

charitable or benevolent uses. The court pointed out that the statute does not provide for the legality of bequests given for research work, but said:

Research is the method used by modern universities and scientific foundations to increase the sum of human knowledge. Research conducted for such purpose and by such institutions is clearly "educational" and "benevolent" within the meaning of the statute. Not every charitable, educational or benevolent use is enumerated in the Statute of Elizabeth, although that statute was intended to limit the trusts for charitable uses, which might be enforced by a court of equity. Conceptions of public charity, benevolence and education change with passing generations.

### ORGANIZATION OF THE ROCKEFELLER FOUNDATION

THE following are the members and officers of the Rockefeller Foundation for 1927 under a new plan of organization:

Members: John G. Agar, John W. Davis, David L. Edsall, Simon Flexner, Raymond B. Fosdick, Herbert S. Hadley, Charles E. Hughes, Vernon Kellogg, John D. Rockefeller, Jr., Wickliffe Rose, Julius Rosenwald, Martin A. Ryerson, Frederick Strauss, George E. Vincent, George H. Whipple, William Allen White, Ray Lyman Wilbur.

Officers: John D. Rockefeller, Jr., Chairman of Board of Trustees; George E. Vincent, President; Edwin R. Embree, Vice-President in New York office; Roger S. Greene, Vice-President in the Far East; Selskar M. Gunn, Vice-President in Europe; Frederick F. Russell, M.D., Director International Health Division; Richard M. Pearce, M.D., Director Division of Medical Education; Norma S. Thompson, Secretary; Louis G. Myers, Treasurer; George J. Beal, Comptroller.

Executive Committee: The President, Chairman; John G. Agar, Simon Flexner, Raymond B. Fosdick, Vernon Kellogg, Wickliffe Rose, Frederick Strauss, Norma S. Thompson, Secretary.

International Health Division: The President, Chairman; Simon Flexner, Vernon Kellogg, Wickliffe Rose, William Allen White.

Division of Medical Education: The President, Chairman; David L. Edsall, Frederick Strauss, George H. Whipple, Ray Lyman Wilbur.

Finance Committee: John D. Rockefeller, Jr., Chairman; Raymond B. Fosdick, Frederick Strauss.

The Foundation holds regular meetings in February and November. The executive committee holds monthly meetings.

### SCIENTIFIC NOTES AND NEWS

THE Osiris Prize for science amounting to \$4,000, which is bestowed every five years by a committee representing five academies, has been awarded to Dr. Charles Nicolle, director of the Pasteur Institute in

Tunis, for his researches on exanthematous typhus and recurrent fever and their mode of transmission by parasites; also for his researches on serotherapy in measles and scarlet fever, especially the injection of convalescents' serum.

THE Royal Society of Edinburgh has elected as honorary British fellows: Sir William Bragg, Sir David Bruce, Sir J. B. Farmer and Sir F. G. Hopkins. Foreign honorary fellows have been elected as follows: Niels Bohr, professor of physics, University of Copenhagen; Jules Bordet, professor of bacteriology, University of Brussels; Albert Einstein, professor of mathematical physics, University of Berlin; Hans Horst Meyer, emeritus professor of pharmacology, University of Vienna; Johannes Schmidt, Carlsberg Laboratory, Copenhagen, and Richard Willstätter, professor of chemistry, University of Munich.

THE commission for a portrait of Sir Berkeley Moynihan, president of the Royal College of Surgeons, has been placed by the Moynihan Portrait Fund Committee with Mr. Richard Jack, R. A., who has also been given a commission for a replica.

PROFESSOR EDWARD SKINNER KING, of the Harvard College Observatory, was granted the honorary degree of doctor of science by Hamilton College, at its recent commencement exercises.

DR. GUY L. NOYES, dean of the school of medicine and director of the University Hospitals, of the University of Missouri, was the guest of honor at a luncheon in Boston recently, given by the University of Missouri men who are finishing their course in medicine in Harvard University.

DR. CASSIUS J. KEYSER, who has been connected with the mathematical department of Columbia University since 1896, when he was awarded the degree of A.M., since 1904 Adrain professor of mathematics, has become professor emeritus.

PROFESSOR J. A. MACWILLIAM has retired from the chair of physiology in the University of Aberdeen which he has filled for a period of forty-one years.

AT a recent meeting of the British Institution of Electrical Engineers, Mr. A. Page was elected president and Captain J. M. Donaldson, vice-president, to take office on September 30.

