genetics and breeding exhibits will be open for inspection and they will be demonstrated in the afternoon. Members will have the opportunity to visit the laboratories of the station, to view the collections of the living fruit and vegetable material, and to attend demonstrations of experimental work.

THE CYRUS FOGG BRACKETT PROFESSORSHIP OF PHYSICS AT PRINCETON UNIVERSITY

PROFESSOR RUDOLPH WALTER LADENBURG, of the Kaiser Wilhelm Institut für physikalische Chemie, has been appointed to the Cyrus Fogg Brackett professorship of physics at Princeton University. This is a research professorship and enables the holder to devote his full energies to furthering research in experimental physics at Princeton. He is the second incumbent and successor of Dr. K. T. Compton, who left Princeton to become president of the Massachusetts Institute of Technology. Professor Ladenburg was in Princeton last year as visiting professor.

In connection with the appointment provision has been made from the local research endowment and a special grant from the Rockefeller Foundation for the inauguration in Princeton of two new lines of fundamental research. One involves the development of high potential sources for study of the atomic nucleus. The other includes the installation of a liquid hydrogen plant for studies on the spectroscopy of the solid state.

The high potential program includes a kenetron rectification outfit for steady potentials up to 600,000 volts with which to study artificial disintegration processes along lines similar to those so successfully employed by Cockroft and Walton in the Cavendish laboratory. Work has also been started on the construction of a high potential electrostatic machine of the type developed at Princeton last year by Dr. R. J. Van de Graaff. This part of the program is the work of Dr. H. A. Barton, director of the American Institute of Physics. The machine which is being built for him employs Van de Graaff's principle but will be in an atmosphere of compressed air to reduce insulation difficulties which present themselves when such a machine is operated under ordinary atmospheric pressure.

The liquid hydrogen plant will be the fourth in America, others being at the chemistry department of the University of California, the Bureau of Standards at Washington and the University of Toronto physical laboratory. By going to these extremely low temperatures complications of the spectrum of solids present at ordinary temperatures are largely eliminated by the reduction of the heat motions of the atoms. In recent years the study of molecular spectra in gases has given a great deal of information about the nature of the chemical valence forces. Similarly the spectroscopy of the solid state will give information concerning the nature of the forces which hold crystals together. Besides this use the Princeton cryogenic laboratory will also provide the chemists under Professor H. S. Taylor with means for extending their studies of chemical kinetics and of the thermodynamic properties of matter at these low temperatures.

SCIENTIFIC NOTES AND NEWS

DR. ROSS GRANVILLE HARRISON, professor of biology at Yale University, received the degree of doctor of science from the University of Dublin on June 29.

THE University of Heidelberg has conferred an honorary doctorate on Dr. Henry Drysdale Dakin, research chemist, Scarborough-on-Hudson, New York.

AT the fifty-fifth annual commencement of the University of Oregon, the honorary degree of doctor of laws was conferred on Dr. Henry Baldwin Ward, head of the department of zoology, University of Illinois, "in recognition of his outstanding scholarship in biological sciences and his constructive work in the conservation of wild life and natural resources."

DR. THURMAN D. KITCHIN, president and dean of the department of medicine, Wake Forest College, Wake Forest, received the honorary degree of doctor of laws at the recent commencement at Duke University.

THE degree of doctor of science was conferred at the commencement of Doane College, Crete, Nebraska, on C. F. Curtis Riley, assistant professor of zoology at the University of Manitoba. Professor Riley is a graduate of Doane College in the class of 1901.

A BUST of Dr. Frederick G. Banting, Toronto, co-discoverer of insulin, will be unveiled at a summer camp for diabetic children near Cleveland on July 31. Dr. Banting will be present at the ceremony, which is sponsored by Dr. Henry J. John and the directors of the camp.

DR. ANTON J. CARLSON, chairman of the department of physiology of the Graduate School of Medicine of the division of biological sciences of the University of Chicago, has given the initial contribution toward a fund of $30,000 to provide a fellowship in honor of Dr. Arno Benedict Luckhardt, professor of physiology in the school. It is planned that the fellowship is not to be awarded until the fund reaches

$30,000 or more so that the annual amount of the fellowship will be at least $1,500.

