per tubes, bone pipes and others. There are also stone urn-shaped bowls, stone bowls with thong holes, antler pipes, fossil pipes, various kinds of trade pipes, brazed iron pipes, tomahawk and monitor pipes. The feathered calumet pipe of the West looks artistic and attractive, and the vase-shaped Micmac pipe has at least the merit of curiosity.

The author has with consummate industry collected passages referring to pipes and smoking in the historians of past centuries and given his ideas about the formation of types in smoking implements. There are but few articles of Indian manufacture that will give a clearer idea of the artistic sense or genus in fashioning ruder material than pipes, although they all manifest that they originated in the stage of barbarism. Probably the oldest instance, historically traceable, is the richly dressed shaman or chief represented upon the Palenque tablet of Chiapas state, who makes use of a long tubular pipe to produce a huge cloud of smoke issuing at the wider end, and seems to enjoy the smoking intensely, to judge from his very characteristic grimaces. This bas-relief is reproduced in McGuire's publication; he thinks that the use of tobacco for snuffing was peculiar to South America, and the habit of chewing is but seldom and indistinctly referred to in any part of this western world.

A. S. G.

SCIENTIFIC NOTES AND NEWS.

The Prussian Budget, which has passed to a second reading, contains an appropriation of 7,300,000 Marks, for the purchase of lands in Berlin, on which is to be erected a building for the Academy of Sciences and the Royal Library. The value of the land is estimated at over 11,000,000 Marks, but about 3,000,000 Marks is obtained by the exchange of other property, and 1,000,000 Marks is to be appropriated next year.

At a meeting of the Royal Institution, London, on April 2d, it was announced that the managers had that day awarded the Actonial Prize of 100 guineas to Sir William Huggins, F.R.S., and Lady Huggins for their work 'An Atlas of Representative Stellar Spectra.' The special thanks of the members were returned to Mrs. West and Mrs. F. Colenso for their present of a portrait of their father, the late Sir Edward Franklin, F.R.S., professor of chemistry at the Royal Institution from 1863 to 1868.

Dr. Rudolph Amadeus Philippi the naturalist, professor in the University of Chili at Santiago, has celebrated the seventieth anniversary of his doctorate. Congratulatory addresses have been forwarded from the German Botanical Society and the Medical Faculty of the University of Berlin.

Dr. O. Burger, titular professor of the University of Göttingen, has been appointed director of the zoological division of the National Museum at Santiago and professor in the university.

Mr. John C. Hammond has been appointed assistant in the *Nautical Almanac* office, connected with the United States Naval Observatory, Washington, D. C.

Dr. William P. Wilson, director of the Philadelphia Commercial Museums, has gone to San Francisco to assist in the establishment of the Pacific Commercial Museum.

Professor Oscar Bolza, of the University of Chicago, has sailed from New York for Naples. He expects to be abroad for nine months pursuing mathematical investigations in a university town.

Professor F. Wohltmann, of Bonn, has been commissioned by the German government to proceed to Africa to make agricultural studies in the Cameroon District.

The Michigan Academy of Sciences held its annual meeting at Lansing, on March 29th and 30th. The president, Professor Jacob Reighard, gave an address on 'The Biological Sciences and the People.'

Professor Edward L. Nichols, of Cornell University, will deliver the first annual address to the honorary scientific society of Sigma Xi at Kansas University during the commencement week in June.

Professor John M. Coulter, who has recently returned to Chicago after a long stay in Washington, addressed the Botanical Club on April 10th on the present work of the Washington botanists.

Mr. M. A. Barber, associate professor of

botany in the University of Kansas, has sailed for Europe. He will spend the summer in special study in bacteriology at the University of Berlin, returning for the opening of the fall term.

THE following appointments have been made by the Irish Department of Agriculture and Technical Instruction: To be Superintendent of Statistics and Intelligence branch, Mr. W. P. Coyne, M.A., Fellow of the Royal University of Ireland, professor of political economy and jurisprudence, University College, Dublin, barrister-at-law. To be Inspector in Agriculture, Mr. James Scott Gordon, B.Sc., Department of Agriculture, Edinburgh University, principal of the Cheshire County Co uncil Agricultural and Horticultural School. To be Inspector in Industrial Branch, Mr. W. T. M'Cartney Filgate.

MR. ROGERS FIELD, an English hydraulic and drainage engineer, died at Hampstead on March 28th, at the age of 69 years. He was the inventor of an improvement in the aneroid barometer, but was best known for his improvements in methods of sanitary engineering.

