

Historical Exploration For Modern Explorers

By Jerry Haugen
Explore!

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“It was a serious enterprise, at the commencement of winter, to undertake the traverse of such a region, and with a party consisting only of twenty-five persons, and they of many nations-- American, French, German, Canadian, Indian, and colored--and most of those young, several being under twenty-one years of age. All knew that a strange country was to be explored, and dangers and hardships to be encountered; but no one blenched at the prospect. On the contrary, courage and confidence animated the whole party. Cheerfulness, readiness, subordination, prompt obedience, characterized all; nor did any extremity of peril and privation, to which we were afterwards exposed, ever belie, or derogate from, the fine spirit of this brave and generous commencement.”



So begins the journal of Captain John C. Fremont as he prepares for a journey of exploration from the Columbia River to San Francisco Bay. The journey began on November 25, 1843 and took place through that winter and well into the next spring. In this ebook, we'll explain how one can use modern tools and a bit of intuition to retrace a portion of this epic journey and, by extension, any well-recorded journey.

Following the Path of an Early Explorer

When Brevet Captain John C. Fremont, The Great Pathfinder, set about exploring the American west he had little information to go on, yet he collected all he could. There were accounts from early trappers, the findings of other explorers like Lewis and Clark, Peter Ogden, and Jedediah Smith, along with some rather poor maps. He took people, like Kit Carson, that were already familiar with parts of the country with him. He also used whatever native guides he could persuade to help. While he couldn't establish the details of his trip before hand, he had a general idea of where he was going and, to some extent, the kinds of things he was likely to find.

As a member of U.S. Army Corps of Topographical Engineers, Fremont was expected to prepare detailed reports and maps of his discoveries. He did this quite well by the standards of the day, however if one wanted to follow his path today, it would be surprisingly difficult, even with the fantastic tools that are now available to us. In fact, Fremont reported the latitude and longitude of many locations along his route of exploration. We can enter these coordinates into our handy GPS unit and go directly to that location on the ground. Right? Wrong! While Fremont and his team were skilled in the use of the tools they had (sextant, compass, telescope and chronometer), those tools had their limits. His sextant was great and quite good at finding latitude, but accurately determining longitude required a precise time – something difficult to achieve with the clocks of the day. As a result, his north/south position seems fairly reasonable while there is typically wide variation in his east/west position.

Fortunately, Fremont coupled his observations of latitude and longitude with descriptions of his surroundings including descriptions of rivers, mountains and other geographic points that can be found today.

Using the Tools of Today

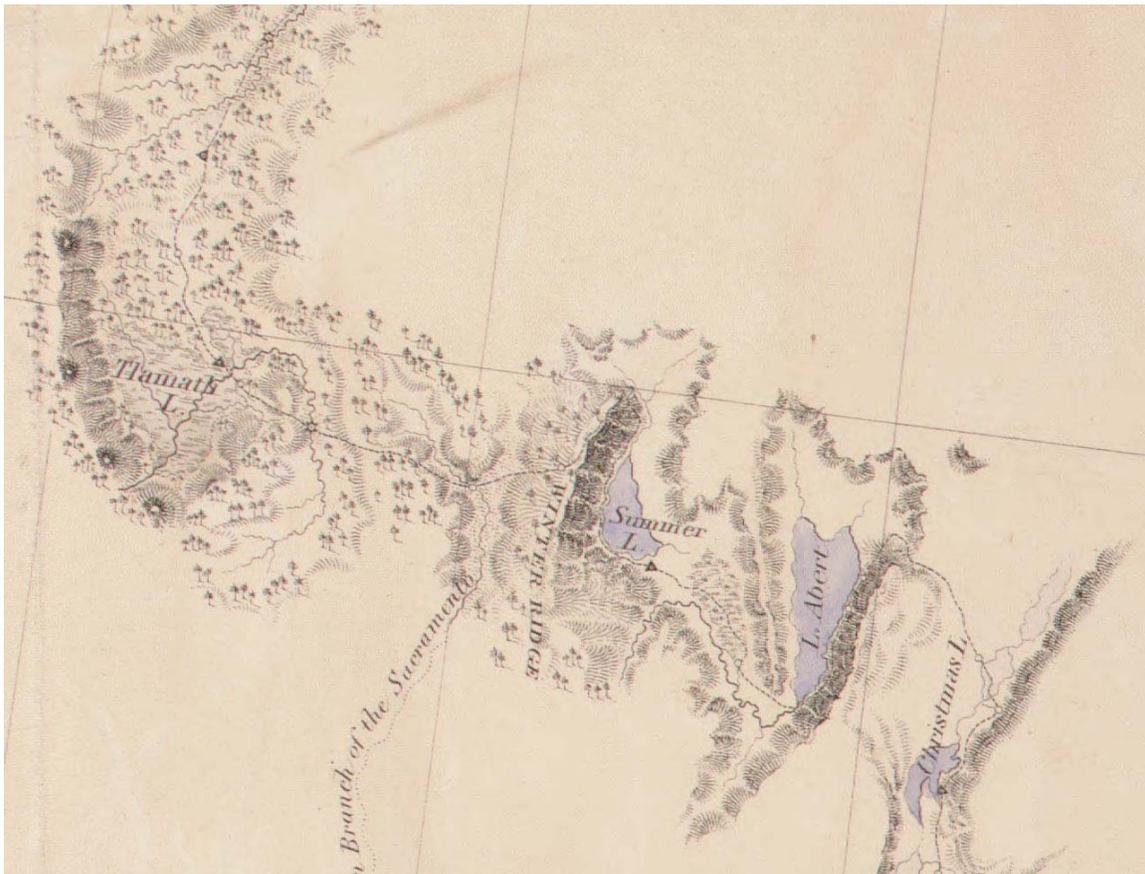
The people at Google have created an outstanding tool for those who would like to explore the world and even the oceans, the moon and mars from their computer. That tool is Google Earth and you can get it and install it on your computer absolutely free (<http://earth.google.com/>). As one example of the use that can be made of this tool, we'll try to track the path of Captain Fremont as he led his band of explorers across part of south-central Oregon in December of 1843. If successful, we'll be able to enter coordinates into our GPS unit and make our way to key points along the trail. The world-wide-web is itself a great tool for finding the information that will make our effort successful.

