UNIVERSITY AND EDUCATIONAL INTELLIGENCE.

CAMBRIDGE.—The Board of Agricultural Studies announces that an examination will be held for one "Surveyors' Institution Scholarship" on July 9 to 12. The scholarships are of the value of 80*l.* per annum, and are open only to students of the Surveyors' Institution, who have not commenced residence in the University. Names of intending candidates must be sent before June 30 to Mr. A. Goddard, the Surveyors' Institution, 12 Great George Street, Westminster, S.W., or to Prof. T. B. Wood, School of Agriculture, Cambridge, from whom forms for entry may be obtained.

It is proposed to confer the degree of Doctor of Law, *honoris causâ*, upon his Excellency Count Paul Wolff-Metternich zur Gracht, G.C.V.O., German Ambassador to the Court of St. James's, and the Degree of Doctor of Science, *honoris causâ*, upon Prof. Howard Marsh, Master of Downing College, and professor of human anatomy in the University.

Dr. Donaldson, Master of Magdalene College, has been elected to the office of Vice-Chancellor for the academical year 1912–13.

The Special Board for Biology and Geology has reappointed Dr. Shipley, Master of Christ's College, to be a manager of the Balfour Fund for five years until June 30, 1917.

LONDON.—A special meeting of the Senate was held on May 30 to consider the question of accommodation for the headquarters of the University. A resolution was adopted welcoming the efforts of Lord Haldane and other friends of university education in London to raise funds towards the present and future needs of the University; and it was decided to appoint a special committee of thirteen members, in addition to the Chancellor, Vice-Chancellor, and Chairman of Convocation, "to consider and report on an adequate site for the headquarters of the University and generally on the question of accommodation from the point of view of the University as a whole, with power to communicate with persons and bodies at their discretion." It should be noted that no approval or disapproval has been officially expressed of any particular site.

The University Gazette, dated May 29, reprints the new regulations relating to subsidiary subjects at the B.Sc. honours examinations, the syllabuses in military science which have been adopted for the intermediate and final pass examinations in arts and science for internal students, and the regulations for the Paul Philip Reitlinger prize, which is of the value of 30*l.*, and is to be awarded annually, alternatively for an essay and for medical research work. The annual reports of the Physiological Laboratory and the Brown Institution are also given, together with the agenda paper for the Congress of the Universities of the Empire.

The D.Sc. (economics) degree has been granted to J. F. Unstead, an internal student, for a thesis on wheat cultivation.

The principal, Sir Henry Miers, has been nominated as a member of the Teachers Registration Council.

New regulations have been approved defining the conditions under which the Oxford senior local examination will be accepted as exempting from the matriculation examination. Honours in the first or second class will be required in and after 1913.

OXFORD.—An acceptable gift has just been offered to the University by Mr. Walter Morrison, of Balliol College, in the shape of the sum of 10,000*l.*, to serve as the nucleus of a pension fund for professors. The need for such a fund has long been recognised, and it is hoped that, so good a start having been made, it will not be long before an adequate provision exists for members of the professorial staff who have earned their retirement by long service.

On June 3 the honorary degree of D.Sc. was conferred on Dr. Franz Boas, professor of anthropology in Columbia University, New York, and Mr. A. P. Maudslay, president of the Royal Anthropological Institute of Great Britain and Ireland. Dr. Boas is well known as a scientific explorer in various parts of the Arctic regions and of the North Pacific, and as director of the International School of American Archæology and Ethnology in the city of Mexico. His work on "The Mind of Primitive Man" is of first-rate interest to anthropologists. Mr. Maudslay has earned the gratitude of all students of prehistoric civilisation by his researches, conducted at great personal risk, among the wonderful monuments of primitive culture in Central America, and to him is largely due the success of the arrangements for the entertainment of the Congress of Americanists in this country.

THE Central News New York correspondent reports that by the will of the late Prof. Goldwin Smith a sum of 160,000*l.* is bequeathed to Cornell University.

