diabetes, yet if the anterior lobe of the pituitary is removed at the same time the animal has no glycosuria and stays in reasonable health. Further analysis made it clear that the anterior lobe of the pituitary secretes a hormone with an opposite effect on sugar metabolism to that of insulin, and that it is the absence of this hormone in the "Houssay animal" which accounts for the lack of glycosuria when the pancreas is removed. Many other chapters in the complex story of endocrine interactions have been worked out in Professor Houssay's laboratory and he has recently dealt with the problem of renal hypertension and the nature of the toxic substance which may be liberated by a diseased kidney. He is an honorary member of the Physiological Society and has published various papers in the *Journal of Physiology*.

MEDICAL FELLOWSHIPS OF THE NATIONAL RESEARCH COUNCIL

AT the February meeting of the Medical Fellowship Board of the National Research Council, Washington, D. C., of which Dr. Francis G. Blake, Sterling professor of medicine at Yale University, is the chairman, one fellowship in the medical sciences, a renewal, was awarded. Seven appointments, including two renewals, were made to fellowships in the filterable viruses and orthopedic surgery. A list of the successful candidates and the institutions where they are to work follows:

Medical Sciences

Lester J. Talbot (renewal), New York University College of Medicine.

Filterable Viruses

Edward H. Anderson, Vanderbilt University.

H. Chandler Elliott (renewal), University of Toronto.

I. William McLean, Jr., Duke University School of Medicine.

Alison H. Price, University of Michigan (declined appointment).

Hugh Tatlock, Yale University School of Medicine and the Acute Respiratory Diseases Commission Laboratory, Fort Bragg, N. C.

Herbert A. Wenner, Yale University School of Medicine and the Johns Hopkins University.

Orthopedic Surgery

Maxwell F. Kepl (renewal), Tulane University of Louisiana.

Welch fellowships in internal medicine were awarded to the following at the meeting of the Medical Fellowship Board in April:

S. Howard Armstrong, Jr., Harvard Medical School and the Peter Bent Brigham Hospital.

Joseph F. Ross, Evans Memorial Hospital, Boston, Massachusetts.

SCIENTIFIC NOTES AND NEWS

THE Benjamin Carver Lamme medal, awarded annually by the American Institute of Electrical Engineers for meritorious achievement in the development of electrical apparatus or machinery, was presented at the Cleveland meeting to Dr. Joseph Slepian, associate director of the Westinghouse Research Laboratories. The medal was awarded in recognition of his work on "the development of current-interrupting and current-rectifying apparatus. He developed the ignitron, an electronic tube now being used in aluminum and magnesium plants to convert alternating electric current required for the production of these metals."

MICHAEL LERNER, for his services to Chile in connection with his expedition in 1940 under the auspices of the American Museum of Natural History, has been awarded the decoration "Al Mérito" in the degree of "Comendador" by the Government of Chile.

DR. J. C. GEIGER, director of public health of San Francisco, recently received the award of fellow and "member correspondiente" of the National Academy of History of Panama.

WE learn from the *Journal* of the American Medical Association that on July 2, the eightieth birthday of Dr. Ludvig Hektoen, the Hektoen Institute for Medical Research of Cook County, Illinois, was dedicated in his honor. Dr. Morris Fishbein, editor of the *Journal*, presided at the ceremonies. The building, formerly the McCormick Institute for Infectious Diseases, has been purchased by the board of Cook County commissioners. A portion of the building is already in use. A plaque bearing a bas-relief of Dr. Hektoen was unveiled in the entrance of the institute. The presentation was made by Clayton F. Smith, president of the board of commissioners, and Dr. Karl Meyer received it on behalf of the institute.

AT a meeting on April 15 of the History of Medicine Society of Tulane University, as reported in the *Journal* of the American Medical Association, the Rudolph Matas award for the best paper on the history of medicine presented before the society was given to Charles M. Wilson, senior in the medical school, for his paper on "American Contributions to Neurosurgery." The I. I. Lemann Award for the best discussion before the society was presented to Dr. Leonard K. Knapp, junior in the medical school, for his discussion on aviation medicine. The presentations were made by Dr. B. Bernard Weinstein, instructor in gynecology in the medical school at New

Orleans. Harold Cummins, professor of microscopic anatomy, was the principal speaker, discussing "Extra Medical Interests of Charles Richet, Arthur Conan Doyle and Dr. Krandon."

