

### THE SCIENCE ADVISORY BOARD

THE Science Advisory Board, appointed by President Roosevelt in executive order No. 6238, signed on July 31, 1933, met in a four-day session last week, following its first session a month ago. In the meantime, six committees of experts appointed by the board have been actively at work on questions referred to it by governmental agencies.

Three general types of problems are under consideration. The first are questions of proper organization, or functioning, or program of the scientific and technical services of the government on which the advice of the board has been specifically requested. The second are similar matters which have otherwise come before the board, and which need attention in order that essential technical services shall not be impaired by economy, or unwise projects be supported, as may easily happen when the determining issues are obscure or highly technical. The third are basic considerations of the more permanent policy of the government toward scientific work.

In this latter category we find that the government definitely must operate certain technical services. It seems advisable that it should leave others entirely to private enterprise, while there is a rapidly increasing third class of services where the public welfare and future prosperity of the country will depend very much on the successful development of some method of cooperative attack by governmental and private agencies, so as temporarily to marshal the best scientific talent of the country for their solution, as the problems arise.

The important aspect of the board's deliberations relates to the impossibility of any effective attack on the great technical problems facing the government by any one group of experts alone, be it scientific,

economic, social or business. The Science Advisory Board is therefore establishing interlocking contacts with these other phases of the governmental advisory services. Every problem is being considered from all these points of view, in order that the recommendation may be thorough and well considered, and backed by all the groups of qualified experts.

Inasmuch as the actual problems now under consideration are pressing and of a confidential nature, no discussion of them would be appropriate at this time.

The Science Advisory Board consists of:

Karl T. Compton, *chairman*, president, Massachusetts Institute of Technology, Cambridge, Massachusetts.

W. W. Campbell, president, National Academy of Sciences, Washington, D. C.

Isaiah Bowman, *vice-chairman and director*; chairman, National Research Council; director, American Geographical Society, New York City.

Gano Dunn, president, J. G. White Engineering Corporation, New York City.

Frank B. Jewett, *vice-president*, American Telephone and Telegraph Company; president, Bell Telephone Laboratories, New York City.

Charles F. Kettering, *vice-president*, General Motors Corporation; president, General Motors Research Corporation, Detroit, Michigan.

C. K. Leith, professor of geology, University of Wisconsin, Madison, Wisconsin.

John C. Merriam, president, Carnegie Institution of Washington, Washington, D. C.

R. A. Millikan, director, Norman Bridge Laboratory of Physics, and chairman of the executive council, California Institute of Technology, Pasadena, California.

KARL T. COMPTON,  
*Chairman*

### SCIENTIFIC NOTES AND NEWS

As voted at the Chicago meeting, the Executive Committee of the American Association for the Advancement of Science will convene at the Cosmos Club in Washington, D. C., Saturday afternoon, October 14, at 5 o'clock, to be followed by morning and afternoon sessions on October 15. Special orders of business include: (1) Status of scientific research in federal bureaus. (2) The desirability of selecting from the membership a group to be designated as research fellows. (3) Maintenance and extension of membership. (4) Methods of securing nominations for general and sectional officers of the association. (5) The arrangements for the Boston meeting. (6) Reports of officers and committees. Members of the association having business to present to the committee should communicate with the permanent secretary,

Dr. Henry B. Ward, The Smithsonian Institution Building, Washington, D. C.

ON the occasion of the Chicago meeting of the American Chemical Society, a dinner was given in honor of Professor Julius Stieglitz, who has retired as administrative head of the department of chemistry at the University of Chicago. Professor Stieglitz has been connected with the university since 1892, when he was appointed docent in chemistry. Professor H. I. Schlesinger, of the University of Chicago, presided at the dinner. The speakers, in addition to Professor Stieglitz, included Professor William McPherson, a past president of the society, professor of chemistry and dean of Ohio State University; Dr. F. B. Dains, professor of chemistry at the University of Kansas; John Matthews Manly, head of the department of En-

glish at the University of Chicago; Carl Miner, director of the Miner Laboratories, Chicago; Ethel Terry McCoy, research associate in chemistry at the University of Chicago, and Edward Stieglitz, a son of Professor Stieglitz.

