at New York City,'' Julian E. Woodwell, '96, consulting engineer, New York.

''The Development of a System of Underground Pneumatic Tubes for the Transportation of United States Mail,'' B. C. Batcheller, '86, chief engineer, American Pneumatic Service Co., New York City.

''The Continuous Cooling of Circulating Water used for Condensing Steam,'' Edward F. Miller, professor of steam engineering, Massachusetts Institute of Technology, Boston.

''Power Plant Betterment,'' H. H. Hunt, '89, Stone & Webster Management Association, Boston.

''The Development of Economical Ore Dressing Systems,'' Frank E. Shepard, '87, president, Denver Engineering Works, Denver, Colo.

''Recent Developments in Bridge Construction,'' Frank P. McKibben, professor of civil engineering, Lehigh University, South Bethlehem, Pa.

''The Manufacture and Use of Asbestos Wood,'' Charles L. Norton, '93, professor of heat measurements, Massachusetts Institute of Technology, Boston.

''The Technics of Iron and Steel,'' Theodore W. Robinson, '84, vice-president, Illinois Steel Co., Chicago, Ill.

SECTION E—PUBLIC HEALTH AND SANITATION

Chairman, Professor W. T. Sedgwick

''Profitable and Fruitless Lines of Endeavor in Public Health Work,'' Edwin O. Jordan, '88, professor of bacteriology, University of Chicago, Chicago, Ill.

''The Technical School Man in Public Health Work,'' Harry W. Clark, '88, chief chemist, State Board of Health, Boston.

''Present Status of Water Purification in the United States and the Part that the Massachusetts Institute of Technology has Played,'' George C. Whipple, '89, consulting engineer, New York City.

''The Pollution of Streams by Manufacturing Wastes,'' William S. Johnson, '89, sanitary and hydraulic engineer, Boston.

''Sewage Disposal with Respect to Offensive Odors,'' George W. Fuller, '90, consulting hydraulic engineer and sanitary expert, New York.

''The Food Inspection Chemist and his Work,'' Herman C. Lythgoe, '96, analyst, State Board of Health, Boston.

''The Life Saving Corps of the Technical School,'' Severance Burrage, '92, professor of sanitary science, Purdue University, Lafayette, Ind.

''Factory Sanitation and Efficiency,'' C.-E. A. Winslow, '98, associate professor of biology, College of City of New York, New York City.

''A Review of the Work of the Sanitary Research Laboratory and Sewage Experiment Station of the Massachusetts Institute of Technology,'' Earle B. Phelps, '99, consulting sanitary expert, New York City.

''Bacteria and Decomposition,'' Simeon C. Keith, Jr., '93, assistant professor of biology, Massachusetts Institute of Technology, Boston.

SECTION F—ARCHITECTURE

Chairman, Professor F. W. Chandler

''Landscape Architecture, a Definition and a Brief Résumé of its Past and Present,'' Stephen Child, '88, landscape architect and consulting engineer, Boston and Santa Barbara.

''Some Phases of Modern Architectural Practise,'' Walter H. Kilham, '89, architect, Boston.

''The Engineer and Architect Unite,'' Luzerne S. Cowles, '97, assistant designing engineer, Boston Elevated Railway Co., Boston.

''Mill Construction with Steel Frame and Tile Walls,'' John O. DeWolf, '90, mill engineer, Boston.

SCIENTIFIC NOTES AND NEWS

SIR J. J. THOMSON, Cavendish professor of experimental physics in the University of Cambridge, and Dr. D. Hilbert, professor of mathematics at Göttingen, have been elected corresponding members of the Paris Academy of Sciences.

THE University of Edinburgh will confer its doctorate of laws on Mr. Frank W. Dyson, the astronomer royal, and on Dr. Ernest Rutherford, professor of physics in the University of Manchester.

THE University of Aberdeen has conferred its LL.D. on Dr. A. R. Cushny, professor of materia medica in the University of London, on Dr. Arthur Keith, Hunterian professor of anatomy in the Royal College of Surgeons, and Major P. A. Macmahon, deputy warden of the standards.

DEAN LIBERTY H. BAILEY, of the State School of Agriculture at Cornell University, has written to Governor Dix, of New York, expressing regret that he can not accept the appointment of state commissioner of agriculture.

MR. ROBERT CUSHMAN MURPHY has been appointed curator of the division of mammals and birds in the Museum of the Brooklyn Institute of Arts and Sciences in place of George K. Cherrie, who recently resigned. Mr. Robert H. Rockwell has been appointed chief taxidermist of the same institution to fill the position left vacant by the death of Mr. Critchley.

J. W. TURRENTINE, Ph.D. (Cornell, 1908), instructor in physical and electrochemistry in Wesleyan University, has been appointed scientist in Soil Laboratory Investigation, Bureau of Soils, Washington, D. C.

MR. J. B. HILL, who joined the staff of the British Geological Survey in 1884, has just been appointed to the newly-created post of geological adviser to the local government board.

