

having a pretty well developed blade and bearing one or two ovules, to the usual naked stalk bearing one or two ovules. An examination of this plate is conclusive as to the foliar nature of the structure bearing the ovules. The homology of these structures with the ovuliferous leaves of *Cycas* is quite evident.

The anthers, which are born in catkin-like clusters, are shown by the same writer to be borne upon much modified leaves. The so-called 'staminate catkin' is, therefore, a single stamen bearing many anthers, reminding us again of *cycas*, in which, however, the antheriferous leaves are broad and the anthers sessile.

THE RE-ARRANGEMENT OF THE GYMNO-SPERMS.

THE 'considerable change in the systematic arrangement of Taxineæ,' referred to above, came very shortly after the publication of Fujii's paper, aided very greatly by Hirase's discovery of antherozoids in *Ginkgo*, and Ikeno's almost simultaneous discovery of antherozoids in *Cycas*, also. In the first *Lieferung* of the 'Nachtrag zu Teil, II.-IV.,' of the *Pflanzenfamilien* (1897) Engler suggests a new classification of gymnosperms as follows:

GYMNOSPERMÆ.

CLASS CYCADALES, fecundation by spermatozoids.

CLASS BENNETTITALES.

CLASS CORDAITALES.

CLASS GINKGOALES, fecundation by spermatozoids.

CLASS CONIFERÆ, fecundation by non-ciliated sperm-nuclei.

CLASS GNETALES, fecundation by non-ciliated sperm-nuclei.

In the eighth *Lieferung* of the 'Nachtrag' (dated October, 1897) this is further modified as follows:

GYMNOSPERMÆ.

A. Fecundation by spermatozoids.

CLASS CYCADALES.

CLASS BENNETTITALES (extinct).

CLASS CORDAITALES (extinct).

CLASS GINKGOALES.

B. Fecundation by sperm-nuclei.

a. No true perianth.

CLASS CONIFERÆ.

b. A perianth present.

CLASS GNETALES.

This rearrangement brings about a good deal of confusion in the chapter relating to the conifers in the *Pflanzenfamilien*. We are now asked to rearrange that text so as to divide the class (after excluding *Ginkgo*) into two groups, viz.: Taxaceae (including Podocarpeae, with genera *Saxegothaea*, *Microcachrys*, *Podocarpus* and *Dacrydium*, and Taxeae with genera *Phyllocladus*, *Cephalotaxus*, *Torreya* and *Taxus*) and Pinaceae (now arranged under Araucarieae, Abietineae, Taxodieae and Cupressineae). We have thus a division of Conifers into a lower family (Taxaceae) and a higher (Pinaceae), and this is the sequence we are to recognize, while in the higher family the four tribes are arranged in a descending series.

The editor of the *Pflanzenfamilien* should issue a revision of the pages of 'Teil II.,' which deal with the gymnosperms (about 130 pages) in order that at the approaching completion of the work it will not be marred by the present patchwork arrangement.

CHARLES E. BESSEY.

THE UNIVERSITY OF NEBRASKA.

SCIENTIFIC NOTES AND NEWS.

THE RECENT ECLIPSE.

At the Royal Institution on April 29th Mr. W. H. M. Christie, the Astronomer Royal, gave a discourse on 'The Recent Eclipse.'

Mr. Christie said, according to the report in the London *Times*, that he was afraid that his account of the eclipse would be somewhat imperfect, because the reports of the various observers had not yet been published, and the information he had been able to glean as to the results obtained by the parties of American, Japanese and Italian observers was somewhat meager. After the failure from bad weather, which was the fate of nearly all the expeditions in the eclipse of 1896, it was felt that every ef-

