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THE CRUISE OF THE "MONADNOCK."

NO. II.

THERE is an old saying, that "to know a man well, one must winter and summer with him." He is seen then in his varying moods. He is taken when off his guard; when not acting a part, but appearing in his true and natural self. Any little peculiarities, offensive or innocent, that might be concealed in the intercourse of an ordinary acquaintance, will then be sure to come to light. An eight-months' cruise at sea, perhaps, affords still better means of testing one's temper and disposition; for, on shipboard, there is no escaping the observation of others, especially of one's messmates. The very monotony of life at sea serves to bring out more distinctly the individual character. One is little noticed in a multitude, and yields more or less to the personal influences that surround him. But the individuality that is often lost in larger communities, is sure to be developed on a man-of-war. The officers come to know each other thoroughly, and to see themselves, also, more as others see them. And so it is remarked that there is less of disguise or artifice among them, and more of an easy, natural simplicity, than are found in almost any other class. The discipline of the service, and the evident necessity of self-control, naturally operate as a check upon the too free display of personal feeling; so that occasions of serious offense are rarely given, either by word or deed. But it will sometimes happen that all such restraints are broken over under the overmastering force of passion. In former times, such outbreaks were wont to find their issue in a personal rencontre at the next port, not unfrequently attended with fatal results. The practice of dueling, however, has yielded to a wise regulation of the Navy: under which, as some of the older ones declare, the manners of the officers have not at all improved; while others still insist that insult now is more

of things. We have not been standing still. If our schools are not better, they are worse. As an American, I am loth to say that they are worse; as a friend of public schools, and as an honest man, I dare not say that they are better. Undoubted progress has been made in some directions—in some, has taken place undoubted retrogression. I am content that every candid man shall decide the matter in his own mind. One thing is certain: the best friends of the public school are the least satisfied with its results.

Robert L. Harris, CE

THE PACIFIC RAILROAD—UNOPEN.

THE great crowd of pleasure-seekers know nothing of the remarkable natural scenery by which they are surrounded when crossing the Sierra Nevada by the railroad, and can have no conception of the magnitude of the work over which they are flying at the rate of from twenty to forty miles an hour. In fact, if the comments of a majority of recent passengers are any criterion by which the masses are to be judged, the only points of interest on the entire route are the meal-stations. Could any of those able-bodied men, or bright-eyed women, now so full of *ennui*, have been placed on these mountains, five years ago, with a good camping party, they would have found more solid enjoyment in traveling then one hundred miles, and spending the summer season at it, than there is now in being whisked round the world in the same length of time.

For this reason, I am tempted to recall some notes of an experience upon that highway, when it was as yet "unopen;" some record of difficulties overcome by its builders, of which the railroad traveler of to-day, lounging on the cushions of a palace-car, has no conception, and if he had, but little opportunity to demonstrate by observation; for the timbers that shed the avalanches, and shut out the snow, have, perhaps, also shed some of the romance, and shut out some of the picturesque of Sierran solitudes.

Leaving the almost perpetual summer of the plains of California, on a pleasant afternoon in October, 1867, in about eighteen hours I was carried by steam to Cisco, the then terminus of the Central Pacific Railroad, thirteen miles westerly from the summit of the Sierra Nevada. Now began a walk memorable to me for what was, what is, and what will be in the future. An engineer will appreciate the intense satisfaction I felt for the next three days. Two years previously, before a tree or a stone was disturbed, a party of us surveyed a route through these mountain wilds—now how changed!

For two miles beyond Cisco, the track had been laid. How I execrated the faithful manner in which the railroad company had placed the ties! Too close for a step, one had to keep up a dog-trot, at the imminent risk of a collision between his nose and bedded tamarack. *Twelve miles* of delving men; massive stone culverts, hanging on the steep slopes of granite mountains; a constant succession of blasts, with their grand reverberations; a granite roadway through tunnel and cut, and over fill; an immense serpent, whose convolutions rested on mountain spurs, and bridged deep ravines.

