its research facilities and activities in both pure and applied science. The structure, which will be of that type of classical Greek architecture known as Ionic, will be built of granite and Indiana limestone; it will be plain but massive, and will be surrounded by 62 monolithic columns. The proportions of the building will be approximately 300 feet by 275 feet, and there will be eight working floors.

SCIENTIFIC NOTES AND NEWS

DR. WERNER HEISENBERG, professor of theoretical physics at the University of Leipzig, has been awarded the Barnard Medal of Columbia University. Every five years the National Academy of Sciences recommends to the trustees of Columbia University a nominee for the Barnard Medal "for discoveries in physical or astronomical science or novel application of science to purposes beneficial to the human race." The previous recipients of the medal have been Sir Ernest Rutherford, 1909; Sir William H. Bragg, 1914; Professor Albert Einstein, 1921, and Professor Niels Bohr, 1925.

THE Institution of Chemical Engineers, London, has conferred the Osborne Reynolds Medal for 1930 on the retiring president, Mr. Arthur J. Reavell; the Moulton Gold Medal on Mr. A. T. King for his work on the treatment of suint liquors, and the silver Junior Moulton Medal on Mr. L. W. Blundell for a paper on the manufacture of hydrogen peroxide.

THE University of Manchester will confer the doctorate of laws on Dr. Arthur Harden, professor of biochemistry in the University of London, and the doctorate of science on Sir James Jeans.

DR. WILLIAM H. WELCH, professor of the history of medicine at the Johns Hopkins University, observed his eighty-first birthday on April 8.

AT the close of the annual meeting in Richmond of the Virginia section of the American Society of Bacteriologists, a dinner was tendered in honor of Dr. William H. Park, chief of the research laboratory of the New York City Health Department.

A LUNCHEON in honor of Mr. Max von Bernewitz, retiring secretary of the Pittsburgh section, American Institute of Mining and Metallurgical Engineers, was tendered to him on April 9 by the engineers of Pittsburgh. Mr. von Bernewitz has joined the staff of the Bureau of Mines at Washington.

A DINNER in honor of Dr. James H. Kimball, head of the New York office of the U. S. Weather Bureau, was held in New York City on April 9, at which he was presented with a medal and scroll. The following telegram was received by the committee in charge from President Hoover: "I will be obliged if you will express my cordial greeting to those present at the dinner in honor of Dr. James H. Kimball, and to Dr. Kimball himself my warm appreciation for his signal services in promoting the success of aviation in general and transatlantic flights in particular through his scientific skill and judgment so characteristic of the entire weather forecasting service of our country." Telegrams were also read from Dr. Hugo Eckener, Maurice Bellonte and others who have benefited by Dr. Kimball's advice. Admiral Byrd gave Dr. Kimball a silk flag that he said he had carried over the Atlantic, and also on his flights in Antarctica. Dr. Charles H. Marvin, chief of the U. S. Weather Bureau, was among the speakers.

PROFESSOR R. A. BUDINGTON and Professor C. G. Rogers, of the department of zoology of Oberlin College, have been honored at Fukien Christian University in China. A donor who wishes to remain anonymous has created at the university two scholarships which are named after the Oberlin faculty members "in appreciation and respect."

THE *Journal* of the American Medical Association reports that to observe the tenth anniversary of the discovery of insulin by Drs. Frederick G. Banting and Charles H. Best, Toronto, a course on insulin and its use, organized by the extension division of the University of Wisconsin, at the request of the State Medical Society, will be given during the week of May 18 for one day each in Madison, Milwaukee, Oshkosh, Wausau, Eau Claire and La Crosse. Dr. Leland S. McKittrick, Boston, and Dr. Russell M. Wilder, of the University of Chicago, will, with Dr. Elmer L. Sevringhaus and a dietitian of the Medical School at Madison, give lectures and demonstrations.

THE Paul Ehrlich-Stiftung has awarded Professor Levaditi, of the Pasteur Institute in Paris, the Paul Ehrlich gold medal for 1931, for his researches in the field of chemotherapy; also two money prizes to Professor Hugo Braun, head of the hygienic institute of the University of Frankfort-on-Main, and to Dr. Walter Levinthal, head assistant at the Robert-Koch-Institut in Berlin, respectively, for their researches on the metabolism of bacteria and the virus of psittacosis. The prizes were bestowed with fitting ceremonies in Frankfort-on-Main, on Ehrlich's birthday on March 4.

