

long and is one of the largest railroad embankments constructed in recent years. Other large cuts were made between Hanna and Dana and on the Continental Divide, that spot where, if a spring should arise, its waters would divide and the different portions eventually mingle with the Atlantic and Pacific oceans, which wash the opposite sides of the continent. On the line from Rawlins to Tipton new cuts and fills have been made, many heavy cast-iron and stone arches having been used so as to make the embankment solid.

In the past it was necessary to climb Sherman Hill between Buford and Laramie, but the traveler now crosses the Rockies through Sherman tunnel, which was cut through hard granite rock and is 1,800 feet long. The grade has been so reduced through the tunnel that there is no discomfort from foul air, the tunnel being perfectly clear and each end visible from the other end at all times. The Dale Creek fill on this line is 900 feet long, 120 feet high and 500,000 cubic yards of gravel were used in its construction; the Lone Tree creek fill on the same line is 800 feet long, 125 feet high and required 290,000 cubic yards of gravel. On account of these improvements the new line crosses Sherman Hill at an elevation of 8,000 feet (the highest point reached by the Union Pacific) instead of 8,247, the grade having been reduced nearly 250 feet.

The Aspen Tunnel.

The largest single piece of work ever undertaken by the Union Pacific is the Aspen tunnel, which is expected to be completed this summer. It pierces Aspen Ridge, one of the eastern foothills of the Wasatch Range. It will be 5,900 feet long. To hasten the work of construction a central shaft was sunk, the top being 331 feet above grade. From the bottom of the shaft excavations were made east and west, and were pushed as rapidly as possible to connect with the tunnel entrances, but a heavy flow of water caused a suspension of work, and excavation is now in progress at the ends only. The new line at Aspen is 22 miles long and shortens the distance 10 miles as compared with the old line.

Ballast.

Sherman Hill ballast, concerning which a great deal has been written, is a disintegrated granite. It is without doubt the best ballast material yet discovered. It has been distributed for use on the Union Pacific as far east as Omaha and west of Rawlins for several miles. The material is excavated with steam shovels and loaded by them into ballast cars at the rate of 6,000 cubic yards per day. Sherman gravel insures a road-bed, absolutely free from dust and dirt. The standard form of road-bed

consists of ballast level with the top of the tie to a width of three feet, two inches outside the rail, then sloping 18 inches to sub-grade. The road-bed at sub-grade in finished embankment is twenty feet wide; in earth excavation it is twenty-five feet wide.

Steam shovels, dump carts and track-laying machinery (the latter spouting ties from one side and rails from the other) played a great part in the building of the new road, and millions of money have thus been spent in order to expedite the commerce of a continent.

The building of this new line of road is an engineering triumph. The expense has been tremendous, but the results will surely prove that a saving has been effected, which will more than reimburse the Union Pacific within the next dozen years, and vindicate the good judgment of the present management.

Ordinarily it would have taken about five years to complete so great a work, but owing to the army of laborers put on the work by the contractors, Messrs. Kilpatrick Bros. & Collins, and the use of different railroad-building machinery, which had never been used before anywhere, the construction has been finished in the phenomenally short time of less than two years. Much credit for the work is due Mr. Horace G. Burt, president of the Union Pacific Railroad, who has constantly asserted the wisdom of the outlay, and whose boldness of conception and unfaltering faith in the successful outcome of the work finally secured the necessary appropriation.

The public is, of course, not interested in the matter of knowing about the great pleasure afforded the members of the excursion party by the officers of the Union Pacific; but we cannot refrain from publicly acknowledging the great courtesy extended, and to express our sincere thanks for the generosity with which we were entertained. General Passenger Agent Lomax was a most courteous and obliging host, and was ever on the alert looking to the comfort of his guests. Mr. Arthur Darlow, who also accompanied the party, is unsurpassed as an advertising agent. Mr. E. R. Griffin, general agent at Denver, proved himself a prince of entertainers and fully capable of looking after the welfare of any large excursion party. Everything went through without a hitch, and a great deal of credit therefor is due Mr. W. L. Park, division superintendent, whose experienced hand and eye guided the observation car (which was placed ahead of the locomotive) on the entire journey.

The Union Pacific road was advocated primarily as a war measure. More than forty years ago its construction was urged in the United States senate by Thomas H. Benton and others. As it was "First in War," so we hope it will always be, like the Father of Our Country, "First in Peace, and First in the Hearts of Our Countrymen." J. N.

WHEN LOVE IS KING.

By ISABEL RICHEY; Published by Geo. F. Lasher.

In the preface J. Sterling Morton says that the author is the product of the west, and in a brief introductory he pays her a glowing tribute.

The principal poem, which is also the title, claims the highest praise, and by virtue of its Spartan simplicity, its deep insight to the character of beautiful things, ranks Miss Richey with Markham and other poets who have recently come out of the West.

"When Love is King" is a tale of most absorbing interest. It flays the disregard of observance of hereditary law, and the motive of the poem is a like germ which characterized Walter Besant's new book, "The Fourth Generation."

The authoress details the principal characters with the touch of a master hand, and the winsome womanliness of the heroine and the rugged adamant character of the hero do Miss Richey credit.

The poem portrays the youth Raymond, the object of whose love is cursed by a hereditary taint of insanity; recognizing the inexorable edict that like produces like, he becomes a wanderer on the face of the earth.

Madaline, his love, first learns from his mother the cause of his departure. Bowed down by the iron hand of fate, she continues to love, though loving in vain. Pity, that makes the whole world kin, establishes a bond between Madaline and her lover's mother. The son and lover, wanders hither and thither, and meets in the course of his travels a stranger. Thro' friendship, ripened by a companionship in an isolated gold field, he tells the tale of his life and reveals to Raymond that he was a comrade-in-arms of his father, and confesses to his failure to discharge a trust imposed by his friend and comrade, Major Stone. This precipitates a climax, and Raymond tells that he is Major Stone's son, and the traveler and stranger delivers into his hand a jewel. Raymond then feels the necessity of visiting his aged mother to deliver into her hands the token of love, and he with the stranger, journeys homeward. He finds faithful Madaline at his own fireside, ministering acts of solace to his mother, and he introduces the stranger to his old sweetheart, who exclaims: "What! Is this Madaline Vandorlan, the child of my brother by his second wife?" The lover and mother stand astounded at the revelation that Madaline's father was twice married, and that Madaline is not the daughter of his insane wife, but the fruit of the blessed and happy union of his second wife. And thus is brought to an end all the misery and heart yearnings.

There are other shorter poems in the book that display, but not in so marked a degree, considerable ability.—The Bookworm.