DR. K. NAKAMURA, president of the Tokyo Higher Technical School and for a number of years head of its department of electrical engineering, was recently elected president of the Japanese Institute of Electrical Engineers.

DR. MASUJIRO NISHIBE, of the laboratory for infec-

tious diseases of the Japan government, and Dr. Shoji Nishio, of the Keio University Medical School, Japan, have received fellowships under the Rockefeller Foundation for the year 1927, and will pursue their studies in the United States.

W. W. SARGEANT, who has been secretary of the board of trustees of the California Academy of Sciences since 1913, has resigned in order that he may spend some years in Europe. Miss Susie M. Peers, who has been secretary to the director of the museum of the academy since 1915, has been appointed secretary to the board.

DR. ROGER C. WELLS, of the U. S. Geological Survey, has accepted appointment as associate editor of the Washington Academy of Sciences to represent the Chemical Society.

G. BERNARD HELMRICH, who has been connected with the engineering faculty of the University of Oklahoma for the last ten years, has rejoined the Detroit Edison Company in the capacity of designing engineer.

E. C. LARUE, head of the Pasadena branch of the U. S. Geological Survey, has resigned after twenty-three years of service. According to the technical journals, the reason assigned was that the government had prohibited him from advocating his opinions and beliefs with reference to the Colorado River. Mr. LaRue is a recognized authority on the Colorado River and its water problems and was called to Washington before the congressional committee investigating the Colorado River following attacks on the Boulder Canyon project, which he styled as extravagant and not as practical as others which he outlined.

DR. EDWARD R. WEIDLEIN, director of the Mellon Institute of Industrial Research of the University of Pittsburgh and president of the American Institute of Chemical Engineers, will spend September and October in visits to European educational institutions, research laboratories and chemical works.

DR. WILLIAM H. EYSTER, professor of botany at Bucknell University, Lewisburg, Pa., is sailing on August 20 for Germany, where he will spend twelve months as a fellow on the John Simon Guggenheim Memorial Foundation. His address will be Pflanzen-physiologisches Institut der Universität, Berlin-Dahlem, Germany.

DR. DAVID FAIRCHILD, senior agricultural explorer of the U. S. Department of Agriculture, and his associates, after a voyage to the Canaries and West Africa, including Senegal, Gambia, French Guinea, Gold Coast, Sierra Leone, Nigeria and Fernando Po, has returned to the United States on the motor yacht *Otowana*, owned by Mr. Allison V. Armour.

ELLSWORTH P. KILLIP, of the National Museum, has returned from a botanical trip to the Eastern Cordillera of Colombia. The party, consisting of Mr. Killip and Albert C. Smith, of New York, was sent by the National Museum, the New York Botanical Garden, the Gray Herbarium of Harvard University, and the Arnold Arboretum to obtain botanical specimens in the little-known region between Bucaramanga and the Venezuelan border.

DR. N. H. DARTON, of the U. S. Geological Survey, has returned from Central Venezuela where he has been making geologic reconnaissance surveys for an oil company during the past six months.

DR. FREDERICK STARR, associate professor emeritus of anthropology at the University of Chicago, who has returned from Japan, gave on August 2 a lecture at the university on life in that archipelago.

DR. AIHIKO SATA, formerly president of the Osaka Medical College in Japan, left in May for a lecture tour through Germany as exchange professor at the University of Berlin; his lectures will be on immunization of tuberculosis.

A COMMEMORATION in celebration of Lord Lister's centenary was held in Edinburgh on July 20, at the time of the meeting of the British Medical Association. The Earl of Balfour presided and addresses were delivered by Sir William Watson Cheyne, Professor Tuffier, Paris; Professor Harvey Cushing, Harvard University, and Professor John Stewart, Halifax, Nova Scotia.

CAESAR AUGUSTINE GRASSELLI, chairman of the board of the Grasselli Chemical Company, died on July 28, aged seventy-seven years.

RALPH LUSK, instructor in the department of geology at Harvard University, has died suddenly at the age of thirty years.

J. H. PAARMANN, curator of the Davenport Academy of Sciences (now the Davenport Public Museum) since 1902, died on July 14. He was born September 2, 1870, and received his academic degrees from the State University of Iowa.

SIR HARRY JOHNSTON, the well-known explorer, naturalist and author, died in London on July 31, aged sixty-nine years.

PROFESSOR A. KOSSEL, emeritus professor of physiology in the University of Heidelberg and editor of the *Zeitschrift für physiologische Chemie*, who was Nobel laureate for physiology in 1910, died on July 6, aged seventy-three years.

