layouts observed on site for this study include five- and seven-room plans. The half-story loft may include bedrooms. Projections, less than room sized protrusions, can also occur along the plan perimeter. The roof form is front-gabled or occasionally front-hipped. This bungalow variant is identified by the presence of typical bungalow details generally including a recessed or projecting gabled porch, which is frequently supported on blocky or tapered columns. It can be difficult to distinguish between simpler examples of this variant and some examples of the gable- and hip-front massed-plan cottage.

In this sampling the widespread front-gabled bungalow is found in Benson, Douglas, Eagar, Flagstaff, Florence, Fredonia, Globe, Kingman, Nogales, Patagonia, Phoenix, Pine, St. Johns, Show Low, Taylor, Tucson, Wilcox, Williams, and Yuma. Sampling dates range from around 1901 to 1946. This type is almost universally labeled “bungalow” or “bungalow-influenced” by Arizona surveyors. The most typical settings are urban subdivision and small town lots. Materials of construction include adobe, stuccoed frame, stone, brick, and precast (rock-faced) concrete block. Roofs are generally simple, front-gabled forms but may include small cross-gables over lateral projections. Shed roof dormers occur occasionally. The front-gabled bungalow may be porchless but commonly
features either full- or partial-width recessed porches and offset or central, gabled, entry porches. The full-width gabled porch, which is lower than the principle roof, is also common. The drop-hipped porch is another variant.

In the Flagstaff Southside Historic District Basque immigrants constructed several dwellings between 1910 and 1925 which blend elements of the bungalow with the traditional jauregiak, the rural folk house of the Euskaldunak provinces of Spain and France. (See Hispanic Settlement Patterns and Dwellings.) Known as Amerikanuak vernacular, these low- to steep-pitched, front-gabled dwellings have symmetrical fronts and commonly a window at the gable. Most are one-and-one-half-stories high with field stone (vesicular basalt) first-story walls and wood frame construction at the loft level. Two of the examples are porchless and one has an infilled, partial-width, recessed porch (Woodward & Wilcox 1998: Sec. 7, p. 2).

4.8.2 Side-Gabled Bungalow (pp. 70-71)

Typical footprints of the one- or one-and-one-half-story, side-gabled variant of the bungalow are basically rectangular, sometimes including small projections. These rectangular footprints are oriented so that the narrow side is either to the side or to the front. The roof form is side-gabled or side-jerkinhead-gabled. In cases where the narrow side of the footprint orients to the front, the side-gabled roof may not incorporate the entire depth of the plan and a shed or cross-gabled roof may cover the rear segment of the bungalow. The loft space of the side-gabled bungalow may include bedrooms. This variant generally, but not always, features a prominent porch.

In this sampling the side-gabled bungalow is found in Concho, Douglas, Eagar, Flagstaff, Fredonia, Globe, Nogales, Patagonia, Phoenix, Pine, Tucson, and Willcox. According to
survey forms, construction dates range from 1900 to 1935. The type is recognized as a bungalow by Arizona surveyors. Typical settings are urban subdivision lots, small town lots, hillsides, and semi-rural, or rural locations. The side-gabled roof of this bungalow variant can be plain but frequently features shed or gabled roof dormers. The jerkinhead or hip-on-gable is sometimes employed. Porches are frequently full-façade recessed elements incorporated beneath the eaves of the gabled roof. Some dwellings feature full-façade porches covered by a variable-pitch extension of the roof. Materials of construction include stone, frame, brick, and rock-faced, precast concrete block.

4.8.3 Cross-Gabled Bungalow (pp. 72-73)

Virginia and Lee McAlester have identified this bungalow variant as cross-gabled because its partial-width, front-gabled porch forms a cross gable with the side-gabled principal roof. Similar to the side-gabled bungalow, typical, basically rectangular footprints may be oriented with the narrow side either to the front or to the side. (Strictly speaking, compound-plan bungalows, such as L-plan variants, also fit into the cross-gabled category.) The porch of the cross-gabled bungalow is commonly centered.

The cross-gabled bungalow is found in Concho, Douglas, Eagar, Flagstaff, Fredonia, Kingman, Nogales, Phoenix, Tucson, Willcox, and Yuma. Sampling dates range from 1898 to 1935. In most cases, the gabled porch is partial-width and centered but there are full-width examples and those which are offset. Construction materials include siding-clad frame, brick, stone, adobe, and rock-faced, precast concrete block.

5 Compound-Plan Dwellings

Compound-plan dwellings juxtapose linear and/or massed elements at right angles to create "bent" or "cross-wing" forms. The L-shaped plan is the most common in Arizona
and generally forms an irregularly massed, asymmetrical plan. Other less common plans are T- or U-shaped. Bent-plan forms, especially the L-shaped variants, derive from the picturesque cottage or house, introduced in the 1830s and 1840s by the authors of very influential, architectural pattern books responsible for the popularization of these forms. A. J. Davis in his handbook, *Rural Residences*, and A. J. Downing in *Cottage Residences*, *Rural Architecture and Landscape Gardening* resurrected a medieval English cross-wing plan as a means of advancing picturesque designs usually featuring Gothic or Italianate stylistic details. By the late nineteenth century, cross-wing plans were also commonly decorated with Queen Anne details. Irregular massing symbolized modernity, a break from the formal symmetry of traditional dwellings, and the complexity found in nature.

Prior to this time, dwellings were primarily of two fundamental types, as outlined above. They were either linear or massed variants of side-gabled or front-gabled types with simple rectangular plans. Compound-plan dwellings can be thought of as a combination of the two earlier forms, an adoption of a dynamic, directional principle and rejection of earlier single, rectangular blocks (Sizemore 1994: 96). Compound-plan dwellings epitomized the popular vernacular because their forms were not among the well-established traditional forms and they proliferated in the post-Civil War to pre-World War I building era, the period of industrialized or mass vernacular. Euroamerican vernacular builders abstracted from pattern book designs key elements, the basic morphology and perhaps some stylistic detailing, which they incorporated into their own dwellings. The popular compound-plan was perhaps the most important nineteenth-century innovation in Euroamerican domestic architecture (Upton 1984: 141, 144).

Pattern books gave impetus to the construction of irregularly-massed dwellings which were buildable because of technological innovations. Cast iron stoves with vented stovepipes permitted the adoption of longer, irregular floor plans. It was no longer necessary to provide heat from centrally- or laterally-placed fireplaces. Balloon framing
permitted the massing of complex forms and the ease of constructing secure outside corners. In traditional construction, such as heavy timber, log, stone, and brick masonry, corner junctions were difficult to build and predisposed to erosion and failure (Jakle et. al. 1989: 156).

Late nineteenth-century compound-plan cottages and houses, creations of the age of balloon frame construction and improved stoves, were promoted as building industry dwellings in nineteenth-century plan books and early twentieth-century house catalogues. These very common dwelling forms, considered by cultural geographers and folklorists to be "non-folk-derived," did not reflect the traditions of any culture region. They were instead builder-derived forms which reflected community growth in the late nineteenth century and early twentieth century (Jakle et. al. 1989: 164).

