KIVA, *Vol. 62, No. 4, 1997*

MIMBRENO AND GILENO APACHE IRRIGATION SYSTEMS, 1853-1859

NEAL W. ACKERLY
Dos Rios Consultants, Inc.
P.O. Box 1247
Silver City, NM 88062

ABSTRACT

The Mimbres Valley of southwestern New Mexico was the locus of Mimbres civilizations, as well as a center for later historic Apache occupations. Prehistoric Mimbres peoples relied on some small-scale irrigation systems, and there appears to have been some limited irrigation among the Apache in Spanish Colonial times. For the most part, however, irrigation agriculture appears to have been episodic and limited in extent during both prehistoric and early historic occupations of the region. This paper focuses on the conditions leading to the reappearance of irrigation in the region following its acquisition by the United States under the terms of the Treaty of Guadalupe-Hidalgo (1848). It shows that Federal policies, even at this early time, emphasized conversion of seasonally nomadic hunter-gatherers to agriculturalists. This paper shows that the earliest such Federal experiment in New Mexico occurred among Mimbreño and Gileño Apaches of southwestern New Mexico. Specifically, documentary evidence demonstrates that irrigation systems were constructed by the Federal government for use by these two groups in both the Mimbres and Gila basins. This particular experiment is not particularly well known in the historic record, and it demonstrates the length that Federal agents went to in trying to implement agricultural conversions. Equally, if not more important, these records indicate that the Apache may have water rights in the Mimbres and Gila basins that have heretofore been unrecognized and are far earlier than any other currently recognized water rights.

RESUMEN

El valle Mimbres del suroeste de Nuevo México fue tanto el lugar del Civilización Mimbres, como el centro de las ocupaciones Apaches del histórico tardío. Las poblaciones mimbres prehistóricas empleaban algunos sistemas de irrigación de pequeña escala y aparentemente entre los Apaches de la época colonial española existía una irrigación limitada. Sin embargo, durante la mayor parte del tiempo, la agricultura por irrigación fue episódica y de extensión limitada en la región. Este trabajo hace referencia a las condiciones que llevaron a la reparición de la agricultura por irrigación en la zona después de su adquisición por los Estados Unidos bajo los términos de tratado de Guadalupe Hidalgo (1848). Se muestra que, desde estos tiempos tempranos, la politica Federal enfatizó la conversión de cazadores recolectores nómadas en agricultores con irrigación. Los primeros grupos en ser afectados por esta política fueron los Apaches Mimbreños y Gileños del suroeste de Nuevo México. Evidencias documentales muestran que el gobierno Federal construyó, en las cuencas del los ríos Mimbres y Gila, sistemas de irrigación para ser usados por estos dos grupos. Este experimento en especifico no esta bien conocido en el registro histórico y demues-

tra lo lejos que los agentes Federales fueron para tratar de convertir a los Indígenas Americanos en agricultores. También estos registros sugieren la posibilidad de que los Apaches tuvieron derechos de agua en las cuencas de los ríos Mimbres y Gila no reconcidos, que van tan atrás como ningùn otro derecho de agua reconocido bajo la ley de Nuevo México.

Under the terms of the Treaty of Guadalupe-Hidalgo (1848), the United States acquired a significant amount of Mexican territory, including what we know today as New Mexico. Prior to 1848, Mexican settlements were concentrated along the Rio Grande corridor of New Mexico, primarily in a region bounded by Taos on the north, Socorro on the south, the lower reaches of the Rio Puerco on the west, and the upper reaches of the Rio Pecos on the east. These Mexican settlements were mainly agricultural and had, for hundreds of years, developed and expanded their reliance on irrigation systems.

Regions lying outside the loci of Mexican settlement were occupied almost exclusively by American Indians. In particular, southwest New Mexico was the homeland of the Mimbreño and Gileño Apaches. Ranging and raiding over southern New Mexico, northern Chihuahua, southeastern Arizona, and as far north as Zuni, these Apache groups were well beyond the political or military control of the Mexican government (Lekson 1992:3-4; Schroeder 1974a:58-59, 1974b:93-97).

Prior to the 1790s, most Apache groups had not established permanent settlements in southwest New Mexico (Cortés 1989:57-58; Couchman 1990:14-17; Pfefferkorn in Schroeder 1974a:xx, 1974b:30-31; Simmons 1984:4-5). At scattered locales, however, Apaches engaged in small-scale agriculture, some of which relied on irrigation (Buskirk 1986:110; Thomas 1932:155; Wilson 1988:79). Continual Spanish military expeditions in the late 1700s further contributed to the geographic disintegration of Apache bands (Kessel 1971; Lekson 1992:5; Merriwether 1854:379).

In 1790, a treaty between the Spanish government, led by Concha, and elements of Mescalero and Warm Springs Apaches led to the founding of a permanent settlement at Sabinal, between Belen and Socorro, New Mexico (Simmons 1984:5-6; see also Lekson 1992:5). Supplemented by rations and Spanish labor, the Apaches constructed irrigation systems and cleared fields for cultivation (Lekson 1992:17; Simmons 1984:6). This initial experiment in converting Apaches to irrigation farming failed by 1793 (Simmons 1984:6).

