SEISMOLOGY

# Moon's Tidal Force Provides Trigger Starting Earthquake

## Latest Theory of Harvard Geophysicist Receives Confirmation From Quake in Eastern United States

THE EARTHQUAKE that shook eastern United States and Canada early Friday morning, November 1, gave new evidence that the moon and earthquakes are connected.

Dr. Harlan T. Stetson, geophysics research associate at Harvard University, had just completed a study of more than two thousand earthquakes when this new earthquake crashed through with new confirmation of his findings.

In Dr. Stetson's investigation, made for the American Philosophical Society, he found that the largest number of deep focus earthquakes, those occurring more than sixty miles below the earth's surface, occur with greatest frequency when the lunar tidal forces at the quake center are near a maximum.

Calculation of possible influence of the moon upon Friday's shock made by Dr. Stetson at the suggestion of Science Service showed that the tidal force of the moon was at a maximum over New England at the time the quake occurred.

"It is excellent confirmation of the theory of greater earthquake frequency at times of maximum tidal strain in the earth's crust," he declared.

It is not suggested by Dr. Stetson that the moon's gravitational force itself furnishes the energy for an earthquake but that it acts as a sort of trigger to set off the strains in the earth's crust.

The familiar tides of the ocean provide evidence of the effect of the gravitational pull of the moon upon this planet.

The number of quakes occurring near the period of greatest tidal stress is, on the average, two and a half times as great as the number occurring when the tidal forces are at a minimum.

Not until Dr. Stetson studied deep focus earthquakes only did his results clarify. He then found a close correspondence between frequency of such disturbances and the hour angle and declination of the moon.

The moon's hour angle at Boston at the time of the Friday quake was 7 hours 44 minutes and declination was south 24 degrees. This placed the moon 700 miles north of New Zealand and the resulting calculation shows the horizontal component of the lunar tidal force to be a maximum in the region of New England at the time, Dr. Stetson found. The direction of forces was east northeast or approximately parallel to the coast line of the region. This suggests favorable conditions for a slip along a fault line.

The center of the quake was discovered by seismological reports telegraphed to Science Service to be in the region of Lake Nipissing, Ontario.

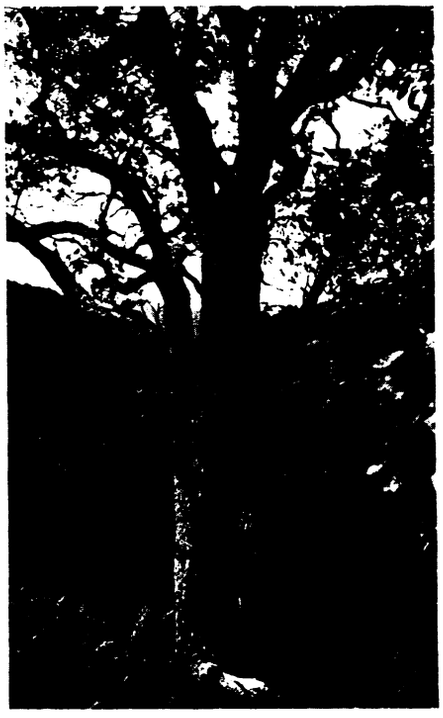
To scientists the location is best described as north latitude 45.9 degrees, west longitude 79.9 degrees.

To the public it is the area made famous by the Dionne quintuplets who live at Callander.

About a dozen seismograph stations rushed data to Science Service for the U. S. Coast and Geodetic Survey and the Jesuit Seismological Association to use in determining the epicenter. Less than a dozen hours after the quake this cooperation put science's finger on the quake's origin, probably deep in the earth's crust, setting at rest guesses as to location based on single observations.

Earthquakes are not rare in eastern United States and Canada; some 20 quakes occur each year on the average.

*Science News Letter, November 9, 1935*



**SURVIVOR**

***One of the few remaining native sandalwood trees on American soil. It grows in the mountains of Hawaii where once there were forests of its kind.***

SILVICULTURE

## Sandalwood, Valuable Tree Of Hawaii, to Come Back

SANDALWOOD, theme of a thousand romances and poems of early commerce, is being groomed for a comeback in the forests of Hawaii. It once existed there in great quantities, but over-exploitation 125 years ago by an alliance of traders and native potentates almost wiped it out.

The forests were devastated at that time because of the high prices that could be secured in China for this sweet-scented wood. They promise to be re-established because those prices are still maintained.

C. S. Judd, territorial forester, some years ago secured from Mysore, India, seeds of what is held to be the most valuable species of sandalwood. He planted these seeds on a ridge in the suburbs of Honolulu and they grew abundantly. Today there are some 1500 three-year-old trees on this ridge. They are bearing all the seed that is needed for nursery use. Aside from these, an old sandalwood tree is occasionally found in some remote mountain canyon.

Mr. Judd is developing much nursery stock, based on this seed supply, and with the aid of C.C.C. men as a labor source. He is finding, however, that sandalwood trees present certain peculiar problems in their propagation. A seed planted in a pot will sprout and grow normally for six months and then, unless it is given a peculiar variety of aid, it will languish and die. The plant is a semi-parasite. Its roots fasten themselves on the roots of neighboring plants and steal a considerable portion of their nourishment from them. Unless there are proper host plants, they will not survive.

In the pots at the nurseries in Hawaii ironwood seeds are planted with the sandalwood. When the little plants are set out in the open, the ironwood plants go along. Thus they continue to contribute to the support of this valuable but somewhat lazy tree. In its native state the sandalwood always grows among