the fact that this rating recognizes the great importance of scientific research in the present National Defense program. The priority rating of A-2 was granted for equipment needed by research laboratories.

The Priorities Division has secured the assistance of the National Academy of Sciences in the operation of the new Research Laboratories Supplies Plan. The academy will advise upon applications from laboratories for assistance under the plan.

A laboratory experiencing difficulty in securing essential materials, and wishing to qualify for the A-2 rating, should apply to the Chemical Branch, Office of Production Management, Washington, D. C., on Form PD-88.

The preference rating may be extended as far as necessary to assure ultimate delivery of scarce materials to the laboratory. A laboratory, when applying for the rating, should specify the number of copies of the order which will be necessary to enable its suppliers to serve them upon their own subsuppliers. No extensions of the rating to suppliers will be made directly by the Priorities Division. This must be done by the laboratory itself.

In the event that the laboratory finds itself unable to obtain some essential material with the A-2 rating, it should file an application with the Priorities Division on Form PD-1. If the research project is deemed of sufficient importance, the Priorities Division will issue an individual preference rating certificate, assigning a higher rating to a particular delivery of specified material.

All correspondence should be with the OPM Chemical Branch, and not with the National Academy of Sciences.

It is also stated in the *Bulletin* that the fourth in the group of subcommittees which comprises the Advisory Committee on Metals and Minerals appointed by the National Academy of Sciences to cooperate with the Office of Production Management has been organized and the personnel announced; this is the subcommittee on nonmetallic minerals. Groups were formed previously on ferrous minerals and ferroalloys, metals conservation and substitution and tin smelting. Clyde E. Williams, director of the Battelle Memorial Institute, is chairman of the main advisory committee.

SCIENTIFIC NOTES AND NEWS

THE Frederic Ives Medal of the Optical Society of America was presented on October 24 to Dr. Selig Hecht, professor of biophysics in Columbia University, in recognition of "distinguished work in the field of optics" at the twenty-sixth annual meeting of the society in New York City. Dr. Kasson S. Gibson, president of the society, presented the medal, which was founded in 1928 by Dr. Herbert E. Ives, of the Bell Telephone Laboratories, in memory of his father. Previous recipients of the medal include Professor A. H. Pfund, the Johns Hopkins University; Dr. Herbert E. Ives; the late Professor George Ellery Hale, the Mount Wilson Observatory; Professor Robert W. Wood, the Johns Hopkins University; Professor Theodore Lyman, Harvard University, and the late Professor Edward L. Nichols, Cornell University.

D. ROBERT YARNALL, mechanical engineer of Philadelphia, Pa., has been selected as the fifth recipient of the Hoover Medal. The medal will be presented to Mr. Yarnall during the annual meeting of the American Society of Mechanical Engineers in New York City, which will be held from December 1 to 5, with the following citation: "D. Robert Yarnall, humanitarian, engineer and a leader in the engineering profession, who rendered outstanding service as a member of a mission that fed the children of Germany at the end of the World War and that is now aiding refugees in this country and Europe and providing food and relief for the children and mothers of France. These distinguished public services have earned for him the Hoover Medal for 1941." The medal was formally instituted on April 8, 1930, during the celebration of the fiftieth anniversary of the American Society of Mechanical Engineers, to commemorate the civic and humanitarian achievements of Herbert Hoover, to whom the first award was made. It was awarded to Dr. Ambrose Swasey in 1936, to John Frank Stevens in 1938 and to Gano Dunn in 1939.

DR. GEORGE W. CORNER, director of the department of embryology of the Carnegie Institution of Washington at Baltimore, has been elected a foreign corresponding member of the National Academy of Medicine of Argentina.

DR. CARL EPLING, professor of botany of the University of California at Los Angeles, will give the Faculty Research Lecture for the academic year 1941–42. This lecture is given annually by "an outstanding scholar or scientific man who has made significant contributions to the world's knowledge."

AT Yale University Dr. Alan M. Bateman, professor of economic geology, has been made Silliman professor of geology. Emeritus professors Horace S.

Uhler and John Zeleny have been appointed lecturers in physics.

