

Earthquakes Are Caused By Waves

These Earth Waves Originate Deep Down And Struggle To The Surface

Washington, Sept. 18 — Exactly what is an earthquake and what causes it?

These two questions very naturally pop into the minds of millions of persons when a catastrophe such as that which recently occurred in Japan overtakes some great city and causes thousands of deaths.

A bulletin from the Washington, D. C. headquarters of the National Geographic Society answers these questions:

"Superficially the name itself tells the story. It is no more nor less than a quaking of the earth or a part of it; and theoretically any vibration at all fills the bill, from the tremor caused by a heavy truck passing along the street or a blast in a quarry to the most violent convulsion that slides hills from their bases and opens yawning chasms in the earth.

Earth Waves Hold Secret

"But going beyond the superficial, there is more that needs to be said even by way of a bare definition of an earthquake. The quake in so far as man experiences it is the coming to the surface of waves in the earth. These waves cannot be compared simply to the up-and-down waves of rippled water nor to the back-and-forth waves in the air that make sound. Even the simplest wave motion is none too easy to understand; and the waves in the varying earth materials that make themselves known to man as earthquakes are probably the most complex waves that exist. They are at once motions 'up-and-down' like sea waves; crosswise like the waves in a flapping flag; back-and-forth like sound waves or the motion in a long coiled spring suspended with a weight bobbing at its end; and in addition may have twists about imaginary pivot lines in all of the three dimensions.

"The earth waves originate in some region down in the earth and start out in every direction. The waves from a pebble dropped into a pond form growing circles on the surface of the water. But the waves in the earth being in a solid, attempt to form spheres that constantly grow outward. Soon however, because of the difference in the rigidity of different rock materials, the form is not a sphere at all but a very irregular curved solid instead, more nearly that of a potato, perhaps.

Two Kinds Of Waves

"The two principal types of earth waves, those that travel like the pulsations in a hobbling spring, straight out; and those that travel like ripples and the waves in a flag, with a sidewise motion, move at different speeds. The pulsing waves are the swifter, and of course the place where they make themselves felt first and most strongly is the surface area straight above their starting point. This is technically the 'epicenter' or 'epicentrum.' The pulsing waves around the epicenter alternately push up the surface of the earth and everything on it, and let them fall back. This is done very rapidly, and though the actual rise and fall may be only a fraction of an inch on rocky surfaces or a very few inches on soft soil, the violence may be like that from innumerable tremendous blows, and sufficient to shake down buildings.

"The 'sidewise' waves follow along almost immediately after the first pulsing waves, and the two, with perhaps 'twisting' waves' as well, then operate together. The ground in the epicentral area, therefore, gets innumerable thrusts and falls and at the same time is jerked sidewise and back for tiny distances in every direction.

"At points some distance from the epicenter the pulsing waves strike the surface at a slant and so accentuate the effects of the 'sidewise' waves and create new surface undulations. The shaking at the epicenter, too, throws the earth's surface there into undulatory waves like ripples on a pond, and these also travel outward in widening circles. These surface waves are those of greatest motion but least speed. They register the heaviest vibrations on the seismographs of the world.

How The Waves Start

"The second important question in regard to an earthquake is: what starts the waves?

"No one has ever seen an earthquake start outward from its center, and it is safe enough to say that no one ever will. But science has built certain hypotheses about the matter that seem to account satisfactorily for the happenings, and which are accepted pretty generally.

"Hold a dry stick as big as your thumb in your hands and bend it until it breaks. At the snap waves will travel to your hands and usually give you a quite painful sensation.

"Hold an iron bar by one end and strike the other sharply with a hammer. Again the vibrations carried to your hands may be violent enough to produce a stinging pain.

"And if you should strike a small explosive cap with the end of a long rod grasped by the other end, the ex-

plosion would probably bring the same painful tingle to your fingers.

Breaks Most Important

"It is generally believed that earthquake waves flow from a point where one of the three forces illustrated is suddenly released—a break, a blow, or an explosion. Breaks are credited with the responsibility for most earthquakes. It is believed that because of slow contraction or shrinking which may result from the cooling of the outer portion of the earth or because of pressure from deposited silt, strains are set up below the surface like those in the bending stick. Eventually the strain reaches the breaking point and there is a snapping of the rocks which sends violent waves to the surface, causing earthquakes.

"The blow type of earthquake is probably less important. Such a blow might result from the falling in of a great cavern, but probably would cause only a local shiver. A more important cause of a blow might be a slipping of one mass of rock over another with a collision at the end of the slide. Such a blow often follows a break, the two acting together.

Volcanic Explosions

"Earthquakes in active volcanic regions may often result from explosions of gases far beneath the surface; but it is quite possible that even in the neighborhood of volcanoes the majority of the quakes may arise from sudden breaks in the rocks.

"That the earth's 'crust' is subjected to squeezing and pinching is evident from mountain ranges, which are the portion of the crust that is 'pinched up' as one can pinch up a ridge of skin on his arm. If mountains were ever thrust up at all rapidly the earthquakes at the time must have been terrible. Even now there are certain mountains that though millions of years old, are still geologically 'young' and are slowly rising. The mountains of Japan fall into this class, and it is their 'growing pains,' so to speak, that cause the almost daily earthquakes in the Japanese archipelago. Now and then the strains accumulate over a considerable period and the break or slide

and collision which finally occurs is violent enough to shake down hills, open wide cracks and destroy cities."

