

that between the hours of 8 and 10.30 p.m. on fine and clear Saturday evenings during the Lent full term celestial objects will be shown through the Northumberland equatorial to members of the University.

THE University of London Graduates' Association has issued a pamphlet detailing the objections of the association to the scheme proposed by the Royal Commission on University Education in London. The price of the pamphlet is one penny, and copies may be obtained from Mr. A. S. E. Ackermann, honorary secretary of the association, 25 Victoria Street, Westminster, S.W.

WE record with much satisfaction Sir Hildred Carlile's gift of 105,000*l.* to the Bedford College Endowment Fund. Writing to Lord Haldane, the president of the Endowment Fund, Sir Hildred Carlile asks that the donation may be considered as a memorial to his mother, and we agree with the Lord Chancellor that no nobler memorial to Mrs. Edward Carlile could have been established. The donation is believed to be the largest individual gift that has ever been made for the education of women in this country. Beyond the stipulation that no part of the money is to be used for building, no condition whatever is attached to the gift, which will go a long way towards establishing the college on a firm financial basis.

THE movement for the establishment of a national university in Washington on the plan endorsed by the National Association of State Universities, is, says *Science*, taking form, and President James, of the University of Illinois, has, it is understood, commenced the preparation of a Bill soon to be submitted to President Wilson for his approval, and afterwards to be introduced in both houses of Congress. The Bill provides for a preliminary grant of 100,000*l.* toward the establishment of a university to be under the control of a board appointed by the President of the United States. It will propose an advisory board made up of one delegate from each State to frame the policy of the institution.

WITH the view of establishing a memorial to the late Lord Avebury, a small committee has been formed under the chairmanship of the governor of the Bank of England, with representatives from the Royal Society, the University of London, the London Chamber of Commerce, and the Clearing Bankers. This committee has agreed that there can be no more suitable memorial than the foundation at the University of London of scholarships in economics, and in some other branch of scientific research in which Lord Avebury was especially interested. The minimum fund to establish such scholarships should, the committee states, amount to at least 5000*l.*, but a still larger sum is desirable; and if a sufficient sum were raised a professorship or readership might be founded. Subscriptions have been promised amounting to nearly 3000*l.* Subscriptions should be paid in to the Lord Avebury Memorial Fund at the Bank of England.

IN concluding an interesting article on the education of the German artisan, appearing in *Engineering* for January 9 and 16, Mr. H. S. Rowell says that the outstanding difference between England and Germany in all things is represented by the opposites—systemism and individualism. The one is the result of despotic government and widespread education; the other is traceable to political precocity and indifference to education for its own sake. Both these opposites have virtues and faults, and no one is wise enough to say how far they should be blended, how far the individual must sink before the system. But one thing is certain in comparing the two countries, and that is the difference in the attitude towards

science. The English, working and employing classes alike, are still sadly lacking in this respect. For opprobrium they use the words "theoretical" and "scientific"; for praise "practical." It is seldom realised that science is neither purely practical nor purely theoretical, but simply truth and good sense organised.

THE question of the proper utilisation of our great national museums is one that is nowadays engaging increasing attention. Partly as the result of a debate which took place in the House of Lords some time ago, guide demonstrators have been, or are being, appointed to museums and botanic gardens. The London County Council has contributed largely towards bringing the national treasures more closely before the children in the schools, the system adopted being to familiarise the pupils with the exhibits by means of the teachers. Accordingly lectures are given from time to time in various places of national interest for the purpose of acquainting teachers with the organisation of the various national exhibits so that their pupils can derive the maximum benefit on occasions of educational visits. In furtherance of this object, Lord Sudeley, who has played a prominent part in educating public opinion as to the need for the appointment of guide demonstrators at the museums, will address London teachers on the public utility of museums, picture galleries, &c., at the Birkbeck College, Chancery Lane, on Saturday, January 31, at 11 a.m., when the chairman of the London County Council Education Committee, Mr. John W. Gilbert, will preside. Tickets of admission to the meeting can be obtained from the education officer of the London County Council, Education Offices, Victoria Embankment.

SOCIETIES AND ACADEMIES.

DUBLIN.

