occurred of the presidents of Columbia and Harvard Universities. In case Columbia University does not fulfil the conditions the bequest will go to Harvard University. Mr. Pulitzer has also bequeathed $500,000 to the Metropolitan Museum of Art and $500,000 to the Philharmonic Society. The income from the New York *World* and the St. Louis *Post-Dispatch* is to be divided in tenths, six tenths to be paid to his youngest son, who is now fifteen years of age, two tenths to his second son and one tenth to his oldest son, one tenth to be held for the benefit of the editors and managers of the newspapers. The income of the youngest son is, however, restricted to $40,000 a year between the age of twenty-one and twenty-five and $60,000 a year between the age of twenty-five and thirty. The income of the second son is restricted to $60,000 a year. These incomes are to be doubled in case of the marriage of the sons. The balance, which may be very large, as the estimated value of the journals is twelve million dollars, is to be paid to Columbia University, the Metropolitan Museum of Art and the Philharmonic Society, subject to certain conditions which are not stated. Mr. Pulitzer also bequeathed $250,000 to Columbia University for scholarships for young men educated in the public schools of the city of New York.

SCIENTIFIC NOTES AND NEWS

The following awards have been made by the president and council of the Royal Society: a Royal medal to Professor George Chrystal, Edinburgh, whose death has meanwhile occurred, for his researches in mathematics and physics, especially his recent work on seiches and free oscillations in the Scottish lakes; a Royal medal to Dr. W. M. Bayliss, F.R.S., for his researches in physiology; the Copley medal to Sir George H. Darwin, K.C.B., F.R.S., for his scientific researches, especially in the domain of astronomical evolution; the Davy medal to Professor Henry E. Armstrong, F.R.S., for his contributions to chemical science; the Hughes medal to Mr. C. T. R. Wilson, F.R.S., for his investigations on the formation of cloud and their application to the study of electrical ions.

It is now reported from Stockholm that Professor W. Wien, professor of physics in the University of Würzburg, is to receive the Nobel prize for physics.

Sir William H. White, former chief constructor of the British Navy, has received the John Fritz medal for notable achievement in naval architecture.

In honor of Professor Wilhelm Waldeyer, the eminent anatomist, who recently celebrated his seventy-fifth birthday, a tablet has been placed on the house in which he lived while a student at Göttingen.

Mr. William Hobson, professor of mathematics at the University of Cambridge, has been elected a member of the Halle Academy of Sciences.

The Royal Geological Society of Cornwall at its annual meeting on October 31 presented the Bolitho gold medal to Mr. Clement Reid, F.R.S., in recognition of his work on the geological resurvey of the county.

President David Starr Jordan, of Stanford University, has returned to California from a visit to Japan made in the interest of the World Peace Foundation, of which he is head director. President Jordan expects to spend a part of the winter in Boston. He is on leave of absence from Stanford during this semester; in his absence Dr. John C. Branner, professor of geology, is acting president of the university.

The Australian government is about to undertake measures for the settlement of the Northern Territory, and during the present year has sent several parties to make preliminary investigations in that region. The leadership of one party was entrusted to Professor Baldwin Spencer. They went to Port Darwin, and from there across to Melville Island; then they returned to Port Darwin and traveled south about two hundred miles, after which they crossed the continent to the Gulf of Carpentaria.

DR. GUSTAV FÖRSTER has been appointed observer at the Geodetic Institute at Pottsdam.

A FOOD and drug laboratory has been organized in connection with the department of chemistry at the Montana State College, at Bozeman. Provisions for equipment and maintenance were made in the pure food law passed by the last Montana legislature. The organization of the laboratory staff is as follows: W. M. Cobleigh, state chemist; C. E. Millet, director of drug analyses; Drury L. Weatherhead, food analyst; D. B. Swingle, bacteriologist.

THE seven hundredth meeting of the Philosophical Society of Washington will be held at the Cosmos Club on Saturday evening, November 25, 1911, at 8:30 o'clock, when the address of the retiring president, Dr. Arthur L. Day, will be given on "Geophysical Research."

PRESIDENT CHARLES R. VAN HISE, of the University of Wisconsin, delivered four lectures at the Lowell Institute of Boston last week, the first on "Some Aspects of Conservation," on November 15. He also spoke at Harvard University on "Concentration in Industry."

