

WELLS IN THE DESERT

Retracing the Mexican War Trails of Kearny and Cooke through Baja California

by
Tom Jonas

“SUCH AS THESE, are times that try men’s souls,” Asa Bement Clarke wrote after arriving at Alamo Mocho well in the Southern California desert late on the night of June 23, 1849, bound for the California gold fields. “Some broke out in the most extravagant expressions, declaring that we had lost the way,—should never find water,—all perish, &c. Others said nothing, but jogged steadily on, with a fixed determination to persevere. After traveling an hour or two more, we came suddenly to the brow of a steep sand-bank, and saw fires beneath us. We all shouted; some asking if there was any water, to which the reply was — yes, if you can wait for it.”

Clarke, parched after a long trek across the hot, sandy Andrade Mesa, goes on to describe how, “Going down the steep bank, we encountered a horrid stench arising from dead animals which lay around; tying the mules to prevent them from falling into the wells, I soon found one of these holes, which was twelve or fourteen feet deep. Letting myself down by a stick which lay across the top, I found a little muddy water at the bottom, which I dipped with my tin cup. Never did water taste more sweet.”¹

Alamo Mocho was one of the few water holes in the ninety-plus-mile desert crossing between Yuma, Arizona, and Carrizo Creek, California. For some years it was a vital stop along the trail, but

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its location was forgotten as better roads and water sources were developed. Along with Cooke's Well, it was a key water source for men and animals during the Mexican War march of the U.S. Army through Baja California. Together, they underscore the once-critical importance of water in determining travel routes across the arid Southwest.²

Spain in California

From the sixteenth century, California, along with what is today the entire southwestern United States and Mexico, was a possession of the Kingdom of Spain. Seagoing explorers had mapped the California coast, but the Spaniards did not begin colonizing their northwestern frontier in earnest until British and Russian outposts started to appear in the Pacific Northwest in the eighteenth century. Capt. Juan Bautista de Anza, leading a group of settlers to colonize San Francisco in 1774, was the first European to cross the desert west of the Colorado River and open a road from Sonora to the Pacific coast of California.

The southwestern deserts presented many daunting obstacles to early travelers, the greatest of which was the scarcity of water. The Gila River provided a well-watered corridor across the Sonoran Desert, but after they forded the Colorado River, wayfarers faced about one hundred miles of hot, sandy desert before reaching another flowing stream in the mountains of California. Resident Indian peoples had developed trails across the Colorado, Mojave, and Sonoran deserts and they found or created water sources along the way. Following one such path through Baja California, Anza subsisted on surface water in lagoons left behind after river overflows and in hand-dug wells sunk by Indians.

Although Anza successfully pioneered a road across the Colorado Desert in the eighteenth century, nineteenth-century wayfarers did not follow the identical trail. Subsequent travelers, such as local Indians, Spanish settlers, Mexican merchants, and American fur trappers followed various routes through the desert, taking advantage of whatever ephemeral water supplies could be found at the time. To all, water was crucial. The trails were littered with the skeletons of pack animals and livestock that could not make it to the next well or lagoon. Scarce forage, lack of game, deep sand, brutal heat in summer and extreme

cold in winter all intensified the hardship, making this the most demanding stretch of the entire journey from either Old Mexico or New Mexico.

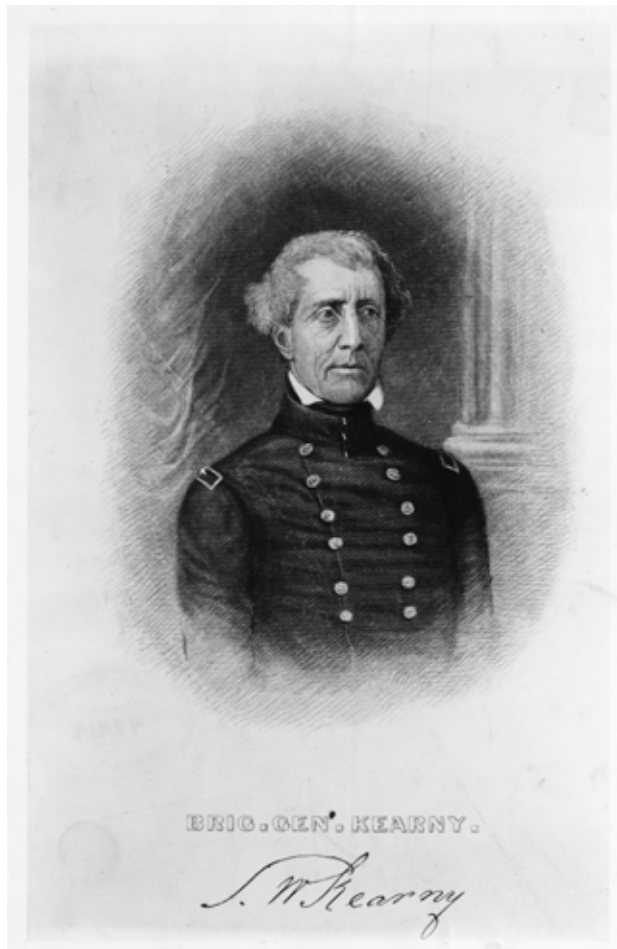
Numerous books and articles have been published on the various trails used by nineteenth-century explorers and emigrants to reach the new territories on the Pacific Coast. Rather than attempt to chronicle the entire history of the Colorado and Mojave desert crossings, this article focuses on two wells on the Baja California route and their importance to the epic march of the Army of the West during the Mexican-American War of 1846-48.

The Mexican War

In April 1846, after the United States declared war on Mexico, President James K. Polk ordered Stephen Watts Kearny, colonel of the First Dragoon regiment, to assemble a force to invade the Mexican territories of New Mexico and California. Known as the "Army of the West," it included the First Regiment of Dragoons, the First Missouri Volunteer Infantry, and a battalion of Mormon volunteers. Upon his occupation of Santa Fe, Congress made Kearny a brigadier general.³

Kearny easily seized Santa Fe in September of 1846, set up a military government, and installed an occupation force to quell any uprisings and control Indian depredations. After sending the Missouri Volunteers south into Mexico to fight for Texas, Kearny marched out of Santa Fe, leading an "army" of 300 dragoons, along with fifteen supply wagons, a detail of topographical engineers, and various guides and hunters, bound for California. The Mormon Battalion had not yet arrived in Santa Fe.

The westward journey of the Army of the West is of interest because it established the principal southern route for travelers, the U.S. mail, and emigrants to California. Kearny's troops left the Rio Grande some sixty-five miles south of Socorro to follow the Gila Trail, striking west to the New Mexico copper mines near the headwaters of the Gila River. He then followed the Gila all the way to the Colorado River of the west. Kearny knew this route was impractical for wagons so he ordered then-Capt. Philip St. George Cooke to use a variant route now known as the Southern Trail.⁴



Brig. Gen. Stephen Watts Kearny. AHS-SAD #48419.