M. SAMSON JORDAN, a distinguished French engineer and metallurgist, has died at the age of sixty-nine years. He had been since 1865, professor of metallurgy in the École des Arts et Manufactures. He in numerous ways promoted the advancement of the iron and steel industries in France and was the author of several valuable metallurgical treatises.

WE find in the *Auk* notices of the deaths of several members of the Ornithologists' Union. Mr. George P. Sennet died at his home at Youngstown, O., on March 18th at the age of 59 years. Though in active business he made valuable studies on the birds of Texas and the adjacent territory and his fine collection is at present in the American Museum of Natural History. W. E. Brooks has died at Mount Forest, Ontario, at the age of 70 years. He was an authority on the birds of India and his large collection is now in the British Museum. He wrote especially on the smaller warblers and the raptores. Mr. Francis C. Brown has died at Framingham, Mass., in his 70th year. In early life he was associated with Agassiz and other naturalists and made valuable observations on the habits of birds. John A. Dakin has died at Syracuse, N. Y., in his 48th year. He was a student of birds and butterflies. Mr. Foster H. Brackett died at Dorchester, Mass., aged 87 years. He had contributed notes on birds to the *Auk*.

A TELEGRAM has been received at the Harvard College Observatory from Professor Kreutz, at Kiel, stating that he has information from Professor Backlund, Director of the Observatory at Pulkowa, Russia, that from a discussion of spectrograms, Belopolsky has found the time of rotation of Venus to be short.

WE note in a recent article by Dr. K. Kishinouye, in the *Revue Internationale de Pêche et de Pisciculture* (the new Russian journal), that a Japanese marine zoological station was opened during the past summer, on the coast of the Inland sea. It is for the present located in a two-story house at Omomichi. We note also in the same article that a large coral reef has been recently discovered near the southern end of Kiu-Shiu. Its size must be a large one, for more than sixty boats are fishing it actively.

STATE bacteriological institutes are being established in various parts of Russia. Among those recently founded are one at Vladivostock in Eastern Asia, and one in Merv, in Central Asia. The latter is of special importance because many epidemic diseases are thought to have their origin in Central Asia.

THE Maryland Legislature has made the following appropriations for the scientific work of the Maryland Geological Survey and the Maryland Weather service for the next two years:

Maryland Geological Survey, Geological Division, $10,000 annually.

Maryland Geological Survey, Highway Division, $10,000 annually.

Maryland Geological Survey, Topographic Division, $5,000 annually.

Maryland Weather Service, $2,000 annually.

The Survey has recently commenced the investigation of the clay products of Maryland under Professor Heinrich Ries who will prepare a volume of reports upon the clay industry of Maryland, making such physical and chemical tests of the clays as may be required to show their possibilities in various directions.

By the will of the late John Halstead, Cooper Union, New York City, is made the residuary legatee of his estate, and will ultimately receive about $250,000.

Among the bills passed by the New York Legislature just before its adjournment was included an item "For the Pathological Institute, twenty thousand dollars, or so much thereof as may be necessary, no part of which shall be paid for rent." As the Pathological Institute is established in rented quarters in New York City, it is not obvious how it can continue its work without paying rent. The State commissioners in Lunacy, it is suggested, may have taken this method to stop the work of the Institute.

The seventh annual reception and exhibition of the New York Academy of Sciences will be held at the American Museum of Natural History on April 25th and 26th. On Wednesday evening, April 25th, there will be a reception to the members of the academy and their invited guests, while on the following day the exhibition will be open in the afternoon for students and others, and in the evening there will be a reception for the members of the Scientific Alliance. The committee in charge of the exhibition consists of Professor J. F. Kemp, chairman; Professor Henry F. Osborn, Mr. Charles F. Cox, Professor Charles A. Doremus, and Professor J. J. Stevenson. The exhibition is to be divided into a number of sections, each in charge of a chairman, who is responsible for the collection of exhibits. The various chairmen and their departments are as follows: Anthropology, Professor Franz Boas; astronomy, Professor J. K. Rees; botany, Professor D. T. MacDougal; chemistry, Professor Charles E. Pellew; electricity, George F. Lever; geology and geography, Professor R. E. Dodge; metallurgy, Professor Henry M. Howe; mineralogy, Dr. L. McI. Luqueer; paleontology, Gilbert Van Ingen; physics and photography, Professor William Hallock; psychology, Dr. Edward L. Thorndike; zoology, Professor Charles L. Bristol.