IT is stated in *Nature* that a new article of association of the Royal Zoological Society of New South Wales, giving the council power to confer the title

"fellow" on any member or associate member of the society who has rendered distinguished service to Australian zoology, has recently been formulated. The council has conferred this title upon R. J. Tillyard, H. J. Carter, W. W. Froggatt, T. Iredale, A. F. Basset Hull and T. C. Roughley, all of whom have contributed largely to scientific journals articles dealing with the various branches of Australian zoology.

DR. E. M. GRESS, state botanist of Pennsylvania, was elected president of the Pennsylvania Academy of Science at the close of the seventh annual meeting; Dr. S. H. Williams, of the University of Pittsburgh, was made vice-president and H. W. Thurston, State College, treasurer.

PROFESSOR DUGALD C. JACKSON, head of the department of electrical engineering at the Massachusetts Institute of Technology since 1907, was reelected chairman of the National Research Council's Division of Engineering and Industrial Research at a meeting of the division recently held in New York City. The two vice-chairmen, Dr. David S. Jacobus and Dr. Byron E. Eldred, the director, Dr. Maurice Holland, and the secretary, William Spraragen, all of New York, also were reelected.

DR. REUBEN PETERSON has resigned as professor of obstetrics and gynecology at the University of Michigan Medical School, which chair he has held since 1901. A group of men who have served as his assistants during his service on the medical faculty recently presented his portrait to the university. Dr. Peterson will continue his medical practice in Ann Arbor.

DR. ALFRED HUME, chancellor of the University of Mississippi at the time of the political dismissals by authority of Governor Bilbo, and this year professor of mathematics in Southwestern University, Memphis, Tennessee, has been named president of Branham and Hughes Military Academy, Spring Hill, Tennessee. Dr. Hume received the doctorate in science from Vanderbilt University in 1890.

MR. B. F. DANA, plant pathologist with the Texas Experiment Station since 1927, with headquarters at Temple, Texas, where he conducted research on the cotton root rot disease, has resigned to accept a position as plant pathologist with the U. S. Department of Agriculture, Office of Horticultural Crops and Diseases. Mr. Dana will work on the virus disease, known as "curly top," of vegetables. He has already started his new work with headquarters at the Oregon State College, Corvallis.

C. R. HOERNER, for some time northwest representative for the Niagara Sprayer Company, has resigned to accept a position as plant pathologist with the U. S. Department of Agriculture, Office of Drug and Related Plants, to work in cooperation with the Oregon Experiment Station on the downy mildew of hops in the northwestern states. Mr. Hoerner's headquarters will also be at the Oregon State College.

IT is announced by the Northern News Service, as quoted in *Nature*, that Dr. Hjalmar Broch, director of the marine biological station of the University of Oslo, has been appointed by the Jugoslav Government to be director of the Institute of Deep-sea Research and Fishery Investigations in the Adriatic. The Jugoslav Institute is being built at Split (Splalato), where all branches of science concerning deep-sea research will be represented, including zoology, botany and oceanography. Local methods of fishing will also be investigated, with the view of modernizing and rationalizing these.

MR. H. R. SURRIDGE has been appointed by the British government agricultural officer in Fiji, and H. E. Box entomologist in Antigua.

DR. C. M. HUFFER, assistant professor of astronomy at the University of Wisconsin, will exchange posts with Dr. C. T. Elvey, of the Yerkes Observatory, for a period of two months which started on April 7. Professor Huffer is making a study of the colors of stars and the exchange will give him opportunity to continue his work with the aid of the 40-inch telescope of the Yerkes Observatory.

DR. WILLIAM ALLEN PUSEY, past president of the American Medical Association, left for Mexico City on March 21, to discuss plans for Mexico's participation in the Century of Progress Exposition, to be held in Chicago in 1933.

DR. MALCOLM H. SOULE, of the Medical School of the University of Michigan, has returned to Ann Arbor from the School of Tropical Medicine in San Juan, Porto Rico, where he has been a visiting professor and special investigator for the past three months.

DR. C. D. ELLIS, of the Cavendish Laboratory, University of Cambridge, has been appointed a member of the staff in physics for the 1931 summer session at Cornell University. Dr. Ellis, who is an authority on β- and γ-ray radiations, will give courses covering the general field of radioactivity with particular emphasis upon nuclear structure and will devote a portion of his time in assisting a small group of investigators to become acquainted with the technique of radioactive work.

