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THE OREGON-CALIFORNIA TRAILS ASSOCIATION

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PRESERVING THE TRAILS

OCTA's membership and volunteer leadership seek to preserve our heritage. Our accomplishments include:

- Purchasing Nebraska's "California Hill," with ruts cut by emigrant wagons as they climbed from the South Platte River.
- Protecting emigrant graves.
- Initiating legislation designating the California and Santa Fe trails as National Historic trails.
- Persuading government and industry to relocate roads and pipe lines to preserve miles of pristine ruts.

CONVENTIONS AND FIELD TRIPS

Our annual convention is held in a different location with proximity to a historical area each summer. Convention activities include tours and treks, papers and presentations, meals and socials, and a display room with book dealers, publishers, and other materials.

Local chapters also plan treks and activities throughout the year.

PUBLICATIONS

Overland Journal—Issued four times each year, *O.J.* contains new research and re-examinations of topics pertaining to the history of the American West, especially the development and use of the trails.

News from the Plains—Also issued quarterly, *News* contains updates about members and the organization, convention reports, legislative action, genealogy, trail preservation, and special activities.

Special Publications—Periodic book publications in the Emigrant Trails Historical Studies Series (numbered documentary editions) and the Special Publications Series (trail studies monographs).

RESEARCH AND EDUCATION

- Developing instructional materials to help students understand the western migration.
- Marking the trails and maintaining weathered or damaged markers.
- Developing a computer-based census of emigrant diaries, newspaper accounts, letters, and other documents.

STATEMENT OF PURPOSE

The purposes for which the Association is organized are as follows:

1. To initiate and coordinate activities relating to the identification, preservation, interpretation, and improved accessibility of extant rut segments, trail remains, graves and associated historic trail sites, landmarks, artifacts, and objects along the overland western historic trails, roads, routes, branches, and cutoffs of the Trans-Mississippi region.
2. To prevent further deterioration of the foregoing and to take or pursue whatever measures necessary or advisable to cause more of the same to become accessible or more so to the general public.
3. To implement these purposes by acquiring either alone or through or jointly with others—federal, state, local, or private—title to the land or lands on which any of the same is located or a preservation or other easements with regard to the same—by purchase, gift, or otherwise—and by cooperating with or initiating, coordinating, and assisting the efforts of such others to do so.
4. To publicize and seek public exposure of the goals and activities of the Association so as to create popular awareness of and concern for the necessity of preserving the foregoing.
5. To facilitate research projects about the aforesaid and to publish a journal as a forum for scholarly articles adding to the sum of knowledge about the same.

It shall be the further purpose of the Association to be exclusively charitable and educational within the meaning of Section 501(c)(3) of the Internal Revenue Code.

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JOHN GREBENKEMPER has been a member of OCTA for three decades. He received a Ph.D. from Stanford University in Radio Astronomy. Upon retirement he joined the Institute for Canine Forensics in 2007. He has certified two Border Collies as Historic Human Remains Detection Dogs and is currently training a new puppy to take over Kayle's work. He has published papers on canine detection in journals of the Society for American Archaeology and the Society for California Archaeology. Most of his canine work is focused in the western United States, but he and the dog have also traveled on projects to the East Coast, Alaska, and the nation of Kirabati in the South Pacific.

BOB CROWLEY is an ultra-distance runner and historian with an appreciation for American western history and epic adventure tales, endeavoring to combine these passions to help bring history to life through History Expeditions, which he co-founded with Tim Twietmeyer in 2020. Bob was founder of several technology companies and a Boston-based private equity firm. He now splits his time with non-profits and as a mentor to young entrepreneurs.

TIM TWIETMEYER is an ultra-distance runner and an engineering manager at Hewlett Packard Enterprise, in Roseville, California. He is best known for his five victories and unprecedented 25 sub-24 hour finishes at the 100-mile Western States Endurance Run. Outside formal competition, in 2004 Tim led the first "winter crossing" of the Western States Trail from Squaw Valley to Auburn as did many of the gold miners back in the day.

BILL OUDEGEEST is a former junior high and high school teacher and administrator. He is also the Donner Summit Historical Society Heirloom newsletter editor of almost 200 issues, web master, publications editor, and author of the 20 Mile Museum signs. Oudegeest has been enjoying Donner Summit for more than forty years and is one of the founders of the Donner Summit Historical Society. In that capacity he has written two books about Donner Summit.

EUGENE HART grew up in Indiana where his love of history began early when he excavated an old wagon sunk in a bog. In high school he became hooked on the Donner Party saga and excitement of the California Gold Rush. He spent his thirty-seven-year career teaching eighth-grade U.S. history in California. He is author of *A Guide to the California Gold Rush*. His second book, *Salt & Snow*, was recently reviewed in *Overland Journal*. He continues expanding his ever-present interest in nineteenth century American history with his son Rylan and German Shorthair Tamsen.

FRANK GIFFORD is a Life Member of OCTA and the Southern Trails chapter. He's a photographer and retired broadcast journalist. His site www.rt66pix.com/frontiertrails has 1100 images of the Oregon and California Trails, including the worst of the Hastings Cutoff across the salt desert, taken on an OCTA Utah Chapter tour in 2022. He is also a member of Trails West and photographed the Hastings Cutoff in Nevada during their tour last September. Frank also belongs to the Donner Summit Historical Society but prefers to leave mid-winter photography there to others. 

The Lost Axe at the Donner Camp of Death

BY JOHN GREBENKEMPER, BOB CROWLEY, AND TIM TWIETMEYER

ON CHRISTMAS EVE 1846, TWELVE MEMBERS OF THE DONNER PARTY AND TWO NATIVE AMERICANS MADE CAMP IN A BLIZZARD IN CALIFORNIA'S SIERRA NEVADA. THEY HAD NOT eaten for three days and were hopelessly lost in the mountains, far from their destination in the Sacramento Valley. The only person who knew the route had died several days earlier. As they remained trapped, four people would die and be partially

eaten by their companions. Only seven would still be alive when they finally covered the ninety miles to California's Central Valley.¹

Their camp on Christmas Eve became known as the Camp of Death. Its location has remained a mystery, with various historians speculating it was as far north as the Yuba River and as far south as the American River. Much of the terrain is thick forest with little modern development. With a potential location over thousands of acres, finding the Camp of Death was the proverbial search for a needle in a haystack.

Despite those long odds, the search would be undertaken with the help of Kayle, a twelve-year-old Border Collie. Kayle is certified by the Institute for Canine Forensics to find ancient human burials.² She has located Native American burials that are thousands of years old, worked Donner Party death sites from Kansas to California, and identified the final resting place of more than a dozen emigrants from that group. I always

considered the Camp of Death site too difficult to locate with the dog. Then, in October 2020, I received a request from Bob Crowley to take Kayle to check several locations believed to be the site of the Camp of Death.

