Councilors, George W. Stose, Washington, D. C.; Raymond C. Moore, Lawrence, Kansas; Joseph T. Singewald, Jr., Baltimore; Frank F. Grout, Minneapolis; W. O. Hotchkiss, Houghton, Michigan; Joseph Stanley-Brown, New York; F. W. De Wolf, Urbana, Illinois; Donald H. McLaughlin, Cambridge; Adolph Knopf, New Haven, Connecticut.

Announcement was made of the election of twenty-one fellows, bringing the total membership to 684.

Meeting with the Geological Society were the Paleontological Society, the Mineralogical Society of America and the Society of Economic Geologists.

The 1934 meeting of the society will be held at the University of Rochester in December, 1934.

SCIENTIFIC NOTES AND NEWS

THE CATHERINE WOLFE BRUCE GOLD MEDAL of the Astronomical Society of the Pacific for the year 1934 has been awarded to Dr. Alfred Fowler, professor of astrophysics in the University of London, for "distinguished service in the field of astronomy."

THE COLWYN GOLD MEDAL of the British Institution of the Rubber Industry was recently awarded to Dr. O. de Vries, until 1930 director of the Rubber Station, Buitenzorg, for scientific work in connection with the production of raw rubber. The presentation was made by Sir George Beharrell, president of the institution, at the twelfth annual general meeting held on January 12.

DR. J. DUFRENOY, director of the Station for Plant Pathology, with headquarters at Bordeaux, who has been working for the past year in the laboratory of plant physiology of the Citrus Experiment Station of the University of California at Riverside, has been elected a corresponding member of the Biological Society of Paris.

A SPECIAL issue of the *American Journal of Pathology* has been dedicated to Dr. Frank Burr Mallory, who recently retired from the professorship of pathology in the Harvard Medical School, in commemoration of his seventieth birthday and of the opening of the Mallory Institute of Pathology of the Boston City Hospital. At a dinner in his honor speeches were made by F. C. Hood, Dr. Elliott C. Cutler, Dr. Hans Zinsser and Dr. James Ewing. Dr. Simeon Burt Wolbach was toastmaster. Dr. Mallory was presented with a complete moving picture outfit and a silver pitcher as tokens of the esteem of his former pupils and his friends on the occasion of his retirement and the dedication of the building.

A TESTIMONIAL dinner was given to Dr. Stuart McGuire by the faculty and board of visitors of the Medical College of Virginia, at Richmond, on January 15, in recognition and appreciation of his forty years' continuous service to the institution as professor, president and now chairman of the executive committee of the Board of Visitors. Addresses were made by a number of members of the board and faculty, one of them by Dr. J. Fulmer Bright, emeritus professor of anatomy, and now mayor of Richmond.

DR. CHARLES O. TOWNSEND, formerly chief of the Sugar Division of the U. S. Tariff Commission, retired from the Federal Service on January 16, after having completed more than ten years in the service of the commission and thirty-two years in the service of the United States Government. At a ceremony attended by his colleagues, Dr. Townsend was presented with a watch. Having reached the age of retirement on January 16, 1933, Dr. Townsend was continued in the service for another year by direction of the President, in order to continue work on which he was then engaged.

THE following are the officers of the New York Academy of Sciences for 1934: *President,* Dr. Marshall A. Howe; *Vice-presidents,* Dr. Paul F. Kerr, Nels C. Nelson, Professor Herbert Ruckes and Professor Carl J. Warden; *Recording Secretary,* Dr. Roy Waldo Miner; *Corresponding Secretary,* Professor Horace W. Stunkard; *Treasurer,* Dr. George H. Sherwood; *Librarian,* Dr. G. Kingsley Noble; *Editor,* Mr. Herbert F. Schwarz; *Councilors* (1934–1936), Dr. W. Reid Blair and Dr. Elmer D. Merrill; *Finance Committee,* Harold E. Anthony, Harry C. Raven and John D. Sherman, Jr.

DR. MILTON J. ROSENAU, of the Harvard Medical School, was elected president of the Society of American Bacteriologists at the annual session in Philadelphia on December 28. Dr. Karl F. Meyer, of the Hooper Foundation, San Francisco, was named vice-president, and Dr. James M. Sherman, professor of bacteriology and dairy industry at Cornell University, was reelected secretary. Dr. Ludwig Hektoen, who recently retired as chairman of the department of pathology, Division of Biological Sciences, University of Chicago, was elected an honorary member.

