

degree on two students. Since then the school has grown steadily, and at commencement last June it granted 131 degrees. The faculty has grown from the original three professors to a present teaching staff of over one hundred and thirty members.

RECENT DEATHS

DR. E. N. LOWE, director of the Mississippi State Geological Survey since 1909, and professor of geology at the University of Mississippi since 1924, died on September 12, at the age of sixty-nine years.

THE death is announced on September 4 of Dr. John Playfair, a past president of the Royal College of Physicians of Edinburgh, and consulting physician to the Royal Hospital for Sick Children.

A CORRESPONDENT writes: "Herman Paul Sachse, who had devoted his life to the design and production of scientific instruments, died August 12, 1933, at the age of fifty-three years. Mr. Sachse, who was born in Germany, first entered the scientific instrument industry as an apprentice in the Zeiss Op-

tical Works in Jena. In 1911 he came to America to accept a position as superintendent in the plant of Eugene Dietzgen Company in Chicago. His skill in the testing and inspection of optical instruments later opened an opportunity to enter the employ of the Bausch and Lomb Optical Company in Rochester, as general inspector. In 1918 his services were secured by the Central Scientific Company for the making of optical devices for the control of gun fire in the war. At its close he assumed full charge of the production of scientific instruments and laboratory apparatus in the factory of this company, first as factory superintendent and later as factory manager. Mr. Sachse's unusual ability as an apparatus and instrument designer, his intimate knowledge of manufacturing processes and his well-developed artistic sense enabled him to develop instruments of precision which could be produced economically in the small quantities in which such products are made, but still of the perfect proportions and pleasing appearance that really fine instruments justify."

SCIENTIFIC NOTES AND NEWS

SIR WILLIAM BATE HARDY, fellow of Gonville and Caius College, Cambridge, and director of Food Investigation at the Department of Scientific and Industrial Research, has been nominated as president of the British Association for the Advancement of Science for next year when the meeting is to be held at Aberdeen.

DR. HERMAN SCHLUNDT, professor of physical chemistry and since 1911 chairman of the department of chemistry at the University of Missouri, is suffering from a severe attack of encephalitis lethargica.

PRESIDENT ROBERT G. SPROUL, of the University of California, calls attention to the fact that the award of the Langmuir Prize by the American Chemical Society to Dr. Frank H. Spedding, instructor in chemistry, is the third in succession that has been made to instructors or graduates of the university. The first award was made to Dr. Linus Pauling, lecturer in chemistry, and the second to Dr. Oscar K. Rice, Ph.D. (California, '26), now at Harvard.

PROFESSOR DOUGLAS JOHNSON, of Columbia University, has been decorated by King Alexander I of Yugoslavia with the Order of Saint Sava, Second Class, with Star. The presentation was made in New York City by the consul general of Yugoslavia.

DR. OTTO RENNER, professor of botany at Jena, has been elected a member of the Saxon Academy of Sciences.

HONORARY doctorates have recently been conferred by the Agricultural Institute at Vienna on Dr. Otto

Appel, director of the Biological Institute for Agriculture and Forestry, Berlin; on Dr. Hans Molisch, professor of plant anatomy and physiology at Vienna, and on Dr. Christoph Wagner, professor of forestry at Freiburg i. Br.

DR. WALTER A. COOK has been appointed head of the department of chemistry at the University of Akron, to succeed H. E. Simmons, who has been elected president of the institution. Dr. Cook has been connected with the department of chemistry at the University of Akron for the past seven years. Dr. Howard I. Cramer, research chemist with the Goodyear Tire and Rubber Company, has been appointed to take charge of classes in rubber chemistry and inorganic chemistry at the university.

DR. GEORGE STEPHEN JOHNSON, professor of psychiatry at the University of Colorado Medical School and director of the work of the Colorado Psychopathic Hospital, has been appointed professor of neuropsychiatry at the Stanford Medical School. Dr. Johnson will carry on the work of the late Dr. H. G. Mehrrens, who died on February 28.

DR. G. C. CHANDLEE, head of the department of chemistry at the Pennsylvania State College, will act as dean of the Graduate School this year during the absence of Dean F. D. Kern, who will be acting dean of the College of Agriculture and Mechanic Arts of the University of Puerto Rico.

IN the issue of SCIENCE for September 15, it was stated that Dr. Harry M. Zimmerman had been ap-

pointed to an associate professorship at Yale University, with the implication that it was in the department of anatomy. Dr. Zimmerman is a member of the department of pathology.