THE University of California at Los Angeles at its commencement exercises on June 9 conferred the degree of doctor of laws on Dr. H. S. Jennings, research associate of the department of zoology, and Dr. H. J. Webber, emeritus professor of subtropical horticulture of the Citrus Experiment Station at Riverside of the University of California.

DR. F. W. HODGE, director of the Southwest Museum, Los Angeles, received the honorary degree of doctor of literature from the University of Southern California on May 23.

THE doctorate of science was conferred by the University of Oregon on May 30 at its sixty-sixth annual commencement on Dr. Ralph Albert Fenton, clinical professor of otolaryngology at the medical school of the university, and on Dr. Rosalind Wulzen, assistant professor of zoology at the State College. Citations by President Donald M. Erb read: "Ralph Albert Fenton: In recognition of his notable researches in the field of otolaryngology; his vital contributions to medical science; and his tireless efforts in advancing the standards of medical practice in the Commonwealth of Oregon. Rosalind Wulzen: In recognition of her outstanding contributions in the field of experimental biology; her nationally recognized researches on the subject of nutrition; and her discoveries related to calcium metabolism which have far-reaching clinical possibilities."

THE following officers of the University of Oregon Chapter of Sigma Xi for the year 1943–44 were elected at a meeting of the chapter on April 26: *President,* Dr. Pierre Van Rysselberghe, associate professor of chemistry; *Secretary,* Dr. John M. McGee, acting associate professor of chemistry, and *Treasurer,* Dr. Arnold L. Soderwall, instructor in biology. New members and associates were initiated at a meeting on May 15. The joint annual Sigma Xi-Phi Beta Kappa lecture was delivered by Dr. Arthur R. Moore, research professor of general physiology. He spoke on "The Two Great Books of 1543: Copernicus' 'De Revolutionibus Orbium Coelestium' and Vesalius' 'De Humani Corporis Fabrica.'"

ACCORDING to *The New York Times,* Dr. Frederic Joliot conjointly with Mme. Irene Joliot have been elected members of the French Academy of Sciences. Mme. Joliot is a daughter of Dr. Marie Curie.

AT Western Reserve University, Dr. J. Paul Quigley has been appointed professor of gastro-intestinal physiology and Dr. Edward Muntwyler has been appointed professor of experimental biochemistry.

DR. LEWIS M. TURNER, senior forester, Branch of Research, U. S. Forest Service, Washington, D. C., has been appointed dean of the School of Forestry and Range Management of the Utah State Agricultural College.

DR. ELMER H. STOTZ, director of the chemical laboratory at McLean Hospital, Waverly, Mass., and a member of the teaching staff in biochemistry of the Harvard Medical School, has been appointed by the Board of Trustees of Cornell University professor of agricultural and bio- chemistry and head of the Division of Chemistry at the New York State Experiment Station at Geneva. The appointment becomes effective on August 1. Dr. Stotz succeeds Dr. Donald K. Tressler, who resigned early in the year to enter the industrial field.

DR. HENRY D. BERGMAN, professor of veterinary physiology and pharmacology, has been named dean of the Division of Veterinary Medicine at Iowa State College, to succeed Dean Charles Murray. Dr. Murray will continue to serve both as head of the department of veterinary hygiene and as assistant director of the Veterinary Research Institute.

G. D. PRESTON has been appointed to the Harris chair of physics at University College, Dundee. Mr. Preston is known for his application of physical methods to metallurgical problems.

ROSCOE ROY SPENCER, medical director of the U. S. Public Health Service and assistant chief of the National Cancer Institute, Bethesda, Md., will become chief of the institute, the appointment to be effective on August 31. He will succeed Dr. Carl Voegtlin, who is retiring as director.

THE Board of Scientific Directors of the Rockefeller Institute for Medical Research announces the following promotions on the scientific staff, effective on July 1. *Assistant to Associate,* Dr. Merrill W. Chase, Dr. Stanford Moore, Dr. Isabel M. Morgan, Dr. Howard A. Schneider and Dr. William H. Stein. *Fellowship to Associate,* Dr. D. Wayne Woolley. *Fellow to Assistant,* Dr. Sidney Rothbard. The board also announces that Dr. Oswald T. Avery, who has reached the age of retirement, has been made member emeritus.