PROFESSOR EDMUND LANDAU, of the Mathematical Institute of the University of Göttingen, is expected to arrive in New York on April 24, on his way to California, where he will lecture during the summer at Stanford University. He will remain in New York for several days after his arrival and has accepted

an invitation to lecture at Columbia University on April 27 on "Binary Linear Forms." Professor Landau is an authority on the analytic theory of numbers and on the theory of functions.

THE following will be visiting members of the faculty of chemistry of the Ohio State University during the summer session of 1931: Professor Harry B. Weiser, of the Rice Institute, in colloid chemistry; Professor R. C. Fuson, department of chemistry, University of Illinois, in organic chemistry, and Professor Guy Mellon, of Purdue University, in inorganic chemistry and bibliography.

AT the University of Pittsburgh, Dr. A. Lande, recently appointed professor of theoretical physics at the Ohio State University, delivered a lecture on March 12 on "The Quantum Theory of Abnormal Mean Free Paths," under the auspices of the department of physics and the Physical Society of Pittsburgh, and Dr. G. W. Stewart, head of the department of physics of the University of Iowa, delivered a lecture on "The Nature of the Liquid State" on March 26.

DR. CHRISTIAN A. RUCKMICK, professor of psychology at the University of Iowa, will give a series of lectures on the "Facial Expression of Emotion" and the "Galvanic Technique in the Investigation of the Affective Processes" during April on a tour to the Pacific Coast. The institutions visited include the University of Nebraska, the University of Denver, the University of Utah, the University of Southern California, the University of California, College of the Pacific, Stanford University, the University of Oregon, the State Normal College at Bellingham, Washington, Whitman College and the University of Montana. On March 20, Dr. Ruckmick lectured at Northwestern University.

PROFESSOR S. P. FERGUSSON, of the United States Weather Bureau and aerologist of the University of Michigan Greenland Expeditions, will give a semi-popular course of lectures at the University of Michigan under the general topic, "Data and Problems of Aerology." These lectures are given under the joint auspices of the College of Engineering and the department of geology and will begin April 20 to continue through two weeks.

DR. COLIN G. FINK, professor of electrochemistry at Columbia University, recently lectured before the American Chemical Society Sections of North Carolina, Alabama and Syracuse, N. Y., the topics chosen being the "Electrochemical Restoration of Ancient Bronzes," "Corrosion" and "Recent Advances in Applied Electrochemistry." In May he will address the Lehigh Valley Section on "Alloy Anodes and Alloy Cathodes."

DR. HARLAN T. STETSON, director of the Perkins Observatory and professor of astronomy at the Ohio Wesleyan University, will give a lecture on April 24 on "Astronomy and Electricity" before a joint meeting of the New York Section of the Institute of Electrical Engineers and the New York Electrical Society. The lecture will be given in the Engineering Auditorium at 8 p. m.

PROFESSOR A. G. SHENSTONE, of Princeton University, spoke at the Bartol Research Foundation of the Franklin Institute, Swarthmore, Pennsylvania, on March 13, on "Recent Researches in Spectra."

DR. E. W. NELSON, for eleven years head of the United States Bureau of Biological Survey, recently visited the Scripps Institution of Oceanography of the University of California, where he gave an informal talk to members of the staff on his experiences in collecting specimens from this country and Mexico.

DR. KARL J. FREUDENBERG, Carl Schurz memorial professor of the University of Wisconsin, is delivering a series of eighteen lectures at universities and chemical associations of the United States and Canada. Professor Freudenberg will lecture on "Optical Activity and Configuration," "Insulin," "Some Aspects on the Constitution of Cellulose and Other Carbohydrates," "Lignin," "Vegetable Tannins" and "Recent Chemical Evidence on the Constitution of Cellulose."

THE Second International Congress for Light Therapy will be held in Copenhagen from August 15 to 18, 1932, under the presidency of Dr. Axel L. Reyn. The purpose is to study all questions relating to biological and biophysical researches in connection with light and light treatment. Further information may be had from the secretary-general, Dr. A. Kissmeyer, Finsens Lysinstitut, Copenhagen.

ESTABLISHMENT of a fellowship in the Department of Engineering Research for the study of problems in the distillation of petroleum carbohydrates was announced by the regents of the University of Michigan at their last meeting. The grant will be known as the M. W. Kellogg Company Fellowship in Chemical Engineering, and will consist of $1,000 a year for two years. Mr. M. J. Kellogg, of Jersey City, N. J., made provision for the fellowship.