fort should be made to occupy as many stations as practicable along the track of the last eclipse, which, starting from Equatorial Africa, crossed India and ended in the Chinese Empire. It was not, however, found possible to send an observing party to Africa; so the field was narrowed to the shadow track through central India. There the choice of stations was practically confined to the neighborhood of the places where the various railway lines intersected the central line of the shadow, and of these the more westerly had the advantage of giving slightly longer duration of totality. The Joint Eclipse Committee arranged for four parties of observers. Sir Norman Lockyer, whose main equipment consisted of prismatic cameras, was at Vizianagur; Professor Turner and the lecturer, who originally intended to station themselves at Karad, near Poona, were obliged, on account of the outbreak of the plague, to go instead to Sahdol, a place farther east with a shorter duration of totality; Captain Hills and Mr. Newall were at Palgaon with slit spectroscopes, and Dr. Copeland took large-scale photographs of the corona with a lens of 40ft. focus. In addition there was a party, under the auspices of the British Astronomical Association, at Talni, consisting of Mr. and Mrs. Maunder, Mr. Thwaites and Mr. Evershed; the Viceroy of India was in the neighborhood of Buxar, near Benares, with a large party which included Mr. Pope, of the Indian Survey, and there were three other parties of observers near Jeer, to the southeast of Poona. The track of the shadow was thus very well occupied throughout India. Admirable arrangements were made by the Government for the observers, who were also indebted to the Indian railway companies for their liberal treatment. Mr. Christie then passed on to consider some of the results obtained. Beginning with photographs of the corona, he said that a special feature was the number and variety of instruments utilized to take these on the large scale of about $\frac{1}{4}$ in. to the sun's diameter. Professor Campbell, Dr. Copeland and Mr. Michie Smith had each a telescope 40ft. long, the form of mounting being different in each case. The instrument he himself used was on a different principle, the large scale being obtained by applying a concave lens

to magnify the image formed by an object glass of comparatively short focal length. Thus the total length of the telescope was kept within manageable dimensions—11ft. in his case instead of 40ft. as in the ordinary form. Another important feature in the instrumental equipment was the coelostat—a form of mounting a mirror devised by Mr. G. Lippmann in 1895, and successfully used in the recent eclipse at three stations—Sahdol, Palgaon and Vizianagur. Another interesting new departure was Professor Burckhalter's device for giving to each part of the corona the exact exposure best suited to its brightness. He arranged to get the whole on one plate by using a slit of peculiar form in a metal screen which rotated rapidly in front of the photographic plate. Numerous spectroscopic observations were carried out both with slit spectroscopes and prismatic cameras, and Mr. Newall attempted to determine the relative motion in the line of sight by the displacement of the corona lines in the spectrum. Professor Turner made polariscopic observations to discover how much of the light of the corona was polarized, and Mr. Newall noticed strong polarization of the atmosphere at all points within 30 minutes of the sun. At Sahdol temperature observations were made, and a fall of 8 degrees was registered 20 minutes after totality. At Buxar a kinematograph was employed, but the film had since disappeared. In conclusion, Mr. Christie, remarking that the form of the corona was not quite what was expected, said that in this connection it was a suggestive fact that at the time of the eclipse there were more spots than usual on the sun at that epoch of the cycle, and that from January 15th to January 21st great magnetic disturbances were registered at Greenwich. The lecture was illustrated with many lantern slides, and a number of photographs were displayed in the library.

THE BENEKE PRIZES.

THE Philosophical Faculty of the Georg-Augustus University of Göttingen has just published, according to *Nature*, the following information concerning the Beneke prizes for the years 1897 and 1901: On March 11, 1898, the birthday of Carl Gustav Beneke the founder of

this prize, it was announced that no communication had been sent in for the prize competition for the year 1897. At the same time the Philosophical Faculty set the following problem for the year 1901: The principle of continuity, or, more exactly, the representations by functions which can be indefinitely differentiated, has for a long time been regarded as a general valid foundation for the mathematical treatment of natural phenomena. Such a groundwork as this was quite naturally introduced by the discoverers of the differential and integral calculus. More recently, however, the progress of mathematical investigation has shown generally that this is founded on a great number of implicit suppositions to which we, in consequence of the inaccuracies of our sensitive perceptions, are not bound. Further, the assumption of the molecular constitution of matter is from the first in contradiction with well-known laws. The Faculty wishes to receive a work of real scientific interest in which such questions will be treated in a general intelligent way, and in which a minute examination will be made regarding the admissibility in relation to the appropriateness of the usual mode of representation. Communications may be mathematically or philosophically and psychologically inclined, and historical studies are desired but not demanded. Papers competing for this prize must be written in a modern language, and will be received by the Dekan of the Philosophical Faculty up to August 31, 1900. A motto should be written on the title-page of the work and on the outside of a sealed letter which must accompany it, containing the name, profession and address of the sender. In no other way can the name of the author be communicated. It is further requested that the address of the sender should be also written on the title-page, in case the prize should not be awarded to it. The first prize amounts to 3,400 Marks, and the second to 680 Marks. The prizes will be awarded on March 11, 1901, at a meeting of the Philosophical Faculty in Göttingen. The communications to which prizes are awarded remain the property of the authors. The prize problems, for which the competitive papers must be sent in by August 31, 1898, and August 31, 1899, will be found given

