
American Icon

The Short Brilliant Life of Butler Ives

By Paul S. Pace, PLS

Part I *of a two-part series*

In the spring of 1861 Carson City was a blizzard of activity. The rude, muddy streets of the new territorial capital were cluttered with wagons, drays, carriages, riders on horseback and pedestrians of every sort. The population was growing but in flux, with miners on their way to the new-found bonanzas of the nearby Washoe Region, tradesmen, itinerant Faro dealers, prostitutes, desperados and an army of single men seeking fortune, fame or merely a chance to be present at the creation of this new place. With the actual establishment of the Territory, two days before Abraham Lincoln's inauguration in March of that year, some were less than happy with the arrival of law and order; most were relieved.

Territorial appointees were arriving daily to assemble the apparatus of government, the bureaucracy of this new political entity created at the edge of the vast Great Basin. Among them was James W. Nye, named by Lincoln as Governor for the U.S. Territory of Nevada. Nye had been an ardent supporter of Lincoln during the fateful election of 1860 and thereby a beneficiary of his patronage. Orion Clemens, although born a southerner, won the appointment for Territorial Secretary and Acting Governor until Nye arrived, and occasionally thereafter. Clemens came to Nevada with his younger brother Samuel, destined later for a spectacular career in American letters. John Wesley North, an attorney and another Lincoln supporter, was appointed Surveyor General of the Territory. Lincoln would have no Copperheads, no one openly sympathetic to southern aspirations, governing Nevada. The aptly named North arrived in Carson City in June of 1861, actually the first territorial official to do so, and immediately began construction of a home for his wife and family, still waiting in the East. He also wasted no time assembling his staff, the surveyors, draughtsmen and clerks who would mind the Public Lands and shape the growth of this new territory.

Back in the "States" however, things were going from bad to worse. By April of 1861, Confederate gunners had reduced the Federal fort in Charleston Harbor to rubble and four more southern states had seceded from the Union to join the Confederacy. Tragically the country was at war with itself. By

June, the fratricide had split Virginia in half and pushed four slave states to side with the Union. In July, as Governor Nye declared the Territorial government in place and functioning, the Confederates routed the Union Army at Bull Run. Lincoln sacked the commander of the Army of the Potomac, Brigadier General Irvin McDowell, and then ordered a naval blockade of all 3500 miles of the Confederacy's coastlines.

Despite the frenzy of new construction in Carson City, rooms for single men were at a premium. As soon as John North's home was completed, he and his sister Clarissa moved in. North would now send for his wife and family, leaving Clarissa in charge of the household. She immediately took in boarders, among them North's new Chief Clerk, John F. Kidder, his draughtsman, Julius E. Garrett, and a surveyor newly arrived from the States, Butler Ives. Kidder and Ives were given rooms in the attic, and when Sam Clemens arrived at Clarissa's door looking for a room, she sent him to the attic as well.¹

North found an office, gathered equipment and put his sister to work making tents for the surveyors. All the while, he wondered out loud to Governor Nye how they would exist in this place on government salaries. The money seemed adequate back in Washington, D.C., but upon arriving in Carson City, they found that the mining boom on the Comstock greatly exaggerated the cost of living. Nye complained that he paid 30 cents a pound merely to haul his personal property over the Sierras from Sacramento. Housing prices were three times what they were in New York and interest rates were twice as expensive as San Francisco. Nye solved the problem of soaring rents by moving into North's office and he advised his Surveyor General to open a law office and seek a private practice, so he could earn enough to survive.²

North's instructions from his boss, the Commissioner of the Public Lands James Edmonds, himself a new political appointee, were to run the Mount Diablo Baseline and Meridian into Nevada from California. To that end, Contract #1 from the office of the Territorial Surveyor General went to Butler Ives on July 15, 1861, with Special Instructions for the work. Two days later Ives and his party were busy pushing the Second Standard Parallel North eastward into the Nevada Territory. Once that was in place they would run a guide meridian northward, the backbone for all surveys of the Public Lands in that area.

Working from prior cadastral surveys near the undefined boundary with California, Ives and his crew ran eastward along the township boundary and arriving at the proposed initial point, set a "metamorphic sandstone 40" long, 14" wide at the base & 7" thick for the Initial Point to the Carson River Guide Meridian, marked on the North Face C.R.G.M. on the West face 2nd S.P.

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& on the East face 2nd S.P. as per instructions, also raised a mound of stone ...5 feet at the base & 2 1/2 feet high..." The party finished their initial work on the Second Standard Parallel and proceeded to survey and monument the guide meridian.

The Carson River Guide Meridian was to run from its Initial Point on the 2nd Standard Parallel, between Townships 10 and 11 North, then northward along the east boundary of Range 20 East to the intersection with Townships 20 and 21 North. The contract also called for the establishment of the 3rd and 4th Standard Parallels and run a certain distance east and west of the Meridian. In total they would survey nearly 150 miles of line, setting out monuments as they went.³

Butler Ives was hardly new to cadastral work. He had been ably mentored by his older brother William, a surveyor who worked with William Austin Burt, inventor of the solar compass. William Ives had been Burt's compassman when Burt surveyed Michigan's iron rich Upper and Lower Peninsulas in the 1840's. At Burt's request, William was appointed a U.S. Deputy Surveyor in 1843. Butler became a Deputy Surveyor in May of 1850. William, who was thirteen years Butler's senior, saw opportunity for surveyors in the vast Oregon Territory and decided to head west. He asked Butler to go with him. Together, the brothers went by boat from New York to Panama, made the arduous Isthmus crossing and sailed up the Pacific coast to San Francisco, where they stopped for the night and witnessed the great fire of 1851. From there they sailed up the coast toward the Oregon Territory. With them came a cadre of young surveyors with whom they had worked in Michigan, and letters of recommendation from Burt and others.⁴ They arrived in the Territory on May 11, 1851 and immediately presented themselves to the U.S. Surveyor General John Preston, then located in Oregon City. Based on their previous experience, William Ives and another new arrival named James Freeman, were designated as Preston's lead surveyors.