5.1 Gable-Front-and-Wing Cottage (pp. 74-76)
Other Designations: the Bent House, the L-Shaped Cottage, the Cross-Wing, the Upright-and-Wing, the "L" House

The gable-front-and-wing cottage is a very common, historic vernacular type encountered in Arizona. In fact, it is among the most popular and widely distributed of all types in rural as well as urban areas throughout the United States. It is a one- or one-and-one-half-story dwelling which generates from an L-shaped footprint, generally oriented so that the projecting wing is frontal. (Though less common, L-shaped plans can also have projecting wings oriented towards the rear.) Wing plans are linear, massed, or combinations thereof. The most common roof form is cross-gabled but there are cross-hipped variants and gable-hip combinations. A porch is frequently placed within the L created by the two wings.
Gable-front-and-wing cottages are either the result of simultaneous construction or construction in stages where front gabled (or hip-roofed) wings were added to simple hall and parlor or central hall wings. The latter type, called the upright-and-wing, joined secondary spaces to a primary block and was typically stepped in shape, with the roof ridge of the projecting wing higher than that of the flanking wing. The upright-and-wing dwelling was related to the Greek Revival and other neoclassical types due to the prominent, temple-like, gable-end block which overshadowed the smaller side wing.

More commonly, however, the entire structure was built as a single unit with a roof ridge of uniform height and a single cross-gable (or cross-hip) roof covering the entire dwelling (McAlester & McAlester 1989: 92). The floor plan comprised a single, integrated whole. To separate the two sections of an L-shaped cottage severely disrupted the interior space. Called the "bent house" by Dell Upton, the gable-front-and-wing cottage, which presented a single overall image with principal spaces distributed throughout both wings, was probably not related to the Greek Revival-influenced upright-and-wing dwelling (Sizemore 1994: 229).

The gable-front-and-wing cottage in Arizona appeared on numerous occasions during the representative property sampling. Good examples have been found in Benson, Concho, Eagar, Flagstaff, Florence, Globe, Nogales, Patagonia, Pine, Safford, St. Johns, Show Low, Snowflake/Taylor, Tombstone, Willcox, and Yuma. Sampling dates range from 1875-1937. Arizona practitioners have labeled this type "indigenous," "Queen Anne," "Queen Anne vernacular," and "national folk," as well as "gable-front-and-wing." Typical settings are small town and urban lots, hillsides, semi-rural, and rural locales. Materials of construction include stuccoed adobe, siding-clad and stuccoed frame, brick, and stone. The simplest plan, observed in Tombstone, has been a three-room variant which included a parlor and a bedroom in the projecting wing and a larger, multipurpose room in the
flanking room. The dwelling is entered from the porch through two doorways, one relating to the parlor and the other to the multipurpose room. A later shed addition to the rear functions as a kitchen. Although there are porchless examples, the most common porch is the drop shed projecting variant. Other porch types include L-shaped sheds, Z-shaped sheds that extend from the gable front around both sides of the L, and porches created by extensions of the roof at the same or a varying pitch. If decorated, Arizona's gable-front-and-wing dwellings may have Gothic Revival-inspired scrollwork and Queen Anne-inspired shingle siding on the front gable and ornamental turned posts and spindlework on the porch. In some cases the projecting, gable-front wing is faceted. Arizona's gable-front-and-wing cottages feature a wide range of rear and side appendages which add storage areas, kitchens, bathrooms, and sleeping porches to the compound-plan dwelling.

5.2 Gable-Front-and-Wing House (pp. 77-78)

Other Designations: L-shaped House, Yankee House

The gable-front-and-wing house is a two- or two-and-one-half-story compound-plan dwelling which generates from an L-configured footprint. Wing plans are linear, massed, or a combination of the two. Typical plans tend to be integrated, not preserving the integrity of each wing and often including a hall. Roof forms are cross-gabled or, less commonly, cross-hipped. One- or two-story porches occur frequently within the L of the juxtaposed wings.

Very few examples of the gable-front-and-wing house, which were common in the northeastern and midwestern states, have been encountered in the representative sampling of Arizona properties. Good examples occur in Bisbee, Douglas, St. Johns, and Yuma.
Construction dates range from 1905-1910. Settings are urban and small town lots. Materials of construction tend to be wood-siding-clad frame. A stuccoed, cross-hip-roofed example in St. Johns appears to be of masonry construction. This dwelling type lends itself to two-story porch construction within the L and the second-story portion can be either shed-roofed or roofless. In the St. Johns example, a one-story, metal-clad, shed-roofed porch is attached in the L and wraps around the flanking wing. Other appendages occur in the form of one- or two-story side or rear additions.

5.3 The Pyramidal-Block-and-Wing Cottage (pp. 79-80)

The pyramidal-block-and-wing is another variant of the compound-plan dwelling. There are numerous examples of this type in Arizona. No commonly accepted name has been found in the literature for this type thus it has been assigned a name for this study. The form of this one- or one-and-one-half-story cottage generates from a square or nearly-square primary unit with a secondary, rectangular, linear-plan, frontal, projecting wing. The dwelling is generally entered through the primary block but may feature a secondary entry into the projecting wing. In the absence of field inspection or literature example, prototypical plans are assumed to be either of the foursquare or central hall, four-room squared variety with wing, or an integration of the wing into a variant of the the primary squared plan rendering the latter less than square. The primary block is capped with any of the roof variants found on the pyramidal cottage including slightly-ridged examples, gable-on-hip, and the rare cross-gable-on-hip. The roof form of the projecting wing is generally front-gabled but may be hipped. Within the L formed by the juxtaposition of the projecting wing and the square block, a number of porch variants appear.
Complex, compound-plan dwellings found in Utah with roughly square, pyramidal-roof-clad central sections and projecting bays, some of which were frequently turreted, are classified as Victorian types by Carter & Goss. In one sense, the vernacular pyramidal-block-and-wing may have been a simple abstraction of this more complex Victorian type. In another sense, it may have represented an elaboration of the somewhat later and increasingly popular pyramidal cottage. The pyramidal-block-and-wing cottage may simply have been a transition between the two and would make an interesting case for further study. Similar to the gable-front-and-wing cottage, the pyramidal-block-and-wing was either constructed as a single unit at one time or resulted from the later addition of a projecting wing to a pyramidal cottage. Although generally unadorned, when ornamented stylistic details were Queen Anne- or Colonial Revival-inspired. Recognizing its transitional quality, some Arizona practitioners have assigned the designation "Queen Anne/Neo-Colonial Revival" to describe the style of this type. It is also named "Queen Anne Cottage" or classified as "Neo-Colonial" in style. A stuccoed adobe example in Nogales is labeled "indigenous."

The pyramidal-block-and-wing has been found in Ajo, Naco, Nogales, Phoenix, and Tucson. Dates range from 1893-1909. A number of excellent examples pertain to a citywide survey of pre-1900 buildings undertaken in Phoenix and numerous examples can be found by driving through earlier neighborhoods and historic districts in Tucson. Materials of construction include brick on stone foundations, wood-siding-clad brick, and clapboard-siding-clad frame.
5.4 Gabled T-Plan Cottage (pp. 81-82)

Other Designations: Cross-Wing Cottage, Temple Form Cottage

The gabled T-plan cottage is a compound-plan one- or one-and-one-half-story variant, found in Arizona and allegedly popular among the Mormons, which generates from a T-configured footprint usually created by the juxtaposition of linear-plan units although some examples appear to combine linear- with massed-plan wings. There is no commonly accepted name for this form in the literature. The footprint orientation may vary with the T-stem either to the rear, front, or side and this variant may be mistaken for other types when viewed from the front. The roof form as observed in the sampling is cross-gabled in most cases, but there may be examples combining gabled and hipped wings.