In 1810, another short-lived treaty between the Spanish government and the Gileño Apaches allotted to the Gileños lands bounded by the Santa Rita, Black Range, Mogollon, and Mimbres mountains (Schroeder 1974b:123). By 1822, with the collapse of Spanish government and the disappearance of rations that were also part of the agreement, Apache raiding again resumed (Schroeder 1974b:106, 123-125). In 1835, the government of Mexico con-

cluded yet another treaty with the Mimbres-Gila Apaches in which they were guaranteed approximately the same lands (Griffin 1988:31, 158-159), yet raids continued largely unabated (Schroeder 1974b:106). In 1838, with the closing of the copper mine at Santa Rita, the last vestige of Mexican authority in southwest New Mexico disappeared and, by 1848, the Mexican government was offering bounties of 25 to 100 pesos on Indian scalps, depending on age and sex (Couchman 1990:23). After 1848, the U.S. government was determined to control these two Apache groups before opening the area to Anglo settlement (Bancroft 1889:460-461).

Strategies for controlling the Mimbreño and Gileño Apaches had two components. First, the U.S. focused on concentrating and settling Apache groups close to U.S. military forces to better prevent raiding (Lekson 1992:14-16; Wilson 1988:336). Consonant with this policy, U.S. authorities in 1853 founded a de facto Apache reservation at Fort Webster in the Mimbres Valley (Steck n.d., Roll 2, Frames 681-683; Griffin 1988:248; for a complete history of Fort Webster, see Myers 1966) (Figure 1). Second, in the absence of a funded ration program for the Apaches, the U.S. tried to replace hunting and gathering with agricultural pursuits to promote Apache self-sufficiency. Accordingly, from 1853 through 1859, attempts were made to develop agriculture at the Fort Webster post. What is less recognized is the extent to which the Federal government viewed irrigation system development as pivotal in this effort.

The effort to promote irrigation agriculture among the Mimbreño and Gileño Apaches ultimately failed due, in large measure, to ever-fickle U.S. Indian policies. The failure of this policy was exacerbated by the outbreak of the Civil War and the collapse of U.S. military control over most of New Mexico Territory. Yet the events that took place at the Fort Webster locality are important for three reasons.

First, these events illustrate the importance of agriculture in the U.S. government's policy for controlling Indian groups. The construction of a succession of irrigation systems at Fort Webster underscores this policy and demonstrates the lengths that U.S. agents would go to promote irrigation agriculture among American Indians.

Second, the development of irrigation systems at Fort Webster is historically significant. These events constitute perhaps the earliest example of Federal involvement in water development projects, Indian or otherwise, in the American Southwest and presage the government's later, but far more widespread, involvement in similar projects.

Finally, the events that occurred between 1853 and 1859 at Fort Webster generally preceded any substantive Hispanic or Anglo occupations in the Mimbres and Gila basins. As a result, these events may have profound implications for contemporary water rights in both basins (Ackerly et al. 1993).

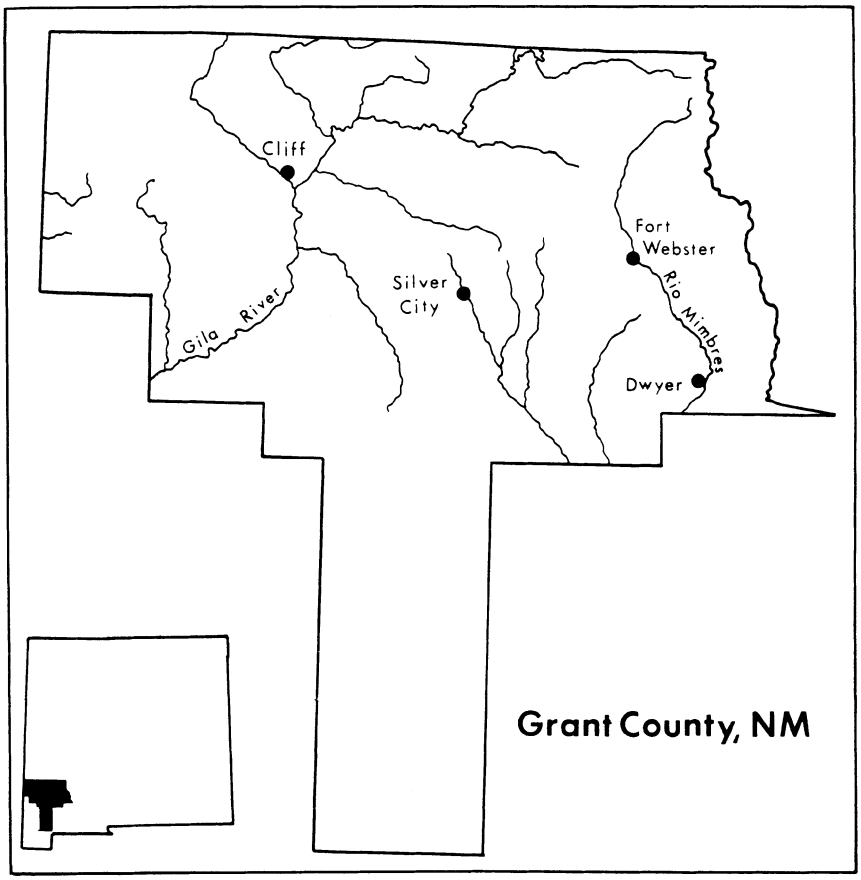

Figure 1. Map of Grant County, New Mexico showing the Gila and Mimbres rivers.

