using a series of deep sea samplers, with corresponding thermometers, attached to the cable at different levels.

It is the purpose of the expedition to study further the physical conditions in these waters in which, in 1927, the third oceanographic expedition of the "Pawnee," sponsored and directed by Harry Payne Bingham, Yale '10, of New York City, obtained the greatest part of the valuable collections of deep sea life now deposited in the Peabody Museum as the Bingham Oceanographic Collection.

The waters around the Bahamas are known for the configuration and relative positions of the two deep sea troughs or valleys, the Tongue of the Ocean and Exuma Sound, extending in between the Bahama Islands. Running nearly parallel and very close together for almost their entire lengths, these two troughs open towards the outer ocean at opposite ends far apart from each other.

It is hoped that the *Abenaki* expedition may bring the first step forward towards a knowledge and understanding of what actually takes place between the Antilles and Brazilian currents. In this manner the expedition will also be laying the groundwork for the Yale Oceanographic Expeditions to be undertaken during 1932–1937, by arrangement between the university and Mr. Drayton Cochran, Yale '32, and by which it is hoped that it will be possible to carry through an oceanographic exploration of the entire region west of the outer chain of islands from Florida to Brazil.

Mr. Ewing, sponsor and director of the expedition, will conduct the investigations and, with the assistance of Mrs. Ewing, will take care of the observations and collections to be made on board the schooner. He will subsequently undertake the analysis and elaboration of his results in the Bingham Oceanographic Laboratory of the Peabody Museum.

# SCIENTIFIC NOTES AND NEWS

THE Echegaray medal of the Royal Academy of Sciences of Madrid has been awarded to Lord Rutherford. According to *Nature* previous recipients of the medal are: José Echegaray (1907), Eduardo Saavedra (1910), Prince Albert I of Monaco (1913), Leonardo Torres Quevedo (1916), Svante Arrhenius (1919), and Santiago Ramón y Cajal (1922).

PROFESSOR SIR J. J. THOMSON, master of Trinity College, has been appointed the delegate from the University of Cambridge to the centenary of the British Association for the Advancement of Science to be celebrated in London from September 23 to 30, and to the Faraday celebrations to be held in London on September 21 and following days.

AT the University of Glasgow on January 20, Sir Frederick Gowland Hopkins, president of the Royal Society, on behalf of the subscribers, presented to Professor Robert Muir, professor of pathology in the university, his portrait by Mr. G. Fiddes Watt, and to the university a bust by Mr. G. H. Paulin. Principal Rait, who presided, expressed his pleasure that Sir Frederick Hopkins should inaugurate his presidency of the Royal Society by going to Glasgow to do this honor to Professor Muir.

M. E. FABRY has been elected a correspondent for the section of geometry of the Paris Academy of Sciences.

DR. JEAN DEMOOR, professor of physiological biology in the University of Brussels, has been elected president of the Royal Academy of Medicine of Belgium for 1931.

THE Gamma chapter of the honorary physics fraternity at Pennsylvania State College, Sigma Pi Sigma, initiated, on February 21, Dr. Artur Haas, professor of physics at the University of Vienna, as an honorary member. Dr. Haas had given three lectures at the college.

THE Lamme Medal of the American Institute of Electrical Engineers has been awarded to Dr. William J. Foster, Schenectady, New York, "for his contributions to the design of rotating alternating current machinery," and will be presented at the summer convention of the institute which is to be held in Asheville, North Carolina, from June 22 to 26. The Lamme Medal was founded as a result of a bequest of the late Benjamin G. Lamme, chief engineer of the Westinghouse Electric and Manufacturing Company, who died on July 8, 1924, to provide for the award by the institute of a gold medal to a member, "who has shown meritorious achievement in the development of electrical apparatus or machinery."

DR. G. O. HIGLEY, head of the chemical department of Ohio Wesleyan University, has retired from active service. His former students are subscribing to a fund to be used for the establishment of the G. O. Higley Chemical Library.

DR. MARCUS BENJAMIN, editor of the publications of the U. S. National Museum since 1896, retired from active government service on January 31. A dinner in appreciation of Dr. Benjamin's work was given at the Cosmos Club on February 21. Dr. Charles G. Abbot, secretary of the Smithsonian Institution, presided and the speakers included Dr. R. S. Bassler, head

curator for geology, U. S. National Museum; Dr. Walter Hough, curator for anthropology, and Dr. Paul Bartsch, curator for mollusks; Mr. Martin R. Speelman, of the Government Printing Office; Dr. L. O. Howard, of the Bureau of Entomology, and General George Richards, of the U. S. Marine Corps.

