

“ THE LIMITLESS PLAIN ”

THE GREAT SALT LAKE DESERT

The Trail Location & the Trials and Tribulations of the Emigrants While Crossing This Desert on the Hastings Cutoff

Part 1

By Roy D. Tea

INTRODUCTION

The greatest suffering by the pioneers traversing Hastings Cutoff in Utah took place on the Great Salt Lake Desert. For this reason it is important to grasp how the salt desert or mud flats were geologically formed, so that historians can comprehend the existing conditions where the Hastings Cutoff Trail traverses the mud flats, as outlined in this article. The Great Salt Lake Desert, which is commonly referred to as the Bonneville Mud Flats, is the bottom of prehistoric Lake Bonneville. It is not a dry lakebed, but one that has salt water six to twelve inches just beneath the surface. To help understand this salt desert, the author has prepared, as a lead-in to this treatise, the prehistoric, historic, and modern perspectives of this vast, unique, and disorienting region.

PREHISTORIC INFORMATION

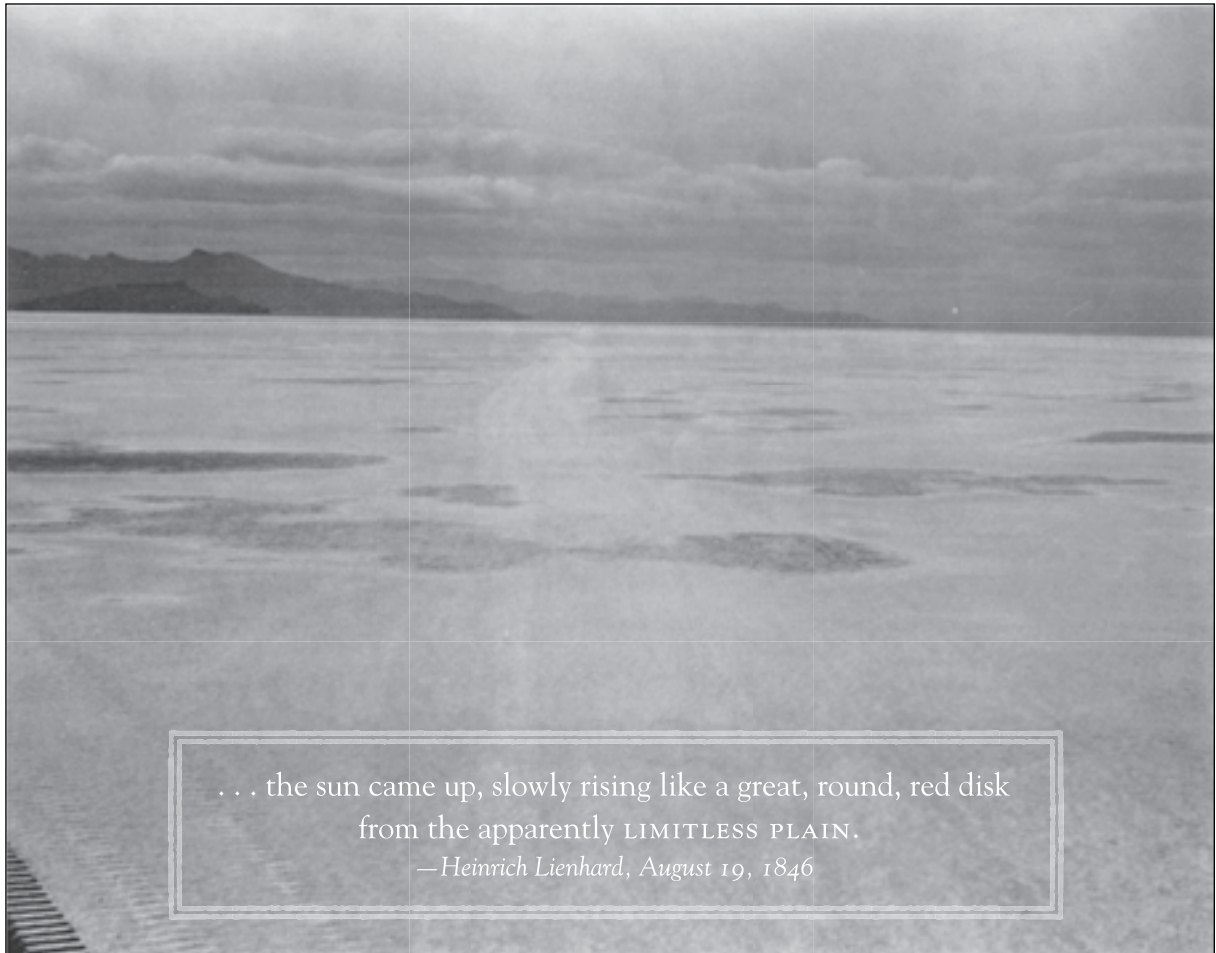
Over 15,000 years ago a large, deep, freshwater lake called Lake Bonneville covered the area now known as the Great Salt Lake Desert. The lake at its highest level was over 1,000 feet deep. A product of the Ice Age, it had an outlet to the Snake River in the north, thence flowing into the Columbia River to the Pacific

Ocean. Over time the water from Lake Bonneville cut through the resisting rock at Red Rock Pass north of Preston, Idaho, resulting in an outpouring of water of catastrophic proportion. The lake lowered some 350 feet in about six months.

Drier years and retreating glaciers lowered the water below its natural outlet, and evaporation reduced the lake to what is now Great Salt Lake, leaving salty water.

The Great Salt Lake Desert or basin was created by sediment of fine clay and silt being washed into Lake Bonneville over eons of time. Some of these sedimentary layers are over 8,000 feet thick. When the remnants of Lake Bonneville evaporated, salts were washed to the lowest portions of the basin, creating salt pans such as the Bonneville Salt Flats. The slightly higher-level mud flats left by the lake are the thirty-six-mile-wide flats that the explorers and pioneers crossed to reach Donner Springs from 1845 through 1850.

The first humans to inhabit this region were Indians. Caves used by Indians in this area have yielded carbon-dated material 12,000 years old. A cave or overhang was discovered by this writer in 1960 while prospecting for road-building material on Floating Island, which is just off the emigrant trail and mentioned by journal writers as an isolated butte. This