Collecting Information

Like Fremont and other earlier explorers, we need to gather the available information. Fremont made such useful notes that we need not research the findings of even earlier explorers. Happily, his complete journal is available on our website, free (<http://explore.globalcreations.com/free-books/>). The map he made can also be found there. With Google Earth and perhaps a modern map, like the maps produced for the Winema and Fremont National Forests or USGS topographic maps, we have all the information we need.

Compare the Maps

Fremont's map is, well, sketchy, as you can see in the portion we will be using (below). Nonetheless, if we compare it to the maps and terrain from Google Earth and the National Forest maps, we can quickly get oriented. Some of Fremont's place names, like Winter Ridge, Summer Lake and Lake Abert are still in use today. Others can be equated to modern terms (Fremont's "Tlamath" = today's "Klamath"). Still others are just wrong. For example, Fremont believed he was at modern-day Klamath Lake when he was really at Klamath Marsh. He also identified what he thought were the headwaters of the Sacramento River when he was, in fact, looking at what we now know as the Sycan River.



Fremont's Map of South-Central Oregon

Note the dotted line on Fremont's map. That's his path. If you are reading this on your computer, you can zoom in for a better look at the map details. It's easy to roughly translate that path onto the National Forest Maps but it will be very difficult to actually locate Fremont's campsites without further analysis. His campsites are the little circles, triangles and stars along the path (zoom in to see them better). The markers indicate the level of positioning he achieved at each point: star = latitude and longitude, triangle = latitude only, circle = no observation.

Keys from the Journal

We'll be trying to locate a few places along the path from Klamath Marsh (shown as Tlamath Lake) to Summer Lake. The Journal entries associated with Fremont's six days in this area are reproduced in Appendix A. We extracted the following information from those entries:

Date	Latitude	Longitude	Comments
Dec 10 & 11	42° 56' 51"	None	On the western side of Klamath Marsh at the narrow neck in the marsh.
Dec 12	None	None	On the eastern side of Klamath Marsh after crossing the marsh at its narrowest point due east and traveling to a small cove.
Dec 13	42° 51' 26".	121° 20' 42"	Four hours (12 miles) east of previous camp, they camped along a substantial river - 30 feet wide, 2 to 4 feet deep. Latitude and Longitude supposed to be good.
Dec 14	None	None	This day they climbed a broad mountain, came upon a stream that traveled eastward and led to marsh grasses.
Dec 15	None	None	Traveled N60°E. Camped where a few tufts of grass showed above the snow, on the side of a hollow
Dec 16	42° 57'22"	None	Reached Fremont Point then traveled north a few miles to a point north of Summer Lake where they descended the ridge.

Translating to Modern Maps

Using the above information and modern topographic maps of the area, we used the following logic to establish what we believe are the campsite locations:

The narrow neck of Klamath Marsh is still evident. In fact, Military Crossing Road crosses the marsh at that point. The road itself is probably as close as we can get to Fremont's actual path across the marsh. The latitude at the point on the western side of the marsh is, according to Google Earth, 42° 57' 14". Fremont's latitude is less than _ mile south of that and may be accurate, because he notes traveling due east across the marsh, although his map plots a southeast course. The road travels southeast. Again, using Google Earth, we would use the following latitude and longitude in our GPS unit: 42° 57.297' N and 121° 40.534' W. This is the point where the road sets out across the marsh, but we would suggest a little exploring to 42° 56.850' N and 121° 41.410' W which is on the edge of the marsh due east of the peninsula that juts out from the east side of the marsh. This point should be close to Fremont's actual position as described in the journal. Note that by changing preferences in Google Earth you can see the latitude and

longitude of any position in degrees/minutes/seconds, degrees/decimal minutes or decimal degrees. Our GPS unit uses degrees/decimal minutes.

