the Johns Hopkins Medical Society, and non-resident vice-president of the Washington Academy of Sciences. He is a member of the National Academy of Sciences, Phi Beta Kappa and Sigma Xi, a fellow of the American Association for the Advancement of Science and a past president of the Society of American Bacteriologists and the American Society of Biological Chemists. He has served as chairman of the Washington and Maryland Sections of the American Chemical Society. He is a member of the Cosmos Club of Washington.

The Nichols Medal, on original research in chemistry, was established in 1903 by the late Dr. William H. Nichols, who was chairman of the Board of the Allied Chemical and Dye Corporation.

Previous recipients of the medal have been Irving Langmuir, General Electric Company; James Bryant Conant, president of Harvard University; Roger Adams, University of Illinois; Thomas Midgley, Jr., vice-president, Ethyl Gasoline Corporation; Samuel Colville Lind, University of Minnesota; Edward Curtis Franklin, Stanford University; Charles A. Kraus, Brown University; Henry C. Sherman, Columbia University; Samuel Edward Sheppard, Eastman Kodak Company; John A. Wilson, Milwaukee, Wis., and Father Julius A. Nieuwland, Notre Dame University.

Members of the 1936 Jury of Award, in addition to Professor Hixson, are Dr. D. P. Morgan, of Scudder, Stevens and Clark; Professor Victor K. LaMer, of Columbia University; Dr. Walter S. Landis, vice-president of the American Cyanamid Company, and Dr. J. M. Weiss, of Weiss and Downs.

SCIENTIFIC NOTES AND NEWS

DR. RUDOLPH MATAS, professor emeritus of surgery at the Medical School of Tulane University, has been elected president of the International Congress of Surgeons and will preside at the 1938 congress in Vienna, which will probably be held during the summer.

THE International Society of the History of Medicine, which held its tenth congress at Madrid last fall, has elected the following officers for the next triennium: *Founder-President,* Tricot-Royer (Antwerp); *Honorary President,* Giordano (Venice); *Active President,* Gomoiu (Bucharest); *Vice-presidents,* Singer (London), de Lint (Leyden), Capparoni (Rome), Laignel-Lavastine (Paris), Diepgen (Berlin); *Secretary General,* Guiart (Lyons); *Assistant Secretary,* Van Schevensteen (Antwerp); *Archivist,* Fosseyeux (Paris); *Treasurer,* Boulanger-Dausse (Paris). The eleventh congress will be held in September, 1938, at Athens, Istanbul, Sophia and Zagreb. The chief subjects for discussion will be the religious origins of Hippocratic medicine; the Hippocratic idea in modern medicine, and medical folklore.

A. M. MACCUTCHEON, engineering vice-president of the Reliance Electric and Engineering Company, at Cleveland, Ohio, has been nominated to the presidency of the American Institute of Electrical Engineers.

AT the twenty-third recent annual meeting in New York City of the American Society for the Control of Cancer, the new officers elected were Dr. Robert B. Greenough, of Boston, *president;* Dr. E. B. Wilson, of Boston, *vice-president;* Dr. Frank E. Adair, of New York, *secretary,* and Calvert Brewer, of New York, *treasurer.* Dr. James Ewing, of New York, was elected chairman of the board.

A DINNER in honor of Dr. Moses Gomberg, professor of organic chemistry and head of the department at the University of Michigan, was tendered to him on February 8. Dr. Gomberg, now seventy years of age, retired from active teaching recently, after having been a member of the faculty since 1893. A bound volume of birthday greetings was presented to him together with a framed portrait, by Phi Lambda Epsilon, honorary chemistry society, and a scholarship fund of $5,000, to be known as the Gomberg scholarship fund, will be turned over to the university. A. H. White and E. C. Sullivan spoke for his old associates in studying and teaching. F. W. Sullivan, Jr., as toastmaster, read the numerous telegrams of good wishes that came from institutions and individuals throughout the country and from Europe. In accordance with the wish of Dr. Gomberg the scholarship fund will be used for promising undergraduate students who are in need of financial assistance.

A TESTIMONIAL dinner was recently given in honor of Dr. Huntington Williams, health commissioner of Baltimore, by more than 200 Baltimore physicians and officers of the Baltimore Association of Commerce. Dr. John M. T. Finney, professor emeritus of surgery of the Johns Hopkins University School of Medicine, was toastmaster. Speakers at the dinner included Mayor Jackson, Drs. Thomas S. Cullen, who was honorary chairman; Charles C. W. Judd, Allen W. Freeman, Baltimore, and Reginald M. Atwater, New York, secretary of the American Public Health Association. Dr. Williams has been commissioner of health of Baltimore since 1932, when he succeeded the late Dr. C. Hampson Jones. He resigned as secretary of the New York State Department of Health, Albany, to become director of health of Baltimore.