Nature reports that the following have been elected foreign members of the Geological Society of London: Professor R. A. Daly, Sturgis-Hooper professor of geology in the Museum of Comparative Zoology at Harvard University, authority on igneous rocks and mountain building and on coral reefs; Professor Paul Niggli, University of Zurich, distinguished for his work on ore deposits and crystallography, and Professor Bailey Willis, Stanford University, known for his work on geological structures. Foreign correspondents have been elected as follows: Professor C. P. Berkey, Columbia University, New York City, secretary of the Geological Society of America, who has carried out geological studies in Mongolia and elsewhere; Professor H. A. Brouwer, University of Amsterdam, known for his work on the geology and petrology of the Dutch East Indies; Professor Hans Cloos, University of Bonn, an authority on the tectonics of igneous intrusions; Professor W. K. Gregory, curator in the American Museum of Natural History, New York City, distinguished for his studies on fossil vertebrates, and Dr. Victor Van Straelen, director of the Natural History Museum in Brussels, distinguished for his work on fossil Crustacea.

WE learn from *Nature* that the Keith Prize of the Royal Society of Edinburgh has been awarded by the council to Dr. A. W. Greenwood, lecturer in the Institute of Animal Genetics, University of Edinburgh, for papers on the biology of the fowl, and the Neill Prize to Dr. C. H. O'Donoghue, reader in zoology in the University of Edinburgh, for papers on the blood vascular system, and for earlier work on the morphology of the *corpus luteum*.

THE British Institute of Physics announces that the British Instrument Manufacturers Association prize for the best paper published in the *Journal of Scientific Instruments* during the year 1931 is to be equally divided between Mr. H. C. H. Townend, of the National Physical Laboratory, for his paper on "A Daylight Factor Integrator," and Professor E. W. Marchant, Mr. J. K. Burkitt and Mr. A. H. Langley, of the University of Liverpool, the joint authors of the paper, "A Portable String Galvanometer for Use at Moderate Frequencies," and the Institute of Physics prize for the best contribution to the Laboratory and Workshop Notes in the *Journal* has been awarded to Mr. F. W. Kirkby, of the Royal Aircraft Establishment, Farnborough, for his note, "Improved Method of Holding Mirrors for Sextants and Other Instruments."

THE first Colyer prize, founded by the Royal Society of Medicine in 1926 to commemorate the twenty-five years' service of Sir Frank Colyer as honorary curator of the Odontological Museum, has been awarded by the council of the society to Mr. Martin A. Rushton, for his work on "matters regarding dental science during the past four years." Mrs. Lilian Lindsay has been appointed to the lectureship on the history of dentistry, founded in 1927 in memory of Mr. C. E. Wallis by his brother.

DR. P. E. BROWN has been made head of the department of farm crops and soils at the Iowa State College, where he has been for the past twenty-two years professor of soils. He is also head of the Farm Crops and Soils Section of the Agricultural Experiment Station and director of the Iowa Soil Survey. Dr. Brown has been acting head of the department since last fall, when Professor W. H. Stevenson resigned, owing to ill health.

PROFESSOR THORNDIKE SAVILLE, professor of hydraulic and sanitary engineering at the University of North Carolina, has been appointed to a similar position at the College of Engineering of New York University.

DR. F. C. ELLIOTT, of Kansas City, has been appointed dean of the Texas Dental College at Houston.

DR. P. W. WHITING, of the department of zoology at the University of Pittsburgh, has been promoted to a full professorship.

DR. S. J. BECK, senior resident psychologist at the Boston Psychopathic Hospital, has been appointed for the coming year research assistant in psychology in the department of psychiatry at the Harvard Medical School.

DR. L. J. WILLS has been appointed professor of geology at the University of Birmingham to succeed Professor W. S. Boulton, who retires at the end of the current session.

M. BEGHIN, of the Sorbonne, University of Paris, has been appointed professor of physical and experimental mechanics to succeed M. Koenigs.

DR. CHARLES W. EDMUNDS, professor of materia medica and therapeutics in the University of Michigan, has been elected vice-chairman of the medical section of the National Research Council and a member of the executive committee.

DR. MADGE THURLOW MACKLIN, of the University of Western Ontario Medical School, London, recently addressed the staff of the Cancer Research Laboratories, University of Pennsylvania Graduate School of Medicine, on "The Rôle of Inheritance in Human Neoplasms and its Diagnostic Significance."

