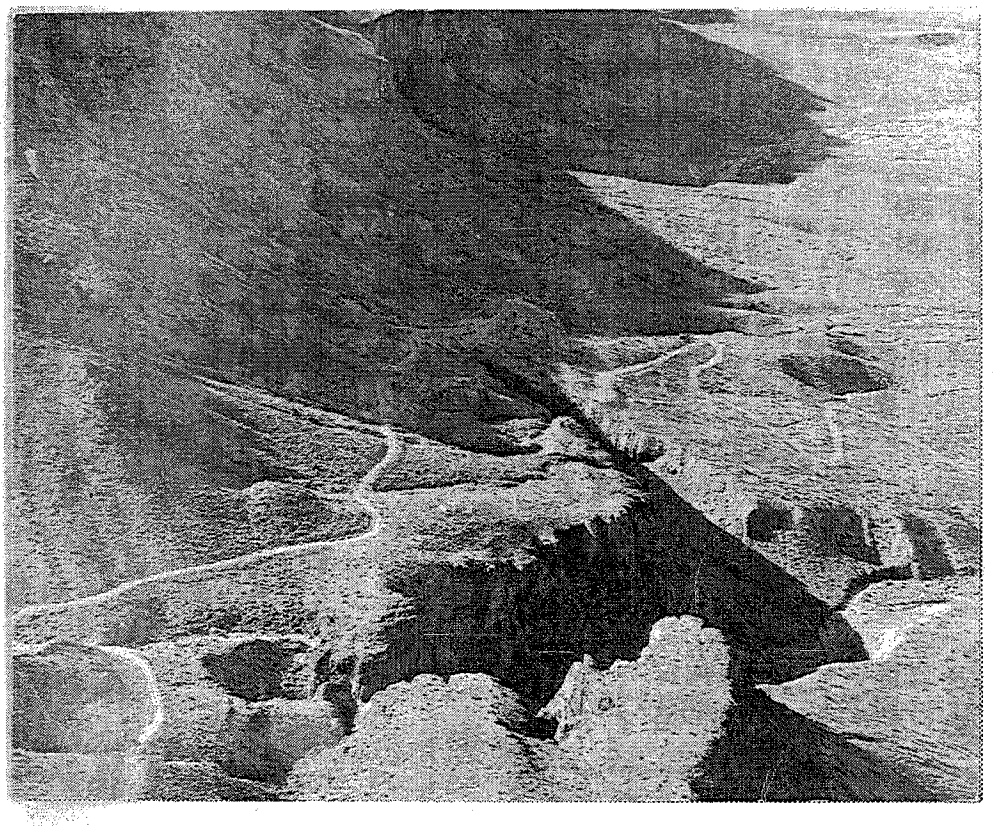
HISTORIC TRAILS IN ARIZONA FROM CORONADO TO 1940



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Historic Trails in Arizona from Coronado to 1940: Historic Context Study

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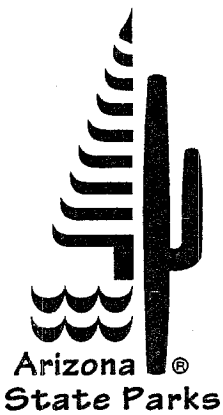

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INTRODUCTION

Historic trails form a vital part of Arizona's heritage. They are the vectors that brought a diverse cast of cultural groups into the same theatre; they became the stage upon which the drama of human encounter was played. They provided points of intersection where East met West, North met South, and Native Americans met Euroamericans—sometimes in conflict, sometimes in cooperation. As surely as pathfinders and nature shaped trails, so did trails shape Arizona's history.

The historic trails of Arizona are like the lines of a person's hand. Some cross the entire hand; others begin and end within it. Some are deeply incised, while others are but shallowly etched. Nature dictates certain aspects of their appearance, but historical events add features which—like blisters, scars, and callouses—enhance the hand's character and individuality. The resulting pattern of lines is no less than Arizona's own handprint, unique to the state and duplicated nowhere else. To read the handprint is to read Arizona's history and gain a sense of who we are and how we got here. In providing a fresh way of thinking about our own place and time, trails of the past may even let us glimpse trajectories of the future.

Despite their importance, historic trails are among the most difficult of cultural resources to identify, preserve, and protect. They are linear cultural landscapes: enigmatic and conceptually slippery lines through time and space that connote different meanings to different people. To the historian, they are passageways with the power to evoke strong images of the West as seen by pioneers. To the recreation planner, they are historically-derived transportation corridors that must move current users safely and continuously from place to place. To the cultural resource manager, they are precise lines on the ground that must be protected if determined eligible for the National Register of Historic Places. A single trail may be owned by a mosaic of private and public entities, each with different priorities and resources regarding preservation.

The management of historic trails is complicated by their ephemeral nature. Many are difficult to locate. If located, some are difficult to follow. When followed, some are found to contain recent treads indistinguishable from original ones.

To assist in preserving these important cultural resources, the Arizona State Historic Preservation Office (SHPO) in 1993 contracted with SWCA to develop a historic context about trails in Arizona from the time of Coronado to 1940. A historic context is a tool to help evaluate the National Register eligibility of cultural resources associated with a particular theme in history or prehistory. Historic contexts help determine the values—associative, aesthetic, and/or scientific—that cultural resources possess. This, in turn, guides the way in which cultural resources are managed: the idea is to manage resources consistently with the values they possess. Therefore, a historic context is not only an evaluative tool but also a management device. The National Park Service strongly encourages SHPOs and other managers to use historic contexts in preservation planning.

This historic context report is divided into five main sections. The first provides an overview of the historical development of the various trail systems and transportation corridors that traversed Arizona from the time of Coronado through 1940. The second part lists trails in Arizona that have been "ground-truthed" (professionally inventoried). The third section attempts to develop a typology for historic trails. That is followed by a discussion of issues involved in evaluating the eligibility of trails and transportation corridors to the National Register. The fifth and concluding section suggests avenues for future research.

OVERVIEW:
THE DEVELOPMENT OF TRAIL SYSTEMS AND TRANSPORTATION CORRIDORS IN ARIZONA FROM CORONADO TO 1940

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Trail systems and transportation corridors are records of the desire to move from a place and arrive at a destination. This section examines some of the factors that motivated people to make the journeys that created trails in Arizona. It also discusses modes of transportation and the role that geography played in shaping routes.

Throughout history (and prehistory), travel has been no easy matter in our state. The natural landscape of Arizona—with its vast scale, sharp relief, and climatic extremes—conspired to keep people at home rather than to propel them forward. In a few instances, nature provided paths that seemed almost designed for human convenience. But in most cases, nature's trailways were far less accommodating, granting only the smallest of concessions to voyagers. Humans rebelled against the constraints of nature by constructing handholds up rock walls, stairways down canyons, tunnels through mountains, and ferries over rivers. When floods, duststorms, forest fires, and landslides—often triggered by human activity—temporarily closed their trails, it must have seemed nature's way of seeking revenge. Even today, the conquest of the environment is far from complete, as acts of nature often remind the traveler (Rocky Mountain Humanities Network nd).

Nature most harshly tested the mettle and ingenuity of pathfinders at points where routes attempted to cross major rivers or canyons. Placenames such as Canyon Diablo (in what is now eastern Coconino County) evoke images of the daunting obstacles pioneers faced when establishing routes across natural barriers. River crossings and fords—including Yuma Crossing on the Lower Colorado, Sunset Crossing on the Little Colorado, Hayden's Ferry on the Salt, and Lee's Ferry on the Colorado—assumed tremendous historical importance as successive waves of travelers made their way across Arizona's landscape. Crossings and fords became the junctions where countless trails met and where layer upon layer of Arizona history became superimposed.

The focus of this section is on non-mechanized transportation (travel by foot, horseback, coach, and wagon), but automotive routes are also briefly discussed. Readers wishing to learn more about automotive and rail transportation in Arizona are encouraged to consult the historic contexts about these subjects (Janus 1989; Rodda 1992) that have been prepared as components of the State Historic Preservation Plan.

The First Trails: Contributions Made by Native Americans to Transportation in Arizona

The story of trails and transportation corridors in Arizona rightfully begins not with Coronado, but with prehistoric people. Centuries before the arrival of Euroamericans in Arizona, Native Americans built and used trails. Transportation played a key role in the lives of these first Arizonans. They used trails to hunt and gather, to trade and visit with neighbors, and to perform religious rites essential to their spiritual lives. It could be argued that travel was a defining and central experience of Native American life; indeed, many origin stories describe creation as the journey from a point of emergence through sequential levels of reality.

The importance of travel and trade to prehistoric cultures is indicated by exotic goods recovered from archaeological sites (Henderson 1930; Edwards 1936; Brand 1935 and 1938; Colton 1941; Deuel 1987). Durable remains such as shell, parrot bones, turquoise, obsidian, and copper bells hint at the range of goods exchanged in ancient times. Not preserved in the archaeological

record is a wide variety of perishable goods that may also have been traded. DiPeso (1981), for example, believes that commodities such as herbs, hides, and slaves routinely passed between the south Mexican Pacific coast and Arizona-New Mexico.

Evidence for long-distance travel and trade in prehistoric times is particularly well documented by the archaeology of the Hohokam of south-central Arizona. The Hohokam engaged in lively commerce through which they obtained materials and ideas from what are now Mexico, California, Baja California, New Mexico, and Colorado. Hohokam transportation corridors typically followed major drainages: the Gila, Salt, Verde, Agua Fria, Hassayampa, Santa Cruz, and San Pedro. As Hohokam culture evolved, its practitioners followed the same river systems to colonize beyond the core area. The ballcourt system, which developed after about A.D. 775 and reached its zenith by 1150, is believed to have provided a formal and ritual context for exchange between groups in the Hohokam system (Wilcox and Sternberg 1983).

Evidence for regional travel in prehistoric times is most tangibly illustrated by the Chacoan road system. Constructed by the Anasazi in the Four Corners area by A.D. 1100, the network contained over 400 miles of formal roads, averaging 20 ft wide, that linked Chaco Canyon (in northwestern New Mexico) with the people and products of a 60,000 square mile area. Included in the road system were several outlier communities in northeastern Arizona. Although Chaco Canyon was itself not rich in natural resources, it lay at a strategic location from which it could control resource distribution throughout the Four Corners area (Crown and Judge 1991).

Prehistoric trails took forms as diverse as the groups that used them. In part, this was a function of local geography. For example, southwestern Arizona contains stretches of "desert pavement", localities in which topsoil has deflated, leaving a residual pavement of stones. Aboriginal travelers wore treads through these surfaces, so that their trails today are seen as lines of light, underlying soil exposed within dark, surrounding pavement (Rogers 1966; Stone 1986 and 1991). Northern Arizona, on the other hand, contains pockets of canyonlands. To access these areas, prehistoric peoples sometimes built features such as handholds and stairways (Pattison and Potter 1977). Rock art was sometimes used to delineate passageways. For example, protohistoric Hopi drew clan symbols on stone along important trails.

Trails continued to play roles of critical importance to Native Americans during the ethnohistoric period (that is, following the point of first contact with Euroamericans). Oral traditions, ethnohistories, and anthropological monographs provide ample evidence of the importance of transportation corridors to virtually all Native American groups in Arizona. Trails were more than avenues to procure and exchange raw materials and finished goods. Some were also spiritual pathways leading tribal members on religious journeys necessary to the maintenance of the group. Native Americans have been reluctant to divulge the locations of some trails because of their religious significance. Controversy has sometimes flared when outsiders have published trail data without the consent of traditional leaders (Winkle 1990).

Some of the best-studied Native American trail systems of the ethnohistoric period include the Mohave Trail (Farmer 1935 and Cordle 1983); various Hopi trails (Titiev 1937; Colton 1964 and Byrkit 1988a); and the Cíbola-Zuñi routes (Riley 1975 and 1976). While it is beyond the scope of this study to review each of these systems, it is crucial to note that ancient trails often provided the blueprint for these and later routes. For example, the Hopi used an ancient trail called Palatkwapi to guide Spanish explorers into the Verde Valley. The same trail was later used as a U.S. military road, a mail route, and a sheep trail (Byrkit 1988a). In Arizona, historic routes almost always have prehistoric roots.

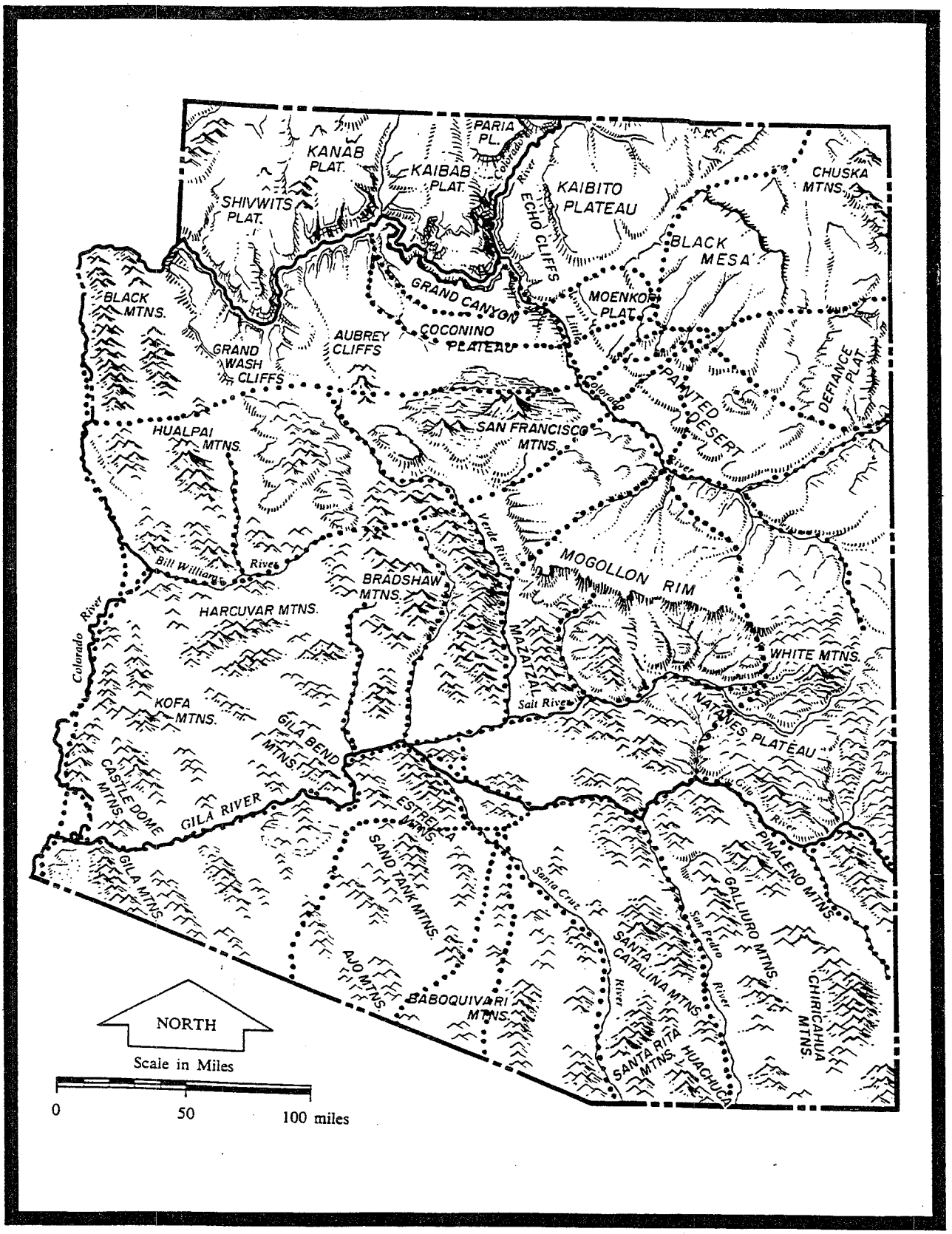

Figure 1. Some of the major Native American trails used in Prehistoric and Historic times (Base map: Walker and Bufkin 1986).

Routes of the Inland Empire

By the first half of the sixteenth century, Arizona lay at the northern fringe of the Spanish Empire. Distant from New World seats of wealth and power—Mexico City, Bogotá, Lima, Santiago, and Buenos Aires—Arizona was part of New Spain's frontier. Only gradually did the promise of riches to be reaped and souls to be saved turn Spanish eyes northward (Bolton 1916; Bannon 1970).

The first Spanish incursion into Arizona was more incidental than intentional. Alvar Nuñez Cabeza de Vaca, Alonso Castillo, Andrés Dorantes, and the Black Moor slave Estevanico may have passed through the southeastern edge of the present state in late 1535 or early 1536. The four had been members of the ill-fated Narváez ship which sank in the Gulf of Mexico in 1527. Held captive for several years, the men perhaps passed near Indian Wells (in present-day Cochise County) in making their way from Texas to Sinaloa, arriving at the latter in April of 1536 (Cross, Shaw, and Schiefele 1960).

Cabeza de Vaca's tales of marvels to the north piqued the interest of Viceroy Antonio Mendoza. In 1539 he dispatched Estevanico and Friar Marcos de Niza to undertake a reconnaissance of the northern borderlands. The friar left Sinaloa in March of that year, following a trail blazed by the Moor. When Marcos received word that Estevanico had been killed at Zuñi, he turned back. The conservative view, and one held by most historians today, is that the friar had barely penetrated Arizona when he decided to retreat (Cross, Shaw, and Schiefele 1960). A more radical view is that he had reached the Salt River Valley, where he allegedly inscribed his name on rocks near present-day Phoenix (a view contested by Bartlett and Colton 1940).

Like Cabeza de Vaca, Friar Marcos de Niza returned with tales of wondrous cities. One was reported to be larger than Mexico City, with portals of turquoise. Mendoza sent a small scouting party under Melchior Díaz to confirm Marcos' report, then appointed Francisco Vásquez de Coronado to lead an expedition to find what were believed to be the Seven Cities of Cíbola. With the friar as a guide, Coronado organized an army of 336 men. A few soldiers' wives, at least fifteen hundred animals (horses, cattle, and sheep), and several hundred Indian servants also accompanied the expedition. In February of 1540, the army began its trek northward (Hammond and Rey 1946; Bolton 1949, 1964).

As Coronado proceeded, the viceroy sent a flotilla of three ships under the command of Hernando de Alarcón to advance up the Sea of Cortez (today's Gulf of California), intersect Coronado, and resupply the latter with provisions. Discovering the Colorado River flowing into the Gulf, Alarcón left his fleet at its mouth and continued up the river in small launches. The rendezvous with Coronado never occurred. A scouting party, led by Tristán de Arellano, never found Alarcón. Similarly, a cross-country march by Melchior Díaz to the river allegedly found only letters beneath a tree stating that Alarcón had returned to Mexico. Although details of Díaz' foray are not well known, he is believed to have been the first white man to travel the famed El Camino del Diablo (the Devil's Highway), a trail skirting the current international boundary (Sykes 1927; Barney 1943).

Reaching Zuñi in July of 1540 by a route that is today a subject of scholarly debate (Riley and Manson 1983; Haury 1984; Schroeder 1993), Coronado dispatched exploring parties. Some went westward into what is now Arizona. Captain Pedro de Tovar encountered the Moqui (Hopi) pueblos in northeastern Arizona. With a contingent of 25 horsemen, García Lopez de Cárdenas went farther west to investigate reports of a great river (Bartlett 1940). His men were the first Euroamericans to see the Grand Canyon of the Colorado River; two of them, Captain Pablo de Melgosa and Juan Galeras, went into the canyon although they did not reach its bottom. After two years in New Mexico, the Coronado expedition returned to Mexico.

Four decades passed before the Spanish attempted another *entrada* into Arizona. A wealthy landowner, Don Antonio de Espejo, offered to finance and lead an expedition westward from New Mexico. The Espejo expedition of 1582-1583 attempted to locate some missing Franciscan friars but also scouted mineral deposits for Don Antonio. The expedition reached the Hopi Mesas in northeastern Arizona, then turned southwestward in search of rumored mines. Hopi guides took the party along the Palatkwapi Trail to mineral deposits in the Verde Valley (Byrkit 1988a). Espejo was followed by Captain Marcos Farfán who, in 1598, entered the Verde Valley by approximately the same route (Bartlett 1943).

