

electrolytic solutions. Soon after the inception of the electrolytic dissociation theory of Arrhenius, it was recognized that all was not well with the strong electrolytes. Whilst qualitatively their properties were accounted for by the theory, there yet existed marked quantitative discrepancies. Accurate measurement of the properties of such solutions was the first requisite for the attack of the problem, and to this task Noyes applied himself. His investigation of the conductance of aqueous solutions up to temperatures as high as 300° forms a classical example of exact physicochemical measurement executed under conditions of great experimental difficulty.

His work on the influence exerted by one salt on the solubility of another, on transport numbers and the mobilities of the ions, on the ionization of pure water at different temperatures, is all directed to the same end. Noyes showed the importance of the classification of the strong electrolytes according to their valency type and, more than twenty years ago, attempted to take into account the electrostatic forces between the ions. He thus foreshadowed the modern theory now so widely developed by Noyes himself amongst other workers.

*The Hughes Medal, awarded to Dr. William  
David Coolidge*

Science is under a great debt to Dr. Coolidge for the invention and production of a new type of X-ray tube, called by his name, of great flexibility and power, which has proved of great service not only to medical radiology but also in numerous scientific researches. In the last few years he has applied his unrivalled technical knowledge to the generation of high-velocity cathode rays, which can be passed into the air through a thin window as in Lenard's pioneer experiments thirty years ago. Such researches are of great importance to science, as they promise to provide us with new methods of obtaining a copious supply of swift electrons and high-speed atoms of matter for experimental investigations.

*A Royal Medal, awarded to Professor John  
Cunningham McLennan*

For more than thirty years Dr. J. C. McLennan has been an industrious and enthusiastic experimenter, his papers being mainly concerned with radioactivity, gaseous conduction of electricity, the spectra of the elements and the liquefaction of gases. Among his works of outstanding merit may be mentioned the measurements he has made with his pupils on the fine structure of spectral lines, which are of much importance to modern theories of the mechanism of the atom. Recently he has had quite sensational success in tracing to its source the elusive auroral line  $\lambda 5577$ , an extremely difficult task which had baffled the skill of many previous investigators. This is important not only in itself but also on account of the information it yields as to the structure of the upper atmosphere. Apart from his own private researches he has built up a most efficient school of physics in Toronto, and is largely responsible for the present strong position of physical science in Canada. He has devoted much energy to the establishment of a cryogenic labora-

tory in Toronto, a heavy task which he has carried out with much success.

## SCIENTIFIC NOTES AND NEWS

THE Edison medal, conferred annually by a committee of the American Institute of Electrical Engineers for "meritorious achievement in electrical science, electrical engineering or the electrical arts," has been awarded for the year 1927 to Dr. William D. Coolidge, assistant director of the research laboratory of the General Electric Company, "for his contributions to the incandescent electric lighting and to the X-ray arts."

THE Catherine Wolfe Bruce gold medal of the Astronomical Society of the Pacific, given annually for "distinguished services to astronomy" upon the nominations made by six of the world's great observatories, has been awarded for 1928 to Dr. Walter Sydney Adams, director of the Mount Wilson Observatory. The formal presentation will be made in the early part of next year. Since its foundation in 1897, the medal has hitherto been conferred upon Simon Newcomb, Arthur Auwers, David Gill, Giovanni V. Schiaparelli, William Huggins, Herman Carl Vogel, Edward C. Pickering, George W. Hill, Jules Henri Poincaré, Jacobus C. Kapteyn, Oskar Backlund, W. W. Campbell, G. E. Hale, Edward Emerson Barnard, Ernest William Brown, Henri A. Deslandres, Frank W. Dyson, E. B. Baillaud, A. S. Eddington, Henry Norris Russell, R. G. Aitken and Herbert Hall Turner.

THE board of managers of the Franklin Institute has voted to award to Dr. Vladimir Karapetoff an Elliott Cresson gold medal, "in consideration of the inventive ability, skill in design and detailed theoretical knowledge of kinematics and electrical engineering displayed in the development of computing devices." This medal will be presented at the annual medal day meeting of the institute, which will be held on May 16, 1928.

