

SOCIETIES AND ACADEMIES.

LONDON.

Chemical Society, October 18.—Sir W. Ramsay, K.C.B., F.R.S., in the chair.—The Longstaff medal was presented to Prof. W. Noël Hartley, F.R.S., of Dublin, for his researches in spectrochemistry.—The description and spectrographic analysis of a meteorite stone: W. N. **Hartley**. This stony meteorite was seen to fall in the Kangra Valley, Northern Punjab, in 1897. The principal constituents of the metallic portion are iron, nickel, cobalt, and chromium, with small quantities of copper, lead, silver, and gallium. Manganese, calcium, potassium, and sodium are only present in minute proportions.—Malacone, a silicate of zirconium containing argon and helium: S. **Kitchin** and W. G. **Winterson**. This mineral, found at Hitteroe and Arendal, Norway, is radio-active, and gives off a mixture of helium and argon when heated. The analysis, discounting ferric oxide, uranium oxide, &c., points to the ratio $3\text{ZrO}_2 : 2\text{SiO}_2$ between the zirconia and the silica.—The relationship of colour and fluorescence to constitution, part i., the condensation products of mellitic and pyromellitic acid with resorcinol: O. **Silberrad**. One of the chief interests of this work lies in its bearing on the quinone theory of the structure of the phtaleins. Many of the compounds described do not admit of formulation on the quinone type, but are nevertheless intense colouring matters, and strongly fluorescent.—Separation of $\alpha\alpha$ - and $\beta\beta$ -dimethyladipic acids: A. W. **Crossley** and Miss N. **Renouf**.—Action of alcoholic potassium hydroxide on 3-bromo-1:1-dimethylhexahydrobenzene: A. W. **Crossley** and Miss N. **Renouf**.—The conversion of morphine and codeine into optical isomerides, preliminary communication: F. H. **Lees** and F. **Tutin**. The facts obtained permit of the following conclusions respecting the constitution of morphine:—(1) the isomeric codeines are the result of the racemisation of two asymmetric carbon atoms in a molecule which must necessarily contain a third asymmetric system; (2) the carbon atoms which undergo racemisation are most probably those in the reduced phenanthrene nucleus to which the alcoholic hydroxyl group and the nitrogen atom are respectively attached; (3) The possible isomeric codeines must be represented by the configurations $++-$, $+--$, $-+-$, $---$ —The aminodicarboxylic acid derived from pinene: W. A. **Tilden** and D. F. **Blyther**. Details are given for the preparation of the acid and its hydrochloride, nitrate, acid oxalate, copper salt, ethyl ester and its hydrochloride, and the acetyl derivative.—The preparation and properties of dihydropinylamine (pinocampylamine): W. A. **Tilden** and F. G. **Shepherd**. Dihydropinylamine is the chief product of the reduction of nitrosopinene by means of boiling amyl alcohol and sodium. The hydrochloride, platinichloride, picrate, nitrate, oxalate, also the acetyl and benzoyl derivatives and the carbamide, have been prepared and analysed.—Determination of nitrates: F. S. **Sinnatt**. It is shown that Knecht and Hibbert's method for the estimation of picric acid (*Ber.*, 1903, xxxvi., 1549) may be applied to the estimation of nitrates.—The nature of ammoniacal copper solutions: H. M. **Dawson**. The experimental data obtained indicate the existence in solution of a dissociating complex compound containing four molecules of ammonia per atom of copper.—The colouring matters of the stilbene group, part iii.: A. G. **Green** and P. F. **Crosland**. It is shown that all the dyestuffs of the stilbene series are true azo-compounds. Their chromophor being an azo-group, their dyeing properties are now satisfactorily explained. They differ, however, from most other azo-dyestuffs in the entire absence of auxochrome groups.—Interaction of succinic acid and potassium dichromate. Note on a black modification of chromium sesquioxide: E. A. **Werner**. When a mixture of finely powdered potassium dichromate (1 mol.) and succinic acid (6 mols.) is heated, a compound having the composition $\text{Cr}_2(\text{C}_4\text{H}_4\text{O}_4)_3 \cdot 7\text{H}_2\text{O}$ is formed which has not the properties of a chromo-organic acid. The chromium hydroxide produced from it by decomposition with sodium hydroxide leaves a jet-black modification of the sesquioxide after ignition.—Derivatives of polyvalent iodine. The action of chlorine on organic iodo-derivatives, including the sulphonium and tetra-substituted ammonium iodides: E. A. **Werner**.—The so-