DR. GUSTAV FRITSCH, professor of anatomy and physiology in the University of Berlin, has died at the age of eighty-nine years.

DR. KARL BALDUS, assistant of the zoological institute of the University of Heidelberg, died on June 26. Dr. Baldus published important contributions concerning the histology and physiology of the brain and the function of the eyes in dragon-flies.

*Popular Astronomy* reports that Professor Vincenzo Cerulli, the Italian astronomer, vice-president of the International Astronomical Union and of the *Astronomische Gesellschaft*, president of the *Societa Astronomica Italiana*, honorary professor of astronomy at the University of Rome, died suddenly on May 30, at Merate (near Milan), during the inaugural ceremony of the new observatory. Professor Cerulli was born at Teramo (Abruzzi) on April 20, 1859.

CIVIL service examinations are announced as follows: For vacancies in the Bureau of Chemistry and Soils, at a salary of \$3,000 a year, applications to be received not later than August 9; for associate biochemist in the Bureau of Plant Industry, at a salary of \$3,000 to \$3,600, applications to be received by August 16, and for physicist in the Berkeley, Calif., office of the Bureau of Chemistry, at a salary of \$3,800, applications to be received by August 31.

By the will of the late Charles Fuller Baker, dean of the College of Agriculture of the University of the Philippines, his zoological collection, comprising more than 50,000 specimens, has been given to the Smithsonian Institution, and collections of less extent to the universities of Berlin, London, Madrid, Paris, Moscow and Vienna.

THE meeting of the International Congress of Physicists will take place at Como, the birthplace of Alessandro Volta. A special celebration in connection with the meeting has been arranged for September 8.

THE American Mathematical Society, the Mathematical Association of America and the American Astronomical Society will hold their meetings at the University of Wisconsin during the week of September 5 to 10.

THE Second National Symposium on General Organic Chemistry will be held at Ohio State University, Columbus, on December 29 and 31. The headquarters will be at the Neil House. Suggestions for the program should be sent to the secretary of the division of organic chemistry of the American Chemical Society, Professor Frank C. Whitmore, Northwestern University, Evanston, Illinois.

THE annual Pacific Coast convention of the American Institute of Electrical Engineers will be held at Del Monte, Calif., from September 13 to 16. This is one of the three annual national conventions of

the institute. The first day (Tuesday) will be given over to the registration and sessions of delegates from the various student branches. The student conference will be in charge of R. W. Sorensen, professor of electrical engineering at the California Institute of Technology, Pasadena. On Wednesday, Thursday and Friday mornings and Thursday afternoon there will be technical sessions. On Wednesday evening President Gherardi will preside over a general meeting to be addressed by Dr. Harris J. Ryan on "Phases of Future Electrical Development." The banquet will be held Thursday evening. Wednesday and Friday afternoons and Saturday will be open for recreation and trips.

AN Institute of Cooperation, in which speakers of national prominence in the field of agricultural cooperation will participate, is to be held at Storrs, Conn., from August 16 to 19, under the auspices of the Connecticut Agricultural College. Dr. E. G. Nourse, formerly professor of agricultural economics at Iowa State College and now chief of the agricultural division of the Institute of Economics, Washington, D. C., and Dr. J. T. Horner, of the Michigan Agricultural College, an authority on milk marketing, are scheduled to address the institute. J. W. Jones, division of cooperative marketing, Bureau of Agricultural Economics of this department, will discuss tobacco marketing. Professor A. E. Cance, of Massachusetts Agricultural College; Dr. R. B. Corbett, of Rhode Island State College, and F. V. Waugh, of the Massachusetts Bureau of Markets, are also on the program. Though arranged primarily for directors, officers and managers of cooperatives, the institute is open to all who are interested in the cooperative marketing of farm products or the buying of farm supplies.

*The British Medical Journal* states that on the occasion of the centenary of the Faculty of Medicine of the Egyptian University, Cairo, the Egyptian government has decided to organize a medical congress in Cairo, to deal especially with tropical medicine and hygiene. The congress will take place in the winter of 1928, probably in November or December. The constitution of the organization committee will shortly be announced officially. It is understood that invitations will be sent to universities and institutions particularly interested in tropical medicine and hygiene and their branches.

