

## Calendar of Discovery and Invention.

August 15, 1869.—Imperially associated with the name of de Lesseps, the construction of the Suez Canal was regarded as one of the greatest works undertaken. First suggested by de Lesseps in 1854, work was commenced in 1858, and on Aug. 15, 1869, the waters of the Mediterranean mingled with those of the Red Sea. When de Lesseps died, *Engineering* referred to the canal as being "far more truly the work of Lesseps than was the railway of Stephenson, the steam engine of Watt, and the spinning machine of Hargreaves."

August 16, 1822.—The discovery of thermo-electricity was first made known by Thomas Seebeck (1770-1831) on Aug. 16, 1822. Seebeck's early experiments were made with copper and antimony and then extended to other pairs of metals.

August 16, 1814.—Brewster, while on a trip to Paris, recorded in his diary on Aug. 16, 1814, a visit to the Institute, where the business included a report by Poisson, a proposal by Legendre, and a long paper on iodine by Gay-Lussac. Of some of the famous men of science present he left interesting notes, describing Legendre as "a very tall and very thin man, with an expressive and intelligent countenance, white powdered hair, tied and curled above the ears"; Poisson as "a young and active little man, with a sweet and expressive countenance"; Delambre as "a little, oldish man, very yellow; a little marked with the small-pox"; Monge as "below the middle size, stoops, has a full face, and white curled hair"; and Lamarek as "a good-looking old man, with a light coat and an embroidered waistcoat, little and rather crooked."

August 17, 1807.—Fulton's famous *Clermont*—the first regular passenger steamboat in the world—made her trial trip on the Hudson on Monday, Aug. 17, 1807. Fulton's own statement ran: "I left New York on Monday at 1 o'clock and arrived at Clermont, the seat of Chancellor Livingston, at 1 o'clock on Tuesday; time 24 hours; distance 110 miles. On Wednesday I departed from the Chancellor's at 9 in the morning and arrived at Albany at 5 in the afternoon; distance 40 miles; time 8 hours; the sum of this is 150 miles in 32 hours—equal nearly 5 miles an hour."

August 18, 1854.—To Charles Bourseul (1829-1912), a French postal employee, we owe one of the first suggestions for a telephone. In an article in *Illustration*, Aug. 18, 1854, he suggested using vibrating plates to establish and interrupt connexion with an electric coil which acted sympathetically on a second vibrating plate.

August 19, 1868.—During the total solar eclipse of Aug. 18, 1868, Janssen, "inspired by the beauty and brilliancy of the variously tinted prominence-lines revealed to him by his spectroscope, exclaimed to those about him, 'Je verrai ces lignes-là en dehors des éclipses.'" On the following morning he carried into execution the plan which formed itself in his mind while the phenomenon which suggested it was still before his eyes, and, says Miss Agnes Clerke, "During the whole of that day [i.e. Aug. 19], and many subsequent ones, he enjoyed, as he said, the advantage of a prolonged eclipse."

August 20, 1841.—In the study of physiological chemistry none did more important work than Liebig in Germany and Dumas and Boussingault in France. Liebig's report to the British Association on animal chemistry was made in 1842, while another important contribution was the lecture of Dumas and Boussingault, "Statique Chimique des Êtres Organisés," delivered on Aug. 20, 1841. E. C. S.

