

MANY old students of the Royal College of Science and Royal School of Mines having expressed the opinion that there should be a reunion in the Midlands, in addition to the annual dinner of the Old Students' Association in London, arrangements have been made for a dinner at the Imperial Hotel, Birmingham, on Saturday, November 6. Tickets or particulars can be obtained from Mr. Philip C. Coultas, Municipal Technical School, Birmingham.

THE commissioners under the Irish Universities Act, 1908, have appointed the following professors, among others, in University College, Dublin:—mathematics, H. C. M'Weeney; chemistry, Dr. Hugh Ryan; experimental physics, Dr. J. A. M'Clelland; mathematical physics, Dr. Arthur W. Conway; zoology, Dr. George Sigerson; anatomy, Dr. E. P. M'Loughlin; surgery, J. S. M'Ardle; geology, H. J. Seymour; physiology and histology, Dr. B. J. Collingwood; pathology and bacteriology, Dr. E. J. M'Weeney; medicine, Sir Christopher Nixon; civil engineering, P. F. Purcell.

THE following candidates were successful in this year's competition for the Whitworth scholarships and exhibitions:—*Scholarships* (tenable for three years), 125*l.* a year each. A. W. Judge, Plymouth; J. Airey, Shipley; H. S. Rowell, Newcastle-on-Tyne; H. Mawson, Leeds. *Exhibitions* (tenable for one year), 50*l.* each. F. Duncanson, Sunderland; A. Ryan, Oldham; A. H. Campbell, Portsmouth; J. J. Clark, Liverpool; W. H. Shinkfield, Portsmouth; A. W. Stevenson, Melrose; G. W. E. Hayward, Southsea; J. Morgan, Sheerness; A. F. Grieveson, Chatham; A. E. Gladwyn, Plumstead; W. H. T. Harvey, Swindon; T. H. Webster, Newcastle-on-Tyne; W. J. Davis, Plymouth; O. R. Randall, Birmingham; G. F. Haddock, Sunderland; F. H. Reid, Plymouth; G. B. Kellagher, Gillingham (Kent); T. Norcross, Hollinwood, Oldham; L. P. Parker, Leytonstone; A. Morris, Portsmouth; J. Smith, Crewe; W. Shaw, Woolwich; H. E. Pinch, Sheerness; D. H. Emby, Plumstead; W. Fox, Plumstead; R. H. May, Leytonstone; E. D. Brodie, Swindon; H. J. Goudie, Leith; H. Collins, Gillingham (Kent); C. Williams, Plumstead.

ON October 20 the University of Birmingham held the first special degree congregation since its inauguration. In commemoration of the Royal opening of the University in July last, a number of distinguished persons received honorary degrees. Among the representatives of pure and applied science upon whom was conferred the honorary degree of Doctor of Laws were Mr. W. N. Atkinson, H.M. Inspector of Mines for South Wales; Mr. H. T. Butlin, president of the College of Surgeons of England; Sir William Crookes, F.R.S.; Mr. Maurice Fitzmaurice, C.M.G., engineer-in-chief to the London County Council; Sir Archibald Geikie, K.C.B., president of the Royal Society; Dr. John S. Haldane, F.R.S., reader in physiology to the University of Oxford; Sir Alexander Kennedy, F.R.S.; Sir Joseph Larmor, Sec.R.S., Lucasian professor of mathematics in the University of Cambridge; Sir Richard D. Powell, K.C.V.O., president of the Royal College of Physicians; Sir William Ramsay, K.C.B., F.R.S.; Lord Rayleigh, O.M., F.R.S.; Prof. E. Rutherford, F.R.S., professor of physics in the University of Manchester; Prof. S. P. Thompson, F.R.S.; Prof. W. A. Tilden, F.R.S.; Sir Joseph Thomson, F.R.S.; Mr. C. S. Tomes, F.R.S., past-president of the Odontological Society of Great Britain; and Dr. B. C. A. Windle, F.R.S., president of University College, Cork.

THE issue of *Science* for October 15 announces the following gifts to higher education in the United States. Yale University has received from Mr. W. D. Sloane and Mr. H. T. Sloane the sum of 95,000*l.* to build, equip, and endow a physical laboratory. This laboratory, it is understood, will replace the present Sloane Physical Laboratory. Yale University has also received 5000*l.* from Mr. A. G. Vanderbilt for general endowment, and 3000*l.* from Mr. G. H. Meyers for the endowment of the Forest School. Columbia University has received gifts amounting to about 47,200*l.*, of which 22,500*l.* is from Mr. W. H. Charpentier, to be added to the J. S. Charpentier fund, and 20,000*l.* is given anonymously. The Pratt Institute of Brooklyn has received the sum of 350,000*l.* from Mr. Charles M. Pratt,

son of the founder and now its president, and from his five brothers and his sister, Mrs. E. B. Dane. Dr. D. K. Pearsons has offered to give 20,000*l.* to Berea College, provided that the sum of 80,000*l.* is otherwise subscribed, and Mr. N. B. Duke has made a further gift of 10,000*l.* to Trinity College at Durham, N.C.

