the center of mathematical analysis will include the original differential analyzer and a new, larger, faster and more accurate differential analyzer which is now under development at the institute, both of which make possible the solution of many difficult problems involving differential equations and integrations; the cinema-integraph; the network analyzer; the simultaneous calculator; a group of punched-card machines and miscellaneous types of commercial and special machines.

Organization of the center will be started at once and it is expected to be in operation next fall.

IN HONOR OF HAVELOCK ELLIS

THE following statement commemorating the eightieth birthday of Havelock Ellis on February 2 has been signed among others by Professor John Dewey, of Columbia University, and by Professor Adolf Meyer, professor of psychiatry of the Johns Hopkins University.

Havelock Ellis was born eighty years ago, on February 2, 1859, in Surrey, England, the son of a British seaman, and the last of a long line of English clergymen, mariners and merchants. Though Ellis is known for the wide range of his culture and interests, for his distinction as critic and writer, for his rare personal charm, and for his broad humanity, he will perhaps be best and longest remembered for the work to which, at an early age, he had dedicated his life and energy—that of bringing human sex psychology within the scope of science. His seven monumental volumes of "Studies in the Psychology of Sex" have probably served more than any other single work to bring sex out of the atmosphere of ignorance and prudery into the clear light of science, and will always remain an incomparable critical digest of the scientific knowledge of the subject up to contemporary times.

The scientific study of sex is nowadays accepted almost without question, but the destruction of the old taboos and prejudices was not accomplished without hardship and sacrifice. The appearance of Ellis's first volume of the Studies in 1897 was followed by a prosecution for the distribution of what the judge described as a "filthy publication." The sale of the book was suspended in England, but it is a matter of pride to American scientists that the Studies could thereafter be published in this country. "I am a student," wrote Ellis in his memorable Note on the Bedborough Trial, "and my path has long been marked out. I may be forced to pursue it under unfavorable conditions, but I do not intend that any consideration shall induce me to swerve from it." His life achievement is the best testimony to the success of this early resolve.

We hope that Havelock Ellis will for many years continue to exercise his great and good influence. His life and work remain an inspiration not only to us but to future generations as well.

AWARDS OF THE AMERICAN INSTITUTE OF MINING AND METALLURGICAL ENGINEERS

AT the annual dinner on February 15 of the American Institute of Mining and Metallurgical Engineers the William Lawrence Saunders Medal for distinguished achievement in mining was presented to Louis Shattuck Cates, copper-mining engineer and president of the Phelps Dodge Corporation. The award to Mr. Cates was "for signal accomplishment in the conception and application of superior mining technique and in the organization and administration of major mining and metallurgical enterprises."

The Robert Woolston Hunt Award was presented to Professor John Chipman, of the Massachusetts Institute of Technology, and Kenneth C. McCutcheon, of the American Rolling Mill Company, Ashland, Ky., for their paper on "Evolution of Gases from Rimming Steel Ingots."

The Institute of Metals Division Award for 1939 was presented to Assistant Professor Frederick N. Rhines and Robert F. Mehl, director of the metal research laboratory, both of the Carnegie Institute of Technology, Pittsburgh. The award was for their paper on "Rates of Diffusion in Alpha Solid Solutions of Copper."

The Alfred Noble Prize, for a paper by an author under 31 years old, was presented to Ralph J. Schilthuis, of the Humble Oil and Refining Company, Houston, Texas, for his paper on "Connate Water in Oil and Gas Sands."

Daniel Cowan Jackling, president of the institute, was toastmaster. Donald B. Gilles was inducted as president of the institute for 1939. The dinner was attended by approximately 1,200 persons.

SCIENTIFIC NOTES AND NEWS

THE seventy-sixth annual meeting of the National Academy of Sciences will be held in Washington on April 24, 25 and 26. The first lecture to be delivered in America under the Pilgrim Trust will be given by Sir William H. Bragg, president of the Royal Society, on Monday evening, April 24, at 8:30 P.M. Dr. Irving Langmuir, of the Research Laboratories of the General Electric Company, gave the corresponding lecture in London on December 28. The Pilgrim Trust, established in England by Edward S. Harkness, provides funds for the exchange of lecturers on alternate years between the National Academy of Sciences and the Royal Society.

DR. FRANK SCHLESINGER, director of the Yale University Observatory, has been elected foreign correspondent of the French Bureau des Longitudes, in succession to the late George Ellery Hale.