According to Carter and Goss, Mormons in Utah built Greek-Revival-influenced, T-plan dwellings with the gable-roofed T-stem frontally and symmetrically placed with respect to the side wings. Considered a variant of the gable-front massed-plan "Temple Form," these examples could be full two-story houses, or have one-story flanking wings with a higher, one-and-one-half-story, front-gabled projecting wing (Carter & Goss 1988: 33-36). Examples of this plan orientation in Arizona, encountered in Phoenix and Flagstaff, do not occur in neighborhoods of known Mormon settlement. However, excellent examples of a T-plan cottages, with the stem oriented to the side and rear, have been found in Pine and Safford, Arizona, and undoubtedly relate to Mormon settlement. Similar to other compound-plan dwellings, the gabled T-plan cottage was usually constructed simultaneously as a single unit, but could be the result of later wing additions.
In the representative property sampling, gabled T-plan cottages have been found in Concho, Flagstaff, Globe, Patagonia, Pine, Phoenix, Safford, and Williams. Sampling dates range from 1881-1925. Materials of construction include stuccoed adobe, stone, brick, stuccoed brick, asbestos-tile-sheathed wood frame, shiplap-siding-clad wood frame, and board-and-batten-clad wood frame.
HALL COTTAGE
(Sampling Dates: 1880s-1931)

FORM

FOOTPRINT
Square or rectangular, wide or narrow side frontal

ROOF
Front or side-gabled

WALLS
1 story (±9')

PLANS
Single-Cell (wide side frontal)
Single-Cell (narrow side frontal)

ELEVATIONS
Front (side-gabled)
Side
Front (front-gabled)
Side

ROOF VARIANTS

Side-Gabled
Front-Gabled

PORCH VARIANTS

Gabled Entry (side-gabled cottage)
Gabled Entry (front-gabled cottage)

Photo: SWCA 1994 (courtesy SHPO).
DOUBLE-CELL COTTAGE
(Sampling Dates: 1893-1930)

FORM

ROOF
Side-gabled or hipped

FOOTPRINT
Rectangular, wide side frontal

WALLS
1 or 1 & 1/2 stories

PLAN

ELEVATIONS

Typical Plan

Front
(dual entry)

Front
(dual entry with central windows)

Side

Side
ROOF VARIANTS

   Photo: J. Strittmatter.

2. St. Johns. Double-cell cottage of log construction, with non-original doors. It has been relocated to present site.
   Photo: J. Strittmatter.

   Photo: Laird 1988 (courtesy SHPO).

PORCH VARIANTS

Drop-Shed

Variable-Pitch Roof Extension
HALL & PARLOR
COTTAGE
(Sampling Dates: 1882-1931)

FORM

FOOTPRINT
Rectangular, wide side frontal

WALLS
1 or 1 & 1/2 stories

ROOF
Side-gabled or hipped

PLAN

ELEVATIONS

Typical Plan

Front (centered entry)

Front (off-centered entry)

ROOF VARIANTS

Side
(with porch and rear shed appendages)

Side-Gabled

Side-Hipped
   Photo: Johns & Strittmatter Inc.

2. Tombstone. Tombstone Inventory. Siding-clad, frame cottage with drop-shed porch and off-centered entry.
   Photo: Johns & Strittmatter Inc.
FORM

FOOTPRINT
Rectangular, wide side frontal

WALLS
1 or 1 & 1/2 stories

PLANS

Hall and Parlor
(1st floor, pre-classic I house)
(Concho)

Hall and Parlor
(loft floor)
(Concho)

Central Hall
(1st floor, classic I house)

Central Hall
(2nd floor, classic I house)

ELEVATIONS

Front

Side

ROOF VARIANT

Side-Gabled
(with wall dormers)

PORCH VARIANT*

*All observed examples are porchless.
1. Concho. Modified I house of raw adobe construction, with gabled wall dormers and 1-story adobe shed to rear (observed in field). House has a hall and parlor plan and interior fireplace. 
Photo: J. Strittmatter

Photo: J. Strittmatter
CENTRAL HALL COTTAGE
(No Dates Identified)

FORM
FOOTPRINT
Rectangular, wide side frontal

WALLS
1 or 1 & 1/2 stories

ROOF
Side-gabled

central hall

PLAN

ELEVATIONS

Typical (centered entry)

Side
(with porch and rear shed appendages)
SHOTGUN COTTAGE
(Sampling Dates: 1882-1939)

FORM

ROOF
Front-gabled or hipped

FOOTPRINT
Rectangular, narrow side frontal

WALLS
1 or 1 & 1/2 stories

PLANS

2-Room
3-Room

ELEVATIONS

Front
(off-centered entry)

Side
(2-room variant)

Front
(centered entry)

Side
(3-room variant)
SHOTGUN COTTAGE

ROOF VARIANTS

Front-Gabled

Front-Hipped

PORCH VARIANTS

Drop-Hipped

Recessed

Gabled-Pent

Full-Width


4
SHOTGUN HOUSE
(Sampling Dates: Unknown)

FORM

ROOF
Front-gabled or hipped

FOOTPRINT
Rectangular, narrow side frontal

WALLS
2 or 2 & 1/2 stories

PLANS

Typical 1st Floor
(interior stairs)
(adapted from Jackle et al. 1989: 222)

Typical 2nd Floor

1st Floor
(exterior stairs)
(Bisbee)

2nd Floor
(exterior stairs)
SIDE-GABLED
MASSED-PLAN
COTTAGE
(Sampling Dates: 1876-1925)

FORM

FOOTPRINT
Rectangular, wide side frontal

WALLS
1 or 1 & 1/2 stories

ROOF
Side-gabled or hipped

PLANS

Hall & Parlor Extended
Double-Cell Extended

Central Hall

Massed-Plan Core
(with wrap-around recessed porches)
(Ajo)

3-Room
(with partial wrap-around porch)
(Pine)

later kitchen
addition

BR
hall

BR
porch
ELEVATIONS

SIDE-GABLED MASSED-PLAN COTTAGE

Front (centered or off-centered single entry)

Front (2 or 3 entries)

Front (entry through screened porch) (Ajo)

Front (cross-gabled-dormer variant; entry through screened porch) (Ajo)

ROOF VARIANTS

Side-Hipped

Side-Gabled

Side-Gabled (with cross-gabled wall dormer)

PORCH VARIANTS

Recessed (partial wrap-around, screened porch)

Drop-Shed (full-width)

Gabled Entry


SIDE-GABLED MASSED-PLAN HOUSE
(Sampling Date: ± 1880)

FORM
- ROOF
  Side-gabled or hipped
- FOOTPRINT
  Rectangular, wide side frontal
- WALLS
  2 or 2 & 1/2 stories

PLANS
- Central Hall
  (Georgian plan, 1st floor)
- Central Hall
  (Georgian plan, 2nd floor)
GABLE-FRONT
MASSED-PLAN
COTTAGE

(Sampling Dates: 1883-1939)

FORM

FOOTPRINT
Rectangular, narrow side frontal

WALLS
1 or 1 & 1/2 stories

ROOF
Front-gabled or hipped

PLANS

Side Passage
(adopted from Jakle et al. 1989: 215)

Double-Cell Extended
(triple pile)

Recessed Porch

Double-Cell Extended
(double pile)
GABLE-FRONT MASSED-PLAN COTTAGE

ELEVATIONS

Front
(central entry with recessed porch)

Front
(offset entry)

Side

ROOF VARIANTS

Front-Gabled

Front-Gabled
(double roof)

Front-Hipped

PORCH VARIANTS

Front-Gable-on-Hip

Front-Gabled
(with cross-gabled dormers)

Drop-Shed or Drop-Hipped
(full-or partial-width)

Recessed
(full-width)

Recessed
(corner)

Gabled-Entry
   Photo: Johns & Strittmatter 1995.