A BILL has been passed by the Egyptian Parliament, according to which there will be created a Ministry of Public Health of the national government. Previously the supervision of public health work was under the Ministry of the Interior. The rapid growth of government health work, particularly in the country dis-

tricts, has made necessary the creation of the new executive department. A minister has not as yet been named for the new position. In creating the new ministry, parliament appropriated about \$5,000,000 to cover its budget during the fiscal year 1927-1928.

CONSTRUCTION of a special hospital for the School of Tropical Medicine at Porto Rico was begun on June 1. The hospital will occupy a site adjoining that of the laboratory building of the school, and will contain forty-five beds and an out-patient department. The cost of the building and equipment will be approximately \$130,000.

THE Legislature of Hawaii has again appropriated the sum of fifteen thousand dollars for the work of the Pan-Pacific Union, this being the amount recommended by the Governor of the Territory and the usual appropriation made by the Hawaiian Legislature. Besides this about twenty thousand dollars a year is given annually by friends of the Pan-Pacific Union in Hawaii for its support, besides occasional appropriations from governments of Pacific countries. Each country supports its own Pan-Pacific organizations and sends delegates to the conferences called by the Pan-Pacific Union. In June, 1928, there will be a Pan-Pacific Women's Conference held in Honolulu. In July, 1928, a second Pan-Pacific Commercial Conference in Los Angeles. In July, 1928, a Pan-Pacific Medical Conference in Honolulu, with several smaller conferences of scientists as guests of the Pan-Pacific Research Institution.

THE *Journal* of the American Medical Association reports that about 135 scientific men and physicians attended the recent dedication, sponsored by the Zoological Society of San Diego, of the Zoological Hospital and Research Institute, San Diego, which is a gift of Miss Ellen C. Scripps. Physicians interested in research are invited to avail themselves of its facilities, no charge being made except for material used or broken. The building is located in a large zoological garden. It will be a hospital for animals in the garden, and pathologic tissues from zoological gardens throughout the country will be collected for a study of animal diseases. Physicians, research workers and students in biology will find here the necessary equipment for carrying on research. There are eleven small laboratories, each equipped for special work, a roentgen-ray and dark-room, a library, general laboratory, technician's laboratory offices and morgue and a photomicrographic outfit. The plan is to afford college professors and advanced students an opportunity to continue studies when in California, and to attract biologists interested in avian and mammalian research, as do some noted marine biologic stations. Further information will

be given on request to the hospital, Balboa Park, San Diego. Dr. Rawson J. Pickard is chairman of the hospital and research committee, and H. C. Goodsil, director of research and education.

FOR years "The Friends of our Native Landscape" have worked for the reservation of the Sayer Bog—a typical tamarack bog—and the only one of its kind in Illinois. A number of bogs have been drained and destroyed, but there are still seven or eight left with an incomplete flora. For students and scientists of this region the Sayer Bog will be of great value, and as a bit of native landscape it is one of the outstanding monuments of its kind of this region. Under the agreement with the present owners—the Pistakee Country Club—the bog is placed under the supervision of the Northwestern University with Dr. Waterman in charge. The agreement further stipulates that the Pistakee Country Club will guard against trespassers and protect the bog from being drained by adjoining neighbors. The owners agree that in case they should desire to dispose of this property Northwestern University will be given the first chance to buy the bog at the original purchase price. Visitors must obtain permission to visit the bog through the Northwestern University.

ACCORDING to information received from Professor Subbotin, of the Tashkent Observatory, a new station for the continuous observation of latitude variations is to be established at Kitab, in Turkestan, on the "International Parallel" (39° 8' North). In 1899, six stations were established on this parallel by international cooperation. Owing to the war and other causes, three of them have been discontinued, leaving only three in operation at the present time. The new station at Kitab is about three hundred km. east of the former latitude station at Tchardjui, and about 300 km. southwest of the observatory at Tashkent. It will be under the charge of Professor Nefediev.