DR. WILLIAM R. HAINSWORTH, of New York, was presented on September 28 with the annual Charles A. Munroe Award for "the most outstanding contribution by an individual to the advancement of the gas industry," before delegates to the American Gas Association convention, which met in Chicago. Mr. Munroe, the donor of the award, presented it personally to Dr. Hainsworth, who is director of research at the Electrolux Refrigerator Laboratories at Evansville, Indiana. Dr. Hainsworth conducted the research which developed the new air-cooled type of gas refrigerator.

M. E. CHATTON has been elected correspondent of the Paris Academy of Sciences in the section for anatomy and zoology.

DR. HUGH P. BAKER, formerly dean of the New York State College of Forestry at Syracuse, will be formally installed as president of the Massachusetts State College on October 6. He succeeded last February Dr. Roscoe W. Thatcher, who retired on account of ill health and who is now research professor of agricultural chemistry in the college. Governor Joseph B. Ely officiated at the induction, Frank P. Graves, commissioner of education of the state of New York, represented the official delegates, and Dr. Payson Smith, commissioner of education for Massachusetts, represented the state.

DR. C. E. GRUNSKY, consulting engineer of San Francisco, has been appointed acting director of the California Academy of Sciences, to fill the vacancy caused by the death of Dr. Barton W. Evermann.

CLINTON G. ABBOTT has resigned as director of the San Diego Museum to devote his whole time to the Natural History Museum. Malcolm J. Rogers, curator of anthropology, has been appointed acting director of the San Diego Museum.

ELBRIDGE C. JACOBS, professor of geology and mineralogy in the University of Vermont, has been appointed Vermont state geologist to succeed the late Dr. George Henry Perkins.

DR. JAMES G. MCALPINE, of the U. S. Public Health Service, has been appointed director of laboratories of the Alabama State Department of Health, to succeed the late Dr. Leon C. Havens.

THE Secretary of State for Scotland has appointed John Jeffrey, who has been secretary to the Department of Health for Scotland from 1929, to the office of permanent under-secretary of state for Scotland,

which became vacant on October 1 by the retirement of Sir John Lamb. Mr. J. E. Highton, chief insurance inspector in the Department of Health for Scotland, has been appointed to succeed Mr. Jeffrey as secretary to the department.

THE REV. DR. E. O. JAMES, vicar of St. Thomas the Martyr, Oxford, and tutor and lecturer in anthropology at Cambridge, has been appointed by the Court of the University of Leeds as the first professor to occupy the new chair of the philosophy and history of religion, founded and endowed by a bequest of £25,000 by the late Mrs. Fawcett.

DR. FRANK CLARE WILKINSON, at present professor of dental science in the University of Melbourne, has accepted an invitation to the chair of dental surgery and the directorship of the Dental Hospital of the University of Manchester.

V. R. HARDY has joined the research staff at the experiment station of E. I. du Pont de Nemours and Company, Incorporated, Wilmington, Delaware. Previously he had been special research assistant in chemistry at the University of Illinois.

SYDNEY STEELE, who has been working for some time as Commonwealth Fund fellow at the Johns Hopkins University, has returned to England to take up a position as research engineer with Imperial Chemical Industries, Ltd.

NORMAN POWELL, psychologist at the classification clinic, Sing Sing Prison, has withdrawn from the editorship of *The Psychological Exchange*.

HENRY V. HUBBARD, Norton professor of regional planning at Harvard University, has become a member of the staff of the Tennessee Valley Authority.

DR. A. G. BLACK, head of the department of agricultural economics at the Iowa State College, was recently granted leave of absence to become acting corn-hog production chief of the Agricultural Adjustment Administration of the U. S. Department of Agriculture. He will assist in the formulation of initial policies for applying the Agricultural Adjustment Act to corn and hog production and marketing problems.

DR. JOSEPH S. AMES, president of the Johns Hopkins University, arrived in New York on September 21, after a trip to Europe.

DR. H. E. JAKES, head of the division of biological sciences at Iowa Wesleyan College, spent the summer in further work on the seasonal and geographic distribution survey of Iowa insects. Each of the ninety-nine counties of the state has now been covered in at least a preliminary way. Vincent Saurino, of New York City, among others accompanied the expedition.