DR. HEINRICH RIES, professor of economic geology in Cornell University, gave an illustrated lecture on the "Mineral Resources of Western Canada" to the students of geology and engineering at the University of Virginia, on November 1.

THE fifth lecture of the series before the Harvey Society will be delivered by Professor W. T. Sedgwick, of the Massachusetts Institute of Technology, on Saturday, November 25, at 8.30 P.M., at the New York Academy of Medicine, 17 West 43d Street. The subject is: "Illuminating Gas and the Public Health."

MR. JOHN BROWN, F.R.S., who retired from business in 1882 to engage in scientific work, died on November 1, at sixty-one years of age.

DR. MAX JAFFE, professor of pharmacology at the University of Königsberg, has died at the age of seventy years.

THE death is announced of M. E. F. André, for many years editor of *La Revue Horticole* and the author of works on landscape gardening.

THE American Society of Naturalists will hold its twenty-ninth annual meeting at Princeton University on Thursday, December 28. At the morning session a series of invited papers will be presented on The Relation of the Modern Study of Genetics to the Problems of Evolution. These papers will be followed by an open discussion. Special papers on studies in evolution and heredity have been invited for the afternoon session. On Thursday evening the naturalists will give their annual dinner at which the president, Professor H. S. Jennings, will deliver his address.

THE Eastern and Central Branches of the American Society of Zoologists will hold a joint meeting at Princeton University, Princeton, N. J., during Convocation Week, December, 1911, in connection with the meeting of the American Society of Naturalists and the Association of American Anatomists. A preliminary program will be mailed to members of the American Society of Zoologists about December 10, 1911. Members expecting to present papers at this meeting should send the titles to Professor Raymond Pearl, Orono, Maine.

THE New York State Teachers' Association and affiliated societies will meet at Albany on November 27, 28 and 29. One of the associations is the Science Teachers' Association, of which Mr. L. S. Hawkins, of the Potsdam Normal School, is president. The sections and their chairmen are as follows: *Physics and Chemistry*—H. A. Carpenter, West High School, Rochester. *Biology*—G. A. Bailey, Geneseo Normal School. *Earth Science*—J. H. Cook, Albany High School. *Agriculture*—H. Sibley, Rochester.

As in previous years, the Museum of Vertebrate Zoology of the University of California was active during the past spring and summer in carrying on zoological field work. This year the work was conducted entirely within the state of California, in accordance with the principle that a knowledge of the native fauna is of first importance to a state institution of

this kind. The three months from March to May, inclusive, were occupied in exploration of the San Joaquin Valley along its entire length, the particular purpose being to ascertain the status of the rodent population of the region. The ranges of the native members of the squirrel family were determined with some accuracy, this information having definite bearing upon the problems to be met by the federal and state authorities who are dealing with the plague situation. Much material in the way of specimens and information was gathered. This work was prosecuted by Mr. Swarth and Mr. Grinnell, with two assistants. Miss Annie M. Alexander and Miss Louise Kellogg with two assistants spent the three summer months in the high mountain region of Siskiyou and Trinity counties, collecting birds and mammals, in continuance of work begun by them during the previous winter. The series of specimens gathered includes several species new to the museum and one bird new to the known fauna of the state, while much information bearing upon the relationships of the Shasta and coast faunas was obtained. The period from June 15 to September 15 was occupied in exploration of the mountainous region lying between Tehachapi and Mount Whitney. Mr. Grinnell, Mr. Taylor and three assistants were engaged in this work, the results comprising, aside from large series of specimens of mammals, birds and reptiles, an increased knowledge of the complex faunal conditions at the southern end of the Sierra Nevada. All of the above field work was made possible through special gifts by Miss Alexander of funds for its support.

The British Decimal Association, established to promote the adoption of a decimal system of weights, measures and coinage in the United Kingdom, announces that a weights and measures law, rendering the use of the metric system compulsory in Bosnia-Herzegovina, will come into force on September 1, 1912.