called "benzidine chromate" and allied substances: J. **Moir**. This substance, which resembles cœrulignone, results on mixing solutions of benzidine and chromium trioxide. It is the chromate, not of benzidine, but of a complex oxidation product of the latter.—New derivatives of diphenol (4:4'-dihydroxydiphenol): J. **Moir**. By the sulphonation of diphenol the author has prepared the 3:3'-disulphonic acid, the 3:5:3'-trisulphonic acid, and the 3:5:3':5'-tetrasulphonic acid.—The interaction of the alkyl sulphates with the nitrites of the alkali metals and metals of the alkaline earths: P. C. **Rây** and P. **Neogi**. By the interaction of the sodium, potassium, barium, and calcium salts of ethyl sulphuric acid and the nitrites of the alkali metals and metals of the alkaline earths, both ethyl nitrite and nitroethane were formed.—The electrolytic preparation of dialkylidysulphides. Preliminary note: T. S. **Price** and D. F. **Twiss**. By the electrolysis of a concentrated aqueous solution of ethyl sodium thiosulphate, commonly known as Bunte's salt, diethylidysulphide is formed at the anode. Similar results were obtained by electrolysing solutions of benzyl sodium thiosulphate, dibenzylidysulphide being produced.—The direct union of carbon and hydrogen at high temperatures: J. N. **Pring** and R. S. **Hutton**.—The action of nitrogen sulphide on certain metallic chlorides: O. C. M. **Davis**. When nitrogen sulphide dissolved in dry chloroform is added to the tetrachlorides of tin and titanium, the pentachlorides of antimony and molybdenum, and also tungsten hexachloride dissolved in the same solvent, interaction readily takes place. The compounds formed are represented by the formulæ $\text{SnCl}_4 \cdot 2\text{N}_2\text{S}_4$, $\text{SbCl}_5 \cdot \text{N}_2\text{S}_4$, $\text{MoCl}_5 \cdot \text{N}_2\text{S}_4$, $\text{WCl}_6 \cdot \text{N}_2\text{S}_4$, and $\text{Ti}_2\text{Cl}_6 \cdot \text{N}_2\text{S}_4$.—The determination of halogen: J. **Moir**.

PARIS.

• **Academy of Sciences**, October 22.—M. H. Poincaré in the chair.—The work stored up in the trochoidal wave: Émile **Bertin**.—Distillation and desiccation in a vacuum with the aid of low temperatures: MM. **d'Arsonval** and **Bordas**. The vapours given off pass into a condensation tube cooled either with liquid air or a mixture of solid carbon dioxide and acetone, according to the vacuum required. After a preliminary exhaustion with a water-pump, the exhaustion is completed by a tube filled with charcoal immersed in liquid air or acetone and carbon acid snow, a Crookes's tube being used as a manometer. The vacuum is maintained by the charcoal tube in spite of any slight leakages through the connections. A diagram of the apparatus is given, together with full details for its use. The following advantages are claimed for the method:—the evaporated liquid can be weighed directly, the evaporation taking place at the ordinary temperature, and in the absence of air the dried substance is obtained without alteration, and the time required for the whole operation is much reduced. Thus to obtain the dry residue from wine, which required three days when evaporated in a vacuum by the ordinary method, three hours are sufficient.—Contribution to the study of the calorific emission of the sun: G. **Millockau** and C. **Féry**. Details are given of the calibration of the apparatus described in a previous paper. Basing the constant of the instrument on the calibration with an electric furnace, the temperature of which was taken as 1673° absolute, and correcting for atmospheric absorption, the temperature of the sun as given by observations at the summit of Mt. Blanc is 5620° C.—Researches on atmospheric lines: Milan **Štefánik**. By the application of the method of coloured screens, the author has been able to study the telluric lines in the infra-red. A description is given of the instruments employed, observations being made at the Observatory of Meudon, Chamonix, Grands-Mulets, and the summit of Mt. Blanc.—Isothermal surfaces of the first class: L. **Raffy**.—Isothermal surfaces: R. **Rothe**.—The conditions of complete integrability of certain differential systems: M. **Riquier**.—The liquefaction of air by expansion with external work: Georges **Claude**.—A safety apparatus for providing against accidental sparks in the effects of wireless telegraphy: Édouard **Branly**.—The aurora borealis. A reply to M. Störmer: P. **Villard**.—The existence of chloride of bromine: Paul **Lebeau**. The author has repeated the experiments of earlier workers under varying

