

### UNIVERSITY AND EDUCATIONAL INTELLIGENCE.

THE Goldsmiths' College, New Cross, the gift of the Goldsmiths' Company to the University of London, will be opened to-morrow, September 29, by the Earl of Rosebery, K.G., K.T., F.R.S.

ON October 5 Prof. J. W. Judd, C.B., F.R.S., will distribute the medals, prizes, &c., gained by the students of the Royal College of Science. The distribution will take place in the lecture theatre of the Victoria and Albert Museum, South Kensington, at 4 p.m.

THE University of Wisconsin has established a course in chemical engineering. Besides the regular professional instruction, arrangements have been made for occasional lectures by prominent engineers. The course, which covers four years, includes gas engineering and electrolytic work, as well as other branches of chemical practice.

CONSEQUENT upon the closing of Coopers Hill College, it has been decided that probationers for the Indian Forest Department will take their theoretical course at Oxford. The writer of an article in the *Indian Forester* (July) on the future training of the upper staff of the Indian Forest Department recognises several advantages in the change. But while approval is expressed with the nature of the theoretical course and the experience that will be gained at Oxford, it is pointed out that a practical course in India, as, for instance, at Dehra Dun, would afford greater scope and provide more useful training for the work that is required of Indian forest officers than sending candidates to study forestry practice on the Continent.

THE French and Prussian Governments have recently established a system under which a number of young masters in English secondary schools may be attached for a year to certain secondary schools in their respective countries. The authorities of the foreign Ministries of Public Instruction are most anxious to extend the scheme and to find similar opportunities in suitable English secondary schools for young graduates who will afterwards be employed in their State schools. In the opinion of the Board of Education, the proposal has much to recommend it, and, provided that proper care be exercised in the selection of the candidates and in the arrangements made for their work, it is thought that the presence of such teachers on the staff of a school would add materially to the effectiveness of the modern language teaching. Headmasters who are willing to cooperate and to employ such assistants are requested to communicate with the Director of Special Inquiries and Reports, Board of Education Library, St. Stephen's House, Cannon Row, Westminster, S.W.

THE following free public introductory lectures will be delivered at University College, London, during October. Sir William Ramsay, K.C.B., F.R.S., will lecture on some advances in chemistry; Prof. L. M. Brandin on 'la critique littéraire au XIX<sup>e</sup> siècle'; Prof. L. W. Lyde on the teaching of geography to children; Prof. H. S. Foxwell on some aspects of competition in modern business; Prof. F. Mackarness on the origins of Roman Dutch law and its introduction into the British Empire; Prof. E. A. Gardner on architectural sculptures; and Sir John Macdonell on some present directions in legislation. In the department of chemistry of the college several courses of work have been arranged for the ensuing session, viz. Sir William Ramsay, K.C.B., F.R.S., will lecture on the inactive gases of the atmosphere, and on the physics and chemistry of colours; Mr. E. C. Baly will give a course of lectures on spectroscopy and spectrum photography; Mr. J. H. K. Inglis one on recent advances in inorganic chemistry; and Mr. N. T. M. Willsmore one on electro-chemistry. A laboratory course in experimental psychology, consisting of lectures and practical demonstrations, will be given by Mr. W. McDougall, and a course of about thirty lectures on advanced psychology will be delivered by Prof. G. Daves Hicks. Six lectures, open to the public without payment or ticket, will be given during November by Mr. G. U. Yule on the vital statistics of England and Wales.

THE Marquis of Linlithgow, Secretary for Scotland and vice-president of the Committee of Council on Education in Scotland, is to open the Dunfermline College of Hygiene and Physical Training on Wednesday next, October 4. A correspondent writing to the *Times* says that the establishment of a college of hygiene may be described as an afterthought on the part of the Carnegie trust. When the palatial gymnasium and baths, given to his native city by Mr. Carnegie at a cost of about 40,000*l.*, was approaching completion, it attracted the notice of the highest educational authorities in Scotland, who recognised the fitness of the building, with its splendid equipments, to supply what they considered a serious defect in the national provision for education, viz. the instruction of teachers in physical training. After careful consideration the Carnegie trustees, who have charge of the building, agreed to entertain the appeal of the experts to link the local benefaction, of which they are the administrators, with a national service which, while bringing additional distinction to the city, would ensure greater efficiency in the physical training supplied to the local schools. The lady superintendent of athletic instruction has been transformed into the principal of the physical training college, a residence for women students has been acquired, a medical officer has been appointed to devote his whole time to the work of the college, and a course of study has been marked out to extend over two years and to include hygiene, anatomy, physiology, educational and remedial gymnastics on the Swedish system, games, swimming, dancing, &c.