Farfán was under the command of Don Juan de Oñate, a wealthy nobleman of New Spain. In 1598, Oñate was given permission to conquer and colonize the northern borderlands. In return for bearing the expense of exploration, he was granted extensive privileges as governor and captain-general of the colony of New Mexico (including Arizona). Not far from the present site of El Paso, Texas, Oñate took possession of the region in the name of the Spanish crown. After a period in the eastern pueblos along the Rio Grande, his expedition in 1604 proceeded to Zuñi, Hopi, the Verde Valley, and then pushed southwestward in search of the South Sea. Oñate hoped that discovery of the sea would find pearls and open the possibility of trade between his colony and other parts of the world. Bolton (1919) and Bartlett (1943) disagree about the route taken from the Hopi Mesas to the Bill Williams River. However, both agree that Oñate reached the forks of the Bill Williams, proceeded downstream to its junction with the Colorado, turned up the Colorado briefly, then proceeded down that great river to the Gulf of Mexico. Although Oñate found neither the South Sea nor the pearls it was supposed to contain, his explorations greatly improved knowledge of the region (Hammond and Rey 1950).

Oñate's expedition ended the first great period of Hispanic exploration of Arizona. For the next 75 years, Spanish activity was confined mainly to Franciscan missionary work among the Hopi, an enterprise cut short by the Pueblo Revolt of 1680. Reestablishment of Spanish influence in New Mexico was accomplished in 1692 by Diego de Vargas, who traveled as far west as the Hopi villages (Cross, Shaw, and Schiefele 1960).

At the close of the seventeenth century, the main lines of Spanish approach into Arizona were no longer primarily westward from the Rio Grande, but northward from Sinaloa and Sonora. The 1687 arrival of Jesuits in Sonora began an earnest effort to missionize northern Mexico and southern Arizona, valley by valley, an effort that continued for nearly a century (Officer 1987).

Among the Jesuit missionaries who worked in Arizona, none left a legacy as rich as that of Father Eusebio Francisco Kino. Italian-born and German-trained in mathematics and cartography, Father Kino worked extensively in the triangle of Arizona bounded by the San Pedro River on the east, the Gila River on the north, and today's international border on the southwest. From 1691 until his death in 1711, Kino made maps of the region and documented conditions observed in Indian rancherías. Spanish routes along the Santa Cruz, San Pedro, and Gila Rivers, as well as El Camino del Diablo, became well established during this period (Abbott 1948; Walker and Bufkin 1986).

As the frontier of New Spain marched northward, dual institutions evolved to manage its secular and religious aspects, and a network of trails grew to link them. Presidios (military garrisons) were established at strategic points (Quiburi, Tucson, and Tubac) near potable water and good horse pasturage. Commanded by a captain commissioned by a local governor or by officials in Mexico City, garrison soldiers were often assigned to protect mission priests as the latter worked among native peoples. The second type of institution was the mission, of which there were two

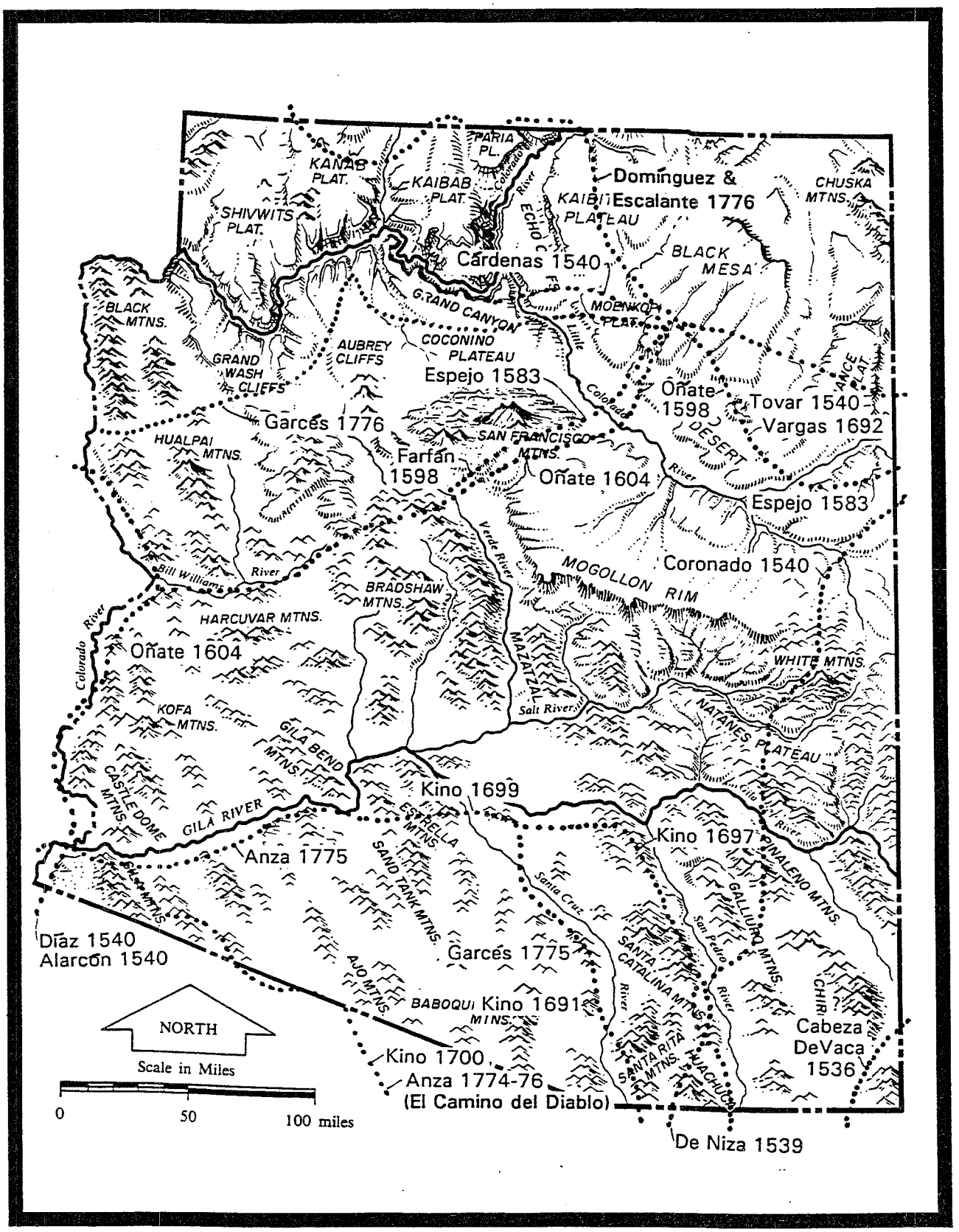

Figure 2. Spanish period trails and routes (Source: Cross, Shaw, and Schiefele (editors) 1960; base map: Walker and Bufkin 1986).

basic types: those with resident priests, and those without them. It was the priest who customarily introduced Euroamerican crops to the Indians, taught them new techniques of farming and animal husbandry, and supplied presidios with fresh products of the field. Sometimes proselytizing efforts were not well-received, as the Pima Revolt of 1751 demonstrated (Officer 1987).

When the Jesuits were expelled from New Spain by the Spanish Crown in 1767, their missions were assigned to the Franciscans. Many notable Franciscans played a role in Arizona's subsequent development, but those who played key roles in trailblazing were friars Francisco Garcés, Silvestre Vélez de Escalante, and Francisco Domínguez. In 1774, Garcés accompanied Captain Juan Bautista de Anza of Tubac along El Camino del Diablo and into California. Garcés was also a member of the Anza party of 1776 which led colonists along the Santa Cruz and Gila Rivers to found and settle what became San Francisco. Leaving the expedition on its return trip, Garcés traveled north to the Colorado Plateau, where he visited the Havasupai Indians in the Grand Canyon and the Hopi pueblo of Oraibi before returning to Mission San Xavier del Bac at Tucson (Garcés 1965; Cross, Shaw, and Schiefele 1960; Hague 1978; USDI 1987; Cleeland and others 1992).

The remarkable journey of Domínguez and Escalante occurred in 1776. Starting from New Mexico, they worked their way through the Four Corners region in the hope of converting souls and blazing a route to Monterey, California. Assisted by Native American guides, the friars just as often placed their faith in the Almighty to select particular paths. Forced to abandon their quest near present-day Provo, Utah, they turned back but on their return voyage crossed the Colorado River near the present Arizona-Utah border and made their way to Hopi and Zuñi (Adams 1926; NPS 1981; Udall 1988).

As Anza led colonists to California and Domínguez and Escalante sought a route to Monterey, the United States signed its Declaration of Independence from England. The stage was slowly set for the encounter of Spanish- and English-speaking voyagers in Arizona and the arrival of harbingers of Manifest Destiny.

Routes of the Mexican Period and the U.S.-Mexican War

During the final decades of the eighteenth and the first decades of the nineteenth centuries, Spain's hold on Arizona was tenuous. Native peoples such as the Apache, Yavapai, Navajo, and Hopi fiercely maintained their independence. In Tucson, civilians and a few soldiers huddled near the garrison's walls, while missionaries at Tucson, San Xavier, Tumacacori, and Guevavi diligently tended their native charges (Cross, Shaw, and Schiefele 1960).

Mexico won its independence from Spain following the Mexican Revolution of 1821. What are now the states of Arizona and New Mexico passed to Mexican rule as a result of that revolution. During the Mexican Period (1821-1848), the Santa Fe Trail opened a lively commerce between Mexican Santa Fe and American St. Louis. The trail brought a tide of American merchants who freighted goods to and from the borderlands city of Santa Fe (Weber 1982; NPS 1991a). With the traders came trappers—the "mountain men"—who scoured the rivers of the West in search of beaver. The prospect of beaver trapping fueled trail building in Arizona.

Relatively little is known about the mountain men who exploited Arizona. They learned much about geography during their travels, but committed little of their knowledge to paper; some, perhaps, were illiterate. Wagoner (1975) states that the mountain men kept scant records because they fully realized they were trespassing upon Mexican soil; Wagoner further contends that their secrecy and subterfuge in flaunting Mexican authorities account for their obscurity in history. It is known that several came from the St. Louis fur trade, including Sylvester Pattie and son, James

Ohio Pattie, Ewing Young, William Sherley "Old Bill" Williams, Antoine Leroux, and Antoine Robidoux. Working in small parties of usually fewer than 30 men, the trappers moved quietly among the aboriginal population, drawing on native knowledge of trails and water sources, learning native languages, and occasionally taking Indian wives. Their years of most intense activity in Arizona seem to have occurred in the late 1820s and early 1830s.

In the mid-1820s, intense competition in the central Rockies and rumors of virgin beaver streams prompted many mountain men to take their traps southwestward. A large number of New Mexico-based trappers—perhaps as many as 100—found their way to the Gila watershed in these years (Weber 1982). Today the dammed Gila is a trickle of its former self, but in the 1820s the first trappers found it "a beautiful clear stream about thirty yards in width, running over a rocky bottom, and filled with fish" (Pattie 1962).

The first recorded entrance of mountain men into Arizona occurred in 1825 when the Patties and their party trapped along the Gila River. A subsequent trip during the following year ended in tragedy when most of the party were killed by Indians along the middle Gila. The survivors joined a group led by Ewing Young that was simultaneously trapping along the Gila, Salt, and Verde Rivers (Walker and Bufkin 1986).

Undaunted, the Patties returned to Arizona in 1827 and led a party down the Gila to its junction with the Colorado River. The party split, with William Workman's group returning to New Mexico and the Patties' contingent continuing to the Pacific coast. This expedition was followed by the return of the Young party to the Gila drainage in 1828 and 1829. The latter foray split, with Young's contingent heading up the Verde River and then overland from its headwaters to California. Other trappers along the Gila, Salt, or Verde during the late 1820s and early 1830s included Miguel Robidoux, Pauline Weaver, Kit Carson, and David Jackson (Wagoner 1975; Walker and Bufkin 1986).

The Virgin River in northwestern Arizona was also an important beaver-trapping locality, attracting the efforts of Jedediah Smith in 1826 and 1827, and William Wolfskill and Peter Ogden in 1830. The Virgin became part of a major transportation corridor in 1829 when Antonio Armijo and a party of 60 fellow New Mexicans opened a trade route between Santa Fe and Los Angeles (Faulk 1973). New Mexicans were soon routinely using the trail to exchange blankets from Santa Fe for pack mules of the West Coast.

Arizona's fur trade declined abruptly in the mid-1830s. Overtrapping made beaver scarce, while the growing popularity of silk hats brought a sharp drop in the demand for pelts (Weber 1982). During the decade that followed, little is known about trails and transportation corridors in Arizona. Although there was trade with Native Americans, such as James Kirker's 1836 exchange of guns for horses (Walker and Bufkin 1986), the history of these pathfinders is almost nonexistent, their memory having melted back into the earth like abandoned adobe structures.

The outbreak of the U.S.-Mexican War in 1846 spawned a new era of trailblazing when it became strategically important for the United States to conquer California, secure New Mexico Territory (which then included Arizona), and take control of the Southwest. Placed in charge of the southwestern campaign was Colonel (later General) Stephen W. Kearny of Fort Leavenworth, Kansas.

Kearny quickly organized the "Army of the West," a force of regular dragoons, traders, and miscellaneous other adventurers totaling about 2,000 men. It included approximately 500 Mormons dispatched by Brigham Young from Council Bluffs, Missouri. The church leader had much to gain by cooperating in this venture. His Mormon soldiers would help secure the West, a region into

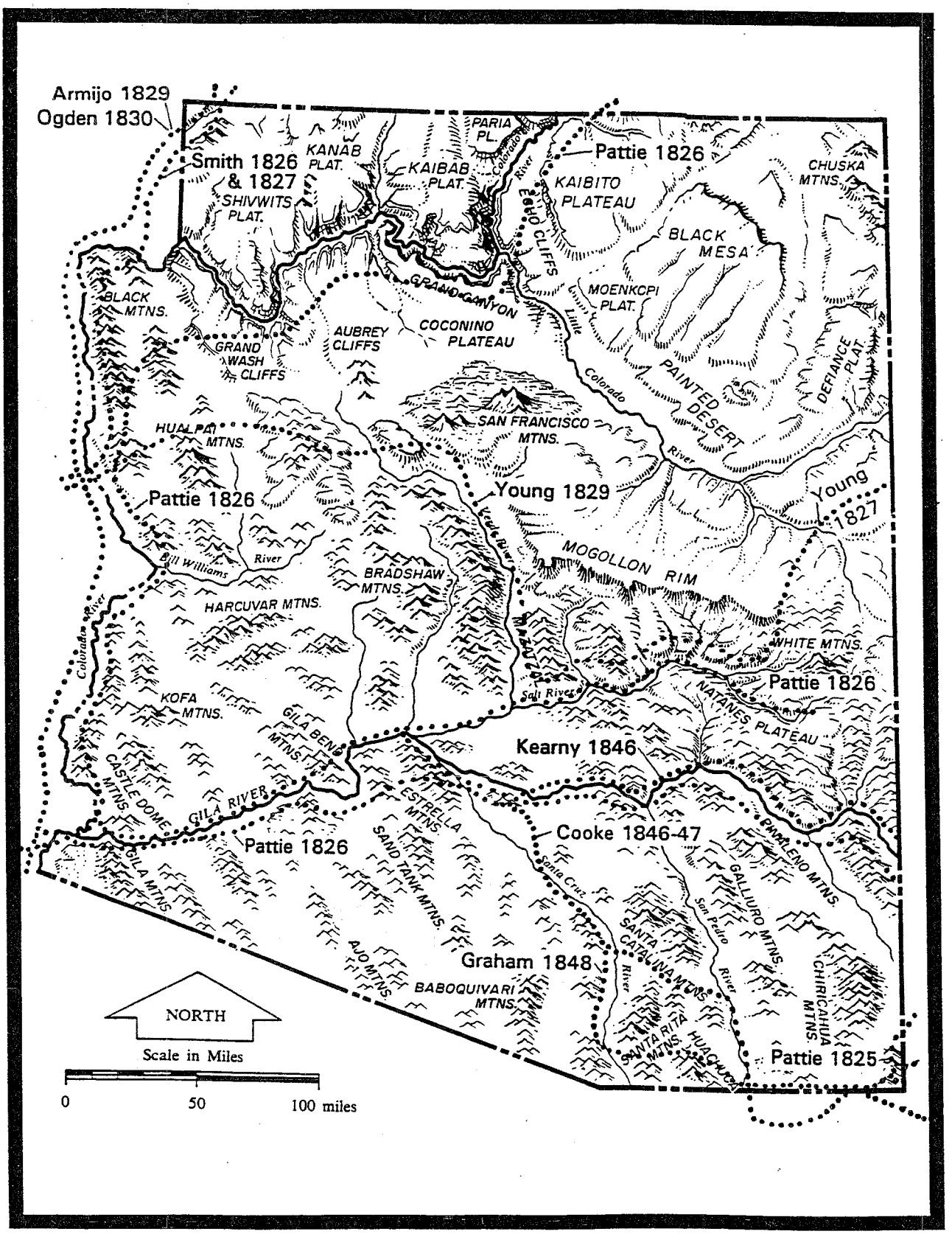

Figure 3. Mexican period trails and routes (Base map: Walker and Bufkin 1986).

which members of the Church of Jesus Christ of Latter-Day Saints were then immigrating. Moreover, through special terms arranged with U.S. President Polk, the soldiers' wages would go directly into church coffers to help finance the Mormon migration (Tyler 1881; Faulk 1973).

Capturing Santa Fe with ease, Colonel Kearny divided his force into four parts: the first would remain at Santa Fe as an army of occupation; the second, under Colonel Alexander W. Doniphan, would march to Chihuahua City; the third Kearny would personally lead to California; and the fourth, under Lieutenant Colonel Philip St. George Cooke, would open a wagon road from New Mexico to California (Faulk 1973).

In 1846, Kearny marched to California on a route that followed the Gila River from its headwaters in New Mexico to its junction with the Colorado at Yuma, then continued to California, where the colonel raised the Stars and Stripes almost without incident. His troops included Lieutenant William H. Emory of the Corps of Topographical Engineers, whose later map of the route became the most accurate one that had yet been produced of the region.

Of greater importance to the subsequent development of Arizona was the wagon road blazed by Cooke and his Mormon Battalion. Kearny realized that California would never become securely American until it was linked to the rest of the United States by a good road, one negotiable not only by horses but also by wagons (Faulk 1973). Until Cooke's effort, the main way that goods and mail reached the West Coast was by sea. In the days before the Panama Canal, the 18,000-mile sea route took six to eight months to accomplish (Cross, Shaw, and Schiefele 1960).

In 1846, Cooke and his Mormon contingent began to build the wagon road. Near the upper Gila in New Mexico, they departed from Kearny's route when it proved too impractical for wagons. Instead, they built a more southerly road that entered Arizona through Guadalupe Pass, followed the San Pedro River to approximately present-day Benson, then turned northwestward toward Tucson. Capturing Tucson without incident, Cooke's force followed the Santa Cruz River, passed through the Pima villages on the Gila, then joined and followed Kearny's route into California (Cooke 1847, 1938; Walker and Bufkin 1986). The Mormons completed their assignment early in 1847. Their handiwork, the Mormon Battalion Route, would become the Southern Emigrant Route, a major trail for Forty-Niners and subsequent travelers through the Southwest (Bieber 1937; Hafen 1942; Hufford 1966, 1967; Hague 1978).

When the Treaty of Guadalupe Hidalgo ended the war with Mexico in 1848, a battalion of Second Dragoons under the command of Major Lawrence Pike Graham was sent from Chihuahua, Mexico, to California. Entering southeast Arizona at San Bernardino Springs, Graham's force moved westward to the San Pedro River. Instead of following the river northward as Cooke had done, Graham chose to proceed westward and then southwestward where he encountered the Santa Cruz River. He continued downstream along the Santa Cruz to Tucson, then followed the Mormon Battalion Route to the Pacific Coast (Officer 1987).

Exploration and Trailblazing during the Early American Period

With the signing of the Treaty of Guadalupe Hidalgo, present Arizona north of the Gila River was ceded to the United States. An additional tract, south of the Gila, became part of the United States through the Gadsden Purchase of 1854.

During the early American period, Arizona (then part of the Territory of New Mexico) was viewed more as an inconveniece to be gotten *through* rather than as a destination to be traveled *to*.

