

SEISMOLOGY

Bell May Warn of Quake

Earthquakes of the future may be heralded by the ringing of an earthquake alarm bell a few hours before the shock. In this way there would be time for an exodus from tall buildings and other places where the greatest loss of life is likely to occur.

That such an earthquake warning is not at all impossible is the statement made by John W. Evans, British seismologist, in a letter to the scientific magazine *Nature*. Investigations made by Prof. Akitune Imamura, leading Japanese earthquake expert, and presented by him at the recent Geodetic and Geophysical Union meeting in Prague, support his ideas.

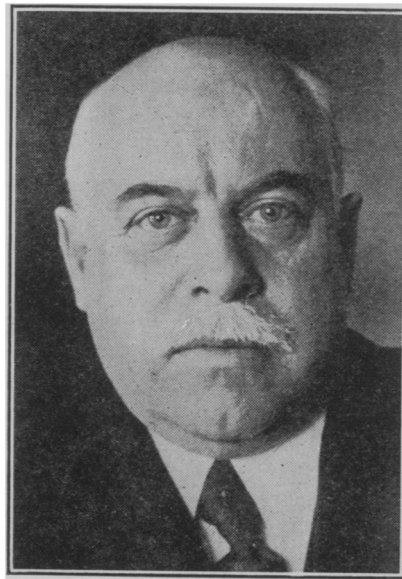
The effect that Mr. Evans proposes to utilize is that of a tilting of the earth's surface which seems to happen usually a little while before a quake. In five Japanese earthquakes between 1793 and 1927, including the great quake of 1926 there was a lifting of the ground of a yard or two which preceded the quake by from half an hour to five hours.

By means of an instrument developed by another Japanese scientist, Ishimoto, a very slight tilting of the earth can be measured. So sensitive is this clinograph, as the instrument is called, that it will detect a tilting of the earth so slight as to move a pole a mile high only a fiftieth of an inch at its top. With an earthquake that occurred in Japan last spring, said Prof. Imamura, as quoted by Mr. Evans, this instrument showed a characteristic tilting which appeared from a few weeks to the day before the quake. About two and a half hours before the shock there was a rising of the ground of about a meter.

Mr. Evans suggests a chain of such stations for warning. "It would seem desirable," he says, "in regions subject to serious earthquakes, that a number of local stations should each be equipped with a pair of simple horizontal pendulums, so adjusted that if any unusual tilt occurs a bell should ring automatically in the office of a central observer and the locality indicated there by a signal. He would then judge from the number of stations affected, and the record of his own seismometer, whether the indications were sufficient to warrant him in giving the alarm.

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PHYSICS



GEORGE KIMBALL BURGESS

Standardizer

To think of science in connection with the United States Government is to think, in many cases, of the Bureau of Standards. In the years since it was founded, on March 3, 1901, this organization has performed such varied tasks as finding out how to obtain sugar from Jerusalem artichokes, testing the accuracy of electrical measuring instruments, making optical glass during the war when the former sources were closed, and measuring more accurately than ever before the constant of gravitation. It is looking after these diversified fields of endeavor performed by a staff of 850 people that constitutes the duties of Dr. Burgess. In addition, however, he is able to engage in his own researches on pyrometry and metallurgy.

When the Massachusetts Institute of Technology, in 1923, called Dr. Samuel W. Stratton, director of the Bureau from its founding, to become their president, they really made a fair exchange. For Dr. Burgess is himself an alumnus of the famous Cambridge institution, as well as a former member of its faculty.

Born in Newton, Mass., on January 4, 1874, Dr. Burgess received his bachelor's degree in 1896 from M. I. T. In 1901 his doctorate came from the University of Paris, for his own researches on the gravitational constant. After a few years of teaching, he went with the Bureau in 1903, where he has remained since.

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Copper was used in Egypt almost 7,000 years ago.

ARCHAEOLOGY

New Egyptian Discovery

Archæologists digging at the entrance to what they believe is the tomb of the Pharaoh Zoser are probably on the verge of opening up a great chapter in the very ancient history of Egypt, according to a statement by Dr. James H. Breasted, noted authority on Egyptian antiquities, of the Oriental Institute.

"If the burial chamber of Zoser has at last been reached, and if the contents have survived, it will reveal the state of culture of Egypt at the beginning of the Old Kingdom, nearly 3,000 years before Christ, at the dawn of the age which produced the great pyramids of Gizeh," said Dr. Breasted.

The scene of the new discovery is Sakkhara, where for three years Cecil Firth, of Oxford, has been studying the area about the oldest of all the pyramids, for the Egyptian department of antiquities. This oldest pyramid was built for the Pharaoh Zoser by the great Egyptian architect Imhotep, who was the first man to design and construct buildings of stone. The pyramid is known as the step pyramid because it is made in six great steps.

Soon after he began digging about the base of the pyramid, Mr. Firth uncovered from the sand a group of chapels forming a temple, pronounced at once the oldest stone building in existence. This remarkable structure was the funerary temple of Zoser, his daughter, and his court. A statue of the king seated on his throne was found in one chapel, but the royal funeral chamber with its occupant and his possessions remained hidden. Last season, Mr. Firth came near to making what seemed to be the great tomb discovery.

"In the south wall of the enclosure surrounding the step pyramid, Firth discovered last year an immense masonry pit," said Dr. Breasted. "Clearance of the pit disclosed a descending stairway leading to several chambers connected by passages. The chambers were originally lined with beautiful green tile, which had later been barbarously hacked off by vandals. In the room at the foot of the stairway the excavators found gold covered poles and a funerary canopy, besides other furniture such as was placed with the Egyptian dead. All this pointed to an important burial, but the last chamber was not reached then be-

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