

tive amounts of longitudinal and transverse steel, the method of treating reinforcement before placing, as well as its position in the slab. The form of the reinforcement will receive consideration to determine the relative values of fabric, rods and other types in use. An effort will be made to determine the comparative value of hard steel and of mild steel for reinforcement, and the influence of continuous and non-continuous reinforcement. Wherever possible, the present condition of the reinforcement will be noted for breaks, rust and other features of interest. Wherever obtainable, cost data will be secured covering the original as well as the maintenance investment.

The preliminary work of assembling data now available will soon be completed, at which time the field inspections will begin. The itinerary will be made out after further study, but it is proposed to pursue the investigation in the northern sections until cold weather, when attention will be turned to the southern locations. It is expected that a progress report will be ready for the annual meeting of the Advisory Board on Highway Research to be held at the building of the National Research Council on December 4 and 5.

#### INSTITUTE OF RESEARCH AT LEHIGH UNIVERSITY

ANNOUNCEMENT has been made of the establishment of the Lehigh Institute of Research by the administration of Lehigh University. In announcing the purposes of the institute, the Board of Trustees, of which E. G. Grace, president of the Bethlehem Steel Corporation, is president, stated that the object is

to encourage and promote scientific research and scholarly achievement in every division of learning represented in the organization of the university; and in recognition of the need for further and more exact knowledge in science and in the applications of science to the affairs of modern life. It is believed that this organization will be helpful in stimulating interest in liberal and professional education; and that it will prove to be of value to the professions and industries of the nation.

The Lehigh Institute of Research will afford training in research methods to the following classes of individuals: the members of the teaching staff of the university; the members of the scientific staff of the institute, including research fellows, research assistants and research professors appointed by the university and paid by it from its own funds or from funds for the purpose supplied by an individual, a firm or a corporation; graduate students in the university; special investigators temporarily employed for work on a particular investigation. The founding of research fellowships or research professorships in the Lehigh Institute of Research is a means for encour-

aging research and for assisting promising men to secure advanced training in the methods of research. The first fellowship of this kind has been founded by the New Jersey Zinc Company, and is known as the New Jersey Zinc Company's Research Fellowship in Science and Technology.

To preserve the records of its investigations and to render them available to every one interested, the Lehigh Institute of Research proposes to publish and distribute from time to time bulletins presenting the results of investigations conducted by or under its direction, and to issue other material which may be helpful to the various interests which it seeks to serve. Under certain conditions, and with the approval of the executive board, reports of such investigations may be presented before professional or other learned societies and published by them.

The executive board of the Lehigh Institute of Research is composed of the following: Dr. Charles Russ Richards, president of the university; Harry Maas Ullmann, professor of chemistry; Ralph Justin Fogg, professor of civil engineering; William Esty, professor of electrical engineering; Lawrence Boylston Chapman, professor of marine engineering; Fred Viall Larkin, professor of mechanical engineering; Dr. Bradley Stoughton, professor of metallurgy; Howard Eckfeldt, professor of mining engineering; Barry MacNutt, professor of physics; Dr. Benjamin LeRoy Miller, professor of geology; Dr. Robert William Hall, professor of biology; Dr. Neil Carothers, professor of economics; Dr. Lawrence Henry Gipson, professor of history and government.

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#### SCIENTIFIC NOTES AND NEWS

THE Rensselaer Polytechnic Institute held special convocations on the occasion of the celebration of the centenary of its foundation, on October 3 and 4. On the first day the degree of doctor of engineering was conferred upon President Sir Charles Langbridge Morgan, of the Institute of Civil Engineers of Great Britain; President Henri Abraham, of the Society of Electrical Engineers of France; President Luigi Luiggi, of the Society of Civil Engineers of Italy, and President Arthur Surveyer, of the Engineering Institute of Canada. On the second day the degree of doctor of philosophy was conferred upon President James R. Angell, of Yale University; President Edward A. Birge, of the University of Wisconsin; President Samuel W. Stratton, of the Massachusetts Institute of Technology, and President Livingston Farrand, of Cornell University; the degree of doctor of science on Albert A. Michelson, president of the National Academy of Sciences, and the degree of doctor of engineering on Carl E. Grunsky, president of the Amer-

ican Society of Civil Engineers; Frederick R. Low, president of the American Society of Mechanical Engineers; William Kelly, president of the American Institute of Mining and Metallurgical Engineers, and Farley Osgood, president of the American Institute of Electrical Engineers.