THE Danish Academy of Science has awarded to Henry B. Collins, of the National Museum in Washington, a gold medal and $200 for a treatise on the origins of Eskimo culture.

DR. EUGENE M. LANDIS, of the Medical School of the University of Pennsylvania, has been awarded the John Phillips Memorial Medal of the American College of Physicians for his work on the passage of fluid through the capillaries.

Nature reports that Dr. C. V. Drysdale, director of scientific research for the British Admiralty in 1929–34, has been awarded the thirteenth Duddell Medal of the Physical Society for his work in connection with electrical and optical instruments.

SIR THOMAS BARLOW was elected on February 4 a foreign associate member of the French Academy of Medicine.

AT his own request, Professor H. V. Wilson has been relieved of administrative duties in the department of zoology of the University of North Carolina after thirty-one years of service. Professor Wilson continues in full-time teaching. Professor R. E. Coker, who is also chairman of the division of the natural sciences in the College of Arts and Sciences, has succeeded him as head of the department.

DR. ALVIN R. CAHN, of Ely, Minn., has been appointed chief of the Fish, Game and Wild Life Unit of the Forestry Division in the Tennessee Valley Authority, with headquarters at Knoxville. Dr. Cahn was for twelve years on the faculty of the department of zoology at the University of Illinois, but last semester resigned his position as assistant professor to take effect on March 1. Dr. Cahn has traveled extensively in the wilderness areas of the United States and Canada and has made ecological studies along the coast and islands of Norway and Lapland.

PROFESSOR FRANK B. HOWE, of the department of agronomy of the New York State College at Ithaca, until recently head of the State Soil Conservation Service, has been named head of a technical advisory committee sponsored by the State Planning Commission to further a coordinated program of soil conservation and flood control.

DR. B. L. WADE, of the U. S. Department of Agriculture, who has been stationed at the Davis Branch of the College of Agriculture of the University of California, has been called to Charleston, S. C., to take charge of the federal vegetable breeding station there. The station was established by vote of the directors of the agriculture experiment stations in eleven southeastern states.

PROFESSOR H. HOAGLAND, director of the biological laboratories of Clark University, has been appointed consultant in physiology at the Worcester State Hospital.

LAUREN B. HITCHCOCK has resigned as professor in charge of the course in chemical engineering at the University of Virginia to join the Hooker Electrochemical Company as consulting chemical engineer.

ROBERT L. JONES, formerly director of the insulin laboratories of Frederick Stearns and Company, and more recently with the Research Laboratory of the Children's Fund of Michigan, has joined the research staff of the Abbott Laboratories at North Chicago, where his work will be concerned with problems in biochemistry.

GEORGE J. BURKHARDT, a recent graduate of the University of Wisconsin, has been appointed associate agricultural engineer at the Puerto Rico Experiment Station of the United States Department of Agriculture. He will be engaged in studies for the farm and industrial utilization of different species of bamboo. Dr. James H. Jensen, formerly assistant pathologist at the Rockefeller Institute for Medical Research at Princeton, has been appointed plant pathologist for the station.

MYRON WEISS, associate editor of *Time*, has been elected a member of the American Society for Metals. He has assumed the newly created post of advisory editor to *Metal Progress*.

LOVETT GARCEAU, formerly (1931–1935) in charge of the development of electrophysiological apparatus in the department of physiology at the Harvard Medical School, has left in order to establish a private laboratory in Diamond Hill, R. I. He is now engaged in the development and manufacture of electrical apparatus for the medical profession and in scientific research.

DR. HERBERT J. SPINDEN, curator of primitive art at the Brooklyn Museum, left on March 10 for Nicaragua in an effort to determine the origin of the ancient Chorotegan tribes and collect articles made by the Mosquito and Suma Indians who inhabit the little-known forest land southwest of Matagalpa.

DR. ERWIN STRESEMANN, curator of birds at the Zoological Museum of Berlin, is visiting the United States and is making a series of studies of methods employed by leading American museums.

DR. WALTER B. CANNON, George Higginson professor of physiology at the Harvard Medical School, Boston, delivered the first Leo Loeb Lecture at Washington University School of Medicine on March 2. His address was entitled "Some Adventures in Discovery."