Royal Dublin Society, December 16, 1913.—Dr. J. H. Pollok in the chair.—Prof. K. Yendo: Cultivation of sea-weeds in Japan. Sea-weeds are extensively used in Japan as food, glue, and manure. The annual amount of production is estimated at about 800,000*l.*, of which 300,000*l.* worth is exported, chiefly to China. The most important point in cultivation is to give the plant a suitable ground for attachment. Various factors, such as depth, light, salinity, temperature, nature of substratum, movement of water, &c., have great influence in limiting the growth of sea-weeds in a certain locality. The author explains these factors with reference to plant-life in the sea, and describes the modes of cultivation in Japan.—Dr. G. H. Pethybridge: Further observations on *Phytophthora erythroseptica*, Pethyb., and on the disease produced by it in the potato plant. The peculiar mode of development of the sexual organs (intra-theridial growth of the oogonial incept) described for this species by the author in a former paper, and shown by him to occur also in *P. infestans* and *P. phaseoli*, has been found in *P. parasitica*, Dast., and *P. colocasiae*, Racib., by Dastur, and by Butler and Kulkarni respectively. In the present paper the production of zoospores and of germ tubes by the conidia and the mode of germination of the oospores is described for *P. erythroseptica*. The inner thickened part of the oospore wall is composed of cellulose, and previous to germination becomes dissolved, so that it thus appears to serve not only as a protective covering for the spore, but also as a store of reserve carbohydrate. The fungus with its reproductive organs has now been found in all the underground portions of the potato plant. It is the cause not only of a specific rot of the tubers, but of a disease of the plant

as a whole, of the "wilt" type, the outward symptoms of disease being rather similar to those produced by *Bacillus melanogenes*, Pethyb. and Murphy.—Prof. H. H. Dixon : Note on the spread of morbid changes through plants from branches killed by heat. Experiments are described showing the possibility of washing out the poisonous materials liberated in the water tracts of branches killed by heat, and thus removing the contamination from the water supply of the leaves above. The withering of the leaves on a killed branch may in this way be long postponed. It is also possible to wash back the contaminating substances from the dead branch into other branches, when it is found that the leaves on the otherwise uninjured branches wither. Both these experiments show that it is not allowable to assign the withering to a failure in the water supply brought about directly by the death of the cells of the heated branch.—W. R. G. Atkins : Oxydases and their inhibitors in plant tissues. Part iii., The localisation of oxydases and catalase in some marine algæ. Catalase was found in all algæ tested. Out of a total of twenty-nine, only one alga gave the direct oxydase reaction, while six gave the indirect with guaiacum. In two cases only was a colour produced with α -naphthol.—Prof. T. Johnson : *Bothrodendron kiltorkense*, Houghton, sp. : its cone and Stigmarian stage. The specimen described supplies conclusive evidence that the Stigmarias found in the Kiltorcan quarry are the underground root-carrying rootstocks of *Bothrodendron*. In one specimen organic continuity is shown between the aerial stem with typical leaf-scars and Stigmaria with appendages, a horizontal line of demarcation indicating the ground level. The paper also contains a description of a fertile shoot ending by repeated forking in four tips of which three are stalked cones, 3×5 cm. in extent, the fourth being sterile.

PARIS.

Academy of Sciences, January 12.—M. P. Appell in the chair.—Maurice Hamy : The use of the objective prism in the determination of radial velocities. An arrangement is described in which a spectrograph with a prism objective gives a determination of the motion of a star in the direction of the line of sight, by comparison with a terrestrial spectrum.—G. Lippmann : A method of regulating a telescope for autocollimation. A plate of silvered glass, on which a fine line has been traced with a diamond, is placed at an angle of 45° to the axis of the telescope. The slit is illuminated from a point on the axis of the telescope, and looked at by an eyepiece at the side of the instrument. When the axis is at right angles to the reflecting mercury surface the slit cannot be seen; the accuracy of the adjustment does not depend on the size of the slit, but only on the quality of the telescope itself.—Fred Wallerant : Rotatory power in biaxial crystals.—A. Laveran : *Trypanosoma soudanense* as the cause of *debab* of Algeria. The disease affecting dromedaries, and sometimes horses, in Algeria, and known as *debab*, is shown to be caused by *T. soudanense*, and has nothing in common with *T. evansi*.—M. Vasseur was elected a correspondant for the section of mechanics in succession to M. Gosselet, elected non-resident member.—M. Gambier : Curves of constant torsion.—Arnaud Denjoy : A property of certain functions.—Jules Pál : The transformations of functions the Fourier series of which converge.—Ph. Frank and G. Pick : Some measurements in functional space.—H. Bohr and E. Landau : The zeros of Riemann's $\zeta(s)$ function.—R. Bricard : A doubly decomposable movement.—A. Tauleigne, F. Ducretet, and E. Roger : The graphical registration of radio-telegrams. The apparatus described makes use of an electrolytic detector of a modified type in connection with a polarised