FORLORN HOPE SNOWSHOE JOURNEY

After crossing the Great Salt Lake Desert, the Donner Party realized they would run out of food before reaching California. They sent William McCutchen and Charles Stanton on horseback to request supplies at Sutter's Fort. The two riders left mid-September 1846 and arrived at Sutter's Fort on October 15. McCutchen was ill, so Stanton left Sutter's Fort alone a few days later with seven loaded mules and two Miwok vaqueros, Luis and Salvador, to help with the mules. Stanton reached the Donner Party near the present site of Reno.

James Reed had left the Donner Party on October 6, 1846, after killing John Snyder the day before.³ Reed arrived at Sutter's Fort on October 28. On October 31 Reed and William McCutchen, now recovered from his illness, left Sutter's Fort

1 To view a video presentation of the research and adventure by authors Crowley and Twietmeyer regarding these events, see: https://www.youtube.com/watch?v=7pi_OJjMdZY

2 The dogs are trained to only alert to indicate the scent of human death. They will not alert at the scent of death from other animals.

3 Grebenkemper et al., "Locating the Grave of John Snyder," *Overland Journal* 30, no. 3 (Fall 2012): 92–108.

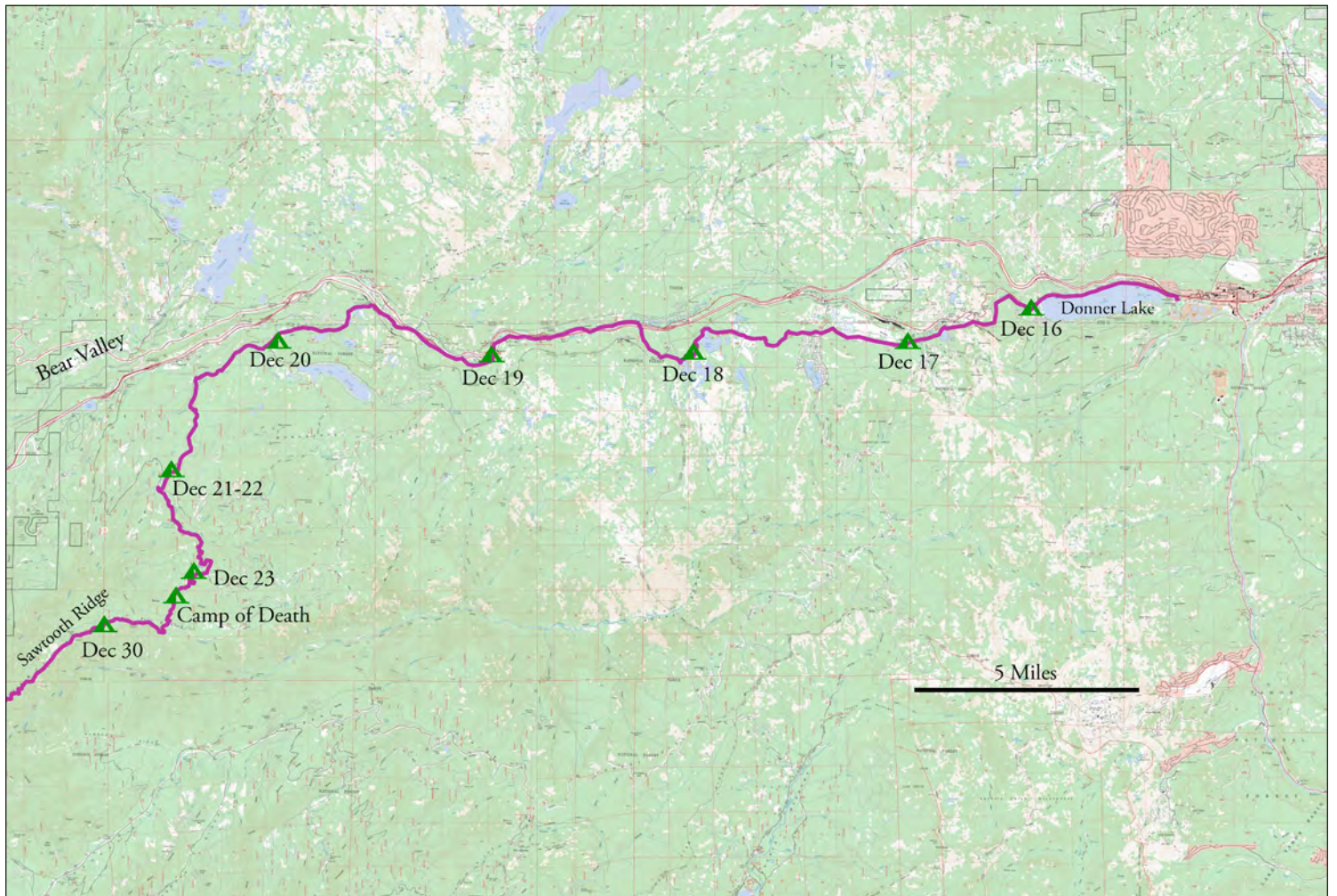


Figure 1. Route of Forlorn Hope from Donner Lake to Sawtooth Ridge. Camps are approximate locations from distance estimates in Bryant and Reed. The date is the night they camped at that location.

with more food supplies for the Donner Party. By November 7, they had arrived somewhere above Bear Valley in California but could go no further because of deep snow. They returned to Sutter's Fort.

The Breen, Eddy, and Keseberg families were the first to arrive at Donner Lake (then known as Truckee Lake) on October 31. They proceeded past Donner Lake and started the ascent toward the wagon road crossing of the summit in a snowstorm.⁴ As the snow approached the axles, they could no longer see the road and had to return to the cabin they had passed at the east end of Donner Lake.⁵

Over the next day or two, the rest of the Donner party, excluding the Donner families who camped six miles distant at Alder Creek, arrived at the Donner Lake camps. Several more attempts were made in November to cross the summit, but the best anyone achieved was placing several members on the summit. Those who had made the attempts were forced to return to their winter camps. The trap had closed tight, and the entire Donner Party was stranded on the east side of the Sierra Nevada.

Approximately sixty-one people were at the lake camps and twenty at Alder Creek.⁶ Food was rapidly becoming a survival issue. Planning began for a snowshoe escape from the Donner Lake camps. The departure of more than a dozen emigrants would decrease the demand for the remaining food and potentially bring help from California. They hoped to reach Bear Valley, about thirty miles distant, in about six days. From there, a gradual descent would bring them to lower elevations with thinner snow cover, making travel easier.