ON the occasion of a celebration, marking the fiftieth anniversary of the founding of the Engineers' Club of Philadelphia, the University of Pennsylvania conferred the degree of doctor of science upon the following engineers on December 10: John Hays Hammond, of Washington, past-president of the American Institute of Mining Engineers; Charles M. Schwab, of New York, honorary member of the Engineers' Club and president of the Iron and Steel Institute, and Howard Elliott, of New York, chairman of the board of the Northern Pacific Railway.

At the annual meeting of the American Society of Mechanical Engineers in New York, the Melville medal, awarded for the first time, was given to Leon

P. Alford, editor of *Manufacturing Industries*, for his paper on "The Laws of Management."

THE Alvarenga prize for 1927 has been awarded by the College of Physicians of Philadelphia to Dr. Emil Bogen, of Cincinnati, Ohio, for his essay entitled "Drunkenness." The next award of the prize, amounting to about \$300, will be made on July 14, 1928.

DR. GEORGE GRANT MACCURDY, of Yale University, director of the American School of Prehistoric Research, has been elected a corresponding member of the Société des Américanistes de Belgique.

*Nature* states that the Hopkins prize of the Cambridge Philosophical Society has been awarded as follows: For the period 1912-15, to Professor R. A. Sampson, astronomer royal for Scotland, for his researches on the internal constitution of the sun, on optical systems, on Jupiter's satellites and on practical chronometry; for the period 1915-18, to Sir Frank Dyson, astronomer royal, for his contributions to the general progress of astronomy and to the spectroscopy of the solar atmosphere; for the period 1918-1921, to Professor A. S. Eddington, Plumian professor of astronomy and experimental philosophy in the University of Cambridge, for his work on the classification of the motions of the stars, and on their structure, and on the influence of gravitation on rays of light; for the period 1921-24, to Dr. J. H. Jeans, secretary of the Royal Society, for his work on the theory of gases, and on radiation and on the evolution of stellar systems.

PROFESSORS A. EINSTEIN, of Berlin; O. Hölder, of Leipzig; F. Schur, of Breslau, and E. Study, of Bonn, have been elected corresponding members of the Bavarian Academy of Sciences.

THE following appointments have been made in the British Museum of Natural History: Dr. L. J. Spencer, to be keeper of mineralogy, in succession to Dr. G. T. Prior, who retired on December 16; Dr. W. D. Lang, to be keeper of geology, in succession to Dr. F. A. Bather, who retires next February, after forty years of service in the museum; J. Ramsbottom, to be a deputy keeper in the department of botany, on the promotion of Dr. Spencer; M. A. C. Hinton, to be a deputy keeper in the department of zoology, on the promotion of Dr. Lang.

THE Zoological Society of London has elected S. Zuckerman, M.A., University of Cape Town, to its research fellowship in anatomy, and Miss Eleanor Margaret Brown, B.Sc., University of London, to its aquarium research fellowship.

PAUL H. M.-P. BRINTON, professor of chemistry and head of the division of analytical chemistry in the

University of Minnesota, has severed his connections with the university, and will devote his time to private research in rare element chemistry at Pasadena, Calif.

CLARK C. HERITAGE has been appointed to the vacancy caused by the resignation of John D. Rue, former chief of the section of pulp and paper in the Forest Products Laboratory.

C. W. LARSON'S resignation as chief of the Bureau of Dairy Industry was announced on December 1 by Secretary of Agriculture Jardine. The resignation will be effective at the end of this year, when Dr. Larson will become the director of the National Dairy Council.

BRUCE CARTWRIGHT has been appointed an associate in ethnology on the staff of the Bernice P. Bishop Museum. He has recently been engaged in mapping ruins on the Island of Molokai.

ACCORDING to *The Experiment Station Record*, Geoffrey Evans, formerly in the Indian Agricultural Service, has been appointed principal of the Imperial College of Tropical Agriculture. Henry A. Ballou, professor of entomology and head of the section of entomology and zoology, has been appointed by the British government to the newly established office of commissioner of agriculture for the British West Indies. He will retain his connection with the college, but will be occupied largely in an attempt to coordinate the scientific and practical work of the institution and the departments of agriculture of the various islands.

PAUL C. STANDLEY, of the U. S. National Museum, sailed from New York on November 26, to spend the winter in botanical field work in Honduras. The work is being undertaken in cooperation with the Arnold Arboretum and the United Fruit Company.

JAMES L. PETERS, associate in ornithology at the Harvard Museum of Comparative Zoology, and Edward Bangs started on November 29 on an ornithological expedition to the Corn Islands, off the coast of Honduras. They will also study the birds of an unfrequented desert region in Nicaragua, returning to this country in the late spring.

