

rectilinear diameter of hydrogen. Supplementing earlier work, the densities of liquid hydrogen between  $-239.91^{\circ}$  C. and the boiling point,  $-252.76^{\circ}$  C., have been studied. The cryostat used consisted in a bath of superheated hydrogen vapour, obtained from the evaporation of the liquefied gas and heated by electrical means. The automatic current regulator employed permitted control of the temperature to within  $0.01^{\circ}$  C. for several hours. The experiments required the preparation of about 170 litres of liquid hydrogen and 400 litres of liquid air. The ordinate of the diameter was found to be  $-0.06351-0.00039402\theta$ . The critical density was 0.03 and the critical coefficient 3.276. Hydrogen obeys the law of the rectilinear diameter.—Auguste Béhal was elected a member of the section of chemistry in succession to the late Armand Gautier.—G. Fubini: Automorphic functions.—T. Varopoulos: A class of multiform functions.—A. Véronnet: The variation of a conical trajectory under the action of the resistance of a medium.—J. Villey: Experimental installations for aerodynamical researches. A discussion of the recent proposal by M. Margoulis, suggesting the use of carbon dioxide under high pressures and at low temperatures as the circulating gas in the testing of aeroplane models. Apart from certain difficulties of construction which would add to the cost of the apparatus, the author is of opinion that the use of carbon dioxide could only be complementary to the use of air, and could not safely be employed instead of the latter.—M. Curie: The action of red and infra-red rays on phosphorescent substances. An account of experiments in which zinc sulphide and other phosphorescent substances were submitted to the simultaneous action of ultra-violet rays (mercury lamp with nickel oxide glass filter) and infra-red rays (arc lamp with cuprous oxide glass filter). The sulphides examined behaved differently from fluorescent bodies such as uranium nitrate, barium platinocyanide, and fluorescein.—M. de Broglie: The corpuscular spectra of the elements.—A. Léauté: Complement to the theory of the induced reaction for saturated alternators.—H. Colin and Mlle. A. Chaudun: The application of the law of hydrolysis to the determination of molecular weights.—A. Mailhe: The catalytic preparation of secondary amines and an attempt to introduce the alkyl group into these bases. Schiff's bases, mixed with a small quantity of finely divided nickel and heated to  $170^{\circ}$  C., are reduced smoothly to secondary amines by hydrogen. An attempt to prepare tertiary amines by passing a mixture of the secondary amine and alcohol over alumina heated to  $380^{\circ}$ – $400^{\circ}$  C. was not successful, as the bases were split up in contact with the catalyst.—E. Saillard: The balance of chlorine during the manufacture of sugar and the proportion of chlorine in the beetroot.—L. MacAuliffe and A. Marie: The study and mensuration of 117 Belgians.—P. Audigé: The growth of fishes maintained in a medium at a constant temperature.—E. Rabaud: The paralysing instinct of the spiders.—R. Bayeux: Respiratory insufficiency at very high altitude and its correction by subcutaneous injections of oxygen.—A. Lumière and H. Couturier: The nature of the anaphylactic shock. Further experiments tending to show that the causes of the anaphylactic shock are the same as those of the anaphylactoid crises resulting from the sudden introduction of insoluble substances into the circulation.—Et. and Ed. Sergent: Attempts at vaccinating against paludism in birds due to *Plasmodium relictum*.—E. Woolman: The rôle of flies in the transport of pathogenic germs studied by the technique of aseptic cultivations. These experiments show that contaminated flies remain infected for some days only. Removed

from the source of contamination, they free themselves very rapidly, probably mechanically, from the infecting germs.—MM. Kohn-Abrest, Sicard, and Paraf.

MELBOURNE.

Royal Society of Victoria, November.—Mr. F. Wise would, vice-president, in the chair.—E. Ashby: A description of the Bracebridge Wilson collection of Victorian Chitons, with a description of a new species from New Zealand. This collection was made by the late Mr. J. Bracebridge Wilson, working in connection with the Port Phillip Exploration Committee of the Royal Society, and was dealt with by E. R. Sykes in the Proc. Malac. Soc. in 1896. In addition to the five species described by Sykes as new, the author notes four other species then undescribed, *Callochiton rufus*, Ashby, which has hitherto been known only by a single type-specimen dredged in South Australia, and a new species of *Lepidopleurus* from New Zealand.—Dr. J. M. Baldwin: Application of genetics to plant-breeding. The problems of genetics are those which grow out of a study of the resemblances and differences in individuals related by descent. There are four general lines of attacking the problems: (a) The method of observation used by Darwin in marshalling evidence in favour of the evolution theory; (b) biometrical methods employed with such success by Pearson; (c) cytological methods, which are primarily concerned with a study of cell-mechanism; and (d) experimental breeding, which involves the raising of pedigreed cultures of plants. From the last method have come many stimulating ideas of heredity and variation, including the Mendelian theory of heredity, the pure-line theory of Johannsen, and the mutation theory of De Vries.

### Books Received.

- Journal of the Royal Statistical Society. New Series. Vol. lxxxiv., part 1, January. Pp. x+165. (London.) 7s. 6d.
- A New Bristol Flora: British Wild Flowers in their Natural Haunts. By A. R. Harwood. (In 6 vols.) Vol. i. Pp. ix+244. Vol. ii. Pp. xi+243+ xvii plates. (London: Gresham Publishing Co.) 12s. 6d. net per vol.
- Principles of Human Geography. By E. Huntington and S. W. Cushing. Pp. xiv+430. (New York: J. Wiley and Sons, Inc.; London: Chapman and Hall, Ltd.) 21s. net.
- Rapid Methods for the Chemical Analysis of Special Steels, Steel-making Alloys, their Ores and Graphites. By C. M. Johnson. Third edition, revised and enlarged. Pp. xi+552. (New York: J. Wiley and Sons, Inc.; London: Chapman and Hall, Ltd.) 36s. net.
- The Health of the Industrial Worker. By Prof. E. L. Collis and M. Greenwood. Pp. xix+450. (London: J. and A. Churchill.) 30s. net.
- Poverty and its Vicious Circles. By Dr. J. B. Hurry. Second and enlarged edition. Pp. xvi+411. (London: J. and A. Churchill.) 15s. net.
- The Mother and the Infant. By Edith V. Eckhard. (Social Service Library.) Pp. viii+256. (London: G. Bell and Sons, Ltd.) 6s. net.
- The Microscope: Its Design, Construction, and Applications. Edited by F. S. Spiers. Pp. v+260+ plates. (London: C. Griffin and Co., Ltd.) 21s. net.
- Il Regime delle Acque nel Diritto Pubblico e Privato Italiano. By A. Vitale. Pp. x+480. (Milano: U. Hoepli.) 25 lire.