

SPANISH TRACES



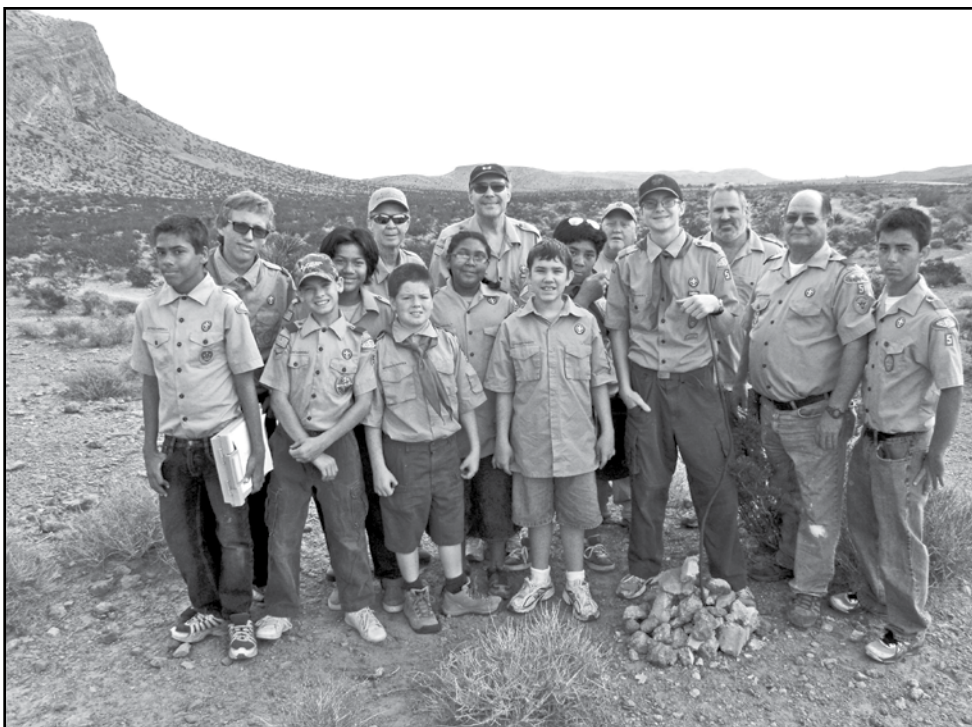
Volume 18

Winter 2012

No. 3

Joshua Allen Leads Eagle Scout Project

Troop #5 Marks Old Spanish Trail



Scout Troop #5, leaders and parents standing around the re-enforcing steel rod, all that remains of Marker #21 on the Bike Trail, just off Highway 160 going from Las Vegas over Mountain Springs Pass to Stump Springs and into California. From left to right: front row - Shane Wadsworth, Lorin Thompson, Jacob Thompson, Chase Dimick, Joshua Allen (Eagle Scout project), Scout Master Lee Blad and Koby Okuda; second row - Reilly Reed, Alofa Musuai, Kenya Braswell, Makamae Elvenia (sketcher); back row - OSTA/NV President/Scout Leader Ashley Hall, Randy Allen (father of Eagle Scout Candidate), Bob Clark, Scout Leader, Chuck Dimick, Scout Leader.

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THE OLD SPANISH TRAIL ASSOCIATION

The Old Spanish Trail (OST), one of America's long distance pioneer trade routes, is recognized by Congress as a National Historic Trail. From 1829 to 1848, traders and pack mules followed the OST on a six-week trek from northern New Mexico to Southern California, where woolen goods from New Mexico were swapped for horses and pack stock raised on California's ranchos. Many took the trail – traders, frontiersmen, trappers, families, military expeditions, and Indian guides.

The mission of the Old Spanish Trail Association (OSTA) is to study, preserve, protect, interpret, and promote appropriate use of the Old Spanish National Historic Trail (OSNHT). OSTA promotes public awareness of the OSNHT and its multicultural heritage through publications, a website, and interpretive activities; by encouraging research; and by partnering with governments and private organizations. We encourage you to join OSTA, help in trail preservation, and increase appreciation of the multicultural heritage of the American Southwest.

Visit the OSTA Website

www.oldspanishtrail.org

The OSTA website has an interactive map highlighting scenic trail locations and is the place to go for both general background and recent news on the OSNHT and OSTA. The site contains maps, an overview history of the trail including a bibliography, a listing of relevant books with links to sites where they can be purchased, and a regularly updated news page that contains links to government reports, activities of the OSTA members and other news related to the trail. The web page also links to National Park Service (NPS) and Bureau of Land Management (BLM) sites that have links to public documents and maps of the OSNHT. Copies of the DVD *Old Spanish Trail Suite*, a CD of back issues of *Spanish Traces*, books and pins can be purchased from the site. Memberships (new or renewal) may also be paid on the OSTA website.

Spanish Traces is the official publication of the Old Spanish Trail Association (OSTA), a nonprofit 501(c)(3) organization, incorporated under the laws of the State of Colorado. *Spanish Traces* welcomes submission of articles, book reviews, and OST related news. OSTA assumes no responsibility for statements or opinions of contributors. *Spanish Traces* is copyrighted to OSTA in its entirety, but copyright to individual articles is retained by the author. The next deadline for submissions is March 10, 2013. All matters relating to *Spanish Traces* should be directed to the OSTA Editor.

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Individual	\$25/year
Family	\$30/year
Sustaining	\$50/year
Student	\$12/year
Institutional	\$30/year
Life (single or couple)	\$250
Corporate	\$100/min

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President's Corner

*by Reba Wells Grandrud
OSTA President*

My intention in this issue is to spotlight actions taken at the three-day board meeting held in Phoenix in late September. It was disheartening that instead of six state directors, only two--Utah and Arizona (Steve Heath and Jerry Nickle)--were present. The required quorum was achieved, however, by the additional presence of the ever faithful "Dr. J," Director-at-Large from Durango, Colorado (Jim Jefferson, Ph.D.), and the four officers: Treasurer Mark Franklin, also of Durango; Secretary Judy Nickle; VP Paul Ostapuk; and President Reba Wells Grandrud, all from Arizona. Also present were our federal partners: NPS Superintendent Aaron Mahr and Sharon Brown, Chief of Trails Operations (National Trails/Intermountain Region, Santa Fe); and BLM OSNHT Administrator Rob

Sweeten (Utah State BLM, Salt Lake City) who participated in the Friday morning meeting via WebX video. Invited guests attended special activities on Thursday, Friday, and Saturday.

After spending quality time for two days to be sure those present were comfortable with the pros and cons of making changes, the board voted to adopt the new direction for OSTA that had been broached and considered at two earlier meetings this year:

The Association Manager, with expanded authority, will be in charge of daily organizational operations, taking on many reporting and financial responsibilities formerly done by the Treasurer. The intent is that Dittmanson, as Association Manager, will be the institutional face of OSTA, the go-to person who understands board policies and procedures, is aware of chapter/committee activity along the total length of the Old Spanish NHT, is abreast of related trends, threats, challenges, and opportunities, and uses OSTA resources to effect benefit to the Trail and the Association;

The board will deliberately focus on policy-making responsibilities and duties, including: strategic planning, approval and monitoring Association programs and services, raising money, enhancing OSTA's public image, operating efficiently,

President's Corner continued on page 4

and ensuring sound risk management policies;

Projects will be accomplished by active committees, each of which will have a board sponsor, in addition to the chair or co-chairs, non-board members, and agency advisors;

The following four committees were established (obtaining chairs and populating the committees will be a Board and Manager priority for the next six months):

Stewardship (Chair: Mark Henderson; Board Sponsor: Paul Ostapuk)

Research (Chair: open; Board Sponsor: Reba Grandrud)

Education (Co-Chairs: possible; Board Sponsor: Judy Nickle)

Interpretation (Chair: open; Board Sponsor: Mark Franklin)

The Association Manager was instructed to undertake immediately the long-standing issue of OSTA's being appropriately registered as a 501c3 non-profit corporation in each of the six Trail states: Colorado (OSTA incorporated in Colorado in the 1990s), New Mexico, Arizona, Utah, Nevada, and California.

Enthusiastic continuing support was voiced for our publication, *Spanish Traces*, and its editor,

Ruth Friesen, and the well-received *E-Newletter*, expertly set up and sent out periodically by Chelsea Bodamer. [Ms. Bodamer will be representing OSTA at the NTIR-PNTS workshop in Albuquerque in December, along with Association President, Director-at-Large, Manager, and Armijo Chapter president, Jim Page]

Other board actions:

The 2013 Annual Membership Meeting will be held in southwest Colorado next summer;

Funding was approved (up to a total of \$5,000) for Agua Mansa Cemetery and Mojave River Valley Museum projects—both are already in the project queue;

The Executive Committee and Manager will attempt to find candidates for national board positions that will be voted on by OSTA membership in 2013:

Arizona and Nevada State Directors

Director-at-Large

President and Vice-President

The Old Spanish Trail Association will celebrate its twentieth birthday in 2014, and you as OSTA members can be proud of what has been accomplished since that beginning. We are fortunate to have really splendid federal partners, the National Park Service and Bureau of Land Management; we are an active member of the tremendously effective Partnership for the National Trails System that represents 30 national scenic and

historic trails; and we are all learning how to engage more closely with other national, regional, state, and local agencies and organizations to protect, preserve, study, and enjoy these national treasures, and our own Old Spanish Trail.

Won't you contact your Association Manager or any of the officers or directors and tell us about your ideas, projects, and/or dreams for the future of the Trail? Or what position you are willing to take, or which committee you would like to serve on, or chair? *The phones are open, and we are waiting to hear from you!*

Reba Wells Grandrud

Save the Date

OSTA

**Annual
Conference**

**May 31 - June 2,
2013**

**in
Cortez, Colorado**

**Details will be provided
in the Spring issue of
Spanish Traces.**

Manager Musings

by **Dennis Ditmanson**
Association Manager

Once again I'm pleased to start off this column with congratulations. This time to the Tecopa Chapter for a very successful "First Annual" Old Spanish Trail Days event held in Tecopa, California, in late October. Chapter President Jack Prichett and his committee put together a great program of speakers and tours and while I don't have an official count, attendance must have been nearly 80 people. For me the highlight of the event was the opportunity to visit the site of Resting Springs, a location of importance to Trail history, and which previously had not been open to the public. In addition, the event provided a venue for the formal presentation of a Memorandum of Understanding (MOU) between the California Desert District of the Bureau of Land Management and the Old Spanish Trail Association. The MOU provides the basis for a closer working relationship with the agency and will hopefully provide a template for similar agreements with other BLM offices. Thanks to all who had a hand in putting the event together.

The Old Spanish Trail Days event was the most ambitious activity undertaken by a chapter this year but it wasn't the only thing, and that's really the subject of this column. Seems to me that the real work of the Association takes place at the chapter level but there are a couple of ways that the national organization can assist, not the least of which is with funding. Are you aware that OSTA has in place a project proposal process through which financial assistance can be obtained for activities at the chapter level? For the recent OSTA Board

meeting in Phoenix, I attempted to pull together a list of the projects and activities, regardless of funding source, which had some connection to the Old Spanish Trail and was surprised to find more than 30 entries.

For example, funds are available via the Cooperative Agreement with the National Park Service. They were used to assist with the Tecopa event; an Old Spanish Trail Archeology and History Summit in Taos, NM; a community education event in Ft. Garland, CO; the preparation of a rough-cut video on work at the 1776 inscription near Page, AZ; and to reimburse the La Vereda del Norte Chapter for some expenses for their newsletter. In addition, the Association has accumulated funds that can be made available, and project requests for a number of interpretive exhibits and markers are being reviewed. Two grants have been received from the BLM to support the Trail Steward Workshops.

The National Park Foundation funded a project between OSTA and the US Forest Service to develop an OST curriculum and conduct a field stewardship activity for students in Northern New Mexico and Southern Colorado. The Nevada Chapter has undertaken a very ambitious project to replace or refurbish 27 concrete markers in Southern Utah as a 2014 Nevada Sesquicentennial project. The Grand Staircase/Escalante Partners have provided funds for an auto-tour guide for the Trail in Southern Utah and the Arizona Strip. Colorado Preservation, Inc., funded an archeological investigation of a potential Trail site in Southern Colorado. The National Park Service funded a trailhead project in Moab, Utah, which will include interpretive panels on the OST. The BLM is working on OST interpretive panels at the Afton Canyon Camp-

ground near Barstow, CA. And the list goes on.

