

fortune.—On Tuesday the visitors were received at the Foreign Office in order that Lord Fitzmaurice and Mr. Lough, M.P., might welcome them officially on behalf of the Government. At the conclusion of the reception they were driven to the University of London, where luncheon was served. Addresses were afterwards delivered by the Vice-Chancellor (Sir Edward Busk), M. Liard, Sir Arthur Rücker, and Prof. M. E. Sadler, and a visit was made to the new physical and chemical laboratories of the Royal College of Science. In the evening several receptions were held in honour of the guests.

### SOCIETIES AND ACADEMIES.

#### LONDON.

**Geological Society, May 9.**—Mr. Aubrey Stahan, F.R.S., vice-president, in the chair.—The eruption of Vesuvius in April, 1906: Prof. Giuseppe de Lorenzo. After the great eruption of 1872 Vesuvius lapsed into repose, marked by merely solfataric phenomena, for three years. Strombolian activity followed, varied by lateral outpourings of lava in 1885, 1889, 1891, 1895, &c., and by outbursts from the principal crater in 1900 and 1904. Fissuring of the cone and slight outpourings of lava began in May, 1905, and continued until April 4, 1906, when the first great outburst from the principal crater occurred, accompanied by the formation of deeper and larger fissures in the southern wall of the cone, from which a great mass of fluid and scoriaceous lava was erupted. After a pause the maximum outburst took place during the night of April 7 and 8, and blew 3000 feet into the air scoriae and lapilli of lava, as well as fragments derived from the wreckage of the cone. The south-westerly wind carried this ash to Ottajano and San Giuseppe, which were buried under 3 feet of it, and even swept it on to the Adriatic and Montenegro. At this time the lava which reached Torre Annunziata was erupted. The decrescent phase began on April 8, but the collapse of the cone of the principal crater was accompanied by the ejection of steam and dust to a height of from 22,000 feet to 26,000 feet. On April 9 and 10 the wind was north-easterly, and the dust was carried over Torre del Greco and as far as Spain; but on April 11 the cloud was again impelled northward. The ash in the earlier eruptions was dark in colour, and made of materials derived directly from the usual type of leucotephritic magma; but later it became greyer, and mixed with weathered clastic material from the cone. The great cone had an almost horizontal rim on April 13, very little higher than Monte Somma, and with a crater which possibly exceeds 1000 feet in diameter; this cone was almost snow-white from the deposit of sublimes. Many deaths were due to asphyxia, but the collapse of roofs weighted with dust was a source of much danger, as was the case at Pompeii in A.D. 79. The lava-streams surrounded trees, many of which still stood in the hot lava with their leaves and blossoms apparently uninjured. The sea-level during April 7 and 8 was lowered 6 inches near Pozzuoli and as much as 12 inches near Portici, and had not returned to its previous level on April 18. The maximum activity coincided almost exactly with the full moon, and at the time the volcanoes of the Phlegrean Fields and of the islands remained in their normal condition. The author believes that this eruption of Vesuvius is greater than any of those recorded in history, with two exceptions—those of A.D. 79 and of A.D. 1631.—The Ordovician rocks of western Caermarthenshire: D. C. Evans. The ground dealt with is practically identical with that examined by the late Thomas Roberts, whose notes were published in 1893. It extends from the River Cywyn on the east to the Tave on the west, and from the base of the Old Red Sandstone on the south to the top of the Dicranograptus-Shales on the north.

