open until the end of May) has been written by T. C. Crawhall.

ASTRONOMICAL APPOINTMENTS AT THE UNIVERSITY OF CHICAGO

APPOINTMENT of four new faculty members of its department of astronomy, three of them distinguished young foreign astronomers, has been made by the University of Chicago. The appointments will make the department one of the most cosmopolitan groups in the university, as well as one of the outstanding departments.

Dr. Gerard P. Kuiper, of Leyden, Holland, has been appointed assistant professor of practical astronomy, effective on September 1. He has carried on research at the Bosscha Observatory in Java, at the Lick Observatory of the University of California and at Harvard University. Last year, at the Lick Observatory, he found that the bright new star, or nova, which was being observed by astronomers all over the world, is in reality a double star. He has also greatly increased the known number of "white dwarfs," those peculiar stars which are so dense that a cubic inch of material from them would weigh tons.

Dr. Bengt Stromgren, now privatdozent and lecturer on astrophysics at the University of Copenhagen, has been appointed assistant professor of theoretical astrophysics, effective on October 1. He became active in astronomical research at the age of thirteen and, although he is still under thirty, is already one of the world authorities in astrophysics and co-author of two important text-books.

Dr. S. Chandrasekhar, a native of Madras, India, has been appointed research associate, effective on January 1. Especially well known in the field of mathematical astronomy, Dr. Chandrasekhar is a former student of Sir Arthur Eddington. He received the Ph.D. at Trinity College, Cambridge, and has recently been engaged in research at Harvard University.

Dr. Philip C. Keenan, of the Perkins Observatory of the Ohio State and the Ohio Wesleyan universities, has been appointed instructor in astronomy. He received the Ph.D. at the University of Chicago. Drs. Kuiper, Chandrasekhar and Keenan will do most of their work at the Yerkes Observatory of the University of Chicago, at Williams Bay, Wisconsin. Dr. Stromgren will work chiefly at Chicago. Professor William D. MacMillan, member of the Chicago faculty for twenty-eight years and widely known for his theoretical studies in astrophysics, reaches the retirement age this year.

The present personnel of the department of astronomy, in addition to American-born members, includes Dr. Otto Struve, chairman of the department and director of Yerkes Observatory, whose father, grandfather and great-grandfather served as directors of various European observatories; Professor George A. Van Biesbroeck, a native of Belgium; and Dr. Hans Rosenberg, a German.

In addition to its work at the Yerkes Observatory, the department of astronomy will direct research at the McDonald Observatory, now in construction in the Davis Mountains of Texas. The McDonald Observatory is a cooperative enterprise of the University of Texas and the University of Chicago.

SYMPOSIUM ON HEAVY WATER AT THE KANSAS CITY MEETING OF THE AMERICAN CHEMICAL SOCIETY

PROFESSOR HAROLD C. UREY, of Columbia University, will be the chairman of a heavy water symposium which will be held in connection with the ninety-first meeting of the American Chemical Society in Kansas City, Mo., from April 13 to 17.

The symposium will survey the results achieved by workers in nine American universities and in the laboratories of the United States Government. Biology, physics, medicine, physical and inorganic chemistry, and organic chemistry are the principal spheres of investigation. Hundreds of isolated experiments to find uses for deuterium are reported from practically every civilized country. It has become a valuable tool in research. Its price is now so low that it is available to all.

Among the speakers will be Dr. F. G. Brickwedde, of the National Bureau of Standards, codiscoverer of heavy water. He will discuss the effects of mass on physicochemical and physical properties as determined by measurements at very low temperatures.

Professor W. D. Harkins, of the University of Chicago, will show the importance of deuterium as a reagent in the determination of the structure and properties of the nucleus.

Deuterium in biology will be discussed by Professors C. A. Smucker and H. V. Moyer, of the Ohio State University, who will report their experiments on the growth of bacteria in heavy water. Dean Frank C. Whitmore, of the Pennsylvania State College, and Professors J. O. Halford and L. C. Anderson, of the University of Michigan, will speak of developments in organic chemistry, where the use of deuterium has helped to elucidate many problems.

Professor H. S. Taylor, of Princeton University, will give the results of recent investigations in which deuterium and hydrogen have been used to study the properties of surfaces and reactions at surfaces.