The eleventh session of the Biological Laboratory of the Brooklyn Institute of Arts and Sciences, located at Cold Spring Harbor, Long Island, will open on Wednesday, July 4th, and continue for six weeks. The following courses are announced: by Professor C. B. Davenport, of the University of Chicago, High School Zoology and Variation and Inheritance; by Dr. D. S. Johnson, of Johns Hopkins University, Cryptogamic Botany; by Professor C. P. Sigerfoos, University of Minnesota, Invertebrate and Vertebrate Embryology; by Professor H. S. Pratt, Haverford College, Comparative Anatomy; by Professor Nelson F. Davis, Bucknell University, Bacteriology; by Dr. H. C. Cowles, University of Chicago, Elements of Ecology and Ecological Seminar; Mrs. C. B. Davenport, Microscopic Methods; Dr. Henry A. Kelly, Ethical Culture Schools, New York City, Nature Study; Messrs. S. R. Williams, and W. L. Tower, of Harvard University, and W. C. Coker, of Johns Hopkins University, assist in the various courses. The different instructors offer to assist in investigation. The fee for a single course is $20, with $5 additional for an additonal course or for the use of a microscope. Board and rooms are furnished at $6 a week by the laboratory. Further information and the annual announcement may be obtained of Professor Franklin W. Hooper, 502 Fulton Street, Brooklyn, N. Y., or Dr. C. B. Davenport, University of Chicago, Chicago, Ill.

Mrs. Sara T. D. Robinson, widow of Governor Charles Robinson, has established a Kansas University woman's table for advanced work in botany, zoology, and physiology at the Marine Biological Laboratory at Woods Holl, Mass. Miss Alberta Cory, a graduate student of botany has received the first appointment.

There will be a U. S. Civil Service examination, on May 15th, for the position of statistical field agent in the service of the Fish Commission.

Secretary Gage has asked the House of Representatives to appropriate $200,000 additional to the fund of $300,000 to prevent the introduction and spread of epidemic diseases.

The Secretary of the Interior has been requested to inform the House of Representatives of the number of acres now included in the forest reserves belonging to land-grant railroads or other corporations at the time of the creation

of such forest reserves, also the amount of lieu scrip issued therefor; also what extensions of existing reserves are in contemplation, with the amount of railroad grants in proposed reserves or extensions, and the number of acres located by forest reserve scrip.

THE Cartwright lectures of the Alumni Association of the College of Physicians and Surgeons, Columbia University, for 1900, will be delivered at the New York Academy of Medicine, No. 17 West 43d Street, on the evenings of April 18, 24, and 26, 1900, at 8:30 o'clock, by Professor John G. Curtis, M.D., of Columbia University. His subject is 'The Discovery of the Nerves and of their Function.'

ARRANGEMENTS have been completed for the spring course of lectures, at the New York Botanical Garden, which will be given in the lecture hall of the Museum on Saturday afternoons at 4:30 o'clock, as follows:

April 14th, 'A Glimpse at the Kingdom of Plants,' by Dr. N. L. Britton.

April 21st, 'Spring Flowers,' by Mr. Cornelius Van Brunt.

April 28th, 'Ferns,' by Professor L. M. Underwood.

May 5th, 'Climbing Plants,' by Dr. D. T. MacDugal.

May 12th, 'Seeds and Seedlings,' by Professor Francis E. Lloyd.

May 19th, 'Summer Flowers,' by Mr. Cornelius Van Brunt.

May 26th, 'Some Tropical Relatives of the Potato,' by Professor Henry H. Rusby.

June 2d, 'The Fairy-lore of Flowers,' by Professor E. S. Burgess.

June 9th, 'Plants Concerned in the Formation of Coal,' by Dr. Arthur Hollick.

June 16th, 'Seaweeds,' by Dr. Carlton C. Curtis.

June 23d, 'The Flora of Alaska,' by Mr. Frederick V. Coville.

The lectures will be illustrated by charts, living material and lantern slides and will be non-technical. The museum building may be reached by a walk of three minutes from the Bedford Park Station of the Harlem division of the New York Central Railroad, and by a walk of five minutes from the Fordham trolley line, connecting directly with the Second and Third Avenue Elevated roads.