THE celebration of the connection with the department of chemistry for fifty years of Dr. Edward S. Hart takes place at Lafayette College from October 16 to 18. The first part of the celebration will be in connection with the college Founders' Day exercises commemorating the centennial of the college on the morning of October 16. The remainder of the program will be under the auspices of the Lehigh Valley, New York, Philadelphia, Wilmington and the south Jersey sections of the American Chemical Society.

DR. HARVEY W. WILEY will be the guest of honor at a dinner to be given on October 20 in connection with the meeting of agricultural chemists in Washington. On October 18 Dr. Wiley will celebrate the eightieth anniversary of his birth.

THE French government has conferred the Cross of Chevalier of the Legion of Honor on Dr. Frederick G. Novy, professor of bacteriology and director of the hygienic laboratory of the University of Michigan.

FRANCIS F. LUCAS, of the Western Electric Company, was awarded the Howe gold medal at the annual dinner of the American Society for Steel Treating, for "having written during the past year the best paper on the scientific treating of steel."

PROFESSOR CHARLES LANE POOR, of Columbia University, has been appointed chairman of a committee from the New York Yacht Club to attend the International Conference on Yacht Measurement, which meets in London on October 16.

DR. S. P. L. SÖRENSEN, of the Carlsberg Laboratories, Copenhagen, was recently elected an honorary member of the American Chemical Society.

SIR CHARLES A. PARSONS, chairman of the Parsons Marine Turbine Co., of London, and Senator Luigi Luiggi, president of the Society of Italian Engineers, were given a luncheon at the Engineers Club of New York, on September 26.

DR. NICHOLAS KOPELOFF has returned to the Psychiatric Institute, Ward's Island, New York City, to resume his work as bacteriologist, after a year spent at the Pasteur Institute in Paris and other European institutions.

DR. CLYDE H. BAILEY, professor of agricultural biochemistry at the University of Minnesota, and director of the Minnesota State Experimental Flour Mill, has been granted a year's leave of absence from the university to become director of the technical

bureau, Biscuit and Cracker Manufacturers Association, with headquarters in Chicago.

DR. WADE WRIGHT, instructor of industrial medicine at the Medical School of Harvard University, has resigned to take up work with the Metropolitan Life Insurance Company, New York.

DR. FREDERICK C. NARR, formerly of Pittsburgh, has been appointed director of the pathologic laboratories of the Research Hospital at Kansas City.

HENRY G. BERGER, formerly a member of the research staff of the Pittsburgh Experiment Station of the U. S. Bureau of Mines, has been appointed research chemist in the insulation division of the Armstrong Cork Co., Gloucester, N. J.

THE trustees of Radcliffe Observatory, Oxford, have appointed Harold Knox-Shaw, of Trinity College, Cambridge, formerly head of the observatory at Helwan, Egypt, to be Radcliffe Observer in succession to the late Dr. A. Rambaut.

PROFESSOR H. KOPFF, of the Heidelberg Observatory, has been appointed professor of theoretical astronomy in the University of Berlin and director of the Astronomischen Recheninstituts.

PROFESSOR F. PASCHEN, of the University of Tübingen, has accepted the directorship of the Reichsanstalt and will accordingly not be able to lecture at the University of Michigan this semester, as previously announced. A cable to this effect was received on September 22.

DR. JOSEPH F. ROCK, botanical explorer for the Arnold Arboretum of Harvard University, who recently returned from an expedition into the interior of China, is leaving the United States to continue his explorations in these regions. Dr. Rock expects to be away for three years.

A LUNCHEON in honor of Vilhjalmur Stefansson, the explorer, who has returned to this country after several months in Australia, was given recently in New York. Mr. Stefansson opened his lecture tour in San Francisco on October 6, and next year will again leave for Australia to resume his explorations. He will also go to South Africa to study the deserts there.

ROALD AMUNDSEN, the Norwegian explorer, has sailed for the United States, where he is to make a lecture tour.

DR. THORVALD MADSEN, director of the Danish Serotherapeutic Institute, Copenhagen, will give the Cutter lecture on preventive medicine at the Harvard Medical School on October 14. The subject of the

lecture will be "Whooping cough: its bacteriology, diagnosis, prevention and treatment."