Fremont recorded no coordinates for the campsite on December 12, but his map suggests he was entering Skellock Draw. The first place with good grass was probably Corral Spring. According to Google its position is 42° 52.669' N and 121 36.481 W. That's just off Forest Service Road 49, south of the Silver Lake Highway.

The river Fremont describes on December 13 is, no doubt, the Williamson River based both upon his description and his map. Fremont's longitude would, however, place him atop Booth Ridge – clearly not the place he describes. If we position ourselves at Fremont's latitude and on the Williamson River, we find a location that seems to match his map. Our coordinates: 42° 51.45'N and 121° 27.759'W.

On December 14 Fremont climbed a broad mountain. He was traversing the flanks of Yamsay Mountain and crossing over Booth Ridge. The first stream to the east of Booth Ridge is Long Creek. It arises to the north then flows eastward into what is now known as Sycan Marsh. Fremont's map shows another stream joining long creek from the east. That would be what is now known as Calahan Creek. The campsite was located in an area of tall marsh grass which would suggest the point where Long Creek enters the Sycan Marsh. Based upon Fremont's map. It looks like the coordinates are about 42° 49.687'N and 121° 11.077'W. While Fremont believed he was at the head of the Sacramento River, we now know he was at the head of the Sycan River. The Wild and Scenic Sycan River joins the Sprague River, which, in turn, joins the Williamson River at the City of Chiloquin and ultimately flows into Klamath Lake.

On December 15, Fremont headed N 60° E toward Winter Ridge. A feature he named on December 16. This heading was intended to avoid a troublesome mountain, apparently what is now known as Sycan Butte. He camped somewhere below the ridge. His description notes tall grass showing above the snow. This suggests a spring, perhaps Aspen Spring at the head of Chocktoot Creek. It seems to match his mapped location and puts us at about 42° 50.609'N and 120° 52.708'W on FS Road 2901. This spring may, however, be one he passed on the morning of December 16.

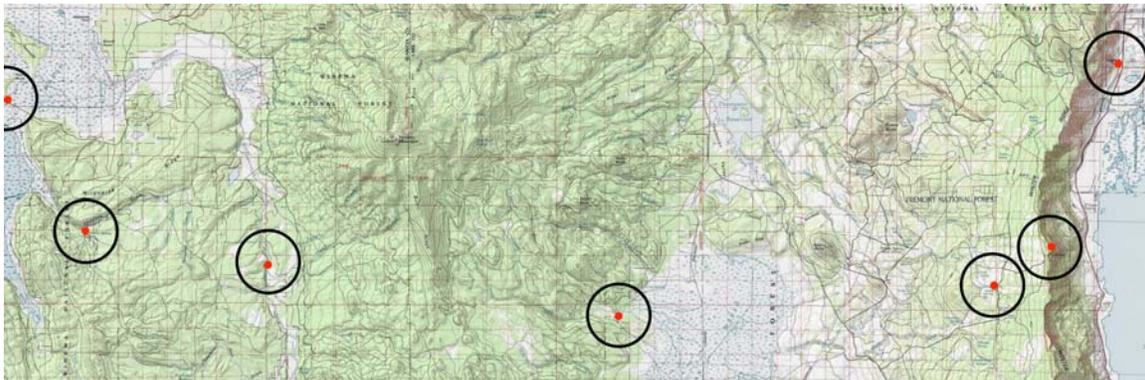
The next day Fremont proceeded to Winter Ridge and a place known today as Fremont Point where he looked down into Summer Valley. He then traveled several miles northward along the ridge to find a place where he could descend into the valley. Based upon his description, latitude and map, it appears that the camp north of Summer Lake was located at about 42° 57.220'N (Fremont's latitude) and 120° 47.697'W.

Planning Our Visit

The point of exploring is to get out there and enjoy the journey. So far we've done our homework, but we need a little more preparation. First, let's summarize the points we want to visit so the information will be easily available as we travel:

Site	Latitude	Longitude	Comments
Military Crossing Road on the west edge of Klamath Marsh	42° 57.297' N	121° 40.534' W	Also check 42° 56.850' N and 121° 41.410' W
Corral Spring.	42° 52.669' N	121° 36.481' W	
Williamson River	42° 51.45' N	121° 27.759' W	
Long Creek at Sycan Marsh	42° 49.687' N	121° 11.077' W	
Aspen Spring	42° 50.609' N	120° 52.708' W	on FS Road 2901
Fremont Point	42° 51.930' N	120° 50.035' W	A Known point
At the base of Winter Ridge	42° 57.220' N	120° 47.697' W	Just off Highway 31

