

## Earthquakes Send Own Telegrams

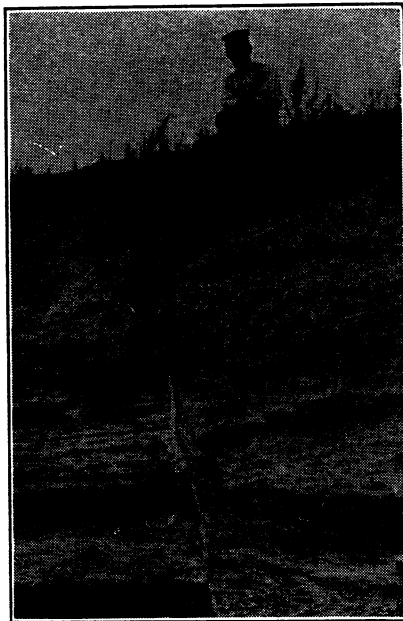
(Continued from page 279)

rock fail to match up along a certain line. Such a line is a "fault line," and marks the place where, under great stress from above or below or from one side the solid rock cracked and slipped. You can produce a fault on a small scale in a layer cake, by slipping a knife under it and lifting until it breaks. When you take the knife away, the chances are that the layers in the cake will no longer match up evenly. After a while, perhaps, the heaved-up part will settle back into position a little; the fault is readjusting itself. If an ant happens to be walking on top of the cake at the time, he will get a bit of a jolt: the readjustment of the fault has caused an earthquake.

As in the little world, so in the big. This round, cosmic layer-cake on which we humans live is full of places where the layers are pushed and twisted out of place. Every time a new push causes another slip, we get an earthquake. Every time the dislocated parts readjust themselves a little, we get another jar.

These movements of dislocation and readjustment may take place either up, down, or sideways, and sometimes they are of quite considerable extent. Dr. Bailey Willis, a prominent seismologist who happened to be in Santa Barbara at the time of the earthquake, noted that the trail of an old cannon in front of the postoffice left a scar on its stone pedestal sixteen inches in length, running from north to south, thus indicating a movement of nearly a foot and a half. But the Santa Barbara earthquake was a comparatively mild one. Roads that crossed the great San Andreas fault, which caused the San Francisco disaster twenty-one years ago, were dislocated by as much as their full width, so that the right-hand edge on one side of the line met the left-hand edge on the other. Similarly, fences that ran across this fault were broken, the offset between the ends being wide enough for a good, generous-sized farm gate.

Seismologists and geologists point out that man can profit by his costly experiences with these earthquake-causing slips of rock faults. The San Franciscan's claim that "it wasn't the earthquake, but the fire, that caused most of the damage" is true. But when the fire started, the aqueducts that should have supplied water to fight it were broken in two at the fault line, just like the roads and the fences. And in too many



"FAULT" AS SHOWN ON THE SIDE OF A CLIFF. The different layers of rock were originally continuous, but the part to the right slipped down. Filling in of dirt later made the top level again. (Photo courtesy U. S. Geological Survey.)

instances, the water mains of earthquake-scourged cities have been rebuilt exactly as they were before, right across the fault lines; so that when another quake comes they will break again in exactly the same places. Similarly, railway tracks that might carry relief can be cut off. Sources of danger, like high-tension electric wires, and pipes conveying inflammable oil and natural gas, in many places stand ready for the wrecking wrench of the earthquake to add their share of death and destruction.

Measures are already being taken in California to gain a more intimate knowledge of the earthquake situation in general, so that a newer generation of engineers may be able to avoid the costly mistakes of their predecessors, and even so that scientists may predict the coming of a quake with something like accuracy. Prof. Willis tells of the initial steps in this movement.

"The Carnegie Institution of Washington is now engaged in establishing stations at Pasadena, Riverside, La Jolla, and other points in southern California," he says, "where instruments designed to record local earth tremors are being set up. All of the stations will operate in unison under the central control of the principal station at Pasadena and the records which they will yield will enable us to fix the focus of even the slightest tremors within fifty or sixty miles of the stations. As the

records are continuous we shall know exactly where the earthquake strain is gathering and how it increases or diminishes from day to day or month to month.

"In the course of time a chain of stations of this character will no doubt be established from San Diego to the Oregon line. But it will have to be done through the cooperation of the communities interested and will not be accomplished until public opinion is educated to an understanding of the advantage of knowing all that we can about earthquakes and the methods of protecting ourselves against their effects."

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### SEISMOLOGY

## Region of Past Quakes

The earthquake last Monday was not the first that has visited the region in Alaska. One of the most severe earthquakes of the earth's history occurred in Yakutat Bay in 1899. This disturbance is listed as "the earthquake of the century." Another severe earthquake shook the region on February 21, 1925.

It may take weeks for the news of the quake to be transmitted from the region to the outside world. The Alaskan coast in this locality is only sparsely settled with natives. One native village and a federal school is located at Yakutat Bay, but this is sufficiently far from the zone of greatest disturbance to arouse no fears as to its safety. Communication is limited to a coast-wise steamer that plies as far as Steward on a monthly schedule, but weather conditions at this time of year make even this meager contact unreliable.

A seismographic station of the Coast and Geodetic Survey is located at Sitka, some 300 miles away, and probably felt the shock.

The great Yakutat shock of 1899 caused vertical displacements of the earth of as much as 40 feet. While changes of the earth's surface of this extent are not likely as a result of the present shock, the configuration of the ocean bottom in that region may have been changed, causing navigation to be menaced.

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A German chemical company reports that it has perfected a method of producing 100 per cent. pure tin.

Indians of the Seneca Nation in New York State passed their own law to control the corn borer two years ago.