

Desert Tracks

**Publication of the Southern Trails Chapter
of the Oregon-California Trails Association**

August 2021



**Along the “Upper Road”
in the Guadalupe Mountains of Texas**



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Past issues can be found via a link on the Southern Trails Chapter website southern-trails.org.

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Desert Tracks

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On the Cover:

Along the “Upper Road” in the Guadalupe Mountains of Texas

Figure 2, from Larry Francell’s article, “They Passed by Here”

photo by Matt Walter

Thoughts From the Editors...

Both of your editors, Dave Miller and Dan Judkins, have done a lot of thinking about what exactly we mean by the terms “Southern Trails” and “Desert Tracks.” We needed to do this thinking because we are trying to select the best and most-appropriate articles for *Desert Tracks*.

Both of us concur with the central focus of OCTA and its Southern Trails Chapter being California-bound emigrants. And although we see this as a key interest, we believe that the network of pre-existing trails, and events leading up to the westward emigration, all heavily influence our understanding of what the “Southern Trails” are, and on what materials should be presented in *Desert Tracks*.

Accordingly, we have adopted a somewhat more-expansive view to include historical events leading up to and influencing the westward migration. And a viewpoint that recognizes that the trails used by west-going emigrants were largely pre-existing, that others had used them before. Therefore, we shall, from time-to-time, include articles covering these related topics. They will include certain explorers, travelers, and settlers of what is now the Southwestern United States in the Spanish period (1532-1821), and in the Mexican Period (1821-1854). And even before that, back into the depths of time, the various Indian groups and tribes, including the earliest humans in the Southwest, are the ones who first found water sources, and linked them with trails.

As history unfolded, certain political events, wars, attitudes, and concepts together influenced eastern residents of the United States to look westward. Some of the factors included slavery, early anglo settlement in Texas, the formation of the Republic of Texas and later it joining the United States, the concept of Manifest Destiny, the desire of a certain type of person to seek out new and better opportunities, the prospect of “striking it rich,” the debt-ridden and the lawless type trying to escape the consequences they were facing, and the viewpoint that white “Americans” were somehow superior to the native population, the Mexicans to the south, and the slaves. And of course, the citizens of the United States, from the beginning, felt independent of European powers (the British empire, Spain, and France).

The realities of travel in the arid west included the constant quest for water and forage and fuel. And the limits of the travel technology available, wagons and horses and mules and oxen, constantly intruded.

For us 21st-century trail aficionados, a number of skills are needed to better understand and appreciate the Southern Trails. These include finding and reading the relevant history, analyzing primary-source (those-who-were-there) trail accounts (diaries and letters), locating other related period accounts such as newspaper articles and government reports, studying early maps, finding clues in period drawings and illustrations, interpreting artifacts seen along the trails, using GIS mapping skills to produce trail maps, genealogy, and using various computer-based research techniques. And to share the findings with others, skills in organizational management and leadership, presenting, writing, and such are needed.

Another related issue is defining the geography that we cover -- from Arkansas through Oklahoma, and Texas, New Mexico, and Arizona, to Southern California. But sometimes there are feeder trails and other routes that move a ways out of these six western states and include adjacent areas such as southern Colorado and Utah, Chihuahua and Sonora, other northern-Mexico routes to the west coast used by travelers, and even Baja California. In this issue of *Desert Tracks* we focus on early trails in West Texas, an area this journal has not emphasized much in the past. So, all of these matters will, from time-to-time, surface in the various articles that we will include in these pages.

And throughout it all the California-bound will frequently appear in the foreground.

— Daniel G. Judkins and David H. Miller, editors





This map by Tom Jonas shows most of the “Southern Emigrant Trails” extending from Fort Smith, Arkansas to Los Angeles. It also shows some of the related trails that go into southern Colorado and Utah, as well as trails in northern Mexico. And there are a few more, from San Antonio east to Louisiana, and others in Northern Mexico, including Baja California.

ABOUT THE WRITERS...

Gerald T. Ahnert is an expert on the Butterfield Overland Mail in Arizona. Ahnert has published numerous articles on the Overland Mail. In this issue he writes about “Sycamore Springs,” a water source near Apache Springs in Eastern Arizona.

Tracy DeVault is a long-time writer for *Desert Tracks*, currently co-authoring a series with Bruce Watson concerning the techniques of the mapping of emigrant-period trails.

Bruce Watson, a member of the Southern Trails Chapter is co-authoring the series on trail mapping with Tracy DeVault.

Jack Beale Smith of Oklahoma City, a long-time student of Beale, has investigated Beale’s trail through Oklahoma, Texas, and Arizona. He has, along with David Miller, erected multiple markers along Beale’s route in Oklahoma.

Ian M. Milliken is an archaeologist with Pima County Cultural Resources and Historic Preservation. He is interviewed by Daniel Judkins about the recently-discovered human trackway preserved just north of downtown Tucson, being one of the earliest “desert tracks” on the Southern Trail. The article is titled “*go:ki*.”

François-Marie Patorni is the author of *The French in New Mexico: Four Centuries of Exploration, Adventure, & Influence*. He writes about Pedro Vial, who explored the earliest San Antonio-to-Santa Fé trail.

Larry Francell is the recently-retired and award-winning director of the Museum of the Big Bend at Sul Ross University in Alpine, Texas. He previously was on the staff at Fort Davis National Historic Site. He is the author of the book, *Fort Lancaster*.

David H. Miller, PhD, retired Dean of the School of Liberal Arts at Cameron University, Lawton, OK. Cameron is governed by the University of Oklahoma Regents. Miller is Co-Editor of *Desert Tracks*. In this issue he writes about William P. Blake’s camels across Texas. He also co-developed the photo essay on Rock Inscriptions Along the Trail, and worked with Jack Beale Smith on the article about Beale’s bridge in Oklahoma.

Harry P. Hewitt, PhD is a retired historian who taught at the Department of History at Midwestern State University in Wichita Falls, Texas. He is a Southern Trails Board member. In this issue he reviews a recently-published book, *From Presidio to the Pecos River: Surveying the United States - Mexico Boundary Along the Rio Grande 1852-1853*.

The Mystery of Leach's Sycamore Springs

by Gerald T. Ahnert

Apache Pass was a dangerous place for travelers on the Southern Overland Trail. For this reason, it was also called “*Puerto del Dado*”—Place of Chance. It was the home of the Chiricahua Apache who preferred to attack from the high places, and Apache Pass Spring in a canyon was a perfect place for an ambush. The California Volunteers would find this out July 15, 1862, when they were attacked near the spring. In August 1858, Butterfield's Overland Mail Company Apache Pass Stage Station was constructed about one-mile from the spring, of stone rather than adobe, as protection from attacks. See Figure 1.

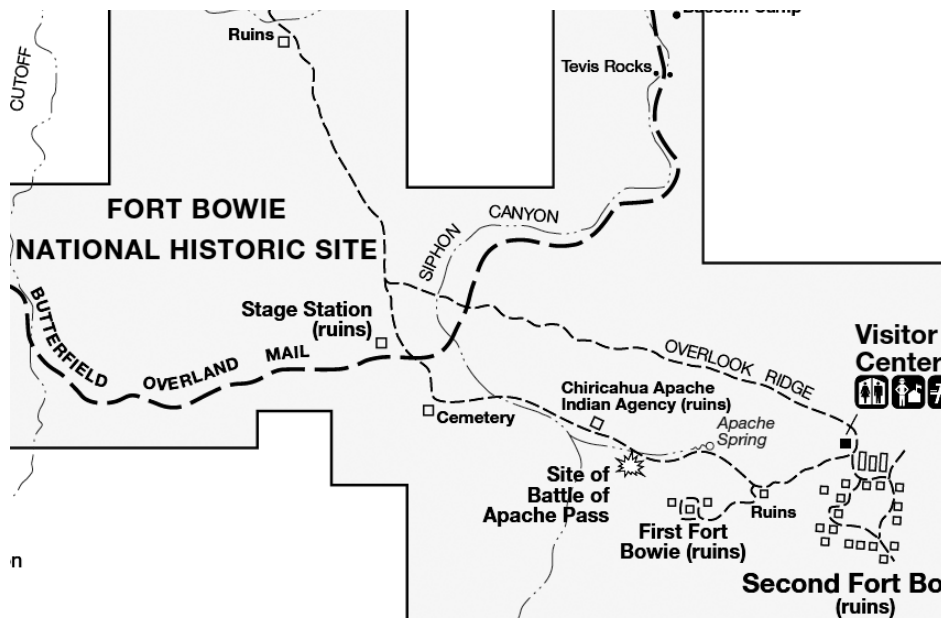


Figure 1. The dreaded Apache Pass. The “Site of Battle of Apache Pass” was in the canyon near the spring. Map from Fort Bowie National Monument.

But why would travelers on the Southern Overland Trail choose to go through this dangerous pass when there may have been an alternate source of water and a road through the desert that bypassed Apache Pass?

In 1854 and 1855, Lieutenant John G. Parke, Corps of Topographical Engineers, was assigned the task for a survey for a railroad from the Mississippi River to the Pacific Ocean. In his report he tells of a route to avoid Apache Pass:

“This examination was highly satisfactory, as were also those made on other portions of the line; and it will be seen that these have resulted in vast and important improvements upon the line of survey for 1854, not the least of which is the avoiding of Puerto del Dado [Apache Pass] of the Chiricahui [Chiricahua] mountains. This ridge can be turned at its northern end by passing through a break or gap between it and Mount Graham. This is the lowest summit between the Valle de Sauz [San Simón River] and the Playa de los Pimas [Sulfur Springs Valley], being 580 feet lower than that of Puerto del Dado and more than 225 feet lower than the Dome Pass of Gray. ...I would suggest that it be called THE RAILROAD PASS.”

James B. Leach received a contract in 1857 for the El Paso and Fort Yuma Wagon Road. In 1858 he found a spring at the northern base of the Dos Cabezas Mountains and his construction crew built a road through Railroad Pass and enlarged the spring's water capacity by building an earth tank. The following accounts are from his hand-written field-notes. See Figure 2.

In Camp, 'Ojo Escavado'
May 15th 1858.

Hon Jacob Thompson
Secretary of the Interior
Washington
D. C.

Sir;

I have none of your favors to answer since my last, dated April 29th at 'Croton Springs' & I now will proceed to give you a full account of my proceedings on the road since then.

Figure 2. Part of Leach's May 15, 1858, report about improving the capacity for Sycamore Springs.

In Camp, 'Ojo Escavado'
May 15th, 1858

Hon. Jacob Thompson
Secretary of the Interior
Washington
D. C.

Sir;

I have none of your favors to answer since my last, dated April 29th at 'Croton Springs' & I now will proceed to give you a full account of my proceedings on the road since then.

I left 'Croton Springs' 1st not having previously sent on a working party to build a tank between that point and the 'Sauz' [San Simon River], but-the necessity of doing so was obviated by the finding of very good water at a distance of 23½ miles, or halfway to the 'Sauz', the same being excellent water and in abundance, situated about 2 miles north of the Chiricaya [Chiricahua] Mountains; improved the bed of the stream, making a basin in the center which will contain sufficient water for any party or parties that may pass through, and I think that from the quantity running there at this season of the year, there is a certainty of its permanency.

From the latter point ('Sycamore Springs') I proceeded to the 'Sauz' striking it about 3 miles below the stage crossing and 23 miles from the 'S.[ycamore] Springs'; I there made a tank 100 ft. long, 22 ft. wide at the surface and 7 ft. at bottom, and 4 feet deep, striking sand here, I could not go any deeper."

After passing over the new trail again on their way to San Diego, they camp near Sycamore Springs and make some final improvements. He writes the following (see Figure 3) about the spring in his September 5-9, 1858, field-notes:

28 1858 Itinerary Continued
Sept 5th Remained in Camp No 10 all day. One of the mules
halt in referred to yesterday as being sick died this morning
Camp No 10 Dispatched a working party to Sycamore Springs for
the purpose of digging a tank.

Figure 3. Leach's field-note for September 5, 1858.

Sept. 5

Halt in Camp No, 10

Remained in Camp No. 10 all day. One of the mules referred to yesterday as being sick died this morning. Dispatched a working party to Sycamore Springs for the purpose of digging a tank.

Sept. 6

Camp No. 11 at Sycamore Springs

The train was ordered forward from Camp No. 10 at 1 pm and reached Sycamore Springs at 11 pm where camp was ordered to be pitched. For about 16 miles after leaving the Sauz the road leads up a gradient declivity, sandy and extremely uninviting and sterile except in the production of a coarse, heavy species of brush, the leaves of which have a scent singularly resembling that of creosote. In some places the land gives way to stretches of rocky barren. In April a new road was opened along this route; and the rocks and bushes thoroughly removed. About six miles before reaching Sycamore Springs we entered upon a range of rolling hills which in April were abundantly covered with a fine growth of gamma grass which continues good to the present time.

Sept. 7

Camp No. 12 at Croton Springs

After watering the stock from the barrels, the train was ordered forward at 9 am the working party being left behind to complete the tank. Water was found in a clayey arroyo some six miles west of Sycamore Springs. Recent rains however must account for this fortunate circumstance. At 5 pm after a march of 26 miles we reached Croton Springs a well-known unfailling watering place where camp was ordered to be pitched. We had during the day a number of light showers. The road between Sycamore Springs and Croton Springs required little labor upon it last April, lying as it does over a fine rolling prairie, upon which the grazing is more than usually fine, and being naturally almost as good as a macadamized road.

Sept. 9

Camp No. 13 between Croton Springs and Rio San Pedro

The working party from Sycamore Springs came into Camp No. 12 at 8 am to day and reported the tank completed, of the following dimensions; 48 feet long, 28 feet wide at the top, 4 feet at the bottom and 8 1/2 feet deep.

The strata of rocks through which the water flows into this tank is about four feet below the surface earth and the stream is equal to the task replenishing the tank, should occasion require it to be implied in the space of (see Mr. Hutton) [Hutton's report stated: ...with a sufficient discharge from the spring to fill it three or four times in twenty-four hours]. The train was ordered forward at 1 pm and after a march of 18 miles camp was pitched for the night. Recourse was had to our water barrels which had been filled at Croton Springs. The gamma grass on the hills was found tolerably good. A considerable amount of labor was performed on this section of the road last April, the entire course being newly opened and rock and brush being removed."

According to the table "Construction. Amount of work excavated" with Leach's report it stated that the amount of earth removed to improve the capacity was 83 cubic yards, which increased the capacity by 13,446 gallons. See Figures 4, 5, and 6.

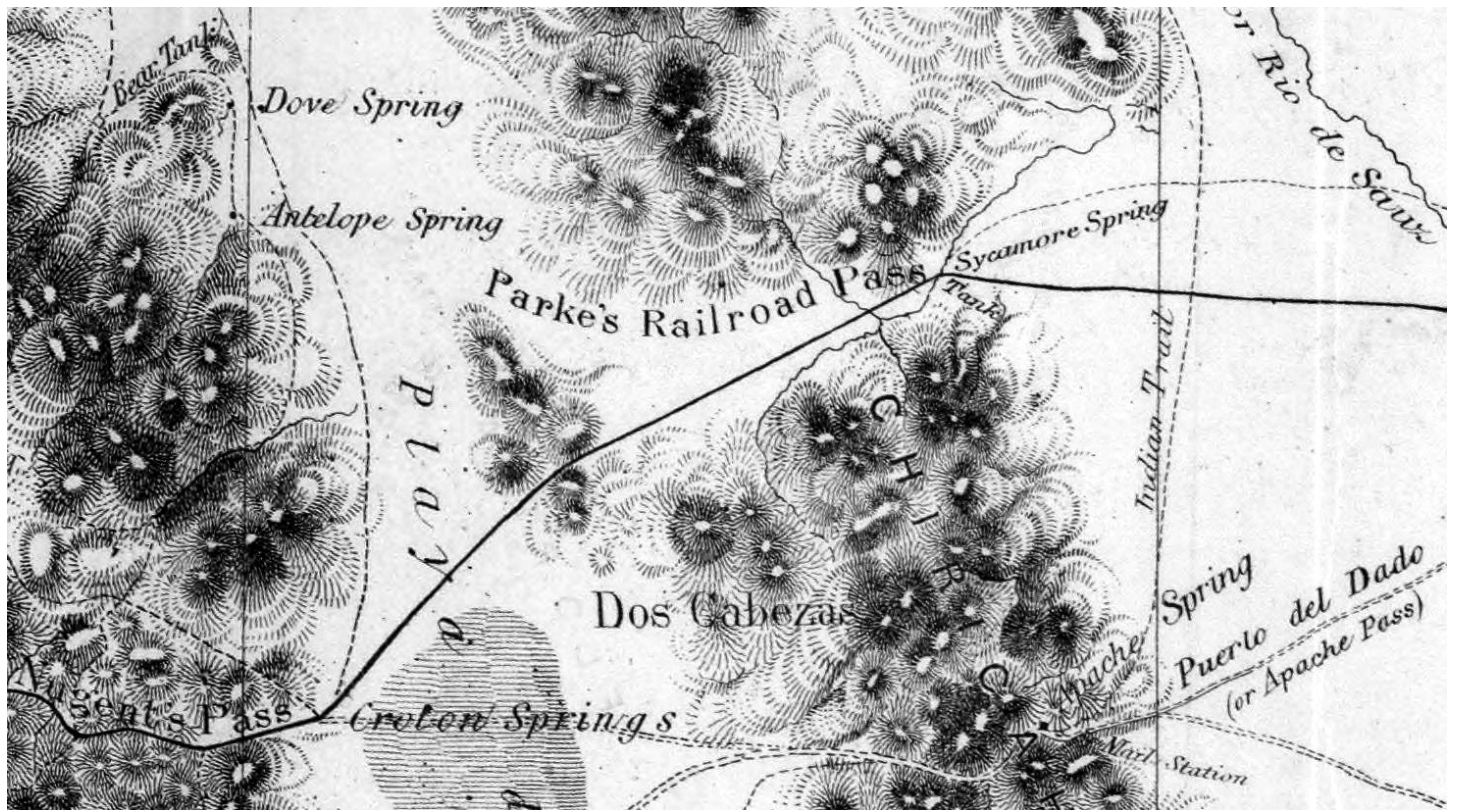


Figure 4. A section of Leach's Map No. 2 accompanying his report to Secretary of the Interior Jacob Thompson. Just east of "Parke's Railroad Pass" is seen "Sycamore Spring." "Apache Spring" is in the "Puerto del Dado (or Apache Pass)." The solid-line is Leach's new road. The dashed line through Apache Pass is the Butterfield/Southern Overland Trail. Near "Apache Spring" is "Mail Station." This is the newly constructed Butterfield's Apache Pass Stage Station.

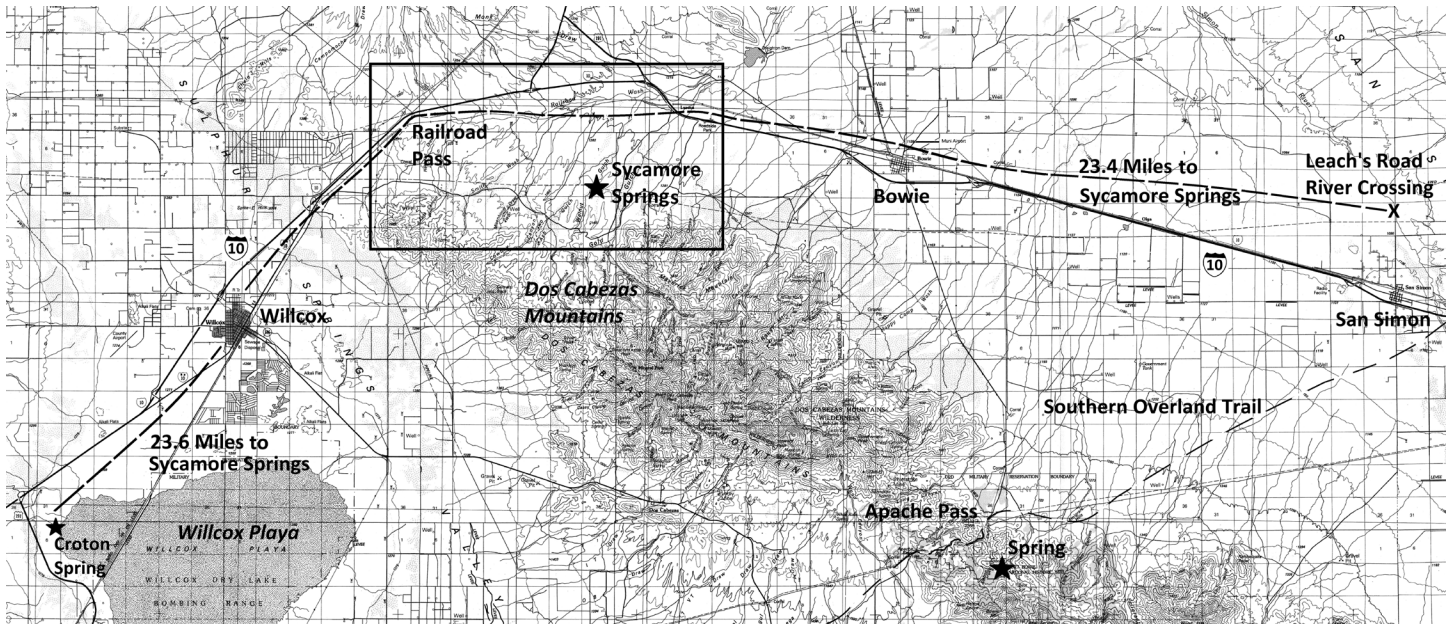


Figure 5. Leach's road (dashed line) and approximate location of Sycamore Springs in "Railroad Pass."

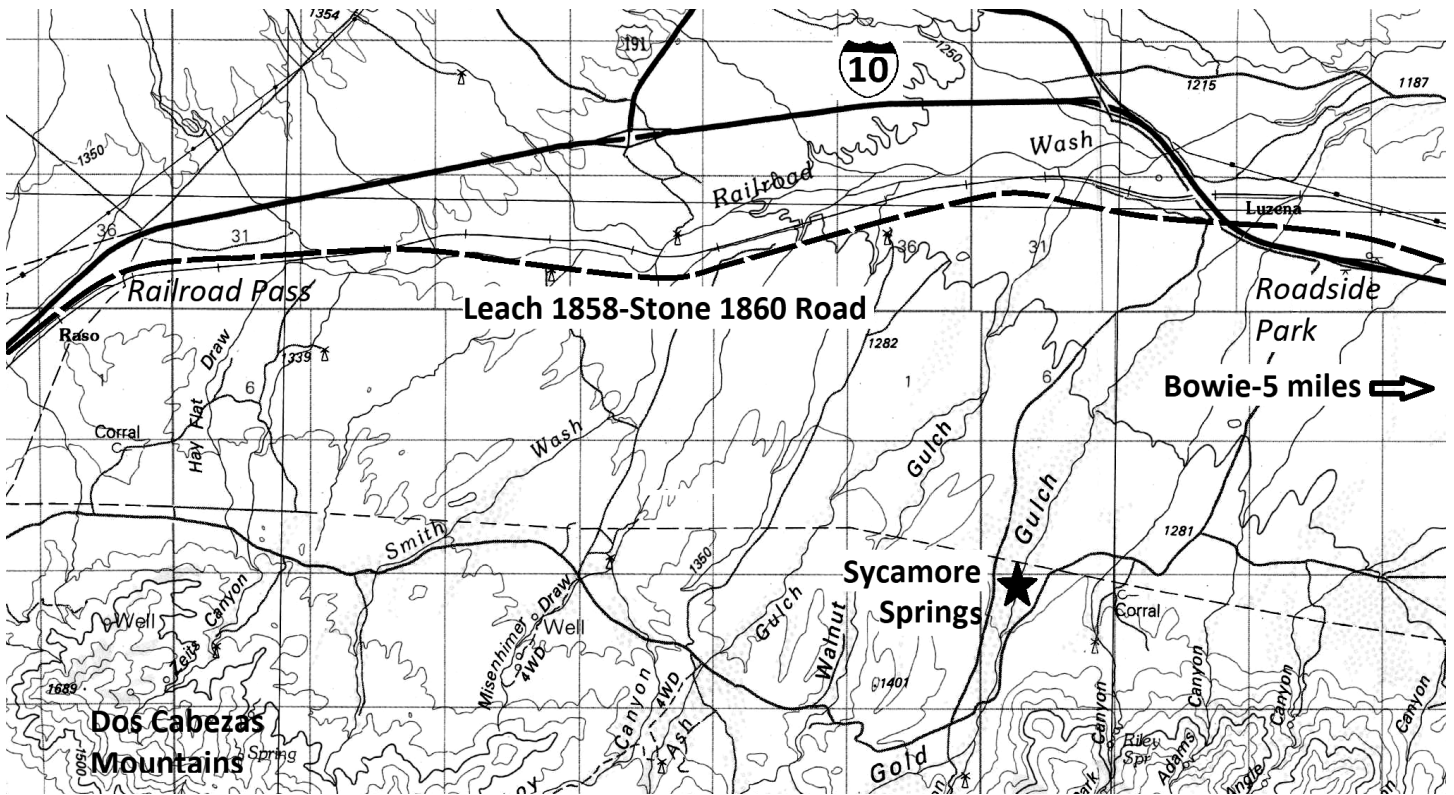


Figure 6. The route of James B. Leach's 1858 road improved by Charles P. Stone in 1860 and Sycamore Springs are approximate.