BY the will of the late Professor John Henry Comstock, Cornell University receives the bulk of his estate. The will directs the establishment of the Grove Karl Gilbert loan fund for self-supporting students. The Comstock Publishing Company, which issued books on nature study, also goes to the university. The Ithaca Memorial Hospital and the Unitarian Church receive $1,000 each. The will was made jointly with that of Mrs. Anna Botsford Comstock, who died in August, 1930.

UNDER the will of the late Thomas L. Gray, the Royal Society of Arts has been appointed residuary legatee of his estate for the purpose of founding a memorial to his father, the late Thomas Gray, C.B., who was for many years Assistant Secretary to the Board of Trade (Marine Department). The objects of the trust are "The Advancement of the Science of Navigation and the Scientific and Educational Interests of the British Mercantile Marine." The council now offers the following prizes: A prize of £100 to any person who may bring to their notice a valuable improvement in the science or practice of navigation proposed or invented by himself in the years 1930 and 1931. A prize of £100 for an essay on "The stability of ships, with special reference to the particulars which should be supplied by shipbuilders, and also the value of any mechanical devices for ascertaining the M. G., with which you are acquainted." Further information may be obtained from the Secretary, Royal Society of Arts, John Street, Adelphi, London W. C. 2.

FOR the twenty-third consecutive season the University of Michigan will maintain its summer station for instruction and research in biology from June 29 to August 22, on the shores of Douglas Lake, Cheboygan County. Because of its natural surroundings, the Douglas Lake site offers unique opportunities for pursuing a variety of problems in biology. To the north of the camp is a region of evergreen coniferous forests, while to the south are hardwood forests, making the station the best situated in this respect of any in the country. Lowlands near the lake furnish a variety of plants, including orchids and insect catching types, while Cecil Bay and Big Stone Bay on Lake Michigan are not too distant for study of forests free from fire for fifty years. Bird and animal study is facilitated by the wide variety of natural conditions. A beaver colony with three dams is near by, and 150 species of birds are found in the region in summer. Invertebrate fauna, mollusks, both land and aquatic, crustacea, insects and examples of animal parasites are numerous and well suited to study.

DISCUSSION

A METHOD FOR EXPLANTING THE KIDNEY

ACCURATE determinations of the physiological activities of the kidney require that successive samples of blood be drawn from the renal vein in healthy, unnarcotized animals. A suitable technique for attaining this end has long been desired but has been difficult to evolve. Certain surgical procedures have been carried out in animals under ether anesthesia in an attempt to solve the problem.

Both rabbits and dogs have been employed as experimental animals. In preliminary trials, the left kidney was brought out through a small lumbar incision and the skin and muscle layers were lightly closed around the pedicle. Protection from trauma and drying was afforded by the use of a simple but effective dressing, and after a considerable period, epithelium grew in from the edges of the skin, eventually covering the entire organ. Following removal of the right kidney, animals so treated have remained in perfect health for more than a year. It was found, however, that an excess of granulation tissue formed about the base and prevented easy access to the vessels. This procedure was therefore abandoned, and an effective operative technique substituted.

Dogs were found to be more suitable for these tests. In these animals it was possible to bring out the kidney through a simple, muscle-splitting, lumbar, flank incision and to close the muscle layers loosely around the pedicle. The organ was then tipped posteriorly to render the renal vein as prominent as possible, and a flap of skin was brought down over the organ from the dorsal side and so sutured as to make the position of the kidney a permanent one. Then a strip of skin was cut and sutured down to the subcutaneous tissue on either side of the renal vein. leaving the vein covered by and enclosed in a gutter of skin which was semi-circular in cross-section.

The wounds healed by first intention, and within ten days the right kidney could be removed safely. With the removal of the right kidney, a carotid artery was usually explanted in a tube of skin in accordance with the method described by Cohn and Levy. This was done to facilitate arterial puncture and to obtain constant records of blood pressure.

The technique described herewith has been carried out on forty-five animals, the first of which are now six months post-operative, in excellent health, and without evidence of renal insufficiency as evidenced by alterations in blood chemistry.

By explanting kidneys in the manner outlined above, it has been possible to determine renal circulation, urea excretion and utilization of oxygen by the kidney under a variety of conditions.

C. P. RHOADS

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CENTRAL BODIES IN THE SPERM-FORMING DIVISIONS OF ASCARIS

THE early investigations of O. Hertwig, Brauer, Boveri and others have long been regarded as estab-