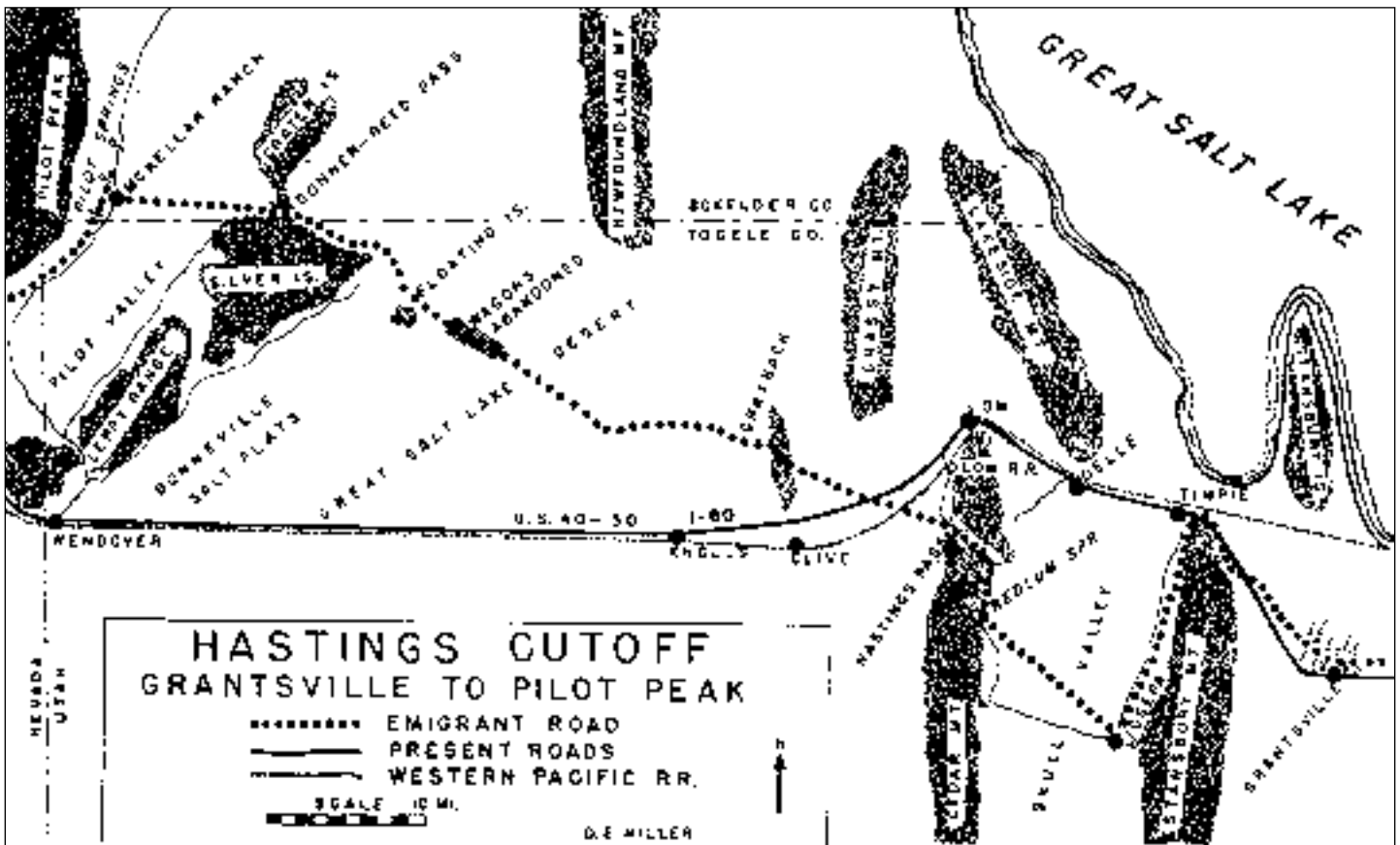
This photo of the “limitless plain” was taken in 1961 while checking the proposed alignment of Interstate 80.
Note the track marks in the lower left corner. *All illustrations courtesy of author.*

cave was excavated by archaeologists in 1986 and has been classified as a major find that was occupied up to 7,000 years ago. It was more or less an Indian motel—just an overnight stopping place without any water, used for protection while they were traversing this region. There is also a cave near Wendover called Danger Cave and another one on the southeast flank of Pilot Peak called Raven Cave. Both are carbon dated at 12,000 years old.

HISTORIC DATA

The first record of white men and explorers in this region was from Jedediah Strong Smith, who crossed the area south of Dugway, Utah, in the spring of 1827. John C. Fremont and his large pack party crossed the desert to Pilot Peak in October 1845 while on an exploring expedition to California. Fremont asked a scouting party consisting of Kit Carson, Auguste Archambault, C. Maxwell, and Basil Lajeunesse to

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cross the desert to see if they could find water by the high prominent mountain peak that could be seen from the eastern edge of the desert.

The first recorded white men to cross this area, they found a spring near the edge of the flats at the foot of the slope to this mountain. Fremont named this friendly 10,700-foot mountain Pilot Peak, a name it still bears today.

Fremont and his party's exploits were discussed later by mountain man James Clyman, Lansford W. Hastings, and others. Hastings had previously written a book titled *The Emigrants' Guide to Oregon and California* and was interested in promoting emigration to California for personal gain. The next spring (1846), James Clyman, heading east with Hastings and James M. Hudspeth, followed Fremont's trail in reverse across the mud flats to Fort Bridger at the insistence of Hastings. East of Fort Bridger, Hastings recruited

emigrants to take his newly-traversed shortcut and promised to guide them to California.

The Bryant-Russell pack party and the Harlan-Young, Hoppe-Lienhard, and Donner-Reed wagon parties were contacted and decided to follow Hastings's "cutoff" across the Great Salt Lake Desert in the summer of 1846. Later, others seeking a quicker, shorter way to the gold in California traveled Hastings's road, though it really was not shorter. When Heinrich Lienhard reached the Humboldt River after following the route, he called it "Hastings Longtripp." The cutoff was much more difficult because of the long, hard, and dry drive across the Great Salt Lake Desert without water and without feed for the animals. The cutoff was abandoned after 1850 because of the hardships suffered during the crossing by the forty-niners. The safer Hensley Salt Lake Cutoff established in 1848 to the City of Rocks on

the California Trail was then used extensively until the railroad came in 1869.

MODERN HISTORIC DILEMMA

In 1983 the Great Salt Lake began to rise dramatically, faster than at any time in recorded history. Highways, industries, and wetlands were flooded and the Salt Lake City International Airport was threatened. The State of Utah decided to pump water from the lake into the Newfoundland Basin, six to twenty miles northwest of Floating Island, where the water could evaporate. Dikes were built and pumps were placed at a cost of over \$60 million. In 1987 the pumping began, keeping the lake from rising two or more feet, and the water covered the Hastings Trail on the flats. The salt-water evaporated, leaving six inches or more of salt across some twenty miles of pristine pioneer trail. Since then, the Great Salt Lake has receded due to dry years in the basin. The salt deposited on the trail has been slowly dissolved by rainwater and melted snow and carried to the lower areas in the Newfoundland Basin, exposing the trail once again.

STATEMENT OF PURPOSE

This article attempts to present and preserve the documentation gathered by the author on this portion of the Hastings Cutoff over the past forty-five years. This information covers the Bonneville Mud Flat portion of the Hastings Cutoff and is for the analytical scrutiny and enlightenment of the Oregon-California Trails Association (OCTA) and other Hastings Cutoff historians. Finding the trail across the mud flats can be very elusive unless you have the proper understanding and information to locate the trail.

For proper documentation of this section of the Hastings Cutoff Trail, OCTA's "Cardinal Rules of Trail Verification," from the guideline Mapping Emigrant Trails (MET), is used to authenticate the trail.¹

Consistency Rule: The author has traversed the trail

from the eastern edge of the mud flats to the western edge, following in a continuous sequence throughout the whole distance. The only section where the trail was not visible was the sand dune section of about two miles.

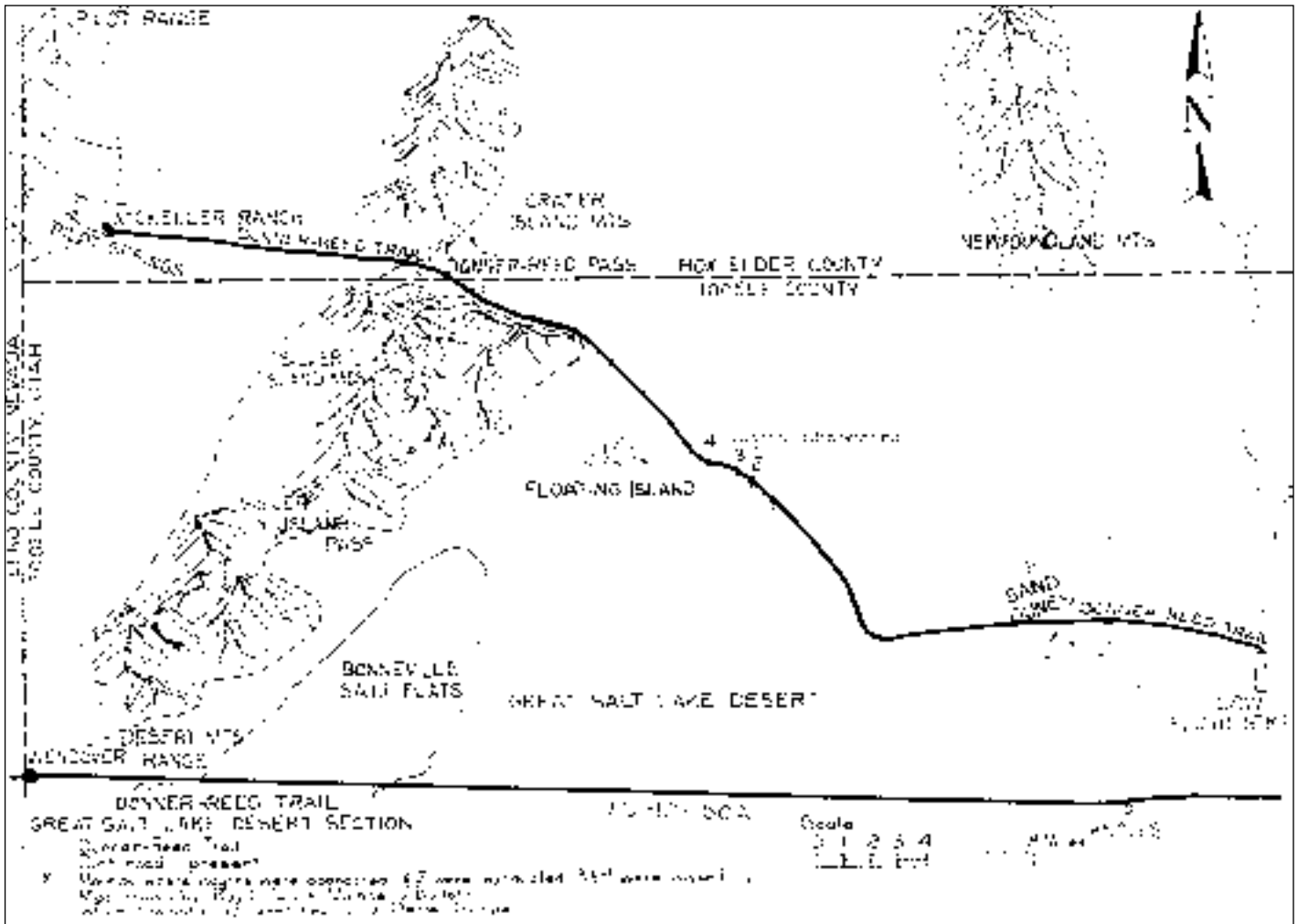
Collateral Rule: Souvenir hunters for the last 150 years have picked up almost all the artifacts on this trail, leaving very little remaining evidence. The excavation of the abandoned wagon sites by archaeologists prior to the flooding by the pumping project in 1986 essentially removed the remaining evidence. The author was given a broken plate and pieces of pottery found on the trail about three miles west of the last sand dunes. He also has what is believed to be a knee bone of an oxen found just west of the last wagon excavation.