After the July 15, 1862, Apache attack on the California Volunteers at Apache Pass Spring, Captain John Cremony was informed of the attack on his way from Tucson to Apache Pass with a military wagon train. He felt that the train was too important and didn't want it falling into Apache hands. He avoided going through Apache Pass and detoured around the north end of the Dos Cabezas Mountains through Parke's Railroad Pass. On July 22, 1862, Cremony reported:

"The accompanying report of that officer [Captain Roberts] will explain the route over which we passed in going from Tucson, and the severe conflict had with the savages at Apache Pass, together with such other points of information as Captain Roberts many have professed. Being fully impressed with the danger of attempting to take the train back through Apache Pass with the small command of thirty-nine men in the face of the fact that the Indians had not hesitated to attack and fight for six hours a command of 130, and knowing the value of the train, I returned by the road made by Capt. (now General) Charles P. Stone. This route is about ten miles longer than the one leading to Dragoon Spring and through Apache Pass; but in all other respects it is so greatly superior I am surprised the other should ever have been used. The first day I marched about thirty-three miles over a perfectly smooth and open country, with excellent road, and camped at a spot bearing north by west from the highest nubble of the Chiricahua Range, and where a side road puts out from the main one toward the above-mentioned range, leading to a fine green looking canon three miles distant from the main road, and which is reported to yield abundance of water [Sycamore Spring]; but absence of any commissioned officer with whom to leave the train, as well as the fact that I was supplied with water from the tanks, induced me to refrain from exploring the canon, especially after the savages inhabiting the range had given us so decided and example of their hostility."

The Charles P. Stone 1860 Contract for the El Paso and Fort Yuma Wagon Road

In December 20, 1858, a scathing report by auditor W. B. Sayles told of Leach's failure to meet the requirements of the contract: "I advised a return to the work, and with particular reference to increasing the number of tanks, and improving those previously opened." This probably included Sycamore Springs. After passing over the route to improve the tanks, Sayles stated "...what surprised me greatly is to learn that little was done beyond passing over the route." All through the hand-written letters and field-notes in the Records of the Office of the Secretary of the Interior Relating to Wagon Roads referenced are letters of improprieties written by auditor W. B. Sayles.

To bring the wagon road up to the contract standards that Leach failed to meet, on April 4, 1860, a new contract was awarded to Charles P. Stone to further improve the El Paso and Fort Yuma Wagon Road. See Figure 7, next page.

As can be seen, in this cover for the contract payment, it states "...for improving certain portions of the El Paso & Fort Yuma Wagon Road." The assigned engineer for this new contract was Jasper S. Whiting who was unable to fulfill his duties as he came down with a fever. Richmond Jones, Jr. was his replacement who kept a diary and wrote:

Monday, 16th [July 1860]

Preparing to make reconnaissance of the Leach Wagon Road from its junction with the Rio San Pedro to El Ojo Excavado for Mr. Jasper S. Whiting, C. E. Acting Ch. Com of Sonora Survey, and in charge of repairs on L. W. Road. Having contracted the fever I have consented to fill his place during his illness...

4917

A. H. Campbell
Genl. Supt &c
Nov. 8. 1860.

Requisition for \$5,000.00
in favor of "Chas. P. Stone
Chief of Commission &c
Present, being in part pay-
ment under his contract
of April 4. 1860 for im-
proving certain portions
of the El Paso & Fort
Yuma Wagon Road".

Figure 7. This requisition was for a \$5,000 payment to Charles P. Stone, but there was later an additional \$5,000 payment for a total of \$10,000.

In his diary, Jones tells of Sycamore Spring:

Saturday, July 21

Left Croton Springs at 6 A. M., crossed the northern end of the Playa de los Pimos, traveled the Chiricahui [Chiricahua] Mts. through Parke's R. R. Pass, found no water at Sycamore Spring...

Conclusion

Captain John C. Cremony in his report expresses his view that the route through Parke's Railroad Pass is "greatly superior" to the road going through Apache Pass and also mentions the "spring [Sycamore Springs] which is reported to yield abundance of water..." But the inconsistent flow of the spring may have been problematic. Leach's description of the quantity of water in the spring was based on his view in May 1858 "...and I think that from the quantity running there at this season of the year, there is a certainty of its permanency."

If Sycamore Springs and Leach's Wagon Road had become the reason that the Southern Overland Trail would be through Railroad Pass and not through Apache Pass, would there have been a Fort Bowie, The Battle of Apache Pass, The Bascom Affair and the resulting massacre of those on a Mexican wagon train, and the only attack by the Apache on a Butterfield Overland Mail Company stage?

After the El Paso and Fort Yuma Wagon Road work was completed, no further mention can be found for Sycamore Springs. Leach's road through Parke's Railroad Pass, and near Sycamore Springs, was probably used by some emigrants and other travelers, but the main route of the Southern Overland Trail remained through the dreaded Apache Pass. Given the entry by Richmond Jones, Jr. in his diary concerning the lack of water in Sycamore Spring, it is probable that Apache Pass Spring provided a more reliable source of water all year long for passing travelers.

Endnotes

¹"Expedition to N. W. Texas and New Mexico," *The War of the Rebellion, A Compilation of the Official Records of the Union and Confederate Armies*, Series I—Volume L—In Two Parts, Part I—Reports, Correspondence, Etc., Washington: Government Printing Office, 1897, 131.

²John G. Parke, "Report of Explorations from Pimas Villages to Rio Grande, Central Section 32d Parallel Route, Section 1. General Description of Route," *Reports of Explorations and Surveys*, 1853-6, Volume VII, General Report, 1857, No. 2, Senate Ex. Doc. 78, 33d Congress, 2d Session, Washington: A. O. P. Nicholson, Printer, 1857, 20. This was also printed in Washington in 1857 by Beverly Tucker, Printer.

³"Letters Received Relating to the El Paso—Fort Yuma Wagon Road, 1857-1861," *Records of the Office of the Secretary of the Interior Relating to Wagon Roads, 1857-1861*, File Microcopies of Records in the National Archives: No. 95, Roll 3, Washington: The National Archives, 1947.

⁴"Report of N. H. Hutton, Engineer of Road to James B. Leach, Esq., Superintendent, El Paso and Fort Yuma Wagon Road Expedition," *The Executive Documents Printed by Order of The Senate of the United States, Second Session, Thirty-Fifth Congress, 1858-'59*, Washington, D. C., January 29, 1859, 84.

⁵*The War of the Rebellion*, 133-134.

⁶*Records of the Office of the Secretary of the Interior Relating to Wagon Roads*, (From the hand-written field-notes.)

⁷Richmond Jones, Jr., *Diary*, 1860, from photographs of the diary pages taken in 2006 when the diaries were in the possession of Bill and Ellie Kurtz of Sópори Ranch, Arizona. Note: The entries from the diary were provided courtesy of Daniel Judkins.



Coordinate Systems

Instructional Articles on Techniques for Mapping Emigrant Wagon Roads

by Tracy DeVault and Bruce Watson

One essential skill used in trail mapping is a working knowledge of coordinate systems. When we plot trail locations on topographic maps, we are using a coordinate system.

Let's start with some basics. Assume we've located some trail evidence along a historic wagon road. Since we're trying to document and map these roads, we need to have a method of identifying this location so we can refer to it after we leave the site. We will likely also want to plot the location on a U.S.G.S. Topographic Map. Identifying a specific location is the job of coordinate systems. Since trails cover long distances we will most likely want to use a worldwide coordinate system. The two most common coordinate systems used for trail mapping are Latitude-Longitude (Lat/Lon), and Universal Transverse Mercator (UTM). They have distinctively different approaches to specifying locations and very different presentation formats, so let's delve into each to understand how they work.

Latitude-Longitude (Lat/Lon)

We will start with Latitude-Longitude since that was the first worldwide coordinate system in general use.

Latitude defines one's position north or south of the equator. It is given using an angular measurement and is expressed as degrees north or south of the equator. The equator is located at zero degrees latitude. The poles are at ninety degrees north latitude or ninety degrees south latitude. Lines of constant latitude are called *parallels*. They encircle the earth and are parallel to the equator. See Figure 1.

Longitude is also given as an angular measurement and is expressed as degrees east or west of a prime meridian. A prime meridian is located at zero degrees longitude. Over the centuries there have been a number of prime meridians but, in 1884, Greenwich, England was selected as the official prime meridian and remains the prime meridian to this day. Lines of longitude run north and south from/to

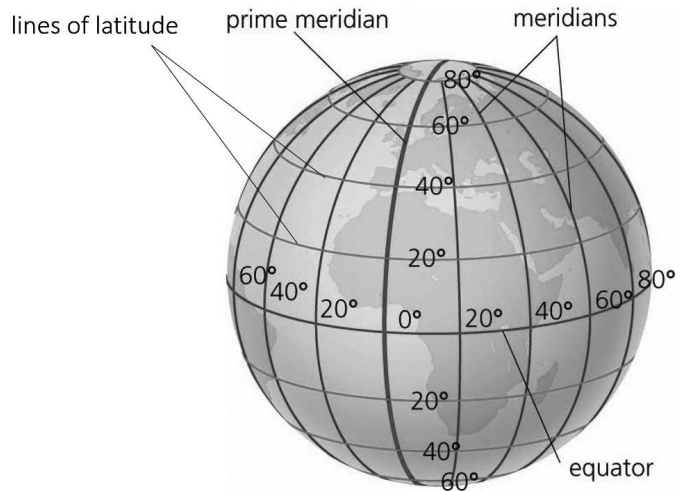


Figure 1. The Lat/Lon Coordinate System.

the poles. These lines, called *Meridians*, mark positions on the surface of the earth east and west of the Prime Meridian. Again see Figure 1.

When using the Lat/Lon coordinate system to specify the coordinates of a location, latitude is always given first followed by longitude. There are also three formats for expressing Lat/Lon coordinates that are in common use.

Degrees, Minutes, Seconds - e.g.,
32° 32' 27.21" N, 112° 28' 9.99" W

Degrees, Decimal Minutes - e.g.,
34° 32.453' N, 112° 28.167' W

Decimal Degrees - e.g.,
34.540891° N, 112.469442° W

One can convert from one of the formats to another using basic mathematics. You can also make these conversions painlessly using PC-based mapping programs or online websites. You can even use your handheld GPS receiver to do the conversion. For now you should just be aware that there are three different formats commonly used to express Lat/Lon coordinates.

The idea of using latitude to express one's position north or south of the equator has been around since at least the sixth century BCE. The technology to actually determine one's latitude has been around for almost as long. Both the Phoenicians (600 BCE) and the Polynesians (400 CE) used observations of the heavens¹ to calculate latitude.

Hipparchus, a Greek astronomer (190 - 120 BCE), was the first to specify positions on the earth's surface using angles of latitude and longitude as coordinates. We now had a worldwide coordinate system. There was, however, a problem of actually determining one's longitude, and it was an enormous problem.

The earth rotates at a constant speed of one degree every four minutes. One way to determine the longitude of a specific location is to use the time difference between an astronomical event observed at that location and the same astronomical event observed at the Prime Meridian.² That time difference, expressed in minutes and divided by four, will yield one's longitude, expressed in decimal degrees.³

Historically, the only way to determine that time difference required using a clock to record the time when the astronomical event occurred at the Prime Meridian and then transporting that clock to the place where you wanted to determine its longitude. This required a clock that could keep very accurate time while being transported to any location on the earth's surface.⁴

So, actually being able to determine one's longitude had to wait until the mid 1760s when a Yorkshire clock maker, John Harrison, developed a clock that could maintain accurate time while traveling at sea. This technique, improved by even better clocks, was used until the early 1900s when radio signals containing Prime Meridian timing information were broadcast worldwide.⁵

Universal Transverse Mercator (UTM)

Another coordinate system that is in common use and one that is favored by most trail mappers is Universal Transverse Mercator or UTM for short. It is a particularly useful system for mapping purposes because it uses linear measurements (expressed in meters) instead of an angular measurements (expressed in degrees). If I say to you that two pieces of trail evidence are located 100 meters apart you can readily envision that distance. However, very few of us are able to envision a distance of 0.139 degrees.⁶ Also, meters are always the same length regardless of which direction you're moving or where you are on the surface of the earth. This is not true of Lat/Lon's angular measurements.

The Lat/Lon coordinate system is based on a spherical representation of the earth's surface. The UTM coordinate system is based on a two-dimensional projection. Two-dimensional representations of the earth's surface introduce a lot of distortion. What UTM does to get around the distortion problem is break up the projection into many small rectangles.⁷ Within any given rectangle the distortion is small, less than one meter.

In Figure 2 you can see a flat projection for the North American Continent with the UTM zone/band grid superimposed. The Southern Emigrant Trail is fully contained within UTM Band S, Zones 11 through 13.

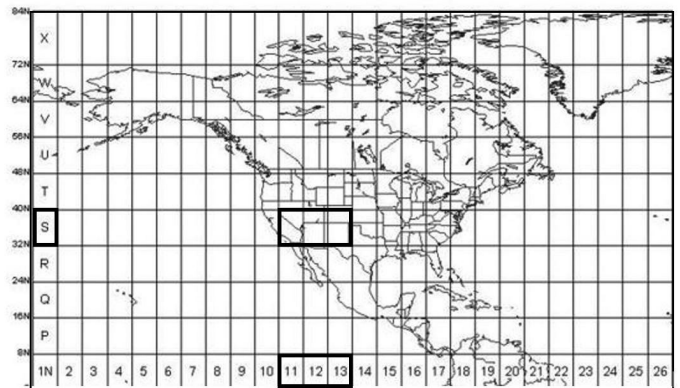


Figure 2. The UTM Coordinate System

Figure 3 is a map showing the outlines of the states of Arizona and New Mexico. The states are almost fully contained in UTM Band S, Zones 12 and 13. Each zone is 6 degrees of longitude wide. The north-south centerlines for each zone are somewhat arbitrarily assigned an easting measurement of 500,000 meters. This means that any easting ordinate within the zone will always be a positive number. Also displayed near stars are a few random UTM coordinates that exhibit UTM's coordinate format. In North America all northing ordinates are measured from the equator and will also always be a positive number. UTM coordinates are always presented with the zone and band, then the easting ordinate and finally the northing ordinate. The notation, "WGS84", shown with each set of coordinates is the map's datum. We will discuss datums in a subsequent article.

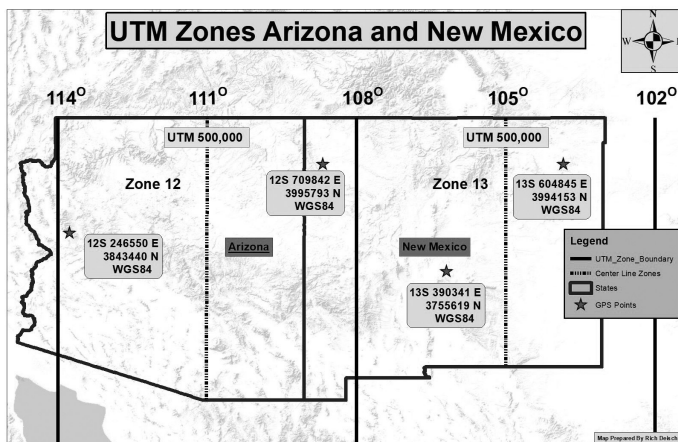


Figure 3. UTM Zones Arizona and New Mexico

These days handheld GPS receivers provide a quick, easy and accurate way to determine and record our location. GPS setup controls allow us to view location coordinates in any of the three Lat/Lon formats, the UTM format or any of dozens of other specialized coordinate formats.

Mapping programs are computer programs used to plot sets of coordinates on digital representations of topographic maps. Modern mapping programs, such as Terrain Navigator Pro, allow users to transfer waypoints (sets of coordinates) directly from a GPS receiver to the mapping program.

ENDNOTES:

¹ Here we're using the term Heavens in the literary sense, i.e., a vault where the sun, moon, stars and planets are contained.

² A commonly used astronomical event is Solar Noon, the time when the sun is at its highest point. The time when Solar Noon occurs can be determined with a watch and a sun dial.

³ The actual formula for determining longitude in areas that are west of the Prime Meridian is: Lon (in degrees west) = (TD + EoT) / 4 minutes/degree; where 1) TD is the time difference between the occurrence of an astronomical event as timed at the Prime Meridian and the time of the same event as timed locally (measured in minutes) and 2) EoT is the Equation of Time, an adjustment that compensates for the combined effects of the earth's orbital eccentricity and the earth's orbital obliquity (also measured in minutes).

⁴ In 1681, Italian astronomer Giovanni Cassini demonstrated that one could determine the time of astronomical events at the Prime Meridian while located anywhere on the earth's surface by observing and timing the eclipses of Jupiter's moons. Given enough time, a plethora of data regarding the eclipses of Jupiter's moons and sufficient mathematical skills, one could now determine the longitude of locations on land. This technique, however, did not work at sea because ships do not provide a stable enough platform to time the eclipses of Jupiter's moons. So far we have not found any instances of early North American map makers using this technique.

⁵ There is an excellent book describing John Harrison's work: Dava Sobel, *Longitude: The True Story of a Lone Genius Who Solved the Greatest Scientific Problem of His Time*, Walker and Company, 1995 (also published by Penguin Books, 1996).

⁶ A difference 0.139° in an east-west direction is approximately equal to 100 meters in middle Arizona. Expressing distances using degrees is even more problematic when you realize that the distance of a degree north-south is not the same as the distance of a degree east-west. If that is not enough, also note that the distance of a degree east-west in Toronto, Canada is not the same as the distance of a degree east-west in Mexico City, Mexico.

⁷ The UTM earth projection is divided into 60 zones and 20 bands yielding 1,200 individual rectangles.



Beale Wagon Road in Eastern Oklahoma Bridge Over Red Bank Creek near Spiro, OK

by Jack Beale Smith and David H. Miller

Jack Beale Smith is the leading expert covering the history of the Beale Wagon Road which ran from Fort Smith, Arkansas along the 35th parallel to Southern California, crossing through the states of Arkansas, Oklahoma, Texas, New Mexico, Arizona and California. Jack has written several studies of Beale's Wagon Road. His focus has been primarily on Arizona, but he has also mapped and written about the wagon road in Oklahoma and the Texas Panhandle.

In 1858, congress appropriated funds to improve the Beale Wagon road west of Fort Smith, allocating some additional funds to construct iron bridges over some of the rivers and creeks. Camels were not included on this expedition. Beale assigned his brother-in-law Henry Edwards to supervise the construction of those bridges. The variety of the bridge selected was the Whipple Iron Bowstring Bridge manufactured at the Pencoyd Iron Works in Pennsylvania. One of the advantages of this bridge construction was that it could be shipped in pieces and assembled on site.

Beale's men eventually installed four iron bridges in Oklahoma on Red Bank Creek, Little River, San Bois Creek, and Emachaye Creek. Trail historians have known little about the exact location of some of these bridges, since three of them were destroyed in the Civil War, and the fourth in 1865.

Recently land owner Kyle Burch informed Jack that the stone foundation for the Red Bank Creek bridge was situated on his land. Jack has since revised chapter three of his study "The History of the Beale Bridges in Indian Territory, 1858-1865" in his series "Tales of the Beale Road". His chapter on the Red Bank Creek bridge is now entitled "The Beale Bridge over Red Bank Creek: Dedicated to the Historic Work of Kyle Burch, Land Owner." Thanks goes out to Mr. Burch for sharing these photos of the bridge abutment.

Jack is currently editing Charles E. Thorburn's journal covering the camel expedition from Fort Defiance to the Colorado River for a future issue of *Desert Tracks*.





Left, remains of the Beale Bridge abutment on the SE side of Red Bank Creek, near Spiro, Oklahoma, 22 miles southwest of Ft. Smith, Arkansas.

Above, a metal plate found on the property near the bridge abutment. The name "Beale" is visible at upper left of the image, showing that this was a bridge built by Beale. "J. W. Murphy" was the civil engineer who worked for the Pencoyd Iron Works of Pencoyd, PA, and who made improvements to the bridge design of Squire Whipple, known as the Bow String Bridge. At the top of the metal plate is the remains of another metal plate label, with all that remains being a "YD" above an "ST," which appear to be the last two letters of "Pencoyd" and its address of "410 Walnut St."

Middle right is a photo of one of the few Whipple Bow String Bridges still in use, the Normanskill Farm Bridge near Albany, NY.

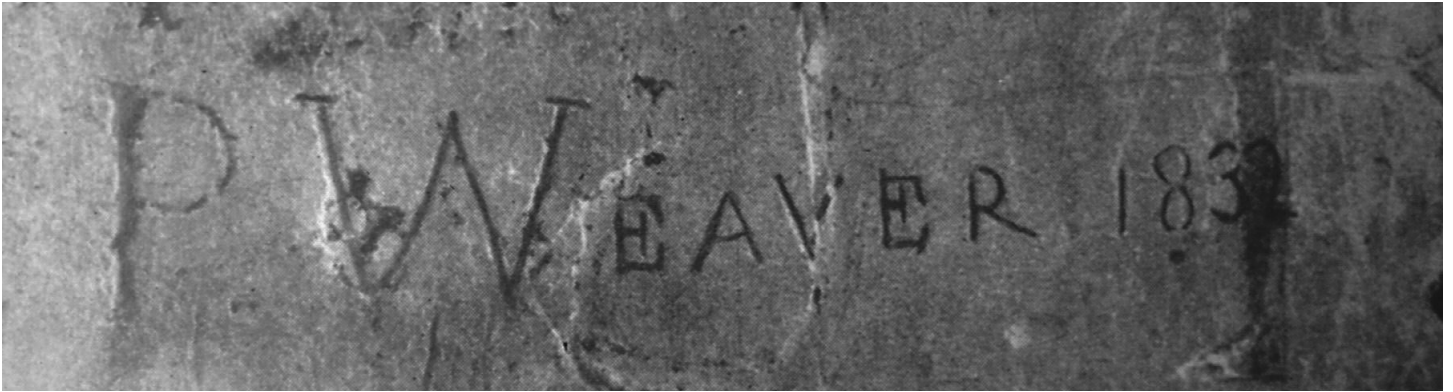


Lower Right is archaeologist Jack Beale Smith, an expert on the Beale Wagon Road, with a sign placed by him and David H. Miller. The two have placed other signs at select spots along the Beale Wagon Road in Oklahoma.