The point, of course, is that if you have an idea for a project or activity, you should start with the project proposal process. Chapter presidents and state directors have access to the forms on the Board website, or they can contact me. It's not necessary to have all the details worked out to submit a project; in fact, one aspect of the process is that I can assist in identifying potential fund sources. Projects can be proposed at any time and I'll maintain a list, or queue, of projects that are ready to be submitted as various funding sources become available. As you can see from the above, a great deal is happening but I know there are more ideas out there. So don't hesitate to take advantage of this process.

While I'm on the subject of chapters and funding, let me remind you that a portion, \$5.00, of your annual membership dues can be made available to a chapter, BUT ONLY IF YOU DESIGNATE THAT CHAPTER ON YOUR MEMBERSHIP APPLICATION OR RENEWAL. Even if you are not able to actively participate in chapter activities you can support the chapter by making that designation. Please don't overlook this step when sending in your renewals.

Finally, mark the dates of the 2013 OSTA Annual conference on your calendar. The event will be held in Cortez, CO, on May 31-June 2, 2013, and will have a slightly different focus than in recent years. The details are still in preparation but plans are for a committee-based activity in addition to the formal presentations on Trail-related topics. Watch for more information in the next *Spanish Traces*, in the e-newsletter arriving in your email, and on Facebook. ♦

Chapter Reports

Salida del Sol Chapter

As mentioned in the previous issue of *Spanish Traces*, the Salida Del Sol Chapter met north of Santa Fe for our August field trip with our leader and geologist Michael Bourque. We made eight stops starting at NM Rt. 502, the Tesuque Creek Crossing, and discussed Rio Grande Rift geology. The following stops were:

2. on Hwy 84 at the foot of Black Mesa to talk about volcanism in northern NM.
3. at Bodes store to check on the wayside exhibit there and deliver OST materials.
4. Chama River Canyon overlook and Permian geology and the Colorado Plateau.
5. Ghost Ranch overlook and Triassic geology, faulting and missing time.
6. Echo Amphitheater and lunch
7. Carson National Forest Mesa de la Viejas and Abiquiú Area Overlook, a spectacular view where we saw the intersection of major geologic provinces.
8. US Hwy 84 roadside pullout at Navajo Canyon.

Our October meeting with the BLM, Resource Advisory Council, a scheduled conference call (the first ever by this organization with partners) was canceled at the last minute. We will definitely be on the agenda for the January meeting and want to hear what is being done with the Glade Run

Recreation Area management plan amendment and the newly planned power line in the same area.

Eldon Ryer spoke at our October chapter meeting in Española. He explained how horses and mules are different. Horses are flight animals and mules are stand and fight animals. Their eyes are set differently in their heads so they see the world differently. Did you know that a horse can't see its own feet and a mule can? Perhaps that is why mules are so sure footed. A most interesting meeting. Thank you, Eldon, for entertaining and educating us.

Our vice president Mark Henderson has been working diligently with teachers and NPS staff on the La Vereda Vieja student project, which will wind up in mid November. This is a student project funded by the National Park Foundation - Americas Best Ideas Project - with Taos High School and Peñasco High School students, with three field trips, a GPS project, and classroom studies. The Salida del Sol Chapter plans to apply for Northern New Mexico Heritage Area funding to keep this program alive.

The newest OST wayside marker put up by BLM can be found on Highway 68 on the way to Taos at mile marker 8 just south of the Oñate Center. Stop by and take a look next time you are up that way.

Our next meeting will be February 16, 2013, details to be announced.

Armijo Chapter

The Armijo Chapter played a leadership role in completing a 3-year BLM grant to establish the Old Spanish Trail Association trail steward program, develop a training manual, and train OSTA Chapter members to inventory and monitor high potential trail segments along the Old Spanish Trail.

Over the past year, trail steward work included aerial surveys of the Armijo and Main Branch routes in the general vicinity of the Arizona Strip, two additional trail steward workshops held in Page, Arizona, and Leeds, Utah, and summer field work activities were initiated over several segments of the Armijo trail corridor.

The field work included a multi-day equestrian survey, oral histories with local ranchers, and on-the-ground investigations of possible routes through the Cockscomb formation near the Paria River, the Hurricane Cliffs east of St. George, and the Beaver Dam Mountains west to Mesquite, Nevada.

Other recent Armijo Chapter activities included participation in an archaeological excavation of an alcove located in Glen Canyon National Recreation Area near the 1776 Paso Por Aqui inscription. These sites are associated with the fabled Dominguez-Escalante expedition. It is believed that the

Tecopa Chapter: Old Spanish Trail Days in Tecopa a Big Hit



Visitors to Old Spanish Trail Days in Tecopa learned about Trail life in the 1830s and 1840s. Here Sarah Smith describes the foods commonly used in New Mexico during the trail period.

The first Old Spanish Trail Days event, hosted October 19-21, 2012, in Tecopa, California, by the Tecopa chapter, resembled a mini version of OSTA's annual conference.

The trail fest drew some 75 paid registrants from all six states along the Trail and even a pair from British Columbia. There was also strong attendance from the general public of nearby communities in southern Nevada, attracted by local publicity. Some of these attendees took advantage of a join-and-register offer to become OSTA members. The Trail's primary management agencies, the NPS and the BLM, sent a half-dozen representatives and displayed materials.

The program of six speakers focused on the Trail in the Tecopa region. Topics included the history of Resting Springs; research on the Wolfskill-Yount party of 1830-31; and the large-scale challenge posed to the Old Spanish Trail and desert environments by industrial-scale solar power and wind energy projects. This last issue is confronted not only by OSTA, but other trail associations and preservation organizations.

A highlight of the program was a visit to Resting Springs, an important stop on the Trail and the later Mormon Road, made famous by an Indian attack on the Hernandez party and avenged by Kit Carson. The springs are on private property and not normally accessible to the public. The October 20 program concluded with an open-air barbecue dinner on a balmy evening with a crescent moon hanging in the clear desert sky.

Cont. from page 6

Glen Canyon inscription was left a day prior to the party crossing the Colorado River en route to the Hopi Villages and back to Santa Fe. The shallow river crossing of the Colorado became known as the "Crossing of the Fathers" and was later used by the Antonio Armijo mule caravan in 1829 that officially opened the Old Spanish Trail commencing trade with the California missions.

Armijo Chapter President James Page performed a metal detecting survey as a key part of the

archaeological survey. It is very likely the alcove was used by the Dominguez-Escalante expedition to seek shelter from an early winter storm. The survey was conducted as part of an Armijo Chapter research permit with the Glen Canyon National Recreation Area.



James Page, Armijo Chapter President, with Sean Teeter, NPS, and Christine Markussen, EnviroSystems Management.

William Workman Chapter

We all received and enjoyed the Autumn 2012 edition of *Spanish Traces*. Bill Ramsay, John Thompson and David Fallowfield, attendees at the recent annual conference in Richfield, Utah, exchanged photographs taken during the visit. Chapter secretary Fallowfield found an email address for Jason Taylor who featured in several photos taken by the English group, dressed in his Navajo costume, and forwarded them to him, receiving a warm reply.

Researching old newspapers is always rewarding and a chapter member was surprised to find mention of the Old Spanish Trail in a Cumbrian newspaper (*Carlisle Journal*) dated 21 March 1846. This was in an account of the Fremont expedition of 1844 and several locations of the route of the trail were mentioned. The article appears below.

Oregon and California

Reprinted from the Carlisle Journal, Cumbria, England, March 21, 1846

From the narrative of the proceedings of the United States exploring expedition, just published, it appears that the party traversed a considerable portion of Oregon and California. The following is the general review given by Captain Frémont of the character of the districts through which he passed. At the present time it will be found to have considerable interest:

In arriving at the Utah lake, we had completed an immense circuit of twelve degrees diameter north and south, and ten degrees east and west; and found ourselves, in May, 1844 on the same sheet of water which we had left in September, 1843. The Utah is the southern limb of the great Salt Lake; and thus we had seen that remarkable sheet of water both at its northern and southern extremity, and were able to fix its position at these two points. The circuit which we had made, and which had cost us eight months of time and 3,500 miles of traveling, had given us a view of Oregon and of north California from the Rocky

Mountains to the Pacific Ocean, and of the two principal streams which form bays or harbors on the coast of that sea. Having completed this circuit, and being now about to turn the back upon the Pacific slope of our continent, and to recross the Rocky Mountains, it is natural to look back upon our footsteps, and take some brief view of the leading features and general structure of the country we had traversed. These are peculiar and striking, and differ essentially from the Atlantic side of the country. The mountains are all higher, more numerous, and more distinctly defined in their ranges and directions; and, what is so contrary to the natural order of such formations, one of these ranges which is near the coast (the Sierra Nevada and the Coast Range), presents higher elevations and peaks than any which are to be found in the Rocky Mountains themselves. In our eight months circuit, we were never out of sight of snow; and the Sierra Nevada, where we crossed it, was near 2,000 feet higher than the South Pass in the Rocky Mountains. In height, these mountains greatly exceed those of the Atlantic side, constantly presenting peaks which enter the region of eternal snow; and some of them volcanic, and in a frequent state of activity. They are

seen at great distances, and guide the traveler in his course. The course in elevation of these ranges gave direction to the rivers and character to the coasts. No great river does, or can, take its rise below the Cascade and Sierra Nevada range; the distance to the sea is too short to admit of it. The rivers of the San Francisco Bay, which are the largest after the Columbia, are local to that bay, and lateral to the coast, having their sources about on a line with the Dalles of the coast range and the Cascade and Sierra Nevada range. The Columbia is the only river which traverses the whole breadth of the country, breaking through all the ranges, and entering the sea. Drawing its waters from a section of 10 degrees of latitude in the Rocky Mountains, which are collected into one stream by three main forks (Lewis's, Clarks, and the North Fork), near the centre of the Oregon valley, this great river then proceeds by a single channel to the sea, while its 3 forks lead each to a pass in the mountains, which opens the way into the interior of the continent. This fact in relation to the rivers of this region gives an immense value to the Columbia. Its mouth is the inlet and outlet to and from the sea; its 3 forks lead to the passes in the

mountains; it is therefore the only line of communication between the Pacific and the interior of North America; and all operations of war or commerce of national or social intercourse, must be conducted upon it. This gives it a value beyond estimation, and would involve irreparable injury if lost. In this unity and concentration of its waters, the Pacific side of our continent differs entirely from the Atlantic side, where the waters of the Alleghany mountains are dispersed into many rivers, having their different entrances into the sea, and opening many lines of communication with the interior.

The Pacific coast is equally different from that of the Atlantic. The coast of the Atlantic is low and open, indented with numerous bays, sounds, and river estuaries, accessible everywhere, and opening by many channels into the heart of the country. The immediate coast is what the seamen call iron bound. A little within, it is skirted by two successive ranges of mountains, standing as ramparts between the sea and the interior country; and to get through which there is but one gate, and that narrow and easily defended. This structure of the coast, backed by those two ranges of mountains, with that concentration and unity of waters, gives to the country an immense military strength, and will probably render Oregon the most impregnable country in the world.