The March to California

On October 6, 1846, south of Socorro, New Mexico, General Kearny encountered the famous scout Kit Carson, who was headed for Washington, D.C. with important messages for the president. Since Carson had just traversed the trail from Alta California that Kearny intended to follow, the general ordered him to turn around and guide his column west, sending the government dispatches on with another guide.⁵



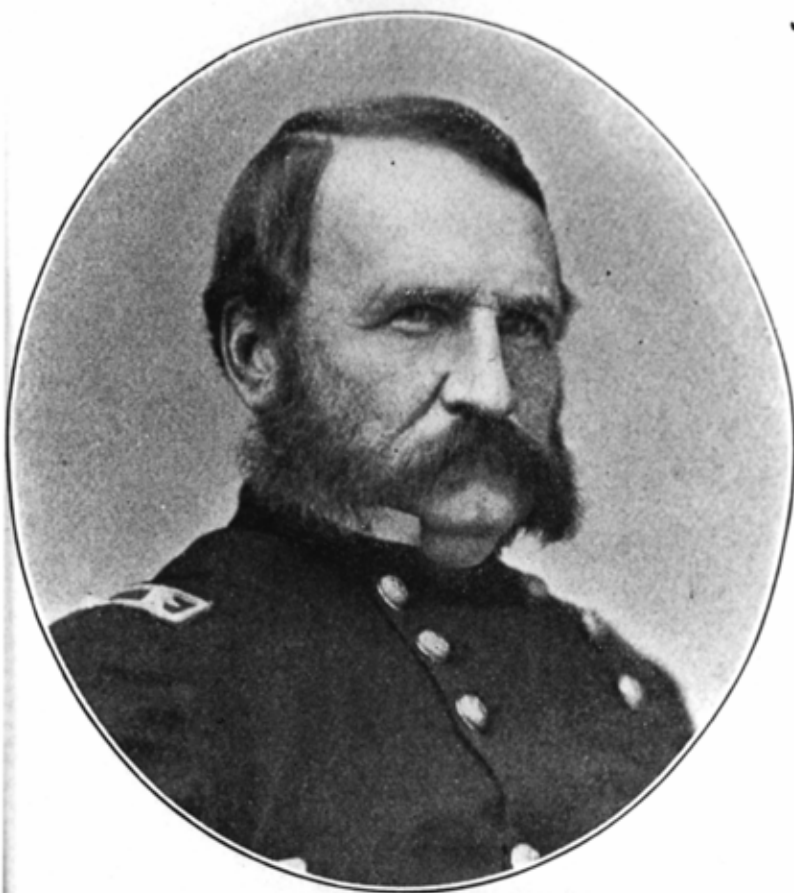
Brig. Gen. Philip St. George Cooke. AHS-SAD #41551.

As they proceeded south along the Rio Grande, Carson advised Kearny that it would be impossible to follow his intended trail with the supply wagons. Kearny halted about twelve miles north of the modern town of Truth or Consequences, New Mexico, in the area of modern Elephant Butte Reservoir State Park, and sent the wagons back to Santa Fe, ordering pack saddles to be sent down immediately so they could proceed by pack train. Kearny had previously ordered Cooke to assume command of the battalion of Mormon volunteers that was imminently expected to arrive in Santa Fe and to proceed with them and supply wagons to California, in the process establishing the first wagon road along the southern route.⁶

Kearny's trail left the Rio Grande beyond Truth or Consequences and marched west to the Gila River, following that stream to its mouth at modern Yuma, Arizona. Several weeks later, Cooke, now advanced to the rank of lieutenant colonel, took a different route to avoid the rugged mountains and canyons along the Gila. He proceeded farther south on the Rio Grande than Kearny, and then headed southwest toward the Animas Valley and Guadalupe Pass near the southwestern corner of the present state of New Mexico. He next coursed westward, just below the modern Arizona boundary, to the San Pedro River, and followed that stream north before turning west to the Mexican outpost of Tucson. Cooke rejoined Kearny's path at the Pima Villages, near present-day Phoenix.

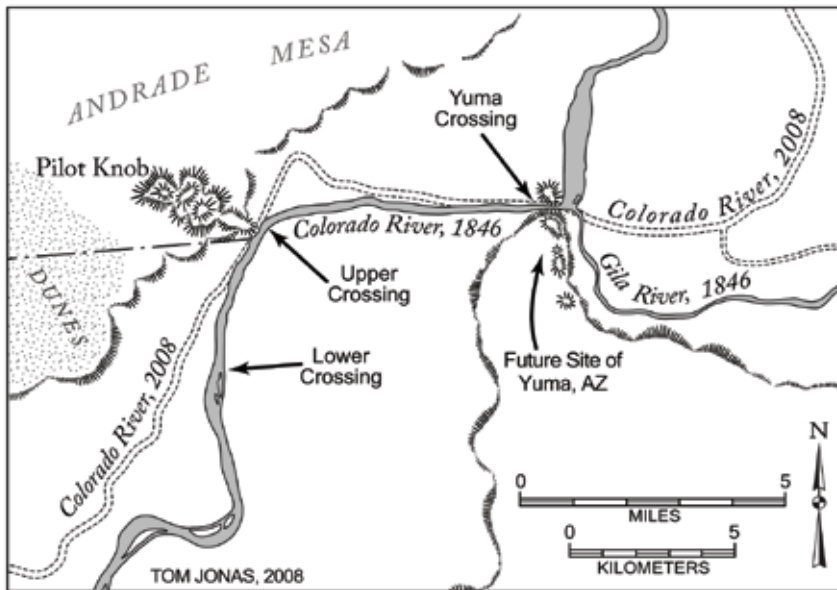
When Kearny's force neared the future site of Yuma, the soldiers camped on the terrace above the Gila River, which in those days washed the base of the bluffs before emptying into the Colorado River about a mile and a half to the north. The campsite was probably at or near the present city cemetery. While encamped there, Lieut. William H. Emory, Kearny's topographer, visited the confluence of the rivers and mentioned seeing the ruins of an old Spanish church on the hill on the north side of the river.⁷

From 1774 until 1861, travelers who came to the river at the Gila's mouth had at least three fords from which to choose. The first, often called the "Yuma Crossing," was near the bluffs where Fort Yuma was later located and not far from the modern Interstate 8 bridge. The second, known as the "upper crossing" or "emigrant crossing," was about six miles downstream, opposite Pilot Knob. Kearny and Cooke used the third, or "lower crossing," about three miles south of Pilot Knob.



William H. Emory. AHS-SAD #42676.

When Kearny again took up the march, on November 24, 1846, he headed west across the rocky plateau where Yuma is now located and then dropped down into the low flood plain of the Colorado River roughly paralleling the curving course of the Colorado River, which was some distance to his right. He was headed a little south of west in order to meet the river again at the lower crossing. Looming ahead, a little to the right, was Pilot Knob, an isolated mountain on the west bank of the Colorado River, near the future international



Differences in the courses of the Colorado and Gila rivers between 1846 and the present.

boundary line. Today, this flood plain is open farm land, but in 1846 Lieutenant Emory described it as “overgrown thickly with mesquite, willow, and cotton-wood.”⁸

After marching across the river bottom, Kearny halted his men on the east bank of the Colorado River, about two and a half miles south of the future international boundary. Here, in a thicket along the river, they found good grass for the livestock. Because the river channel meandered farther east in 1846 than it does today, this campsite was actually well inside present-day Arizona, about a mile east of the modern river channel and the Arizona-Mexico boundary.⁹

Crossing the Colorado was a significant challenge, but guide Kit Carson had found a ford that passed over three sand bars. As the Army of the West crossed, the strong current took the soldiers a short distance downstream. The troops were fortunate that the river was at a low stage. River-crossers, before and after, were often forced to swim across and build rafts for larger loads. It was not unusual for men and animals to drown in the attempt.

The American troops were now in the upper delta of the Colorado. The river was very different in 1846 than we know it today.



U.S. Army and Mormon Battalion trail and campsites from Yuma to Cooke's Well.

