Engineering: N. H. Heck, U. S. Coast and Geodetic Survey, Washington, D. C.
Medical Sciences: Arno B. Luckhardt, University of Chicago, Chicago, Ill.
Agriculture: R. M. Salter, Ohio State University, Columbus, Ohio.
Education: Ernest Horn, University of Iowa, Iowa City, Iowa.

SCIENTIFIC NOTES AND NEWS

As has already been announced, the annual meeting of the British Association will be held in 1936 in Blackpool on September 9–16 under the presidency of Sir Josiah Stamp. *Nature* now reports that the following sectional presidents have been appointed: Section A (Mathematical and Physical Sciences), Professor A. Ferguson; B (Chemistry), Professor J. C. Philip; C (Geology), Professor H. L. Hawkins; D (Zoology), Dr. Julian Huxley; E (Geography), Brigadier H. S. L. Winterbotham; F (Economic Science and Statistics), Dr. C. R. Fay; G (Engineering), Professor W. Cramp; H (Anthropology), Miss D. A. E. Garrod; I (Physiology), Professor R. J. S. McDowall; J (Psychology), A. W. Wolters; K (Botany), J. Ramsbottom; L (Educational Science), Sir Richard Livingstone; M (Agriculture), Professor J. Hendrick.

AT the St. Louis meeting of the American Association of University Professors, Dr. A. J. Carlson, Frank P. Hixon professor of physiology and chairman of the department at the University of Chicago, was elected president. The address at the luncheon was given by Dr. Karl T. Compton, president of the Massachusetts Institute of Technology.

DR. HOMER L. SHANTZ, since 1928 president of the University of Arizona, has been appointed chief of the Division of Wild Life Management of the Forest Service. The appointment will become effective on June 1. Dr. Shantz was connected with the U. S. Department of Agriculture from 1908 to 1926 and was then professor for two years at the University of Illinois.

THE thousand dollar prize of the American Association for the Advancement of Science, given to the author of "a noteworthy paper" presented at the annual winter meeting, has been awarded to Dr. P. W. Zimmerman and Dr. A. E. Hitchcock, of the Boyce Thompson Institute, Yonkers, N. Y. Their paper on "Responses of Plants to Growth Substances" was read before the Botanical Society of America, which met in affiliation with the association.

AT the recent meeting in Chicago of the American Society of Agronomy, J. S. McHargue, research chemist in the Agricultural Experiment Station of the University of Kentucky, received the first prize in the $5,000 awards for research on the importance of rarer elements in agriculture. Funds for the awards were provided by the Chilean Nitrate Corporation of New York. The selection was made by a committee of the society.

DR. IRVING LANGMUIR, associate director of the laboratories of the General Electric Company, has been chosen an honorary fellow in the physical sciences at Union College. Honorary fellows serve for three years. They engage to spend a short time in residence at the college twice each year, and to talk informally with staff and students.

Industrial and Engineering Chemistry reports that Dr. Charles A. Browne and the late Dr. Lafayette B. Mendel were honored on November 14 by the Associated Grocery Manufacturers of America, Inc., being presented with an award of distinction in recognition of outstanding and fundamental applications of science to the manufacture of foods, to the end that they may better serve the health of mankind. The committee recommending the awards was composed as follows: Dr. H. C. Sherman, Mitchill professor of chemistry at Columbia University; Mary Swartz Rose, professor of nutrition at Teachers College, Columbia University; Dr. Harry Steenbock, professor of agricultural chemistry at the University of Wisconsin; Dr. George R. Cowgill, associate professor of physiological chemistry at Yale University, and Dr. L. A. Maynard, professor of animal husbandry at Cornell University.

DR. J. DUFRENOY, director of the Station for Plant Pathology for southwestern France, has been awarded the Prix Bouchard by the Biological Society of France.

DR. RUDOLF RUEDEMANN, New York State paleontologist, was elected a correspondent of the Geological Society of Stockholm on December 5.

DR. R. G. D. RICHARDSON, professor of mathematics and dean of the Graduate School of Brown University, has been appointed official representative of the university, which is president of the Association of American Universities.

DR. LAWRENCE W. BASS, director of research of the Borden Company, has been elected chairman for 1936 of the New York Section of the American Chemical Society. He succeeds Professor Arthur W. Hixson, of Columbia University.

