

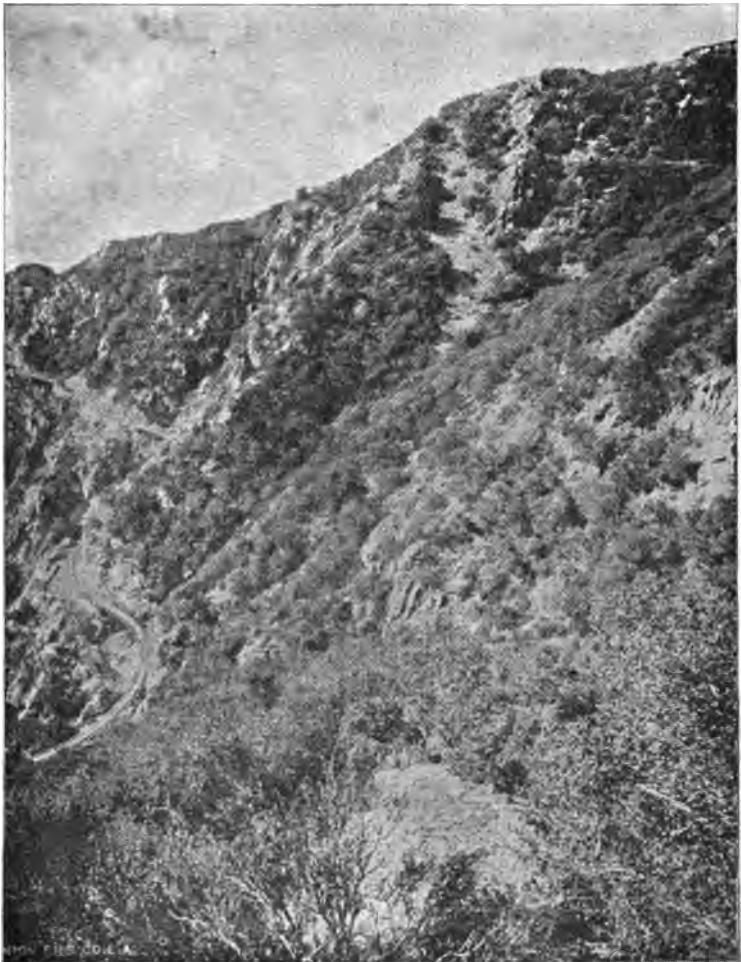
BROTHERHOOD OF
LOCOMOTIVE ENGINEERS
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GLIMPSES OF MOUNT LOWE RAILWAY.

Mount Lowe Railroad.

SOUTHERN CALIFORNIA SCENERY.

Prosaic people will tell you that there are no magicians in these days, none of those marvelous creatures who, peering into the secrets of nature, wrest from earth her mysteries and make them subservient to their will. Prosaic people are sometimes wrong, for never has such a mighty race of wizards lived in the world as may be found to-day in laboratories and workshops, concocting plans and formulas beside which those of the astrologer and alchemist of old are puerile. They have achieved in the last hundred years

A few years since, a man whose boyhood was passed among the mountains of New England conceived the idea that by the use of modern electrical appliances the summits of the highest peaks of the Sierra Madres could be reached and an easy route opened up whereby people could scale these heights, with the same ease they ride over a modern railway. With this man action follows without thought, and the result has been the construction of the Mount Lowe Railway, the most scenic railroad route on earth. The originator and constructor is Prof. T. S. C. Lowe. He has kept in view the artistic effects as well as the engineering conditions, and the result has been a road of easy grades, and one where the most artistic pictures of scenery are brought into relief.