**Zoological Society, May 15.**—Dr. J. Rose Bradford, F.R.S., vice-president, in the chair.—Descriptions of the two species of water-mites (Hydrachnidæ) collected by Mr. W. A. Cunnington in Lake Nyasa during the third Tanganyika expedition, 1904-5: J. N. Halbert.—A collection of mammals made by Mr. W. Stalker in the northern territory of South Australia, and presented to the National

Museum by Sir William Ingram, Bart., and the Hon. John Forrest: O. Thomas. The collection included sixteen species, of which the two following were of special interest:—*Mus forresti*, sp.n. Size, medium. Colour, drab-grey above, white below. Teeth with their laminæ peculiarly twisted, the first molars with large cingular ledges. Head and body, 104 mm.; tail, 72 mm.; hind foot, 19 mm. Type, B.M. No. 6.3.9.39. *Phascogale ingrami*, sp.n. Size, minute; the teeth and feet smaller than in any known Australian marsupial. Head peculiarly flattened. Head and body, 80 mm.; tail, 60 mm.; hind foot, 10 mm. Type, B.M. No. 6.3.9.77.—The skull of a young ribbon-fish (Regalecus): Prof. W. B. Benham and W. J. Dunbar.—Descriptions of two species—one of them new—of hair-worms of the family Gordiidae: Dr. von Linstow. The specimens were obtained in Korea by Mr. Malcolm Anderson, who was making collections of the fauna of eastern Asia for the Duke of Bedford.—Descriptions of a new lizard, a new snake, and a new toad collected in Uganda by Mr. E. Degen: G. A. Boulenger.—The gestation and parturition of certain monkeys that had bred in the society's menagerie in the spring of the present year: R. I. Pocock.

**Faraday Society, May 15.**—Dr. F. Mollwo Perkin, treasurer, in the chair.—Behaviour of platinised electrodes: H. D. Law. The author desired to find an electrode on which the reduction of the aromatic aldehydes and similar easily reducible compounds could not be effected. Platinised platinum, as being the metal from which hydrogen is liberated at the lowest potential, was tried as the cathode in an acidified alcoholic solution of benzaldehyde. At first energetic reduction took place; the activity of this, however, diminished in successive experiments, and was extremely small after twelve hours' polarisation.—The electrolysis of fused zinc chloride in cells heated externally: Julius L. F. Vogel. The dehydration of zinc chloride by evaporating under reduced pressure, and the electrolysis of the salt in a fused state in externally heated cells were investigated by Dr. O. J. Steinhart and the author jointly on behalf of the Smelting Corporation, Ltd. Further investigations were made after the United Alkali Company had joined the Smelting Corporation in testing the process, and details are given in the paper of the work as carried out under the joint supervision of the author's firm and the chemical staff of the United Alkali Company. The author describes how the process was carried successfully to a stage when continuous electrolysis was carried on for eleven days and nights, and three cwt. of pure zinc was produced. On the failure of the Smelting Corporation the work was suspended, and finally abandoned, although further elaborate investigations were undertaken by the United Alkali Company utilising cells heated internally by the current.

**Royal Microscopical Society, May 16.**—Dr. D. H. Scott, F.R.S., president, in the chair.—Some observations recently made on the parasites of malaria and the phagocytic action of the polymorphonuclear leucocytes: Dr. Bernstein. The subject was illustrated by drawings showing the results of observations made during the examination of blood taken from a patient suffering from malarial fever. The observations were made at intervals of a few minutes during a period of five hours. A crescent form of the parasite was seen to become engulfed by a leucocyte, in which it was soon surrounded by vacuoles and was ultimately destroyed, only the pigment granules remaining; other leucocytes afterwards approached and absorbed some of the granules. The blood film was stained, and the preparation, showing the pigment granules in the polymorphonuclear leucocytes, was exhibited under a microscope at the meeting.

**Chemical Society, May 17.**—Prof. R. Meldola, F.R.S., president, in the chair.—The relation between absorption spectra and chemical constitution, part vi., the phenylhydrazones of simple aldehydes and ketones: E. C. Baly and W. B. Tuck. A spectroscopic investigation of the phenylhydrazones of formaldehyde, acetaldehyde, propylaldehyde, acetone, and diethylketone shows that these exist in two forms, an unstable true hydrazone and a stable azo-form. The absorption spectra of the hydrazones of the