Preston was anxious to set an initial point and get a meridian and base line in place. Within two days of their arrival, the Surveyor General led Freeman and William Ives on a reconnaissance eastward, by boat up the Columbia River. He was hoping to gather enough information to keep the proposed base line out of the water, as the line was run eastward. After the return trip down the Columbia, Preston and Freeman departed, leaving William in charge with orders to find a suitable initial point. William, Butler and assistant Joseph Hunt scouted the Willamette River where it joined the Columbia, and then the areas north and south of the Columbia. Running lines where needed and noting observations, they selected a tentative initial point for the new meridian, on a hill overlooking the Willamette River.

On May 28th, 1851 Preston assembled his deputy surveyors at the G.L.O. office in Oregon City. He awarded Contract #1 to James Freeman, who was instructed to survey the new Willamette Meridian from its intersection with its Base Line south to the Umpquah Valley, thought to be a distance of 210 miles. Contract #2 went to William Ives who was to run the Base Line west to the Pacific, east to the Cascades and push the meridian north from the Initial Point to the Puget Sound, estimated to be 240 miles altogether. Freeman and Ives were to be paid \$20 per mile of actual meridian and base line work. Random lines and offsets would not be paid for and the deputies were required to post a large bond. The surveyors would conduct the work at their own expense and receive payment only when the surveys were returned and accepted by Preston. On the 1st of June, William, Butler and Joseph Hunt returned to the hill they had previously found and set a wooden post for the Initial Point of the Willamette Meridian. Their post was replaced by a stone obelisk in 1885 and is memorialized as the Willamette Stone State Heritage Site, a small park now in the city of Portland, Oregon.

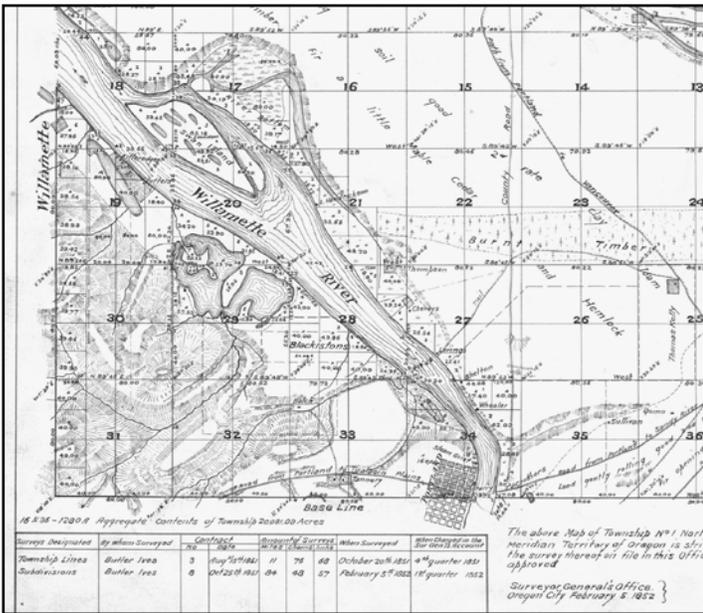
Butler received his first solo contract in August, 1851. For Contract #3, Ives monumented the boundaries of six townships along the eastern side of the Willamette Meridian, at \$18 per mile. Working in unrelenting rain, Ives discovered "two miss tallys and (a) bad close" and spent three days resurveying the lines to repair the errors. He became quite ill in early September and barely managed to complete the contract by mid month. Later that autumn, after he recovered, Ives was awarded Contract #8, subdividing those same townships.⁵

Whether working or not, the Ives brothers preferred camping out in good weather, rather than staying in boarding houses or hotels. They usually took Sundays off and tried, when possible, to attend church services. They always carried a copy of Shakespeare or a history book with them in the field. The work was rigorous, in remote and strangely new terrain, unlike the conditions they had faced in Michigan. The constant cloudy weather, drizzle or heavy rains delayed them for days at a time and interfered with the use of the solar compasses. It began to take a toll on the older brother William.

After 18 months in the Oregon Territory, William decided it was time to head back to Michigan. He was tired, but also angry with the Preston who was arrears in his payments to the deputies. He also felt it was time to get married. William sold a nautical almanac, his copy of Bowditch's *New American Practical Navigator* and a French dictionary to Butler. He also gave him power of attorney to settle up with the Surveyor General and left Oregon. He and Butler had lived and worked together for six years and the parting must have been a hard one. The same

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day William left, Butler was awarded Contract #22, the exterior boundary for ten townships, at \$17 per mile. The contract specified that while Butler would begin immediately, he would not be paid until the monies were appropriated by Congress. This restriction only further delayed payment to the deputies. Compounding the issues were Territorial politics, rife with the same issues that burdened the rest of mid century America. Many of the deputies, including Butler, were Democrats, while Preston was a Whig. Butler detected favoritism in the awarding of contracts and wondered how the presidential election of 1852, with the potential for new appointees, might impact this awkward situation.



Portion of 1851 G.L.O. Plat for T1N, R1E, WM, BLM website

Butler typically worked with Joseph Hunt and George McFall, in addition to his brother. Together they worked through difficult, densely wooded terrain, hostilities between Whites and Indians and dismal weather that hampered taking solar azimuths and reduced camp life to misery. Mile after mile they chained, calling out everything that their lines crossed. Theirs became familiar names working near the Meridian and down into the Rouge River Valley. Ives' work in Oregon, shaping as it did the character of all future development there, was held in high regard at the time, and remains so today.⁶

Butler stayed on in the Territory until the Spring of 1855. By then G.L.O. contracts, which had been so plentiful in the early 1850's, were becoming scarce and the number of surveyors increasing. In addition, the Land Office in Washington believed that the rates per mile paid to the deputies working in Oregon were too high. It insisted that the rate be cut to \$12 per mile. Frustrated, Butler completed Contract #47, but he had seen enough. Despite

the anticipated political changes in the Land Office, his pay was retroactively reduced to the new \$12 rate. He submitted his field notes, sold his horse, tent, most of his surveying equipment, said his goodbyes and returned to Michigan. He again took up work as a Deputy Surveyor and remained there for the next five years.⁷

James Freeman too left Oregon, settling in California. Joseph Hunt was killed instantly when a boiler on a steamship tragically exploded. Hyde remained in Oregon. By the time Butler returned home, William was married and settled down in Grosse Ile, Michigan. Butler's romantic aspirations, if he had any, were not similarly fulfilled and in 1861 he again returned to the West. He resumed work as a Deputy Surveyor, this time for James North in Carson City. When he came West, his friend James Lawson came with him. Lawson immediately went to work with Ives as a chainman and compassman.