Finally, we'll plot these points on a modern topographic map of the area (if you are viewing this on your computer, feel free to zoom in to see details on the map):



A Note on Precision and Accuracy

The precision of the coordinates we offer above is very good – meaning you can use your GPS unit and get within a few feet of these points every time you try. The accuracy of these points relative to the actual campsites of Fremont and his crew is another story entirely. We could have researched further with some of the people we know who have found evidence of Fremont's visit at these sites. Or, we could have spent time with a metal detector trying to find evidence, like old coins, ourselves. With that information, we could have then pinpointed the sites exactly. If accurate locations are important to

you, you can carry your research as far as you wish. However, when it comes to historic objects, there are laws protecting them and you can face fines and imprisonment if you take anything of an historic nature. For us, the experience of generally following Fremont's footsteps and experiencing the locales of his campsites was enough.

Creating Your Adventure

One of the beauties in this type of exploration is the opportunity for a wide variety of adventures.

If you are into extreme adventure, you might want to re-create Fremont's journey as he did it. You could try dressing in period clothing and traversing the area on horseback on the same winter days that Fremont did it. You could camp at the locations Fremont camped and get a great feel for the hardships endured by Fremont and his men. There is a large block of private land along the route, so you would need to get permission to cross it and determine if there are any fences that you would need to bypass. If horses aren't an option for you, you could try a snowmobile or cross-country skis.

To back off on the scale of adventure, you could try the journey on foot, horseback or mountain bike in the summer. It would still be a great adventure, but with different kinds of hardships, like heat and mosquitoes instead of cold and snow.

Finally, you could condense your adventure into a day or two with your car or pickup. That's what we did. This is what we found:

Taking the Journey



"Overlooking it, immediately west, were several snowy knobs, belonging to what we have considered a branch of the Cascade range." J.C. Fremont.

Our trek began on Military Crossing Road on the west side of Klamath Marsh. With the exception of the road, fences and a house, the area looked pretty much as Fremont would have found it, if he had visited in the summer. Looking to the west, the largest of the snowy knobs he saw was Mt. Scott, in Crater Lake National Park. A little later in the summer, we'll be able to climb to the summit of Mt Scott – but that's another adventure! The pine-covered point that led out into the marsh was surely this location. Plenty of pines remain. We did

not walk south the half-mile that would have led us to Fremont's recorded latitude, but we could see about where that would be.

We crossed the marsh on Military Crossing Road then turned right on a road that was signed as not maintained for automobile travel. The road could have presented a problem if particularly wet, but this day it was dry and easily traversed. Here we could drive parallel to the marsh, almost exactly the path followed by Fremont and his party. The road passes in and out of National Forest and National Wildlife Refuge lands until reaching the Silver Lake Highway. Immediately across the highway is Skellock Draw Road so we continued on it toward our estimated location of the next camp.

The area of Corral Springs today consists of several open meadows surrounded by lodgepole pine – a species that rarely gets notably large. The large pines impressed Fremont, but those were generally higher up on the hillside above the meadows. We suspect he camped among the ponderosa pine for shelter and allowed his stock to graze in the meadows on whatever grasses the animals were able to dig from the snow.



Meadow Near Corral Spring



“a considerable stream, with a border of good grass” J.C. Fremont.

From Corral Spring, we meandered our way over several Forest Service roads to the point where we thought we would have to get out and walk 3/4 of a mile to Fremont’s campsite on the Williamson River. We found more roads than on our maps, so we used our GPS and meandered further until we could park just a couple hundred feet upstream of our planned location. While driving in this area, you may

happen upon a sign indicating that there are campsites still used by families of Klamath Tribe members. Our location appeared to be

such a campsite, but it had not been used yet this summer. If the site happens to be in use when you are in the area, please respect the campers.

For this location, we used Fremont’s latitude, so it’s probably not exactly the place he camped. Still, the river is about as he described it – “30 feet wide with a depth of 2 to 4 feet with a good current.” The vegetation surrounding the river probably differs little from Fremont’s experience. The fact that the river arises its full size from a large spring a few miles upstream suggests that the river itself is almost exactly as Fremont found it. It’s definitely a pleasant place in the summer and, as far as Fremont was concerned, the fresh water and grass probably made it a relatively pleasant place for his party to camp in the winter.

From the Williamson River Fremont traveled over the flanks of Yamsi Mountain and Booth Ridge, in a snowstorm, until coming to a stream we now call Long Creek. He followed Long Creek to a point that offered some cover for his men as well as feed for his animals. This is near the point where Long Creek flows into the Sycan Marsh. Today, the area is part of the Sycan Preserve of the Nature Conservancy.