Corroborative Rule: Because of lack of available drinking water and the monotonous flat, hot, disorienting, and continuous drive across the flats to Donner Springs (Pilot Springs), the emigrants rarely stopped to record the very few topographical or cartographic features along the trail. However, two pack parties and three diarists have left convincing written evidence of the trail location. One was the Bryant-Russell pack party following the Fremont Trail and preceding the wagon companies that were with Hastings in 1846. The other was the Stansbury government survey party traveling east back to Great Salt Lake City after circumnavigating the lake in November 1849. Emigrants Finley McDiarmid, James W. Denver, and A. S. Davies mentioned "the bend in the road," which will be discussed at length in this article. McDiarmid provided a facsimile of a map given to him by a Mormon.

Correspondence Rule: The evidence resulting from the first three cardinal rules is mutually supporting to verify the trail as an authentic emigrant trail. The fact that the trail is continuous, artifacts were found on the trail, and diary accounts with an emigrant map and written diary evidence proves this to be an authentic emigrant trail.

T. H. Jefferson made a map in 1846 while traveling through this area with the Hoppe Party. He plotted the longitude and latitude lines on his map,

1. Cardinal Rules for Trail Verification, Mapping Emigrant Trails (MET), published by the office of National Historic Trails Preservation, Oregon-California Trails Assoc., fourth edition, March 6-7, 2002, p. 5.



indicating that he was using a sextant to plot his bearings and topographic features, not a compass. His use of true bearings did not have to be corrected for magnetic north. His trail direction corresponds to the map bearings made by the “Mirage” party of 1963 by Dr. Webb and Dr. Miller, who flew over this area. Webb and Miller’s map also corresponds with the author’s current map and the 1986 aerial photographs.

THE HASTINGS TRAIL

The Hastings Trail on the mud flats was first seen by this writer in October 1961. He was asked to assist in the engineering of a preliminary route location for Interstate 80 across the Great Salt Lake Desert between the Knolls emergency flight

strip and through the Silver Island Pass to Silver Zone Pass. My associates and I came upon and crossed the Hastings Trail four to five miles southeast of the wagon excavations. Photographs were taken of this pristine trail, which had not been traversed since the emigrants’ time and had not been altered by motorbike or all-terrain recreational vehicles (ATVs).

As stated previously, during the devastating rise of the Great Salt Lake in 1983–84, the State of Utah decided to lower the lake by pumping water into the Great Salt Lake Desert. Since some twenty miles of the trail would be covered with water and salt, this writer complained to the state personnel in charge of the pumping project, trying to convince them to mark and preserve the trail. They responded by flying over the area and obtaining 350 aerial photographs.

These photographs cover a three-mile-wide corridor

encompassing the trail from east of Grayback to west of the Donner-Reed summit on the Silver Island Range. Every photograph was meticulously studied with a stereoscope by this author in trying to locate each section of trail. These findings were compared with the author's photographs taken on numerous previous flights over and along the trail. The trail was then plotted on the USGS Orthoquad quadrangle sheets. Maps showing the trail locations and photographs taken on the ground and from the air accompany this article. The author has also traversed the continuous trail several times across the playa mud flats and searched in the sand dunes for evidence of the trail.

TRAIL LOCATIONS

We will begin our trail coverage just east of the World War II Air Force emergency flight strip, which is located approximately six miles northeast of the Knolls inter-

change and some forty-four miles east of the Utah-Nevada State line.

The trail, after it came down the western slope of the Grayback Ridge, traveled over a flat plain with short sagebrush. It then makes a distinctive bend to the northwest. Notice the large brush growing on the old trail with modern-day vehicle tracks along the left side. Some trail enthusiasts feel that part of the trail goes on west instead of bending to the northwest, but if you look at the photographs you will notice the absence of distinctive sagebrush following the modern-day tracks to the west, and the modern road or tracks does not continue west of the flight strip to the first playa.

The Playas

A playa, according to Webster's dictionary, is "the flat-floored bottom of an undrained desert basin that becomes at times a shallow lake."



Taken with a telescopic lens, this photo remarkably shows the 1846-50 Hastings emigrant trail crossing "the smooth plain," as one emigrant puts it, just west from Grayback. The old trail is just to the right of the well-marked road. Some historian in the past recognized the importance of not destroying the trail and drove just off the trail on its left side, leaving evidence of the original trail. It is hard to recognize the road close up. The ground is extremely hard and the wagons left no ruts and very little evidence of the trail. There are few bare spots indicating where the wagons traveled. The bare circular areas are ant colonies.



The Hastings Cutoff Trail curves across the sand dune between the first and second playa. It cuts across the south tip of a playa in the upper right-hand corner. If you look carefully, you can see the trail curving from below the lower center on the right side across the dune to the center of the photo on the left. This is the only dune on which you can see the trail from the air. Taken in the fall of 1993 by the author.

Item 13 in the MET Guidelines for Locating Wagon Trail states:

Wagon wheels rolling over alkali flats often will have left distinctive single or multiple tracks. Look for continuous tracks that will be streaked or lined with alkali from evaporation, giving the appearance of alkali “tire tracks.” Also look for bare tracks running through the sparse ground covering on the edges of some alkali flats.

This description from MET describes the tracks crossing the playas and mud flats. Some historians have noted that the original ruts were filled in with a different colored material by the wind or churned up by the wagon wheels, thus leaving different colored clay streaks when the wheels rolled across the mud. In some of the trail areas, the mud was compacted just enough by the wheels to allow a thin layer of water to cover the tracks in wet weather. When the water evaporates, it leaves a thin white salt coating on the trail. In the

late summer this condition is very pronounced and can be seen on the last eight miles of the mud flats coming in to Donner Springs (Pilot Springs).

Just west of the flight strip is a circular small playa to which the trail is heading. Around this playa, the sand dunes have been excavated and hauled just to the north as cover material for a one-square-mile toxic waste dump whose southwest corner just misses the trail on the playa. The trail cuts across the first playa in a northwest direction to a ridge of sand dunes. Any water in this mile-wide playa drains toward the lake. We placed, about halfway across the first playa, a yellow Carsonite marker in the center of the trail as a permanent marker. While engineering with the Utah Highway Department, we found that the effect on aluminum by these harsh salt conditions is minimal. I contacted an aluminum pipe company in Pueblo, Colorado, and they donated the twelve pipes that we used

in twelve different locations from the second playa to the Big Bend.