EVIDENCE OF HISTORIC IRRIGATION IN THE MIMBRES-GILA REGION

One of the earliest historic documents containing information about irrigation systems in the Mimbres Valley area appears in a chronicle by Fr. Bartolome Sanéz in 1756 (Kessel 1971:133-160; see also Bancroft 1884: 557). Associated with the Bustamante-Vildosola military expedition, Fr. Sanéz described the country traversed by the expedition as it ranged from Janos, Chihuahua, north to the Mogollon Mountains and eventually to the Pueblo of Zuni.

In the vicinity of modern-day Cliff, New Mexico, on the Gila River,

Sanéz described prehistoric remains as follows (see also Bandelier 1892: 357):

> From Todos Santos [Cliff, New Mexico] on, one begins to see ruins of ancient buildings with square patios, as well as other vestiges of earthenware jugs, ollas, and pots decorated with a variety of colors of paints. *On the ground I also saw clearly that they had brought an irrigation ditch which carried the water to their fields at that very extensive site.* It is large enough for a fine town or mission should the reduction of this bellicose Apache nation ever be achieved. At the place called La Casita [Redrock, New Mexico] downriver to the west there is another similar site, perhaps ten leagues distant. Here also I saw similar ruins. (emphasis added)

Sanéz goes on to note that "The Apache plant plots of maize from Todos Santos [Cliff, New Mexico] along the entire Rio Gila and in the Cañada de Santa Lucia [Mangas Spring]," but fails to mention that they used irrigation technology.

Although it might be inferred from this account that irrigation was not practiced among Apaches during the Spanish Colonial period, subsequent documents suggest otherwise. In 1775, Escalante reported that Miera found irrigation systems operated by Apaches, probably Gileño Apaches, west of the Mimbres Valley in the San Francisco Basin. Escalante recalled (Thomas 1932:155):

> At a little distance it [San Francisco River] enters a little hollow which because of its humidity becomes very pleasant and fertile. In it there are various rancherias of Apaches who cultivate the valley *and with the aid of irrigation*, harvest much yellow corn. (emphasis added)

More than fifty years later, another account of agricultural practices in southwestern New Mexico appears in James O. Pattie's *Narratives*. Describing his father's agricultural activities in the Mimbres, Pattie (1833:171) noted that

> He [Pattie's father] had established a vacherie on the river Membry [sic] where he kept stock. He had also opened a farm on the land which the old Appache [sic] chief had given him, which enabled him to raise grain for the use of his own establishment at the [Santa Rita] mines.

The location of his father's farm cannot be determined with accuracy, and Pattie does not directly refer to the use of acequias for crop production. Since Pattie earlier describes the irrigation systems in El Paso, indicating that he was aware of their importance, the absence of any reference to irrigation suggests Pattie's father did not use this technology in the Mimbres Basin. Thus, irrigation technology does not seem to have been practiced, either by Mexicans or American Indians, during the 1830s when Pattie lived in the region.

The apparent lack of irrigation systems in the Mimbres Valley is confirmed by other early travelers' narratives. In 1846, for example, William Emory entered the Mimbres Valley from the north. Emory (1848:96-97)

noted that there was sufficient water for irrigation, but did not mention any irrigation systems in the northern part of the valley.

Likewise, John Bartlett (1854:221-226) traversed portions of the Mimbres Valley during his survey of the Mexican-American boundary in the spring of 1851. Crossing the valley at its center, north of Faywood Hot Springs and near the future site of Fort Webster, Bartlett found no evidence of any irrigation systems in the valley. He later noted that the Mimbres Valley "could easily be irrigated," implying that it was not (1854:230). Arriving at the copper mines in Santa Rita, near modern Silver City, Bartlett confirmed the lack of agriculture, noting (1854:227-228) that

> The valley is so narrow here [Santa Rita], as to afford only a plot of about a couple of acres for cultivation, and that seems to have been used as a garden . . . but, for agricultural productions, the population [of 600] depended upon the cultivated districts at the south, in the valley of San Miguel or Casas Grandes, from which they receive regular supplies of corn, flour, beans and other articles of subsistence.

Two important points emerge from this brief review. First, Sanéz carefully noted acequias that he believed were of prehistoric origin, but he did not see the Apaches of the mid-1700s using acequias. Second, there are a few references to the use of irrigation technology by Gileño Apaches in the Rio San Francisco—a tributary of the Gila—in the late eighteenth century, but there is no mention of irrigation systems in either the Gila or Mimbres Basin. This implies that irrigation systems were absent from the Gila-Mimbres region in the eighteenth century. Finally, the failure of Pattie, Emory, and Bartlett to note acequias in the Mimbres region, combined with Bartlett's assertion that the 600 residents of the Santa Rita copper mines relied on foodstuffs obtained in Mexico, suggests that irrigation agriculture was absent from the Rio Mimbres through the mid-nineteenth century.