The critical requirement for navigating the route was the presence of Charles Stanton. He had passed over this route westbound in early October on his way to Sutter's Fort and

thus familiar with the viewshed traveling west. The emigrants had no map or compass to guide them. On December 16 the Breen diary records, "Fair & pleasant freeze [sp] hard last night & the company started on snowshoes to cross the mountains wind S.E looks pleasant."⁷ Seventeen emigrants left, but two returned that same day when they found the travel was too difficult in the deep snow. This final party attempting the crossing of the Sierras was Charles Stanton, responsible for navigation; the two Miwok Luis and Salvador who had only traveled the route heading east; Franklin Graves, Mary Ann Graves, Sarah Graves Fosdick, Jay Fosdick, William Eddy, Amanda McCutchen, Lemuel Murphy, William Foster, Sarah Murphy Foster, Harriet Murphy Pike, Antonio [last name unknown], and Patrick Dolan.

The Forlorn Hope⁸ snowshoe group is only documented in three primary references in 1847. All of these are based on interviews and documents from William Eddy. The survivors of the snowshoe party arrived at Johnson's Ranch by January 18, 1847. The next day Eddy sent a letter to Sutter's Fort, about forty miles distant, describing the condition and peril of the emigrants and requesting help for their rescue.⁹ About a week later John Sinclair, Alcalde, District of Sacramento, Rancho del Paso, met Eddy at Johnson's Ranch.¹⁰ On returning to Sutter's Fort, Sinclair prepared a statement in February 1847 from a few short notes and a conversation with W. H. Eddy as published in Bryant.¹¹

On February 6 James Reed left San Francisco to travel to Sonoma by boat and then overland to Johnson's Ranch.¹² He left Johnson's Ranch on February 22, leading the second relief effort. Eddy wished to accompany him but was still too weak for another trip over the Sierra.¹³ During their overlap, Reed likely copied parts of Eddy's journal. James Reed,¹⁴ in a letter

4 In Fall 1846 there were only two wagon routes over Donner Summit. The route over Roller Pass turned south before Donner Lake. They were on the route that passed on the north side of Donner Lake.

5 The party attempted to follow the 1844 wagon route that crossed the summit about 0.4 miles north of Donner Pass. Diaries of those using this road indicate that in good weather it would take two or more days to haul the wagons up to the summit. The route was surveyed by Chris Wray in 2011 and 2012 in a project for Tahoe National Forest. In 2013 Wray filed an 86-page report, *Emigrant Road Building Evidence on Donner Pass*, with Truckee Ranger District. The report lays out the physical evidence for this route over the northern pass. A further discussion can be found in Don Buck, "Development of Emigrant Trail Research in the Post-Weddell Era in the Truckee-Donner Pass Region of California," *Overland Journal* 36, no. 2 (Summer 2018): 68–72.

6 These numbers varied slightly as people moved between the two camps.

7 Patrick Breen, Diary, 20 November 1846–1 March 1847, MSS C-E 176, Bancroft Library: 8

8 McGlashan first used the name Forlorn Hope in his book, C. F. McGlashan, *History of the Donner Party*, 2nd ed. (1880), (Stanford University Press, 1947).

9 J. Quinn Thornton, *Oregon and California in 1848*, (Harper and Brothers, 1849), 2:155.

10 Ibid., 166.

11 Edwin Bryant, *What I Saw in California*, 4th edn (D. Appleton & Company, 1849): 251–55.

12 Thornton, *Oregon and California*, 2:165.

13 Ibid., 195

14 [James Reed], "Narrative by J. H. Merryman, from notes written by J. F. Reed," *Illinois Journal*, December 9, 1847.



Figure 2. View of Sacramento Valley from Sawtooth Ridge near the campsite on December 30th. The green bubble is centered in the town of Woodland along Interstate 5 north of Sacramento. The Sacramento Valley and the Coastal Mountain Range are clearly visible in the distance. Image generated from Google Earth looking horizontally at the terrain.

published in the *Illinois Journal*, provides a synopsis of the journal of William H. Eddy. Both the Bryant and Reed versions provide an estimate of the mileage traveled each day.

J. Quinn Thornton¹⁵ was the first person to write a history of the Donner Party. Thornton arrived in San Francisco on November 10, 1847, and departed on December 12. During his month in the city, he interviewed some Donner Party survivors, including James Reed and William Eddy. His book does not indicate that he interviewed any other survivors from the Forlorn Hope. The first two interviews were done within a few weeks of Eddy leaving the mountains. The third was nearly a year later. The Bryant and Reed versions have only a few discrepancies in the dates of events. The Thornton version is much more detailed in the descriptions of events, but some of the dates conflict with the two earlier accounts. A year after a series of traumatic events, it is easy to remember what

happened, but the exact dates of occurrence are more difficult to recollect.

Over three decades later, C. F. McGlashan began writing letters to the remaining survivors of the Donner Party. The replies he received, plus the book written by Thornton, became the basis of McGlashan's book on the Donner Party.¹⁶ The only living survivors from Forlorn Hope were Mary Ann Graves and Sarah Murphy Foster. In his text, McGlashan indicates his

¹⁵ Thornton *Oregon and California*.

¹⁶ McGlashan, *History of the Donner Party*.

sources for the Forlorn Hope are Mrs. Foster [Sarah Murphy Foster], Mary Graves, and the W. H. Eddy version given to Judge Thornton.¹⁷ These two additional sources provide facts not mentioned in the original Eddy-derived narratives.

George Stewart provides important clues as to the route of the Forlorn Hope. He notes the Thornton quote for December 30 that states they could see the Sacramento Valley from their camp above a deep canyon. Stewart states “After the storm they followed Sawtooth Ridge. From the end of this ridge the Sacramento Valley is easily visible. . . I should say that in addition to studying the available records I have taken the trouble to go over the most questionable portions of the route on foot.”¹⁸

*On the morning of December 30th
they resumed their journey, their feet
being so swollen that they had, burst open,
and, although they were wrapped in rags and
pieces of blankets, yet it was with great pain
and difficulty that they made any progress.*

The Thornton account for these dates states,

On the morning of December 30th they resumed their journey, their feet being so swollen that they had, burst open, and, although they were wrapped in rags and pieces of blankets, yet it was with great pain and difficulty that they made any progress. They encamped, late in the afternoon, upon the high bank of a very deep canon. From this point they could distinctly see a valley which they believed to be the valley of the Sacramento.

December 31st was spent in crossing the canon, and although they toiled hard during the entire day, they effected no more than the crossing. Every foot of that day's struggle was marked with the blood from their feet. They encamped that night on the banks of the canon.¹⁹

The Valley of the Sacramento is visible from Sawtooth Ridge, near where they camped on December 30. The descent from their camp along Sawtooth Ridge leads to the North Fork of the American River, where they camped on December 31. This is the only place in the Emigrant Gap area that meets this description.