The Smithsonian party which accompanied Dr. A. O. Wheeler, president of the Alpine Club of Canada, on his topographic survey of the British Columbia and Alberta boundary line and the Mount Robson region, has returned to Washington. The party was a small one, consisting of four members including Mr. N. Hollister, assistant curator of mammals, and Mr. J. H. Riley, of the division of birds in the National Museum. Assembling at Edmonston, Alberta, Canada, early in July, the party proceeded on the Grand Trunk Railroad to the end of the line, where they took pack horses to penetrate the Mount Robson region. The land to be surveyed included the territory lying about this mountain, probably between 14,500 and 15,000 feet high, and surrounding it for a distance of fifty miles. The natural history work was divided up, Mr. Hollister and Mr. Riley collecting the birds and small animals, while the other two collectors hunted big game. The collection includes some 900 specimens of birds and mammals. Much material for exhibition groups was secured, including a series of caribou, mountain goats, mountain sheep, beavers and many varieties of smaller animals. Besides birds and mammals, large numbers of plants and insects were collected. All the specimens have been turned over to the National Museum and when the collection is worked up, parts of it will be put on exhibition.

Mr. F. W. Hodge, ethnologist in charge of the Bureau of American Ethnology of the Smithsonian Institution, has returned to Washington from an expedition to New Mexico, conducted under the joint auspices of the bureau and the School of American Archeology at Santa Fe. Early in September Mr. Hodge proceeded to El Morro, or Inscription Rock, in western New Mexico, where, with the assistance of Mr. Jesse L. Nusbaum, of the School of American Archeology, paper impressions and photographs of the inscriptions on the rock were made. Mr. Hodge later joined Dr. Edgar L. Hewett, director of the School of American Archeology, on an expedition to the Jemez Valley, about sixty-five miles northwest of Albuquerque, where excavations were conducted in the ruins of a large stone pueblo known as Amoxiumqua, which measures about 1,100 feet by 600 feet, and is situ-

ated on a mesa rising 1,800 feet above Jemez River.

THE United States produced 255,534 long tons of sulphur in 1910, valued at $4,605,112, according to figures compiled by Mr. W. C. Phalen, of the U. S. Geological Survey, and published as an advance chapter from "Mineral Resources." This is an increase of 16,222 tons in quantity and $173,046 in value over the output for 1909. The sulphur industry in this country is substantially an American one, for the imports for 1910 were valued at only $558,611, while the exports amounted to $552,941. Four states—Louisiana, Nevada, Utah and Wyoming—produced practically all of our sulphur. Mr. Phalen discussed the geologic occurrence and technology of sulphur in the 1909 chapter of "Mineral Resources." In the chapter for 1910 he gives a detailed account of the important foreign sulphur deposits—those of Italy, Japan and other countries. The report also contains the statistics of production of pyrite in the United States, which in 1910 amounted to 238,154 long tons, valued at $958,608. The imports of this mineral were largely in excess of the domestic production, being 803,551 long tons in 1910, valued at $2,748,647.

A MANUAL of Philippine Silk Culture by Charles S. Banks, recently published by the Bureau of Science of the Government of the Philippine Islands, Manila, is based upon six years experimental work with the mulberry and other races of silkworms. The mulberry silkworm, a normally monovoltine species, has been caused to produce 8 to 9 generations a year of healthy, robust caterpillars from a stock imported from Ceylon where it had normally produced 6 to 7 generations. Hybridization of Bengal-Ceylon polyvoltine silkworms which produce yellow cocoons and Japanese monovoltine silkworms which produce white ones, resulted in the Philippines, in 2 races of silkworms producing white polyvoltine cocoons. One industrial school located at Batac, Ilocos Norte, has already taken up silk culture with its Filipino students with excellent success, and it is planned to start other centers throughout the Islands. At present there is no commercial production of silk in the Philippines, but Mr. Banks's work demonstrates that a large new industry is feasible. The manual contains minute directions covering the care and propagation of both mulberry and eri silkworms, diagrams of houses and reels and is copiously illustrated.

IT is stated in the *Journal* of the American Medical Association that a Pasteur Institute has just been established at Algiers, the technical and administrative direction of which is undertaken by the Pasteur Institute of Paris. This direction has been entrusted to Dr. Chalmette. The scientific make-up of the new institute comprises a service for rabies, a service of bacteriology applied to medicine, an antimalarial service, a service of agricultural microbiology and a veterinary service. The site on which the new buildings are being constructed covers an area of about 2½ acres, in one of the most beautiful spots in the suburbs of Algiers. The architecture of all the buildings is of the simplest, without any costly decoration, and the details of the interior arrangement have been carefully studied so that the expense of the undertaking may be reduced to a minimum, and also with an eye to furnishing all the desirable conveniences for future workers in the laboratories. Thoroughly equipped laboratories are close at hand to each service. Daylight is plentiful everywhere, and the grouping of the laboratories on the northeast side of the building prevents the sunlight from being an annoyance in the microscopic work. One interesting detail is that all the outside openings are covered with brass wire netting, and each door is protected on the inside by a screened vestibule, so as to make it impossible for any fly or mosquito or other winged insect to get inside.

