

UNIVERSITY AND EDUCATIONAL INTELLIGENCE.

THE appointments to chairs of chemistry in the Technical High School at Breslau were announced by mistake in last week's NATURE (p. 180) as referring to the Technical High School at Munich.

THE governors of the South-Western Polytechnic Institute, Chelsea, have appointed Mr. W. Campbell Houston to be head of the department of mechanical engineering in succession to Mr. W. W. F. Pullen, appointed to the inspectorate of the Board of Education. For the past six years Mr. Houston has been the assistant professor of engineering in the Heriot Watt College, previous to which he was chief assistant to Prof. Watkinson at the Glasgow and West of Scotland Technical College.

THE Board of Education has issued a memorandum directing attention to changes in certain syllabuses of examination for 1910 affecting students engaged in engineering and building trades. The changes affect the syllabuses in practical plane and solid geometry, practical mathematics, and applied mechanics, and aim at bringing the distribution of the subject-matter of instruction and of examination more fully into line with the prevailing requirements in these subjects in relation to the building and engineering trades.

ATTENTION has been directed recently in these columns to the serious efforts being made in several directions to secure the efficient education of children in elementary schools during the years of ordinary school life, and to provide for their further instruction in continuation schools after they have begun to work for their living. In our issue for July 8 (vol. lxxxii., p. 50) the question of child employment and evening continuation schools was considered, and in NATURE of August 5 (vol. lxxxii., p. 172) the recently published report of the Consultative Committee of the Board of Education on attendance, compulsory or otherwise, at continuation schools was reviewed. The most recent evidence of this desire to improve our system of elementary education is the Parliamentary paper (Cd. 4791) containing the report of the Inter-Departmental Committee on Partial Exemption from School Attendance. The committee was appointed (i.) To inquire into and report upon the extent to which existing enactments relating to partial exemption from compulsory school attendance are taken advantage of in urban and rural areas in England and Wales; the occupations in which children so exempted are employed, and the effect of such occupation upon the general education and industrial training of the children. (ii.) To consider the practical effects of legislation providing for the abolition or restriction of half-time employment upon industries and wage-earning, and upon educational organisation and expenditure. (iii.) To report whether, and to what extent, in view of these considerations, it is desirable to amend the law by raising the age at which partial exemption from attendance at public elementary schools is to be permitted, or by raising the *minimum* age for total exemption concurrently with affording facilities for partial exemption. The committee examined fifty-two witnesses, including representatives of chambers of commerce and agriculture, of associations of employers and of trades unions, officials of the Home Office, of the Board of Education, and of local authorities, members of the Consultative Committee of the Board of Education, certifying factory surgeons, teachers, farmers, and others whose opinions seemed likely to be of value. After an exhaustive inquiry the committee recommends:—(a) that all partial exemption be abolished from a date not earlier than January 1, 1911; (b) that, at the same time, total exemption under the age of thirteen be abolished; (c) that the attendance certificate for total exemption be abolished; (d) that total exemption at the age of thirteen be granted only for the purposes of beneficial or necessary employment; (e) that the ordinary condition for total exemption be due attendance at a continuation class, but (f) that, subject to the approval of the Board of Education, an authority may adopt as an alternative condition the passing of a standard not lower than Standard VI.; (g) that nothing in any legislation shall affect any children who, at the date on

which it comes into operation, are partially or totally exempt from attendance at school under the by-laws previously in force; (h) that in the application of the Factory Act to England and Wales the provisions of sections 68-72 shall cease to be operative.

SOCIETIES AND ACADEMIES.

PARIS.