DR. ALEXIS CARREL, member of the Rockefeller Institute for Medical Research, will deliver the sixty-eighth Charter Day address at the University of California at Los Angeles on March 20. The address will be followed in the evening with a dinner honoring Dr. Carrel, tendered by the University Associates.

THE sixth Harvey Society Lecture by Dr. Richard E. Shope will be given at the New York Academy of Medicine on March 19. It was not given on March 10, as erroneously reported in a recent issue of SCIENCE.

DR. CHARLES C. COLBY, professor of geography at the University of Chicago, recently gave six lectures on "Science in Regional Planning" before the Senior Research Group of the Tennessee Valley Authority at Knoxville.

DR. THOMAS C. POULTER, of Iowa Wesleyan College, and second in command of the Second Byrd Antarctic Expedition, delivered a series of addresses at Iowa State College, concerning the experiences and results of that expedition, from February 10 to 13.

DR. GERHARD SCHMIDT, of the department of chemistry of Queen's University, Kingston, Canada, gave a lecture on March 2 before the Physiological Society of the University of Toronto. The subject was "The Importance of Linkage and Prosthetic Groups in Relation to Enzyme Action." Dr. Schmidt was formerly in the University of Frankfurt a. Main.

SIR WILLIAM BRAGG, president of the Royal Society, opened the Very Low Temperatures Exhibition in the lecture theater of the Science Museum, South Kensington, on March 4. The chair was taken by Sir Henry Lyons.

THE Midwestern Psychological Association will hold its annual meeting at Northwestern University, on April 24 and 25, under the presidency of Dr. Christian A. Ruckmick, of the State University of Iowa. The title of Dr. Ruckmick's presidential address will be "Psychology To-morrow."

THE sixty-sixth annual meeting of the Wisconsin Academy of Sciences, Arts and Letters will be held at the University of Wisconsin on April 17 and 18. Dr. Rufus Mather Bagg, professor of geology emeritus of Lawrence College, will give the address of the retiring president on Friday afternoon, on "Geologic Contributions to Human Progress." The annual dinner will be held in the evening, after which Dr. Glenn Frank, president of the University of Wisconsin, will make an address.

THE twenty-fourth annual meeting of the Eugenics Research Association will be held at the American Museum of Natural History, New York City, on June 6. It is requested that all persons who have papers to present indicate their tentative intentions by an early letter to the secretary. Papers will be limited to twenty minutes and must be presented in person. Lantern, blackboard, chart, wall and exhibit space will be provided at the meeting. The paper itself, with a two hundred fifty word abstract, must be forwarded to the secretary of the Eugenics Research Association, Cold Spring Harbor, L. I., New York, not later than May 6.

THE annual meeting of the Cyrus M. Warren Committee of the American Academy of Arts and Sciences will be held in May to consider applications for grants. The awards, in any case, do not exceed $500 and are limited to the field of chemistry. Applications for grants should be sent to the chairman of the committee, Professor James F. Norris, Massachusetts Institute of Technology, Cambridge, Mass., before May 1.

APPLICATIONS must be on file with the U. S. Civil Service Commission at Washington, D. C., not later than March 23 for the positions of principal agricultural research writer, at a salary of $5,600 a year; special agricultural research writer, at a salary of $3,800 a year; agricultural research writer, at a salary of $2,900 a year; agricultural research writer (radio), at a salary of $2,900 a year. Vacancies in these positions in Washington, D. C., and in the field, and in positions requiring similar qualifications will be filled from these examinations, unless it is found in the interest of the service to fill any vacancy by reinstatement, transfer or promotion. The salaries named above are subject to a deduction of 3½ per cent. toward a retirement annuity.

THE eighth Smithsonian anthropological and archeological expedition to Alaska, under Dr. Aleš Hrdlička, will leave Seattle on May 16. The initial excavations, as during the two preceding seasons, will be on Kodiak Island, but at the end of June the party will leave on a U. S. Coast Guard boat for some of the western Aleutians. As on his previous trips, Dr. Hrdlička will be accompanied by a small party of volunteer college students who with him will carry on the excavations. These students receive, aside from such field training as may be possible, a course of lectures on the human skull and skeleton, on general anthropology and on the principles of American archeology. No charge is made for this instruction, but the students must pay their own expenses. Due to the limited accommodations the number of students for the coming season must be limited to six. Applications should be made to Dr. A. Hrdlička, U. S. National Museum, Washington, D. C.