After walking awhile, seeing and enjoying so much, the thought occurred to me to take notes. An ever at-hand note-book, my shirt wristband, was

quickly covered with memoranda; spare bits of paper followed suit. The washerwoman has monopolized the first; of the last disjointed vertebræ I will strive to make a skeleton.

Coming from perpetual summer, the first objects to attract the attention of a climatologist were patches of snow dotting the gray and green mountains in every direction. Snow! The idea was quickly brought home by the sight of the hard-working Mongolians, in thick coats, with mittens and tippets; of buckets fringed with ice, cuts gemmed with icicles, and by a very strong inclination to get *warm* in any way I could.

Here and there, among the moss-covered trees bordering the cuts, were thousands of hewn tamarack ties, ready to take their places in the road. Now I walked through a granite cut, where Chinamen are as thick as bees, the various sets of "strikers" keeping in unison with their hammers on the drills, and thus unwittingly showing the foreman if there be a laggard; then over high banks, made principally from shattered rock—for earth here is the exception, and wherever found, is voraciously "borrowed." The upper side of this bank shows a culvert almost at grade; while, on the lower side, it modestly shows its usefulness fifty feet below grade. Surely, the masons who built these culverts were fortunate. Their crop of stones was most abundant, and close to their consuming point. Here is a bank eighty to one hundred feet in height, covering its culvert of two hundred and fifty feet in length; there a bridge, leaping a chasm of one hundred and fifty feet in depth. One thousand feet beneath me I see the "mountain schooners," each drawn by twelve mules. Their bells toll the knell, and their wheels creak the dirge, of their last year's labor on this route. Here is a "camp;" but, alas! none of the old style of snow-white canvas, with its memories of refreshing sleep upon fragrant pine boughs; no, it is a Chinese camp, resembling a collection of dog-kennels, which, in fact, it is—each hut hastily made of "shakes," about four feet high by six feet broad, and eight feet long. This is a bridge, with—what? yes, cut granite abutments—the false works not yet removed, and the difficulty of "raising" in this rough spot fully apparent. Here is a cut: yet this is not granite! no, but a rock so soft that it can be whittled with a knife, and purely white, as if taking hue from the almost perpetual snows that have hitherto covered it, and strongly reminding me of that paradise for smokers, sixty miles to the east, where mountains of meerschaum laugh at adolescent folly for paying its weight in gold. The next cut is the hardest of granite; and a score and a half of carts and two hundred and fifty men are working, crowded together in a space of two hundred and fifty feet. Why not?—for though, from its lower side, one may look down a thousand feet, its upper side presents a "face" of eighty feet.

Ah! no one will be impressed by the sublimity of this scenery, when whirled through it at twenty miles per hour—a wall of rock on one side, and empty space on the other. What! we are nearing the summit, and there you shall see mountains of granite, sheer and clear, and shall ride along the verge of precipices, where a tossed stone will bound and bound again until it strikes one thousand feet beneath. Secure the back seat of the car, or cultivate intimacy with the engine driver. Look far beneath you at those puny pine-trees. They are six feet in diameter and one hundred and fifty feet high! Then, look up, far up, a thousand feet or more, at Lincoln Peak, whose granite breast has faced storms which have crushed and rended these forests. On this crest of Lincoln Peak, the Chief Engineer of the road,

Mr. S. S. Montague, as if prophetic, raised a white flag on the very day of Lee's surrender. Surely, this railroad will be a bond of peace and unity.

My afternoon is waning. "How far to the summit?" "Can't say; have been too busy with my own work ever to have inquired—it must be six miles," is the answer from a foreman. I traveled briskly on for fifteen minutes. "How far to the summit?" is my question to a "boss." "Do not know exactly—about *seven* miles." Another quarter-hour of hurried steps, and the light air tells upon unaccustomed human bellows. "How far to the summit?" is asked the third time. "About *eight* miles." This is discouraging; and so, resolving to trust to memory, I hasten on, and think the while that human nature is the same, whether goaded to constant exertion, as are these foremen, or allowed to become enervated, as in Central America, where the universal reply to "*Quantas leguas?*" is "*Allí, no mas.*"