John Kidder, the Nevada Surveyor General's Chief Clerk, was from New York and had attended Rensselaer Polytechnic Institute though he did not graduate. From there he went on to hold the position of city engineer of Syracuse, and later became the superintendent of streets for some years.⁸ He was acquainted with North while both were in New York and it seems probable that his presence in Carson City was requested by General North. At all events, Kidder began work in North's office and his name appears immediately as a notary public, acknowledging field notes that Ives submitted. He soon would be doing field surveys of his own.

Lake Bigler also was a busy place in the summer of 1861, if for no other reason than for all its name changes. The Army surveyor Lt. J. C. Frémont, of course, had named it Mountain Lake when he first saw it from a distance in 1844. Later he changed it to Lake Bonpland, in honor of Humboldt's fellow explorer and colleague. John Bigler, the former governor of the State of California and present name holder in 1861, was quickly falling from grace under suspicion of being a Confederate sympathizer. Still, the name had not yet been changed to the Washoe Indian name *Tahoe*, or for that matter Lake of the Sky, Sierra Lake, Frémont's Lake, Tula Tulia or any of the other fanciful appellations the "swells" favored. With the inception of the Nevada Territory, the Federal Government was concerned about the location of the lake and the territory's western boundary. It abutted California, whose boundaries were established, amid controversies over slavery, in 1849.

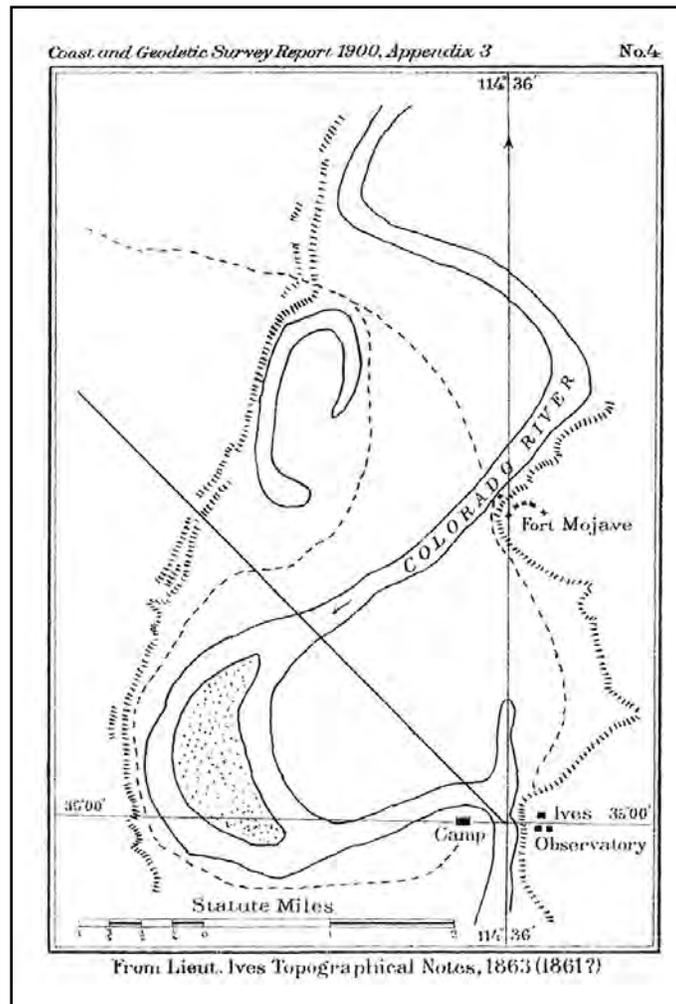
In 1855 the English-born surveyor George Goddard was awarded a road project from Placerville, through the Sierras, past Lake Bigler and on into the Carson Valley. In addition to surveying the new road, he was instructed to determine, by

astronomical observations, the boundary between California and the Territory of Utah. This he did, finding that the fertile Carson Valley fell within Utah and not California, as many residents had hoped. He also found that the angle point in California's eastern line rather inconveniently fell within Lake Bigler's blue, crystalline waters. This placed both ends of the 400 mile long, impossibly difficult, oblique boundary in water, thus compounding the surveyor's difficulties. Goddard's work satisfied the immediate need, but was not recognized as an official survey.

In 1860 the U.S. Boundary Commission, in cooperation with California, sought to fix the entire western line of the Territory on the ground and named West Point graduate and former Army officer Sylvester Mowry as commissioner for that purpose. Lieutenant Joseph Christmas Ives, another West Pointer and active-duty Topographical Corps officer with previous survey experience in the West, was named Chief Astronomer and Surveyor. Ives had quality instrumentation, usually in short supply in the West: a transit and zenith telescope by William Würdemann, the Coast Survey's chief instrument maker, an achromatic telescope by Troughton & Simms of London, a sidereal clock, a battery powered chronograph for telegraphic work and two chronometers by Bond and Sons.⁹

The expedition went first, by various means, to the southern terminus of the long oblique line at the Colorado River. This fell within two miles of Fort Mojave, a dusty outpost built by the Army in 1859. Lt. Ives had been to this place on the river before, during his reconnaissance survey of the Colorado River in 1858. On a sandy bluff above the ever shifting river, he now began lengthy observations to determine the 35th Parallel, the intersection of which with the Colorado River defined the terminus. With the survey under way, Mowry went to Los Angeles and while there squandered a good deal of the Army's remaining appropriation for the survey. Mowry was relieved of command in May of 1861, the same month the

Army abandoned Fort Mojave and sent the garrison east for the war effort. Lt. Ives continued on with the boundary mission.