With its lack of water, difficult terrain, climatic extremes, and sometimes-hostile natives, "Apacheria" indeed posed daunting problems for travelers. Were it not for the fact that gold had been discovered in California in 1848, then the hardships of traveling through Arizona might not have been endured. U.S. government efforts during those early years focused on finding quicker and better ways through this no-man's land and surveying its boundaries (Jackson 1952; Goetzmann 1959).

From the late 1840s to the mid-1850s, the United States expended a great deal of time, effort, and anguish trying to reckon the location of the international boundary. It was quickly determined that the Disturnell map of 1847, used in drafting the Treaty of Guadalupe Hidalgo, was badly in error (Griswold del Castillo 1990). The responsibility of determining the correct boundary fell, sequentially, to United States boundary commissioners John B. Weller (who was removed from office in early 1850), John C. Fremont (who served as commissioner for only a few weeks in 1850 before resigning), and John R. Bartlett (who himself led an expedition to the disputed area in 1851-1852). The boundary issue was not settled until the Gadsden Purchase of 1854 and an 1855 survey by William H. Emory (assisted by Nathaniel Michler) finally put the matter to rest (Walker and Bufkin 1986; Officer 1987).

Early U.S. efforts to establish better routes through Arizona focused on three areas: the Colorado Plateau, the Sonoran Desert, and the Colorado River. Motivating some of the land surveys was the desire to find a practical route for a transcontinental railroad: in due time, two such routes would be found. Although railroads did not arrive in Arizona for many years, the wagon roads which grew from surveys of the 1850s provided a rehearsal for the railroads to follow. The roads would also evolve into major transportation routes which have remained important to the present day.

Government exploration of the Colorado Plateau received a prod when Lieutenant James H. Simpson returned from an expedition against the Navajo in Canyon de Chelly with reports that a wagon road westward from Zuñi was feasible. With funds appropriated by Congress, Captain Lorenzo Sitgreaves of the Corps of Topographical Engineers was dispatched in 1851 to find such a route. Well-equipped with a cadre of surveyors and scientific observers, the Sitgreaves expedition started from the Zuñi River along the present Arizona-New Mexico border, followed that stream to its junction with the Little Colorado north of present-day Concho, traced the Little Colorado downstream until the 35th parallel, headed westward across the San Francisco Peaks volcanic field, continued westward to the Colorado River, then followed that river south. Two years later, Lieutenant Amiel Weeks Whipple, formerly of the international boundary survey, was commissioned to determine the feasibility of locating a transcontinental railroad through the area; Whipple's conclusion was that a railroad near the 35th parallel was indeed feasible (Gordon 1988). Although the great railroad was not built until the early 1880s, a wagon road was soon constructed and operational. Lieutenant Edward Fitzgerald Beale was ordered to survey and build the road, tasks accomplished in 1857 and 1858, respectively. The Beale Wagon Road later became the approximate route of the Atlantic & Pacific Railroad (now the Atchison, Topeka, and Santa Fe Railway) and Interstate-40.

Construction of the Beale Wagon Road and the use of camels along it provide one of the most colorful footnotes in Arizona history (U.S. War Department 1857; Beale 1860). The idea of using camels in the arid Southwest was not new, but it took Congress until 1855 to appropriate funds for the experiment, a pet project of then-Secretary of War Jefferson Davis. In part, Beale was given the road assignment because he evinced enthusiasm for Davis' plan. In June of 1857, Beale picked up in Texas the 20 to 30 dromedaries specially imported for the assignment and began "Operation Camel." His experiment proved that the "ships of the desert" could generally bear heavy burdens over long distances and arrive at their destination in good order. There were, however, problems

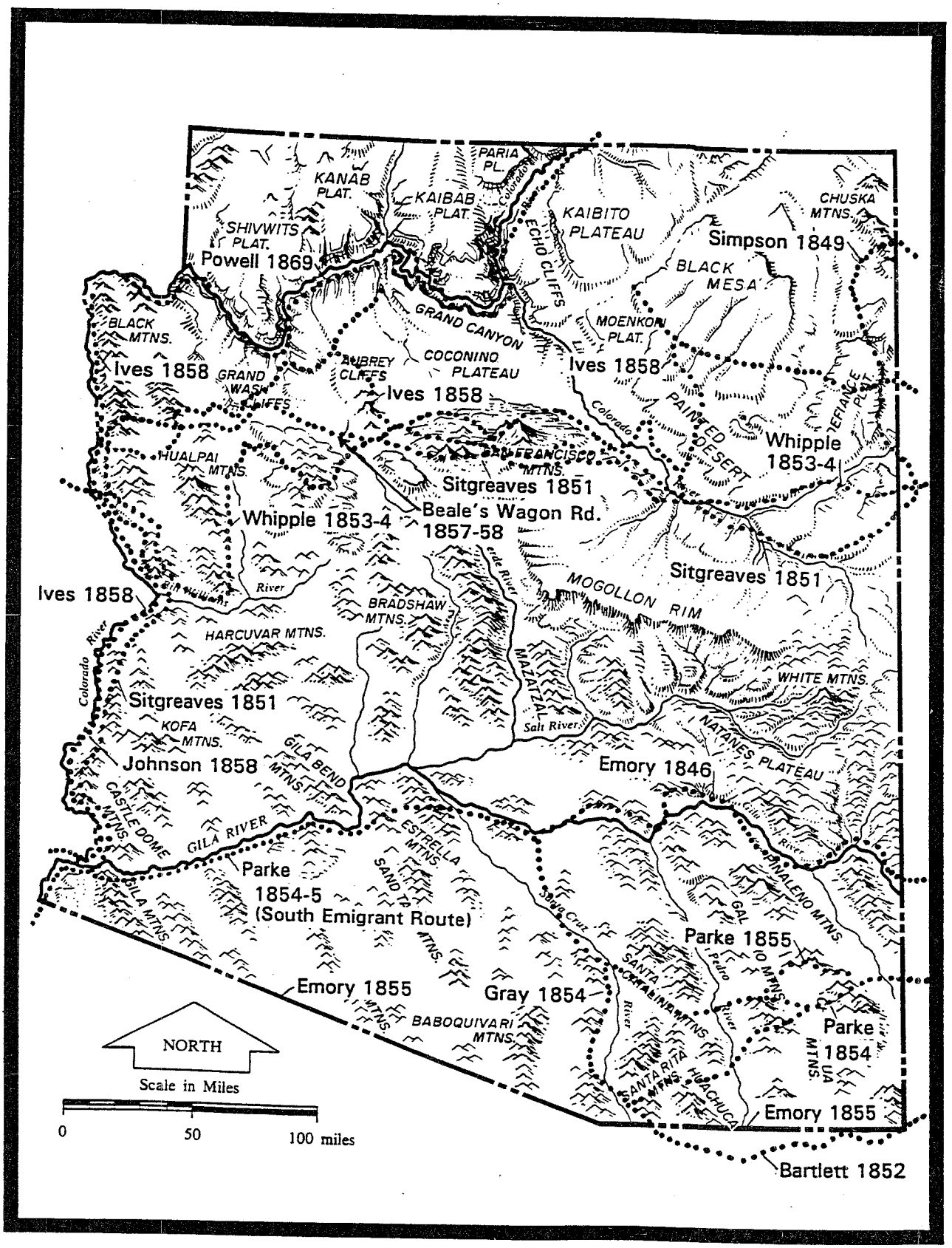

Figure 4. Early American period routes of exploration (Base map: Walker and Bufkin 1986).

in using them. Men, horses, and mules did not like the malodorous creatures; all but experienced camel drivers (such as Hadji Ali, "Hi Jolly") would have nothing to do with them. There were also reports that the feet of the dromedaries became lacerated by the rocky ground of the Southwest. The government suspended the experiment during the Civil War and did not resume it later. After most were sold to parks, circuses, and ranches, some of Beale's camels reverted to a feral state and were spotted for years after in the wilds of the Southwest (Fowler 1950; Stacey 1970; Wagoner 1975; Faulk 1976).

As Whipple was conducting his survey for a railroad route on the Colorado Plateau, Lieutenant John G. Parke was engaged in a similar effort in the Sonoran Desert. In 1854 and 1855, Parke made two surveys between the Pima villages and the Rio Grande. He laid his first route through Apache Pass in the Chiricahua Mountains. His second route, engineered through a pass between the Chiricahuas and Mount Graham, shaved 30 miles off the earlier one. A wagon road was blazed near Parke's survey area long before a transcontinental railroad was built. The road-builder in this case was James B. Leach. Leach ran his wagon road along Parke's second route, but significantly departed from it in one locality: the Leach Wagon Road followed the San Pedro rather than the Santa Cruz to the Gila, thus bypassing Tucson. Most travelers preferred to visit the burgeoning community during their long trek westward, so the Leach Road never enjoyed great popularity (Walker and Bufkin 1986). The Gila Trail, or "Southern Emigrant Route" was more commonly used during this era (see "Butterfield" section, below).

By the late 1850s, the Colorado was the last great unexplored river of the United States. To locate its headwaters, the U.S. government in 1858 sent Lieutenant Joseph C. Ives up the river from the Gulf of California. George A. Johnson, a maritime entrepreneur who (with various colleagues) had developed a steamboat industry along the Lower Colorado, decided that no newcomer like Ives was going to have the honor of navigating the first steamer above Yuma Crossing (Martin 1954:199). Departing from Yuma a few days before Ives arrived there, Johnson steered his steamer, the *General Jessup*, up-river to a point near future Fort Mohave before turning back. On its return trip downstream, the *General Jessup* reportedly tooted a smug greeting to Ives' *Explorer*, but then sank before reaching Yuma Crossing. Ives, meanwhile, proceeded to the mouth of Black Canyon near present-day Hoover Dam, divided his party, sent half his men down-river on the *Explorer*, and took the other half overland to Fort Defiance (Walker and Bufkin 1986:23).

The outbreak of the Civil War postponed further exploration of the Colorado River. The effort was resumed in peacetime, when Major John Wesley Powell arrived on the scene. His expeditions, conducted between 1869 and 1872, enhanced knowledge not only of the river but also of the surrounding plateaus. Powell's work also confirmed that the middle and upper stretches of the Colorado were too perilous to serve as transportation corridors through the region (Bartlett 1942).

"From No Place through Nothing to Nowhere": The "Jackass Mail" and Butterfield Era: 1858-1861

In the late 1850s, the United States began to use the Gadsden Purchase to link the East and West Coasts by means of mail and passenger services. Its utilization of the Gila Trail, or Southern Emigrant Route, established the first transcontinental route across Arizona. This transportation corridor later became essentially the route of the Southern Pacific Railroad and Interstate-10.

In the summer of 1857, James E. Birch was awarded a federal mail contract to provide a semi-monthly mail service between San Diego and San Antonio by way of El Paso. The route,

measuring 1475 miles long, would cross Arizona along the wagon road blazed a decade earlier by the Mormon Battalion (Conkling and Conkling 1947; Cosulich 1953).

As the war between the states brewed, many northerners complained at the selection of the Southern Emigrant Route for the mail service. Indeed, southern interests, then in ascendancy in Congress, had been instrumental in selecting a corridor that would pass entirely through the southern, slave-holding states and territories. The *New York Daily Times* denounced the route as "the least of all adapted to service the public interest," while one northern California newspaper called it a route "from no place through nothing to nowhere" (Conkling and Conkling 1947; Faulk 1973).

Despite the criticism, Birch established his mail and passenger service without difficulty. The route was already marked and well-traveled the entire way, and his contract allowed him a generous 30 days to make the run in each direction. To travel the distance required in the time allotted, his coaches needed to travel only 50 or so miles per day. In turn, this meant that he needed only 15 relay stations along the entire route. With eight military posts already along the route which he could use for relay purposes (including Fort Yuma at Yuma Crossing), Birch needed to construct only seven new ones (Faulk 1973). Passengers who rode Birch's line—nicknamed the "Jackass Mail" by pundits—quickly discovered that 87 "stations" were listed in his company brochure, but only three of them (San Antonio, El Paso, and San Diego) had substantial buildings and comfortable amenities. A few more had brush corrals or wattle-and-daub huts, while the vast majority were simply camping spots at springs, streams, or water holes (Conkling and Conkling 1947; Duffen 1960; Ahnert 1973).

When Birch died aboard the steamer *Central America* in 1857, the contract for the San Antonio and San Diego mail service was transferred to Giddings & Doyle. In the fall of 1858, the government awarded a service contract to John Butterfield (Butterfield 1857) and canceled its contract with the Jackass Mail, saying that the latter duplicated the Butterfield service.

Unlike its forerunner, the Butterfield Overland Mail Company spent a vast amount of money to equip its line (Hicks 1979). A chain of stations was built, providing food, grain, ammunition, water, equipment, and night-time accommodations. The average distance apart for stations was 20 miles, although it ranged from 9 to 60 miles, depending on the occurrence of water (Conkling and Conkling 1947; Moore 1958; Ormsby 1972).

Silas St. John was placed in charge of building many of the Butterfield stations in Arizona. Wounded by Apache while constructing a facility at Dragoon Springs in 1858, he was assigned to the Butterfield station at the Pima villages on the Gila River and was named its acting Indian Agent in Charge. He encouraged the Pima—who had supplied agricultural products to travelers since Jesuit times—to raise grain and other crops for sale to the Butterfield company (Sloane 1958). By the end of 1859, the Pima were furnishing not only Butterfield but also the government and teamsters with "all that was necessary for transportation from Ft. Yuma to Tucson" (Arnold 1927). The symbiotic relationship between Pima agriculture and Euroamerican travel was a successful one that continued for several years.

At the outbreak of the Civil War, the Butterfield contract over the Southern Emigrant Route was still regarded as a southern institution catering to southern interests. Therefore, when the South seceded, the U.S. government canceled the Butterfield contract and rerouted the mail through the central states (Bailey n.d.). The Butterfield stations contained significant provisions that made them targets of conquest by Union troops. After the war, the former stations, many of them then in ruins, nonetheless came to represent civilization's toeholds "from no place through nothing to

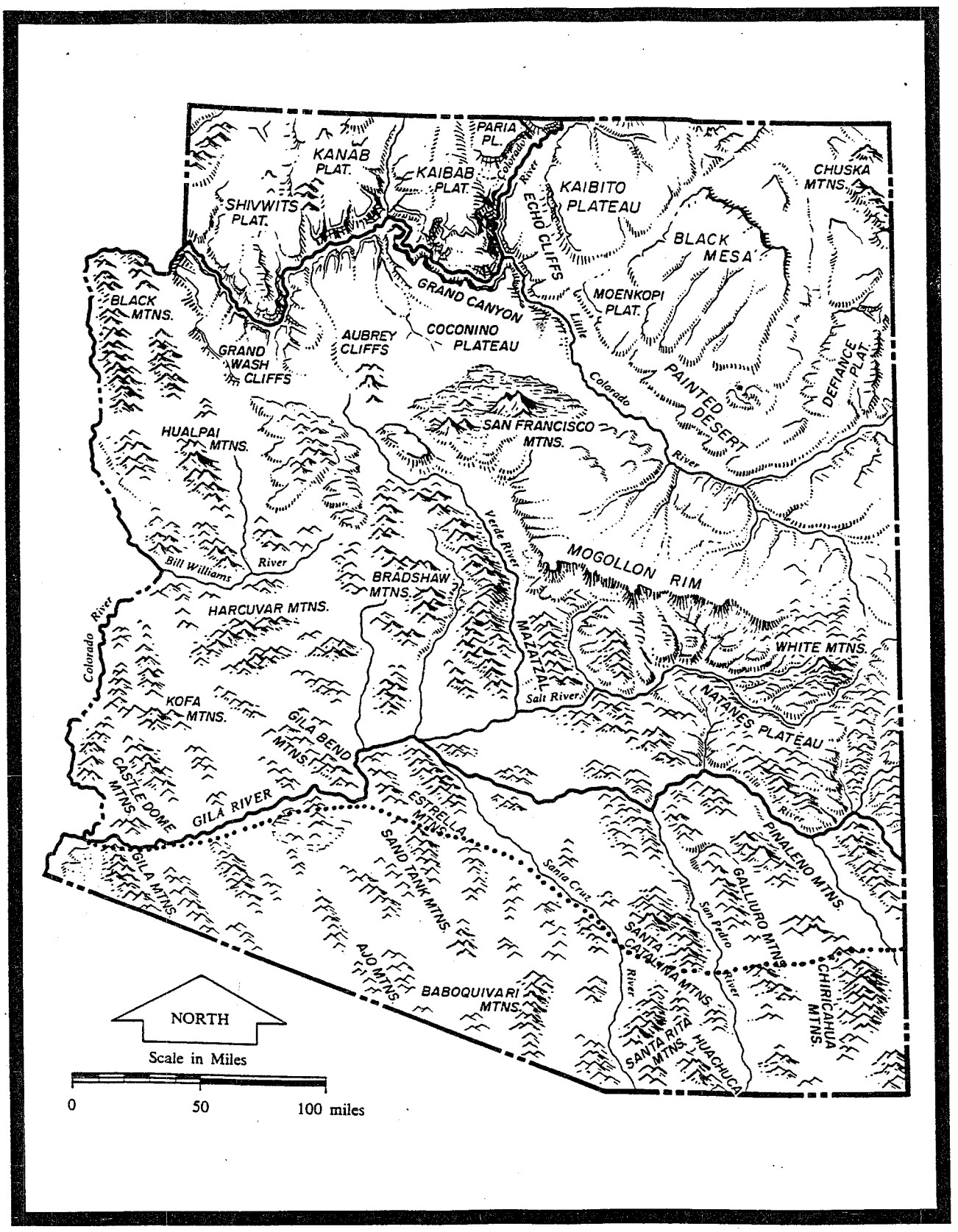

Figure 5. Route of the San Antonio and San Diego Mail line and the Butterfield Overland Mail (Source: Faulk 1973; base map: Walker and Bufkin 1986).

nowhere": remote outposts where able and ambitious immigrants might plant their roots and launch their dreams.

Military Roads of Arizona Territory

Until the 1860s, Arizona was perceived mainly as an impediment to travel rather than as a destination. This situation changed when valuable minerals were discovered in the 1850s. As prospectors and miners flocked to the territory, new military posts were established to protect them and the wealth they extracted. In turn, farmers, ranchers, and merchants immigrated to Arizona and established a lively trade supplying military personnel and miners. A new network of transportation developed to connect places of strategic military and economic importance (Altshuler 1981).

One of the earliest Euroamerican mining efforts in Arizona occurred from 1854 to 1859 when the Arizona Mining and Trading Company (organized by Tom Childs, Peter Brady, and associates) extracted copper ore at Ajo, in what is now western Pima County. To freight its ore, the company opened the first wagon road in the locality, extending from Ajo to Petato (now Gila Bend). From Petato, the ore was transported via Yuma Crossing to either San Diego or Guaymas, and thence to a smelter in Swansea, Wales. To increase its profit margin by shipping a more concentrated product, the mining company in 1856 opened a reverberatory furnace at Ajo. However, the remote location of Ajo, the high cost of transportation, the comparatively low grade of ore extracted, and the scarcity of water forced the furnace and mining operation to close by 1859 (Greeley 1987:15).

Gold was first discovered in 1857 in placers along the lower Gila and Colorado Rivers. Although these placers quickly played out, the promise of vast fields of additional gold was a factor in the Confederacy's decision to declare possession of the "Territory of Arizona" in 1861. The Confederate territory included all of New Mexico and Arizona south of the 34th parallel. The Union responded to the rebel declaration by making Arizona a political entity separate from New Mexico. On February 24, 1863, President Abraham Lincoln signed the bill that created Arizona Territory (Wagoner 1970).

"Gold fever" shifted to west-central Arizona in the months following creation of the territory. The first party of victims of the "bug" was led by Joseph Reddeford Walker. In the spring of 1863, the Walker party blazed an important trail when it left the Pima villages on the Gila River, struck out in a northwesterly direction to the Hassayampa River, traced the stream to its headwaters, then bushwhacked a course across the Bradshaw Mountains to present-day Prescott (Wagoner 1975; Gilbert 1983). In April and May of 1863, Pauline Weaver guided a mineral exploration party (organized by A. H. Peeples) that began at Fort Yuma on the Colorado River, traveled upstream to La Paz, turned eastward and continued overland, and struck gold at a location that came to be called Rich Hill (Byrkit and Hooper 1993). Gold and silver discoveries by other prospectors followed along Big Bug, Lynx, and Weaver Creeks. Soon came important finds of gold, silver, and copper in the southeastern quadrant of the territory as well.

