

the thickest of the gas attack to preserve order and clear out the gas after the raiders have flown away. The great "passive" bulk of the people can best meet a gas raid by taking shelter until it is over.

For the active civilians, elaborate gas-proof suits have been designed, together with military-type masks giving full protection. For the passive group, less elaborate and costly equipment, effective during short exposures only while they make for the gasproof shelters, is considered sufficient.

Science News Letter, January 29, 1938

SEISMOLOGY

Tenth of Earthquakes Occur at Great Depths

DEEP-FOCUS earthquakes, disturbances whose actual centers are scores or hundreds of miles underground, account for about ten per cent. of all recorded shocks. They release tremendous amounts of energy, yet seldom cause the death and destruction for which the more numerous surface earthquakes are responsible.

A summary study of deep-focus earthquakes has recently been made by Drs. Andrew Leith, of the University of Wisconsin, and J. A. Sharpe, of the Los Angeles laboratory of the Western Geophysical Company. They are convinced that except for factors introduced by the great depths themselves, there is no essential difference between the deep and the shallow earthquakes.

Both types occur in the same general regions of the earth—one a great horse-shoe-shaped zone roughly arching about the Pacific, the other stretching in a long line from Portugal to Formosa. Both types vary greatly in amount of energy released. Due largely to their great depths, the deep class of earthquakes have surface results more widespread and diffuse, hence less destructive, than the shallow-focus disturbances.

Deep-focus earthquakes may occur at all depths from 100 kilometers beneath the surface to 700 kilometers—the greatest depth for any earthquake thus far on record.

Where the vast stresses needed to power such earthquakes come from is still pretty much of a riddle. Cycles of deep earthquakes have been correlated with the forces resulting from the moon's movements and other outside factors, but the stresses involved in these are so small that their action is undoubtedly that of triggers rather than of main cause.

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ARCHAEOLOGY

Unearth Six Centuries of Painting in Antioch Floors

A COMPLETE history of painting from the first to the sixth centuries after Christ has been discovered through excavation of a unique series of mosaic floors in houses in Antioch, Syria, it was announced at the annual meeting of the Archaeological Institute of America at Philadelphia, by Dr. F. O. Waage of the Department of Classics of Cornell University.

Dr. Waage exhibited for the first time photographs of the remarkable mosaics which were copies of long since destroyed paintings of early masters. Executed with remarkable craftsmanship, the mosaics retain the original color effects of the variegated bits of limestone, terra cotta and glass which were used in their design.

Found by natives during the fall and winter and cleared and lifted by the expedition, several mosaic floors in the suburb of Antioch called Daphne are unusually important. One is a well-preserved panel of Narcissus, probably third century, and a striking panel of a striding lion set in an immense field of patterned flowerets, of the fifth century.

Another mosaic realistically shows the courses of a Roman banquet. One panel contains artichokes, pigs feet, eggs in egg cups and bottles of wine.

Supported by the Worcester, Fogg, Baltimore, and Louvre, Paris, Museums and Princeton University, excavations have been carried on at Antioch during the past spring and summer and will be continued next year.

Science News Letter, January 29, 1938

ISSUED

December, 1937

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