in the *Königlichen Gesellschaft der Wissenschaften Geschäftsfl. Mittheilungen*, 1896, S. 69, 1897, Heft. 1, S. 26.

THE STATISTICIAN OF THE TREASURY DEPARTMENT.

THE New York *Evening Post*, of May 7th, states: Worthington C. Ford, Chief of the Bureau of Statistics in the Treasury Department, is the latest victim of the rush for office. He will retire on Monday of next week, making way for O. P. Austin, a former newspaper correspondent who made a specialty of furnishing statistical leaflets and circulars for the Republican National Committee during the last Presidential campaign. Mr. Hanna then promised him a position of importance, and he has now made his promise good, though at a heavy cost to the administration, under whom Mr. Ford had worked faithfully and as efficiently as he did under President Cleveland.

Mr. Ford is one of the most prominent statisticians in the country. He is an indefatigable worker, and has not only the statistical instincts, but the culture brought by long exercise of the art. He was chosen by Secretary Carlisle and President Cleveland from a large number of persons whose names had been mentioned to them, and wholly on the ground of personal merit and professional skill. It was one of the few appointments made wholly regardless of politics, and in the face and teeth of opposition from big Democrats, to whom Mr. Ford's sincerity of purpose, and his unqualified adhesion to true revenue reform and sound finance, irrespective of partisan or local interests, were repugnant. No fault, it is understood, has been found with his work, which has never fallen short of the highest grade. But he does not understand bending every other statistical consideration to the upbuilding of the Republican theory, and the purveyors of party patronage proved too strong for the conservative forces which have assured his retention so far.

The position from which Mr. Ford retires is under the civil-service rules, as extended by President Cleveland. To the world at large it is known as Chief of the Bureau of Statistics of the Treasury Department. In the section of

the revised statutes, however, which authorizes its creation, it appears simply as a division clerk, to be appointed by the Secretary of the Treasury, to 'superintendent of the bureau.' The question is likely to arise, therefore, how Secretary Gage is going to get Mr. Austin into the position vacated for him, as he is not now in the civil service.

One of two things may be done—either the same plan will be followed to which resort was had in the cases of Chief Clerk Michael, of the Department of State, and the late Director Smith, of the Bureau of American Republics, the appointment being temporarily made and a special examination held afterward, or advantage may be taken of the use of the term 'appoint' in the statute, and the assumption made that the power of appointment was absolutely vested in the Secretary, as distinguished from those positions of which he simply 'designates' a clerk to take charge.

GENERAL.

THE University of St. Andrews will confer its honorary LL.D. on Professor William Osler, of Johns Hopkins University.

MR. W. H. PREECE has been elected President of the British Institution of Civil Engineers.

PROFESSOR CH. RICHET, the well known physiologist, editor of the *Revue Scientifique*, has been elected *membre titulaire* of the Paris Academy of Medicine in the room of the late M. Luys.

THE Paris Society of Anthropology offers in 1898 the Brocca prize (1,500 fr.) for a work on Somatology, and the Bertillon prize (500 fr.) for a work on Demography.

THE steamship *Belgica*, carrying the Belgian Antarctic expedition, has, it appears, grounded on an island near Cape Horn, which will prevent the expedition proceeding to the far South this year.

DR. NANSEN left London on April 23d for St. Petersburg, where the Geographical Society will hold a reception in his honor and listen to an address by him. Dr. Nansen will next proceed to Vienna to lecture before the Geographical Society of that city and receive its Hauer

Medal. He will also lecture in Budapest and Pressburg.

HERR KRUPP, of Essen, who has recently made a number of gifts for educational and scientific purposes, has presented the Berlin Geographical Society with 10,000 Marks for the foundation of a gold medal to be named after Nachtigall, the African explorer, and to be given by preference for discoveries in Africa.