Since prehistoric acequias almost certainly operated in the region (see, e.g., Creel and Adams in Shafer 1985:50; Herrington 1979; Herrington and Creel 1991; but see also Graybill 1975; Lekson 1989, 1990), these chronicles suggest a significant hiatus in the use of irrigation technology by indigenous peoples of the Mimbres and Gila regions. This gap appears to have persisted from perhaps the 1500s until at least 1853, when Fort Webster was moved from its former site near Santa Rita to the Mimbres Valley (Giese 1991:15-16). The issue, then, is when irrigation systems reappeared in the Mimbres region and, equally important, the circumstances under which these systems reappeared.

IRRIGATION IN THE RIO MIMBRES AND RIO GILA: 1853-1859

Consistent with U.S. government policies of the times (Ogle 1940), a de facto reservation was established for Mimbreño and Gileño Apaches in the Mimbres Basin, and irrigation agriculture was used to promote permanent

settlements. Initial attempts to encourage farming, rather than raiding, occurred in 1853 under the direction of Dr. Michael Steck, agent for the Mimbres and Gila Apaches (Wilson 1988:83). In a letter dated July 26, 1857, Steck recalled the conditions he encountered at Fort Webster upon his arrival in 1853 (n.d., Roll 2, Frames 403-404):

> That during the month of July 1853 I received instructions from the Supt Ind Affrs [sic] to proceed to Fort Webster and among other duties to see that said contract was complyed [sic] with. On my arrival at the agency I visited the fields found them in good condition. I required Flecher to hoe & *irrigate* the fields once more which he performed faithfully. When I considered the contract complyed with on his part over and I know of no reason why the contract should not be complyed with on the part of the Ind. Superintendent. The only requirement of the contract that was not complyed with strictly was that one of their [Mimbreño Apache] fields was entirely destroyed. This field however was destroyed by the Indians own horses. The whole band was evidently near the fields and during a drunken frolic allowed their stock to enter it and entirely destroy it. This occurred during the month of June after Mr. Flecher had planted the corn *and constructed acequias for irrigating.* It was my opinion at the time that he ought not to be held responsible for this failure as he had already incurred most of the expenses of cultivating the fields and the destruction of the same was entirely beyond his control. (emphasis added)

This, then, is the first and earliest reference to historic irrigation systems in the Mimbres Valley after its acquisition by the United States. It is evident from this passage that these systems were constructed by Flecher, an agent of the Federal government. Furthermore, this passage establishes that water was being diverted from the Rio Mimbres into acequias and onto fields in 1853 on behalf of the Apaches.

The abandonment of Fort Webster in 1853, and Steck's relocation eastward to Fort Thorn in the Hatch Valley north of Las Cruces, did not cause the Apaches to leave the region (Griffin 1988:248). What is perhaps even more surprising is that Steck continued to promote irrigation agriculture and, for a number of years, to contract for services to construct irrigation systems for local Apaches.

Despite the 1853 attempt, irrigation agriculture in the Mimbres Valley does not appear to have achieved the kind of success that Steck envisioned. In August, 1854, Steck described the state of agriculture at Fort Webster as follows:

> With regard to their farming, operations on the Mimbres they are very limited and not likely to be productive of much good—about fifteen acres in different patches have been planted much of which has been entirely neglected probably from the want of implements and some one to encourage them (Steck n.d., Roll 1, Frame 387).

In the fall of 1854, Steck described both the conditions faced by the Apaches and his efforts to improve agricultural practices at the Fort Webster reservation (Steck n.d., Roll 1, Frames 417-418):

> The Gila Apaches seem anxious to commence the cultivation of the soil. All their principal men have expressed a willingness to do so and as proof of their sincerity I saw in my recent visit to their camps many acres of land that had been planted by them this season. But in asmuch as they have not been fed by the Govt. they have been compelled to leave their fields in order to obtain food. They have planted their corn with sticks (as not even a hoe has ever been furnished them to work with) & under these disadvantages it could not be expected that their farming operations should prosper. Yet notwithstanding all these disadvantages they have many small patches that they have kept clean with sharp sticks and will yield them some recompense for their labor.

The overall effect of Steck's efforts to construct acequias and clear lands for the Apaches in the Mimbres Valley appears to have been successful, Steck reporting to his superiors (Steck n.d., Roll 2, Frames 584-585) that

> [t]he success of my farming operations during the summer [July of 1855] have been most gratifying. I rec[eived] instructions from His Excellency . . . dated March 14th allowing me to spend seven hundred & fifty-dollars out of the contingent fund for this agency in assisting the Mimbres Apaches in planting. And notwithstanding the shortness of time allowed for preparation and the limited amount of money expended I succeeded in planting a field of corn for the heads of fifty-three different families—especially from the camps of Delgado & Nan—& Cuchillo Negro & Ramon—some . . . in each of the different bands.

Despite these limited initial successes, Steck resolved in 1856 to modify his approach to developing irrigation farming among the Apaches. Steck wrote to the governor of New Mexico (Steck n.d., Roll 1, Frame 487),

> The plan that I would propose would be when the time of planting arrives, say 15th April, hire a man who has a team of 3 or 4 yoke oxen, go with him myself with 3 or 4 men, break up the land and assist the Indians in planting. And afterwards let them attend it themselves, assisting them occasionally to see that they do so.

