cies arose from differences in determining the coast lines.

Realizing the desirability of but one government statement of areas of the states and territories, an attempt has been made by Mr. Frank Bond, chief draftsman of the General Land Office; Mr. C. S. Sloane, geographer of the Census Office, and Mr. Henry Gannett, geographer of the Geological Survey, to come to an agreement on these figures. The results of their conference and cooperation are set forth in the aforementioned bulletin.

By this adjustment the area of the United States proper, which is given as 3,026,789 square miles, is increased over the Census Office figures by 1,188 square miles.

The area given for Alaska is 590,884 square miles. It is subject to considerable modification in the future as the position of the coast line becomes better known. The area given for the Philippine Islands is 115,026 square miles, and was determined by the Coast Survey of that archipelago, prepared at the instance of the Philippine Census. It also is subject to modification as accurate charts of the archipelago are made. The areas of Hawaii, 6,449 square miles, and Porto Rico, 3,435 square miles, are probably subject to only slight changes, as the charts from which they were measured are quite accurate. The areas given for the other small possessions of the United States, Guam, 210 square miles; Samoa, 77 square miles, and the Panama Canal strip, 474 square miles, will probably be changed in the future as their limits become more correctly defined.

SCIENTIFIC NOTES AND NEWS.

AT the last meeting of the Rumford committee of the American Academy of Arts and Sciences, the following grants for research were made: $300 to Professor Arthur A. Noyes, of the Massachusetts Institute of Technology, for the construction of a calorimeter for the determination of heat reactions at high temperatures; $200 to Professor Robert W. Wood, of Johns Hopkins University, for the continuation of his researches on the optical properties of sodium vapor.

MR. ALFRED AKERMAN, state forester of Massachusetts, has resigned to accept the Peabody chair of forestry recently endowed in the University of Georgia. He is succeeded by Professor Frank Wm. Rane, professor of horticulture and forestry at the New Hampshire College. Mr. Rane's present address is, Room 7 State House, Boston, Mass.

MR. GEORGE A. COLEMAN, M.S. (Stanford, '05), has been appointed forest supervisor in charge of the Shasta Reserve.

DUDLEY MOULTON, M.S. (Stanford, '06), at present stationed in Nebraska investigating the codlin moth, has been appointed field assistant in the U. S. Bureau of Entomology.

PROFESSOR MANSFIELD MERRIMAN, Ph.D., head of the department of civil engineering, of Lehigh University, has been granted a year's leave of absence. He will reside in South Bethlehem and will attend to the administrative duties of his department.

A COMPLIMENTARY luncheon to Professor Ronald Ross, C.B., Professor R. Boyce and Dr. J. L. Todd, in recognition of the decoration recently conferred on them by the King of the Belgians for the work done by the Liverpool School of Tropical Medicine, was given on October 1 by the Lord Mayor of Liverpool.

PROFESSOR RAYMOND H. POND, of the Northwestern University, has been awarded a research scholarship at the New York Botanical Garden for six months, beginning October 1.

THE Duke of Abruzzi is planning an expedition to the Himalaya Mountains.

DR. JOHN GIFFORD is now engaged in delivering ten lectures on 'Tropical Pomology,' at Cornell University.

M. PIERRE JANET will shortly give a course of fifteen lectures at the Harvard Medical School on 'The Symptoms of Hysteria.'

THE Harvey Society of New York announces its second course of lectures. These are given at the Academy of Medicine building, 17 West 43d Street, on Saturday evenings at 8:30 P.M. The lectures are open to the public and all interested are cordially invited to attend. The program for the year is as follows:

October 20, Professor A. E. Wright, London: 'Therapeutic Inoculation with Bacterial Vaccines.'

November 3, Professor C. A. Herter, New York: 'The Common Bacterial Infections of the Digestive Tract and the Intoxications arising from them.'

November 17, Professor W. T. Porter, Boston: 'Vasomotor Reflexes.'

December 1, Professor J. G. Adami, Montreal: 'The Myelins and Potential Fluid Crystals of the Body.'

December 15, Dr. S. J. Meltzer, New York: 'The Factors of Safety in Animal Structure and Animal Economy.'

January 12, Professor F. G. Benedict, Middletown, Ct.: 'Metabolism during Fasting.'

January 26, Professor E. B. Wilson, New York: 'Recent Studies of Heredity.'

February 9, Professor G. S. Huntington, New York: 'The Genetic Interpretation of Variations in the Genito-Urinary Tract.'

February 23, Professor W. T. Councilman, Boston: 'The Relation of Certain Leucocytes to Infectious Diseases.'