The wagon-road below is lined with slowly moving teams, the drivers cracking their whips, and smacking their lips at the prospect of supper. The loud, sharp reports of blasts as of large rifled guns seem to crack the very mountains. Thus observing, I push forward, when a warning note is heard, and a rush of three-score Asiatics for a culvert betokens danger. I am eight hundred feet from the blast. Smiling at the frightened haste of these stupid fellows, I watch the effect. Bang! bang! bang! Grand is the sight. "Hurry down to this culvert, sir, *hurry!*" cries a foreman. "Why, there is no danger here." "Hurry here; the *big* blast is yet to go." Down the bank and into the culvert I, too, tumbled; and the next instant, with a sound as of thunder, a young volcano showered its stones in the air, rending trees, tearing the ground, and falling all about and over our hiding-place. "A lucky escape for you, sir," set me thinking if I had not made a mistake in thus throwing away a chance of making more money, without exertion, in one day than ever before—namely, out of my life insurance policy.

As the sun approaches his setting, I arrive where the road is less advanced, where more divisions of the army of labor are concentrated; and, tumbling down the granite banks, climbing over the cuts, elbowing my way between crowded workmen, dodging my head from their striking hammers, and my feet from their picks, hurry on. Frequently comes a note of warning, and I must seek cover. Aching corns, barked shins, and a mountain appetite protest against night travel on an incomplete road-bed; and, therefore, when within a mile of the summit, unwillingly I seek the wagon-road.

At about an hour after dark the "Summit Camp" was reached. This is in reality a small town of one and two-story houses, built quite strongly, to resist the weight of winter snows; for here, last year, the snow naturally accumulated on a level, though the greatest depth upon the ground at any one time was thirteen feet. With thirteen feet on a level, what are the drifts, with walls of one thousand feet to make the eddies? Passing from drifts to slides, (it is natural) the way of these currents of snow is plainly shown by the devastation of the forests. At two places slides occur nearly every winter; and, while the country about is covered with fir, pine, and tamarack, the besom of destruction has here swept all, even the smallest trees, from the earth. These vast slides, starting imperceptibly far above, acquire a lightning rapidity, and an overwhelming force, when they reach the valley. The railroad is here well protected from them by being in excavation, the top of which will be roofed, so as to throw the snow clear of the grade.

After a hearty welcome at the Summit Camp from brother engineers, and a substantial supper, I gladly coiled myself under as many bedclothes as the human frame could stand, awakened only in the night by the dull boom of blasts in the tunnel, three hundred feet distant. At early morning I was up, and had breakfasted before the sun peered over the "Eastern Summit."

A day of astonishment, wonder, and great satisfaction was before me. Every moment was full of condensed enjoyment. After feasting my eyes upon the beautiful picture framed in by the east, with its foreground of Donner Lake, eleven hundred feet below, its middle distance of Truckee Valley, and its background of Washoe Mountains, the day's travel was begun by a visit to the Summit tunnel of 1,659 feet, single track, through solid granite. This tunnel was complete, except about forty feet of the enlargement, and nitro-glycerine was rapidly shattering that. Hence there is a mile of as heavy, varied work as is ever built by railroad companies in America. The railroad is cut in the face of a precipice, the projecting spurs from the mountain being tunneled. The surplus material did not need much carting, for what was not thrown clear of the road-bed by blasting, needed to be hauled but thirty or forty feet, where a "dump" of five hundred to eight hundred feet was secured.