2. Flagstaff. Siding-clad, frame cottage with offset entry possibly indicating a side-passage plan.
   Photo: J. Strittmatter.

   Photo: J. Strittmatter.
GABLE-FRONT
MASSED-PLAN
HOUSE

(Sampling Dates: 1891-1909)

FORM

FOOTPRINT
Rectangular, narrow side frontal

WALLS
2 or 2 & 1/2 stories

ROOF
Front-gabled or hipped

PLANS

Side Passage
(1st floor)
(adapted from Jakle et al. 1989: 215)

Side Passage
(2nd floor)

ELEVATIONS

Front

Side
ROOF VARIANTS

GABLE-FRONT MASSED-PLAN HOUSE

PORCH VARIANTS


SQUARE COTTAGE

(Sampling Dates: 1889±1920)

FORM

FOOTPRINT
Square

ROOF
Front- or side-gabled

WALLS
1 or 1 & 1/2 stories

PLANS

ELEVATIONS

Foursquare

Massed-Plan Core
(with wrap-around recessed porch)

Front
(side-gabled foursquare)

Side
(side-gabled foursquare)

Front
(front-gabled foursquare)

Side
(front-gabled foursquare)
SQUARE COTTAGE

**ROOF VARIANTS**

- **Front-Gabled**
- **Side-Gabled**
- **Front-Gabled** (with gabled wall dormer)

**PORCH VARIANTS**

- **Porchless**
- **Recessed** (partial wrap-around, screened porch)

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1. **Patagonia.** Patagonia Survey. Raw-adobe walled, 30' x 30', front-gabled square cottage.  
   Photo: Ryden 1994 (courtesy SHPO).

2. **Ajo.** Ajo Inventory. Redwood frame, side-gabled square cottage with recessed, screened porch.  
   Photo: Johns & Strittmatter 1995 (courtesy SHPO).
PYRAMIDAL COTTAGE
(Sampling Dates: 1878-1930s)

FORM

FOOTPRINT
Square (or nearly square)

WALLS
1 or 1 & 1/2 stories

ROOF
Pyramidal

PLANS

Foursquare
(by accretion)

Foursquare
(with appendages)

Central Hall

Recessed-Porch Central Hall
(Southern pyramidal)

Partial-Central Hall
ELEVATIONS

- Foursquare (off-centered entry)
- Central Hall (centered entry) (also found in foursquare)
- Foursquare (double entry)

Side Elevation (with appendages)

ROOF VARIANTS

- Perfect Pyramid
- Gable-on-Hip
- Pyramid With Ridge
- Pyramid With Dormer
- Truncated Pyramid
- Pyramid With Roof Dormers

PORCH VARIANTS

- Recessed (corner)
- Recessed (central)
- Recessed (full-width) (Southern pyramidal)
- Gabled Entry (central or off-center)
- Drop Shed (full- or partial-width)
- Hipped Entry (central or off-center)
- Drop Hip (full- or partial-width)
Photo: J. Strittmatter.

Photo: J. Strittmatter.

Photo: Johns & Strittmatter Inc.
FOURSQUARE HOUSE
(Sampling Dates: 1884-1901)

FORM

- ROOF
  Pyramidal or flat

- FOOTPRINT
  Square (or nearly square)

- WALLS
  2 or 2 & 1/2 stories

PLANS

- Typical Foursquare (1st floor)
- Typical Foursquare (2nd floor) (Massey & Maxwell 1990)
- Foursquare (1st floor) (exterior stairs, observed in field)
- Foursquare (2nd floor)
- Central Hall (1st floor) (interior stairs)
- Central Hall (2nd floor) (exterior stairs)
- shed
- balcony
ELEVATIONS

Typical Front

Front (foursquare exterior stairs)

Front (central hall)

Side

Side

ROOF VARIANTS

Pyramidal

Flat

Truncated Pyramid

PORCH VARIANTS

Drop-Hipped (1st story full-width, typical)

Recessed (2-story full-width)

Flat-Roofed (1st-story full-width)

Shed-Pent


3. Patagonia. Adobe foursquare with truncated pyramidal roof. House is assumed to have a central-hall plan. Second-story central door may have once related to a balcony. Photo: J. Strittmatter.
FRONT-GABLED BUNGALOW

(Sampling Dates: 1901-1946)

FORM

FOOTPRINT
Rectangular, narrow side frontal

WALLS
1 or 1 & 1/2 stories

POORCH
Recessed or projecting front-gabled

ROOF
Front-gabled or hipped

PLANS

7-Room (Williams)

5-Room (typical)

ELEVATIONS

Front (typical)

Side (typical)

SIDE-GABLED BUNGALOW

(Sampling Dates: 1900-1935)

FORM

WALLS
1 or 1 & 1/2 stories

FOOTPRINT
Rectangular, wide or narrow side frontal

PORCH
Recessed or projecting

ROOF
Side-gabled or side-jerkinhead-gabled

PLANS

3-Room
(1st floor of 7-room plan, wide side frontal)
(Adapted from Gowans 1986: 78)

4-Room
(Left of 7-room plan)

6-Room
(Narrow side frontal)
(Adapted from Gowans 1986: 78)
ROOF VARIANTS

- Side-Jerkinhead-Gabled
- Side-Gabled (with shed-roof dormer & variable-pitch shed roof at rear)
- Side-Gabled (with gabled roof dormer)

PORCH VARIANTS

- Variable-Pitch Roof-Extension (full-width)
- Recessed (full-width)


CROSS-GABLED BUNGALOW
(Sampling Dates: 1898-1935)

FORM

FOOTPRINT—Rectangular, wide or narrow side frontal

ROOF—Side-gabled or side-jerkinhead-gabled with cross-gabled porch

WALLS—1 or 1 & 1/2 stories

PORCH—Projecting

PLANS

2-Room
(Loft of 8-room plan)

3-Room
(first floor of 7-room plan, wide side frontal)
(adapted from Gowans 1986: 78)

4-Room
(Loft of 7-room plan)

6-Room
(first floor of 8-room plan, narrow side frontal)
(adapted from Gowans 1986: 83)
CROSS-GABLED BUNGALOW

ELEVATIONS

Front

Side
(showing variable-pitch shed roof at rear)

ROOF VARIANTS

Side-Jerkinhead-Gabled
(crossed by front-jerkinhead-gabled porch)

Side-Gabled
(crossed by fro. -gabled porch)

PORCH VARIANTS

Gabled-Entry
(partial, centered)
(can also be full-width)

Gabled-Entry
(partial, offset)

Jerkinhead-Gabled-Entry
(partial, centered)

   Photo: SWCA 1996 (courtesy SHPO).