THE FORLORN HOPE SNOWSHOE PARTY WOULD NEED a break in the weather to cross the Sierra. It had snowed from December 9 through 13, prior to their departure from Donner Lake. After the two following days were clear, the snowshoe party decided to leave on December 16. On the first day, they traveled across Donner Lake and camped on the rise near the west end of the lake. They climbed over the summit and into the Yuba watershed on the second day. In the next few days they averaged about five to six miles per day. Stanton was suffering from snow blindness and becoming weaker. On December 19 it snowed all day, making travel more difficult. Thornton reports Stanton did not arrive until an hour after they camped.²⁰

McGlashan states, “On the morning of the fifth day Stanton was sitting smoking by the smoldering fire when the company resumed its journey. Mary Graves, who had a tender heart for the suffering of others, went kindly up to him, and asked him if he were coming. ‘Yes,’ he replied, ‘I am coming soon.’”²¹ Bryant states, “He did not come up that night.”²²

¹⁹ Thornton, *Oregon and California*, 2:139.

²⁰ Ibid., 130.

²¹ McGlashan, *History of the Donner Party*, 73.

²² Bryant states Stanton stayed in camp the morning of December 20. Reed states he stayed on the morning of December 21. Gen. Stephen Kearny's expedition traveling east found Stanton's body in June 1847. In an 1879 letter to McGlashan, William Graves wrote he found Stanton's body “in a hollow stump about 15 miles along Dutch Flat. I found his bones clothes and a pistol that I knew to be his” (Private Correspondence Kristin Johnson, from William C. Graves to C. F. McGlashan, April 30, 1879. C. F. McGlashan letters and papers, MS C-B 570, Bancroft Library, University of California, Berkeley). Dutch Flat did not exist in 1847. In other writings by Graves, he refers to Woodworth's provision camp at Mule Springs as not far from Dutch

¹⁷ Ibid., 86.

¹⁸ George Stewart, *Ordeal by Hunger* (Houghton Mifflin, 1960), 380–81.

On December 20 the emigrant wagon route they were following crossed into the valley of the North Fork of the North Fork American River. That day the Forlorn Hope traveled four to eight miles and camped somewhere in Six Mile Valley, less than five miles from Bear Valley. The next day, without Stanton's guidance, they missed the Emigrant Gap turn to the northwest and continued following the river downstream to the south. Eddy's diary in Reed states, "Went down the mountain in a southerly direction."²³ That night, they camped somewhere near Onion Valley. The following day, they remained in camp in a snowstorm.

Bryant and Reed disagree on what happened over the next few days. The Bryant events are given in a paragraph from the Sinclair statement.

On the twenty-second the storm still continued, and they remained in camp until the twenty-third, when they again started, although the storm still continued, and travelled eight miles. They encamped in a deep valley. Here the appearance of the country was so different from what it had been represented to them, (probably by Mr. Stanton,) that they came to the conclusion that they were lost; and the two Indians on whom they had placed all their confidence, were bewildered. . . . During the whole of the night it rained and snowed very heavily, and by morning the snow had so increased that they could not travel; while, to add to their sufferings, their fire had been put out by the rain, and all their endeavors to light another proved abortive.²⁴

The Reed entry for December 23 states, "Cleared off; ascended a mountain for observation; still in hopes that Stanton would arrive."²⁵ The Breen diary on this date states, "Snowed a little last night clear to day & thawing a little."²⁶ Reed is clearly correct about the weather on the twenty-third.

The next day Reed writes, "Left top of mountain; proceeded down a valley three miles; storm recommenced with greater

fury; extinguished fires."²⁷ The Breen diary on this date states, "rained all night & still continues to rain poor prospect for any kind of comfort, spiritual or temporal, wind S."²⁸ Again, Breen and Reed agree on the weather. The Bryant entry for the December 23 fits the narrative if we change the date to the December 24. The most likely sequence of events is they climbed to the summit of a mountain on December 23. They camped on top, watching the valley north of them for signs of Stanton. The next morning, they proceeded down a valley and set up camp in an increasingly furious storm. They had arrived at the Camp of Death.

As the evening settled over them, they built a fire on top of the snow, likely more than ten feet deep. This required chopping wood with their axe and building foundation logs on top of the snow. The fire was then started on these foundation logs, which reduced the heat that melted the snow below them. A lot of wood is required to produce heat to keep fourteen people warm. A few of them would have to go a short distance from the campfire to chop more wood to keep it burning. In one of these wood-gathering trips, the head of the axe flew off into the deep snow and could not be found. The heat from the fire was melting enough snow that it was settling into a snow pit. About midnight, the bottom of this pit gave way, and the entire fire fell into a creek that they were camped above.²⁹ Without an axe, they could no longer chop firewood to keep the fire burning. They were now in an intense winter blizzard with no shelter or heat.

Eddy proposed forming a circle of bodies with their heads out lying on blankets. He then covered them with other blankets before crawling into the circle. The falling snow would create an insulating layer and protect them from the wind. The heat from their bodies would keep them warm. They would have to shake the snow off when it got too deep. For the rest of the night, the following day and night, they stayed warm in this makeshift shelter.³⁰

Flat. Fifteen miles from Mule Springs, following the emigrant road, places this point of death between Big Bend and Six Mile Valley. The December 19 camp was near Big Bend, and December 20 was near Six Mile Valley, implying he died in one of these camps.

23 [Reed], "Narrative by J. H. Merryman."

24 Bryant, *What I Saw in California*, 252–53.

25 [Reed], "Narrative by J. H. Merryman."

26 Breen, *Diary*, 11.

27 [Reed], "Narrative by J. H. Merryman."

28 Breen, *Diary*, 11.

29 The fire going out is mentioned in Reed, Bryant, and Thornton, but there is no mention of it falling into a creek. This detail first appeared in McGlashan and had to be contained in letters from Mary Ann Graves or Sarah Murphy Foster. This is an important detail about the location of the Camp of Death.

30 This is a second clue to the location of the Camp of Death. A relatively flat area roughly twelve feet in diameter was needed to accommodate this shelter.

During these two days, Antonio, Franklin Graves, and Patrick Dolan died. December 26 was clear, and they were able to leave the shelter. For warmth, they burned vertical trees by lighting the lower branches. Lemuel Murphy died on this day. Over the following three days, they started eating their dead companions and cooked the meat from the bodies over a fire using fallen branches from the burnt trees.

On December 30 they packed up and carried the edible remains of their dead companions, leaving their bodies on the snow. They traveled about four to five miles before camping on the edge of a deep canyon. From this point, they could see the Sacramento Valley in the distance. Over half-mile below them flowed the North Fork of the American River.