THE Trustees of the Missouri Botanical Garden hold their ninth annual banquet at the St. Nicholas Hotel, St. Louis, to-morrow.

THE United States Civil Service Commission announces that, on June 7, 1898, examination may be taken at any city in the United States where the Commission has a competent board of examiners to establish an eligible register for the grade of expert computer and geodesist. There is at present a vacancy in the U. S. Coast and Geodetic Survey, Treasury Department, at a salary of \$2,400 per annum, which it is desired to fill. The duties of the position for which this examination will be held will be partly administrative, but principally they will be in the line of geodetic computations consequent upon the field work of the Survey. Such computations will embrace the whole subject of geodesy and allied subjects, the astronomical determination of latitude, longitude and azimuth; triangulation, magnetic, gravity, tidal, physical hydrography, leveling, deflections of the vertical, etc. The examination will consist of the subjects named below which will be weighted as follows:

Ability and experience in the discussion of geodetic problems and administration of computing work.....	25
Publications in the line of geodesy, mathematics and astronomy.....	25
Positions held by the applicant in professional life.....	25
Answers to questions which will be furnished on examination.....	25
Total.....	100

The Department states that it is desirable that applicants should not be over 35 years of age.

THERE is also a vacancy in the position of nautical expert in the U. S. Coast and Geodetic

Survey, with a salary of \$1,800. The examination will be held on the same day and will cover the hydrographic work of the Survey, navigation and knowledge of the lighthouses, buoys and general geography of the Pacific Coast.

THE Academy of Natural Sciences of Philadelphia has appointed Mr. Wm. W. Jefferis special curator of the William S. Vaux collection for the current year. The following have been appointed the committee on the Hayden Memorial Geological Award: Messrs. Persifor Frazer, Angelo Heilprin, Theodore D. Rand, Benjamin Smith Lyman and J. P. Lesley. The award consists of a bronze medal and the balance of the interest arising from the endowment fund and is conferred annually for the best publication, exploration, discovery or research in the sciences of geology and paleontology, or in such particular branches thereof as may be designated. The recognition is not confined to American naturalists and has been granted as follows: 1890, James Hall; 1891, Edward D. Cope; 1892, Edward Suess; 1893, Thomas H. Huxley; 1894, Gabriel Auguste Daubrée; 1895, Karl A. von Zittel; 1896, Giovanni Capellini; 1897, A. Karpinski.

THE Geographical Society of Philadelphia held its annual meeting and reception on May 4th. Professor Angelo Heilprin, the retiring President, delivered an illustrated lecture on 'A Winter Trip to the Grand Cañon of the Colorado.' The annual election of officers resulted as follows: President, Henry G. Bryant; Vice-Presidents, Amos Bonsall, Dr. Daniel G. Brinton; Recording Secretary, Dr. Paul J. Sartain; Corresponding Secretary, Edwin S. Balch; Treasurer, Miss Mary Blakiston; Directors, Professor Angelo Heilprin, Miss E. E. Massey, George G. Mercer; Reception Committee, Miss Ida Cushman, Mrs. J. B. Lippincott, Mrs. Charles Roberts, Miss Rachel Sweatman; Excursion Committee, Miss Mary S. Holmes, Miss Maude G. Hopkins, Charles S. Welles, Dr. H. Emerson Wetherill.

AN International Committee has been formed for the purpose of collecting an endowment fund in memory of the late Edmund Drechsel, professor of physiological chemistry at the University of Berne, Professor R. H. Chittenden,

of Yale University, being the American representative. As we have already stated, it is wished to mark with a memorial stone the burial place of Drechsel at Naples, and to secure a fund for the education of his sons. Contributions, which, it is hoped, will in some cases take the form of an annual contribution for five or ten years, should be sent to the '*Deutsche Depositenkasse A.*' Berlin W., Mauerstrasse, account of Professor Tschirch for the Drechsel-Endowment, or to the Treasurers of the local committee at Berne, Professor Tschirch, dean of the faculty of medicine, or Professor Kronecker, director of the physiological institute.