three nitrobenzaldehydes show that the colour of these substances is not due to their existence in the azo-form.—The rusting of iron: J. T. **Nance**. The "rusting" of iron in solutions of ammonium chloride is probably due to the action of hydrogen ions formed by hydrolysis of the salt.—Aromatic compounds obtained from the hydroaromatic series, part ii., the action of phosphorus pentachloride on trimethyldihydroresorcin: A. W. **Crossley** and J. S. **Hills**.—Studies of dynamic isomerism, part v., isomeric sulphonic derivatives of camphor: T. M. **Lowry** and E. H. **Magson**.—The densities of liquid nitrogen and liquid oxygen and of their mixtures: J. K. H. **Inglie** and J. E. **Coates**. The results showed that a slight contraction took place on mixing the two liquids. It was found that the solubility of nitrogen in oxygen obeys Henry's law, but that the solubility of oxygen in nitrogen does not obey the simple form of that law, since oxygen dissolved in nitrogen is associated to the extent of about 9 per cent.—Glutaconic and acetic acids: H. **Rogerson** and J. F. **Thorpe**.—The chemistry of organic acid "thiocyanates" and their derivatives: A. E. **Dixon**.—The molybdilactate and the tungstilactate of ammonium: G. G. **Henderson**. Molybdic and tungstic anhydrides are dissolved, the latter with some difficulty, when heated on the water-bath with solutions of ammonium lactate, the products being ammonium molybdilactate,  $\text{MoO}_2(\text{C}_3\text{H}_4\text{O}_3\text{NH}_4)_2$ , and ammonium tungstilactate,  $\text{WO}_2(\text{C}_3\text{H}_4\text{O}_3\text{NH}_4)_2$ , respectively. Descriptions of these salts are given.

#### Society of Chemical Industry (London Section), May 21.

Mr. A. Gordon Salamon in the chair.—The electrochemical problem of the fixation of nitrogen: Prof. Philippe A. **Guye**. Among the many investigations undertaken to solve this problem, two directions have led to industrial methods, the one, calcium cyanamide, the other, electrochemical nitric acid. The principal technical details of the manufacture of calcium cyanamide are given, and it is pointed out that its cost price depends upon that of calcium carbide. From this it is concluded that a kilogram of nitrogen fixed as calcium cyanamide will cost a little more than ammonia salts and Chili saltpetre, if the excess of calcium carbide obtained in carbide works not available for the development of acetylene is used. This conclusion seems confirmed by some agricultural tests made with this new compound of nitrogen of which the value, relative to Chili saltpetre, is not definitely fixed. Passing to electrochemical nitric acid, the author summarises the principles of its preparation, and although these are very simple, the application has presented serious difficulties, which, however, now appear to be solved by the experiments carried out in Norway. The absorption of the nitric acid by sulphuric acid is insisted on, as this allows concentrated nitric acid to be directly obtained, which is of greater commercial value than nitrate of lime, and consequently of more interest to a new industry. Analysis of the cost of electrochemical nitric acid leads to the conclusion that a kilogram of nitrogen is fixed slightly cheaper as nitric acid than as calcium cyanamide. In concluding, the author discusses the exterior economic factors which may hasten the development of the nitrogen industries. Among these the direct synthesis of ammonia from nitrogen and hydrogen, and the recovery of the nitrogen of coal in the ammoniacal form by the methods of L. Mond are mentioned. These processes, combined with the production of electrochemical nitric acid, will in all probability solve the problem of obtaining electric energy cheaply by motors utilising the power of coal.

#### DUBLIN.

Royal Dublin Society, April 24.—Prof. J. A. McClelland in the chair.—Entoptic vision, part iv., Haidinger's brushes and other entoptic phenomena: Prof. W. F. **Barrett**, F.R.S. The term entoptic vision may be employed to include the observation of all those phenomena the cause of which is situated within the eyeball. In previous papers on this subject the author has shown how obscurities in the path of a homocentric pencil of rays within the eye may be self-detected, delineated, and measured with great ease by means of the entoptoscope, a simple instrument devised by the author. Obscurities due to incipient cataract can be detected, and its progress watched and