Differing so much from the Atlantic side of our continent in coast, mountains, and rivers, the Pacific side differs from it in another most rare and singular feature---that of

the Great Interior Basin, of which I have so often spoken, and the whole form and character of which I was so anxious to ascertain. Its existence is vouched for by such of the American traders and hunters as have some knowledge of that region; the structure of the Sierra Nevada range of mountains requires it to be there; and my observations confirm it. Mr. Joseph Walker, who is so well acquainted with those parts, informed me that, from the Great Salt Lake west, there was a succession of lakes and rivers which had no outlet to the sea, nor any connection with the Columbia, or with the Colorado of the Gulf of California. He described some of these lakes as being large, with numerous streams, and even considerable rivers, falling into them. In fact, all concur in the general report of these interior rivers and lakes; and, for want of understanding the force and power of evaporation, which so soon establishes an equilibrium between the loss and supply of waters, the fable of whirlpools and subterraneous outlets has gained belief, as the only imaginable way of carrying off the waters which have no visible discharge. The structure of the country would require this formation of interior lakes; for the waters which would collect between the Rocky Mountains and the Sierra Nevada, not being able to cross this formidable barrier, nor to get to the Columbia or the Colorado, must naturally collect into reservoirs, each of which would have its little system of streams and rivers to supply it. This would be the natural effect; and what I saw went to confirm it. The Great Salt Lake is a formation of this kind,

and quite a large one; and having many streams, and one considerable river, 400 or 500 miles long, falling into it. This lake and river I saw and examined myself; and also saw the Wah-satch and Bear river mountains which enclosed the waters of the lake on the east and constitute in that quarter the rim of the Great Basin. Afterwards along the eastern base of the Sierra Nevada, where we travelled for 12 days, I saw the line of lakes and rivers which lie at the foot of that Sierra; and which Sierra is the western rim of the basin. In going down Lewis's Fork and the main Columbia, I crossed only inferior streams coming in from the left, such as could draw their water from a short distance only; and I often saw the mountains at their heads, white with snow, which all accounts said divided the waters of the desert from those of the Columbia, and which could be no other than the range of mountains which form the rim of the basin on its northern side. And in returning from California along the Spanish trail, as far as the head of the Santa Clara fork of the Rio Virgen, I crossed only small streams making their way south to the Colorado, or lost in sand---as the Mo-hah-yo: while to the left, lofty mountains, their summits white with snow were often visible, and which must have turned water to the north as well as to the south, and thus constituted, on this part, the northern rim of the basin. At the head of the Santa Clara fork, and in the Vegas de Santa Clara, we crossed the ridge which parted the two systems of waters. We entered the basin at that point, and have travelled in it ever since, having its south-eastern rim (the Wah-satch mountain) on the right,

The contents of this great Basin are yet to be examined. That it is peopled, we know; but miserably and sparsely. From all that I heard and saw, I should say that humanity here appeared in its lowest form, and in its most elementary state. Dispersed in single families: without fire-arms; eating seeds and insects; digging roots (and hence their name)—such is the condition of the greater part. Others are a degree higher, and live in communities upon some lake or river that supplies fish, and from which they repulse some miserable Digger. The rabbit is the largest animal known in this desert; its flesh affords a little meat; and their bag-like covering is made of its skins. The wild sage is their only wood, and here it is of extraordinary size—sometimes a foot in diameter, and six or eight feet high. It serves for fuel, for building material, for shelter to the rabbits, and for some sort of covering for the feet and legs in cold weather. Such are the accounts of the inhabitants and productions of the Great Basin; and which, though imperfect, must have some foundation, and excite desire to know all.

Courtesy British Library Board

The Trust for Public Land and the U.S. Forest Service announced on September 18 that the first section of a historic 5,000-acre property near Taos will be protected by adding it to the Carson National Forest.

Sketch of Marker #17 by Makamae Elvenia, Boy Scout Troop #5. See story page 11.

Eagle Scout Project

by Ashley J. Hall, President, OSTA/
NV Chapter

The OSTA-Nevada Chapter is working with Boy and Girl Scouts like Josh Allen, along with other interests, out on the Trail for the next several months. We will conduct the needed GPS surveys and associated preparatory work; prepare appropriate submittals to the BLM for review and approvals on BLM lands; coordinate with the Nevada Department of Transportation and private land owners when replacing/relocating current Centennial markers for better view; identify the markers that are missing/broken, fabricate the new markers (25 of them); replace markers with an identifying number on each (1-28); and then reset those markers that need to be replaced. At this point in the Sesquicentennial Project, the OSTA-Nevada Chapter is having great success in acquiring approvals from Boy Scout Eagle Projects, with a number of other youth groups invited to participate in this historic event.

Working with the OSTA-Nevada Chapter, Joshua Allen, 15, is a current Eagle Scout candidate and a student at Chaparral High School in Las Vegas. Josh decided early in his Boy Scout career that he would earn his Eagle Award. Over the years, Josh has persevered through all of the prerequisites required by the Boy Scouts to a point of conducting his Eagle Scout Project. Years of planning and achievement concluded on Saturday, September 21, 2012,

when Josh and his Eagle Scout Project Team met at 6:00 a.m. at his Scout Master's home for his final informational meeting with fellow Scout Troop #5 members, their leaders, and his parents. They reviewed plans to ensure that the rigorous 12-hour schedule needed to complete the day's field trip would be met. They planned to conduct a GPS Survey of each of Nevada Centennial Markers 17-28 (Las Vegas to the California state line), photograph them, clean up around them and determine which of the markers were in good enough condition to remain and which were damaged to the point that they needed to be replaced as part of the OSTA-NV Chapter's Sesquicentennial Project as part of Nevada's 150th birthday in 2014.

Eagle Scout projects like Joshua Allen's provide the Nevada Chapter with the opportunity to acquaint youths, and the public, with the history and romance of the Old Spanish Trail, a trail of commerce that ran between Santa Fe and Los Angeles between 1829-1848. As part of the scheduled Youth Projects our goal is help people understand and appreciate the significant of the National Historical Trails, such as the Old Spanish Trail, Mormon Road and others by acquainting them with historical narratives like "*Old Spanish Trail, Santa Fe to Los Angeles*," by Dr. Leroy and Ann Hafen, Hal Steiner's "*The Old Spanish Trail Across the Mojave Desert*," and Liz Warren's considerable work on identifying and interpreting the Trail. As we traveled along the Old Spanish

Trail between Las Vegas and the California state line, the Boy Scouts and other participants saw firsthand what the Hafens described: "The Old Spanish Trail was the longest, crookedest, most arduous pack mule route in the history of America." By the end of the day's travels over parts of the OST and Mormon Road, Josh and the team knew precisely what the Hafens were talking about as our four 4-wheeled utility vehicles traversed the deep washes, steep hills, and sandy trails.

At the September 21 meeting, Josh assigned each member of the Scout team the following tasks: two Scouts would photograph each marker (each marker is 7 foot long, reinforced concrete, 24 inches at the base and 12 inches at the top and each weighs 200 pounds, having "The Old Spanish Trail – 1829-1850" pressed into two sides); two Scouts were assigned to record the GPS coordinates with a certified NAD-83 GPS device, each checking the other; two Scouts were assigned to clean up debris around each marker; one Scout was assigned to sketch a marker for visual and historical records; one Scout was assigned to assist Joshua's mother in providing water and refreshments to all present during twelve-hour project period; and two adult leaders were to assess the physical condition of each marker to determine which were preserved enough to remain and which ones needed to be replaced.

Continued next page

The Eagle Scout Project began at Marker #17, adjacent to the old railroad spur that once serviced the Blue Diamond Mine. We traveled along the Trail/Mormon Road in a southwesterly direction from Las Vegas toward Blue Diamond. Marker #18 is easily visible along the Red Rock Canyon Road just past the entrance to the Blue Diamond Gypsum mine on the north side of the highway. Marker #19, once placed adjacent to the concrete spring box at Cottonwood Spring in Blue Diamond, is no more. Marker #20 is clearly visible from the air in the gap between the village of Blue Diamond and Highway 160. Its top has been shot off, but the marker still stands along the newly-created mountain bike trail that follows the historic trail through the area. Of Marker #21, only the base still can be seen, located at the edge of Cottonwood Wash that runs down from Mt. Potosi toward the Las Vegas Valley. Marker #22 is easily found, located at the top of the grade on the north side of Highway 160 just before entering the canyon leading up to the Boy Scout Camp and Mountain Springs Pass. Marker #23 was once posted at the Boy Scout Camp turn-off on Highway 160, but is gone today. Marker #24 is located on a putting green in front of the World Famous Bar & Grill at Mountain Springs Pass and is still in good condition. Marker #25 was once located just east of Highway 160 and the Sandy Valley Road intersection; however, in the mid-1990s, the California Police Officers Association held a major off-road rally in the area

and had their command post adjacent to the marker. When they departed, so did marker #25. Marker #26 is located about 8 miles southwest along the OST/MR toward Stump Springs and is still in good condition. Marker #27 that was once located at Stump Springs is nowhere to be found, so a replacement marker will be required there. Lastly, Marker #28 is located in the area of the Weeping Rock west of Stump Springs and the Old Spanish Trail Highway, about 2 miles from the California state line.

Thanks to Josh Allen, we have photos of markers in various stages of repair or destruction. As we followed the OST between Las Vegas and the California state line, we traveled over varied terrain: desert, mountain, marsh, washes, and gullies.

Over the years, there have been a variety of methods and means used to study, identify, and interpret the Trail, as we attempt to protect and preserve the Trail and its history as much as possible. We have used the air, the Special Collections Library at UNLV, walked segments on foot, by horseback, on quads, 4-wheel drive pick-ups, and researched books, publications, and periodicals.

Following years of research and physically identifying much of the OST and its branches, the goal of the Old Spanish Trail Association – Nevada Chapter, is to re-mark the Trail through Southern Nevada as part of Nevada's

Sesquicentennial Celebration in 2014.

We plan to

- Review and analyze each of the markers for replacement through Southern Nevada.
- Develop a color picture/narrative brochure showing the present status of all 28 Nevada Centennial Markers on the OST, with a draft copy of the brochure sent to the Governor of Nevada, Nevada's congressional delegation; Mr. Bob Brown, Chairman of the Nevada Sesquicentennial Committee; Mr. Jeff Shaw, President of the Las Vegas Boy and Girl Scouts Councils; local governmental, civic and education leaders, with a goal to place a copy of this historical brochure in every school library in Southern Nevada.
- Obtain support of the Nevada Sesquicentennial Commission as a fully sanctioned project.
- Invite the Boy and Girl Scouts Council to participate in as many Eagle or equivalent projects as possible.
- Host the Annual Old Spanish Trail Association's national conference in October of 2014 in conjunction with the Nevada Sesquicentennial (150th) Birthday Celebration.

For more information about the Nevada Chapter's "Re-marking the Old Spanish Trail," please contact Ashley Hall at (702) 592-3953 or at AshleyHall1@cox.net. We welcome all assistance from those who wish to assist the Nevada Chapter as we work to save the historic Old Spanish Trail. ♦

The Story Etched in the Ground

by **Bob Leonard**

Red Creek Canyon, located just south and west of Castle Valley and Ivie Creek in south central Utah, is a lonely and little used parcel of land (Figure 1). However, historic use in this section of the Fishlake NF was considerably livelier with many travelers, herds, and pack trains using both the Old Spanish Trail (OSNHT) and the Fish Lake Cut-off (FLCO). Mauricio Arze and Lagos Garcia (1813), traders from Santa Fe, made their way to Utah Lake probably through Spanish Fork Canyon, but on their return the party most likely came through Salina and Ivie Creek canyons,

dipping southeast at the summit of Wasatch Pass through several miles of Red Creek Canyon (Smart 1988: 42). Denis Julien, a French Canadian trapper, left more than 10 inscriptions principally along the Green and Colorado River drainages. G. K. Gilbert, a geologist on a mapping mission (1875), noted Julien's name carved in rock near Red Creek. The date of the inscription is May 10, 1832 (Knipmeyer 1996: 52-3). It also seems likely that early Anglo trappers Jedediah Smith (1826) and the Wolfskill and Yount Party (1831) were also using the same trails which eventually turned south into the Sevier Valley (Hafen and Hafen 1993: 148).

Obviously the use of the trail did not stop in 1848, which has been designated as the end date of the OST. Three U.S. Army expeditions are known to have used portions of the trail between 1853 and 1858. The first was a pack mule "mob" led by Lt. E. K. Beale in July of 1853. He was looking for a transcontinental railroad route along the 38th Parallel. Traveling to the south in Castle Valley, he turned west on Ivie Creek and traveled towards the setting sun with the hills now on the south (I-70 corridor) "and in seven miles came to a gap, giving issue to a small stream [Red Creek?], which we ascended three miles" (Hafen and Hafen 1957).