DR. F. W. M. LAMB, lecturer on pathology at the University of Birmingham, has been appointed professor of toxicology and medical jurisprudence on the medical faculty of the University of Cairo. He succeeds Dr. J. Glaister, Jr.

ROLAND L. REDMOND, lawyer of New York City, has been elected president of the American Geographical Society, to succeed Dr. John H. Finley, of the editorial department of *The New York Times,* who has retired after holding office for eight years. Mr. Red-

mond has been a member of the society's council for ten years.

LIEUTENANT-COLONEL ERNEST GOLD has been elected president of the Royal Meteorological Society, London, in succession to Professor Sydney Chapman.

DR. BRADLEY M. PATTEN, associate professor of histology and embryology at Western Reserve University, has resigned to become assistant director for the medical sciences in the Rockefeller Foundation.

DR. CHARLES E. KELLOGG, of the North Dakota Agricultural College, has been promoted to the professorship of soils. Dr. Kellogg has been granted a short leave of absence to assist the Bureau of Chemistry and Soils with some special work in connection with the Soil Survey.

DR. DAVID I. MACHT, formerly lecturer in pharmacology at the Johns Hopkins University School of Medicine, and now director of the Pharmacological Research Laboratory, Hynson, Westcott and Dunning, has been appointed professorial lecturer in general physiology at the Yeshiva College, New York.

DR. JOHN A. HARTWELL, formerly president of the New York Academy of Medicine, has been appointed director to succeed Dr. Linsly R. Williams, who died on January 8. During Dr. Williams' illness and after his death, Dr. Hartwell had been acting as interim director.

DR. ROSS GUNN, research physicist of the Naval Research Laboratory, Washington, D. C., has been promoted to fill the newly established position of technical adviser in the same laboratory.

BURT H. CARROLL, until recently a member of the staff of the Bureau of Standards at Washington, has resigned to become a member of the staff of the Research Laboratory of the Eastman Kodak Company, Rochester, N. Y.

ACCORDING to recent advice from Changsha, Fuliang Chang, for many years a member of the staff of Yale-in-China, has been appointed head of the reconstruction work in the territory recently recaptured from the communists by the nationalists troops in Kiangsi province.

ASSOCIATE editors to serve for three years on *The Journal of Morphology* have been elected by the Wistar Institute as follows: Dr. Charles Zeleny, University of Illinois; Dr. J. F. Daniel, University of California, and Dr. J. S. Nicholas, Yale University.

DR. HARRY BECKMAN, professor and director of the department of pharmacology, Marquette University School of Medicine, Milwaukee, has been appointed American collaborating editor of the Spanish medical journal, *Clínica y Laboratorio,* and will contribute an annual article to the journal.

DR. R. W. CILENTO, Commonwealth health officer in Queensland, has been appointed to the new position of Commonwealth research officer in tropical diseases, with headquarters at the School of Tropical Medicine of the University of Sydney. Dr. Cilento has been engaged in work among the New Guinea natives and has conducted special leprosy surveys in the Western Pacific on behalf of the League of Nations.

THE secretary to the British Minister of Health announces that Professor Sir F. Gowland Hopkins, Professor E. P. P. Cathcart and Professor Edward Mellanby, physiologists representing the Minister's Advisory Committee on Nutrition, will confer with Professor V. H. Mottram, Professor S. J. Cowell and G. P. Crowden, as physiologists representing the British Medical Association Committee on Nutrition, in regard to the differences which appear to exist between the two committees on the question of the amount of calories and first-class protein appropriate as a basis for suitable diets.

LOUIS C. KARPINSKI, professor of mathematics in the University of Michigan, has returned to the United States after spending the first semester abroad on leave of absence, during which he lectured on the history of mathematics at various eastern colleges and universities.

DR. LEONARD A. MAYNARD, of the laboratory of animal nutrition at Cornell University, sailed for China at the end of January. He plans to spend six months, at the invitation of the University of Nanking, assisting in the development of a program of research and education for the improvement of the nutrition of the Chinese farm family.

DR. EDWIN P. HUBBLE, astronomer in the Mt. Wilson Observatory and president of the Astronomical Society of the Pacific, on January 24 delivered an illustrated lecture entitled "The Realm of the Nebulae," before the Sigma Xi Chapter of the University of California at Los Angeles.

ON January 25, Professor William D. Harkins, of the University of Chicago, gave the last of a series of lectures on "Neutrons, and the Photography of the Disintegration of Atomic Nuclei." The series included the Appleton Lecture at Brown University, and lectures at Yale, Princeton and Creighton Universities and the Universities of Iowa, Kansas, Missouri and Pennsylvania, and sections of the American Chemical Society at Wilmington, Chicago, Omaha, Kansas State College, Iowa State College and Kansas City.