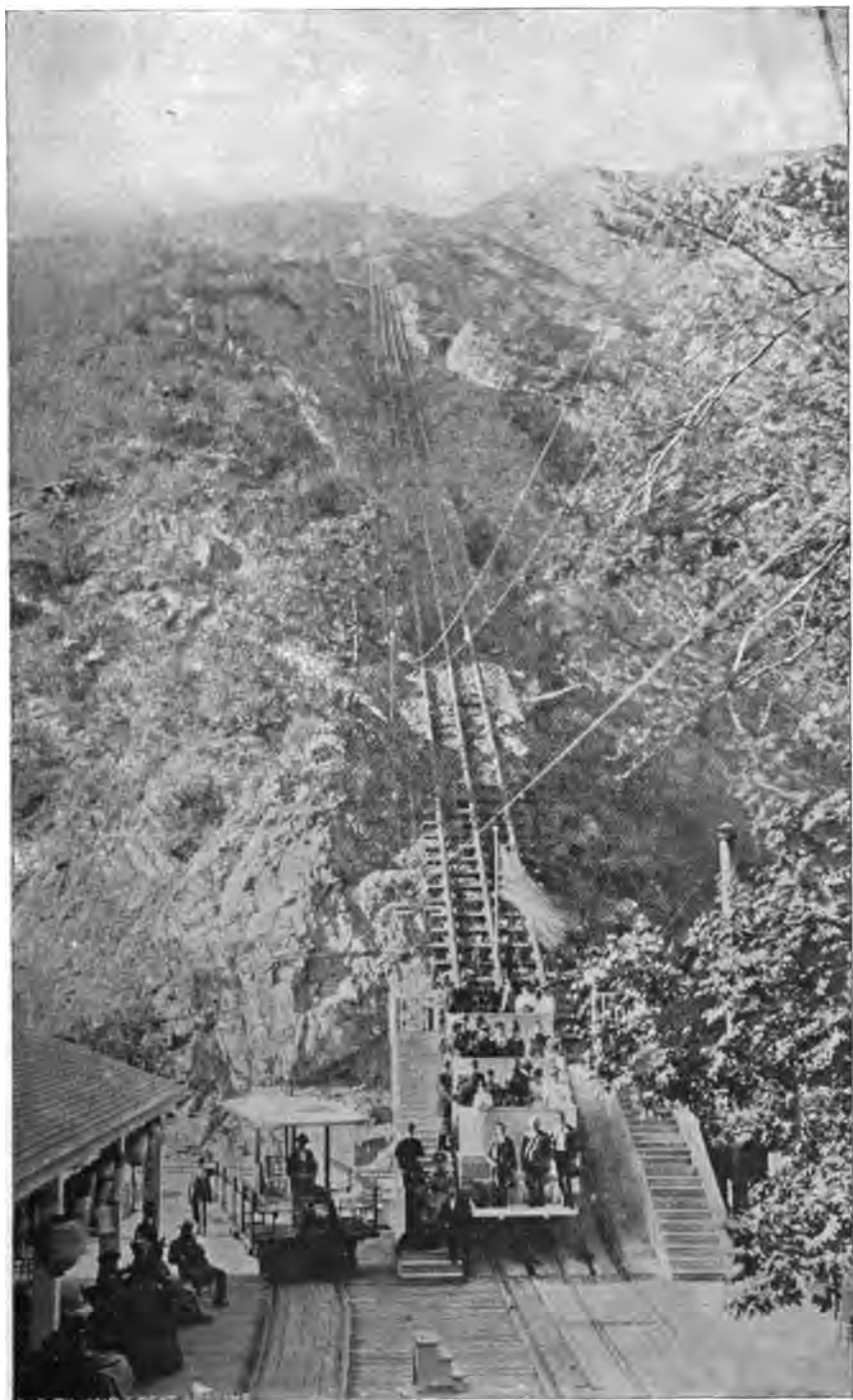
RUBIO PAVILION.

work which shames the combined results of the centuries. Of these mighty wizards the civil engineers are the Titans, and they would no doubt try to scale the heavens, piling Pelion upon Ossa, should they desire to do so, and in the attempt, not risk the consequences that befell the giants of the Greek legend.

There is up the slope of Mount Washington, as there is on Mount Vesuvius and Mount Pilate, a railroad, by means of which passengers reach the top. These feats of engineering in their day excited the admiration of the world, but they are far surpassed by a veritable railroad in midair which has already climbed a spur half way to the summit of one of the loftiest mountains in Southern California.