DEAN FRANK D. KERN has received a year's leave of absence from the Pennsylvania State College and will act as head of the Agricultural College of Puerto Rico for the interim. He will also be required to consolidate and unify the heretofore independent departments of the Insular Experiment Station, the Isabela Station, demonstration farms and extension service, under the management of the college, as provided for by a recent act of the legislature.

DR. LAUGE KOCH, the Danish explorer, returned from East Greenland on September 25, bringing fossilized fishes of the Tertiary period.

DR. HENRY H. CLAY, lecturer at the School of Hygiene and Tropical Medicine in the Public Health Division of the University of London, has been making a study of the organization of public health administration in the United States.

DR. OTTO SZÁSZ, formerly professor of mathematics at Frankfurt, is this year visiting professor at the Massachusetts Institute of Technology. He was expected to arrive in Boston on September 30. During the winter he will deliver lectures on the summation of series.

PROFESSOR EDWARD KASNER, of Columbia University, will give a course of lectures on "Concepts of Modern Mathematics" at the New School for Social Research on Wednesdays at 8:20 P. M., beginning on October 4 and ending on November 8. His subjects will be: "Infinity," "The Fourth Dimension" and "Einstein."

THE Massachusetts General Hospital has invited Dr. Leroy M. S. Miner, dean of the Harvard Dental School, to deliver the Ether Day Address on October 16, the eighty-seventh anniversary of the first public use of ether in a surgical operation.

THE first autumn meeting of the New York Academy of Medicine on October 5 was dedicated to the memory of a young frontier physician, William Beaumont, whose researches on gastric digestion laid the foundation for all future work. An exhibit showing his original experiments was made at the meeting. Dr. Walter B. Cannon, George Higginson professor of physiology at the Harvard Medical School, made the main address. Other speakers were Dr. Bernard Sachs, president of the academy; Brigadier General Patterson, surgeon general of the Army, and Dr. Harris A. Houghton.

INVITATIONS have been accepted by the British Association to hold meetings of the association at Norwich in 1935, Blackpool in 1936 and Nottingham in 1937. As previously announced the meeting in 1934 will be held at Aberdeen from September 5 to 12.

THE Pilgrim Trust has appropriated the sum of

£150 a year for five years to the British Association towards the maintenance of Down House.

THE Benjamin Franklin Memorial and Franklin Institute, Philadelphia, will open the planetarium section of its new building on November 1. The planetarium and planetarium chamber will be complete in every particular on that date and lectures will be begun immediately. The remainder of the building, with a nucleus of exhibits, will be opened to the public on December 5.

FOR some years past the California Academy of Sciences has arranged courses of lectures in the spring and in the fall on the general subject, "The Beauties of Nature." These lectures are made possible by the income from an endowment received from a friend of the academy. The course this fall will deal with subjects bearing on the geological history of the Pacific Coast. There will be lectures by Dr. R. D. Reed, chief geologist of the Texas Company, on October 18 and 25, on "An Extinct Volcano near Bakersfield" and on "The Origin of the Monterey Shale." Dr. B. L. Clark, of the paleontological department of the University of California, will lecture on the "Geological History of the Mount Diablo Region" on November 1, and on November 8 Dr. E. T. Hodge, professor of geology in the Oregon State System of Higher Education, will lecture on the "History of Columbia River." The endowment of the academy makes it possible to give these lectures free to the public.

THE Missouri Botanical Garden has acquired by bequest the herbarium and botanical library of the late Hon. Joseph Richmond Churchill, a distinguished and widely known Boston jurist and botanist. The herbarium consists of 12,000 to 15,000 specimens of ferns and flowering plants, which were collected by Judge Churchill himself. While the collections in large part were made in New England, yet many specimens were secured in the maritime provinces of eastern Canada, in the southeastern states from Virginia to Florida, in the central states of Indiana, Illinois and Missouri, and in the Rocky Mountain states of Wyoming and Colorado. Smaller collections also were obtained on journeys in Europe.

A CORRESPONDENT writes that a pot-hole has recently been discovered within five hundred feet of the summit of Burnt Rock Mountain, in Fayston, Vermont, at an elevation of 2,763 feet above sea-level. The pot-hole is at present four feet in diameter and two feet nine inches deep, but it was once much larger as shown by erosion remnants. The hole was evidently worn by glacial streams.