DR. JANET LANE-CLAYPON, lecturer in hygiene and physiology at Battersea Polytechnic, has been appointed lecturer in hygiene and physiology at King's College for Women (Home Science Department).

A COURSE of three lectures on "The Comparative Anatomy and Functions of the Gas Bladder of Fishes" will be given at University College, Gower Street, W.C., by Dr. W. N. F. Woodland, on Tuesdays, June 11, 18, and 25. The lectures are addressed to advanced students of the University, especially those of zoology, anatomy, and of physiology, and to others interested in the subject dealt with. Admission is free, without ticket.

THE Secretary of State for India has appointed a committee to inquire and report as to the facilities available for Indian students for industrial and technological training in this country, with special reference to the system of State technical scholarships established by the Government of India in 1904. The committee is constituted as follows:—Sir Theodore Morison, K.C.I.E. (chairman), and Sir Krishna Gupta, K.C.S.I., members of the Council of India; Mr. J. H. Reynolds, lately principal of the Municipal School of Technology at Manchester; and Prof. W. E. Dalby, professor of civil and mechanical engineering at the Imperial College of Science and Technology at South Kensington. The secretary to the committee is Mr. P. H. Dumbell, of the India Office.

IN *La Géographie* for April M. P. Glangeaud outlines a scheme of no little interest for the geographical education of the public through the medium of "tables d'orientation" erected on favourite viewpoints. The Touring-Club de France, an organisation the name of which most travellers through France have daily cause to bless, has placed on such points indicators directing the visitor to the names of salient natural features visible from where he stands; thereto bare facts, such as the heights of mountains, are added. These M. Glangeaud proposes to amplify with inscriptions of some twenty lines indicating in a manner readily intelligible the natural forces which have been at work in shaping the landscape. Such

an inscription has already been set up on the Banne d'Ordenche, a viewpoint above the valley of the Dordogne; it explains briefly that the Banne itself is a volcanic neck, and indicates its relation to the volcanic system of the Auvergne generally, most of the members of which are visible from it. The inscription is stated greatly to interest those who ascend the Banne. "Tables d'orientation" are rare in our own country; there is no organisation specially concerned to provide them, but if such as exist were equipped with explanations of the scenery on M. Glangeaud's lines, they would probably become objects of pilgrimage not only for tourists, but for students and school classes.

SOCIETIES AND ACADEMIES.

LONDON.

Royal Society, May 23.—Sir Archibald Geikie, K.C.B., president, in the chair.—H. S. **Hele-Shaw**: Theory of a new form of the chamber crank chain. The paper commences by showing in what way the mechanism is derived from the ordinary type of crank mechanism, its various phases being indicated diagrammatically. One feature of the mechanism, which is of practical importance, is that the crank is fixed, and so a variable stroke can be obtained by very simple means. The new feature of the mechanism, which results in somewhat remarkable properties, is the employment of what is called "a floating guide ring." This device largely reduces the friction of the contrivance when working under high pressures.—Prof. R. A. **Sampson**: A new treatment of optical aberration. A method is developed by which Gauss's method of relating original and emergent rays in a coaxial optical system

$$\left.\begin{aligned} y &= \beta x + b, \\ z &= \gamma x + c, \end{aligned}\right\} \qquad \left.\begin{aligned} y' &= \beta' x' + b', \\ z' &= \gamma' x' + c', \end{aligned}\right\}$$

by means of a transformation,

$$b' = Gb + H\beta, \quad \beta' = Kb + L\beta, \quad c' = Gc + H\gamma,$$
$$\gamma' = Kc + L\gamma,$$