Before dams were built upstream, it was a wild current subject to annual and periodic floods and overflows that frequently caused the river's course and size to change. At the time that Kearny reached it, Lieutenant Emory estimated the Colorado's width at 1,500 feet, with an average depth of four feet. Soldiers later stationed at Fort Yuma reported an annual rise during the month of June of twelve to sixteen feet above this low stage. For comparison, the river today is about 150 feet wide where Interstate 8 crosses it, and only sixty feet wide several miles downstream, where the army crossed.¹⁰

During annual floods, the Colorado River overflowed its banks and ran west and northwest in several ephemeral flood channels toward the Imperial Valley. Geologists have found that several centuries ago the climate was wet enough that the Colorado sent much of its flow into the below-sea-level depression called the Salton Sink, creating a large lagoon they call Lake Cahuilla, at the north end of the valley. The sink was dry in 1846.¹¹

The seasonal overflows of the Colorado River provided the only water to be had in crossing the arid Colorado Desert. There

were no springs and rainfall was minimal. During major floods, however, several overflow channels, such as the Alamo River and the wash later known as New River, carried river water inland for several days, often reaching thirty to sixty miles into the valley. When the river dropped back into its banks, water was left behind in these channels, first as surface lagoons and later as sub-surface water that could be reached by digging in the beds of the channels.

Although the Army of the West was the first American military expedition to pass this way, there were already footpaths across the Colorado Desert. The Yuma Indians, or Quechans, lived around this river junction and farmed the lowlands there, taking advantage of the periodic river flooding to provide water to their crops. The trail networks established by Indians had been used by early Spanish explorers and Anglo-European fur trappers to reach California.¹²

When Kearny's men and animals finished crossing the Colorado River, they apparently found themselves somewhat south of the trail, so they marched upstream three-quarters of a mile, then turned west toward the edge of the Andrade Plateau, about two miles distant. Capt. Henry Smith Turner of the First Dragoons writes: "After crossing the river we marched directly out of the bluff, and then kept along the face of the bluff up to this point [Cooke's Well]."¹³

Actually, Turner is describing two different bluffs. The first one is a steep river bank, which was commonly ten to fifteen feet above the river bottom and defined its edge at flood stage. This upper river bank, where the trail approached the river, was nearly two miles from the water's edge at this point. Lieut. Robert S. Williamson described the topography, when he wrote in his *Report of Explorations in California for Railroad Routes* that "Two miles from the Colorado [traveling east], we descended a bank ten or fifteen feet high, at the Indian village, located at the base of the sand-hills." This distance was probably measured along the existing meandering Indian trail, so the river may actually have been closer as the crow flies.¹⁴

After climbing out of the river's flood channel, the Army of the West found itself near the southeastern edge of the Andrade Mesa, a clay-and-gravel plateau crowned by the southern end of a long belt of sand dunes that effectively blocked east-west travel

for many miles north. This belt of sand hills, now known as the Algodones Dunes, was the reason that early roads detoured south into Mexico rather than heading straight west across the Colorado Desert. Travel through the dunes was extremely difficult by horse or mule and virtually impossible in a wagon. The Indian trails and emigrant roads hugged the base of the plateau until they had passed the sand-hill belt.

At this point, after emerging from the river bottom, Lieutenant Emory mentions joining a heavily traveled road along the base of the mesa. "After crossing," he explains, "we ascended the river three quarters of a mile, where we encountered an immense sand drift, and from that point until we halted [at Cooke's Well], the great highway between Sonora and California lies along the foot of this drift." Obviously, during the Spanish and Mexican periods this road had been extensively used by merchants, emigrants, and soldiers traveling between Mexico's northern provinces and the Pacific Coast.¹⁵

Lieutenant Colonel Cooke and his Mormon Battalion reached the Colorado River, by the same road, about seven weeks later. Cooke had considerably more trouble crossing the river with his larger but less-experienced force, along with several wagons and herds of cattle and sheep. Francisco, a guide that Kearny had sent back a few weeks earlier, told Cooke that the river was a little higher than it had been when Kearny crossed. Since he did not expect to find grass on the desert crossing, Cooke had his men gather bunches of *tornillo*, or screw beans, from the plentiful mesquite trees, for the animals to eat on the jornada.¹⁶

Rather than wait for the entire battalion to cross, Cooke led the early arrivals on to the first well. This was standard practice with large bodies of men and animals. Desert wells were known to recharge slowly so emigrants often split into smaller groups, allowing the wells to recover between uses.

Cooke's Well

Modern descriptions of the trail followed by military columns in the Mexican War are vague about this Mexican leg because the route has not been well-understood. In order to plot the trail accurately, we need to know a few anchor points along the way. The "lower crossing" of the Colorado River provides the first such

point, since the distance to it from other known points was given by diarists with the American forces.

The next point that needs to be located is the first water hole along the trail west of the Colorado River—a place known to early travelers as “first well,” and later called “Cooke’s Well.” Asa Bement Clarke, who visited the well in June of 1849, writes: “We rose at daylight, and having taken a hasty breakfast, started on to reach the first well, which was 36 miles [*sic*] from the river, before it became too hot. Stopping to give our animals some mesquite beans, we arrived at a dry arroyo at 8 o’clock. Rushing into it, we found a hole eight feet deep, with a dead horse and a few inches of water at the bottom.”¹⁷

Army diarists locate this first well fifteen miles west of the river from the lower crossing, in the old bed of the Alamo River where it curved northward within a half-mile of the Andrade Mesa. Local



Cooke's Well in a remnant of the Alamo River near Merida, Baja California, Mexico. Tom Jonas photo.

Mexican inhabitants used to call this place *Rajadura*, meaning “cleft, or fissure.” In the 1850s the Overland Mail Company built a stage station nearby. Roscoe and Margaret Conkling, in their classic history of the Butterfield route, describe Cooke’s Well as being six miles south of international boundary monument 210, placing it northeast of the modern town of Paredones, Baja California Norte. This erroneous location has misled researchers for years. Cooke’s Well is actually about 2.5 miles south-southwest of monument 210, near the Mexican village of Mérida.¹⁸

The water hole was six feet deep and dry when Kearny reached it in November of 1846. The soldiers dug down nine feet before reaching sufficient water for the men and animals. Lieutenant Emory measured the latitude for Cooke’s Well at 32° 40' 22", which is only about 1,000 feet too far north. He calculated the longitude at 114° 56' 28"—less than a mile west of the actual place. Emory took his latitude readings with a sextant, which gave surprisingly accurate readings. He had to compute longitudes, however, by comparing a standard time, such as that of Greenwich, England, with the local time, determined by the observation of astronomical events. A problem arose because Emory’s chronometers, which he relied on to maintain his standard time reference, varied widely because of rough handling, which in turn caused his longitude calculations also to be in error—often by several miles. It is amazing that Emory, despite the severe limitations imposed by his instruments, came so close to pinpointing the actual longitude.

Cooke’s men had a much harder time crossing the desert seven weeks after Kearny. Their animals were nearly exhausted after an epic march across the Southwest, with scant grass and little rest, followed by a strenuous river crossing in unusually cold weather. As Cooke approached the first well on January 11, 1847, he received some alarming news. “I arrived here [Cooke’s Well] at four o’clock and was met a few hundred yards off by a man who told me ‘there was not a drop of water’,” Cooke reported. “I was seated in my tent discussing options with the guides, when Lieutenant [George] Oman suddenly reported that the well had failed worse than ever. My doubts seemed converted to the certainty of evil and disaster. I then learned that the company I had left was encamped six miles back, their team having given out. So much for their wretched management in bringing their wagon loaded, etc.”

Although Kearny had obtained water at this well several weeks earlier, the water table had dropped somewhat in the interim and the hole was again dry when the Mormon Battalion arrived. Cooke was alarmed. The success of his mission, and the battalion's very survival, depended on this water. "Once more I went to the well and ordered a fresh detail to be put to the new one," he explained in his official report. "They had found, in ten feet, only muddy clay, and its upper surface was two feet lower than that of the old one, which is about nine or ten feet deep. I then, as I said, with a mind full of trouble, sat down to write. In half an hour Lieutenant Oman came and reported [that] in the new well he had 'come to plenty of water that could be dipped with a camp kettle'. It threw a radiant glow of light over all the gloom which was settling deeply on every avenue where hope had lingered." This dramatic description of his desperate situation probably explains why the first well soon became known as "Cooke's Well."¹⁹

Early the following morning, Cooke once again led part of his men on ahead before the watering was completed. He also sent forward a small advance party to begin digging for water at the next well.