SIR DONALD CURRIE's letter to the president of Queen's College, Belfast, offering a sum of money under certain conditions for the better equipment of the college was submitted at a private meeting of the executive committee of the college fund on September 22. It was unanimously resolved to convey to Sir Donald Currie the thanks of the committee for his proposal. It was also resolved that in view of the munificent offer of Sir Donald Currie, the committee earnestly appeal to all old students of the college and all who are interested in the promotion of education in Belfast and Ulster to assist in raising the required sum of 20,000*l.* before Christmas. The Rev. Dr. Hamilton, president of Queen's College, writing to the Belfast papers on September 23 in reference to Sir Donald Currie's offer of 20,000*l.*, says that for some time Queen's College has been engaged in a strenuous effort to better its equipments, so as to bring them into line with the scientific and educational advances of our time and with its own growth and development in recent years. This enterprise was inaugurated four years ago, and, notwithstanding adverse circumstances, quickly attained a gratifying success. A sum of more than 30,000*l.* has been raised, by means of which most important additions have been made to the working power of the college. One laboratory has been built and equipped, and the foundation of a second will, it is hoped, be laid before many weeks have passed. If the college succeeds in satisfying the reasonable conditions which Sir Donald Currie lays down, the fund will be increased to 70,000*l.*, and the college will be placed in a financial position such as it never before occupied.

AMONG the calendars and educational directories published during the past few days we notice those of the Northampton Institute at Clerkenwell, the Armstrong College at Newcastle-upon-Tyne, and the Plymouth Education Authority. At the Northampton Institute the following classes are worthy of mention, viz. the day and evening courses in mechanical and electrical engineering, in technical optics, and in horology. In addition to these there are evening courses in technical chemistry and in domestic economy. The Armstrong College was formerly known as the Durham College of Science. The college forms an important part of the University of the North of England, and the degrees of Durham in science and in letters, and its diplomas in engineering, are open to students of this Newcastle institution. It may be noticed that, in addition to the biological laboratories at the college, a marine biological laboratory has been opened at Cullercoats, and by the generosity of the Northumberland Sea Fisheries Committee is available for students. The agricultural department has been entrusted with the

scientific direction of the farm acquired for the purpose of experiment and demonstration by the Northumberland County Council. The new calendar contains full information of all the courses of work arranged for the coming session. The Plymouth directory contains an excellent diagram showing in a graphic manner the arrangements made by the local education authority to coordinate the work in all Plymouth schools. The classes at the school of science and technology make it possible for any workman anxious to acquaint himself with the scientific principles of his calling to do so easily.

IN order to facilitate the adoption by secondary schools of systematic courses in geography, the Board of Education has issued a circular indicating in outline the points to which the attention of inspectors will be directed when inspecting classes in this subject. Each school desiring the approval of the Board for its course in geography should be prepared to submit a course providing, first, an outline scheme dealing with the great land and water areas in such a way that on completing the course the pupils shall have gone through the geography of the world; and, secondly, a suitably graded series of exercises connected with the subjects included in the course. The Board lays it down that the aim of the teaching should be to produce a vivid impression of connected facts through considerations, such as those of cause and effect, and the practical bearings of the facts selected. Referring to the exercises, the circular states that these may consist of (a) questions and answers designed to elicit, through causes and consequences, subject-matter for entry in the pupils' note-books; (b) notes and diagrams which should include worked-out problems together with original maps and plans; (c) mapping; and (d) field work, excursions, factory visits, &c. Suggestions for a four-year course in geography, together with an outline plan for preliminary instruction, are also given. The work suggested for the preliminary instruction as suitable for children from eight to twelve, and the statement of what these pupils should be expected to know before entering upon the four-years' course, presume a standard of attainment which the Board can scarcely expect to be realised at present. The knowledge of physiography, for instance, to be expected of these young people would be a credit to students several years older. As so few teachers of geography understand what is meant by the scientific study of their subject, it would have been an advantage if the instructions as to the practical work to be done could have been made more explicit. The circular refers to "worked-out problems," but it might with advantage have included a few typical examples of the problems required. The real difficulty will be to find teachers capable of acting in the spirit of the suggestions made by the Board; but it is something for them to have a method indicated which not only is sound in principle, but is being put into practice here and there. The circular is a decided step in advance, and brings nearer the time when scientific instruction in geography will be general in schools of all grades.

