

Societies and Academies.

LONDON.

Physical Society, Nov. 7.—W. N. Bond: Turbulent flow through tubes. The experimental methods included (a) an aural method; (b) photography of the motion of a deflected vane; and (c) injection of colour-streams about half-way along the tube. Intermittent turbulence was investigated at speeds near the critical speed, and measurements of the critical speed were made. The velocity parallel to the tube-axis is sometimes almost uniform momentarily over the transverse section. No trace was found of a simple frequency, but evidence was obtained of a predominant wave-length in the turbulent motion at the critical speed. Both these observations seem to agree with the approximate theory given by Heisenberg for flow between a pair of parallel planes.

Geological Society, Nov. 19.—A. Brammall: The Dartmoor granites: their genetic relationships (with 80 analyses by Dr. H. F. Harwood and assistants). This complex of differentiated types comprises an 'early' granite suite (sodi-potassic) and a 'late' suite (potassic). They enclose relics of an older differentiated suite (sodic) ranging from granodiorites to granites (with porphyries) and including terms which approximate to Rosenbusch's 'average alkali-granite'. These cognate inclusions are distinguished from hornfelsed xenoliths (shales and diabases). Biotites and orthoclase-phenocrysts 'vary' in the same sense as the granites themselves. The variation-curves for the whole complex show no feature that is inconsistent with a basaltic parentage. Contrary to expectations based on phase-equilibrium, the phenocrysts of the older main granites contain in solid solution a norm-plagioclase which is more albitic than the average for the containing granites. This anomaly (with some others) and the further fact that these coarse granites are the richest in accessory species suggest the effectiveness of crystal-accumulation, as postulated by Bowen. Contamination is general; hybrids are described.

Linnean Society, Nov. 20.—R. Gopala Aiyer: An account of the development and breeding habits of a brackish-water polychaet worm of the genus *Morphysa*. A species of *Morphysa* lives in the mouth of the Adyar River (Madras) and the neighbouring back-water. The mouth of the Adyar is usually closed, and the water brackish. The spawn of the worm is found mainly from February to September as jelly-like masses in which the tiny black eggs are embedded. The development of the eggs was observed in the laboratory over a period of eight months. There is no free-swimming stage. The larvæ sink to the bottom and begin a creeping existence. The creeping life is given up as new segments are added, and the tiny worms construct small tubes formed mainly of organic debris cemented together by mucus. Development takes nearly six months.

Society of Public Analysts, Dec. 3.—G. Middleton: A storage and delivery apparatus for antimony chloride solution and other corrosive reagents. Antimony chloride solution is forced upwards by means of a compression rubber bulb into a tube fitted inside the reagent bottle, whence it passes into an external measuring tube, delivering 2 c.c. into the tintometer cell. The ground-glass joints are constructed in such a manner that the reagent does not come in contact with them.—G. Middleton and F. C. Hymas: Tests for impurities in ether (2 and 3). The tests recommended for official adoption are: For acetaldehyde, modified Schiff's reagent, made by the addition of 0.1 per cent pyrogallol; and for acetone, the vanillin

test of the Dutch Pharmacopoeia.—Norman Evers: The determination of small quantities of calcium in magnesium salts. Dissolve the required weight of the magnesium salt in 25 c.c. of 20 per cent sulphuric acid, and add 50 c.c. of 95 per cent (by vol.) alcohol. Mix thoroughly and leave overnight. Filter on a Gooch crucible and wash with 200 c.c. of a mixture of 2 volumes of 95 per cent alcohol and 1 volume of 20 per cent sulphuric acid. Ignite and weigh as CaSO_4 . The results obtained have a tendency to be slightly low. The method may also be applied to solutions containing phosphates, iron, etc.—P. K. Bose: A new method for the detection of nitro-groups in organic compounds. The method, which is applicable to all poly-nitro organic compounds, is based on the hydrolytic dissociation of the compound by means of potassium hydroxide, and the identification of the resulting nitrous acid by means of the Griess-Ilosvay reagent.

PARIS.