A CORRESPONDENT writes: Clellan S. Ford, Bishop

Museum fellow in Yale University, returned to Honolulu on February 7 from ethnological field work on the island of Naviti, the geographical and political center of the Yasawa archipelago, western Fiji. His preliminary survey of all islands in the archipelago indicates that the material culture of Yasawa is homogeneous. The extensive use of pottery suggests similarity with the Lau Islands, where Melanesian and Polynesian influences are intermingled, but contrasts with neighboring Samoa and Tonga, where the culture is purely Polynesian.

NOMINATIONS to the Council of the American Association of Museums for the three-year term 1936–39 have been made as follows: Andrey Avinoff, director, Carnegie Museum, Pittsburgh; Alfred H. Barr, Jr., director, Museum of Modern Art, New York; Kenneth Chorley, vice-president, Colonial Williamsburg, Incorporated, Williamsburg, Va.; O. T. Kreusser, director, Museum of Science and Industry, Chicago; Arthur C. Parker, director, Rochester Museum of Arts and Sciences; Edward K. Putnam, director, Davenport Public Museum; Mrs. John D. Rockefeller, Jr., trustee, Museum of Modern Art; Paul J. Sachs, associate director, Fogg Art Museum, Harvard University, Cambridge; George H. Sherwood, honorary director and curator-in-chief of education, American Museum of Natural History, New York, and Alexander Wetmore, assistant secretary, Smithsonian Institution, in charge of U. S. National Museum, Washington.

AT the February meeting in Chicago of the American Medical Association the following were elected to fill vacancies caused by expiration of terms, resignations and deaths: *Council on Pharmacy and Chemistry,* Dr. Torald Sollmann to succeed himself; Dr. W. C. Rose, Urbana, Ill., to succeed Dr. Lafayette B. Mendel (deceased), and Dr. E. M. K. Geiling, Baltimore, to succeed Dr. Reid Hunt (resigned). No appointment was made to fill Dr. L. G. Rowntree's place at present, it being decided that the work of the council could be conducted with one less member. *Council on Physical Therapy,* Drs. Robert B. Osgood, F. J. Gaenslen and Howard T. Karsner to succeed themselves. *Committee on Foods,* Dr. Russell M. Wilder to succeed himself, and Dr. Martha Eliot, New Haven, to succeed Dr. Lafayette B. Mendel (deceased). To expedite work of this committee, it was decided to make its secretary a member of the committee. *Archives of Internal Medicine,* Dr. Arthur Bloomfield; *Archives of Ophthalmology,* Dr. Arnold Knapp; *Archives of Neurology and Psychiatry,* Dr. H. Douglas Singer; *Archives of Otolaryngology,* Dr. Ralph A. Fenton; *Archives of Pathology,* Dr. Frank R. Menne, all to succeed themselves. *Archives of Dermatology and Syphilology,* Dr. Howard Fox, of New York, to succeed Dr. Charles J. White. *Archives of Surgery,* Dr. William Darrach, to succeed himself, and Dr. Waltman Walters, Rochester, Minn., to succeed Dr. E. Starr Judd (deceased). *Committee for the Protection of Medical Research,* Drs. Lewis H. Weed and Dr. Walter B. Cannon to succeed themselves. *Committee on Scientific Research,* Dr. Ludvig Hektoen to succeed himself. The resignation of Dr. Victor C. Jacobsen from the editorial board of the *Archives of Pathology* was received and it was decided not to fill his place.

AIR HYGIENE FOUNDATION OF AMERICA, INC., has been formed by a group representing various industries, with headquarters at Thackeray Avenue and O'Hara Street, Pittsburgh, Pa. The purposes of this organization are to conduct investigations of and to stimulate research on problems in the field of air hygiene and to gather and disseminate factual information relating thereto. It will also cooperate with and assist other agencies active in this field and will collaborate in the coordination of such research efforts. A comprehensive investigation has been begun at Mellon Institute of Industrial Research, Pittsburgh, under support of Air Hygiene Foundation of America, in which the hygienic, technologic and economic aspects of air contamination, especially by dust in the industries, will be studied.

