26, doctorates of science were conferred with citations as follows:

IRVING LANGMUIR, president of the American Chemical Society, and recipient of prizes and honors from national and foreign societies in both physics and chemistry. In 1909 he was called to take a leading part in carrying out a far-sighted policy of fostering research in pure science, adopted by the General Electric Company. In the laboratory of this great industrial corporation, Langmuir has for twenty years attacked fundamental problems with the freedom of an academician, yet with all the powerful resources of the industrial engineer. Langmuir's is the accepted concept of adsorption and orientation of molecules at surfaces; his studies have furnished us a mechanism of gas reactions at the surface of the metal tungsten, universally used in electric illumination, long-distance telephony and radio.

MAX BODENSTEIN, professor of physical chemistry in the University of Berlin. His series of classical researches on the velocity of chemical transformations has enriched the subject of reaction kinetics. To Bodenstein is due the concept of chain reactions, which has been of fundamental importance in the explanation of chemical reactions in general.

SIR JAMES COLQUHOUN IRVINE, principal and vice-chancellor of the University of St. Andrews. While professor of chemistry he won a world-wide recognition as expert on the structure and synthesis of organic compounds, notably of the sugars and of cellulose.

JEAN BAPTISTE PERRIN, Nobel prize laureate, director of the laboratory of physical chemistry of the University of Paris, and director of the newly-founded Rothschild Institute for Research in Biophysics. His masterly analysis of the "Brownian movement" of small particles has laid the foundation of a rational study of colloidal systems and thus opens the way for further and much-needed work in biophysics.

FREDERICK GEORGE DONNAN, professor of chemistry in University College, London. His pioneer work on equilibria of salt solutions at membranes has guided innumerable studies of the conditions obtaining in living matter and has determined in great measure the direction which biophysical research has taken.

SCIENTIFIC NOTES AND NEWS

THE autumn meeting of the National Academy of Sciences will be held at Princeton, N. J., on November 18, 19 and 20, 1929. Professor W. B. Scott is chairman of the local committee on arrangements.

MME. CURIE will be the guest of honor at the third annual dinner of the New York City committee of the American Society for the Control of Cancer, which will be held at the Hotel Plaza on the evening of October 31. It is understood that this will be the only social event that Mme. Curie will attend during her brief stay in the United States.

BY vote of a committee representing the chemical societies in the United States the Perkin medal for 1930 will be awarded to Dr. Herbert H. Dow. The presentation will be made on January 10, 1930, at a joint meeting at the Chemists' Club. It is expected that other speakers on the program will be James T. Pardee, E. O. Barstow and William H. Nichols. The medal is awarded for the achievements of Dr. Dow as represented in the fields of bromine, alkalies, magnesium and magnesium salts, phenols and other developments of his organization.

THE Grasselli medal for 1929 has been awarded to Professor Bradley Stoughton and the formal presentation will be made on November 8. The special reason for which this is awarded is a paper on "Light Structural Alloys" presented several years ago. Professor Stoughton will speak on "Materials for Aircraft Construction."

THE *Journal* of the American Mathematical Society notes the following awards: The Vienna Academy of Sciences has awarded its Lieben prize, for the best mathematical work by an Austrian during the preceding three years, to Professor Karl Menger, for his memoirs on the theory of dimensions; the Royal Academy of Naples has awarded its biennial prize to Professor Enea Bortolotti, for his memoir entitled *Geometria degli spazi riemanniani;* the gold medal of the Royal Astronomical Society has been awarded to Professor Ejnar Hertzsprung, of the Leyden Observatory, for his work in stellar astronomy; the Royal Society of Edinburgh has awarded its Gunning Victoria Jubilee prize for the period of 1924–28 to Professor E. T. Whittaker, for his contributions to mathematical science and the promotion of mathematical research in Scotland.

THE first Harrington lecture of 1929–30 at the medical school of the University of Buffalo will be given by Professor Joseph Barcroft, F.R.S., of Cambridge University, England. The subject will be "Life at the Snow Line in the Andes."

THE Brooklyn Museum announces the appointment of Dr. Herbert J. Spinden as curator of ethnology in the museum of the Brooklyn Institute of Arts and Sciences. Dr. Spinden goes to Brooklyn from the Peabody Museum at Harvard University, where he has been curator of Mexican archeology since 1921.

MONTROSE W. HAYES, now in charge of the St. Louis, Missouri, station of the Weather Bureau, has been appointed to succeed the late Dr. Harry C. Frankenfield as chief of the river and flood division in the central office of the bureau in Washington, D. C.