WANT TO PLAY BALL

Hickory, Sept. 18—Forty candidates reported for early sea-on football practice at Lenoir college this week. Coach LaMotte is now drilling them in the elementary rudiments of the game, and getting them in condition for their first game, which is scheduled for the early part of October.

UNIVERSALISTS TO MEET

Woodington, Sept. 18—The annual convention of North Carolina Universalists will be held here September 20 and 22. It is announced by officials in charge of the yearly gathering.

Gelfand's Relish and Mayonnaise at all good grocers.

The Family Market Grocery Specialties!

When you do your grocery shopping with us you are assured quality products, courteous treatment and prompt delivery, at the most reasonable prices. Your husband and children are sure to enjoy your meals more.

Main Street Grocery
PHONE 794

Every home has a thousand reasons for an EVEREADY FLASHLIGHT. The quick answer to darkness any time, anywhere. Instant light when you need it, right on the spot you want it. Hence, a home without an Eveready is as out-of-date as a house without a bathroom.

Light of a thousand uses; each day adds a new use, often worth a thousand times the low price. Complete with batteries. **\$1.35 to \$4.50**

Eveready Unit Cell Batteries fit and improve all flashlights. The product of proven quality.



EVEREADY FLASHLIGHTS & BATTERIES
—they last longer

For Sale by the Following Authorized Dealers

APOTHECARY SHOP
316 East Main Street

D. RAY KRAMER
Matthews Street

ALBEMARLE PHARMACY
Southern Hotel Building

W. S. WHITE & CO.
120 Poindexter Street

P. DeLON
124 North Poindexter St.

THE CITY DRUG STORE
Cor. Water and Matthews Sts.

THE STANDARD PHARMACY, Corner Poindexter and Main Sts.



Do You Need MONEY?

You can repay the loan in small amounts and not have to dread the day it will come due.

We will lend you from five dollars (\$5.00) to five hundred dollars (\$500.00) to be paid back in weekly installments as per the following table:

From \$ 5.00 to \$ 25.00 to be paid back at \$.50 per week
From 25.00 to 50.00 to be paid back at 1.00 per week
From 50.00 to 100.00 to be paid back at 2.00 per week
From 100.00 to 150.00 to be paid back at 3.00 per week
From 150.00 to 200.00 to be paid back at 4.00 per week
From 200.00 to 250.00 to be paid back at 5.00 per week
From 250.00 to 300.00 to be paid back at 6.00 per week
From 300.00 to 400.00 to be paid back at 8.00 per week
From 400.00 to 500.00 to be paid back at 10.00 per week

If you are in need, consult our officers today. They will gladly give you any information desired. We base our security on CHARACTER, PERSONAL ENDORSEMENTS, COLLATERAL, REAL ESTATE.

Carolina Banking & Trust Company

YOU KNOW

OLD FIELD CORD QUALITY

BUY NOW From Regular Tire Dealers at These Astounding LOW PRICES

Oldfield Cord Tires are race tested—holding all of the track records made in the past three years.

Oldfield Cord Tires are road tested—in the Wichita, Kansas, Economy Road Test, in the winter of 1922, the official record showed a set of Oldfield Cords had traveled 34,525 miles before the first tire gave way. And this is only one of many instances of unusual highway performance.

Oldfield Cords are built by one of the largest tire manufacturers, who must maintain the established reputation of these remarkable cords.

Here Are the Biggest Tire and Tube Values Ever Offered By Anyone

FABRICS			CORDS		
Size	Tire	Tube	Size	Tire	Tube
36x3	"999"	\$7.40 \$1.65	32x4 1/2	\$28.00	\$3.30
30x3 1/2	"999"	\$9.85 \$1.75	32x4 1/2	\$28.50	\$3.50
			32x5	\$34.00	\$3.95
			32x5	\$35.80	\$4.15
30x3 1/2		\$11.25 \$1.75	36x6	\$60.25	\$8.70
32x4		\$20.80 \$2.55	38x7	\$85.75	\$10.60
33x4		\$21.95 \$2.65	40x8	\$110.50	\$13.75

All Other Tires Reduced Accordingly

Purchase from a regular tire dealer, located near you. We stand behind these tires and are ready at all times to give you prompt service.

All Prices Are for CASH ONLY

E. J. Cohoon & Co.

CHEAPEST PLACE TO BUY

FURNITURE

M. G. Morrisette & Co

Main St.

Elizabeth City N. C.

Mr. Business Man

You cannot play the role of success dressed in a costume of failure.

Let us help you keep neat by looking after your cleaning and pressing. Absolute satisfaction guaranteed.

Eleven years' experience. Established 1912.

Cooper Cleaning Works

PHONE 280.

2 Matthews Street.

Try The Advance Shop For Job Printing

Mitchell's

ONE PRICE TO ALL.

O. F. Gilbert, Prop.

Phone 100