DR. RALPH LINTON, of the Field Museum of Natural History, recently returned from a two-year tour of Madagascar, where he assembled information indicating an ancient migration of people of an Asiatic origin to Southern Africa and Madagascar.

DR. G. J. HUCKER, associate bacteriologist at the New York State Agricultural Experiment Station, has returned after fifteen months spent in laboratory investigations at the Royal Polytechnical Institute at

Copenhagen and at the Lister Institute at London, under the auspices of the International Education Board.

DR. E. C. GRAY, exchange investigator of the League of Nations, after staying in Tokio for some time to investigate food problems in the government institute for nutrition, has left for England.

DR. LUIS MARIA TORRES, director of the Natural History Museum, La Plata, Argentina, recently concluded a visit to England, during which he worked at the Natural History Museum, South Kensington, London.

DR. C. E. SPEARMAN, of the department of psychology at the University of London, is visiting the United States as the guest of the Commonwealth Fund.

PROFESSOR J. W. MCBAIN, of Stanford University, will give a series of five lectures in the department of chemistry at the University of Arizona during the first week of January. The general topic of these lectures will be: "Sorption: Its Nature and Mechanism."

At the recent intersectional meeting at Cornell University of the Western New York, Rochester, Syracuse and Eastern New York Sections of the American Chemical Society the main lecture was given by Dr. Colin G. Fink, of Columbia University, on "Recent Advances in Applied Electrochemistry." On the morning of December 10 Professor Paul Walden, of the University of Rostock, lectured on the "Walden Inversion."

THE regular meeting of the Nebraska section of the American Chemical Society was held on December 1. Dr. W. D. Baneroff, of Cornell University, addressed the section on the subject of "Air Bubbles and Drops."

DR. JAMES A. TOBEY, of New York, lectured on public health law at the Harvard University School of Public Health on December 7 and 9.

CAPTAIN M. E. ODELL, of Toronto, addressed a joint meeting of the Washington Academy of Sciences and the Geological Society of Washington on December 7, on the "Scientific Aspect of the Mount Everest Expedition."

DR. F. O. RICE, associate professor of chemistry in the Johns Hopkins University, addressed the New York University chapter of Sigma Xi on December 16, on "Suspended Particles in Gaseous and Liquid Systems."

PROFESSOR H. B. WARD, head of the department of zoology at the University of Illinois, gave a public address under the auspices of the University of Iowa

on December 6. The subject was "The Significance of Life."

DR. GEORGE SMITH, director of the United States Geological Survey, will be the commencement speaker at Colby College next June. Dr. Smith was graduated from the college in 1893, and has been a trustee since 1903.

DR. HARLOW SHAPLEY, director of the Harvard College Observatory, gave on December 14, before the department of astronomy of the Brooklyn Institute of Arts and Sciences, an illustrated lecture on "Measuring the Milky Way."

DR. ROBERT ANDREWS MILLIKAN, chairman of the administrative council of the California Institute of Technology, gave on December 14 the first of a series of lectures to be presented by visiting lecturers at Lafayette College on The Lyman Coleman Lecture Foundation for 1927-28.

DR. C. MACFIE CAMPBELL, professor of psychiatry in the Harvard Medical School, recently delivered the eighth Pasteur lecture before the Institute of Medicine of Chicago on "Some Problems of the Functional Psychoses."

THE rector of the Charles' University and the dean of the faculty of science, Prague, Czechoslovakia, have announced a course of lectures by Professor M. T. Bogert, of Columbia University, as the first visiting Carnegie professor of international relations to Czechoslovakia. The lectures are five in number, the first having been given on November 16, and the last being scheduled for January 18.

THE first meeting of the executive committee of the American Association for the Advancement of Science will take place at 10:00 on Monday morning, December 26, in the executive committee parlor at the Andrew Jackson Hotel. The committee will meet at the George Peabody College for Teachers (Room 101, Industrial Arts Building) at 10:00 a. m. on Tuesday, Wednesday, Thursday and Friday from December 27 to 30. The council will meet in the Andrew Jackson Hotel Monday afternoon, December 26, at 2:00 o'clock. This will be the most important council session. Other council sessions are to occur at the George Peabody College for Teachers (Room 101, Industrial Arts Building) at 9:00 a. m. on Tuesday, Wednesday, Thursday and Friday. These sessions are to close by 10:00 o'clock. All members of the executive committee are members of the council. The chairman of the council is the president of the association. At 6:30 on Friday evening will occur, in the Andrew Jackson Hotel, the annual, complimentary, informal dinner and conference of the executive com-

mittee and the secretaries of the sections and of the societies meeting with the association at Nashville. The annual secretaries' conference is to follow the dinner.