where $GL - HK = \mu/\mu' = N$, may be applied so as to include the aberrations of the third order. The method is adequate for the numerical calculation of telescopic objectives, and offers a remarkable economy in the work hitherto necessary.—Sir W. de W. **Abney**: The extinction of light by an illuminated retina. In this communication the author describes an apparatus adapted for illuminating the retina with known amounts of light, coloured or white, and for extinguishing the sensation of the light in the different colours of the spectrum. Confining himself to the stimulation of the retina by white light only, he shows the movement in the spectrum of the rays requiring the maximum amount of diminution to extinguish their light according as the retina is more or less illuminated.—Dr. W. **Wahl**: Optical determinations at high pressures. *Diagram of state of carbon tetrabromide.*—The melting point of CBr_4 is raised 1° by a pressure of 16 kg. cm.^{2} The transition point from monoclinic to regular crystal form is raised 1° by 32 kg. cm.^{2} The melting-point curve and the transition-point curve do not, therefore, intersect at high pressures to form a "triple point." In consequence, the monoclinic form of carbon tetrabromide cannot be caused to melt at any temperature or pressure whatever. *Diagram of state of α-β-dibrompropionic acid.*—Two modifications of the acid are known, a stable one melting at 64° and an unstable melting at 51°. The unstable modification is not spontaneously transformed into the stable one so readily as in most other cases of "monotropy," and as only very small quantities are employed for these optical determinations, it has been possible to determine the melting-point curve of the unstable modification also. During *isothermal melting* of the unstable modification the pressure may be reduced as much as about 150 kg. cm.^{2} below the true melting-point pressure before melting takes place rapidly. This pressure difference corresponds to a superheating of 2·5°. The melting point of the stable modification is raised 1° by a pressure of 51·3 kg. cm.^{2} The difference between the absolute melting points of the two polymorphic modifications is at any pressure similar to the difference between the absolute melting points at ordinary pressure.—T. R. **Merton**: The changes in certain absorption spectra in different solvents. (1) The absorption spectra of uranous chloride in a number of organic solvents have been measured quantitatively, the results indicating that the differences cannot be considered as a shift of the bands, since the entire character and intensity of the absorption varies in different solvents. (2) The apparent gradual shifts observed when one acid radicle is replaced by another can be simply explained by the superposition of absorption curves, and evidence has been found in support of this explanation. (3) A marked change in the character of the absorption has been found in the presence of free acid, more especially in solvents containing a ketone group. The addition of another solvent to these solutions causes a slow disappearance of the lines without shift, in accordance with the results of Jones and Strong. (4) The influence of pressures up to 750 atmospheres on the absorption spectra of solutions has been investigated with negative results.—W. C. **Ball**: Changes in the absorption spectra of "didymium" salts. The absorption spectra given by aqueous solutions of "didymium" salts, such as the nitrate, chloride, &c., were observed to be considerably altered by sodium hyposulphate, $Na_2S_2O_4$, the lines and bands being altered in position, width, and intensity. These alterations were found to be independent of any reducing action of the very strongly reducing hyposulphite, but to be connected with changes in the ionisation of the didymium; for similar effects on the spectra of the didymium salt of strong acids were produced under conditions likely to diminish such ionisation.—Dr. P. **Phillips**: The viscosity of carbon dioxide. In this experiment the method of determining the viscosity is that described before the society by A. O. Rankine in January, 1910. The viscosity of carbon dioxide is determined for temperatures of 20°, 30°, 32°, 35°, and 40° C., and for a range of pressures from 1 to 120 atmospheres. When the viscosity is plotted against the pressure, the form of the isothermals is very similar to the form of the density-pressure isothermals, but the former cross, whereas the latter do not. When the kinematic viscosity is plotted against the pressure, it is noticed that at the saturation pressure the kinematic viscosity of the gas is the same as that of the liquid. The minimum value of the kinematic viscosity being approximately 0·00069 at 30°, 32°, and at 35° C., this is taken as the critical value of the kinematic viscosity, and therefore multiplying it by the critical density, 0·464, the critical value of the coefficient of viscosity is found to be 0·000320. When the viscosity is plotted against the square of the density it is found that, for a considerable range of density near to the critical point, the viscosity is a linear function of the square of the density. This would seem to show that the viscosity is proportional to the molecular attraction between two adjacent layers of the fluid, that is, to the a/v^2 term in Van der Waals's equation.