Unlike some later trails, the route of march beyond the first well did not stay in the sandy river delta at the base of the bluffs. Instead, it followed the base of the bluffs westward for four to six miles and then climbed to the top of the mesa. Unlike the delta below, the Andrade Mesa is made of firmer clay soil and rimmed with loose sand hills. The pull up the sandy hill had not been overly difficult for Kearny's pack mules, but was grueling for Cooke's wagons.

Lieutenant Emory, with Kearny's army, reports traveling four miles along the sandy base of the mesa before the troops "mounted the buttes and found, after a short distance, a firmer footing." The Americans were fortunate to find a large patch of grama grass, so they stopped for an hour in the late morning to let the mules graze. Finally, after traveling twenty-four miles on the hard surface of the mesa, they reached the second well, known as Alamo Mocho. Cooke, following Kearny's track several weeks later, stopped at another grassy place on the mesa ten miles from the first wells, where he camped for the night without water.²⁰



Kearny and Cooke trail and campsites to Alamo Mocho and beyond. West of Alamo Mocho, Cooke deviated from Kearny's trail for the first time since reaching the Pima Villages near modern Phoenix.

Alamo Mocho

The exact location of the Alamo Mocho well has been forgotten for more than one hundred years. Although it was a critical watering place for early travelers, after a larger-than-usual overflow of the Colorado River in June of 1849, wayfarers bypassed it in favor of remnant lagoons a short distance to the west. As travel increased through the area, better roads and more wells were established in the bottomland and the road on the mesa was seldom used. In 1858, the Overland Mail Company built a stage station on the dry Alamo River, about three-quarters of a mile south of the old well, and called it Alamo Mocho Station. This became the popular route, and the original well was gradually forgotten.²¹

Fortunately, we have several important clues to the lost well's whereabouts. The first is diarists' estimates of the mileage between Cooke's Well and Alamo Mocho—usually about twenty-four miles.

Since all these early travelers indicate that they climbed to the top of the mesa after leaving Cooke's Well, this mileage can be measured along the southern edge of the mesa, ending somewhere near the present-day Mexicali airport.

The next clue is a detailed description of the vicinity of the well as described by Lieutenant Emory, who referred to the place simply as "the Alamo" (cottonwood tree). "Neither was there any cottonwood at the Alamo, as its name would signify," Emory explains, "but Francisco said that it was nevertheless the place, the tree having probably been covered by the encroachments of the sand, which here terminates in a bluff 40 feet high, making the arc of a great circle convexing to the north. . . . Descending this bluff, we found in what had been the channel of a stream, now overgrown with a few ill-conditioned mezquite, a large hole where persons had evidently dug for water." Emory says the well was located in the floodplain at the base of the forty-foot bluff, which he describes as curving to the north from his position at the well. This means the well was located in a large semi-circular inlet. He also notes that a stream had apparently flowed through the inlet at one time.²²

Lieut. Amiel Weeks Whipple provides another small clue. Whipple was traveling eastward from the Imperial Desert in September of 1849 as he surveyed the new boundary between the United States and Mexico. After leaving camp at an overflow lagoon along the Alamo River west of Alamo Mocho, he first climbed the western edge of the Andrade Mesa and, a short distance later, passed Alamo Mocho on his right. This indicates that the road stayed on top of the mesa, passing the Alamo Mocho inlet at a tangent. It also shows that the well was only a short distance from the western edge of the mesa.²³

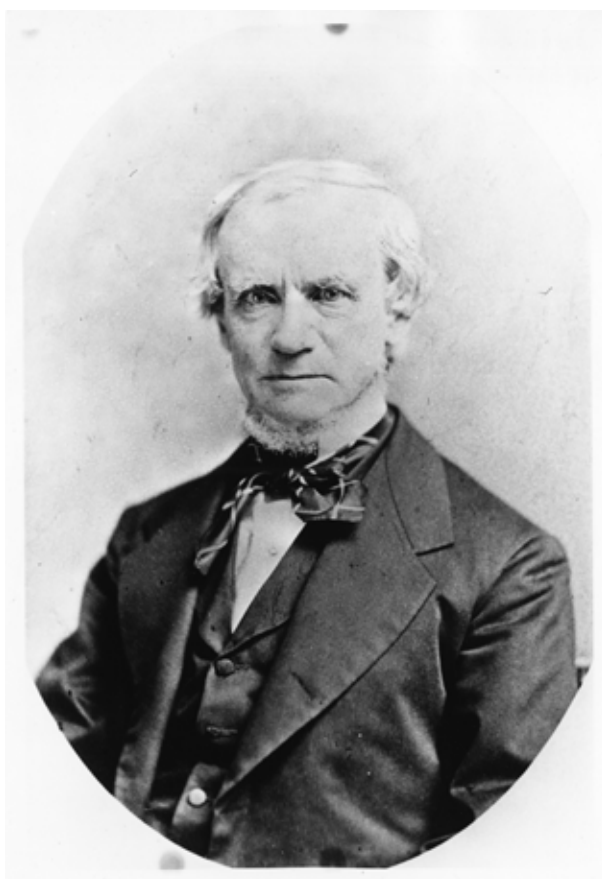
From these diary accounts, we know that Alamo Mocho was located in a large semi-circular inlet in the rim of the Andrade Mesa and that it was twenty-four road-miles from Cooke's Well. We also know that the road continued west on the plateau for a short distance past Alamo Mocho before descending back onto the plain.

Modern maps show two large inlets, or embayments, in the edge of the mesa near the twenty-four-mile point. One is just south of the present-day Mexicali airport and the other is just west. Diary accounts do not furnish enough detail to establish the precise location of the well, but it seems likely that it was in one of these two embayments.

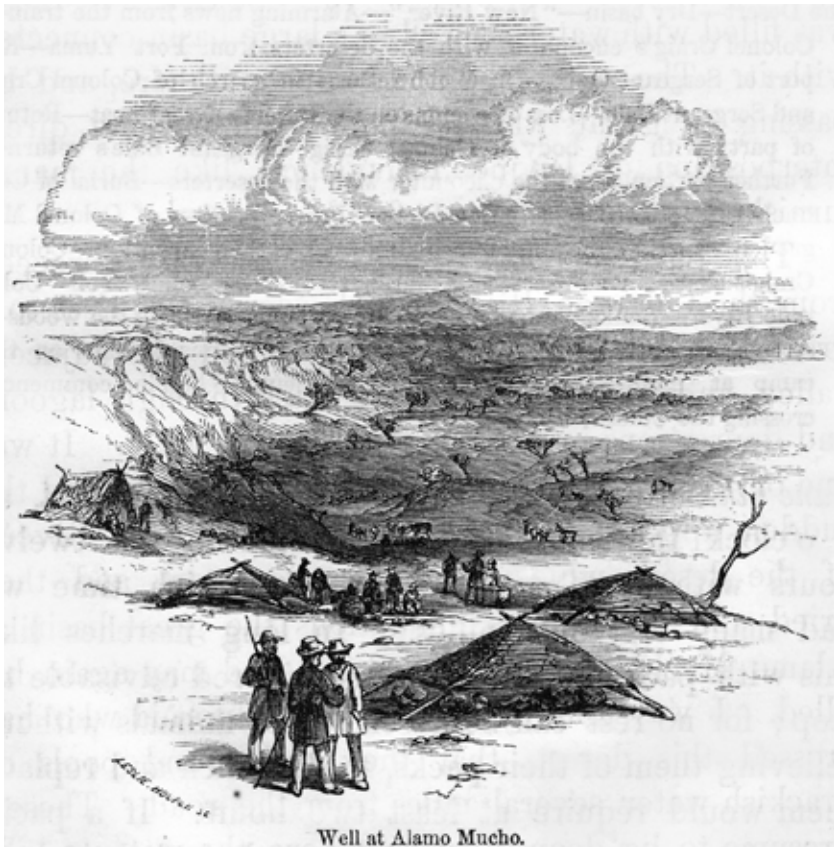
Moreover, early twentieth-century maps show that at one time the old Alamo River flowed through both of these inlets.²⁴

Although diarists cannot lead us to the precise spot, early visitors to the well left two drawings that can help. By carefully observing the relationship of various elements in the images, and comparing them with the current view at the site, the original artist's viewpoint can be rediscovered with surprising accuracy (this is a variation of a process called "rephotography").²⁵

The first image was drawn by John Russell Bartlett, the U.S. boundary commissioner, who visited Alamo Mocho in June of



U.S. Boundary Commissioner John Russell Bartlett. AHS-SAD #28103.