## Societies and Academies.

## LONDON.

Geological Society, June 15.—J. E. Richey: The structural relations of the Mourne granites (Ireland). The Mourne Mountains are some 13 miles long by about 5 miles wide, and include many peaks of more than 2000 feet in height. The granite-massif of inferred Tertiary age is intruded into Silurian shales, and truncates a north-westerly basic dyke-swarm. The massif consists of at least four distinct intrusions, composed of different granite varieties. The Western Granite extends outwards on all sides below a slightly domed roof of shales, cappings of which rest upon the granite. The Eastern Granites are deeply eroded enough to show bounding walls as well as roofs. Floors are nowhere seen. These Eastern Granites are arranged one within the other, with a marked eccentricity towards one side. The outermost granite is the oldest, the innermost the youngest. Features observed by Traill are that granite-margins transgress the bedding of the Silurian shales, and that the direction of the dip of the shales is unaffected by the intrusion of the granites. The absence of xenoliths, except at actual margins, and the plane surfaces of contacts, are other noteworthy features. The spaces occupied by the various granites have been provided by subterranean cauldron-subsidence of the pre-existing rocks. The intrusion of the Eastern Granites successively one within the other may be then explained by assuming renewed subsidence of the first-subsided block.—W. F. Whittard: The stratigraphy of the Valentian rocks of Shropshire: the main outcrop. It is the first of these that is described in this paper. The threefold classification of Salter and Aveline has been adopted, but their nomenclature has been modified: the rocks are subdivided as follows: (3) Purple shales; (2) Pentamerus beds; (1) Arenaceous beds. The Arenaceous beds extend from near Cardington north-eastwards to the Wrekin, and consist essentially of conglomerates, grits, and sandstones. Evidence is given for a southerly derivation of the pebbles comprising these beds, and a north-easterly longshore drift is postulated. The Purple shales consist almost entirely of purple, maroon, or green mudstones or shales; shelly limestones and calcareous sandstones occur irrespective of horizon. The Valentian rocks are displaced by a series of dip-faults, but no folding, other than that caused by slip, has been detected. The Valentian rocks of the main outcrop seem to have been deposited in partly isolated or protected waters. The few graptolites so far obtained show that only Upper Valentian rocks are exposed.

## CAMBRIDGE.

Philosophical Society, July 25.—C. E. Wynn-Williams: A valve amplifier for ionisation currents. A method of using a valve for amplifying ionisation currents 100,000 times is described, which avoids the instabilities usually associated with such apparatus. Used in conjunction with a galvanometer of sensitivity 200 mm. per microampere, the system behaves in a similar manner to a low capacity quadrant electrometer of sensitivity 6350 mm. per volt, shunted by a leak of 360 megohms, the valve of the latter being slightly greater for negative currents than for positive.—C. F. Sharman: A differential retarding potential method for the study of the energy distribution of slow electronic emissions. A discussion, given in a previous paper (*Proc. Camb. Phil. Soc.*, Pt. 5, vol. 23, p. 523), of the respective merits of the magnetic spectrum and of the ordinary retarding potential

method for the investigation of electron energy distributions is here elaborated, and the difficulties peculiar to the low energy region (from zero to 20 volts) are pointed out. Results of the application of the method to the secondary electrons excited in a copper surface by primary electron beams of energies from 200 volts to 800 volts are described.—W. L. Webster: The Hall effect in single crystals of iron. Experiments were made to determine whether the Hall effect varied with the direction in the crystal for which it was measured. The Hall potential was measured in four thin plates cut from single crystals, with quite different orientations. For all of them, the Hall coefficient was the same within the limit of experimental error, having a value  $+0.97 \times 10^{-2}$ .—L. H. Thomas: The production of characteristic X-rays by electronic impact. Two corrections are made to Rosseland's formula for the variation of the intensity of characteristic X-rays with the energy of the exciting electrons. The velocity in its orbit of the electron knocked out of the atom and the increased velocity of the impinging electron are taken into account. The formulæ are compared with Wooten's experimental results for the  $K_{\alpha}$  line of molybdenum.—F. P. White: Simplexes and other configurations upon a rational normal curve.—R. W. Ditchburn: Notes on spectro-photometry.

## PARIS.

Academy of Sciences, July 11.—Hadamard: The shuffling of cards.—H. Desandres: The law of distribution of magnetic forms and of their elements. Consequences regarding the constitution of the sun.—J. Costantini: An attempt at a theory of the altitude cure (plants).—Paul Sabatier: The inversion of the rôle of catalysts.—Riquier: The integration of the partial differential equation of the second order linear in  $r, s, t$ , in the case where the coefficients of the three differentials depend only on the variables  $x, y$ .—Jules Andrade: The maximum of isochronism realisable to-day by elastic regulating organs.—J. Lebel: Analytical functions and the deformation of the paraboloid of revolution.—Octav Onicescu: The representation of a function on an ensemble of saturation of dimension zero.—A. Véronnet: The impossibility of a Poincaré movement for an isolated heterogencous fluid mass.—André Planiol: The production of shocks in the heads of connecting rods.—P. Fatou: Periodic orbits.—Jean Mascart: Observation of the partial eclipse of the sun of June 29, 1927, at the Lyons Observatory.—V. Nechvil: The frequency of the apparent movements of stars.—Fernand Baldet: The nucleus of the Pons-Winnecke comet (1927c).—D. J. Struik and Norbert Wiener: The relativist theory of quanta.—Nageotte: The elementary plates of myeline in the presence of water.—J. Cayrel: The contact metal—cuprous sulphide.—Thadée Peczkalski: Theory of the sub-electrons.—Max Morand: The distribution of the electric field in the dark space.—C. Bouhet: The application of the general method of Chaumont to the measurement of the elliptical polarisation produced by reflection at the surface of liquids.—Tsukamoto: The transparency of fused silica for ultra-violet radiations. The absorption of ultra-violet rays of short wave-length by fused silica appears to be variable from one specimen to another, a difference probably due to impurities. But even with the purest material used, prepared by fusing clear quartz, the absorption is still stronger than with crystallised quartz.—Bovis: The absorption spectrum of bromine in solution. The band  $0.414\mu$  appears in the absorption spectrum of bromine in all states, gas, liquid, and in solution, but the ultra-violet band  $0.260\mu$  is only given by bromine in solution.—H. Volkringer: The continuous spectrum and band-

