specimens also from the lower Mohawk, including pipes and earthy vessels.

Other acquisitions in archeology and ethnology are under present consideration by the Museum, the plan being to illustrate as fully as practicable the aboriginal history of New York, the culture of the Iroquois and the peoples who preceded them.

The Museum has also acquired the very unusual collection of minerals from Orange county, N. Y., made by the late Silas A. Young from localities which are, for the most part, no longer productive; and also the last of the great collections of paleozoic fossils brought together by the Gebhard family through three generations from the classic Schoharie valley, a region which might appropriately be called the cradle of American stratigraphy.

SCIENTIFIC NOTES AND NEWS

The Hughes medal has been awarded by the Royal Society to Dr. Alexander Graham Bell.

Dr. Aubrey Strahan has been appointed director of the British Geological Survey and Museum in succession to Dr. J. J. H. Teall, who will retire on January 5.

Provost Edgar F. Smith, of the University of Pennsylvania, has been elected a member of the board of trustees of the Carnegie Foundation for the Advancement of Teaching to succeed Dr. Ira Remsen, recently president of the Johns Hopkins University.

Recently a movement was set on foot for the presentation to the Royal Society of a portrait of Dr. Alfred Russel Wallace, to be painted by Mr. J. Seymour Lucas, R.A. Professor Raphael Meldola, 6 Brunswick-square, W.C., and Professor E. B. Poulton, Wykeham House, Oxford, had undertaken to receive subscriptions. The proposal will not be abandoned in consequence of Dr. Wallace's death, though it will be necessary to have a posthumous portrait painted from a photograph.

The following is a list of those who have been recommended by the council of the Royal Society for election into the council at the anniversary meeting on December 1: *President*—Sir William Crookes; *Treasurer*—Sir Alfred Kempe; *Secretaries*—Sir John Bradford and Professor Arthur Schuster; *Foreign Secretary*—Dukinfield Henry Scott; Other members of the council—The Right Hon. Arthur James Balfour, Professor William Maddock Bayliss, Frank Watson Dyson, Henry J. H. Fenton, Professor William Gowland, Frederick Gowland Hopkins, Sir Joseph Larmor, Professor Charles H. Lees, Professor Ernest William MacBride, Professor Grafton Elliot Smith, Professor James Lorrain Smith, Sir John Thornycroft, Professor William Whitehead Watts, Alfred North Whitehead, Charles T. R. Wilson and Arthur Smith Woodward.

Dr. Filippi is to lead an Italian expedition to the Himalayas next summer. The explorer intends to spend the present autumn in Chinese Turkestan, carry on observations into Russian Turkestan, winter in Scardo in Baltistan, and early next spring travel to Leh by the inner Indus valley. From Leh the expedition will travel to the Karakoram to survey and map the unknown portion of the range between the Karakoram Pass and the Siachen glacier. The Government of India has subscribed £1,000 to the funds, and Major Woods of the Trigonometrical Survey will accompany the expedition.

Mr. F. T. Brooks, of Emmanuel College, Cambridge, is leaving England for the Federated Malay States in order to report to the government on fungoid diseases and whether anything can be done to arrest them. Mr. Brooks has received one year's leave of absence from the university.

Professor Josephine Tilden, of the department of botany, University of Minnesota, has returned from Australia and New Zealand, where she spent the past year in botanical research in the field and in collecting material in algology.

THE fourth lecture before the Harvey Society will be given at the New York Academy of Medicine, on Saturday evening, November 29, by Professor G. H. Parker, of Harvard University, on "The Nervous System, its Origin and Evolution."

PROFESSOR ELLSWORTH HUNTINGTON, of Yale University, delivered an illustrated lecture on "Changes of Climate during Historical Times," on November 3, before the New York Academy of Sciences, at the American Museum of Natural History.

PROFESSOR SHEPHERD IVORY FRANZ, scientific director and psychologist of the Government Hospital for the Insane, Washington, D. C., on November 15 addressed the Medical Society of St. Louis, on the subject of "Psychological Factors in Medical Practise."

REINHARD A. WETZEL was the guest of the research department of the General Electric Company, at Schenectady, on November 8. The subject of his address before the colloquium was "Einstein's Relativity Concepts as Interpreted by a Physical Model."

FOUR lectures on the "Aspects of Islamism" will be delivered at the University of Chicago near the end of the winter quarter by the professor of Arabic at the University of Leiden, Dr. Christian Snoucke Hurgronje.

