

C. F. Roos: Some problems of business forecasting. Given the necessary supply functions, cost of production functions, etc., available to most business undertakings, it is possible to compute useful figures referring to replacement and enlargement of plant.—Victor K. La Mer and J. W. Temple: The autoxidation of hydroquinone catalysed by manganous salts in acid solutions: a reaction whose velocity is proportional to the driving force.—George B. Kistiakowsky: The temperature coefficients of some photochemical reactions. The rates of reaction of stoichiometric mixtures of hydrogen and oxygen and of carbon monoxide and oxygen have been investigated; the temperature coefficients increase with rising temperature.—M. H. Stone: Linear transformations in Hilbert space. (1) Geometrical aspects. Transformations in complex space which may be applicable to the formulation of the quantum theory.—Neal H. McCoy: On commutation rules in the algebra of quantum mechanics.—H. S. Vandiver: Some theorems concerning properly irregular cyclotomic fields.—Gilbert N. Lewis and Joseph E. Mayer: The thermodynamics of gases which show degeneracy (*Entartung*). A mathematical extension, to all types of molecules, of the work of Bose on photons and of Einstein on monatomic molecules.—Albert W. Hull and Irving Langmuir: Control of an arc discharge by means of a grid (see NATURE, May 18, p. 776).—Joseph Kaplan: The heat of dissociation of nitrogen. The value found from a consideration of the energy of the nitrogen molecule in the *D*-level is about 9 volts.—Katharine B. Blodgett: Exponential yield of positive ions in argon.—F. Rasetti: On the Raman effect in diatomic gases. Observations on nitrogen, oxygen, and carbon monoxide give results in good agreement with theory.—Carl Barus: Adiabatic expansion in case of vanishing increment (2).—Edwin H. Hall: On electrons that are 'pulled out' from metals. The 'free' and 'associated' electrons of the author's dual theory of metallic conduction are renamed 'thermions' and 'valence electrons'. A discussion of Millikan and Eyring's experimental results on the basis of this theory. The evidence indicates that the thermions are very few compared with the number of atoms ( $1$  to  $10^6$  or  $10^8$ ). Valence electron conduction is effected by intermittent trains of electrons.—Carl E. Howe: A preliminary report on the measurement of the *K $\alpha$*  line of carbon. Measurements were made by reflection at grazing incidence from a ruled grating in a vacuum spectrograph. The unweighted mean was  $44.60 \pm 0.04$  Å.—F. Zwicky: On the imperfections of crystals. The differences between the theoretical and observed breaking strength of crystals has led to a theoretical examination of suggested microscopical cracks in crystals. The phenomenon may be related to cold-hardening and similar effects.—Leonard J. Neuman: The mechanism of spark discharge. In argon at low pressures with nickel grid and sodium-coated electrodes, the liberation of electrons from the cathode by bombardment with swift positive ions is the predominating mechanism; with increasing pressure, generation of electrons in the gas by collisions between swift positive ions and neutral molecules becomes more important.—John W. Gowen: The cell division at which crossing-over takes place. It occurs in *Drosophila* in the chromosomes as they prepare for the first maturation division.—George H. Shull: An unexpected association of factors belonging to three linkage groups in *Oenothera* and its explanation.—George D. Snell: An inherent defect in the theory that growth rate is controlled by an autocatalytic process. The increasing volume of the growing organism invalidates the usual mass action equation applied to growth processes. Appropriate

equations are derived.—Robert Emerson: Chlorophyll content and rate of photosynthesis. The chlorophyll content of *Chlorella vulgaris* can be controlled by culture in a medium containing appropriate salts, glucose, and less iron than is normally used. At high light intensities, photosynthesis is a function of chlorophyll content. The curves for rate of photosynthesis as a function of temperature at different chlorophyll contents are similar in form.—Morgan Upton: Functional disturbances of hearing in guinea-pigs after long exposure to an intense tone. There is first an increase of sensitivity to the exposure frequency and then desensitisation to all intensities of it but no general change in the auditory mechanism. This is evidence for a 'resonance' theory of hearing.—Thomas Wayland Vaughan: Studies of orbitoidal Foraminifera: the subgenus *Polylepidina* of *Lepidocyclina* and *Orbitocyclina*, a new genus.

## Official Publications Received.

### BRITISH.

The Journal of the Institution of Electrical Engineers. Edited by P. F. Rowell. Vol. 67, No. 391, July. Pp. 813-936+xxxiv. (London: E. and F. N. Spon, Ltd.) 10s. 6d.  
Air Ministry: Aeronautical Research Committee. Reports and Memoranda. No. 1185 (M. 58): The Strength of Tubular Struts. By Prof. Andrew Robertson. (E.F. 199.) Pp. 44. 2s. 6d. net. No. 1231 (Ae. 382): The Skin Friction on a Circular Cylinder. By A. Page. (T. 2739.) Pp. 9+3 plates. 9d. net. (London: H.M. Stationery Office.)  
Annual Report of the Auckland Institute and Museum for 1928-29, adopted at the Annual General Meeting held on 29th May 1929. Pp. 42+2 plates. (Auckland, N.Z.)

### CATALOGUE.

Ancient Geography: a Catalogue of Atlases and Maps of all Parts of the World from XV Century to Present Day. (New Series, No. 3.) Pp. 144+5 plates. (London: Francis Edwards, Ltd.)

## Diary of Societies.

SATURDAY, AUGUST 10.

MINING INSTITUTE OF SCOTLAND (at Glasgow).

### CONGRESSES.

AUGUST 4 TO 9.

GENEVA INSTITUTE OF INTERNATIONAL RELATIONS.

Monday, Aug. 5, at 10 A.M.—K. Zilliacus: The Structure and Working of the League of Nations.

At 8.30.—E. J. Phelan: The Future of the International Labour Organisation.

Tuesday, Aug. 6, at 10 A.M.—Norman Angell: The Economic Causes of War.

At 8.30.—Henri Rolin: The Peaceful Settlement of all Disputes.

Wednesday, Aug. 7, at 10 A.M.—Prof. J. L. Briery: The Contribution of Law to Peace.

At 5.30.—H. S. Grimshaw: The Problems of Native Labour.

At 8.30.—The Unreadiness of Public Opinion.

Thursday, Aug. 8, at 10 A.M.—Arnold Forster: The Freedom of the Seas and the Outlawry of War.

At 8.—W. T. Layton: Reparations and Debts.

At 5.30.—G. A. Johnston: Industrial Relations.

Friday, Aug. 9, at 10 A.M.—A. E. Zimmern: The Preparation of Public Opinion.

At 3.—Prof. S. de Madariaga: The Monroe Doctrine and the League of Nations.

At 5.30.—Prof. C. K. Webster: The Far East.

AUGUST 9 TO 12.

APIS CLUB INTERNATIONAL CONFERENCE (at Berlin).

Friday, Aug. 9, at 9 A.M. (at Institut für Bienenkunde, Berlin-Dahlem).

Saturday, Aug. 10, at 8 A.M.—Excursion by car round Berlin, with inspection of apicultural objects of interest in the museums, and of the air-port.

Sunday, Aug. 11, at 10 A.M.

Monday, Aug. 12, at 9 A.M.—By car to Pichelsdorf; thence by steamer, visiting the bee-farm and mating-station of the Institut.

Papers will be read during the conference on the natural history, physiology, and pathology of *Apis mellifera*, L., the investigation of honey and wax, plant pollination, history of apiculture, etc., as well as with practical beekeeping topics. There will also be communications by Prof. Fiehe on recent methods of honey analysis, and by Dr. Krotzsch on medical investigations on bee-poison.