The trail climbs over the next sand dune and crosses over the south tip of another playa. The trail again cuts back across some more dunes in an arc to the left. This is the only section of trail across the ridge of any dunes that shows up perfectly from the air but is very faint on the ground. We placed an aluminum pipe marker on the west edge of the mud flat and dune. The trail crosses the next wide playa on the north side of a small sand island and just north of another. It then cuts across what we called the Newfoundland Road, which was used as an access road for a sheep and stock trail from the Knolls siding to Newfoundland Island sixteen miles to the north.

The Hastings Trail continues from the Newfoundland Road a little to the southwest until it comes upon the next sand dune ridge. We were unable to find the trail across this ridge from the ground or from the air. The trail shows up perfectly where it starts across the next playa both from the air and on the ground. We placed an aluminum marker on this section of trail in September 1987. During an October 1993 flight over this area, the trail could still be seen through a thin layer of salt. This playa was made into a evaporating pond by Magnesium Corporation during the pumping project in 1987.

The trail continues west and across another narrow distinctive sand dune island that looks like someone cut out a chunk of the east side of the dune. The trail then crosses another playa and approaches the main sand dune area. The most perfect wagon tracks I have ever seen on the mud flats were observed east of the main sand dunes. It appeared as if every wagon wheel that went across this mud flat left a mark. We placed an aluminum pipe marker in the center of the tracks. These same tracks were photographed by Dr. Webb during the Mirage tour in 1962.

When the trail reached the higher sand dunes, the wagons had to make a right turn in order to climb up the dunes. The trail continues west across the center of a small depression, where another aluminum marker was placed. The main sand dunes then commence and

are about a mile wide. We had a difficult time trying to find the trail in this area. We found some places where it crossed small depressions of mud but we did not have enough time to investigate further.

The following diary accounts talk about the crossing of the desert and crossing the playas separated by sand dunes. As mentioned, the Fremont Party made the first recorded crossing of the Great Salt Desert. Kit Carson, scouting for Fremont, recalls in his dictation of 1856:

[We] kept around the south side of the Lake to the last water. Fremont started [Lucien] Maxwell, [Auguste] Archambeau [sic], [Basil] Lajeunesse and myself to cross the desert. It had never before been crossed by white man. I was often here. Old trappers would speak of the impossibility of crossing, that water could not be found, grass for the animals, there was none.

Fremont was bound to cross. Nothing was impossible for him to perform if required in his exertions. Before we started it was arranged that at a certain time of [the] next day he should ascend the mountain near his camp, have with him his telescope, so that we could be seen by him, and if we found grass or water, we should make a smoke, which would be the sign to him to advance. We travelled on about sixty miles no water or grass, not a particle of vegetation could be found, (ground as level as a barn floor), before we struck the mountains on the west side of the Lake. Water and grass was there in abundance. The fire was made. Fremont saw it and moved on with his party. Archambeau started back and met him when about half way across the desert. he camped on the desert one night and next evening at dark, he got across, having lost only a few animals.²

The following extract is from the manuscript journal of Edward M. Kern of the John C. Fremont pack party in the fall of 1845. He states:

On the 28th [October 1845] after a couple of hours [sic] travel through the mountain [Cedar mountains] we entered on one of the most disolate [sic] looking

2. J. Roderic Kornis and Dale K. Morgan, rev. and updated by Will Bagley and Harold Schindler, *West From Fort Bridger, the Pioneering of Immigrant Trails Across Utah, 1846-1850* (Logan, Utah, 1994), 10 [hereafter cited as *WFB*].

places I have seen—with but a small prospect of water ahead and less of grass, we commenced our journey over what has since been called by the emigrants the “Long Drive”. We were the first white men without doubt who had ever attempted it. At five o’clock we camped, tired and worn out, among some low sand hills—without water and but little wood.³

The second party known to cross this desert was that of James Clyman and Lansford Hastings, traveling east on May 27 and 28, 1846. They had met Fremont at Sutter’s Fort the previous January and learned about his crossing south of Great Salt Lake and the Salt Desert. Clyman is quoted:

. . . we Bowoiked [bivouacked] for the night without grass or water and not much was said in fact all felt discouraged as we had been informed that if we could follow Mr Fremonts trail we would not have more than 20 miles without fresh water. In fact this is the [most] desolate country perhaps on the whole globe there not being one spear of vegetation and of course no kind of animal can subsist and it is not yet ascertained to what extent this immense salt and sand plain can be south of where we [are now] our travel to day was 40 miles [about the sand dune area].⁴

The Bryant–Russell pack party of ten men were the first emigrants to cross the desert, and one of the first emigrant companies to be enticed by Hastings to take this route to California. Edwin Bryant was very wordy when he came down from Grayback and crossed the mud flats. He talked about the playas, drifting ashes or sand dunes, and mirages.

. . . we entered upon the hard smooth plain [just west of Grayback] we had just been surveying with so much doubt and interest, composed of bluish clay, incrustated, in wavy lines, with a white saline substance, the first representing the body of the water, and the last the crests and froth of the mimic waves and surges. Beyond this we crossed what appeared to have been the beds of several small lakes [the Playas], the waters of which have evaporated, thickly incrustated with salt,

and separated from each other by small moundshaped elevations of a white, sandy, or ashy earth, so imponderous that it has been driven by the action of the winds into these heaps, which are constantly changing their positions and their shapes.⁵

In the summer of 1848 Samuel J. Hensley and his pack party of ten attempted to cross the Great Salt Lake Desert on the Hastings Cutoff, but the “Miry” mud from heavy rains thwarted their attempt and his party retraced their route to Salt Lake City. Hensley then headed north and west and pioneered a new route to the California Trail at the City of Rocks in southern Idaho, near the Utah and Nevada border. He then proceeded on to the Humboldt River, where, on August 27, 1848, he met the Thompson company, a wagon train of discharged Mormon Battalion members. Mr. Hensley gave the “Boys” a “way bill” and told them how to find his trail near the Twin Sisters at the City of the Rocks, which they did, thus beginning Hensley’s Salt Lake Cutoff.

Costmor Harris Clark joined the emigration to California in the spring of 1850. He wrote in his journal:

July 29 At 3 O’clock A.M. reached another ridge of sand where we fed our horses their bundle of canes and rested while they were feeding. At 4 resumed our journey travelling over salt plains towards aridge of mountains which bounded the horizon to the Westward—passing at short intervails the bones of animals, waggons and various other articles of property a small portion only remaining above the surface. . . . At this time in many places the crust will scarcely bear up a waggon however no one has broken through as yet and we have found it very pleasant travelling ever since we crossed the rocky ridge before mentioned. With the exception of these “ridges” of stone and sand the whole plane is a perfect level, resembling a lake covered with ice—the salt on the surface white and glittering in the sun like snow.⁶

3. WFB, John S. Fremont, p. 14.

4. James Clyman, *The Journal of a Mountain Man* (Missoula, Mont.), 36. Clyman is quoted in reverse order for continuity.

5. Edwin Bryant, *What I Saw In California* (Lincoln, Neb., 1985), 174.

6. Marilyn Samuel, Noel L. Danner, and Ruth E. Danner, *Costmor Clark, A Trail of Hardship to The Land of Gold and of Plenty, 1850*. Reprinted from *Rangelands* 8, no. 4 (August 1986): 150.



HASTINGS CUTOFF

(above) Dr. Webb kneels beside amazing multiple wagon-wheel tracks. (below) This is the same area that Dr. Webb photographed in 1962. The author placed a six-inch corrugated aluminum pipe, five feet long, two feet deep in the trail in 1987 and photographed it, in order to mark the trail before it was covered up by salt water in an evaporation pond from the pumping project. Sand dunes are in the background.



The Sand Dunes

Edwin Bryant continues:

Our mules waded through these ashy undulations [the main sand dune area], sometimes sinking to their knees, at others to their bellies, creating a dust that rose above and hung over us like a dense fog.