the effect of any possible remedy examined. In the present paper the entoptic phenomena are studied, delineated, and submitted to exact measurement, such as (1) the so-called Haidinger's brushes, or coloured polarised fasciculi seen when a brightly illuminated surface is looked at through a Nicol's prism, and the seat of which has been the subject of considerable discussion; (2) the moving corpuscles, like darting fire-flies, seen when a bright sky is looked at through a cobalt blue glass. These are depicted and measured in the paper, and the result leaves little doubt that they are really due to the movement of blood corpuscles in the vessels of the retina, the curved streaks of light they leave behind being due to the retention of the image of a quickly-moving body. Other entoptic phenomena are also discussed.—The absorption of  $\beta$  radiation by matter: Prof. J. A. **McClelland** and J. E. **Hackett**. It is important to know the true coefficient of absorption of  $\beta$  rays for different substances. There are really no data on the subject, as the coefficient usually measured depends to a large extent upon the power of the substance to emit secondary  $\beta$  rays. This coefficient gives, therefore, little information as to the actual stopping power of different forms of atoms. The present paper describes a method of determining the true absorption coefficient.

Royal Irish Academy, April 23.—Dr. F. A. Tarleton, president, in the chair.—Magneto-optic rotation: F. E. **Hackett**. The author examines the two dispersion formulae deduced by Drude for the magneto-optic rotation, and brings forward a method to decide between them. The analysis consists in deducing from the constants of the formula, based on the hypothesis of rotating ions, the quotient of the area of the ionic orbit by the period of the ion for the absorption bands of carbon disulphide and creosote. The radii of the ionic orbits thus obtained are 100 times the ordinary molecular radii. From this result it is argued that the theory of rotating ions cannot account for more than one-thousandth of the rotation observed in these substances. A similar analysis applied to the constants of the Hall effect formula leads to values of  $\epsilon/m$  of the same order as are obtained for electrons. Similar results are shown to hold in general for diamagnetic substances. It is then concluded that the theory based on the Hall effect gives a sufficient explanation of the rotation in diamagnetic substances.—The total solar eclipse of August 30, 1905: A. L. **Cortie**. The observations recorded in this paper were made at Vinaroz, on the Mediterranean coast of Spain. The results were:—(1) the corona was of the maximum type; (2) there were numerous prominences, especially one great group on the east limb of the sun; (3) the lower corona was much disturbed over this group, with a marked structure of arches and interlacing rings; (4) a well-marked vortex-ring with a white centre was connected with the prominences; (5) a ray, of presumably dark matter, and a group of plumes, marked the south-east quadrant; (6) the dark ray and plumes coincided in position with the sun-spot regions, and were possibly connected with the area disturbed by the great February spot; (7) some straight bright rays marked the south-west quadrant, also in the region of the spot-zones; (8) the general trend of the streamers was north and south, the largest streamers being placed almost at the south pole; (9) the inner corona was a ring of intense brilliancy, comparable to the full moon; (10) the streamers seemed in general to mark the regions of prominences more than those of spots.—Sixteen years' observations on the relation of temperature and rainfall to the spread of scarlatina, measles, and typhoid fever: R. Sydney **Marsden**. Weekly returns of cases of these diseases and the corresponding weekly variations of temperature and rainfall had been recorded for the years 1890–1905 at Birkenhead, and curve diagrams had been worked out to show the relation of the diseases to amount of rainfall and temperature as these varied above or below their average normal amount. Atmospheric temperature was found to have no effect on the spread of these diseases. As regards rainfall, this was shown to have no influence whatever as regards measles, but in the case of scarlatina the number of cases increased after deficient rainfall and decreased after rain; the number of cases increases after a series of dry years.

Newsholme has shown diphtheria to be affected in a similar manner. Dr. Marsden asks: Is it possible that scarlatina and diphtheria are "allotropic" forms of the same disease? In the case of typhoid, the number of cases occurring seems to be independent of whether it is a wet or dry year, but there seems to be a slight tendency for the number of cases to fall after rain.