DR. WADE HAMPTON FROST, professor of epidemiology, has been appointed first dean of the School of Hygiene and Public Health of the Johns Hopkins University. Dr. Frost will assume his new position when the present director of the school, Dr. William H. Howell, retires on July 1. Under a new rule, adopted by the university in the creation of a deanship in place of a directorship, the administrative officer will be nominated by ballot of the advisory board of the school for appointment for three years. The dean thus appointed will be ineligible for nomination to succeed himself.

PROFESSOR J. GROVER BEARD, a member of the University of North Carolina faculty since his graduation in 1909, has been appointed dean of the University School of Pharmacy to succeed the late Dean Vernon Howell.

DR. ARISTIDES AGRAMONTE, professor in the medical faculty of the University of Havana, has accepted the post of professor of tropical medicine at the Louisiana State University.

DR. JOHN B. DEC. SAUNDERS, formerly of the University of Edinburgh, has been appointed assistant professor of anatomy in the School of Medicine of the University of California.

DR. RALPH B. KENNARD, formerly head of the physics department of Robert College, Istanbul, has been appointed a research associate of the Bureau of Standards, Washington, D. C., for research work in accordance with the provisions of the Luther B. McMillan Fellowship. The privilege of establishing this fellowship as a memorial to the late Luther B. McMillan was accorded the Johns-Manville Corporation by the director of the Bureau of Standards shortly after the death in August, 1929, of Mr. McMillan, consulting engineer for the company and a pioneer in research in heat transfer problems.

DR. N. B. GUERRANT, formerly associated with the Alabama Experiment Station, has accepted a position in the department of agricultural and biological chemistry at the Pennsylvania State College, where he will be in charge of the Vitamin Research Laboratory.

THE director of the Solar Physics Observatory of the University of Cambridge has, with the consent of the vice-chancellor, appointed Dr. R. O. Redman, of St. John's College, to be assistant director for five years from April 1 next.

WE learn from *Industrial and Engineering Chemistry* that following thirty-five years with the Dearborn Chemical Company, Chicago, officiating in various capacities, Mr. William A. Converse retired from active service on January 1, though retaining his interest in the company. Mr. Converse is the founder of the Willard Gibbs Medal.

DR. CHARLES L. PARSONS, of Washington, has been appointed business manager of the American Chemical Society, of which he has been secretary since 1907. Dr. Parsons is the first incumbent of this post, created by the board of directors as a development of the society's reorganization policy. Recently the number of directors was increased from ten to fourteen, Dr. Charles L. Reese, of E. I. du Pont de Nemours and Company, Wilmington, Delaware, having been made chairman of the board.

DR. CHARLES H. HALLIDAY, epidemiologist for the Maryland State Board of Health, has been appointed commissioner of public health for the Virgin Islands. Dr. Andrew Simpson, professor of engineering at Swarthmore College, has been appointed commissioner of public works.

DR. H. O. FORREST recently resigned as associate professor of chemical engineering and director of the Research Laboratory of Applied Chemistry at the Massachusetts Institute of Technology, to become a member of the staff of the M. W. Kellogg Company, Jersey City.

DR. CARL E. LADD, director of extension in the College of Agriculture of Cornell University, has been granted a year's leave of absence to become deputy commissioner of conservation for New York State. The appointment was made by Henry Morgenthau, Jr., who became commissioner under appointment of Governor Roosevelt on January 1. For the past few months, Dr. Ladd has been working on the organization of a program of economic extension work for the U. S. Department of Agriculture.

DR. BANCROFT GHERARDI, vice-president and chief engineer of the American Telephone and Telegraph Company, has been elected to the presidency of the American Standards Association. He will assume the direction of the standardization activities of the organization, a task in which more than 2,000 representatives of about 500 national trade, technical and governmental groups are engaged.

DR. F. A. VARRELMAN, head of the department of biology of the American University, has been granted a leave of absence for the second semester to complete research at the New York Botanical Garden.

PROFESSOR LOUIS KAHLENBERG, president of the Electrochemical Society, recently lectured to the chem-

ists of New York and vicinity at the Chemists Club on the subject "The Electrometer in Chemistry." He also addressed the Chemists at Philadelphia on "The Separation of Crystalloids from one another by Dialysis." On the trip east, Dr. Kahlenberg installed a new section of the Electrochemical Society at Cleveland, and visited the local sections of the society at Pittsburgh and Niagara Falls. In March he will address the sections at Detroit and Chicago.

