

President, and, if he is Lord President of the Council, a Vice-President, of the Board.

II.—(1) The Board of Education shall take the place of the Education Department (including the Department of Science and Art), and all enactments and documents shall be construed accordingly; and as from the establishment of the Board of Education the Education Department Act, 1856, shall be repealed.

(2) There shall be exercised by the Board of Education the powers conferred on the Charity Commissioners by any scheme made in pursuance of the Endowed Schools Acts, 1869 to 1889, except that—

- (a) any power with respect to a question as to the construction of a scheme or other document shall be exercised by the Charity Commissioners; and
- (b) any power with respect to the control or management of property forming the capital of any endowment, shall be exercised by the Charity Commissioners with the concurrence of the Board of Education;

and for this purpose the powers exercisable by the Charity Commissioners under the enactments mentioned in the schedule may also be exercised by the Board of Education.

(3) The Charity Commissioners shall, in framing schemes in pursuance of the Endowed Schools Acts, 1869 to 1889, act in consultation with the Board of Education, and shall frame a scheme under those Acts if so requested by the Board.

(4) In addition to any powers exercisable under this section or otherwise, the Board of Education may, by their officers, visit, inspect, and examine any school, and give certificates in respect of the teaching therein, whether the school is subject to the Charitable Trusts Acts or the Endowed Schools Acts, or not. Provided that, in the case of a school not so subject, the power conferred by this sub-section shall be exercised only with the consent of the governing body of the school.

III.—It shall be lawful for Her Majesty in Council from time to time, by order, to appoint a consultative committee for the purpose of advising the Board of Education on any matter referred to the committee by the Board.

IV.—The Board of Education may appoint such officers and servants as the Board may, with the sanction of the Treasury, determine, and there shall be paid, out of moneys provided by Parliament, to any member of the Board not holding another salaried office, and to the officers and servants of the Board, such salaries or remuneration as the Treasury may determine.

V.—(1) The Board of Education may sue and be sued and may for all purposes be described by that name.

(2) The Board shall have an official seal, which shall be officially and judicially noticed, and that seal shall be authenticated by the signature of the President or some member of the Board, or of a secretary, or of some person authorised by the President or some member of the Board to act on behalf of a secretary.

(3) Every document purporting to be an instrument issued by the Board of Education, and to be sealed with the seal of the Board, authenticated in manner provided by this Act, or to be signed by a secretary or any person authorised by the President or some member of the Board to act on behalf of a secretary, shall be received in evidence and be deemed to be such an instrument without further proof, unless the contrary is shown.

(4) A certificate signed by the President or any member of the Board of Education that any instrument purporting to be made or issued by the President or some member of the Board is so made or issued shall be conclusive evidence of the fact.

VI. The President or Vice-President of the Board of Education shall be capable of being elected to, and of voting in, the Commons House of Parliament, and the offices of President and Vice-President of the Board of Education shall be deemed to be offices included in Schedule H. of the Representation of the People Act, 1867; in Schedule H. of the Representation of the People (Scotland) Act, 1868; in Schedule E. of the Representation of the People (Ireland) Act, 1868; and in Part I. of the Schedule of the Promissory Oaths Act, 1868.

VII.—(1) This Act shall not extend to Scotland or Ireland.

(2) This Act may be cited as the Board of Education Act, 1898.

UNIVERSITY AND EDUCATIONAL INTELLIGENCE.

DR. D. K. MORRIS has been appointed lecturer on technical electricity in the Mason University College, Birmingham.

MR. J. J. FINDLAY, Principal of the Training Department of the College of Preceptors, has been appointed head master of the Cardiff Intermediate School.

THE following appointments to posts in University College, Sheffield, have recently been made:—Lecturer in physiology: Mr. C. F. Myers-Ward, of the Owens College, Manchester. Assistant lecturer in mathematics: Mr. G. St. L. Carson, late Fellow of Trinity College, Cambridge. Assistant lecturer and demonstrator of physics: Mr. Albert Griffiths, of the Owens College, Manchester.

"UNIVERSITY reform," on which so much public attention is now concentrated in this country, would appear to be a no less burning question in Italy, to judge from the opinions expressed by Prof. C. Ferrini in the *Rendiconti del R. Istituto Lombardo*, xxxi. 11-12. The principal evil of the Italian University system at the present time would appear to be the large and ever-increasing body of ill-prepared students swarming into university classes, many of whom possess little or no aptitude for study. This results in a lowering of the standard of teaching, the effects of which are already making themselves shown, and the supply of graduates seeking employment in the learned professions is largely in excess of the demand. Prof. Ferrini considers the most feasible remedy to be a raising of the fees charged for admission to university courses. Any funds arising from this increase might, of course, be devoted to the furtherance of advanced work, but the main object in view would be to exclude idle and incompetent students from the class rooms, and to stimulate those who entered on the curriculum to make better use of their opportunities, with, moreover, better prospects of obtaining employment afterwards in a less overcrowded market. Having had nearly equal experience of German and Italian universities, Prof. Ferrini considers that the introduction of the German system into Italy could only lead to pernicious results, the principal reason being the great difference in the preparation provided in the two countries for lads before they enter college.