Alamo Mochó. Woodcut from Bartlett's Personal Narrative, vol. 2, p. 134. Bartlett visited the well on his return trip from California to New Mexico in June 1852. Courtesy Arizona Room, Phoenix Public Library.

1852. Bartlett, an accomplished artist, depicts a view from just below the edge of the bluff, showing some temporary shelters, the circular edge of the embayment sweeping off in the distance, and most importantly, the Cargo Muchacho Mountains on the distant horizon.²⁶

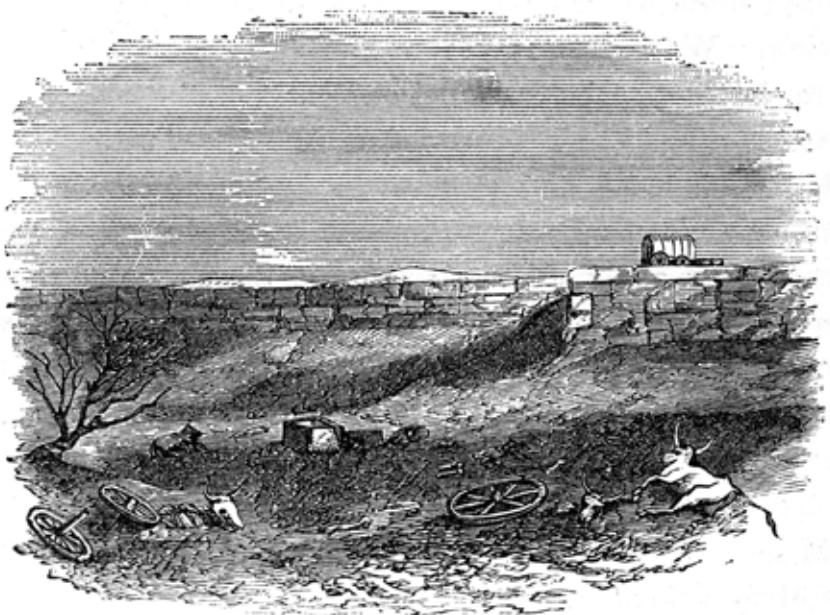
Bartlett's view also shows a slightly higher point—almost a knob—in the bluffs at the far left. This knob is visible today in the embayment south of the airport. The key elements of Bartlett's picture—the knob, the sweep of the embayment rim, and the



Looking northeast from Bartlett's viewpoint. Note the sweeping curve of the bluffs and the mountains on the horizon. Tom Jonas photo (2007) taken about 3,000 feet south of the present-day Mexicali airport.

position of the distant mountains—all correspond perfectly to the location in the southern embayment. These elements cannot be seen from the inlet west of the airport. On some modern aerial photographs, a marshy area is visible in the bottom of the embayment, below Bartlett's viewpoint, indicating that the water table here is close to the surface.²⁷

The second early depiction was published in William P. Blake's report in the 1853 *Pacific Railroad Survey*. The viewpoint here looks at the rim of the mesa from below and shows a wagon on top of the bluff, with dead animals and wagon wreckage at the bottom. The rim of the bluff in the drawing resembles stone blocks, but the report explains that it is actually composed of hard clay. This layered clay rim is visible today in several places in both embayments. The Blake drawing also shows that the road did not descend to the well but continued on toward the west. Wagons and baggage were left on the mesa while the men and livestock walked down the sand bank to the well.²⁸



WELL IN THE DESERT—ALAMO MOCHO.

Woodcut from William Blake's geological report in R. S. Williamson report, Pacific Railroad Survey (1853). The walls of the bluff appear to be stone, but Blake explains that they are actually composed of hard clay. Courtesy Arizona Room, Phoenix Public Library.

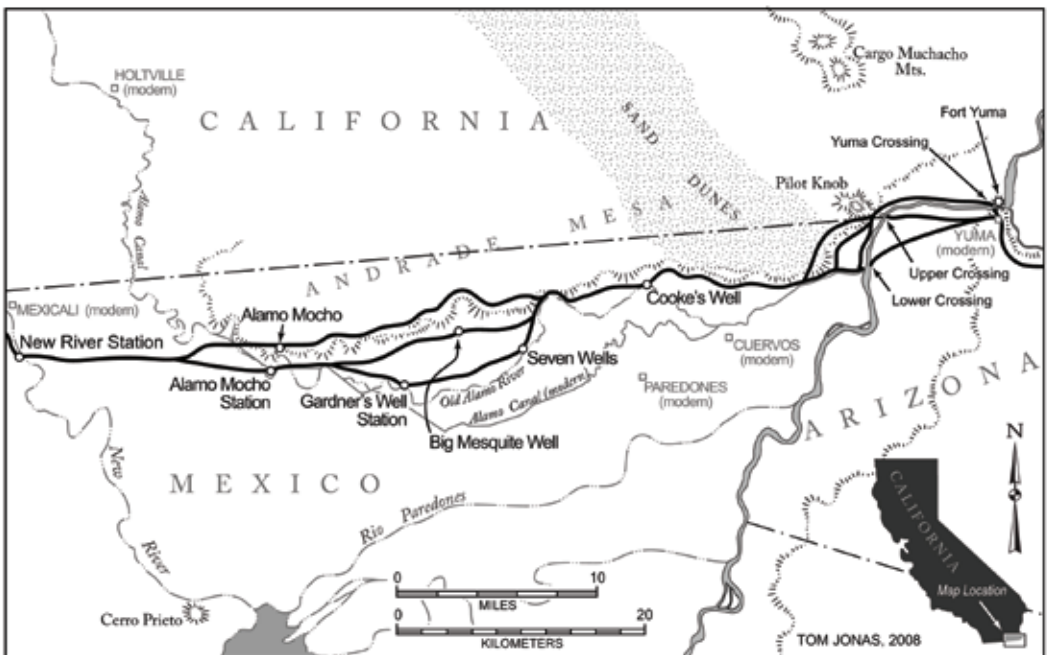
Kearny's men, who arrived at Alamo Mocho on November 26, 1846, had to deepen the existing hole and dig a new one in order to obtain sufficient water for men and animals. Cooke's men, reaching the well the following January, dug a third well. Much work was required to obtain water in these desert wells. According to Lieutenant Emory, "it was necessary to halt to rest our animals, and the time was occupied in deepening this hole [Alamo Mocho], which after a strong struggle, showed signs of water. An old champagne basket, used by one of the officers as a pannier, was lowered in the hole, to prevent the crumbling of the sand. After many efforts to keep out the caving sand, a basket-work of willow twigs effected the object, and much to the joy of all, the basket, which was now 15 or 20 feet below the surface, filled with water." The reader may well imagine the poor quality of the water thus obtained. Kearny's camp

physician, Dr. John S. Griffin, pronounced it “the worst it was ever my misfortune to drink.”²⁹

Beyond Alamo Mocho, Kearny descended the bluffs to the bottomland and headed northwest across the desert, hoping to find water at a place called the Big Laguna, near modern Seeley, California. On the advice of his guides, Cooke decided to take a more southerly route to a water hole known as Pozo Hondo, probably located in the bed of the New River wash seven or eight miles northwest of Calexico.³⁰

Evolution of the Road

The U.S. occupation of California after the Mexican War, combined with the discovery of gold at Sutter’s Mill in 1848, dramatically increased traffic on western trails. To facilitate travel and commerce over the southern route, existing trails were improved and new roads were broken across the desert. Much of the early road work west of the Colorado River was done by U.S. Army personnel stationed at Fort Yuma and Fort Mojave (established in 1859).³¹



Baja California desert roads, 1846-1860.