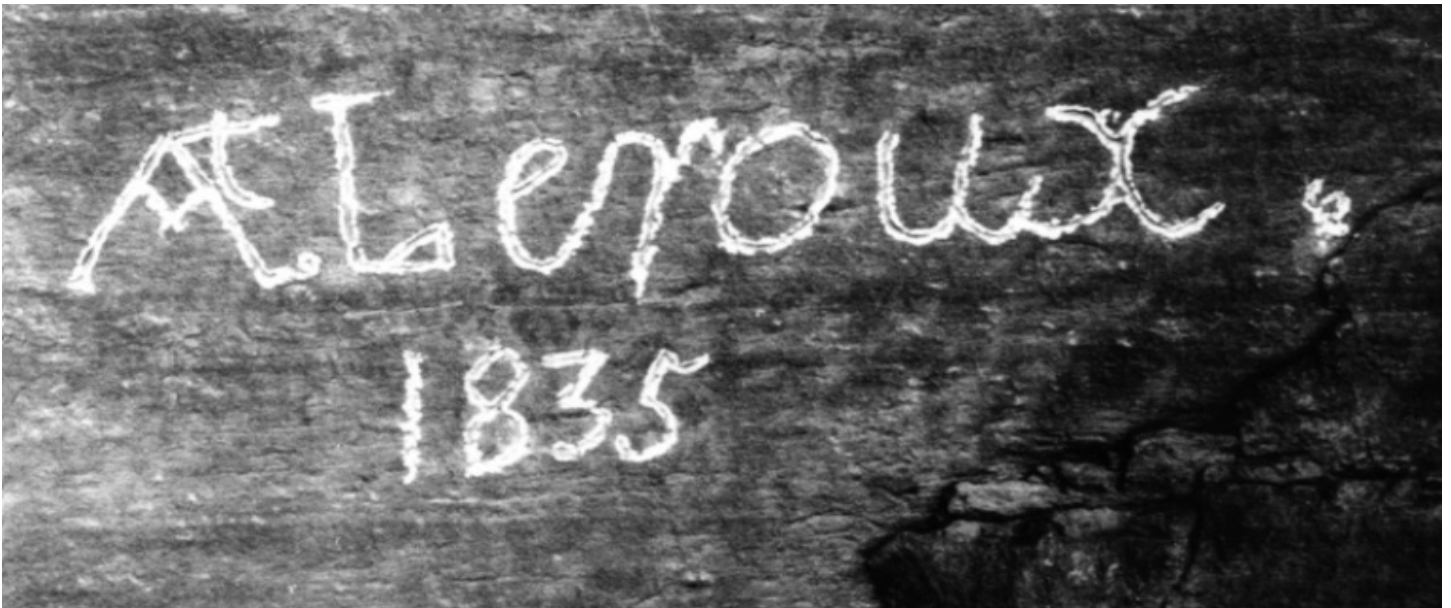


Rock Inscriptions Along the Trail..

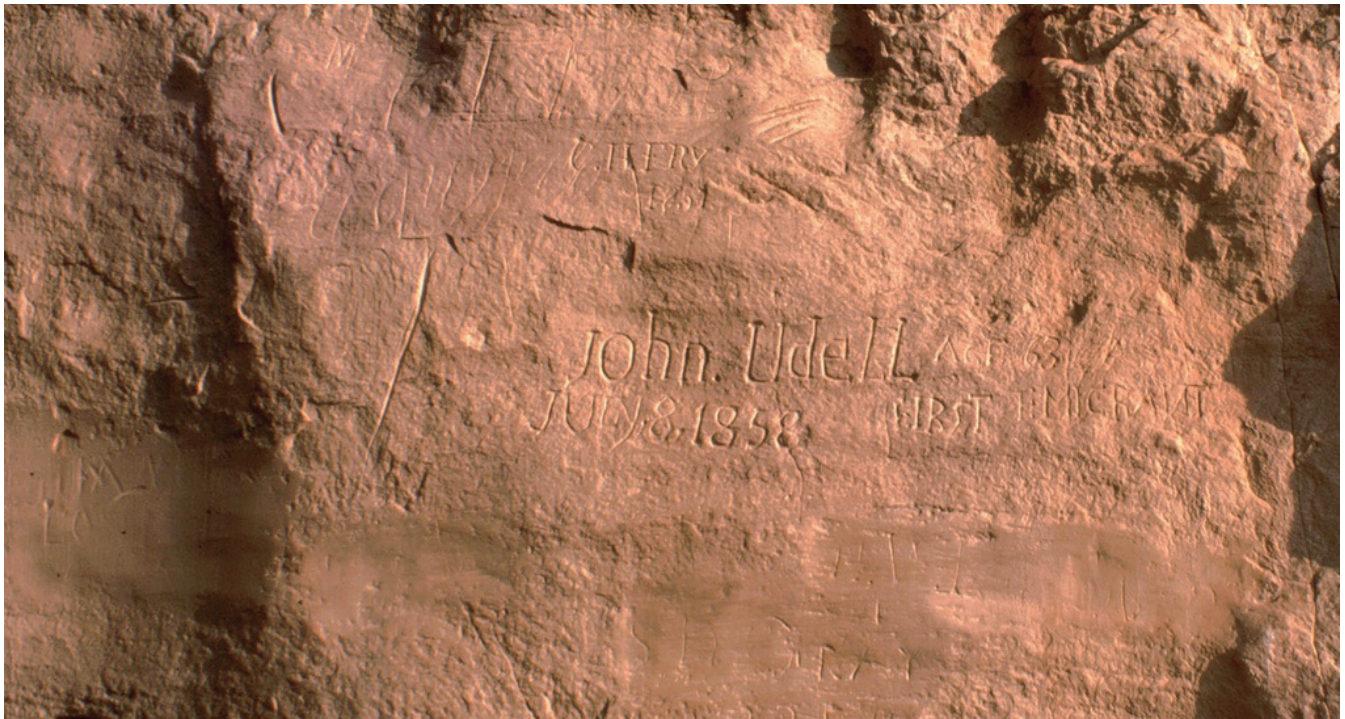
David H. Miller and Daniel G. Judkins



An early photo by an unknown photographer of Pauline Weaver's name inscribed in the plaster on the wall at Casa Grande Ruins National Monument. A more recent photo taken by Daniel Judkins is very difficult to make out, and the last two digits of the 1832 date are no longer visible because of a crack in the plaster.



The Antoine Leroux inscription is on a rock a little ways south on Willow Creek from the Green River, Tavaputs area in Utah. The mouth of Willow Creek, is just below the conjunction of the Green River with the White and Uinta Rivers. This is a copy of a polaroid photo taken by George E. Stewart in October 6, 1968, in the Missouri Historical Society archives. The inscription had been chalked. Also in the same area of Willow Creek are inscriptions by B. Chalifoux, Louis Robidoux, and Antoine Robidoux, all trappers who knew one another.



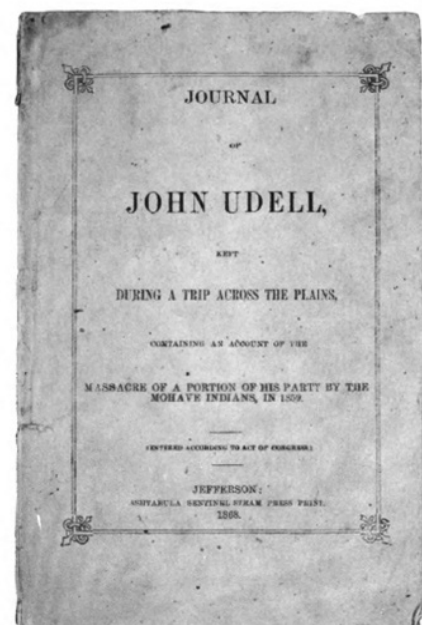
John Udell inscription at El Morro, New Mexico, July 8, 1858. Udell added the words “first emigrant,” apparently as the first emigrant on the Beale Wagon road across Northern Arizona, the first Route 66. His party was later attacked by Mojave Indians; that attack resulted in the establishment of Fort Mojave by the U.S. Army.

What is interesting about this inscription is how the El Morro superintendent had inscriptions which he felt did not fit the proper time period rubbed off. There is a good possibility that a Kit Carson inscription was erased by mistake.

An excerpt from Udell’s diary...

“July 7 [1858]. This morning we came over the dividing ridge between the Atlantic and the Pacific waters. It was formerly hard to ascend but Mr. Beale has since improved and made it easy. From the Cold Spring to the next water, at Inscription Rock, it is twenty-one miles, road good. We camped at this rock. Travel to-day, 21 miles, and 954 from Missouri River.

“This Inscription Rock is so named from its having many ancient names inscribed on the face of it. It is also a great natural curiosity, rising perpendicularly to the height of two hundred feet, ... One of our Company, who could read and interpret the Spanish language, read one inscription which had been placed there in 1636, by a Spanish General. Many of our Company inscribed their names there as the first emigrants on this new route.”

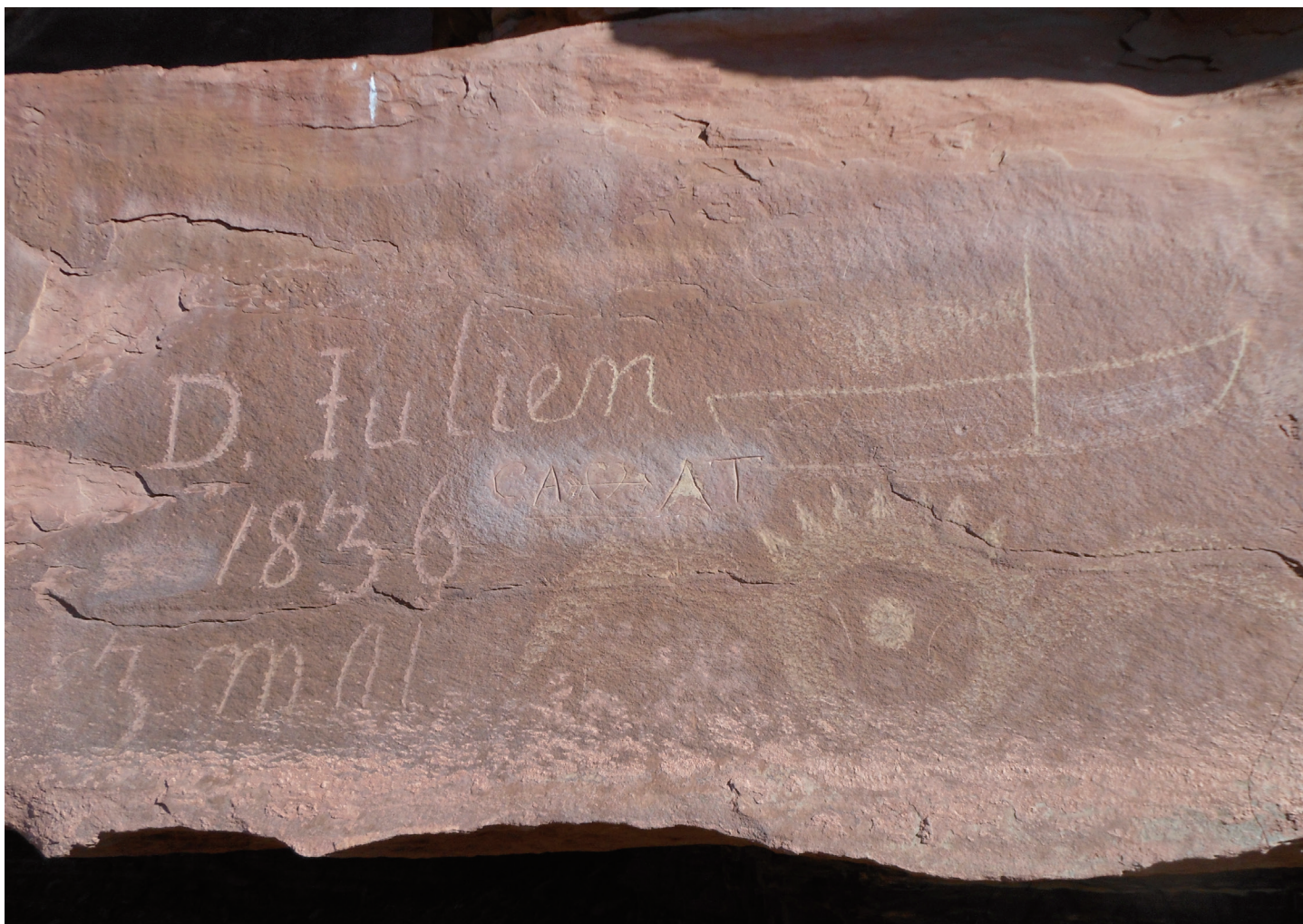


UDELL'S JOURNAL
Photograph of the original copy in the Huntington Library
Courtesy Huntington Library



Lucien Maxwell and Antoine Leroux inscriptions at Independence Rock on the Gila River

“L Maxwell and A Leroux” inscriptions on Independence Rock along the Gila a couple of miles west of Sears Point. The rocky outcrop is also sometimes referred to as Maxwell Point. This image has been contrast-enhanced in Adobe Photoshop. Look for the “A” of “A Leroux” just under and slightly to the left of the “L” of “L Maxwell.” The “er” of “A Leroux” is under the “M,” and the “x” of “A Leroux” is under and slightly to the right of the “x” of “Maxwell.” The “A Leroux” inscription is particularly hard to see. In fact, when this photo was taken on 12-31-2004 by Daniel G. Judkins, he stood about three feet away from the rock, photographing the “L Maxwell” inscription, and did not see the “A Leroux” directly below. He first noticed the “A Leroux” inscription while adjusting the contrast in Photoshop some time later at home. Not feeling sure that it was really there, he later made another trip to the site to see it in person. It was visible, but one’s eye is naturally drawn to the easier-to-see “L Maxwell” inscription. The inscriptions on the surrounding rocks were photographed, researched, and analyzed in 1982 by Dennis J. Wells, who recorded his findings in “Arizona’s Independence Rock,” February 1984. He also, apparently, failed to see the “A Leroux” inscription, although it is faintly visible in one of his photographs. He had earlier made a presentation on this topic at the annual meeting of the Western History Association in Phoenix on October 22, 1982. He made two copies of his 83-page typed report, giving one to the Arizona Historical Society in Tucson (now missing from their collection) and one to the Century House Museum in Yuma, retaining the original. Daniel Judkins obtained a photocopy of the photocopy at the Yuma Museum. There are two Maxwell inscriptions at the site. The photo above shows the most prominent one. Lucien Maxwell was the owner of the 1841 Beaubien-Miranda Land Grant (later Maxwell grant), the largest Mexican land grant in New Mexico at 1,714,765-acres. Antoine Leroux was a beaver trapper in Arizona, starting in the late 1820s. Maxwell and Leroux were friends.



An 1836 Denis Julien inscription,

above, in Hell Roaring Canyon near the Green River. Below right is Green River Canyon, near the Julien inscription. Both photos on this page are by David H. Miller, 11-17-2012.

Denis Julien left 9 inscriptions on rocks in Utah and one nearby in Western Colorado. The precise location of several of them is no longer known.

Julien, a trapper and trader, left Santa Fé in early 1828 and went to Utah, establishing a trading post with William Reed just north of the fork of the Uinta River and White Rocks Creek.

More information on Julien is at:

James H. Knipmeyer, *The Life and Time of Denis Julien, Fur Trader*, Chula Vista, CA: Aventine Press, 2018.

James H. Knipmeyer, "The Denis Julien Inscriptions," *Utah Historical Quarterly*, 64:1, Winter 1996.

James H. Knipmeyer, "Midwestern Fur Trader," *Missouri Historical Review*, 95:3, April 2001.

Carles Kelly, "The Mysterious 'D. Julien,'" *Utah Historical Quarterly*, 6(3):83-88, July 1933.

Marston, Otis Dock. "Denis Julien," *The Mountain Man and the Fur Trade of the Far West: Biographical Sketches of the Participants by Scholars on the Subjects and with Intriductions by the Editor*, Spokane: Arthur H. Clark Company, (1934) 1969.

David J. Weber, ed., *The Extranjeros: Selected Documents from the Mexican Side of the Santa Fe Trail, 1825-1828*, Norman: University of Oklahoma Press, 1970.



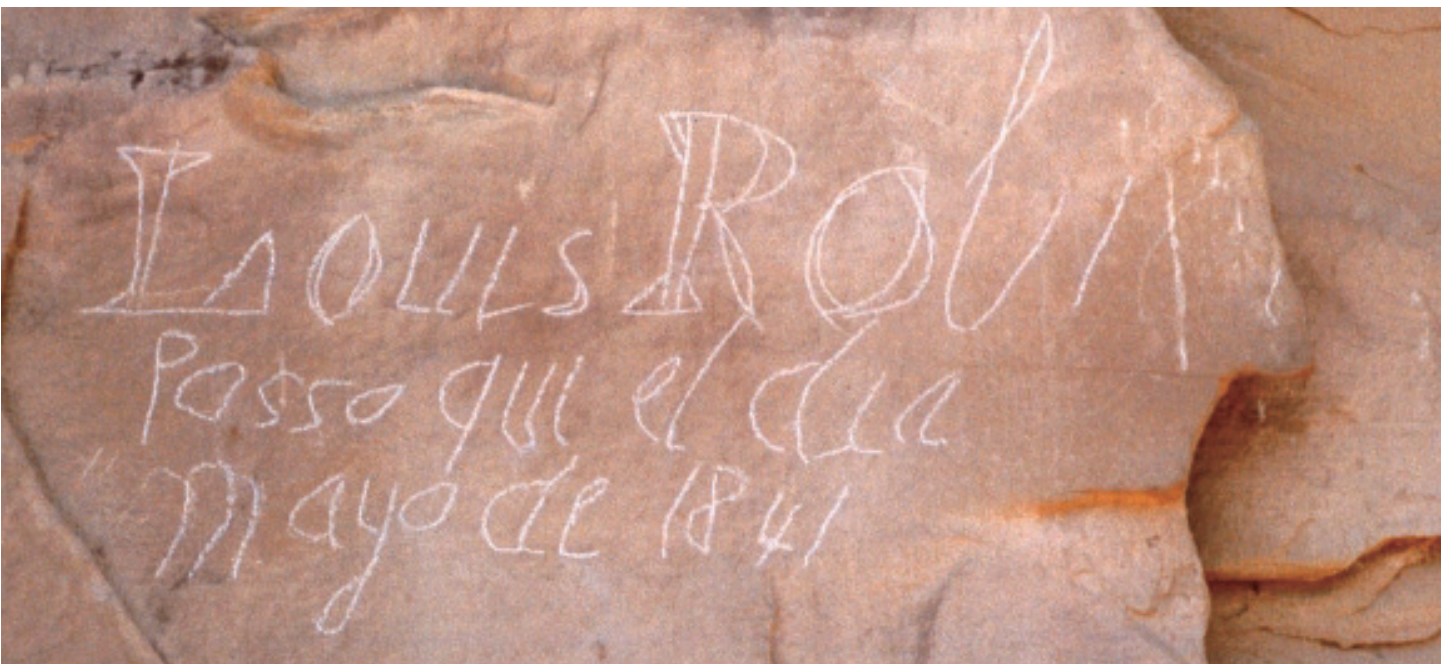
Did Kit Carson leave a cross inscription at two sites he is known to have visited?



David H. Miller photos of crosses at Fremont Island in Great Salt Lake (upper left) and at Independence Rock on the Gila River (upper right, and an enlarged detail of the cross only in upper middle). Fremont and Kit Carson were at Fremont Island in 1843 on Fremont's Second Expedition and recorded in his diary that he inscribed a cross on the rock. Carson is known to also have passed the Gila Independence Rock several times -- he even named it. A cross is there also. Miller theorizes that perhaps Carson left a cross on the rock at both locations to signify that he had been there. In the photo at right, the cross appears to the right of "S C" above "T B" and "J Conner", 1846, all on the most-prominent rock at that site (appearing just above the Maxwell and Leroux inscriptions on the same rock (shown on page 18). Interestingly, Carson, Leroux, and Maxwell all knew each other.



The Louis Robidoux inscription with "*Paso qui el dia Mayo de 1841*" ("Passed by here in May 1841") is on a rock south on Willow Creek from the Green River in Utah, the same canyon with inscriptions by his brother Antoine Robidoux, B. Chalifoux, and Antoine Leroux. Unknown photographer.





Antoine Robidoux's November 13, 1837 inscription plus “advertisement” of his planned trading post. Words below the date say, “*pour etablire maison traitte a la Rv. Vert ou wiyte,*” which means “to establish a trading post at the Green River or White” (some suggest that the last word “Wiyté” was intended as “Winté”, and that the passage of time has resulted in deterioration which makes the third letter ambiguous, and if so, the word was intended to refer to the Uinta River, which was often referred to as the “Winty” in 1837.)

Antoine Robidoux moved to Santa Fé in 1828, became a Mexican citizen, got married, and began trapping and trading in western Colorado and eastern Utah. He established Fort Umcompahgre at the confluence of the Gunnison and Uncompahgre Rivers. Later he bought the Reed Trading Post from William Reed and Denis Julien at the confluence of the Uinta and Whiterocks Rivers, enlarging it as Fort Robidoux (or Fort Uintah or Fort Winty). It closed in 1844. Later Antoine served as an interpreter for Kearny on his march to California, and was seriously wounded at the Battle of San Pascual. He died in 1860, back at St. Joseph, Missouri, at the age of 65.

go:ki

“footprints” or “tracks” in the Tohono O’Odham language¹

by Ian M. Milliken and Daniel G. Judkins

More true “desert tracks” have been discovered. In the last issue of “*Desert Tracks*,” we reported the recent discovery of a human trackway in the White Sands, NM area. Here we describe the 2016 archaeological discovery of a human trackway just north of downtown Tucson, along the east bank of the Santa Cruz River, directly on the “Southern Trail” used by ‘49ers, the Butterfield Overland Mail stage, and so many other travelers.

What follows is a brief interview by editor Daniel Judkins with Ian M. Milliken, a Pima County archaeologist and the Cultural Resources and Historic Preservation Division Manager for the county.

Judkins. Who acutally made the discovery of the footprints?

Milliken. Dan Arnit of Innovative Excavations who was the mechanical backhoe operator that was subcontracted to the County’s prime archaeological contractor SWCA Environmental Consultants. There were other organizations that were involved in the excavations and some brought on for analyses of the footprints. Dan Arnit of Innovative Excavating amply demonstrated the skills behind his business name. It was his “feel” for the dirt that discerned the difference in the ... texture and got him out of the backhoe; armed with a leaf blower, he discovered the footprints.

Judkins. Can you give a general description of where the footprints were found?

Milliken. Southeast of the confluence of the Rillito and Santa Cruz Rivers, about seven miles northwest of downtown Tucson.

Judkins. That location, between the Rillito and the Cañada del Oro confluences with the Santa Cruz River, is known in a number of the ‘49er journals as “nine-mile well,” a wet area in 1849 where water could be found, even if the Santa Cruz River was not itself flowing. Forty-niners often left Tucson in the later afternoon, planning to camp there and fill their water containers prior to a very early start the next morning to cross the 80 or 90 mile dry stretch between there and the Gila River. I guess the footprints found



Figure 1. A 2,500-year-old human footprint is preserved in the hardened mud along the Santa Cruz River north of Tucson, on the “Southern Trail.”

in the mud indicate that its been wet there for thousands of years. How old are the footprints found in 2016?

Milliken. Artifacts associated with the trackways were dated at 2710 ± 30 and 2560 ± 30 14C yrs B.P. (before present). That makes the tracks about 2,530 years old. They were made during the late San Pedro and early Cienega archaeological phases.

Judkins. What were the general conclusions about the number of individuals making the tracks? Were they engaged in farming along the river?

Milliken. Analysis of the footprints reveals that a workforce similar to an extended family or small community unit, were crossing their muddy fields, likely after irrigating and perhaps to check the water flow in the adjacent irrigation canals. There were likely ten individuals: five adults, three adult small women/juveniles, one person wearing sandals, and one child. The child footprints are very rare and suggest that the child may have been carried for the most part, and only occasionally set down. One dog and another unidentified small animal were also recorded.

The site is on the delta at the mouth of the Rillito [Creek] where it runs into the Santa Cruz River. There were multiple farm plots there, with irrigation canals along their edges. Evidence suggests that shortly after they made muddy footprints across the fields, the Rillito flooded and deposited about six inches of sand onto the fields, thus preserving the footprints.

