

all, in order to discover the actual member of the series present. Moreover, there are certain features of Prof. von Fedorow's own peculiar version of the theory of crystal structure, such as his idea about pseudo-cubic and pseudo-hexagonal types, and his dealing in consequence with many substances as being deformations of a higher symmetry than they actually show, which to the lecturer appear unnecessary complications likely to discourage the use of the new method. But these defects can, and doubtless will, be eliminated as the method becomes practically applied. That crystallochemical analysis will ever entirely replace qualitative chemical analysis, however, is neither to be expected nor desired, even if alone on the ground of the admirable training and experience in chemical operations and principles which chemical analysis affords.

In conclusion, it must be obvious that a great advance has really now been made in crystallography. For the geometrical conception of crystals as homogeneous structures, based on the fourteen space-lattices as the grosser structures and the 230 point-systems as the ultimate atomic structures, has been not only theoretically perfected, but proved by direct experiment to represent the actual fact, by the epoch-making work of Laue, Friedrich, and Knipping. The descriptions and chemical relationships of all the ten thousand measured substances have been brought together in the great book of Prof. von Groth, and the material further sifted, reduced to correct setting, and arranged according to symmetry and elements by Prof. von Fedorow, in a tabular form immediately available as a reference index for identification purposes, thus providing the material for a true crystallochemical analysis. The science of crystallography is thus now placed on a secure foundation, supported equally by mathematics, geometry, and experiment, and its natural data are rendered available for chemists and physicists alike.

UNIVERSITY AND EDUCATIONAL INTELLIGENCE.

OXFORD.—Mr. C. W. DYSON Perrins, a former member of Queen's College, has offered to give the sum of 5000*l.* towards the erection of the proposed new chemical laboratory, if such sum is required after the expenditure of the 15,000*l.* granted for the purpose by the trustees of the Oxford University Endowment Fund.

THE honorary degree of LL.D. was conferred on Mr. W. Botting Hemsley, F.R.S., on July 8 by the University of Aberdeen.

DR. W. C. McCULLAGH LEWIS has been appointed to the chair of physical chemistry in the University of Liverpool, in succession to Prof. F. G. Donnan, F.R.S.

THE following honorary degrees were conferred by Queen's University, Belfast, on July 9:—D.Sc.: Prof. Norman Collie, F.R.S.; Sir Joseph Larmor, M.P., F.R.S.; Sir Arthur Rücker, F.R.S. LL.D.: Sir Donald MacAlister.

AMONG the bequests of the late Lord Avebury is one of 1000*l.* to the University of London to found a prize in mathematics or astronomy in memory of his father, Sir John William Lubbock, first Vice-Chancellor of the University.

DR. J. RITCHIE, superintendent of the laboratory of the Royal College of Physicians, Edinburgh, has been appointed to the new chair of bacteriology instituted

in the University of Edinburgh, under the bequest of Mr. Robert Irvine, Royston, Granton.

AMONG recent appointments at University College, London, are:—Dr. Marie Stopes, lecturer in palæobotany for three years; Miss Winifred Smith, lecturer in taxonomy for three years; Dr. Paul Haas, demonstrator in organic and applied chemistry and in chemical physiology, and Mr. H. Terrey, demonstrator in chemistry to medical students; Mr. N. F. Kelsey, demonstrator in mechanical engineering, and Mr. D. W. Fletcher in graphics.

THE following official announcement referring to the Education Bill has been issued on behalf of the Government:—"The measure which will shortly be introduced by Mr. Pease in the House of Commons, although it is technically described as an Education Bill, is in reality only a one-clause measure designed to enable the Government to afford a limited amount of immediate relief to education authorities. It will, when introduced next week, form a not inappropriate peg upon which to hang a statement of the Government's policy in the development of a national system of education."

AT the annual graduation ceremony at St. Andrews University on July 10 honorary degrees of LL.D. were conferred on Lieut.-Col. Sir C. H. Bedford and Dr. G. A. Boulenger, F.R.S., among others. In addressing the graduates the principal, Sir James Donaldson, said that both France and Germany have come gradually to form an exact notion in regard to university work. Their idea is that after the culture obtained in the secondary schools the students who are to proceed to degrees should spend three years at the university and should devote themselves to the original study of certain subjects in which they find their interest. There must be entire freedom for the student to form his own plans and studies and entire freedom for the professor to search for the truth for its own sake in disregard to consequences. The Germans have kept to that idea since 1815, and the French have now come to the same conclusions. We are in many respects far behind this ideal, and we cannot expect to be a match for those nations in the great conflicts of the world, but it is the duty of young and old to look into the question, particularly at this time, and see if we cannot do something to put ourselves on an equality with Germany and France.

THE recommendations made in the second report of the Advisory Committee on the distribution of Exchequer grants to universities and university colleges, which was issued last February, having been approved by the Board of Education, the Committee proceeded with a further consideration, in conjunction with the universities and colleges, of the federated superannuation scheme adumbrated in the second report. In its third report the committee outlines a federated scheme of superannuation for professors and other members of the staffs of colleges. Two problems were debated; first, the selection of a limited number of insurance companies to undertake the contracts involved by the superannuation system; and secondly, the drafting of a suitable form of legal agreement between the institution and the members of the staff which when adopted by colleges concerned would give practical effect to the principles set out in the second report. The form of agreement indicates, by means of alternative readings, the various forms which will be necessary to meet different cases. In practice institutions will probably find it convenient to have separate forms of agreement to meet different types of cases. The superannuation scheme itself expresses in legal terminology the principles outlined in the second report, and in order to

secure interchangeability it seems essential, the third report points out, that this part of the legal document should be adopted without amendment by every institution cooperating in the system. A pamphlet has been prepared setting out the main features of the options available and the precise terms offered by the selected insurance companies; it also embodies the detailed arrangements with the companies, and copies will be furnished on request by the companies concerned.