The summer overflow of the Colorado River in 1849 was higher and lasted longer than usual, fed by runoff from the same deep snow pack in the Rocky Mountains that had contributed to the failure of John C. Frémont's fourth expedition in Colorado the previous winter. This record flood brought water to the usually dry watercourses in the bottomland west of Fort Yuma, leaving behind lagoons as many as sixty miles inland when it receded. Most travelers then abandoned the road on the Andrade Mesa and began following trails in the delta bottomland to take advantage of the new water.³²

Perhaps the earliest trail variation was a path on top of the Andrade Mesa, west of the crossing. An 1849 map by Lieutenant Whipple shows a road beginning south of the Pilot Knob (upper) crossing, climbing the bluffs, and heading southwest across the mesa. It is simply labeled "Old Emigrant Route." The road fades off the edge of the map, but Whipple mentions seeing the other end where it joined the main trail along the Alamo River, about halfway between the lower river crossing and Cooke's Well. It may have been an attempt to stay on top of the hard-surfaced mesa while traveling west, but travelers would soon have been forced to detour south, off the mesa, when they reached the heavy sand dunes.³³

Whipple's 1849 visit to the Colorado River also inaugurated military occupation of the Yuma area. Lieut. Cave Johnson Coutts, who commanded Whipple's escort, reports arriving from San Diego at the future site of Fort Yuma on October 1 of that year. Coutts had first visited the area in 1848 with a column of dragoons, under Maj. Lawrence P. Graham, bound for California. Coutts, Whipple, and company stayed on the river only two months on their subsequent visit, before returning to California. A more permanent occupation force, under Maj. Samuel P. Heintzelman, returned on December 1, 1850. The following March, Heintzelman relocated the camp to the top of the bluff, obliterating the mission ruins, and renamed it Camp Yuma, after the Native Americans he sought to pacify.³⁴

During his first tenure (from December 1850 to June 1851), Heintzelman sent out several crews to build better roads across the bottom land south of the Andrade Mesa. His first project was straightening and clearing the road along the west (California) bank of the Colorado River from Fort Yuma to the vicinity of the upper and lower crossings, a distance of about ten miles. Travelers

now could cross at Fort Yuma and follow this road along the west bank, past the Algodones Indian village and on to Cooke's Well. The Camp Yuma crossing had the advantage of the nearby army post to protect travelers, while they were most vulnerable, from the Indians. Heintzelman also encouraged the establishment of a civilian ferry at the crossing.³⁵

Later, Heintzelman sent out crews to cut a new road through the delta bottomland below the plateau. He hoped to develop additional water sources to make the desert journey less punishing. The new road seems to have roughly paralleled the course of the usually dry Alamo River and it was probably an improvement, or variant, of an old trail through the area. The Sitgreaves exploring expedition traveled this road in December of 1851, stopping at a location in the dry Alamo River known as Seven Wells, or Five Wells, about eight miles west of Cooke's Well.³⁶

When Sitgreaves approached the Yuma area, he found that Heintzelman had temporarily withdrawn from the crossing due to supply difficulties, leaving only a skeleton occupation force under Lieut. Thomas Sweeny—not at Camp Yuma, but at the upper crossing below Pilot Knob. Sitgreaves crossed the Gila several miles above and southeast of its confluence with the Colorado River and, for several miles, followed a road that “was broad and heavy having been traveled by wagons,” until he struck the Colorado River at Sweeny's camp on the upper crossing, where the ferry was now operating.³⁷

When Heintzelman returned to the Yuma crossing eight months later, the ferry was reestablished below the camp, and thereafter this was the most-used crossing on the lower river. The army post was officially designated a “fort” on February 29, 1852, a sign of its permanence and of the importance of Heintzelman's road. Heintzelman also began exploring possible shortcuts west of Cooke's Well to New River. His work crews eventually developed a new well, called the “Big Mesquite,” along a shortcut that left the dry overflow channel on a more direct westerly course.³⁸

In 1857, the United States government began letting contracts to private companies for a cross-country mail service from the eastern states to California. The Overland Mail Company adopted a route though the desert that roughly followed the road along the Alamo River. It built primitive stations; improved the facilities

at Cooke's Well, Seven Wells, and Alamo Mocho; and developed a new water source, called Gardner's Well, about eight miles west of Seven Wells.³⁹

With the establishment of better roads and the development of more dependable water sources in the bottomland, traffic on the upper trail gradually dissipated after the Civil War. Although later travelers may have continued to use Cooke's Well for some time, the difficult-to-obtain water at the old Alamo Mocho Well was no longer needed and the well was forgotten. As time passed, railroads were built and better roads were constructed through the dunes directly west from Yuma. Irrigation canals were dug to bring water for agriculture into the Colorado Delta and the Imperial Valley. The entire face of the desert changed. Where once there was sandy ground dotted with scattered mesquite thickets, there now are acres of farmed fields.

Even the modern bed of New River would be unrecognizable to the nineteenth-century traveler. Beginning in 1905, the flood that created the Salton Sea scoured the channel of the formerly small stream into a huge gorge. The New River arroyo that John Russell Bartlett described as twenty to thirty feet wide and ten feet deep at his crossing southwest of modern El Centro, California in 1852, today averages 1,500 feet wide and fifty feet deep.⁴⁰

Progress has obliterated nearly all evidence of the old wells in the desert and the roads that connected them. Even so, students of history—professional and amateur alike—seek to identify and document the old locales and trails to better understand the experiences of the pioneers. Positively identifying one place makes it easier to find the next, and so the process continues one place at a time. Hopefully, locating these once-important sites will assist future researchers to pinpoint more accurately the locations of other historic landmarks on the southern trail.

NOTES

1. A. B. Clarke, *Travels in Mexico and California* (Boston: Wright & Hasty, Printers, 1852), pp.111-12.

2. There were few sources of water along this route in 1846. The first two were Cooke's Well and Alamo Mocho, the subjects of this article. West of Alamo Mocho, there were two other sources—Pozo Hondo and the Big Laguna, both located in the channel of the wash later known as "New River." Another, known as Seven Wells, may have existed at the time but it was located in the bottomland below the mesa and not on Kearny's route.