relay. The instrument has given a good record of Eiffel Tower signals at Dijon, 275 kilometres from Paris, and experiments are being made at greater distances.—M. Swyngedaew : The resonance of the three harmonics of triphase alternators.—R. Marcelin : The expression of the velocities of transformation of physico-chemical systems as a function of the affinity.—J. Canac and E. Tassilly : The deposition of nickel upon aluminium. A special preliminary treatment of the aluminium is described, and nickel is then electro-deposited in a very coherent form. The nickel-plated aluminium does not change in moist air, and resists the action of dilute soda solutions, glacial acetic acid, or strong brine.—R. Goubau : The melting point of arsenic. The melting point of arsenic was measured in a quartz bulb under pressure, and found to be 817° C.—José Rodriguez Mourelo : The phototropy of inorganic systems.—L. Crussard : Deflagrations in a steady state in conducting media.—Ed. Chauvenet : Two compounds of zirconium chloride with pyridine.—G. Friedel : The crystalline structures rendered evident by the diffraction of the Röntgen rays.—Michel Longchambon : The carbonate sedimentation and the genesis of the dolomites in the Pyrenees chain.—P. Chausé : Researches on the pulverisation of tuberculous saliva and sputa by air currents. No particles of saliva or sputa are detached by contact with air moving with velocities under 30 metres per second; at higher velocity respirable particles are removed and can convey the infection.—R. Argaud and I. Brault : Lepra cells and plasma cells.—M. Lécaillon : The fecundity of *Colaspedima atra*.—Auguste Lumière and Jean Chevrolier : The resistance of the gonococcus to low temperatures.—M. Javillier : A cause of error in the study of the biological action of some chemical elements; the presence of traces of zinc in glass. *Aspergillus niger* is very sensitive to the stimulating action of minute traces of zinc salts in its culture solutions. It is shown that sufficient zinc is given to culture fluids by Jena glass to mask entirely any effects due to added glucinum, or cadmium. Experiments carried out in quartz or Bohemian glass vessels give quite different results on the growth of moulds from experiments made in Jena glass vessels.—L. Mengaud : The Cretacian in the neighbourhood of Comillas, province of Santander.—O. Mengel : The Pliocene of Roussillon.—Louis Gentil : The structure of the plateau of Beni Mtir, central Morocco.—Albert Brun : The exhalation of Kilauea in 1910.

BOOKS RECEIVED.

Die Süßwasser-Flora Deutschlands, Oesterreichs und der Schweiz. Edited by Prof. A. Pascher. Heft 14. Pp. iv+222. (Jena: G. Fischer.) 5.60 marks.
Anuario del Observatorio de Madrid para 1914. Pp. 594. (Madrid.)
Comité International des Poids et Mesures. Procès-Verbaux des Séances. Deux. Série. Tome vii. Session de 1913. Pp. v+140. (Paris: Gauthier-Villars.)
Ueber die Erkenntnis a priori insbesondere in der Arithmetik. By N. Ach. I. Teil. Pp. 70. (Leipzig: Quelle und Meyer.) 2.25 marks.
Bienen und Wespen, ihre Lebensgewohnheiten und Bauten. By E. J. R. Scholz. Pp. viii+208. (Leipzig: Quelle und Meyer.) 1.80 marks.
Prinzipien der Erkenntnislehre. By Prof. E. v. Aster. Pp. viii+408. (Leipzig: Quelle und Meyer.) 7.80 marks.
Das Problem der Brütung. By Dr. J. Fischer. Pp. 155. (Leipzig: Quelle und Meyer.) 3.20 marks.
Das Nachsprechen von Sätzen in seiner Beziehung zur Begabung. By E. Gassmann and E. Schmidt.