PROFESSOR KENNETH K. LANDES, chairman of the department of geology of the University of Kansas and State Geologist of Kansas, is the new chairman of the department of geology of the University of Michigan.

DR. DONALD E. BOWMAN has resigned as instructor in biochemistry at the School of Medicine, Western Reserve University, to accept an appointment as assistant professor of biochemistry at Indiana University School of Medicine, Indianapolis.

WILFRED B. YOUNG, associate professor of animal husbandry and extension animal husbandman, has been appointed director of a school of agriculture for two years training on vocational lines organized at the College of Agriculture of the University of Connecticut.

DR. JAMES A. BABBITT, emeritus professor of clinical otolaryngology of the School of Medicine of the University of Pennsylvania, has been chosen president-elect of the American Academy of Ophthalmology and Otolaryngology to take office on January 1, 1943. Dr. Ralph I. Lloyd, of Brooklyn, N. Y., will become president on January 1.

DR. W. H. MILLS has been elected president of the British Chemical Society until the next annual general meeting.

DR. CLARENCE HISKEY and Dr. Harold Brailey, who were seriously burned in a chemical explosion at Columbia University on October 20 are reported to be recovering. Dr. Walter H. Zinn, research physicist, also of Columbia University, suffered second-degree burns of both hands on October 24 in a second laboratory explosion.

THE National Foundation for Infantile Paralysis has made a grant of $4,250 to the University of California Medical School, San Francisco, for the continuation of a study of methods of restoring lost power to paralyzed limbs. The work is being carried out by Drs. John B. de C. M. Saunders, professor of anatomy and lecturer in medical history and bibliography; LeRoy C. Abbott, professor of orthopedic surgery, and Verne T. Inman, clinical instructor in orthopedic surgery.

DR. E. RUFFIN JONES, JR., professor of biology at the Norfolk Division, College of William and Mary–Virginia Polytechnic Institute, has been appointed chairman of the faculty of that institution.

DR. JOHN N. MCDONNELL, assistant professor of pharmacy at the Philadelphia College of Pharmacy and Science and editor of *The American Professional Pharmacist,* has been appointed head of the health supplies and drug division of the Bureau of Research and Statistics of the Office of Production Management in Washington.

DR. G. R. TATUM, professor of physics at Baylor University, has been granted leave of absence for the session of 1940–41 in order to serve as a member of the staff in the Cruft Laboratories, Harvard University, for the training of Army officers in the use of airplane detection apparatus. Dr. Tatum is in charge of the laboratory experiments and the conference sections of the course. Approximately a hundred Army officers began the course on October 1.

AN expedition from the Field Museum of Natural History, which has as one of its objectives the determination of the date at which the Isthmus of Panama emerged from the sea, will leave for Central America in November. Paul O. McGrew, assistant curator of paleontology, and Albert Potter will leave from Chicago on November 2. They will sail from New Orleans on November 5 to Puerto Cortez, Honduras, whence they will fly to the capital, Tegucigalpa, and thence to the town of Gracias. From Gracias they will use mules for transportation while doing their field work.

DR. W. D. FUNKHOUSER, dean of the Graduate School and head of the department of zoology of the University of Kentucky, has been granted leave of absence for the year 1942 to make a collecting trip in Central and South America.

DR. ZING-YANG KUO, director of the Institute of Physiology and Psychology at Chungking, China, has visited England at the request of the Chinese Minister of Education and by invitation of the Universities' China Committee in London to seek to promote closer and more effectual cultural and educational cooperation between the two countries. After attending the conference of the British Association and a brief stay in London he visited Oxford, Cambridge, Manchester, Glasgow and other educational centers.

PROFESSOR GEORGE B. CRESSEY, chairman of the department of geology and geography at Syracuse University, spoke before the North Central Indiana Teachers Association in South Bend on October 24. In the morning he discussed "The Use of Maps in the Study of Current Events" and in the afternoon presented an illustrated lecture on "Far Eastern Geographic Strategy." The latter is also the subject of a Littauer Lecture at Hunter College in New York City on November 13.