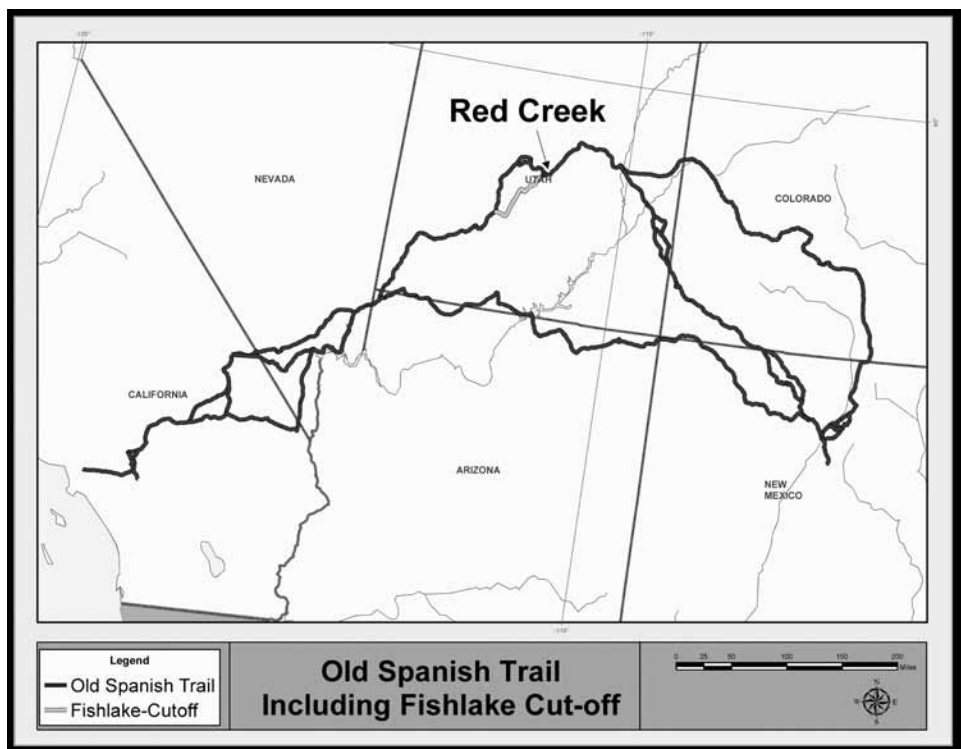


Figure 1: The Old Spanish Trail system and the general location of Red Creek Canyon

The second group was led by Capt. John W. Gunnison, who traveled through Red Creek in October of 1853 on the same mission as Beale. Unlike Beale, he had 17 six-mule escort wagons and an ambulance. Like Beale, he chose the westerly trail on his journey. His second-in-command, Lt. Beckwith, solved the mystery of why the OST dipped to the south away from Wasatch Pass. A large gully, now called Tommy Hollow, prevented the passage of both livestock and wagons up the east-facing slope of the pass. Beckwith (1855: 66-7) documented a still prominent pictograph panel (42SV990) and stated that:

This gorge [Ivie Creek Canyon] is cut into deep gullies by streams which pour down from the

mountains during storms, which gave us some labor to cross; and a small stream [Red Creek] coming in from the south also detained us a short time. But after following it for two miles and a half, the Spanish trail branches; the southern branch [FLCO], passes over a higher elevation and soon rejoins the northern branch [Main Branch-OST], which though longer, crosses the mountain at a lower depression.

This dip became obsolete in 1858 when Col. W. W. Loring and 300 troopers cut through the Tommy Hollow while improving the road between Camp Floyd (Utah) and Fort Union (New Mexico). This was to the relief of his topographical engineer who had

expressed doubts about getting Loring's wagons through the area (DuBois 1949: 76).

Between the 1880s and 1900, there were thousands of sheep being off-loaded at the Denver & Rio Grande Western railhead at Thistle, Utah (Geary 1996). Most of the tramp herds and resident flocks grazed off the meadows and hills which are within the Wasatch Plateau north of Interstate 70 between Emery and Salina. To what extent they impacted Red Creek Canyon, described by Beale as arid, is unknown. Forest Service lore has the area crawling with livestock before the turn of the 20th century, which allegedly resulted in deep and extensive gullying. Fortunately, Lt. Beckwith

not only provided us with a trail map but also documented the existence of deep gullies on the east side of Wasatch Pass. Simply, the gullies were there in 1853, nearly 30 years before any lamb stepped off the train.

With the settlement of Emery County in the late 1870s and early 1880s, pioneers soon established a network of wagon roads. Quite by accident, an early 20th-century map of Sevier County was recently found in an old Forest Service warehouse (Nelson 1903). This detailed map illustrates well-established roads from Emery County to Salina along some of the OST corridor and south along the FLCO corridor past Fish Lake and into Wayne County. Names

chiseled into the cliffs at the mouth of Red Creek (along the wagon road) were researched on Ancestry.com. The research suggests that they were placed by travelers in the early 1880s. This wagon road intermingles with the FLCO corridor at a several points. However, wagon use appears to have been light. Recent metal-detecting of a 27-degree slope where extra teams would have been added (up) or wheels rough-locked (down) failed to detect a single metal artifact.

With the creation of the Fish Lake National Forest in 1906, government reports, made between 1920-30, state that 1,800 sheep were permitted

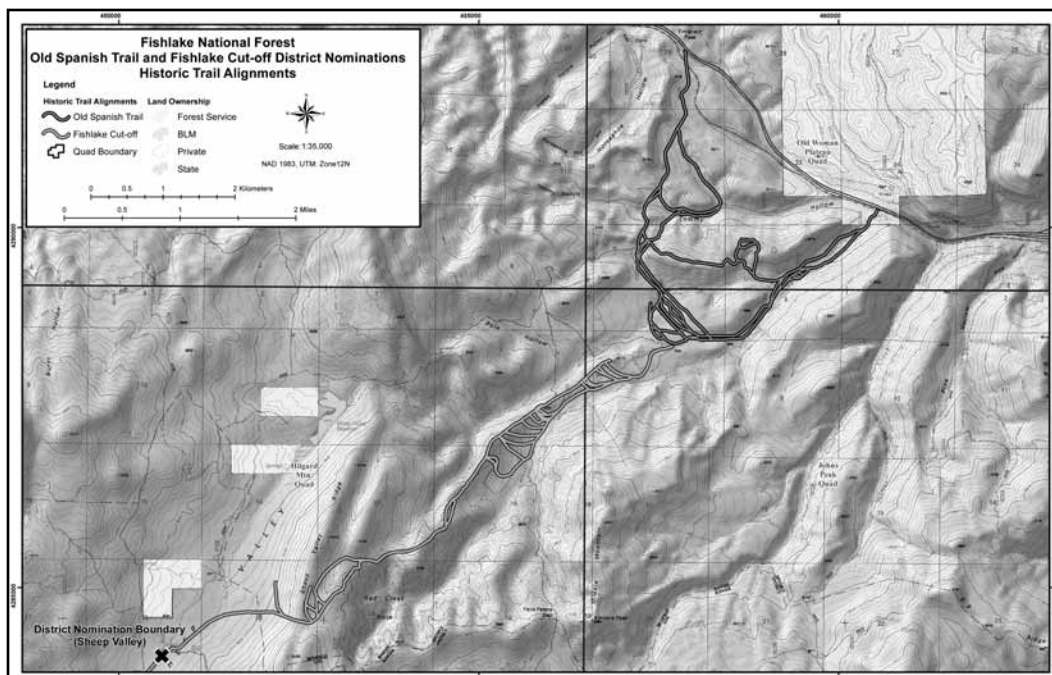


Figure 2: Map of the OST (purple) and the FLCO (yellow) described by a US Army engineer and verified by archaeological survey. The trails coming off of the FLCO ridge were made by eastbound animals bunching and dropping off into Red Creek Canyon.

on a 12,000 acre allotment which encompassed Red Creek (Fishlake 2200 Range Files). Unless herded along a driveway, sheep are light on the land if they are not allowed to overgraze. However, Red Creek range was over-used to an extent which created vegetation on pedestals up to 3 inches. [When sheep overgraze they take vegetation down to ground level and weaken the root structure. With nothing to hold the soil, sheet erosion will occur with only the surviving plants with healthy roots holding the soil immediately around the vegetation. So you get washed soil with isolated plants sitting on a pedestal (their roots)]. In the 1970s, 176 cows replaced the sheep herd. In the 1980s, elk were introduced to the area.

Herding and the Archeological Signature

In the absence of absolute criteria and extensive documentation, historic trail identification is neither perfect nor free of subjectivity. Trail recognition may simply represent the perception of the people defining the trail. Are they looking for mostly singular pack trails (i.e., westbound) or are they expecting widespread scarring of the landscape left by large OST herds (i.e., eastbound)? Commercial mule trains, probably better called pack mobs, would have numbered 150 to 200 animals. Their signature was narrow (e.g., >100 feet wide) as untethered mules bunched and wandered near the bell mare. This

phenomenon was recorded by a Thomas Edison production which filmed a U.S. Army pack mule train carrying ammunition during the Spanish-American War in Cuba (criticalpast.com).

Documented herds trailing to New Mexico between the 1830s-1840s numbered 300 to 4,600 animals (Hafen and Hafen 1993). Their configuration would have been like a “school of fish” or a “tear-shaped” mass stretched out one or more miles along the trail and up to a quarter mile in width. East of Bridge Creek, it took Carson and Brewerton (1853: 312) days to get around a caravan of 1,200 animals. The archaeological signature of a herd should be lineal but will spread widthwise across the limits imposed by the landscape or the herders. And if westbound mules and eastbound caravans were using the same corridor, can we really expect to find pack mob trails?

Unlike the rogue mob featured in *The Man from Snowy River*, herds are not led by a stallion but by a boss mare(s) that makes every decision including the direction and speed of travel. Herding efforts, which are acquired skills, will concentrate on steering the boss mare (Smith 1998: 158-204). Vaqueros are positioned at the head of the herd (point men), along the side of the herd (outriders) and at the rear of the herd (drags). Thirty or fewer men can herd very large numbers of horses and mules and most of the 260 Mexicans and Americans seen by Brewerton in

the large, eastbound caravan were probably not herders.

Good herders, who wanted to minimize attrition, would have practiced “low stress herding.” This method allowed horses and mules to maintain their natural pace, say three miles per hour, while making 16 or so miles per day. Making this daily distance, California caravans would have reached Santa Fe in 75 days. Intimidation from shouting, whipping, and otherwise striking the animals was not encouraged. Not all OST vaqueros were good herders, as the trail is known to have been littered with horse and mule bones (noted by Brewerton 1853), and probably were the remains of animals driven into the ground by Wakara and Old Bill Williams who lost half of their stolen herd when chased by a Spanish contingent. The implication is that if you drive animals you will kill (thirst and exhaustion) some of them when herding from point A to point B.

An 1882 cattle drive, starting in Texas and ending in Montana, illustrates good herding (Smith: p. 23). Over 3,000 head of cattle were moved along by six riders on each side of the herd and two point men behind the herd leaders. The entire herd simply followed the leaders while strung out three-quarters of a mile along the trail. The cows moved of their own free will and there was no driving to be done. When they arrived at their destination, they had 112 more cattle than they started with.

On the Ground in Red Creek Canyon

The swales and trail corridors in Red Creek were actually found *before* we happened onto a copy of Lt. E. G. Beckwith's (1855) report to the War Department. We did have a copy of Crampton and Madsen's *In Search of the Old Spanish Trail* (1996: 62) which indicated that the FLCO turned south from Interstate 70 while the Main Branch continued roughly east-west. At two-and-a-half miles up Red Creek, swales and disturbed ground seemed to be turning to the northwest. We marked them as "problematic" and continued our survey to the south where we found the FLCO jumping up to the spine a ridge above Red Creek. When we were presented a copy of Beckwith's (1855: 66) report, the October 13 entry floored us. The northwest-turning trails were the OST and we had been standing on the junction of the OST and the FLCO which Beckwith called the "northern" and "southern" branches.

After three years of walking the canyon and ridges, supplemented by a good many conversations with range conservationists, cowboys, packing instructors, wildlife biologists, soil scientists, ecologists and historians, we feel very comfortable with our determination of the trail corridors. Does that mean we can absolutely prove every scar on the ground is OST/FLCO? Of course not. But this needs to be said. After sitting and watching the grazing

and traveling behavior of cows and sheep, counting elk pellets, looking for tracks on the ground, and watching water coursing after storms, we feel equally confident about what the trampled ground and swales are not.

One friend, for example, suggested that most of the ground disturbance in Red Creek had been caused by Gunnison and his 18 wagons during a one-time passage. Well, some simple math would suggest that escort wagons carried around 2,000 pounds of cargo on rough ground (Lindmier 2009). Six mule escort wagons were actually pulled by four mules (900 pounds each), and with the weight of the wagon (1,300 pounds with the wagon master and assistant), total weight per wagon would be 6,900 pounds or 124,000 pounds for the train in a mostly single file configuration (>10' wide). A 200-animal pack mob, with 300 pounds of cargo per mule, would weigh 186,000 pounds (>100' wide). Compare these figures to the weight of a 1,200-head caravan at 1,000 pounds per animal (1,200,000 pounds) spread across a corridor up to 1,320 feet wide.

Our contention is that the scarring and vegetative changes along the Red Creek section of the OST and the narrower corridor of the FLCO have been caused by loose livestock moving west (pack trains) and east (caravans). Because caravans are much larger than pack trains, most of what we are looking at has been caused by the caravans. And unless

the east and west parties used different corridors, it should be archaeologically impossible to delineate direction of traffic made the swales.

A Bird's Eye View of Red Creek

Three areas in the Red Creek area deserve mention. The first is a very dramatic section of the trail where North Creek conflues with Red Creek (Figure 3). It appears that many animals have crossed Red Creek from the west to the east terrace (and vice versa). A large 17-foot wide swale, and parallel shallower swales and traces, curves toward the east terrace from the opposite side of the creek. Ground disturbance is noticeable on the east side of the creek. For those who might think the large swale is an eroded wagon road, Antone Nelsen, the 1903 Sevier County map maker, shows the wagon road on the extreme west side of the canyon crossing North Creek. In this section of Red Creek, there are at least two minor fords and one major crossing southwest of the one linked to the large swale. This would indicate herds crossing the trail corridor at multiple points. The origin of the large swale, according to Alva Matheson (2012: personal communication) represents pressure on unforgiving soils from the dominant animals that would have been more tightly grouped in the center of a passing herd.