A MEETING of the Pathological Society of Philadelphia was held on Thursday evening, November 20, at the College of Physicians, when there was a symposium on the subject of "Physical Growth and Mental Development." The speakers were as follows: Dr. H. H. Donaldson, of the Wistar Institute, "Studies on the Growth of the Central Nervous System"; Professor Bird T. Baldwin, of Swarthmore College, "The Normal Child; Its Physical Growth and Mental Development"; Professor Lightner Witmer, of the University of Pennsylvania, "Children with Mental Defects Distinguished from Mentally Defective Children." The discussion was opened by Professor James H. Leuba, of Bryn Mawr College, Dr. H. H. Goddard, of New Jersey Training School, Vineland, N. J., and Dr. Charles W. Burr, of Philadelphia.

THE Hermann Knapp Memorial Eye Hospital has opened its new building at the corner of Fifty-seventh Street and Tenth Avenue, New York. It was founded in 1869 by the late Dr. Hermann Knapp under the name of the New York Ophthalmic and Aural Institute, and for forty-four years it has been in uninterrupted activity at 44 and 46 East Twelfth Street. On the occasion of its removal to a new building in a new location, the board of trustees decided to change the name of the institution in honor of its founder. The new building is seven stories in height, fireproof throughout, and is equipped with all modern appliances for the treatment and study of diseases of the eye.

THE trustees of the American Medical Association have made a new appropriation for the Committee on Scientific Research. The committee has decided to use this money as far as possible to promote work in medical research where suitable conditions exist but where such work suffers for the lack of relatively small sums of money. Applications for grants are invited and may be sent to any member of the committee which consists of L. Hektoen, 1743 W. Harrison Street, Chicago; S. Flexner, Rockefeller Institute for Medical Research, New York, and Wm. Litterer, Vanderbilt University, Nashville, Tenn.

THE surgeon general of the army announces that preliminary examinations for appointment of first lieutenants in the Army Medical Corps will be held on January 19, 1914. Full information concerning these examinations can be procured upon application to the "Surgeon General, U. S. Army, Washington, D. C." The essential requirements to secure an invitation are that the applicant shall be a citizen of the United States, shall be between 22 and 30 years of age, a graduate of a medical school legally authorized to confer the degree of doctor of medicine, shall be of good moral character and habits, and shall have had at least one year's hospital training as an interne, after graduation. The examinations will be held simultaneously throughout the country at points where boards can be con-

vened. Due consideration will be given to localities from which applications are received, in order to lessen the traveling expenses of applicants as much as possible. In order to perfect all necessary arrangements for the examinations, applications must be completed and in possession of the adjutant general at least three weeks before the date of examination. Early attention is therefore enjoined upon all intending applicants. There are at present twenty-six vacancies in the medical corps of the army.

By invitation of the Comité des Forges de France, the autumn meeting next year of the British Iron and Steel Institute will be held in Paris, the dates of Friday and Saturday, September 18 and 19, having been provisionally fixed for the business sessions. The first half of the following week will be devoted to excursions to the chief iron-mining and manufacturing districts of France.

On November 24 the Portland Society of Natural History held a public meeting devoted to an informal observance of the seventieth anniversary of the day of its founding. The principal feature of the meeting was a historical address by the recording secretary, Major John M. Gould. Mr. Gould's term of life accords almost exactly with that of the existence of the society and its museum. He was a constant and interested visitor at the museum through his childhood and youth. In early manhood he became officially connected with the organization and has been actively connected with it to the present time. The society was founded during that period which brought forth numerous organizations of a similar nature, when Maine was a young state, recovering from the disadvantages of having long been a hostile frontier. In the outskirts of population, the society has lived through years of activity, and periods of adversity, twice having had its museum and its contents swept out of existence by fire. It still stands, true to the objects of its founders, "for the promotion of the study of natural history," with a substantial building for its museum and library.

Dr. J. M. G. Carter, of Los Angeles, Cal., has given his medical library and part of his scientific library to the University of Southern California.

Professor Julius Hann, the eminent climatologist of Vienna, wishes to find a purchaser for his meteorological library which has accumulated on his hands far beyond his power to take care of it properly. Owing to the fact that he has to live on a pension, since he was retired from active government service and is obliged to live in small quarters, the greater part of his library is already packed away in boxes. His great collection of books and separates will be a fine addition to the library of any institution that desires to complete its collection of books bearing on meteorology and climatology.