JOHN P. TILTON, formerly on the teaching staff at Tufts College and associated with the psychological laboratory at Harvard University, will be in charge of one of the groups in business psychology at the Babson Institute, Wellesley Hills, Massachusetts.

DR. JOHN GORDON THOMSON, director of the department of protozoology, London School of Hygiene and Tropical Medicine, has resigned the position and has been appointed principal of the department of parasitology at the Ross Institute for Tropical Diseases, London.

HENRY L. JOHNSON, of the Graphic Arts Company, Boston, Massachusetts, has been appointed curator of graphic arts in the Museum of Science and Industry, founded by Mr. Julius Rosenwald, of Chicago. Mr. Johnson will prepare exhibits which will trace the history of printing and the graphic arts in general from their beginnings to the present time. Mr. Helmuth Bay has been appointed head of the division of forestry and lumbering. In cooperation with Dr. Russell H. Anderson, curator of agriculture, Mr. Bay is planning the exhibits to demonstrate the nature of industrial woods, as well as their application in industry, and the methods of lumbering and wood-working machinery. Mr. Ernest Kohler, a graduate engineer of the Massachusetts Institute of Technology, has been selected to assist Dr. Andrew M. MacMahon, curator of physics, in the capacity of communication engineer. The museum will present the history of communication by means of three dimensional working models, motion pictures, dioramas, etc., and will include in the exhibits practically every means of communication that has been devised by man.

NEIL M. JUDD, curator of American archeology, U. S. National Museum, returned to Washington on September 23 from four months' field work in Arizona in behalf of the National Geographic Society. Mr. Judd's investigations this year were primarily concerned with collection of beams from prehistoric Pueblo ruins. With these old timbers it is hoped to bridge the single remaining gap in the "tree ring" chronology being erected by Dr. A. E. Douglass, of the University of Arizona, and thus make possible the dating of Pueblo Bonito and other pre-Spanish ruins of the southwest. While under the general direction of Mr. Judd, the society's 1929 excavations were directly supervised by Messrs. L. L. Hargrave, of the Museum of Northern Arizona, at Flagstaff, and E. W. Haury, of the University of Arizona, at Tucson. Dr. Douglass is now engaged in reviewing the material resulting from the expeditions; a midwinter report is anticipated.

DR. E. B. RENAUD, professor of anthropology at the University of Denver, has returned from a two months' expedition for the Colorado Museum of Natural History. He discovered human and cultural remains of a primitive form of basket-maker culture, thus extending far to the northeast the area of that prehistoric culture so far centered along the New Mexico-Arizona boundary.

DR. EVERETT S. SANDERSON has resumed his work as head of the department of bacteriology and pathology in the medical school, University of Mississippi, after having spent the summer as a special member of the Rockefeller Foundation, International Health Division, investigating respiratory disease at St. John, Virgin Islands.

THE China Foundation for the Promotion of Education and Culture has invited Professor H. H. Whetzel, of the department of plant pathology at Cornell University, to spend a year or more in China. He will be expected to lecture in the various agricultural institutions of China and to assist in the organization and development of phytopathological work in the republic.

DR. E. P. SANDSTEN, state horticulturist and head of the department of horticulture at the Colorado Agricultural College, has returned from Sweden where he went to study the various experiment stations and to Gallivore in northern Sweden to study the use of electricity in farming.

DR. H. G. DEMING has resumed his work as professor of chemistry at the University of Nebraska, after having spent a year with Arthur D. Little, Inc., at Cambridge, Massachusetts.

DR. HANS PRINZHORN, of Freiburg, Germany, who since 1922 has been practicing physician in psychotherapeutics in Freiburg and from 1919 to 1922 was assistant in the Psychiatric Clinic in Heidelberg, is making a visit to the United States. Dr. Prinzhorn attended the International Congresses of Psychology and of Physiology, at both of which he read papers on the results of some of his investigations. He will be available for lecture engagements until December 20, under the auspices of the Institute of International Education.

DR. BERNARD HAGUE, principal lecturer in electrical engineering at the University of Glasgow, Scotland, has accepted the invitation of the Polytechnic Institute of Brooklyn to serve as visiting professor of electrical engineering for the present academic year. Dr. Hague, who has degrees from the Universities of London and Glasgow, is the holder of the Siemens medal for electrical engineering and the Henrici medal for mathematics. He is a member of the Institution of Electrical Engineers, and the author of several standard works on electrical theory and mea-

surements. He will have charge at Brooklyn Polytechnic of the conduct of graduate study and research in electrical engineering in the new plan now being developed at that institution for the benefit of technical graduates in the metropolitan district who desire to earn advanced engineering degrees by evening study.