ROCKFORD COLLEGE, Illinois, conferred on February 18 the honorary degree of doctor of laws on Dr. Frank B. Jewett, president of the Bell Telephone Laboratories. The degree ceremony preceded the Maddox Foundation lecture given by Dr. Jewett, which was entitled "Changes in Society brought about by Science."

DR. ELMER V. MCCOLLUM, since 1917 professor of biochemistry at the School of Hygiene and Public Health of the Johns Hopkins University, has received the annual award of the Associated Grocery Manufacturers of America for outstanding contributions to the scientific knowledge of foods.

DR. DAVID FAIRCHILD, collaborator of the Division for Plant Introduction of the U. S. Department of Agriculture, was presented at a luncheon given on February 12 at the Hotel Astor, New York City, with one of the four annual awards of the American Booksellers Association for his autobiography entitled "The World was My Garden."

THE Paul Fourmarier Prize and gold medal of the Royal Academy of Belgium has been awarded to M. L. Cayeux, member of the Paris Academy of Sciences, honorary professor of geology at the Collège de France.

M. GASTON LOUIS RAMON, sub-director of the Pasteur Institute of Paris, has been made a Commander of the Legion of Honor for his work on immunization against diphtheria and tetanus and combined inoculations.

DR. MAX DESSOIR, professor of philosophy at the University of Berlin, celebrated the fiftieth anniversary of his doctorate on February 2.

DR. SAMUEL J. RECORD, professor of forest products at Yale University, has been appointed dean of the School of Forestry. He will succeed Dr. Henry S. Graves, who will retire from active service at the end of the college year after serving as dean of the school and Sterling professor of forestry since 1922. Dr. Graves has been a member of the faculty of the university for thirty-one years and was provost from 1923 to 1937.

THE title of emeritus professor has been conferred on Professor E. S. Salmon, formerly university professor of mycology at the South-Eastern Agricultural College, London, and on Professor P. G. H. Boswell, who has retired from the chair of geology in the Imperial College of Science and Technology.

THREE new professorships have been established at the Rensselaer Polytechnic Institute at Troy, N. Y.: the Russell Sage professorship of mechanical engineering, to be filled by Edwin Allan Fessenden; the Robert W. Hunt professorship of metallurgical engineering, to be filled by Matthew Albert Hunter, and the William Weightman Walker professorship of geodesy and transportation, to be filled by Howard Oakley Sharp.

DR. JOHN A. HARTWELL, past president of the New York Academy of Medicine, who will resign as director of the academy on April 1, has been appointed associate director of the American Society for the Control of Cancer.

DR. AARON J. ROSANOFF, since 1923 member of the Los Angeles County Lunacy Commission, has been appointed director of the state institutions of California.

DR. JAMES D. HARDY has been promoted to the position of research associate in the Russell Sage Institute of Pathology.

L. BRYANT MATHER, JR., has been appointed assistant curator of mineralogy at the Field Museum of Natural History.

DR. PAUL HERGET, of the Observatory of the University of Cincinnati, has become a member of the commission on minor planets, comets and satellites of the International Astronomical Union. He will aid the commission in the computation of the orbits of asteroids.

DR. LOUIS A. JULIANELLE, in charge of trachoma research at Washington University, St. Louis, will leave shortly for the Navajo reservation in Arizona and New Mexico to resume his study of the eye disease among the Indians. The Commonwealth Fund has supported the research for ten years.

PROFESSOR W. F. C. FERGUSON, who had leave of absence from the department of physics of the Washington Square College of New York University, has returned to New York from the University of California, where he has been carrying on research on band spectra.

ON the evening of February 7, the Royal Society, London, combined with the British Academy to give a reception to the exiled scholars and scientific men now under the care of the Society for the Protection of Science and Learning (the late Academic Assistance Council). The guests were received at Burlington House by Sir William Bragg and Sir Frederic Kenyon, and the Archbishop of York replied to the welcome on their behalf. On February 8 at Cambridge, the vice-chancellor of the university presided at a meeting addressed by Earl Winterton and Professor A. V. Hill. On February 10 at Oxford the vice-chancellor of the university presided at a meeting addressed by Viscount Samuel and Sir John Hope Simpson. Sir William Bragg spoke at Liverpool and Sir Henry Dale at Glasgow.