Professor S. C. Lind and Dr. C. H. Shifflett, of the University of Minnesota, will illustrate the differences between the rates of reaction of hydrogen and deuterium with oxygen when the products of the decomposition of radioactive substances are used to

catalyze the reaction. Professors N. F. Hall and T. O. Jones, of the University of Wisconsin, will present the results of a redetermination of the ratio of light to heavy hydrogen in water. Professor Malcolm Dole, of Northwestern University, will read a paper on the relative atomic weights of oxygen in water and in air, and will discuss the effect of his results on the chemical standard of atomic weights.

A sensitive balance for measuring the density of carbon dioxide, with special reference to the isotopic ratio, will be described by Professor Farrington Daniels, of the University of Wisconsin. Professor Urey will take up the theoretical and experimental methods which have been used to investigate the equilibrium properties of reactions in which hydrogen and deuterium compounds take part.

THE SEVENTIETH ANNIVERSARY OF ENGINEERING AT LAFAYETTE COLLEGE

LAFAYETTE COLLEGE celebrated the seventieth anniversary of the founding of engineering courses on March 20, at which time many of the leading engineers in America attended the ceremonies.

The honorary degree of doctor of science was given to Charles Franklin Kettering, president, General Motors Research Corporation; G. S. Rice, chief mining engineer of the U. S. Bureau of Mines, and Professor Almon H. Fuller, head of the civil engineering department of Iowa State College.

Mr. Kettering was the principal speaker of the morning convocation. The topic of his address was "What's Ahead in Engineering?" Professor William S. Hall, professor emeritus of mathematics, outlined "Seventy Years of Engineering at Lafayette." The convocation in Colton Memorial Chapel was followed by an invitation luncheon at Brainerd Hall.

Dr. Morland King presided over the afternoon conference held in Pardee Hall. The general topic for discussion was "The Place of the Engineer in the Modern World." The speakers were: Professor Almon H. Fuller, whose topic was "The College Training of the Engineer"; Robert I. Rees, assistant vice-president, the American Telephone and Telegraph Company, "The Professional Training and Recognition of the Engineer"; and President William E. Wickenden, of the Case School of Applied Science, outlined "The Place of the Engineer in Modern Society."

The fact that Lafayette was the site of the first successful canning in hermetically sealed containers, accomplished by Harrison W. Crosby, was observed when Edwin J. Cameron, of the National Canners' Association Research laboratories, outlined the development of the industry since Crosby's invention.

Williard Chevalier, vice-president of McGraw-Hill Publishing Company, speaking on the subject of "An Engineer takes a look at Modern Trends" was the last speaker of the day at a subscription dinner at the Hotel Easton. Dr. William Mather Lewis was toastmaster.

Preceding the principal program on Thursday, March 19, at a meeting of the John Markle Mining Society in the new Markle Hall building, members of the faculty unveiled portraits of Rossiter W. Raymond and Thomas M. Brown, formerly professors in the Lafayette engineering department. Throughout the course of celebration there was on display at the Alumni Memorial Gymnasium an industrial exhibition including working models, illustrations of manufacturing processes, scientific instruments, experiments and translux projections of engineering operations.

SCIENTIFIC NOTES AND NEWS

THE seventy-third annual meeting of the National Academy of Sciences will be held in Washington, D. C., on April 27, 28 and 29.

THE annual general meeting of the American Philosophical Society will be held on April 23, 24 and 25, beginning at 2 P. M., on Thursday, April 23. The R. A. F. Penrose, Jr., memorial lecture will be given on Friday evening by Dr. Dixon Ryan Fox, president of Union College, who will speak on "The American Tradition in a New Day."

THE executive committee of the American Association for the Advancement of Science will meet at Lancaster, Pa., on Sunday, April 19. On the preceding evening members of the committee will be entertained by the Lancaster Branch, now having about one thousand members, established last year by the council of the association at the Pittsburgh meeting. Business to be brought before the executive committee should be sent to the office of the permanent secretary in the Smithsonian Institution Building, Washington, D. C.

THE Hubbard Gold Medal of the National Geographic Society will be presented to Lincoln Ellsworth by President Roosevelt on April 15, probably at the White House. The award was made in recognition of the exploratory flights in the neighborhood of both Poles and particularly for the 2,200-mile flight last November over unexplored territory in Antarctica.

DR. MAXIMILIAN EHRENSTEIN, a member of the department of physiology at the Medical School of the University of Virginia, formerly a member of the fac-