ARCHEOLOGICAL and anthropological sites have been identified in all but ten of the one hundred and twenty

counties in Kentucky by Professor W. S. Webb and W. D. Funkhouser, of the University of Kentucky, who have spent the last twenty years in excavations of this character. Of 1,255 sites 667 represent earth mounds, 21 shell mounds, 39 earthworks and fortifications, 162 camp and village sites, 170 cemeteries, 108 rock shelters, 57 inhabited caves and 33 such things as springs and licks, workshops, quarry sites, caches, pictographs and fish-traps.

THE Rockefeller Foundation and Vanderbilt University are cooperating in a survey on hookworm disease in several counties in Mississippi in a special program promoted by the state board of health. A preliminary survey was conducted in Waynesboro and Wayne County.

THE governor of Illinois recently appointed a commission of representatives of the State Department of Health to study the current outbreak of encephalitis in St. Louis. The four physicians are Drs. Hubert S. Houston, Springfield; Sandor Horwitz, Peoria; Henry Reis, Belleville, and William F. Grayson, Granite City.

ACCORDING to the Canadian Press, Montreal University will close its doors on December 1 unless the Provincial Government makes necessary provisions for an annual \$200,000 grant. A delegation which visited Premier L. A. Taschereau stated that the university was in grave difficulties in the financing of current expenses. This year's anticipated deficit is to be about \$193,000. Back salaries are due professors for several months. The Prime Minister promised to place the request before the Cabinet Council. He pointed out, however, that an additional subsidy could only be granted at the next session of the legislature.

AN Associated Press dispatch reports that an offer of a complete biological laboratory has been made to Montreal University by Copley Amory, of Boston, who established the laboratory several years ago. Whether university officials will accept the offer

will depend on the report of Dr. P. Prefontaine, professor of the faculty of sciences, who is visiting the laboratory, which is at Matamek, Quebec, 300 miles east of Quebec City, on the north shores of the St. Lawrence. Conditions at the university do not warrant immediate acceptance of the laboratory, but an agreement may be reached by which it may be accepted when better times return.

*Museum News* reports that the New England Conference of the American Association of Museums will be held at Worcester, Massachusetts, October 20 and 21, with headquarters at the Bancroft Hotel. The first day's sessions will be held at the Worcester Art Museum, Lawrence Vail Coleman presiding, and at the Worcester Historical Society. In the evening there will be a subscription dinner, with an address by Paul J. Sachs, president of the association. On the second day the sessions will be at the John Woodman Higgins Armory, for discussion of art and industry, and at the Natural Science Museum. The late afternoon will be devoted to inspection of the library of the American Antiquarian Society. Delegates will be entertained at luncheon by the Worcester Art Museum and by John W. Higgins and at tea by the Worcester Historical Society. The committee in charge of the meeting consists of U. Waldo Cutler, executive director of the Worcester Historical Society, *chairman*; Francis Henry Taylor, director of the Worcester Art Museum, *secretary*; Harry C. Parker, director of the Worcester Natural History Society, and John W. Higgins, president of the John Woodman Higgins Armory.

THE National Association of Audubon Societies has announced its acceptance of a suggestion made by John J. O'Rourke, Richmond Park commissioner, that about fifty acres of woods, fields and marshes in the southeastern part of New Springville Park, Staten Island, be set aside as the Staten Island Bird Sanctuary and managed by the association.

## DISCUSSION

### ARE GENES THE PRODUCT OF CROSSING-OVER

ALTHOUGH we are quite ignorant of the precise nature of genes, there is a pretty general consensus of opinion among geneticists that genes are very small, discrete bodies having a definite serial arrangement within or at least along the chromosomes and having the property, like so many little organisms, of producing other genes similar to themselves. It is now possible to make rough estimates of the dimensions of these minute bodies. We can not state with assurance

that a gene consists of only a single molecule, although, according to some estimates, genes are not far from the size of some of the large protein molecules. We have commonly regarded genes as dividing by fission much as this process occurs in a whole chromosome, a plastid or any other small unit of living structure, and we have not troubled ourselves with the chemical changes which may be involved in this process. The multiplication of genes is thus put in the same category of biological phenomena as multiplication by fission in general. If we regard the gene