Professor Ernst Haeckel has written from Jena under the date of October 12, 1913, the following letter:

To My Friends, Pupils and Disciples:

I have from several sides been informed that a number of my friends, pupils and disciples intend to celebrate my eightieth birthday on the sixteenth of February, 1914, by presenting me with gifts about the form and nature of which different proposals have been made. Having repeatedly been honored on former occasions by such gifts, I beg *to abstain this time from all personal donations*, and to convey the amount of the means, destined for this purpose, to a foundation, which I should be glad to put to the disposal of the German Monists' Union. The wonderful development, which this modern union of culture has attained since its foundation seven years ago, the high importance which it has acquired for the promotion of a free and rational conception of life as well as for its practical application to a conduct of life of superior morals render its financial support by ampler means most desirable. The intended new "Ernst-Haeckel-Fund for Monism" shall incessantly further this work of culture of the free thought on the positive basis of natural science and furnish the necessary means to carry practically on its numerous important tasks. I anticipate my heartiest thanks to all my friends and comrades, who, by participation, will support the work of my long life.

On the first International Monists' Congress, which took place in September, 1911, in Ham-

burg, and which was such a splendid success, also because foreign countries took so numerously part in it—it became the principal aim to extend the German Monists' Union, and to make it an International Union. This Universal Monists' Union, representing an immense promotion of our high tasks of culture by uniting the free-thinkers of all countries, will be the more able to prove its importance practically, the more liberal also my friends abroad in all the continents will partake of the gifts for the new foundation.

THE new seven and one half-inch photographic telescope was placed in position in the Memorial Observatory of the Nantucket Maria Mitchell Association on November 15, the mounting and final adjustment by Alvan Clark and Son's Corporation, completing the work. The lens was made by T. Cooke & Sons, York, England. It has been subjected to various tests at Harvard College Observatory by the director, Dr. Edward C. Pickering, personally, and by his several assistants who have given it careful attention. Rev. Joel H. Metcalf, whose astronomical discoveries by means of photographs are well known, has also carefully examined its work. By all of these it is pronounced good. The Nantucket Observatory is now well equipped for photographic study of asteroids or other heavenly bodies.

THE London Astronomical Society opened on November 7 at Alton, Hants, a new observatory erected by one of its members, Mr. James H. Worthington. The site selected is over 600 feet above sea level, near the Melstead Station. Here Mr. Worthington has erected what, both in finish of instruments and in general facilities, is said to be the finest private observatory in England. It is more than 20 miles from any manufacturing town, and the atmosphere is not affected by any strong artificial lighting. There are altogether six telescopes. The two largest are under domes 24 feet and 22 feet in diameter, respectively, and are a 20 inch reflector and a 10 inch refractor.

STATISTICS of the fertilizer industry in the United States for 1909 are presented in detail in a bulletin soon to be issued by the Bureau of the Census. It was prepared under the direction of W. M. Steuart, chief statistician for manufactures. The report covers establishments making artificial fertilizers, the products being ordinarily ready for use without being subjected to further treatment. The production of certain kinds of products which are used more or less exclusively for fertilizing without further manufacture is not covered by this report. The raw materials used by fertilizer factories include animal, vegetable and mineral products, while sulphuric and other acids are employed extensively in the treatment of the basic materials. The finished products include a variety of classes, such as "complete" fertilizers, which consist of a mixture of superphosphates with both potash and ammoniates, superphosphates with or without ammoniates, concentrated phosphates, and other minor classes. The total number of establishments reported as engaged primarily in the manufacture of fertilizers in 1909 was 550, with a capital of $121,537,451. The number of persons engaged in the industry was 21,950, of whom 18,310 were wage earners. The total value of all products of the 550 establishments amounted to $103,960,213, of which $92,369,631 was the value of fertilizers proper, the amount of which was 5,240,164 tons. The sum of $11,882,815 was paid out for services, of which $7,477,179 was for wages. As judged by the amount expended for them, ammoniates, animal and vegetable, were the most important materials, followed by phosphate rock, potash salts, superphosphates, nitrate of soda, ammonium sulphates, sulphuric acid, fish, pyrites, and kainit in the order named. The cost of materials aggregated $55,360,423 in 1909, $28,975,713 in 1904, and $23,454,126 in 1899. Of these respective totals, the cost of ammoniates formed 42.4 per cent. in 1899 as compared with 34.2 per cent. in 1904 and 29 per cent. in 1909. The cost of phosphate rock shows only slight proportionate changes; it constituted 15.2 per cent. of the total of the specific materials in 1899, 14.6 per cent. in 1904, and 15.6 per cent. in 1909. The cost of potash salts represented 13.2 per cent., 12.4 per cent. and 13.2 per cent. of the total for the