In 1889, some preliminary surveys that had been made for this purpose were submitted to Prof. Lowe. He made an examination of the ground, and shortly placed his corps of engineers in the field, for the purpose of making a thorough survey in order to determine whether the work was practicable. After the engineers had been at work upon another route for many months, Prof. Lowe cut the Gordian knot by suggesting this now world renowned cable incline. It was like a revelation to the engineers, and from this on the engineering problems were of easy solution.

Connections are made at Altadena with the Los Angeles Terminal Railroad, and also with the Pasadena, Los Angeles & Santa Monica Electric Railway. Los An-



MOUNT LOWE INCLINE RAILROAD.

geles is 40 miles away, and may be reached by either route, both passing through orange and lemon groves, peach, prune, pear and apple orchards, grape vineyards and rose gardens, one of the most productive sections of Southern California.

The mountain route starts from Altadena, a beautiful residence section about four miles north of Pasadena, from which point an electric railway runs over a high mesa and up Rubio Canyon, a distance of $2\frac{1}{2}$ miles, with a $7\frac{1}{2}$ per cent. grade.

The lower portion of this distance gives

summer season, is kept as a pleasure resort, where, in addition to the attractions of nature in the immediate vicinity, are opportunities for dancing and the entertainment of picnic and trolley parties, it having one of the largest dancing and banquet halls in the country.

Among the objects of interest in Rubio Canyon are Suspended Bowlder, fern glens, moss grottoes, peculiar stone formations, grand chasms, Ribbon Rock, Thalehaha and nine other exquisitely beautiful waterfalls. Just below the Suspended Bowlder is Mirror Lake. It extends

across the complete width of the canyon, which somewhat narrows at this point, and reaches for quite a distance, being bridged by the plank walk leading to the Grand Chasm and Thalehaha Falls. The exquisite reflection of the trees, shrubs and towering rocks, together with the electric light and Japanese lanterns on festive nights, give to Mirror Lake an indescribable charm.

Here the traveler alights, and seating himself in a strangely-shaped six-seated white chariot, makes the ascent of the incline. The grade is 60 per cent. half the way, then 62 for a short distance, then 53, and finally 48 near the top. In the 3,000 feet of the distance, it makes a direct ascent of 1,300 feet. So steep a grade was not the only difficulty to be overcome in building the road up the incline,—gigantic rocks had to be hurled from their resting places, monster cuts made in the mountain, and all this arduous work upon a slope so steep that burros could not be used for carrying material, and men were obliged to transport upon their shoulders the

cement and water for the construction of the buttresses necessary in places, before the track could be laid. On one of the stupendous cuts as many workmen as could find foothold were engaged for eight months, before a single tie could be laid, and one of the trestles (named McPherson) two hundred feet long, stands a hundred feet higher at one end than at the other.

When the track was finished, supports, upon which there were wheels, were fastened in the mountain by the side of the road-bed. A windlass had, before this,



WHITE CHARIOT NEARING SUMMIT OF ECHO MOUNTAIN.

some very beautiful views of valley and ocean, and as the route enters the canyon it winds in and out of the devious course of the sparkling little stream which leaps over the rocks, now crossing smaller canyons on substantial bridges, and then cutting through solid rock, making a picturesque road which, were it not overshadowed by the greater glories of the upper portion, would of itself be famous.

The trolley road terminates at Rubio Canyon, where Rubio Pavilion is located. The pavilion is a hotel which, during the

been transported to the top in sections on the backs of burros and then put together. To this a heavy strong rope was fastened, and passed downward over the wheels and attached to the end of the cable, which was then hoisted. Of the finest steel, and tested to stand a weight of a hundred

and dynamos situated beneath Rubio Pavilion, the water flowing through pipes from the reservoir on Echo Mountain (which is supplied from a still higher level), and, second, by immense gas engines and dynamos at Altadena Junction and Echo Mountain.

These gas engines are used to supplement the water power, should there be a dry season.