The accompanying table (*opposite page*) summarizes their trip from Donner Lake to Sawtooth Ridge. Included are the dead reckoning mileage estimates given in Bryant and Reed. Both estimates come from Eddy; the difference in mileage is due to transcription errors. Taking the average yields forty-six miles. On a modern map, the total distance from the Donner Lake Camps to Emigrant Gap plus the shortest navigable route on forest service roads and trails between Emigrant Gap to Sawtooth Ridge to the crossing of the North Fork of the American River is forty-two miles. They would have traveled further on the modern map if they did not follow the most efficient route. This is in good agreement with the Eddy dead-reckoning estimates and is further evidence that they used the Sawtooth Ridge descent to the North Fork of the American River.

SEARCH FOR THE EXACT ROUTE OF THE FORLORN HOPE

Stewart had defined an approximate route for the Forlorn Hope, but key locations such as the Camp of Death were known only approximately. It would take a good deal of ground research to determine their route more precisely. Two trail researchers, Bob Crowley and Tim Twietmeyer, who co-founded History Expeditions (www.historyexp.org), were willing to spend multiple years reading and exploring on foot to discover what worked and what failed. They eventually determined the most likely route from the Donner Lake camps to Johnson's Ranch. What follows will only focus on the route from Donner Lake to the Camp of Death and Sawtooth Ridge based on their research into and exploration of the various possible routes.

We [Bob and Tim] commenced field research in 2013, after reading Daniel James Brown's *The Indifferent Stars Above*.³¹ The intrigue of mutually combining our sport of ultra-endurance trail running with our passion for American history was irresistible. We quickly began seeking additional novels about the Donner Party, with particular interest in the Forlorn Hope.

When schedules allowed, we would venture into the field to see in person the trails that captivated us from our reading. Soon we realized our passion was becoming a bit of an obsession—and a project was hatched: discover the Forlorn Hope trail, and then complete the entire journey ourselves in the winter, to honor and commemorate this distinctive feat of survival and endurance.

After years of consuming most of the well-known and respected historical fiction novels and first-person accounts on the topic, we turned to creating a spreadsheet with trail clues in the form of terrain, notable landmarks, places of interest, etc. This enabled us to compare various accounts of the Forlorn Hope's daily movements across the thirty-three-day journey. It became apparent immediately that these resources did not agree on several critical factors including mileage, weather, timing of locations, purported route, key events, and terrain. Several years into our project, we identified no less than six different theses regarding where the Forlorn Hope went after becoming disoriented and eventually lost.

We took to thoroughly researching and then heading to the field to investigate the feasibility of each thesis. Over and over, we found solace in "seeing is believing." Most options fell apart once extracted from the page (or satellite imagery or topographic maps) and witnessed first-hand by attempting

31 Daniel James Brown, *The Indifferent Stars Above, The Harrowing Tale of a Donner Party Bride* (William Morrow, 2009).

OPPOSITE Estimated camp locations for each night and dead reckoning estimate of mileage traveled each day. The Breen diary weather is used to make sure the weather conditions agree with the Bryant and Reed descriptions. The Reed version is missing some mileage estimates; an asterisk indicates the Bryant mileage estimate was used.

Date	Camp	Breen Diary	Bryant Miles	Reed Miles	Notes
Dec 16	West End Donner Lake	Clear	4	4	Reed "Started from the cabins, in all fifteen persons, on snow shoes, for the California settlements; traveled four miles, and arrived at the head of Truckey's lake."
Dec 17	Summit Valley	Clear	5	5*	Bryant "crossed the divide, with considerable difficulty and fatigue making about five miles, the snow on the divide being twelve feet deep."
Dec 18	Near Kidd Lake	Clear Snow	6	6	Reed "Descended Juba creek about six miles; commenced snowing; wind blowing cold and furiously."
Dec 19	Near Big Bend	Snow	5	5*	Bryant "it having snowed all day." Reed "Storm continued; feet commenced freezing."
Dec 20	Six Mile Valley	Clear	8	4	Bryant "many an anxious glance was cast back through the deepening gloom for Stanton; but he came not."
Dec 21	Onion Valley	Clear Windy	4	4*	Reed "Went down the mountain in a southerly direction; provision exhausted; Stanton snow blind; he did not reach camp at night." Stanton stayed in camp on the morning of December 20th or 21st.
Dec 22	Onion Valley	Snow			Stayed in camp due to storm
Dec 23	Top of mountain	Clear	8	?	Reed "Cleared off; ascended a mountain for observation." Bryant indicates a storm; this entry is likely for December 24.
Dec 24	Camp of Death	Rain Snow	?	3	Antonio & Franklin Graves die; Reed & Thornton dates for deaths are wrong; the weather does not agree with the Breen diary.
Dec 25	Camp of Death	Heavy Snow			Patrick Dolan died
Dec 26	Camp of Death	Clear			Lemuel Murphy died
Dec 27	Camp of Death	Clear Cold			Bryant "They took the flesh from the bodies of the dead; and on that and the two following days they remained in camp drying the meat, and preparing to pursue their journey."
Dec 28	Camp of Death	Clear			
Dec 29	Camp of Death	Clear			
Dec 30	Sawtooth Ridge	Clear	5	4	Thornton "From this point they could distinctly see a valley which they believed to be the valley of the Sacramento."
Dec 31	North Fork of American River	Clear	6	6	Camped at the base of Sawtooth Ridge at the crossing of the North Fork of the American River
			51	41	Total Distance from Donner Lake Camps to North Fork of American River

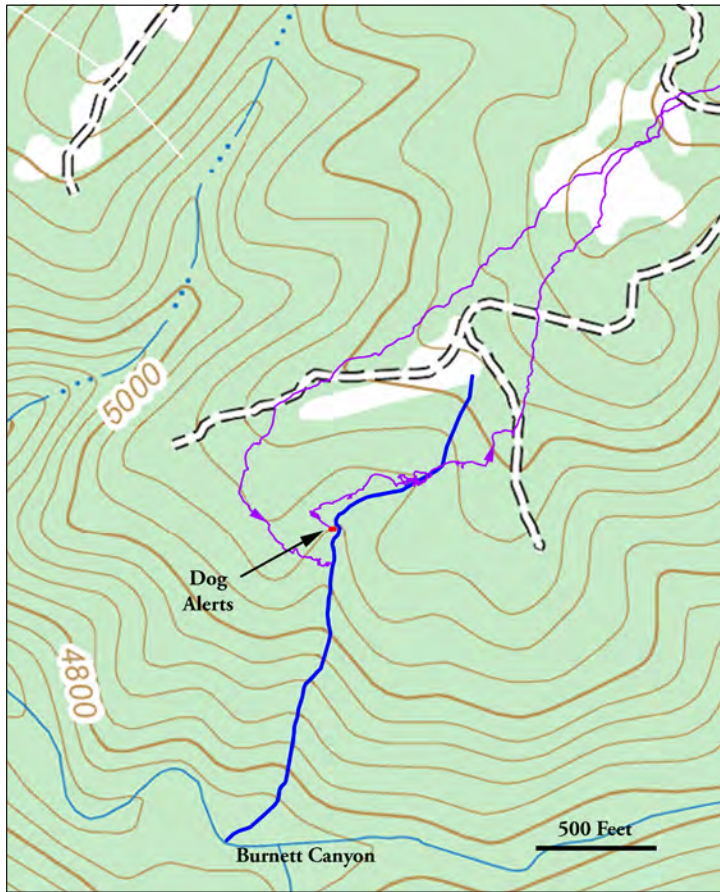


Figure 3. First canine search for Camp of Death. Purple lines indicate the entry and exit search paths. The arrows show the direction of travel. Three red dots show the three dog alerts on the first search. The dark blue line is the precise location of the creek as determined from USGS 1-meter LIDAR data.

to retrace the purported route. We estimate for every hour of reading research, we spent three hours in the field, a three-time factor.