#### SOCIETIES AND ACADEMIES.

LONDON.

**Royal Society, June 8.**—"The Pharmacology of Indaconitine and Bikhaconitine." By Dr. J. Theodore **Cash**, F.R.S., and Prof. Wyndham R. **Dunstan**, F.R.S.

The present paper deals with the physiological action of two new "aconitines," which have been isolated at the Imperial Institute from two varieties of Indian aconite. One is an alkaloid, which has been named indaconitine. It was found in the roots of the Indian aconite, called by Bruhl *Aconitum napellus*, var. *hians*, since identified by Stapf as a new species which has received the name of *Aconitum chasmanthum*. The other alkaloid has been named "bikhaconitine," being derived from one of the highly poisonous forms of aconite known in India under the vernacular name of "Bikh." This aconite was named by Bruhl *Aconitum ferox*, var. *spicatum*, but has been re-named *Aconitum spicatum* by Stapf, who regards it as a distinct species.

Results of experiments with these two substances are summarised as follows:—

The two aconitines, indaconitine and bikhaconitine, agree in their qualitative effects with the other alkaloids of this series, aconitine, japaconitine, and pseudoaconitine, which have been dealt with in our previous papers.

The toxicity of indaconitine is less than that of bikhaconitine towards warm-blooded animals; in this respect the former stands very near to the aconitine of *A. napellus*, whilst the latter, being somewhat stronger than japaconitine, is to be referred to a position between this alkaloid and pseudoaconitine from forms of *A. ferox*, which is much the most active of the series.

The depression of the respiratory function by indaconitine is less than that produced by bikhaconitine, and to this the greater toxicity of the latter is referable. Repeated doses of alkaloids administered at regular intervals and in similar fractional proportions of the lethal dose are followed by a more marked toxic effect when bikhaconitine is administered rather than indaconitine. Towards frogs the toxicity of the two alkaloids under discussion is practically equal; bikhaconitine is more active than indaconitine in reducing the respiratory activity. On the other hand, it is somewhat less active in abolishing the excitability of muscular and intramuscular motor nervous tissue (immersion experiments), and in reducing the ability of the muscle-nerve preparation poisoned *in situ* for the performance of work sufficient to cause fatigue. The local effect of the two aconitines when applied to the skin by inunction is equal and similar to that of the aconitines already considered.

Indaconitine and bikhaconitine may therefore be substituted for aconitine and pseudoaconitine for internal use, indaconitine being administrable in the same dose as aconitine (from *A. napellus*) and bikhaconitine in proportion of 0.75 of the unit dose of the former, whilst for local application they may be used as constituents of ointments in similar proportions to aconitine.

#### *Pseudoaconine from Pseudoaconitine and Bikhaconitine.*

The action of these is, towards frogs, identical. Their toxicity appears to be practically equal and their effect generally similar to that of aconine (from aconitine). Their action is in the main curari-like in character.

"On the Physiological Activity of Substances Indirectly Related to Adrenalin." By H. D. **Dakin**. Communicated by Prof. E. H. Starling, F.R.S.

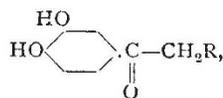
The following deductions are made provisionally, until further experimental evidence is available:—

(1) It appears that the catechol nucleus is essential for the production of physiologically active substances of the type of adrenalin.

(2) It is of importance that the hydrogen atoms of both hydroxyl groups in the catechol nucleus be unsubstituted.

(3) An alkyl group of low molecular weight (e.g. methyl, ethyl) attached to the nitrogen tends to produce a much more active substance than when an aromatic group is attached, whilst derivatives of piperidine, heptylamine, and benzylamine occupy an intermediate position.

(4) The reduction of ketonic bases of the type



where R is a simple aliphatic group, results in the production of bases with enormously increased physiological activity.

(5) In the substances examined there appears to be a connection between chemical instability and physiological activity, and *vice versa*.

July 8.—"An Experimental Inquiry into the Nature of the Substance in Serum which influences Phagocytosis." By Dr. George **Dean**. Communicated by Prof. J. Rose Bradford, F.R.S.

The author's conclusions are as follows:—

(1) As has been shown by a number of workers, e.g. Denys, Metchnikoff, Savtschenko, Levaditi and others, there is produced in the blood serum of animals actively immunised by bacterial injections a specific immune substance which has among its properties that of preparing the microbe for phagocytosis.