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## American Railroad Journal.

New York, Saturday, December 29, 1866.

### San Francisco Central Pacific Railroad.

We have received from W. S. Watson, Esq., Chief Engineer, a pamphlet copy of his report on the survey and location of this road from Washington, on the Sacramento River, opposite Sacramento, to Benicia; to which is added an estimate of the cost of construction and equipment, and of the revenue, expenditures, etc., when completed.

As previously stated by us, this company was organized on the 29th of September last, by the election of a Board of Directors with Lansing B. Mizner, Esq., as President; Thos. A. Brown, Vice President; Jabez Hatch, Treasurer; S. C. Gray, Secretary; and W. S. Watson, Chief Engineer.

The city of Benicia is situated on the straits of Carquinez, 28 miles from San Francisco, at the outlet of Suisun Bay, the most eastwardly of the bays forming the harbor of San Francisco. The harbor capacity of the city front of Benicia is unsurpassed on any part of the Bay of San Francisco. The city of Sacramento is about 90 miles, by the course of the river, from Benicia, and 120 miles from San Francisco. An air line from San Francisco to Sacramento passes two miles to the south of Benicia. An air line from Benicia to Sacramento is 50½ miles; and the proposed road, if built as now projected, will not exceed 54½

miles, and can be reduced to 52 miles. The whole distance from Sacramento to San Francisco will then be but 80 miles, which will be a reduction to 66 per cent. of a distance of 120 miles of river travel. The distance from Sacramento to San Francisco by an air line is 75 miles. The connection with San Francisco is to be made by steamboat—the distance being 28 miles, entirely in the Bay of San Francisco.

The result of the survey was the finding of a highly favorable line for the construction of a first class railroad, having all the elements capable of the most successful operation.

This road will connect two of the most important cities on the Pacific coast. It is located on the only great thoroughfare in the State, and is intended to supply a great public want, daily becoming more a necessity, the importance of which has been admitted for years. Its construction has occupied the attention of capitalists, engineers and business men since 1852. All have admitted its feasibility; while the necessity of a reliable outlet from the interior valley of the State at Sacramento, to deep water navigation is universally admitted. This interior valley is formed by the two great rivers, the Sacramento and the San Joaquin and their tributaries. The former, coming from the North, drains all that part north of Sacramento city. The latter coming from the south, drains all that part of the State north of Tejon Pass. This valley comprises an area of 30,000 square miles. These streams, which since the settlement of the country have constituted the highways over which nine-tenths of all the business of California has been done, are extremely difficult of navigation, even in the best stage of the water; and from the sinuosity of their course, the distance from San Francisco to Sacramento, as has been shown, is increased from 75 miles, in an air line, to 120 miles by the river; and from San Francisco to Stockton, on the San Joaquin, from 67 miles, in an air line, to 125 miles by the traveled route. The business of the entire northern and middle counties of the State has hitherto been done through the channel of the Sacramento River. All travel and merchandize destined for these counties are shipped to Sacramento city, and above, to be there forwarded by teams to the mountains. It has been estimated that probably

not less than four-fifths of all the gold products of the State during the past 17 years have been obtained in the counties mentioned; their return travel and freight have been through this channel; and along this route it is proposed to construct the San Francisco Central Pacific Railroad.

The only grade worth mentioning encountered on the line between Sacramento and Benicia, is at the crossing of the Montezuma Hills, being, for two miles, 10 feet per mile ascending, and, two miles, 20 feet per mile descending towards Fairfield. From the tables of alignment and grades which accompany the report, it appears that 51.74 miles are straight line; 0.79 mile with curves of two degrees and under, 2,865 feet radius; and 2.70 miles with curves of four degrees and under, 1,436 feet radius. There are of level line 35.55 miles; of grades of 5 feet and under, 5.66 miles; of 10 feet and under, 7.02 miles; of 20 feet and under, 5.49 miles; and of the maximum grade, 22 feet, 1.51 mile—or 93.75 per cent. of straight line, and 6.25 per cent. of curves, with a minimum radius of 1,436 feet. Of the whole line, 64.36 per cent. is level, and 35.64 per cent. with grades from 5 to 20 feet per mile. It is estimated that a first class freight engine of 32 tons will draw a load of 268 tons over the road at the rate of 22 miles per hour. The total elevation to be overcome going northwardly is 101 feet, and returning is 71 feet—total both ways 172 feet. It is confidently expected, that with a good track and properly managed road, the entire distance can, and will, be regularly run in one hour.

The entire amount of grading is estimated at 1,187,000 cubic yards of earth, and 60,000 cubic yards of rock. For two-thirds of the length of the road, the grading will be embankment, mostly "borrow," to be made from the excavations on both sides of the road. The banks will be generally 14 feet wide at grade line, and cuts 16 feet wide. American rails, 52 lbs. per yard, will be used, with wrought iron chairs, laid on red wood ties 6×8 and 8 feet long, at the rate of 2,400 per mile. Six locomotives, with passenger, baggage, freight, etc., cars will be required, together with running gears, stationary machinery, etc. Depots, station buildings, and wharfing and docks at Benicia will also be necessary. The fencing and