Lt. Ives' Astro Station on the Colorado, USC&GS

Upon completing the astronomical work at the Colorado, Lt. Ives constructed a large masonry offset monument on the bluff and proceeded on, sans Mowry, to San Francisco. There he conferred with the Army's lead Topographical Corps officer on the Pacific Coast, Lt. R.S. Williamson, as well as officials from the state. They coordinated plans for the telegraphic determination of the 120th Longitude, reckoned from Greenwich, which running north from the angle point in Lake Bigler, defined Nevada's western line. Lt. Ives used the Greenwich Meridian for reference, conforming to California's boundary. However, since 1850 Congress had mandated that terrestrial geographic coordinates in the U.S. would be referenced from the American or Washington Prime Meridian, which passed through the Naval Observatory in Washington, D.C. Consequently, when Nevada's

east line was located some years later, it was reckoned in whole degrees of longitude from Washington and not Greenwich.¹⁰

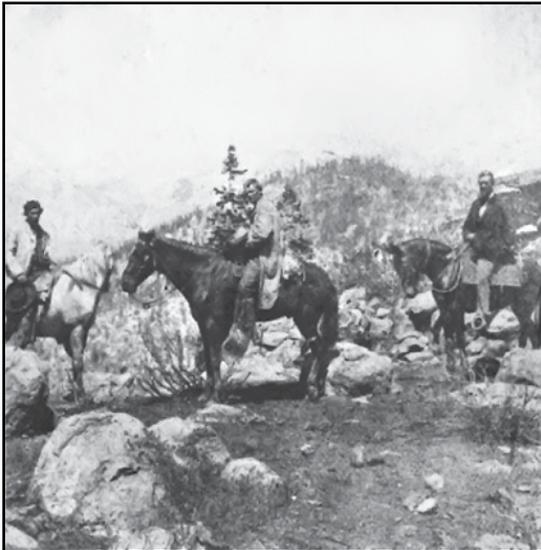
Lt. Ives and his party departed San Francisco and rode east. Later it was reported that he had proceeded "...by astronomical observations at San Francisco, and the use of the telegraph, in connection with the commissioner appointed by the State of California, to fix the northern initial point in the Washoe region, and that he was about to proceed to Lake Bigler to fix the initial point there."¹¹ Where that northern point might be and how it was set remains unclear. Ives next moved his party to Lake Bigler and began astronomical observations before the end of July. Sometime in August, he was contacted by John Kidder in General North's office who inquired about the progress of the work and if data were available. Ives complied, sending preliminary values for his observatory at the lake, located near the Lake Bigler House.

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Also known as the Lake House or Van Wagener's, this two story, hewn-log hotel was built in 1859 near the Placerville-Genoa road, on Bigler's south shore. Critically, the Placerville & Humboldt Telegraph Company's telegraph line ran along the road. While he was there Lt. Ives received a visitor in the person of the California State Geologist, Professor Josiah Whitney, who later wrote to his brother,

"We stopped over a day at the Lake to rest and see Lieutenant Ives, who is encamped there determining the point of intersection of the 120th meridian with the 39th parallel, from which the boundary line of California runs due north."¹²

It is interesting to note that Lt. Joseph Ives, born in New York and educated at Yale and West Point, was a distant cousin of Butler Ives. At the same time Butler completed his work on Carson River Guide Meridian and the parallels at the end of August, 1861, Joseph was finishing his observations at Bigler. He had conducted simultaneous observations between there and San Francisco with Lt. Williamson, who occupied the U.S. Coast Survey mark at Telegraph Hill. This activity has long been the source of controversy with many, including George Goddard and some in the Coast Survey, denying outright that Lt. Ives had in fact used a wire for longitude, and others who alleged that, at best, the work was poorly done. In fact, Goddard maintained until his death that Lt. Ives had used Goddard's own 1855 instrument block at Tahoe, an assertion not borne out by the record.



Butler Ives at right on the mule, NHS photo

Butler Ives and James Lawson arrived at Lake Bigler in mid September to begin surveys in the rugged confines of T13N, R18E, MDM. Under the terms of Contract #3, Butler subdivided the township and meandered that part of the lake shore within

its boundaries. He stopped about a mile short of Lt. Ives' observatory; no mention of the observatory is to be found in his 1861 field notes. All the while Lt. Ives was on TDY along the Nevada line of course, the Civil War raged on. On August 30th, 1861 John C. Frémont, now a Major General in the Union Army and military governor of Missouri, declared Martial Law in that state and unilaterally freed the slaves of Confederates there. This action instantly drew the ire of President Lincoln, who had a different time line for emancipation, namely coincidence with a Union victory, and quickly rescinded the order. That same day Lt. Ives received word from the Secretary of the Interior that the boundary mission was deemed over and he was to leave Bigler and report back to Washington. He acknowledged and packed up, returning his instruments, telegraphic gear, field notes and calculations to the U.S. Surveyor General's office in San Francisco on September 11th. At some point Joseph telegraphed John Kidder to report his final latitude and longitude for the instrument block at Bigler. Those values figure prominently in Butler's later work. If the two Ives' were aware of each other, or that they were performing surveys so close to one another, no mention of it has been brought to light.

Lt. Ives was next offered a promotion to Captain and a combat command with the 17th Infantry Regiment, Army of the Potomac. He declined the promotion, resigned his commission and on November 8th, 1861, appeared as a Captain in the Confederate Engineers, attached to General R. E. Lee's staff. Lee immediately sent him to Charleston, then to Savannah, to oversee the construction of coastal defenses. In 1863 he was promoted to Colonel and served as Aide-de-Camp to the Confederate President, his friend and former U.S. Secretary of War, Jefferson Davis.¹³

Butler Ives had carried on a vigorous correspondence with his brother William, and this custom he continued as he took on more work with the Government Land Office (G.L.O.) in Carson City. Butler's numerous letters, a few of which are now kept in the Nevada Historical Society, reflect his wit, imagination and the deep kinship he felt for his brother. While the letters occasionally address some family business, in the main they regard Butler's survey projects. There is little or nothing of his personal life in them. From Carson City, in November of 1861, he chided William for his apparent inattention,

"I have not received any answer to a letter I wrote you sometime since, thinking that you might be so engrossed with in your corn & potatoes or Post Office that you forgot it."

