UNIVERSITY AND EDUCATIONAL INTELLIGENCE.

CAMBRIDGE.—Mr. N. Cunliffe, of Trinity College, has been appointed to the office of assistant to the superintendent of the museum of zoology for one year as from October 1.

The Board of Agricultural Studies reports that the number of students receiving instruction in the School of Agriculture continues to increase. This term 117 names are on the books, as compared with 106, 100, and 81 in the corresponding terms of the last three years. It is hoped that the new building will be ready for occupation in October, 1913. The rooms lately vacated by the Forestry Department are now used for the advisory work subsidised by the Development Commissioners. In addition to the University farm, possession of How House Farm for the purposes of the Plant Breeding Institute was taken on September 30. The farm belongs to Trinity College, and consists of 146 acres of arable land and 67 of pasture. The soil survey of the eastern counties is in active progress. The analytical work on the soils of Norfolk, Cambridgeshire, Isle of Ely, and Huntingdonshire is completed, and that of Bedfordshire, Suffolk, and Northamptonshire is well in hand.

OXFORD.— On November 19 the decree assigning a plot of land on the south side of the University park for an extension of the chemical department was proposed by the president of Magdalen, opposed by Prof. Oman, and carried in Convocation by 175 to 106. In the same Convocation, a decree assigning a plot at the north-west corner of the park for the erection of an engineering laboratory, also proposed by the president of Magdalen, was supported by Prof. Jenkin, opposed by the rector of Exeter, and rejected by 234 to 81. The vote may be taken, not as showing any ill-will on the part of the University to the subject of engineering, but as the expression of a pretty general opinion that a more suitable site than that suggested could be found for the proposed laboratory.

THE Right Hon. Sir Albert Spicer, Bart., M.P., will distribute the prizes and certificates at the Borough Polytechnic Institute, Borough Road, London, S.E., on Monday, December 2, at 8 p.m.

IT is proposed to establish at the Huddersfield Technical College a library relating to the woollen and worsted industries, to include (1) pamphlets, books, and printed matter of all kinds, and (2) pictures and other illustrations dealing with the rise and growth of the industries, their present position and possible further developments. An appeal is made, therefore, for gifts of books, &c., and for donations of money with which to purchase necessary additions to the library not otherwise obtainable. Any contributions may be sent to the secretary, Technical College, Huddersfield.

IN her lecture on November 15 to the London Child Study Society on Maria Montessori's method and self-education, Madame Pujol-Ségalas urged that from different points of view Froebel and Montessori perceive the same necessity for taking "nature as a guide" in the endeavour to create conditions favourable to the child's development. Attempts, she said, have been made in Europe and America to apply natural and rational methods in practical teaching, but the teachers experience difficulties from a deformation of the child's mind which has previously taken place. Such deformation does not take place in the houses administered under the Montessori system, because the training is as a rule individual instead of being constantly collective, and because it leaves room for the free expansion of the growing life. The aim of the system is to show how it is possible to stop making slaves of our pupils, intellectually and morally. Montessori schools are laboratories of experimental psychology in the truest sense. Practical difficulties in the application of the method vary together with qualities of races, classes, persons, and age. In order to serve the children we must have faith in human nature, and give it an opportunity of rising up to its highest present ideal, so that realising it, it may conceive new ones, higher still, ever progressing, and thus fulfilling its destiny.

AN interesting point made in the preface to the recently published calendar of the University College of North Wales for the session 1912–13 is that to the establishment of the college all classes of the community contributed their aid with remarkable unanimity. Never before, in so short a period, had so many persons, either in England or in Wales, subscribed towards a movement for the promotion of higher education. The subscription list was opened at a meeting held in Chester on January 23, 1883, when seven gentlemen subscribed 1000*l.* each. In twelve months the list had risen to upwards of 30,000*l.*, the total number of subscribers being nearly 8000. A large proportion of this amount was given in small sums, much of it as the result of a house-to-house canvass in the rural parts of North Wales. More than 1250*l.* was contributed by the quarrymen of the Penrhyn and Dinorwic Quarries, who undertook the entire work of collection, appointing collectors for each "gallery" in the quarry and contributing each monthly pay-day a fixed sum out of their earnings. In view of this local enthusiasm for higher education, it is not surprising that there should have been a progressive increase in the number of students year by year. At the beginning of the session 1884–5, the total number of students was fifty-eight, while the session 1911–12 opened with 338 students, three-quarters of whom were from North Wales.