FROM time to time attention has been directed in these columns to the recent successful endeavours to develop the University of Hong Kong. The prospectus for the session 1913-14, and a pamphlet providing details concerning the faculty of engineering, have reached us, and an examination of the arrangements made shows that there is likely to be much useful work done in the next few years in the spread of higher scientific education in China. A resolution adopted by the Court of the University says: "It is resolved that the objects of the University are (*inter alia*) to afford a higher education, more especially in subjects of practical utility, such as applied science, medicine, &c. Similarly, in a dispatch from the Viceroy of Canton, we read "the teaching of applied science, including civil, mechanical, and electrical engineering and surveying, meets the present and most urgent need of our country." The University possesses spacious laboratories for experimental work and is assured already of excellent equipment. In the first year of the University fifty-three students applied for admission in the faculties of engineering, medicine, and arts, and of that number thirty-eight elected to take instruction in engineering. When the University commenced instruction in engineering science it was stated definitely that no student would receive a degree unless he attained the same standard as that required by the London University. To that policy the faculty of engineering is committed, and the regulations have been framed with that object in view.

THE eighth report has been published (Cd. 6871) of the Rural Education Conference, which was constituted by minutes of the Presidents of the Board of Agriculture and Fisheries and of the Board of Education in 1910. The conference has had under consideration the following reference received from the Board of Agriculture and Fisheries last November:—"To inquire into the methods which local education authorities adopt with the object of promoting efficiency in the performance of manual processes, e.g. ploughing, hedging, ditching, sheep-shearing, milking, and basket-making, and to advise as to any further action that may appear to be desirable for the purpose of developing skill in workmen employed in agriculture." After the examination of eleven expert witnesses representing farmers and educationists, the conference drew up a number of recommendations which may be summarised very briefly. To develop skill in agricultural employees it is recommended that instruction in certain manual processes of agriculture should be provided for the elder boys and girls attending elementary schools in rural districts; local education authorities should regulate the holidays in country schools so as to leave the boys free to work on the land at a time when their work is most useful; classes in manual processes for men employed upon the land should be conducted so as to be more in the nature of assistance to, rather than the formal instruction of, those who attend; instruction in manual processes should be provided more generally throughout the country, present instruction should be made more thorough, and practical instruction be encouraged in every possible way.

NO. 2281, VOL. 91]

SOCIETIES AND ACADEMIES.

PARIS.

Academy of Sciences, July 7.—M. F. Guyon in the chair.—Paul Appell: Developments in series proceeding according to the inverse of given polynomials.—J. Boussinesq: The equations of dynamic equilibrium of the superficial layer separating a liquid from another fluid.—A. Lacroix: The rhyolitic and dacitic rocks of Madagascar, and in particular those of the Sakalave region. Complete analyses of twenty-one rocks are given, and the distribution of the rocks in the area discussed.—A. Müntz and E. Lainé: Studies on the irrigation of soils. The minimum irrigation gives the best cultural results; it depends on the slope of the land, the nature of the vegetation, and the dimensions of the distributing channels.—G. Charpy was elected a correspondant for the section of chemistry in the place of the late Louis Henry.—Ch. Platrier: Meromorph solutions of certain linear integral equations of the third species.—M. Barré: Helicoids of the second species.—Th. Got: The symmetries of the reproductive groups of indefinite ternary quadratic forms.—A. Romieux: Contribution to the study of the terrestrial deformation.—C. G. Bedreag: Electrification by the X-rays. The charge depends on the pressure, the nature of the metal of the electrode, difference of contact potential between the electrode and the surrounding walls, and ionisation of the gas. In the present communication a special study is made of the function of the metal.—André Chéron: A new arrangement for the examination of stereoscopic photographs.—Henri Labrousse: The visibility of traces of foreign substances deposited on a surface of pure water. The method described permits of the thin layers being detected by optical means without the use of any special apparatus.—Mlle. Cécile Spielrein: The equilibrium of lithium sulphate with the alkaline sulphates in presence of their mixed solution at 100° C.—Ruby Wallach: The thermal analysis of clays. The double galvanometer of Le Chatelier-Saladin with a thermocouple was applied to the examination of various kaolins and clays, the heat absorption due to the volatilisation of water being shown by well-marked depressions on the curve. A slight heat evolution between 900° C. and 1000° C. was also observed in some cases, an effect probably due to a transformation of alumina.—André Job and Paul Goissedet: The cerium acetylacetonates. Ceric acetylacetonate has been prepared and analysed.—M. Dumesnil: Diketones obtained by the action of the xylene dibromides on the sodium derivative of *iso*-propylphenylketone and their decomposition by means of sodium amide.—Roger Douris: The addition of hydrogen to some secondary α -ethylenic alcohols in presence of nickel.—Marcel Baudouin and Louis Reutter: The analysis of the contents of some Gallo-Roman vases and of a flask of perfume, found in a vault at la Vendée. These vases date probably from the third century. Styrax, turpentine, resin, asphalt, or Judean bitumen, and incense were found. These prove indirectly the existence of commercial relations between France and Asia Minor, Somaliland and Judea.—J. Durand: A layer of aragonite crystals in the marls attributed to the Upper Trias in eastern Corbières.—C. Gaudfroy: The dehydration figures of different types obtained in the same crystals.—A. Guilliermond: The rôle of the chondriome in the elaboration of the reserve products in fungi.—A. Marie and Léon MacAuliffe: The anthropometric study of 200 Madagascans.—E. Gley and Alf. Quinquaud: The influence of the suprarenal secretion on the vasomotive actions dependent on the splanchnic nerve.—A. Barbieri: The difference in chemical composition between the great sympathetic system and the axial