   Photo: J. Strittmatter.
GABLE-FRONT & WING COTTAGE
(Sampling Dates: 1875-1937)

FORM

- FOOTPRINT: Compound rectilinear
- Projecting wing
- ROOF: Cross-gabled or cross-hipped
- WALLS: 1 or 1 & 1/2 stories
  - Flanking wing

PLANS

- 4-Room Linear Combination (Bisbee)
- Linear & Massed Combination
- 3-Room Linear Combination (Tombstone)

ELEVATIONS

- Front
- Side (projecting wing)
- Side (showing L)
ELEVATIONS, Cont.

Front
(4-room variant)

Front
(3-room variant)

ROOF VARIANTS

Cross-Gabled

Cross-Hipped

Cross-Gable-Hip-Combination

PORCH VARIANTS

Drop-Shed
(full-or-partial-width, full-or-partial depth)

Drop-Shed
(L-plan)

Drop-Shed
(Z-plan)

Hipped-Pent
(or Shed-Pent)

Drop-Hipped
(full-width)

GABLE-FRONT-&-WING
HOUSE
(Sampling Dates: 1905-1910)

FORM

FOOTPRINT
Compound rectilinear

ROOF
Cross-gabled or cross-hipped

WALLS
2 or 2 & 1/2 stories

flanking wing

PLANS

Linear & Massed Combination
(1st floor of 9-room plan)
(adapted from Jakle et al. 1989:218)

Linear Combination
(1st floor of 7-room plan)

Linear Combination
(2nd floor of 7-room plan)
ELEVATIONS

Front

Side
(projecting wing)

Side
(showing L)

ROOF VARIANTS

Cross-Gabled

Cross-Hipped

PORCH VARIANTS

2-Story Drop-Shed

1st Story Shed Wrap-Around

1st Story Drop-Shed

Photo: J. Strittmatter

2. Bisbee. 2-story frame house with drop-shed porch serving both floors.
Photo: J. Strittmatter
PYRAMIDAL BLOCK & WING COTTAGE
(Sampling Dates: 1893-1909)

FORM

ROOF
Pyramidal plus gabled (or hipped) projection

FOOTPRINT
Square (or nearly square) primary unit plus rectangular projection

WALLS
1 or 1 & 1/2 stories projection

PLANS

Block & Wing (integrated wing)

Foursquare Block Plus Wing (by accretion)

ELEVATIONS

Front

Side

Side


PYRAMIDAL BLOCK & WING COTTAGE
GABLED T-PLAN COTTAGE
(Sampling Dates: 1881-1925)

FORM

FOOTPRINT
Compound rectilinear

WALLS
1 or 1 & 1/2 stories

ROOF
Cross-gabled

PLANS

T-Plan (with stem to rear)
(stem can also orient to front)
(1st floor plan)

T-Plan (with stem to rear)
(loft plan)

T-Plan (with stem to side)

Front
(rear T-stem)

Side
(rear T-stem)

Front
(frontal T-stem)

Side
(frontal T-stem)
ELEVATIONS (CONT.)

GABLED T-PLAN COTTAGE

Front
(side T-stem)

Side
(side T-stem)

ROOF VARIANTS

Cross-Gabled
(rear T-stem)

Cross-Gabled
(frontal T-stem)

Cross-Gabled
(side T-stem)

PORCH VARIANTS

Drop-Shed

Drop-Shed
(full-width)


12 PRESERVATION STRATEGIES

1 Introduction

Listing on the National Register of Historic Places is the ultimate goal in the preservation of historic properties. How can this goal best be reached for Arizona's small, commonplace, and sometimes overlooked, vernacular dwellings? Vernacular dwellings are generally best dealt with as contributors to an historic district, a significant concentration of buildings united historically or aesthetically by plan or physical development. In most cases, the preservation of vernacular dwellings will depend upon the continuation of historic resources inventory efforts, the expansion of inventory work among Native Americans, and the listing of districts (some already inventoried) on the National Register of Historic Places.

Fortunately, as a result of the comprehensive survey program mandated by the National Historic Preservation Act of 1966, many of Arizona's vernacular dwellings (especially adequately maintained, Euroamerican popular types like bungalows) now contribute to National Register historic districts. However, very few of the state's most threatened resources, Native American dwellings of perishable materials such as adobe or wattle and daub, have been documented through the comprehensive survey process, let alone listed on the National Register. Second, although many of the state's historic Hispanic or Euroamerican vernacular dwellings have been surveyed, they have been inadequately described and even overlooked in earlier work. The absence of a controlled vocabulary to describe vernacular types accompanied by uneven survey coverage has resulted in the assignment of non-contributory "short" inventory forms to some of these dwellings, even though they may be located in National Register historic districts. Third, a number of vernacular dwellings around the state have yet to be inventoried or, if documented in reports, have yet to be nominated to the National Register of Historic Places.
1.1 **Assessment of the Resource Base**

When dealing with Arizona's vernacular dwellings it is necessary to determine which are worthy of preservation and should continue as a living part of our cultural heritage, either evaluated individually or as contributors to historic districts. To start, many of the earliest Native American and Hispanic folk dwellings neither exist nor are they salvageable except as subjects for archaeological research. Other modest vernacular resources, which are abandoned or in a state of poor repair, are undoubtedly unworthy of further action. Vernacular structures, if inhabited, are frequently owned by people of modest means therefore have been minimally maintained and repaired. In the atmosphere of widespread ignorance about the significance of vernacular architecture, local governments, private owners, and others responsible for preservation may not value these resources enough to preserve them. The value of vernacular resources to some extent depends upon their cultural affiliation, fragility of structure, and degree of rarity or profusion.

1.2 **Summary of Preservation Strategies**

The following text will present several preservation strategies to deal with the above-mentioned observations. First, a summary of the survey, inventory, and National Register process, as outlined by historian William Collins of the SHPO (1996), will be discussed. Second, suggestions for the education of surveyors to ensure more uniform and comprehensive survey coverage will be presented. These suggestions will include (1) a proposed modification of the Arizona Historic Property Inventory form and (2) a proposed compilation and dissemination of a condensed, illustrated "guidebook" on Arizona-appropriate types and styles. Third, a possible program for the preservation of Arizona's rapidly disappearing, Native American, vernacular dwellings (based upon the work of a successful, New Mexico community partnerships program) will be introduced. Fourth, suggestions will be mentioned with respect to the need for (1) re-evaluation of...
earlier comprehensive survey work and (2) continuing efforts to inventory potential historic districts and to list them on the National Register.

2 Summary of the Survey, Inventory, and National Register Process for the Preservation of Properties

2.1 Background

The National Historic Preservation Act of 1966, based upon the premise that the cultural and historical foundations of the nation should be preserved as a continuing part of American community life and development, thereby giving direction for a richer future, established a program for the identification, recognition, and preservation of worthy historic properties. Under this Act, the National Park Service branch of the Department of the Interior became the primary preservation agency to oversee the National Register of Historic Places, the nation's list of historically significant properties deemed worthy of preservation. The responsibilities of the head official known as the Keeper of the National Register were to set guidelines for defining eligibility and to oversee the nominating process.