To protect settlers from Indian attack and secure its economic interests in the region, the U.S. government developed a chain of military posts and a series of roads connecting them. Of pivotal importance to the military network was the Quartermaster Depot at Yuma Crossing. The crossing had long been important to prehistoric and historic Native Americans. In historic times, major Euroamerican routes to California funneled through this natural crossing of the Lower Colorado; for example, El Camino del Diablo, the Mormon Battalion Road, and the Southern Emigrant Route all utilized the crossing. It was therefore natural and logical that the United States would establish a military fort near this strategic location in 1850. Following flood damage to the fort in 1862, the

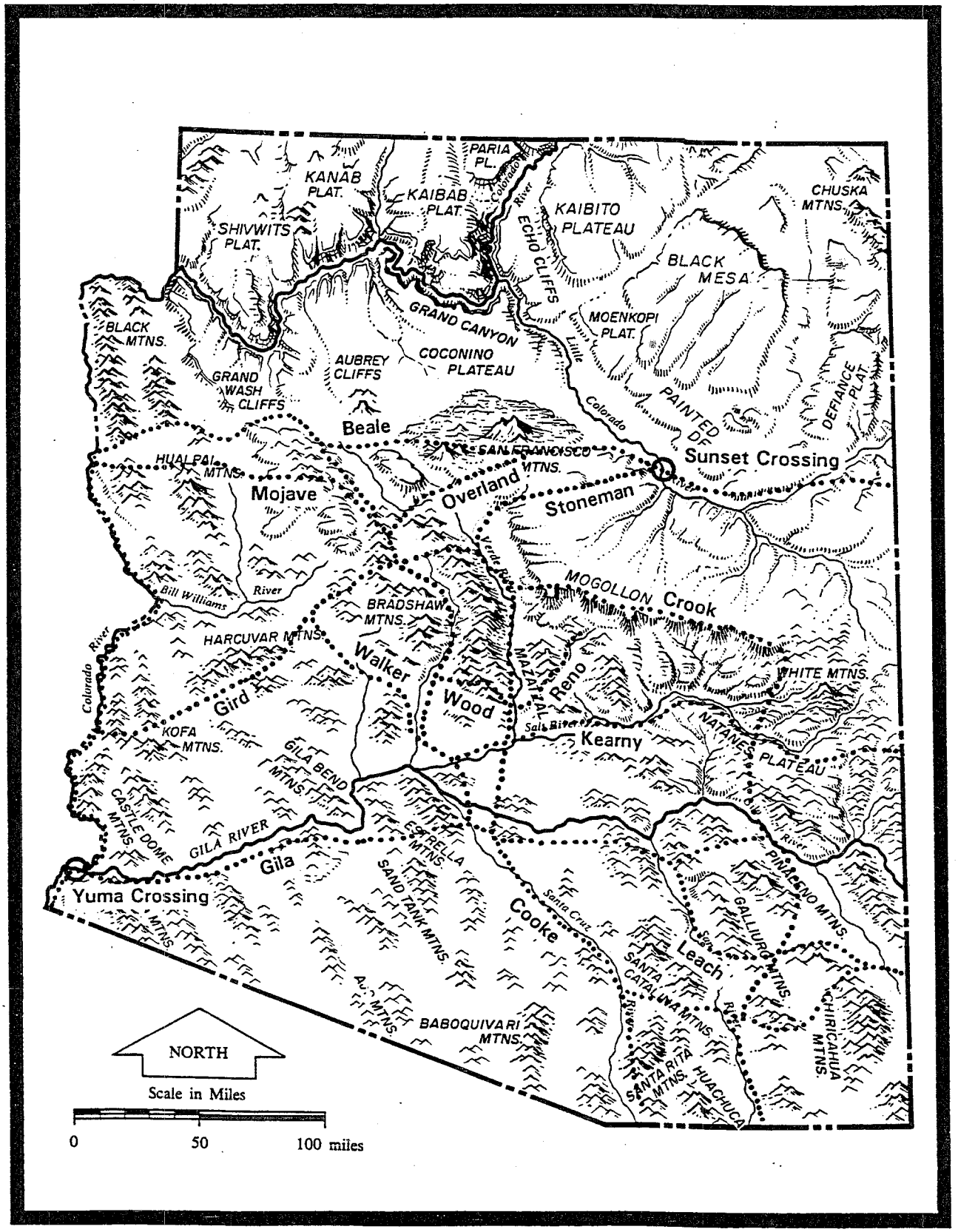

Figure 6. Routes commonly used by the Military during the Indian Wars Era (Base map: Walker and Bufkin 1986).

government built a large, new quartermaster depot on the east bank of the Colorado below its confluence with the Gila River. Yuma Crossing became the major riverport of entry for all of Arizona, and the Quartermaster Depot became the hub for supplying its military posts. From the mid-1860s to the late 1870s, all manner of goods for military and civilian use was freighted from this riverport to destinations throughout the territory. The depot continued to supply military posts until the arrival of the "iron horse" in Yuma in 1877 (Martin 1954; Brandes 1960).

Major roads used by the military during this era included the Stoneman, Overland, Reno, Mojave (Old Government), Wood, Beale, Leach, and Gird Roads as well as the Gila/Cooke (Southern Emigrant) Trail (Vail 1886; Colton 1980; Bowman 1987; Byrkit 1988b). Perhaps no military road was better known or longer used than the General George Crook Trail. The Crook Trail was developed as a supply route from Fort Whipple to Fort Apache (Bowman 1978). The former lay in the Euroamerican stronghold of Arizona; the latter lay near the heart of Indian country. The trail was initiated in August of 1871 when General George Crook and a small cavalry group left Fort Apache seeking the best route over which supply trains and troops could travel between the two forts. During the following two years, the trail was built (and marked at each mile) by Crook's men. The location of the trail along the Mogollon Rim was of great strategic importance because it allowed the movement of military troops above and behind the Apache Indians, who customarily summered in the Tonto Basin and took refuge in canyons below the rim (Bourke 1891).

Some military roads performed a vital service in providing corridors for telegraph lines. General Crook was among the first to suggest (in 1871) that a line be established from California to Arizona, with branches to some of the more important posts. In 1873 a line was established from San Diego via Yuma to Prescott and Tucson. The system was extended to Camp Verde in 1874, Camp Grant in 1876, and Camps Apache and Bowie in 1877. Although the system was intended for military use, civilian messages were also accepted. This proved a boon to commercial interests, which could now order goods much faster by wire than by mail. Following the arrival into Yuma of the Southern Pacific Railroad in 1877, commercial telegraph systems gained ascendancy over the military one and soon made the latter obsolete (Walker and Bufkin 1986).

Roads of Zion

The arrival of members of the Church of Jesus Christ of Latter-Day Saints—the Mormons—at Salt Lake in 1847 marked the dawn of a new era of religiously-motivated travel and road construction in the West. The Mormons envisioned a large geographical area in which they could live in harmony and self-sufficiency without religious discrimination or outside intervention. From their Great Basin headquarters, the Mormons spread outward to establish their "Kingdom of God" or "Zion." Eventually their area of colonization would equal one-sixth the size of the present, contiguous United States.

Unlike the east-west trails of Manifest Destiny, the Mormon trails bore north and south:

> "Threading through mountain defiles and along desert water courses, they were the product of pioneer use rather than of government or army transportation. Beginning as Indian trails, they became first the path of exploration and later the highroad of Mormon expansion" (Peterson 1973:70).

The first Mormon incursion into what became Arizona Territory occurred in 1846 when the Mormon Battalion marched through the region during the U.S.-Mexican War (see above, "Routes of the Mexican Period...."). Another early foray into Arizona by Mormons may have occurred in

1854 when William Huntington reportedly journeyed among the Navajo (Peterson 1973). One year later, members of the Elk Mountain Mission, led by Alfred Billings, explored the northern fringes of Arizona from Moab, Utah. A more extensive exploration of Arizona by the Mormons occurred in 1858-1859, when Jacob Hamblin was commissioned by a federal judge investigating the Mountain Meadows Massacre to visit the Navajo and search for a child rumored to be held by them. Using a Paiute guide (Reilly 1978), Hamblin was perhaps the first Euroamerican since Domínguez and Escalante to cross the Arizona Strip from west to east. On his return trip westward, Hamblin located and named Pipe Springs.

The first Mormon *colony* in Arizona was at Littlefield, settled in 1864 in the extreme northwestern corner of the territory (McClintock 1921). It was not until 1869, however, that the greatest period of Mormon expansion into Arizona began. The impetus for this movement was as much a matter of necessity as of religious zeal: by the late 1860s, much irrigable farmland in Utah had been put to the plow, and Mormon farmers needed additional land (Walker and Bufkin 1986).

To link northern Arizona with southern Utah, the Mormons developed a network of wagon roads that collectively became known as the Old Arizona Road. The network was built in four stages. The first, completed in 1869, connected Pipe Springs with Warner Gap and Fort Pearce. The second, constructed in late 1870 or early 1871, ran from Pipe Springs through Kanab and Navajo Wells to Paria. Then, in 1871, John D. Lee was directed by Brigham Young (President of the Church of Jesus Christ of Latter-Day Saints) to establish a ferry at the location on the Colorado River that now bears Lee's name. Lee built the third section of the Old Arizona Road—extending across Buckskin Mountain on the Kaibab Plateau to the Colorado River—and established a ferry service at the latter location (Reilly 1978). The fourth and final link of the Old Arizona Road was constructed in early 1872; extending from St. George to Mt. Trumbull, the road was used to transport lumber for the St. George temple (Malcomson 1992).

The first area of Arizona targeted for intensive colonization was the Little Colorado River Valley. The most popular route for accessing this region ran from Lee's Ferry through Tanner Wash and Bitter Springs, past Limestone Tanks and Willow Springs, and finally over 25 miles of badlands to Sunset Crossing on the Little Colorado River (Stannard 1983). Soon the route was extended from the Little Colorado River to the White Mountains. It came to be known as the "Honeymoon Trail" because the Mormon colonists customarily used the route to have their marriages consecrated in the St. George temple (Stannard 1983; Dollar 1992). The "Honeymoon Trail" became the lifeline by which the colonists sustained themselves. Over it lumbered supply wagons bearing all manner of goods, and herds of livestock which nourished the colonists and served as a medium of exchange (Peterson 1973).

Other roads in Arizona were established or used by Mormons to facilitate their colonization as well as the movement of mail, supplies, and livestock (Reilly 1978). Two such routes crossed the Colorado River at Stone's and Bonelli's (Pierce's) Ferries, respectively, joined south of the river, and headed southeastward to Prescott. From Prescott, travelers wishing to go to the Little Colorado River Valley could take the Overland (Prescott to Fort Wingate) Road, while travelers to the Salt River Valley and beyond could pick up the Walker Trail. The latter route was important to the Mormons in founding colonies along the Salt, upper Gila, and San Pedro Rivers in the late 1870s (McClintock 1921). It crossed the Salt River at a bustling commercial point known as Hayden's Ferry (present-day Tempe). Other trails of importance to Mormon pioneers were the route from Moab and Bluff to the Little Colorado settlements (Peterson 1973) and the route from Lakeside down the Mogollon Rim to the Salt and upper Gila Valleys (Walker and Bufkin 1986).

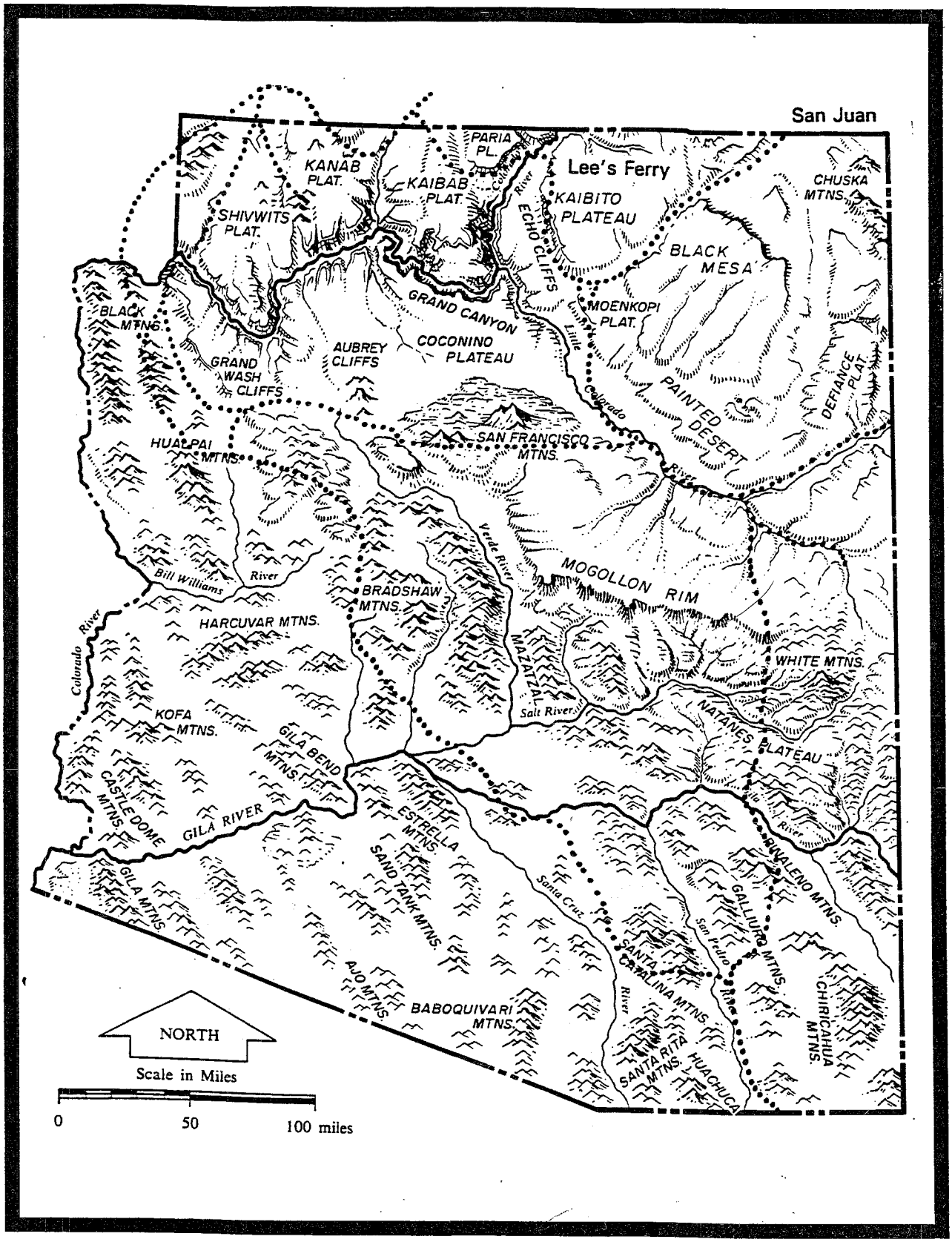

Figure 7. Major trails used by Mormons during colonization efforts (Source: Peterson 1973; base map: Walker and Bufkin 1986).

Trails of Commerce: Stagecoach, Freight, and Toll Roads

Arizona provided attractive business opportunities in the field of transportation, and a host of companies formed to take advantage of the situation. The companies were of two basic types: stagecoach and freight. Although both led rather tenuous existences—going out of business or changing names with exasperating frequency—each performed vital functions. Stagecoaches moved people (and, occasionally, mail and money), while wagons moved goods representing the economy of the region (Walker 1973). The two modes of transportation are discussed jointly in this section because they were contemporaneous and used many of the same routes.

In the days before railroads and automobiles, stagecoaches were the main people-movers of Arizona Territory (Browne 1869; Anonymous 1880). After the transcontinental railroads were completed through Arizona in 1881 and 1883, stagecoach short lines proliferated, connecting rail stations with non-rail settlements. Short lines survived into the twentieth century until railroad branch lines and the automobile made them obsolete. It is important to note that some routes used first by stagecoaches and freight wagons were adopted and used later by the "horseless carriage."

Stage lines moved people through virtually all areas of Arizona. A few of the more prominent lines and the areas they served included: the Arizona Stage Company (established in 1868), serving central and southern Arizona; the Tucson and Tombstone Stage Line (established in 1879; Peterson 1968); the Prescott & Phoenix Stage Line (established in 1886; Dinwiddle 1899); and the Grand Canyon Stage Line (established in 1895; Wahmann 1975).

The financial health of stage lines could sometimes be assured if the company could win and successfully complete a contract to carry the U.S. mail. Alternatively, the loss of such a contract, or a successful bid that was too low, could ruin a company (Walker and Bufkin 1986). Additional sources of income for stage lines were contracts to carry Wells Fargo strong boxes. The risks of transporting money through the territory sometimes outweighed the benefits, as victims of hold-ups discovered (Beebe and Clegg 1949).

Stagecoaching and wagon freighting required extensive logistical planning. Operating a company always involved maintaining horses and equipment, as well as hiring and deploying employees. It also commonly involved the building of way stations, the construction of bridges, and the digging of wells. Some cultural resources generated as a result of this process, such as Black Canyon Station near New River, are still in use. Others are archaeological ruins or no longer exist.

Successful stagecoaching and freighting were dependent upon good roads. Road building in Arizona received a nudge in 1866 when the Territorial Assembly authorized counties to form road districts and appoint overseers. Overseers were to levy a road tax (not to exceed five cents per hundred dollars valuation) and a poll tax (not to exceed six dollars per able-bodied man); residents could substitute two days' labor on the roads for the poll tax payment. Road construction and maintenance were expensive activities. Unfortunately, territorial Arizona, with its small tax base and sparse population, could not generate adequate resources through such legislation to support major road projects and improvements (Cross, Shaw, and Schiefele 1960).

Lacking adequate public funding to build roads, young Arizona depended on private enterprise to "get the job done." Michel ("Mike") Goldwater's outstanding achievements in this field earned him a special place of honor in the annals of Arizona history. Assisted by his brother, Joe, and by Dr. W. W. Jones, the Jewish merchant and freighter built numerous roads that connected the "Arizona Coast" (the Lower Colorado River) to the interior, and linked interior forts and

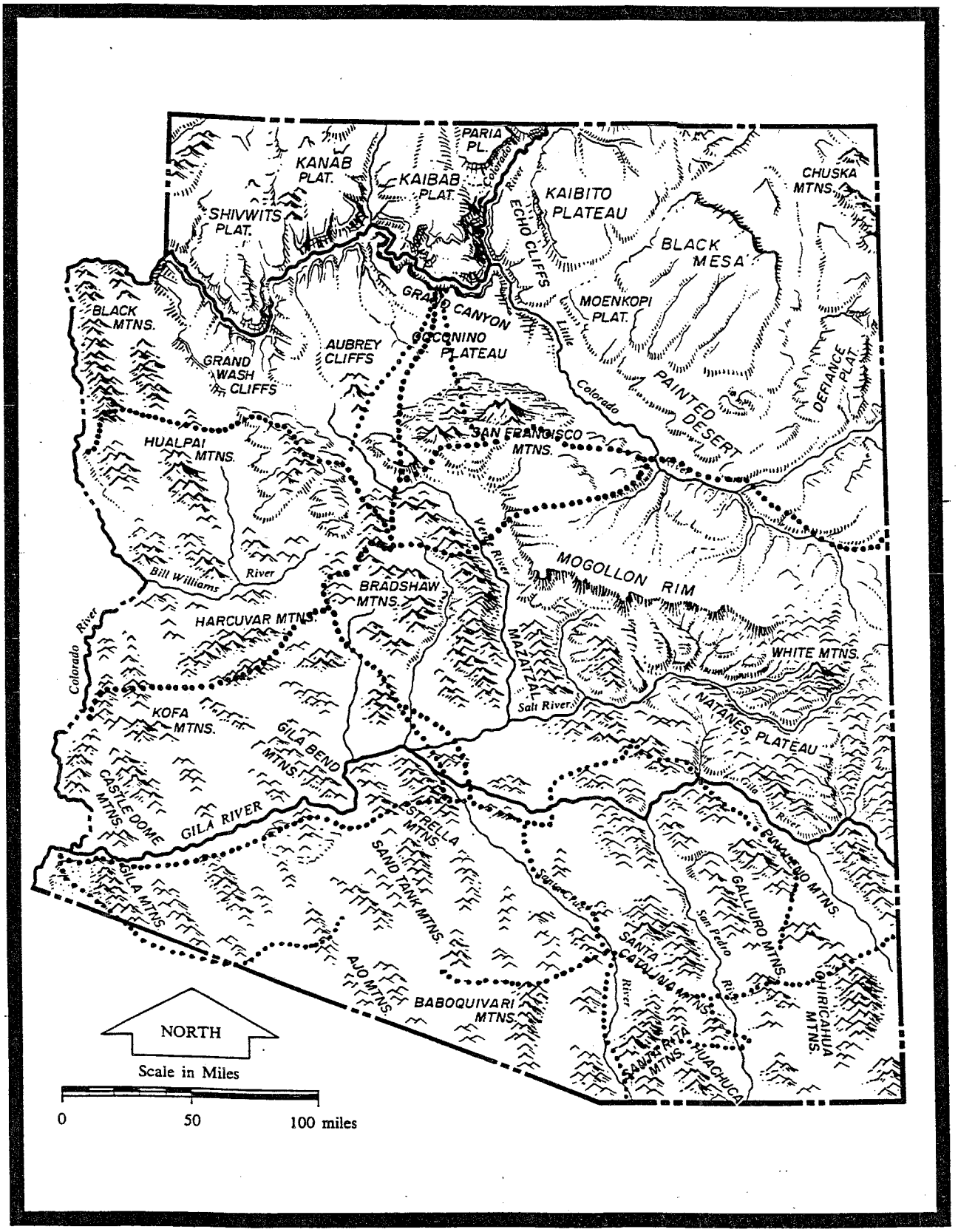

Figure 8. Major stage, freight, and toll routes (Base map: Walker and Bufkin 1986).

settlements to one another (Smith 1986). Among his outstanding works were wagon roads blazed from La Paz (on the Colorado River) to Prescott and from Prescott to Fort McDowell (on the Lower Verde River).