PROFESSOR JAMES FRANCK, formerly professor of physics at the University of Göttingen, and James Speyer visiting professor at the Johns Hopkins University, lectured at the Carnegie Institute of Tech-

nology, Pittsburgh, on February 1 and 2. The titles of the lectures were: "Absorption Spectra of Molecules in the Far Ultra-violet"; "Differences of Photochemical Primary Processes in Gases and Liquids," and "Catalytic Processes."

THE biennial Huxley Lecture, on recent advances in science in their relation to practical medicine, was delivered by Professor Julian S. Huxley at Charing Cross Hospital Medical School, London, on January 24. His subject was "Embryology as an Experimental Science."

SIR FREDERICK GOWLAND HOPKINS, president of the Royal Society, formally opened the new chemistry building at the University of Leeds, on January 12, in the presence of the pro-chancellor of the university, Colonel C. H. Tetley, the vice-chancellor, Sir James Baillie, and a representative gathering of past and present members of the university and of visitors from other universities. Sir Frederick Hopkins gave an address entitled "Modes of Thought in Chemistry."

A MEETING of the American Section of the Society of Chemical Industry will be held on February 16 at 7:30 P. M. at The Chemists' Club, New York City. The meeting will be devoted to an address by Professor Donald B. Keyes, of the University of Illinois, on "Cooperative Studies on Sulfur Dioxide Removal from Flue Gases." A dinner will be held prior to the meeting at 6 o'clock at the club.

THE second annual conference of the Society for the Prevention of Asphyxial Death will open at the Hotel Biltmore, New York City, at 9 o'clock on February 19. Speakers at the conference will include Dr. Chevalier Jackson and Surgeon General Hugh S. Cumming. In the evening of February 20 there will be a dinner to honor the memory of a pioneer in the prevention of asphyxial death, the late Dr. Joseph O'Dwyer. In addition to the presentation of papers, a scientific exhibit and a technical exhibit have been arranged. The technical exhibit will include approved apparatus used in the treatment and prevention of asphyxia. The scientific exhibit will show pathological specimens, both gross and microscopic, charts, models, etc., dealing with the various types of asphyxiation.

A NEW research project at Battelle Memorial Institute, Columbus, Ohio, has been announced by the director, Dr. H. W. Gillett. This work is being done for the S. S. White Dental Manufacturing Company of Philadelphia, Pa., under the institute's sponsored research plan. The investigation is in charge of Dr. O. E. Harder, assistant director of the institute, and William A. Welcker, research engineer.

IT is planned in England by means of scholarships to arrange for the training of Chinese engineering students. Seven students, the first to gain the scholarships awarded by the Federation of British Industries under a grant made from remitted Boxer Indemnity Funds by the Universities China Committee in London, have reached England. The object of the scholarships is to develop trade and cultural relations between China and the United Kingdom. They will have the mutual advantage of acquainting future leaders of Chinese industry with the most modern British engineering standards and methods, and of securing for British industry greater opportunities for business in connection with the industrial development of China. On the completion of their training the students will be helped to secure responsible engineering positions in China. The scholarships have been granted after careful investigation by a committee in Shanghai, and are confined to candidates holding a degree in engineering from an approved university in China or Hong-kong. These students will work with the Metropolitan-Vickers (Electrical Company), Limited, Manchester; Bellis and Morcom, Limited, Birmingham; Sir W. G. Armstrong Whitworth and Co. (Engineers), Limited, Newcastle-upon-Tyne; George Kent, Limited, Luton; Vickers-Armstrong, Limited, Barrow, and Craven Brothers, Manchester. Further scholarships will be awarded during 1934.

EIGHTEEN specimens of meteorites from a group of meteorite craters at Henbury, Australia, have been received at the Field Museum of Natural History, Chicago, and placed on exhibition in the museum's collection. The museum possesses the world's largest meteorite collection as regards the number of falls represented, specimens from more than two thirds of all known meteorite falls being included.

THE sum of $1,066,000 from federal funds is assigned at the Virginia Polytechnic Institute for use in building construction and campus equipment under plans recently approved by the Federal Emergency Administration of Public Works. The work includes two dormitories costing, respectively, $300,000 and $200,000, a $370,000 teaching and administration building, a $100,000 utilities building and extension of the water and sewage systems. The administration building is to have an auditorium capable of seating the entire student body.