IN the issue of *Science* for October 25 last, Prof. Rudolf Tombo, Junior, of Columbia University, contributes an article on the geographical distribution of the student body of a number of American universities and colleges. Among other matters of interest, Prof. Tombo deals with the number of foreign students at American institutions of higher learning. Thirty-seven American universities and colleges together attracted no fewer than 1782 foreigners during the academic year 1910–11, exclusive of the attendance at summer courses. Of these students from other countries, Canada sent 344, China 330, Japan 197, Mexico 193, Turkey (in Europe and Asia) 84, India 73, British Isles 72, Cuba 62, Germany 48, Russia 48, and Australia 47. When the foreign *clientèle* of twenty-one of the leading American universities is compared with that of the twenty-one German universities, America is seen to be far behind Germany in attracting foreign students to its institutions of higher learning. During the winter session of 1910–11 the German universities were attended by no fewer than 4672 foreign students, as against 1576 foreigners at the American universities mentioned. The German universities draw 4046 students from other European countries, 398 from North and South America, 203 from Asia, 20 from Africa, and 5 from Australasia, while the American universities attract 478 students from North American countries outside of the United States, 112 from South America, 318 from Europe, 587 from Asia, 32 from Africa, and 49 from Australasia; in other words, the American universities lead in every continent with the exception of Europe.

THE Imperial Education Conference, at its meeting last year, recommended that there should be appointed in connection with that conference an advisory committee consisting of the accredited agents in London of the several Governments concerned, together with representatives of the Colonial Office, the India Office, the Board of Education, the Scotch Education Department, and the Irish Office. The functions of the committee as recommended by the conference were to be to keep itself acquainted with the progress of any courses of action that the conference had recommended, to facilitate that progress when necessary by communicating with the Governments concerned, and to consider such proposals as might be submitted for the agenda of any future meetings of the conference. The following representatives have been nominated by the various Governments and departments concerned to serve on the committee:—Mr. L. A. Selby-Bigge, C.B., Board of Education; Dr. H. Frank Heath, C.B., Board of Education; Sir John Struthers, K.C.B., Scotch Education Department; Dr. W. J. M. Starkie, Irish Government; Sir H. W. Just, K.C.M.G., Colonial Office (Dominions Division); Mr. J. F. N. Green, Colonial Office (Crown Colonies); Sir Theodore Morison, K.C.I.E., India Office; the Right Hon. Lord Strathcona and Mount Royal, G.C.M.G., G.C.V.O., Dominion of Canada; the Right Hon. Sir G. H. Reid, P.C., G.C.M.G., Commonwealth of Australia; the Hon. Thomas Mackenzie, Dominion of New Zealand; Mr. T. Slingsby Nightingale, Union of South Africa; Mr. T. A. Coghlan, New South Wales; the Hon. Sir John Taverner, Victoria; Major Sir Thomas Robinson, Queensland; the Hon. A. A. Kirkpatrick, South Australia; Mr. Cyril Jackson, Western Australia; the Hon. Sir John McCall, Tasmania. The Board of Education has placed at the disposal of the committee the ervices of Mr. W. W. Hornell, Assistant Director of Special Inquiries and Reports, to act as honorary secretary.

SOCIETIES AND ACADEMIES.

LONDON.