conditions on the so-called chloride of bromine, and comes to the conclusion that no such compound really exists. The crystals which can be obtained by cooling sufficiently a solution of bromine in liquefied chlorine have a composition depending on the temperature at which they are formed, and are mixed crystals of the two halogens.—Protoxide of caesium: E. **Rengade**. It is possible to prepare the oxide of caesium Cs_2O in a pure and well-crystallised condition by admitting a limited quantity of oxygen to a weighed amount of the metal. When about two-thirds the amount of oxygen necessary to form the Cs_2O has been admitted, the excess of the metal is slowly distilled off in a vacuum at 200°C . The oxide remains in the form of orange-red crystals, reacting violently with water, and decomposing at about 500°C . in contact with silver, and in the cold in the presence of liquefied ammonia, the latter giving a mixture of the amide and hydrate of caesium.—The pure alloys of tungsten and manganese, and the preparation of tungsten: G. **Arrivaut**. In the reduction by aluminium a suitably high temperature of reaction is obtained by using Mn_2O_4 , WO_3 , MnO_2 , and WO_2 in varying proportions. Manganese-tungsten alloys can be prepared containing from 12 per cent. to 60 per cent. of tungsten. By preparing an ingot containing 45 per cent. of tungsten and submitting this to the action of hydrochloric acid, the residue was nearly pure tungsten, 99.5 per cent.—The products of condensation of acetylenic esters with amines: Ch. **Moureu** and I. **Lazennec**. The products of the condensation of the acetylenic esters $\text{R}-\text{C}\equiv\text{C}-\text{CO}_2\text{R}'$ with amines are non-basic bodies, easily hydrolysed by acids. Hydrolysis regenerates the amine, with formation of the ketonic ester $\text{R}-\text{CO}-\text{CH}_2-\text{CO}_2\text{R}'$. The reaction furnishes a new method of passing from the acetylenic esters to the β -ketonic esters.—The atomic weight of dysprosium: G. **Urbain** and M. **Demenitroux**. A set of determinations, carried out on the products of different fractions, gave 162.54 ($\text{O}=16$) as a mean of twelve very concordant results.—The presence of formol in certain foods: G. **Perrier**. By applying the very sensitive reaction proposed by Voisenet for the detection of minimal proportions of formol, the author has proved the presence of this substance in various articles of food, the formaldehyde arising from the mode of preparation, and not having been specially added. In view of these results the author discusses the advisability of altering the existing law, which absolutely prohibits the presence of formaldehyde in food, substituting a maximum limit.—The azo colouring matters: heat of combustion and constitutional formulæ: P. **Lemoult**.—The liquid crystals of cholesteryl propionate: Fred. **Wallerant**.—The action of copper salts on the germination of *Penicillium*: M. **Le Renard**.—The variations of assimilation with light and temperature: W. **Lubimenko**.—The swimming mechanism of *P. maximus*: Fred **Vies**.—*Mesoglicola Delagei*, a parasite of *Corynactis viridis*: A. **Quider**.—The unity of the hæmatozoa of paludism: M. **Thiroux**.—The Dolichopodidæ of amber from the Baltic: Fernand **Meunier**.

DIARY OF SOCIETIES.

THURSDAY, NOVEMBER 1.

ROYAL SOCIETY, at 4.30.—On Intravascular Coagulation in Albinoes and Pigmented Animals, and on the Behaviour of the Nucleo-proteins of Testes in Solution in the Production of Intravascular Coagulation: G. P. Mudge.—Nitrification of Sewage: Dr. G. Reid.—A General Consideration of the Subaerial and Freshwater Algal Flora of Ceylon: Dr. F. E. Fritsch.—The Anæsthetic and Lethal Quantity of Chloroform in the Blood of Animals: Dr. G. A. Buckmaster and J. A. Gardner.

CHEMICAL SOCIETY, at 8.30.—A Development of the Atomic Theory which correlates Chemical and Crystalline Structure and leads to a Demonstration of the Nature of Valency: W. Barlow and W. J. Pope.—The Explosive Combustion of Hydrocarbons, II.: W. A. Bone, J. Drugman and G. W. Andrew.—Contributions to the Theory of Solutions: (1) The Nature of the Molecular Arrangement in Aqueous Mixtures of the Lower Alcohols and Acids of the Paraffin Series; (2) Molecular Complexity in the Liquid State; (3) Theory of the Intermiscibility of Liquids: J. Holmes.—The Hydrolysis of Nitro-cellulose and Nitro-glycerol: O. Silberrad and R. C. Farmer.—The Determination of the Rate of Chemical Change by Measurement of Gases Evolved: F. E. E. Lampough.—Experiments on the Synthesis of the Terpenes Part IX., The Preparation of δ -Ketohexahydrobenzoic Acid (δ -Ketocyclohexanecarboxylic Acid) and of γ -Ketocyclopentanecarboxylic Acid: F. W. Kay and W. H. Perkin, jun.—Experiments on the Synthesis of the Terpenes, Part X., Synthesis of Δ^1 -*m*-Menthenol (8) and of Carvestrene: W. H. Perkin, jun., and G. Tattersall.—Some Derivatives of Catechol, Pyrogallol, Benzo-phenone and of Other Substances allied to the Natural Colouring Matters: W. H. Perkin, jun., and C. Weizmann.