spectrum of mercury.—Jean Thibaud: The spectrographic connexion of the domain of the X-rays with the ultra-violet by the aid of ruled gratings.—Mario A. da Silva: The deformation of the ionisation curve in pure argon by the addition of oxygen. The experimental relations found between voltage and saturation current of pure argon and admixtures with oxygen are given graphically.—A. Tian: Equilibrium in a gaseous phase between acid and base: the volatility product.—Amand Valeur and Paul Galliot: The oxidation of cacodyl oxide. The gradual oxidation of cacodyl oxide by means of oxygen gas gives cacodylic acid as the main product together with trimethylarsine, monomethylarsine oxide, and arsenious acid.—Mlle. Shildvor Grundt: The estimation of lead as cyanide. Herz and Neukirch have proposed to estimate lead as the cyanide by precipitation with potassium cyanide. A repetition of these experiments showed that lead cyanide is not formed under these conditions: the precipitate weighed is a lead basic carbonate, which happens to contain the same percentage of lead as  $Pb(CN)_2$ .—F. Blondel: The red earths and the phenomena of alteration of rocks in French Indo-China.—A. Loubière: The coal flora of the Albi basin. The plants found are intermediate between the Stéphanian and the Westphalian, and represent a level not hitherto recognised in France.—Mlle H. Popovici: Some remarks on the elaioplasts of the Hepatics.—J. Chaze: The appearance and localisation of nicotine in the young tobacco plant. No trace of nicotine can be found in the seed, but the alkaloid appears in the first stages of germination. In seedlings 3 mm. long, nicotine is visible a little above the growing point of the root, in the absorbent hairs. It exists also, but in smaller quantity, in the cotyledons.—D. Chouchak: The antagonism between cultivated plants and the bacteria of the soil in their mineral nutrition.—Georges Truffaut and N. Bezssonoff: The measurement of the assimilability of various phosphates by their action on the bacterial fixation of nitrogen. Fluorides do not interfere with the biological fixation of nitrogen, and may even exercise a favourable action. The non-assimilability of the natural phosphates is due to their insolubility and not to a toxic action of calcium fluoride.—Daniel Auger: The electrical reaction of plant cells to polarisation.—J. Dadez: Research on the production of ozone in the air by ultra-violet rays.—C. Levaditi and J. Longinesco: The relations between the spirillicidal and trypanocidal activity of the elements and their electrochemical classification.

## ROMÉ.

Royal National Academy of the Lincei, May 1.—E. Cartan: The geodetic deviation and certain allied notions.—P. Burchett: The causes of the luminosity of falling stars. This phenomenon appears to be mainly of electrical, and not of thermal, character.—Giorgio Sestri: Activity and height of the solar chromosphere in 1927.—R. Nasini and C. Porlezza: Determination of the concentration of active hydrogen ions in Italian mineral waters. The colorimetric method offers advantages in the determination of the hydrogen ion concentration of mineral waters and yields constant results. The pH value appears to be of little value in investigating the solutions representing the various stages of the extraction of boric acid at Lardarello.—S. Franchi: Emile Argand's covered fault of Monte Rosa and the permo-triassic anticline Aceglio-Col Longet in the Southern Cottian Alps.—F. Zambonini and V. Caglioti: Double sulphates of rare earth and alkali metals (ix.). Sulphates of neodymium and rubidium. Study of a