ON August 26, at the invitation of the Commissioner of Fisheries, the American Button Manufacturers Association met at the U. S. Bureau of Fisheries Biological Station at Fairport, Iowa, to witness the first public demonstration of the new method for fresh-water mussel propagation. This method, in which the mussel glochidia normally parasitic on the gills of certain fishes are caused to develop in special nutrient solutions, was worked out by Dr. Max M. Ellis, professor of physiology in the University of Missouri, and Mrs. Ellis, as the result of a long series of experiments conducted by them at the Fairport Station during the past four years. By means of this process, which eliminates the normal parasitism of these various mussels, controlled plantings of valuable mussel species are now possible, and the restocking of depleted streams put on the same basis as the restocking of streams with fish fry. At a banquet held that evening in the city of Muscatine, Iowa, Mr. T. K. Chamberlain, director of the Fairport Station, and Dr. Ellis explained the applications of the new method to the problems of the button industry.

TECHNICAL committees representing five national societies interested in European corn-borer research and control, and a general committee on the allocation of such research work, met for their regular field conference at Toledo, Ohio, from September 25 to 28. The time was largely spent in making a detailed examination of the research and control work, in studying the status of the corn-borer infestation, and in the preparation of a report for their respective societies. The societies concerned are: American Association of Economic Entomologists, American Society of Agronomy, American Society of Agricultural Engineers, American Farm Economic Association and American Society of Animal Production. To strengthen the work of these committees, the various state regulatory officials have been invited to attend the conference, together with well-known farmers and educators from various parts of the Corn Belt.

THE seventh International Meteorologists Congress opened at Copenhagen on September 16 in the Danish parliamentary building under the presidency of Professor Van Everdingen. The diplomatic corps attended the opening speech of the Danish defense Minister Rasmussen, after which Professor Van Everdingen answered, thanking Denmark. The congress, consisting of thirty-two state meteorologists, and about a hundred others, discussed the detailed programs of polar investigations to be made in 1932 and 1933.

THE International Neurological Congress will be held in Berne (Switzerland), from August 31 to September 4, 1931. At the recent meeting of the Program Executive Committee, Dr. Bernard Sachs, of New York, was elected president of the congress and Dr. H. A. Riley, of New York, was elected secretary-general. Dr. Charles Dubois, of Berne, will be the local secretary. The eight vice-presidents are: Sir Charles Sherrington (Great Britain); Professors Guillain (France); Nonne (Germany); Bing (Switzerland); Rossi (Italy); Marburg (Austria); Kappers (Holland), and Marcus (Sweden).

A PHYTOPATHOLOGICAL SOCIETY of China has been founded at Nanking. The president is Professor F. D. Tai, head of the department of plant pathology in the University of Nanking, and the secretary, Professor S. C. Teng, head of the department of plant pathology of the Central University in Nanking.

THE Biological Survey of the Mount Desert Region, under the auspices of the Corfield Laboratory, is being conducted by Mr. William Procter and a staff of seven men, including Dr. H. C. Tracy, of the University of Kansas; Dr. E. R. Helwig, of the University of Pennsylvania; Mr. Phil Powers, of the University of Kansas; Dr. C. H. Blake, of the Massachusetts Institute of Technology, and Mr. Simon Cohen, of the University of Kansas. A new dredging boat, the *Lophius,* of ample size, built after plans of Mr. Procter, was put in commission this season and proved of great service to the survey. The boat crew are men of experience and skill in the waters of Mount Desert. The mapping of stations, the identification of forms found at the various stations, the water temperature at varying levels and many other data have been systematically recorded and card catalogued. The Survey of the Mount Desert region is now cooperating with a number of institutions interested in the work, in addition to its close affiliation with the institute.

AT the time of the celebration of the centenary of Marcelin Berthelot in October, 1927, plans were made for a permanent memorial in his honor. This was to be a house of chemistry, not only to serve the chemists of France, but to be a meeting place for the chemists of all nations. *Industrial and Engineering Chemistry* now reports that the French Senate has recently approved the purchase of the La Rochefoucauld-Estissac house, 28 Rue St. Dominique, and has voted an appropriation of 15 million francs for this purpose.