From this point on our right [Newfoundland Island] and left [Knolls mountains], diagonally in our front [Silver Island Range, which runs diagonally from Silver Island point to Wendover], at an apparent distance of thirty or forty miles, high isolated mountains rise abruptly from the surface of the plain. Those on our left were as white as the snow-like face of the desert, and may be of the same composition, but I am inclined to the belief that they are composed of white clay, or clay and sand intermingled.⁷

The mountains on the left that he was referring to are the low hills south of the Knolls railroad siding, which are covered with wind-blown white gypsum sand. An analysis of the sand from this area and the sand dunes that the trail crosses is composed of 92 percent gypsum. These small sand-sized gypsum crystals are formed or grow on the mud flats during the summer or dry months, then are blown by the wind and deposited in these dunes and on the west side of the mountains at Knolls.

The following is a transcription of the letters and journals that Pardon Dexter Tiffany sent to his wife during his journey to California in 1849. He wrote on Saturday, August 25, 1849:

Our route was nearly West & as far as I could judge, it appeared to be a succession of plains separated by low ridges of 10 or 20 feet high. Some appeared to curve around so as to form the rim of an immense basin. These plains I suppose in the wet season each year are covered with water & the soil is of such a character that when the water dries away the surface is as even & smooth as if of loose sand. Some of them for 8 & 10 miles are entirely destitute of all vegetation as much so as your parlor carpet & perfectly white. Some are about the colour of wet mortar & about the same consi[s]tency ON some the ground appears perfectly

white though[h] as you ride along you can find here & there a single bush of sage or greasewood. . . . Most of these plains are hard & afford fine roads although the ridges are mostly of sand as white as snow.⁸

On the western side of the mile-wide sand dunes, the surveyors for the company building the evaporation ponds found the trail and placed some stakes on the trail at the end of the sand dunes. This also is the beginning of the area that Edwin Bryant describes as “the Great White Plain.”

The Great White Plain

After Edwin Bryant leaves the sand dunes, he writes:

About eleven o'clock we struck a vast white plain, uniformly level, and utterly destitute of vegetation or any sign that shrub or plant had ever existed above its snow-like surface. Pausing a few moments to rest our mules, and moisten our mouths and throats from the scant supply of beverage in our powder-keg, we entered upon this appalling field of sullen and hoary desolation. It was a scene so entirely new to us, so frightfully forbidding and unearthly in its aspects, that all of us, I believe, though impressed with its sublimity, felt a slight shudder of apprehension. Our mules seemed to sympathize with us in the pervading sentiment, and moved forward with reluctance, several of them stubbornly setting their faces for a countermarch.

When out in the middle of the mud flats, you do feel apprehension and you ask yourself: “Can I get out of here?” Bryant again:

For fifteen miles the surface of this plain is so compact, that the feet of our animals, as we hurried them along over it, left but little if any impression for the guidance of the future traveller. It is covered with a hard crust of saline and alkaline substances combined, from one-fourth to one-half of an inch in thickness, beneath which is a stratum of damp whitish sand and clay intermingled. Small fragments of white shelly rock, of an inch and a half in thickness, which appear as if they once composed a crust, but had been bro-

7. Bryant, *What I Saw In California*, 174.

8. Taken from a transcription of Pardon Dexter Tiffany Journals, Journal III, Missouri Historical Society, p. 46.

ken by the action of the atmosphere or the pressure of water rising from beneath, are strewn over the entire plain and imbedded in the salt and sand.⁹

The trail in this area is quite faint and is very difficult to see on the aerial photographs. As Edwin Bryant describes it, this area is quite firm and it made easy traveling for his mules.

Miles Goodyear, returning east in 1847 with a herd of California horses, used the Hastings Cutoff. One of his men (possibly John Craig) wrote a letter describing the trip and mentions seven others in the party. The writer says:

And with a few exceptions a more dreary Sandy and barren country doze not (in my opinion) exist on gods footstool. Excepting the great African desert. The entire county having a streaking and volcanic appearance and abounding with hot and even boiling Springs. And if the different parts of our continents is cursed in proportion to the Sins of the inhabitants that formerly dwelt on them Then indeed must those ancient inhabitants have been awfully wicked for this is truly a land the Lord has cursed.

On one occasion we traveled over a vast Sandy and Salt plane a distance of at least Seventy five miles without either grass or water and lost four head of horses that perished for want of water. We was 22 hours constantly traveling before we got to water And when we did come at a Spring [Redlum Springs] the great Salt Lake lay off in full view having a number of high rocky barren Islands all through it.¹⁰

Nothing was said of the wagons they had to pass, abandoned by the emigrants on the flats the previous year.

Captain James Brown in 1848 returned east to Salt Lake City from California with the back pay owed to the Mormon Battalion sick detachment. Abner Blackburn, a member of the party, states:

. . . started on the smooth bed of the ancient lake nothing but baked mud no shells or sign of marine life. . . . Not a bird bug hare or coyote to be seen on this wide desolate waist nothing but man and he was

out of his latitude or his natural scene there was a mountain in the middle of this vast plain [Newfoundland Island or maybe Silver Island Range] and appeared as though it had been surrounded by the lake at some past time.

Abner then tells about setting the abandoned wagons on fire:

Stopt at some abandoned waggons we weare cold pulled the waggons together set them on fire and had a good warm tied the horses threw them the wood to eat rolled up in our blankets and the first night on the desert was gone.¹¹

Robert Chalmers wrote on July 26, 1850:

Then we went on to a salt bottom where nothing ever grew. We followed a trail across this bottom until next morning. It blew and rained hard in the night but we were obliged to travel on because what little grass and water we had with us was gone.¹²

Nothing but miles of flat white surface is visible to the west in this area. As one follows the faint trail west, it slowly becomes more pronounced. The trail separates for a short distance (probably as a bypass around standing or abandoned wagons) then comes back together. After traveling about four miles to the west, one comes upon a dike and road that is used to separate the evaporation pond from the pumped lake water. This road and dike runs to the north to the Air Force bombing range boundary, then east parallel with the range boundary to the edge of the mud flats. The other portion goes to the south to the evaporation company's maintenance building and east to the Knolls interchange. We placed a yellow Carsonite marker just east of where the dike and road crosses the trail in the then-future evaporation pond. The trail in this area is running directly west toward Wenderover (not northwest).

Crossing the evaporation pond dike road, you proceed west until the salt-water-collecting canal is

9. Bryant, *What I Saw In California*, 175.

10. Charles Kelly, *Salt Desert Trails* (Salt Lake City, 1969), 114-115.

11. Will Bagley, *Frontiersman—Abner Blackburn Narrative* (Salt Lake City, 1992), 117.

12. "The Journal of Robert Chalmers," *Utah Historical Quarterly*, vol. 20, p. 45.

reached. This canal trends northwest and southeast and was excavated to bring the Salt Lake pumped water from the low area of the salt flats, at the bombing range south boundary, to the evaporation pond pumps. These pumps pumped salt water into the evaporation ponds that circulate the water over the playas where magnesium brine is concentrated for shipment or piped to the Magnesium Corporation refinery at Rowley, Utah, twelve miles northeast of Delle.