The Campsite at Long Creek

To get there, you can return to the Silver Lake Highway and head toward the community of Silver Lake. Just before you get to Silver Lake on Highway 31, turn right on county road 4-11 that becomes Forest Service Road 27. Road 27 crosses Long Creek on the west side of Sycan Marsh. Sycan Marsh is a closed preserve meaning that getting off the Forest Service roads means getting permission from the Nature Conservancy. We happened upon Craig, a biologist for the Conservancy, and he gave us permission to explore the area where Fremont camped. He pointed out that evidence of the camp was found along a rock outcrop just north and west



Sycan Marsh From Sycan Butte

of the point where Forest Service Road 27 crosses the creek. There are signs on the bridge identifying the creek so this campsite is easy to find on the ground. It was, however, several hundred feet from our GPS coordinates. The rock outcrop offered protection to Fremont’s party by shielding them from north winds and opening them to the possibility of morning sunshine. If you get permission to explore here, you’ll discover

evidence of another part of the history of this area – the railroad-logging era. This was a point where

steam locomotives were loaded with water.

From Long Creek, Fremont traveled across the frozen Sycan Marsh on a heading of N60°E. Local natives recommended this heading advising Fremont that he would avoid a particular mountain – apparently Sycan Butte. The snowstorm must have abated a bit as Fremont noted seeing low, rolling hills to the south. Had Fremont’s day been clear, he could have seen Hager Mountain to the north and Foster Butte to his northeast as he passed to the south of Sycan Butte. The path across the marsh was, of course flat, but then it begins to slowly climb to the east as it re-enters forestland.

Fremont proceeded on his heading for seven hours before encamping again. If you head north on Road 27, you’ll be able to look across the marsh toward Sycan Butte and get a good feel for the terrain. Continue on Road 27 to Road 3142 and turn southeast. Once on Road 28 and you can drive by Sycan Butte to Road 3219. Turn to the northeast on Road 3219 and you’ll be pretty close to Fremont’s route. Turn north on road 2901 to Aspen Spring. Fremont doesn’t provide much of a description, so we doubt our coordinates are very accurate. In fact we suspect that Aspen Spring is one of several springs he passed the next morning on his way to Winter Ridge. Still, it’s quite a scenic spot with a nice brook flowing through the area on the day we visited.



A brook traversing Aspen Meadows.

From this vicinity, Fremont made his way to what is now called Fremont Point. This is known to be the actual place Fremont first laid eyes on the valley below, based upon coins found there. Fremont said: “Riding rapidly ahead to this spot, we found ourselves on the verge of a vertical and rocky wall of the mountain. At our feet--more than a thousand feet below--we looked into a green prairie country, in which a beautiful lake, some twenty miles in length, was spread along the foot of the mountains, its shores bordered with green grass. Just then the sun broke out among the clouds, and illuminated the country below; while around us the storm raged



The View from Fremont Point

fiercely.”

The view today is as spectacular as ever, although we didn't experience the winter/summer contrast that Fremont saw. Due to several years of drought, Summer Lake is smaller than it once was. The Winter Fire of 2002 cleared most vegetation from the face of the ridge and along the top of the rim. It also burned a lookout tower that stood here. Since then, the Forest Service has installed restrooms and parking. So, while things have changed, it's not difficult to imagine the view and the excitement it generated within Fremont and his crew. You can get to Fremont Point by continuing north on Road 2901 from Aspen Spring and following the signs to the point.

From Fremont Point, the expedition traveled northward in search of a way down the cliff. There is a dirt road that follows the rim, Road 185 by some maps. It connects back to Road 2901. If you continue north on Road 2901 you will come to Highway 31 near Picture Rock Pass. Turn south on the highway and take it to Summer Lake to see the route Fremont took down the ridge. His campsite that night was just north of Summer Lake. His crew arrived, after dark and after maneuvering the dangerous path down Winter Ridge. There is a historic wayside adjacent to the highway that commemorates Fremont's expedition and describes the route he took down the ridge. That route can be seen from the wayside. We didn't try to locate our planned coordinates, because we didn't have much to go on to establish them in the first place and there is considerable private property in the area that we didn't want to traverse.



“We continued on for four or five miles, making ineffectual attempts at several places; and at length succeeded in getting down at one which was extremely difficult of descent.” J.C. Fremont

While Fremont and his team continued on through the winter under impossible conditions, finally reaching San Francisco in the spring of 1844, this was the end of our adventure. If you would like to learn more and see some of the artifacts Fremont and his crew left along the trail, stop at the Silver Lake Ranger Station during working hours. They have a nice display commemorating the journey.

Conclusion

If following in the footsteps of the Great Pathfinder captures your interest, you are not alone. A number of people are working on books and documenting locations along Fremont's trail. Check out <http://www.longcamp.com/> for lots of details and current information. We encourage you to choose a segment of Fremont's journey across the American West from his journal and map that can be found in the “Free Books” section

of <http://ExploreEmag.com/>, and apply the methods we describe here to create your very own adventure.

