By means of a technique original, ingenious and precise, Dr. Carrel learned how to suture and save blood vessels, and in consequence for the first time organs *en masse* could be removed from one part of the body and transplanted to another part without loss of function and efficiency. A whole new chapter of physiology or physiological surgery was suddenly opened up for exploration. Among the early rewards was a successful method of blood transfusion, since much simplified, which is daily employed as a life-saving device throughout the world. The recent perfection of the Lindbergh pump, in which organs can be cultivated and observed outside the body for long periods, is a mere, although difficult, extension of the earlier discoveries which in 1912 brought Dr. Carrel the Nobel prize.

Another result of the studies on transplanted organs is the cultivation of cells and tissues of warm-blooded animals in glass. Every one has heard or read of the bit of chicken heart, the artificial cultivation of which was begun more than twenty years ago. Now cells and tissues of the most diverse sort are grown outside the body indefinitely, and their properties can be studied in new ways utterly impossible by the older methods. Thus another chapter in cellular physiology and pathology, thanks to Dr. Carrel, is being written. And as an important side issue the viruses, the causes of many severe diseases in animals and plants, can be made to grow outside the body. These viruses are too small to be seen under the microscope and differ from bacteria in not increasing or growing on dead substances. They can now be studied by implanting them on living, growing tissues in glass.

In conclusion, it may be said that Dr. Carrel has enriched surgery, physiology and pathology through his scientific discoveries and is to be regarded as a benefactor of mankind.

SCIENTIFIC NOTES AND NEWS

DR. ALBERT F. BLAKESLEE, director of the department of genetics of the Carnegie Institution of Washington at Cold Spring Harbor, L. I., has been elected a foreign member of the Royal Danish Academy of Science.

THE following have been elected correspondents of the Academy of Natural Sciences of Philadelphia: Ernst V. Antevs, John H. Barnhart, Thomas Barbour, Calvin B. Bridges, Andrew E. Douglass, Richard Goldschmidt, Shinkishi Hatai, J. Hutchinson, Paul Marchal, Mary J. Rathbun, R. B. Seymour Sewell, Hans Spemann, Erik H. O. Sensiö, Erwin Stresemann, Francis B. Sumner and Thomas H. Withers.

M. JEAN BOSLER, professor of astronomy and director of the observatory at Marseilles, has been elected a correspondent of the Paris Academy of Sciences in the section of astronomy, to succeed the late Professor Willem de Sitter.

DR. THEODOR HESSELBERG, director of the Norwegian Meteorological Institute at Oslo, has been elected a corresponding member of the Prussian Academy of Sciences.

THE Elisha Kent Kane Gold Medal of the Geographical Society of Philadelphia was presented to Lincoln Ellsworth at the annual dinner of the society on May 15. Francis Fisher Kane, a nephew of Elisha Kent Kane, made the presentation.

Nature reports that the council of the Royal Society of Edinburgh has awarded the Keith Prize for the period 1933–35 to Professor Lancelot T. Hogben, for his papers on genetical subjects published during the period of the award; and the Neill Prize to Dr. Samuel Williams, University of Glasgow, for his contributions to the anatomy and experimental morphology of the Pteridophyta.

THE honorary degree of doctor of science will be conferred upon Dr. Lawrason Brown, consulting physician of the Trudeau Sanatorium, Saranac Lake, N. Y., at the commencement exercises of the Medical College of the University of Virginia.

THE American Psychiatric Association, meeting at St. Louis on May 6, chose Dr. Ross McC. Chapman, of Towson, Md., as president-elect to take office in 1937. He succeeds Dr. C. Macfie Campbell, of Boston, who took office as president. The retiring president was Dr. Clarence O. Cheney, of New York. Dr. Siegmund Freud, of Vienna, was elected to honorary membership.

DR. DUNCAN A. MACINNES, since 1926 associate member of the Rockefeller Institute for Medical Research, was elected president of the Electrochemical Society at the recent Cincinnati meeting. He succeeds James H. Critchett, of the Union Carbide and Carbon Research Laboratories, New York City.

DR. R. R. KRACKE, of Emory University, Georgia, was elected president of the American Society of Clinical Pathologists at the recent Kansas City meeting.

DR. H. A. CARR, professor of psychology at the University of Chicago, was elected president of the Midwestern Psychological Association at the annual meeting, which was held at Northwestern University on April 24 and 25. Professor J. P. Guilford, of the University of Nebraska, was elected a member of the executive council.