West of the canal, the trail crosses a slightly lower wet area, an area mentioned by Edwin Bryant:

As we proceeded the plain gradually became softer and our mules sometimes sunk to their knees in the stiff composition of salt, sand and clay.¹³

Then they decided to walk, leading their mules. Lienhard mentioned:

Step by step we continued over this gray waste in the increasing darkness of the night. Here and there the ground was a little soft, additional evidence that not long since water must have been standing here.¹⁴

Howard Stansbury wrote about the wind while on the bare mud flats:

The wind, uninterrupted by any obstacle, blew hard over the level plain; and although the thermometer stood at only 47°, yet it was very cold, and brought into requisition all appliances for preventing the escape of animal heat. In the course of the morning we passed a spot where some emigrants had made a large “cache” of such things as they could not carry. But it had been constructed in such a bungling manner, that it had easily been discovered and robbed: twelve ox-yokes remained in a heap on the ground.¹⁵

Pardon Dexter Tiffany sent a letter to his wife about the wind:

When I crossed the last ridge & entered this wet or muddy tract as it is called though it is neither, 10 or 12 miles wide it seemed as if I was going into the water

for down this valley swept a very strong current of air so cold that it immediately compelled me to button up my coat to my chin, tie 2 handkerchiefs around my throat then put on gloves & my blanket coat & still was very cold. It was before day light. Soon as day began to dawn I saw by the dusky light some six waggons, apparently abandoned though as I came up I found men in them, some of whom arose as I came up & after putting on all their overcoats they wrapped themselves in their blankets & waded through the wind across this bleak spot intending to send for the waggons. Their cattle they had loaned to the other [teams] their companions to help them out expecting the like favour after they should cross this long drive. It was the most dreary desolate discouraging sight I have seen on the way. After passing I found all the remainder of the way (some 20 miles) oxen which had given out. It is said this current of air always prevails of the same character on what authority I know not, but as soon as I was over this 12 miles the weather became warm & I was compelled to pull off my clothing again.¹⁶

The obituary of Samuel C. Young describes the crossing of the Salt Desert with the Harlan-Young company:

The sun rose in full splendor, reflecting his rays on this vast salt plain, as white as snow and as far as the eye could reach not a thing to be seen, not a spear of grass or drop of water, and the end could not be detected by the eye. The stock was showing great signs of fatigue; a little hay and some water revived them, and a cup of coffee and a cold snack had as good effect on the emigrants. It was a blessing that they were ignorant of what was before them. They were led to believe that they would reach water and grass by noon; full of hope they again started their jaded and trusty teams. They traveled until noon, the stock showing great distress; they stopped to feed them some grass and give them a little water, which comprised nearly all they had laid in.

The emigrants by this time had become very much discouraged. The eye could not detect the end of the plain. But no time was to be lost, so they started again, in the midst of the glare of the sun at noon-day, upon this still, vast, white salt plain. Every mile traveled that eventful evening [afternoon] produced its effect; oxen gave out and lay down, some to rise no more;

13. Bryant, *What I Saw In California*, 176.

14. WFB, Heinrich Lienhard, p. 158.

15. Howard Stansbury, *An Expedition to the Valley of the Great Salt Lake* (Philadelphia, 1852), 114-115.

16. Tiffany Journals, Journal III, pp. 48-50.

others from extreme thirst, became crazy and nothing could be done with them, and finally they would become exhausted and drop down dead. From the middle of the evening one disaster after another happened nearly every step of the way. Wagons were abandoned; such of the oxen as could travel were taken out and driven along; others would give up and lie down, even after the yoke was taken off, and neither persuasion nor the whip could make them budge. These misfortunes continued and increased during that evening, until it seemed as if all were lost.

But night came at last—that at least shut off the reflection of the sun. In the midst of all but despair they stopped to give the last pound of grass to the surviving stock, and a few favorites got a little water, and such as had wagons left, went to them and got out and ate and divided with others their frugal meal. At last they started on their long night tramp. Hoping to get to water and grass before morning. On they traveled, every mile so full of disaster that the recital would fill pages; but they struggled on through that long, dark and lonely night, still praying for water and grass; but the morning was again ushered in with the sun's reflection upon the white salt plains, with no signs of the end. The loss of stock through the night could now be realized. A halt was ordered, a little rest was taken, with a morsel to break the fast, and the order was given to make the last effort to get through. From this until noon more stock was lost than during the last twenty-four hours.¹⁷

An anonymous diarist, perhaps John H. Robinson from Fayette County, Ohio, was on the Hastings Cutoff and Carson Route in 1850. He wrote on August 6, 1850:

The desert at this place as far as we can see looks like the bottom of a lake, or large body of water, that had dried up. Here I had a very severe pain in my side and back. At first I thought it was from fatigue, but after the teams started, I found that I was getting sick. I started to catch the teams, but they traveled faster than I could, when I got on my horse and after riding some fifteen miles, came upon them. By this time I was very bad, not being able to get into the wagon without help; but Ogle and Hedington were soon at work on me,

and after giving me some pills I got a little better. All this time every man was driving as though the devil was after them; there was no time to stop, even for men to die. We were going along, we met a woman carrying water back to her husband who had gone back to hunt a wagon tire he had lost. She got to him in time to save his life, as he had lain down to die for the want of water. We passed Mrs. Hall on the road who had been left by her husband to watch the wagon, while he drove the cattle out for water, which he expected to find within fifteen miles, but when he got started, it was forty miles. In the meantime she got out of water, and when we passed some of our boys gave her a quart. We came to the point of rocks where we were told we could find water, but was again informed that it was twenty five miles yet; but here a man had some to sell, for one dollar per gallon, I told the boys to get a gallon, but we had plenty without it. The boys are doing their best to get through, although I was dangerously ill, and this was no place for a sick man. At one o'clock at night we drove into camp where there was plenty of water, after passing over a desert of ninety miles in thirty five hours, with heavy loaded wagons.¹⁸

The Hummocks

The trail then travels amongst small mounds with what Bryant called artemesia bushes growing out of them. The name for these shrubs or bushes is *Sala-cornia*; we commonly call it pickle weed because the joints of the bushes look like miniature pickles. The mounds are called hummocks.

Edwin Bryant wrote that clouds came over with a distant thunder, and then:

A cloud rose from the south soon afterwards, accompanied by several distant peals of thunder and a furious wind rushing across the plain and filling the whole atmosphere around us with the fine particles of salt, and drifting it in heaps like the newly fallen snow. Our eyes became nearly blinded and our throats choked with the saline matter, and the very air we breathed tasted of salt.¹⁹

18. "1850 Diary Hastings Cutoff & Carson Route by an anonymous Diarist from Fayette Co., Ohio, who might be John H. Robinson," *Nebraska State Hist. Soc.*, p. 12.

19. Bryant, *What I Saw In California*, pp. 176-177.

17. WFB, Samuel Young, pp. 120-121.

If you have ever been in a salt desert dust storm you would say that this is a perfect description. After, he talked about extraordinary mirages and then said, "Our course being west."

Where the flats are wetter and there are no bushes, the dust or sand will blow right on across these wet areas until it is slowed down in its flight by *Salicornia* or artemesia bushes, hummocks, or sand dunes in another drier area. The hummock area is slightly higher than the surrounding area of the flats. Artemesia bushes will grow here or wherever the mud flats are slightly higher; they generally do not grow where it is wetter in the lower areas.

The author was informed by John Grosnickle, the civilian range officer for the Hill Air Force Base, that two Salt Desert bird nests were found in the hummock area south of the trail and one north of the trail. Dr. Walter M. Stookey's book, *Fatal Decision*, tells of his discovery of these ancient Rough-Legged Hawk [*Bateo lagopus*] bird nests near the Hastings Trail.

A two-foot-contour interval map was given to the author by the pumping project agency. This map shows the area where water from Great Salt Lake was to be pumped from the lake into the Newfoundland Basin, thus the name: the Newfoundland Evaporation Basin. This map shows the different low areas and why the emigrants chose the route they did in order to avoid the low wet areas. Notice the wet area where the wagons were abandoned.

The Big Bend

The trail continues directly west amongst the hummocks until it bends to the northwest. This bend in the Hastings Trail was first seen by this writer and two of his Road Commission colleagues in October 1961 during a preliminary investigation for a shorter alignment in the location of Interstate 80. We encountered the trail about two miles north of the bend. Pictures were taken and a five-foot-long, two-by-two-inch stake was placed in the trail. We traveled southeasterly along the east side of the trail until we came to the bend, which we photographed. We then traveled directly east and a little northeast along and parallel with the trail. This author has named this the Big Bend. An aluminum

pipe marker was placed here on the bend before the Great Salt Lake pump water flooded the area in 1987.

Two years after I visited the area, historian Henry J. Webb saw the same bend in 1963. He later reported:

We lost the tracks in the dunes, as from previous experience we knew we would, for the shifting sands do not retain impressions which the mud does. But after a brief search, we picked them up again. The tracks were heading, not for Pilot Peak, however, but in a southwesterly direction, for all the world as if the pioneers had changed their minds and wished to use the pass in the vicinity of present day Wendover. Actually, they were making a wide swing to the southwest only to turn back toward Pilot Peak after approximately five miles.

