

## SEISMOLOGY

# Imperial Valley Earthquake Fifth in Amount of Damage

## Violent Shock Apparently Resulted From Shift In Deep Rock Fissures, Part of San Andreas Fault

IMPERIAL Valley's earthquake, with damage estimated at five to six million dollars, rates as fifth in property destruction among recorded American earthquakes, seismologists of the U. S. Coast and Geodetic Survey stated. Serious as it was, it is dwarfed by such catastrophes as the San Francisco shock of 1906 and the Long Beach earthquake of 1933. The San Francisco disaster accounted for \$24,000,000 loss from direct effect of the earthquake and \$400,000,000 that went up in the fire. The Long Beach quake smashed down \$41,000,000 worth of property.

Other costly earthquakes in this country have included: Santa Barbara, Calif., 1925, \$6,250,000; Charleston, S. C., 1886, \$5,500,000; Helena, Mont., 1935, \$3,500,000. There have been several quakes of far greater intensity than any of these, for sheer power of earth movement, but they happened in desert or sparsely settled regions and so caused little or no loss of life or damage to property.

The earthquake of May 19 apparently resulted from a shift in deeply buried rock fissures that are a southward continuation of the San Andreas fault, which was responsible for San Francisco's ruin a generation ago. This is one of the most actively seismic faults in this country, and has been responsible for literally hundreds of earthquakes, some of them quite serious.

The exact location of the fault as it runs under the Imperial Valley is not known because it is covered deeply by loose earth and gravel. This unconsolidated material transmits the earthquake movement from the rocks beneath in a way that is extremely destructive to weak buildings, but less damaging to good steel frame and sound reinforced concrete structures.

The last severe earthquake in the Imperial Valley region occurred in 1934 and was centered south of the Mexican border near the head of the Gulf of California. In 1937 an earthquake was felt in the Valley, but it originated in the mountains outside, and caused little disturbance. A heavy quake occurred in the Valley on Jan. 1, 1927, and was followed

by hundreds of aftershocks during the year.

The May 19 shock was recorded on many seismographs all over the United States and Canada. Among them were instruments designed for use at Boulder Dam, now set up for testing in the laboratories of the Coast and Geodetic Survey in Washington, D. C. The shock was also recorded by instruments of the Survey's magnetic observatory at Cheltenham, Md., which are not intended for earthquake study at all.

Two scientists of the U. S. Coast and Geodetic Survey's San Francisco office, Frank T. Ulrich and Marion Gilmore, arrived in the stricken region early on Monday, May 20. Examination of the records of a strong-motion instrument which had been set up at El Centro indicated a disturbance of considerable intensity. The automatic pen was thrown off the paper in both directions, Mr. Gilmore reported to the Survey's Washington headquarters. Intensity was apparently of violence 10, on a scale of 12 grades of intensity. They found one fault with lateral displacement of 12 feet and a change of three feet in ground level.

Records wired to Science Service and interpreted by Coast and Geodetic Survey seismologists indicate that the epicenter was not far from Brawley, Calif. Heaviest property damage occurred in that town.

*Science News Letter, June 1, 1940*

## MEDICINE

## Soldiers May Carry Protection Against Germs

SOLDIERS—German, French, British—going into battle, may be carrying, along with vials of iodine, emergency rations, bandoliers of cartridges, life-saving pills of sulfanilamide or Prontosil or some related germ-defying chemical, for protection against war wound infections. Medical authorities of all belligerent forces know that the earlier in an infection these chemical remedies are given, the more effective they are. It is believed that they have supplied soldiers with pro-

phylactic doses as battle equipment. The idea is that each soldier, if wounded, would swallow some of the protective chemical. The treatment would not be delayed even long enough to reach field dressing stations.

*Science News Letter, June 1, 1940*

## BIOLOGY

## Embryo Growth Watched In Eggs Opened on Ends

DEVELOPMENT of embryo chicks can be watched, and subjected to experimental changes, by means of a technique of "windowed" eggs developed at the Ohio State University by Prof. John W. Price and Ernest V. Fowler. Protection between observation periods is afforded by caps made from the large ends of other empty eggshells.

In preparing an egg for "inspected incubation," a small hole is made at the large end, and the shell broken carefully away with sterilized forceps until it is enlarged sufficiently for working purposes. It is then set carefully upright in an incubator and the eggshell cap slipped over it. From time to time the cap is lifted off, while observations are made.

Surprisingly little bacterial infection occurs, the two researchers state, (*Science*, March 15). They have carried a number of eggs through to normal hatching, in the usual period of 21 days.

*Science News Letter, June 1, 1940*

At the Palace of Discovery, *science museum* in Paris, visitors can perform famous scientific experiments or watch them done, under direction of the staff of 60 demonstrators and lecturers.



WINDOWED EGGS