portion of the system  $\text{Nd}_2(\text{SO}_4)_3 - \text{Rb}_2\text{SO}_4 - \text{H}_2\text{O}$  over the  $25^\circ$  isotherm indicates the existence of the compound  $\text{Nd}_2(\text{SO}_4)_3, \text{Rb}_2\text{SO}_4, 8\text{H}_2\text{O}$ , which is perfectly isomorphous with the analogous double salts already examined and, like these, exhibits typical faces replaced by vicinal faces. The crystallographic constants are  $a : b : c = 0.3015 : 1 : 0.921$ ,  $\beta = 96^\circ 40'$ .—**L. Cambi** and **L. Szegö**: Spectrographic study of complex iron cyanides (i.). The absorption spectra of the ferripentacyanides and of certain ferropentacyanides reveal marked divergences in the manifestations of the affinity in complex ions, notwithstanding the formal analogies based on the co-ordination theory.—**S. Baglioni**: Investigations on human physiology at the Central Military School of Physical Education.—**G. Ascoli**: Dirichlet's problem in spherical and hyperspherical fields.—**E. Pini**: Investigation of the primitive functions by functions of several variables.—**J. Dubourdieu**: Cartesian co-ordinates along a curve.—**C. Poli**: The principles of analytical mechanics.—**F. Sbrana**: The spherical vortical motion of an incompressible fluid.—**B. Finzi**: Energetic interpretation of a noteworthy exception to Kutta-Joukowski's theorem.—**G. Armellini-Conti**: Comparison of the colorimetric catalogues of Hagen, Sestini, Osthoff, and Kruger.—**F. Eredia**: Variation of the wind velocity from the ground to a height of 4000 metres, according to soundings carried out at Vigna di Valle (Rome).—**N. Carrara**: A new type of X-ray reflection.—**A. Carrelli**: Paramagnetic double refraction.—**L. Mazza**: The products formed during the working of lead accumulators. In conjunction with the results already obtained, those now furnished by investigation of the negative plates of lead accumulators confirm Gladstone and Tribe's double sulphation theory, and show that the other chemical theories are totally or partially invalid. The active substance constituting the charged positive electrode is composed of lead dioxide identical in crystalline structure with that obtained by chemical means, the almost black colour resulting from prolonged overcharging depending solely on the increased dimensions of the crystalline particles. The spongy lead forming the charged negative electrode has the crystalline structure of massive lead and is not an allotropic modification. Discharge of the accumulator leads to the formation, on both electrodes, of a product identifiable by its crystalline structure with lead sulphate, but probably of colloidal dimensions; this is mixed with considerable proportions of lead dioxide and lead respectively.—**U. D'Ancona**: Influence of the concentration on the loss in weight of young eels fasting in sodium chloride solutions.—**V. Peglion** and **M. Sacchetti**: The Peronospora of lilac (*Phytophthora Syringae*, Klebahn).—**R. Savelli**: How a semi-mutant is resolved.—**S. Campanile**: Investigations on the seasonal variations of inorganic nitrogen compounds existing in the Lake of Castelgandolfo. Owing to the development of a rich plankton vegetation the proportion of nitrates in this lake during the warm weather is less near the shores than in the central parts. The fall of meteoric water also has a bearing on this phenomenon, which is contrary to what is usually observed.—**D. Cattaneo**: Ultramicroscopic investigations on the crystalline lens (ii.). Modifications of the ultramicroscopic structure by the action of salts, alkalis, and acids.

GENEVA

Physics and Natural History Society of Geneva, June 2.—**W. H. Schöpper**: Researches on the sexuality of the heterothallic Mucorineae. Studying the heterothallic species *Mucor hiemalis*, the sexual physiological

dimorphism of this species is confirmed. The toxic effect of copper sulphate is different on the two sexes.—**A. Borloz**: A critical study of the methods of analysis of antipyrin and pyramidon. After an examination of the known methods, the author recommends for the analysis of a mixture of these two substances the method of Pégurier-Lemaire, but avoiding the neutralisation by hydrochloric acid and methyl orange before the precipitation with picric acid.—**E. Briner** and **Ch. Boissonas**: The energy yield of the formation of ozone by the silent discharge. In laboratory researches, the power absorbed in the ozoniser has been too often confused with the product of the voltage by the current. The true yields are up to ten times greater than those hitherto calculated, and their relations with the pressure are different.—**L. A. Deshusses**: A correction of the Avery-Beans method (the estimation of arsenic in Schweinfurth green). The comparison of the results of this method with those of the gravimetric method or by distillation of arsenic trichloride in the presence of methyl alcohol has proved that the Avery-Beans method has a systematic plus error.—**P. Wenger** and **M. Gysin**: The estimation of carbon dioxide in limestones. The limestone is attacked by a boiling solution of sulphuric acid (approximately 5 per cent.) and the carbon dioxide is fixed by caustic potash. Unlike hydrochloric acid, the sulphuric acid is not carried over into the potash tube because its vapour pressure is too small.