In some cases, the postulated route was easily debunked by simply seeing the impracticable likelihood that anyone—in tremendous fitness or distress—would dare venture following these courses. It made absolutely no sense. We became increasingly confident in and reliant upon our own experience and common sense. When on foot, one will take the path of least resistance and/or easiest route while maintaining the bearing to the destination. And when lost, this premise becomes precedence.

We narrowed each conflicting set of possible route segments down to two final and most likely candidates. Then, we would return to the research, digging for additional clues that might sustain either path. Then, back to the field for another look, sometimes in different conditions (i.e., snow) since the landscape transforms itself when blanketed with deep snow. Some otherwise obstacles, such as rivers and streams, become easily passable while other challenges emerge on steep slopes and the speed at which one can propel oneself. In addition, navigation significantly changes as the white snow flattens the terrain's contours and blinds the eyes.

Weather is a major factor since, in the case of the Forlorn Hope, dead reckoning was used to navigate having no map or compass. After the troupe's co-leader, Charles Stanton, eventually perished only six days into the journey, leaving the group without a knowledgeable navigator, the best the Forlorn Hope could do was try to "head west-northwest" by using the sun and any recognizable landmarks—neither of which were available for many days at a time.

Finally, we utilized our own decades of experience in ultra-distance mountain running to empathize with and understand the impact of physical, mental, and emotional fatigue on one's ability to make logical and cogent decisions on the trail. The Forlorn Hope had depleted their scant daily food rations by the sixth day and were exhausted by the arduous task of slogging through wet, unstable, heavy, sticky snow thirty feet deep in places. Emotionally, they were a wreck, many having left behind their spouse, children, and/or relatives in a desperate attempt to save them. And now they were inexplicably lost in the rugged wilderness while Mother Nature whipped them with her mightiest wrath.

The first five days were roughly following the Emigrant Trail

from Donner Lake to Emigrant Gap. On the sixth day, they missed the turn to the northwest at Emigrant Gap and started in a southerly direction, roughly following the drainage of the North Fork of the North Fork American River. Most likely, they stayed east of the river due to rougher terrain and camped that night near Onion Valley, as deduced by Stewart.³² They spent two nights in this camp due to a storm.

Richard Kaufman³³ states they left Onion Valley, climbed to the summit of Scott Hill, built a signal fire, and waited for Stanton. When Stanton did not arrive the next day, they descended into the North Fork of the North Fork American River canyon. They proceeded downstream to the junction with Blue Canyon, a distance of seven miles and a three-thousand-foot descent. Kaufman deduced the entire route using satellite images such as Google Earth. There was never any ground-truthing investigation. Bob and Tim followed this route but found it extremely difficult and eventually impassable due to the severe drop in canyon depth and sheer cliffs on either side of the river. The Forlorn Hope clearly did not travel this route.

There are not enough details in the various descriptions to determine the precise route they did take. Both Bryant and Reed indicate they stayed in camp on December 22 due to a storm while waiting for Stanton. From Onion Valley on December 23, they likely followed an unnamed stream south toward its junction with the East Fork of the North Fork of the North Fork American River. After this junction, they would have been heading in the wrong direction—toward the east—which would be obvious on this clear day. To their south was a ridge that would eventually lead to the summit of Texas Hill or its ridge to the east. Reed wrote, “Cleared off; ascended a mountain for observation; still in hopes that Stanton would arrive.”³⁴ This 1100-foot climb in deep snow with poor snowshoes would likely have exhausted the weakened party. They camped on the top of the mountain that night. On December 24, they descended into a valley where they made camp in an increasingly furious storm. This would become the Camp of Death.

Bob and Tim followed the route from Onion Valley to the top of Texas Hill and thought it reasonable for the snowshoe party to accomplish the climb in a day. From Texas Hill, it is a 900-foot descent into Burnett Canyon and then a 500-foot climb to Sawtooth Ridge, covering less than two miles in a straight line. Sawtooth Ridge was where Thornton stated that on December 30, they could see the valley of the Sacramento. Several creeks descend into Burnett Canyon and could potentially be the site of the Camp of Death. It was time to bring in an archaeology remote sensing tool that could detect the scent of human death, a specially trained dog.

THE CANINE SEARCHES

When Bob Crowley contacted John Grebenkemper about searching for the Camp of Death, he sent a map of two possible creek drainages. Bob and Tim had searched both drainages and determined there was one or more relatively flat areas adjacent to the creek bed that could have served as the base for Eddy’s large group bivouac area. They felt the prime candidate was the creek that flowed south and slightly west of Texas Hill. A creek east of the prime search area would become an alternative possibility if we found nothing in the prime area.

For this search, we would look for the remnants of scent from scattered human body parts. When the four people died and were not buried, animals would dismember the bodies and scatter body parts over a wide area. Each of these scattered body parts would leave traces of scent in the ground, but a far weaker scent than a full-body burial. Generally, a nineteenth-century full body burial is trivial for certified Institute for Canine Forensics (ICF) dogs to detect, but the scent of scattered human remains from this period approaches near the threshold of detection. For full body burials, the ICF dogs have detected a burial later excavated in construction that radiocarbon dated to 7500 BCE.³⁵

The initial search was set for October 31, 2020. Unlike in 1846, there had been no storms that fall, and the ground was extremely dry from lack of rain over the summer months. The

32 Stewart, *Ordeal by Hunger*, 380.

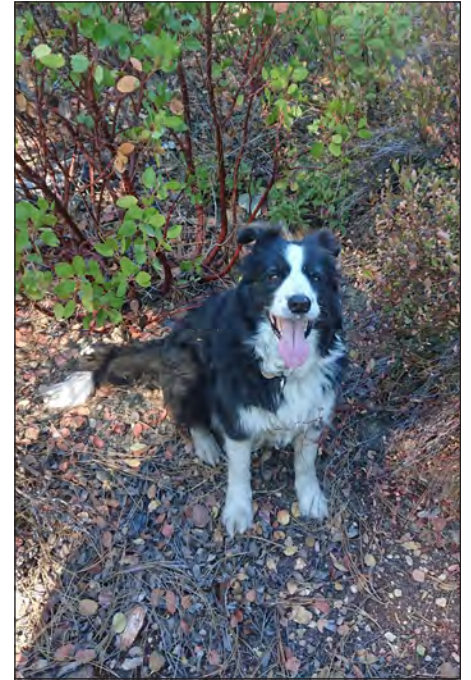
33 Richard F. Kaufman, *Saving the Donner Party and Forlorn Hope* (Archway Publishing, 2014), 72–75.