DR. S. A. MITCHELL, director of the Leander McCormick Observatory, University of Virginia, will give the second Stuart McGuire Lecture at the Medical College of Virginia, Richmond, on March 25. His subject will be "Eclipse Hunting in the South Seas." The Stuart McGuire Lecture was established a year ago in recognition of the services of Dr. Stuart McGuire to the college, to medical education and to surgery.

DR. ROY CHAPMAN ANDREWS, leader of the Central Asiatic Expeditions and vice-director of the American Museum of Natural History, New York City, will give a lecture at the museum on March 11 on "Exploration in the Gobi Desert."

DR. GEORGE F. KAY, head of the department of geology of the State University of Iowa, and state geologist of Iowa, lectured recently at Smith College and Columbia University. His subject was "The Pleistocene of Iowa."

DR. R. W. HEGNER, director of the department of protozoology at the Johns Hopkins University, gave lectures before the Iowa State College on February 23 and 24. He was also the speaker at a dinner of the society of Sigma Xi during his stay in Ames.

MR. HENRY I. HARRIMAN delivered the third Aldred Lecture at the Massachusetts Institute of Technology on February 27. He spoke on "The Meaning of the Major Business Trends of the Day." Mr. Harriman is chairman of the New England Power Company. Mr. Othmar H. Ammann gave an illustrated lecture on "Recent Progress in the Construction of Large Bridges" on March 6. Mr. Ammann is chief engineer of the Port of New York Authority and is in charge of construction of the new suspension bridge across the Hudson River.

AT a luncheon on February 28 given by the American Institute of the City of New York, the speakers were Dr. A. F. Blakeslee, assistant director of the Carnegie Station for Experimental Evolution of the Carnegie Institution, whose subject was "Biological Effects of X-Ray"; Harold G. Petsing, educational director of the Westinghouse X-Ray Company, who spoke on "New Uses of X-Ray in Industry"; Dr. William H. Meyers, director of the Roentgenological Department of the New York Post-Graduate Medical School and Hospital, whose subject was "X-Ray—Diagnostic and Therapeutic Uses."

PROFESSOR FRANZ VON GROER, director of the department of pediatrics of the University of Lemberg, Poland, is a visiting professor at the University of Illinois College of Medicine, Chicago, under the Theodore B. Sachs Memorial Fellowship. This fellowship was established through a grant from the Chicago Tuberculosis Institute. Following his work in Chicago, Professor von Groer will hold clinics and lectures at the University of Michigan, the University of Cincinnati, Western Reserve University, Cleveland, and the University of Iowa. He will then make a tour of the west, where he will lecture at the University of Colorado, the Los Angeles Academy of Medicine, the San Francisco Academy of Medicine, the Portland Academy of Medicine and the Seattle and Spokane Medical Societies.

THREE free public lectures on muscular work and fatigue, arranged by the National Institute of Industrial Psychology, under the Heath Clark Bequest, have been delivered by Dr. G. P. Crowden at the London School of Economics and Political Science.

THE Jubilee Celebration of the Society of Chemical Industry will take place in London next July under the presidency of Sir Harry McGowan.

THE International Congress of Wood Industry and Forestry will convene in Paris from July 1 to 4. It will be followed during the following week by an excursion through the Alps to the French Riviera.

*Nature* reports that the Faraday Society has arranged a general discussion on "Photochemical Processes" to be held in the chemistry department of the University of Liverpool on April 17 and 18. Chemists and physicists from the United States and the Continent have been invited to attend the conference and to send contributions. There will be four sessions, each with an introductory paper, which, like all the contributions, will be distributed previously, and taken as read. The four subjects are: "Molecular Spectra in Relation to Photochemical Change," "Photochemical Kinetics in Gaseous Systems," "Photochemical Change in Liquid and Solid Solutions," and "Photosynthesis." The introductory papers, respectively, are by Professor R. Mecke, Professor M. Bodenstein, Professor Berthoud and Professor E. C. C. Baly.

THE benefits of what has proved to be the most effective known fumigant for certain foodstuffs stored in quantity have just been given to the government and people of the United States by two investigators of the U. S. Department of Agriculture, Dr. Ruric C.