THE London Technical Education Board have arranged for the Session 1898-99 a number of evening science classes, and Saturday morning classes for teachers, in conjunction with University College, King's College, and Bedford College. At University College, Profs. Hudson Beare, Fleming, and Ramsay will between them deliver a course of twelve lectures upon the principles of chemical technology. The lectures will deal with the generation of power and its cost, the generation of electric currents and their application in electro-chemical processes, and the chemistry of the various processes now adopted. Prof. Fleming will also give a course of lectures upon electrical measurements, and Prof. Hudson Beare a course on mechanical engineering. At King's College, evening courses of lectures will be delivered by Prof. Robinson on civil engineering, Prof. Banister Fletcher on architecture, and Prof. Grylls Adams on physics. These courses of instruction will afford an opportunity to students who can study only in the evenings to obtain instruction in well-equipped University laboratories, and will make available to evening students the same advantages as are enjoyed by University day students, but they are only intended for those who are practically engaged during the day in some trade, business, or occupation.

Saturday morning classes have been arranged by the London Technical Education Board for teachers. At King's College, a course of about ten lectures will be given by Prof. Hudson, on the teaching of elementary mathematics. The object of these lectures is to help those who are practically engaged in teaching, and wish to become acquainted with modern methods and improvements in order to render their teaching more effective. A course of about fifteen lectures on heat engines and general laboratory work will be delivered by Prof. Capper. The object of the course is to acquaint teachers with modern methods of teaching the subject, and to illustrate the use and preparation of laboratory apparatus for demonstration. At University College, a course of ten lectures will be given by Prof. Fleming, on magnets and electric currents. The object of the course is to give instruction in modern methods of science teaching. It will consist in the delivery by the professor

of a model lecture to exhibit methods of dealing with the subject, adapted for science teachers and teachers in Board schools who, having some knowledge of the subject, desire to receive instruction in the scientific construction and use of experimental apparatus and the improvements of methods of teaching. A course of ten lectures with demonstrations on advanced graphical statics as applied to girders and arches will be delivered by Prof. Karl Pearson. A course of twenty lectures on physiology will be delivered by Prof. Halliburton. Some of the meetings of the class will be devoted to the performance by the students themselves of the fundamental experiments in connection with the microscope and the methods of chemically testing substances of physiological importance, such as foods, the air, &c. A course of ten lectures on elementary physical measurements, each lecture followed by a class for practical work, will be given by Miss Edith Aitken at Bedford College. The Technical Education Board is doing very valuable work by thus assisting to extend the knowledge of the principles of rational science teaching.

SCIENTIFIC SERIAL.

Bollettino della Società Sismologica Italiana, vol. iv. No. 1. —The new volume begins with the rules of the Society and a list of the Fellows, there being forty-four Italian and nine foreign members. —Dr. Papavasiliou continues his list of earthquakes observed in Greece in 1897; during the last half of the year sixty-four shocks were recorded, fifty-two of which were felt in Zante. —Vesuvian notes for the year 1897, by G. Mercalli. —The Indian earthquake of June 12, 1897, by G. Agamennone; a summary of several preliminary notices in NATURE and elsewhere. —Notices of earthquakes observed in Italy (July 1-27, 1897), by G. Agamennone, the most important being the Garganic earthquakes of July 3 and 24, earthquakes in Alessandria on July 6, Carniola on July 15, and Pisa on July 27, and distant earthquakes on July 22 and 27.

SOCIETIES AND ACADEMIES.

PARIS.

Academy of Sciences, August 1. —M. Wolf in the chair. —Further researches on the metal-backed glass mirrors of antiquity, by M. Berthelot. The three mirrors described were originally discovered in Thrace and Egypt. The metal backing consists of almost pure lead, which, in the molten state, appears to have been poured on the concave surface of discs cut from balloons of blown glass. —On the theory of the abacus of alignment, by M. Ernest Duporcq. —On the theory of reed-pipes, by M. A. Aignan. Remarks and experiments on the production of sound in pipes with free and beating reeds. —Action of pure hydrogen phosphide upon cupric sulphate, by M. E. Rubénovitch. The results obtained by previous experimenters seem to show that the product of the action of hydrogen phosphide upon salts of copper is of variable composition. The author, however, by working with pure hydrogen phosphide obtained by the dissociation of phosphonium chloride, and by taking precautions to exclude air or oxygen from the apparatus employed, finds that a well-defined copper phosphide of the formula $P_2Cu_5H_2O$ is produced. This is a black substance, which, on heating to $150^\circ C.$, loses all its water and becomes of a reddish brown colour. It oxidises slowly in the air, and dissolves in sulphuric acid with liberation of hydrogen phosphide, whilst excess of oxygen during its preparation gives rise to rapid decomposition with formation of metallic copper and phosphoric acid. —Action of bromine upon normal propyl bromide in presence of anhydrous aluminium bromide, by M. A. Mouneyrat. It has been shown, in a preceding note, that by treating ethyl bromide with bromine in presence of aluminium bromide, the hydrogen atoms may be successively replaced by bromine, the final product being hexabromethane, C_2Br_6 . The present paper describes a series of similar experiments with normal propyl bromide, the highest brominated derivative yet obtained being pentabromopropane, $CHBr_2-CHBr-CHBr_2$. In the reactions involved the aluminium bromide abstracts the elements of hydrobromic acid from the alkyl bromide and the ethylenic derivative, thus temporarily formed, immediately takes up two atoms of