34 [Reed], “Narrative by J. H. Merryman.”

35 Grebenkemper et al., “Applying Canine Detection in Support of Collaborative Archaeology,” *Advances in Archaeological Practice*, vol. 9, no. 3 (August 2021): 226–37, <https://doi.org/10.1017/aap.2021.12>.



LEFT Figure 4. Kayle searching for human remains scent next to the creek near the Camp of Death site. Vegetation is thick in places and difficult for the dog to penetrate. PHOTOGRAPH BY BOB CROWLEY.



RIGHT Figure 5. Kayle discovery alert at Camp of Death in October 2020. Kayle sits to signal that she has detected the scent from human decomposition. PHOTOGRAPH BY JOHN GREBENKEMPER.

air temperature was 70°F, and the ground temperature was 90°F. A forest fire a decade previous had cleared out most of the tall trees, leaving only shorter bushes. This allowed the sun to warm the ground to higher temperatures. The combination of low ground moisture and high ground temperature makes detecting these faint scents difficult.

From a parking area about one-half mile west of Texas Hill Road, we proceeded down the western side of the western creek. We gradually turned east to arrive at the creek just as it started its steep descent into Burnett Canyon. At this point, Kayle started searching along both sides of the dry creek bed. We made multiple passes before she alerted to human

decomposition scent on the western side of the creek bed. The area is thick with brushy undergrowth, making access difficult for some portions of the search area. When she had scent, the dog would push into the brush to locate its peak intensity. She had three alerts scattered over about twenty feet. The alert pattern is consistent with a body left on the surface and dismembered by animal activity. We continued searching along the creek in this area but found no other areas of scent interest after an hour of searching.

We then left this section of the creek and continued upstream—several additional flat areas needed to be checked. The search track on the map shows several areas where the dog searched back and forth, but no additional areas of scent were found. A single dog search is highly reliable with a false positive rate of less than 2 percent. However, it is prudent to bring in a second certified dog to verify the area of the alerts.

On December 6, 2020, we returned with Karen Atkinson's ICF-certified dog, Echo. The air temperature was much cooler, in the fifties, and the ground was damp from a storm a few weeks previous. These are much better conditions for finding weak scent. We took Karen down the same route to a point near where the creek started its steep descent. Karen knew

Kayle had alerted but had no idea where those alerts occurred. She was told to begin searching upstream on either side of the creek while I remained at the start point so as not to influence her search pattern. Over the next hour, Karen had multiple alerts. Later, I sent Kayle out to search, and she had another five alerts in fifteen minutes, some of the alerts at nearly identical locations to Echo.

Between the two dogs, there were seventeen alerts scattered over the hillside up to one hundred feet from the creek. Animal dismemberment of human remains can scatter the remains hundreds of feet from the body. The most likely site for the Camp of Death is a spot shown by the circle on the detailed search map. Half of the alerts are near this circle. The area is relatively flat and large enough to have supported Eddy's bivouac strategy. Some of the area inside the circle is thick brush impenetrable to the dogs. This could explain why there are no alerts within the circle.

Only one of the alerts was on the east side of the creek. Later investigations using the USGS 1-meter LIDAR³⁶ maps showed that a nineteenth-century narrow gauge railroad had been constructed across the creek south of the Camp of Death site. A siding had been built up the east side of the creek and passed above the Camp of Death site. Spoils from the siding construction may have covered the ground on the east side of the creek, preventing scent from reaching the air column. Such covering can make the scent undetectable to a dog.

We can positively state that one or more people died in this area and were not buried. Running into a site of death such as this one is not a common occurrence in random walks in the forest. Kayle, not on searches, has hiked hundreds of miles, but only once encountered and alerted to an unexpected site of buried human remains. Further searching in that area revealed thirteen burial sites. That site was later confirmed to be a Native American burial area by a state archaeologist. A few years earlier, the site had been found when several bones eroded out of the ground next to a trail. They had no knowledge of the dozen additional burial sites found by Kayle.

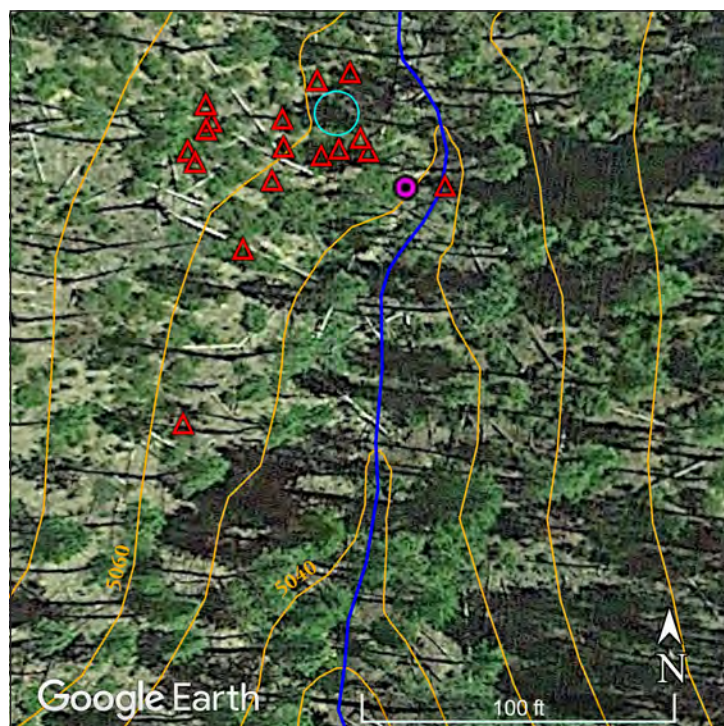


Figure 6. Map after both canine searches and archaeology metal detector search. Red triangles indicate dog alerts to human decomposition scent. The purple circle is the location where the axe head was found. Based on the dog alerts, the light blue circle is the most likely area for the Camp of Death. The dark blue line is the precise path of the creek as determined from the USGS 1-meter LIDAR data. The contour interval is ten feet, which was also determined from LIDAR data.