respective years; and the aggregate cost of sulphuric acid and pyrites and sulphur constituted 13.2 per cent. of the total in 1899, 11 per cent. in 1904, and 11.2 per cent. in 1909. All fertilizer establishments manufacturing sulphuric acid employed the chamber process, sixteen using the Hoffman intensifier system, eleven the Pratt, nine the Gilchrist, three the Meyer tangential system, and one the Luney. The manufacture, for consumption in their own works, of 1,826,358 tons of acid phosphate was reported by establishments engaged primarily in the fertilizer industry, and 12,507 tons were made and consumed by establishments manufacturing fertilizers as a subsidiary product.

All records have been broken in the great mineral production of the United States for the year 1912. The year 1907 has heretofore been the banner year of American mineral output, with a total value of $2,072,666,639, but even this great figure was exceeded in 1912 by over $170,000,000. As compared with 1911, the increase in 1912 is $316,098,198, or 16.40 per cent. These figures are shown in a summary of the mineral production of the United States for 1912, compiled by W. T. Thom, of the United States Geological Survey, now in press. As heretofore, iron and coal are the most important of our mineral products. The value of iron (pig iron being the basis of valuation) in 1912 was $420,563,388; the value of coal was $695,606,071. The value of the fuels—coal, natural gas and petroleum—increased from $835,231,497 in 1911 to $943,972,362 in 1912, a gain of $108,740,865. Coal showed an increase in value of $60,040,860, from $626,565,211 in 1911 to $695,606,071 in 1912. The production of metals increased in value $186,571,303, from $680,531,782 in 1911 to $867,103,085 in 1912. The nonmetals increased $129,276,895, from $1,246,750,346 in 1911 to $1,376,027,241 in 1912. The unspecified products, including cadmium, selenium, rutile, uranium, vanadium and other minerals, valued at $500,000, increased $250,000, bringing the total value of the mineral production for 1912 up to $2,243,630,326. The production of pig iron in 1912 gained more than $93,000,000, or 28 per cent.; ferro-alloys gained nearly $4,000,000, or about 46 per cent.; silver gained more than $6,000,000, or 20 per cent.; copper gained about $68,000,000, or nearly 50 per cent.; zinc gained nearly $14,000,000, or 44 per cent., and aluminum gained nearly $4,000,000, or 47 per cent. Gold, which lost about $3,500,000, was the only important metal to show a decrease. Among the nonmetals bituminous coal gained approximately $67,000,000, or about 15 per cent.; anthracite coal gained more than $2,000,000; natural gas gained almost $10,000,000, or 13 per cent.; petroleum gained nearly $30,000,000, or 22 per cent.; clay products gained more than $10,000,000, or 6.5 per cent., and sulphuric acid from copper and zinc smelters (a product mined as it were out of the air and changed from a destructive waste to an absolute gain) increased $1,500,000, or 55 per cent.

UNIVERSITY AND EDUCATIONAL NEWS

An anonymous gift of $100,000 has been made to Wellesley College. The money was given towards the million-dollar fund which the college is trying to raise as an endowment. The total amount obtained thus far is $453,000.

Yale University has received a gift of $50,000 from Mr. Charles H. Pine, of Ansonia, Conn., to be used for scholarships under terms to be announced later.

Dr. Francis Gray Smart, of Tunbridge Wells, has left £10,000 to Gonville and Caius College, Cambridge, for two "Frank Smart Studentships" in natural history or botany, and if this sum shall be more than sufficient to provide for these studentships the balance is to be used to promote the study of these subjects in that college.

Mr. Otto Beit has given £2,000 to Cambridge University for a library of German books, together with £1,000, of which the income is to be devoted to additions.

The certificated teachers of Herefordshire have decided to take action in a body with a view to compelling the education authority to redress the grievances from which they allege