Roark, a chemist of the Bureau of Chemistry and Soils, and Dr. Richard T. Cotton, an entomologist of the Bureau of Entomology. This month they obtained a patent on ethylene oxide as a fumigant and insecticide, the value of which was first proved by them in April, 1927. Drs. Roark and Cotton applied for their patent just in time to secure the free use of ethylene oxide for the American public. A well-known German dye company, recognizing the great commercial possibilities of ethylene oxide, had already applied for a United States patent in addition to the German patent under which this gas is used abroad. Following a hearing before the examiner of interferences of the U. S. Patent Office, the prior claim of Drs. Roark and Cotton was recognized and the public service patent was granted to them on February 3.

THE fifth season of the Allegany School of Natural History, conducted by the Buffalo Museum of Science, in cooperation with the New York State Museum, and in affiliation with the University of Buffalo, in Allegany State Park in Western New York, close to the Pennsylvania border, will be held from July 8 to August 27. Courses will be given in field zoology, field geology, field botany, natural history of birds, and nature study. The faculty is composed of Dr. R. E. Coker, Director, Ph.D. (Johns Hopkins); Aretas A. Saunders, Ph.B. (Yale); Professor William P. Alexander, B.Sc. (Cornell), and L. E. Hicks (the Ohio State University). An instructor in field geology will be named later.

THE sixteenth annual meeting of the American Association of Petroleum Geologists will be held on March 19, 20 and 21, at San Antonio, Texas, with the Gunter Hotel as convention headquarters. The San Antonio Geological Society, which is an official section of the national association, is the host and will provide local entertainment besides field trips to the Balcones and Mexia fault lines, to Laredo and into Mexico. The national officers of the association, which now has 2,550 members, are: *President,* Sidney Powers, chief geologist for the Amerada Petroleum Corporation, Tulsa, Oklahoma; *past-president,* J. Y. Snyder, operator, Shreveport, Louisiana; *first vice-president,* R. D. Reed, chief geologist for The Texas Company of California, Los Angeles; *second vice-president,* Marvin Lee, consulting geologist, Wichita, Kansas; and *third vice-president,* Frederic H. Lahee, chief geologist for the Sun Oil Company, Dallas, Texas. The officers of the San Antonio Section are: *president,* D. R. Semmes, consulting geologist; *past-president,* Chas. H. Row, of the Sun Oil Company; *vice-president,* H. H. Cooper, consultant; *secretary-treasurer,* Ed. W. Owen, of L. H. Wentz Oil Division; and *member executive committee,* J. M. Dawson, of the Gulf Production Company. Concurrent meetings to be held with the geologists are those of the Society of Economic Paleontologists and Mineralogists and the Society of Petroleum Geophysicists.

DR. THOMAS S. BAKER, president of the Carnegie Institute of Technology, has returned after two months' travel in Europe in the interest of the third International Coal Conference which will be held at the Carnegie Institute of Technology in November. The last conference was held in 1928. Members of the advisory board of the conference include: James A. Farrell, John Hays Hammond, Samuel Insull, Frank B. Jewett, A. W. Mellon, F. A. Merrick, Auguste G. Pratt, H. B. Rust, Matthew S. Sloan, Gerard Swope and Walter C. Teagle. The program will include papers on the carbonization, liquefaction and gasification of coal; by-products; the mechanism of combustion; cleaning of coal and its preparation for the market; pulverized fuel; power plants; domestic heating, etc.

CAPTAIN DONALD B. MACMILLAN expects to sail on June 20 from Wiscasset, Maine, on his fourth expedition to the Arctic regions. He will be accompanied by a large staff of scientific men and will be followed by Sir Wilfred Grenfell, of London, who lived many years in Labrador, and Dr. Alexander Forbes, of the Harvard Medical School. Headquarters of the expedition will be established in Captain MacMillan's scientific station near Nain in Iceland. Three airplanes will be included in the equipment. One of the principal objectives is the study of glaciers to determine the possibility of the formation of another glacier age. Glaciers in other parts of the world are diminishing, but those in the far north are increasing. It would take thousands of years, however, to affect seriously the temperatures in the United States. At Nain, Labrador, a permanent base will be established. From there Commander MacMillan plans to fly inland in a cabin monoplane, capable of taking off and landing on ice caps. The expedition will be in touch by radio with New York and Chicago at all times.