LINNEAN SOCIETY, at 8.—The Structure of Bamboo Leaves: Sir Dietrich Brandis, K.C.I.E., F.R.S.—On a Collection of Crustacea Decapoda and Stomatopoda, chiefly from the Inland Sea of Japan, with Descriptions of New Species: Dr. J. G. de Man.—On *Hectorella caespitosa*, Hook. f. with Remarks on its Systematic Position: Prof. A. J. Ewart.—*Exhibitions*: Young Plaice Hatched and Reared in Captivity: the President.—Abnormal Specimens of *Equisetum Telmateia*, Ehrh.: George Talbot.

CIVIL AND MECHANICAL ENGINEERS' SOCIETY, at 8.—Bridge Work Design: P. J. Waldram.

FRIDAY, NOVEMBER 2.

GEOLOGISTS' ASSOCIATION, at 8.—Conversation.

MONDAY, NOVEMBER 5.

SOCIOLOGICAL SOCIETY, at 8.—Psychological Factors in Social Transmission: Dr. J. W. Slaughter.

LONDON INSTITUTION, at 5.—Earthquakes and Volcanoes: Sir Robert Ball, F.R.S.

SOCIETY OF CHEMICAL INDUSTRY, at 8.—The Advantages of Investigating the Unlikely: Sir William Ramsay, K.C.B., F.R.S.

TUESDAY, NOVEMBER 6.

INSTITUTION OF CIVIL ENGINEERS, at 8.—Address by the President, Sir Alexander B. W. Kennedy, and Presentation of Medals and Prizes Awarded by the Council.

WEDNESDAY, NOVEMBER 7.

ENTOMOLOGICAL SOCIETY, at 8.—A Permanent Record of British Moths in their Attitude of Rest: A. H. Hamm.

GEOLOGICAL SOCIETY, at 8.—On the Upper Carboniferous Rocks of West Devon and North Cornwall: E. A. Newell Arber.—The Titaniferous Basalts of the Western Mediterranean: H. S. Washington.

SOCIETY OF PUBLIC ANALYSTS, at 8.—The Analyst and the Medical Man: Dr. F. Gowland Hopkins, F.R.S.

THURSDAY, NOVEMBER 8.

ROYAL SOCIETY, at 4.30.—*Probable Papers*: Note on the Continuous Rays observed in the Spark Spectra of Metalloids and some Metals: Prof. W. N. Hartley, F.R.S.—The Composition of Thorianite, and the Relative Radio-activity of its Constituents: Dr. E. H. Büchner.—On a Compensated Micro-manometer: B. J. P. Roberts.—Experimental Investigation as to the Dependence of Gravity on Temperature: L. Southern.—A Numerical Examination of the Optical Properties of Thin Metallic Plates: Prof. R. C. Maclaurin.

MATHEMATICAL SOCIETY, at 5.30.—Annual General Meeting.—Presidential Address: Partial Differential Equations; some Criticisms and some Suggestions: Prof. A. R. Forsyth.—Harmonic Expansions of Functions of Two Variables: Prof. A. C. Dixon.—The General Solution of Laplace's Equation in n Dimensions: G. N. Watson.—On Sub-groups of a Finite Abelian Group: H. Hilton.—On Bäcklund's Transformation and the Partial Differential Equation $s=F(x, y, z)$.

INSTITUTION OF ELECTRICAL ENGINEERS, at 8.—Presentation of Premiums awarded for Papers Read or Published during 1905-06.—Inaugural Address by the President, Dr. R. T. Glazebrook, F.R.S.

FRIDAY, NOVEMBER 9.

ROYAL ASTRONOMICAL SOCIETY, at 5.

PHYSICAL SOCIETY, at 8.—Exhibition and Description of Experiments Suitable for Students in a Physics Laboratory: G. F. C. Searle.

MALACOLOGICAL SOCIETY, at 8.—Description of a New Species of Calliostoma from S. Formosa: E. A. Smith, I.S.O.—Description of a New Sub-genus and Species of *Alycaeus* from Ke-lan-tan: H. B. Preston.—Description of Six New Species of Shells and of *Leptomya lineata*, Hutton, from New Zealand: H. Suter.—Descriptions of some Tertiary Shells from New Zealand: H. Suter.

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