You can do the same thing with any explorer that left a useful journal. Or, you may come across a modern analysis of an explorer's travels, written by a historian, that can become the basis for your adventure. Wherever you are in the world, someone explored your area and experienced it in a special way in years, centuries or millennia past. You can recreate a modern version of the experience as an explorer of history.

Finally, be sure to visit *Explore!* The eMagazine for adventure and exploration. There you will find a growing library of articles about places you can explore and information to make your adventure more enjoyable.

Appendix A – Fremont's Journal, December 10 – 16, 1843

December 10 – Klamath Marsh

10th.--The country began to improve; and about eleven o'clock we reached a spring of cold water on the edge of a savannah, or grassy meadow, which our guides informed us was an arm of the Tlamath lake; and a few miles further we entered upon an extensive meadow, or lake of grass, surrounded by timbered mountains. This was the Tlamath lake. It was a picturesque and beautiful spot, and rendered more attractive to us by the abundant and excellent grass, which our animals, after traveling through pine forests, so much needed; but the broad sheet of water which constitutes a lake was not to be seen. Overlooking it, immediately west, were several snowy knobs, belonging to what we have considered a branch of the Cascade range. A low point, covered with pines, made out into the lake, which afforded us a good place for an encampment, and for the security of our horses, which were guarded in view on the open meadow. The character of courage and hostility attributed to the Indians in this quarter induced more than usual precaution; and, seeing smokes rising from the middle of the lake (or savannah) and along the opposite shores, I directed the howitzer to be fired. It was the first time our guides had seen it discharged; and the bursting of the shell at a distance, which was something like the second fire of the gun, amazed and bewildered them with delight. It inspired them with triumphant feelings; but on the camps at a distance the effect was different, for the smokes in the lake and on the shores immediately disappeared.

The point on which we were encamped forms, with the opposite eastern shore, a narrow neck, connecting the body of the lake with a deep cove or bay which receives the principal affluent stream, and over the greater part of which the water (or rather ice) was at this time dispersed in shallow pools. Among the grass, and scattered over the prairie lake, appeared to be similar marshes. It is simply a shallow basin, which, for a short period at the time of melting snows, is covered with water from the neighboring mountains; but this probably soon runs off, and leaves for the remainder of the year a green savannah, through the midst of which the river Tlamath, which flows to the ocean, winds its way to the outlet on the south-western side.

December 11 – Visiting the Indians

11th.--No Indians made their appearance, and I determined to pay them a visit. Accordingly the people were gathered together, and we rode out towards the village in the middle of the lake, which one of our guides had previously visited. It could not be directly approached, as a large part of the lake appeared a marsh; and there were sheets of ice among the grass on which our horses could not keep their footing. We therefore followed the guide for a considerable distance along the forest; and then turned off towards the village, which we soon began to see was a few large huts, on the tops of which were collected the Indians. When we had arrived within half a mile of the village, two persons were seen advancing to meet us; and, to please the fancy of our guides, we ranged ourselves into a long line, riding abreast, while they galloped ahead to meet the strangers.

We were surprised, on riding up, to find one of them a woman, having never before known a squaw to take any part in the business of war. They were the village chief and his wife, who, in excitement and alarm at the unusual event and appearance, had come out to meet their fate together. The chief was a very prepossessing Indian, with handsome features, and a singularly soft and agreeable voice--so remarkable as to attract general notice.

The huts were grouped together on the bank of the river, which, from being spread out in a shallow marsh at the upper end of the lake, was collected here into a single stream. They were large round huts, perhaps 20 feet in diameter, with rounded tops, on which was the door by which they descended into the interior. Within, they were supported by posts and beams.

Almost like plants, these people seem to have adapted themselves to the soil, and to be growing on what the immediate locality afforded. Their only subsistence at the time appeared to be a small fish, great quantities of which, that had been smoked and dried, were suspended on strings about the lodge. Heaps of straw were lying around; and their residence in the midst of grass and rushes had taught them a peculiar skill in converting this material to useful purposes. Their shoes were made of straw or grass, which seemed well adapted for a snowy country; and the women wore on their heads a closely-woven basket, which made a very good cap. Among other things, were party-colored mats about four feet square, which we purchased to lay on the snow under our blankets, and to use for table-cloths.

Numbers of singular-looking dogs, resembling wolves, were sitting on the tops of the huts; and of these we purchased a young one, which, after its birthplace, was named Tlamath. The language spoken by these Indians is different from that of the Shoshonee and Columbia River tribes; and otherwise than by signs they cannot understand each other. They made us comprehend that they were at war with the people who lived to the southward and to the eastward; but I could obtain from them no certain information. The river on which they live enters the Cascade mountains on the western side of the lake, and breaks through them by a passage impracticable for travelers; but over the mountains, to the northward, are passes which present no other obstacle than in the almost impenetrable forests. Unlike any Indians we had previously seen, these wore shells in their noses. We returned to our camp, after remaining here an hour or two, accompanied by a number of Indians.