The electric power is transmitted by large copper conductors to the Echo Mountain power house, supplying current to the 100 horse power electric motor, which makes 800 revolutions per minute. Then by a series of gears the revolutions are reduced from 800 to 17 per minute, which is the speed at which the massive grip-sheave turns. The grip-sheave consists of a tremendously heavy wheel, on which about 70 automatic steel jaws are affixed. As the wheel

revolves, these jaws close and grip the endless cable, to which the cars are permanently attached, and thus are they raised or lowered as occasion requires. By this method there is practically no wear whatever to the cable.



POWER HOUSE—CABLE INCLINE.

tons, this cable was arranged upon the principle of a double bucket windlass, lowering one car while it hoists the other.

The cars—white chariots, as they are called—of the cable incline are built on such a slope that the passengers are upon



MACHINERY FOR OPERATING INCLINE.

an apparent level, and feel no discomfort from the smooth, easy motion, and as the chariots are open at the top, an unobstructed view of the scenery is obtained.

The machinery which operates the cable is unique, and the power is generated by two methods, viz.: First, by water wheels

It is not strained and chafed by the constant operation of gripping as on the street railway cars, where the inertia of trains of cars of many tons' weight has to overcome by the gripping of the ever-moving cable.

Seen from below, Echo Mountain ap-



ECHO MOUNTAIN HOUSE—TERMINUS OF CABLES.



LOWELL OBSERVATORY AND ECHO MOUNTAIN HOUSE.

pears as a mere abutment from the main range, but when one stands on its summit the name "mountain" is then seen to be singularly appropriate, for it is dissevered, except by a small "saddle," from the main range by Glen and Echo Canyons—canyons half a mile and more in width and over a thousand feet in depth. Hence the location on this mountain, midway be-

missions, sea beach, shipping, islands and ocean in full view.

Besides these natural beauties, visitors have other entertainments: Echo Mountain House, with every modern convenience; the great World's Fair searchlight, of 3,000,000 candle power; free use of the great telescope of Mount Lowe Observatory; Dr. Swift's astronomical lectures, and a menagerie of native animals.

Connection is made here with the Alpine division, which carries the tourist into the very heart of the Sierra Madre Mountains, and amid the solitude which reigns among the higher peaks and spurs. This division extends from Echo Mountain to the summit of Mount Lowe, and is completed to Mount Lowe Springs, a distance of four miles. The grade of the road has been made so low that one imagines he is riding on a level surface rather than climbing the steep and rugged sides of the Sierras.

The road climbs up the sides of the mountain in graceful curves, and as one is being carried along, he often wonders where an opening to the apparently impassable walls of granite which hem in the way can be found. At one point of view, by looking up and down the steep sides of the mountain, nine different tracks can be seen rising one above the other. One of the unique features of construction is a bridge, which spans a canyon, and rounds a mountain peak, thus forming a complete circle.

From Echo Mountain, a wider expanse of view is obtained, and as the higher altitudes are reached the scenery becomes bolder and the range of vision enlarged, until it seems as though the whole of Southern California was spread out beneath. Distant Catalina Isl-

and and the more remote Channel Islands, off Santa Barbara, have drawn near in the clear atmosphere, and the numerous cities, which bestud the plain, appear close by, while the higher peaks of the Sierras stand out against the sky with startling vividness.

The points of greatest interest on this



POINT DIABLO, LOS FLORES CANYON—ECHO MOUNTAIN TO THE LEFT.

tween the San Gabriel Valley and Mount Lowe, with towering mountains and abyssal canyons, affords a variety of scenery almost inconceivable to the dweller in the valley.

This outlook, 3,500 feet above the level of the sea, with mountains, foothills, ever-dant valleys, cities, towns, villages, old



division are Granite Gate, Circular Bridge and Point Diablo. Granite Gate is a cut through a projection of the mountain side composed of solid granite, the cut on one side being some fifty feet high. Circular Bridge swings around a spur of the mountain, making a circle of about 400 feet, with a diameter of 150 feet. One looks from the outside of the circle into a deep canyon thousands of feet below.