Many stage and freight routes in Arizona were built by private parties as *toll* roads. The history of toll roads in Arizona has been little-studied and is poorly understood. The evolution of such roads appears to have been fostered by the First Territorial Legislature (1864), which extended liberal franchises to six toll-road companies. The territorial government allowed the companies to build roads and charge exorbitant rates because the new government needed the roads but could not bear the cost of constructing them. One of the best and earliest toll roads was built by the Santa Maria Wagon Road Company. It ran from Prescott north and then westward along the present route of the Atchison, Topeka, and Santa Fe Railroad to the Colorado River port of Hardyville. Sometimes legislators were among the incorporators of the early toll road companies, as was the case with the Tucson, Poso Verde and Libertad Road Company; this company built several roads in southeastern Arizona. Other early firms included: the Arizona-Central Road Company; the Mohave and Prescott Toll Road Company; the Prescott, Walnut Grove, and Pima Road Company; and the Prescott and Fort Wingate Road Company (Wagoner 1970).

Beginning in 1871, toll road companies were allowed to incorporate under county authority. The enabling legislation allowed individuals to build a road or trail on public domain and, once registered with the county, to charge a toll on it for ten years. If the builder had not recaptured his or her original investment after that period, the county could extend the franchise for an additional five years (Strong 1978). An example of a toll road built under such regulations was the Bright Angel Trail (originally called the Bright Angel Toll Road), registered in Yavapai County by Peter D. Berry in 1891 (Cleeland 1986).

The heyday of the toll road was in the nineteenth century, but some were not built until the twentieth. Two late examples included the Bill Williams Mountain Trail, built in 1902 by Esau Lamb, and the Weatherford Road, built from 1920 to 1926 by John Weatherford (Cline 1976). These two routes accessed picturesque localities of northern Arizona (near Williams and Flagstaff, respectively) and were used for a special form of commercial enterprise: tourism.

Routes of Agriculture: Stock Trails and Driveways

Long before the era of the American cowboy, Spanish missionaries and explorers brought cattle, sheep, goats, and horses to Arizona. For example, Coronado's army included a small "army" of livestock, and Kino brought flocks to the missions he established. With few exceptions, early herds did not survive the mid-nineteenth century turmoil of "Apacheria." However, a significant exception occurred in the case of the Navajo. The flocks they obtained from New Mexicans multiplied and gained economic importance in the eighteenth, nineteenth, and early twentieth centuries.

Before and after the Civil War, Texans and New Mexicans drove thousands of head of livestock across Arizona to feed beef-hungry Californians (Bell 1932; Cross, Shaw, and Schiefele 1960). Among such stockmen was François X. Aubrey (also spelled Aubry), whose 1852-1854 drives across northern Arizona helped define a route for the Atlantic & Pacific Railroad (Chaput 1975; Wagoner 1975).

After the settling of many Indians on reservations in the 1870s, ranching operations among whites in Arizona began to flourish (Wagoner 1949). Successful cattle ranches and ranchers of the

era included: Henry C. Hooker at the Sierra Bonita in Sulphur Spring Valley; the Redondo brothers' ranch in Yuma County; King S. Woolsey's ranches in central Arizona; William Middleton's ranch in Pleasant Valley; John H. Slaughter's San Bernardino Ranch near the Mexican border; the Aztec Land and Cattle Company ("Hashknife" outfit) in northern Arizona; and the ranch of the Vail brothers, John L. Harvey, and H. R. Hislop in Pima County (Cross, Shaw, and Schiefele 1960). Also during the 1870s, sheep ranching by Euroamericans became established in the territory. This was the result both of a severe drought in California and the migration of herds from New Mexico to greener pastures in Arizona. Prominent sheepmen of this era included Manuel and Juan Candelaria, John Clark, Edward Perrin, William Ashurst, and the Daggs brothers, all of whom were based in northern Arizona Territory.

The arrival of transcontinental railroads in the early 1880s transformed Arizona's ranching industry. Almost overnight, the "iron horse" opened new markets for the agricultural products of the territory. The great carriers made the long drive obsolete as it became more economical to transport herds to markets by rail rather than by hoof.

Seasonal, "short drives" continued to be an important aspect of ranching long after the arrival of railroads. Drives south before winter and north before summer were necessary to ensure that herds had sufficient pasturage in all seasons. Seasonal drives were particularly important in the sheep ranching industry. By moving their flocks south in the autumn, sheepmen could realize higher profits through early lambing and shearing. By returning north in the spring, sheepmen would spare their herds the hot climates that made the animals infertile (Barstad 1988).

In the days of the open range, seasonal drives were "haphazard, the sheep and their herders going wherever there was grass and staying as long as the grass held out" (Barstad 1988:19). However, as conflict developed with cattlemen and as the U.S. government became more actively engaged in range management, driveways became well defined and highly regulated. Following statehood (1912), E. C. LaRue of the U.S. Geological Survey was assigned to study the livestock industry of Arizona. His 1918 report listed no fewer than 51 existing and proposed driveways (some for cattle, some for sheep, and some for both cattle and sheep). His map of trails showed each by name and number, indicated the type of stock used on them, listed the railheads used as shipping points, and specified the number of animals then being shipped (see Barstad 1988).

Of the 51 driveways listed by LaRue, the Black Canyon and Heber-Reno carried the most sheep. The former contained no major river crossings, but the latter did. To facilitate the crossing of the Salt River along the Heber-Reno driveway, the Arizona Wool Growers' Association in 1915 built a wooden cantilever bridge at Blue Point (Barstad 1988). It was replaced by a cable suspension bridge the following year. Other bridges along driveways included those at the Verde River, Bartlett Dam, and Horseshoe Dam.

Many driveways continued to be used throughout the historic period. By 1970, the following ones were still in use (Barstad 1988):

- Beaverhead-Grief Hill: from south of Flagstaff to Cordes and Black Canyon;
- Mud Tanks-Government Gap: from southwest of Winslow, across the Verde 12 miles below Camp Verde, to Cordes and the Black Canyon Trail;
- Heber-Reno: from Holbrook to Snowflake, Heber, Pleasant Valley, and Mesa;
- Tangle Creek: from northeast of Carefree to Cordes;
- Indian Tank: from Martin Dam to Ash Fork;
- Cataract: from north of Williams to Williams;
- Morgan Mountain: from Snowflake to Brushy Mountain; and

- Bear Spring: from Williams to Chino Valley, through Kirkland and Wickenburg, to the Black Canyon Trail.

Life on stock trails has often been misportrayed by the popular media. Not all cowboys and herdsmen were of Anglo-Saxon descent; many were Hispanic, Basque, or Black. Although life on the range held moments of adventure, excitement, and even romance, it more often entailed interminable periods of drudgery and loneliness (Line 1986). Resisting the boredom of long assignments among many quadrupeds and few bipeds, agile minds crafted works that are enjoyed today, from the songs and poetry of cowboys to the dendroglyphs (tree carvings) of shepherds. Thus, the stock trails of Arizona not only moved the agricultural economy, but also stimulated forms of folk art.

Early Automotive Routes (to 1940)

No discussion of historic trails and transportation corridors in Arizona would be complete without reference to early automotive routes. The following paragraphs summarize only a few points relating to the fascinating and complex topic of automotive transportation in Arizona. Readers desiring more information about this topic are encouraged to consult the historic context that has been prepared on the subject (Rodda 1992) as well as Rodda's (1993) article.

Although several Arizonans tinkered with prototypes of the automobile, the first (according to Rodda 1993) to purchase a manufactured one was Hiram Fenner. In 1899, the Tucson physician began to use the horseless carriage to save time and lives during house calls. Within a year, 20 autos had been delivered to Arizona by rail, most of them going to doctors or other affluent purchasers in the southern half of the territory. The automobile would remain essentially a rich man's toy for the following decade. The reasons for this were simple: the cheapest models, which sold for about $600, represented about half an average Arizonan's annual income; and car-payment installment plans had not yet been devised (Rodda 1993).

As the popularity of the auto grew in the 1910s, so, of necessity, did an interest in better roads. Following statehood, proponents of the "Good Roads Movement" saw their lobbying efforts rewarded when state and federal legislation gave Arizona the blueprint for a new roads system. New legislation shifted the primary responsibility for roads from counties to the state, presaging the end of property-tax and poll-tax supported road projects. Milestones in highway development were the Federal Aid Act of 1916, the Gasoline Tax Act of 1921, creation of a state highway system in 1922, and the establishment of the State Highway Department in 1927 (Cross, Shaw, and Schiefele 1960).

Three major, long-distance automotive routes were established through Arizona in the decades that followed such legislation. The National Old Trails Highway, designated as U.S. "Route" 66 in 1926 (now Interstate-40), ran from Chicago to Los Angeles and passed through northern Arizona; this route was later extended eastward to Baltimore and Washington, DC. The Ocean to Ocean Highway (now Interstate-10) was established across southern Arizona, connecting the Atlantic and Pacific seaboards; the Ocean to Ocean Highway Bridge (in Yuma) incorporated especially notable engineering. The Parks to Parks Highway (now U.S. Highway 89) was constructed in a generally north-south direction through Arizona to link many of its national parks and monuments with those of other western states.

By 1928, the state and federal highway system in Arizona included a total of 1988 miles of roads, of which 219 were paved, 869 were graveled, 758 were graded, and 142 were unimproved (Cross, Shaw, and Schiefele 1960). It should be noted that most of these roads followed earlier

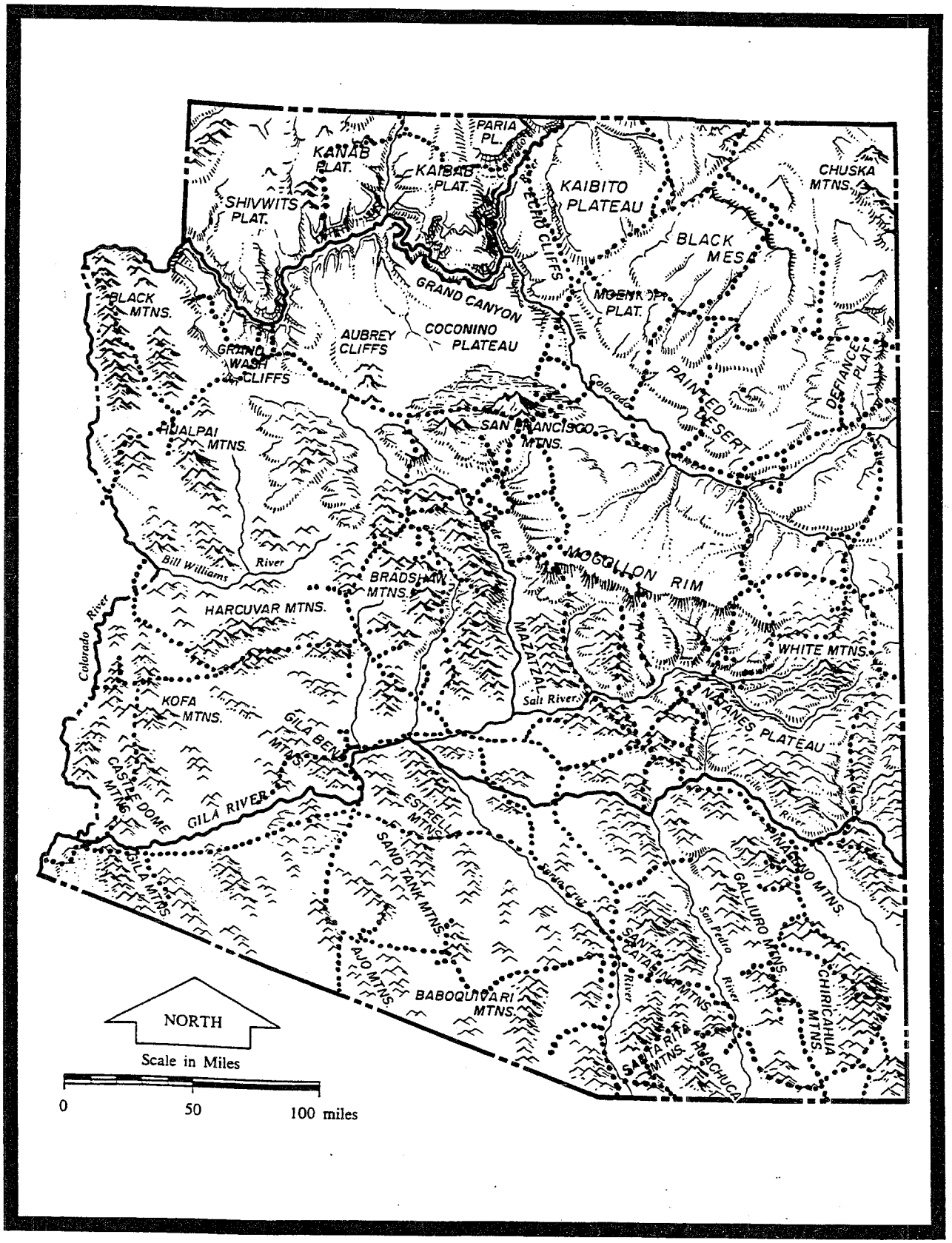

Figure 9. Automotive roads circa 1940 (Source: Writers Program 1940; base map: Walker and Bufkin 1986).

wagon routes; the old Black Canyon Road is a case in point. The road system was significantly upgraded in the 1930s when Arizonans were put to work building and improving roads as part of various New Deal programs. As a result, Arizona emerged from the Great Depression with a modern highway system. New Deal literature such as *Arizona, A State Guide* (Writers' Program 1940) described the system, boosted in-state travel, and helped Arizona develop a tourist industry that would sustain the state in modern times.

Other Trails and Roads

At various stages in its development, Arizona included special types of trails and transportation corridors not directly linked with the themes discussed above. The overview of trails from Coronado to 1940 concludes by focusing on one such type: the pack trail.

As their name implies, pack trails helped individuals accompanied by pack animals carry supplies into, and/or raw materials out of, relatively inaccessible areas. Pack trails usually served a specific purpose and were relatively short, not long-distance. A good example is the pack trail built into the Harquahala Mountains in 1920 to carry supplies to build an observatory for the Smithsonian Institution. Trails into steep canyons or to fire lookouts would also fall into this category; virtually every early fire lookout in Arizona once had a pack trail to it. The Grand Canyon contains an abundance of pack trails, including the Tanner, Hermit, and Kaibab. Many Grand Canyon trails were originally used for mining; virtually all are used now for recreation and tourism (Sutphen 1992).

AN INVENTORY OF HISTORIC TRAILS AND TRANSPORTATION CORRIDORS

AN INVENTORY OF HISTORIC TRAILS AND TRANSPORTATION CORRIDORS

Arizona contains historic trails that have played important roles in its development. But how many have been located and recorded as cultural resources (that is, "ground-truthed", plotted on topographic maps, and given inventory numbers)? To answer this question, the SHPO asked SWCA to compile a list of trails included in the SHPO's files. SWCA expanded the list to include trails described in the files of the Arizona State Museum (ASM), another major cultural resource repository in the state.

Data for the list was generated by inputing the keywords "trail", "road", "highway", and "route" into the automated databases of the SHPO and the ASM. At SHPO, both the "archaeological" and the "historic" databases were checked. At the ASM, both the "new AZSITE" and "old AZSITE" systems were consulted. The resulting list of historic trails is presented in Table 1.

SWCA thought it might be informative to determine if other repositories in the state included trails not reported in SHPO or ASM files. To seek such information, SWCA sent Table 1 and a letter requesting information to each agency or institution in the state that maintains cultural resource files. Of 13 agencies or institutions contacted, four provided additional information, summarized in Table 2.

The lists and the process of generating them suggest the following with regard to the reporting or management of trails:

(1) Seventy-three trails are included in the inventories of the SHPO and/or the ASM. An additional 16 are included in the inventories of the four agencies or institutions that responded to the request for information.

(2) Seven resources are listed in whole or in part on the National Register of Historic Places. An additional six are currently in the process of being nominated to the Register. The majority of trails have never been evaluated for Register eligibility.

(3) Some resources (such as the Beale Wagon Road) are known by several site numbers. This situation reflects several factors: (a) the discontiguous nature of many trails ("good" sections of trail alternate with "bad" or nonexistent segments), wherein each "good" segment is assigned its own site number; (b) successive recordings of the same segment by more than one institution; or (c) the location of single trails across land under the jurisdiction of more than one agency.

(4) Many resources are minimally recorded. Their histories have not been researched and their historic context is not known. Usually they are called simply "Trail", "Wagon Road" or the like in inventory files.

(5) Stage/freight roads are particularly well-represented in the inventories. In part, this is probably a reflection of their ubiquity: in historic times, stage and freight roads were common and went almost everywhere. But so, too, did automotive routes, and yet these are not well-represented in the site files. The latter situation may stem, in part, from a tendency

to regard most early automotive routes as historically insignificant—with the exception of the "Mother Road", U.S. Highway "Route" 66.

(6) From the perspective of this historic context, computerized databases in general contain a great deal of "noise" with regard to historic trails. When input into the databases of SHPO, the ASM, and the Museum of Northern Arizona, the keyword "trail" generates enormous lists of archaeological sites deemed to contain trails: almost invariably, however, such trails are intra-site paths rather than inter-site trails. (Because such features are not true transportation routes, they were not included in Tables 1 and 2.)

(7) Although the response was small from other agencies and institutions, Table 2 suggests that these entities contain information not known to the SHPO or the ASM. Despite efforts to make the SHPO and the ASM the centralized repositories for cultural resources in Arizona, the database concerning trails remains uncentralized.

(8) During the generation of Tables 1 and 2, it became obvious that recreation planners had developed historic trails that cultural resource managers and archaeologists had not inventoried. For example, one agency provided a series of handbills, distributed to hikers and equestrians, describing 16 historic trails developed for recreation. When asked how many of the trails had been recorded as cultural resources, the agency replied that only one had been. Similarly, no fewer than six trails designated as "historic" in the State Trails System (administered by the recreational "Trails" subsection of Arizona State Parks) were unrecorded in the cultural resource inventory files of the SHPO (the cultural resource management arm of the same state agency). Implications of this trend are discussed in the "Recommendations" section of this report.