SIR WILLIAM JAMESON, chief medical officer of the Ministry of Health, London, delivered the Cutter Lecture on Preventive Medicine at the Harvard Med-

ical School on October 22. His subject was "Public Health in Britain at War."

A CONFERENCE on "The Ultracentrifuge" will be held by the Section of Physics and Chemistry, the New York Academy of Sciences, on November 14 and 15 in the Roosevelt Memorial Building of the American Museum of Natural History. There will be an informal subscription dinner on Friday evening. Attendance will be limited to those invited to participate in the conference and to interested members of the academy.

THE fourth annual meeting of the Research Council on Problems of Alcohol will be held in New York City on November 25. There will be ten group conferences at 11:00 A.M. and a luncheon at 1:00 P.M. Dr. Edward A. Strecker, professor of psychiatry and chairman of the department at the University of Pennsylvania, will give the luncheon address.

THE Acoustical Society of America met at the Hotel Pennsylvania on October 24 and 25, under the presidency of Dr. E. C. Wente, research physicist of the Bell Telephone Laboratories. Noise abatement was one of the principal subjects considered. Many of the thirty-six papers presented were accompanied by demonstrations of the devices under discussion, which included recording and record-playing equipment, hearing aids and the devices employed by the Library of Congress in making and preserving an auditory record of our civilization. A joint luncheon of the Acoustical Society of America, the Optical Society of America and the Society of Rheology was presided over by Dr. Paul E. Klopsteg, chairman of the governing board of the American Institute of Physics. Dr. Vannevar Bush, president of the Carnegie Institution of Washington and director of the Office of Scientific Research and Development, addressed a joint meeting of the three societies.

THE semi-annual meeting of the American Association on the History of Medicine was held on October 24 and 25 at the Medical School of the University of Kansas, Kansas City, under the auspices of the Quivira Medical History Club of Western Missouri and Kansas.

THE fiftieth anniversary of the opening of the Ladd Observatory was celebrated by Brown University with a reception at the observatory on the afternoon of October 21 and a lecture in the evening by Professor Frederick Slocum, of the class of 1895, director of the Van Vleck Observatory at Wesleyan University, formerly professor of astronomy at Brown University. An exhibition of early astronomical instruments, including the transit used by Professor Benjamin West at the university in 1769, was on display. The gift of former Governor Herbert W. Ladd, of Rhode Island, the observatory was opened in 1891 after having been built and equipped at a cost of $25,000. Its principal instrument is a 12-inch refracting telescope. Professor Charles H. Smiley, director of the observatory, announced that the next expedition from Brown University will go to South America to photograph the total eclipse of the sun on January 25, 1944. Professor Smiley took part in eclipse expeditions to Peru and Brazil in 1937 and 1940.

UNDER the sponsorship of the U. S. Office of Education through its Engineering, Science and Management Defense Training Program, and in cooperation with the U. S. Department of Labor through its National Committee for Conservation of Manpower in Defense Industries, the Greater New York Safety Council and the Center of Safety Education at New York University, the College of Engineering at New York University is planning to set up at various centers in the metropolitan area a course in accident prevention and safety engineering.

THE fourteenth annual Graduate Fortnight of the New York Academy of Medicine was opened formally on the evening of October 13 with an address of welcome by the president, Dr. Malcolm Goodridge, to seven hundred registrants and attending fellows of the academy. The subject under consideration was "Cardiovascular Diseases Including Hypertension." Reviews of various aspects of the subjects were given at the evening sessions by twenty-six lecturers. There were a hundred and eighteen clinical conferences and demonstrations held in fourteen hospitals and clinics of Greater New York.

ANNOUNCEMENT has been made by the Finney-Howell Research Foundation that all applications for fellowships for next year must be filed in the office of the Foundation, 1211 Cathedral Street, Baltimore, Md., by January 1. Applications received after that date can not be considered for 1942 awards, which will be made the first of March, 1942. This foundation was provided for in the will of the late Dr. George Walker, of Baltimore, for the support of "research work into the cause or causes and the treatment of cancer." The will directed that the surplus income from the assets of the foundation together with the principal sum should be expended within a period of ten years to support a number of fellowships in cancer research, each with an annual stipend of two thousand dollars, "in such universities, laboratories and other institutions, wherever situated, as may be approved by the Board of Directors." Fellowships carrying an annual stipend of $2,000 are awarded for the period of one year, with the possibility of renewal up to three

years; when deemed wise by the Board of Directors, special grants of limited sums may be made to support the work carried on under a fellowship.

