## LIST OF EARTHQUAKES IN CALIFORNIA FOR THE YEAR 1898.

## COMPILED BY C. D. PERRINE.

The following list is a continuation of similar reports printed in these *Publications*, Vol. II, p. 74; Vol. III, p. 247; Vol. V, p. 127; Vol. VI, p. 41; Vol. VII, p. 99; Vol. VIII, p. 222; Vol. IX, p. 37; Vol. X, p. 64. A more complete account will be published by the United States Geological Survey as a bulletin. The dates are civil dates. The times are Pacific standard (120th meridian).

Roman numerals inclosed in parentheses indicate the intensity on the Rossi-Forel scale.

In 1898 twenty-four shocks of earthquake were recorded in California, a decrease of one as compared with 1897.

Two of the disturbances, viz. those of March 30th and April 14th, were very severe, comparable in intensity and damage with the worst shocks experienced here during the past half-century.

## LIST OF EARTHQUAKE SHOCKS, 1898.

January I. Santa Rosa, 5 A.M.

February 7. Mt. Hamilton, oh 38<sup>m</sup> 3<sup>s</sup> A M., P. S. T., (I, II).

March 7. Pacific Ocean, midway between Mazatlan and Hawaiian Islands, 10:12 P.M., G. M. T.

March 17. Highland Springs, oh A.M.

March 30. A severe shock in the central portion of the State, doing considerable damage to property. The center of the disturbance seems to have been in the vicinity of Vallejo and Mare Island. Mt. Hamilton, 11h 42m 22s to 11h 43m 2s P.M., P. S. T., (V) C. D. P. Heaviest shock at 11h 42m 45s P. S. T., R. H. T. Berkeley, 11h 42m 26s P.M., P. S. T.; Alameda, College Park, Carson City (Nevada), 11h 45m P.M.; Mills College, Antioch, Benicia, Bolinas, Colusa, Lodi, Martinez, Monterey, Pacific Grove, Del Monte, Modesto, Napa, Port Costa, Petaluma, Sonoma, Santa Cruz, St. Helena, Suisun, San Rafael, San Quentin, Sacramento, San José, Santa Rosa, Stockton, Vallejo, Walnut Creek.

April 12. College Park, 4 P.M.

April 14. San Francisco, 10:53, 11:07 P.M.; Oakland, Eureka, Mendocino, Little River, Point Arena, Greenwood, Ukiah, Fort Bragg, Berkeley, Mills College, 11:05 P.M.; Alameda, College Park, 11<sup>h</sup> 10<sup>m</sup> 39<sup>s</sup> P.M. The center of this disturbance was on the coast near Mendocino City, and did some damage in the country about. The shock was distinctly felt in the Bay counties, but was not noticed at Mt. Hamilton.

April 18. Prairie Camp (Mendocino County).

April 25. Albion, Mendocino.

April 26. College Park, 12:30 ± P.M.

May 2. College Park, 6:02 A.M.; Salinas 6:05 A.M.; Santa Cruz.

May 9. Gilroy, 7 A.M.

May 20. Mt. Hamilton,  $6^h 48^m 53^s \pm \frac{1}{2}^s$  A.M., P. S. T.; College Park,  $6^h 49^m$  A.M.

May 22. College Park, 11h 15m A.M.

May 29. Santa Barbara, 7<sup>h</sup> 03<sup>m</sup> P.M.

June 3. Los Olivos, 10<sup>h</sup> 20<sup>m</sup> P.M., Santa Barbara, 10<sup>h</sup> 18<sup>m</sup> P.M.

June 8. Point Arena, 11:30 (A.M.), 1 (P.M.).

June 30. Los Angeles, 11<sup>h</sup> 26<sup>m</sup> or 28<sup>m</sup> P.M.

July 19. Powder-mill explosion at Melrose, Alameda County,  $5^h 20^m 47^s \pm 2^s A.M.$  Timed by Mr. A. H. BABCOCK.

August 7. San Francisco, 11<sup>h</sup> 57<sup>m</sup> A M.; Oakland, Berkeley, Alameda (?).

August 12. Alameda, Mills College, 6<sup>h</sup> 10<sup>m</sup> A.M.

August 19. Albion, 2:30 P.M. Reported by Mr. RALPH B. Funk.

October 27. Mt. Hamilton, 2<sup>h</sup> 22<sup>m</sup> 24<sup>s</sup> or 25<sup>s</sup> P.M., P. S. T., (II).

November 5. Mt. Hamilton,  $9^h 9^m 8^s \pm 5^s P.M.$ 

November 19. Mt. Hamilton, 11h 27m 01s A.M., (II).

December 5. Heavy explosion at the powder-works at Pinole, Contra Costa County. Timed in San Francisco at 3<sup>h</sup> 28<sup>m</sup> 58<sup>s</sup> P.M., P. S. T., by Mr. EVERETT HAYDEN, U. S. N.

December 7. Alameda, 7<sup>h</sup> 38<sup>m</sup> 47<sup>s</sup> P M., P. S. T., (III or IV). The shocks at College Park were reported by Professor H. D. Curtis; from Carson City, by Professor C. W. Friend.

Mt. Hamilton, Cal., 1899, February 18.