Abbreviations used in Tables 1 and 2 are the following:

ARS = Archaeological Research Services
ASM = Arizona State Museum
ASPB/Trails = Trails subsection of the Arizona State Parks Board
BLM = Bureau of Land Management
CNF = Coconino National Forest
HIM = Historic Inventory Number, a designation used by the SHPO
KNF = Kaibab National Forest
MNA = Museum of Northern Arizona
NAU = Northern Arizona University
PMDR = Plateau Mountain Desert Research

TABLE 1:

TRAILS RECORDED IN INVENTORIES OF THE STATE HISTORIC PRESERVATION OFFICE AND/OR THE ARIZONA STATE MUSEUM

TRAIL NAME	COUNTY WHERE INVEN-TORIED	INVENTORY NUMBER(S)	NR LISTED?	MAIN ASSOCIATION
Ajo-Sonoita Road	Pima	HIN 87	N	Stage/Freight
Ajo-Yuma Road	Pima	HIN 86	N	Stage/Freight
Anza Trail	Pima Pinal Maricopa Yuma	HIN 191 P.L. 101-365 ASPB/Trails	N	Spanish Period
Apache Trail	Maricopa Coconino	AZ U:7:2 (ASM) NA 6327 (MNA)	Y	U.S. Government
Bass Trail, South	Coconino	AZ B:15:29(ASM)	N*	Pack
Bass Trail, North	Coconino	Unknown	N*	Pack
Beale Wagon Road 35th Parallel Route	Apache Mohave Coconino Yuma	AZ K:13:40 (ASM) HIN 2 AZ H:11:8 (ASM) AZ I:14:5 (ASM) AZ G:13:1 (ARS) AZ F:16:19 (ASM) AZ F:14:14 (BLM) AZ-050-0703 AZ F:14:2 (NAU) AZ F:14:47 (BLM) AZ F:14:48 (BLM) AZ F:14:49 (BLM) HIN 203 HIN 255 SHPO 3615 SHPO 4229 NA 770-771(MNA) AR-03-07-02-359 AR-03-07-02-1122 AR-03-07-02-1193 AR-03-07-02-1194 AR-03-07-02-1195 AR-03-07-01-1364 AR-03-04-02-1672	Y (partially)	U.S. Government

* In process of being nominated to the National Register

Bouse - Swansea Wagon Road	La Paz	AZ M:13:7 (BLM)	N	Stage/Freight
Butterfield Overland Stage Line	Cochise	AZ CC:15:10 (BLM)	N	Stage/Freight
Camp Reno Road	Maricopa	AZ U:6:161 (ASM)	N	U.S. Government
Childs to Mayer Road	Yavapai	AZ N:12:27 (ASM) HIN 171 SHPO 3539	N	Stage/Freight
Cocomaricopa Trail	Yuma	HIN 204	N	Native American
Copper Canyon Route to Verde Valley	Yavapai	AZ O:5:8 (ASM)	N	Stage/Freight
Crook Trail, Camp Verde-Fort Apache Military Road	Yavapai Coconino Navajo	AZ P:9:1 (ASM) APS CS 201 HIN 14 HIN 212	N	U.S. Government
Cross Canyon Corridor District	Coconino	AZ B:16:20 (ASM)	Y	Other
Domínguez-Escalante Trail	Mohave Coconino Navajo Apache	AZ C:16:1 (ASM) HIN 31	N	Spanish Period
Dugas Ranch Road, Mayer Road	Yavapai	AZ N:12:37 (ASM) HIN 259 SHPO 4222	N	Stage/Freight
Ehrenberg, Bouse, Date Creek, Prescott Road	La Paz	HIN 27	N	Stage/Freight
El Camino del Diablo	Pima Yuma Mexico	SO C:1:15 (ASM) AZ X:7:3 (ASM)	Y	Native American, Spanish Period
Fort Apache & Fort Thomas Military Trail	Graham	HIN 100	N	U.S. Government
Garces, Father, Trail of	Coconino	AZ I:3:2 (ASM)	N	Spanish Period
Gila Trail District	Maricopa	HIN 57	N	Mexican Period
Gila Trail, Sears Point Archaeological District	Yuma	HIN 29	Y	Mexican Period

Globe High Road, Old	Gila Maricopa	AZ U:8:139(ASM)	N	Stage/Freight
Globe to Hayden Toll Road	Gila	HIN 91	N	Toll
Grand View Hotel and Trail	Coconino	AZ C:13:23 (ASM) AZ I:1:26 (ASM) AZ C:13:18 (ASM) AZ I:1:25 (ASM)	N	Pack
Grief Hill Road	Yavapai	HIN 33	N	Stage/Freight
Growler Road	Pima	HIN 85	N	Stage/Freight
Hance Trail	Coconino	AZ C:13:17 (ASM)	N*	Pack
Hardy Toll Road	Mohave	AZ F:15:10 (ASM) HIN 261 SHPO 4307	N	Toll
Heart Tank & Heart Tank Trail	Yuma	AZ Y:10:5 (ASM)	N	Stage/Freight
Historic Trail	Cochise	AZ BB:15:1 (BLM)	N	Unknown
Historic Wagon Road	Mohave	AZ F:12:10 (BLM)	N	Stage/Freight
Historic Road	Mohave	AZ L:2:1 (BLM)	N	Unknown
Historic Road & Signatures	Coconino	AZ C:2:17 (BLM)	N	Unknown
Honeymoon Trail/Old Arizona Road	Coconino	AZ C:6:6 (ASM) AZ C:6:2 (PMDR) HIN 13 SHPO 3612 & 3639	N*	Mormon
Jedediah Smith Trail	Mohave	HIN 192	N	Mexican Period
Kaibab Trail, South	Coconino	Unknown	N*	Pack
Kearny Campsite & Trail, Army of the West Trail	Graham	AZ CC:3:2 (ASM) HIN 7	Y	Mexican Period
Keenan's Camp Trail	Mohave	AZ M:9:10 (BLM)	N	Unknown
La Grita Toll Road	Graham	AZ CC:3:30 (BLM)	N	Toll
Lime Kiln Road	Yavapai	HIN 192	N	Stage/Freight

* In process of being nominated to the National Register

Maricopa Wells to Fort McDowell Road	Maricopa	AZ U:9:86 (ASM) HIN 2974 SHPO 3659	N	Stage/Freight
Mormon Battalion Trail	S. Cochise Pima Pinal Maricopa Yuma	HIN 108	N	Mexican Period
Navajo Trail	Coconino	HIN 208	N	Native American
Pack Saddle Historic Trail	Maricopa	HIN 2884	N	Pack
Palatkwapi Trail	Coconino	HIN 100	N	Native American
Pearce Ferry Road	Mohave	AZ A:9:130 (ASM) Field No. F-11	N	Mormon?
Prescott to Phoenix Wagon Road	Yavapai, Maricopa	AZ T:3:12 (ARS)	N	Stage/Freight
Prescott-Fort Mohave Toll Road	Mohave Yavapai	AZ F:14:158 (ASM) HIN 29	N	Toll
Route 66	Coconino	AR-03-07-01-1166 AR-03-07-02-1003 AR-03-07-02-1004 AR-03-07-02-1002 AR-03-07-02-1001 AR-03-07-01-1167 AR-03-07-01-1168 AR-03-07-01-1366	These segments listed except 01-1366	Automotive
Safford-Morenci Trail	Graham Greenlee	AZ CC:2:44 (BLM) HIN 32	N	Stage/Freight
Silver Creek Road	Mohave	HIN 59	N	Stage/Freight?
Slaughter Trail	Cochise	AZ W:4:33 (ASM)	N	Stage/Freight?
Sonoita Road, Old	Pima	HIN 88	N	Stage/Freight
Starr Pass Trail	Pima	AZ AA:16:83(ASM)	N	Stage/Freight
Stoneman Historical Trail	Maricopa	HIN 2733	N	U.S. Government
Tapco Road	Yavapai	AZ N:12:27 (ASM) HIN 259 SHPO 4222	N	Stage/Freight
Temple Trail (part of Old Arizona Road)	Mohave	HIN 41	N*	Mormon

Trail	Yuma	AZ R:15:3 (ASM) SHPO 1200 AIN 208	N	Unknown
Trail	Yuma	AZ R:15:4 (ASM) SHPO 1200 AIN 208	N	Unknown
Trail	Maricopa	AZ:DD:2:47 (ASM) SHPO 32 AIN 2590	N	Unknown
Trail	Yuma	AZ R:15:2 (ASM) SHPO 1200 HIN 208	N	Unknown
Trails - Papago Park	Maricopa	HIN 3094 SHPO 2662	N	Unknown
Tucson to Ft. Grant Wagon Road	Pima	AZ BB:9:41	N	U.S. Government
Turquoise Trail	Unknown	AZ D:15:33 (ASM)	N	Native American/ Spanish Period?
Union Pass Wagon Road	Mohave	AZ F:15:31 (BLM)	N	Stage/Freight
Unnamed (Main Road Tucson S. into Empire Valley)	Pima	AZ EE:2:47 (ASM)	N	U.S. Government
Unnamed	Coconino	AZ I:10:5	N	Unknown
Valley Ranch/ Stockton Hill to Atchison Topeka/ Santa Fe Railroad Road	Coconino	AZ G:9:6 (ASM)	N	Stage/Freight
Wagon Road	La Paz	AZ M:13:9 (BLM)	N	Stage/Freight
Wall's Well - Bate's Well Road	Pima	HIN 84	N	Stage/Freight
Young-Holbrook Wagon Road	Gila	HIN 38	N	Stage/Freight

* In process of being nominated to the National Register

TABLE 2:

TRAILS NOT LISTED IN SHPO & ASM INVENTORIES BUT RECORDED IN OTHER INVENTORIES

TRAIL NAME	COUNTY WHERE INVEN-TORIED	INVENTORY NUMBER(S)	REPOSITORY	MAIN ASSOCI-ATION
Babe Haught Trail	Gila	143	ASPB/Trails	Pack
Black Canyon Trail	Maricopa Yavapai	Unknown	BLM/Phoenix	Stock
Camp Mohave-Fort Whipple	Mohave	NA 9111 ASM AZ G:15:16	MNA	U.S. Govt.
Colonel Devin	Gila	290	ASPB/Trails	U.S. Govt.
Ft Bowie/Apache Pass Trail	Cochise	None	ASPB/Trails	U.S. Govt.
Grand Canyon Stage Route	Coconino	AR-03-04-03-36	CNF	Stage/ Freight
Harquahala Mountain Pack Trail	Maricopa	None	ASPB/Trails	Pack
Highway 67 (old section)	Coconino	AR-03-04-03-719	KNF	Auto
Hopi Salt Trail	Coconino	NA 10531-10534 MNA C:15:2	MNA	Native American
Indian Tank Canyon Trail	Yavapai	NA 6666 (MNA)	MNA	Native American
Overland Road Historic Trail	Coconino Yavapai	AR-03-07-02-368 AR-03-07-02-866 AR-03-07-02-1119	ASPB/Trails	U.S. Govt.
Pack Saddle Historic Trail	Maricopa	143	ASPB/Trails	Pack
Red Rock Loop Road	Yavapai	AR-03-04-06-534	CNF	Stage/ Freight
Road (name unknown)	Yavapai	AR-03-07-01-1638	KNF	Stage/ Freight
Stage Station & Road (name unknown)	Coconino	NA 3327	MNA	Stage/ Freight
Tunnel Road	Gila	NA 778 NA 780	MNA	Unknown

A TYPOLOGY FOR HISTORIC TRAILS AND TRANSPORTATION CORRIDORS

A TYPOLOGY FOR HISTORIC TRAILS AND TRANSPORTATION CORRIDORS

Classification systems can help preservationists develop standards and priorities for treating historic properties. Therefore, the SHPO requested that this historic context study include a typology for trails; the SHPO further specified that the typology be historically-derived.

The typology presented below proposes a system for classifying historic trails and transportation corridors according to their *first known major use*. It provides a uniform terminology, derived from documentary and archaeological evidence, that may facilitate future preservation efforts. It also describes some of the physical characteristics of the various types of trails.

A cautionary note is in order. When attempting to use the typology to classify a resource, the reader should be aware that most major trails and transportation corridors enjoyed repeated use (by different travelers and for long periods of time) and served a variety of purposes. This situation was structured in part by the geography of Arizona; good trails, connecting reliable water sources and avoiding impassable barriers, were used again and again. Therefore, it is sometimes difficult and artificial to pigeonhole trails, particularly popular and enduring ones—such as the Southern Emigrant, Beale, or Crook—into any one category.

Type 1: Native American Trails

Native Americans were the first to acquire knowledge of Arizona's geography and to apply their knowledge to the development of trails. The type "Native American Trails" refers to the linear resources whose first known major use was by indigenous people.

This type would appear to have two sub-types: those that eventually became used by non-native groups, and those that remained closely and almost exclusively associated with the Native Americans who developed them. Among the resources inventoried in Arizona, Palatkwapi Trail is a good example of the former, while the Hopi Salt Trail provides a good example of the latter.

Some Native American trails would qualify as "Traditional Cultural Properties" according to Parker and King's (1990) definition. A traditional cultural property is "one that is eligible for inclusion in the National Register because of its association with cultural practices or beliefs of a living community that (a) are rooted in that community's history, and (b) are important in maintaining the continuing cultural identity of the community" (Parker and King 1990:1). Traditional cultural properties (TCPs) present challenges for cultural resource managers. Their location and significance are often known only to members of the culture who have knowledge of traditional practices. For a variety of reasons, such members may be reluctant to divulge information to outsiders. Cultural resource managers should respect the wishes of cultures regarding the management of trails that embody traditional values. Nomination of such resources to the National Register should not occur without close consultation with the appropriate cultural group(s); ideally, the nomination process for TCPs should emanate from those groups or be endorsed by a tribal resolution.

In terms of physical characteristics, Native American trails are often footpaths. This is particularly true in the case of prehistoric trails, representing the era when draft animals and

wheeled conveyances were as yet unknown. Intended for pedestrian use, footpaths tend to be narrow, with a tread normally less than two feet wide. The tread of a footpath can be distinct, such as in localities where desert pavement is present, or extremely vague. Cairns, rock art, stairways, handholds, and Native American artifacts are elements to watch for along such trails; their occurrence can help confirm the presence of a trail that is otherwise indistinct.

Researchers often encounter difficulties when trying to differentiate paths made by humans from those made by animals. Ecologists studying optimal foraging behavior have discovered a clue to help discern human trails from animal ones (see the sidebar on the following page). These findings pertain to wild animals and do not apply to areas that have been heavily grazed by livestock. This is because grazing cattle, sheep, goats, and horses tend to take the path of least resistance across a landscape and will often utilize a human trail if one is present (Oregon and California Trails Association/OCTA nd). The implications of this observation for trails research are obvious: (1) trails made by grazing livestock may be difficult, if not impossible, to distinguish from human trails; and (2) what at first appears to be only a livestock trail (as noted through fecal material) may in fact be the vestige of a far more ancient Native American trail.

Type 2: Spanish Period Trails and Roads

The type "Spanish Period Trails" applies to routes and transportation corridors first used by explorers, missionaries, miners, and colonizers who were part of the Spanish realm. The temporal dimension of this type in Arizona extends from the point of first contact (circa 1535-1536) to the Mexican Revolution of 1821. It would be tempting to regard Spanish period trails as those associated with Hispanic people, but it should be noted that not all members of the Spanish realm were, in fact, "Hispanic": many were Italian, German, Basque, or of other nationalities and ethnic groups. Father Eusebio Kino, born in Italy, provides a case in point.

Despite the passage of centuries, modern scholars have been able to reconstruct the routes of various Spanish *entradas*. By comparing documentary evidence—diaries (such as Font 1913), journals, office reports, and other archives—with features of the modern landscape, researchers have, in some instances, been able to identify Spanish period trails with virtual certainty. El Camino del Diablo is one such trail, recognizable both for its congruence with documentary evidence and for its physical integrity: grooves left in bedrock by wagon wheels can still be seen along the trail. At the other extreme are Spanish period trails whose locations remain a matter of conjecture. For example, the location of certain key points (for example, Chichiltecale) visited by the Coronado expedition are matters of debate. The precise route used by Coronado to traverse these points is even less known. Unfortunately, the Coronado Trail has never been studied thoroughly, from beginning to end, by a team of qualified archaeologists and historians.

A milestone of the Spanish period was the evolution of the road as a transportation route. Road *construction*, per se, began during this period when the Spanish established *caminos* to accommodate *carretas* (wheeled vehicles). Physical evidence to watch for when trying to identify Spanish-period trails includes inscriptions on adjacent outcrops (incorporating 17th, 18th, and early 19th century calligraphy) and Spanish period artifacts. Other signs that can help identify wagon roads (although not specifically *Spanish* wagon roads) include two-track ruts, grooves worn by wheels traversing rock surfaces, and (rarely) rust stains deposited by iron wheels and hubs rubbing against stone. Vegetational anomalies may also be present. On the edges of the trails, where softer soil has accumulated, more vigorous and varied plant growth may occur, leaving a distinctive vegetative border. On trails with compact soil or very loose soil, little vegetation or only stunted growth may occur (OCTA nd).

(Sidebar)

Distinguishing Human Trails from Wild Animal Trails

When trying to identify and follow a historic trail across rugged terrain, how can one tell which trail, among many, was made by humans and which were made by animals? Ecologists studying optimal foraging behavior among animals may have discovered clues to the answer. Using a statistical technique known as multiple regression analysis, biologists have been able to precisely determine the effect of mountain slope and animal body weight on the trail angles used by animals of various sizes. The relationship is such that as larger species go up hills, they use a shallower trail angle. The scientists also found that as the mountain slope became steeper, the trail angle chosen by the animal also became steeper. The latter finding seemed counter-intuitive to the researchers until they pursued literature on the energetics of moving up and down hills; it turned out that even though each step an animal took was more costly on a steep slope than on a shallower slope, the total energy cost of getting from the bottom of the hill to the top was less by taking a steeper trail angle because of the fewer total number of steps.

The study included 22 species of mammals ranging in size from 25 grams (a mouse species) to 680 kilograms (buffalos). The trail angles chosen by the different species varied significantly by body weight. On a 40 degree slope, however, humans were found to favor slope angles consistently ranging only from 23.2 degrees (for a 100 pound individual) to 22.1 degrees (for a 220 pound individual). Tiny species could dart almost vertically up the hills, while buffalo and elk favored nearly horizontal routes.

- From O. J. Reichman and S. Aitchison, "Mammal Trails and Mountain Slopes", American Naturalist 117(3), March 1981: 416-420.

Type 3: Mexican Period Trails and Roads

This type refers to trails and roads whose first known major use occurred during the period of Mexican rule of Arizona, from the Mexican Revolution of 1821 to the signing of the Treaty of Guadalupe Hidalgo in 1848. It could logically be argued that this period extended to 1854 in southernmost Arizona, the area ceded to the U.S. by Mexico through the Gadsden Purchase.

Many trails established during this era exemplified the waning influence of the Mexican realm and the growing influence of the American one. Trails blazed by trappers, by traders, and by American soldiers in the U.S.-Mexican War represent the three sub-types of this category. Examples of the sub-types include, respectively, the Jedediah Smith Trail, the Antonio Armijo Trail, and the Mormon Battalion Route (Gila Trail/Southern Emigrant Route). A milestone of this era was the construction in 1846 of the Mormon Battalion Route through southern Arizona. Used subsequently by west-bound travelers (when it became known as the Southern Emigrant Route), this wagon road formed a vital link in what was to become the first transcontinental route through the United States.

Most trails of the Mexican period were designed to accommodate wheeled conveyances such as wagons. Therefore, the researcher should be alert to the possible presence of two-track ruts, grooves in rock, and occasional rust stains on rock when trying to identify the wagon roads. Berms and vegetational anomalies can also indicate the roads. Other physical evidence can include trailside graves and inscriptions on outcrops, as well as artifacts that "fit" the chronology (circa 1821 to 1854) and technology of the Mexican period. Wagons trails of virtually all time periods tried to avoid rocky terrain. If such topography could not be avoided, then rocks were moved aside to clear a path. The researcher should therefore look for alignments of rocks, now often embedded in the soil at the edges of the old trail. At points where travel was particularly difficult—at river or canyon crossings, for example—concentrations of wagon parts or related artifacts may occur, marking where wagon breakdowns or the abandonment of equipment occurred.