DR. D. O. MORGAN, senior research assistant at the Institute of Agricultural Parasitology, St. Albans, has been appointed lecturer in helminthology in the University of Edinburgh and in the Royal Veterinary College.

DR. WERNER CATEL, of the University of Berlin, has been appointed professor of children's diseases in the University at Leipzig.

DR. CURT STERN, formerly of the Kaiser Wilhelm Institut für Biologie, has been appointed to a research fellowship in the newly organized department of zoology at the University of Rochester.

A. B. EVANS, of the University of Michigan, has been appointed to the fellowship offered by the Firestone Tire and Rubber Company in rubber chemistry at the University of Akron for the academic year 1933-34.

HOWARD A. SMITH, recently of the University of Illinois, who has been granted a National Research fellowship in chemistry for the year 1933-34, has taken up the study of the rates of decomposition of metastable metallic solid solutions at the Metals Research Laboratory of the Carnegie Institute of Technology, Pittsburgh.

DR. KURT LEWIN, of the University of Berlin, known especially for his work in child psychology, has been named acting professor of psychology at Cornell University for the coming academic year. Dr. Lewin, who was dismissed by the Hitler government, goes to Cornell University as a result of appropriations from the Rockefeller Fund and from the Emergency Committee in Aid of Displaced German Scholars, of which Dr. Livingston Farrand is chairman.

ACCORDING to a press dispatch, Dr. Heinrich Poll, professor of anatomy at the University of Hamburg, has been retired on account of "non-Aryan" descent, and Professor Albrecht Mendelssohn-Bartholdy, professor of international law, has been retired "for reasons of administrative simplification."

The Collecting Net reports that Dr. P. W. Whiting, professor of zoology at the University of Pittsburgh, has been invited by Dr. Chas. B. Davenport to spend the coming year at the Station for Experimental Evolution, Carnegie Institution of Washington, Cold Spring Harbor, New York. Dr. B. R. Speicher will act as research assistant to Dr. Whiting under a grant from the Committee on the Effects of Radiation on Living Organisms of the National Research Council.

DR. JULIUS TANDLER, professor of anatomy at the University of Vienna, has accepted an invitation of the Chinese government to lecture during the next semester at the Universities of Peking and Shanghai.

THE Chicago Medical Society gave a reception and dinner to officers of the American Medical Association and its constituent medical societies in the Hall of Science, Century of Progress Exposition, on September 22. Dr. Dean DeWitt Lewis, of the Johns Hopkins Medical School, president of the association, spoke on "Medical Organization," and Dr. Eben J. Carey, director of the medical section of the Century of Progress, gave an illustrated address on "A Century of Progress."

THE Gehrman Lectures for this year will be given on October 16, 17 and 18 at the University of California College of Medicine, San Francisco, by Dr. Karl F. Meyer, director of the George Williams Hooper Foundation and professor of bacteriology. The subjects are: "Undulant Fever, Bang's Disease and Malta Fever," "Equine Encephalomyelitis" and "Psittacosis."

LECTURES in the Smith-Reed-Russell series at the School of Medicine of George Washington University have been announced for the first semester of the present academic year. Professor George Barger, University of Edinburgh, speaks in September; Professor W. W. Cort, the Johns Hopkins University, in October; Professor James W. Jobling, Columbia University, in November; Professor Howard T. Karsner, Western Reserve University, in December, and Dr. Arthur Cramp, of the American Medical Association, in January. The various subjects to be presented will be announced later.

THE Smithsonian Institution has been advised by the State Department that the Government of Mexico, in view of the fact that economic conditions in the American countries have not improved in general, has postponed until the year 1935 the meeting of the Seventh Pan American Scientific Congress, which was called to meet at Mexico City in November of this year.

THE twenty-second Annual Safety Congress will be held in Chicago, from October 2 to 6, with headquarters at the Stevens Hotel. Three general sessions will be sponsored by the industrial health section: the first on dermatitis and other skin disorders; the second on a practical medical program for industry, and the third on the eye in relation to industry. Dr. Harold S. Hulbert, Chicago, will conduct early morning classes in practical psychology, on "Mental Training for Safety."