THE first part of "Statistics of Public Education in England and Wales," 1907-8, has been published (Cd. 4885) by the Board of Education, and deals wholly with educational statistics. We notice that during the year thirty-five technical institutions were recognised by the Board, these being defined as institutions giving an organised course of instruction in day classes, including advanced instruction in science, or in science and in art, and provided with a staff and equipment adequate for the purpose. Provision must be made in such institutions for at least a two years' systematic course in science, or in science and art, either alone or in conjunction with subjects of general commercial, manual, or technological instruction. With a few exceptions, no student may be admitted to the course unless he has passed through a three years' course in a recognised secondary school, or is more than sixteen years of age and is qualified from his general education to profit by a course of advanced instruction. There were in these thirty-five institutions 644 teachers, while 2768 students attended at some time during the year, though 1630 only attended a full course of instruction. It is noteworthy that twenty-one of the teachers were women, and 198 of the students were girls or women. Of the 2570 boys and men in attendance, 7 were fourteen years of age; 492 were fifteen and under seventeen years of age; 465, seventeen and under eighteen years of age; 439, eighteen and under nineteen; 343, nineteen and under twenty; 232 were twenty and under twenty-one; and 592 were twenty-one years of age or more. It must be remembered that, in addition to these students, there were many others attending day technical classes. The Board recognised day technical classes in ninety-six institutions during the year, and upwards of 9000 students attended these classes at some time or other during the year.

## SOCIETIES AND ACADEMIES.

### LONDON.

**Institution of Mining and Metallurgy**, October 21.—Mr. Edgar Taylor, president, in the chair.—The influence of the railroads of the United States and Canada on the mineral industry: Dr. J. Douglas. After a brief historical summary of the development of the railroad systems of the North American continent, the author gave statistics of the mileage and traffic of the various railroads, showing the proportion of mineral traffic conveyed and its nature. He also showed the part taken by improved railroad communication in developing the mineral resources of the continent, and sought to prove that as the vast regions so far untouched by railroads, especially in Canada, are opened up, it is reasonable to conclude that greater stores of mineral wealth will be discovered and developed.—The development of heavy gravitation stamps: W. A. Caldecott. The author opened his subject with the statement that the history of ore crushing by means of gravitation stamps shows a progressive increase in their weight and in corresponding efficiency, and by means of figures he proceeded to prove how closely the factors of weight and efficiency are related. The first stamp-mill erected in the United States, in 1835, was equipped with 50 lb. stamps, this weight being increased to 380 lb. ten years later. Nowadays, on the Rand and elsewhere, stamps are in operation weighing as much as 1750 lb. In the meantime, however, the introduction of secondary grinding by means of tube mills, &c., has modified the original requirements of a stamp-battery, and tended to render the heavier stamps more efficient for their present purpose than were the older and lighter stamps under then existing conditions. The author concludes that the future limit of weight is difficult to foretell, and may be determined by mechanical considerations rather than by any decrease of relative efficiency as a device for pulverising ore. The data given as the result of exhaustive experiments with different weights and duties of stamps add considerably to the practical value of the paper.

MANCHESTER.

**Institute of Metals, October 14.**—Sir William White, K.C.B., F.R.S., president, in the chair.—The constitution and properties of the ternary alloys aluminium-copper-tin: J. H. Andrew and C. A. Edwards. The authors recorded an interesting series of conclusions of both a practical and theoretical character, based on a prolonged research which had necessitated the preparation and testing of many hundreds of alloys.—The surface appearance of solders: C. O. Bannister and H. J. Tabor. Results were given of experiments carried out with a view to obtain exact information as to the effect of small quantities of impurities on the surface appearance of solders, the impurities added to ordinary tinman's solder (50 per cent. tin and 50 per cent. lead) being antimony, copper, silver, and zinc.—Some causes of the corrosion of copper and brass: E. L. Rhead. The author dealt particularly with the corrosion of condenser tubes. Samples of hard copper and brass were submitted to corrosion in various saline solutions, some of which were saturated with CO<sub>2</sub>. Strips of hard brass were softened at one end and bent into U-shape. It was found that there was a much greater tendency for the hard material to corrode, the corrosion occurring in lines parallel to the direction of rolling. The surface of the hard metal was made very rough and irregular, whilst that of the soft metal remained quite smooth, when both were immersed in saline solutions.