3. Kearny (b. 1794) died in St. Louis, Missouri, in 1848, at the home of Maj. Meriwether Lewis Clark, son of William Clark of the famed Lewis & Clark Expedition. According to the general's great-great-granddaughter, Stephanie Kearny, the name is properly pronounced "KAR-nec."
4. Cooke (1809-1895) received a promotion to the rank of lieutenant colonel upon assuming command of the Mormon Battalion at Santa Fe. He was ordered to find a wagon road to California. According to Harlan Hague, *The Road to California: The Search for a Southern Overland Route, 1540-1848* (Author's Choice Press, 1978): "They opened a track which, with [Maj. Lawrence P.] Graham's modifications, became the most heavily traveled road to California across the present United States Southwest." See Patricia A. Etter, *To California on the Southern Route, 1849: A History and Bibliography* (Spokane, Wash.: The Arthur H. Clark Company, 1998), for a thorough description of the southern trail complex.
5. Christopher (Kit) Carson (1809-1868) was born in Missouri. After spending many years in the western wilderness with various trapping parties he began offering his services as a backcountry guide, becoming a favorite guide, companion, and friend of John C. Frémont on three of his expeditions. Carson achieved nationwide fame upon the publication of Frémont's expedition reports. At the time that Kearny encountered him on the Rio Grande, Carson was carrying news to President James K. Polk from Frémont and Commodore Robert Stockton, who had already seized California for the United States. Carson died at Fort Lyon, Colorado. Edwin L. Sabin, *Kit Carson Days, 1809-1868* (reprint, Lincoln: University of Nebraska Press, 1995), pp. 800-803.
6. The Mormon Battalion was mustered at Council Bluffs, Iowa, and promptly marched to Santa Fe, New Mexico, where Cooke assumed command. Cooke marched for California with about 400 men and forty-two wagons, plus draught animals and a large herd of sheep. The volunteers were to assist the U. S. forces for one year, after which they would be discharged in California. This plan not only provided support for the American military during the Mexican War, but also helped the Mormons in their westward migration. Truth or Consequences, New Mexico, was then known as Alamocitos (little cottonwoods), and later as Hot Springs. Kearny's trail is described in detail in George Ruhlen, "Kearny's Route From the Rio Grande to the Gila River," *New Mexico Historical Review*, vol. 32 (July 1957), pp. 213ff.
7. In 1846 the Gila entered the Colorado River just before the Colorado passed between the two stone hills near where Interstate Highway 8 crosses today at Yuma. The actual junction of the rivers was a few thousand feet east of the southern hill. This southern hill later became the site of the old Yuma Territorial Prison, now an Arizona State Historic Park. In 1849, the river confluence became the eastern end point of the boundary between California and Mexico. Emory (1811-1887) was assigned to lead the topographical unit of the Army of the West and to study and map the route as his other duties allowed. Emory's report and map provided the first accurate description of the previously unknown territory that is now the southwestern United States. The ruins Emory observed across the river were those of the Purísima Concepción mission, founded in 1780 by Franciscan missionary Francisco Garcés. See Ross Calvin, ed., *Lieutenant Emory Reports* (Albuquerque: University of New Mexico Press, 1951), p. 150 and endnote 111.
8. *Ibid.*, p. 153
9. The California segment of the boundary between the United States and Mexico was established by the Treaty of Guadalupe Hidalgo in 1848. It ran from the Pacific Ocean, about 3.5 miles south of the Port of San Diego, to the junction of the Gila and Colorado rivers. The line passed just south of Pilot Knob, an isolated mountain next to the Colorado River and seven miles west of Yuma. None of the Kearny diarists mention this peak, although it appears on Emory's map. Kearny's November 24 campsite was in Yuma County, probably near Tenth Street and a little west of Avenue F, about 6.5 miles west-southwest of downtown Yuma.
10. Arthur Woodward, ed., *Journal of Lt. Thomas W. Sweeny, 1849-1853* (Los Angeles: Westernlore Press, 1956), p. 67.
11. Robert M. Norris and Robert W. Webb, *Geology of California* (New York: John Wiley & Sons, 1976), pp. 270ff.

12. Jack D. Forbes, *Warriors of the Colorado: The Yumas of the Quechan Nation and Their Neighbors* (Norman: University of Oklahoma Press, 1965), Ch. 8: "Mexicans and Yankees," especially pp. 292-93.
13. Dwight L. Clarke, ed., *The Original Journals of Henry Smith Turner* (Norman: University of Oklahoma Press, 1966), p. 119. Captain Turner was General Kearny's acting assistant adjutant general during the Mexican War and on the march to California.
14. R. S. Williamson, "Report of Explorations in California for Railroad Routes," in *Pacific Railroad Survey* (Washington, D.C.: War Department, 1853), vol. 5, ch. 9, p. 111.
15. Calvin, *Lieutenant Emory Reports*, p. 156.
16. Ralph P. Bieber, ed., *Exploring Southwestern Trails, 1846-1854: Cooke's Journal of the March of the Mormon Battalion, 1846-1847* (Glendale, Calif.: The Arthur H. Clark Company, 1938 ; reprint, Porcupine Press, 1974), p. 200. Francisco was a Mexican guide hired by Kearny in New Mexico because of his familiarity with the trail into California. He may have joined the column in Santa Fe on August 22, when Captain Turner notes "A guide engaged." Clarke, *Turner Journals*, p. 73. Kearny sent Francisco and two companions back from Warner's Ranch in California to meet Cooke at the Pima Villages, near modern Phoenix, Arizona. Francisco carried a letter from Turner introducing him to Cooke. Turner to Cooke, December 3, 1846, in Hans von Sachsen-Altenburg and Laura Gabiger, *Winning the West: General Stephen Watts Kearny's Letter Book, 1846-1847* (Boonville, Mo.: Pekitanoui Publications, 1998), p. 174. Screwbean mesquite (*Prosopis Pubescens*).
17. Clarke, *Travels in Mexico and California*, p. 111. Clarke's "36 miles" is probably a typographical error: The distance is actually twelve to sixteen miles, depending on the starting point.
18. The old course of the Alamo River is not the same as the Alamo Canal shown on modern maps. The old river flowed as much as two miles farther north—much closer to the southern edge of the mesa. The canal was established in the early twentieth century and the old course was plowed over in most places, although a remnant is still visible at the site of Cooke's Well. The erroneous position of Cooke's Well is in Roscoe P. and Margaret B. Conkling, *The Butterfield Overland Mail, 1857-1869*. 3 volumes (Glendale, Calif.: The Arthur H. Clark Company, 1947), vol. 2, pp. 217-18. The Conklings apparently never visited the trail sites in Mexico. The location of this key water hole was not known to U.S. historians until recently. In January of 2007, the Yuma County Historical Society sponsored a trip into Mexico, guided by Mexican historian Sr. Oscar Ramirez Sánchez of Mexicali. The trip was well attended by amateur and professional historians, including the author. Sr. Sánchez, who grew up in the Mexican community of Mérida, adjacent to Cooke's Well, was told stories about the well by his grandfather. The well is at GPS coordinates N32° 40' 11" W114° 55' 31". Nothing remains of the original well, although a vestige of the channel of the Alamo River still exists there.
19. Bieber, *Exploring Southwestern Trails*, pp. 204-207.
20. Calvin, *Lieutenant Emory Reports*, p. 157; Bieber, *Exploring Southwestern Trails*, pp. 208-209.
21. *Alamo* is Spanish for "poplar or cottonwood tree"; *mocho* means "cut-off." The place was named for a cottonwood stump that used to be there, although travelers in the 1840s and 1850s seldom reported seeing a stump or a tree. The name is often misspelled Alamo Mucho, or "many cottonwoods." The Overland Stage route generally followed the old course of the Alamo River, rather than the edge of the bluff. By that time, at least three more wells existed along the road between Cooke's Well and Alamo Mocho: Seven Wells (about a mile southwest of the modern town of Bórquez Norte); Big Mesquite Well (about a mile northwest of Bórquez Norte and not on the stage route); and Gardner's Well (about three miles north of Querétaro).
22. Calvin, *Lieutenant Emory Reports*, p. 158.
23. According to Whipple, "we ascended a bank to the upper desert, leaving in the valley, upon our right, one and a half miles from camp, the 'Second Wells' [Alamo Mocho]." E. I. Edwards, ed., *The Whipple Report: Journal of an Expedition from San Diego, California, to the Rio Colorado, from Sept. 11 to Dec. 11, 1849* (Los Angeles: Westernlore Press, 1961), p. 48.

