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

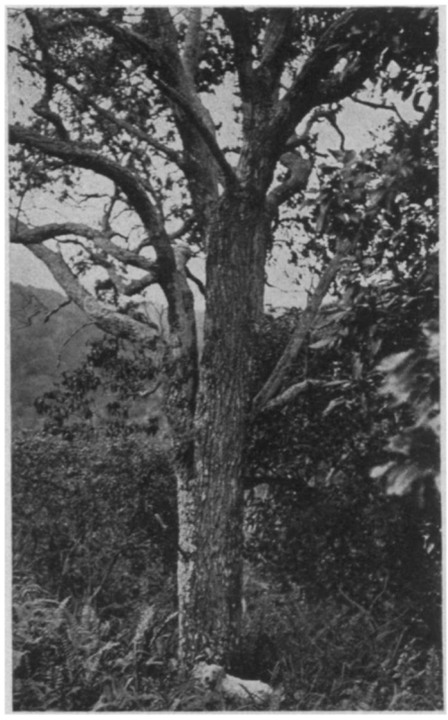
SILVICULTURE

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.



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.

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

other trees and helps itself to aid from their roots.

On the ridge that overlooks Honolulu, where 1500 young trees are growing vigorously, they stand among lantana bushes, members of the verbena family.

Sandalwood trees grow rather rapidly. They are of some value at the age of 25 years. It is the heart of the tree, however, that is most precious, and heartwood is not likely to develop greatly until the tree is 40 or 50 years old. Since the present plantings are chiefly in territorial forests, however, the profits do not need to be immediate to make the enterprise sound.

Science News Letter, November 9, 1935

ENGINEERING

Doctor Says Door Handles on Streamlined Autos are Menace

WHEN medieval warriors drove their chariots into battle, they mounted sharp-pointed knives in the wheel hubs to sideswipe the enemy if they couldn't run him down.

When modern men ride forth for a peaceful Sunday drive, they unknowingly carry similar deadly weapons mounted in the doors of their streamlined motor cars. Dr. Samuel McLanahan of Baltimore, calls attention to this (*Journal, American Medical Association,* Sept. 28.)

The automobile door handle is a "menacing and dangerous projection," the cause of disfiguring injuries and occasional deaths, Dr. McLanahan charges. He describes six striking cases of accident resulting from persons being struck by the door handles of motor cars and mentions six other recent accidents of a similar nature, two of which were fatal puncture wounds of the skull.

Cases Cited

One case described in his report was that of a motorcyclist who collided with an automobile. The car door handle was driven through his skull. The handle of a taxicab tore a deep gash in the chest of a little girl running in the street. A Negro crossing the highway had a long gash torn in his abdomen when struck by a passing car.

A young man of 22 has lost all sensation in his right arm and use of that member since an automobile struck him and the door handle tore a hole in his forearm. While crossing a bridge recently, a boy of 16 was sideswiped and his right hand permanently disfigured by the door handle.

"A casual glance at a row of passing cars cannot but convince one of the potential danger of this projecting piece of metal," Dr. McLanahan declares. "In the recent streamlined models is to be seen many a door handle that is little short of a spear—truly a vicious weapon—directed toward any victim who may chance to be in its path. The possibilities of mutilation are easily imagined."

Cars with handles that are directed toward the rear, because the hinges of the door lie in that direction, are less menacing, the doctor states, although they are still dangerous projections.

Improvements must finally come from automobile engineers, the physician declares. He has approached one large manufacturing company and earnest consideration of the question has been promised.

Dr. McLanahan suggests two requisites for safety. The first is a handle (if there must be a handle) without sharp projections, as instanced in the oval ones on certain obsolete models. The second is a handle that lies either close against or is countersunk within the side of the door.

Science News Letter, November 9, 1935

SURGERY

High Blood Pressure Relieved by Surgery

NEW HOPE for successful surgical operation in combatting the menacing disease of middle age—high blood pressure—has been reported to the meeting of the American College of Surgeons.

Surgical aid for relieving the ailment which brings to a halt many ambitious careers before the prime of life is over will not work for all types of high blood pressure, said Dr. Alfred W. Adson of the Mayo Clinic, Rochester, Minnesota, who described the new operative technic.

Over a period of five years, he added, however, the form of high blood pressure known as essential hypertension has been treated by operations in thirty-five cases. Tried for these 35 people, the operation was in some cases a successful measure taken only after all routine medical practices were applied and found wanting.

The operative technic, still not wholly perfect, consists of cutting nerves which control the contraction and dilation of blood vessels in whole areas of the body.

Science News Letter, November 9, 1935

DEADLY

This war chariot of days gone by bears little resemblance to modern motor cars, yet both provide similar hazards to the pedestrian.