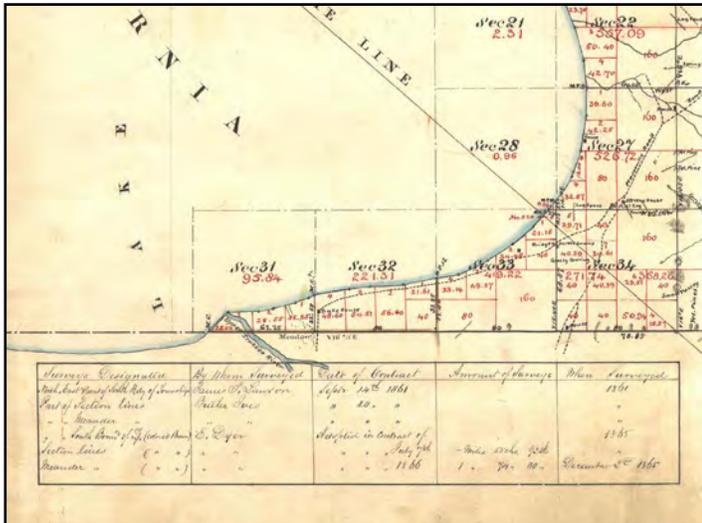
Then he went on to explain his current contract with the Surveyor General's office,

"...I have taken my present contract for subdividing 6 1/2 townships at \$12.00 per mile. About 2/3 of it is good work, the balance is

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in the Sierra Nevada Mountains between Carson Valley and Lake Bigler & such mountains Uncle Sam never had surveyed before. The land is worthless but the Y. Pine timber on them is very valuable, for Nevada has no timber after leaving these mountains except a few dwarf nut pines and cedars...which are worthless except for wood and taking the rags off Uncle Sam's Deputy Surveyors."

The letter goes on, with descriptions familiar to any surveyor workin in the mountains,



Portion of G.L.O. Plat for T13N R18E, MDM, BLM website

"I have finished 2½ townships of the worst of my work, & such getting up and down hill you never saw. Night before last I quit work on the summit of a mountain 4000 feet above where my camp was, only 1¼ miles distant. We have any quantity of fine scenery, some of which I would be glad to dispense with...I start two compasses tomorrow by permission of the Sur Gen...I am so busy that I learn but little of what is going on in the Territory. It is all mining however, new leads being struck, new diggings, new quartz mills, a coal bed here, a silver or gold ledge there, ox teams, mule teams, pack trains, muleteers, dust and bad whiskey keep up the excitement of the country."

All through the Fall of 1861 and into the Spring of 1862, Butler subdivided townships on the steep, thickly forested eastern flanks of the Sierras. Kidder meanwhile was dispatched to survey an alternate territorial boundary along the crest of the Sierra, well to the west of the 120th Meridian, from Lake Bigler to Honey Lake Valley. This line was described in Nevada's 1861 Organic Act, and was likely the reason Kidder was in contact with Lt. Ives in August. For this boundary work Kidder was paid \$550.¹⁴ California was not of a mind to loose territory to Nevada, however. The state rejected the alternate boundary and Kidder's work went for naught. Further, in March of 1862 the office of

the Surveyor General in the Nevada Territory was put on notice that it would be closed. After July, surveys would be supervised from the California Surveyor General's Office in San Francisco.¹⁵ Ives and his colleagues were potentially facing unemployment.

The winter and early spring of 1862 were indeed slow going for Butler, though he did manage to get some small survey projects. He wrote to William, though perhaps shaping it more as a note to himself,

"I have made out to smoke my way through the winter without getting the blues very bad, though I have had but little else than my books and newspapers for pastime with an occasional job in surveying to keep my hand in it...The winter has been the most unpleasant one I ever spent anywhere."¹⁶

Those jobs he did get included subdividing blocks in Washoe City and platting some small additions to Carson City. A field book of his in the Nevada Historical Society shows deed descriptions for individual parcels written in pencil and rough notes for several additions. He and his colleague James Lawson, who was elected Ormsby County Surveyor in 1862, opened a practice together and shared an office. John Kidder for his part, was appointed County Surveyor for Esmeralda County by Governor Nye in July of 1862 and acting County Surveyor for Nye County for a time in 1864.¹⁷

While work was slow for Butler Ives, things could have been worse. John Clark, the U.S. Surveyor General in New Mexico, faced a far more challenging situation. He and his staff were forced to flee their office with the arrival of Confederate cavalry into Albuquerque on March 2nd, 1862. The Confederate column, under the command of the hard drinking Brigadier General Henry Hopkins Sibley, advanced up the Rio Grande Valley after defeating Union forces south of Albuquerque, near Fort Craig. Clark packed up the survey records, leaving some of the old Spanish Archives behind, and sent them to Fort Union, north of Las Vegas, New Mexico, for safekeeping. The Confederate force moved northward toward Fort Union, but was turned back near Glorietta Pass. They withdrew, passing again through Albuquerque and back into Texas, ending the Confederate threat in the Southwest. Clark returned to find his office intact. The Rebel cavalymen had taken the furniture, but left the records in peace.¹⁸

With the onset of good weather, Butler Ives anxiously prepared for a return to the field. In May, he advised William,

"I have my men, mules and equipment ready for a start in the field again day after tomorrow. I have about 3½ townships of subdivisions to complete yet of very good work...there has been some talk or action in Congress towards consolidating the Surveyor General's Office here with the office in California to

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save expenses. If that is done, I do not expect to get any more work for already surveyors are thick as ticks in California!"

In August, Ives confirmed that the Surveyor General's Office in Carson City was in fact closing down,

"I have but just finished my contract and returned the notes to the Office and was assisting the Chief Clerk in putting the topography on the plats to be sent to Washington. As the Surveyor General's office was abolished after the first of July and turned over to the California office, I assist the clerks in closing up in order to get my contract off before the transfer was made. I thereby save two or three months in getting my pay."