March 9, Professor Friedrich Müller, Munich: 'Neuroses of the Heart.'

THE autumn lectures to be delivered in the lecture hall of the museum building of the New York Botanical Garden, Bronx Park, on Saturday afternoons, at 4:30 o'clock, are as follows:

October 13, Dr. W. A. Murrill: 'A Summer in Europe; Some Foreign Botanists and Botanical Institutions.'

October 20, Dr. M. A. Howe: 'The Vegetation of the Florida Keys.'

October 27, Dr. C. Stuart Gager: 'How Plants Breathe.'

November 3, Dr. Arthur Hollick: 'Coal: Its Origin and Development.'

November 10, Mr. G. V. Nash: 'The Vegetation and Botanical Features of the Inaguas and Grand Turk, Bahamas.'

November 17, Dr. N. L. Britton: 'Recent Explorations in the West Indies.'

November 24, Dr. H. H. Rusby: 'The Wild Nuts and Grains of North America.'

In order to provide a method for viewing the collections of the garden under guidance, an aid will leave the front door of the museum building every week day afternoon at three o'clock, to escort all who may wish to accompany him. The routes will be as follows: Monday, hemlock forest and herbaceous garden; Tuesday, pinetum; Wednesday, fruticetum and north meadows; Thursday, deciduous arboretum, nurseries, propagating houses; Friday, public conservatories; Saturday, museums.

WE learn from *Nature* that the council of the Institution of Civil Engineers has, in addition to the medals and prizes given for communications discussed at the meetings of the institution in the last session, made the following awards in respect of other papers dealt with in 1905–6: A Telford gold medal to Mr. G. A. Denny; a George Stephenson gold medal to Professor W. E. Dalby; Telford premiums to Messrs. W. R. Baldwin-Wiseman, G. N. Abernethy, H. R. C. Blagden, M. R. Collins and James Kelly; a Crampton prize to Mr. P. T. Gask. For students' papers the awards are: Miller prizes to Messrs. Ralph Freeman, A. F. Harrison, A. J. Grindling, T. R. Grigson, J. W. D. Ball and A. Morris. Mr. A. F. Harrison also gained the James Prescott Joule medal. The awards will be presented on November 6, when an inaugural address will be delivered by the president, Sir Alexander B. W. Kennedy, F.R.S.

PROFESSOR C. A. J. A. OUDEMANNS, who formerly held a chair of botany at Amsterdam, has died at the age of eighty years.

SIR RICHARD TANGYE, head of a large engineering firm at Birmingham and the author of books on travels and industry, died on October 14, at the age of seventy-three years.

THE widow of the late Professor Gusserow would like to sell his library as a whole. The library is a very rich one and contains sets of archives, of society publications, text-books and separate volumes, and also about 4,000 separate reprints. A catalogue has been prepared of the library, the value of which has been estimated at 14,000 Marks. Further inquiries on the subject may be addressed to Professor Waldeyer, 35 Luther Strasse, Berlin, W., Germany.

THROUGH the generosity of friends the Chicago Academy of Sciences has secured 3,000 species of the Quadras collection of Mollusca, which was exhibited at the St. Louis World's

Fair. The species are mostly from the Philippine Islands, many of them being topotypes from the original lots named by Moellendorf, Hidalgo and Quadras.

THE botanical department of the University of Illinois has purchased the herbarium of George D. McDonald, of Peoria, Ill. It contains about 12,000 specimens.

IN a letter from the Congo Free State Major P. H. G. Powell-Cotton states that he has succeeded in obtaining the skeleton and skin of a fine male okapi. This animal was killed at Makala, in the Ituri forest, by the native hunter Agukki, who shot the two specimens taken to Europe by Dr. David.

THE U. S. Department of Agriculture has leased from Dr. John Gifford seven and a half acres on Elliott's Key, Dad Co., Florida, for ninety-nine years for the purpose of experimenting with tropical plants.

IT is stated in *Nature* that the authorities of the Clifton Zoological Gardens, Bristol, have recently made considerable improvements designed for the increased comfort and display of their collections. Two years ago a new lion house was built, having the cages within communicating with four open-air ones iron-barred on three sides. The animals placed in these cages showed so distinct a preference for the open air, and improved so materially, that the older range of houses has been entirely reconstructed, and was thrown open to the public on Saturday, September 22, for the first time. As now reconstructed, seven open-air cages are placed along the front of the old house, and communicate with the dens within. The cages are lofty, being between ten feet and twelve feet in height, about twelve feet wide, and fourteen feet long. They are supported upon a brickwork base four feet in height, and separated from the public by a stout iron rail, placed three feet away from the cage fronts. It is noteworthy that a Rhesus monkey was formerly kept in an outer cage in the gardens for quite a number of years, winter and summer alike, and fared well even in hard frost and snow. When taken into the monkey house, however, it quickly sickened and died.