SYDNEY.

Royal Society of New South Wales, May 4.—**W. G. Woolnough** (Presidential address). The general chemical principles involved in the weathering of rocks during the last stages of highly perfect penetration are discussed, and it is shown that, if the rainfall of the region is markedly seasonal in distribution, the conditions favour the production of: (1) A very deep zone of completely leached rock, consisting essentially of kaolin and silica, (2) a sub-surface deposit typically concretionary in structure of amorphous silica, alumina, and iron oxide. All the alkalis and alkaline earths are completely removed in solution. An attempt is made to prove that the very widespread 'lateritic' and siliceous crusts so ubiquitous over western and northern Australia, are parts of a single chemically-formed deposit, produced under the conditions postulated in the first part. Such crusts have been referred to a number of different geological formations, and endless confusion has resulted. It is believed that 'Desert Sandstone,' 'Laterite,' 'Upland Miocene,' and other formations in different States may be brought into harmony with one another. For the formation thus produced the name of 'Duricrust' is suggested. Reasons are adduced for assigning the Miocene age to the structure. The 'Duricrust' is of economic importance as it yields precious opal, fire-clays, road metals, water supplies in arid regions, and possibly bauxites of economic value. Its surface is mostly extremely barren, and its destruction has given rise to the great stony plains (gibber plains) so widely developed in the interior of the continent. Remnants of it give rise to the 'tent hills' and 'table hills' so characteristic of Central Australia.

VIENNA

Academy of Sciences, June 17.—**D. R. R. Burt**: The ability of various regions in the body of *Pelmatohydra oligactis* to form head or foot; determination of the totipotent region. Tissue rings were transplanted from one part of the hydra and grafted on to the head or foot region of another specimen.—**W. M. Diener**: New observations on the geological distribu-

tion of fossil calcareous algæ.—A. Hintringer: The separation of seeds from the placenta and from the pericarp respectively.—E. Biel: Climatography of the former Austrian littoral.—A. Kailan and E. Goitein: Hydrochloride formation in glycerine and glycol and the esterification of the mon-oxy- and of the 2, 5- and 2, 6-di-oxy-benzoic acid as well as of phenyl-acetic acid.—R. Schumann: On vectorial adjustment of closed geodetic figures in the plane in the case of arbitrary weights for distances and directions.—A. Pongratz: Researches on perylene and its derivatives.—A. Zinke, G. Gorbach, and O. Schimka: Researches on perylene and its derivatives.—O. Dischendorfer: On *o*-nitro-benzal-di- $\beta$ -naphthol.—A. Birula: Scorpions of the Anglo-Egyptian Sudan.

June 30.—E. Chwalla: The stability of girder struts.—F. Feigl and M. Fürth: The compounds of nickel with *o*-phenylene-diamine and 1, 3, 4-toluylenediamine.—L. Schmid and E. Ludwig: Two stearine-like substances in *Asclepias syriaca* identical with  $\alpha$ - and  $\beta$ -amyrin.—K. Przißbram: Further experiments on the coloration of compressed salts. Many salts sold as chemically pure give pressure colours.—A. Kieslinger: Glacial lakes in Eastern Carinthia. The characteristics of such lakes are level terraces mostly of lake sand.—A. Kieslinger: Preliminary report on tectonics of middle Carinthia.—L. Kober: Geology of the Northern Apennines and the adjacent Alps.—A. Winkler: The tertiary basin of south-west Styria in the older Miocene.—O. Richter: Sodium, a necessary nutritive element for a marine micro-aerophil luminous bacterium.

