

San Quentin Railroad is three and a half miles long, and connects the former place with a ferry to San Francisco.

The North Pacific Coast Railroad Company has been incorporated for the purpose of constructing a narrow gauge railroad from San Rafael via Tomales to the mouth of Walhalla River, in the northern portion of Sonoma county. The people of Marin county have voted a subsidy to this road, and the surveys and preliminary work of construction has been already commenced. This road when built will open up an outlet for a large lumber region on the coast that is by sea almost inaccessible during several months in the year.

The Atlantic and Pacific Railroad Company has been formed by Boston capitalists with the intention of constructing a line of narrow gauge road along the coast of California to the southern part of the State. The initial point of this road commences at San Francisco—the line being along the coast in San Francisco, San Mateo and Santa Cruz counties to Salinas Valley. It runs up this valley and in the interior until it again strikes the coast in San Luis Obispo county; thence to Santa Barbara via Foxen Cañon, and down the coast again to San Buenaventura. From thence two lines of survey have been run, neither of which has yet been accepted by the Company. One line goes through the San Fernando Pass to Los Angeles; thence to San Bernardino and to the Colorado river, with a branch line from San Bernardino to San Diego. The other line runs from San Buenaventura through Soledad Pass to the Mohave river, via the "Needles," its termination being about 15 or 20 miles below Fort Mohave.

### Meteorological Observations made at San Francisco from January, 1850, to December, 1871.

BY HENRY GIBBONS, M. D.

In the following tables the reader will find, in a condensed form the results of twenty years' diligent observation of the climate of San Francisco, with more particular reference to rain. A single glance at the rain tables will present the quantity of rain which has fallen in each month since 1850, the quantity in each season; the quantity before and after the end of the year; the date of the beginning and ending of each rainy season, and the date of the first and last scattering rains. The following are some of the deductions presented by this record:

Rain has fallen in every month of the year. In July it has rained only in one year; August has furnished rain in four years; June in six years; September in seven years; October in eleven years. No account is made of a mere sprinkle, nor of the deposit of Summer mist. The greatest quantity of mist which ever falls in twenty-four hours is about three-hundredths of an inch. But this quantity is very rare. Near the ocean the mist is much more copious.

The driest season was 1850-51, which gave only seven inches. Next to that was 1863-4, with eight and one-half inches. The winter of 1867-8 gave the most rain—forty inches. The average is between twenty-one and twenty-two inches.

The earliest setting in of the rainy season was November 1st; the latest, January 12th. An early beginning and an abundant supply are apt to go together, but there is no rule in this respect. The latest beginnings have been followed by an average supply.

The average date of the beginning of the rainy season is November 28th; of the termination, April 10th. March is as certain to bring rain in liberal amount as any other month. In one year out of every three there is no rain of importance after March. The last showers of the season come, with remarkable uniformity, about the third week of May.

The middle of January is the average dividing point of the rainy season. The mean quantity before January 1st is about equal to the mean quantity after January 31st.

December gives the greatest average quantity; January is not far behind; February, March and November come next, and are nearly alike; then April, May and October in the order named.

The greatest amount of rain in any one month was in January, 1862, when there fell the enormous quantity of eighteen inches.

It is worthy of note that in the driest seasons there has been an abundant supply for agricultural purposes, had it been distributed evenly. Three inches in December, with one inch in each of the four following months would answer all purposes.

The rain-table of San Francisco may be made the basis for estimating the fall in other parts of the State. The mountains of the north have from two to three times as much, and the southern section of the State about half as much, or even less in some localities. The valley of the Sacramento has nearly the same quantity as San Francisco; that of the San Joaquin one-fourth or one-third less, the quantity diminishing southward.

By reference to the tables showing the extremes of heat and cold, it appears that the coldest weather was in January, 1854, when the mercury fell to 25°. At that time the mud in the streets was frozen solid, and the shallow ponds were covered with ice strong enough for boys to skate on. But such weather is extremely rare, though since that time the ground has been frozen several times so as not to thaw fully in the shade for a day or two. The coldest noonday embraced in the record was 37°. Often the entire winter passes by without bringing the thermometer so low as the freezing point. In 1853 it fell at no time below 40°.

The extreme of heat was on the 10th and 11th of September, 1852, when the thermometer reached 97° and 98° on the two days respectively. This, however, was entirely exceptional, and might not occur again in half a century. The air was dry as a sirocco, and caused the woodwork of houses to crackle and the plaster to break on the wooden walls.