The second area of interest is the first of at least four trail corridors that turns to the northwest off of



Figure 3: The 1880s wagon road is visible parallel to Forest Road 141 and crosses North Creek. A large swale trends east and crosses Red Creek with disturbed ground visible on the opposite terrace.

the OST just before its junction with the FLCO. One trail climbs the ridge above North Creek and makes its way over to a saddle that permits traffic back to Wasatch Pass (Figure 4). The ridge trail intersects a combination of three to four corridors that commingle and turns northwest from the junction of the OST/FLCO. All of the trails combine and then drop off of the steep-faced saddle on diagonal swales. The large herds coming from California would have actually climbed the north-facing slope of the saddle where the grade is over 25 percent but for only 300 or so feet. The face of this saddle is clearly masticated and swales can be seen on satellite images.

The FLCO, described by Lt. Beckwith as the “southern branch,” followed Red Creek south but shortly jumped up on the spine of a ridge on the west side of the canyon. This trail enabled travelers to gain elevation while climbing above Red Hole, a box canyon. The trail on the spine of this ridge is pristine or MET Class 1 (Figure 5). No wagons, trucks, ATVs, or cows have traveled this corridor,

which can be clearly seen as a vegetation-altered strip on satellite imagery. On the ground, the trail consists of swales and traces within a 30’-100’ wide corridor. The most fascinating feature of this trail corridor is the drop-off trails that leave the ridge and drop at steep angles into Red Creek Canyon. According to Bob Hoverson at the Nine Mile Wildland Academy (Lolo NF), herds descending a narrow spine will bunch with some of the animals dropping off of the ridge. Because the descent is to the east, this seems to suggest loose herd traffic and commercialism.

Conclusion

The Fishlake National Forest has just submitted a three-year

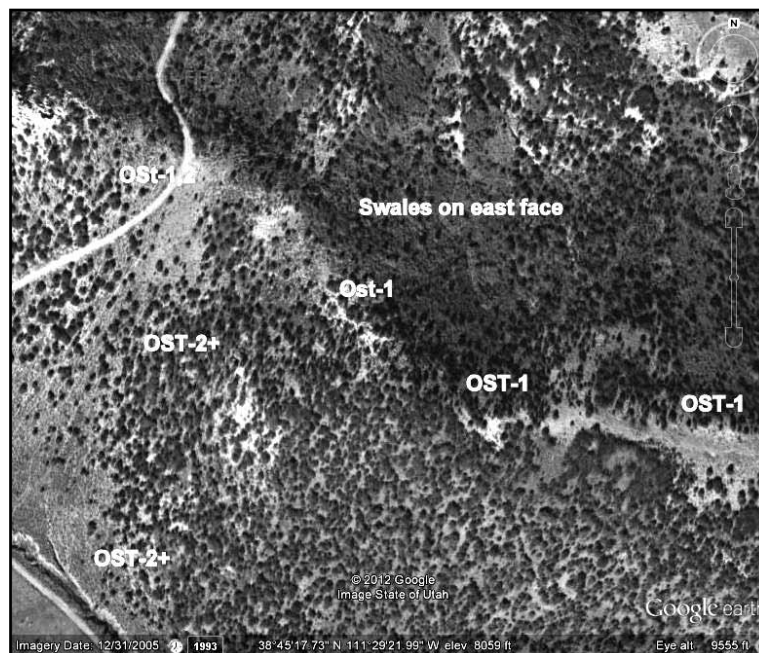


Figure 4: The North Creek corridor (OST-1) comes in from the east and drops down to the saddle where it intersects the combination of at least four trail corridors (OST-2+) climbing the south-facing slope. Santa Fe traffic would have climbed the north face of the saddle while parties bound for Los Angeles would have descended the north side of the saddle.

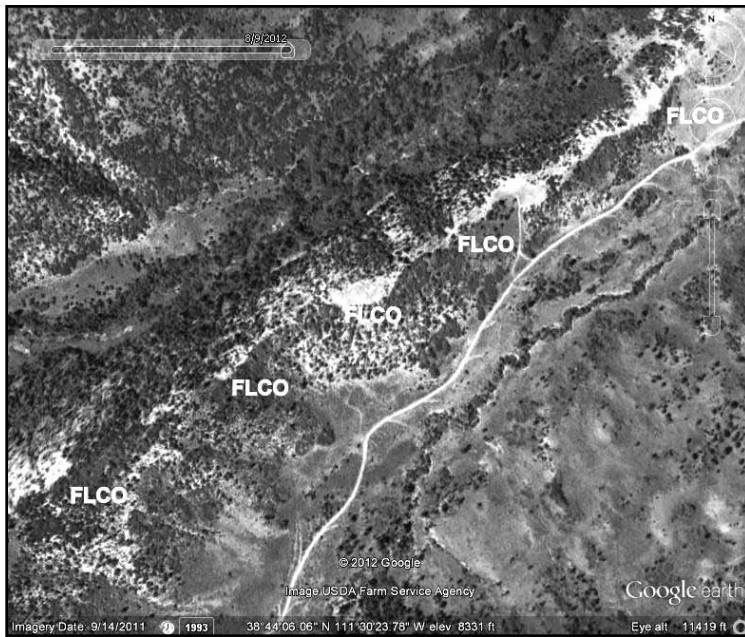


Figure 5: The FLCO is clearly seen from satellite imagery on the spine of a ridge which gains elevation and skirts Red Creek Hole, a box canyon.

National Register nomination effort of 11 miles of the OST and FLCO. This is a Multiple Property District so, in the future other nominations can be attached to this umbrella document. If listed on the Register, we will be happy to make copies of the package available to other Forests, professionals, and OSTA Steward Chapters.

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Spanish Trails Navigation: The Dominguez-Escalante Expedition of 1776: Part 1

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*Presented at the 2012 OSTA annual
conference*

This article presents a short developmental history of the magnetic compass and methods used by the Dominguez-Escalante expedition of 1776 to resolve compass deviation. It also addresses the Franciscan penchant for attempting to apply geomagnetic variation in a relentless pursuit of longitude, and the computation of distance by sidereal methodology.

The Magnetic Compass and Spanish Trails Navigation

The magnetic compass has been bane and blessing for a myriad of cultures in preceding centuries. Many countries seeking to extend their influence, whether by commerce or by conquest, learned to depend on the compass, but unfortunately they often did so at some peril. Mysterious and confounding compass irregularities were frequently ignored, sometimes with catastrophic results. Similarly, the ability of land navigators to record and chart topographical information using celestial observations cannot be understated in its importance to Spanish colonization. Yet few historians have chosen to adequately examine either purposes or processes of land navigation. They simply relegate early explo-

rations to the role of being “itinerant wanderers in the wilderness.”

The discovery of the first magnetic compass is often ascribed to one of several ancient Chinese cultures; though that may be more by default than by reasonable investigation. But regardless of those to whom the origin of the compass is commended, it is indisputable that the magnetic compass has always been associated with the advancement of colonial societies. The Spanish Empire was no different.

The earliest known compass is a “box” compass, or “dry” compass as it was sometimes termed, because it was un-damped for either vibration or motion. Basically the box compass was nothing more than a lodestone induced needle on a suspended piece of silk or rice paper, which was conveniently mounted inside of a protective structure. Such a compass facilitated efficient land navigation within a given territory, and it became indispensable for movement and exploration of national and extra-national territories. However, it was useless over water because of its inherent instability.

As the magnetic compass matured as an instrument to accommodate the reasonable division of property, a science to become known as surveying, its heralded use was not without apparent and inexplicable errors. And though most compass errors could be compensated for

at a given location or locale, the errors were seldom understood and the mystical nature of the compass did little to encourage scientific study of its natural “aura” that was presumed to be the problem.

It was not until the advent of maritime trade and the naval movement of military forces across large distances that the compass was to make its singular contribution to global navigation. It was also here, in movement across large distances, that the compass also showed its greatest malediction, an error now called geomagnetic variation.

However insidious the problem of compass error might have been, or how innocently it may have come to the attention of a perceptive user, the significance of geomagnetic variation was most likely to have been recognized in concert with calamity at sea. Being unaware of either the source or solution to geomagnetic variation, even the least conscientious of navigators would have been challenged by unexplained errors in routine observations.

Trusting an uncorrected compass for any length of time or distance was always a certain step to an equally certain catastrophe. For local application of compass readings, anomalies could be summarily dismissed as an “operator error.” But across long distances and in uncharted waters or inclement conditions, those errors would

more often result in fatal piloting decisions, and Spanish history tells us there were many of them.

So, what is the nature of the beast called “Compass Error?”

Well, compass error actually comes in two forms:

Geomagnetic variation: (sometimes called compass “*declination*” by surveyors) is that force created by the magnetic flux field of the earth, in conjunction with the electromagnetic field surrounding the earth. It varies according to the geology and the physical structures of and within the earth, and it varies with the influence of solar storms and electromagnetic disturbances. Variation is never constant. Variation is continually changing in both intensity and location. It is generally observable but not predictable.

Compass deviation: for the purposes of this discussion, *compass deviation* is construed as the sum total of all non-terrestrial or non-flux induced errors, i.e., the sum total of all cargo, construction, metallic or electromagnetic influences affecting a magnetic compass that are not associated with geomagnetic flux fields.

Geomagnetic variation is manifested and/or charted visibly in the form of isogonic and/or agonic lines on every navigational map. Isogonic lines are lines of constant variation over the surface of the earth; they represent the difference between any given compass

direction (one that is free of deviation) and true direction which is a direction in relation to the axial rotation of the earth. An agonic line is a charted region where there is an apparent absence of magnetic variation, a limited region where all forces are balanced and the compass does in fact, point to True North without compensation. Florida is in an area of such agonic influence, much to the consternation of early Spanish navigators and explorers who frequented the region.

The earliest known compass in our possession dates from the year 1111 AD. This early compass is of brass and is conspicuous for having both a gnomon and a lubber post for making accurate bearing and time observations. It is also noted for having an engraved mark to correct for local geomagnetic variation, thus allowing the user to establish both an accurate magnetic and true north direction at any given time. It was only when sea faring became common and significant distances were being traveled that compass error due to variation became a major problem to safe navigation.

By the 15th century most geomagnetic anomalies had been charted, compensated for, and/or corrected within coastal waters by Spanish navigators. Compass deviation would always be a problem for all navigators, depending on such factors as cargo, vessel geometry, and the dispersal of metallic armament and fittings throughout the ship. Such errors were routinely com-

pensated for enroute with periodic celestial bearings.

While the source of geomagnetic variation may have been a total mystery to people in the past, the Spanish found that it could be easily corrected for a given location. This was done by simply observing a celestial body (usually the pole star or the sun) or a gnomon and noting the difference between the known true azimuth of the body being observed and that of the north-seeking needle of the box compass or binnacle. The difference between the two azimuth bearings was equivalent to total compass error, combining variation and compass deviation for that instant in time through proper alignment at the time of observation. Adjustments were made by moving the compass housing or external metallic compensating bars.

The first attempts at long-range navigation by the Spanish were hampered by the belief that by charting geomagnetic variation accurately, a vessel could carry its longitude forward with the exploration. In theory, the Spanish navigators hoped to establish their longitude by simply making an isogonal grid of the lines of constant variation, and overlaying that grid on a map of latitude and longitude. In theory, this would create a navigational reference that would fix a ship's location on the outward journey and ensure a safe return with whatever treasure they sought.

The Spanish navigators and explorers anticipated that geomagnetic variation lines would parallel lines of longitude. Unfortunately, they do not, but to test their assertions, the explorers needed to find someone brave enough (or crazy enough) to venture a significant distance from port. Enter Christopher Columbus. True, Columbus found a new continent, but he also made equally lasting contributions to the history and science of navigation, including a generous lesson in “what doesn’t work,” at least on the ocean.



Typical astrolabe, rete and matre

It is well known that Columbus was tutored in every science associated with navigation. He also had access to every navigational instrument known to the Spanish Main. His credentials included the best training of the Jesuits and Franciscans, Abraham Zacuto’s declination tables, the Al Kamal for known coastal locations (including Cadiz, Spain), the astrolabe, the navigator’s quadrant, and

the navigator’s fore staff.