Type 4: U.S. Government Trails and Roads of the Early American Period

This type refers to routes surveyed and roads established by the U.S. government from the time of the signing of the Treaty of Guadalupe Hidalgo in 1848 through the surrender of Geronimo in 1886. This historic type is exemplified by two sub-types. The first consists of routes and trails of Manifest Destiny: transcontinental routes and roads, international boundary survey routes, and regional exploration routes. An outstanding, inventoried example of this sub-type is the Beale Wagon Road. The second sub-type consists of roads and trails associated with the military fortification of Arizona Territory. Inventoried examples of this sub-type include Crook Trail, Stoneman Trail, and Reno Road.

The U.S. Army played a dominant role in surveying the trails and establishing the roads associated with this historic type. However, other federal agencies, such as the Corps of Topographical Engineers, were also involved. It should be noted that Powell's earliest expedition to the Colorado Plateau received considerable private assistance. Eventually, two of the transcontinental roads established by the government became essentially the routes of transcontinental railroads. In the case of trails connecting military forts, many eventually passed to civilians and were used for travel by foot, horseback, stagecoach, and wagon.

Many of the physical properties of Type 3 trails are also present with Type 4 trails. Ruts, grooves in rock, rust stains, rock alignments and berms along trail edges, vegetational anomalies,

graves, and artifacts appropriate to the time period (1848 to 1886) can all help identify the routes. Other physical evidence can consist of military paraphernalia (buttons and insignia from uniforms, government-issue cartridge cases, etc.) as well as the remains of telegraph lines that once ran along such routes. For example, bits of telegraph wire or parts of wire insulators may be present.

Inscriptions can serve as strong physical evidence for Type 4 trails. In the case of overland trails, wayfarers sometimes left their names or initials, along with the date of their passage, on outcrops or boulders or in nearby caves. The inscriptions were typically carved using iron/steel knives or painted using axle grease. Nineteenth-century printing may be evident in the way that an "F," an "S," or other letter is executed. Inscriptions on trees can also provide physical evidence for Type 4 trails; for example, the builders of the General George Crook Trail marked on trees the mileage from Fort Verde.

Blazes on trees may or may not mark a Type 4 trail and should be regarded with suspicion. More than a century has lapsed since Type 4 trails were established. Anyone cutting a blaze to mark a trail back in those days would have selected a mature tree, and few such trees have likely survived to the present. Blazes of historic vintage should look suitably aged and weathered. Their outlines should not be sharp and crisp, but rather rounded and infilled with bark growth. Tree-ring coring through the blaze may be the only way to determine the exact age of the incision. Since coring is a potentially destructive technique, it should be used only as a last resort.

Type 5: Mormon Trails and Roads

This type is defined as roads and trails used by members of the Church of Jesus Christ of Latter-Day Saints (LDS) to colonize Arizona and other parts of the Southwest and northern Mexico. Inventoried examples of this type include the Honeymoon Trail and the Temple Trail. This type does not include the Mormon Battalion Route, a resource associated more directly with U.S. military efforts of the Mexican period than with LDS colonization of Arizona.

The temporal dimension of this type begins with the entry into Arizona of the Mormons who established a colony at Littlefield in 1864. The end date is less precisely definable, and therein lies an interesting management issue. One could argue that the temporal dimension of this type ended with the penetration of Mormons to the far southeastern reaches of the territory in the late 1870s. One might also argue for an end date coinciding with the founding of the last Mormon townsites in Arizona in the early twentieth century. In fact, however, Mormons still use some of the trails to reenact events and processes important to their collective history. Routes such as the Honeymoon Trail are important to the Mormons in maintaining community values. Therefore, some Mormon trails may meet Parker and King's (1990) definition of "Traditional Cultural Properties." Please see the preceding "Native American Trails" section of this report for a discussion of "TCPs." See also *National Register Bulletin 38: Guidelines for Evaluating and Documenting Traditional Cultural Properties* (Parker and King 1990).

Many of the physical characteristics of Type 2, 3, and 4 trails also apply to Mormon trails. Mormon trails were typically built to accommodate wagons and left the same types of physical evidence as Spanish, Mexican, and Early American roads. A trait that distinguished Mormon trails from many contemporary non-Mormon ones was their general tendency to emanate from Utah and to run north-south through Arizona rather than east-west; Mormon trails into Arizona were designed to tie the colonies to the church and relatives in Utah.

Archaeologists and other researchers are making rapid strides in learning about the material culture that accompanied Mormon colonization in Arizona. An understanding of this material culture will, in turn, help to identify Mormon trails. A case in point concerns Behrman pottery, manufactured by a Danish Mormon named Wilhelm Behrman between 1876 and 1881 at Brigham City, an LDS colony west of Sunset Crossing on the Little Colorado River. A researcher at the Arizona State Museum (Alan Ferg) is currently conducting a detailed analysis of Behrman's pottery through a chemical process akin to fingerprinting. As a result of the study, Behrman/Brigham City pottery is now beginning to be recognized at other Mormon sites such as Sawmill Springs near Mormon Lake. In the future, Behrman pottery may provide key evidence in recognizing the presence, age, and cultural affiliation of a variety of Mormon property types, including Mormon trails, in the Southwest.

Type 6: Stagecoach, Freight, and Toll Roads

Transportation corridors belonging to this type are defined as roads built and used primarily for commercial purposes. The temporal parameters of this type extend from the mid-nineteenth to the early twentieth centuries. The historical importance of roads belonging to this type derives primarily from their significance in promoting the exchange of goods, services, and commodities.

This historical type includes a wide range of resources, from overland mail routes of the late 1850s and early 1860s, and "short line" stage and wagon routes of the Territorial period, to toll roads used for early tourism. Inventoried examples of this general type include the Bouse-Swansea Wagon Road, Hardy Toll Road, Grand Canyon Stage Route, Butterfield's Overland Stage Line, and Lime Kiln Road.

Although travel along Type 6 roads was often accomplished by foot, horseback, and buggy, the roads were meant to be traveled by stage and wagon and were designed for that purpose. Through legislation, the territorial government assisted in the development of these roads, but private entrepreneurs played a more direct role in their construction. Motivated by profit incentives and concerns of supply and demand, the entrepreneurs developed roads to meet the needs of existing markets or to facilitate the expansion of new markets. Developing successful commercial routes required much forethought and planning; way stations were needed at periodic intervals to provide rest and refreshment to the people, horses, and mules traveling these routes. Today, strong physical manifestations of the commercial routes are the ruins of the stations which occurred along them.

The success of commercial routes was dependent on the quality of the roads themselves. To minimize vehicle breakage, improved road building techniques were increasingly used. Construction workers used cutting and filling to level dips and rises in the natural landscape. In steep terrain, switchbacks were designed so that coaches and wagons would experience minimal sidling. Pick-and-shovel work, horse-drawn graders, and explosives all were used to create more level road surfaces. Through time, the roads increasingly took on the appearance of *engineered* transportation systems. Sometimes the roads became so well-used that heavy traffic produced a hard and compact surface. However, road surfacing, per se, was not practiced until the age of the automobile.

Automotive routes (Type 8, discussed below) eventually made stagecoach, freight, and toll roads obsolete. Because the earliest automobiles in Arizona were used on roads originally built for coaches or wagons, the two historic types intergrade to some extent. Automotive routes were often built on top of earlier wagon, freight, and toll roads.

Type 7: Stock Trails

Stock trails are defined as routes used by agriculturalists to move livestock by hoof within or through Arizona. Historical data suggest that stock trails were of two sub-types, "long drive" and "short drive."

As their name implies, long-drive stock trails were used to herd livestock considerable distances to far-away markets. In Arizona, the "long drive" typically involved herding sheep or cattle through the territory to California. Aubrey conducted long drives in the early 1850s when he transported livestock through northern Arizona to the West Coast. The arrival of transcontinental railroads into Arizona in 1877 and 1881 soon made long-drive stock trails obsolete. No examples of true long-drive stock trails have yet been inventoried in Arizona.

Short drives were used to transport livestock to better pasturage (or to shipping railheads or local markets) according to season. In Arizona, short drives typically occurred north to the Colorado Plateau before summer and south to the Sonoran Desert before winter. Short-drive trails became codified and regulated into formal driveways in the twentieth century. Many driveways were in use by the second decade of the present century (LaRue 1918). The Black Canyon Trail is an inventoried example of a short-drive stock trail.

In terms of their physical characteristics, stock trails often consist of wide, poorly-defined swaths. Such swaths can be difficult for the researcher to discern. He or she may encounter more success when trying to trace the stock trail as it crosses physical barriers such as canyons, rivers, and mountains. In such areas, stock trails often became constricted or "pinched" into more linear-appearing features. Also, special structures (for example, bridges) were sometimes built to assist the livestock across the natural barrier. When trying to trace a stock trail, the researcher should also watch for stock trail signage. For example, beginning in the early twentieth century, the USDA Forest Service posted small metal signs on trees, fences, and other objects to note the location of stock trails.

Type 8: Early Automotive Routes

This type is defined to include roads built more than 50 years ago to serve mainly automotive traffic. Some early automotive routes have achieved what Owens (1991) calls a "composite historical identity," that is, an identity stemming from their physical setting, historical association, construction technology, maintenance history, and pattern of use. Another element of composite historical identity may be nostalgia, defined simply as enduring reference to the resource in popular culture. An inventoried example of an early automotive route embodying all of these qualities is U.S. "Route" 66 along the 35th parallel. In general, preservationists have been slow to recognize the importance of early automotive routes in the state, and have recorded few of them.

Properties of this type pose a special challenge for cultural resource managers. In most cases, early automotive routes are extremely well documented, thanks to excellent records at the Arizona Department of Transportation and various county roads departments. However, old routes that have remained in use and been continually upgraded may no longer possess physical integrity from the earlier period. In general, abandoned sections of roads are more likely than in-use sections to exhibit integrity.

In terms of physical characteristics, automotive routes usually exhibit more advanced engineering and more modern materials than is true of earlier trails. Concrete or concrete-and-rock culverts, bridges, and retaining walls are normally present. Surfacing materials, or remnants of

surfacing materials—gravel, concrete, or asphalt—are occur along many of these routes. Breakdowns (particularly flat tires) and crashes were extremely common in the early days of automotive travel, and often resulted in the deposition of car parts along the routes. Therefore, strong clues as to the function of such routes can consist of automotive detritus such as oil cans, car battery cells, and windshield glass.

Type 9: Other Historic Trails and Transportation Corridors

Some trails and transportation corridors have had histories so unique and eccentric that it is difficult to place them in any particular historical category. For such resources, the category "other" provides a useful concept. Pack trails lend themselves to this construct. Pack trails may be defined as routes that used pack animals to carry goods into and out of remote areas without benefit of wheeled vehicles. Pack trails did not exist prehistorically, but have been constructed and used during virtually all periods of history. Some pack trails originally served a single mine, fire lookout, ranger station, work center, or tourist destination. Some served only a single person or a small group. Others, such as the Harquahala Observatory Trail, were constructed to build and service highly specialized facilities.

Pack trails tend to be relatively narrow (although this is not always the case), often have horse shoes, mule shoes, or shoe nails deposited along them, and may traverse hills and canyons at sharper angles than wheeled vehicles would have attempted.

HISTORIC TRAILS AND THE NATIONAL REGISTER

HISTORIC TRAILS AND THE NATIONAL REGISTER

This section discusses issues involved in evaluating the eligibility of trails and corridors to the National Register of Historic Places. Such evaluation is critical and forms the keystone of all preservation efforts. The National Register is the nation's official roster of historic properties considered worthy of preservation. Historic properties listed on or considered eligible for the Register are afforded a degree of protection in the face of federal undertakings. Register-listed or eligible properties may also qualify for federal and state matching grants as well as tax benefits. Properties deemed *in*eligible for the National Register, on the other hand, are not considered worthy of preservation and usually receive none of these benefits.

The procedure for evaluating historic properties and nominating them to the National Register is generally defined in *National Register Bulletin 15: How to Apply the National Register Criteria for Evaluation* (NPS 1991b), and *National Register Bulletins 16A and 16B: How to Complete the National Register Registration Form and How to Complete the National Register Multiple Property Documentation Form* (NPS 1991c) The National Register program of the National Park Service also prepares supplements that provide guidance in evaluating and nominating special types of properties. An example is *National Register Bulletin 38: Guidelines for Evaluating and Documenting Traditional Cultural Properties* (Parker and King 1990). Unfortunately, no supplement yet exists that deals specifically with linear properties such as historic trails, nor is one anticipated in the near future. *Bulletin 30: Guidelines for Evaluating and Documenting Rural Historic Landscapes* (McClelland and others nd) only briefly touches on the subject of historic trails. In the absence of a bulletin devoted to this subject, SHPO requested that this report suggest ways to evaluate historic trails for the Register.

The following discussion draws heavily on the aforementioned bulletins. It also culls ideas from pioneering works such as Cleeland's (1988) nomination for Historic US Route 66 in Arizona, Smith and Davidson's (1989) Multiple Property Documentation Form for the Bozeman Trail in Wyoming, Owens' (1991) context study of trails in California, and Nowak's (1993) and Krakow's (1993) articles about evaluating corridors and trails.

Three conditions must be met for a property to be listed on or determined eligible for the National Register. It must be at least fifty years old, it must possess significance, and it must have physical integrity. Each of these issues is addressed in the following pages.

Documenting Property Age: Validating Trail Authenticity

In general, any cultural resource must be at least fifty years old to be eligible for the National Register. In the case of trails/corridors, it is critically important to document the age of the resource being evaluated. Knowing its age does more than show that the property is old enough for the Register. It puts the resource in a proper context for evaluation, and helps validate the trail's authenticity by linking it to historical or oral-historical records.

How does one link (match) a historical record or oral-historical account of a trail with a cultural resource? This is a difficult problem, but is one that historians, preservationists, cultural resource managers, recreation planners, and archaeologists must often face. Typically, the linkage process proceeds in either of two directions—from documents to a cultural resource, or from a cultural resource to documents—depending upon which of the following scenarios more closely applies:

- In the first scenario, an individual or group with a keen interest in the history of a trail lobbies a land-managing agency or other organization to recognize and preserve the route. In this case, the trail exists in historical records or oral history, but it is not known if the trail still has a physical manifestation. One knows that a particular trail was significant in the past but does not know if the trail, in whole or in part, still exists on the ground.

- In the second scenario, someone finds a trail and desires to learn about its background. In this case, the trail has a physical manifestation, but it is not known if the trail is mentioned in historical records or oral history. One knows that a trail exists (in whole or in part), but does not know if that trail was significant in the past.

Some researchers (Smith and Davidson 1989; Krakow 1993; Nowak 1993) have developed a methodology for dealing with the first situation, while others (including Owens 1991) have focused more on a methodology for dealing with the second. Although the two approaches differ in the sequencing of investigative events, they do not vary significantly in techniques. The steps in each are summarized, respectively, in "Methodology 1" and "Methodology 2" (see sidebars on pages 40 and 41).

Evaluating Significance

A cultural resource must be significant to be eligible for the National Register. Significance is present when a cultural resource meets one or more of the following criteria:

A It is associated with an event that has made a significant contribution to the broad patterns of our history;

B It is associated with the life of a person significant in our past;

C It embodies the distinctive characteristics of a type, period, or method of construction, or represents the work of a master, or possesses high artistic values, or represents a significant and distinguishable entity whose components may lack individual distinction; or

D It has yielded, or may be likely to yield, information important in prehistory or history.

Applying Criterion A

A resource may be significant for its association with an event that has made an important contribution to history or prehistory (Criterion A). For a property to be considered significant under Criterion A, the researcher must select at least one category relating to the historic event for which the property is important. These categories, termed "areas of significance," are listed and defined in *Bulletin 16*A. Although other areas of significance should not be overlooked, the following ones (listed in alphabetical order, not in order of importance) seem most applicable when evaluating trails and corridors under Criterion A.

(Sidebar)

Methodology 1: Working from Documents to a Cultural Resource

(1) *Undertake a background literature search. This may be done using mainly secondary sources (such as histories of the locality, region, state, and even nation) that identify the chronology of and themes relating to the trail. The literature research establishes the "big picture": it provides a context that allows that trail's place in history to be appraised.*

(2) *Conduct detailed research into primary sources—first-hand accounts of the trails. Locate and review journals, diaries, first-person accounts, historical maps, historical photographs, sketches, and any other material that will flesh out details about the trail. Do not overlook potential sources of information such as: General Land Office (GLO) maps (on file at the State Office of the BLM); toll road files and ledgers (on file at the county courthouse); county and state road maps (check with State Archives or local historical societies); ADOT "As-Built" maps and files; agency records (such as Forest Service Timber Sale Control Atlases); and old townsite maps (on file with County Recorders). Make note of topography mentioned, points visited, navigation systems utilized, methods of transportation, and travelers' means of marking the trail. Especially if the trail is suspected of being a Traditional Cultural Property, then attempt to gather oral-historical information about it.*

(3) *Using the information acquired through step 2, conduct field work. Inspect the area where the trail is hypothesized to lie, looking for evidence appropriate to the chronology, function, and cultural affiliation of the trail. Physical evidence may take many forms. It may be obvious and direct (consisting of steps, handholds, wagon ruts, inscriptions, wreckage, segments where roadbeds were cut or filled, and so forth) or subtle and indirect (consisting of linear vegetation anomalies, swales, berms, rock alignments, developed water sources, and so forth). Archaeological sites, structures, features, and artifacts occurring along the hypothesized route should not be overlooked. Their dating and cultural affiliation can provide valuable clues to support or refute the authenticity of the trail.*

If the trail is documented in journals and diaries, it is desirable to ground-truth it starting from its point of beginning as described in the records. It is more difficult (and less logical) to attempt to "pick up" the thread of a trail in its center, unless that central point is extremely well known and firmly established.

A cautionary note concerns the use of aerial photographs as a means of identifying historic trails. Aerials photographs can be extremely useful but can also be misleading. Unless the researcher intimately knowns the terrain observed from the air, a "trail" detected from an aerial photo may turn out to be a recent road, an irrigation ditch, or some other linear feature. In any case, what is detected using an aerial photograph needs to be verified on the ground. To locate aerial photos for Arizona, contact the USDA Soil Conservation Service Aerial Photography Field Office (currently located at P. O. Box 30010, Salt Lake City, UT 84130; telephone 801-975-3503).

(4) *Using 7.5 or 15 minute USGS topographic maps, accurately plot the confirmed location of the trail. Note where the trail is clearly seen and where it is not clearly seen. Take pictures, make notes, and, as appropriate, complete an Arizona State Museum site form or site form of the land-managing agency. Do not disturb any cultural resources (including artifacts) encountered, unless otherwise permitted by the landowner or agency.*

(Sidebar)

Methodology 2: Working from a Cultural Resource to Documents

(1) *Plot the location of the trail on 7.5 or 15 minute USGS topographic maps and/or on aerial photographs. Note where the trail is easily followed versus where its location is extremely ephemeral/hypothesized. Take pictures, makes notes, and complete a site form(s) as appropriate, but do not disturb the resource.*

(2) *Note the particular physical manifestations that the trail takes. Physical manifestations can take a variety of forms, including but not limited to: ruts, steps, handholds, inscriptions, tree blazes, vegetational anomalies, swales, wreckage, and segments exhibiting road cutting or filling (for a more detailed discussion, see the "Typology" section of this report). Do not fail to note any archaeological sites, structures, features, and artifacts that occur in association with the trail, for their dating and cultural affiliation can provide important clues about the identification of the resource.*

(3) *Conduct research into primary sources: archaeological site files and reports, historical maps, historical photographs, sketches, first-person accounts, journals, diaries, and any other information in public or private collections that may pinpoint the identity of the trail. If the trail is suspected of being a Traditional Cultural Property, or if the trail is suspected of having been used within the past century, then attempt to gather oral-historical information that might bear on the resource. Through the investigative processes outlined in this step, it should be possible to determine the historic name, chronology, users, modes of transportation, and purpose of the trail. (Note: if cultural remains suggest that the resource was prehistoric rather than historic, then this process will not work to identify the trail. However, the researcher can proceed to step 4 to assess the prehistoric trail's significance.)*

(4) *Undertake background research to place the cultural resource in a broader context allowing its significance to be assessed. Review sources such as local, regional, state, and national histories (or archaeological site files, reports, and overviews) to evaluate the trail's role in history/prehistory.*

Agriculture: The area of significance termed "Agriculture" is defined as "the process and technology of cultivating soil, producing crops, and raising livestock and plants." Stock trails are most likely to have significance relating to this category. Other types of trails may also possess this form of significance if they were commonly used to herd stock overland; the Armijo, Beale, and Southern Emigrant routes often functioned in this manner. Trails used to haul crops to market would more likely relate to "Commerce" (see below) than to "Agriculture."