AMONGST the societies not meeting during Christmas week in connection with the meeting of the American Association for the Advancement of Science at Nashville it may be noted that the meetings of the American Astronomical Society and of the American Section of the International Astronomical Union will be held at Yale University. The Society of American Bacteriologists will meet at Rochester, N. Y., and the Geological Society of America, the Paleontological Society, the Mineralogical Society of America and the Society of Economic Geologists will meet at Cleveland, Ohio. The American Psychological Association meets at Columbus, Ohio, and the American Anthropological Association at Andover, New Hampshire. The Archeological Institute of America will meet at Cincinnati with the College Art Association of America, the American Philological Association, the Linguistic Society of America, the National Association of Teachers of Speech and the American Association of University Professors. The meetings of the American Sociological Society, the American Political Science Association, the American Economic Association, the National Community Center Association, the American Association for Labor Legislation, the American Statistical Association and the American Historical Association will be held at Washington, D. C.

THE next annual meeting of the American Society for Testing Materials will be held at Atlantic City in the Chalfonte Hotel from June 25 to 29.

THE London correspondent of *Industrial and Engineering Chemistry* writes that preparations are now being made for the celebration next month of the jubilee of the Institute of Chemistry of Great Britain and Ireland. The institute, of which R. B. Pilcher has been for many years the secretary and registrar, has done a great deal of work for the development of chemistry as a recognized profession and its degrees of "fellowship" (F.I.C.) and "associateship" (A.I.C.) rank high both as academic and practical qualifications. The jubilee celebrations will include a joint dinner, at which a very large attendance is expected, a reception and various other features.

THE first number has been issued of the *Quarterly Journal of General Psychology*, established by the late Edward Bradford Titchener and Professor Carl Murchison, and published by the newly established Clark University Press of which Professor Murchison is the director. The journal is planned to cover experimental, theoretical, clinical and historical psychology and has the cooperation of a number of editors represent-

ing different countries and the more important fields of psychology.

WORD has been received at the Harvard College Observatory from J. Hartmann, director of the observatory at La Plata, Argentina, that Maristany, also of La Plata, has observed a second magnitude comet with a tail. The detailed observation of the comet was right ascension 16 hours 27 minutes, declination minus 50 degrees. The Harvard observers stated that this comet was apparently the one discovered by S. K. Jellerup, a South African astronomer, at Cape Town.

THE Rockefeller Foundation has offered the University of Copenhagen a gift of half a million kroner for the erection and equipment of an institute of physical chemistry on condition that the Danish Government provides the site and maintains the work of the institute. The Rockefeller Foundation has previously provided funds for the erection of an Institute of Theoretical Physics and an Institute of Physiology, both of which are now in course of erection.

UNDER the will of Nathan Matthews, former mayor of Boston, Harvard University receives a portion of Mr. Matthews's, estate in Hamilton, known as Black Brook Farm, which has been planted and maintained as an experimental forestry station. The will directs that the station be continued for the benefit of all persons and institutions in New England interested in forestry.

THE late Professor A. Liversidge, F.R.S., has bequeathed to the department of minerals of the British Natural History Museum his mineralogical collection, comprising 3,000 specimens, mainly from Australia. This bequest includes a 65 pound mass of the Thunda meteoric iron and about 40 other specimens of meteorites; about 40 sections of gold nuggets, cut to exhibit their internal structure; and about 40 gem stones, besides lantern and microscope slides, photographs, etc. The trustees have authorized the purchase for the same department of two fine specimens of Diopside crystals from the French Congo. In this connection they acknowledge the generosity of Mr. F. N. Ashcroft, who contributed half the cost of the best specimen.

PART of the famous Santa Rosa gardens, where Luther Burbank conducted many of his experiments with plant life, will be given to the municipality for a public park. Mrs. Burbank, having decided to sell three quarters of the three-acre garden plot for cutting up into building lots, is retaining the remaining quarter, on which is situated the Burbank home and the cedar of Lebanon, beneath which Burbank is buried, and this will ultimately be left in trust to the public.