THE services which Dr. Lazarus Fletcher, F.R.S., has rendered to the Mineralogical Society during his twenty-one years' tenure of the office of general secretary have been recognized by the presentation to him of his portrait painted by Mr. Gerald Festus Kelly.

THE Tiedeman prize of the Senckenberg Natural History Society of Frankfort has been awarded to Dr. Richard Willstätter for his researches on chlorophil.

DR. R. HAMLYN-HARRIS has been appointed director of the Queensland Museum.

DR. EDMUND B. HUEY has resigned his position as clinical psychologist to the Illinois state institution for the feebleminded at Lincoln, Illinois, to continue clinical research at the Johns Hopkins Hospital and in the city of Baltimore.

PROFESSOR WM. B. ALWOOD, enological chemist, in the Bureau of Chemistry, Washington, D. C., sailed on April 13 for Gibraltar and will investigate viticultural conditions in Spain, Italy, France and Germany. He will also participate as a delegate in the International Agricultural Congress at Madrid and in the International Viticultural Congress at Montpellier. Professor Alwood is on the program for papers on the discovery of "Sucrose in American Grapes" and "On the Chemical Composition of American Grapes."

THE Laysan Island Expedition from the State University of Iowa sailed on April 5 from San Francisco on the U. S. Army Transport *Sherman*. The party consists of professor Homer R. Dill, in charge of the expedition, Mr. Charles A. Corwin, of Chicago, artist, and Messrs. Horace Young and Clarence Albright assistants. These men are to be stationed on the Island of Laysan in mid Pacific for a period of about two months, and are to furnish a detailed report to the U. S. Biological Survey, Department of Agriculture, regarding the famous bird rookeries of Laysan, with special reference to the effects of the raid made on them by Japanese feather hunters about two years ago. The island is a part of a "Bird Preserve" by proclamation of President Roosevelt, and the members of the expedition are appointed as game wardens during the period of their stay. The expedition is financed by friends of the State University of Iowa, and the party has permission to secure material for a cycloramic exhibition of the bird rookeries which is to be installed in the museum of natural history of the university.

MR. MAURITZ SAHLBERG, of Sweden, is on an extended visit to this country to study hydroelectric developments for the department of commerce of the Swedish government.

ON the evening of April 5, Professor G. W. Ritchey, astronomer of the Solar Observatory of the Carnegie Institution, delivered an illustrated lecture before the Indiana University chapter of Sigma Xi, on "Stellar Photography."

DR. ELIHU THOMPSON, of the General Electric Company, lectured on March 31 to the students of Throop Polytechnic Institute, Pasadena, Cal.

WE learn from *Nature* that it is proposed, in memory of the late Dr. Louis Olivier, founder of the *Revue générale des sciences,* to publish a book containing contributions from men of science and letters who knew M. Olivier. The volume is to appear next August for the anniversary of the death of M. Olivier,

and will be accompanied by a booklet containing his portrait, a biographical sketch and a bibliography of his works.

Ten thousand dollars has been contributed to the University of Pennsylvania to establish a memorial to the late Dr. J. A. Scott, adjunct professor of medicine in that institution. This memorial will take the form of a fellowship for medical research.

It is proposed to erect in Amsterdam a monument to the memory of the late Professor van't Hoff.

Dr. Charles A. Oliver, of Philadelphia, known for his contributions to ophthalmology, has died at the age of fifty-seven years.

Mr. Arthur Ray Maxson, instructor in mathematics at Columbia University, died on April 13, at the age of thirty years.

Dr. Jak. M. Van Bemmelen, emeritus professor of chemistry at Leyden, died on March 14 in his eighty-first year.

The paleontologist, Professor Joseph Lahusen, died in St. Petersburg, on March 8, at the age of sixty-six years.

Pieter Cornelius Tobias Snellen, the Dutch entomologist, has died at seventy-seven years of age.

The *Bulletin* of the American Mathematical Society gives the names and theses of candidates who received doctorates in mathematics from the German universities during the academic year 1909–10. They number 38, Leipzig leading with seven. About fifteen doctorates in mathematics are given annually by the universities of the United States.

The Russell Sage Institute of Pathology, which was founded in 1907 when Mrs. Sage gave $300,000 for pathological research work in connection with the hospitals and charitable institutions on Blackwell's Island, has resolved to terminate the agreement existing with the Public Charities Department.

The London *Times* states that at a meeting of the Paris Academy on April 3, Prince Albert, of Monaco, announced that he would shortly commission a new steamship, the *Hirondelle II.*, to take the place of the *Princesse Alice II.*, which had 12 scientific cruises to her credit. He informed the academy that, thanks to a new dredging apparatus, interesting specimens of the denizens of the intermediate depths of the ocean had been secured. The apparatus consisted of a net, which could be dragged at a speed of 15 kilometers an hour at any depth. In 1910 the *Princesse Alice* had towed this appliance at a depth of 5,000 meters, and a dozen new kinds of fish had been brought to the surface in as many days. Arrangements had likewise been made for taking instantaneous color photographs of the specimens as soon as they were hauled up out of the water.