In order to recruit a little the strength of our animals, and obtain some acquaintance with the locality, we remained here for the remainder of the day. By observation, the latitude of the camp was 42 deg. 56' 51", and the diameter of the lake, or meadow, as has been intimated, about 20 miles. It is a picturesque and beautiful spot, and, under the hand of cultivation, might become a little paradise. Game is found in the forest, timbered and snowy mountains skirt it, and fertility characterizes it. Situated near the heads of three rivers, and on the line of inland communication with California, and near to Indians noted for treachery, it will naturally, in the progress of the settlement of Oregon, become a point for military occupation and settlement.

From Tlamath lake, the further continuation of our voyage assumed a character of discovery and exploration, which, from the Indians here, we could obtain no information to direct, and where the imaginary maps of the country, instead of assisting, exposed us to suffering and defeat. In our journey across the desert, Mary's lake, and the famous Buenaventura river, were two points on which I relied to recruit the animals and repose the party. Forming, agreeably to the best maps in my possession, a connected water-line from the Rocky mountains to the Pacific ocean, I felt no other anxiety than to pass safely across the intervening desert to the banks of the Buenaventura, where, in the softer climate of a more southern latitude, our horses might find grass to sustain them, and ourselves be sheltered from the rigors of winter, and from the inhospitable desert. The guides who had conducted us thus far on our journey were about to return; and I endeavored in vain to obtain others to lead us, even for a few days, in the direction (east) which we wished to go. The chief to whom I applied alleged the want of horses, and the snow on the mountains across which our course would carry us, and the sickness of his family, as reasons for refusing to go with us.

December 12 – Crossing Klamath Marsh

12th.--This morning the camp was thronged with Tlamath Indians from the southeastern shore of the lake; but, knowing the treacherous disposition which is a remarkable characteristic of the Indians south of the Columbia, the camp was kept constantly on its guard. I was not unmindful of the disasters which Smith and other travelers had met with in this country, and therefore was equally vigilant in guarding against treachery and violence.

According to the best information I had been able to obtain from the Indians, in a few days' traveling we should reach another large water, probably a lake, which they indicated exactly in the course we were about to pursue. We struck our tents at 10 o'clock, and crossed the lake in a nearly east direction, where it has the least extension--the breadth of the arm being here only about a mile and a half. There were ponds of ice, with but little grass, for the greater part of the way, and it was difficult to get the pack-animals across, which fell frequently, and could not get up with their loads, unassisted. The morning was very unpleasant, snow falling at intervals in large flakes, and the sky dark. In about two hours we succeeded in getting the animals over; and, after traveling another hour along the eastern shore of the lake, we turned up into a cove where there was a sheltered place among the timber, with good grass, and encamped. The Indians, who had accompanied us so far, returned to their village on the south-eastern shore. Among the pines here, I noticed some five or six feet in diameter.

December 13 – on the Williamson River

13th.--The night has been cold; the peaks around the lake gleam out brightly in the morning sun, and the thermometer is at zero. We continued up the hollow formed by a small affluent to the lake, and immediately entered an open pine forest on the mountain. The way here was sometimes obstructed by fallen trees, and the snow was four to twelve inches deep. The mules at the gun pulled heavily, and walking was a little laborious.

In the midst of the wood, we heard the sound of galloping horses, and were agreeably surprised by the unexpected arrival of our Tlamath chief with several Indians. He seemed to have found his conduct inhospitable in letting the strangers depart without a guide through the snow, and had come, with a few others, to pilot us a day or two on the way. After traveling in an easterly direction through the forest for about four hours, we reached a considerable stream, with a border of good grass; and here, by the advice of our guides, we encamped. It is about thirty feet wide, and two to four feet deep, the water clear, with some current; and, according to the information of our Indians, is the principal affluent to the lake, and the head-water of the Tlamath river.

A very clear sky enabled me to obtain here to-night good observations, including an emersion of the first satellite of Jupiter, which gave for the long. $121^{\circ} 20' 42''$, and for the lat. $42^{\circ} 51' 26''$. This emersion coincides remarkably well with the result obtained from an occultation at the encampment of December 7th to 8th, 1843; from which place, the line of our survey gives an easting of 13 miles. The day's journey was 12 miles.

December 14 – Sycan River – Not the Sacramento River!

14th.--Our road was over a broad mountain, and we rode seven hours in a thick snow-storm, always through pine forests, when we came down upon the head-waters of another stream, on which there was grass. The snow lay deep on the ground, and only the high swamp-grass appeared above. The Indians were thinly clad, and I had remarked during the day that they suffered from cold. This evening they told me that the snow was getting too deep on the mountain, and I could not induce them to go any farther. The stream we had struck issued from the mountain in an easterly direction, turning to the southward a short distance below; and, drawing its course upon the ground, they made us comprehend that it pursued its way for a long distance in that direction, uniting with many other streams, and gradually becoming a great river. Without the subsequent information, which confirmed the opinion, we became immediately satisfied that this water formed the principal stream of the Sacramento river; and, consequently, that this main affluent of the bay of San Francisco had its source within the limits of the United States, and opposite a tributary to the Columbia, and near the head of the Tlamath river, which goes to the ocean north of 42° and within the United States.