The diaries of Christopher Columbus are replete with the frustrations and inadequacies of his tools, and the difficulty he had in establishing, or even recording, reliable data in the midst of ocean verities. In most cases he simply dispensed with the complexities of attempting some celestial observations with the tools available, but he always carried an accurate compass correction via Polaris. With that information and either observed latitude by Polaris or meridional

passage of the Sun, and a good land-fall technique for arrival back in Spain, Columbus was able to make the return voyage with confidence and some alacrity.

Successes and failures of Columbus and the early Spanish explora-

tions were not lost on those of the academia left at home. The Jesuits and Franciscans scholars vied with each other in their pursuit of knowledge and refining their technique and mathematical calculations (and the Dominicans were not far behind). It was through their efforts to construct an accurate ephemeris that they were able to record the actual latitude and longitude of Mexico City, Mexico, by coordinating an observation of

a predicted eclipse of the moon.

Predicted occlusions were conveyed to the outposts of the Spanish empire. Then independent sightings or observations of the altitude of the moon were transmitted back to the motherland and other colonial outposts by courier vessels. The independent calculations and conclusions of Spain were subsequently exchanged with the colonies for comparison and critique. The conclusive information was again exchanged to establish the exact location of various colonies throughout the colonies. For Mexico City, for instance, their calculated mean positional error has been found to be within scant arc minutes of actual earth position. This was a phenomenal achievement for 16th-century navigation.

But colonial Spain was not through yet. With the information now available to them appropriately charted, they managed to carry their findings, techniques, and positions with them as they expanded northward by land from Mexico City to the border lands of what was to eventually become New Mexico. Spanish priests routinely used latitude for a constant line of position, similar to using a Sumner line, crossing it with the league-derived longitude carried with them from their point of origin. But the expectation of using geomagnetic variation to eventually carry longitude over land was never lost.

Continued on page 23

What is a League?

I have observed no lack of either concern or confusion among Old Spanish Trail historians in regard to the Spanish use of the "league" as a measure of distance. "It seems to vary all over the place," one associate remarked while seeking to unravel the mysteries of his "Spanish League" from interpreted documents.

And so it does!

As the Spanish Jesuits and Franciscans moved outward from central locations in Mexico and Florida to find and establish missions for the colonies, they were highly schooled in celestial navigation as compared to land navigation. They took their navigational skills regarding observed bodies and the compasses with them, and adapted their seafaring techniques to land uses--with little change and less concern. Dead reckoning and land fall navigation techniques were common practices and techniques, both of which were honed to a high degree of skill. They work equally well in cross country trips, if you know what you are doing, and Fray Dominguez and Silvestre Velez de Escalante, for instance, did know what they were doing.

The Spanish system of navigation began with a full knowledge of latitude and longitude, and the calculations associated therewith, including time. Their approach was to first determine the angular separation of longitude, which they divided into sectors of 360 degrees in one 24-hour day. They calculated the circumferential distance of the equator to be 6300 units, which they called "leagues" (6028.2nm). They knew that lines of

longitude were always, by definition, equal. They also knew that the small circle lines of latitude decreased in circumference with the sine of the latitude (i.e., each latitude decreases from a maximum circumferential distance at the equator to zero at the poles. So, the Spanish navigators simply divided the earth's circumference by 360 degrees of rotation (i.e. 6300 leagues/360 degrees per 24 hour day) to determine that one degree of longitude was exactly equal to 17.5 leagues. Knowing that each degree of longitude contained 60 minutes of arc, they then divided that amount by 17.5 leagues per degree to determine that one minute of arc is equal to 3.43 leagues at the equator.

The Spanish navigators then calculated the latitudinal distance (east/west along a line of latitude) very precisely to obtain a new length of a different league for each and every latitude of the earth. Thus the length of a Spanish League at 30 deg North latitude is the sine of the latitude for 30 deg ($\sin 30=0.50000$) multiplied by the length of the latitude at the equator (17.5 leagues/degree) to arrive at a distance of 8.75 leagues per degree at 30 deg North.

So, yes, a league does vary all over the place. However, this approach was not an encumbrance to navigation.

A variable league was a boon to Spanish navigators, since knowing the actual distance, or length of the league between two lines of longitude for any given latitude facilitated many computations and simplified other areas of landfall navigation. Most navigators today still carry a Boditch

book of latitudinal distances, albeit in nautical miles rather than leagues, but the principle and practice of the computations has not been altered over time.

It should be mentioned that outside of celestial navigation as a practice, the Spanish in general (and Dominguez-Escalante in particular) appear to have used a different and more accommodating definition of league in their overland travels. After 1600 AD the nautical league was no longer considered practical as a land unit. The land travel system became associated with "the distance in miles a man on a horse at nominal gait and without interference would expect to travel in one hour, across unfettered and relatively flat terrain," or a distance of 2.63 statute miles per land league.

The length of one Spanish step was equivalent to 32 inches. It was called a "*vara*" by the Spanish. 5,000 varas were equivalent to one "*sito*" or Spanish walking mile. These were units of survey, however, and not units of navigation or travel. (Height was measured in a 65-inch increment or "*braza*," which was roughly eye level increments.)

It was the distance of 2.63 miles per hour that is presumed to have been used by the Dominguez-Escalante party to carry forward their longitude by deductive calculation, or "DR" (deductive reasoning) techniques.

When the Escalante-Dominguez party began their preparations for what would become one of the epic explorations of the American Southwest, it is unlikely they paid even the slightest attention to the tools, techniques, or practices they would use in their pending journey. Their training and education would have inculcated a complete acceptance of what, why, and, more importantly, how they were going to find Monterey Mission by the sea. The only real mystery to the Dominguez party was the terrain they would cross and the people they would encounter in the process of getting to Monterey, California.

The Dominguez-Escalante exploration party needed only to use proven techniques of global maritime navigation, with a known departure point, which was Santa Fe, New Mexico (N35 deg 41 min by W105 deg 56 min) to arrive at a known destination point, which was Monterey Mission (N36 deg 36 min by W121 deg 54 min).

Monterey Mission in California had been settled six years prior to the Dominguez expedition, in the year 1770, and Fray Garcés, with whom Father Silvestre Vélez de Escalante had spoken in preparation for the forthcoming expedition, shared with Escalante what information Garcés had on the physical location of Monterey. He and Father Dominguez would have both known that Monterey lay almost exactly 342 leagues (782 nm/900 statute miles) to the west, and less than 60 nm (one degree

of latitude) to the north of their departure point of Santa Fe, New Mexico. The expedition was not, therefore, a group of wandering adventurers, but they were traveling with the knowledge, means and method to reach their destination. Only politics, religion, and a river would stand in the way of them reaching their objective.

Just as their previous tutors had intimated, if variation could be accurately mapped in conjunction with fixed latitude lines of position, the solutions expected of Columbus and more recent seafarers would now be realized. It is likely they blamed the lack of prior success on the instability of ocean-going vessels. But over land and traveling from east to west, rather than along a parallel of longitude and with some attention to detail, that should not be a problem, right?

Reinforcing the presumption that longitude could be established by reference to magnetic compass variation was the full knowledge that when the De Soto arrived with the Spanish explorers in the Gulf states and Florida, the Spanish found to their amazement that there was no error in their compass at all. With an agonic line as an immediate reference, it seemed only too plausible that as they moved westward the isogonic lines of magnetic variation would be predictable.

The observed compass errors certainly had changed from a compass direction west of true north to a compass direction being east of

true north, and the difference was changing at a significantly diminished rate. On land too, the possibility of compass error through the factors of deviation could always be eliminated, in every instance, by comparison to a celestial bearing at any location where a latitude observation was obtained.

In this regard, and as a background for further investigation, I connected with the National Oceanographic and Atmospheric Administration (NOAA) and the Naval Observatory in Washington, DC. With the kind assistance of Ms Susan McLean of that facility, I was able to encourage a computerized regression analysis of the actual and projected variation for various years beginning with the day and month of the departure of the Dominguez-Escalante party from Santa Fe, New Mexico, in July of 1776.

The change in local magnetic variation at any given location on the path of the expedition is solely due to the isogonal creep of the earth's magnetic flux field across the intervening years. It is evident that the change in variation since 1776 approximates nearly 4 degrees of change since that time. In navigational terms, that is 240 nm of angle were it in observed altitude of a celestial body, and 4 full degrees of pylorus error. Either could cause significant cartographic problems.

Estimated rates of change of magnetic variation in 1776 for the Spanish Trails, by NOAA geomagnetic data services, US Naval Observatory

Pueblo, UT	7' E/year
Montrose, UT	7' E/year
Green River, UT	11' E/year
Saint George, UT	6' E/year
Provo, UT	7' E/year
Vernal, UT	7' E/year
Page, UT	6' E/year
Tuba City, AZ	6' E/year
Zuni, AZ	6' E/year

If you are interested in the rates of change for the present, enter local latitude and longitude desired into the online calculator at www.ngdc.noaa.gov/seg/geomag/jsp/Declination.jsp

Having ignored the influence and/or positional distortion caused by isogon creep is but one of several factors that may have induced modern observers to suggest that observations of the Dominguez-Escalante expedition were in error. It may well be that it was not the expedition's observers that were in error, per se, but that today's critics are judging from a perspective that has presumed they are dealing with the same plan-form of the earth that existed in 200 years ago in 1776.

One of the seldom recognized benefits of a compensated compass is its use as a chronometer to accurately, if not exactly, determine the local time of day for observing meridional solar passage to establish latitude.

Fray Silvestre Vélez de Escalante noted on September 5, 1776:

"Tonight we observed the latitude and found ourselves at 40 deg 4 min. Figuring that we had not come up that much since Santa Monica, and fearing some defect in the observation, we decided to make it by the sun the halting at the hour best suited so as not to detain ourselves here where the Sabuaganas might disturb us."

A compass that has been corrected for variation and deviation, usually by a bearing from Polaris at night, can then be used during the day-time to identify high noon. This is done by placing a gnomon in a position where the shadow of the sun will progress to a line paralleling the Lubber Line, the compass needle difference being the total combination of variation and deviation. At the exact instant this occurs, the zenith distance of the sun (HO) is recorded for comparison with declination tables, to arrive at the exact latitude of the observer. The compass process is both more accurate and far less time consuming than attempting to predict noon by shadow, or bisecting two points on either side of noon and regressing the observation. It is also less demanding on one's eyesight and inherently more accurate therefore. The intimation of being in a hurry would suggest this is the procedure they would have used the following day.

On September 6, 1776, Silvestre Velez de Escalante reported:

"We...went down to a little valley through which a small river of good water flows. At its edge, next to the only poplar that there is, and at eleven in the morning, we halted, ordering some companions to keep on going and the loose and loaded animals. The meridian was taken and we found that we were at 41 deg 6 min and 53 sec latitude and there having been no error in last night's observation."

The fact that the Dominguez-Escalante expedition might consider a 65-mile difference in observed position of little concern would suggest that it was not their position that was of concern. If this was the case it would be more likely it was the accuracy of their bearing and of compass deviation that concerned them. But what is evident is that the translation has brought forth an error, this one of some significant consequence. The September 5th observation was actually recorded in Escalante's diary as 41 degrees, 4 min North latitude, and not 40 degrees 4 min north latitude as translated. Their actual observations on these two days were less than 2 1/2 min of arc apart, scant miles between positions, and a phenomenal example of accurate observation and repetition.

It should be remembered from earlier discussion above that one of the elemental purposes and expectations of the Dominguez-Escalante exploration is presumed to include the identification and recording of magnetic variation at various locations during their

sojourn. Remember too, the Franciscans would have been heavily influenced by the perception and/or theory that, at least on land, an accurate chart of magnetic variation could be beneficial as a means for estimating the longitude of any given position during their travel. The common translations of the



Typical Spanish hand-hanging quadrant, with pinnule

Dominguez-Escalante Journal (by Chavez and Warner), as above, are again in error. They misinterpret a Spanish word, "*observacione*," as "bearing," a word with a wholly different meaning than observation and a crucial difference to anyone more schooled in navigational sciences. A bearing yields direction only, not a latitude LOP (Line of Position). Observations yield zenith angle and azimuth.

On September 14, 1776 (7 days since Escalante's previous observation), he reported:

On the 14th we made no day's march, holding back here so

that the horse herd, which was quite weak now, could regain its strength. Before noon the quadrant was set up to check the observation by the sun, and we found no more than 40 deg 59 min 24 sec N. We concluded that this discrepancy could perhaps result because the needle deviated here, and to find this out we left the fixed quadrant set toward the north, along the needle's meridian, until night time. As soon as the north or polar star was sighted, the quadrant being on the meridian mentioned, we observed that the needle was swinging northeast. We again took the latitude bearings by the North Star and came up with the same 41 deg 19 min of the previous night.