They were likely growing corn and cotton, among other crops. The aerial photo in Figure 2 below shows the two agricultural fields excavated to reveal the trackways. The trackways crossed the fields in several directions, heading toward the irrigation ditches along the sides. Some of the tracks show evidence of the person wearing sandals (see Figure 3).



Figure 2. Aerial photo showing two of the excavated agricultural fields, across which the human footprints were found.



Figure 3. This track shows evidence of a weave pattern, suggesting that the individual was wearing sandals when the track was made.

ENDNOTES:

¹ Statement of Barnaby Lewis, the Gila River Indian Community Tribal Historic Preservation Officer (THPO), in Suzanne Griset, S. Jerome Hesse, Paul M. Rawson, and David M. R. Barr [with contributions by 16 others], *Footprints along the Santa Cruz: Results of Archaeological Investigations at Sunset Road, Pima County, Arizona, Prepared for Pima County Office of Sustainability and Conservation Cultural Resources and Historic Preservation Division*, Tucson: SWCA Environmental Consultants, Cultural Report No. 17-591, August 2018, [principal investigator Suzanne Griset, project manager S. Jerome Hesse], 371.

Pedro (Pierre) Vial's Travels between 1786 and 1793 across Texas, New Mexico, Louisiana, Kansas, and Missouri

By François-Marie Patorni

Pioneering the Santa Fé Trail

In 1821, Captain William Becknell made a commercial trip along the Santa Fé Trail, reaching Santa Fé in November after Mexico had become independent from Spain two months earlier. This was probably the first legal travel to Santa Fé, which earned Becknell the nickname of “father” of the Santa Fé Trail.¹

In our year 2021, we commemorate the two-hundred year anniversary of William Becknell's trip, leaving behind the heroic adventures of the early European pioneers on the Trail, most of them of French origin. The French and French Canadians were among those who pioneered explorations and trading on the Trail. The best remembered include the Mallet brothers and Jean-Baptiste Alarid (1739), Jacques Bellot (1744), Louis Febre, Pierre Satren, and Joseph Michel Ravallo (1748), Jean Chapuis and Louis Feuilli (1752), Pierre (Pedro) Vial and his companions (1786, 1788, 1792 and 1805), Jean-Baptiste Lalande, Jean Metayer, François and Joseph Gervais/Jarvet (1805), Jacques Clamorgan (1807), and Jacques Chouteau and Jules DeMun (1817).² They deserve credit for opening the Santa Fé Trail, as do a few others who were not native French-speakers. In this article, we focus on Pierre Vial, who became known as Pedro Vial, perhaps the most unusual among these French pioneers.

Who was Pedro Vial?

Pedro Vial was and remains a legendary character of Texas' and New Mexico's history. Born in Lyons, France, around 1750, he was one of the outstanding pathfinders in the American Southwest. The Spanish highly respected him, and most official documents referred to him as Don Pedro Vial. He was charismatic, while controversial in the eyes of Spanish administrators, as he often lived among the so-called savage nations, helping the First Peoples repair rifles sold to them by French traders. His nickname, Manitou, denoted a powerful person in touch with fundamental spiritual or life forces.

Vial served as a peacemaker between the Spaniards and some of the First Peoples' tribes. He was in a position

to do so because of his familiarity with them in central Texas. He was also the only European in the late 1700s with accurate knowledge of the lands along the upper Missouri River, and came to the attention of the Spaniards in 1779, precisely for that reason. At the time, he was in Natchitoches and New Orleans, Louisiana, and lived among the Taovaya tribe. In the fall of 1784, Vial came to San Antonio, Texas. It was then that the Spaniards recruited him to gather information about, and perhaps make alliances with, the eastern Comanche.

The Spanish administration had for some time been contemplating linking New Spain's two distant capitals: San Antonio and Santa Fé. This plan had been fueled in part by concern about French intrusions, but by the 1780s, fears about resistance by the First Peoples gave it a new urgency. Trade and easy communication between provincial capitals were essential.

San Antonio to Santa Fé (October 1786-May 1787)

Consequently, in 1786, the governor of Texas, Domingo Cabello y Robles, commissioned Pedro Vial, whom he had used previously as an intermediary with the Comanches. Vial's mission was to seek a direct route between the two cities. He left San Antonio on October 4, accompanied by Cristóbal de los Santos, a native of San Antonio, and possibly by Honorat Fortier, a Frenchman.³

After about ten days on the trail, Vial fell sick, possibly from malaria, and almost died.⁴ He recovered enough to continue but traveled in a weakened state for at least another week. During that time, he fell off his horse, lost his provisions, and took a 150-mile side-trip to find some traditional medicine. Finally recovered, he reached Santa Fé on May 26, 1787, more than six months later. In the end, Vial's journey was a success: he had opened the first road from Texas to Santa Fé.

Vial's diary, which he had kept in French, was translated into Spanish upon his arrival. The original is now lost, as is the original map he had included, but in October 1787, he drew another map. Several copies of this map were made later, including the one shown in Figure 1 on the back cover.⁵

Vial's accomplishment was indeed significant, but he had taken a winding route between the two cities, covering almost 1,200 miles. Shortly after that (in 1787-88), José Mares (a pensioned corporal) and Cristóbal de Los Santos (who had been on the previous trip with Vial) took up the challenge of finding a more direct route. The route they traveled from San Antonio to Santa Fé and back was shorter and faster than the one Vial had pioneered. This shorter trip, which did not include Vial, is not shown on



Figure 2. Pedro Vial's voyages between 1786 and 1793.

the map in Figure 2. See the map drawn by Vial and dated 1787 showing the country and his travels, Figure 1 on the back cover.

The precise path of Pedro Vial's 1786-1787 journey is difficult to determine. The Hardin-Simmons University Library in Abilene has an intriguing map showing the path (see Figure 3). The date of this map and the identity of its creator(s) are unknown. It would be a challenge, however, to use this map to retrace the footsteps of Pedro Vial, considering Texas' development over the last centuries.

Santa Fé to Natchitoches to San Antonio and Back (June 1788-August 1789)

Pedro Vial had remained in Santa Fé after his first voyage. Once the more direct route between San Antonio and Santa Fé had been determined, Spanish officials wanted to establish a way from Santa Fé to Natchitoches, Louisiana.

New Mexico Governor Fernando de la Concha tasked Vial to head a new expedition. This second groundbreaking trip, shown on the Fig. 2 map, started from Santa Fé on June 24, 1788. On August 20, having traveled nearly a thousand miles in two months without significant incident, Vial and his companions reached Natchitoches. They reported to the Commandant of the Post of Natchitoches, Louis Charles DeBlanc, and after ten days of rest and probably of festivities, they departed, *en route* to San Antonio.

A few days after leaving Natchitoches, everyone in the group except for Pedro Vial fell sick, probably from malaria. Forced to stop after having traveled over one hundred miles, they remained at the settlement of Nacogdoches for nearly seven weeks, from September 4 to October 23. The route from Natchitoches, LA via Nacogdoches, TX is the eastern stretch of *El Camino Real de los Tejas*.⁶ Finally, they set out again, arriving in

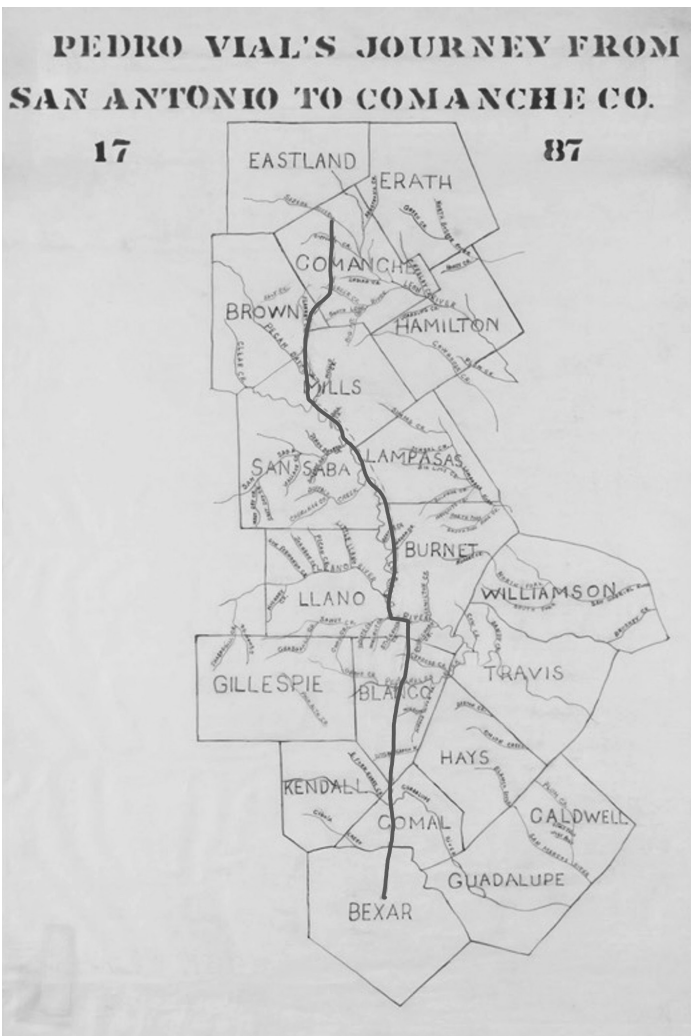


Figure 3. Pedro Vial's Journey From San Antonio to Comanche Co., map, Date Unknown; (<https://texashistory.unt.edu/ark:/67531/metaph493163/>; accessed April 23, 2021), University of North Texas Libraries, The Portal to Texas History, <https://texashistory.unt.edu>, crediting Hardin-Simmons University Library. Pedro Vial's path was enhanced for legibility.

San Antonio on November 18 with all but Pedro Vial. In the interim, Vial had gone on a private expedition to the Comanche. By the end of February 1789, everyone had recovered, but various matters delayed their departure from San Antonio until June 25. Although Vial had returned to San Antonio, he had to wait for some paperwork from the Spanish administration. Finally, he caught up and rejoined his party on July 1. They all reached Santa Fé on August 20, 1789, having covered in all about 2,400 miles in 14 months.

Vial's trip was a monumental achievement. Still, the Spaniards did not open trade between Louisiana and New Mexico due to several factors, including distance and travel difficulties. More importantly, the Spanish officials

were trying to control the penetration of Americans from Kentucky. Once allies of Spain during the American Revolution, the United States had become a nation (as sanctioned by the Treaty of Paris in 1783) and were no longer fighting England. The United States had set its sights on western expansion, thus becoming a threat to Spain.⁷

An extraordinary adventure: From Santa Fé to St. Louis and Back (May 1792-November 1793)

By 1792, in the wake of the French Revolution, the Spaniards had become concerned again about the French presence. These concerns were reasonable, as the French were interested in regaining Louisiana from Spain. France was engaged in various machinations aimed at improving its position to do so, including conspiring with the First Peoples, and using French sympathy in the eastern and southern United States. In response, the Spaniards resolved to open a trail between Santa Fé and St. Louis and to make friends with the various tribes on the way.

Once again, Pedro Vial was the perfect choice for the task. On May 22, 1792, he left Santa Fé for nearby Pecos, with a plan to proceed toward the Missouri River and St. Louis. The journey turned into an extraordinary adventure. By the end of June 1792, Vial and two comrades were nearing the Arkansas River. There, they encountered an Osage tribe, which greeted them affectionately at first, then suddenly dispossessed them of their horses and equipment and cut off their clothes, leaving them entirely naked. Some Osage warriors then began shouting, urging others to kill the party with hatchets or arrows, rather than with rifles, to avoid injuring themselves. Amid the chaos, a miracle happened: one of the Osage reached down and helped Vial onto the horse he was riding. Vial recognized him as one of the members of a tribe with which he had once lived. Then, as another Osage came at them from the back with a spear, the friendly one dismounted, grabbing the ill-intentioned one. Still, others came, intending to kill Pedro Vial, but another friendly warrior interposed himself by sitting on the croup of the horse. Then a third one approached. He had once been a servant in St. Louis and spoke French. Recognizing Pedro Vial, he shouted in French: "Don't kill him, we shall find out from where he comes, because I know him." Vial was then taken to his lodge.

Friendly Osage also saved Pedro Vial's two companions, and for almost two months, the three were kept captive at the encampment. On August 16, 1792, they were finally allowed to leave. Nine days later, they reached a village on the banks of the Kansas River, where they stayed for more than a week. While at that encampment, they encountered

a Frenchman in a pirogue loaded with merchandise. The man sold them clothing and other essential goods, including a musket and ammunition, with the payment to be settled later. Embarking on a pirogue belonging to St. Louis traders, they traveled more than 300 miles on the Kansas River to its junction with the Missouri River, finally reaching St. Louis on October 3.

Pedro Vial stayed in St. Louis until mid-June of 1793, delaying his return because of the winter season and dangers posed by the Osage. Vial and his companions left St. Louis by pirogue on June 14, and their trip down the Missouri River was relatively uneventful. After traveling on the river for some time, they went ashore, purchased horses, and continued their journey by land until October 19, when Pawnee warriors, having mistaken Vial's party for Comanches, attacked with muskets, a blunderbuss (a large caliber muzzle-loading firearm), lances and arrows. Fortunately, the matter was straightened out when yet again one of the Pawnee recognized Vial. Vial and his men spent the night smoking and talking with them, and finally arrived in Santa Fé on November 15.

A Love-Hate Relationship Pedro Vial and Spanish Officials

Despite his achievements, Pedro Vial's relationship with the Spanish authorities was one of love-hate. Upon his return to Santa Fé, Vial gave his diary to the New Mexico governor, Fernando de la Concha, who then recommended him for a post in the Spanish Army at a rank similar to a second *alférez* (or second lieutenant).

The commander-general of the Interior Provinces, Pedro de Nava, transmitted Concha's request and Vial's diary to the viceroy, but he included negative comments about Vial in the cover letter, questioning his intelligence and ability to describe the country traveled. Unfortunately for Vial, just as the request for his army commission entered the system, fear of French intrusions once again influenced affairs in the Interior Provinces. In the fall of 1793, word had reached Nava that Spain had joined England to fight France, perhaps prejudicing Spanish officials against Frenchmen in the crown's service. Besides, soon after Concha's request, there was a change of viceroys, possibly holding up the request.

Arrest All Frenchmen

Once he had received word of the fighting in Europe, Nava attempted to strengthen Spanish defenses in the eastern areas of his control, including Texas and New Mexico, and sent out expeditions to treat with various First Peoples' groups to prevent them from helping any Frenchmen. However, there were still rumors of French agents working

with tribes in northern Texas. The viceroy decided that not enough precautions had been taken against "some scattered Frenchmen who were trying to disturb the peace." So, in December 1794, he ordered to detain all Frenchmen. To begin carrying out these orders, in January 1795, Pedro de Nava asked all governors for a report of all Frenchmen residing in their provinces and wrote to Spain cautioning about relying on the loyalty of French residents. Under these orders, the punishments afforded to Frenchmen included solitary imprisonment and dispossession of goods and real property. He also issued orders to the citizenry of the region to report all foreigners to authorities, making it clear that foreigners included Frenchmen. New Mexico Governor Chacón was confidentially asked to seek out and identify, if possible, secretly, any person who "manifested adherence to the pernicious maxims of the system of liberty, equality, and lack of respect for the [Spanish] king."⁸

Thus, in early 1795, several Frenchmen were taken into custody in New Mexico. Their story is beyond the scope of this narrative. Let's just say that they included Dominique Labadie, a French Basque, Pierre Labouré, a former cook for the viceroy, and Pedro Vial, all released sometime later.

The pressure on Frenchmen diminished, however, when France and Spain were once again at peace after signing the Second Treaty of Basel in July 1795. Although the threat from France was no longer a significant factor, Spanish officials felt it was urgent to bolster their northern frontier defenses, and to improve relationships with the various tribes. In June, Pedro Vial was once again commissioned, with the mission to make treaties with the Pawnee and the Comanche along the Kansas River, Vial succeeded in his mission, and by July 1795, he and the four young men who accompanied him were in St. Louis.

Upon his return to New Mexico, Santa Fé was no longer a friendly place for Pedro Vial. New Mexico Governor Fernando Chacón did not trust him, Commander General Nava did not like him, and his appointment to a regular post in the army never came through. Vial probably left Santa Fé in 1797. Governor Chacón reported that he had left with a servant and ordered his house and various effects to be impounded, inventoried, and sold to pay debts. Although details of Vial's activities and whereabouts during the following few years are not available, he was probably in Missouri until 1801, during which time he operated a lead mine in St. Geneviève, not far from St. Louis. During the intervening years, attitudes toward the French in Santa Fé softened, and in 1803 Pedro Vial returned, finally obtaining a daily allowance as well as back pay for his services.

The Lewis and Clark Expedition and expeditions to the Pawnee in 1803-1804

In November 1803, Spanish officials in New Orleans formally returned Louisiana to France. A month later, another ceremony took place in celebration of the Louisiana Purchase by which the United States acquired the vast lands known as Louisiana from the French. The United States government quickly undertook to explore its new domain. President Thomas Jefferson tasked Captains Lewis and Clark to explore the territories around the headwaters of the Missouri River and hopefully to forge alliances with the region's First Peoples. They led a contingent that would become famously known as the Lewis and Clark Expedition, which included at least seventeen Frenchmen.⁹

Lewis and Clark arrived in St. Louis in late 1803, eager to begin their journey. However, Lieutenant Governor Charles (Carlos) du Hault de Lassus detained the Americans as the ceremonies to transfer power had not yet taken place. Finally, in May 1804, the Lewis and Clark Expedition was underway. Concerned that the group would be entering what Spain still considered their territory, Commandant General Nemesio Salcedo ordered New Mexico Governor Chacón to send men to check on or stop the Americans. Chacón called on Pedro Vial and a French Canadian, Joseph (José) Gervais, to lead the expedition. Vial's group included Jean-Baptiste La Lande, a Creole trader and explorer, Jean Metayer, whose fate remains a mystery, Jacques D'Eglise, a Missouri River fur trader who accumulated a substantial estate and was murdered near Santa Fé in 1806, and Laurent Durocher, a French-Canadian fur trapper. When they reached a Pawnee village in present-day Nebraska in September 1804, Spanish fears were confirmed: Vial learned that Lewis and Clark had tried to persuade the Pawnee to switch allegiance from Spain to the United States. Rather than trying to catch up with the Americans, Vial's party was back in Santa Fé in November with the news.

Other trips

Between June 1805 and April 1806, Pedro Vial was tasked with at least four missions, the details of which are beyond the scope of this article. In a nutshell:

- In June 1805, a journey to Taos to escort two French traders back to Santa Fé who had been captured by the Kiowa and released in Taos, and escort them out of New Mexico.¹⁰
- In October of 1805, a mission to spend the winter with the Pawnee on the Kansas River and gather information about trade between them and An-

glo-Americans, and to prejudice them against the Lewis and Clark expedition and Anglo-Americans in general. Pedro Vial departed from Taos with several earlier companions, accompanied by fifty armed men, animals, and ammunition. Relatively early in the journey, about a hundred people attacked them several times with firearms, but no arrows, and pillaged the camp. Based on various clues, Vial and Governor Alencaster conjectured that Anglo-Americans might well have instigated the assault. Vial's men finally managed to escape and returned to Santa Fé.

- In the meantime, Spanish officials continued their search for American intruders, including Lewis and Clark. Lieutenant Facundo Melgares led a large expedition to discover who had attacked Vial and Gervais; to reconnoiter the Red River; and lastly, to try to intercept another American-led party, the Freeman-Custis Expedition, which was trying to find the headwaters of the Red River.¹¹ The Pawnee having stampeded his camp, Melgares had to return to Santa Fé, accompanied by several Frenchmen he had rescued, arriving in October.¹²
- In early 1806, Pedro Vial and José Gervais caught up with Lieutenant Zebulon Montgomery Pike and some of his men and escorted them back to Santa Fé to meet with the governor. Pike had been assigned to map the West and try to find the headwaters of the Arkansas and Red Rivers but got confused about his location and ended up in Spanish territory. The governor ordered Pike's party transferred to Chihuahua, but in the interim, he treated Pike and his companions well. On March 4, just before Pike and some of his men were about to leave Santa Fé, the governor hosted a dinner in their honor and took Pike on a three-mile tour in his private coach. Under escort, Pike departed for Chihuahua, while other members of his team stayed behind for a while.¹³
- In April 1806, Vial and Gervais were sent on a different expedition, details of which are unknown, but it, too, failed when their men had deserted, and they had to turn back only after ten days.

Epilogue

Pedro Vial went on a few more expeditions, but these are poorly documented. By September 1808, Meriwether Lewis, by then the American governor of the Missouri Territory, gave Vial a license to trap on the Missouri River. It is unknown if he actually did any trapping. New Mexico

records place Vial in Santa Fé in November 1809. He again served the Spanish government in New Mexico as an interpreter and guide. On October 2, 1814, he signed his will in Santa Fé, stating that he had neither wife nor children and leaving his belongings to María Manuela Martín, a woman whose identity and relationship to Pedro Vial remain unexplained. He presumably died shortly thereafter.¹⁴

Pedro Vial, a French explorer, trapper, and prospector who was in the service of the Spanish Crown, contributed significantly to the opening of the Interior Provinces of New Spain. He was the first European to open a route between San Antonio, and Santa Fé. He also pioneered the route between Santa Fé and St. Louis, a route that would become known as the Santa Fé Trail.¹⁵

ENDNOTES

1. English-speaking predecessors to William Becknell include Samuel Adams Ruddock, who made the unconfirmed claim to have journeyed from Council Bluffs, Iowa, to Santa Fé in June 1821, and Jacob Fowler, Hugh Glenn, and a party of twenty who reached Taos in September 1821. See Frederick V. Holmann, "History of the Counties of Oregon," *Oregon Historical Quarterly*, 11, March-December 1910, 45.

2. Most of the information about Pedro Vial used for this chapter is based on Noel Loomis and Abraham P. Nasatir, *Pedro Vial and the Roads to Santa Fe*, Norman: University of Oklahoma Press, 1967.

3. Loomis and Nasatir, 110-111. Honorat Fortier is mentioned in Jacques Houdaille, "Les français au Mexique et leur influence politique et sociale (1760-1800)," *Revue française d'histoire d'outre-mer*, 48(171):143-233, 1961.

4. In his diary, Vial stated that he "fainted by reason of sickness," fell from his horse and was unconscious for two hours (Loomis and Nasatir, 270). The supposition that he might have had malaria comes from the diary of Francisco Xavier Fragozo recounting a later trip (June 1788-August 1789) during which Vial's companions were attacked by chills and fever, a symptom of malaria (Loomis and Nasatir, 353).

5. The original of Vial's seminal map of Texas, originally drawn in 1787, was lost, and only copies survive. This present example has a G.C. Cini watermark. G & C Cini was a Tuscan paper firm that operated in the 1830s and 1840s. See detailed discussion about Pedro Vial's maps in Nasatir, 380-387.

6. Information about the El Camino Real de los Tejas National Historic Trail is available at <https://www.nps.gov/elte/index.htm> (accessed May 23, 2021). The two locations, Natchitoches and Nacogdoches, are pronounced *nah-codish* in Louisiana and *nah-coh-do-ches* in Texas. The places were named respectively after the Natchitoches and Nacogdoches people.

7. About the Anglo-American threat from Kentucky, see Loomis and Nasatir, 137-170.

8. Loomis and Nasatir, 411.

9. Frenchmen who were part of the Lewis and Clark expedition at one time or another included Baptiste and Toussaint Charbonneau, Pierre Cruzatte, Philippe Degie, Jean-Baptiste Deschamps, George Drouillard, Joseph Gravelines, Charles Hébert, François Labiche, Jean-Baptiste La Jeunesse, Joseph La Liberté, Jean-Baptiste Le Page, Etienne Malboeuf, Pierre Pinaut, Paul Primeau, François Rivet, and Pierre Roi. For details, see Charles G. Clarke, *The Men of the Lewis and Clark Expedition*, Lincoln and London: University of Nebraska Press, 1970.

10. Leroy R. Hafen, ed., *French Fur Traders & Voyageurs in the American West*, vol. 2, Lincoln and London: University of Nebraska Press, 1982, 87, 91, and vol. 8, 282.