He went on, adding some details regarding another project he had just completed,

"After finishing with the Surveyor General's Office Mr. Kidder (late Chief Clerk) & myself started for Aurora, a new mining town near the California boundary and about 100 miles SE of here... We went partly for the purpose of surveying some coal fields & partly to see the country. When we arrived there the coal field parties had no money to pay for a survey & we told them we had quit working for promises to pay & left them."

At that time, politicians from California and Nevada were anxious to determine the location of the new mining camp at Aurora, located in the mountains some 20 airline miles southwest of present day Hawthorne, Nevada. That the camp was near the boundary everyone agreed, but no one knew in which jurisdiction the potentially lucrative mining district was actually located. Indeed, in the confusion, the town elected

representatives to both the California and Nevada Legislatures in 1862 and those representatives became the Speakers of their respective legislatures.¹⁹ Ives and Kidder covered some very rugged country on this work and a somewhat disgruntled Butler concluded,

"The territorial legislature appropriated \$1000 last winter to have the boundary between California and this territory run from Lake Bigler SE to Aurora... I refused to run it last spring as the pay was not sufficient as it would be in Territorial Script worth about 50cts on the dollar... I told them I would triangulate the line through from the survey (the 2nd Standard Parallel) and locate the points when it crosses the valleys, roads which they agreed to... Reduced my calculations and found Aurora 2 miles in the Territory. Set up the monuments agreed before. Got back to this place yesterday dirty & ragged, having been gone just three weeks & rode nearly 400 miles... I am....waiting for something to turn up. I have about a week's work mapping, expect to take a week fishing in some of the mtn. lakes of the Sierras and if I get no work shall mount my mule and turn a wandering Arab again!"²⁰

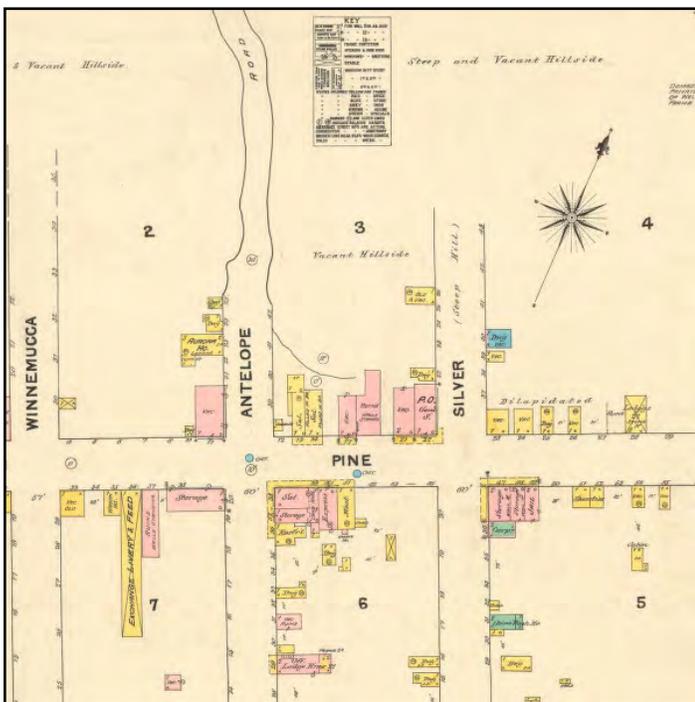
Ives and Kidder ran their reconnaissance survey to Aurora, triangulating with a solar compass, a technique that Ives would employ to great advantage later on. Aurora would boom, but by the end of the century it was all but deserted. But now Ives was out of work; he needed to find employment or move. James North, the first and last Surveyor General the U.S. Territory of Nevada, was also out of work, as well as his staff.

Butler next contracted for a position as surveyor and construction superintendent, building a toll road from Carson City up King's Canyon, over Spooner Summit and down to Glenbrook. From there the road coursed around Cave Rock then along Lake Bigler's eastern shore to Small's, sometimes called Friday's Station, at the foot of the Kingsbury Grade. The present four lane highway ascends Clear Creek, to the south of the toll road. The roads join at Spooner Summit and follow the same alignment to Cave Rock and on to the present junction with the Kingsbury road.

About the road, he wrote to William in the summer of 1863,

"I am tired enough to go to bed. Have 200 men at work on the road divided into four gangs and shall have 50 more this week... I have 10 to 30 miles of horseback riding every day."

In the mean time, confusion and unrest over the location of the boundary between the Nevada Territory and the State of California continued. As a result, in February of 1863 violence broke out near Susanville, so the governments of both jurisdictions set out to solve the issue once and for all. They created a joint commission to survey the boundary and



1890 Sanborn Map of Aurora, Nevada, in serious decline. UNR photo.

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appropriated monies for that purpose. Butler's letter went on,

"Besides the road I have lately been appointed commissioner from Nevada Territory to survey the boundary line between the Territory and California, from the southern boundary of Oregon to the Colorado River, a distance of six hundred miles."²¹

His friend John Kidder was also selected to assist in the work, as well as Butler's 32 year-old colleague James Lawson. Butler, showing he was not adverse to taking on large projects, added,

"Mr. Kidder, former Chief Clerk in the surveyor general's office here, does the work on the line. I offered to contract to run the line with the State of California last winter for \$20,000 but the legislature thought it would not approve quite so scientific and formal a contract...So I got the commission from the territory and I am to be paid \$3000...I have been engaged for the last two weeks in getting the party started north for Oregon...What spare time I have in the interval I will spend in assisting Mr. Houghton, surveyor general of California, in making observations, calculations, etc, for Latitude and Longitude at Lake Bigler for the S.E. line and some with a trout line...I have little time to read the war news. Most of it is so unsatisfactory that I have lost the interest in it I once had."