Academy of Sciences, July 26.—M. Émile Picard in the chair.—Methods for collecting and preserving the gases from fumaroles, springs, or volcanic soil: Armand **Gautier**. The methods suggested are described in detail, and diagrams are given. The gases are transferred, after drying, to a vacuum tube, the latter being sealed by fusion on the spot. The amount of steam accompanying the gas is also determined.—The law of fixed dissociation pressures: Henry **Le Chatelier**. A discussion of the effect of porosity on the application of the phase rule to dissociation phenomena.—The transcendental singularities of inverse functions of integral functions: Pierre **Boutroux**.—Uniform analytical functions with discontinuous singularities: Arnaud **Denjoy**.—Study of the thrust of the air on a surface: A. **Rateau**. The apparatus used allows of the simultaneous measurement of the vertical and horizontal components of the thrust separately. Curves are given showing the experimental results for certain plane and curved surfaces.—The ultra-violet band spectrum of phosphorus: A. **de Gramont** and C. **de Watteville**. The results are given in tabular form, showing a comparison of the flame and spark spectra.—The ratio between uranium and radium in radio-active minerals: Mlle. **Gleditsch**. The results published by the author in an earlier paper not being in accord with those of other workers on the same subject, the analytical method employed has been subjected to a critical examination, but without causing any appreciable change in the figures obtained. There does not seem to be any constant ratio between uranium and radium in different radio-active minerals. This conclusion necessitates a modification in the views held as to the mechanism of the transformation of uranium into radium.—The action of gravity on the induced activity of radium: Louis **Wertheimstein**.—A method of registering the length of the path of the α rays, and on a peculiarity of this path: B. **Szilard**. A layer of the radio-active material was placed horizontally, and a glass plate carrying a layer of zinc sulphide, and backed with a sensitised plate, is fixed at an angle with this layer. The range of the α rays found in this way was always about 2 mm. less than that given by the ionisation method.—The decomposition of water by the ultra-violet rays: Miroslaw **Kernbaum**. The ultra-violet rays decompose water in a similar manner to the β rays of radium, hydrogen and hydrogen peroxide being produced.—The disengagement of the radium emanation: H. **Herchfinkel**. The hydrates of iron and uranium carry down nearly the whole of a radium salt in solution, and the precipitates, when dry, give off a large proportion of the emanation.—Ionisation by chemical methods: Léon **Bloch**. A criticism of notes recently published by Reoul and by Broglie and Brizard.—The ionisation of paraffin at different temperatures: Tcheslas **Bidlobjeski**.—The conditions of stability of the Poulsen arc: C. **Tissot**.—A new method of analysis by curves of miscibility; its application to oils used for food: E. **Louise**. Various proportions of the oil under examination are mixed with pure acetone, and the temperature of complete miscibility noted. The percentage of oil plotted against the temperature of miscibility gives a curve characteristic for the oil.—The allotropic states of phosphorus: Pierre **Jolibois**. Ordinary red phosphorus is an unstable condition. By heating alone to 360° C., or in presence of a catalyst above 250° C., a new stable modification of phosphorus is obtained, termed by the author pyromorphic phosphorus, characterised by its density, 2.37. Red phosphorus melts at 724° C.—The hydrates of thorium chloride and bromide: Ed. **Chauvenet**.—Some double sulphates: M. **Barre**.—Some derivatives of 1:2:4-butanetriol: M. **Pariselle**. The derivatives described include oxyhydrofurfurane, bromobutylene oxide, and 1:4-dibromo-2-butanol.—The formation of gold deposits: L. **de Launay**.

—Biological observations of the Tonkin india-rubber tree: M. **Eberhardt** and M. **Dubard**.—A new parasitic entophyte of one of the Coleoptera: L. **Leger** and E. **Heese**.—The genital stolon of the compound Ascidians; its evolution in the course of partial regression: Antoine **Pizon**.—Study of the toxic powers of the strophantines according to the method of administration: J. **Pédebidou**.—The paralysing influence exercised by certain acids on alcoholic fermentation: Mlle. M. **Rozenband**. The results, given in tabular form, show the concentration up to which no prejudicial effect is produced, and the concentration at which fermentation is completely stopped. —The action of the ultra-violet rays upon the acetic fermentation of wine: Victor **Henri** and Joseph **Schnitzler**. The ultra-violet rays from a quartz mercury vapour lamp completely arrested the acetic fermentation after thirty minutes' exposure, a smaller exposure causing the action to slow down.—The hydrolysis by diastase of the α - and β -methyl-*d*-glucosides: H. **Bierry**.—Researches on the electric charge of textile substances plunged into water or into electrolytic solutions: J. **Larguier des Bancelis**.—The variation of some diastases during the metamorphosis in *Limnophilus flavicornis*: Xavier **Roges**.—The tectonic relations of the internal pre-Alps with the Helvetic strata of the Morcles and the Diablerets: Maurice **Lugeon**.—The neogenic continental formations in the Hautes-Plaines, Algeria: A. **Joly**.—An oscillation of the sea noted on June 15, 1909, in the port of Marseilles: Louis **Fabry**. This oscillation had an amplitude of 40 cm. to 80 cm., and appears to be connected with a sudden rise of 2 mm. in the height of the barometer.—Some earthquake shocks felt at Yunnan: Ch. **Dupont**.