## Official Publications Received.

### BRITISH.

Aeronautical Research Committee: Reports and Memoranda. No. 1053 (E. 23): Torsional Vibration in Engines. Effects of fitting a Damper, a Flywheel, or a Crankshaft-driven Supercharger. By B. C. Carter. (B. 4. Engines 57 and a, b and c.—T. 2227 and a, b and c.) Pp. 21+19 plates. 1s. 9d. net. No. 1082 (Ae. 261): The Pressures round a Cylinder rotating in an Air Current. By Dr. A. Thom. (A.3 t. Autogyros, Helicopters and Rotors, 1.—T. 2347.) Pp. 12+8 plates. 9d. net. (London: H.M. Stationery Office.)

City and Guilds of London Institute. Report of the Council to the Members of the Institute, 1927. Pp. lvi+85. (London: Gresham College.)

### FOREIGN.

Shinsae Yobô Tyôsakwai Hôkoku. (Reports of the Imperial Earthquake Investigation Committee.) No. 100, C1. Pp. 210+253 plates. No. 100, C2. Pp. 211+401+215 plates. No. 100, D. Pp. 8+303+260 plates. (Tokyo: Department of Education.)

Journal of the College of Agriculture, Hokkaido Imperial University, Sapporo, Japan. Vol. 20, Part 1: Über die Entstehung des Corpus luteum beim Kaninchen. Von Shiro Kurashige. Pp. 47+4 Tafeln. (Sapporo.)

### CATALOGUES.

A Catalogue of Rare and Valuable Books (mostly Antiquarian), Pamphlets, Excerpts, Periodicals and Plates on all branches of Natural History, with a large proportion of works on Ornithology. (No. 1, New Series.) Pp. 24. (Eastbourne: The Naturalist's Library (A. J. Bateman).)

Catalogue of Atlases, Maps, Sea Charts, Road Books, Military Plans, Facsimiles of Early Maps, and Books of Geographical Interest. (No. 408.) Pp. 61+6 plates. (London: Francis Edwards.)

## Diary of Societies.

SATURDAY, AUGUST 20.

NORTH OF ENGLAND INSTITUTE OF MINING AND MECHANICAL ENGINEERS, at 2.30.—Annual Meeting.

### CONGRESSES.

AUGUST 22-26.

PATHOLOGICAL AND BACTERIOLOGICAL LABORATORY ASSISTANTS' ASSOCIATION (in University Pathology Department, Cambridge).

August 22.—At 10.30 A.M.—W. A. Mitchell: Cambridge (Lecture).

August 23.—At 9.30 A.M.—A. E. P. Grimmo: The Manufacture of Small-pox Vaccine as carried out in the Laboratories of the Shanghai Municipal Council.

J. J. Ritchie: Antagonism and Symbiosis of Bacteria.

Prof. G. H. F. Nuttall: The Development of Parasitology.

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August 24.—At 9.30 A.M.—S. J. Denyer: Virulence Tests in the Identification of *B. Diphtheroe*.

A. Saunders: Diversions of an Overseas Laboratory Assistant.

J. McLean: Rare Faecal Organisms which simulate Pathogens.

August 25.—At 9.30 A.M.—F. Leeson: The Preparation of Plague Vaccine.

S. Linfoot: Laboratory Work in a Spa Hospital.

E. Steele, J. McLean, and others: Discussion on Laboratory Economics.

E. C. Haddon: The Biuret Reaction.

S. J. Denyer: Difficulties encountered in the Differentiation of Paratyphosus A, B, and C.

H. Gooding: On Mounting Frail Museum Specimens on Wax Plates.

V. C. Norfield: Tissue Cultivation Technique.

August 26.—At 9.30 A.M.—Demonstrations of Exhibits.

### EMPIRE MINING AND METALLURGICAL CONGRESS.

Montreal Meetings, August 22 and 23.—Sir Thomas Holland: Proposed Review of the Mineral Resources of the Empire.—G. M. Carrie and C. S. Pascoe: Magnesia Refractories for Steel Furnaces.—A. Stansfield: Smelting Titaniferous Iron Ores.—W. A. Toohey: Portland Cement in Canada.—Mining and Metallurgical Practice in Australia.—Health Safety Problems.

Toronto Meetings, August 25 and 26.—C. Johnson: Winning and Refining of Precious Metals from Sudbury Ores.—R. C. Stanley: Nickel, Past and Present.—A. A. Cole: The Silver Mining Industry of Canada.—J. G. Morrow: The Cascade Method of Pouring Steel.—A. Mavrogordato and H. Prow: Deep Level Mining and High Temperatures.