APPLICATIONS for the position of botanical artist must be on file with the U. S. Civil Service Commis-

sion at Washington, D. C., not later than October 26. The entrance salary for this position ranges from \$3,200 to \$3,700 a year, less a deduction of not to exceed 15 per cent. during the fiscal year ending June 30, 1934, as a measure of economy, and to a deduction of 3½ per cent. toward a retirement annuity. Competitors will not be required to report for examination at any place but will be rated on their education and experience. Applicants must have completed a course in art at an institution of recognized standing, or must have equivalent standing from having studied under private tutors. In addition, applicants must have had at least five years of practical experience, illustrating live-plant material, including water color, oils, pen and ink, and pencil drawings.

Industrial and Engineering Chemistry states that applications for grants from the van't Hoff Fund, established in 1913 for the endowment of investigators in the field of pure and applied chemistry, should be sent before November 1 to "Het Bestuur der Koninklijke Akademie van Wetenschappen, bestemd voor de Commissie van het 'van't Hoff-Fonds,' Trippenhuis, Kloveniersburgwal, Amsterdam C, Holland," with a detailed account of the proposed use of the grant and of the reasons on which the candidates base their claim.

ACCORDING to the *London Times*, each of the Nobel Prize winners this year will receive 170,331kr, (£9,465), about £80 less than last year's winners. The slight decrease has been caused by the fluctuations in the yield of the Nobel Fund investments.

A NEW building to form the future home of the Prince Leopold National Institute of Tropical Medicine is approaching completion in Antwerp.

SIR ROBERT HADFIELD has made a gift of £5,000 to the University of Sheffield in commemoration of the visit of the Iron and Steel Institute to Sheffield in 1905, when he was president, and of the coming visit of the institute to Sheffield this month. He hopes that the money will be used for the advancement of metallurgical knowledge. Sir Robert Hadfield, who is a doctor of metallurgy of Sheffield University, built and equipped one of the metallurgical research laboratories at the applied science department of the university.

The British Medical Journal states that the President of the French Republic has recently signed a decree which endorses the plan, put forward by the University of Paris, for an institute of industrial hygiene and occupational medicine, to be attached to the Faculty of Medicine. This institute will be composed of three sections: (1) a section of industrial hygiene which will be concerned with the prevention of industrial diseases and with public health; (2) a section of

occupational medicine which will be concerned with the clinical study and treatment of occupational diseases; (3) a section of industrial chemical toxicology which will be concerned with industrial toxicology.

Nature writes: "The burglary that took place at the Geological Survey and Museum, London, on Friday, August 25, was fortunately not so serious as would appear from some of the accounts in the press. A small case was forced open during the night, and about one half of its contents abstracted. These comprised a color-set of cut tourmalines, a handsome piece of rough beryl, a few cut sapphires showing color variation, a set of cut blue and yellow zircons and a few specimens of diamond-bearing and auriferous concentrates. Several large and valuable specimens were left in disorder in the case and it seems clear that the burglar was disturbed by the night-warder on patrol. The building at Jermyn Street is crowded with scaffolding to support the roof, and very special precautions have to be taken against the risk of fire. The condition of the building has increased the difficulties under which the night watching of the museum is carried out."

THE Berlin correspondent of the *London Times* writes that "General Göring, as premier of Prussia, recently forbade vivisection in Prussia and undertook to put any one practising it hereafter in a concentration camp. Much praise was given in the press to the humane motive underlying this order, but the scientific world was apparently taken aback and there were hurried discussions to establish what was and what was not forbidden. It is now announced that pending the enactment of an Animal Protection Act vivisection is to be defined as the dissection of, or operations on, a living unnarcotized animal in cases where anesthetics are used for similar operations on the human body and in cases where the use of anesthetics is feasible. As serious scientific research in the interest of maintaining health and life can not dispense with scientific experiments with animals, these experiments will not be regarded as vivisection if the following rules are followed: Scientific experiments with animals may be made in scientifically conducted institutions, under the supervision of their heads only if scientific considerations promise definite success. They must be omitted if the question at issue has already been cleared up. They are to be made painless by general or local narcotics."