In several places, where one side of the road-bed was at grade, the other slope would be in seventy-feet cutting. Royal have been the salutes fired from this escarpment; immense the peaceful execution done. What enjoyment to have been here two months before, in the heat of the battle between intelligent force and mountain cohesion! The powder bill alone for the month of July was $54,000! From five thousand to ten thousand men were employed all the season. The times of firing along the whole cliff were limited to three a day. At those times, an immense broadside cleaved a little of the shell from the grand mountain-side, transforming a goat's path to a way for the iron steed. Let me relate one instance of skillful execution. With one drilled hole, eight feet in depth, 1,440 yards of granite were thrown clear from the road-bed. The eight-foot hole was drilled near a fine seam, lightly loaded, and fired. This enlarged the seam, which was lightly loaded, and exploded. This operation was performed carefully, several times, until the seam was widened to a considerable fissure, when an immense load was put in, the fire communicated, and three thousand tons of granite were torn from their long resting-place, making sad havoc with the sturdy pines beneath. I observed one rock, measuring seventy tons, a third of a mile away from its accustomed place; while another, weighing 240 pounds, was thrown over the hotel at Donner Lake—a distance, certainly, of two-thirds of a mile. In fact, the whole valley is covered with drops from these granite showers. As the season here is short, much of the work has been carried on night and day. Here we saw a retaining wall seventy feet in height; there a tunnel of granite. Several blasts had just occurred in the tunnel ahead; we must see the effects of this strange nitro-glycerine, that—unlike powder, which rends the rock, again to be broken or moved with labor—seems to tear it in pieces, leaving it as easy to handle as ordinary "loose rock."

After stopping here a few minutes, we were conscious of an uneasiness on the part of our *chaperon*, the foreman, who opened the Summit tunnel. By interesting statements, etc., he succeeded in drawing us two or three hundred feet away, when he drew a long breath, and said: "Oh! I'm so glad you are out of that." "Why?" "There was a miss-fire of glycerine there, with a charge of

eleven bottles, (fifteen pounds) and the men are getting to work at it again."

The next tunnel was being heavily timbered as it was driven. The material, being decomposed and disintegrated granite, caused great difficulty in execution, and care in giving of the lines and grades. Every sill and post must be set in advance of taking out the body of the enlargement, which serves as a pier for false timbering. Here let me give one or two incidents which occurred along and in the vicinity of the above mile and a half in the old times, when there was not even a path for adventurous engineers.

The only way for the chain-men to work along these cliffs and those of the northern side was by being suspended by ropes from above, the chain-bearers signaling to those holding the ropes, up or down, forward or back. One night, nearly all the party had been off to a dance. The next day it became necessary for the forward chain-man to remain suspended and swinging in the air for about five minutes at one point. When ready to go on, his signals were not heeded. Understanding that all was not right, I carefully climbed up the rocks to the assistant above. There he was, all right, sitting braced in a fissure of the granite, the sun shining warmly down upon him, his arms and the rope on tension. An execration at his neglect to obey the signals was on my lips, but I remembered the dance, and luckily restrained myself; and carefully picking my way, stealthily got hold of the rope, then spoke. The sleeping assistant let go the rope, awoke with a start and the exclamation: "Oh dear! oh dear! have I dropped Mat?" Sometimes the men were reckless, and would venture on steep, smooth slopes, without the rope, getting off safely; while at other times, "something dropped," and the friction, sliding over thirty or forty feet of granite, with the projections not hammered, would have its effect. Once we nearly lost our two chain-men. When within twenty feet of a precipice, they fell toward it, headlong down a steep slope, and barely stopped on its verge! All the party held their breath in horror; but Mat, jumping up, exclaimed: "Just our luck; I wanted you to have a holiday to-morrow."

What fun we had with "yellow jackets," which, it must be stated, have a terribly sharp sting in this sharp-set country. If our axe-man discovered a nest, he carefully avoided it; if the leading chain-man stepped into it, he gave no alarm, if he could possibly help it; and all watched for the back chain-man, Mat, whose liking for the insects was in direct contrast to their taking for him. Up would go the chain into the air, and down would go Mat, over rocks and precipitous places. It was of no use to try—you could not coax him back. A trick was one day played on our camp-dog, a fine mastiff, who accompanied us whenever he could steal away from the cook's sight. The transit party had crossed a ravine, and the level party was waiting behind for further work. A yellow jacket's nest was discovered, a hundred feet distant from the leveler. Now, Jersey was taught to fetch and carry, and the leveler, thinking to have some fun, against the protests of the party, threw a stick toward the nest. Jersey ran for it. In an instant he was rolling on the ground, howling with pain and stung by hundreds of the infuriated insects. For protection, he ran to the man who threw the stick. It is needless to say that he ran; but the dog and yellow jackets were too fast for him, and the last seen of him was with his hat down, coat-collar up, face in the ground, and heels kicking furiously.