It is on this date we find the greatest commentary and description of the navigational practices and instruments being used by the Dominguez-Escalante party. Here we learn the following:

- They were using a quadrant, not an astrolabe, staff or back staff
- The quadrant was being "set up" and was therefore of a stationary type and not a pinnule or hand-hanging type of instrument.
- The quadrant used was of large scale, and needed ground support, and it was thus more accurate than any other typical instrument.
- They felt confident they could read the quadrant to within seconds of arc and routinely did

so, either directly or by interpolation

- Since the quadrant needed to be "set up" it was not likely to have been the same instrument used the preceding day, suggesting that at least some observations could have been made by hand-hanging quadrant and pinnule as a backup, or "quick and easy" shooting instrument on a non-recorded basis.
- They concluded that part of their error was associated with compass deviation, confirming their use of the resolved compass for meridional passage observations.
- They set the quadrant to the pole star, using the quadrant either as a gnomon for the compass or as a pylon, to measure variation and eliminate compass deviation.
- They were sensitive enough to the compass and its corrections to suggest they were taking great pains to ensure their variation recordings were accurate for their location on that day, and thus available for later charting of their variation.
- They observed that the compass needle was deviating to the northeast, a clear indication that they knew they were dealing with east variation and knew the difference. Also implied is the intimation that they knew how to apply it to obtain true directions.

- If the translations were correct, they were taking their bearings by Polaris rather than by solar declination, a simple approach to eliminating deviation. However likely that is, the translation is again incorrect, interpreting the word "bearing" in lieu of the Spanish word "*observacione*" of altitude, which this obviously was. The correct understanding of an otherwise good transliteration is lacking here.
- The Dominguez-Escalante exploration party was extremely diligent and conscientious in their observations and in ensuring accurate information was confirmed and recorded properly. They may have been itinerant wanderers, but they were never lost.

Conclusion

To fully appreciate the activities of Spanish trails travelers, diligent historians should acquaint themselves with the rudiments of land navigation, and include some of the more obvious corrections and considerations that are frequently ignored or misapplied to trails records. When these are incorporated, an image of uncommon care and accuracy emerges, along with answers to some of the most nagging questions regarding a variety of decisions, concerns, and solutions recorded in the success of the first truly scientific expedition of the American West.

In all, seven latitude observations

by solar meridian were recorded, another eight by Polaris. Each disclosed a true bearing that would accommodate compass correction for deviation and geomagnetic variation, providing the party with sidereal time, course guidance, and positional date in an apparent attempt to chart longitude as a function of isogonic information. Celestial observations ceased or were no longer recorded after the Dominguez-Escalante expedition approached the Colorado River. Their last and only east-bound observation was at the ford of the Rio Colorado, or "Crossing of the Fathers" (near Page, Utah) on the Colorado River, November 7, 1776. Not only was the expedition in more familiar territory, but they had long since recorded the variation and no longer needed to concern themselves with recording the vagaries of navigation. Their observed positions, descriptive locations, and recorded variation were now treasured commodities which they could share with subsequent borderland travelers.

References and Resources

Bolton, Herbert Eugene, and Mortensen, Arlington R. *Pageant in the Wilderness: The Story of the Escalante Expedition to the Interior Basin, 1776*. Utah State Historical Society, Salt Lake City, Utah, 1950, Literary Licensing, LLC, 2011.
(Recommended Resource)

Briggs, Walter. *Without Noise of Arms: The 1776 Dominguez-*

Escalante Search for a Route from Santa Fe to Monterey, Northland Press, 1976.

Chavez, Fray Angélico, and Warner, Ted J. *The Dominguez-Escalante Journal: Their Expedition through Colorado, Utah, Arizona, and New Mexico in 1776*. University of Utah Press, 1995.

For those with a penchant for puzzles and an appreciation for educational challenges in their life (Sudoku, stand aside), you can easily learn to calculate the earth position of the Dominguez-Escalante Party for any given observation, and have fun at the same time. Any of the following volumes are useable, new or old.

H.O. No. 9 (any volume, any year) *American Practical Navigator*. Boditch

H.O. No. 249, Volume II, (any year) Navigational tables to 45 degrees N. Latitude

H.O. No. xxxx (any volume, any year) *The Air Almanac*, w/ reduction tables

Celestial Ephemeris (any volume, any year, any source).

(These volumes are available from the US Naval Observatory, Washington D.C.) ♦

BOOK REVIEW

Into the Jaws of Hell. Jefferson Hunt: the Death Valley '49ers Wagon Train and His Adventures in California, 1846-1857, by Tom Sutak. Danville, CA: Pine Park Publishing, 2012.

by Jack Prichett

Jefferson Hunt, a Captain of the 1846-47 Mormon Battalion, stands as one of those imposing historical figures whose recognition gradually faded with the passage of time.

The importance of such figures often waxes, however, following the publication of a definitive biography. David McCullough's 2001 biography of John Adams sparked new interest in and respect for the second president of the U.S. Now, Tom Sutak's authoritative biography of Jefferson Hunt, *Into the Jaws of Hell*, puts a new sheen on Hunt's life and accomplishments. This meticulously researched and lucidly written biography brings to light a wealth of previously unpublished information about Hunt. More importantly, Sutak's book adds greatly to what we know from the only other biography of Hunt (Smith and Thorne 1958). Sutak's fuller, more detailed account is certain to raise Hunt's profile as a figure central to many of the formative events of the southwestern United States.

Formidable Accomplishments

In less than two years—from mid-1846 to mid-1848—Hunt com-

pleted a trifecta of accomplishments that places him among such figures such as John C. Fremont and Kit Carson. In Sutak's words, by 1848 Hunt "had traveled more than 5,000 miles in the American West and had been on all three of the major trails to California. He had become an accomplished road builder, explorer and trailblazer, had demonstrated his leadership along the trails and had established solid relationships for himself and his church with citizens and military officers in California. There were few men in the West who could boast as much, and nearly all of them were either mountain men or military officers."

Readers and scholars interested in the Old Spanish Trail will benefit particularly from Sutak's fine-grained, richly detailed description of the later 1849 wagon train that Hunt led from Utah to California, discussed in more detail below.

Sutak limns Hunt's life in the broader context of the westward expansion of the U.S. during the 19th century. Leading the Mormon Battalion placed Hunt in the midst of the social and political tumult of the 1840s associated with the Mexican-American War. Moreover, the march of the Mormon Battalion took place at the same time that Mormons were being forcibly expelled from "the States" and Brigham Young began his hegira with thousands of followers to establish a new Mormon homeland in the west. As a trusted lieutenant to Young, Hunt had a unique role in both these developments, where

his leadership and strength of personality helped shape their outcome. It was, above all, his experience on the Battalion's long march to California and then to Salt Lake City that gave Hunt his special status as a leader, an emissary, a mountain man, and the successful politician he later became.

While definitely a man of action, and constantly on the move, Hunt was not a writer, leaving that chore to later biographers. Asked late in his life by his son-in-law David why he had not kept a journal of his adventures, Hunt replied, "Hell, I've been so busy making history, I haven't had time to write it." (Smith and Thorne 1958:217)

The Mormon Battalion

The Mormon Battalion came into existence as the result of a deal between President Polk and the Mormon leadership. It called for 500 Mormons to be "mustered into the service of the U.S. as volunteers for 12 months, placing themselves under the command of a U.S. officer who would be ready to receive them" (Bigler and Bagley 2000: 37). In return, the U.S. government would aid the westward emigration of the Mormons and support them in getting established in the west.

The Battalion's mission was to march some 2,000 miles from Council Bluffs, Iowa, to California, where they would provide the U.S. with badly needed military forces, in what was still Mexican territory. The term of service was one year. In June and July of 1846,

Mormon leaders began recruiting volunteers to serve in the Battalion. One message they imparted to all those who would serve: the Battalion was to demonstrate the patriotism and military determination of the Mormon people. On July 17, the men of the Battalion were officially placed on the payroll of the U.S. Army, although recruiting continued to reach the full complement of 500 volunteers.

While the Mormon Battalion became a part of the U.S. Army, Hunt assumed the rank of Captain and in accord with Brigham Young's instructions became the most senior of all the Mormon officers. The Battalion, as part of forces commanded by Lt. Col. James Allen, began the march from Council Bluffs on July 21, 1846.

Despite intrigues and challenges to his leadership, Hunt maintained his position as senior Captain and led the Battalion into California in January 1847. The long journey had been harrowing, testing the officers, men, and women (Hunt and a few others brought wives and family and some of the soldiers' wives were paid as laundresses for the Battalion). Following discharge of the Battalion in 1847, some of the soldiers left California to rejoin family in the new Mormon capital of Salt Lake City. Others remained in California to work and accumulate money before heading for Utah.

Hunt and a party of Battalion veterans left Los Angeles on July 22, 1847, bound for Salt Lake City,

arriving there on October 11, 1847. But apart from bringing a large group of Mormons safely to their new home, Hunt arrived in Salt Lake City a much stronger man and leader. Among the acumen he had built on the long march to California were such skills as:

Trail-finding skills. Like most Americans raised in the eastern U.S., Hunt had to learn to negotiate the vast expanses of the West, following Indian trails, sending scouts ahead to find water sources, and developing the storehouse of knowledge needed to survive in uncharted landscape.

Road-building knowledge. One example: the creation of "Cooke's Wagon Road," south of Warner's Ranch, California. The Battalion used picks to widen a trail to a passageway wide enough for wagons. Until the completion of the transcontinental railroad in 1869, Cooke's road provided the only year-round access for wheeled vehicles into California. This meant that government communications and military units could cross into or out of California at any time of the year—a tremendous boon during the acquisition of new territories following the Mexican-American War. These road-building skills were to serve Hunt well when he helped the Mormons create a wagon-trade route from Salt Lake City to southern California.

Leadership. During the Battalion's march to California, and after the 1847 decommissioning, Hunt continued to hone his command

and diplomatic skills, dealing with U.S. and local officials in the newly created California Territory, while presiding over the decommissioning and then dealing with dissident Mormon factions over leaving California and traveling to Salt Lake City, the new Mormon capital.

All three of these skills would figure prominently in Hunt's post-Battalion undertakings.

To California and Back along the Old Spanish Trail

Shortly after his arrival in Salt Lake, Hunt met with Mormon leaders to propose that he return to California with a small group of men. The objectives: re-enlist Mormons in California into a new Mormon Battalion, bring back crop seeds and livestock, and communicate news from Salt Lake to Mormons on the Pacific coast.

The trip was approved, and Hunt decided to follow the Old Spanish Trail, known from Fremont's writings and reports from Mountain Men. The party left Utah in November 1847 and arrived after 45 days at Isaac Williams ranch in today's Chino, California. After spending time in California, where Hunt contacted both Mormons and American military officers in Los Angeles, the party returned to Utah, arriving in May 1848. This trip, Hunt's first to follow large portions of the Old Spanish Trail, prepared Hunt for his next major challenge: leading the Jefferson Hunt Wagon Train of 1849.

By the summer of 1849, Salt Lake City had filled with non-Mormon migrants, many of them 49ers on the way to California's gold fields. The increased population was straining the capacity of the newly founded city to feed and house all who had arrived. In addition, some of the "Saints," as the Mormons were called, had caught "gold fever." Other Saints felt that California offered more promise than did Utah's harsh landscape.

Brigham Young and other Mormon leaders saw a solution: organize a large wagon train to convey 49ers and Mormon emigrants to California. The "southern route" to the Pacific coast, i.e., the Old Spanish Trail, would not pose a danger to the wagon train, as did the "northern route" across the Sierra, where the Donner party three years earlier had become snowbound. Moreover, in Jefferson Hunt, the Mormons possessed an experienced leader who had just traveled to and from California over the southern route. Hunt would lead the emigrant wagon train of 1849.

The 1849 Wagon Train to California

Sutak's account of the 1849 wagon train and Hunt's return to Salt Lake fills 110 pages of his book. It begins with the Church Secretary's ear-witness account written within minutes of Hunt's August 12 address, describing the route to the emigrants. These remarks, critical to understanding Hunt's mentality and his knowledge of the route, are not reported in the earlier Smith-

Thorne biography. Found by Sutak in the Church Minutes and published here, they constitute a major contribution to our historical knowledge of the transition of the Old Spanish Trail to a wagon road.

They also provide a look into the mentality and thinking of early Saints leaders. Hunt warned the non-Mormons contemplating the trip that without the light of God to guide them in California they were heading "right into the jaws of Hell. If you [don't know] that, I do, for I've been there." Apparently, however, there is no contemporary record of instant conversions. The wagon train, composed of both 49ers and Mormons, left for California on October 2.