THE third Marshall Field Archeological Expedition to British Honduras and Guatemala to conduct excavations on ancient Maya sites and ethnological research among the modern Mayas, sailed from New Orleans on February 20. Dr. J. Eric Thompson, assistant curator of Central and South American archeology, who led the two previous expeditions in 1928–29 and 1929–30, will again lead the expedition. The present expedition has a wider scope of operations than the earlier ones, and will remain in the field probably for a period of six or seven months. After landing at Belize, the expedition will proceed by boat up the coast to the mouth of the New River, and thence inland to the head of navigation. Thence by mule pack train and on foot the journey will con-

tinue to the site of the ancient city of Kax Uinic, which is situated on the frontier between British Honduras and Guatemala. There, with a party of Maya diggers, certain ruins will be excavated.

THE advancement of research in experimental and theoretical physics at the University of Bristol is assured by a gift of £50,000 by the Rockefeller Foundation and an offer of £25,000 by Mr. W. Melville Wills, of Bristol, to meet the stipulation of the Rockefeller Foundation. The gift is the climax of negotiations which have been going on for some time, during which representatives of the foundation have visited Bristol several times to make investigations as to the work of the Henry Herbert Wills Physics Laboratory. These convinced them that it was worthy of such liberal encouragement. Under the direction of Professor A. M. Tyndall it has won a wide reputation in the few years it has been open. It was founded by a gift of £200,000 by Henry Herbert Wills. Its founder in all gave over £680,000 to the university.

A CORRESPONDENT of the *Journal* of the American Medical Association reports that the institute for heart research established in Bad Nauheim, through a gift of Mrs. Louise G. Kerckhoff, of Los Angeles, is nearing completion and can probably be opened the coming spring. The new institute, named after the donor of the "Kerckhoff-Institut," will be in charge of Professor Groedel of Bad Nauheim. There will be four departments: a department of examination and diagnosis for patients of the social insurance system; a department for the collection of statistics on the causes of heart disease; a department for public enlightenment as to the causes and the best methods of combatting heart disease, and a department for experimental pathology and therapy of heart disease. An administrative council composed of federal representatives, the chairman of the bureau of insurance of Hesse, and representatives of neighboring universities and members of the medical profession will manage the institute.

ON February 3 the Congregation of the University of Oxford passed a decree accepting the offer of the Forestry Commission and the Secretary of State for the Colonies to make contributions at the rate of £5,000 a year as from March, 1929, to July, 1931, to the maintenance of an Imperial Forestry Institute in Oxford, the university undertaking to make during the same period contributions to the Department of Forestry at a rate not exceeding £300 a year in addition to its current contribution. Mr. C. G. Morison, in proposing the decree, explained that it is a renewal of a former decree. The institute, which has now been in existence for about five years, is active in research and in giving post-graduate instruction. The relations between the institute and the university are at present engaging the attention of council.

THE possibility of establishing an insecticidal plant industry in the Virgin Islands to supply this country with important insecticidal materials, which are now imported at high cost from foreign countries, will be investigated by Dr. W. W. Skinner, assistant chief of the Chemical and Technological Research Unit of the Bureau of Chemistry and Soils, U. S. Department of Agriculture, who left Washington for the islands on February 26. Dr. Skinner goes to the Virgin Islands at the request of the Department of the Interior which recently was placed in charge of the islands and which is seeking to rehabilitate the agriculture by the introduction of new industries to take the place of the production of oil of bay and sugar. These were formerly the leading native industries but have recently been suffering from the world depression and the over-production of sugar. Dr. Skinner will investigate the possibility of aiding the islanders to rehabilitate the bay-rum industry by assistance of a chemical character; he will study the situation with regard to the production of sugar; and particularly he will investigate the possibilities of growing such insecticidal plants as pyrethrum, derris, and "cube," and the extraction from these plants of valuable insecticidal materials. He will also consider the advisability of establishing a chemical laboratory to aid such developments in the islands.

# DISCUSSION

## ISOLATION OF PROTEIN CRYSTALS POSSESSING TRYPTIC ACTIVITY

A CRYSTALLINE protein has been isolated from commercial preparations of "trypsin" which digests casein and gelatin in neutral solution. The digestive power of the crystals is about ten times that of the most active commercial preparations and the activity remains constant through three successive crystallizations. The substance, however, is exceedingly unstable and unless care is taken it becomes less active during the course of the preparation. It is obtained by extraction of the crude preparation with one quarter saturated ammonium sulfate. The extract is brought to one half saturated ammonium sulfate and filtered. The filtrate is saturated with ammonium sulfate and the resulting precipitate filtered off and redissolved in cold one quarter saturated ammonium sulfate. Saturated ammonium sulfate is added slowly with stirring to faint turbidity and the solution is brought slowly to 25° C. Small square platelets which tend to form