## PARIS.

**Academy of Sciences, May 21.**—M. H. Poincaré in the chair.—The president announced the loss by death of M. Bischoffsheim.—The discontinuity of the specific heats at saturation and Thomson's curves: E. H. Amagat.—Simple relations between the dynamical reactions of muscle and the energy which produces them: A. Chauveau.—Geometrical loci of centres of gravity: Haton de la Goupillière.—The intestinal origin of tuberculous tracheo-bronchial adenopathy: A. Calmette, C. Guérin, and A. Déliarde. The work communicated in the present paper has an important bearing on the question of the spread of tuberculosis by milk. It has been shown experimentally in the case of animals, and clinically in twenty-four cases of children, that whenever tuberculous infection is manifested by tracheo-bronchial adenopathy, tuberculous bacilli exist in the mesenteric ganglions, even when the latter appear to be healthy. These bacilli make their way into the system by the intestine.—Geodesic and magnetic work in the neighbourhood of Tananarive: Ed. El. Colin. The magnetic elements are given in tabular form for forty-nine stations round Tananarive.—A magnetic collimator which transforms a binocular into an instrument for taking bearings: A. Berget. A compass with a collimating lens and a system of totally reflecting prisms is fitted to one of the telescopes of the binocular, allowing the position of the needle of the compass to be read off to about 0.25 of a degree if held in the hand, or more closely if a support is used. The right-hand telescope is directed at the object the position of which is to be examined; the magnetic azimuth is read off directly at the same time in the left limb of the binocular.—The correlation between the variations of the absorption bands of crystals in a magnetic field and the magnetic rotatory polarisation: Jean Becquerel.—The sulphides, selenides, and tellurides of tin: H. Pélabon. The effect of the gradual addition of sulphur to tin on the melting point has been studied, and the relation between the percentage of added sulphur and the melting point given in the form of a curve. The corresponding curves for selenium and tellurium are also given.—The direct oxidation of caesium and some properties of the peroxide of caesium: E. Rengade. Oxygen, even when well dried, attacks caesium energetically at the ordinary temperature. At  $-40^{\circ}$  C. the metal blackens, but there is no incandescence; at  $-80^{\circ}$  C. the action is very slow, and it is only after some minutes that the metal commences to tarnish. The action of an excess of oxygen gives caesium peroxide,  $\text{Cs}_2\text{O}_4$ , a yellow oxide, easily dissociated at high temperatures. Water acts on it at ordinary temperatures, giving the hydroxide  $\text{CsOH}$ , oxygen, and hydrogen peroxide. Gently heated in carbon dioxide, caesium carbonate and oxygen are produced. Dry hydrogen commences to reduce the peroxide at about  $300^{\circ}$  C.—New methods of preparing some organic compounds of arsenic: V. Auger. Methylarsinic and cacodylic acids can now be obtained commercially at a moderate price, and with these substances as starting points the author shows how various arsenic compounds can be readily prepared, including methylarsine iodide,  $\text{CH}_3\text{AsI}_2$ ; methylarsine oxide,  $\text{CH}_3\text{AsO}$ ; methylarsine chloride,  $\text{CH}_3\text{AsCl}_2$ ; cacodyl chloride,  $(\text{CH}_3)_2\text{AsCl}$ ; cacodyl,  $\text{As}_2(\text{CH}_3)_4$ ; and tetramethylarsonium iodide,  $(\text{CH}_3)_4\text{AsI}$ .—Researches on diazo-compounds. The transformation of azo-orthocarboxylates into *c*-oxyindazylic compounds: P. Freundler.—The gases from thermal springs. The determination of the rare gases: general presence of argon and helium: Charles Moureu. Analyses are given of the gases from forty-three springs of mineral waters. Argon has been recognised in the whole of the forty-three samples examined, and helium in thirty-nine. It is possible that helium is also present in the remaining four, but in proportions so small that its presence is masked by the argon spectrum.—The elasticity of organic tissues:

Ad. Goy. The apparatus described allows of six determinations being carried out nearly simultaneously on separate samples of muscle, the latter being surrounded by a fluid appropriate to its preservation. Drying in the course of the measurements is thus avoided.—The regenerator of fibrin and comparative estimations of this substance in different vascular territories of the dog after defibrination: M. Doyon, A. Morel, and N. Kareff.—A reaction of the oxydase type presented by the halogen compounds of the rare earths: E. Fouard. The oxidation of hydroquinone was determined in the presence of equimolecular solutions of the chlorides of thorium, cerium, lanthanum, neodymium, praseodymium, and samarium. The presence of the salts increased the rate of oxidation, samarium being the most active in this respect. The action is comparable to an oxydase.—The effect of adrenalin on the amount of glycogen in muscle: Mme. Z. Gatin-Gruzowska. The injection into a rabbit of a solution of adrenalin (containing 1 mg.) caused the total disappearance of the glycogen both in the liver and muscles. When the effect of the injection has passed off, the animal, if fed, has not lost the power of producing glycogen.—The identity of *Hemiphygus tuberculosus* and *Hemicidaris crenularis*: M. Seguin.

## CALCUTTA.

**Asiatic Society of Bengal, May 2.**—The relative proportion of the sexes in *Helopeltis theivora*: H. H. Mann. Hitherto no careful investigations have been made as to the relative number of males and females in any species of Heteropteron, but the fact that *Helopeltis theivora* is a serious pest of tea has given the chance for ascertaining details in its case. The paper summarises the result of daily catching of the insects for three years, and it is concluded that (1) the females are always much more numerous than the males; (2) the proportion of males increases as the conditions of life become more difficult.—Notes on the freshwater fauna of India, No. 5, some animals found associated with *Spongilla carteri* in Calcutta: Dr. N. Annandale. Several animals have been observed to use the dead skeleton of the sponge as a shelter for themselves or for their eggs, while an Oligochaete worm (*Chaetogaster spongillae*, sp. nov.), two chironomid larvae, a coleopterous larva, and a larva of the neuropterous genus *Sisyra* appear to have a more intimate connection with the living organism. The advantage of this connection is in some cases reciprocal.—The life-history of an aquatic weevil: Dr. N. Annandale and C. A. Paiva. A general account of the mode of life and metamorphosis of a weevil which feeds on and lays its eggs in the submerged parts of the water-plant *Limnanthemum*.—A new goby from fresh and brackish water in Lower Bengal: Dr. N. Annandale. An account of a minute fish of the genus *Gobius*, which appears to have escaped notice owing to its retention of juvenile characters.—Preliminary note on the rats of Calcutta: Dr. W. C. Hossack. The author shows that the subject of rats has become of practical importance owing to the part they play in the propagation of plague. He names and gives chief characters of the four varieties found in Calcutta. He shows that colour is very variable and not a trustworthy distinction, and gives a table of the principal measurements of the four varieties found.

## GÖTTINGEN.

**Royal Society of Sciences.**—The *Nachrichten* (physico-mathematical section), part i. for 1906, contains the following memoirs communicated to the society:—

December 23, 1905.—The calculation of chemical equilibrium from thermal measurements: W. Nernst.—Determination of the velocity of propagation and absorption of earthquake waves which have traversed the anti-point of the original focus: G. Angenheister.—Comparison of the seismic diagrams, from Upsala and Göttingen, of earthquake waves which have encircled the globe: F. Akerblom.

January 13.—The equilibrium of the sun's atmosphere: W. Schwarzschild.

February 3.—The number and dimensions of the taste-buds in the circumvallate papillæ of man at various periods of life: F. Heiderich.—The action of luminous rays upon

living cells: E. Hertel.—Electric phenomena accompanying the disintegration of ammonium: A. Coehn. (March 3.—A second communication on the same subject.)

February 17.—Researches from the Göttingen University Chemical Laboratory, xv. :—(1) The process of isomerisation in oximes; (2) isomeric forms of cyclodimethylhexylamine; (3) the simplest methene-hydrocarbons of the various ring-systems and their transformation into alicyclic aldehydes: O. Wallach.—Contributions to the theory of vortex-rings: J. Weingarten.