bromine. —On the hydrolysis of ethane-dipyrocatechin, by M. Ch. Moureu. The author has previously shown that ethane-dipyrocatechin yields, on hydrolysis with dilute sulphuric acid, pyrocatechin and a compound of the formula $C_8H_8O_4$. This latter, it is now proved, is identical with the orthohydroxy-phenoxyacetic acid obtained by the interaction of monochloroacetic acid and the monosodium derivative of pyrocatechin. The mechanism of this singular reaction is discussed. —On a new *Trichophyton* productive of herpes in the horse, by MM. Matruchot and Dassonville. An epidemic of herpes among the horses of an artillery regiment was found to be due to a fungus which the authors succeeded in isolating, and the pathogenic nature of which was verified by inoculation experiments on guinea-pigs and on man. The organism is a *Trichophyton* related to, but not identical with, the species described by Sabourand and Bodin as producing herpetic affections. —Physiological function of iron in the vegetable organism, by M. Jules Stoklasa. It has long been recognised that iron is necessary for vegetable life, and microscopic observations have led to the supposition that the metal exists in organic combination in the nucleus of the cell. It is not present in chlorophyll. The author has extracted from onions and from peas a substance, containing 1.68 per cent. of iron, which closely resembles, in composition and properties, the hermatogen obtained by Bunge from yolk of egg. This compound is also contained in non-chlorophyllaceous plants, as was proved by its being obtained from moulds (*Mucor mucedo*) and fungi (*Boletus edulis*). —Fructifications of *Macrostachya*, by M. B. Renault. —On pietine, or stalk disease, in wheat, by M. Louis Mangin. This disease has been attributed by MM. Prillieux and Delacroix to the action of *Ophiobolus graminis*, but inoculation experiments carried out by the author tend to prove that the injurious effects are, for the most part, caused by *Leptosperia herpotrichoides*, although the two parasites are frequently associated.

NEW SOUTH WALES.

Linnean Society, June 29. —Prof. J. T. Wilson, President, in the chair. —Observations on the vegetation of Lord Howe Island, by J. H. Maiden. The author visited Lord Howe Island in H.M.C.S. *Thetis* in March and April last, spending nine days on the island. Hemsley's Flora of the island (*Annals of Botany*, x. p. 221, June 1896) records 206 plants and three introduced ones, total 209. The author has added 16 species and one named variety to the indigenous flora, and 17 species of introduced plants, while he has removed five species of supposed indigenous plants from Hemsley's list. So that, according to the present paper, the flora of Lord Howe Island stands at present at 217 indigenous species (being a net addition of 11), and 10 introduced ones. —Notes on *Sterculia* (*Brachyhiton*) *lurida* and *S. discolor*, by J. H. Maiden and E. Betche. The authors give reasons for believing that *Sterculia lurida* is but the young state of *S. discolor*, and cannot even rank as a distinct variety, much less as a species. —On two well-known, but hitherto undescribed, species of *Eucalyptus*, by R. T. Baker. The author shows that under *Eucalyptus Stuartiana*, F.v.M., no less than three species and one variety are included. —Descriptions of some apparently common Australian Nematodes found at Sydney or in Port Jackson, by Dr. N. A. Cobb. Nineteen species and one variety, referable to eleven genera, are described as new. With two exceptions they are marine forms.

AMSTERDAM.

Royal Academy of Sciences, June 25. —Prof. van de Sande Bakhuyzen in the chair. —Prof. H. Behrens and Mr. H. Baucke on Babbitts' antifriction metal. By slow cooling this alloy (82Sn, 9Sb, 9Cn) is really split up into compounds of different fusibility. The separation and chemical examination of these compounds have been carried out by Mr. H. Baucke, analytical chemist, of Amsterdam. By pressure between hot iron plates a metallic mother liquid was squeezed out; the remaining cakes of crystalline metal were treated with hydrochloric acid and washed with water. An alloy, containing 90Sn, 10Sb, on being thus treated, yielded the same cubic crystals as Babbitts' metal, which were found to answer to the formula $SbSn_2$ (found 33.7 Sb, calculated 33.8 Sb). With 42Sb prismatic crystal of the compounds $SbSn$ were obtained (found 50.35 Sb, calculated 50.37 Sb). In Babbitts' metal the copper forms brittle needles of whitish bronze containing no antimony. Such bronzes show less stability than the