This Act of 1966 which created a preservation network of federal, tribal, state, and local governments, mandated the creation of state-level historic preservation offices as leading preservation agencies to implement federal regulations and to assist in statewide preservation efforts. Arizona's State Historic Preservation Office (also known by the acronym SHPO) under the jurisdiction of Arizona State Parks, is a federal-state agency, operating under the Historic Preservation Act of 1966 and a similar State Historic Preservation Act (ARS 41-861 to 866). The SHPO (1) conducts an ongoing architectural survey and inventory program, (2) oversees the nomination of significant properties to both the Arizona and National Registers, (3) is involved in a review and compliance
program with respect to impacts of federal and state undertakings on register-eligible projects, and (4) develops a comprehensive state plan for historic resources.

1.2 Property Categories

The National Register identifies several categories of historic properties including buildings, sites, districts, structures, objects, and cultural landscapes. A building, such as a house or barn, is created to shelter any form of human activity. To be eligible for the National Register a building must include its essential structural elements. A vernacular dwelling is a building and a concentration of vernacular dwellings might form a district. A district is a unified entity consisting of interrelated resources which visually convey a sense of an historic environment. A district may also be a group of historically or functionally related resources. A district may include several property categories and reflect one principal activity like a mill, a ranch, or a residential subdivision. A district may also encompass several interrelated activities such as a mixed commercial/residential, urban area. A district must be significant, that is important for its historical, architectural, or cultural values, and must be a definable geographic area set apart from surrounding properties by understandable boundaries. Another historic property category is a cultural landscape which might include such features as cultivated fields, ditches, terraces, and plantings, as well as dwellings. A Native American reservation such as the Gila River Indian Community would be classified as a cultural landscape.

1.3 Criteria of Evaluation

To be listed on the National Register, a property must (1) be at least fifty years old, (2) have significance, or recognizable historic importance, and (3) retain historic integrity, or the ability to convey its historic significance. With respect to significance, a property may embody one or more of four values which are known as the National Register Criteria for Evaluation. These include: (1) Criterion A: association with events that have made a
significant contribution to the broad patterns of our history, (2) Criterion B: association
with the lives of historically significant persons, (3) Criterion C: embodiment of the
distinctive design or structural characteristics of a type, period, or construction technique;
exemplifying the work of a master or possessing high artistic merit, and (4) Criterion D:
capability of yielding information important in prehistory or history. To understand a
property’s significance, it is necessary to define its \textit{historic context} by researching the
building’s history and defining its significant associations or characteristics.

A vernacular dwelling in an historic district would most likely be associated with Criterion
A, a broad pattern such as “community development in Phoenix.” A vernacular dwelling
might also reflect Criterion B, its association with the life of an historically significant
person such as Indian agent and newspaper editor, John P. Clum, of Florence and
Tombstone. John Clum owned a stuccoed adobe, pyramidal cottage which still exists in
Florence. With respect to Criterion C, a vernacular dwelling may be an excellent example
of its type, like a foursquare house or a pyramidal cottage, but it certainly will not be the
work of a trained designer. Criterion D would apply to archaeological ruins, especially
important with respect to ruins of early Native American and Hispanic, vernacular
dwellings.

1.4 Integrity
To evaluate integrity or the ability of a building to convey its historic significance, the
National Register has seven guidelines to consider. Since changes occur over time, the
guidelines acknowledge that a property can be historically significant even if it does not
retain all of its historic physical features. The guidelines for integrity include (1) \textit{location},
the place where the historic property was constructed or event occurred, (2) \textit{design}, the
form, plan, space, structure, and style that were consciously instilled in the creation of the
property, (3) \textit{setting}, the property’s physical setting or environment, (4) \textit{materials}, the
physical elements combined to construct the property, (5) workmanship, the physical evidence of the craftsmanship of a particular culture, (6) feeling, the perception that a property is historic because of its aesthetic or temporal qualities, and (7) association, the link between an important historic event or person and an historic property.

To determine if a vernacular dwelling has integrity, generally it must be sited in its original location and not have been moved to a new location. Its form should be that of one of the many vernacular types identified in this study, or be an ordinary, non-professionally-designed example of a yet unidentified type. (Vernacular properties have commonplace, replicable forms and are not "one of a kind" creations.) Recent alterations or additions must in no way mask the original form. The property's physical setting should have remained historically accurate, for example the isolated, rural setting for a ranch dwelling must be essentially the same as it was fifty or more years ago. A vernacular dwelling's materials should maintain sufficient integrity, that is, remain intact in spite of the forces of nature which might erode them, so that the building is a clearly recognizable example of its type (unless it is to be considered a ruin). The workmanship of a vernacular dwelling, such as the wood craftsman's squaring of logs or the stone mason's technique, should be recognizable as the handiwork of those who first built the property. The vernacular dwelling should impart the feeling of its aesthetic or historic period and should also represent a direct link between an important historic event or person.

3 Recommendations to Foster Uniformity in Survey Coverage

3.1 Proposed Redesign of the Inventory Form

The Arizona Historic Property Inventory Form uses style as the principal category for architectural classification. To reiterate an observation of Chapter 1, properties of the
same type may be widely divergent in style while properties of the same style may be widely divergent in type. Style may influence a vernacular dwelling type but it is not an adequate means to describe one. Type should be the major category of classification on the state inventory form with style serving as a modifying factor. Also, since vernacular properties are generated from the footprint, surveyors should be encouraged to pay more attention to this element and to sketch it on the inventory form. Understood as examples of types, surveyors will improve their ability to "read" vernacular dwellings from the exterior, to quickly perceive the original building envelope, and to make reasonable guesses regarding the nature of the interior floor plan.

The following illustration (Fig. 12.1) shows both pages of a typical Arizona Historic Property Inventory Form. To adequately describe a vernacular dwelling, the term

![Arizona Historic Property Inventory Form](image)

Fig. 12.1 Arizona Historic Property Inventory Form
Property Type on the first page would need to identify the property as a "dwelling." The term Style would need to be changed to Type. A designation such as "shotgun cottage" could be entered as a type. A new category entitled Stylistic Influences could be added. An appropriate entry for this category might be "Queen Anne Revival detailing." The Sketch Map, which is always obscured by Photograph 2, would need to depict accurately the building footprint. Another location for Photograph 2, which does not obscure important information, could be devised. On the second page, Stories would be used to describe wall height, such as "1 & 1/2 stories" and Roof Type to describe roof form, such as "side-gabled." In the Statement of Significance section, under Architectural Association the dwelling would need to be described in a few sentences as an example of a significant vernacular type.

To illuminate the above, the following illustration (Fig. 12.2) depicts a dwelling located in Pine and inventoried by Johns & Strittmatter Inc. several years ago. The style was identified as "vernacular" in the typical fashion of surveyors at that time. The building was observed in the field as well as evaluated from an archival building record card obtained from the Gila County Assessor's office. It was known from field observation that the original footprint was T-shaped and that infill had altered the perimeter to the configuration shown on the record card. It was unknown at that time that gabled T-plan cottages might be a vernacular type. (See Euroamerican Types and Forms.) To adequately describe the footprint now, the sketch map would need to show the original configuration plus any infill and appendages, as illustrated. The wall height would be described as one-and-one-half stories and the roof form as cross-gabled. The information needed to identify positively a gabled T-plan cottage today was lacking on the inventory form because knowledge of typology was unknown at that time.
Photo: Johns & Strittmatter Inc.