Wells in the Desert

24. Maps showing the old Alamo River: 1) Map of Lower Colorado River, Showing Irrigable Lands Below Cibola Valley, E.C. LaRue, hydraulic engineer, USGS, 1916; 2) Blackburn's Map of Southern California, Ten Counties, O.V. Blackburn, 1927; and 3) Map of a Part of the Colorado River Delta in Mexico, M.J. Dowd, chief engineer, January, 1924.

25. "Rephotography," or "repeat photography," is often used by scientists to track changes in vegetation and terrain by comparing older photographs with recent ones of the same scene. The author often uses this technique to relocate historic sites.

26. A book dealer from Providence, Rhode Island, Bartlett was appointed U.S. boundary commissioner by President Zachary Taylor in 1850 and presided over much of the survey of the new boundary between Mexico and the United States, which ran from the Pacific Ocean near San Diego, California, to the Gulf of Mexico, near Matamoros, Texas. The Alamo Mocho woodcut is in Bartlett's *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. (New York: D. Appleton & Co., 1854; reprint, Chicago: Rio Grande Press, 1965), vol. 2, p. 134.

27. Bartlett's drawing and the author's photograph were made at GPS coordinates N32° 37' 13", W115° 14' 42". This is 4.3 miles/6.9 kilometers south of boundary monument 216 and only .5 mile/.8 kilometer south-southeast of the Mexicali Airport Terminal building.

28. Woodcut in William P. Blake, "Geological Report," in *Explorations and Surveys for a Railroad Route from the Mississippi to the Pacific Ocean* (1853), vol. 5, part 2, p. 110. The hard clay upper rim is no longer visible at the immediate site of Alamo Mocho Well, probably having been obliterated by dune buggies from an adjacent track. It is visible in other places nearby.

29. Calvin, *Lieutenant Emory Reports*, p.158; John Strother Griffin, *A Doctor Comes to California*, intro. and notes by George Walcott Ames, Jr. (San Francisco Historical Society, 1943), p. 38.

30. *Pozo Hondo* is Spanish for "deep well." This well was probably in or near New River wash, seven to twelve miles northwest of Calexico. It could be the same location as "Indian Wells," the later site of a Butterfield mail station 7.5 mi./12 km. southwest of downtown El Centro, California. Severe Colorado River overflow in the early twentieth century scoured the bed of New River, obliterating all evidence of sites located in its path. The well has never been positively located to the author's knowledge.

31. James W. Marshall, an employee of John Sutter, discovered gold at Sutter's sawmill on the American River in the Sierra Nevada foothills near Coloma, California, on January 24, 1848.

32. Frémont had attempted a winter passage through the mountains of Colorado but record snows brought the expedition to almost complete disaster. See Allen Nevins, *Fremont: Path-marker of the West* (reprint, Lincoln: University of Nebraska Press, 1992), pp. 343-72.

33. Edwards, *Whipple Report*, pp. 49-50. This trail may have been established by local Indians or by early Spanish, Mexican, or American travelers. Whipple does not explain his name for the road, and the author is unaware of any other mention of it in historical documents. It obviously did not penetrate the Algodones dune field, although it must have passed through the edge before dropping back down into the bottomland. Whipple encountered the place where the Old Emigrant Route rejoined the main trail eight miles east of Cooke's Well.

34. Graham had commanded an occupation force at Monterrey, Mexico. In January 1848, he was ordered to California. Portions of his route from Mexico became an integral part of the Southern Trail used by emigrants and '49ers to reach the Pacific Coast. See Henry F. Dobyns, ed., *Hepah, California!: The Journal of Cave Johnson Couts* (Tucson: Arizona Pioneers' Historical Society, 1961); William McPherson and Arthur M. Ellis, eds., *From San Diego to the Colorado in 1849: The Journal and Maps of Cave J. Couts* (Los Angeles: Zamorano Club, 1932), pp. 70 ff. See also Constance Wynn Altshuler, *Starting with Defiance: Nineteenth-Century Arizona Military Posts* (Tucson: Arizona Historical Society, 1983), p. 67.

35. Heintzelman began this project on March 13, 1851. Creola Blackwell, *A Transcription of Major Samuel P. Heintzelman's Journal, 1 January, 1851-31 December, 1853* (Yuma, Ariz.: Yuma County Historical Society, 1989), p. 16. The crossing was a short distance west of the mod-

ern Interstate 8 bridge across the Colorado River at Yuma, Arizona. The upper crossing was immediately opposite Pilot Knob, and the lower crossing was about three miles farther south. *Algodones* means "cotton (plants)" in Spanish, but colloquially it refers to cottonwood trees. The Indian village was about three miles south-southwest of the modern Mexican border town of the same name. It appears on A. W. Whipple's 1849 "Map of a Survey and Reconnaissance of the Vicinity of the Mouth of the Rio Gila," labeled "Santiago, Chief of the Yumas," and on several other maps as "The Algodones." Arthur Woodward, ed., *Journal of Thomas W. Sweeny, 1849-1853* (Los Angeles: Westernlore Press, 1956), p. 50. Sweeny was one of Heintzelman's officers.

36. Andrew Wallace and Richard H. Hevley, eds., *From Texas to San Diego in 1851: The Overland Journal of Dr. S. W. Woodhouse, Surgeon-Naturalist of the Sitgreaves Expedition* (Lubbock: Texas Tech University Press, 2007), pp. 167ff. Woodhouse notes stopping at Seven Wells (also known as Five Wells) on December 7, 1851. Seven Wells is on the lower road in the bottom land along the Alamo River. According to Oscar Sánchez of Mexicali, it was located at approximately N32° 37' 25", W115° 02' 02".

37. Wallace and Hevly, *From Texas to San Diego in 1851*, p. 162, quoting from Woodhouse's journal. To the confusion of modern historians, Sweeny called this post near Pilot Knob "Camp Independence," a name Heintzelman had first applied to his camp on the river before moving uphill to build Camp Yuma. *Ibid.*, pp. 161, 162-66; Robert W. Frazer, *Forts of the West* (Norman: University of Oklahoma Press, 1965), p. 35.

38. This "new road" left the old road about two miles west of Cooke's Well and took a more direct course to the west than the road along the Alamo River. It passed through an area Heintzelman called "The Big Mesquite," where there was apparently evidence that water might be obtainable. The crews Heintzelman sent to dig found water near the road. Although the location of the Big Mesquite Well is unknown, the author speculates it may have been in the vicinity of N32° 38' 09", W115° 05' 42", about four miles west of Seven Wells. Blackwell, *Heintzelman's Journal*, pp. 31, 34, 80, 92.

39. As previously mentioned, the stage station at Alamo Mocho was probably in the plain along the Alamo River, about three quarters of a mile south of the original well in the embayment. Gardner's Well was located in the bed of the old Alamo River, probably in the general vicinity of N32° 35' 48", W115° 09' 05".

40. The Salton Sea was created accidentally between 1905 and 1907 due to human causes in combination with particularly unfortunate weather. In early 1905, at a vulnerable stage in the construction of a new irrigation head gate on the Colorado River, an unexpectedly heavy seasonal flood surged down the Colorado River and broke through into the irrigation canals in the Colorado Delta and the Imperial Valley. Eventually, almost the entire flow of the river was diverted northward into the Imperial Valley. It took the irrigation company and the railroad more than two years to stem the flow, during which time a large portion of New River wash was scoured into a wide gorge and the dry Salton Sink to the north was filled with flood water, creating what we now call the Salton Sea. For details of the flood, see Godfrey Sykes, *The Colorado Delta*, American Geographical Society Special Publication No. 19 (Washington, D.C. and New York: The Carnegie Institution and the American Geographical Society, 1937).