WITH bird and animal specimens for the study collections of the Academy of Natural Sciences, Philadelphia, Brooke Dolan, who made an expedition to West China for the academy two years ago, has returned from East Greenland where he went as a member of an exploring party representing the academy and the Museum of Comparative Zoology at Harvard

University. The group was under the leadership of John K. Howard, of Boston. The other members were Amory Lawrence; Ernest Fox, geologist; Arthur Cleaves, paleontologist, and Lawrence Kilhan, biologist, all of Boston; Dr. W. G. Smillie, of the Harvard faculty; Henry Mallinckrodt, of St. Louis, and Dudley V. Talcott, of New Haven, owner of the schooner *Norkap*, on which they sailed from Isafjordur, Iceland, late in July. Under favorable weather conditions the voyage was made to Cape Brewster, southern gate-post of Scoresby Sound, whence the *Norkap* cruised north to Kaiser Franz Josef fiord after being unable to enter Davy Sound because of heavy ice packs off shore. For nearly three weeks several members of the party made a survey of musk-ox conditions, getting valuable data as to the size and conditions of the herds which form one of the outstanding life-groups in the Free Natural History Museum, and collecting birds and fossils. In the meantime, Mr. Dolan and Mr. Lawrence camped on the Strindberg Peninsula and centered their work on collecting specimens of foxes, arctic hares, barnacle geese and various birds, and Messrs. Mallinckrodt and Howard took a series of motion pictures of musk-oxen and polar bears. On one occasion the *Norkap* came dangerously near being destroyed by a huge iceberg which drifted to the ship's side in a half gale. Before it had a chance to crush the vessel, however, the anchor was lifted and a safe getaway was made. Late in August the expedition returned

to Leith, Scotland, by way of Iceland, and sailed thence for this country.

ACCORDING to the Peking correspondent of the London *Times* the Nanking Government has engaged Dr. Sven Hedin to lead a small Chinese-Swedish survey expedition to Sinkiang (Chinese Turkestan). The object is to find motorable highways which would facilitate trade between the remote interior and the coast. Leaving Kueihua in mid-October, the party will travel westward by motor-car along the ancient silk route to Rome, the longest and, it is claimed, the oldest caravan route in the world. The return journey will be made by the Imperial road through Kansu, with Nanking as the destination. The survey will take eight months, and the highways when completed will be 2,000 miles long.

A GIFT of 3,646 acres of forest land has been made to the University of Idaho by the Forest Development Company of Lewiston for development of an experimental forest. The tract is on Moscow Mountain about twenty miles from the university and will be known as the Moscow Mountain Experimental Forest. While practically all the merchantable timber has been removed, undersized trees have been left intact on most of the area, so that natural regeneration will make replanting largely unnecessary. The forest will serve as a field laboratory for the training of forestry students and experimentation in methods of silvicultural management, as well as a game preserve and for recreational purposes.

DISCUSSION

NOTE ON THE LONG BEACH EARTHQUAKE

IN a recent number of *SCIENCE*¹ there appears "Notes on the Fall of Columns during the Long Beach Earthquake," by Dr. Thomas Clements. A little earlier a "Preliminary Report on the Long Beach Earthquake" was published by the present writer.² (More complete and thorough studies of this shock will appear in a future article, or articles, probably in the *Bulletin of the Seismological Society*). From its content it appears certain that Dr. Clements' article had been sent to publication before the appearance of the paper by the present writer.

Because the circulation of *SCIENCE* is very much larger than that of the *Bulletin of the Seismological Society*, among both men of science and non-professional readers, it seems desirable and perhaps necessary to comment here on Dr. Clements' article. In so doing it must be emphasized that it is desired to avoid over-positive and dogmatic statements. The

phenomena developed by strong and destructive earthquakes are very complex, and thorough understanding of them is far from attained. There is no desire to put aside any valuable suggestion. Nevertheless, Dr. Clements' conclusions are not in harmony with ours and the discrepancies call for attention.

When, in 1857 and later, Mallet used overtoppled and fallen objects in the study of earthquakes he recognized waves of longitudinal vibration only. This view prevailed for a long time, implicitly longer than explicitly. Many such studies have been based upon it. Now, however, we recognize elastic waves of transversal vibration as well, and it is generally considered that these are the more destructive. This, perhaps, is not demonstrated; but it has been proved abundantly, especially in the last 30 years, that the amplitudes of the transversal waves are much larger than those of the longitudinal waves and that the periods of the transversal waves (though still very short) are longer. Besides these there are large-amplitude elastic surface waves—Love waves, so-called, with horizontal-transversal vibration, and Ray-

¹ *SCIENCE*, 78: 2014, 100-101, August 4, 1933.

² *Bulletin of the Seismological Society of America*, 23: 2, April, 1933.