THE Department of Archæology and Paleontology of the University of Pennsylvania announces a course of free public lectures to be illustrated by objects in the museum, to be delivered in the Widener Lecture Hall of the Museum on Wednesday afternoons at 4 p. m. as follows:

April 4th, Professor Lightner Witmer, 'Present Day Survivals of Primitive Modes of Thought and Feeling.'

April 11th, Mr. Stewart Culin, 'The Origin of Ornament.'

April 18th, Dr. A. T. Clay, 'Recent Excavations in Babylonia.'

April 25th, Dr. William N. Bates, 'Coinage of the Ancient Greeks.'

May 2d, Professor Hugh A. Clarke, 'The Genesis of Musical Instruments.'

May 9th, Dr. Simon Flexner, 'Impressions of the Philippine Islands.'

May 16th, Professor John B. McMaster, 'Household Life of Women in the Colonial Period.'

WITH reference to M. Joseph Bertrand, whose death we announced last week, a correspondent of the London *Times* says: Born at Paris in 1823, he was early initiated by his father, who had been trained at the Polytechnic School, into mathematical studies. At 11 years of age he passed an examination for admission into that school, but this was merely an exploit, and he did not enter the establishment till the usual age of 17, when he headed the list of candidates. On leaving the Polytechnic, he became a mine inspector, next professor at a Paris college, and afterwards professor successively at the Polytechnic, the Normal School, and the Collège de France. In 1856 he succeeded Sturm in the Academy of Sciences, and in 1874 he took the place of Eli de Beaumont as one of its secretaries. In 1884 he became the successor of Jean Baptist Dumas in the French Academy. As a writer and debater he was singularly clear, sometimes with a vein of irony. Of late years he contributed biographical and critical articles on genuine or pseudo-mathematicians to the *Revue des Deux Mondes*. His more serious works include essays on Paschal, Lavoisier, d'Alembert, and Comte, and lectures on the calculation of chances, and on electricity. His son, M. Marcel Bertrand, a mining engineer, is likewise a member of the Academy of Sciences.

THE Royal Meteorological Society celebrated its Jubilee on Tuesday and Wednesday, April 3rd and 4th. The *British Medical Journal* states that on Tuesday afternoon a meeting was held, when the President (Dr. C. Theodore Williams), addressed a large number of Fellows of the Society and delegates of other societies. He began by explaining that the late Mr. G. J. Symons, who had been elected President for the Jubilee year, had, before his fatal seizure of apoplexy, prepared an address tracing the beginning of meteorology in this country, and the history of the Society. Mr. Symons stated that the earliest observer was the Rev. William Merle, whose records, made at Driby, in Lincolnshire, from 1337 to 1344, were still preserved in the Bodleian Library. After referring to Robert Boyle and Dr. Plot, Mr. Symons pointed out that Sir Christopher Wren, the architect of St. Paul's was the inventor of the first recording rain gauge. An English Meteorological Society had been founded in 1823, but did little work. Another society was founded in 1836, but did not take any part in the formation of the present society, which was founded on April 3, 1850, at the house of the late Dr. Lee, F.R.S., of Aylesbury, under the name of the British Meteorological Society. In 1866 a Royal Charter was obtained, and the Society assumed its present name. Mr. Symons urged that the Government, which provided a home for some of the richer societies at Burlington House, ought to build a proper centre for the smaller societies, and his address concluded with a sketch of the work done by the Royal Meteorological Society. Dr. Theodore Williams, after a short appreciation of the character and work of the late Mr. Symons, gave account of the scientific work which is now being carried on by the Society. At the conclusion of Dr. Williams's remarks each of the delegates attending the meeting was presented with a medal struck in honor of the occasion. In the evening a *conversazione* was held, and on Wednesday morning a visit was paid to Greenwich Observatory. In the evening a dinner was held over which Dr. Theodore Williams presided. Mr. W. N. Shaw, the Secretary of the Meteorological Council, who gave the toast of 'The Royal Meteorological Society,' enumerated some of the phenomena which still awaited explanation and insisted on the necessity of co-operation, both among meteorologists themselves and between them and workers in other sciences. The toast having been suitably acknowledged by the President, Mr. Bayard gave that of 'The Delegates from other Societies,' for which Professor Silvanus Thompson responded.