An axe-man and myself spoiled the boys' dinner-hour, one day, by way of a practical joke. These mountains, where not visited by man, are haunted by vari-

ous animals, among them black, cinnamon, and grizzly bears. We had gone ahead of the party, prospecting a line among the brush, and just at our return saw what looked like an old "sign of a bear." The idea of a joke occurred to both; and carefully doubling our fists, to make a "bear track," in a way any old hunter will know, we made fresh bear tracks on all the earth in the immediate locality, and leading off the earth to a piece of sheer granite about thirty feet across. We managed, by working hard, to get the line party up to this point at 12 M., when, just as we were about to quit for dinner, the axe-man saw a "bear sign." In an instant, great was the excitement. "Yes; here, and here, are fresh bear tracks." Dinner was forgotten, and all hands went off on a bear hunt, which lasted an hour, when the call, "Halloa, boys!" brought them back to work; and immediately after, the shout, "Sold!" from the axe-man, caused an uproarious laugh, and various threats of retaliation.

But to return to my present trip. Bidding our hospitable guides farewell, and taking the horses kindly volunteered by the Superintendent, we struck over the ridge dividing Strong's Cañon from Coldstream Valley, thus getting the start of about five miles of railroad — the location of the road being around the head of Strong's Cañon; thence along the mountain-side, next to Donner Lake, until a 9°-curve pierces, with nine hundred feet of tunnel, the ridge, now so attenuated that it received the name of "Donner's Backbone;" and then the railroad line, having turned nearly 180°, runs nearly back upon itself, but on the other side of the ridge. It is one of the best places to "make distance" I ever saw, and enables the railroad to descend the eastern slope of the Sierra Nevada with a grade of less than ninety feet to the mile.

The advantage of these valleys may be seen by a novice, if he will but stop at the tunnel alluded to and look two hundred or three hundred feet below him, and a third of a mile distant. There, upon the other side of the valley, and on its bottom-land, is the identical railroad, which has again made a distance of three or four miles to attain that point to which he seems able to throw a stone. After crossing the ridge, we went on to Coburn's, upon the Truckee River, at the foot of the steep grades on the eastern side of the Sierra Nevada, and about fourteen miles from the summit. What a change was here! In the place of two pioneer houses, there was a town, (Truckee) one-third of a mile long, about two houses deep. Here we found the iron track again. From Cisco to this place was a hiatus of twenty-seven miles. The iron for thirty or forty miles of railroad had been teamed over this intervening distance, as also the pioneer locomotive on the eastern slope, the "San Mateo." Getting upon the top of a carload of ties, we were again propelled by steam — two of the first thousand of the many million passengers who will ride over this road. Now the serpent of the other side of the mountains seemed to have changed his nature, appearing like a water-snake, for the track follows closely the winding of the river; indeed, it would be impossible to get away from it. For the first eight or ten miles we saw the ordinary mountain scenery, excepting at one place, where basaltic cliffs afforded a peculiar variety: here, piled upon end like the "Giant's Causeway;" there, corded up horizontally like huge piles ready for the burning. Then we reached what is more properly the cañon; and well could I remember my enthusiasm when first running a line down this then beautifully romantic stream. It was difficult for me to realize the difference in locomotion. What was then a long, wearisome day's ride, was now accomplished in an hour and a half, and in August, 1869, in thirty minutes. About

twelve miles from Coburn's, we came to the first crossing of the Truckee. A Howe truss bridge, with an arch and granite abutments of first-class masonry, now spanned the river in the identical place where we felled the tree which served as a precarious bridge for many a day. Stopping here awhile, the Division Engineer called our attention to the peculiar conical pinnacles of cement which fringed the mountains 1,200 feet above us, and at a horizontal distance not exceeding that. I well remembered our first sight of what we called "The Sentinels," and the enthusiastic climbing done vainly on a Sunday to attain them, when camped here two years ago. "We call those 'The Cinnabar Cliffs.'" "What! is there cinnabar there?" innocently asked my companion. "I can only give you the same answer we give to all who ask: 'If you don't believe it, go up and see.'" We proceeded on the cars to the end of the track, nearly to the State line of Nevada. The sun sets early in this steep-bounded cañon, and soon we were returning, at the rate of twenty-five miles per hour, to Coburn's. This twenty miles has been "the work of a thousand men," not for "three years," but only for eight months; and our friends of the P. W. & B. Railroad have been fully equaled in their achievements.