BARRO COLORADO, an island in Gatun Lake, Panama Canal Zone, has been reproduced in miniature at the American Museum of Natural History, with its wealth of bird and animal life and tropical foliage. The exhibit was opened to the public on December 9. The island is the first of a series of twelve groups planned to illustrate bird life in the major faunal zones of the world. Barro Colorado is to be typical of the American tropics. The group was presented by Dr. Evan M. Evans, who was assisted in his work by Dr. Frank M. Chapman, ornithologist; Francis L. Jaques, who painted the background, and Raymond L. Potter, who mounted the birds. The foliage was reproduced in wax by James L. Clark, of the museum.

INDIAN objects and prehistoric relics, comprising the collection owned by Mr. Jonathan Tibbet, of Riverside, will soon be permanently exhibited at Pomona College as the gift of Mr. and Mrs. Tibbet, according to an announcement made by Mr. J. H. Batten, director of regional service for the college. The gift contains between five and six thousand separate articles, some of which date back to prehistoric days. The pioneer relics cover the entire period of California history, and have been secured from early families that Mr. Tibbet personally knew or from other trustworthy sources.

ACCORDING to a statement in *Nature* on the annual report of the British Photographic Research Association, the Department of Scientific and Industrial Research has offered to the association a block grant for the five years ending May 31, 1932, that will make up the income of the association from other sources (its members' subscriptions) to £5,000 per annum. There are certain conditions, and the one that is essentially new requires the appointment of a "research committee of technical and scientific persons in whom shall be vested the supervision of the scientific investigations of the association." Although the income of the association will probably be rather less than it has been, the useful work that it has been carrying on for the last ten years will be continued. The report gives the details of the last year's work.

THE cooperating agencies composing the New England Research Council, including agricultural experiment stations, state bureaus of markets and some of the universities of New England, were represented at the annual meeting of the council in Boston the latter part of October, according to a report by Nils A. Olsen, assistant chief of the U. S. Bureau of Agricultural Economics, in the *Record* of the U. S. Department of Agriculture. He says that a very much worth-while review was presented of all the research work that is going on at the individual stations. A general discussion of methods and problems arising

in connection with the elasticity of milk supply studies was led by Mordecai Ezekiel, an economist of the division of farm management and costs of the bureau.

THE 1927-28 prize essay contests of the American Chemical Society will be conducted in a manner similar to that of the past four years with funds which have again been provided by Mr. and Mrs. Francis P. Garvin, of New York City. Contests will be conducted for high-school pupils, with prizes totalling \$6,000 in cash and six four-year university scholarships of \$500 annually; for university and college freshmen, with prizes totalling \$6,000 in cash; for normal school and teachers' college students, with prizes identical with the freshman contest. The topics from which contestants must select subjects for their essays are: The relation of chemistry to health and disease, the relation of chemistry to the enrichment of life, the relation of chemistry to agriculture or forestry, the relation of chemistry to national defense, the relation of chemistry to the home and the relation of chemistry to the development of an industry or a resource of the United States.

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### UNIVERSITY AND EDUCATIONAL NOTES

THE Princeton University \$20,000,000 fund committee reports that over \$6,500,000 is now pledged towards the objective of the Princeton fund, which is to secure an increased remuneration for the faculty and to make possible a building program for the university. Toward the \$2,000,000 fund for a foundation in pure scientific research over \$1,400,000 is now pledged. Upon completion of the \$2,000,000 fund the university will receive from the General Education Board its conditional gift of \$1,000,000 for this purpose.

AMHERST COLLEGE has been promised a new chemical laboratory as the gift of Mrs. William Henry Moore, of New York City, and her sons, Edward Small Moore and Paul Moore, as a memorial to her husband.

AT a dinner held in New York on December 2 by the Near East College Association, a gift was announced, among others, of \$1,000,000 from the Rockefeller Foundation to be devoted to medical work at the American University of Beirut. The Near East College Association announced at the dinner the opening of a campaign to raise \$15,000,000 for the six American colleges in the Near East. Among other gifts announced was \$1,000,000 from the estate of Dr. Charles Hall, who died in 1914.

THE University of Cambridge has become entitled to a bequest of approximately £65,000, accruing from