Following acceptance of his plan by the governor, Steck went forward with its implementation (Steck n.d., Roll 1, Frame 543). Invoices in Steck's records indicate that Adolph Beck and Amnon Barnes were contracted to provide 12 men and eight yoke of oxen for a 29-day period in April and May 1856 to construct acequias and clear lands for the Apaches in the Mimbres Valley (Steck n.d., Roll 2, Frames 375, 658-659). Portions of the contract with Amnon Barnes, duplicated in Adolph Beck's contract, illustrate what was to be provided (Steck n.d., Roll 2, Frames 58-59):

> This agreement made this 1st day of April, One thousand eight hundred and fifty-six Between Amnon Barnes of Doña Ana County, Teretory [sic] of New Mexico, of the first part and M. Steck, U.S. Ind. Agt for the Teretory of New Mexico of the second part. Witnesseth that the Amnon Barnes in consideration of the covenants on the party of the second part hereinafter contained doth covenant and agree to and with the said M. Steck, U.S. Ind. Agt. that he will furnish for the use of the Int[erior] Dept. eight yoke of oxen with yokes, chains &ct necessary for ploughing with the same. Also eight men good labourers [sic] who are accostomed [sic] to planting. Also provisions for the same. He further agrees to transport all farming implements, seed, &ct that may be required *at the Apache farm on the Mimbres*. Also to furnish seed corn, beans, pumpkins, melons, & squash seeds for planting. All of which he agrees to have ready on or before the 5th day of April 1856 and subject to the order and control of said M. Steck, Ind. Agt., at all times for at least thirty-five days beginning said 5th day of Apr[il] 1856 and as much

> longer as the said M. Steck, Ind. Agt., shall need their services in preparing lands, *digging acequias*, and planting for the Mimbres Apache Indians. (emphasis added)

For his efforts, Barnes was paid $507.74 (Steck n.d., Roll 2, Frame 114). Steck later noted that two hundred acres had been planted by the Mimbreño Apaches during the 1856 irrigation season. Still, Steck returned to Mimbres to see "that the Indians hoe their fields and assist them in irrigating and repairing their dams, some of which have been swept away by an unusually high stage of the river" (Steck n.d., Roll 2, Frames 90-91, 104-105; see also Roll 2, Frames 130, 135). This passage indicates that there were multiple irrigation systems, each with separate dams and acequias, operating in the Mimbres Valley in 1856.

Steck's papers suggest that the Mimbres Apaches did not plant or irrigate in the Mimbres Valley during the 1857 season due, in part, to their fear that they might be mistaken for renegade Mogollon Apaches and shot by U.S. troops (Steck n.d., Roll 2, Frames 418-419). Furthermore, having been accused by his superiors of favoring the Mimbreño Apaches over the Mescalero Apaches, Steck appears to have occupied himself by establishing irrigated fields for the Mescalero Apache near La Luz, New Mexico (Steck n.d., Roll 2, Frames 341, 412-413).

Yet, on April 18, 1858, Steck once again contracted for services at Fort Webster. In this case, Epifanio Aguirre of Las Cruces, New Mexico, was hired to prepare land, dig acequias, and assist in ploughing and planting for the Mimbreño Apaches in anticipation of the coming irrigation season. The text of Aguirre's contract duplicates that for Amnon Barnes in 1856, including specific references to the construction of acequias and clearing of agricultural lands (Steck n.d., Roll 2, Frames 597-598), and is not presented here.

Also in the spring of 1858, Steck contracted with George Frazer to construction irrigation systems for the Gileño Apaches near Mangas Spring [Santa Lucia] in the Gila River Basin (Steck n.d., Roll 2, Frames 617-618). Again, this contract largely duplicates Steck's 1856 contract with Amnon Barnes, including specific references to the construction of acequias and clearing agricultural lands, and is not presented here. The important point, of course, is that these documents confirm the 1858 existence of Gileño Apache irrigation systems along the Gila River.

Despite Steck's efforts over many years, Washington administrators' persistent reluctance to allot specific lands to the Mimbreño and Gileño Indians at Fort Webster and in the Gila Basin led to limited agricultural success. By 1858, deteriorating conditions between Apaches and Anglo settlers, compounded by Apache fears of reprisal by American troops, resulted in the relocation of Mimbreño and Gileño Apaches to the Gila Basin. In his August 1858, annual report, Steck noted that (Roll 2, Frames 575-576)

> In a former report I urged the propriety of uniting the Mogollon [Gila] & Mimbres bands with the view of settling them together and without any restrictions upon the subject I encouraged such a move and now thirty of the Mogollon band are living with those of the Mimbres and have corn planted together and among them their old chief Mangas Colorado. If therefore the proposition to locate them together should meet the approbation of the Supt [sic] there will be no difficulty in its accomplishment.
>
> The interest manifested in their farming operations has been greater than upon any former occasion. Having no lands set apart for them they were afraid to plant upon their old fields on the Rio Mimbres and upon the Rio Palomas they have in all about 150 acres planted and in a state of cultivation that will compare well with any cornfields in the county, and all by their own labour except the breaking of the lands & digging and repairing *their acequias*. (emphasis added)

Having presented his supervisor with a *fait accompli* in relocating the Apaches to the Gila Basin and doubtless having greatly exceeded his authority, Steck expanded his plans for developing Apache irrigation systems in the Gila Basin. In the following year, 1859, Steck executed yet another contract with Epifanio Aguirre to construct acequias and plant fields near Santa Lucia (Steck n.d., Roll 2, Frames 832-833). This was accompanied by the consolidation and relocation of the Mimbreño and Gileño Apaches from Fort Webster in the Mimbres Basin westward to the Gila River near the modern town of Cliff, New Mexico.