From Coburn's, a gallop of seven miles took us to Pollard's Hotel, Donner Lake, where the stage changes horses at midnight, and where, at 4 A.M., long before dawn, I was awakened by the words, "Engine and train will start in ten minutes." Rising hastily, and snatching a slice of bread, I stumbled over the iced rocks to the engine, and getting on the fireman's side, enjoyed a cold morning ride. The moon was in its last quarter. I well knew the crookedness of the road, but had not observed it the previous afternoon, having been absorbed in admiration of the scenery, and recollections of the past. Now, however, it was brought to mind: for, at one instant, the moon was dead ahead; then moving slowly around, it was directly behind; now on one quarter, then on the other; and at one place, I noticed, it passed three-quarters around us. I was reminded of the objection once made to me by an assistant transit-man, after working at the location of a continuous thirty-minute curve, on a side-hill, one whole day: "Mr. ——, don't you think the engine will get tired of running on this curve?" I arrived at the camp in time to get an hour's sleep in my overcoat, before day fairly appeared in the cañon. A ride to the end of the track terminated in a walk four or five miles farther on. How interesting and amusing were the reminiscences crowding upon me! When walking, the minutest things attract one's attention; when riding upon the cars, one does not note even the grand whole. Here was a mountain-side of round, loose stone; surely the location here must have been a contour line, for there is but a slight cut on the upper side; but where are the stones? For a whole month, a large force was kept on that three hundred feet of road, rolling the stone from far above down the mountain-side. As fast as they were rolled, it seemed as if more appeared. It was Sisyphus, without the variety of climbing the hill. That long plateau of rounded masses below tells the story. There is the place where we met Indians fishing: a little hut projected over a deep pool in the river; an Indian, on his belly, spear in hand, watching for the unsuspicious trout, and transferring them from limpid water to limp grass.

This must be the "Devil's Grip." How changed! A gang of men, working for a month, have blasted out the huge bowlders which formerly choked the river channel; and instead of the furiously curling, eddying, and dashing waters, one sees now but ordinary rap-

ids, and the name is changed to the more euphonious one of "The Narrows."

My reminiscences should end here; but having omitted one, let me insert it before closing. It is a remembrance of Horsetail Bend, on old Grayback Mountain, during my first horseback trip through the cañon, with the Chief Engineer. We came to a place where the foot-trail ran steeply up a pitch, then turned sharply over ninety degrees on a narrow projection of rock, and descended a slope of about forty-five degrees on smooth porphyry for a distance of fifty feet. "What shall we do here?" asked he. "Let us try a Central American trick;" and tying our *reatas* together, I made one end fast to his horse's tail, and belayed the other with a running slip around a projection of rock. "Now, whip the animal." Down he started on his haunches, full of fear; but it was astonishing how quickly he understood the thing; for as soon as he felt the stern strain, he rose, leaned forward, and walked down, with his feet square upon the surface of the rock; and what is more, liked it so well, that as soon as we had taken the rope from his tail, he jumped into the river, swam above the point, and presented himself at the jutting projection, for our kind services again.