DR. CONRAD BERENS, of New York City, has been appointed civilian consultant in ophthalmology to the Office of the Air Surgeon.

ELMER S. RIGGS has been appointed honorary curator of paleontology at the Dyche Museum of the University of Kansas. This appointment takes effect as of June 2.

CHRIS L. CHRISTENSEN, dean of the College of Agriculture of the University of Wisconsin, has be-

come vice-president in charge of post-war development of the Celotex Corporation. He will also have charge of agricultural interests. Dean Christensen has been a director of the corporation since March, 1942.

T. W. HOWARD has been appointed superintendent of turbine and marine installations at the General Electric Company; E. L. Feininger has been appointed manager of the new division for resin and insulation material, and Dr. J. J. Pyle, group leader in charge of research and chemical development at the plastics laboratory at Pittsfield, Mass., has been appointed chemist in charge of the laboratory, succeeding Dr. G. F. D'Alelio, who has resigned.

EMMETT P. DUNN, curator of reptiles at the Academy of Natural Sciences of Philadelphia, left by airplane for South America on June 20. Serving under the auspices of the Committee for Inter-American Artistic and Intellectual Relations, he has been assigned to the Institute of Natural Sciences of the National University at Bogota, Colombia, to work on the collections of the reptiles and amphibians of the eastern slope of the Andes and to collect in the field.

A PARTY from the staff of Field Museum of Natural History began diving operations in Lake LaGrange at Dowagiac, Mich., on June 23 in order to complete studies necessary for the creation of an underwater habitat group of typical fresh-water fishes at the museum. Members of the party are Loren P. Woods, acting curator of fishes; Arthur G. Rueckert, staff artist; Leon L. Pray, taxidermist, and Frank H. Letl, preparator of accessories. The underwater studies are directed toward assuring a faithful reproduction in the museum exhibit of the submerged vegetation typical of the small lakes frequented by anglers in Michigan, Indiana, Illinois and Wisconsin. The fishes to be shown in the group include black bass, pickerel, yellow perch, wall-eyed pike, sunfishes, crappies, bullheads and minnows.

A CABLE dated June 24 from Guatemala to *The New York Times* states that a commission of sanitation experts, which is studying conditions along the route of the inter-American highway, had arrived at Guatemala. Dr. John R. Murdock, chief of the mission, is accompanied by Sanitary Engineers Charles C. Spenser, Herbert E. Hargis and Walter Dashiel. A careful study, which it is expected will be completed this year, is being made of drinking-water supplies, drainage and tropical diseases existing near the highway.

THE two hundred and fifty-sixth meeting of the American Physical Society will meet at Stanford University, California, on July 10. Following four contributed papers to be read at the morning session, invited papers will be given by L. Marton and Hardin Jones. The afternoon session will open with an invited paper by K. K. Darrow. Subsequent meetings are scheduled as follows: Chicago, November, 1943; Pacific Coast meeting, December, 1943, and the annual meeting, New York City, January, 1944.

A BILL to provide increased educational opportunities in Alabama has been signed by Governor Chauncey Sparks. $100,000 is appropriated annually for the Tuskegee Institute, of which Dr. F. D. Patterson is president. The bill provides that the fund be used for teaching graduate work in agriculture and home economics, and such other subjects as the board of trustees deems advisable.

ALBION COLLEGE has received the Charles W. Fallass herbarium as a gift to the college of the Fallass estate of Petoskey, Mich. Mr. Fallass graduated from the college in 1873. The herbarium contains approximately ten thousand specimens of both flowering plants and ferns mostly from Michigan, though many specimens have been secured by exchange from other parts of the United States, Canada, Mexico and countries abroad.

DR. ALEXANDER S. WIENER, head of the blood transfusion division at the Jewish Hospital of Brooklyn, has been awarded a grant of $3,000 by the United Hospital Fund, to carry on investigations on the prophylaxis and treatment of erythroblastosis fetalis.

THE U. S. Board of Education, under the E. S. M. W. T. program, has approved a series of courses in Sanitation Problems in Food Handling and Processing, sponsored by Manhattan (Engineering) College and the New York City Department of Health. Dr. J. H. Shrader has been retained to organize this course and direct the work of the instructors. The classes are organized into sections which deal with subjects of related content, such as baking, milk, meat, and others. Each class enrolls about twenty-five students and there are now eleven such classes, with a total of about three hundred students. The emphasis is chiefly on the technology of food production with a background of proper sanitary practice and understanding of the health problems involved. Open to high-school students without charge and conducted at college level, the course runs for six weeks of two sessions per week of three hours each. A certificate is issued by the New York City Health Department for those who successfully pass the course as determined by class work and final examination. A repeat series is scheduled to start about the middle of September. Those interested should write to A. D. Donovan, Manhattan College, Bronx, New York.