11. The Freeman-Custis Expedition was ordered by U.S. President Thomas Jefferson and has also been called the Red River Expedition, the Freeman Red River Expedition, the Sparks Expedition, or the Exploring Expedition of Red River. This was one of the first civilian scientific expeditions to explore the Southwestern United States. Its mission was to find the headwaters of the Red River as a possible trading route to Santa Fé and to contact First peoples for trading and other purposes. In July, the Spaniards, under the command of Francisco Viana, intercepted the expedition 615 miles upriver (in northeastern Texas), and turned it back. Loomis and Nasatir, 178, 179, 445.

12. Melgares brought back the 10-year-old, half-Pawnee son of José Gervais, returning him to his father. Melgares also found and rescued four Frenchmen: Nicolas Coe (or Cole) and Louis Baudoin (two young men who had been living among the Pawnee), and two traders, André Sulier (most likely initially named Soulier) and Henri Visonet.

13. For details about the Pike expedition, see Zebulon Montgomery Pike, *An Account of Expeditions to the Sources of the Mississippi, and Through the Western Parts of Louisiana, to the Sources of the Arkansaw, Kans, La Platte, and Pierre Jaun, Rivers ...* Philadelphia: C. & A. Conrad, & Co. and three others John Binns, printer, 1810; L. (LeBaron) Prince Bradford, *Historical Sketches of New Mexico*, Kansas City: Leggat Brothers, Ramsey, Millett & Hudson, 1883, 255-256; and Loomis and Nasatir, 178-179, 238, 455, 457. Pike's 1810 report describes New Mexico's need for manufactured goods, inspiring traders along the Santa Fé Trail for the next 25 years.

14. There has been speculation that María Manuela Martín was the sister or widow of Alejandro Martín, who had often traveled with Vial, and that she might have been the mother of Vial's undeclared children. She ultimately received nothing from Vial's estate, as his assets were liquidated to pay his debts. See Nasatir, xxiii.

15. More than a thousand books and articles have been written about the history of the Santa Fé Trail. Jack D. Rittenhouse's book, *The Santa Fe Trail - A Historical Bibliography*, Albuquerque: University of New Mexico Press, 1971, lists more than 700 titles, and more books have been published since then. For details see, among many books, John K. Riddle and Nancy Riddle Madden, eds., *Records and Maps of the Old Santa Fe Trail*, West Palm Beach, Florida: John K. Riddle, 1963; Gregory M. Franzwa, *Maps of the Santa Fe Trail*, Tucson, Arizona: Patrice Press, 1989; William E. Hill, *The Santa Fe Trail, Yesterday and Today*, Caldwell, Idaho: The Caxton Printers, Ltd., 1992; and Marc Simmons and Hal Jackson, *The Santa Fe Trail: A Guide*, Trails Press, 2015.

They Passed by Here: Early Exploration Through the Guadalupe Mountains of Texas

by Larry Francell

West Texas was *tierra incognita* on most maps until after the Mexican American War, 1846-1848. Texas possessed extensive territory west of the primary central settlements and claimed even more. The settled part of Texas was along the gulf coast and centered in the lands between Houston, then Harrisburg, Austin, and San Antonio. Settlement did not reach much further than Fredericksburg, north of San Antonio. This was the jumping-off point west where the Indian danger was a strong deterrent to exploration.

When Texas finally became interested in the western portion of the state it was for commercial reasons. The first efforts at exploration were meant to divert the Santa Fe-Chihuahua City trade away from Missouri. As early as 1840 Doctor Henry Connally, a Missouri trader looking for an advantage over the competition, crossed the Red River to Horsehead Crossing on the Pecos River south of the Guadalupe Mountains and then southwest to the Rio Grande at *La Junta*, the present town of Presidio. From there he followed the well-established trading route to Chihuahua City.¹ Nothing immediately came of this enterprise, but ten years later part of what Connally explored would become a major trading route from San Antonio, known as the Chihuahua Road.

After the Mexican American War, the economic interests of Texas and the Federal Government coincided in many ways. Through U.S. Senators Thomas Rusk and Sam Houston, western Texas became the concern of both public and private interests. Soon after statehood Rusk and Houston, early advocates of a transcontinental railroad along a southern route, asked for a Federal survey across Texas and the Southwest (See Figure 1).

Much of the work would fall to the Army Corps of Topographical Engineers stationed in Texas and under the command of Colonel Joseph E. Johnston and his subordinates. However, even before gold was discovered in California and Johnston's men took to the field, the Texas commercial interests took matters into their own hands. In August 1848 San Antonio merchants raised \$800 to finance an initial survey to Chihuahua City by way of El Paso, under the leadership of John Coffee Hays and

Captain Samuel Highsmith of the Texas Rangers.

“Jack” Hays arrived in Texas shortly after the Revolution and was soon fighting Indians as a Texas Ranger. In the Mexican War he commanded the 1st Regiment of Texas Mounted Volunteers all the way to Mexico City.² Samuel Highsmith arrived in Texas before the Revolution and fought at San Jacinto. Also, a Texas Ranger, he served in the 3rd Regiment of Texas Mounted Volunteers during the Mexican American War.³

The group spent three-and-a-half months wandering through the vastness of West Texas as far as *La Junta*, the junction of the Rio Grande and Rio Conchos. By the time they limped back into San Antonio news of the discovery of gold in California had reached Texas and a route west was now an imperative. Already numerous people had gathered at the major population centers in Texas ready to move west. With no reasonable route yet surveyed, when cholera broke out many started west anyway.⁴ Of the viable routes to the gold fields, only the one through Texas and the Southwest was potentially accessible year-round. On February 9, 1849 Major General William Worth, Army commander in Texas, ordered Lieutenant William H. C. Whiting and Lieutenant William F. Smith, Topographical Engineers, to attempt to find a usable route to El Paso. William Whiting graduated first in his West Point class of 1845. He joined the Confederacy in 1861 but proved to be a better engineer than field commander. Wounded, he died a Federal captive.⁵

William Farrar Smith graduated fourth in the West Point class of 1845 and joined the Topographical Engineers with Whiting. Smith gained recognition for opening the famous “cracker line” that saved the Union Army at Chattanooga, but lost credibility with Union leadership for failure to vigorously attack at Petersburg, Virginia in June 1864. Removed from command he spent the rest of his life defending his actions.⁶

Whiting and Smith left San Antonio on February 14, 1849 following the Hays-Highsmith trail to Presidio. From there they made a difficult passage up the Rio Grande to El Paso. Determining this route to be unsatisfactory, they returned by following the Rio Grande for less than a hundred miles before striking east to the Pecos River by way of the Davis Mountains. Crossing from the Pecos to the Devil's River they returned to San Antonio, reporting this to be a viable road west.⁷

While Whiting and Smith were still in the field, General Worth organized a second survey that would now bring

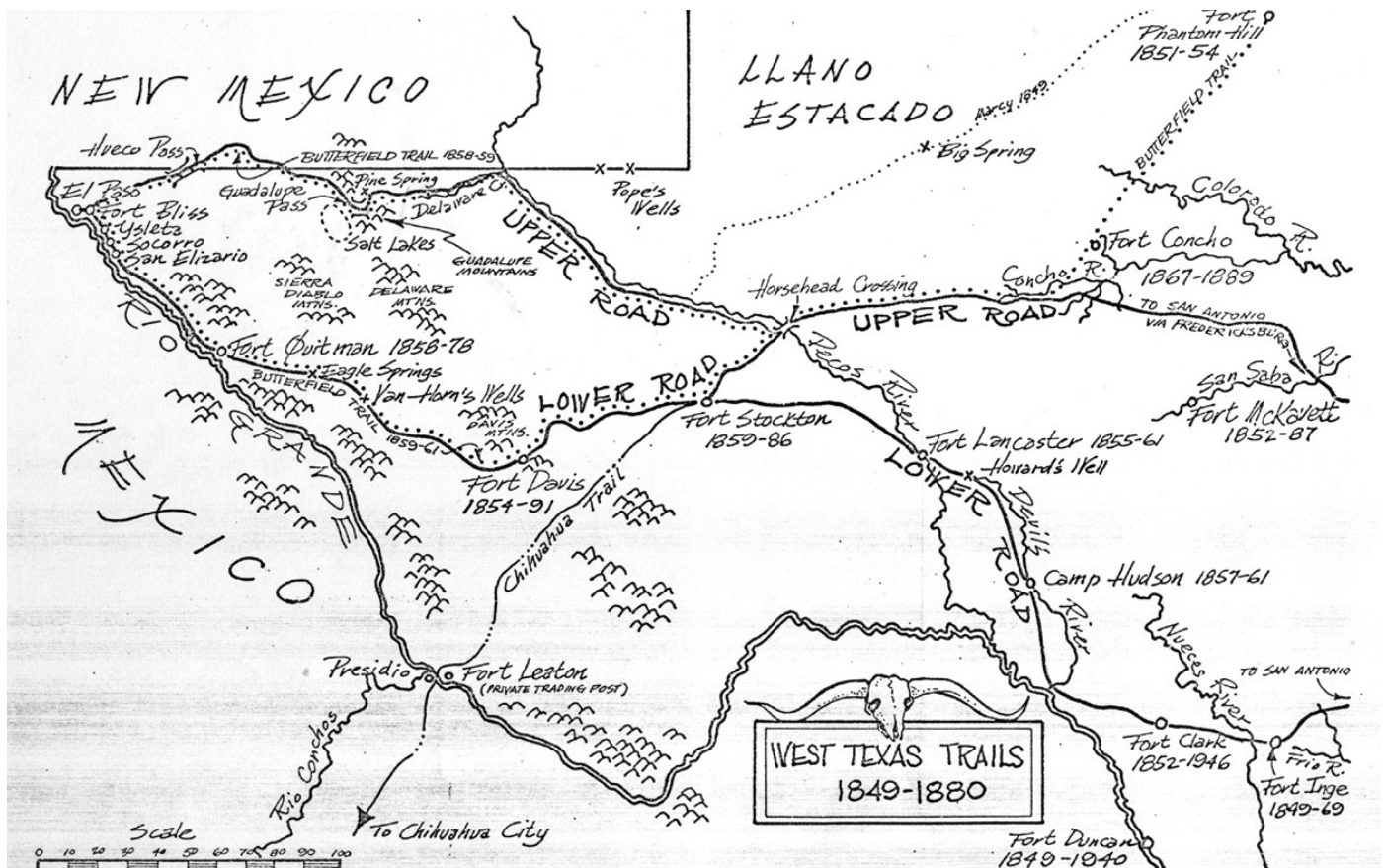


Figure 1. “West Texas Trails 1849-1880, map by Jerry Harlan (artist) and Larry Francell.

the story to the Guadalupe Mountains (see Figure 2 on the front cover). This was led by the Federal Indian Agent for Texas, Robert Neighbors, and John S. Ford. Ford was the editor of the *Texas Democrat* newspaper in Austin. In a government/commercial partnership, Ford was sponsored by merchants in Austin, and Neighbors represented the Army and Federal government. The expedition left Austin in March 1849, and crossed the Pecos River at Horsehead Crossing, the South Pass of Texas. Proceeding directly to El Paso across the desert to the north of the Davis Mountains, this waterless tract was determined as unsatisfactory for an emigrant or trading road. They returned from El Paso on May 6, taking a more northerly route known to have water. Following the general course of the present Texas – New Mexico border they were the first Americans to record passage through the Guadalupe Mountains. With water at Hueco Tanks, Cornudas, Pine Spring, and Independence Spring before their intersection with the Pecos River, Hays and Highsmith reported that they had found an excellent wagon road that needed improvement in only a few places. One of those places was Guadalupe Pass.⁸

The party returned to Austin on June 2, via the German

settlement of Fredericksburg. Shortly after, an account of the trip, probably written by Ford, appeared in the *Texas Democrat*. It read in part, “Bold running streams of pure, clear water, whose banks are fringed with trees and shrubbery, presenting the varied appearance of pool, riffle, and lake – now creeping through reeds, grass, and flowers, and soon tumbling from a ledge of rocks, giving to circumscribed spots, scenery of wild and singular beauty, water the slope from the Sierra Guadalupe to the Pecos.”⁹ To the desert dweller “scenery of wild and singular beauty” rings true, but, befitting an enterprise seeking to promote economic interests, there exists a high degree of hyperbole in this statement. Regardless, the word was out that emigrants headed to the California gold fields now had a way to cross the arid reaches of West Texas.

General Worth died of cholera on May 7, 1849. His successor, General William S. Harney, made plans for another survey of both the southern and northern routes, both of which held promise. At the time Whiting & Smith and Ford & Neighbors were still in the field. Harney was more interested in the southern route and assigned the senior member of the Corps of Topographical Engineers, Lieutenant-Colonel Joseph Johnston to that survey.

Joseph Johnston graduated thirteenth in the West Point Class of 1829 and served with distinction in the Seminole Wars in Florida and the Mexican War. He resigned from Federal service in 1861 and served as commander of the Confederate Army until wounded at the Battle of Seven Pines during the Peninsula Campaign when Robert E. Lee took command. Johnston would continue to serve the Confederacy, finally surrendering to General William Sherman at Durham Station, North Carolina, April 26, 1865.¹⁰

Before Johnston marched Whiting and Smith returned, and Smith was immediately assigned to Johnston. Both engineers were to accompany Brevet Major Jefferson Van Horne¹¹ and his six companies of the 3rd Infantry who were marching to El Paso to establish a new fort at that location. Named Fort Bliss in honor of William W. S. Bliss, son-in-law of Major General Zachary Taylor, the post is still active and a major military facility.¹² Also accompanying the expedition was a large group of civilians traveling to the California gold fields.

Harney assigned Lt. Francis T. Bryan to survey the northern route. Bryan graduated sixth in the West Point Class of 1845 and went immediately to the Topographical Engineers. Recognized for gallantry at the Battle of Buena Vista, he resigned from Federal service in 1861 to join the Confederacy.¹³

For the first time the West Point soldier/scientists with their engineering, cartography, and observation skills would venture into the Guadalupe Mountains. As Harney ordered, “The object of the reconnaissance being to obtain with perfect accuracy, the best information in reference to a permanent military road from the Gulf of Mexico to El Paso. You are desired to be particular in your examination and observation, and will make a detailed report accordingly, in order that a comparison may be drawn between this and the route explored by Lieutenant Whiting and Smith, having in view the same object.”¹⁴ Bryan left San Antonio on June 9, 1849 with a party of thirty men.

Passing through Fredericksburg, the last major community before the frontier, Bryan reached the Pecos River on July 9th. On July 20, while camped along Delaware Creek they came in sight of the Guadalupe Mountains for the first time, “our general course is west to the southern point of Guadalupe. There are three high peaks of the Sierra Guadalupe which serve as landmarks for a great distance.”¹⁵ The next day the party reached Independence Spring where they encountered the first trees they had seen since the Rio Concho. The following day they arrived at Pine Springs, at the foot of the Guadalupe to the east of

the pass. Bryan reported, “Marched six miles today to a fine spring of pure cold water, at the foot of Guadalupe, and encamped. The spring is about one-fourth of a mile to the right of the road, in a corner of the mountains. Here we found excellent grass for the animals, good water, and fine large timber.”¹⁶ After a day in camp the party crossed through the mountains, where they found the road rough but passable.

On July 24, after passing several of the salt lakes they camped at *Ojo de Cuerpo*,¹⁷ but the water was brackish. Discovering a hole dug by an earlier group heading to California, they found enough potable water for the camp. On July 26 they reached *Cornudas del Alamo* where they found fresh water.¹⁸ This location, the best source of good water west of the Guadalupe’s, would later play an essential role in the success of the first overland mail route. On the rest of the way to El Paso good water and grazing was also found at Alamo Spring and Hueco Tanks.

Of his survey, Bryan reported that he had located a good trail to El Paso that would only need work in a few places, including Guadalupe Pass, but none of which was insurmountable. As he reported to Colonel Johnston, “In conclusion, I have to remark that the country from Fredericksburg to El Paso del Norte, by the route which I have travelled, presents no obstructions to the easy passage of wagons. Grass and water may be had every day, within marches of twenty-five miles, except from the head of the Concho to the Pecos – a distance of sixty-eight miles, which is entirely without permanent water at present.”¹⁹ The two routes surveyed by Bryan and Whiting and Smith would become the main roads across West Texas until the railroads came in the 1880s.

In the meantime, Colonel Johnston, who accompanied Major Van Horn and a large party of “argonauts” headed to the California gold fields along the southern route, returned by way of the northern route through Guadalupe Pass. Thus, in 1849 Johnston had first-hand knowledge of the two major trails through West Texas. The path blazed by Whiting and Smith would be known as the Lower Road, or San Antonio – El Paso Road, while Bryan’s trail would be known as the Upper Road.

The multiple surveys to find the best roads west did not occur in a vacuum. Emigrants from at least twenty states took advantage of the favorable weather in Texas, gathered around San Antonio or Dallas and started west in early 1849. Of the three thousand or so who left for California, many went through Mexico, but others used the Upper and Lower roads so that by summer both were well marked,

often by abandoned wagons and dead animals. The lack of proper planning in the rush to find gold, the rugged terrain, lack of adequate provisions, and the scarcity of water haunted many of the emigrant parties.²⁰

However, the last links that would make the Upper Road an important connection to the eastern states came through the effort of Captain Randolph Marcy, 5th Infantry. On April 2, 1849, Marcy was ordered to escort a train of gold seekers from Fort Smith to Santa Fé, by way of the Canadian River. His goal was a route to California via Santa Fé and, to appease if possible, the Comanches who claimed the region. Marcy was an experienced veteran of the frontier and he had under his command a company of the 1st Dragoons and two companies of his own regiment, a large show of force. Coupled with the emigrants headed to California this was a large expedition.

Marcy, West Point class of 1832, eventually led five surveys in the West, fought in the Mexican American War, the Mormon War, and served with distinction in the Union Army during the Civil War. In 1859 he wrote one of the best and most accurate guidebooks for those emigrants to California and Oregon, *The Prairie Traveler*.²¹

Arriving in Santa Fé, Marcy turned south to El Paso and made his way east along the route previously surveyed by Bryan. On September 9, 1849, the expedition approached Guadalupe Pass, camping at Bone Spring. In his report Marcy described the location: “The Guadalupe range of mountains terminates at this place in an immense perpendicular bluff of light colored sandstone, which rises to the enormous height of nearly two thousand feet, and runs off to the northeast towards the Pecos. On the south of the peak there is a range of bluffs about two hundred feet high, running from north to south across our course, over which we will have to pass. At about ten or twelve miles south of here this bluff appears to terminate; but as we can pass without difficulty at this place, we shall not go out of our course to avoid it.”²² Today State Highway 180/62 provides cuts through these bluffs, denying the contemporary traveler the scene as Marcy saw it.

On September 10 the party moved to Pine Spring, which Marcy described as, “a fine spring three hundred yards west of the road, which affords an abundance of water.”²³ Of the local environment he wrote, “The mountains are covered on the eastern side with groves of large pine trees; and this is the only kind of timber fit for building in the country, it may someday be useful.”²⁴ Marcy returned to Fort Smith on November 20, providing the following assessment, “From all I can learn from the other routes to California, I am induced to believe that, should our

government, at any future time, determine upon making a national road of any description across the continent, the southern route we have travelled is eminently worthy of consideration. We find upon none of the northern routes as much water, timber, or rich, fertile soil, as upon this.”²⁵ The purpose of all this effort was to find usable roads west, and this flurry of activity resulted in the first useful maps of the region. All the surveys under the command of Colonel Joseph Johnston were compiled into one map, and Marcy’s Report resulted in two. Of the Johnston compilation map, Carl Wheat, the definitive expert on the cartography of the West, writes that, “A fitting addition to these maps which were brought into being by the Mexican War is the [Johnston] map which shows the efforts by which San Antonio was connected with El Paso, as well as numerous other Texas surveys.”²⁶ This map is important because it contains multiple surveys including those of Johnston, Whiting and Smith, Bryan, and others. Of Marcy’s maps, which are exquisitely detailed, Wheat writes, “No southern emigrant could afford to be without this map.”²⁷ Wheat concludes with, “In another year these young officers were to be scattered hither and yon. But not before they had given geographical solidity to Texas, as the last act of the Mexican War drama.”²⁸

As noted, while the various official expeditions and surveys were passing through the region, thousands of emigrants were heading to California by any means possible. For those using the Upper Road the journey from the Pecos River to El Paso was particularly difficult. Thomas Eastland, bound for the gold fields in June 1849, wrote that he saw, “no less than sixty wagons abandoned on the road between the river and this place [the Guadalupe] and that it was really distressing to witness the dead and dying animals strewn along the way.”²⁹ The Gold Rush was on and all this early exploration did not occur in a vacuum.

While El Capitán stood dominant and silent over the West Texas desert, the next act in the drama of the region would be the complicated and divisive decision as to the actual location of the boundary between Texas and Mexico. While it is a story that mostly took place elsewhere, another important and observant traveler passed through the Guadalupe Mountains. John Russell Bartlett was a Boundary Commissioner and a key player in the establishment of the border with Mexico, no small task that Bartlett made more difficult.

On February 2, 1848, Nicholas Trist, on behalf of the United States, signed the Treaty of Guadalupe Hidalgo officially ending the war with Mexico. Included in the treaty was the transfer of California and the entire

Southwest to the United States, the end of all claims to Texas, and the establishment of the Rio Grande as the border of that state. With the exception of three, numerous details related to the actual boundary between the two nations was left undetermined. First, San Diego was located on the U.S. side of the line. Second, both nations would have an outlet from the Rio Grande into the Gulf of Mexico, meaning the actual boundary would be in the middle of the river. Third, the community of “Paso,” what is now the city of Juarez, would remain in Mexico.³⁰

Used as the authority to determine a baseline for the boundary was John Disturnell’s *Map of the United States, as Organized and Defined by Various Acts of the Congress of Said Republic and Constructed According to the Best Authorities, 1847*. The problem was this map was incorrect in two significant areas. It located the Rio Grande two degrees of longitude too far west and the town of El Paso 40 minutes of latitude too far north, or approximately 30 miles. The entire boundary of the Texas and Mexico was affected by this distortion, which would create infinite controversy.³¹

The treaty stipulated that each government appoint a Commissioner and a Surveyor who were to meet in San Diego within the year and, “proceed to run and mark the said boundary in its whole course to the mouth of the Rio Bravo del Norte [Rio Grande].” The actual survey began in July 1849 when the U.S. Commissioner John B. Weller of Ohio and Surveyor Andrew B. Gray of Texas met the Mexican Commissioner General Pedro Garcia Condé and Surveyor José Salazar Ylarregui. The U.S. Army provided an escort under the command of Brevet Major William H. Emory, Topographical Engineers, assisted by Lieutenant Amiel Weeks Whipple, TE. Emory, more than anyone else was instrumental in ensuring that there was, in fact, a final determination of the boundary.³²

Weller, a Democrat, at a time when the Whigs were in control in Washington, was soon removed just as the western end of the line was established.³³ Weller was replaced by John Russell Bartlett, the owner of a bookstore and publishing house in New York, and a founder of the American Ethnological Society. More interested in adventure than the mundane work of surveying a boundary, Bartlett set out to meet his Mexican counterpart in El Paso to complete the most controversial section of the survey. Condé and Bartlett met in El Paso in December 1850 and their attempt to establish the boundary based on the Disturnell’s map seriously distorted the concepts of longitude and latitude. Andrew Gray, the U.S. Surveyor, refused to sign the offered agreement, realizing that Bartlett had been duped and was prepared to give away

a strip of land best suited as the southern route for a transcontinental railroad.”³⁴

Major Emory was called upon the set things straight. Technically, he served under Bartlett, who, at government expense, set off for his own adventure into Mexico. Emory, working well with his Mexican counterparts, organized, and parceled out portions of the work to smaller parties. He then brought the Mexican surveyors to Washington so that together they could produce the correct maps. The actual boundary was not resolved until 1854 when President Millard Fillmore sent James Gadsden, a South Carolina railroad promoter, to Mexico to negotiate with Mexican President Santa Anna the purchase of land south of the Gila River. The result was the Gadsden Purchase, ten million dollars for land through which the Southern Pacific Railroad was eventually built.³⁵

At the beginning of this enterprise, as Bartlett journeyed to El Paso, he and his party passed through the Guadalupe Mountains, the first group to do so in winter and leave documentation. According to the historian William Goetzmann even before Bartlett reached El Paso his journey included, “a series of misadventures, which included three murders committed by his men, habitual drunkenness, insubordination, mutiny, and an attempted quartermaster’s fraud by his own brother.”³⁶ It was a good thing that Emory was eventually put in charge of the actual boundary survey.