DIARY OF SOCIETIES.

THURSDAY, JUNE 7.

ROYAL SOCIETY, at 4.30.—On the Osmotic Pressures of some Concentrated Solutions: Earl of Berkeley and E. G. J. Hartley.—On the Regeneration of Bone: Sir William MacEwen, F.R.S.—The Effects of Self-induction in an Iron Cylinder: Prof. E. Wilson.—An Account of the Pendulum Observations connecting Kew and Greenwich Observatories, made in 1903: Major G. P. Lenox-Conyngham.

ROYAL INSTITUTION, at 5.—Man and the Glacial Period: Prof. W. J. Sollas, F.R.S.

LINNEAN SOCIETY, at 8.—On Two New Species of Populus from Darjeeling: H. H. Haines.—Biscayan Plankton, part viii., The Cephalopoda: W. E. Hoyle.—Part ix., The Medusæ: E. T. Browne.

CHEMICAL SOCIETY, at 8.30.—Ammonium Selenate and the Question of Isodimorphism in the Alkali Series: A. E. H. Tutton.—An Improved Beckman Apparatus for Molecular Weight Determination: J. M. Sanders.—Resolution of Lactic Acid by Morphine: J. C. Irvine.—The Vapour Pressures of Binary Mixtures, part i., The Possible Types of Vapour-pressure Curves: A. Marshall.—Action of Sodium on *o*-Dichloropropylene: I. Smedley.—Thiocarbamide as a Solvent for Gold: J. Moir.—The Action of Sulphur Dioxide and Aluminium Chloride on Aromatic Compounds: S. Smiles and R. Le Rossignol.

FRIDAY, JUNE 8.

ROYAL INSTITUTION, at 9.—Studies on Charcoal and Liquid Air: Sir James Dewar, F.R.S.

PHYSICAL SOCIETY, at 8.—On the Solution of Problems in Diffraction by the Aid of Contour Integration: H. Davies.—The Effect of Radium in Facilitating the Visible Electric Discharge *in vacuo*: A. A. Campbell Swinton.—Mr. J. Gould's Experiments with a Vibrating Steel Plate, exhibited by Messrs. Newton and Co.—Fluid (liquid) resistance: Col. de Villamil.

ROYAL ASTRONOMICAL SOCIETY, at 5.—The New Reduction of the Meridian Observations of Groombridge: Lewis Boss.—On Mr. Cowell's Discussion of Ancient Eclipses of the Sun: Simon Newcomb.—The Physical Condition of Mars: R. Crawford.—*Promised Papers*: Results of Micrometer Measures of Double Stars made with the 28-inch Refractor in the Year 1905: Royal Observatory, Greenwich.—Errors of Jupiter from Photographic and Transit Circle Observations: Royal Observatory, Greenwich.—A Simple Method of obtaining an Approximate Solution of Kepler's Problem (an Instrument will be shown by which the Solution is Effected): A. A. Rambaut.—Solar Parallax Papers, No. 4; the Magnitude Equation in Meridian Circle Right Ascensions of the "Étoiles de Repère": A. R. Hinks.—Spherical Slide Rule: W. B. Blaikie.—Discussion on some of the Results of Observations of the Solar Eclipse of 1905 August 30.—Contributions are promised by Prof. H. H. Turner and Mr. H. F. Newall.—Mr. Newall promises a Paper, Notes on Polarisation Phenomena in the Solar Corona.

GEOLOGISTS' ASSOCIATION, at 8.—The Higher Zones of the Upper Chalk in the Western Part of the London Basin: H. J. Osborne White and Ll. Treacher.

MALACOLOGICAL SOCIETY, at 8.—Mollusca of the *Porcupine* Expeditions, 1869-70, Supplemental Notes, part iii.: E. R. Sykes.—Notes on the Dates of Publication of the "Mineral Conchology" and "Genera Rec. Foss. Shells": E. R. Sykes.—Description of *Oliva ispidula*, L. var. *longispira*: F. G. Bridgman.—On *Chloritis heteromphalus*: H. A. Pilsbry.