Nature in commenting editorially on the discussion before the American Society of Naturalists, on 'The position that universities should take in regard to the investigation,' published in this JOURNAL, compares unfavorably the work of English Universities with those in the United States and in Germany. The article concludes as follows: It is needless to say that, like the American universities, the universities of the continent, and in especial those of Germany, are conspicuous for the extent to which they encourage research by their funds and by their arrangements. The historian of the future, who is to trace the vast progress made in recent years by Germany in power, wealth, commerce, the arts and industries, without doubt will notice the part played by her many universities in this momentous change. A single article in the pages of a scientific journal is not a suitable vehicle for any exact examination of the relative advances made by England and other countries in recent times. But, until matters have been put right, every opportunity is convenient to insist that the universities of Britain do not encourage research sufficiently, and that, in particular, her richest university habitually and systematically despises research in its general arrangements, in the allocation of its endowments, and in the distribution of its revenues. Moreover, it is especially unfortunate that not only is the amount of consideration given to research minute, but is diminishing. A single example is more convincing than a multitude of general statements, and an appropriate instance lies unfortunately ready to hand in the preface to the last volume of 'Linacre Reports,' recently issued by Professor Ray Lankester. The late Linacre Professor and present keeper of the British Museum of Natural History, in a preface addressed to the vice-chancellor of the University of Oxford, deplores the attitude of the Oxford

colleges to the natural sciences. "The college endowments," he states, and every one with knowledge of the matter is able to corroborate, "are now more largely than ever employed in maintaining a tutorial system, which is in itself of small value—if not positively injurious—and necessarily in complete antagonism to the development of the method of study, and to the wide range of subjects studied, which distinguish everywhere but in Oxford the university from the preparatory school." Professor Lankester believes that the natural sciences, the subjects particularly associated with research as a means of training and as a source of directive knowledge, should be supported by not less than two-thirds of the endowments at the disposal of these colleges. Oxford, no doubt, is an extreme example of the general failure of British universities to respond adequately to what everywhere but in England is regarded as the first duty of a university; but there is urgent need for inquiry into and redress of the conditions which have brought about the present state of affairs, and those institutions which have taken a larger view of their duties will be the first to approve a strong statement of the existing failure.

UNIVERSITY AND EDUCATIONAL NEWS.

As the daily papers have announced, the University of Chicago has secured the $2,000,000 needed to meet the requirements of Mr. Rockefeller's gift of an equal amount. At the recent convocation of the University, President Harper gave some details in regard to the gifts received since January 1st. They have come from more than 200 different persons and 90 per cent. of them were unsolicited. The largest items appear to be the Gurley paleontological collection, $30,000 from Mrs. Delia Gallup and, given anonymously, $60,000 for a commons, $50,000 and $25,000 for a students' club-house, $20,000 towards a women's hall, and $30,000 with specific use to be designated later. President Harper stated that the total assets of the University are now not far from $11,000,000.

BY the will of Mrs. Mary J. Furman, Vanderbilt University receives about $250,000.

BARNARD COLLEGE, Columbia University, has received a gift of $100,000 subject to certain annuities.

BY the will of ths late Arthur D. McLellan, Brown University may, under certain conditions, receive from $8000 to $33,000.

THE widow of the late Professor H. Fol has given to the University of Lausanne his collection of scientific apparatus and histological preparations.

HARVARD UNIVERSITY has undertaken to guarantee $70,000 to entertain 1450 Cuban teachers during their stay at the Summer School in accordance with the arrangements made by Mr. Alexis E. Frye, Superintendent of Schools at Cuba. Free tuition is provided by the University.

IN view of the fact that a case of small-pox has been reported in each of two of our leading universities, it may be well to state that during the first week in April the United States Marine Hospital Service reports only one case of small-pox throughout all the middle and New England States. There is, however, a slight epidemic of small-pox at New Orleans.

THE University of Pennsylvania has made some changes in the regulations under which candidates are advanced to the higher degrees. Hereafter the theses for the doctorate must be printed and it is expected that in the case of longer theses the University will contribute $50 towards the cost. The examinations will be written and may be passed at such time as the candidate is prepared. Instead of appearing before the dean and a committee of three examiners for an oral examination as at present, the candidate will be presented to the entire Faculty of Philosophy in formal session, with the Provost in the chair. A representative of the Group Committee with whom the candidate has taken his major subject will spread before the Faculty the candidate's credentials. These will comprise a brief sketch of his academic life, a more detailed account of the scope and character of his work as a graduate student, of the examinations which he has passed, and more particularly of the scope and significance of his thesis. His presenter will then formally recommend him to the Faculty on behalf of the Group Committee as a candidate for