The temperate rain-forest located in the Venezuelan Andes southeast of Lake Maracaibo was found to bear a close resemblance to primeval forests of western America, while a striking similarity was observed between ancient forests in the states of Washington and Oregon and present day ones on the Pacific slopes of Panama. Specimens of trees native to Central and South America were collected in great profusion.

Departing from Boston on December 22 and returning to San Francisco on March 1, the party pierced in the intervening period the densest jungles of the West Indies and South America.

Science News Letter, March 26, 1932

ENGINEERING-SEISMOLOGY

Giant Blast Felt as Quake By Distant Seismographs

THE BIGGEST SHOT ever fired intentionally—two hundred fifteen tons of dynamite and other high explosives set off in one enormous blast in a limestone quarry near Manistique, Mich.—registered itself as an earthquake on seismograph instruments at points as remote as Buffalo, N. Y., Madison, Wis., and Washington, D. C. Timed at their starting point on an accurate chronograph brought into agreement with radio signals from the U. S. Naval Observatory, the waves were picked up as they swayed the sensitive pendulums of seismographs at several observatories.

The time at Manistique was clocked by E. J. Brown of the U. S. Coast and Geodetic Survey. A steel shelter was erected about 2,000 feet from the charge to house Mr. Brown and his instruments. His timepiece was a break circuit chronometer, which was accurately set by time signal from Washington. The shock was recorded chronographically against the chronometer by means of a pendulum type seismometer placed in the circuit with the chronometer pen. The instant of the explosion as determined visually was manually recorded on the chronometer. The pendulum seismometer indicated the duration of the local shock.

Lasted Ten Seconds

At Buffalo, Rev. John P. Delaney, in charge of the seismograph station at Canisius College, wired Science Service that an earthquake train lasting ten seconds recorded itself on his instruments three minutes and fifty-six seconds after the blast was detonated in Manistique, at two minutes after three p. m., central standard time.

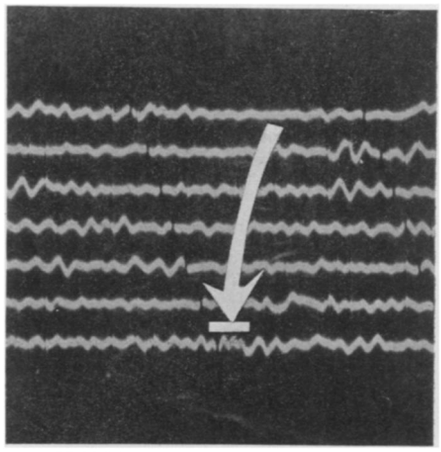
The waves apparently travelled along the surface of the earth's crust. Since Buffalo is approximately 400 miles east of Manistique, this means that the waves moved at a rate of about a hundred miles a minute.

From the seismological station of the University of Wisconsin came the report of a clear record of waves of small amplitude, the first arriving two minutes and three seconds after the firing of the blast. Madison is about 300 miles west of Manistique, so that again the waves are shown to be moving at a high rate, this time approximately two miles a second.

The sensitive vertical Galitzin instrument at Georgetown University, Washington, D. C., recorded the arrival of the first wave five minutes and three seconds after the moment of firing in Manistique. Washington is at a distance of more than 600 miles from the scene of the great explosion, so that the waves either travelled faster along the surface, or else took a short cut through the deeper rocks of the earth to make this record. The Georgetown instruments have, so far as is known at present, set a record for distance in perceiving the effects of an explosion.

Although the detonation was the largest commercial blast in history, larger amounts of explosives have been set off. The destruction of the Lake Denmark, N. J., Navy storage depot in 1926 is recalled by Army and Navy officers. The largest of several blasts there was caused by the destruction of 1,700,000 pounds of T. N. T. Lightning was the cause. Although these explosives were on the surface, a hole forty feet deep was torn in solid rock beneath them.

Far greater effect was achieved by the smaller quantity which was carefully planted at Manistique. A crew of more than fifty men worked ten days to load these explosives in the 5,000 holes and to hook up the wiring that fired the many separate charges at the same time.



SIGNATURE OF THE BLAST

—as it inserted itself into the microseismic "wiggles" on the record of the seismograph at Canisius College, Buffalo, N. Y., shown beneath the short white bar.

The holes were from ten to fifteen feet apart and had an average depth of thirty feet.

Still and motion pictures of the explosion were taken from Army planes for study by the Bureau of Mines.

Science News Letter, March 26, 1932

ASTRONOMY

Belgian Astronomer Sights New Object in Heavens

A HEAVENLY object hitherto unsighted by astronomers, probably a new comet, was discovered at the Royal Belgian Observatory by Prof. E. Delporte on March 12, observed again in the early morning hours of March 15 by Dr. P. Stroobant and for a third time on March 16, by Prof. M. Muendler, of Heidelberg Observatory. It has since been sighted elsewhere. Notification of the discovery came to America through a report to Dr. Harlow Shapley, director of the Harvard College Observatory, Cambridge, Mass., which acts as the American clearing house for astronomical information.

The "Delporte object" as it is now tentatively called was of ninth magnitude when sighted and therefore could be seen through telescopes of moderate size. It was located at right ascension 12 hours 2 minutes 20.3 seconds and declination north 3 degrees 35 minutes and 15 seconds in the constellation of Virgo, which is now visible in the evening skies near the eastern horizon. No tail was reported.

The Royal Belgian Observatory, where the discovery was made, is located at Uccle, near Brussels, Belgium.

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