THE Committee on Scientific Research of the American Medical Association invites applications for grants of money to aid in research in problems bearing more or less directly on clinical medicine. Preference is given to requests for modest amounts to meet specific needs. As a rule grants are not made for the purchase of equipment or apparatus of a permanent nature. For application forms and further information, address the committee at 535 North Dearborn Street, Chicago.

DISCUSSION

AURORAL DISPLAY AND GEOMAGNETIC STORM OF SEPTEMBER 18–19, 1941

ONE of the greatest auroral displays ever observed in the central Atlantic and mid-central portions of the United States occurred on the night of September 18–19. Spectacular displays continued from twilight until just before dawn, and were observed as far south as Florida and southern California. The auroral activity accompanied one of the most violent magnetic storms of the present sunspot-cycle, nearly equaling in intensity and exceeding in duration the great storm of Easter Sunday, March 24, 1940. Serious interference with radio and wire communications over long distances was experienced, as well as noticeable effects on electric power-transmission lines.

This geomagnetic storm is generally ascribed to clouds of electrified particles projected from the sun in the region of an extraordinarily active sunspot-group which had crossed the solar meridian shortly before the onset of the disturbance. The progress of this sunspot-group across the sun had been followed by a number of observers for several days. Just at the time of crossing the solar meridian an increase in activity in the group was noted. Since such active groups frequently give rise to geomagnetic disturbances, H. W. Wells, of the Department of Terrestrial Magnetism, Carnegie Institution of Washington, had warned numerous radio operators to be on the lookout for disturbances in radio transmission-conditions, so that occurrence of the magnetic storm was not entirely unexpected by scientists, although its great intensity and the extent of the auroral manifestations were not anticipated.

The storm began at 11 P.M., Eastern Standard Time, on September 17 and attained maxima of activity between 1 and 3 P.M., and between 7 and 10 P.M. on September 18. During both of these periods of intense activity, effects were noted on the 230-kilovolt interconnecting line tying the power-system of Washington, D. C., into the hydroelectric developments along the Susquehanna River in Pennsylvania, approximately 100 miles to the north. The second period of disturbance also was the time of maximum auroral activity. Changes in horizontal magnetic intensity at the U. S. Coast and Geodetic Survey Observatory at Cheltenham, Maryland, amounted to over 2,500 gammas, which is approximately 15 per cent. of the normal value at that station, the greatest change ever recorded there.

During the second active interval, which occurred during the hours of darkness, bundles of auroral rays were directed downward through the high atmosphere over the eastern section of the United States. These rays, because of the electrical nature of the particles causing them, took the direction of the earth's magnetic field and consequently assumed roughly parallel directions and approached the earth's surface in alignment with the magnetic dip which at Washington, D. C., is nearly 20° from the vertical. To observers viewing these rays they appeared to be parallel, and like all parallel lines, appeared to converge in the distance. For this reason many persons noted a spectacular coronal display of the aurora borealis where the rays appeared to converge slightly south of the true zenith toward a point known as the magnetic zenith.

Throughout the night the auroral activity exhibited various forms. At times extensive quiescent auroral arcs crossed the sky in a roughly east-west direction. These changed into draperies, rays and curtains, as the various auroral forms are picturesquely described. In the extreme northern part of the country and in southern Canada brilliant colors in the aurora were reported by many observers, although throughout the greater portion of the United States the auroral forms were with little color although occasional casts of red and green could be detected. Auroral displays were observed in the northern part of the United States on the nights of September 17–18 and 19–20 also, but of greatly diminished intensity.

No complete theory of geomagnetic storms and aurora has been developed. The most generally accepted theory attributes both to the injection into the earth's atmosphere of high-velocity electrified particles projected from active regions on the sun. These particles, entering the tenuous layers of the upper atmosphere, excite the molecules and atoms of the air and thus give rise to the auroral light in very much