ACCORDING to the *Journal* of the American Medical Association, in a recent investigation of the New Jersey state government, conducted by Princeton University, at the direction of Governor Moore, a number of recommendations were made concerning the state health department. To increase the revenue of the department the survey suggested that charges be

made for examinations to test qualifications of persons desiring employment in fields closely connected with public health and for licenses issued to establishments handling foodstuffs. It was recommended that bakeries, canneries and confectioneries be added to the list of such establishments, removing these from the jurisdiction of the department of labor. Other license fees suggested were from individual milk plants from which milk is imported into New Jersey. Regulation of health conditions among persons who work at home for factories was urged as a function of the health department rather than the department of labor; control would be centered in a bureau of homework industries, the cost of which would be distributed among the contractors distributing such work. Among internal changes recommended were restoration of the publication of *Public Health News,* the department's bulletin; combination of the bureau of venereal diseases with the bureau of local health administration, which handles problems concerned with other communicable diseases; restoration of appropriations to provide offices and help for district health officers, and abolishment of the health officer of the port of Perth Amboy.

DISCUSSION

NOMENCLATURE FOR THE ISOTOPES OF HYDROGEN (PROTO- AND DEUTO-HYDROGEN) AND THEIR COMPOUNDS

IN this letter it is proposed that the nomenclature suggested by Urey, Brickwedde and Murphy[1] for the isotopes of hydrogen should not be abandoned, as recently suggested by Rutherford,[2] but modified in such a way as to make it more general. The necessity for such a modification arises when it is desired to name what they refer to as "the nine varieties of water."

The fundamental difficulty of their nomenclature is that it specifies an atomic species by a single name, while by any simple numerical system two independent variables are involved. These may be the atomic number and atomic mass, but in a general system it is much more simple, and less confusing in the end, to use the atomic number and the isotopic number. If P is the whole number closest to the atomic mass, then the isotopic number (I) is given by the relation

$$I = P - 2Z \qquad (1)$$

in which Z is the atomic number. Since as many as 91 elements are now known, and some of these have as many as 11 isotopes, it is obvious that any system which gives an individual name to each isotope, without any reference to the element to which it belongs, can not fail to be confusing. The simplest system is, obviously, one in which numbers alone are used. The use of the isotopic number rather than the atomic mass has several marked advantages. Thus the isotopic numbers are much smaller than the masses, they exhibit the relations between atomic species much more simply, and also the isotopic number of the most abundant isotope of a light element of even number is zero, while that for an element of odd number is one. Only in the exceptional case of the proton is this minus one instead of plus one.

On account of the predilection of human beings for names, rather than numbers, it is perhaps entirely visionary to expect the general adoption of the more logical numerical system, so the discussion which follows presents a few of the numerical designations, and the names which may be supposed to represent them.

Hydrogen of atomic weight 1 is represented by $(1, -1)$, or more simply by 1–1, in which 1 is the atomic and –1 the isotopic number. Since H designates atomic number 1, this may be written $H^{\bar{1}}$ (to represent H^{-1}). In accord with recently suggested usage this is protium, but a more general system of designation is introduced if this is changed to protohydrogen.

The names for the isotopes of hydrogen become *protohydrogen, deutohydrogen* and *tritohydrogen,* though it is not certain that the last has been discovered. It is possible that *deuterohydrogen,* which is somewhat more correct, but longer, may be preferred for the second of these.

Hydrogen of atomic weight 2 is represented by $(1, 0)$, or by H^0, or deutohydrogen.

Heavy water with light oxygen is $(1, 0)_2(8, 0)$, or in more ordinary symbols $H^0{}_2O^0$, and may be named dideutohydrogen-oxide^0, in which ^{0} represents that the oxide contains the zero isotope of oxygen. While this is a slightly mixed system of nomenclature, it seems preferable to that given by the logical extension of the recently suggested system of naming, which gives dideuterium-hekaidekatium. Also proto-deuto-hydrogen oxide[1] is, according to this extension of the present system, protium-deuterium-heptakaidekatium. However, a greater difficulty arises in the present system in that dideuterium-hekakaidekatium represents not only $H^0{}_2O^0$, but it also represents the group $-N^2H_2{}^0$, which contains the recently discovered isotope of nitrogen, isobaric with the zero isotope of oxygen. Thus this system is incapable of distinguishing between isobars.

The compounds

[1] SCIENCE, 78: 602, 1933.
[2] *Nature,* December 23, 1933.