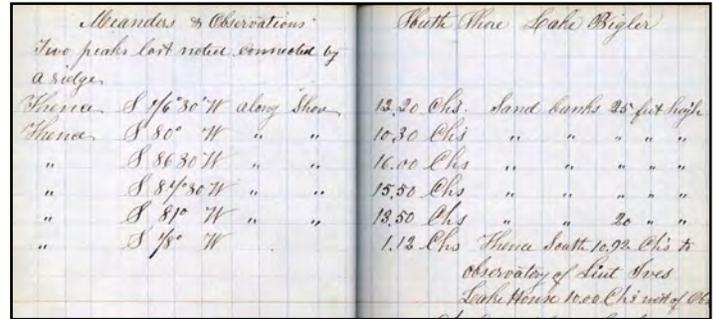
The letter continued, Butler joking with his older brother about the house that William was then building. He then added, prophetically:

"I expect you will have your house all finished before I return. Don't forget that room for me, I shall want it if the Indians don't scalp me, or some other mishap interferes with my destiny." Destiny indeed had other plans.

The road over Spooner Summit, variously called the Lake Bigler Road, Lake Tahoe Wagon Road or the Ives Turnpike²², would occupy Butler for some time longer. He typically laid the grades in at 8%, though some 15% grades were required.²³ Still, the 23 mile project proved to be by far the best of the area's roads. Ives did however take time to meet with Surveyor General Houghton at the lake's south shore in May. While he was there, he conducted a traverse southwesterly from the Meander Corner between Section 33 and 32, T13N, R18E, MDM, along the Lake's edge, to Lt. Ives' observatory. He did not describe the observatory itself, but noted that the Lake House was a further 10 chains to the west. The party continued meandering on around to the west shore. They then conducted soundings of the lake along the 120th Meridian.²⁴ Later, in his final report to the Boundary Commission, Ives wrote,

"On the 22nd day of May last I met with the Hon. J. F. Houghton Surveyor General of the State of California in Lake Valley, where he had a party organized to commence the survey of the boundary line, under the charge of John F. Kidder, with J. L. Lawson as

First Assistant both experienced surveyors."



Portion of Butler Ives's field notes locating Lt. Ives' observatory at Lake Bigler

But the work on the road continued to occupy Ives into the Spring of 1864. During the Winter of 1863, he noted that,

"I had...about three hundred men at work, and I had all the engineering, the furnishing supplies, paying off and accounts generally to look after, besides riding over the road four or five times a week a distance of 23 miles and it has kept me going night and day and Sundays. It is a big undertaking to build a good road across the Sierras...The Lake Bigler Road is eighteen to twenty-five feet wide...We have used over four hundred kegs of powder in blasting...the road swings around the face of a perpendicular rock overhanging Lake Bigler...I put in a trestle bridge eighty feet long, which is bolted to the face of the rock... Most people pronounced it impracticable to build a road around it. Now the stages drive around it on a full run..."²⁵

James Houghton, the California State Surveyor General was elected to that office in 1862. He too attended Rensselaer Polytechnic Institute at Troy, New York; he graduated and then took advanced studies in mathematics at Harvard University. Houghton echoed Ives in his final report to the Boundary Commission:

In compliance with the request so made, his excellency Orion Clemens, then Acting-Governor of the Territory, appointed as such Commissioner Butler Ives, Esq., a gentleman whose mathematical education and large experience as a United States Surveyor peculiarly fitted him for the position...I engaged the services of Mr. John F. Kidder, an Engineer and Surveyor of large experience, to assist in organizing and equipping a party to commence the work...on the twenty-second of that month Mr. Kidder and party reported to me at the lake, and the work was to commence and continued without interruption to the Oregon line.

The survey began at the observatory block of Lt. Joseph Ives. The block itself was most likely was cut from a large tree; it was still in place and identified as such. By that time, John Bigler

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Butler Ives' Toll Road Trestle Bridge at Lake Bigler. USFS photo.

was out of favor and the mountain lake split by the boundary was called Tahoe in popular use, though it would be another 75 years until it was officially changed in California. Lt. Ives' meridian was transferred across the lake by means of signal fires over a series of night and then the party ran west to the 120th Meridian. They ran the meridian south to the lake shore and set a boundary post there. From there, the continued meandering a portion of the lake shore. On June 6th, Kidder and his men commenced north again, into the rugged county between Lake Bigler and the Truckee River.

From there they quickly cleared the tree line and entered the desert, running through the wilderness toward the Oregon border. Kidder, after some extraordinary difficulties, completed about 190 miles of line, marking it at random locations with a variety of monuments, by July 7th. They set their terminal monument on the 42nd Parallel with haste that day, as a Modoc war party lit signal fires and closely watched the surveyors. They quickly left the area and were back at Lake Bigler by July 24th.²⁶ While they were engaged in the work and thus out of communication, Union victories at Gettysburg and Vicksburg that July changed the course of the War.

Running the oblique line south of Lake Tahoe would prove a more demanding task than the 120th. In fact, it was twice as long and would run through much more difficult and dangerous

country. Additionally, it was a portion of a great circle and would require geodetic calculations to compute, among other things, the ever changing azimuths along the line. Houghton and Ives further lacked a geodetic quality instrument suitable for running the line and sought the purchase of one. While their crew was working their way toward Oregon, the Commissioners purchased a large transit manufactured by Temple of Boston, Massachusetts from a dealer in New York. They also contacted Professor J. E. Hilgard, in charge of the U.S. Coast Survey office in Washington, D.C. for the purpose of determining positions on the line as well as geodetic azimuths. Hilgard obliged and his calculations indicated, for example, that the azimuth for the oblique line at 35° north latitude would be 134° 19' 26", while at 39° it would be 131° 04' 15", reckoned from south. These were based on the values for the two ends of the oblique line submitted by Lt. Ives in 1861, despite some apparent confusion regarding the longitude of the instrument block at Lake Tahoe. Using Lee's Formula, Houghton and Ives performed the same calculations as a check and were gratified to find that their work closely matched Professor Hilgard's.²⁷ They also made a quick check of Lt. Ives' latitude and again found themselves in agreement. Though both Houghton and Butler Ives cite an "approximate longitude" of the observatory block in their reports, Kidder noted a slightly different value in his field notes, most likely a later refinement by Lt. Ives of his values obtained by wire from the Coast Survey mark at San Francisco.²⁸

The commissioners also derived the distance on a line easterly out of Lt. Ives' observatory to a point on the oblique line, near the southeast corner of the Lake, where they set a monument. They then conducted a lengthy series of observations there to determine the meridian, using their altitude-azimuth instrument. That instrument was manufactured by Parkinson and Frodsham of London, and had a 12" horizontal circle reading direct to 10" with a 16" vertical circle reading direct to 5".²⁹ They calculated a starting azimuth and were now ready to run over 400 miles of line that Houghton called "one of the longest transit lines ever attempted to be run in the world".³⁰

The party ran the line southeasterly up and out of the wooded Tahoe Basin, down into the lower valleys, across the Carson River and then back up into the Sweetwater Mountains, crossing the eastern flank of South Sister at an elevation of over 10,000 feet. The line took them across the West Walker River, through the dense pinion forests south of the river and over the volcanic wasteland of Beauty Peak.