Sutak's account of the trip is an immensely enjoyable read for those studying the Old Spanish Trail. He enlivens his narrative with extensive observations and anecdotes from a number of travelers who kept journals, among them William Lorton (1849), Vincent Hoover (1849), and Adonijah Welch (1849). These candid observations reveal quotidian aspects of life on the trail (animals wandering off at night) and the constant dissension that frequently broke wagon trains apart. They also reveal trail survival techniques: when Hunt comes upon iron tools abandoned by an earlier party, he buries them in a cache, knowing that on later trips they could be vital to repairing wagons.

In addition, as part of his research, Sutak traveled the entire route of

the Hunt wagon train, including the abortive digression by much of the party onto the supposed "Walker cutoff." Sutak "ground truths" the trail, carefully describing terrain and reconciling his observations with documentary evidence to provide a convincing account of the actual route, or routes, since the wagon train devolved into separate parties, separated by time and space, sometimes following alternate paths.

Finally, Sutak examines intensely the dispute that occurred over whether to branch off onto the so-called "Walker cutoff" or follow the Old Spanish Trail, which Hunt knew first-hand. The map indicating the cutoff was of uncertain origin, yet some in the wagon party who questioned Hunt's leadership and who sought an easier route decided to follow it, a decision with disastrous consequences, since Walker's cutoff proved to be a fiction.

The later sections of *Into the Jaws of Hell* treat Hunt's return to live in California, where he resided in San Bernardino from 1851 until 1857. There, Hunt quickly built on his acquaintance with California officials and landowners and engaged in politics. In 1852, he successfully ran as a Democrat for the California Assembly. By 1857, however, Brigham Young—fearful of an impending conflict with the U.S. government—asked Mormons in California to return to Salt Lake. Once again Jefferson Hunt, who had spent nearly all his life on the move, disrupted his life in the

service of his church and returned to Utah.

Hunt finally settled near present-day Oxford, Idaho. There he died on May 11, 1879, at the age of 76.

Into the Jaws of Hell is a major contribution to our knowledge of Jefferson Hunt, a key Mormon leader and American explorer. The trail chronicles deepen our knowledge of the Old Spanish Trail and even more so our understanding of how portions became the “Mormon Road.” Among the book’s major contribution to scholarship is the wealth of sources uncovered by Sutak’s research, from unpublished journals and diaries to mid-19th-century newspaper accounts of Hunt’s political career in California. The result is a remarkably detailed and well rounded portrait of this Mormon patriarch.

The book’s shortcomings are minor. Because Hunt did not keep a journal to record his thoughts, Sutak must rely on third-person accounts to interpret many of Hunt’s decision and actions. While we might like to know Hunt’s inner thoughts, many of those were never recorded and are lost to history.

The maps created by Sutak would benefit from the addition of locations mentioned in the text. For example, the map on page 321 tracing the route of the 1849 wagon train through Utah fails to show a number geographical features such as the Black Mountains, the Sevier River, and Beaver Creek, all dis-

cussed at length and all important to Hunt’s selection of the route followed by the train. Likewise, the text mentions the towns of Nephi, Scipio, and Minersville, none of which appear on this map.

In addition, the book’s small typeface proved fatiguing to my eyes when I read for any length of time. This reviewer would recommend a different and larger typeface for future editions.

These quibbles aside, *Into the Jaws of Hell* promises to become “must” reading and a standard reference work for scholars of Mormon history. Moreover, it adds profoundly to our understanding of how the Old Spanish Trail evolved into the Great Salt Lake, or Mormon, Road. And, finally, the book provides a grand view into the exploration and trail-cutting that helped integrate California and Utah into the U.S.

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Old Spanish Trail Revisited

by *Bernice Payne*

In the spring of 2012, Dr. Allan Kent Powell from Utah State History met with the Emery County Archives Director, Dottie Grimes, and Archives Assistant, Bernice Payne, and requested that a re-inventory of Emery County's monuments and markers be conducted.

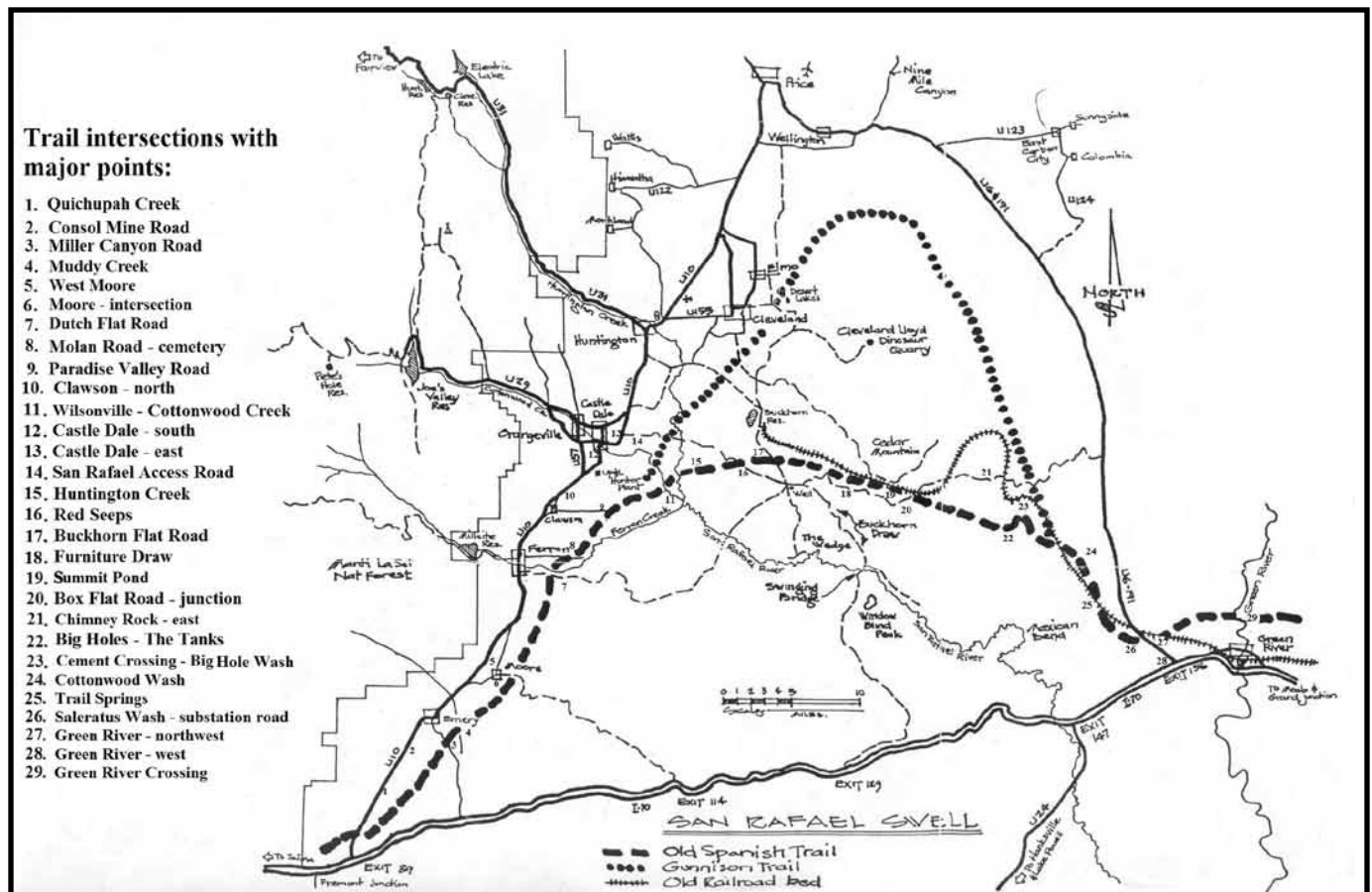
The current state inventory was nearing 20 years old. It comprised 42 monuments and markers and 21 of those were signs marking the Old Spanish Trail. The new survey of the OST was interesting, educational, and at times very arduous. Dottie and I could soon

see that we needed the help of our husbands, Ben Grimes and Val Payne, and also Vernell Rowley, an Emery County Historian, as they were more knowledgeable about the desert.

As each site was accessed, several things came to light. There were a few more signs than listed in the inventory because in 2008 then Emery County Commissioner Gary Kofford, in preparation for an OST conference held in Castle Dale, Utah, had added a few more signs. However, the most disturbing fact was that out of the original 21 signs, two were completely

gone, posts and all; 14 signs were missing; and several more were damaged and partially missing. No doubt some were removed for souvenirs while many had been used for target practice.

During the 2012 Old Spanish Trail Conference, held in Richfield, Utah, Col. Al Matheson guided a field trip along the section of the trail that runs through Emery County, Utah. At one of the stops we made near Cottonwood Wash, a trail participant asked if the different trail areas marked with a sign had GPS coordinates. The Paynes responded that had just been done



and the information was included in a State Monument and Markers Project and would soon be published in the Utah State History Monuments and Markers section. (Spring of 2013) http://history.utah.gov/research_and_collections/markers/index.html

During this conversation we also expressed our frustration that so many signs were damaged and missing. A short time later, Col. Matheson told us he and his wife,

Barbara, would supply enough signs to replace the ones missing, making sure the route was entirely marked. With this help and the financial assistance for new bolts and fuel from the Emery County Historical Society, Val and I were able to accomplish this task.

All the posts with the exception of two were still in place. At one site, the junction of the Green River Cut-off Road and Big Hole Draw Road, a new cedar post was set. At the other site, there was a near-by cedar fence post that was used.

On this reconstruction trip, I decided that three wooden signs needed their lettering repainted. The one on Dutch Flat Road had the white painted lettering totally weathered away. So, equipped with a small paint brush and paint, we stopped at the sign post, only to realize that between May (the

Old Spanish Trail Intersections	Latitude	Longitude
1. Quichupah Creek	39°19'36.1"N	110°57'53.3"W
2. Consolidated Coal Road	38°51'75.1"N	111°15'74.3"W
3. Miller Canyon Road	38°53'02.8"N	111°13'21.2"W
4. The Muddy Creek	38°55'08.0"N	111°11'14.2"W
5. West Moore	38°58'51.1"N	111°10'26.1"W
6. Moore Road - Intersection	38°58'10.7"N	111°09'00.0"W
7. Dutch Flat Road	39°03'44.8"N	111°03'46.6"W
8. Molen Road - Cemetery	39°05'19.1"N	111°03'22.3"W
9. Paradise Valley Road	39°07'45.0"N	111°01'45.6"W
10. Clawson - North	39°08'19.3"N	111°05'49.1"W
11. Wilsonville, Cottonwood Creek	39°10'33.0"N	110°57'18.0"W
12. Castle Dale - South	39°12'26.6"N	111°01'27.0"W
13. Castle Dale - East	39°12'41.3"N	111°00'11.0"W
14. San Rafael Access Road	39°13'14.7"N	110°59'47.8"W
15. Huntington Creek	39°12'08.8"N	110°54'36.9"W
16. Red Seeps	39°12'03.5"N	110°51'34.1"W
17. Buckhorn Flat Road	39°11'08.0"N	110°47'26.0"W
18. Furniture Draw	39°10'09.0"N	110°41'50.0"W
19. Summit Pond	39°09'25.9"N	110°38'29.9"W
20. Box Flat Road Junction	39°08'54.8"N	110°37'19.6"W
21. Chimney Rock - East	39°10'46.0"N	110°31'13.0"W
22. Big Hole (The Tanks)	39°07'32.0"N	110°31'53.0"W
23. Cement Crossing	39°09'02.0"N	110°28'26.0"W
24. Cottonwood Wash	39°03'43.0"N	110°24'54.0"W
25. Trail Springs	39°01'55.0"N	110°20'36.0"W
26. Saleratus Wash	39°00'38.0"N	110°19'46.0"W
27. Green River - Northwest	39°04'07.4"N	110°18'54.1"W
28. Green River - West	38°59'34.4"N	110°15'10.9"W
29. Green River Crossing	39°01'34.4"N	110°08'22.1"W

State inventory) and this trip in September, someone must have needed it very badly, as it was also missing. So it was replaced with a new metal sign as well. The wooden sign at East Molen received some new paint.

On the back of each new sign, an information note was affixed. "Warning, Do Not Remove This Sign. Violators will be prosecuted. Signs provided by Col. Al and Barbara Matheson, Old Spanish Trail Association, and installed by the Emery County Historical Society. Please help us safeguard the mapping of this historical trail." ♦