Ground Plan Sketch. Pryor Miller House. Archival building record card (courtesy Gila County Assessor’s Office)

Suggested sketch map for property inventory form showing original T-configured footprint

Fig. 12.2 Pryor Miller House. A Gabled T-Plan Cottage
3.2 Proposed Illustrated Guide Book of Types and Styles

The author's evaluation of hundreds of Arizona Historic Property Inventory forms for this study revealed the complete absence of a standardized or controlled vocabulary for the identification of vernacular dwelling types. In fact, the simple pyramidal cottage was assigned at least twenty-four different labels. At this rather late stage, when much of the comprehensive survey work throughout the state has already been completed, it would nonetheless be helpful to encourage uniformity in the labeling (and understanding) of the historic styles and historic vernacular types encountered in the state. It is recommended that an Arizona-appropriate, condensed, illustrated guidebook be compiled for distribution. The illustrations from this context study could be included along with a short paragraph describing each vernacular dwelling type. To this vernacular material, text and illustrations depicting stylistic influences could be added to complete the guidebook.

4 Preservation on the Native American Reservations

Based upon the very limited observations of this study, the most threatened resources are the rapidly disappearing, vernacular dwellings of Arizona's Native Americans on the reservations. Examples of these threatened dwellings include the early-twentieth-century, O'odham, two-room enclosed frame dwellings of wattle and daub or Pima sandwich construction or a few standing Apache wickiups. Historic, Native American dwellings have not been comprehensively surveyed by preservationists, although they have been included in government housing studies, and are commonly considered expendable by the tribal groups in question. Agents in charge of historic preservation on the Navajo, Tohono O'odham, Gila River, and Fort Apache reservations have all indicated a need for inventory work once appropriate tribal approval has been secured, especially if it entails training Native Americans to undertake the inventory work.
The concept of historic preservation on Native American Reservations commonly means applying a Euroamerican, elite/academic-derived value upon non-Euroamerican peoples. Rina Naranjo Swentzell, architect, historian, and educational consultant raised on the Santa Clara Pueblo in New Mexico describes how the pueblo dwellings of her youth were expected to deteriorate and "just as people's bodies, came from and went back into the earth." (Swentzell in Pratt & Wilson 1991: 21). Nonetheless cultural affairs agents, generally professional archaeologists or anthropologists, on the Fort Apache, the Tohono O'odham, the Gila River Indian Community, and the Navajo Reservation have all expressed a need and their support for additional, historic documentation and preservation to supplement their own efforts. Some documentation of historic resources has occurred although little comprehensive inventory work has been attempted owing to the difficulties presented by the vast land areas and the fact that agency officials are swamped with repatriation, review, and compliance issues.

According to anthropologist, Peter Steere, with the Cultural Affairs department of the Tohono O'odham Reservation, there are a number of 1920s and 1930s-vintage, traditional adobe dwellings, a few wattle and daub structures, ruin remains of adobe dwellings, and abandoned villages, not to mention a series of 1910s-vintage village chapels all worthy of documentation. A number of early twentieth century dwellings, the two-room enclosed frame structures of wattle and daub and Pima sandwich construction and early adobe dwellings, were pointed out to the author by archaeologist Robert Neily on the Gila River reservation. John Welch of the Historic Preservation department of the Fort Apache Reservation reports of at least ten standing Apache wickiups, plus a considerable number of World War II-vintage or earlier clapboard-clad, frame dwellings worthy of documentation and in some cases, of preservation. Anthropologist Alan Downer on the Navajo Reservation reports that the Navajo hogan tradition is still relatively healthy.
because hogans continue to be constructed, in some cases using traditional log structural technology, and undoubtedly many historic examples still stand.

This sort of historic preservation can only be undertaken with the approval of the Tribal and District Councils as well as individual reservation communities. A high priority preservation goal is to spark interest among Arizona's native peoples in the documentation and preservation of their historic, vernacular dwellings which constitutes their rapidly disappearing, irreplaceable cultural heritage. The implementation of programs to train youth is the best guarantee that tribal approval will be gained and this interest in preservation can be sparked.

The first step would be to contact agents involved in the cultural preservation programs and to develop a proposal which would be evaluated by the tribal council, districts, and communities on the reservation. A proposal along the lines of the work of Cornerstones, an independent, non-profit New Mexico corporation, might be entertained. Cornerstones works in partnership with Native American communities which have invited participation and demonstrated a solid commitment toward assuming the ownership of a preservation project. As explained in literature supplied by Edward Crocker, Technical Director, Cornerstones was originally founded in 1986 as the “Churches: Symbols of Community” program of the New Mexico Community Foundation which concentrated on the preservation of historic adobe churches. By 1991, realizing the importance of youth in fostering community traditions, Cornerstones pursued the development of formalized, traditional building skills, youth mentorship, training programs. Cornerstones formed partnerships with the University of Pennsylvania and the University of New Mexico, educational institutions which provided faculty and graduate students in the fields of architecture, landscape architecture, and historic preservation to work one-on-one with Native American youth trainees. It is proposed that the historic preservation divisions of
Arizona’s Colleges of Architecture might supply faculty and students interested in training Native American youth to inventory dwellings (and other structures) and to repair and maintain them. Apparently, there is a considerable amount of U.S. government grant money available to train Native American youth.

5 Reevaluation of Early and Continuation of Present Inventory and Nomination Work

The author’s evaluation of inventory forms for this study revealed some work undertaken in the 1970s in which dwellings with such labels as “indigenous” were assigned short forms and were considered to be non-contributing properties to historic districts. Reevaluated today, undoubtedly these properties would be contributors. If resources would allow, reevaluation of early survey work might be considered.

In spite of the considerable number of Arizona buildings and districts now listed on the National Register, there is nonetheless further inventory work to be done. For example, the community of Benson has what appears to be an excellent, potential historic district with approximately 150 contributors and 43 non-contributors, due south of its commercial strip. An inventory and National Register nomination for this district should be undertaken. Also a considerable number of communities have been inventoried and documented in historic resources reports, the groundwork necessary to begin the National Register nomination process. Communities such as Ajo, Tombstone, and Naco fit into this category of communities for which the nomination process needs to be completed.
GLOSSARY