THE following members have been appointed by the Scottish Advisory Committee on Cancer: William James Stuart, *chairman;* Geoffrey Balmanno Fleming, Henry Lumsden Forbes Fraser, Alexander Stuart Murray Macgregor, David Robertson, John James McIntosh Shaw, William James Stuart and A. J. Purves, *secretary.* The committee has been set up to review existing facilities for the diagnosis and treatment of cancer, to recommend what developments are desirable, and to suggest how far and in what groupings local authorities could with advantage act together in securing that arrangements for diagnosis and treatment are adequate for the needs of their areas.

THE British Minister of Labor has appointed an advisory council, with Sir Walter Moberly as chairman, to advise him on the utilization in war-time in government departments or elsewhere of persons with scientific, technical, professional and the higher administrative qualifications. Among those who have accepted membership are: H. L. Eason, principal of the University of London; Sir Edward Mellanby, secretary of the Medical Research Council, and Professor A. V. Hill, Foulerton research professor of the Royal Society, London.

THE twenty-seventh course of Lane Lectures at Stanford University will be given from May 22 to 26 by Dr. Thomas M. Rivers, director of the Hospital of the Rockefeller Institute for Medical Research. The general title for the series will be "Viruses and Virus Diseases."

DR. HERBERT J. SPINDEN, of the Brooklyn Museums, delivered the eighth Arthur Lecture under the auspices of the Smithsonian Institution in the U. S. National Museum on February 21. He spoke on "Sun Worship."

DR. ROY GRAHAM HOSKINS, director of research at the Memorial Foundation for Neuro-Endocrine Research at the Harvard Medical School, gave the Laity Lecture on February 9 at the New York Academy of Medicine. His subject was "The Story of Mental Diseases."

THE fifty-fifth annual meeting of the American Association of Anatomists, by invitation of Harvard University, Boston University and Tufts College, will be held in Boston at the Harvard Medical School, on April 6, 7 and 8. Arrival on the evening of April 5 is suggested for an informal social meeting at the headquarters, the Hotel Somerset, or at the Boston Medical Library near by, where rare early anatomical works will be exhibited. The American Association of Physical Anthropologists will conclude its session at the Wistar Institute on April 5, making it as convenient as possible to attend both the Philadelphia and Boston meetings.

THE hundredth anniversary of the discovery of the cell was commemorated by a meeting of the Section on Medical History of the College of Physicians of Philadelphia on February 13. From the School of Medicine of the University of Pennsylvania, Dr. W. H. F. Addison, professor of histology and embryology, spoke on "Early History of the Discovery of the Cell"; Dr. E. B. Krumbhaar, professor of pathology, on "Rudolph Virchow and Cellular Pathology," and Dr. J. Harold Austin, professor of research medicine, on the "History of the Chemistry of the Cell." Dr. Ethel Browne Harvey (by invitation), investigator, department of biology, Princeton University, spoke on "Division and Development of Eggs without Nuclei." An exhibit illustrating the subject was open in the evening.

A CORRESPONDENT writes: "The Association Préhistorique des Amis des Eyzies is organizing a celebration in honor of M. Denis Peyrony upon his reaching the age of seventy years. The celebration will take place at Les Eyzies, Dordogne, France, on Palm Sunday, April 2, when a bronze medallion portrait of M. Peyrony will be unveiled at the Prehistoric Museum. American colleagues and admirers will be welcome at the ceremony. Those wishing to aid in this expression of esteem and of appreciation of all that he has achieved for prehistoric archeology in forty years of digging and research, as well as of his unfailing helpfulness and courtesy to American and other foreign archeologists visiting Les Eyzies and the caverns of Dordogne, may participate by sending a subscription which has been set at a minimum of 50 francs, equal at present to $1.35. Checks should be made to the order of H. H. Kidder, treasurer, Care Morgan and Company, 14 Place Vendome, Paris."

DURING the early expeditions of the American Museum into the Morrison Jurassic beds of the western United States, many large separate dinosaur bones, mostly sauropods, were collected, which subsequently have been represented by skeletons. It has become necessary to discard a considerable amount of this material which would have great teaching value to schools and colleges and much exhibitional value to institutions that display natural history objects. Most of these bones are in their original plaster of paris field wrappings, but could be prepared by recipients at a nominal expense. They include large limb bones, foot bones, ribs and vertebrae. Specimens will be sent gratis to schools and societies that will pay freight, drayage and the expense of boxing. This material is now available, and a list of specimens may be obtained by writing to Dr. Barnum Brown, American Museum of Natural History, New York City.