OFFICERS of the Chemical Society of Washington were elected at the annual meeting as follows: *President,* J. H. Hibben; *Secretary,* K. S. Markley; *Trea-*

surer, H. L. Haller; *Councillors,* James F. Couch (retiring president), Vincent du Vigneaud, R. E. Gibson, O. E. May and Edward Wichers. *Managers,* N. Bekkedahl, F. G. Brickwedde, N. L. Drake, Sterling B. Hendricks, Louise Stanley and F. D. Rossini. On this occasion Dr. Hugh S. Taylor, chairman of the department of chemistry, Princeton University, addressed the society on "Modern Developments in Surface Catalysis."

OFFICERS of the Philosophical Society of Washington for 1936 are: *President,* F. B. Silsbee; *Vice-presidents,* F. Wenner, R. E. Gibson; *Corresponding Secretary,* F. M. Defandorf; *Recording Secretary,* L. R. Hafstad; *Treasurer,* W. G. Brombacher; *General Committee at Large,* F. G. Brickwedde, H. E. McComb, L. V. Berkner and H. F. Stimson; *Junior Past-presidents,* H. L. Dryden and O. H. Gish; *Committee on Communications,* F. C. Kracek, *chairman,* W. Ramberg and P. A. Smith; *Committee on Membership,* I. C. Gardner, *chairman,* O. S. Reading and D. M. Little.

DR. E. LEE SHRADER, of the St. Louis University School of Medicine, was elected president of the American Student Health Association on December 28 at the closing session of its sixteenth annual meeting in New York City. Other officers for 1936 are Dr. Lee W. Milford, of Clemson Agricultural College, in South Carolina, vice-president, and Dr. Ruth E. Boynton, of the University of Minnesota, secretary-treasurer. Dr. George W. McCoy, director of the National Institute of Health, U. S. Public Health Service, was the principal speaker at the meeting, which was devoted to discussion of the control of communicable diseases.

DR. REGINALD FITZ, since 1922 associate professor of medicine in the Harvard University Medical School, has been appointed professor of medicine in the Boston University School of Medicine and director of the Robert Dawson Evans Memorial, the department of clinical research and preventive medicine of the Massachusetts Memorial Hospitals. In the latter position Dr. Fitz will succeed Dr. Henry M. Pollock, who has been director, and the late Dr. Allan Winter Rowe, director of research.

PROFESSOR JEAN F. PICCARD will conduct courses on the stratosphere at the University of Minnesota for three months, beginning in April.

DR. THOMAS NICOL has been appointed to the chair of anatomy of the University of London, tenable at King's College. He has been since 1927 senior lecturer and was for a time acting head of the department of anatomy at the University of Glasgow.

DR. E. L. HIRST, at present reader in the chemistry of plant products at Birmingham University, has been invited to fill the Alfred Capper Pass chair of chemistry at the University of Bristol on the retirement in July next of Professor Francis Francis.

DR. PAUL S. MARTIN has been appointed curator of the department of anthropology at the Field Museum of Natural History, Chicago, to fill the vacancy caused by the death late in 1934 of Dr. Berthold Laufer. Dr. Martin joined the staff of Field Museum in 1929 as assistant curator of North American archeology. Since Dr. Laufer's death he has been acting curator. Prior to his going to Field Museum, Dr. Martin was a member of the staffs of the Public Museum in Milwaukee and of the Colorado State Museum in Denver.

DR. ARTHUR W. HEDRICH, of the Johns Hopkins University School of Hygiene and Public Health, has been appointed chief of the Bureau of Vital Statistics of the Maryland State Department of Health. Dr. G. E. Bennett and Dr. J. Earle Moore, both of Baltimore, have been named consultants in the department. Dr. Hedrich is at present on a leave of absence from the university, having been loaned to the United States Public Health Service to act as director of the Chicago district in a survey of chronic diseases in their relation to permanent disability and consequent unemployment.

DR. ROBERT A. BLACK has been appointed a member of the Board of Health of Chicago, succeeding Dr. Edwin O. Jordan, who until his retirement in 1933 was professor of bacteriology and chairman of the department of bacteriology at the University of Chicago.

THE twelfth Ludvig Hektoen lecture of the Frank Billings Foundation of the Institute of Medicine of Chicago will be delivered on January 24 by Dr. John F. Fulton, Sterling professor of physiology in the Yale University School of Medicine. His subject will be "Somatic and Automatic Functions of the Frontal Lobes."

PROFESSOR ROBERT H. GAULT, of Northwestern University, on December 18 addressed the Franklin Institute on "Recent Developments in Vibro-Tactile Research."

DR. N. HAMILTON FAIRLEY, director of the London School of Tropical Medicine, gave the first Roger S. Morris Lecture at the University of Cincinnati College of Medicine on December 2 and the Frank E. Bunts Lecture at the Cleveland Clinic on December 3. He spoke on "Tropical Diseases as they Affect the Practice of Medicine in the Temperate Zone."