THE ARCHAEOLOGY SEARCH

We would need additional archaeological evidence to prove this is the site of the Camp of Death. There is one easily detectable object that the Forlorn Hope left behind. On December 24, they lost the head of their axe in the snow. As stated in Thornton,

They had a small hatchet with them, and after a great deal of difficulty they succeeded in making a large fire. About 10 o'clock on Christmas night, a most dreadful storm of wind, snow, and hail, began to pour down upon their defenseless heads. While procuring wood for the fire, the hatchet, as if to

36 U.S. Geological Survey, <https://www.usgs.gov/faqs/what-lidar-data-and-where-can-i-download-it>, accessed February 15, 2024.





add another drop of bitterness to a cup already overflowing, flew from the handle, and was lost in unfathomable snows.³⁷

An axe head should be easy to find with metal detectors, and the dogs had defined a short area along the creek in which to search. When Eddy went out to chop wood in a blizzard at night, he would not have ventured far from their camp. The only source of light was the campfire.

Bob, Tim, and Keith Sutter, History Expedition's photographer, returned to the site with several metal detectors in June 2021 after the snow had melted. There is a lot of metal junk at this site from the narrow-gauge railroad that ran near the creek. They detected many pieces of old railroad and logging gear, but within an hour, Tim found an axe head next to the creek bed and only ten meters from the most likely camp area.

An archaeologist identified it as a nineteenth-century home-made axe head. This is not the conventional axe head you see in a store today, with an eye in the steel blade for placement of the handle. While factory-built axe heads were widely available in the early nineteenth century, some people forged their axe heads at home rather than spending hard cash to purchase a commercial axe head. This axe head is consistent with a hand-forged axe originally attached to a short wooden handle, sometimes called a belt axe, and like a hatchet as stated in Thornton. The rear of the axe head had a groove and iron tongue that could be hammered around the wood shaft to hold it firmly in place. Part of the axe head attachment is missing, either due to breakage during use or after 175 years of weathering. The blade shapes of axes varied around the country depending on the

³⁷ Thornton, 2:134. Thornton date should be December 24 based on Breen diary weather.

Figure 7. Echo alert at Camp of Death in December 2020. Echo alerts by lying down to indicate she has detected scent from human decomposition. Her nose is positioned close to the area of maximum scent. PHOTOGRAPH BY KAREN ATKINSON.

type of wood to be chopped.³⁸ This blade shape appears closest to a New England style. Franklin Graves was born in 1789 in Vermont and could have been the owner of this axe head.

A few years after the occupation of the Camp of Death, the area was swarming with miners from the Gold Rush. Later in the nineteenth century came logging and construction of the narrow-gauge railroad. All these activities could have left the axe head artifact where it was found. The axe head is currently undergoing further analysis by archaeologists for the Tahoe National Forest. It is unlikely that that analysis will be able to prove or disprove that the axe came from the Forlorn Hope.

The Forlorn Hope group did not leave any other archaeological evidence at the Camp of Death. The bodies and bones will have long since disintegrated into dust. Any clothing or other artifacts have also disappeared. This leaves us with a preponderance of the evidence proof.

- The site is consistent with the path of the Forlorn Hope. They had to be near the top of Texas Hill the night of December 23. On the night of December 30, they were somewhere along the upper portion of Sawtooth Ridge. This location is near a direct route between those two points.
- The initial Camp of Death was located above a flowing creek. This site is located next to a seasonal creek.
- The dogs identified that one or more people died in this area and were not buried. The deceased would have had to be left here for weeks for animals to scatter their remains over the wider area indicated by the dog alerts further from the creek. While it is possible that a gold rush miner died and was not noticed, it is unlikely to have happened during the years after the railroad was operating.

38 An Ax to Grind: A Practical Ax Manual, <https://www.fs.usda.gov/t-d/pubs/htmlpubs/htm99232823/page02.htm>, accessed February 15, 2024.

Kayle's discovery alert at the Jacob Donner camp. PHOTO BY JOHN GREBENKEMPER.

Remembering Kayle





BORDER COLLIE KAYLE (JANUARY 10, 2009–MAY 1, 2024) had an illustrious career working for many archaeologists and historians. In June 2010 working solo, she made her first significant discovery of human remains scent at the Donner Family Camp Picnic Area at Alder Creek. She found scent well outside the marked Tahoe National Forest interpretative trail that is supposed to contain the Donner sites. Later canine field work by multiple dogs and historic literature research revealed this alert was likely associated with the Jacob Donner camp.

In 2017 she flew to Fiji on a National Geographic Expedition and then boarded a ship for the 1000-mile trip to an uninhabited island 4° south of the equator. She and three other ICF dogs were looking for the site where 13 human bones were found in 1940. These bones were lost during World War II. After the dogs identified the location by residue scent left in the soil after death, the archaeologists excavated for more bones hoping to get DNA to prove the bones were those of Amelia Earhart. No additional bones were found.

Kayle has done many searches with Randy Brown to find burials in Nebraska and Wyoming, found mass burial sites of the Willie and Martin Handcart Companies near South Pass, helped confirm and identify multiple burial sites at the Mountain Meadows Massacre Site National Historic Landmark, and located a burial area of Chinese transcontinental railroad workers in Utah, the first ever found in that state. In Nevada, she found the likely grave of John Synder of the Donner Party. In California, she found the location of a missing cemetery at Benton City, the likely burial of Daniel Sill near the Lassen Adobe cabin, and the missing cemetery at Monroeville that contains the burial of William B. Ide, the first president of California. Not all searches are successful. She looked for the grave of Sarah Keyes at Alcove Springs, but was unable to locate any burials.

Much of her work has been locating Native American burial sites so they can be protected or, if construction will take place, the human remains properly excavated and returned to the most likely tribal descendant. In San Diego County, she found a burial, later excavated in a construction project, that radiocarbon dated as 9,500 years old, the oldest burial found by a dog.

In Nevada in 2023, she checked a possible rock mound burial found by Don Buck two decades earlier and confirmed it was a grave. This was her last search before canine osteoarthritis prevented further search projects and she retired.



LEFT TO RIGHT Figure 8. The axe head as discovered near the Camp of Death.

Figure 9. Axe head viewed on Flat Side.

Figure 10. Axe head viewed on the mounted side. The handle goes in the groove, and the tongue is wrapped around the handle. PHOTOGRAPHS BY BOB CROWLEY.

- The Forlorn Hope lost an axe head on December 24 when Eddy left the campsite fire to chop more wood. The axe head that was found is not commercially manufactured, but homemade with a design consistent with nineteenth-century New England axe heads. It is not likely that a homemade New England axe head would end up near the Camp of Death unless carried by someone who at one time lived in New England.
- The primary grouping of the dog alerts is only ten meters (thirty-three feet) from where the axe head was found.

We would expect the scent to be most concentrated near where the four bodies were left. Nighttime wood chopping would be done near the camp with light from the campfire.

While it is impossible to prove that this is the site of the Camp of Death, the evidence suggests that this is the most likely explanation. [OJ](#)