August 2.—M. Bouquet de la Grye in the chair.—Is the virulence of the trypanosomes of mammals modified after passage through cold-blooded vertebrates? A. **Laveran** and A. **Pettit**. When blood rich in *T. lewisi* or *T. evansi* is injected into the peritoneal cavity of a snake (*Tropidonotus natrix*) the trypanosomes pass rapidly into the snake's blood, and live there several days, although their number rapidly diminishes. Some days after the disappearance of the organisms from the blood the latter remains infectious. No definite proof of the modification of the virulence of the trypanosome by passage through the snake has been obtained.—The figure and mass of the planet Uranus, deduced from the motions of the two interior satellites: Esten **Bergstrand**. The calculations are based exclusively on observations made at the Lick Observatory. The flattening of Uranus is probably of the order of one-twentieth, corresponding to a period of rotation of thirteen hours. The mean density of Uranus is 0.16 that of the earth.—The elasticity of the terrestrial globe: Ch. **Lallemand**. A discussion of the measurements made at Potsdam by Dr. **Hecker**.—The variation of the magnetic double refraction of aromatic compounds. Surfused bodies and substances in the vitreous state: A. **Cotton** and H. **Mouton**. The variation of the magnetic double refraction of nitrobenzene and salol with temperature was found to be linear.—The magnetic properties of carbon and organic compounds: P. **Pascal**.—The latent heat of fusion and the specific heat of propionic acid: G. **Massol** and M. A. **Faucon**. Direct measurements of the latent heat of fusion gave 23.35 cal. per gram by one method and 19.07 cal. by another. Indirect methods based on the formulæ of van 't Hoff and de Forcrand gave 26.7 and 30.5 cal. respectively. The causes of this discrepancy are discussed.—Some ethylene amido-derivatives: G. **Busignies**. A description of a series of ethylene derivatives obtained by the action of the Grignard reagent upon alkyldiamidobenzophenones.—Remarks on the nuclear evolution in the Ascomycetes: A. **Guilliermond**.—The growth of Fucus: P. **Harlot**. Observations of the rate of growth.—Contribution to the study of sterilisation by the ultra-violet rays. Application to the butter industry: MM. **Dornic** and **Daire**. The water used in washing butter made from Pasteurised cream is treated with ultra-violet rays from a quartz mercury vapour lamp, and partially sterilised. A comparison of two samples of butter made from the same Pasteurised cream showed that the one washed with ordinary water was rancid after eight days, whilst the sample washed with the treated

water was fresh after the lapse of a month.—The existence of carbonophosphates in milk. Their precipitation by Pasteurisation: A. **Barillé**.—The action of the pancreatic juice on glycogen, starch, and its components: Mme. Z. **Gruzeska** and M. **Bierry**.—The examination of plants for raffinose, and on its presence in two leguminous seeds, *Erythrina fusca* and *Eniada scandens*: Em. **Bourquelot** and M. **Bridel**.—The slight penetration of the ultra-violet rays through liquids containing colloidal substances: J. **Courmont** and Th. **Nogier**. Owing to the opacity of solutions containing colloidal substances to the ultra-violet rays, the practical difficulties in the way of sterilising such liquids as beer or cultures of organisms are very great.—The action of ultra-violet light on the toxin of tetanus: Mlle. P. **Cernovodeanu** and M. Victor **Henri**.—The relation between phenol eliminated in the urine and epilepsy: J. T. **Florence** and P. **Clément**.—The geological history and the tectonic of the Atlas of eastern Numidia (Algeria): J. **Darreste de la Chavanne**.

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