PROFESSOR HENRI ABRAHAM, director of the physics laboratory at the University of Paris, gave a public lecture on the evening of September 25 at the Carnegie Institute of Technology in Pittsburgh on the subject of "Measurement of time." An audience of 350, including a large number of scientific men, attended the lecture.

THE California Academy of Sciences announces a special course of four lectures on "The ways of nature" to be given by Dr. David Starr Jordan, chancellor of Stanford University, in the Auditorium of the Academy's Museum in Golden Gate Park, at three o'clock on Sunday afternoons beginning on October 8.

A MEMORIAL to Lord Lister was unveiled on September 20 in Kelvingrove Park, Glasgow, Scotland. It is a seated figure in bronze by the sculptor George Henry Paulin.

AT the conclusion of the opening ceremony of the sixty-ninth annual exhibition of the Royal Photographic Society held at the rooms of the society in London, a memorial portrait in bronze of Henry Fox Talbot was unveiled in the library. Mr. Talbot was one of the pioneers of photography, and was the inventor of a process by which positives are obtained from negatives.

MISS CLARA LUDLOW, of the Army Medical Museum, known for her work on disease-bearing mosquitoes, died on September 28, aged seventy years.

DR. SIDNEY MARTIN, F.R.S., physician to University College Hospital, London, and distinguished for researches in chemical physiology and pathology, died on September 22, aged sixty-four years.

DR. FRANZ DOFLEIN, emeritus professor of zoology and comparative anatomy in the University of Breslau, died on August 26, at the age of fifty-one years.

ACCORDING to the *Journal of Terrestrial Magnetism* there have been held recently in Russia various meetings and conferences relating to the furtherance of geophysical work in Russian countries. Professor P. Lasareff, of the University of Moscow, has been appointed president of the Magnetic Commission, which has for its purpose the continuation of the magnetic survey of Russia and its dependencies.

THE New England Intercollegiate Geological Excursion will be held in the vicinity of Brown University, Providence, on October 10 and 11. The carboniferous series including the coal deposits will be studied, also the metamorphic rocks, the shore lines and the glacial geology.

ACCORDING to the *Journal of the American Medical Association* the fifty-third annual meeting of the American Public Health Association will be held in Detroit, from October 20 to 23, under the presidency of Dr. William H. Park, of New York. Dr. T. Madsen, chairman of the Health Section of the League of Nations, will address the first general session Monday evening, October 20. The second general session, on October 22, will be presided over by the Forum Committee of the association; the third, on Wednesday, will be a symposium on "Values in public health." Dr. George F. Dick, of Chicago, among others, will address the public health administration section. There are nine sections in the association, each of which will be addressed by a number of prominent men. Dr. R. M. Olin, state health commissioner of Michigan, is chairman of the local committee arranging for the meeting. The American Society of Civil Engineers will hold a meeting directly following the meeting of the American Public Health Association and a joint session between the sanitary engineering divisions of both organizations has been arranged.

THE fall meeting of the New England Federation of Natural History Societies was convened at Taunton, Mass., on September 26-27, the federation being the guest of the Bristol County Academy of Sciences. Sessions were held at the Taunton Public Library with an evening meeting at a neighboring church. The speaker of the evening was Mr. A. C. Bent, of Taunton, who outlined, with lantern illustrations, a recent exploring trip across Arizona, the purpose of which was the study of birds and plants. At the business meeting on September 27, Norman Easton, president of the Fall River Natural History Society, presented some of the problems confronting small societies in the less important cities. Specialization, he said, makes it difficult for a general society to maintain its interests, while the automobile has had its effects on outings. It was shown by others that, while the matter is not as yet definitely systematized, the automobile may be very useful in carrying a party to the field for collecting or observation. At present this needs much planning, but in general, according to the experience of the Rhode Island Field Naturalists Club, it may be done even with large parties, its recent outing to the bird reservation at Kingston, R. I., some forty miles from Providence, being a case in point. Saturday morning, September 27, was devoted to the gathering of mushrooms, which were exhibited during the afternoon. In the afternoon James H. Emerton, of Boston, read the roll-call of societies, some fifteen of which were represented. John Ritchie, of Malden, presided.