IN continuation of a program of scientific research in mining and metallurgy conducted jointly by the Carnegie Institute of Technology and the Pittsburgh Station of the U. S. Bureau of Mines, eleven college graduates have been appointed to research fellowships for the coming year. Six of the appointees will conduct their investigations in the field of metallurgy and five will study problems in mining and utilization of fuels. Appointments to mining fellowships were as follows: Harry A. Brown, B.S., chemical engineering, Lehigh University; Raymond C. Johnson, B.S., chemistry, Monmouth College; Harold M. Morris, A.B., chemistry, Cornell College; Robert N. Pollock, B.S., chemistry, and Donald L. Reed, B.S., chemical engineering, University of Washington. Appointments to metallurgical fellowships were: John M. Byrns, B.S.,

metallurgical engineering, Case School of Applied Science; John F. Eckel, A.B., chemistry, University of Kansas; Hyman Freeman, B.S., engineering chemistry, Georgia School of Technology; Frank C. Norris, B.S., chemical engineering, University of Illinois, and Harold E. White, E.M., mining and metallurgy, Lehigh University. The research fellows will begin their work on August 15 for a period of ten months. Two advisory boards, one composed of mining engineers and operators, and the other of metallurgical engineers and steel executives, will assist in selecting the problems for study. Each research fellow will conduct his studies under the direction of a senior investigator from the Bureau of Mines. At the completion of their studies they will be eligible to receive the degree of master of science from the Carnegie Institute of Technology. As in the past, reports of the investigations to be made during the coming college year will be published in bulletin form for public distribution.

### UNIVERSITY AND EDUCATIONAL NOTES

By the will of Randolph McNutt, a furniture dealer of Buffalo, N. Y., Dartmouth College receives the residuary estate, valued at more than \$750,000, to be used for general educational purposes.

AN annual appropriation of \$10,000 for five years has been given to Princeton University by the Public Service Electric and Gas Company of New Jersey for the advance of "pure scientific research."

THE Burma Oil Company has offered £100,000 to the new Rangoon University, India, for a college of mining and engineering, to be associated with the name of the company.

DR. BARNETT SURE, of the College of Agriculture of the University of Arkansas, has been promoted to a professorship and has been appointed head of the department of agricultural chemistry.

DR. JAMES B. KENDRICK, of the department of botany of Purdue University Agricultural Experiment Station, has been appointed associate professor in the division of plant pathology of the University of California, at the experiment station at Davis, California.

DR. G. L. CLARK, assistant professor of chemistry in the chemical engineering department of the Massachusetts Institute of Technology, will succeed Dr. G. D. Beal next year at the University of Illinois, where he has been appointed associate professor.

S. F. BIBB, of the University of North Dakota, has been appointed professor of mathematics at the Armour Institute of Technology.

DR. I. DE BURGH DALY, lecturer in experimental physiology in the Welsh National School of Medicine

of the University of Wales, Cardiff, has been appointed to the chair of physiology in the University of Birmingham to succeed Professor E. Wace Carlier, who has retired.

## DISCUSSION AND CORRESPONDENCE

### THE STACKABILITY OF TETRAKAI-DECAHEDRA

IN the issue of *SCIENCE* for June 18, 1926, Frederic T. Lewis, in a communication entitled "An Objective Demonstration of the Shape of Cells in Masses," makes the following statement: "Meanwhile Lord Kelvin had found that a fourteen-sided figure—a cube truncated by an octahedron<sup>1</sup>—having six quadrilateral and eight hexagonal surfaces, solves the problem of dividing space without interstices into uniform bodies of minimal surface."

In the issue of *SCIENCE* for September 3, 1926, John Millis, in a communication under the title, "The Shape of Cells in Masses," begins his paper with the above quotation from the article by Lewis. Millis continues as follows: "The statement is a correct expression of Lord Kelvin's claim as set forth in the somewhat famous Baltimore lectures of several years ago. But the claim is entirely wrong. Having been myself perplexed by so direct and confident an announcement from such an eminent source, let me ask that a definite correction of a serious error be now made in order that others may be saved from being misled and perhaps from consequent mistakes. The volume described, called the tetrakaidecahedron, does not possess the properties as stated. Equal volumes of this pattern will not fit together without voids, as a brief consideration of the dihedral angles or the angles between the faces and the relations of the faces or a practical trial with models would at once have shown."

Such a positive and detailed criticism, pointing out the claimed "error" in Lord Kelvin's equally positive statement, supported by Lewis, might have settled the matter, except that the writer took the suggestion made by Millis in the last sentence quoted above and considered the dihedral angles and even constructed models as advised. If one consider the cross-sectional plane through the center of the volume (passing the sectioning plane perpendicularly through a face of the figure), the resulting section is a hexagon. If we consider the angles in the hexagon we find that they are equal to the corresponding dihedral angles of the volume in question and are as follows:

<sup>1</sup>"The edges of a regular octahedron are trisected. Each vertex of the octahedron is then cut off by a plane passing through the points of trisection adjacent to the vertex. The resulting solid is a regular tetrakaidecahedron."—Graustein.