about a more sympathetic attitude towards the usefulness of scientifically trained men in the works. Several speakers emphasized the paramount duty of research associations of carrying out long-range investigations essential to widening the boundaries of knowledge. Reference was made to the benefits conferred on the consumer by the improvement in products as regards utility and price and to the raising of the standard of living resulting therefrom, and for this reason it was urged that a continuation of a substantial contribution from government sources is fully justified. Attention was also directed to the importance of achieving stability of finance for the research associations as a means of securing the best work from those employed by them, or ensuring that the best scientific brains are available for that purpose and of making possible the planning of long-distance programs.

At the conclusion of the proceedings, Lord Rutherford referred to the statement made by Mr. Runciman the previous night on behalf of the Lord President as to the willingness of the government to afford increased financial help, and urged that as a next step the councils of the research associations should consider the scale of work required to meet the needs of their particular industries and submit proposals for the consideration of the department, in order to bring about at the earliest possible date a very different scale of operations.

THE NEW WEATHER FORECAST PROGRAM

ACCORDING to an announcement made by W. R. Gregg, chief of the Weather Bureau, with the cooperation of the War, Navy and Commerce Departments, the Weather Bureau of the U. S. Department of Agriculture, on July 1, 1934, will initiate part of its new program for increasing the accuracy of its forecasts. This new program calls for more stations for upper air soundings by airplanes and for more frequent daily forecasts. The part covering more airplane observations can now be put into effect.

The air-mass method of forecasting, long recognized as an aid to accuracy and to longer forecasts, has not hitherto been practicable because of the difficulty of getting the needed upper-air observations. Facilities offered by Army and Navy pilots at more than a dozen selected stations, at six specially-equipped Weather Bureau airway stations, and at one cooperative station at the Massachusetts Institute of Technology, now remove this difficulty. The Department of Commerce will provide for the transmission of the observations from the points where they are taken to the forecasting stations.

According to the present plan, Mr. Gregg says, observation flights will be confined to one a day, each beginning about half past five (E.S.T.) in the morning and reaching a maximum height of 17,000 feet above sea level. These flights will be made by Army and Navy pilots and by commercial aviators employed for the purpose by the Weather Bureau. Meteorologists of the Weather Bureau assigned to the air-observation stations will compute, code and transmit to forecast stations the information brought down by the meteorographs. Forecasters will thus be supplied with an important supplement to the morning surface observations in drawing the weather maps to be used in making the daily forecasts.

The Weather Bureau expects to maintain special airplane observation stations at the following airports: Nashville, Tenn., with La Crosse, Wis., as an alternate; Omaha, Neb., Cheyenne, Wyo.; Billings, Mont.; Fargo, N. Dak., and Oklahoma City, Okla.

The War Department will assign planes for this work at Mitchell Field, Long Island, N. Y.; Selfridge Field, Detroit, Mich.; Wright Field, Dayton, O.; Scott Field, East St. Louis, Ill.; Kelly Field, San Antonio, Tex.; Maxwell Field, Montgomery, Ala.; and, during the hurricane season, at Fort Crockett, Galveston, Tex. The National Guard unit at Spokane, Wash., has assumed the responsibility for collecting the needed information there.

The Navy Department will make the observations at the following stations: Anacostia, D. C.; Norfolk, Va.; Pensacola, Fla.; San Diego, Calif.; Pearl Harbor, Hawaii; and, on alternate days, at Philadelphia, Pa., and Lakehurst, N. J. Observation flights at Sunnyvale, Calif., and Seattle, Wash., because of darkness at the hour set for the flights, will be made at some daylight hour. Occasional flights may be made also from Quantico, Va., Dahlgren, Va., and Coco Solo, C. Z.

Certain battleships, when in port and sometimes at sea, send up planes to observe weather conditions. Although they are not expected to order routine flights, the following ships will contribute information useful to Weather Bureau forecasters at San Francisco, Calif., or at Washington, D. C., depending on the fleet's location: *Saratoga, Lexington, Langley, Ranger, Wright, California* and *Chicago.*

REPORT OF THE DIRECTOR OF THE FIELD MUSEUM

THE annual report of the director of Field Museum of Natural History to the Board of Trustees has been issued. How the museum is continuing to withstand the effects of the long-continued depression on its financial resources is described by Director Stephen C. Simms, in part as follows:

Like the preceding year, 1933 was marked by severely adverse financial conditions, which caused a further decline in the value of securities held in Field Museum's

endowment funds, as well as a reduction in income from endowments, contributions and memberships.

The budget adopted was very much reduced, and economies were put in force throughout the year, with the result that expenses were kept well below the appropriations, in spite of increased expense incurred through the necessity of handling record attendance during a period of several months. There were no expeditions except those financed by funds especially contributed for that purpose.