By November 6, 1850, the expedition had reached Delaware Creek to the east of the Guadalupe’s, a favorite camping spot before approaching the pass. Bartlett, wrote, “The dreaded Norther I had so much feared when near the Pecos, had now come upon us with all its fury and in its very worst shape, accompanied by snow. Bad as our condition was, it might have been worse. We had escaped the inhospitable region of the Pecos, where the water was unfit to drink, scarcely any grazing was had to be for animals, and no wood wherewith to cook our food. Here the grass was excellent and abundant, the water was pure, and the calamities of others furnished us with broken wagons and other articles for fire-wood.”³⁷ With no shelter for their animals, the party built large fires or huddled in their tents.³⁸ By November 8 the storm passed, and the party moved on toward the mountains (see Figure 3).

With the animals in poor shape, Bartlett, with several others, decided to push ahead of the main party. Bartlett reported, “The Guadalupes have been before us the whole day, and we all expected to reach it within a couple of

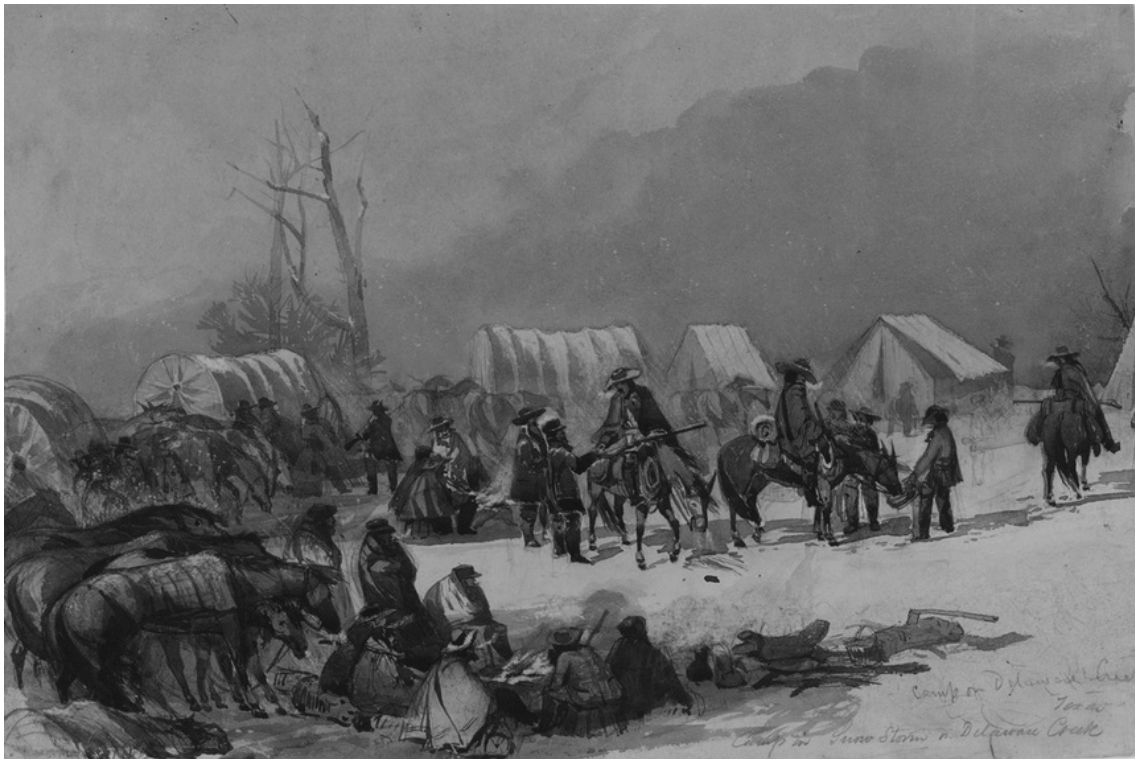


Figure 3. *Camp in a Snow Storm on Delaware Creek, Texas, November 6, 1850. Pencil and sepia wash by John Russell Bartlett, courtesy of the John Carter Brown Library, Brown University, Providence, Rhode Island.*

hours after leaving camp. But hour after hour we drove directly towards it, without seeming to approach nearer; and finally, after journeying ten hours, the mountain seemed to be as distant as it was in the morning. Such is the clearness of the atmosphere here, that one unused to measuring distances in elevated regions is greatly deceived in his calculations."³⁹ The modern traveler will experience the same phenomenon approaching from any direction.

Approaching the pass, Bartlett wrote, "No sunrise at sea or from the mountain's summit could equal in grandeur that which we now beheld, when the first rays struck the snow-clad mountain, which reared its lofty head before us. The projecting cliffs of white and orange stood out in bold relief against the azure sky, while the crevices and gorges, filled with snow, showed their inequalities with wonderful distinctness. No painter's art could reproduce, or colors imitate, these gorgeous prismatic hues."⁴⁰ Bartlett reached El Paso on November 13th after a journey of thirty-three days from San Antonio. For all his faults as Boundary Commissioner, Bartlett left wonderful and detailed descriptions of the country through which he traveled.

The next explorer to reach the area, Captain John Pope, was part of the first comprehensive scientific survey of the American West, the effort to seek the best transcontinental railroad route to the Pacific. *Explorations and Surveys to Ascertain the Most Practical and Economical Route*

for a Railroad from the Mississippi River to the Pacific Ocean was the first attempt by the Federal Government to scientifically survey and assess the entire West.

The war with Mexico, followed quickly by the discovery of gold in California created an immediate and compelling need to determine an adequate railroad route to the Pacific. Because of sectionalism and a Congress divided equally between free and slave states, the selection of a railroad route was one of the most complicated political problems of the period. Due to the expense of such an undertaking, Federal assistance was a foregone conclusion. It was understood that Congress would subsidize the construction of only one route. The decision over whether this route would have its terminus in the North, South, or Middle Border created immense controversy.

In March 1853, Congress authorized what was thought to be the final solution to the problem. The War Department, under Secretary Jefferson Davis, was to survey the principle routes, and determine scientifically and objectively, which was the most economical and practical. With Major William Emory, and then Captain Andrew Atkinson, in overall command, and using mostly officers from the Corps of Topographical Engineers, several parties consisting of engineers, surveyors, naturalists, botanists, astronomers, teamsters, and military escorts took the field in 1854.

Two of the surveys passed through Texas. Lieutenant Amiel Weeks Whipple led a party through the Texas Panhandle along the 35th Parallel, and Captain John Pope explored the 32nd Parallel along the Texas-New Mexico border, including the Guadalupe Mountains. Pope led the survey from the east to the Rio Grande, and Lieutenant John G. Parke worked east from San Diego to the Rio Grande.⁴¹

While all this activity was designed to unravel the political knots of selecting a transcontinental route in the presence of intense sectional pressure, this was not to be. After a year's work and a published report in thirteen volumes, the surveyors, in effect, found there were several practical routes and, of these, three would terminate in the North or Middle Border (St. Louis), and two in the South. Thus, the chance for an objective, non-political solution died in 1855. It would be eight more years before a solution could be found, and then only after the South withdrew from the debate by seceding from the Union.

In October 1853 Pope was ordered to seek a possible railroad route from Doña Ana, near El Paso, to Preston on the Red River and from there to Fort Smith, Arkansas, where the road was already well established. Lieutenant John G. Parke would continue the survey from Doña Ana to California.⁴²

Pope, after organizing his party, rounding up supplies, and the necessary scientific instruments, left on February 12, 1854 with two primary missions. His first task was to find a pass acceptable to the gradient necessary for a railroad.⁴³ His second task was to explore the *Llano Estacado*, the Staked Plains of Texas, for adequate water. By February 26 he was camped on the west side of the Guadalupe at the salt lakes, and for the next two days he surveyed Guadalupe Pass.

On March 1, after camping on the barren western slope, Pope and his men found an abundance of wood and water at Pine Spring. Describing the pass, Pope wrote, "The route through these mountains, although rough in some places for want of work, are nevertheless practicable for a railroad."⁴⁴ However, no railroad would ever be built though the pass.

The day-to-day diary of the survey was compiled by J. H. Byrne with the title *Assistant Computer*. His description, written March 1, 1854, is more detailed. "We moved up the canon, breasting a steep and rocky ascent; there is an abrupt turn to the right, which we were obliged to take, which led us up a continuation of this hill for a quarter of a mile before we reached the summit [of the pass]. This task consumed considerable time, but it was accomplished without doubling teams, or an accident occurring. From the summit the view over the surrounding country was at once grand and picturesque – the southern peak of the

Guadalupe towering majestically above all."⁴⁵ That night the party camped at Pine Spring, finding adequate water, fuel, and grazing for the animals.

Concerning the building of a railroad, Pope reported, "From the head of Delaware Creek to the summit of the Guadalupe Pass the ascent, though rapid, is quite uniform, and the line straight." Continuing he writes, "The pass is elevated 1,545 feet above the head of Delaware creek, which gives for a distance of 24.4 miles, and average ascent of 61.8 feet to the mile. The eastern side of the mountains immediately contiguous to the line is faced with pine timber of large size, and abundant springs of water break out at several points."⁴⁶

Pope was much in favor of a railroad built along his line of survey, and estimated the cost from Fulton, Arkansas, his chosen terminus in the East, to El Paso at \$40,000,000. For the section of line from the Pecos River to El Paso, he figured the costs at \$61,000 per mile, an estimated total of one hundred and sixty-nine miles.⁴⁷ The difficulty of this route was the lack of water, especially from the Pecos River to the Guadalupe. Pope's suggestion was to dig wells, leading to one of the more interesting experiments conducted in the West before the Civil War. He estimated the cost of four wells at \$28,532.⁴⁸

Since the South strongly favored a transcontinental railroad along a southern route, Pope was sent back, even before all the surveys were complete, to look for water and drill where possible. His drilling equipment was inadequate for the task and after attempts on the plains near the Pecos River his mission failed.

In June 1855 Pope was back in the area east of the Pecos River with forty-one laborers, technical assistants, the geologist George G. Shumard, a military escort, and boring equipment. After over three months' effort, they struck water at 641 feet. Drilling deeper they hit two more layers of water, the last of which collapsed the well losing most of the tubing necessary to continue. Regardless, Pope reported, "Although the practicability of boring artesian wells on this desert was fully tested in the above results which exhibit an abundant and constant supply of water, entirely unaffected by surface rains and easily accessible to pumps."⁴⁹ Eventually Pope's efforts were abandoned, but the abundant irrigated lands around Carlsbad and the properly named Artesia to the north prove he was correct in his original premise.

This was the last of the scientific surveys to study or pass through the Guadalupe Mountains. What came next would bring the mountains into prominence, for a short time at least, as the primary communication connection between east and West. The Butterfield Overland Mail was about to arrive.

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5. Virgil C. Jones, "Whiting, William Henry Chase," *Historical Times Illustrated Encyclopedia of the Civil War*, Patricia Faust, ed., New York: Harper & Row, 1986, 882.

6. *Ibid.*, John Y. Simon, "Smith, William Farrar," 699.

7. Lt. William H.C. Whiting, "The Report of Lieutenant W.H.C. Whiting's Reconnaissances of the Western Frontier of Texas," *Reports of the Secretary of War with Reconnaissances of Routes from San Antonio to El Paso*, Washington, Union Printing Office, 1850, 40-50.

8. A.B. Bender, "Opening Routes Across West Texas," *Southwestern Historical Quarterly*, 37(2):116-135, October 1933.

9. Kenneth F. Neighbours, "The Expedition of Major Robert S. Neighbors to El Paso in 1849," *Southwestern Historical Quarterly*, 58(1):36-59, July 1954.

10. Francis Heitman, *Historical Register and Dictionary of the United States Army, 1789-1903*, Urbana: University of Illinois Press, 1965, 578.

11. A "brevet" was an honorary rank bestowed upon an officer for meritorious or exemplary service, but with no additional pay.

12. Robert W. Frazer, *Forts of the West*, Norman, University of Oklahoma Press, 1972, 13-144.

13. Heitman, 257.

14. Lt. Francis T. Bryan, "Report." *Reports of the Secretary of War with Reconnaissances of Routes from San Antonio to El Paso, 1850*, Washington: Printed at the Union Office, 1850, 25.

15. *Ibid.*, 21.

16. *Ibid.*, 21.

17. In Spanish "cuerpo" translates to "body," but this is a misspelling of "cuerbo," which translates to "crow." The common English name is "Crow Spring."

18. "Cornuda," meaning horned, or to have horns, is a name most often associated with the Great Horned Owl, and "Alamo" is the Spanish word for the cottonwood tree.

19. Bryan, 23.

20. Ralph Bieber, 32-40.

21. Heitman, p. 689 and Thrapp, *Encyclopedia*, Vol. II, pp. 940-941; Randolph B. Marcy, *The Prairie Traveler: A Handbook for Overland Expeditions*, New York: Harper & Brothers Publishers, 1859; reprint: West Virginia: West Virginia Pulp and Paper Company, 1961.

22. Captain Randolph Marcy, "Report." *Reports of the Secretary of War with Reconnaissances of Routes from San Antonio to El Paso*, Washington, Union Printing Office, 1850, 201.

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25. *Ibid.*, p. 225.

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27. *Ibid.*

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29. Wayne Austerman, *Sharps Rifles and Spanish Mules: The San Antonio – El Paso Mail, 1851-1881*, College Station: Texas A&M Press, 1985, 9; also see Thomas B. Eastland and Joseph G. Eastland, "To California Through Texas and Mexico: The Diary and Letters of Thomas B. Eastland and Joseph G. Eastland, His Son," *California Historical Society Quarterly*, 18(2):99-135, June 1939; and 18(3):229-250, September 1939.

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33. William Goetzmann, *Exploration and Empire: The Explorer and the Scientist in the Winning of the American West*, Austin: Texas State Historical Association, 2000, 261.

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35. Joseph R. Werne, *The Imaginary Line: A History of the United States and Mexican Boundary Survey, 1848-1857*, Fort Worth: Texas Christian University Press, 2007, 183-186.

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37. John Russell Bartlett, *Personal Narrative of Explorations and Incidents in Texas, New Mexico, California, Sonora and Chihuahua*, Vol. I, Chicago: The Rio Grande Press, 1965, 111.

38. *Ibid.*

39. *Ibid.*, pp. 117-118.

40. *Ibid.*

41. Lieutenant Gouverneur K. Warren, "Memoir to Accompany the Map of the Territory of the United States from the Mississippi River to the Pacific Ocean," *Reports of Explorations and Surveys to Ascertain the Most Practicable and Economical Route for a Railroad from the Mississippi River to the Pacific Ocean, 1853-56*, Vol. XI, Washington: George W. Bowman, Printer, 1861, 75-76.

42. Goetzmann, 284.

43. A 3% grade was considered about the maximum a locomotive could handle, a three-foot rise in every 100 yards of length. A route of a 1% to 2% grade was sought.

44. John Pope, *Reports of Explorations and Surveys*, Vol. II, Washington: A. O. P. Nicholson, 1855, 7.

45. *Ibid.*, p. 56.

46. *Ibid.*, p. 42.

47. *Ibid.*, p. 42-43.

48. *Ibid.*, 21.

49. Goetzmann, 366.



SHIPS OF THE DESERT: WILLIAM P. BLAKE'S ACCOUNT OF THE FIRST CAMEL EXPEDITION ACROSS TEXAS

by David Miller

In the mid-1850s San Antonio became the focus of one of the most unique, exotic, and perhaps quixotic experiments in overland transportation to have taken place in the ante-bellum United States. As a consequence of the annexation of Texas, the settlement of the Oregon question with Great Britain, and the Mexican Cession, the United States had virtually doubled its size in just three years. Transportation across what Stephen Long had termed the "Great American Desert" posed enormous problems for both civilians and the military. Under Article XI of the Treaty of Guadalupe Hidalgo, the U.S. had committed itself to protect Mexico from Comanche and Apache raids across the new international border, a provision that would require the establishment of new military posts along the border from the Rio Grande to the Pacific Ocean. Although steamboats had become the major means of transportation east of the Rocky Mountains, there were virtually no western rivers which could be navigated more than a few miles inland from coastal waters. Railroads were still in their infancy, and none would be constructed across the continent until after the Civil War. The discovery of gold in California in 1848 resulted in the largest mass migration in American history, beginning with the 1849 gold rush, which did not taper off until the mid-1850s. Tens of thousands of "gold sot" 49ers crossed the continent over dusty trails seeking El Dorado, facing inadequate water and forage for their animals. Many were buried in lonely graves along the numerous trails. The army faced the task of improving trails, building roads, providing military escorts, building posts, and in some cases, feeding starving emigrants with army rations. The army maintained thousands and thousands of horses, mules, and oxen, but none of these draft animals was really up to the task of providing adequate transportation across southwestern deserts.

In 1836 Major George H. Crosman, who had fought in the Seminole wars in Florida, proposed the establishment of a United States Camel Corps in order to solve some of the transportation problems he had faced in Florida. His proposal faced indifference in Washington. Major Henry Wayne expanded upon Crosman's ideas in a proposal to a congressional committee on military oversight in 1848. Wayne subsequently led the first government expeditions to the Middle East to obtain camels.

Most supporters of the importation of camels had read Father Huc's *Souvenirs* (1850), an account of the French missionary's travels in China and Tibet. They were impressed with the camels' importance in transportation in the Far East.

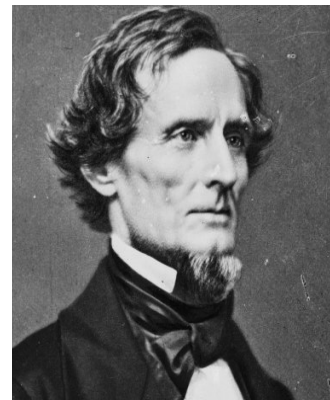
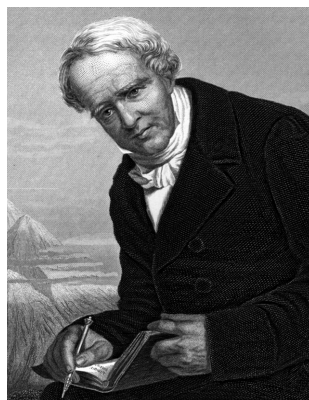
German geographer Alexander von Humboldt (see Figure 1) is well known in this hemisphere for his extensive travels in Latin America (1799-1804). On his way back to Germany, Humboldt

met Thomas Jefferson in Philadelphia, providing the president with important maps used in Lewis and Clark's expedition to the Pacific coast. In 1811 Humboldt published in Paris his *Political Essay on the Kingdom of New Spain*, including some of the most influential maps used in defining the boundaries of Mexico, Texas, and New Mexico along the Rio Grande. In his multi-volume *Kosmos* he stressed the unity of all branches of knowledge -- known as Humboldtian science -- which greatly influenced the U.S. government's examination of the west and southwest. In his study entitled *Ansichten der Natur* (*Aspects of Nature*, 1849) he referred to camels as "the ships of the desert."

Jefferson Davis (see Figure 2), while still a senator from Mississippi, promoted military use of camels in our western territories. Confirmed as Secretary of War in 1853, Davis pushed hard for a congressional appropriation to support the importation of camels, ultimately receiving in 1855 a \$30,000 appropriation to acquire camels in order to test their potential utility in Texas and the southwest.

U.S.-Mexico Boundary Commissioner John Russell Bartlett learned from experience the limitations encountered in the deserts along the border when relying on mules and horses. When he published his *Personal Narrative of Explorations and Incidents . . .* in 1854, he included a chapter on camels, in which he argued that they would be well adapted to southwestern deserts. He noted that they were fast, easily traveling over 25 miles a day while carrying heavy loads of at least 600 pounds. They needed little water, and could subsist on desert shrubs. To them, mesquite leaves and cactus were delicacies. By using them the government could significantly reduce the cost of maintaining many of its thousands of mules, horses and oxen.

During the Crimean War (1853-56) the British made significant military use of camels. In their Camel Corps they had as many as 1,000 men riding on 500 camels, which could carry 600 pounds of men and gear, and easily cover 25-30 miles a day. They were not used as cavalry ("camelry"), but more like our dragoons, were mounted infantry. During battles, the camels would kneel down, the soldiers would dismount, and could even fire over the kneeling camels' backs.



Figures 1 and 2. Alexander von Humboldt on left and Jefferson Davis on the right.



Figure 3. Tom Jonas, Southern Trails Chapter member, standing next to a mountain howitzer at the San Pasqual museum in Southern California. This is a modern reproduction of one of Kearny's howitzers that he took to California.

Camels could also carry howitzers over desert terrain (see Figure 3). When Stephen Watts Kearny had to abandon his wagons on the Rio Grande north of modern Truth or Consequences in 1846, he chose to keep four mountain howitzers, which he dragged along the Gila, across the Imperial Desert in California, and on to San Pasqual, where he engaged Mexican forces in California. Given Kearny's problems, it is not surprising that Jefferson Davis considered the establishment of an American Camel Corps worthy of further investigation.

In 1855 Davis assigned Major Henry Wayne the duty of overseeing the acquisition of camels in the Middle East. The Ship *Supply* was available, and under the command of Captain David D. Porter sailed first to Europe, and then on to the Mediterranean. He was assisted by Gwinn Harris Heap, who had served as American Consul at Tunis, North Africa from 1839-40



Figure 4. Gwinn Harris Heap.

(see Figure 4).

Heap served on both camel purchase expeditions, which acquired camels in Turkey, Tunisia, Egypt, and the Crimean. The *Supply* brought two cargos of camels to the United States, 34 in 1856 and 44 in 1857. Because the Gulf was too rough to unload them at Indianola, Texas, they were transferred to river steamers at the mouth of the Mississippi, and then shipped on those steamers to Indianola before beginning their long hike to San Antonio.

The importation of military camels received a lot of publicity in 1856 and 1857. George P. Marsh, whom Zachary Taylor had appointed U.S. Minister to the Ottoman Empire, published a book in 1856 entitled *The Camel and its Organization*. In it Marsh stressed the military uses of the camel which he had observed in Turkey. In its October, 1857 issue, *Harper's New Monthly Magazine* published an illustrated lead article entitled "The Ship of the Desert," with eight illustrations of camels sketched by Gwinn Harris Heap (see Figure 5).

After landing the camels in Indianola, they traveled on to San Antonio, demonstrating their prowess along the way. After a short stay at Major George Thomas Howard's ranch on the Medina River near San Antonio, Major Wayne moved the camels to Camp Verde in the Green Valley, about 60 miles northwest of San Antonio, and a few miles south of Kerrville.

The Triumvirate of the 1857 camel expedition, consisted of the captain of the ship *Supply*, David Dixon Porter, who brought the camels across the Atlantic to the United States, Gwinn Harris Heap, Porter's brother-in-law, and Heap's cousin, Edward Fitzgerald Beale (see Figure 6). Beale was the commander of the 1857 camel expedition across Texas, New Mexico, and Arizona, and therefore is most closely associated with the camel experiments in the United States. Beale was a naval officer, explorer, wagon-road builder, California Indian superintendent, gold miner, and entrepreneur. Among other things, he established the Tejon Ranch in California, the largest private hand holding in the United States. Beale played an important role in saving Stephen Watts Kearny's hide at San Pasqual when he and Kit Carson slipped behind enemy lines in order to bring reinforcements from Commodore Robert Stockton, whose ship was then anchored at San Diego. Beale became a national celebrity in 1848, when he carried a small cache of California gold back to Washington via Mexico, setting off the 1849 California gold rush.