Shortly thereafter, Steck was ordered by his superiors to focus more of his attention on the needs of the Mescalero Apaches to the east (Steck n.d., Roll 2, Frame 217). To complicate matters further, in 1858 Steck had been appointed the Indian Agent for the whole of New Mexico Territory and was unable to continue his plan for converting the Apaches into irrigation agriculturalists (Steck n.d., Roll 2, Frames 629-630). As a consequence, Steck's papers reveal nothing more about the fate of irrigation agriculture among the Mimbreño and Gileño Apaches, in which he had invested so much effort.

The outbreak of the Civil War, with an attendant loss of American control over most of southwest New Mexico, effectively closed this early period of Anglo-Apache interaction and irrigation system development (Blount 1920:24; Lekson 1992:18). Indeed, Steck's writings never again refer to the Mimbreño or Gileño Apache.

Yet the saga of Apache irrigation in southwest New Mexico did not quite end with Michael Steck's promotion. Thirteen years after Fort Webster was abandoned, in 1867, Isaac Stuck of the Government Land Office noted in his cadastral survey of the Mimbres Valley that "there is evidence of this bottom having been cultivated all the way through this township [Township 18 South]; old acequias and ruins of houses in various parts still exist" (1867:np). Farther downstream, in Township 19 South, Stuck again located the remnants of abandoned acequia systems that he believed were related to early Anglo occupations (1867:np):

> [T]he Mimbres River bottom has evidently been cultivated in many places, but has been deserted on account of the Indians. An old Acequia [sic] extends along E[astern] edge of

> the bottom more than 1/2 way through this township & old ruins may be seen in many places and in all probability will be speedily cultivated again after the Indians are quieted and it is safe to live there.

What is intriguing is whether these acequias were indeed, as Stuck infers, constructed by Anglo-Americans. Alternatively, might these canals represent the remains of acequias constructed by Michael Steck to induce the Mimbreño Apaches to adopt irrigation agriculture? The latter alternative is plausible for two reasons. First, the township Stuck refers to is just downstream from the former site of Fort Webster. Second, as will be discussed below, Stuck's survey occurred two years *prior* to the earliest adjudicated date for Anglo-Hispanic acequias in the Mimbres Basin. Assuming that these remnants may have been preserved, archaeological excavations could resolve an interesting question about the early history of southern New Mexico and, at the same time, provide information about these early irrigation systems.

SUMMARY AND IMPLICATIONS

What, then, is to be made of this experiment in introducing irrigation agriculture to Mimbreño and Gileño Apaches? The records summarized here provide additional insight into interactions between the U.S. government and American Indians shortly after the Treaty of Guadalupe-Hidalgo (1848) was signed. These records confirm U.S. policies requiring that Indians, regardless of their prior cultural practices, become settled agriculturalists. They also illustrate the specific manner in which this policy was implemented among Mimbreño and Gileño Apaches. As was true of earlier Spanish policies, the events at Fort Webster underscore the importance of agriculture, and more specifically irrigation agriculture, as a critical component of U.S. policy for controlling Indian groups.

Second, Steck's ongoing efforts to develop irrigation agriculture as a means of pacifying Mimbreño and Gileño Apaches is historically significant, primarily because these efforts constitute perhaps the earliest example of Federal involvement in Indian water development in the American Southwest.

Third, Steck's actions between 1853 and 1859 as described above may have profound implications for contemporary water users in the Mimbres and Gila basins. The succession of contracts made by Steck between 1853 and 1859 confirms that the acequias at Fort Webster were constructed using U.S. government funds for the benefit of the Mimbreño Apaches. It is equally clear from these documents that Steck believed that the ditches were owned by the Apaches. Similarly, Steck's records confirm that irrigation systems in the Gila Basin near Santa Lucia were constructed using U.S. government funds for the benefit of the Apaches. As in the Mimbres case, the

Gila Basin ditches were clearly understood by Steck to belong to the Apaches. Finally, the fact that Steck continued to contract for the construction of irrigation facilities *even after Fort Webster was abandoned* confirms that these facilities were absolutely intended for use by the Apaches, and not by U.S. troops initially stationed at Fort Webster.

I would like to pose a possible legal question here that, in the absence of a license to practice law, I cannot resolve. Specifically, the records summarized in this article demonstrate that the U.S. government constructed irrigation systems on behalf of the Mimbreño and Gileño Apaches at Fort Webster in the Mimbres Valley between 1853 and 1858, and at Santa Lucia on the Gila River between 1858 and 1859. Does this incontrovertible fact confer on the Apache tribe and its heirs rights to Rio Mimbres and Gila River water that have yet to be recognized by either the Federal government or the State of New Mexico?