A propos of animals, I am an advocate for the intelligence of the much-abused mule. To one of the first camps on the river we could easily enter from the stage-road, leaving the same in an extensive sage-brush plain, and after a mile or two passing through timber. My mule and self had been through there once, when we moved; and at that time, in order to turn off in future at the right place, (for the whole plain looked alike) I nailed on a pole a little chalked sign: "To C. P. R. R. Camp, 3½ miles ☞." A few days after, there was occasion to bring from Donner Lake an extra animal with my mule. Night coming on, and it being very dark, I tied the animals together by the necks, and on entering the plain, journeyed at a slow walk, peering into the darkness for the place to turn off. Traveling in this way for a mile and a half, every thing dead and silent—the mules apparently partaking of the general inertness—what wonder that a moment of fear came over me? All at once, without warning, both mules threw up their heads, then their heels, and broke away from the road, over the sage-brush and stones, as though a wolf or bear were after them. They ran away with me; but the neck-rope threw the light animal, which brought mine to a stand-still. Very carefully, by the stars, I rode the creature in the direction whence we came, hoping to find the road. It was as dark a star-lit night as one is ever caught in. That mule plodded right ahead, nor stopped until her shoulder was at the pole, and my eyes two feet from the sign, "To C. P. R. R. Camp, 3½ miles ☞." Stopping a moment, as if to satisfy me that she was right, she suddenly turned, broke into a gallop, and—I let her go.

Calling up these old experiences as I passed over the scenes where they had happened, their recollection gave, by contrast, exceeding pleasure to my walk as I wended my way down this mighty cleft path, with crags ranging 1,500 to 2,000 feet above me on either side, their crests and slopes covered with timber. Remembering that this was the last of the timber; that after a few miles more there was not a stick bigger than a sage-brush to cheer the vision, I could but think how the car-worn traveler from "the plains" will rest his weary eyes, and feast on this natural grandeur, so beautifully fringed and trimmed with evergreen. Will he? No! Ere the iron rails connect with those pushing from the East, the whole region will be denuded of timber. These monarchs of the forest will lie low; and, buried in the desert sands, will give in their short

decay more practical benefit than in their lengthy lives! Those immense piles of wood which the indefatigable choppers are piling up—where will they travel? what Indians and game will they frighten, as they feed the rushing, fiery demon?

Here is a beautiful purple porphyry, and there are fine specimens of the black tourmaline incased in granite, and close by we see a blue rock flecked with white. To-day a plumbago mine has been discovered here. All about are indications of valuable minerals. Soon the State line is reached; and, registering my name for December, 1865, and October, 1867, I wondered when I may register again.

This year (1869) I have been whirled over and beyond this interesting ground to that which has no pleasurable characteristics for me: the sage-brush wastes of Nevada and Utah. I do not envy the railroad men who there lived and labored. Uncle Sam did not seriously injure his domain with that land grant, as one little fact will prove. For many consecutive miles, in several instances, the cost of grading was exceeded by the cost of hauling water to the men and animals doing the work; for, be it remembered, the grading parties were kept from fifty to ninety miles ahead of the track-layers. This grading was not all light work, as the passenger will observe.

Fifteen-mile Cañon—which travelers will remember as the location of "The Palisades"—was graded in six weeks, one cut therein containing 6,600 cubic yards. Five-mile Cañon, just easterly, was graded in three weeks—grading force, between five and six thousand men. All have heard of the crowning day's work—a worthy completion of this great undertaking, a lasting credit to all concerned—the laying of ten miles of iron in one day; and, for the information of railroad men, I will add my testimony that it was *well* laid: both curve and grade were against the working party. Eight men handled nearly one thousand tons of iron in one day. While speaking with Union Pacific men about this great feat, they claimed that they could excel it; but, said they: "The Central Pacific people were too smart for us; they waited until there was no more track to lay, that we might have no chance to compete."

One fact, which I have not seen noted, forcibly impressed me at the laying of the last rail. Two lengths of rails, fifty-six feet, had been omitted. The Union Pacific people brought up their pair of rails, and the work of placing them was done by Europeans. The Central Pacific people then laid their pair of rails, the labor being performed by Mongolians. The foremen, in both cases, were Americans. Here, near the centre of the American Continent, were the united efforts of representatives of the continents of Europe, Asia, and America—America directing and controlling.

On the wedding-trip of the East and West, in May, 1869, while passing over the grand old Sierra, along precipices where each foot of railroad cost as much as many an entire mining claim—where the wonders of the railroad are hidden from view by dark sheds—I could not help wondering why the railroad officials do not take off or hinge a couple of boards along these interminable galleries, and give the passengers a view of the finest scenery on the route.