October 15.—Sir William White, K.C.B., F.R.S., president, in the chair.—The copper-zinc alloys: a study of volume changes during solidification: Prof. T. Turner and M. T. Murray. The authors held that their experiments were likely to have an important theoretical as well as practical bearing, and it was believed that expansometer tests would be largely used in future as an aid to the determination of the constitution of alloys.—The elastic breakdown of non-ferrous metals: Prof. C. A. Smith. The author gave the result of researches conducted by means of his instrument, the sphingometer, which showed that, so far as the elastic properties of the material were concerned, mild steel was very much more trustworthy than any non-ferrous metal. The sphingometer was described, and shown to be capable of measuring extensions of length of the astonishingly small amount of a quarter of a millionth part of an inch.—Notes of the production of pure spelter: J. S. Primrose. A review of the commercial position of zinc and the existing methods of refining the metal, the author also discussing the theory of the new process of fume filtration purification during distillation.—The technical assay of zinc: H. W. Greenwood and Dr. E. J. Erislee. The paper described work undertaken with a view to determine the relative value and accuracy of the various analytical methods for the determination of zinc, and also the gathering together of the more important references to the analytical chemistry of zinc in both British and foreign literature. The authors reviewed briefly the more important processes, volumetric, gravimetric, and electrolytic, for the estimation of zinc.

DIARY OF SOCIETIES.

- THURSDAY, OCTOBER 28.**  
 SOCIETY OF DYERS AND COLOURISTS, at 8.—Some Unsolved Dyeing Problems: Dr. E. Feilmann.
- FRIDAY, OCTOBER 29.**  
 INSTITUTION OF MECHANICAL ENGINEERS, at 8.—Prof. W. E. Dalby's Report on Heat Transmission (*Resumed Discussion*).
- MONDAY, NOVEMBER 1.**  
 SOCIETY OF CHEMICAL INDUSTRY, at 8.—Technical Gas Calorimetry: J. H. Coste.—On Naphthalene Picrate and the Quantitative Determination of Naphthalene: W. P. Jorissen and J. Rutten.—Some Notes upon the Manufacture of Large Blocks of Artificial Stone from Sand and Lime: J. C. Stead.
- ARISTOTELIAN SOCIETY, at 8.—Presidential Address: Sensations and Images: Dr. S. Alexander.
- TUESDAY, NOVEMBER 2.**  
 INSTITUTION OF CIVIL ENGINEERS, at 8.—Address by the President, J. C. Inglis.
- WEDNESDAY, NOVEMBER 3.**  
 SOCIETY OF PUBLIC ANALYSTS, at 8.—Note on the Detection and Estimation of Small Quantities of Antimony: Dr. P. Schidrowitz and H. A. Goldsbrough.—The Phosphates in Certain Vinegars, and in the Materials used in their Manufacture: T. Fairley.—On the Determination of Essential Oils in Spices and Aromatic Drugs: R. A. Cripps and J. A. Brown.—Note on Holde's Test, and the Detection of Paraffin Wax in Lard and other Fats: H. Dunlop.

GEOLOGICAL SOCIETY, at 8.—(1) Certain Jurassic (Lias Oolite) Strata of South Dorset, and their Correlation; (2) Certain Jurassic (Inferior Oolite) Species of Ammonites and Brachiopoda: S. S. Buckman.—(1) The Cretaceous and Eocene Strata of Egypt; (2) The Granite Ridges of Kharga Oasis: Intrusive or Tectonic? Dr. W. F. Hume.

ENTOMOLOGICAL SOCIETY, at 8.  
**THURSDAY, NOVEMBER 4.**  
 ROYAL SOCIETY, at 4.30.—*Probable Papers*: (1) The Development of *Trypanosoma Gambiense* in *Glossina palpalis*; (2) A Note on the Occurrence of a Trypanosome in the African Elephant: Colonel Sir David Bruce, C.B., F.R.S., Captains A. E. Hamerton and H. R. Bateman, R.A.M.C., and Captain F. P. Mackie, I.M.S.—On the Perception of the Direction of Sound: The Lord Rayleigh, O.M., F.R.S.—The Diffraction of Electric Waves: Prof. H. M. Macdonald, F.R.S.—On the Mechanism of the Absorption Spectra of Salts: Robert Houston.—(1) Note on the Spontaneous Luminosity of a Uranium Mineral. (2) The Accumulation of Helium in Geological Time: Hon. R. J. Strutt, F.R.S.—On the Physical Properties of Gold Leaf at High Temperatures: J. C. Chapman and H. L. Porter.—The Dimensions and Function of the Martian Canals: Dr. H. C. Pocklington, F.R.S.

LINNEAN SOCIETY, at 8.—Some Account of the Field-botany of Namaqualand, Damaraland, and South Angola: Prof. H. H. W. Pearson.  
 RÖNTGEN SOCIETY, at 8.15.—Presidential Address: C. E. S. Phillips.

**FRIDAY, NOVEMBER 5.**  
 ROYAL ANTHROPOLOGICAL INSTITUTE, at 8.30.—Huxley Memorial Lecture. The North European Race: Prof. G. Retzius.

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