Commerce: "Commerce" is an area of significance defined as "the business of trading goods, services, and commodities." Virtually all types of trails and transportation corridors were used for the transfer of goods; therefore, this area of significance should definitely be considered when evaluating trails and corridors. Even Mormon trails which developed from religious precepts had a strongly commercial aspect, serving to facilitate the exchange of goods and services among LDS communities.

Communications: Defined as "the technology and process of transmitting information," this area of significance would apply most directly to routes used to carry mail or to facilitate telegraph or telephone services. It should be noted that the earliest routes—of the early Native American, Spanish, and Mexican periods—provided virtually the only vectors of communication before the invention of telegraphs and telephones. Therefore, they, too, might have a significant association with communication.

Entertainment/Recreation: *Bulletin 16A* refers to this area of significance as "the development and practice of leisure activities for refreshment, diversion, amusement, or sport." Trails and corridors used historically for tourism would likely possess this type of significance. The category would apply to resources including but not limited to the Weatherford Road, Route 66, and some trails to and within the Grand Canyon.

Ethnic Heritage: "Ethnic Heritage" is defined as "the history of persons having a common ethnic or racial identity." Trails and corridors that are Traditional Cultural Properties (TCPs) would likely possess this type of significance. For example, Native American and Mormon trails might relate directly to this area of significance.

Exploration/Settlement: This area of significance is defined as "the investigation of unknown or little known regions; the establishment and earliest development of new settlements or communities." The earliest trails in Arizona—Native American, Spanish Period, Mexican Period, and Early American Period—would likely be significant within this category. The Southern Emigrant Route is a good example of a trail possessing this type of significance. Mormon trails used to colonize Arizona would also be important within this theme.

Industry: Some trails—such as pack trails to mines—served as virtually the only means of transporting raw materials out of remote source areas. Defined as "the technology and process of managing materials, labor, and equipment to produce goods and services," this area of significance should not be overlooked when evaluating trails and corridors.

Literature: *Bulletin 16A* defines this area of significance as "the creation of prose and poetry." Arizona's trails—some stock trails, for example—provided conditions that occasionally inspired the creation of literature. A trail might qualify for the National Register under this area of significance if the trail were directly associated with a work of literature created more than fifty years ago and if the artistic merit of that work had withstood the test of time.

Military: This term describes "the system of defending the territory and sovereignty of a people." As the overview section of this report has demonstrated, some Arizona trails had a strongly military character, having been constructed by the military branch of the government. The Mormon Battalion Road, Reno Road, and Crook Trail are examples of trails possessing this type of significance.

Politics/Government: *Bulletin 16A* defines this category as "the enactment and administration of laws by which a nation, State, or other political jurisdiction is governed; activities related to political processes." This area of significance might apply to trails used to extend the influence of a political regime. For example, trails that facilitated U.S. policies relating to Manifest Destiny would likely possess this type of significance, as would trails relating to the northward expansion of New Spain.

Transportation: This area of significance is defined as "the process and technology of conveying passengers or materials." This category is the most important area of significance for trails/corridors, applying to virtually all of them.

Applying Criterion B

Under Criterion B (association with a person significant in our past), a trail or corridor will possess significance if a person's importance is tied directly to the property. The requirements for applying Criterion B have tightened considerably in the past few years, and the reader is advised to consult *National Register Bulletin 32: Guidelines for Evaluating and Documenting Properties Associated with Significant Persons* (Boland 1989) when attempting to use this criterion. A few key points to keep in mind when evaluating trails or corridors are:

- A significant individual must be directly associated with the property;
- Documentation must make clear how the property represents that individual's significant achievements; and
- The significance of the individual, and his or her association with the property, must be substantiated through accepted methods of research and analysis.

A route bearing the name of an individual might well qualify for the National Register under Criterion B. The two research protocols discussed previously in this section would provide the data for making an assessment of significance under this criterion.

Applying Criterion C

Under Criterion C, a trail or transportation corridor will possess significance if it embodies the distinctive characteristics of a type, period, or method or construction. The appropriate "area of significance" for trail properties eligible under Criterion C is "Engineering," defined in *Bulletin 16A* as "the practical application of scientific principles to design, construct, and operate equipment, machinery, and structures to serve human needs." A historic trail may possess this type of significance if it is still intact enough to manifest details about the way it was constructed or historically altered.

Applying Criterion D

Under Criterion D, a property is significant if it has yielded or is likely to yield information important in prehistory or history. Under this criterion, the physical attributes of the property provide data relevant to various research topics; the research potential of the property is realized when the resource is scientifically studied. The area of significance related to Criterion D is most always "Archaeology," defined in *Bulletin 16A* as "the study of prehistoric and historic cultures through excavation and the analysis of physical remains."

Criterion D is commonly overlooked when evaluating historic trails and transportation corridors. This is unfortunate, because it is a criterion of potentially great relevance to these resources. Physical attributes of trails, and the information contained in artifacts and features along them, can add detail and texture to an understanding of transportation that may be lacking from historical documents.

Trails eligible under "D" have yielded, or are likely to yield, physical evidence to answer important research questions. Can the physical remains of the trail and its associated sites and artifacts confirm the location of a route that is unclear from historical records? Can the physical remains of the trail provide an understanding of "Period Engineering" (that is, how roads were engineered during particular eras)? Can the physical evidence found along the trail provide new insight into the conditions encountered by travelers? Can the physical evidence (such as inscriptions or graves) identify who some of those travelers were? These are just a few of the important questions that could be asked of trails eligible under Criterion D.

Determining the Appropriate Level of Significance

A cultural resource need not be of national importance to be listed on or considered eligible for the National Register. The National Historic Preservation Act of 1966 broadened the Register to include cultural resources of state or local, as well as national, importance.

When evaluating the eligibility of a trail or corridor, the researcher or manager should assess its level of significance. The critical question he or she should ask is "Was the impact of this resource greatest at the national, state, or local level?" Information contained in the historic context developed for that resource should provide the answer to the question.

The majority of eligible trails and corridors in Arizona probably relate to a local level of significance. With some notable exceptions, most trails within the typological categories of Stagecoach, Freight, and Toll Roads, Stock Trails, Early Automotive Routes, and Other Historic Trails and Transportation Corridors would likely possess significance at this level. Trails significant at the state level would include those used to settle or develop large areas of the state. For example, Mormon trails, used to colonize Arizona and establish not one but a chain of communities, would be Register-eligible at a state level of significance. A small number of trails in Arizona would likely qualify at the national level. These would likely include the earliest trails (which expanded knowledge about the Southwest), trails related to wars or boundary disputes of national importance, and trails used for the transcontinental movement of people or goods. Beale Wagon Road, the Southern Emigrant Route, and U.S. "Route" 66 are examples of resources that possess significance at the national level.

A special category is reserved for cultural resources considered to be the nation's "cream of the crop." Properties having exceptional national significance and exemplifying high historic

integrity may qualify for designation as National Historic Landmarks (NHLs). To be designated as an NHL, a property must pass a number of stringent tests, defined in *Bulletin 16A*. NHLs currently number less than four percent of all properties listed in the National Register. The only trail/transportation corridor in Arizona to currently bear this designation is Yuma Crossing.

Evaluating Integrity

A cultural resource must possess integrity to be listed on or considered eligible for the National Register. Integrity is the ability of a property to convey its significance, as evidenced by the survival of physical characteristics that existed during the property's historic or prehistoric use. Although integrity is sometimes confused with condition, the two concepts are not identical. Integrity refers to the retention of traits from the period of significance. Condition, on the other hand, refers to the current appearance and usableness of the property. An automotive route built in the 1930s but completely rebuilt in the 1990s using modern techniques and materials would exhibit poor integrity but good condition, and would not likely be eligible for the National Register.

Bulletin 15 discusses integrity in terms of seven qualities: association, location, materials, setting, feeling, design, and workmanship. These terms provide useful constructs for analyzing the types of integrity that a resource might possess. The following pages define the terms and demonstrate how they can be applied to trails. The thesis is developed that certain types of integrity are more critical than others in evaluating trails, and that these key qualities must be present for any trail to be considered Register-eligible. It is also argued that additional types of integrity may strengthen the case for eligibility under specific criteria (Criterion A, B, C, or D).

Integrity of Association

Association is the direct link (match) between an important historical event or person and a cultural resource. If a property has integrity of association, then the property is the place where the event or activity occurred. In the case of trails and corridors, this quality of integrity should be construed to mean that the physical manifestation of the cultural resource matches/links with historical records or oral histories. Two methodologies for establishing this linkage have been described previously in this section. The methods help authenticate the identity of the trail. If the trail's identity is authenticated, then the trail possesses integrity of association. This quality of integrity applies to all trails; a trail lacking integrity of association will not likely be eligible for the National Register.

Integrity of Location

Bulletin 15 defines **location** as the place where the historic property was constructed or the place where the historic event occurred. In the case of trails, location should be construed as "the place where the historic property was located." Like the quality of association, the quality of location applies to all trails; a trail lacking this quality will normally not be Register-eligible. Some exceptions should be noted. Trails sometimes change course as they evolve. Re-routes can be considered potentially eligible if their period of use is known, if that period of use occurred more than fifty years ago, and if the trail retains its basic appearance from that period.

Integrity of Materials

Materials are the physical elements that were combined or deposited during a particular period of time and in a particular pattern or configuration to form a historic property. Materials refer to the physical elements used to build the resource and/or to the physical elements added to it (intentionally or accidentally) during use. Materials form the very fabric of cultural resources. In the case of trails, materials form the physical evidence of the routes. Integrity of materials is therefore a key quality in evaluating eligibility. A trail must retain its visual quality/physical manifestation to be eligible for the Register. A trail lacking integrity of materials—that is, lacking physical, "on the ground" evidence—should not be considered eligible for the National Register.

Integrity of Setting

Setting is the physical environment of a property. It refers to the physical space surrounding the property rather than to the property itself. It refers to the character of the place in which the property played its historical role; it involves how, not just where, the property is situated and its relationship to surrounding features and open space. In the case of trails, setting indicates how the cultural resource was positioned in its environment and reflects functional objectives within topographic parameters. If a trail was built and used in what was once a rural area, and the area is now urban, then the trail would lack integrity of setting.

Because setting refers to the environment of a cultural resource and not to the resource itself, this quality seems *not* as important as association, location, and materials when evaluating a trail's eligibility. However, if the trail were being nominated to the National Register under Criterion B (association with a significant person), then this quality would indeed be important. The standard test for "B" is whether or not the person significantly associated with the property would still recognize it. If its setting has changed substantially since the period of significance, then a trail would likely fail this test and would not be eligible under "B."

Integrity of Feeling

Feeling is a property's expression of the aesthetic or historic sense of a particular period of time. It results from the presence of physical features that, taken together, convey the property's historic character. In the case of trails, feeling refers to the *perceptual qualities* of trails as important reminders of how past voyagers experienced travel through the landscape. Feeling is closely related to, and almost indistinguishable from, setting. Similarly, this quality seems not critical to a trail's eligibility unless the trail has significance under Criterion B. Would the significant person who built/first used the trail recognize it today? If the answer to this question is "no," then the trail would likely not be Register-eligible under Criterion B.

Integrity of Design

Design is the combination of elements that create the form, plan, space, structure, and style of a property. It results from conscious decisions made during the planning and execution of a property or its alteration. Design reflects historic functions and technologies. The overview section of this report has shown how some trails and roads were the result of conscious design, while others simply evolved from continued use. It would be unreasonable and unrealistic to expect all trails to exhibit integrity of design, as many significant ones were not the result of any conscious design.

Therefore, integrity of design is not a critical quality in the evaluation of trails for the National Register. However, it becomes an important quality if the trail is significant under Criterion C (Engineering). In such cases, the trail must still manifest details of the historic type, period, or method of construction.

Integrity of Workmanship

Workmanship is the physical evidence of the crafts of a particular culture or people during any given period in history or prehistory. It is the evidence of artisans' labor and skill in constructing or altering a building, structure, object, or site. It can be expressed in vernacular methods of construction and plain finishes or in highly sophisticated configurations and ornamental detailing. It can be based on common traditions or innovative period techniques, and can illustrate aesthetic principles in pure or adapted form. Of the seven qualities of integrity, this one appears the least important for evaluating trails. Evidence for workmanship might be observed in the joinery or masonry of a bridge, culvert, or other feature along a trail; fine craftsmanship would strenghten a case for significance under Criterion C. However, in most cases, workmanship should not be regarded as a critical quality for assessing trail integrity.

The "Contributing/Non-Contributing" Issue

Many trails contain segments that possess integrity and segments that lack it. How should these various segments be treated when evaluating a trail's eligibility and nominating the resource to the National Register?

The physical characteristics and historic significance of the overall property provide the basis for evaluating component resources. The National Register commonly uses the terms "contributing" and "non-contributing" to refer to elements that, respectively, add to or detract from the overall historic character of a property. It would be tempting and logical to apply these terms to the various segments of a trail: that is, to call segments having integrity "contributing" and segments lacking integrity "non-contributing", and to consider the former eligible for the National Register and the latter ineligible.

In fact, the National Register currently favors a different approach to trail evaluation and nomination (Lee 1992). In the case described above, the National Register recommends that a multiple property format, rather than a district or discontiguous district format, be used. This involves preparing: (a) a cover document (called a Multiple Property Documentation Form) that defines the historic context of the trail; and (b) a series of accompanying documents (called individual nomination forms) that describe *only the segments that are Register-eligible*. In Arizona, the Historic US Route 66 nomination (Cleeland 1988) demonstrates how to use this format properly to nominate eligible segments of a trail. Copies of the Route 66 nomination are available from the SHPO.

If a cultural resource exist along a historic trail that directly relates to the historical importance of that trail—for example, a motor court along an early automotive route or a way station along a stagecoach road—then it is desirable to include that resource in the trail nomination. For a more detailed discussion of this topic, please see *Bulletin 30* (McClelland and others nd:26-27) regarding the widening of trail nomination boundaries to encompass related properties.

Beyond the National Register: Other Ways to Commemorate Historic Trails

A variety of programs exist for commemorating the importance of historic trails and transportation corridors that may or may not meet the stringent standards of the National Register. Operating independently of the National Register, these programs have their own sets of guidelines for designating trails. Some of them offer grants to the trails within their system. While it is beyond the scope of this report to discuss these non-National Register programs in detail, the following is a list of some of the major programs and the agencies that administer them:

- State Trails Program: Arizona State Parks;
- National Historic Trails Program: National Park Service;
- State Scenic & Historic Highway Program: Arizona Department of Transportation;
- Backcountry Byway Program: Bureau of Land Management.

Readers wishing to learn more about these programs should contact the agencies in charge. Additional information concerning trail programs, management issues, and funding sources can be found in the excellent work entitled the *Arizona State Trails Plan* (Smith and Gilmore 1994).

RECOMMENDATIONS FOR FUTURE WORK

RECOMMENDATIONS FOR FUTURE WORK

The historic trails and transportation corridors of Arizona form important pieces of its past. Previous sections of this historic context study examined the role of trails/corridors in the state's history, indicated which ones have been inventoried, proposed a typology for classifying them, and suggested ways of evaluating their eligibility for the National Register of Historic Places. This final and concluding section recommends measures to preserve and protect these important parts of our state's heritage. Specific recommendations are listed below by topic.

Inventory and Evaluation

(1) The SHPO and other resource management agencies should continue efforts to inventory, evaluate, and nominate trails/corridors to the National Register. Relatively few trails have been professionally recorded; fewer of them have been evaluated for Register eligibility and formally listed. Inventory data suggest that some types of trails—for example, stock trails and early automotive routes—have been largely overlooked during past investigative efforts. If this is indeed the case, then such oversight should be corrected in future studies.

(2) When evaluating trails for the National Register, emphases should be placed on authenticating the trail's identity (that is, linking documents/oral histories with the cultural resource) and on demonstrating its significance and its physical integrity. A trail significant in the past but lacking a physical manifestation from that period cannot be considered Register-eligible. The integrity qualities of association, location, and materials are critically important when evaluating trails.

(3) When attempting to authenticate a trail that is especially ephemeral—for example, a route associated with the Spanish period—researchers should ground-truth it from its point of beginning, if known from primary historical sources. Trying to ground-truth it from its central portion will almost invariably be counter-productive. For example, it may never prove possible to authenticate Coronado's route if the effort is started from Arizona rather than from Mexico. As appropriate to the trail being studied, authentication may involve the collaboration of researchers from several counties, states, or even countries.

Cultural Resource Management

(1) Resource managers should attempt to avoid impacts to Register-eligible trails. When avoidance is not feasible, managers should try to minimize impacts in the following ways. They should confine impacts to areas where impacts have previously occurred. They should designate crossings of the historic trail at right angles to that trail, so that as little of the resource is disturbed as possible. Managers should also investigate innovative ways to protect the trail. For example, if a log skidder needs to cross a spot on a historic trail repeatedly during a timber sale, managers should try laying a temporary protective cover (such as metal sheets) over the spot for the duration of the sale.

(2) If a trail is a Traditional Cultural Property and the affiliated cultural group indicates that the *continuity* of the trail is critically important to the group, then managers should investigate the possibility of crossing the trail with a bridge or tunnel so that the trail remains unbroken.

(3) The SHPO and agencies should be mindful of rarity, age, and condition when deciding if a trail should be preserved and how much of it should be preserved. Preservation decisions may reasonably be based upon knowledge of a trail's degree of significance.

Recreational Development

(1) Planners should work closely with cultural resource managers when developing historic trails/transportation corridors for recreational use. Inventory data suggest that several historic trails in Arizona have been developed for recreational use but have never been professionally recorded. Recording and evaluation should always be done *before* development. The cultural resource manager's assessment will help determine the best way to preserve and protect a historic trail; his or her evaluation might also determine that the cultural resource, in whole or in part, is too fragile to be opened to public use.

(2) Whenever a historic trail is developed for recreational use, the agency should develop a monitoring plan to ensure that the qualities that render the trail Register-eligible are not damaged through time.

(3) Using the guidelines suggested in this study (see the "National Register" section), cultural resource managers and the SHPO should focus efforts on protecting sections of trails that are National Register-eligible. It is common for planners to "re-create" historic trails. This is done for a variety of valid reasons. Sometimes the original trail cannot be seen. Sometimes the planner deliberately departs from the original trail so as to avoid crossing private land or modern dangers (highways, etc.). Recreated segments of trails should be clearly differentiated from original parts. Cultural resource managers should protect original segments, not recreated segments, pursuant to the National Historic Preservation Act.

(4) Progressive approaches such as the Recreational Opportunity Spectrum ("ROS," U.S. Forest Service 1990) should be considered when developing historic trails for recreational purposes. Developed by the Forest Service and now used by other federal as well as state agencies, ROS offers a sensitive, flexible, and useable approach that is applicable to a range of resources including historic trails. ROS promotes integrated project design, manages a resource toward the desired expectations of its users, and protects the resource. In Arizona, the ROS approach is currently being used to develop the Beale Wagon Road and the Overland Road on the Kaibab National Forest.

Education and Awareness

(1) The SHPO and other interested parties should actively seek partnerships to promote historic trails awareness. Such collaborations could take many forms: participating in National Trails Day events; assisting in the development of historic trails brochures; and speaking to groups about the historical significance of Arizona's trails (to name a few of many possibilities).

Funding

(1) The SHPO and other concerned parties should vigilantly guard the Arizona Heritage Fund. The fund provides $1.7 million each year to preserve Arizona's historic properties, including historic trails. Preservation efforts are threatened as legislators annually cast eyes on the voter-mandated fund.

(2) When disbursing funds and setting preservation priorities, SHPO should attempt to strike a balance between popular demand and sound professional judgment. Some historic trails/corridors occasionally capture the public's imagination and enjoy great (albeit temporary) popularity. Sometimes the public becomes enamored of a trail that is perceived to have marketing appeal and commercial value for tourism. Popularity, in turn, translates into increased requests to the SHPO for preservation funding. The SHPO should definitely be responsive to public demand, but should also allocate effort and funding toward "orphan" trails: lesser-known resources that are equally important to Arizona's heritage. It is hoped that this historic context study will help SHPO make such decisions and will give each historic trail in Arizona a better chance of survival.

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