In the 76th mile, they chained 3 miles and 7.5 chains north and east, at right angles to the boundary, to a street intersection in the town or Aurora. They returned to the oblique, crossed the Mono Lake Basin and entered the trackless, broken terrain of

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the Adobe Hills. There they encountered a large party of Indians numbering perhaps 500, led by Captain Tom and Captain Joaquin Jim, gathering pine nuts and camped, at least for the time being, directly on the line. They met with the leaders, offered presents and received assurances that all was well. But the surveyors were uneasy in the presence of such a large group, so decided to wait at Aurora until the camp dispersed. While they worked their way back to Aurora, an early October snow storm ended any chance they could continue, particularly as the next southerly pitch traversed the White Mountains. The boundary crossed the ridge just west of Boundary Peak at an elevation near 12,000 feet. The snow storm lasted 36 hours and resulted in frost-bite among several of the party. They wisely decided to end the survey for the season.

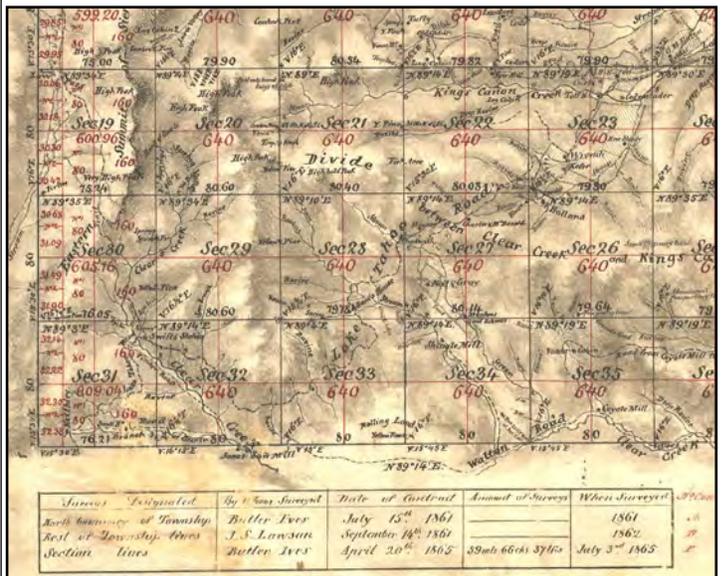
Over the Fall and Winter of 1863 Commissioners Houghton and Ives began preparing their reports, documents and exhibits. The expedition had thus far cost over \$20,000 and covered just over 300 miles of the common boundary. However, the California legislature directed that the survey be discontinued and ordered Houghton to sell off all the animals and equipment, the instruments excepted. This he did and according to the Surveyor General's Report for that year, the sale netted \$1833.50. Houghton then wrote to Kidder, who was working with Lawson in Ione City, Nevada Territory. He requested that Kidder mark the terminus of the oblique in a permanent manner and in such a way that the survey could be easily resumed at a future time. Kidder obliged, taking James Lawson with him, though it proved to be a monumentally difficult exercise.

Houghton was next given \$1000 by the state legislature to permanently mark the northern line along the 120th with stone monuments. He contacted E. R. Nichols, the Lassen County Surveyor, and directed him to have the stone monuments cut, dressed and placed on the line at prominent locations. Nichols complied, setting 5 monuments between Verdi and Honey Lake. But while he delivered four additional stone monuments for placement near Lake Tahoe, he did not set them. In the process he had expended \$956 of the available funds. Houghton then called on Butler Ives and as a personal favor, asked him to set the four monuments near the Lake for the appropriation's remaining \$44. Ives, who must have smiled to himself as he accepted a nearly pro bono project, then set the monuments. California approved the survey as their eastern line in 1864, Nevada, now a state, adopted it in 1865.

In that same year, James Lawson was himself named Boundary Commissioner for Nevada. He was given the task of prolonging Kidder's 1863 line farther south, along the oblique. He placed William McBride in charge of the survey, although Lawson accompanied him on the project. McBride was paid \$45 per mile

to run an additional 73 miles past Kidder's terminus, leaving a further 230 miles yet to be surveyed.³¹ But not long afterward, an error in the location of the 1863 line was found. Lt. Ives took the rap of course, but more for the color of his uniform. The largest portion of this error can be attributed to an error in the longitude of the Coast Survey's mark at Telegraph Hill. A new survey was deemed necessary and in 1872, A.W. von Schmidt contracted to re-run the entire 600 mile boundary. After a great deal of confusion laying in the 120th, significant errors on his oblique required yet another and final attempt on that 400 mile nightmare, this time by the Coast and Geodetic Survey in the 1890's. Yet, despite all the later survey work on the boundary, the 1863 Houghton-Ives survey remained line of record, until it was adjudicated in the U.S. Supreme Court in the 1970's and 1980's.

Butler submitted his final report to the Commission, the original of which remains today with the State Museum in Carson City. In the Spring of 1865, he again took up work as a Deputy Surveyor, subdividing townships along the Carson River Meridian and the 3rd and 4th Standard Parallels. But when the 1865 field season was over, Ives ended his surveys with the G.L.O. He was appointed Ormsby County Surveyor in December of 1865, replacing J. M. Ackley who resigned, but for some reason Ives was later disqualified. Instead, R. A. Chase was appointed to that post. Butler's days with the G.L.O. were over and he was about to become that "wandering Arab" again.



A portion of G.L.O. Plat for T15N, R19E, MDM, BLM website

End Part I

