P. F. M. Fellowes), concerts by Miss Jelly d'Aranyi and Mr. Norman Notley, and an exhibition of engineering models and scientific apparatus. To the exhibition contributions were sent by various official bodies, such as the Science Museum, the National Physical Laboratory, the Building Research Station, the Forest Products Research Laboratory and the Woolwich Research Department. Many of the exhibits related to structural engineering (unit construction of Warren-truss Bridges, a supporting structure in tubular steel scaffolding, the underpinning of Durham Cathedral and the protection of structural steelwork after erection by means of combined metallic coatings and paint), and to road engineering (an instrument for measuring the camber and gradient of roads, plant for automatically proportioning the ingredients of concrete and road material and models and diagrams illustrating the flow of traffic at complicated circus and bridged road junctions). Among scientific apparatus Sir Robert Hadfield showed a petrological microscope and a contact thermo-couple pyrometer, with specimens of the steel used for making the turbine blades of the *Normandie;* Mr. C. C. Paterson, an instrument for viewing the response curves of radio-frequency filters, and Dr. J. S. Owens, apparatus for measuring ultra-violet radiation in daylight, a water gauge reading to 0.1 mm of water and an evaporimeter for measuring the loss of water from different surfaces. There was an exhibit of the Harlandic-Synclock synchronous time system for ships, and Imperial Airways sent models of their Scipio flying boats and Heracles air liners.

DISCUSSION

DEEP-FOCUS EARTHQUAKES AND ISOSTASY

THE demonstration that the foci of numerous earthquakes lie from 100 to 700 kilometers below the surface has come as a matter of the greatest interest to students of the earth's structure and dynamics—so much so, indeed, that some seem inclined to conclude that this discovery proves that ordinary faulting can occur to depths of 400 to 700 kilometers,[1] and consequently that subcrustal readjustment and flowage does not take place in the manner postulated by the exponents of isostasy.

Before needless scientific confusion arises because of too ready acceptance of the belief that deep-seated faulting *is* thus proven, it may not be amiss to raise the question whether these deep-focus quakes necessarily must be regarded as due to ordinary faulting (*i.e.*, due to a sudden rupture or slipping induced by accumulated, elastically stored stress) or whether such deep-focus earthquakes may not be essentially similar in origin to "volcanic" earthquakes which result from surface or near-surface volcanic explosions.

The interesting and important experiments being conducted by Dr. Bridgman at Harvard are reported to demonstrate that at great confining pressures, and under varying conditions of rotational movement, various substances undergo explosive chemical transformations or physical changes of state.[2] Compilations by Turner[3] and Sharpe[4] also show that the bulk of the deep-focus earthquakes occur in the Japanese Archipelago, the East Indies, the West Coast of South America and the Himalayas—regions in which it has already been suggested that rocks such as normally occur near the earth's surface are now deeply invaginated in denser subcrustal material. These regions should, consequently, afford unusually numerous opportunities for the occurrence of rock rupture by sudden polymorphic transformations or explosive chemical reactions—such reactions, for example, as those which apparently caused the outbursts responsible for the diamond "pipes" of South Africa and for various "crypto-volcanic" features, such as have been described by Bailey and Bucher.

Pending proof that the deep-focus earthquakes *are* due to ordinary faulting, and are not due to instantaneous rupture produced by deep-seated "explosions," it would seem to be in order to consider that their bearing on the problems of tectonics and of isostasy remains indeterminate.

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[1] *Nature*, 136: 3446, 782–784, November 16, 1935.
[2] SCIENCE (Supplement), 82: 2135, 8, November 29, 1935.
[3] Int. Seismol. Summary, 1927, Jan.–Feb.–March issue.
[4] SCIENCE, 82: 2135, 523–524, November 29, 1935.

SELENIUM IN NUTRITION

EVER since the indication[1] that the so-called "alkali disease" of live stock of the north-central Great Plains might be due to traces of selenium in the indigenous grains and forage, the nutritional aspects of orally ingested selenium have received increasing amounts of attention. Some of the effects of the natural toxic grain have been revealed by the outstanding work of Franke and colleagues.[2]

The toxicological action of selenium salts was first studied by Gmelin,[3] who reported the production of a

[1] U.S.D.A., Circular 320, August, 1934.
[2] K. W. Franke, *Jour. of Nutr.*, 8: 597, 1934.
[3] Gmelin, "Versuche über die Wirkungen des Baryts. u. Stronians u.s.w. auf den thierischen Organismus," Tübingen, p. 43, 1824.