Academy of Sciences, Nov. 17.—A. Lacroix: New observations on the tectites of Indo-China. Tectites have been found in large numbers over a distance of 1300 kilometres in Indo-China. Their chemical composition is constant. The possible origin of these tectites is discussed: volcanic origin, genesis in the place found, are both impossible, and a cosmic origin appears probable.—André Blondel: The practical magnetic units.—Georges Claude: Concerning a communication of M. Raveau.—R. Nasini: The discovery of boric acid in the glaze of Arezzo vases. The presence of borax in these Roman glazes of the first century has been suggested, but not proved. By the analyses of authenticated specimens it is now established that this red glaze contains boric acid, not as occasional traces but as a true constituent.—Charles Porcher was elected *Correspondant* for the Section of Rural Economy in succession to the late Ulysse Gayon.—E. Halphen: The extension of Charles's theorem to space.—N. Achieser: The asymptotic properties of some polynomials.—A. Kolmogoroff: The law of large numbers.—Mlle. Marie Charpentier: The existence of Peano points of a differential equation of the first order.—Rolf Nevanlinna: A class of transcendental functions.—J. Delsarte: The determination of the Taylor coefficients of a probability function the moments of which are known.—Jos. Kaucký: Remarks on the note of M. V. Romanovsky. The discrete chains of Markoff.—Julius Wolff: The angular derivative.—Couffignal: A new calculating machine.—D'Ocagne: Remarks on the preceding note.—J. Ph. Lagrula: The position error of the centre of dependences at the interior of a triangle of reference, when the homology is assimilated to linear homography.—James Basset: An apparatus for experimenting on gases at ultra-pressures of 6000 kgm. per square centimetre. Description with a photograph and two diagrams of the apparatus.—E. Brylinski: A system of mechanical, electrical, and magnetic units.—Panc-Tcheng Kao: The relaxation oscillations produced by an oscillator with piezoelectric quartz.—R. Weil: New observations on quartz.—A. Dauvillier: The X-ray spectra of gases. The *K* series of krypton and xenon.—P. Lebeau and A. Damiens: The action of fluorine upon wood charcoal. The boiling point and melting point of carbon tetrafluoride. The gas obtained by the action of fluorine upon wood charcoal, after freeing from oxygen and moisture, is liquefied by cooling to -190°C . By fractional distillation of this liquid, pure carbon tetrafluoride has been prepared, with a boiling point of -126°C . and melting point -191°C . From the heavier fractions two other gases have been isolated, hexafluor ethane, C_2F_6 , and octafluor propane, C_3F_8 , and these are being further studied.—M. Paic:

The X-ray study of the products obtained by the action of the halogen acids on the mercuric sulphates. Fusion diagram of the system $\text{HgI}_2\text{-HgSO}_4$.—Sou Phou Ti: The action of ethylmagnesium bromide on *N*-diethylmonochloracetamide. This reaction took an unexpected course, the main product being an amino-alcohol, probably $\text{Et}_2\text{N}\cdot\text{C}(\text{Et})_2\cdot\text{CH}_2\text{OH}$. A trace of diethylacetaldehyde was also isolated.—J. Décombe: The *N*-alkylation of the β -amino-ethers.—Mlle. S. Grateau: A new method of preparing the δ -ketonic esters. The Friedel and Crafts reaction applied to the chloride ester of adipic acid gives an excellent yield of ethyl δ -benzoylvalerate, and the reduction of this ester leads to phenylcaproic acid. The method appears to be capable of general application.—Frèrejacque: A catalyst for the autoxidation of uric acid. In presence of activated carbon, uric acid is completely oxidised in alkaline solution by oxygen, giving a mixture of allantoin and oxonamide.—A. Travers and Franquin: The extraction of the bases from the condensation liquors of primary tar.—Maurice Blumenthal: The structure of the penibetic chain between Antequera and Loja (Andalusia).—Jacques Bourcart: An attempt at the co-ordination of the observations on the stratigraphy of the Atlantic slope of the Djebalas peninsula (Northern Morocco).—Mlle. Eliane Basse: Geological observations on the fossil-bearing secondary formation outcropping between Onilahy and Fiherenana (South-West Madagascar).—Albert Nodon: The humming of aerial lines and atmospheric disturbances. The methodical study of the humming of conducting wires, assisted by an amplifying arrangement, can give information valuable for weather forecasts.—J. Bosler: The relations between magnetic storms and the earth currents.—J. Magrou and Mme. M. Magrou: Actions exerted at a distance on the fertilised egg, the sperm, and the virgin egg of the sea-urchin, *Paracentrotus lividus*.—H. Bordier and C. Boisson: A new application of d'Arsonvalisation: hydrodiathermotherapy.—F. Rosenbusch: A disease of Paraguay cattle, similar to paralytic rabies.

LENINGRAD.

Academy of Sciences, *Comptes rendus*, No. 16, 1930.—S. Bernstein: Some remarks on the polynomials of the minimum deviation with whole coefficients.—V. Kistiakovskij: The problem of metastable flotation.—N. Willams: The action of the nitric acid on the primary tetrahydro- α -furfurilamine.—I. Kurbatov: Conditions of growth of crystals of slightly soluble substances.—B. Licharev: Two new representatives of the family Productidæ from the Lower Permian of North Caucasus. Descriptions of *Loczyella* (?) *parvula*, sp. n., and *Pectenoproductus proprius*, gen. and sp. n.