The fund of about 25 million francs which had been collected for the project will now be available as an endowment for perpetuating the work, with the exception of the small amount needed for alterations to the building. The location of the Maison de la Chimie in the Rue St. Dominique, which is just behind the Chambre des Deputies, in the immediate vicinity of the Place de la Concorde and the Esplanade des Invalides, and quite near the center of Paris, is a compromise between the university quarter, favored by Berthelot's successors among the university professors, and the more modern section of the city, favored by those looking toward the future. The building is a spacious one, admirably adapted as a meeting place and social quarters for chemists, and with ample space for the erection of such special accommodations as may be needed.

THE California State Legislature during its last session passed a bill appropriating through the University of California the sum of $40,000 for a new laboratory building and essential improvements in connection with it for the Scripps Institution of Oceanography, on condition that a similar sum be received from some outside source. The needed additional sum of $40,000 has now been pledged and plans for the building are gradually being perfected. It is intended to have four kinds of oceanographic investigations prosecuted in the new building, as follows: dynamical oceanography and marine meteorology; the chemistry of the sea; marine bacteriology, and the physiology of marine organisms with reference to the oceanic environment. Although the date for the completion of the building can not yet be set, it is probable that construction will be finished by next summer.

ACCORDING to a report made public by the Bureau of Reclamation, H. A. Parker, superintendent of the Lower Yellowstone project, Montana-North Dakota, and F. E. Roddis, district counsel, at Billings, Mont., have discovered a petrified forest on Indian Coulee, about three miles southwest of Savage, Mont. With federal aid the state of Montana is reconstructing eight miles of the main highway from Glendive, Mont., to Williston, North Dakota. This is the principal road through the Lower Yellowstone project. The reconstructed highway crosses Indian Coulee in some picturesque bad-land territory. Adjacent to the roadway on the west side are several acres of fallen petrified trees. Some of them are ten feet in diameter and over 100 feet long. The tops of the trees taper off abruptly, indicating they belonged to the coal-tree forests of that geological age; furthermore, this conclusion is supported by the location of a vein of coal in an adjoining hill, which appears to be on the same earth strata. The trees have fallen in the same direction, leading to the belief that they were uprooted by a violent southeast wind. Over an area of thirty miles wide and 100 miles long in eastern Montana pieces of petrified wood can be found, but this is the first forest of petrified trees lying in place as they had fallen. The silicate deposit which turned the trees to stone has not crystallized, and none of the wood rings of the trees is visible.

A CORRESPONDENT of the *Journal* of the American Medical Association points out that before the war, the German Empire, with average annual totals of 2,000,000 births and 1,200,000 deaths, had an annual excess of births over deaths of about 800,000, or from 12 to 14 per thousand inhabitants. In 1927 there were only 1,160,000 births, or 18.3 per thousand of population; 757,000 deaths, or 12.0 per thousand, and an excess of births over deaths of 403,000, or 6.4 per thousand. The annual excess of births over deaths has thus dwindled down to half that of the prewar status. The excess of births over deaths that is still recorded to-day is, however, a delusion that arises from the present peculiar distribution of the age groups. An analysis freed by means of refined methods of research from the accidental data of the distribution of the age groups reveals the true demographic position to-day. According to this adjustment of statistics, the death rate, on the basis of the present average length of life (57.4 years), is not 12 per thousand, as is stated according to the unadjusted computation, but 17.4 per thousand, whereas the birth rate, on the other hand, on the same readjustment basis, is not 18.3 but 15.9 per thousand. These adjusted birth and death rates give, instead of an excess of births over deaths of 6.4 per thousand, a deficit of 1.5 per thousand of population. In other words, the adjusted birth rate of Germany is, on the average, about 10 per cent. below what is needed to preserve the population of the country. In Berlin, the birth deficit amounts now to 57 per cent. (almost three fifths), and the average birth deficit of the large cities of Germany is 42 per cent. (slightly more than two fifths). The large cities are no longer able to preserve their present status of population by virtue of their own inner strength, and even the middle-type cities and the small towns, whose birth rates, on the average, are lower than the birth rates of such metropolitan centers as Paris and London, have already a birth deficit of approximately a third (31 per cent.). Only in the rural regions does one occasionally find birth rates in excess of the minimal requirement for the preservation of the population. But the life assets of the rural population are now no longer sufficient to compensate for the birth deficit of the urban population.