The Electrical World quotes the following figures on the patent office congestion compiled by Mr. F. W. Barnaclo, of New York City. The office seems sorely in need of more men at better pay, for which the annual profits seem quite adequate. Mr. Barnaclo's investigation shows that in January last there were 17,353 applications awaiting action in the 39 divisions of the patent office. To date there are 24,000 cases on the docket which have not been reached for examination, and tabulations prepared by the attorney show that the office is falling behind from 250 to 300 cases a week. It is shown in the records that the average number of applications filed a week is from 800 to 1,200, and there are only about 600 patents issued a week. Among divisions behind are the following: Hydraulic motors, pumps and sewerage appliances, 11 months and 23 days behind and 1,029 cases on hand. Air and gas engines, pumps and pneumatics, 10 months behind and 993 cases on hand. Machine tools, 7 months and 19 days behind and 675 cases on hand. Elevators, journal boxes, lubricators, machine elements, pulleys and shafting, 4 months and 17 days behind and 657 cases on hand. Annealing, tempering and coating in metals, electrochemicals, metal founding, metallurgy, etc., 3 months behind and 375 cases on hand. Electric conductors, electric appliances, lighting, etc., 11 months and 7 days behind and 1,069 cases on hand. Steam engineering, 4 months and 23 days behind and 472 cases on hand. Motive power, 5 months and 25 days behind and 613 cases on hand.

AT the University of Leeds the inaugural address of the new session was delivered by Sir James Crichton-Browne upon the subject of 'Universities and Medical Education.' In the course of his remarks, as abstracted in *Nature*, he said that centuries ago gifts were given for the promotion of objects equivalent to those which modern universities hold in view, which, considering the pecuniary resources of those who gave them, should put our most open-handed modern millionaires to shame. England has been remiss of late in perceiving and promoting those interests that

hinge in scientific and medical research. In this direction Germany has stolen a march upon us, for the various governments in that empire have unstintedly provided their universities with fully-equipped research laboratories, organized and conducted by professorial directors. A university is something more than a medical school, a workshop of research, or a home of science. It must have loftier aims than material advancement or commercial prosperity. It must provide for culture in its widest sense, afford intellectual guidance, encourage individuality, take cognizance of the theoretical problems that arise in the progress of civilization, be a storehouse of knowledge, and a gymnasium for the exercise of all the powers of the mind and to be truly a university it must be an organism, and not a mere conglomeration of parts. The one great objection to the multiplication of universities is that they may tend to become local seminaries, somewhat parochial in spirit, and fed exclusively from one district, for it would be a misfortune to a boy to pass from a secondary school to a university in the next street, where he would meet as his fellow-students only his old schoolfellows, and where, however amply fed with knowledge, he would still be surrounded by the same traditions and associations and shop amongst which he had been brought up. A provincial university is a contradiction in terms. What is wanted is a group of territorial universities, each with distinctive features of its own, specially adapting it to its environment, but all affording the most liberal instruction, the finest culture, the best intellectual discipline of the day, and collectively meeting the higher educational needs of the whole country.

The Geographical Journal states that Sir Everard Im Thurn, governor of Fiji, made a journey last November across the mountainous interior of Viti Levu, from the mouth of the Sigatoka River on the one side to Ba on the opposite coast. The coast at the river-mouth is unprotected by a reef, and the big ocean waves locally called *lokas,* continually roll in, making the narrow rocky entrance precarious even for small boats, and piling up the great swelling sand-dunes characteristic of this part of Fiji only. An entrance was, however, successfully made in the steam-launch of the *Ranadi,* perhaps the first steam-craft to enter the river. After presiding at the installation of a new Roko, or native chief, the governor and his party proceeded along the bridle-road which crosses the flats of the Sigatoka and winds over the rugged interior ranges. The flats, which extend up to Fort Carnarvon, seem capable of great development agriculturally. The route led through the scenes of the war of 1876, in which Sir Arthur Gordon finally ended the long strife waged by the mountain tribes against the coast natives and Europeans. On the present occasion the travelers met everywhere with a most hospitable reception, and the outer hills struck the governor as offering great opportunities for sheep-rearing, if the native system of firing the whole country-side in search of wild yams were stopped. Further on the Nalotu range, with a wonderfully serrated crest of dolomitic rock, was crossed by a small but well-marked nick in the knife-edge, the steep descent leading through thick trees to the flats along the Ba River. On this, the northwest side of the island, is the great sugar estate of the Colonial Sugar Refining Company, extending some forty miles between the Ba and Nadi rivers, the capabilities of which considerably impressed the governor. At one of the more recently opened centers, Lautoka, the mill is one of the most up-to-date in the world, and the place has also the advantage of possessing sheltered anchorage and an excellent wharf. What is wanted, however, is the connection of its tram system with that at the other end of the estate. An interesting experiment in the reclamation of coast swampland has lately been made, the great difficulty being the washing of the salt out of the soil. From Ba the governor rode up by the excellent bridle-path to Nadarivatu (which it is hoped to develop as a sanatorium), through some of the finest mountain scenery imaginable.

