

who at the time was sailing master of a yacht out of New York:

"We harpooned the fish shortly after sighting it, and put our fourteen-foot dory out with one man in it to bring the fish alongside the larger craft. I noticed he was having considerable trouble to get the fish alongside, so expected something like that to happen, and was standing by with my camera ready to get a picture.

"I saw the flash of the fish in the water as it approached the dory and pressed the trigger in time to get the picture as you see it. A few seconds after this picture was taken the fish made another savage lunge at the dory and ripped one plank entirely out, sinking the dory. We got the man all right, and shortly after landed the fish, weighing 350 pounds."

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SEISMOLOGY

Quakes Have Bad Reputation But Science Finds Their Uses

One Quake Killed 60,000 People, Another Moved Whole Mountains, But They Tell Scientists About the Earth

By **CAPT. N. H. HECK**, Chief, Division of Seismology, U. S. Coast and Geodetic Survey

EARTHQUAKES can move mountains—actually.

In China in 1920, in an earthquake at Kansu, whole mountains moved, and a stretch of roadway several hundred feet long was carried nearly half a mile.

Closing a railway tunnel is another Herculean feat of an earthquake. That happened in the Montana earthquake of 1925. A great rock slide was caused, and this closed a tunnel on a transcontinental railway. It narrowly missed burying a crack train.

Ability of earthquakes to kill large numbers of people is not to be despised. I believe, in the United States, some 36,000 persons lost their lives in traffic accidents last year. The 1923 Japanese earthquake took more lives than this. It killed 60,000 people by the fire caused by the quake.

In the United States, there have been comparatively few deaths from earthquakes, owing to the favorable hour at which most of our earthquakes have occurred.

In property loss, an earthquake can do forty million dollars worth of damage in a few minutes. This was the loss in the Long Beach earthquake. The property menace is particularly great where people have made no attempt to build for security against shocks.

Another menace is the psychological effect, especially damage to nerves, in cases when the quivering and rumbling of the earth is long continued.

But, so long as we have to have earthquakes, we may as well find some good in them. They do reveal facts about the structure of the earth which would otherwise be unknown or merely guessed by wild speculation. Just as the X-ray looks under the skin and brings out unsuspected facts about the human body, so the earthquake waves, properly interpreted, give us inside information about the earth.

The earth somewhat resembles an onion, though not a perfect one. The crust has been found to be made up of shells of varying thickness. The lowest of these shells ends apparently 30 to 50 miles beneath our feet. Since man, with the deepest mines and tunnels and drill holes, has never bored his way much deeper than two miles, you can see that the interior of the earth is not to be explored far by first-hand experience.

The core of this onion-like earth is probably metal, more than 4,300 miles in diameter. The core is probably, though not certainly, liquid metal, under tremendous temperature and pressure. And its surface is 1,800 miles beneath our feet.

What we call deep focus earthquakes are due to changes of pressure and other disturbing conditions as deep as 400 miles beneath us. Earthquake researches are now studying the mysteries of these deep focus quakes, for the results that we feel on top of the earth offer clues to the structural design. Our problem is to apply the rapidly accumulating knowledge of earth motions to this problem of the earth's inner plan and construction.

Earthquake science—the science of seismology—has given the factual basis for the so-called seismic method of prospecting for oil and minerals. By this method, artificial explosions create waves underground, and what is known about the performance of earthquake waves helps the mining geologist to interpret these waves, giving him a clue as to what forms of rock and mineral are hidden there.

Earthquake science is helpful, though earthquakes are not.

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ARCHAEOLOGY

War Tower in Bible Was "Old Fashioned" Even Then

See Front Cover

IMAGINE the same warfare tactics used for three thousand years!

It is hard to believe in this age of inventive speed.

That time amazingly stood still in this way in ancient Bible lands is revealed by latest excavations at that famous site, "the oldest city in the



OLD-FASHIONED

When Abimelech met his death attacking this round temple-battle tower, it was then an ancient war device at least 3,000 years old. According to the story King Abimelech was mortally wounded by a rock hurled by a woman from the wall above. In this drawing by the artist Dore, he is begging his armor-bearer to kill him so that death might not come from the hand of a woman. The ancient prototype of the round battle-tower, as found at Tepe Gawra, is shown on the front cover.