December 15 – Approaching Winter Ridge

15th.--A present, consisting of useful goods, afforded much satisfaction to our guides; and, showing them the national flag, I explained that it was a symbol of our nation; and they engaged always to receive it in a friendly manner. The chief pointed out a course, by following which we would arrive at the big water, where no more snow was to be found.

Traveling in a direction N. 60° E. by compass, which the Indians informed me would avoid a bad mountain to the right, we crossed the Sacramento where it turned to the southward, and entered a grassy level plain—a smaller Grand Rond; from the lower end of which the river issued into an inviting country of low rolling hills. Crossing a hard-frozen swamp on the farther side of the Rond, we entered again the pine forest,

in which very deep snow made our traveling slow and laborious. We were slowly but gradually ascending a mountain; and, after a hard journey of seven hours, we came to some naked places among the timber, where a few tufts of grass showed above the snow, on the side of a hollow; and here we encamped. Our cow, which every day got poorer, was killed here, but the meat was rather tough.

December 16 – Winter Ridge, Summer Valley

16th.--We traveled this morning through snow about three feet deep, which, being crusted, very much cut the feet of our animals. The mountain still gradually rose; we crossed several spring heads covered with quaking asp; otherwise it was all pine forest. The air was dark with falling snow, which everywhere weighed down the trees.

The depths of the forest were profoundly still; and below, we scarcely felt a breath of the wind which whirled the snow through their branches. I found that it required some exertion of constancy to adhere steadily to one course through the woods, when we were uncertain how far the forest extended, or what lay beyond; and, on account of our animals, it would be bad to spend another night on the mountain. Towards noon the forest looked clear ahead, appearing suddenly to terminate; and beyond a certain point we could see no trees.

Riding rapidly ahead to this spot, we found ourselves on the verge of a vertical and rocky wall of the mountain. At our feet--more than a thousand feet below--we looked into a green prairie country, in which a beautiful lake, some twenty miles in length, was spread along the foot of the mountains, its shores bordered with green grass. Just then the sun broke out among the clouds, and illuminated the country below; while around us the storm raged fiercely. Not a particle of ice was to be seen on the lake, or snow on its borders, and all was like summer or spring. The glow of the sun in the valley below brightened up our hearts with sudden pleasure; and we made the woods ring with joyful shouts to those behind; and gradually, as each came up, he stopped to enjoy the unexpected scene.

Shivering on snow three feet deep, and stiffening in a cold north wind, we exclaimed at once that the names of Summer Lake and Winter Ridge should be applied to these two proximate places of such sudden and violent contrast.

We were now immediately on the verge of the forest land, in which we had been traveling so many days; and, looking forward to the east, scarce a tree was to be seen. Viewed from our elevation, the face of the country exhibited only rocks and grass, and presented a region in which the *artemisia* became the principal wood, furnishing to its scattered inhabitants fuel for their fires, building material for their huts, and shelter for the small game which ministers to their hunger and nakedness.

Broadly marked by the boundary at the mountain wall, and immediately below us, were the first waters of that Great Interior Basin which has the Wahsatch and Bear River mountains for its eastern, and the Sierra Nevada for its western rim; and the edge of which we had entered upwards of three months before, at the Great Salt Lake.

When we had sufficiently admired the scene below, we began to think about descending, which here was impossible, and we turned towards the north, traveling always along the rocky wall. We continued on for four or five miles, making ineffectual attempts at several places; and at length succeeded in getting down at one which was extremely difficult of descent.

Night had closed in before the foremost reached the bottom, and it was dark before we all found ourselves together in the valley. There were three or four half-dead dry cedar-trees on the shore, and those who first arrived kindled bright fires to light on the others. One of the mules rolled over and over two or three hundred feet into a ravine, but recovered himself without any other injury than to his pack; and the howitzer was left midway the mountain until morning.

By observation, the latitude of this encampment is 42° 57' 22". It delayed us until near noon the next day to recover ourselves and put every thing in order; and we made only a short camp along the western shore of the lake, which, in the summer temperature we enjoyed to-day, justified the name we had given it.

Our course would have taken us to the other shore, and over the highlands beyond; but I distrusted the appearance of the country, and decided to follow a plainly-beaten Indian trail leading along this side of the lake.

We were now in a country where the scarcity of water and of grass makes traveling dangerous, and great caution was necessary.

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While we visited every site discussed in this ebook and made every effort to accurately describe our process and adventure, we may have made errors in our descriptions.

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