Comptes rendus, No. 17, 1930.—P. Lazarev: Action of certain substances on the nervous centres. General theoretical considerations.—P. Lazarev and A. Dubinskaja-Voskresenskaja: Objective studies of nervous centres in persons suffering from *paralysis progressiva*, after the application of salvarsan and of X-rays. Determinations of the increase in the sensibility of eyes supply a method for observing objectively the action of X-rays and of salvarsan.—P. Lazarev and L. Kuper: Action of acoustic excitations on the sensibility of the eye. The peripheral sensibility decreases under the influence of sounds.—N. Demjanov: Action of nitric anhydride on the ethylenic hydrocarbons.—I. Kurbatov: The proportions of some active elements in the dispersion rocks of Tuia-Mouium.—V. Gromova: The type of *Bison prisus* Bojanus. A specimen from Siberia in the collection of the Zoological Museum of the Academy is re-described as the type.—N. Jakovlev: The discovery of the anal proboscis in the genus *Cupressocrinus*.—

A. Vinogradov: Vanadium in marine organisms. The concentration of vanadium in the ascidian *Phallusia obliqua* may be up to 0.0302 per cent of the live weight.—P. Schmidt and G. Lindberg: A new Japanese fish, *Paracanthochaetodon modestus*, gen. and sp. n.

PRAGUE.

Czech (Bohemian) Academy of Arts and Sciences (second class, Natural Sciences and Medicine), Oct. 17.—J. Wolf: The origin of fibrillar collagenic sols. Fibrillar sols of the synovia.—L. Borovanský: A contribution to the study of growth of organs during the foetal period.—V. Hovorka: Reaction of iodic acid with phosphorous and hypophosphorous acid. In acidic medium, hypophosphorous acid is easily oxidised to phosphorous acid; in alkaline solution iodates are reduced only by hypophosphites. In presence of argentous and mercuric salts the reactions are complicated.—V. Kořinek: Quadratic bodies of quaternion orbits.—J. Koutský: A study of asymptotic transformations of undevelopable surfaces in projective S_3 .—R. Lukeš: The action of Grignard's agent on *N*-methyl-pyrrolidone. Grignard's agent of methyl-, ethyl-, *n*-propyl-, and phenyl-bromides acting on *N*-methyl-pyrrolidone yielded 1-methyl-2-alkyl- Δ_2 pyrrolines, which were isolated as perchlorates, and the corresponding 1-methyl-2-2 di-alkyl-pyrrolidines. The aromatic agent gave 1-methyl-2-phenyl- Δ_2 -pyrroline.—V. Prelog: The sapogenin of beetroot. The oxidation of sapogenin ($\text{C}_{31}\text{H}_{56}\text{O}_3$) by chromic acid yielded a ketonic acid, $\text{C}_{31}\text{H}_{48}\text{O}_3$, giving a methylester, a semicarbazone, and a keto-hydroxy-lactone, $\text{C}_{31}\text{H}_{46}\text{O}_4$. The carboxyl is bound to a tertiary carbon atom and the substance contains inert double-linkages.—K. Šimek: The graphical solution of reactions and axial forces for special plain systems of poles.—J. Petrbok: Pleistocene molluscs of the Danube terrace near Russe in Bulgaria.—V. Posejpal: A third contribution to the study of universal ether. From his conception of particles of ether, the radius, r , of which should be identical with that of an electron, the author deduces the diffusion coefficient σ/ρ of

hydrogen for very hard γ -rays as $\frac{\delta}{\rho} = \frac{\pi}{m_{\text{H}}}r^2$, where m_{H} is

the absolute mass of a hydrogen atom. The radius of the ether particle thus calculated agrees well with the value derived for the radius of the electron from the electro-magnetic theory of mass.—J. M. Jaeger: Molecular configuration and optical activity. Methods, results, and problems of precise modern measurements of high temperatures. Constitution and structure of ultramarine.—C. Purkyně: The waterfall of river Zambezi.

Nov. 14.—E. Votoček: Osazonogenic groups. From original experiments and literature the osazonogenic grouping is shown to be more general, extending to groups like $-\text{CO}\cdot\text{CH}_2\text{Cl}$, $-\text{CO}\cdot\text{CHCl}_2$, $\text{C}\cdot\text{CHCl}\cdot\text{CO}$, and many others.—F. Valentin: A new form of the two rhamnate antipodes. The two optical isomerides, rhamnate trihydrates, $\text{C}_8\text{H}_{14}\text{O}_5\cdot 3\text{H}_2\text{O}$, are enantiomorphous, according to Pasteur's rule.—J. Babička: The determination of proteins by means of electrolysis with the dropping mercury cathode. In the presence of ammonium salts solutions containing soluble proteins (ovo-albumin, serum-albumin, haemoglobin, phyto-albumin) the electrolytic current-voltage curves, registered polarographically, show an electro-reduction at -1.5 , -1.7 volt. The increase of current at this cathodic potential is proportional to the amount of soluble protein. Qualitative and quantitative estimation of albumins is thereby possible.—R. Nováček: Linnéit from the mine Prago at Kladno.—V. Tůma: On the process of closing umbilical blood vessels during human birth.—J. Matiegka and J. Malý: The bodily remains of Karel Havlíček Borovský.