MR. ALFRED V. ALLEN, of Bath, died on March 24th, at the age of 64 years. We announced recently the discontinuation of the *Journal of Microscopy and International Science*, of which Mr. Allen had been editor since 1882.

Nature announces the death of Dr. John Shearson Hyland, F.G.S., at the early age of thirty-two. The second son of Captain P. Hyland, of Great Crosby, he was educated at the Merchant Taylors' School, at University College, Liverpool, and subsequently at Leipzig. At the University of Leipzig he studied mineralogy and petrology under Dr. Zirkel, and took the degree of Ph.D., his thesis being entitled 'Ueber die Gesteine des Kilimandscharo und dessen Umgebung,' and published in 1888. In the same year he joined the staff of the Geological Survey, and was for three years occupied in the Irish branch in investigations on the eruptive rocks of the country. During this period he published several papers on petrological subjects and gave great promise of a brilliant career. Being of an active, enterprising nature, he relinquished the work of the microscope, and, throwing up his post on the Geological Survey, took to the more practical work of reporting on mineral resources in the United States, subsequently in British Central Africa, and finally on the treacherous west coast of Africa, where he died at Elmina on April 19th.

FROM the *Chemist and Druggist*, *Nature* quotes the following details regarding the late Dr. J. G. N. Dragendorff, for many years Director of

Pharmaceutical Institute at Dorpat, in Russia. Dr. Dragendorff was born in Rostock in 1836. After qualifying as an 'apotheker,' he studied chemistry in the Heidelberg University, which he left in 1860 to become assistant to Professor F. Schultze in the chemical laboratories of the Rostock University. In the same year he graduated as Ph.D., his thesis being on the action of phosphorus upon some carbonates and borates. In 1862 he went to St. Petersburg to take charge of the *Pharmaceutischen Zeitschrift für Russland*, as editor, and of the laboratories of the Pharmaceutical Society there. While acting in that capacity his reputation grew, and his appointment as professor of pharmacy and Director of the Pharmaceutical Institute at Dorpat in 1864 was the beginning of thirty years' work which made the Dorpat Institute famous all over the world, for Dragendorff's skill as a teacher and discoverer of talent brought students to him from all quarters. He retired to his native town in 1894, and devoted his leisure to a monumental work on medicinal plants, of which at least one part has been published. He was best known to English pharmacists through his 'Plant Analysis,' a translation of which, by his former pupil, Henry G. Greenish, was published in 1883. His work on alkaloids was, however, that by which he is most entitled to fame. The mydriatic alkaloids were his special field, and his syntheses of cocaine and atropine are amongst the most brilliant achievements of modern chemistry. In 1885 the Pharmaceutical Society of Great Britain conferred the third Hanbury medal upon him.

SUFFICIENT advance subscriptions have been guaranteed to encourage The Open Court Publishing Company in proceeding with its plan of publishing the series of large-sized portraits of philosophers and psychologists, to which we called attention some time since. The first instalment of the portraits, containing the names of Thomas Aquinas, Bacon, Hobbes, Descartes, Spinoza, Locke, Hume, Leibnitz, Wolff, Kant, Schopenhauer, Spencer and others, is now nearly ready.

THE Smithsonian Institution has issued a list, compiled by Mr. W. J. Rhees, of its publications

available for distribution. These publications are in many cases of great scientific value and are sold at very low prices. This list of publications, for example, extends to 29 pages and may be secured for two cents. The publications of the Smithsonian Institution consist of: 1, Contributions to Knowledge; 2, Miscellaneous Collections; 3, Annual Reports; 4, Special Papers. The publications include 1,091 separate titles, but many of these can no longer be supplied.

THE work on determination of sex, by Dr. Leopold Schenck, Director of the Embryological Institute of Vienna, of which the newspapers have had so much to say, is announced for immediate publication by Messrs. Schallayin and Wollbruck, Vienna and Leipzig. The title of the book is *Einfluss auf das Geschlechterverhältniss*, and the price will be 3 Marks.

THE museum at Nantes has been enlarged by the addition of a new hall, and special efforts are being made to represent as completely as possible the fauna, flora and geology of western France.

EFFORTS are being made to collect £2,500 to repair the museum building at Barras Bridge, Newcastle, and several subscriptions have been received, including £500 from Lord Armstrong, President of the Natural History Society of Northumberland, Durham and Newcastle, under the auspices of which the museum is conducted.