Native American Terms

Reference Cited
(1) Nabakov & Easton 1989: 425

bent frame a structural system of small saplings lodged into firm ground which are then bent and lashed together to form a domical frame to support a covering of vegetative material; the structural system employed by the Apache to create the domical wickiup

bent frame combined with post and beam a structural system which employs an interior log frame to which saplings lodged into firm ground are bent, lashed, and then clad with vegetative material; used by the O'odham to create the ki

chinking sealing log or stone walls by stuffing a filler material, such as grass, small stones, or mud into the cracks (1)

compression shell generally domical (but also rectilinear) roof structure which is self supporting because individual elements distribute loads in all directions (1); the structural system found in Hopi pueblo architecture and some domical forms of the Navajo hogan

donical a round or dome-shaped form as found in one variant of the Apache wickiup and one variant of the Navajo hogan

corbeled roof "a compression roof frame of tiers of horizontal logs in which each upper tier decreases in size and is shifted in alignment for bearing," (1) found in Navajo corbeled-log hogan

cribbed logs "a method of walling with horizontal logs in which, as the walls rise, the tiers of notched logs overlap at the corners" (1)

domical a round or dome-shaped form as found in the O'odham ki and corbeled-log hogan of the Navajo and one variant of the Apache wickiup

flattish roof the somewhat bowed roof form of the earth-clad timber roofing assemblage of Southwest native peoples (such as the O'odham and Yaqui) on rectilinear frame ramadas and enclosed structures

latillas Spanish word for small round poles laid above roof beams (vigas) to support a roof cladding of earth; called hohu by the Hopi

parapet an extension of an exterior wall rising above the roof structure (the level of protruding roof beams) obscuring from ground-level view a flat roof; characteristic of Hopi pueblo construction
pit house  a single-cell semisubterranean house with an excavated floor, interior posts, and an earth-clad roof generally rising from ground level (1); associated with the prehistoric Classic cultures

post and beam frame  a structural system hand fabricated from locally-available mesquite or cottonwood trees and consisting of a frame of four forked posts and two primary log beams; the fundamental building unit of O'odham construction

puddled adobe  an earth and water mixture worked into to a floor or wall while it is still wet (1)

pueblo  Spanish for "people," "settlement," or "town," referring to ancient or modern communal villages built by Southwest native peoples or to the tribal groups which occupy these villages

ramada  a sunshade or arbor built of a log post and beam frame supporting an assemblage of vegetative material for roofing; generally not walled though may be partially enclosed; used by Southwestern tribal groups

rectilinear  a form with approximately 90 degree corners in plan and elevation (1), found in the enclosed rectangular frames and ramadas of the O'odham

rectilinear cluster  a form comprised of individual rectilinear units which are clustered and stacked like sugar cubes; as exemplified by the Hopi pueblo dwellings

stringers  horizontal members which are fastened to the exterior of a structural frame and to which the roofing or walling material is attached (1)

viga  the Spanish word for a round log beam (often projecting beyond the exterior wall surface) used to frame a pueblo roof structure; lestavi is the Hopi word for these peeled conifer structural members

wattle and daub  a mud and stick lathing technique to create non-structural walling from an intertwined network of sticks, twigs, and other vegetative material daubed (plastered over) with mud

Hispanic Terms

Reference Cited
(2) Pratt & Wilson 1991 (174-178)

adobe masonry  the major structural material employed by Hispanics in the Southwest; the use of mud-mortared, form-cast, sun-dried, earth bricks in bearing wall construction
**bearing wall** the principle Hispanic structural system, generally of adobe masonry, which supports its own weight and that of the roof structure above

**canal** roof drainspout projecting through the parapet (2)

**coping** the waterproof cap (usually of fired brick) to the parapet

**courtyard dwelling** generally an urban, rowhouse dwelling sharing common walls with its neighbors and formed around an interior court (*patio*)

**flat roof** the most common Hispanic roof form, formerly of mud-cladding, usually obscured behind parapets; essentially flat although sloped to drain

**lime plaster** a durable protective coating for adobe walls

**mud plaster** the earliest and least durable type of protective coating applied over raw adobe walls

**parapet (parapeto)** the commonly applied extension of Hispanic bearing wall construction which is located above the roof structure and obscures the flat roof

**pitched roof** Euroamerican-introduced gabled, shed, or hipped roof of light timber framing used to transform a flat roofed Hispanic dwelling or in new Hispanic-walled construction

**sala** the principal room (hall), the basic, multipurpose, single-room unit of Hispanic planning

**savinas (latillas)** the cross ribs laid above vigas

**stone rubble foundation** a foundation of locally available stone upon which adobe masonry bearing walls are laid

**toldo** a light-weight, shading structure attached to the wall and not supported by posts at the free end

**viga** Spanish word for log beam, similar to that used in pueblo construction; in Sonoran applications, the viga does not penetrate but is partially embedded into the interior face of the bearing wall

**zaguan** "covered hallway joining separate buildings or rooms; often used to refer to a large double-door entrance" (2)

**zero lot line emplacement** the Hispanic tradition of siting a dwelling directly on the property line without setbacks
Euroamerican Terms

boxed eaves: the edges of the roof which have been enclosed by a soffit

dormers:
(a) roof dormer: a window set upright in a sloping roof, having its own roof and walls; added to provide space and add light and ventilation to an attic; most common dormer roof forms in Arizona are gabled, shed, and hipped

(b) wall dormer: a window formed by an extension of the dwelling wall surface (without a break) above the eave level; has its own sidewalls and roof set into a sloping roof

eaves: the edges of the roof which usually overhang walls and cast off water which falls on the roof

porches:
(a) bell roof extension: a porch roof formed by a belled extension attached to the eaves of the principal roof and supported on the free end by posts

(b) drop-gabled: a gable-roofed, projecting porch attached to the wall of a front-gabled dwelling below the roof line and supported on posts at the free end; can be partial- or full-width

(c) drop-hipped: a hip-roofed, projecting porch attached to the wall of a dwelling below the roof line and supported on posts at the free end; can be partial- or full-width

(d) drop-shed: a shed-roofed, projecting porch attached to the wall of a dwelling below the roof line and supported on posts at the free end; can be partial- or full-width

(e) full-width: a porch which extends the full width of the dwelling facade

(f) gabled-entry: a gable-roofed, projecting porch attached to the wall of a dwelling over the principal entry and supported on posts at the free end; can be centered or offset

(g) hipped-entry: a hip-roofed, projecting porch attached to the wall of a dwelling over the principal entry and supported on posts at the free end

(h) pent: a sloping, projecting porch (generally shed or gable-roofed) attached to the wall of a dwelling without support at the free end (a toldo in Spanish)

(i) recessed: a porch (either full-width, centered, or corner) incorporated beneath the principal roof of the dwelling
(j) **variable pitch roof extension**  a porch roof attached to the eaves of a pitched roof (gabled or hipped); generally having a less steep slope than the principal roof and supported at the free end by posts

(k) **wrap-around**  a porch, either projecting or recessed, which wraps around two or more dwelling walls

**roof terms:**

(a) **cross-gabled**  the roof form where two gabled roofs intersect at right angles; found on compound-plan dwellings

(b) **flat**  a slightly sloped though essentially flat roof form which overhangs the dwelling walls

(c) **gabled**  a ridged roof with a gable (triangular wall enclosed by the sloping ends of the roof) at its ends

(d) **gable-on-hip**  a hipped roof with a small gabled roof portion at its ridge

(e) **hipped**  a roof form (without a gable) with sloping ends and sides

(f) **jerkinhead**  (hip-on-gable)  a gabled roof with a hipped portion connected to the ridge at the gabled end

(g) **pyramidal**  a hipped roof that caps a dwelling with an essentially square plan

(h) **ridge**  the horizontal line formed by the meeting of two sloping roof surfaces

(i) **shed**  a sloped, single-plane roof form

(j) **truncated pyramid**  a pyramidal roof with a flat surface at the ridge (a mansard)

**room symbols:**

(a) B  bath
(b) BR  bedroom
(c) DR  dining room
(d) K  kitchen
(e) LR  living room
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PERIODICALS, ARTICLES AND ESSAYS


**REPORTS, STUDIES AND NATIONAL REGISTER NOMINATIONS**