According to *Nature* three expeditions from England will observe the total solar eclipse of April 28, on Varau, a small coral island of the Friendly Group. They are as follows: (1) A government expedition from the Solar Physics Observatory with Dr. W. J. S. Lockyer, in charge, and accompanied by Mr. F. K. McClean, left London on February 3, with the necessary gear, and journeyed to Sydney by the Orient steamship *Otway*. From there the instruments were transhipped to H.M.S. *Encounter*, of the Australian Squadron, and the expedition started for the Friendly Islands on March 25. (2) An expedition from the Joint Permanent Eclipse Committee will be under the charge of Father A. L. Cortie, S.J., from Stonyhurst Observatory, who will be assisted by Mr. W. McKeon, S.J., and Father E. F. Pigot, S.J. Father Cortie's expedition also travelled by the *Otway* from London, and proceeded to Varau on board the *Encounter*. (3) A private expedition in charge of Mr. J. H. Worthington, who has had a special equipment made for this eclipse.

Perhaps no other metal has been used in so great a variety of ways during so comparatively brief a history as has aluminum. It is a question whether the automobile industry would have made such a remarkable progress during the last decade without the accompanying development of the metallic aluminum industry, for very many of the castings used in the manufacture of motor cars are made from this light, rigid metal. The use of aluminum in the recently born art of aviation is also of great popular interest, and here again the same

qualities of lightness and rigidity recommend it. Aluminum is the most abundant of all the metals. It is an essential constituent of all important rocks except sandstones and limestones. It is found chiefly in the silicates such as the feldspars, micas, clays, etc.; and as the hydroxide in the mineral bauxite, from which it is now produced on a commercial scale. Its oxide makes up between 15 and 16 per cent. of the earth's crust. In spite of this great abundance the metal itself was, up to 1880, a chemical curiosity, and one of the early reports of the United States Geological Survey quotes it at $1.25 a Troy ounce—$15 a pound. The reason for its rarity and high price was the lack of a commercial method of extracting it easily and cheaply from its chemical combination with oxygen, for which it has a remarkable affinity. With the introduction of electrolytic processes the metal has now taken a high place among the commercial metals, and from a production of 83 pounds in 1883 its consumption amounted in 1909 to the enormous total of 34,210,000 pounds, valued at approximately 23 cents a pound for ingot metal.

UNIVERSITY AND EDUCATIONAL NEWS

HARVARD UNIVERSITY has received the hundred thousand dollars required for the Wolcott Gibbs Memorial Laboratory which is to form the first building of the new chemical laboratories to be erected south of the university museum. It is understood that half of the sum was given by Dr. Morris Loeb and Mr. James Loeb. It is estimated that about $65,000 will be needed for the construction of the building. The rest of the $100,000 will be used for maintenance.

AT a stated meeting of the trustees of Princeton University on April 13, gifts amounting to more than $90,000 were announced.

DR. DANIEL K. PEARSONS, the Chicago philanthropist, whose benefactions to the various colleges and benevolent institutions have exceeded $6,000,000, celebrated his ninety-first birthday on April 14 and marked the occasion by distributing $300,000, including $100,000 to Berea College, $25,000 to Deane College and $10,000 to McKendree College.

THE North Carolina legislature at its last meeting appropriated to the University of North Carolina $200,000 for equipment and increased the appropriation for maintenance to $87,000 a year. The trustees have decided to erect first a medical laboratory costing $50,000.

As has been announced in SCIENCE a bill proposing one board of control for the three educational institutions of Kansas was vetoed recently by Governor Stubbs. He had proposed to the legislature a commission form of government for the institutions, five members to take the place of the eighteen now acting as regents, but a bill was passed providing for a board of three, each to receive $2,500 a year, to give their whole time to the management of the State University at Lawrence, the State Normal School at Emporia and the State Agricultural College at Manhattan. As these institutions have within their walls approximately seven thousand students, Governor Stubbs believed that one man competent to plan the educational and business program for each of them would be worth much more than $2,500. This opinion was confirmed when he attempted to fill the positions and found out that the present incumbents, serving for no salaries, would not agree to continue their services. The leading educators of the country telegraphed to Governor Stubbs, in response to inquiries, that the one-board principle was advisable, but the methods about to be pursued by Kansas in adopting that system were faulty, particularly in the number of members proposed and the remuneration offered. The strongest opinions against the measure came from states where a similar plan is being tried or has in the past been tried. Governor Stubbs did not care to take upon himself, he said, the responsibility for disorganizing the educational system of the state and therefore he vetoed the bill.

GOVERNOR LEE CRUCE, of Oklahoma, has appointed a board of education consisting of six men, to take charge of all of the state educational and charitable institutions. This board