Water-waves from Krakatoa.

You published, in May, a couple of interesting communications on atmospheric waves from Krakatoa. As the effect through the water was still more marked and more sharply defined at very great distances, I have made for publication, by authority of the superintendent of the U. S. coast and geodetic survey, reduced photographic copies of the records of the self-registering tide-gauges at Kadiak, Alaska, and at Saucelito, near San Francisco. These copies cover the period from 0*h*. Aug. 27, to 0*h*. Aug. 30, or the seventy-two hours during which the tide-gauges show, in a very marked manner, the effect of the Krakatoa earthquake upon the masses of water in the North Pacific Ocean.

It is interesting to notice that the impact of the earthquake was apparently felt earlier and in a greater degree at San Francisco than at Kadiak; although the former is 1,473 geographical miles more distant, in a direct line, from Krakatoa.

The observations at Honolulu, where the U. S. coast and geodetic survey has a self-registering tide-gauge, are expected to arrive shortly, and will help to throw more light on this interesting point.

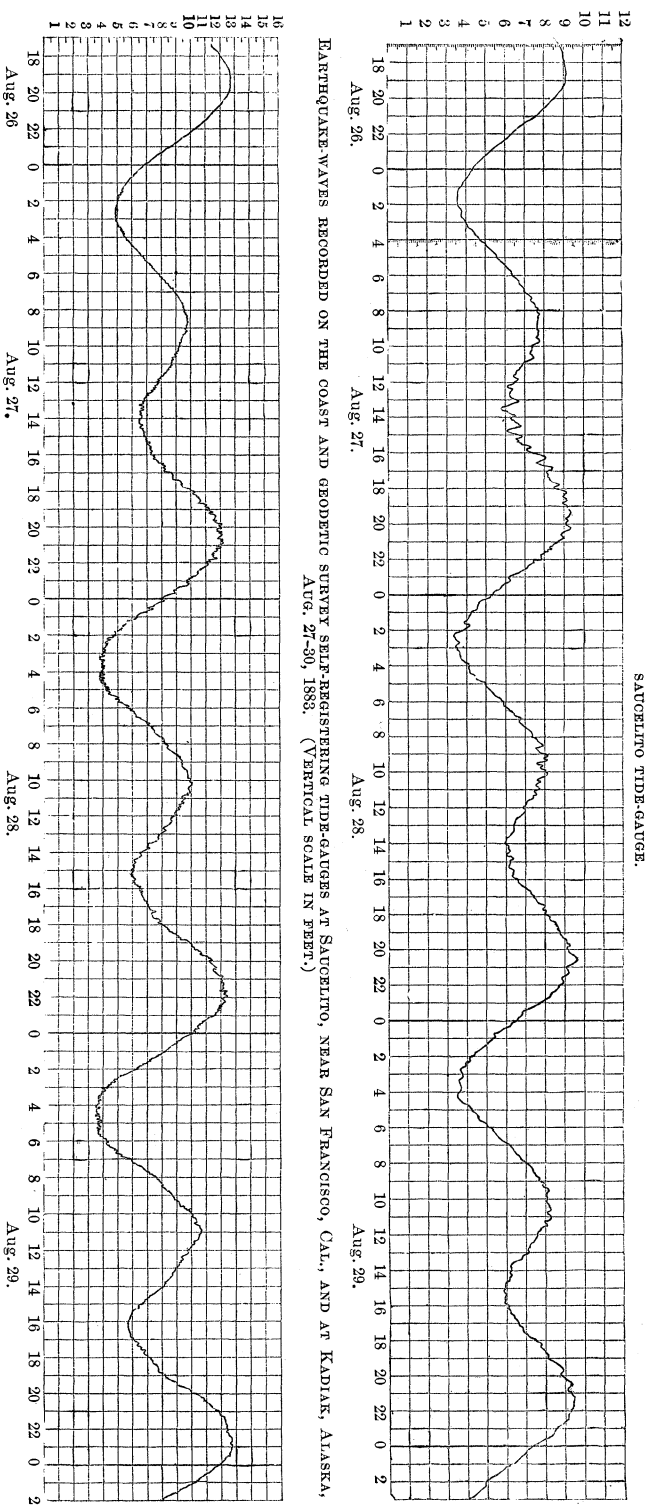
All this suggests inquiry into the path which the great wave pursued. According to the accepted theory of wave-transmission in deep waters, the time is shortest in the most profound depths, and therefore the tidal register at Honolulu is looked for with great interest. There are evidently several pathways through the great congeries of islands north-east of Krakatoa, and two to the south of Australia, — one between Australia and New Zealand, thence through the Pacific; and the other east of New Zealand, and northward through the Pacific. (See opposite map.)

If it had been possible to maintain the tide-gauge at Mazatlan, it would have afforded very valuable information as to the most probable direction taken by the great earthquake-wave.

The dates upon the records are given for local mean solar time, 'civil account' at each gauge. The temperatures recorded are of the water at the time indicated. The geographical positions are as follows: —

Krakatoa . . lat. 6° 09.5′ S., long. 105° 27′ = 7*h*. 01*m*. 48*s*. E.
Saucelito . . lat. 37° 51′ N., long. 122° 29′ = 8*h*. 09*m*. 56*s*. W.
Kadiak . . . lat. 57° 50′ N., long. 152° 20′ = 10*h*. 09*m*. 20*s*. W.

C. O. BOUTELLE,
Asst. in charge of office.
U. S. C. and G. survey,
Washington, D.C., June 10.



EARTHQUAKE-WAVES RECORDED ON THE COAST AND GEODETIC SURVEY SELF-REGISTERING TIDE-GAUGES AT SAUCELITO, NEAR SAN FRANCISCO, CAL., AND AT KADIAK, ALASKA, AUG. 27–30, 1883. (VERTICAL SCALE IN FEET.)