A MEETING of the British Academic Assistance Council, under the presidency of Lord Rutherford, was held in London on February 21 in the rooms of the Royal Society. The gift of two research fellowships of the annual value of £450 each was announced. After consultation with the Royal Society, the council awarded one fellowship for a period of three years to Dr. Walter Heitler, to enable him to continue his research in theoretical physics at the University of Bristol. From its general funds the council awarded a fellowship for three years to Dr. Veit Valentin, to enable him to continue his work in German history at University College, London. Dr. Walter Heitler, formerly of the University of Göttingen, is best known for his work connected with the quantum theory of valency and more recently in connection with the theory of absorption of particles and radiation of high energy. Dr. Veit Valentin is regarded as the leading authority on the German Revolution of 1848. He was head archivist, and director of the research department for the history of culture of the German State Archives, at Potsdam. It was reported that the dismissal of university teachers in Germany on account of opinion or race was still continuing, and that even after dismissal scholars were denied access to libraries and forbidden to accept invitations from

universities and learned societies abroad. The officers also reported that six university teachers had been dismissed in Portugal for other than professional reasons. The council decided that there was continuing need for a non-political organization to assist displaced scholars and scientific men, and made plans for the creation of a more permanent body, a Society for the Protection of Science and Learning, to take over its activities. An invitation to join this society will shortly be issued.

DISCUSSION

CORTICAL EXCITATORY STATE AND VARIABILITY IN HUMAN BRAIN RHYTHMS

IN a recent communication to this journal entitled "Temperature Characteristics of the 'Berger Rhythm' in Man" Hudson Hoagland[1] has described experiments which appear to show three temperature characteristics in general paresis patients. We have found in similar experiments on both normal and convulsive (*petit mal*) cases temperature characteristics for both the occipital alpha rhythm (wrongly called the "Berger Rhythm") and the central beta rhythm which were of the same order of magnitude as the lowest of the values reported by Hoagland (7,000 to 8,000 calories). Our control experiments without a temperature change, however, have shown repeatedly frequency changes of the same order of magnitude (1 to 2 cycles per sec.) during the course of one or two hours experimentation. It appears to us that, in the absence of such controls in Hoagland's report and since our experiments indicate a higher variability in some pathological brain conditions, we should suspend judgment in regard to the underlying physicochemical processes controlling these rhythmic activities as determined by apparent temperature characteristics alone in pathological cases.

The cause of variability in the bioelectric activity of the human brain is extremely complex. Some of this complexity may be shown by the following observations: (1) The frequency of the occipital alpha rhythm may be decreased during drowsiness and increased following arousal by an adequate stimulus. (2) Adequate sensory stimulation may diminish or abolish rhythmic activity in a waking person, while the same stimulus may cause bursts of activity to occur in the sleeping person. (2) Sleep itself causes a complex series of changes, involving first a slowing of the rhythmic activity with accompanying changes in amplitude and regularity and then the rhythmic activity being replaced by a predominance of large, irregular, random, usually slow, potential swings, with occasional bursts of rhythmic activity at frequencies of 3 to 6 or 7 per sec. more marked in the occipital region (probably the slow alpha process) and bursts of 12 to 14 cycle rhythm more marked in the central region (probably the slow beta process). (4) Some individuals, upon first examination, appear to show no regular rhythmic activity from any region; the record appearing similar to that obtained after existing rhythmic activity is broken up by sensory stimulation in other individuals. Some of these individuals will show good regular rhythms if they are placed in a sound-proof room and allowed sufficient time for general relaxation or are relieved of some tension or worry. A more or less sustained state of cortical excitation seems to be involved in this absence of rhythmic activity. (5) Frequency changes due to temperature are present but complicated by the variable increase in general excitability in the febrile condition plus associated circulatory changes. (6) States of excitation involving the autonomic nervous system, such as fear, anxiety and worry, affect markedly the frequency and regularity of brain rhythms. (7) The first five or ten beats of the occipital alpha rhythm as it recovers from being abolished by light stimulation are at a higher frequency than those in a period ten or fifteen seconds later. As the rhythmic activity builds up it appears to decrease progressively in frequency (*e.g.*, in one case from about 11 to 9.5 per second). It is as though some sustained effect of the afferent impulses, which might be called the cortical excitatory state, was increased above the level which permits rhythmic activity and then decreases, following the cessation of the stimulus to a level permitting rhythmic activity at first rapidly and then with decreasing frequency until it passes to a lower more constant level.

The rhythmic discharge of a relaxation oscillator as controlled by variations in its driving potential may be an excellent analogy for the control of the rhythmic discharge of cortical cells by the variation in cortical excitatory state. The gas discharge tube in such an oscillator will function rhythmically only when the applied potential is within certain limits (depending upon the time constant of the circuit RC and the tube characteristics). As the applied potential is increased from zero a level may be reached which will cause the tube to discharge in a random manner with occasional regular discharges at a low frequency (as for brain potentials during sleep) and then the frequency of

[1] H. Hoagland, SCIENCE, 83: 84–85, 1936.