PROFESSOR HARRY P. BURDEN, of the department of civil engineering at Tufts College, has been appointed

dean of the School of Engineering. He succeeds Professor Emeritus George P. Bacon. Frederick H. Crabtree, instructor in the department of civil engineering, has been named assistant dean, to succeed Professor Jamison R. Harrison, who has become head of the department of physics.

THE following promotions in the Harvard faculty have been announced: Dr. Gordon W. Allport, from assistant professor to associate professor of psychology; Dr. Philip Drinker, from associate professor to professor of industrial hygiene, and Jacob P. Den Hartog, from assistant professor to associate professor of applied mechanics.

PROMOTIONS have been made at Brigham Young University as follows: Dr. Thomas L. Martin, professor of agronomy and bacteriology, has been made acting dean of the College of Applied Science; Assistant Professor Joseph K. Nicholes has become associate professor of chemistry, and Dr. Hugh W. Peterson has been appointed assistant professor of chemistry.

DR. A. R. MCINTYRE, at present professor of physiology and pharmacology, has been appointed chairman of the department of physiology and pharmacology in the College of Medicine of the University of Nebraska in Omaha.

HAROLD B. SHATTUCK, professor of railroad engineering at the Pennsylvania State College, will retire at the close of the academic year. He has been a member of the faculty for thirty-five years.

PROFESSOR FRED C. SEARS, head of the department of pomology at the Massachusetts State College, will retire from active teaching in June. He has been a member of the faculty since 1907 and this spring passed the mandatory retirement age of seventy years set by state law.

DR. HELLMUT DE TERRA, since 1933 assistant professor and research associate in geology at Yale University, has become a research associate of the Carnegie Institution of Washington. He will carry on his work at the Museum of the Academy of Natural Sciences at Philadelphia.

Nature states that pending the appointment of a successor to the late Sir Joseph Petavel, the office of director of the National Physical Laboratory will be held by Sir Frank Smith, the secretary of the Department of Scientific and Industrial Research.

PROFESSOR I. M. KOLTHOFF, head of the division of analytic chemistry at the University of Minnesota, will give early in June a series of lectures at Charles University, Prague. Later, he expects to stay at Almelo, Holland, until the middle of August.

DR. GEORGE W. CORNER, professor of anatomy at the University of Rochester School of Medicine, lectured on May 13 on "The Hormone of the Corpus Luteum," before the Medical Society of Yale University.

THE annual series of lectures by a visiting zoologist at the University of Minnesota was given this year by Dr. W. W. Cort, of the School of Hygiene and Public Health of the Johns Hopkins University. Dr. Cort gave the following three lectures: "Problem of Swimmer's Itch"; "Parasitic Diseases in Egypt in Relation to Village Life and Agricultural Practices," and "Experimental Studies on Hookworm."

DR. CLINTON L. UTTERBACK, professor of physics and member of the staff of the Oceanographic Laboratories of the University of Washington, has been invited to take part in the symposia on "Submarine Radiation" at the annual meeting of the International Council for Exploration of the Sea, to be held in Copenhagen, Denmark. Dr. Utterback has also received a travel grant from the Association Internationale d'Oceanographie Physique of the Union Geophysique Internationale to enable him to consult with investigators in various laboratories of northern Europe in connection with his work on solar radiation.

SIR RICHARD GREGORY delivered on May 15 a lecture entitled "Science in a Changing World: Recollections and Reflections," at the Royal Institution, London.

LORD RUTHERFORD has been elected the twelfth annual Norman Lockyer lecturer of the British Science Guild. The date of the lecture has been fixed for November 12.

THE International Conference on Soil Mechanics and Foundation Engineering will meet in Cambridge, Mass., from June 22 to 26. A bulletin containing detailed information on this conference will be mailed on request.

THE third International Light Congress will be held at Wiesbaden, Germany, from September 1 to 7. The chief subjects for discussion will be the measurement of radiation, the biological effects of radiation and radiation therapy. The president of the congress is Professor W. Friedrich, of the Institut für Strahlenforschung, Berlin. Detailed information in regard to the congress can be obtained from Dr. Janet H. Clark, of the School of Hygiene and Public Health of the Johns Hopkins University, Baltimore, and from Dr. W. W. Coblentz, Bureau of Standards, Washington, D. C.