THE Royal Photographic Society has opened the international exhibition at the Crystal Palace, London, the arrangements for which we have already announced.

THE third annual Congress of the Southeastern Union of Scientific Societies, whose President is the Rev. T. R. R. Stebbing, will be held at Croydon, England, on June 2d, 3d and 4th. Professor G. S. Boulger will deliver the annual address as President-elect.

A MEETING of the Fellows of the Royal Botanic Society, London, was held on April 23d in the Museum at the Society's gardens, Regent's Park, Mr. G. W. Bell presiding. Dr. Coode Adams delivered a lecture on 'Some Remarkable Cacti,' illustrated by lantern slides and

colored drawings, and some living specimens from the large collection possessed by the Society.

AN Association of Medical Librarians was organized at a meeting of a number of representatives of medical libraries held at the editorial rooms of the *Philadelphia Medical Journal*, in Philadelphia, on May 2d. The officers elected were: President, Dr. George M. Gould, of Philadelphia; Vice-President, Dr. J. L. Rothrock, of St. Paul, Minn.; Secretary, Miss M. R. Charlton, of Montreal, Canada; Treasurer, Dr. William Browning, of Brooklyn, N. Y.

JOHN GUITERAS, professor of pathology in the University of Pennsylvania and an eminent yellow fever expert, has been instructed by the Surgeon-General of the United States Army to proceed to Tampa, Florida, to act as medical adviser to the commander of the army which it is expected will invade Cuba. Relative to the dangers which may beset troops in Cuba, and the precautions which should be adopted, the following statement, says the *Philadelphia Medical Journal*, is attributed to Dr. Guiteras: "It is possible to prevent the infection of military garrisons, though whether it can be done in a campaign remains to be seen. Yellow fever is circumscribed within certain areas, and if it is possible to keep troops away from those areas there will be little danger of infection. Contrary to the prevailing idea, altitude does not govern the disease. There are no extremely high altitudes in Cuba, and yet there are places where there is no yellow fever. In some places on the coast the disease is not to be found. As a general rule the more important the town, the greater its commercial activity, the more infected it is. Yet a congregation of people in the interior could not originate yellow fever. The cities where the disease prevails are infected because they are permanently inhabited by a crowd. Still the disease may be carried to a garrison from an infected town. To guard against this the troops must be placed by themselves, in uninfected places, and they must not communicate with infected places. Then, too, no depot of supplies should be placed in an infected port. This is, of course, a desideratum that it may be difficult to obtain for strategic

reasons. Ideal conditions are not always possible in a military campaign. Whether or not yellow fever can be kept from the troops depends entirely upon whether these plans can be carried out."

UNIVERSITY AND EDUCATIONAL NEWS.

COLONEL JOSEPH M. BENNETT has given the Trustees of the University of Pennsylvania real estate valued at \$80,000, and adjacent to the building he had previously given to the University for a Women's Hall. It is expected that there will ultimately be erected on this land a special building for the women's department of the University, though the buildings as they now exist are available for this purpose. Women are at present admitted to the graduate courses of the University of Pennsylvania, and it is planned to establish undergraduate courses. Colonel Bennett had also previously given to the University \$17,500 for fellowships for women, and the announcement is just made that a fellowship for three years has been guaranteed by former women students of the University.

At the last meeting of the Trustees of Columbia University it was decided to call the building erected for work in physics 'Fayerweather Hall,' in recognition of the bequest of \$300,000 made to the University by the late Mr. Fayerweather.

THE University of Edinburgh has received a bequest by the will of the late Honorable B. F. Primrose of £2,000, one half to be used for the encouragement of original research and one-half for the library.

THE diploma of M.D. of the Paris University will henceforth be given to foreign students who go through the medical curriculum without previously passing their *baccalauréat* examination. This diploma, in accordance with Article 15 of the Decree of July 21, 1897, does not give any of the privileges attached to the real degree. It happens curiously that at the same time the Prussian government has adopted an exactly opposite policy and has decided that, after this year, the degree of M.D. will be given to no one who has not passed the state examination and so become legally qualified to practice medicine in the German Empire.