If so, these documents may have implications for modern water users in both basins. Water rights in New Mexico, like many other western states, are based on the doctrine of prior appropriation. In brief, prior appropriation recognizes that individuals or communities that divert water from a stream for beneficial use at an earlier time have a right to water that is prior, or antecedent, to the rights of those diverting the water from the same stream later. The documents discussed here show without debate that irrigation systems were operating no later than 1853 in the Mimbres Basin and remained in operation until 1858. What is significant is that the 1853 construction date of acequias in the Mimbres Valley, if confirmed under New Mexico law as a legitimate priority date, would be almost 16 years older than the earliest currently recognized priority date of 1869, as adjudicated under a 1993 court decree (Berry and Berry 1984; SEO 1932, 1936, 1942, 1970). Similarly, these documents show that Apache ditches in the Gila Basin were constructed no later than 1858. Again, if confirmed under New Mexico law as a priority date, the 1858 construction date would be almost 16 years earlier than the earliest currently recognized water right of 1874 in the Gila Basin (SEO 1935, 1964, 1965a, 1965b, 1966a, 1966b,1966c, 1968).

In summary, Anglo-Apache interactions between 1853 and 1859 were characterized by efforts to consolidate semi-nomadic groups onto quasi-reservations. The geographic consolidation of these groups in the Mimbres and Gila basins was accompanied by efforts to introduce irrigation agriculture to limit raiding and open the countryside to Anglo settlement. The construction of acequia systems by the U.S. government for the benefit of Mimbreño and Gileño Apaches is, at first glance, merely an interesting historical footnote insofar as it was the government's earliest effort to introduce this technology to American Indians in the newly acquired New Mexico Territory. However, the accounts of Steck and Stuck also present a potential archaeological re-

search issue since they suggest that remnants of early historic irrigation systems may be preserved and available for study in both the Mimbres and Gila basins. Finally, Steck's accounts may have legal ramifications for contemporary water users in the Mimbres and Gila basins because they provide crucial information about potential, heretofore unrecognized, Apache water rights in both basins. These records indicate that the priority dates of these federally funded Apache irrigation systems, should they be confirmed under New Mexico law, are 16 years older than the earliest priority date now recognized by New Mexico authorities.

Acknowledgements. The research reported here was supported in part by a grant from the New Mexico Historic Preservation Division. I am grateful to Mr. James O'Hara, formerly of NMHPD, for his support of this specific project and for his more general interest in New Mexico's acequia systems. I am also grateful to Roger Anyon and Steve Lekson for their comments on an early draft of this paper. Figure 1 was prepared by Michelle Behr.

REFERENCES

Ackerly, Neal W., Michelle Behr, Michael Casaus, and Tina L. Powell
1993 *Acequia Systems of the Rio Mimbres: Floodwater Irrigation in Southern New Mexico.* New Mexico State University Center for Anthropological Research Report No. 718. Las Cruces.

Bancroft, Hubert H.
1889 *History of Arizona and New Mexico, 1530-1888.* The History Company, San Francisco.

Bandelier, Adolph F.
1892 *Final Report of Investigations Among the Indians of the Southwestern United States, Carried on Mainly in the Years from 1880-1885.* 2 vols. Papers of the Archaeological Institute of America, American Series 3 and 4. Cambridge.

Bartlett, John Russell
1854 *Personal Narrative of Explorations and Incidents in Texas, New Mexico, California, Sonora, and Chihuahua Connected with the United States and Mexican Boundary Commission During the Years 1850, 51, 52 and 53.* 2 vols. D. Appleton, New York.

Berry, Susan M., and David B. Berry
1984 Settlement and Surface Water Use of the Upper Mimbres Valley: 1860-1907. Unpublished report on file, the State Engineer Office, Santa Fe.

Blount, Bertha
1920 The Apache in the Southwest, 1846-1886. *Southwestern Historical Quarterly* 23:20-38.

Buskirk, Winifred
1986 *The Western Apache: Living with the Land Before 1950.* University of Oklahoma Press, Norman.

Cortés, José (edited by Elizabeth A.H. John; translated by John Wheat)
1989 *Views From the Apache Frontier: Report of the Northern Provinces of New Spain.* University of Oklahoma Press, Norman.

Couchman, Donald Howard
1990 *Cooke's Peak—Parason Por Aquí: A Focus on United States History in Southwestern New Mexico.* Bureau of Land Management, Las Cruces District Mimbres Resource Area, Las Cruces.

Creel, Darrell, and Bradley Adams
1985 Investigation of Water Control Features at NAN-20. In *The NAN Ranch Archaeol-*

ogy Project: 1985 Interim Report, edited by Harry J. Shafer, pp. 49-66. Anthropology Laboratory, Texas A&M University, College Station.

Emory, W.H.
1848 *Notes of a Military Reconnaissance from Fort Leavenworth, in Missouri, to San Diego, in California, Including Parts of the Arkansas, Del Norte, and Gila Rivers.* H. Long and Brother, New York.

Giese, Dale
1991 *Forts of New Mexico: Echoes of the Bugle.* Privately published, Silver City.

Graybill, Donald A.
1975 *Mimbres-Mogollon Adaptations in the Gila National Forest, Mimbres District, New Mexico.* U.S. Forest Service Southwestern Region Report No. 9. Albuquerque.