THE mineral tungsten (the name meaning heavy stone) has been known for many years, but only comparatively recently has it become of economic importance. The most important use, according to Frank L. Hess, of the United States Geological Survey, and the

one which makes tungsten mining on an extensive scale possible, is an alloy for tool steel. Lathes using tools made from tungsten steel may be speeded up until the chips leaving the tool are so hot that they turn blue, an operation which would ruin the temper of high-carbon steel. It is stated that about five times as much can be done with lathes built for such speed and work as can be done by the same lathes with carbon-steel tools. From 16 to 20 per cent. of tungsten is ordinarily used in lathe tools. The melting point of tungsten is exceedingly high—5,576° F. Tungsten also has an important use in making incandescent electric lamps, crucibles for electric furnaces and various other articles.

To bring the farmers of Maryland and the people of the metropolis of Maryland into closer moral and business touch, and with a view to the better education of the agriculturalists in scientific methods of crop raising, and the care and selling of crops, a mammoth State Exposition will be held in Baltimore from December 4 to 9 under the auspices of the Maryland Horticultural Society, and allied farmers' organizations, including the Maryland State Grange, Cereal and Forage Crop Breeders' Association, Maryland State Dairymen's Association and Maryland Beekeepers' Association. It is called the Maryland Week Exposition, and is the outgrowth of a suggestion made by the Baltimore *Sun*. The exhibit of Maryland's products will fill the hall of the Fifth Regiment Armory and it will be the most comprehensive exhibit of Maryland's soil and general farm products ever held in the state. Each day there will be meetings in sections of the various associations, and every day at 2 o'clock there will be a general meeting of the affiliated bodies to hear lectures by distinguished exponents of practical farming. Among the speakers engaged for the week are James Wilson, secretary of agriculture, and W. M. Hays, assistant secretary of agriculture; Willis L. Moore, chief of the United States Weather Bureau; Professor H. A. Waugh, head of the division of horticulture of the Massachusetts Agricultural College; H. A. Huston, former director of the Indiana Experiment Station; Governor Woodrow Wilson, of New Jersey; Governor A. L. Crothers, of Maryland; R. L. Watts, of the Pennsylvania State College; J. H. Hale, of Connecticut, whose peach orchards are the largest in the world, and R. A. Pearson, commissioner of agriculture of New York state.

The National Association for the Study and Education of Exceptional Children will hold its second annual conference on the problem of the exceptional child on Friday and Saturday, December first and second. The day sessions will be held in the auditorium of the School of Pedagogy of New York University, Washington Square; and there will be an evening session on Friday in the building of the Society for Ethical Culture, Central Park West, New York City. A number of educators, physicians and social workers will participate in the proceedings and read papers. The topics to be discussed are as follows: First, "Causes of Exceptional Development in Children"; second, "Educational Needs of the Various Kinds of Exceptional Children"; third, "The Exceptional Child as a Social Problem."

In response to the appeal to raise the sum of £15,000 as a building fund for the Galton Laboratory for National Eugenics at the University of London, sums amounting to a total of £2,260 have been given, promised, or promised conditionally on the buildings being begun within two years. The subscriptions include: Mr. W. E. Darwin, £500; Professor Pearson, F.R.S., and Mrs. Pearson, £500; Professor Arthur Schuster, F.R.S., £250; Mr. E. G. Wheeler, £250; Lord Roseberry, Lord Iveagh, Major Leonard Darwin and Major E. H. Hills, F.R.S., £100 each; Institute of Actuaries, £52 10s.

UNIVERSITY AND EDUCATIONAL NEWS

The annual meeting of the trustees of the Carnegie Foundation for the Advancement of Teaching was held in New York on November 17, when all the trustees were present. According to a press notice Mr. Carnegie gave $1,000,000 of the $5,000,000 which he had