THE first international conference of research men

in the sugar cane industry was brought together at the Pan-Pacific Food Conservation Conference at Honolulu, July 28 to August 14, under the auspices of the Pan-Pacific Union. Representatives at the sugar conference were present from Australia, Fiji, Formosa, Japan, Philippine Islands, India, Java, Chile, Mexico, Porto Rico, Cuba, the continental United States and the Hawaiian Islands. The meeting was considered so fruitful by those in attendance that a permanent organization to be called the International Society of Sugar Cane Technologists has been perfected. The purpose of the society as outlined in the constitution is as follows: "An organization to promote by means of triennial conventions the discussion of problems connected with sugar production in both field and factory." Officers elected for the present triennial term were Hamilton P. Agee, of Hawaii, as general chairman and M. S. Barnett, of Australia, as general secretary; H. Atherton Lee was appointed assistant secretary. The next meeting of the society will be held in Havana, Cuba, in February, 1927.

We learn from *Nature* that the first conference of the Pathological and Bacteriological Laboratory Assistants' Association was held from September 1 to 5, in the department of pathology of the University of Edinburgh. The attendance was good, there being members present from all parts of Great Britain and also from Africa. The local organization was in the hands of a committee appointed by the Scottish division of the association. Lectures and demonstrations in laboratory technique were held, an exhibition of laboratory work and apparatus was on view and places of interest in and around Edinburgh were visited. Members of the Scottish division of the association were responsible for the exhibition, while the London division showed objects of tropical interest and demonstrated specimens illustrating the life history of parasites and their insect hosts. At the dinner on September 5, the president, Professor A. E. Boycott, made the presentation of the first Woodhead medal to Albert Norman together with an address. This medal has been established by means of funds collected among members of the association in memory of the late Sir German Sims Woodhead. In all, £141 has now been received and the subscription list is soon to be closed.

A GENERAL discussion on the physical chemistry of igneous rock formation is to be held in the rooms of the Geological Society of England, London, on October 22. The meeting is being organized under the joint auspices of the Faraday Society, the Geological Society and the Mineralogical Society. A general introduction will be contributed by Dr. J. S. Flett, and papers are expected from Professor C. H. Desch, Dr. J. W. Evans, Professor J. W. Gregory, A. F.

Hallimond, Professor Paul Niggli, Dr. A. Richardson, Dr. A. Scott, G. W. Tyrrell and Dr. W. E. S. Turner.

A LARGE collection of natural history material and Indian artifacts has been given to the Oregon Agricultural College, by the heirs of the collector, the late Dr. J. L. Hill.

THE California Academy of Sciences has received by the will of the late Henry M. Holbrook a collection of Lepidoptera of several thousand specimens, and the sum of \$2,000 in cash with which to meet the cost of installation.

THE corner-stones of the Todd Memorial Clinic and the Cancer Institute at the university hospitals, University of Minnesota, were laid on October 1.

DEAN E. D. MERRILL, of the University of California College of Agriculture, has recommended the transfer of the Division of Citriculture and Subtropical Horticulture from Berkeley to the Citrus Experimental Station at Riverside, California.

THE Council of the Zoological Society of London has instituted an Aquarium Research Fellowship of the annual value of £350, tenable for one year, but with the expectation of reappointment for two further years if satisfactory progress is being made.

THE formal opening of the Ramsay Laboratory of Chemical Engineering at University College, London, instituted in 1923 as part of the memorial to the late Sir William Ramsay, will take place in November. A full course of study in chemical engineering will be provided in the laboratory in the coming session, leading to the degrees of M.Sc. or Ph.D. in chemical engineering. The course is designed to meet the demands of the manufacturing industries for men trained in the application of scientific methods to the design and operation of industrial chemical processes and plant. Special facilities are provided for research.

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## UNIVERSITY AND EDUCATIONAL NOTES

ONE million dollars has been pledged to the Hampton Normal and Agricultural Institute, Virginia, and the Tuskegee Normal and Industrial Institute, Alabama, by the Rockefeller General Education Board on condition that the trustees of the two schools raise an equal amount.

CATHOLIC UNIVERSITY, Washington, has received a gift of \$750,000 from John K. Mullen, of Denver, which is to be used for a library building.

THE new Goessmann Laboratory of Chemistry at the Massachusetts Agricultural College, erected at a