MONDAY, JUNE 11.

ROYAL GEOGRAPHICAL SOCIETY, at 8.30.—The Geography of the Indian Ocean: J. Stanley Gardiner.

SOCIETY OF CHEMICAL INDUSTRY, at 8.—Recent Progress in the Cement Industry: Bertram Blount.—On Purifying and Stabilising Gunccotton: Dr. R. Robertson.

INSTITUTE OF ACTUARIES, at 5.—Fifty-ninth Annual General Meeting.

TUESDAY, JUNE 12.

ANTHROPOLOGICAL INSTITUTE, at 8.15.—Two Years among the Akikoyu of British East Africa: W. Scoresby Routledge.

MINERALOGICAL SOCIETY, at 8.—On the Occurrence of Axinite in the Area South of Bodmin, in Cornwall: G. Barrow.—Cassiterite Pseudomorphs from Bolivia: R. Pearce.—Notes on Skiodromes and Isogyres: Dr. J. W. Evans.

WEDNESDAY, JUNE 13.

GEOLOGICAL SOCIETY, at 8.—Recumbent Folds produced as a Result of Flow: Prof. W. J. Sollas, F.R.S.—The Crag of Iceland—an Intercalation in the Basalt Formation: Dr. Helgi Pjetursson.

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VICTORIA INSTITUTE, at 4.—Wonders and Romance of Insect Life: Frederick Enock.

THURSDAY, JUNE 14.

ROYAL SOCIETY, at 4.30.—*Probable papers*: The Experimental Analysis of the Growth of Cancer: Dr. E. F. Bashford, J. A. Murray, and W. H. Bowen.—On the Electrical and Photographic Phenomena manifested by certain Substances that are commonly supposed to be *Ætiologically Associated with Carcinoma*: Dr. W. S. Lazarus-Barlow.—The Bone Marrow; a Cytological Study forming an Introduction to the Normal and Pathological Histology of the Tissue: Dr. W. E. Carnegie Dickson.—On the Relation of the Liver Cells to the Blood Vessels and Lymphatics: P. T. Herring and S. Simpson.—(1) Note on Lipase; (2) The Hydrolytic Action of Acids in Presence of Salts: Prof. H. E. Armstrong, F.R.S.

MATHEMATICAL SOCIETY, at 5.30.—Exhibition of Models of Space-filling Solids: W. Bailey.—The Algebra of Apolar Linear Complexes: Dr. H. F. Baker.

INSTITUTION OF MINING ENGINEERS, at 11 a.m.—Address by the President.—The Commercial Possibilities of Electric Winding for Main Shafts and Auxiliary Work: W. C. Mountain.—Electrically-driven Air-compressors, combined with the working of the Ingersoll-Sergeant Heading-machines, and the subsequent working of the Busty Seam: A. Thompson.—Practical Problems of Machine-mining: Sam Mavor.—The Strength of Brazed Joints in Steel Wires: Prof. Henry Louis.—Bye-product Coke and the Huesener Bye-product Coke Ovens: J. A. Roelofsen.—Considerations on Deep Mining: George Farmer.

FRIDAY, JUNE 15.

INSTITUTION OF MINING ENGINEERS, at 10.30 a.m.—Rescue Apparatus and the Experience made therewith at the Courrières Collieries by the German Rescue Party: G. A. Meyer.—A New Apparatus for Rescue-work in Mines: W. E. Garforth.—A Rateau Exhaust-steam-driven Three-phase Haulage Plant: William Maurice.—Development of Placer Gold-mining in the Klondike District, Canada: J. B. Tyrrell.—Mining Education: Prof. J. W. Gregory.—The Capacity-current and its Effect on Leakage Indications on Three-phase Electrical Power-service: Sydney F. Walker.—Petroleum Occurrences in the Orange River Colony: A. R. Sawyer.

NATIONAL ASSOCIATION FOR THE PROMOTION OF TECHNICAL AND SECONDARY EDUCATION, at 3.—Annual General Meeting.

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