Dr. Webb goes on to say: "Perhaps this southwesterly course was set to avoid extremely mucky areas to the north."²⁰

"Mucky Areas"

Reference is made to the two-foot-contour interval map. Studying the map, one can see why the wagons made the big bend. The lowest elevation in the Newfoundland Basin is about 4,210 or 4,211 feet above sea level. This is the lowest and wettest area on the mud flats, which is about halfway between Crater Island and Newfoundland Island to the northwest. The salt precipitated on the mud flats during the pumping phase has since been dissolved and washed down as a salt pan and deposited in the lower basin area by rainwater and melted snow.

The trail east of the bend has an elevation of 4,216 feet or higher except for a short area or neck of a low area below 4,216, maybe to 4,215, which is soft. The Big Bend is in an area of 4,216 or higher. Hummocks exist in this area. The wagon excavation area has a 4,214- to 4,215-foot elevation in what could be considered a "mucky" area. This writer has found that when water stands in an area without being drained off, the mud flats become extremely soft, muddy, or mucky, especially in some of the narrow playa areas between the

20. Dr. Henry J. Webb, "The Last Trek Across The Great Salt Desert," *Utah Hist. Qtly.* 31, p. 29.

This two-foot interval contour map of the Salt Flats was given to the author during the Great Salt Lake pumping project. The map shows the low area of the flats northeast of Floating Island called the Newfoundland Basin. The circled letters from A to F are placed for ease of identification of places on the map.

A is where the Hastings Trail comes off the sand dunes onto the flats.

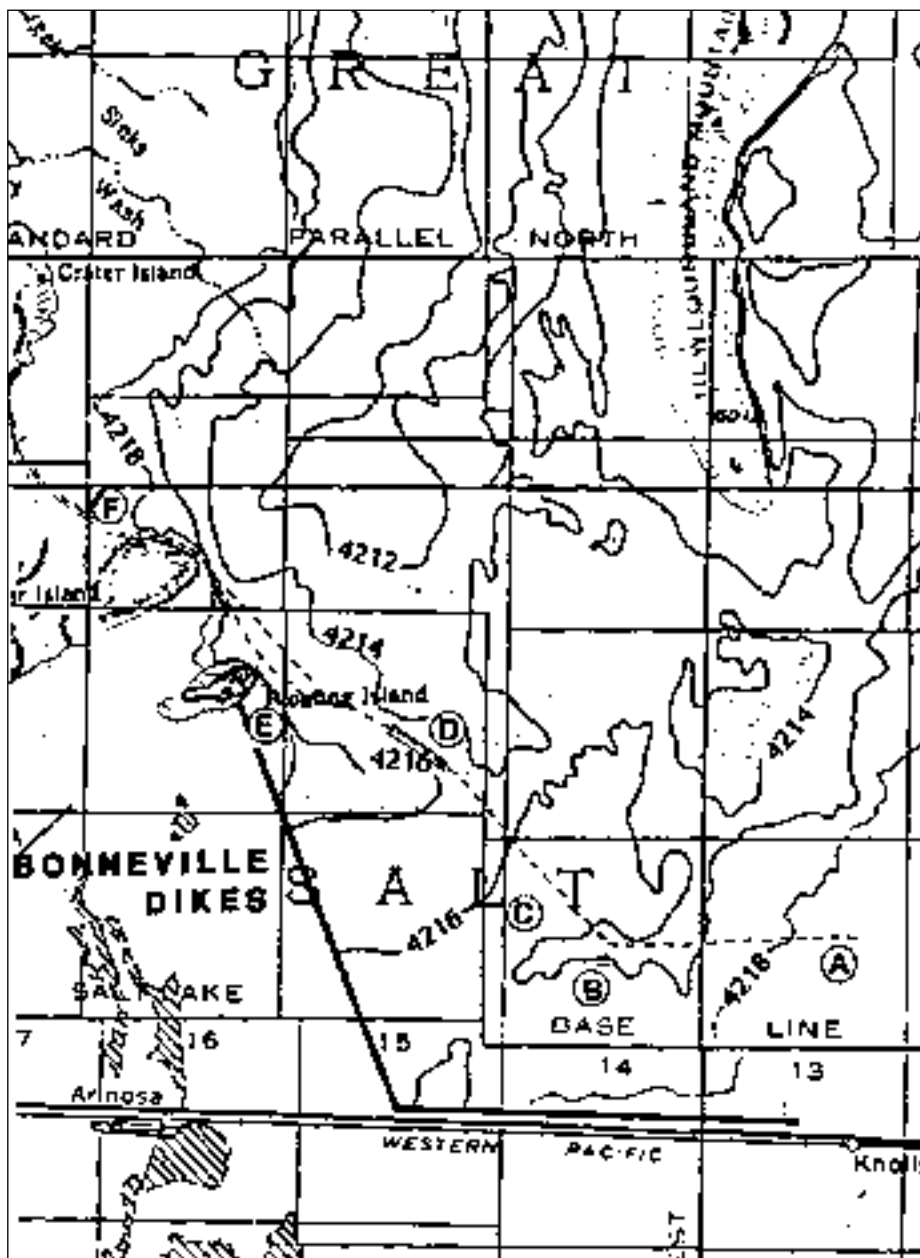
B is the Big Bend after the trail crosses a lower drainage area.

C is a higher area with numerous hummocks where the Stansbury Party in November 1849 found a broken ox yoke, made a fire and some coffee, and tied their mules to the artemisia. They tried to sleep on the hummocks but the mules kept up a "pitiful and mournful cry" all night, keeping them awake.

D is where the abandoned wagons were excavated in 1986-87. Notice how close the trail came to the elevation of 4,214 feet, which is the lowest area nearest the trail. The ground here is softer, which explains why the oxen gave out pulling the wagons through the soft clay surface, causing the wagons to be abandoned.

E is where the trail comes close to Floating Island.

F is on Silver Island where Edwin Bryant stated that he was at last on "Terra Firma."



sand ridges. From two miles or so northwest of the Big Bend to the area where the wagons were excavated is a section this writer would consider a large mucky area. Of course the rain and wet months of the year are the major factors that can turn the flats into a quagmire.

If the emigrants had continued west of the Big Bend about a mile and then turned northwest to pass closer to Floating Island, they would have missed Dr. Webb's "mucky areas" altogether.

Pardon Dexter Tiffany wrote in his diary on August 25, 1849, about wet areas:

About $\frac{2}{3}$ of the distance across you come to a plain, the surface of which is not broken by any vegetation & as smooth as water about the colour & consistency of wet mortar into which the feet of our horses & mules sank in some few places just over the hoof but the soil does not close up on the foot though some sticks to the side of the hoof which makes their feet heavy & wheels of the waggons will sink in some



THE BIG BEND

This photo was taken in October 1961 at the bend. The trail runs from the lower right-side corner to the center-left margin, then around and behind the trackmaster. Floating Island is the dark little mountain in front of the Silver Island Range just above and to the right of the trackmaster. Pilot Peak is the highest mountain just left and above the trackmaster. Silver Island Pass is the gap in the mountains left of center. This trial in 1961 was very pristine.

The Big Bend looking back east at the trail.
Photo taken in 1987.