Royal Society, November 7.—Sir Archibald Geikie, K.C.B., president, in the chair.—Louis V. **King**: The scattering and absorption of light in gaseous media, with applications to the intensity of sky radiation. The analysis of the present investigations seems to support the view that, at levels above Mount Wilson, molecular scattering is sufficient to account completely both for attenuation of solar radiation and for the intensity and quality of sky radiation. Even at sea-level the effect of "atmospheric dust" can be taken into account in a simple manner in formulæ for absorption and scattering.—Dr. P. E. **Shaw**: A standard measuring machine.—E. M. **Stubbs** and Dr. E. B. R. **Prideaux**: A spectro-photometric comparison of the emissivity of solid and liquid gold at high temperatures with that of a full radiator. (1) The emissivity of solid and liquid gold at high temperatures, relative to the emissivity of a full radiator at the same temperatures, has been measured throughout the visible spectrum. (2) A sharp discontinuity in the emissivity takes place at the melting point, the liquid gold emitting more strongly than the solid in the red and yellow, and less in the extreme blue. The shape of the "relative emissivity" curves is quite different in the two cases. (3) The curve of "relative emissivity" of solid gold at high temperatures is similar to that of absorptivity at low temperatures as determined from reflectivity measurements; whether it is identical, in which case the temperature coefficient of the absorptivity would be *nil*, could not be absolutely determined, owing to the change of structure which a polished surface undergoes on heating. (4) No temperature coefficient of "relative emissivity" could be detected for the liquid metal through a range of more than 100°. (5) "Black body" temperatures of solid and liquid gold at the melting point have been calculated. (6) It has been shown that the general equation expressing the radiation of a selective radiator is of the form

$$E_{\lambda'} = f(\lambda, T) c_1 \lambda^{-5} e^{-c_2/\lambda T},$$

which in the case of gold and other metals cannot be reduced to the form of Wien's equation for a full radiator with changed values of the constants.—C. **Smith**: Optical properties of substances at the critical point.—Hon. R. J. **Strutt**: Absorption of helium and other gases under the electric discharge. Attempts to repeat Berthelot's absorption of helium by carbon disulphide under the influence of the silent discharge have given absolutely negative results. Helium is slightly absorbed by phosphorus under electric discharge, though in much less quantity than nitrogen or hydrogen. The absorption in the former case is regarded as mechanical, in the latter as chemical.—F. W. **Aston**: The discharge between concentric cylinders in gases at low pressures. (1) The relations between pressure, voltage, and the length of the Crookes dark space in the discharge between concentric cylinders take much the same form as those in the discharge between parallel planes. (2) Curvature of the surface of the kathode appears to have no influence upon the rate of alteration of the length of the dark space with change of current density, *so long as the latter is measured at the surface of the kathode.* (3) *Ceteris paribus,* the length of the dark space is greater for a convex cylindrical surface than a plane, and for a plane than a concave one.—F. W. **Aston**: The influence of the nature of the kathode on the length of the Crookes dark space. (1) The relations between the values of pressure, voltage, current, and the length of the dark space are determined for plane kathodes of many different materials, and found to satisfy the same form of equations as those previously given for aluminium, the constants varying considerably. (2) Roughness of the kathode surface does not appear to affect the discharge, if the dimensions of the irregularities are small compared with the length of the dark space. (3) The length of the dark space is shown, in the cases examined, to be greatest for silver and least for magnesium, the metals following the same order as in the case of the kathode fall. (4) The rate of change of length of the dark space with change of current density at the surface of the kathode seems much the same for all kathodes. (5) Difficulties in the way of arriving at a satisfactory explanation of these and other data connected with the dark space are indicated and shortly discussed.—A. **Campbell**: The determination of the absolute unit of resistance by alternating-current methods.—A. **Mallock**: Some unclassified properties of solids and liquids. This paper suggests that many qualities of solids and liquids, which, although well known and commonly recognised, are not classified (qualities, for instance, such as ductility and malleability), may be explained by reference to the relations of the limits of the principal elasticities of the substances. A real homogeneous isotropic substance, whether solid or liquid, offers two distinct kinds of resistance to deformation, viz., resistance to alteration of volume and resistance to shear. There are also two distinct and different limits to each of these kinds of deformation—limits which cannot be exceeded without causing rupture or permanent alteration of the substance. When a strain involves both shear and alteration of volume, the behaviour and properties of the strained material depend to a great extent on whether the limit of shear or the limit of