SEISMOLOGY

Quake Near World Record

An earthquake as strong as the San Francisco quake in 1906, and close to the world's strongest, hit southern Chile. Resulting tidal waves spread across the Pacific.

THE STRONGEST earthquake that hit Chile, May 22, had a magnitude of 8.25 to 8.5, the University of California at Berkeley reported. This comes close to the biggest earthquake ever recorded that took place in Ecuador in 1906. It had a magnitude of 8.9.

Of a series of earthquakes hitting Chile, the first one took place Saturday morning at 10:02 Greenwich time, May 21. It had a magnitude of 7.25 to 7.5. After this, continual tremors occurred Sunday and Monday, with three major quakes Sunday afternoon within 16 minutes. They hit at 18:55, 19:10 and 19:11, Greenwich time, with magnitudes of 7.75, 7.5 to 7.75 and 8.25 to 8.5, respectively.

U. S. Coast and Geodetic Survey scientists said that the shock waves came so fast and heavy on May 22 that the seismograph hit the stops for hours—the needle kept registering all the time as the waves repeatedly circled the earth. The afterquakes were even heavier than the quakes themselves, they reported.

A seismologist said that between 6 p.m. Sunday and 9 a.m. Monday alone, ten quakes registered in Washington, D. C., six of fairly large magnitude.

He said that this is by no means all the tremors that had occurred during this time since the instruments are kept less sensitive because weather fronts moving toward the coast from the west create "noise" for the seismographic instruments.

He also said the shocks and aftershocks keep coming in all the time. The general pattern for earthquakes is that a series of small quakes will announce the large, major ones. He said that normally the first large earthquake, which occurred Saturday, would have been thought the major one until the even heavier ones occurred Sunday.

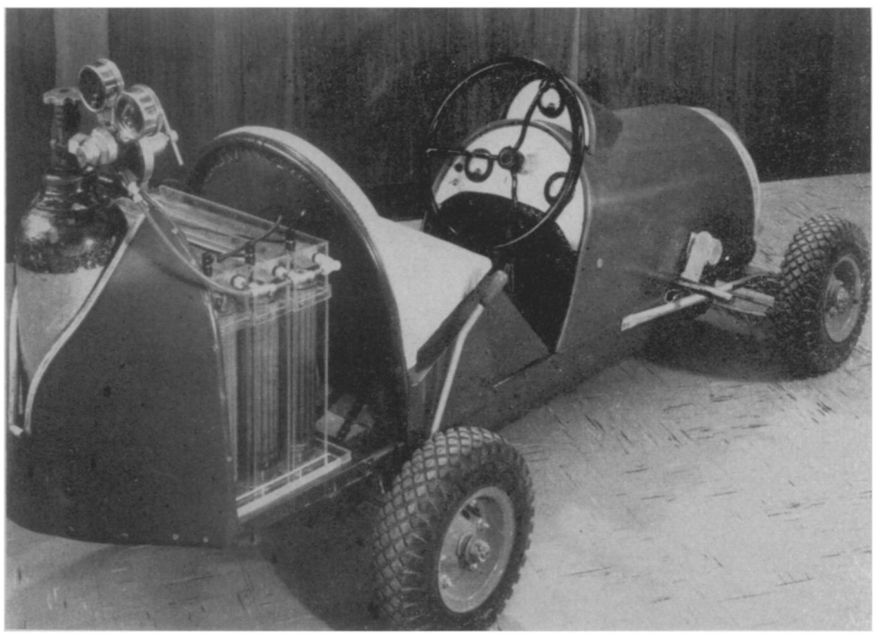
When the major quake has taken place there is generally a series of smaller aftershocks before the total ground motion ceases. He said the aftershocks can last for months. Aftershocks from the earthquake in Yellowstone Park last August were registered in January and February of this year.

Thousands of people were reported killed in the Chile quakes, and damage so far cannot be estimated. All communication south of Santiago, the capital of Chile, was disrupted. Some of the cities and towns involved in the earthquake are: Concepcion, Chiloe, Angol, Los Angeles, Temuco, Valdivia and Osorno.

A railroad bridge over the Malleco river —called a modern engineering feat—was demolished.

Seven volcanos were reported erupting and three new ones appeared in the earthquake area, and debris was hurled 10,000 feet up in the air.

A tidal wave, resulting from the earthquakes, hit the island of Chiloe Sunday afternoon and tidal waves occurred on Monday as far away as San Francisco, Tahiti, Christmas Island and Hawaii.



FUEL-CELL CAR—A fuel cell, producing electric currents directly from chemicals, provides power for this racing car. The zinc-oxygen cell will be developed by Exide Industrial Division of The Electric Storage Battery Company in Philadelphia for electric industrial material handling trucks. After being tested in hauling operations, the cell may be adapted to automobiles and ordinary trucks.

Warning Network

TWELVE HOURS before seismic sea waves hit Hawaii and killed many persons, officials there were advised of the wave and told when it would hit, the U. S. Coast and Geodetic Survey reported. The waves hit May 23, at 10:22 Greenwich time—just 22 minutes later than the time predicted.

The Pacific's tidal wave warning network was set up by the U. S. Coast and Geodetic Survey after waves in 1946 had devastated Hawaii. Twenty-one Pacific tide stations are now in operation.

They have only part-time employees who wind clocks and record data.

But after seismic stations have located a quake that might cause a wave, the part-time employees are told to man their stations. They then send the exact time the tidal wave crests at their stations to the Honolulu Magnetic Observatory of the Coast and Geodetic Survey. The Observatory is the center of the Survey's seismic sea wave net.

From the stations' reports the Observatory can figure the speed of the waves and predict when they will hit other areas.

Quick communication throughout the net is made through the military radio system. The U. S. warning network is the only one of its kind in the world. It operates only in the Pacific. The eastern U. S. is protected from Atlantic tidal waves by the Continental Shelf.

How Tidal Waves Begin

Tidal waves originate from irregular trenches on the ocean floor.

Oceanographers believe earthquakes cause great landslides at these trenches and that the landslides start the sea waves. Thus, oceanographers frown on the name "tidal wave," which implies the wave is caused by the moon and sun, as are tides.

The scientists prefer "seismic sea wave" because it better indicates the cause and nature of the waves. And a Japanese term, "tsunami," is favored in many scientific journals.

The tidal wave cannot be seen at sea. In fact, ships head out to sea when warned of a tidal wave. The ships would be wrecked in port, where the waves reach great heights. But ships at sea are not hurt. People on the ships may not even notice the waves.

At sea, a wave may be a hundred miles long but will be only a foot or two high. It may travel at 400 to 500 miles an hour.