Notwithstanding forced economies, service to the public was maintained in full, and never before have so many persons been reached by the educational influences of this institution.

Visitors to the museum during the year numbered 3,269,390, an attendance exceeding that ever attained in a single year by any museum in the United States, and probably a high record for the entire world. The increase over 1932 attendance is 1,455,188, or 79 per cent. Extra-mural activities conducted by the museum benefited approximately 661,000 persons, mostly children, making a total of more than 3,930,000 for whom the institution functioned as a source of information. Of the 3,269,390 visitors to the museum, only 212,298, or 6½ per cent., paid admission. All the rest, numbering 3,057,092, either came on free days, or belonged to classifications such as children, teachers, students and museum members, who are granted free admissions on pay days. The highest attendance for any single day occurred on August 24, when there were 65,966 visitors.

Lecturers from the museum, sent to the schools by the James Nelson and Anna Louise Raymond Foundation for Public School and Children's Lectures, spoke before 160,750 children in their classrooms and assemblies, the talks being illustrated with stereopticon slides. Daily, throughout the school year, approximately 500,000 children had available for study in their schools (and also in various community centers and other institutions) the traveling natural history exhibits circulated by the N. W. Harris Public School Extension of Field Museum.

Mr. Simms reports a decrease in contributions compared with the benefactions received in recent years. The total of such gifts was $47,320, received in various amounts to be devoted to specific uses.

The book contains detailed accounts of the installation of new exhibits, most important of which were the two new halls—Chauncey Keep Memorial Hall, containing the races of mankind bronzes by the sculptor Malvina Hoffman, and the Hall of the Stone Age of the Old World, containing group restorations of various types of prehistoric man. Other activities reported upon include the research and field work conducted by the four scientific departments—anthropology, botany, geology and zoology; accessions of exhibition and study material received from various sources; the year's progress in the museum library, and the work of all other divisions of the museum organization.

CHARTER MEMBERS OF THE AMERICAN ACADEMY OF TROPICAL MEDICINE

THE following have been elected to charter-membership in The American Academy of Tropical Medicine by the Council of the Academy, in accordance with instructions given the council at the recent Conference on Tropical Diseases held in Washington, D. C., on February 5 and 6, under the auspices of the National Research Council:

Bailey K. Ashford, Geo. W. Bachman, M. A. Barber, Chas. C. Bass, M. F. Boyd, Chas. S. Butler, Geo. R. Callender, Roland C. Connor, Carroll E. Faust, Frederick P. Gay, Lewis W. Hackett, Maurice C. Hall, Henry Hanson, Robt. Hegner, Victor G. Heiser, Wm. M. James, Jas. W. Jobling, Chas. A. Kofoid, Robt. A. Lambert, Thos. T. Mackie, Wm. G. MacCallum, George W. McCoy, Karl F. Meyer, Frederick G. Novy, F. W. O'Connor, F. M. Root, Frederick F. Russell, Wilbur A. Sawyer, A. W. Sellards, Geo. C. Shattuck, Joseph F. Siler, M. H. Soule, C. W. Stiles, E. R. Stitt, James S. Simmons, Wm. H. Taliaferro, E. E. Tyzzer, Edward B. Vedder, Henry B. Ward, E. L. Walker, H. Windsor Wade.

These with the officers of the academy constitute the total number of fifty charter members authorized by the conference. The officers elected at Washington are:

President, Theobald Smith, Rockefeller Institute, Princeton, N. J.

Vice-president, Chas. F. Craig, Tulane University.

Secretary, Earl B. McKinley, George Washington University.

Treasurer, W. W. Cort, the Johns Hopkins University.

Members of the Council, Stanhope Bayne-Jones, Herbert C. Clark, Richard P. Strong, Alfred C. Reed, Henry E. Meleney.

GRANTS-IN-AID OF THE AMERICAN ACADEMY OF ARTS AND SCIENCES

AT the April meeting of the American Academy of Arts and Sciences announcement was made of grants-in-aid from the permanent science fund of the academy, as follows:

To Dr. Joseph C. Boyce, of the Massachusetts Institute of Technology, for aid in investigating the extreme ultra-violet spark spectra of krypton and xenon.

To Dr. T. T. Chen, of the University of Pennsylvania, $90 to aid in the preparation of a monograph on the cytology of Opalinid Ciliate Protozoa.

To Dr. W. W. Coblentz, of the U. S. Bureau of Standards, $400 for use in connection with an evaluation of ultra-violet in sunlight at Flagstaff, Arizona.

To Professor E. A. Culler, of the University of Illinois, $350 for aid in an investigation of the effect upon hearing of protracted exposure to sound frequencies of high intensity.