On other portions of the Alpine division, loops are made around the heads of great canyons, among them Gut Heil Loup, and the track turns upon itself in such a maze that in one place nine different tracks can be counted on the mountain side, each successively reaching a higher altitude, all the bridges along the line conforming to the curvings and twistings of the track. It is estimated that more granite has been displaced and rolled down the canyon in building this last four miles of road, than would be sufficient to construct a city the size of Pasadena. The road-bed is literally rock-ribbed, if not eternal as the sun.

Mt. Lowe Springs is the present terminus of the road, but is to be extended to Mt. Lowe summit, some five miles further, and 1,100 feet higher up. There are broad, smooth roads leading out from Mt. Lowe Springs, and a tally-ho coach and other conveyances are to be had besides.

Professor Lowe has had constructed more than thirty miles of wide and easy-graded bridle roads, radiating from Alpine Tavern to all the higher peaks and summits of the range. The most important sections of these roads are known as the "Mount Lowe Eight," for, in making the complete ride to the summit of Mount Lowe from Echo Mountain and return, the figure "eight" is described, the rider only crossing his own path in one place, and nowhere else riding twice on the same road; he has also had stairways and walks built, and, without disturbing nature, made access to the canyons along the route of the Mount Lowe Railway easy and pleasant, either on foot or on saddle animals.

The bridle roads up mountain slopes, winding in and out on diversified paths, through shrubs and flowers, looking *up* through towering pines to majestic cliffs and ponderous rocks, looking *down* into the depths of vast canyons, where deer find shady coverts, and looking *out* upon scenes of perfect beauty and sublimity—is an experience that enthralls the mind with the sublime beauty and grandeur of nature.

Alpine Tavern, located on Mt. Lowe Springs, is of an entirely original design, the construction being a combination of blocks of granite and Oregon pine, fin-

ished in the natural color of the wood. The building is forty by eighty feet, and the main floor is used entirely for dining-room purposes, in which two hundred people can easily be seated.

In this article we are indebted to a descriptive letter by Mr. Lou. V. Chapin, and a book sent us by Brother R. W. Kelly, entitled "Scenic Mount Lowe," but more particularly to Brother Kelly, who was the delegate to the Ottawa Convention from Div. 398, Los Angeles, Cal. In closing his letter he says: "Everyone who makes a trip over this route is a living advertisement for the grand scenery, the substantial and safe construction, and above all, its management.

"The General Manager, Mr. H. C. Brown, has a very kind feeling for our organization, and I feel under obligations to him for favors received. Mr. J. T. Whedon, Superintendent, is a thorough railroad man, having been connected with the Central and Southern Pacific Roads, the J. M. & I., Missouri Pacific, Southern California, and Los Angeles Terminal before taking charge of the Mt. Lowe Railroad. He is a very affable gentleman.

"As many of your readers were at the late convention, I wish to reiterate what I then said: 'At Mount Lowe, you can arise at 7 A. M., after breakfast take a sleigh ride, start down the mountain route, and on the way pick oranges and roses, and take a bath in the Pacific Ocean before lunch time, 12:30 P. M., and the trip can be made the entire distance by electric power, or from Altadena by the Los Angeles Terminal, or from Pasadena via Southern California or Southern Pacific Railway. There were several prominent people here last May from Toledo, Peoria and also St. Louis, who frequently accomplished this feat, and some of the JOURNAL readers, who were at Ottawa, will have to hustle to make up for the time lost listening to the delegates from the O. R. C. Convention, which convenes in Los Angeles next May, tell how they performed the feat and of other attractions and wonders they saw while in the vicinity of the Signboard.'

Brother E. O'Connor, delegate to Ottawa from Div. 359, in his efforts for St. Louis for the next convention vs. Los Angeles, painted the imaginary signboard alluded to as marking the spot where the glories of Los Angeles, as painted by Bro. Kelly, had faded to nothingness. But after reading this number it is very possible that Brother O'Connor and others in the vicinity of St. Louis will need to get a more golden hue on the Father of Waters than it usually has, or the delegates from Los Angeles will have the best story to tell, and Brother Kelly the best of the argument in the end.



GRANITE GATE.



OUT HILL LOUP.



ALPINE TAVERN, 5,000 FEET ABOVE THE SEA LEVEL.