In 1853 Beale headed west to assume his new duties as Indian Agent for California. He used the opportunity to travel across the Southwest over Senator Thomas Hart Benton's proposed "Central Railroad Route to the Pacific" which would run west from Kansas City along the 38th parallel across the plains and over the Rockies via Cochetopa and Wasatch Passes, and then southwest down the Old Spanish Trail past Las Vegas to the Mohave River, and then up the Mohave and over Cajon Pass to Southern California. Beale travelled along the route with his cousin, Gwinn Harris Heap, who published a well-illustrated book on the subject on their journey in 1854, entitled *Central*



Figure 5. “The Ship of the Desert” cover illustration in the October 1857 issue of Harper’s New Monthly Magazine.

Route to the Pacific. In that book Heap included an essay entitled: “Camels, as a substitute for Horses, Mules, etc.,” promoting the use of camels in the American Southwest.

In 1856 Heap wrote a study entitled “Employment of Dromedaries for Transporting Mails,” using the information he had gleaned in 1853 during his travels with Beale from Westport on the Missouri River to Southern California.¹ Heap wrote this study four years prior to the establishment of the Pony Express. Heap argued that dromedaries carrying a 300 pound load could travel 80 miles a day. He proposed that routes could be established between Independence, Missouri and either San Francisco or Los Angeles using four relay stations. By contrast, the Pony Express required 190 stations. In addition to mail, the dromedaries could also haul freight, but at a somewhat slower pace. Heap’s proposal was closely aligned with Jefferson Davis’ thoughts on the employment of camels in the Southwest. It was an idea that could have been more successful than the ill-fated Pony Express.

When Beale took charge of the camel expedition in 1857, he brought Gwinn Harris Heap along. Unfortunately, Beale and Heap had a falling out over a stray mule during their journey from Indianola to San Antonio, resulting in Heap’s resignation from the expedition. Had Beale not been so testy, Heap would have traveled with the camels all the way to California, not



Figure 6. Edward Fitzgerald Beale.

only providing the expertise with camels he had obtained as a diplomat in the Middle East, but as a talented artist, he would have provided a detailed pictorial record as well as an excellent journal of the camel expedition from San Antonio to California.

Major Wayne’s plan was to keep the camels at Camp Verde for four or five years in order to breed them up to a substantial herd before testing them on overland expeditions. However, he was overruled by the Secretary of War Jefferson Davis, who wanted an immediate test of their suitability for military use.

Jefferson Davis’ plan was to march the camels from Texas to Fort Defiance, New Mexico Territory, and then to use them in laying out a wagon road south of the Grand Canyon across northern Arizona to the Mohave villages on the Colorado River (essentially Route 66).²

In 1856 James Buchanan was elected president of the U.S. Jefferson Davis was elected as a senator from the state of Mississippi. Buchanan appointed John B. Floyd as his new secretary of war in March, 1857. Floyd supported Beale’s assignment to carry out the 1857 camel expedition across Texas, New Mexico, and Arizona.

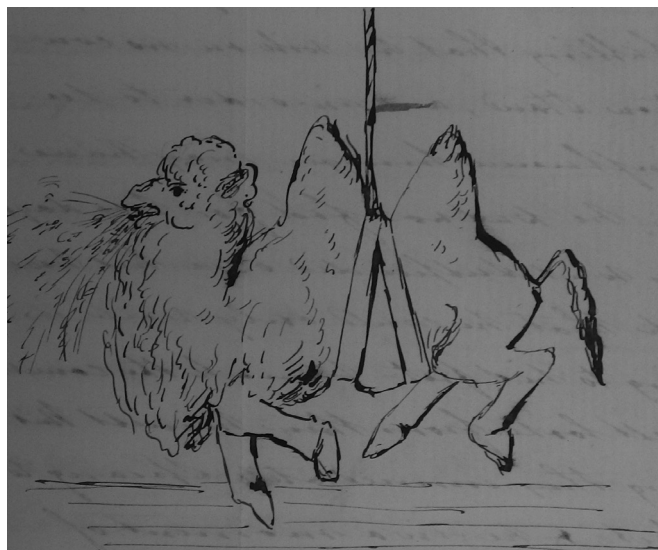


Figure 7. A sketch made on November 30, 1856 aboard the ship Supply by Gwinn Harris Heap of one of the two Bactrian (two-hump) camels, among the 41 on board the ship, they were taking to the U. S. The camel was afraid of falling, refused to stand, and had to be hoisted, while “squealing like a pig.” In the sketch, the camel is spitting out hay he was eating.

Beale selected several friends and relatives from his home town of Chester, Pennsylvania, and along with Lt. Charles Thorburn of the U.S. Navy,³ who had been to the Middle East on the ship *Supply*, headed down the Mississippi to New Orleans, boarded a river steamer headed for the Gulf of Mexico, arriving at Indianola, Texas, in early June, and reaching San Antonio by the middle of the month.

Although there is considerable secondary material and a couple of published first-hand accounts of the 1857 camel expedition, including May Humphreys Stacey's journal entitled *Uncle Sam's Camels*,⁴ there are two very important primary sources which have never been cited. One is the diary of geologist William P. Blake (see Figure 8), which covers the expedition from San Antonio to Albuquerque, and the other, Lt. Charles Thorburn's *Journal* covering the wagon road survey from Fort Defiance in New Mexico to the Colorado River on the Arizona-California border.⁵

Blake was a Yale graduate, having received one of the school's first doctorates in geology. He was a geologist on the 1853 Williams railroad survey in Southern California. He subsequently established the School of Mines at the University of Arizona. Blake signed on with Beale in New Orleans, and kept a daily diary of the expedition across Texas and New Mexico until he had to resign in El Paso, having contracted cholera. Blake's diary of the camel expedition across Texas

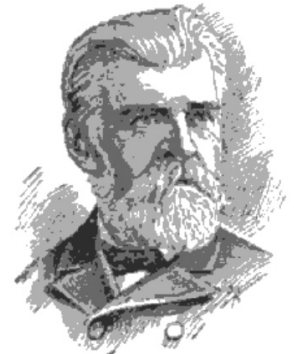


Figure 8. William Phipps Blake.

was written in pencil in several small notebooks with daily entries. Given his training in geology, there is a heavy focus on geological features along the trail.

Blake was Thorburn's mess mate. The two were very compatible during the expedition. Thorburn had picked up the habit of smoking hashish using a Turkish pipe during a trip to the Crimea to study British tactics during the Crimean War. He brought the pipe with him to Texas. Both he and Professor Blake enjoyed puffing on that pipe, enjoying an occasional toke of hash, while encamped near San Antonio.

Blake and Thorburn made several visits to San Antonio while encamped a few miles outside of town awaiting the arrival of the camels from Camp Verde. On one of his trips to San Antonio, Blake visited the ruins of the *Misión Concepción*, located about one and a half miles from downtown. He was much interested in the building's construction, but was put off by the fact that it

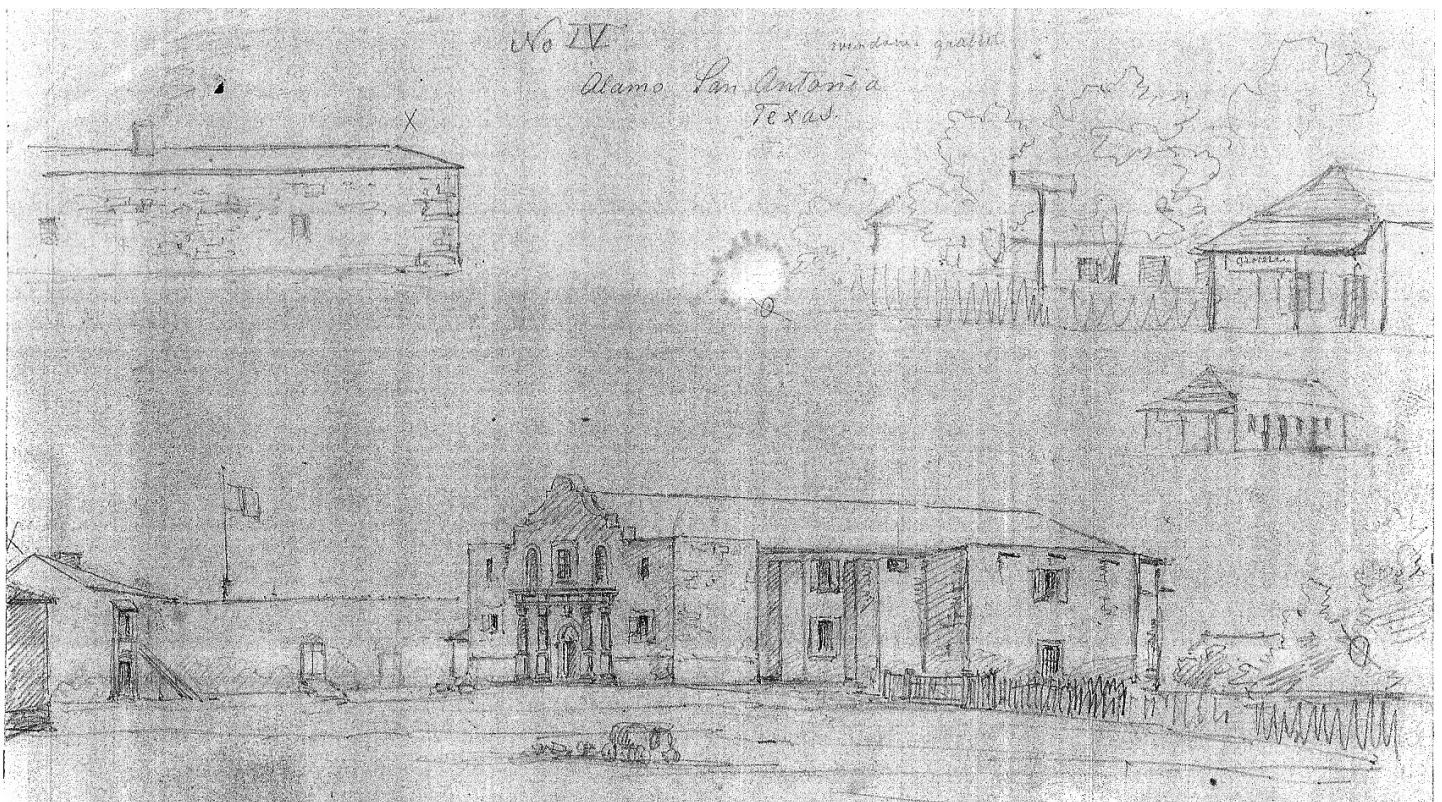


Figure 9. The Alamo and other buildings in San Antonio, by J. J. Young, who was an artist who contributed to the Pacific Railroad Survey volumes on California. Some of his work is in the Army Art Collection at the Pentagon. This sketch is in the National Archives, found there by David Miller.

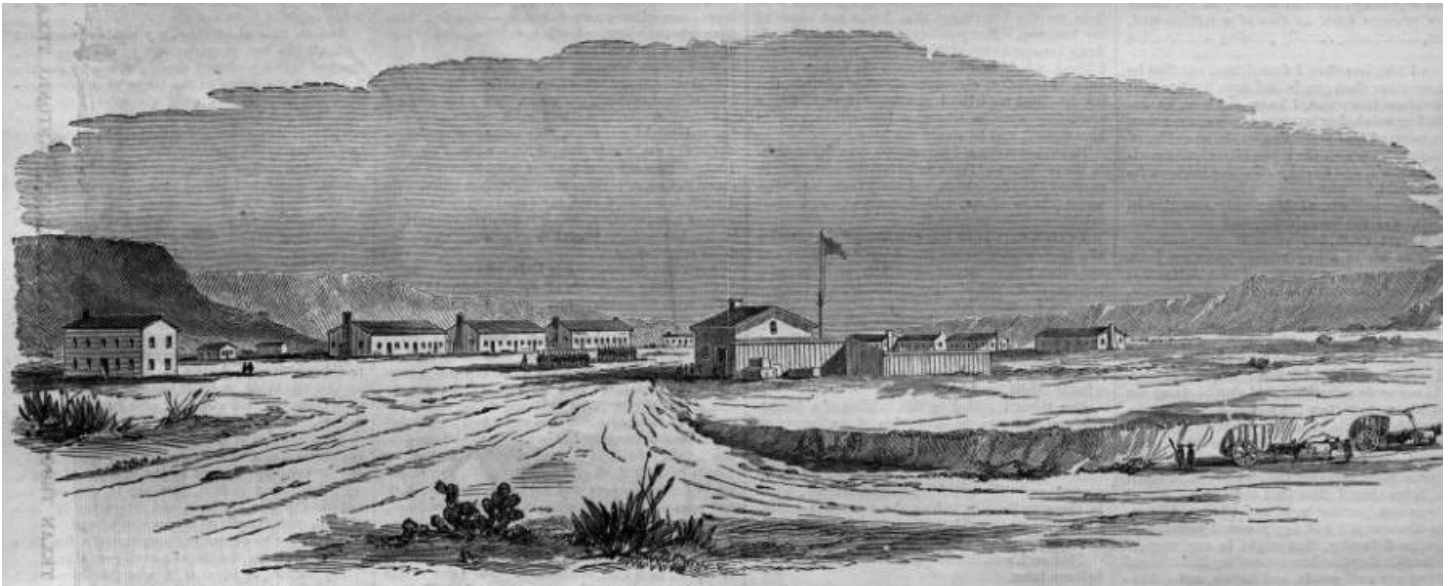


Figure 10. Fort Lancaster, a couple of miles east of the lower Pecos River. This was first published in the March 23, 1861 issue of Harper's New Weekly Magazine.

had been converted into a cow pen and corral infested with fleas. He also visited the Alamo (see Figure 9). Blake mentioned the hanging in San Antonio of a man convicted of stealing a horse. As it turned out, they hanged the wrong man, so they corrected their mistake with a second hanging.

The arrival of 25 camels from Camp Verde created a local sensation. The mules and horses were terrified. It took a few days for the poor animals to adjust. After adjusting to trail conditions, the camels proved better than expected. They relished mesquite and other desert shrubs, and literally ate their way across the southwestern deserts to California. For the first few days the camels were a little slow, having been corralled for several weeks at Camp Verde with little exercise. After a few days' travel they were able to keep up with the wagons, despite their 600-to-700-pound loads. They subsisted almost entirely on mesquite and other desert shrubs, and did not require water on a daily basis like the horses and mules. During the expedition they seldom had any problem with their feet, even when walking over rocks and pebbles.

By 1857 there were basically two major routes across Texas to El Paso. The road from Austin was generally known as the Upper Emigrant Road. It wound around the north side of Edwards Plateau, crossed the Pecos at Horsehead Crossing, continued north up the Pecos to the Texas-New Mexico border, and then west around Guadalupe Peak, and past Hueco Tanks to El Paso.

Beale's camel expedition took the Lower Emigrant Road. From San Antonio the road headed west past Uvalde to Fort Clark, around the southern edge of the Edwards Plateau, and north to Fort Lancaster (see Figure 10). There it crossed the Pecos River, headed up the Pecos for a few miles, and then west via Comanche Springs to Fort Davis. From Fort Davis, it headed northwest past Eagle Springs, striking the Rio Grande about three days' travel downstream from El Paso.

Beale's party met Captain Arthur Lee near Fort Clark on July 1, 1857 (see Figure 11). Lee, along with his wife, his baby son, and an escort of 15 men, was en route to Fort Davis. He agreed to travel with the camel expedition, which along with his escort now totaled 55 men. Unfortunately, Lee's baby son was ill and died a few days later when they reached Fort Lancaster. This was one of many tragic events along their route. Blake was also ill. In his diary entry for June 28, he wrote that he was sick with colic, and was forced to ride in an army ambulance during the journey to Fort Lancaster. On July 4 they headed over Dead Man's Pass. Blake noted that some bones from a party which had been attacked in the pass were still visible lying on the surface of the ground. Overland travel was not without serious risks.

Since a physician at Fort Davis subsequently diagnosed Blake as suffering from cholera, it is likely that Blake had been infected in the vicinity of Fort Clark, and that Captain Lee's 15-month-old son also died from a cholera infection.

On July 7 the once-a-month mail coach heading from San

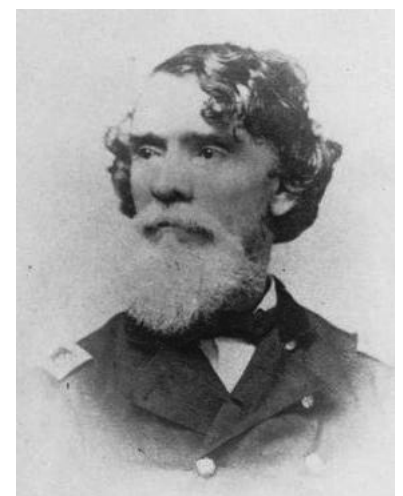


Figure 11. Captain Arthur T. Lee of the 8th U. S. Infantry.

Antonio to El Paso passed them. Blake noted that the mail party consisted of two wagons, five heavily-armed men, and a small herd of mules. The journey took a little over two weeks, and required a fare of \$100 per passenger.

On July 9 they reached Live Oak Creek and Fort Lancaster, overlooking the Pecos River Valley. Here they learned of the death of Captain Lee's baby, who had died just after reaching the post. Beale decided to postpone their departure until after the baby's funeral, which took place at noon, attended by officers of the Fort Lancaster garrison and several of Beale's men. The burial service was conducted by Lieut. Alexander M. Haskell. Burial was near the fort's building, in what is today an unmarked grave.

Beale's party left Fort Lancaster in the afternoon, rode down to the Pecos River, forded the stream, and continued on a short distance to Pecos Springs, where they encamped. Blake remained at Fort Lancaster, and in the evening dined with Dr. George Taylor, the post's surgeon. After dinner they enjoyed a play entitled *The Pecos Ghost*. Soldiers stationed in remote forts frequently staged plays. Travelers mentioned the plays staged at Fort Davis, but Blake's mention of *The Pecos Ghost* is the only known account of any plays being performed at Fort Lancaster. At the conclusion of the play, Blake was escorted down to the Pecos Springs camp in an army ambulance.

The next segment of their travels was the five-day journey from Fort Lancaster to Fort Davis. With Captain Lee's contingent they headed up the Pecos for several miles before leaving the river and heading west. While on the Pecos they discussed its navigability, and did a little fishing. One of Lee's men caught a fifty-seven pound catfish. Despite the sharp rocks along the trail, the camels traveled along the Pecos without any difficulty. They reached Escondido Spring, which bubbled out under a ledge of limestone. They took a much-needed bath at Comanche spring. Blake measured the depth of the pool at Leon Springs, and found it to be twenty-four feet deep. On July 16 they encamped at Wild Rose Pass, just seven miles above Fort Davis. Captain Lee invited them down to the fort supper. In the evening they enjoyed a theater presentation which cost 50 cents per person. Blake had been feeling seriously ill during the performance. That evening Dr. Ford, the post physician, examined Blake and determined that he suffered from "cholera morbus". The standard treatment was calomel, a blue pill containing mercury.

On July 19 the camel expedition headed northwest toward the Rio Grande. They passed Van Horn's Wells and Eagle Springs, and on July 23 reached the Rio Grande. Blake was suffering from serious dysentery. He tried a little wine, which made him feel better. He ate a piece of bread after knocking out the worms. It is unclear when the bread might have been baked. On July 25 they reached the Mexican village of San Ignacio after rescuing a camel which had slid off of the bank into the river. A large number of villagers crossed over the Rio Grande at the ford, to see the camels. The following day the expedition passed through the town of San Elizario, and encamped near El Paso and Fort Bliss that evening. That evening, Blake wrote the following

letter of resignation to Mr. Beale.

Near El Paso, N.M., July 26, 1857

Sir:

With much regret I give up the expectation of accompanying you to California, and resign my connection with your Expedition. I had promised myself much pleasure in adding, as I hoped I could, to the value of the results of your survey, but my health is such that I do not think it would be prudent for me to advance beyond of the Rio Grande.

It is now my desire to reach my home with all the expedition possible, by the way of Santa Fé and Missouri and I request that I may be allowed to accompany you as far as towards Santa Fé as you may, and I am entirely unacquainted with the country and people. I seek your advice as to my best course.

I am without money, and being a stranger here and therefore without credit, I request that as a friend you will aid me to raise enough to pay my expenses to New York. I will give you my note or otherwise as you may prefer for the amount you may have the kindness to obtain for me, and it will be punctually returned on your demand.

I am respectfully
your obedient
servant

W. P. Blake

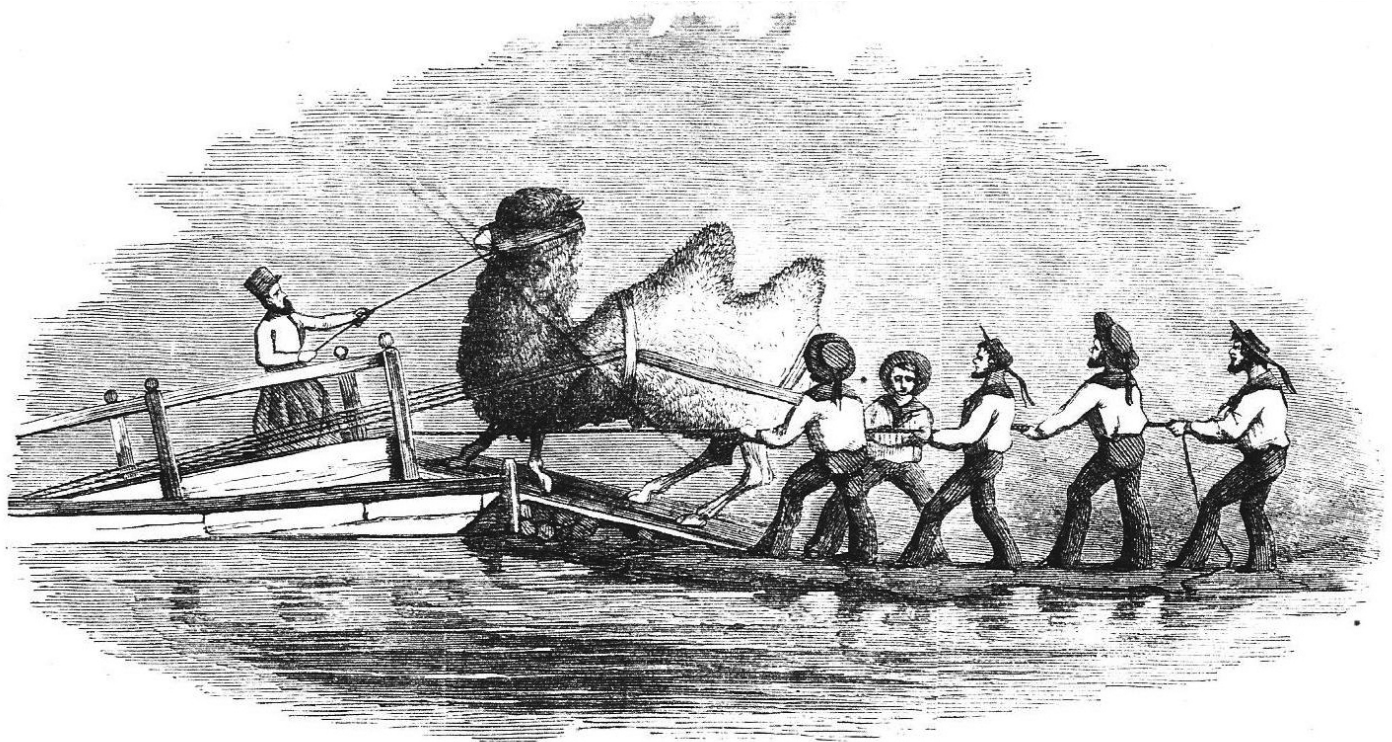
When the Camel Expedition reached Albuquerque on August 12th, Blake wrote the following receipt:

Received of E.F. Beale the sum of two hundred and ten dollars, being money loaned to me by him to repay my expenses from this place to my home, and which I promise to remit to Mr. E. F. Beale, Chester, Pennsylvania, immediately on my arrival. In the event of an accident my executors will please pay the above amount without delay.