THE two hundred and sixth regular meeting of the American Physical Society will be held at the University of Washington, Seattle, on June 17, 18 and 19.

On Wednesday morning there will be an X-ray Symposium, at which Dr. F. K. Richtmyer, Dr. J. W. M. DuMond, Dr. R. R. Newell and F. Bloch will speak. On Wednesday afternoon there will be a joint meeting with the Astronomical Society of the Pacific. Contributed papers will be presented on Thursday morning and there will be a joint session with the American Mathematical Society, at which Dr. H. P. Robertson will speak on "Geometry and Physical Space Time." On Friday morning there will be invited addresses by Drs. O. E. Buckley and George Gamow. The two hundred and seventh meeting will be held at Rochester, N. Y., on June 22 and 23.

THE Genetics Society of America will hold a summer meeting at Woods Hole on September 4 and 5. The program will consist of two round-table conferences and one session of demonstration papers. R. A. Emerson, of Cornell University, will be the leader of the conference on "The Nature of Mutations." The subject will be introduced by R. A. Fisher, of the Galton Laboratory, London, and L. J. Stadler, of the Bureau of Plant Industry, Columbia, Mo. The second conference, dealing with "Progress in Cytogenetics," will be in charge of Karl Sax, of Harvard University. C. L. Huskins, of McGill University, and C. B. Bridges, of the Carnegie Institution of Washington, will act as introducers. On September 3 an evening lecture will be given by Th. Dobzhansky, of the California Institute of Technology, on the "Genetic Nature of Specific and Racial Differences."

IN some of the metropolitan newspapers of May 4 was a report of grants made by the "American Philosophical Society held in Philadelphia for the promotion of useful knowledge," which is unfortunately in error in stating that $160,000 had been granted to 53 applicants in the past year. During the past year and a half 53 grants were made of a total amount of $78,150. Since the organization of the Committee on Research, three years ago, 98 grants have been made of a total sum of $147,670.

AN appropriation of $3,354,722 has been made by the Rockefeller Foundation and the General Education Board to the University of Chicago for the Oriental Institute. Of the appropriation, $1,354,722 represents the unexpended balance of a ten-year grant made by the two foundations in 1928 to finance expeditions in the Near East. The other $2,000,000 is a new gift, which may be used for such purposes as the institute and the university may determine.

CORNELL UNIVERSITY has received from the Rockefeller Foundation a grant, amounting to $42,500 over a period of six years, to assist studies being carried out by Drs. L. A. Maynard, C. M. McCay and S. A. Asdell, and dealing with "The Influence of Diet upon the Physiological and Biochemical Changes which Accompany Aging in the Animal Body." These studies are being conducted in the Laboratory of Animal Nutrition at Ithaca. A correspondent writes: "In studies initiated by Dr. McCay some six years ago it was found that rats which grew at a maximum rate as measured by weight and size had shorter life spans than those which grew more slowly as a result of a restricted calorie intake. These experiments have also provided material for comparative chemical and histological studies of the changes which occur during the aging of animals fed rigidly controlled diets throughout life. Since most nutrition experiments have dealt with the young and growing organism over a comparatively short period of the life span, the Cornell workers are studying the influence of dietary variables imposed during the last half of life, in the belief that the dietary factors concerned in the retardation of senile changes may be different from those which promote optimum development during the ascending period of life."

THE Akeley Memorial Hall of African Mammals at the American Museum of Natural History was dedicated on May 19 in ceremonies open only to members of the museum. The dedication, which marked the birthday anniversary of the late Carl E. Akeley, for whom the hall was named, was attended by more than 2,000 members of the museum.

Industrial and Engineering Chemistry reports that Mrs. Caroline Strong Newell, wife of the late Lyman C. Newell, has presented to the College of Liberal Arts of Boston University Professor Newell's valuable collection of books, prints, letters, manuscripts and medals relating to the history of chemistry. The collection has been arranged for safe keeping and display in a special room, and is to be known as the Lyman Churchill Newell History of Chemistry Collection. The room contains Professor Newell's portrait, his desk, chair and bookcases, also presented by Mrs. Newell. Prints, manuscripts and other memorabilia pertaining to particular chemists have been collected in folders and filed alphabetically in a filing cabinet. Professor Newell's library is also contained in the room.