THE annual Morris Herzstein lectures, under the direction of the University of California and Stanford

University Medical Schools, have been set for March 2, 3 and 4. The lectures will be on preventive medicine and will be delivered by Dr. J. G. FitzGerald, dean of the faculty of medicine and director of the school of hygiene and the Connaught Laboratory at the University of Toronto.

THE School of Medicine and Dentistry and the Strong Memorial Hospital of the University of Rochester are arranging the celebration of the tenth anniversary of the opening of the hospital on January 10 and 11. Included in the program is an Eastman Memorial Lecture by Dr. Elliott P. Joslin on January 10. Other Eastman Memorial Lectures will be by Professor B. A. Houssay on January 20, by Professor Wm. H. Howell on February 14 and by Professor L. J. Henderson on March 6.

AT the sixth International Congress of Genetics held at Ithaca, New York, 1932, a Permanent International Committee of Congresses of Genetics was elected consisting of representatives of fifteen different countries, and Professor Otto L. Mohr, professor of medicine in the University of Oslo, was elected chairman. *Nature* reports that this committee has accepted the invitation of the Academy of Sciences of the U.S.S.R. to hold the seventh International Congress in Moscow and Leningrad in 1937. The date of the congress will be decided upon later. In 1937 an All-Union Agricultural Exhibition will be held in Moscow, which will prove of interest to members of the International Congress on Genetics.

THE *Journal* of the American Medical Association reports that the Orphans' Court has recently handed down a ruling giving to the University of Pennsylvania immediate control of a bequest amounting to about $2,000,000 from the estate of the late George Leib Harrison, retired chemical manufacturer, who died in March, 1935. The money will be used to endow the "George L. and Emily McMichael Harrison Memorial Fund for General Surgical Research." The bequest is subject to four annuities.

THE Johns Hopkins Hospital receives approximately $900,000 under the will of the late Albert Marburg, retired tobacco manufacturer, who died on November 9. The bequest is to be used by the trustees of the hospital without any restrictions and is to be known as the "Annie G. Marburg Fund," in memory of Mr. Marburg's wife. Princeton University receives an unrestricted bequest of $50,000 to be known as the "Albert Marburg Memorial Fund."

PRESIDENT WALTER HULLIHEN, of the University of Delaware, has announced an anonymous gift of $300,000 for the erection and equipment of a building for chemistry.

THE Massachusetts Agricultural Experiment Station has received from Mrs. Ella Lang an initial fund of $5,000 for the purpose of expanding the research program now under way in the field of human nutrition as related especially to mineral metabolism. In the further promotion of research made possible through this support there is a plan for the cooperation of several departments in the station and also for the utilization of clinical facilities at the Robert Brigham Hospital at Boston.

THE Manchester correspondent of the London *Times* reports that in response to an appeal made to them by Dr. R. H. Pickard, director of the British Cotton Industry Research Association, in an address at their annual meeting, the general committee of the Federation of Master Cotton Spinners' Associations unanimously decided to increase by 50 per cent., for a period of five years, the subscription made by the federation to the funds of the Shirley Institute. This means a grant of about £11,000 a year as the basis of the federation's financial support for the cotton research work carried on at Didsbury under Dr. Pickard. The contribution has hitherto been two fortieths of a penny per annum per spindle in the federation membership. For the next five years three fortieths of a penny per spindle will be the basis of the grant, and there are over 30,000,000 spindles in the mills of firms who are members of the federation. Dr. Pickard described to the committee the increasing number of scientific researches undertaken at the institute in the interests of the spinning section of the industry. One of the greatest services that could be rendered to the cotton industry was, he said, the strengthening of the financial resources of the institute to deal with the vertical organization of the industry on its technical side. In making their increased grant the federation committee recognized that the great increase in the institute's services to individual firms was largely responsible for the curtailment of the fundamental research work for which the association was primarily established. They did not think it was desirable that such special services to individual members should be limited or curtailed, but in granting the increase they made it clear that they expect the institute will more fully concentrate on fundamental research work.

THE annual conversazione of the British Institution of Civil Engineers was held recently at their house on Great George Street and the arrangements in connection with it included three lectures with lantern slides (on giant telescopes by the Astronomer Royal, on Robert Hooke by Dr. H. J. Gough, and on the Houston-Mount Everest Flight by Air Commodore

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.

W. T. THOM, JR.

PRINCETON UNIVERSITY

[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.