W. P. Blake⁶

Although Beale's wagon road survey and the subsequent camel expeditions which Edward L. Hartz and William H. Echols conducted in the Trans-Pecos region were all unqualified successes,⁷ the army was never serious about adopting camels for military use. Several reasons have been advanced to explain this failure. Although they were used to some extent in mining in California, Nevada, and New Mexico, Americans were unwilling to replace their mules, horses, and oxen with these unfamiliar creatures. The coming of the Civil War provided the major reason for the failure of their adoption. Jefferson Davis certainly had other things on his mind during the early 1860s. Technological advances made their use seem less practical. The post-war craze of railroad building made their services largely superfluous. But, as my major professor once argued, it was really due to the verbal abuse meted out by those uncouth mule skinnners. After all, camels are sensitive creatures who could take neither the mule skinnners nor their verbal abuse.

[Note: additional illustrations are at Figures 12-14 on the next two pages.]



EMBARKATION OF CAMELS.—[Heap]

Figure 12. An illustration by Heap showing the difficulty of loading a camel onto a boat.



Figure 13. Coincidentally, Desert Tracks co-editor Daniel Judkins found a Pleistocene-era camel fossil tooth at the eastern end of the “Upper Road” in West Texas (just below the New Mexico - Texas border and immediately west of the Pecos River, in 1978. This is a fossil of the original camel of the American West, and is not related to the late 1850’s experiment with imported camels. Fossil camel teeth are characterized by a nested set of three “W” shapes of the molar tooth ridges.

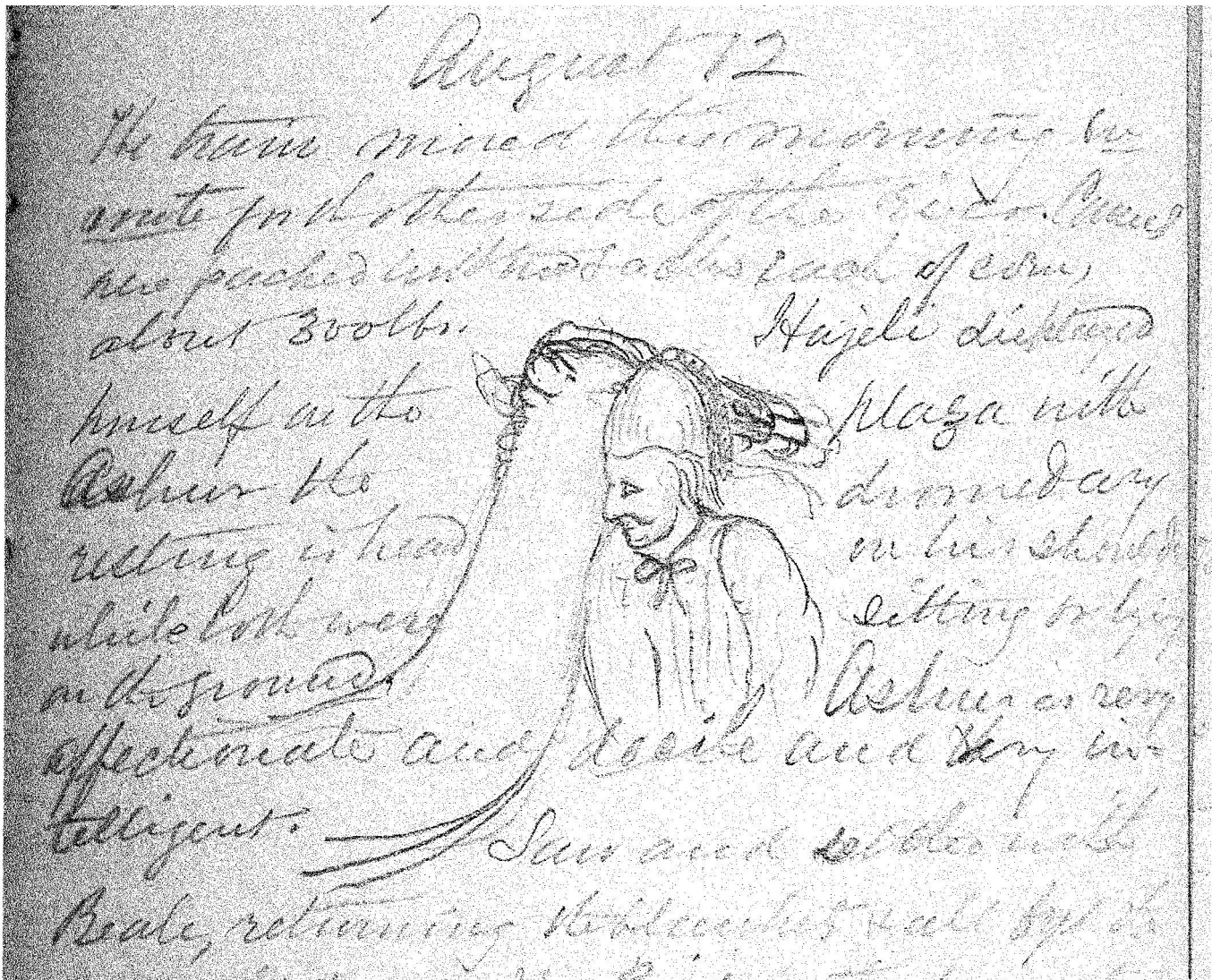


Figure 14. William Blake's sketch of Hadji Ali (Hi Jolly) and his camel Ashur on the plaza in Albuquerque dated August 12, 1857. This is Blake's last entry dealing with Beale's camel Expedition. Hi Jolly, also known as Philip Tedro, was an Ottoman Turkish citizen of Greater Syria, who was a camel breeder and trainer. He settled in Arizona, married a local woman from Tucson named Gertrudis Serna, raised a family, and became an American citizen. A pyramid-shaped monument in Quartzsite, Arizona, is dedicated to Hi Jolly's life. Courtesy Arizona Historical Society.

End Notes:

1. Gwinn Harris Heap, 1853-1856, Tucson: Arizona Historical Society, MS 0040.
2. Senate Ex. Doc. 62, 34th Congress, 3rd Session. *Report of the Secretary of War, Communicating in compliance with a resolution of the Senate of February 2, 1857, Information Respecting the Purchase of Camels for the Purposes of Military Transportation.*
3. See Secretary of War John B. Floyd to Lt. Charles E. Thorburn, April 25, 1857 in Beale Family Papers, Library of Congress, Box 4.
4. Lewis Burt Lesley, *Uncle Sam's Camels: The Journal of May Humphreys Stacey, Supplemented by the Report of Edward Fitzgerald Beale (1857-1858)*, Cambridge: Harvard University Press, 1929.
5. William Phipps Blake Papers, MS 78, Box 1, vol. 38, "Texas Camels, 1857," Arizona Historical Society, and Lt. Charles Thorburn, "E. F. Beale Wagon Road Survey, Fort Defiance to the Colorado, 1857," Beale Family Papers, Library of Congress, Box 9.
6. Blake letter of resignation, Beale Family Papers, Library of Congress, Box 4, General Correspondence.
7. For the 1859 and 1860 reports of the West Texas reconnaissance with 20 camels by Lt. W. H. Echols and Edward Hartz, see RG 77, Field Survey Data, Stack 8W4, Row 13, Compartment 10, Box 55, National Archives.

**Book Review: Orville B. Shelburne's
*FROM PRESIDIO TO THE PECOS RIVER:
Surveying the United States – Mexico boundary
along the Rio Grande 1852 and 1853*
by Harry P. Hewitt**

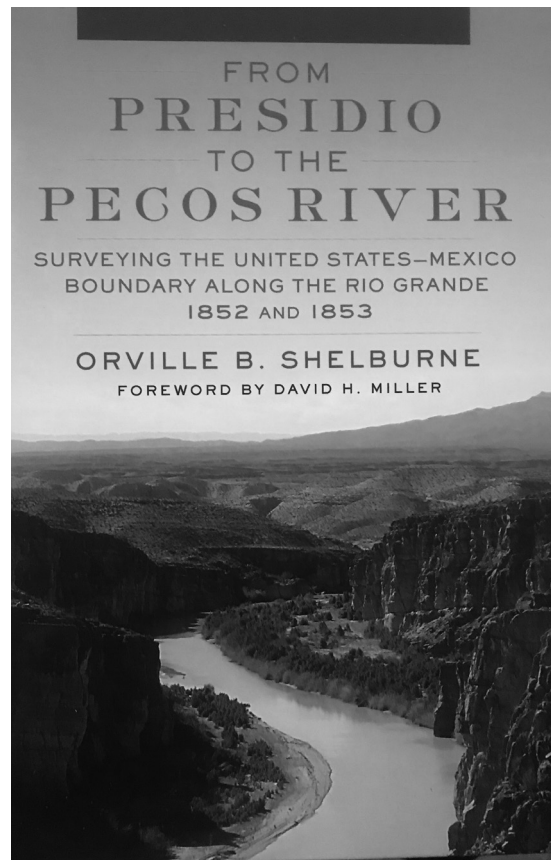
When Dr. Orville B. Shelburne located Charles Christopher Parry's unpublished "field notes and correspondence," at Iowa State University's Parks Library (xxiii) he found a researcher's trove.¹ The Joint Mexico – United States Boundary Commission had resumed its survey of the new international border in 1852. Major William Hemsley Emory appointed Parry to join Marine Tyler Wickham Chandler's expedition as the team's doctor and scientist. This very important manuscript documented Parry's service while he was a member of the United States Boundary Commission, engaged in surveying a portion of the Rio Grande (*Río Bravo del Norte*) in the fall of 1852.

Parry's manuscript was a valuable source for Shelburne who mined it successfully. He presented new information which has significantly expanded our knowledge and our understanding of the scientific importance of the United States boundary survey of the Rio Grande.² In particular it has added important context to the many accomplishments Chandler achieved as he and his team surveyed this difficult portion of the river.

Shelburne quoted a communication Parry wrote to Emory that aptly described the character of the land. "We have had rather a rough time and traveled a most singular country—I shall make a sketch of the country for you and will probably see more of interest than in following down this horribly desolate river" (iii). Including Parry's observations was an important part of his narrative, confirming how important the information was to Shelburne's research and to his book.

Shelburne expertly applied GPS/satellite technology to his field research, which involved many miles of travel along both sides of the river. By incorporating this component of study into his research Shelburne was able to determine the accuracy of Chandler's and Michler's surveys and to assess the reliability of their data as he followed their progress downriver.

When Emory arrived at Presidio, Texas, he initially misplaced the accuracy of his "original longitude determination at his Presidio observatory" by "1.5 miles too far west" (p52). Shelburne found, however, that as Chandler worked his way downriver, his survey data began



correcting this discrepancy. Thus, the accuracy of his survey along the areas of the river his men were able to reach was very good. There were occasional spots where he had problems getting accurate information because the terrain made access to the river difficult.

One difficult spot occurred when Chandler was forced to abandon his work on the river before reaching its confluence with the Pecos River. Here, Chandler had to depend on one boat with several men and no other support to run the river, rapids and all. The surveyors still had to make some effort to collect their data, meaning they had to gauge the speed of the river and the distance it traveled between two known points. This resulted in collecting very inaccurate data for this section of the river.

In 1853, Emory replaced Chandler with Lt. Nathaniel Michler, who was instructed to resume the survey at the point on the river where it was abandoned. Michler's team, however, was unable to reach it. Thus later, when the cartographers prepared their maps showing the completed survey of the Mexico – United States boundary, they had to draw in the intervening space without accurate data.

"Overall, the eight boundary maps produced...were excellent where they had access to the banks of the river to

conduct instrument-based traverse surveys” (p206). The quality of the survey in other areas ranged “from good in the Upper Canyons near Presidio del Norte, to fair in the Big Bend area, to nonsense in the Lower Canyons” (p207). Chandler’s survey was responsible for collecting the data that was used by cartographers to draw five maps the United States produced of the Rio Grande border: maps numbered 18-22. Shelburne rated Chandler’s map No. 19 as his “least accurate” of the five (p111). Map no. 18 was rated as “the best of Chandler’s five maps...” (p111 Figure 28).

Michler’s survey provided the data cartographers used to draw three maps numbered 15-18. Similar to Chandler, Michler had difficulty working in the extreme circumstances. Shelburne found that the river canyons Michler surveyed while following along on the land, and using triangulation, were quite accurate. However, the data his surveyors collected using boats on the river was consistently overstated. This was problematic when the cartographers drew the final maps of his river boundary. Shelburne will be properly commended for the excellent analysis he used to critically assess the quality of the two surveyors work. It is equally important to understand the significance of using GPS/satellite technology. It improved our understanding of the historical record associated with the Rio Grande survey. This was particularly relevant in his writing about Chandler’s portion of his book.

In using this technology he accurately traced Parry’s steps on the expedition, adding significantly to the interest of his book. As Chandler proceeded downriver Shelburne introduced Parry’s observations and the appropriate comments he made in route. This was particularly important to his narrative when explaining Chandler’s abandonment of his survey short of the Pecos River. Three sections of “Part I” were devoted to his writing an accurate description of Parry’s march across the Coahuiltecan landscape as he moved from the river to Ft. Duncan via Santa Rosa, Coahuila. By relying on his and Parry’s field observations and then applying satellite technology to Parry’s landmarks, Shelburne traced an accurate route that followed the terrain along which the surveyors’ team trekked.

Shelburne recognized Chandler had received important help after he was given a Mexican manuscript map and report, executed by Colonel Emilio Langberg while he was on a field inspection. He wisely incorporated this important historical information into his scientific narrative. The Colonel’s official capacity, when he was appointed to Chihuahua’s government, was to serve as the Inspector of its *Colonias Militares*. When the boundary survey moved its headquarters to *Paso del Norte* in 1850,

Col. Langberg assumed the responsibility for providing the military escorts for their surveyors.

In 1851, Col. Langberg was on the Rio Grande engaged in his duty inspecting the *Colonias Militares* bordering the Rio Grande between *Paso del Norte* and the Coahuila state border. In 1852, the Joint Boundary Commission finally ventured back to work, placing survey teams on the Rio Grande. Col. Langberg was present with his military escort. Emory received a copy of Col. Langberg’s Report and his map from Mexico’s Boundary Survey Commissioner, José Salazar Ilarregui, at the Joint Boundary Survey Commission meeting in Presidio. Chandler received his copy from Emory.

Col. Langberg’s march followed the course of the river’s terrain as closely as possible. When his information and map proved accurate, it became very helpful to Chandler as he chartered his way down the river. He could trust Langberg’s accuracy to help him determine how he could best avoid the more difficult approaches to the canyons he encountered, and to successfully navigate the unfamiliar terrain.

The author was not content to merely recognize Langberg’s importance to Chandler by incorporating him into his narrative. He chose to apply his GPS/satellite technology to a study of Langberg’s movements on the ground and comparing them to the representations on his map. He considered Col. Langberg sufficiently important to include him in his book: “Colonel Landberg’s 1851 Expedition” as Appendix A.

A frequent weakness found in English language publications that write about the boundary survey is their lack of familiarity with the scientific work produced by Mexico’s Boundary Survey Commission. After all, the Guadalupe Hidalgo Treaty (1848) required each nation to appoint a commission, known as Joint Boundary Commission.

The author does a responsible job in conveying the general information of setting up the background and the beginning of the scientific study. However, it would have been appropriate for his study to have included some context about the “joint” nature of Mexico’s scientific work on the upper Rio Grande. This could have been best served, in the context of his book, by including a discussion of the agreements made during the meetings of the Joint Boundary Commission during 1851 and 1852. In particular agreements articulating each commission’s responsibilities which finally put both nations back to work on the river in 1852.³

It is a continuing difficulty for the Mexican scientists to secure the credit they deserve for their contributions to the scientific work. The author, however, discovered, identified, and acknowledged one of their important roles on the Rio Grande survey.

Shelburne highlighted and praised the Mexican engineers who returned to the boundary survey in the *Presidio del Norte* (Ojinaga, Chihuahua) area in 1854-1855. He was aware that Emory had miscalculated the longitude of his observatory in Presidio, Texas by “1.5 miles too far west” (p52). “In contrast the Mexican survey maintained and recorded accurate distance and direction measurements relative to the starting point: Emery’s observatory” (p53, 66-67).

Shelburne located the evidence for the Mexican Boundary engineers’ survey in the Ojinaga area in Manuel Orozco y Berra’s *Apuntos para la historia de la geografía en México*. Here, Orozco y Berra published the “Mexican Triangulation Stations near Presidio del Norte.” Subsequently, in 2018, Texas surveyor Kent Neal McMillan used the Mexican triangulation data to locate their stations.⁴ Thus, he substantiated their survey’s accuracy.

The survey the Mexican engineers produced here provided a positive impact for their cartographers who drew their maps. They were able to draft the excellent quality that appeared on Mexican Boundary Map 22 (52-53, Fig 13). Shelburne pointed out that the details drawn on Mexico’s Map 22 “is superior” (p52) to those drawn by United States cartographers on their United States Map 22. Dr. Shelburne has written an excellent, scholarly book and produced a very interesting read. Scientists and historians will equally enjoy the narrative. In all it is an excellent contribution for those interested in the history of the Mexico—Texas borderlands.

ENDNOTES:

1. This important find carries the same level of historical significance as that of Dr. David Miller who located Lt. Amiel Weeks Whipple’s journals in the archives of the Oklahoma Historical Society.

2. Emory, in his three-volume report about the United States Boundary Survey, provided sparse details about the Chandler survey. Once he completed his report it was his policy to destroy tangential information available to him. Because Parry’s written documentation survived, Shelburne was able to write his important book expanding

significant knowledge of Chandler’s important survey to our understanding of the boundary’s history and its importance to us.

3. Minutes of the Joint Boundary Commission, December 1850 -- October 1852, December 3, 1850, April 24, July 20, September 6, 7, 1851 John Russell Bartlett Papers, Providence: Brown University; *Memoria documentada del juicio de arbitraje del Chamizal...*, 3 vols., México: Artes Graficas Granja Experimental de Zoquipa, 1911, II:128-137.

4. The Mexican data has been included in the volume as Appendix B.



OCTA Videos about the Southern Trail

There are a number of excellent videos posted on the OCTA You Tube channel that focus on the Southern Trail. They include...

- “Picacho Peak to Nogales -- Trail Corridor of the Southwest” — Anza Trail, Mormon Battalion, Tucson Presidio, Picacho Peak, Native American settlements at Tucson, Mission Gardens, San Xavier del Bac, Tubac, Tumacacori, and Las Lagunas (an Anza campsite near Nogales).
- “Sonoran Desert National Monument -- Butterfield Pass and Maricopa Mountains” — the 40-mile desert.
- “Butterfield Overland Stage and the Southern Route” — highlights of the Overland Mail in Arizona.
- “Painted Rocks” — Indian petroglyphs west of Gila Bend, AZ, and the early travelers who passed by.
- “The Oatman Massacre” — a massacre site along the lower Gila River in Arizona.
- “Arizona’s Ehrenberg to Prescott Wagon Road.”
- “Yuma” — Southern Trail crossing of the Colorado.

Go to this link: <https://www.youtube.com/channel/UC5CyC-R68Izhwv1f57V-yQ/videos>, then click on “Videos” where you will be able to select the individual videos listed above. Or, Google “OCTA You Tube” plus the individual video title.

Southern Trails Chapter

Oregon-California Trails Association



OCTA:
The Oregon-California
Trails Association

A Call for Articles...

Desert Tracks is always looking for new articles or papers on our themes: trails and roads in the greater Southwest and the history of explorations and border surveys as it relates to trails and roads. Such articles should use a scholarly approach, primary sources when available, and the documentation of sources. The second type of article we want to feature is short articles on a specific site or segment of trail, made more vivid with photos and illustrations. Where should a potential writer begin? Start by contacting either of the editors, Dan Judkins or David Miller (see inside front cover) to talk your idea over. We will do our best to make it a fun and easy experience. See also “Guidelines for Authors” on the Southern Trails Chapter web page at <http://southern-trails.org/> and use upper left tab.

On the Back Cover:

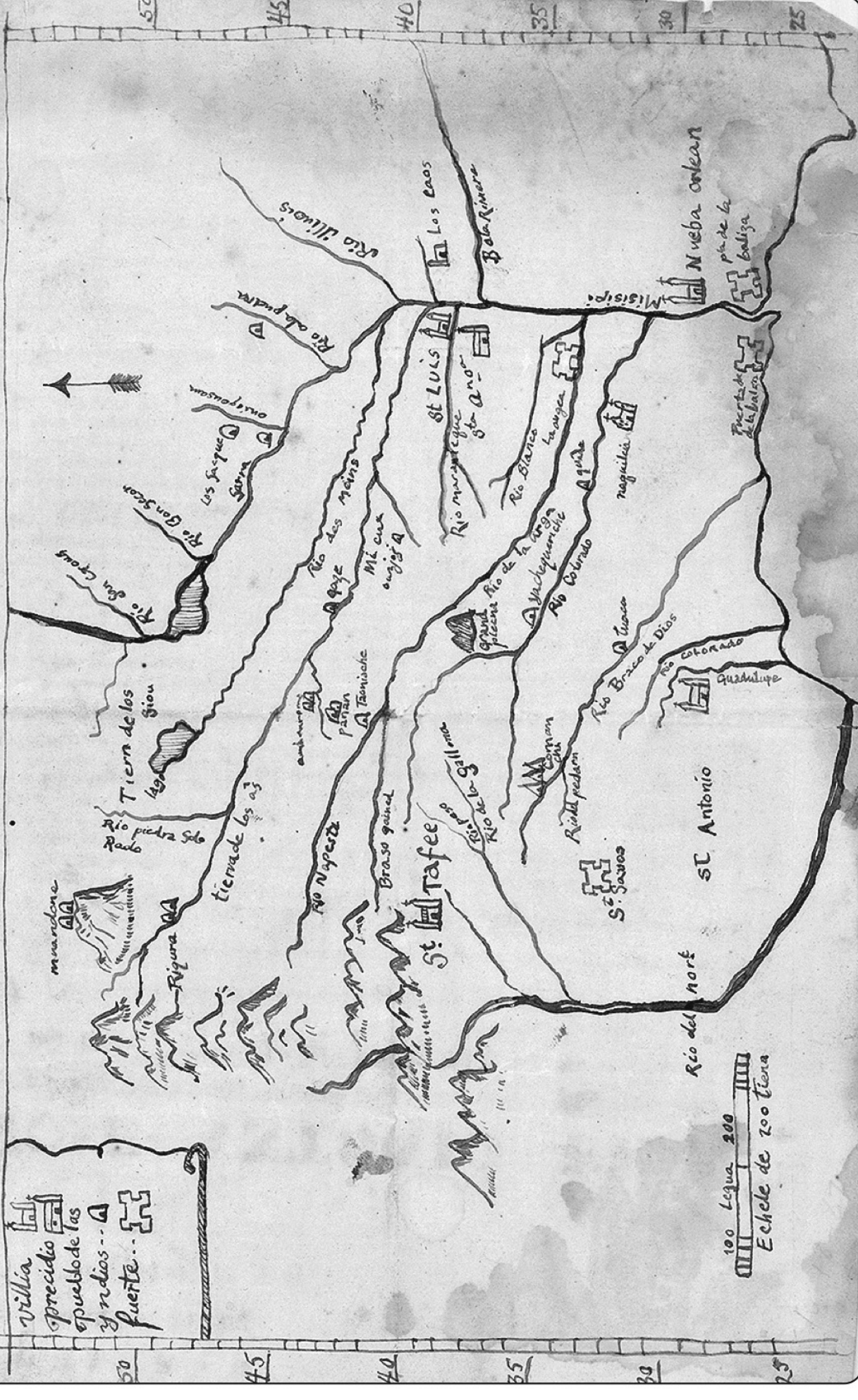
Figure 1 from François-Marie Patorni’s article, page 37,

“Pedro Vial’s Voyages,”

**copy of the original of Vial’s map of Texas,
drawn by Vial in 1787,
courtesy Barry Lawrence Ruderman,
Antique Maps – RareMaps.com**

Mapa et tierra q. yo Pedro Vialtaigo

en S. Jofese este dia 18 de octubre de Lay 1787



Villia
 Precidio
 puebode las
 yndias
 fuerte