Nature states that the committee of the Quekett Microscopical Club has arranged for

a series of demonstrations at 20 Hanover Square, W., on 'The Practical Use of the Microscope and its Accessories,' to be given from 7 to 8 P.M. on the third Friday in each month during the ensuing session. The first will be on November 16, when Mr. H. F. Angus will deal with axial substage illumination, including the use of the plane and concave mirrors, substage condensers and methods of centering the illuminant and of obtaining critical illumination. At other demonstrations, the order of which is not yet finally settled, the following subjects, among others, will be considered: substage non-axial illumination, including oblique and dark ground illumination; the use of the micropolariscope; various methods of illuminating opaque objects; the testing and comparison of objectives; and the employment of micrometers and finders. These demonstrations will be in addition to the 'Gossip' meetings of the club, which are held on the first Friday, and to the ordinary meetings, held also on the third Friday of the month at 8 P.M.

UNIVERSITY AND EDUCATIONAL NEWS.

MR. ALFRED C. CHAPIN has given Williams College, of which he is an alumnus, an additional gift of $50,000, to be used by the trustees without restriction. Another New York alumnus, Mr. Charles T. Barney, has given $10,000 to the college.

THE Oberlin correspondent of the New York *Evening Post* states that the half-million fund for Oberlin College, as completed, amounts to $501,608. This is divided under the following funds: $125,000 for a new library building given by Mr. Andrew Carnegie, $100,000 for library endowment, $100,000 from an anonymous donor in Boston for the increase of salaries of teachers in the college and seminary, $25,000 for an art building and its endowment, $5,000 for the Barrows' Memorial Building for Men, and $146,608 for miscellaneous purposes. The gift of the Boston donor enables the trustees to increase by $200 the salaries of twenty-four full professors. The amount of the $146,608 is devoted to the following objects: $85,000 given by Miss Anne Walworth for the endowment of the Slavic department, $15,000 given by Mr. F. Norton Finnery as an addition to the Finney Memorial Chapel fund, $21,558 for equipment and endowment in various departments, and $25,000 for new scholarships and loan funds. Of this, $10,000 is in scholarships for self-supporting women, and $10,000 is in the Gilchrist banking fund, the income of which may be used as temporary loans to students. This fund was a bequest from Ella Gilchrist Potter, of Alpena, Mich. The largest single gift toward the library endowment was that of Dr. C. N. Lyman, of Wadsworth. This amounted to $34,000. The remaining $66,000 was given by fifty-five donors in sums ranging from $10,000 to $25.

THE facilities of the engineering department of Purdue University have been increased by the completion of a building containing three floors, each 75 x 130 feet, for the department of civil engineering, and by an addition to the electrical laboratory 68 x 90 feet to give room for additional equipment. This room is to be served by a traveling crane which may be utilized in transferring heavy equipment from the laboratory to a new lecture room which adjoins. There have been added to the materials testing laboratory and to the steam engine laboratory a number of machines, including a 100,000-pound Olsen testing machine, a Fairbanks-Morse 50 horsepower gas producer and gas engine, a 20 horsepower DeLava steam turbine with direct-connected centrifugal pump, a steam Ingersoll-Rand air compressor, a Foster super-heater of the type supplied by the Power Specialty Company, a Gerry-Emmons gasoline engine, an Abner Doble water motor, and an Allis-Chalmers 8 x 24 Corliss engine, direct-connected with a centrifugal pump of 4,000 gallons capacity.

PROFESSOR W. C. SABINE, who holds a chair of physics at Harvard University and is known for his researches in acoustics and optics, has been appointed dean of the Lawrence Scientific School to succeed the late Professor Shaler.

DR. W. B. CANNON, assistant professor of physiology in the Harvard Medical School,