AT the eighth annual meeting of the Academy of Pediatrics in 1938, the offer of Mead Johnson and Company to establish the E. Mead Johnson Award for

Research in Pediatrics for a period of ten years was accepted. An academy committee on awards was appointed, consisting of: Drs. Joseph Brennemann, Chicago; Irvine McQuarrie, Minneapolis; Oscar M. Schloss, New York; Edwards A. Park, Baltimore, and Borden S. Veeder, St. Louis (*chairman*). The committee announces the following rules and regulations governing the award: Two awards, one of $500 and one of $300, will be given annually at the annual meeting of the Academy of Pediatrics; the awards will be made for research work published during the previous calendar year; there is no limitation as to the type or scope of the research except that it be in the field of pediatrics; the award is limited to workers in the United States and Canada; the award shall be limited to investigators who have been graduated not more than 15 years previous to the publication of the research; there is no restriction as to the journal of publication of the research. The award in 1939 will be given for research published during the period January 1, 1938, through December 31, 1938, by a graduate of 1923 or later. The award in 1940 will be given for research published January 1, 1939, through December 31, 1939, by a graduate of 1924 or later, and so on for subsequent years.

THROUGH the bequest of the late William Campbell, for many years Howe professor of metallurgy at Columbia, there have been established the William Campbell fellowships, primarily for scientific research in the field of metals. These fellowships become available for the first time for the academic year 1939–40 for graduate study and research at Columbia University. They carry stipends up to $1,200 per annum as determined by the Campbell Fellowship Committee. Applications accompanied by certified transcripts of academic records, proposed research projects and proposed fields of graduate studies should be filed with the Dean of Engineering, Columbia University, New York City, before March 15.

THE Graduate School of the University of Illinois announces the establishment of four research fellowships to be awarded for one year in the fields of medicine and dentistry in Chicago at a stipend of $1,200 per year (calendar year with one month's vacation). Fellows are eligible for reappointment in competition with the new applicants. Candidates for these fellowships must have completed a training of not less than eight years beyond high school graduation. Applications should be made before March 1. Announcement of the fellowship awards will be made on April 1, becoming effective on September 1. Applications should be made before March 1 to the secretary of the Committee on Graduate Work in Medicine and Dentistry, 1853 W. Polk Street, Chicago, Ill.

ACCORDING to a correspondent of the *Journal* of the American Medical Association, the Association of Physicians in Poland has taken strong action to withdraw Jews from the medical profession. A deputation of the association appealed to the medical departments of all Polish universities not to admit Jews. The demands have been partially followed by the universities. The percentage of Jewish candidates admitted lately to the medical departments in all Poland amounts only to 3.7.

DISCUSSION

DO THE ISOTOPES OF AN ELEMENT HAVE IDENTICAL CHEMICAL PROPERTIES?

THE answer to this question has definitely changed in the last few years. For many years it has been erroneously concluded that the chemical properties of isotopic molecules were exactly identical in every respect. Text-books published within the last year even carry such statements. Many scientists engaged in other fields of research are not aware of recent developments which have changed the answer to this question. In view of recent theoretical calculations and important and dramatic successes in the separation of a number of isotopes by chemical means, our old concept will certainly require some modification. The isotopes of hydrogen, nitrogen, carbon, oxygen, lithium and potassium have all been shown, through fractionation by chemical means, to have small differences in their chemical characteristics.

Since all the isotopes of an element have the same atomic number, that is, the same number of external electrons, we expect them to have the same *kind* of chemical properties, but since the atomic mass is different, we may expect a small difference in the rate or extent to which certain reactions take place. This is what has been found to be true. After the discovery and separation of the hydrogen isotopes, these differences were abundantly verified. Since the mass of deuterium is twice that of hydrogen and since the energy content of their molecules is markedly different, we should expect differences to occur particularly in such properties as rate of reaction, equilibrium states, electrolytic separation and biological behavior. Differences in the rate or extent of various reactions have been found to be from a few per cent. to over a thousand per cent.

The failure for many years to achieve a separation of other isotopes by chemical means led to the erroneous conclusion that their chemical behavior must be