HASTINGS CUTOFF

This section of the trial is northwest of the Big Bend. The abandoned wagon excavation sites are five to six miles in the distance and Floating Island is ten miles. The trail heads directly for Silver Island Point before it bends to Floating Island, which is the darker little mountain on this left in front of the Silver Island Range. This section of trail was pristine and had not been traveled on for many years when this picture was taken in October 1961.

places some six or 8 inches though these places are not long though frequent. The soil is composed of sand salt & clay & of course the difficulty of crossing it depends on the amount of moisture.²¹

Dr. Webb continues about the Big Bend:

Since most map makers have not personally investigated this terrain, the peculiar change of directions is not normally recorded; generally the road is depicted as streaking to the northwest as straight as an arrow for Pilot Peak. Interestingly enough, one of the first maps ever published concerning the Hastings Cutoff—T. H. Jefferson's Map of the Emigrant Road . . . makes something of the same mistake as its successors and shows the road stretching due west (rather than northwest) from Hastings Pass in the Cedars. This would make the route run south of the present highway rather than north, a condition contrary to fact. Since Jefferson is generally accurate in depicting the route in other areas, one is encouraged to conjecture that he was so preoccupied in getting across the desert that he neglected to make careful observations. His map does at the same time illustrate a sudden shifting to the north just before it reaches Silver Island (called Fire Island by Jefferson) and then takes it west to the "Good water Grass" and the "Bonark Wells" that nestle beneath Pilot Peak (which peak Jefferson forgets to depict altogether). The map accompanying West from Fort Bridger corrects some of Jefferson's errors—among the most important is that it shows Pilot Springs [now Donner Springs] is not due west of Hastings Pass and at least starts the pioneers off in the right direction from the Cedar Mountains—yet at the same time it creates some errors of its own, calling Floating Island, Crater Island and depicting the crossing of Silver Island farther south than was actually the case. And, of course, it does not show the great bend in the road toward Wendover.²²

Dr. David E. Miller and his colleagues first noticed this bend in 1956, but the weather was such that they could not pursue it. The following year, Dr. Gerard S. Cautero and the present writer managed to make the entire long drive by jeep but were unable to clock the actual distance of the bend because our mileage indicator had broken. Nevertheless, from evidence

obtained from these and other trips, Dr. Miller was able to produce a relatively authentic map of the area, although still not giving enough prominence to the bend in question. The 1962 expedition in the [tracked vehicles] Trackmasters and Spryte made it possible for our cartographer—J. Derle Thorpe, research engineer for the Utah State Road Commission—and his associates to construct the accompanying map.²³

This map was plotted by a draftsman who was supervised by this writer using J. Derle Thorpe's measured distances and bearings (see page 24).

In his article's end notes, Dr. Webb states:

It must be pointed out that Charles Kelly insists that the old road after leaving the dunes heads immediately for Pilot Peak. If such a road existed in 1929 it has now been completely wiped out. In none of our numerous probes into the desert has this "alternate" route been seen. The route has never been seen either by myself in 1956 or 1957, when I retraced it by jeep, or by Dr. Miller who flew over the area three times in 1957 and 1958 or by the research engineers for the Utah State Road Commission who have been investigating the area during the past three years or by our expedition in August 1962. Furthermore, the trail which we followed led us unerringly to the abandoned wagons and thence to Pilot Peak and *no other road* cuts into it. One may add to these facts another salient one. When tracing the trail from the opposite direction—that is, from Pilot Peak to the east (which was done part of the way by Dr. Miller and his colleagues by jeep in 1956 and all of the way by Dr. Miller in a plane the following year)—no one was able to discern another road. In other words, the road followed on August 17, 1962, stands by itself, mute evidence of the historical use to which it was put [emphasis added by author].²⁴

Bend Mentioned by 1850 Emigrants

In 1850 Finley McDiarmid sent a letter to his wife, accompanied by a facsimile of a map showing the bend:

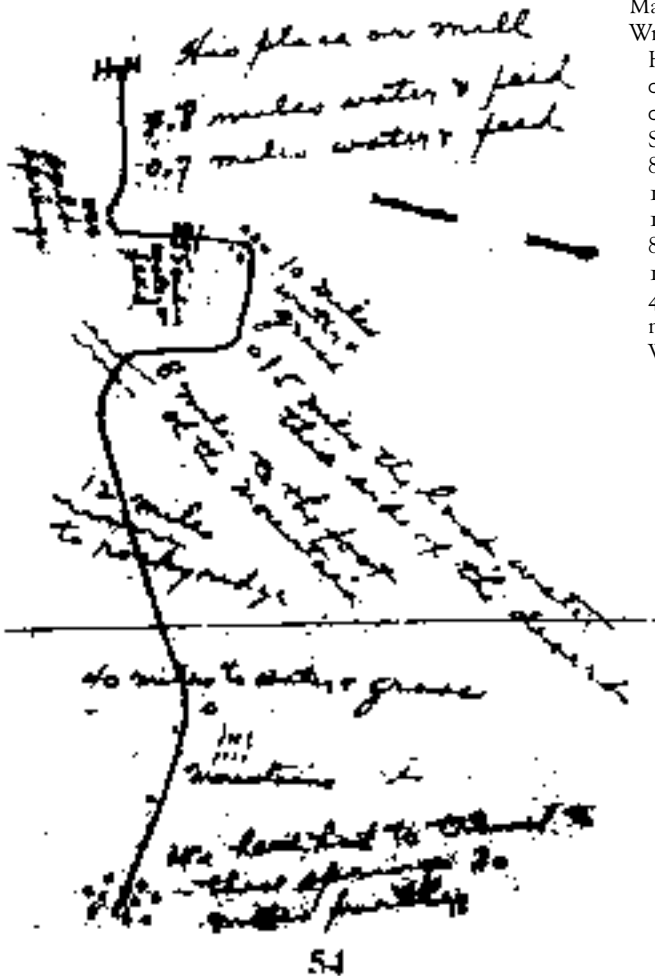
. . . given by a Mormon who was building a saw mill 25 to 30 miles this side of Salt Lake [Bensen Mill]. He sold to the emigrants, who are generally too ready to grab at any information or receive any man's story, a

21. Tiffany Journals, Journal III, p. 108.

22. Webb, "The Last Trek Across The Great Salt Desert," 31-32.

23. *Ibid.*, 32-33.

24. *Ibid.*, 30-31.



Map obtained by Finley McDiarmid at Benson's Mill near Lake Point in 1850. Writing from the top of the map reads:

His place or mill
 0.8 miles water & feed
 0.7 miles water & feed
 Salt springs [Timpie Point]
 8.5 miles water & feed
 10 miles water & grass
 15 miles the last water this side of the desert
 8 miles to the foot of the mountain
 12 miles to rocky ridge
 40 miles to water & grass
 mountains
 We have had to travel to these springs 30 miles further

The 1850 diary of James W. Denver, an attorney and newspaperman, related:

When leaving the rocky ridge [Grayback], the road took a course direct for Pilot Peak ten or twelve miles [his mileage is off]. It then inclined to the left towards the southern point of a mountain range [Silver Island], considerably lower and directly between us and the Peak. About sunset *our course turned to the right* [the Big Bend] and at last run along the foot of [a] low range [Floating Island] just before us [emphasis added by author].²⁶

Historian Will Bagley referred me to an 1850 journal by A. S. Davies, which states when on the playas:

. . . rested 4 hours thence 8 miles to big salt flat thence 7 miles to a bend in the road to the northwest thence 8 miles to a point of mountain [Floating Island] left of road . . . thence 11 miles to west point of mountain [Donner Reed Pass, Silver Island] . . . thence 10 miles to the spring a welcome site [emphasis added by author].²⁷

When approaching the bend from the east, there are individual tracks on the right-hand side, which shortcut the bend. Supposedly the trailing emigrants with their wagons noticed the lead wagons, after rounding the bend, heading to the northwest. The trailing wagons then would presumably decide to cut across the bend's hypotenuse to intersect the trail of the lead wagons, thus shortening their travel by several hundred feet.

[The second half of this article will be in the Summer 2005 issue of Overland Journal.]

chart or a map of the road over the desert, marking the springs, feed distance, etc, etc, etc. He sets the distance at 60 miles, where as it is at least 90 if not 100. I here send you a fact simile of his map. As you hold this sheet in your hands, our travel was from his mill to the Salt Springs west, then north 45 miles, then west across the valley 15 miles [Redlum Springs]. Then north up to the summit and down to the foot of the mountain 8 miles. Then, west again to the hogs back or rocky ridge [Grayback] 12 miles & so on to the 40 mile bend in the road which we expected would lead out to the mountains; but it gently inclined to our right hand and took us 30 miles beyond where we were told that we would find water and grass. A particular description of this map route you will find between the first and eighth of August [emphasis added by author].²⁵

25. Finley McDiarmid, *Letter to My Wife* (Fairfield, Wash., 1997), 54. Thanks to historian Don Buck for referring me to this letter.

26. Richard E. Myers, ed., "The Denver Diary: Overland to California in 1850," *Arizona and the West* 17, no. 1: 54.
 27. "A. S. Davis Journal to California commencing April 5, 1850 and ending May 5, 1850," Idaho State Historical Society, MS c/75 Emigrant Journal Collection, p. 45.