Winnipeg Meeting, September 2.—G. E. Cole: The Development of Gold Mining in Canada.—W. A. Quince: Methods of Eliminating Barren Rock from Ore at the Sub-Nigel Mine.—G. R. Davis, J. L. Willey, and S. E. T. Ewing: Notes on the Operation of the Reduction Plant at West Springs, Ltd.—E. J. Laschinger: A New Form of Air Meter and the Measurement of Compressed Air.

Vancouver Meeting, September 14.—C. P. Browning: Canadian Copper and its Production.—F. J. Alcock and T. W. Bingay: Lead and Zinc in Canada.—C. J. N. Jourdan: A Brief Review of the Principal Base Metal and Base Mineral Resources of the Union of South Africa.—R. Craib: Dewatering the Lower Levels of the Simmer and Jack Mines, Ltd.—W. S. Robinson: Manufacture of Sulphuric Acid by the Contact Process. From Zinc Blende Roaster Gases.

Edmonton Meeting, September 20.—R. Strachan, W. J. Dick, and R. J. Lee: The Coal Industry in Western Canada.—J. Ness: Petroleum in Canada.—A. Docquier, L. Bataille, and R. Beestlestone: A Combination of the Baum, the Draper, and the Froth Flotation Systems as applied to the Washing of Coal at the Linsi Mine of the Kailan Mining Administration, North China.—A. E. Cameron: Impact Resistance of Steel at Low Temperatures.

Quebec Meetings, September 5 and 26.—J. G. Ross: Asbestos Mining and Milling.—A. W. Nash: Possible Auxiliary Sources of Liquid Fuel.—A. Job: The Sinking and Equipment of the Ventilation Shaft of the Government Gold-Mining Areas.—G. W. Sharp: The Tipping and Guiding of Vertical Skips.—P. M. Newhall and L. Pryce: Improvements in Drilling Efficiency with Jack-Hammers.

Sydney Meetings, September 9 and 10.—F. W. Gray: Mining Coal Under the Sea in Nova Scotia.—Sir Robert Hadfield: The Metal Manganese and its Properties; also, the Production of Ferro-Manganese and its History.—Raw Materials for the Iron and Steel Industry in India.—B. Yanesko: The Manufacture of Steel in India, by the Duplex Process.

AUGUST 27-SEPTEMBER 1.

INTERNATIONAL CONGRESS OF ORIENTALISTS (at Oxford). In following sections: General (including Anthropology, Ethnography, Prehistoric Archaeology, Comparative Mythology, and Folklore), Assyriology and cognate subjects, Egypt and Africa, Central and Northern Asia, the Far East, India and Iran, including the Indo-European Languages of Asia, the Old Testament, the Language, Literature, etc., of Islam, and Oriental Art.

AUGUST 29-SEPTEMBER 3.

INTERNATIONAL COMMISSION FOR THE EXPLORATION OF THE UPPER AIR (at Leipzig).

SEPTEMBER 1-4.

SCHWEIZERISCHE NATURFORSCHENDE GESELLSCHAFT (at Basel) (in 14 Sections).—Presidential Address by Dr. F. Sarasin.—Lectures on, respectively, The Causes and Factors of Morphogenesis, by Prof. A. Brachet; Recent Work and Views in Astronomy, by Prof. L. Courvoisier; The Urals from the Point of View of Geophysics, Geology, and Mining, by Prof. L. Duparc; Paracelsus in Relation to Modern Thought, by Prof. H. E. Sigerist.

SEPTEMBER 8-10.

INTERNATIONAL UNION OF GEODESY AND GEOPHYSICS (at Prague).

SEPTEMBER 4-9.

INTERNATIONAL CONGRESS OF ZOOLOGY (at Budapest).

SEPTEMBER 11-17.

INTERNATIONAL CONGRESS OF PHYSICS IN COMMEMORATION OF THE CENTENARY OF VOLTA (at Como).

SEPTEMBER 11-18.

INTERNATIONAL CONGRESS OF GENETICS (at Berlin). In three sections: General Genetics and Cytology, Heredity in Man and Eugenics, Animal and Plant Breeding.

SEPTEMBER 18-OCTOBER 3.

INTERNATIONAL CONGRESS OF THEORETICAL AND APPLIED LIMNOLOGY (at Rome).