DR. S. W. RANSON, Northwestern University Medical School, has received a grant from the Committee

on Scientific Research of the American Medical Association to be used in a study of the structure and function of the spinal nerves in man.

DR. R. E. COKER, professor of zoology at the University of North Carolina, has leave of absence for a year on the Kenan Foundation for Biological Study in Germany.

DR. R. G. AITKEN, director of the Lick Observatory, University of California, has taken up his work after an absence of three and a half months during which he received the gold medal of the Royal Astronomical Society of England and delivered the annual Darwin lecture before that organization. During his stay in London he gave a lecture before the British Astronomical Association.

DR. WALTER CARTER, professor of entomology in the Graduate School of Tropical Agriculture and entomologist at the research station of the Association of Hawaiian Pineapple Canners, is a delegate to the International Congress of Entomology in Paris. From there he will go to Jamaica and Central America in a search for parasites of the pineapple mealy bug.

DR. RICHARD P. STRONG and Dr. A. W. Sellards, of the department of tropical medicine of the Harvard University Medical School, were invited guests for the centenary meeting of the British Medical Association, held in London from July 26 to 29.

THE American Mathematical Society has appointed the following delegates to the International Congress of Mathematicians to be held in Zurich, Switzerland, September 4–12, 1932: Professor Edward Kasner, Columbia University; Professor C. N. Moore, University of Cincinnati; Professor R. G. D. Richardson, Brown University; Professor E. B. Stouffer, University of Kansas, and Professor J. D. Tamarkin, Brown University.

THE sixty-first annual meeting of the American Public Health Association will be held in Washington, D. C., from October 24 to 27, with headquarters at the Willard Hotel. The Association of School Physicians will hold its meetings on the Friday, Saturday and Sunday prior to October 24; this association will also meet in joint session with the Child Hygiene and Public Health Nursing sections for one or more programs. The State Sanitary Engineers will meet on Friday, Saturday and Monday for their own conferences and will then join with the Public Health Engineering Section of the association. The Public Health Education Section will conduct an institute, arranged for Saturday and Sunday, October 22 and 23, at which short and intensive courses in the philosophy and principles of health education will be given and practical suggestions offered for organizing health education programs. The Industrial Hygiene Section is planning a special exhibit, indicating the special hazards, problems and general progress in preventive medicine in industry. At the scientific sessions one program will be devoted to mental hygiene. The Committee on Training and Personnel will sponsor a luncheon at which the training of engineers, nurses and health officers will be discussed. Diphtheria will be discussed at another luncheon. There will be symposiums on air hygiene; incidence, identification and significance of bacterial carriers: standard methods; bacterial dissociation; vital statistics; registration problems, and the participation of the medical profession in public health work. In addition specially planned sight-seeing tours and trips to places of scientific interest have been arranged.

THERE will be a meeting of the New York State Section of the Society of American Foresters on September 1 and 2 at Warrensburg, New York, at the Pack Demonstration Forest. The program will begin with a dinner at the Adirondack Hotel in Warrensburg. The following day will be spent in the forest, three miles north of Warrensburg on the Albany-Montreal highway. The economic situation as it relates to the employment of foresters will be taken up at the meeting.

AN invitation has been extended by the provincial governments of Ontario and Quebec through the Society of Economic Geologists to seventy-five of the leading geologists in North America to meet on July 31 at North Bay, Ontario, from which they will travel by special train and river boat to the principal gold-producing areas. The object of the expedition is a first-hand study of the underground formations in the Kirkland Lake, Porcupine and Rouyn districts. After a week in the gold fields, during which the workings of the Kirkland Lake, Noranda, Hollinger, McIntyre, Dome and Siscoe mines will be inspected, the party will return to Toronto and Montreal. John Dresser, of Montreal, regional vice-president of the Society of Economic Geologists, is in charge of the arrangements for the expedition.

ACCORDING to a dispatch to *The New York Times*, the Canadian Pacific steamer *Montcalm* sailed on July 20 for Canada carrying a number of British astronomers, who expect to observe the eclipse of the sun from Canada and New England on August 31. Dr. John Jackson, the chief assistant to Sir Frank Dyson, the astronomer royal, heads the party from Greenwich Observatory. To photograph the sun's corona he is taking a large telescope used in England during the eclipse in 1927. The Greenwich party is going as far north in the wilds of Quebec as it dares

take its heavy equipment. Professor Frederick Stratton, of the Cambridge Solar Physics Laboratory, is leading a party to Magog, near the Vermont boundary, while Dr. Herbert Dingle, of the Imperial College of Science, will observe the eclipse from Montreal. Later the delegates, with other European visitors, will attend the meeting of the International Astronomical Union at Harvard University.