THE Charles Lathrop Pack Trust has made available to Cornell University three thousand dollars to be used in supporting one or more fellowships in the field of nature education at the graduate level. Portions of this fund will be used in financing travel incident to the studies which presumably will center about the growth of conservation education and the problems associated with its introduction in the school program. Candidates should be well qualified in allied sciences as well as in the professional field and presumably

should be persons with teaching experience and at least a year of graduate work. Inquiries should be addressed to Professor E. L. Palmer, Cornell University, Ithaca, N. Y. Appointments may be made by July 1.

ORGANIZATION of the Lalor Foundation for the advancement of natural scientific research and encouragement of the arts was effected at Wilmington, Del., on May 11, and the announcement made that in the fall five professorship and fellowship grants of $2,500 each will be available. The foundation was organized as a Delaware corporation following receipt of a bequest of $400,000 from the estate of Willard A. Lalor, a former official of the Chicago, Burlington and Quincy Railway. The bequest is a testimonial to his sister, Mrs. Anna Burdick, of the U. S. Department of Education, and to his brother, John C. Lalor, who was prominently identified with the early development of the mining and metallurgical industries in Montana. It is stated that the foundation considers the encouragement of outstanding young men to continue work in purely scientific research after they have completed their graduate training to be a desirable object. Consequently, current awards will be for the support of purely scientific research and for fellowships in specified fields. They will be given to mature scholars of demonstrated ability and will afford recipients the "freest possible conditions for study."

SIR HERBERT AUSTIN, British motor manufacturer, has given £250,000 to the Cavendish Laboratory of Experimental Physics at the University of Cambridge. Prime Minister Stanley Baldwin, as chancellor of the university, in a letter to Sir Herbert acknowledging the gift, wrote as follows: "There can be no greater encouragement to the men who devote themselves to scientific research than to feel that their work is appreciated by those engaged in industry, the progress and development of whose businesses depend so much on the laboratories of our country. Your noble gift will be invaluable at this time to Cambridge and the benefits arising from its applications will be available for the civilized world."

THE Louisiana State University Zoological Field Laboratory will hold its sixth season from June 8 to August 5 at Grand Isle, La., for the first time with a building and land of its own. A survey of the local fauna, as well as formal course work, is planned. Dr. Ellinor H. Behre will be in charge of the work.

THE New York State Experiment Station at Geneva, cooperating with the New York Botanic Garden, announces the development of a new seedless grape which has been named "Bronx Seedless." The new variety represents sixteen years of effort to obtain a seedless grape that at the same time is hardy to New York conditions.

THE *British Medical Journal* notes that the *Nederlandsch Tijdschrift voor Geneeskunde* contains illustrations of eighteen postage stamps showing figures of physicians, including Imhotep, Boerhaave, Haller, Schiller, Semmelweis, Calmette and Ramon y Cajal.

DISCUSSION

SILVER SPRINGS AND THE FLORIDA SHIP CANAL

DURING recent weeks newspapers have referred frequently to the bitter controversy concerning probable effects of the projected Florida Ship Canal upon the ground-water supply of central and southern Florida. Occasional reference has been made to famous Silver Springs and Blue Spring in Marion County, and conflicting statements have been made as to their chances of surviving the digging of a sea-level canal. Scientists and lovers of the beautiful and marvelous in nature have reason to inquire whether these two natural wonders are to be sacrificed for a canal, the benefits of which may still be regarded as problematical. The writer has followed discussions of the proposed canal for some time, and it appears that the question of its probable effects upon these springs can be isolated from the larger problem of possible wholesale injury to Florida's ground-water resources and that possibly the effects upon the springs can be predicted with some degree of assurance. For that reason the following notes have been compiled, and a tentative interpretation is offered. It is believed that with the facts and maps available others may enjoy drawing their own conclusions, which, of course, may or may not agree with those of the writer. All the facts offered herein have been gleaned from the maps and reports of the Florida and United States Geological Surveys, or from various reports prepared in connection with the study of the selected route.

Silver Springs and Blue Spring occur within the outcrop area of the Ocala limestone. The Ocala, a formation of Eocene age, is believed to reach a thickness in excess of five hundred feet. It underlies all Florida in a gentle and elongate dome conforming roughly in shape and orientation to the form of the peninsula. This limestone is extremely porous and cavernous and is the foremost aquifer in Florida. It may be described as honeycombed with underground channels, and its outcrop areas are characterized by springs, lakes and sinkholes. There are probably few