IT is reported in *The Lancet* that several medical schools expect to return soon to London provided that

essential repairs to their buildings can be undertaken. The medical students of King's College have already returned from Birmingham and the preclinical students of the Middlesex Hospital from Leeds, the London School of Medicine for Women is bringing back its preclinical students from Exeter and the London Hospital its preclinical students from Cambridge. The whole medical school of University College Hospital is also returning to London as the sector hospital which has been used for teaching is no longer available. Among the schools whose buildings have suffered extensive damage are University College and St. Bartholomew's Hospital Medical College, and these schools are considering schemes for temporary accommodation after the war so that their return to London need not wait upon the completion of the permanent buildings.

The Times, London, states that the Government of New South Wales is setting up a cancer institute at Sydney, the cost of which will be £100,000. Dr. Ralston Paterson, of the Holt Radium Institute, Manchester, England, is going to Australia to advise on the project.

THE British Institute of Chemistry hereafter will be known as "The Royal Institute of Chemistry of Great Britain and Ireland."

DISCUSSION

IMPLICATIONS INVOLVED IN MATHEMATICAL ADVANCES

HISTORIES of mathematics have seldom emphasized duly the fact that mathematical advances usually imply corresponding mathematical ignorance of the entire world up to the time when these advances were made. It is largely due to this fact that many educated people regard mathematics as a much older subject than it actually is. The numerous modern mathematical advances are greeted with applause, but their effectiveness would often be enhanced by exhibiting clearly to what extent they dispel ignorance relating to the same subjects. This is especially true as regards the history of mathematics since American contributions towards the advancement of this subject have thus far been unduly limited. Our writings thereon have been too largely confined to text-books which were usually not up-to-date even at the time of publication.

Advances in pure mathematics have always been within the reach of the poor and the rich alike since they required no expensive equipment. In this respect they differ widely from the achievements in warfare since the latter have always depended largely on the improvements in physical equipments, which, in turn, often encouraged the diffusion of mathematical knowledge. The free accessibility as regards advances in this subject constitutes an important element of its history because it tended to widen the variation of those working in this field. Those who contributed to the advancement of mathematics often worked in obscurity and with meager facilities.

For instance, J. V. Poncelet, who is commonly regarded as the creator of projective geometry, remarked in the first pages of his noted "Traité des propriétés projectives des figures" that this work was the result of researches which he undertook in the spring of 1813 in the prisons of Russia, where he obviously did not have much physical equipment for scholarly work. E. Galois, who greatly stimulated the early development of group theory, died before he was twenty-one years old when his work had as yet received little attention. He is the most conspicuous example of a mathematician whose present reputation depends almost entirely on the work of later writers who developed results which follow from ideas which he had announced but did not have time to master completely. His great modern reputation is evidence of a widespread desire on the part of the earlier mathematicians to give credit for the ideas which inspired their own work. It would be too idealistic to assume that this desire was universal or is universal now.

The history of mathematics is greatly enriched by the consideration of each decided advance in the light which it throws on the mathematical developments of all earlier times. For instance, the fact that H. Cardan published in his "Ars Magna" (1545) the earliest known solution of a quadratic equation having two complex roots sheds much light on all the earlier work relating to the quadratic equation, including that of the ancient Babylonians (about 2000 B.C.) and that of the ancient Greeks which was done more than fifteen hundred years later. The fact that the Norwegian surveyor, Caspar Wessel, published in 1799 the earliest satisfactory theory for operating with complex numbers by means of the fundamental operations of arithmetic throws much light on the extensive earlier use of these numbers during about two hundred and fifty years after the publication of Cardan's "Ars Magna."

This use of complex numbers before its legality had been established was not confined to mathematicians who received little recognition on the part of later writers on mathematics. It included Isaac Newton (1642–1727), who considered the number of the imaginary roots of an algebraic equation; G. W. Leibniz (1646–1716), who factored $x^4 + a^4$ into its linear fac-