Griffin, William B.
1988 *Utmost Good Faith: Patterns of Apache-Mexican Hostilities in Northern Chihuahua Border Warfare, 1821-1848.* University of New Mexico Press, Albuquerque.

Herrington, Selma L.C.
1979 *Settlement Patterns and Water Control Systems of the Mimbres Classic Phase, Grant County, New Mexico.* Unpublished Ph.D. dissertation, Department of Anthropology, University of Texas, Austin.

Herrington, Selma L.C., and Darrell Creel
1991 Treasure Hill: An Agricultural Center and Type Site Revisited. In *Mogollon V*, pp. 50-61. COAS Publishing, Las Cruces.

Kessel, John L.
1971 Campaigning on the Upper Gila, 1756. *New Mexico Historical Review* LXVI (2): 133-160.

Lekson, Stephen H.
1989 *Archaeological Overview of Southwestern New Mexico.* Human Systems Research, Mesilla Park, New Mexico.
1990 *Mimbres Archaeology of the Upper Gila, New Mexico.* University of Arizona Anthropological Papers No. 53. Tucson.
1992 Warm Spring Apache Subsistence. Unpublished ms. on file, Crow Canyon Archaeological Center, Cortez.

Merriwether, David
1854 *New Mexico Superintendent's Report: Report of the Secretary of the Interior, 1854.* U.S. Government Printing Office, Washington, D.C.

Myers, Lee
1966 Fort Webster on the Mimbres River. *New Mexico Historical Review* XLI(1):47-57.

Ogle, Ralph Hedrick
1940 *Federal Control of the Western Apaches: 1848-1886.* University of New Mexico, Albuquerque.

Pattie, James Ohio (edited by Timothy Flint)
1833 *The Personal Narrative of James O. Pattie of Kentucky.* E.H. Flint, Cincinnati.

Schroeder, Albert H.
1974a A Study of the Apache Indians, Parts I, II, and III. *In Apache Indians* I, pp. 27-583. Garland Publishing, New York.
1974b A Study of the Apache Indians, Parts IV and V. In *Apache Indians* IV, pp. 9-645. Garland Publishing, New York.

Shafer, Harry J.
1986 *The NAN Ranch Archaeology Project: 1985 Interim Report.* Texas A&M University Special Report No. 7. College Station.
1990 *Archaeology at the NAN Ruin (LA 15049): 1989 Season Investigations.* Texas A&M University Special Report No. 10. College Station.

Simmons, Marc
1984 Mescalero and Warm Springs Apaches Farmed at Sabinal. *COAS* 2(2):4-7.

State Engineer Office (SEO)
1932 *Mimbres Valley Surface Water Hydrographic Survey.* Santa Fe.

1935 United States of America vs. Gila Valley Irrigation Company et al. Court decree on file, the State Engineer Office, Santa Fe.

1936 Report on Irrigated Farming in the Mimbres Watershed of New Mexico. Ms. on file, the State Engineer Office, Santa Fe.

1942 *Mimbres Valley Surface Water Hydrographic Survey.* Santa Fe.

1964 *Gila River Hydrographic Survey, Vol. 2: Red Rock Area.* State Engineer Office Report No. 5-G-16. Santa Fe.

1965a *Gila River Hydrographic Survey, Vol. 5: Glenwood—Mule Creek Area.* State Engineer Office Report No. 5-G-19. Santa Fe.

1965b *Gila River Hydrographic Survey, Vol. 4: Upper Gila.* State Engineer Office Report No. 5-G-17. Santa Fe.

1966a *Gila River Hydrographic Survey, Vol. 8: Apache Creek— Aragon Area.* State Engineer Office Report No. 5-G-22. Santa Fe.

1966b *Gila River Hydrographic Survey, Vol. 7: Luna Area.* State Engineer Office Report No. 5-G-21. Santa Fe.

1966c *Gila River Hydrographic Survey, Vol. 6: Reserve Area.* State Engineer Office Report No. 5-G-20. Santa Fe.

1968 State of New Mexico ex. rel., S.E. Reynolds vs. M.S. Dario Acosta et. al. Court decree on file, the State Engineer Office, Santa Fe.

1970 *Mimbres Hydrographic Survey Report.* Santa Fe.

Steck, Michael D.

n.d. Unpublished papers, Rolls 1-7. Microfilm on file, the Zimmerman Library, University of New Mexico, Albuquerque.

Stuck, Isaac

1867 Field Notes, Cadastral Survey of the Mimbres Valley. Unpublished notes on file, Las Cruces District Office, Bureau of Land Management, Las Cruces.

Thomas, Alfred B.

1932 *Forgotten Frontiers: A Study of the Spanish Indian Policy of Don Juan Bautista de Anza, Governor of New Mexico, 1777-1787.* University of Oklahoma Press, Norman.

Thrapp, Dan L.

1974 *Victorio and the Mimbres Apaches.* University of Oklahoma Press. Norman.

Wilson, John P.

1988 The Southern Apaches as Farmers, 1630-1870. In *Reflections: Papers on Southwestern Culture History In Honor of Charles H. Lange*, edited by Anne Poore, pp. 79-90. Papers of the Archaeological Society of New Mexico Vol. 14.Ancient City Press, Santa Fe.