A SECOND expedition left England on July 9, in connection with the International Polar Year—1932–33. This expedition, which is being sent out by the Radio Research Board, is to make special wireless observations at Tromsö, within the Arctic Circle. The party, consisting of Professor E. V. Appleton, Mr. G. Builder, Mr. R. Naismith and Mr. W. C. Brown, sailed in the motor-vessel *Venus* from Newcastle for Bergen, whence they proceeded to Tromsö.

HANS KNUDSON, of the Danish Observatory at Copenhagen, arrived at Rio de Janeiro on July 5 on the way to the island of Tristan da Cunha to install a magnetic observatory. The small colony on Tristan da Cunha has been described as the loneliest in the world. About 130 persons, descendants of Napoleon's guards at St. Helena, live on the extinct volcano which towers 8,000 feet up out of water two miles deep. It is about half way between Africa and South America.

PLANS for extensive educational and scientific exhibits in the buildings of Rockefeller Center, New York City, were outlined by the Rockefeller interests after an announcement in Washington that President Hoover had signed a bill authorizing the entry under bond of foreign goods for such purposes without prepayment of customs duty. The legislation is intended to foster displays of the arts, sciences and industries of many nations, "together with products of the soil, mine and sea." Duties will be paid on any such goods sold while on exhibition. Articles remaining on display for more than two years will be subject to customs charges.

DISCUSSION

THE MUDDY MOUNTAIN THRUST IN FACT AND IN FICTION

I HAVE had my attention called to two articles in which some reference is made to my work in the Muddy Mountains of southern Nevada. These articles are published in *The Pan-American Geologist,* and the author is the editor of that journal, Charles Keyes. Neither of the papers is complimentary to me, and in one of them the author's denunciation of my poor efforts can only be described as vituperative. This condemnation I accept humbly, bearing in mind that the human spirit grows arrogant on a diet of praise. My wonder is aroused, however, by a peculiar statement that is made in the first paper and somewhat amplified in the second.

In the October number of his journal, 1929, Keyes published an article entitled "Reflection of Submontane Structures in Desert Range Features." On pages 204–205 of that issue he represents that an examination of borax mines in White Basin led him to the discovery, a full decade before I was in that country, that the Muddy Mountains are underlain by a great thrust fault. In the April issue of his journal, 1932, is an article by Keyes entitled "Mechanics of Orogenic Over-thrusting." On pages 205 and 206 he states that he discovered the thrust "a decade or so" before I saw it, and that he so directed the building of the borax road from the railway point to White Basin that the grade exposed a clean section of the thrust.

The Muddy Mountain thrust is so beautifully exposed that every geologist whom I have guided to the area has exclaimed that the structure is "diagrammatic." This truly remarkable geologic exhibit requires no artificial cuts for its demonstration; it is exposed so plainly and on a scale so large that any competent student of tectonics would recognize it after a brief examination of the area. If any geologist should state simply that he was in the Muddy Mountains and saw the thrust before I described it, I would believe him readily. But Keyes does not make any such simple statement; he amplifies his claim by tying it to events that are dated exactly. It is this fact that excites my profound wonder and leads me to lay the facts before my colleagues in geology.

My study of the Muddy Mountains was made in the summer and fall of 1919. During part of that time I was assisted by a worthy Mormon prospector, John Perkins. On our pack-train expeditions together Perkins used every opportunity to ply his trade, and after I left the region he continued to prospect actively. Exactly one year later—in the late fall of 1920—Perkins discovered small deposits of colemanite in the Tertiary beds of White Basin. His discovery was epochal. Not only were these the first borate deposits ever reported from Nevada, but, as Hoyt S. Gale wrote,[1] "These discoveries are also notable in that they constitute the first record of commercial deposits of the mineral colemanite outside the State of California, not only in the United States but

[1] "The Callville Wash Colemanite Deposit," *Eng. and Min. Jour.,* Vol. 112, p. 524, 1921.