

Prize between MM. Lebeau, Hébert, Tassilly, and Thomas; the Saintour Prize to M. G. André; the Prize founded by M<sup>me</sup>. La Marquise De Laplace to M. Crussard, and the Prize founded by M. Félix Rivot to MM. Crussard, Gourguechon, Bertrand, and Bruneau.

NEW SOUTH WALES.

**Royal Society**, November 3, 1897.—The President, Henry Deane, in the chair.—The effect of temperature on the tensile and compressive properties of copper, by Prof. Warren and Mr. S. H. Barraclough. This investigation was carried out on some fifty copper test pieces. The temperature range attained was from 25° F. to 535° F., the temperatures being measured by certified mercurial thermometers. The chief conclusions arrived at were: (a) The relation between the ultimate tensile strength and the temperature may be very closely represented by the equation  $f = 32,000 - 21 t$ , where  $f$  is the tensile strength expressed in pounds per square inch, and  $t$  is the temperature expressed in degrees F. (b) Temperature does not affect the elongation or contraction of area in any regular manner: and at any one temperature the variation in these two quantities is so variable for different specimens that no particular percentage could be included in a specification for the supply of copper. (c) The elastic limit in tension occurs at about 5400 lbs. per square inch: this limit probably decreases rapidly with increase of temperature, but the differences in the behaviour of individual specimens are so great as to prevent the determination of the relationship between the two quantities. (d) The elastic limit in compression occurs at about 3200 lbs. per square inch: it decreases with increase of temperature, the relationship between the two being more regular than in the tensile tests. (e) The rate of permanent extension and compression increases rapidly with increase of temperature.—*Aurora Australis*, by H. C. Russell, C.M.G., F.R.S. This paper contained a list of auroral displays in the southern hemisphere during 1897, also a detailed account of one which was observed by the captain and officers of the R.M.S. *Aorangi*, on April 20, 1897, when the ship was in long. 96° W. and lat. 47½° S.—The basalts of Bathurst and the neighbouring districts, by W. J. Clunies Ross. In this paper the character of the basalt occurring in the neighbourhood of Bathurst, on the Bald Hills, and other hills in the vicinity, was described. Specimens from various localities have been obtained, microscopic sections cut from them, and chemical analysis made. It has been found that there are some differences in the microscopic structure of the rocks from hills close together, but the chemical analysis shows them to be all closely related. The silica was found to be about 47 per cent., but reached 50 per cent. on Mount Pleasant. The alumina, oxide of iron, lime, and magnesia were also determined. For comparison with the Bathurst basalt, which no doubt originally flowed as a lava from some centre of volcanic activity, and in order to trace the source from which it came, specimens were examined from all the places within forty miles of Bathurst, where basalts are known to occur.

DIARY OF SOCIETIES.

THURSDAY, JANUARY 20.

ROYAL SOCIETY, at 4.30.—The Relations between Marine Animal and Vegetable Life: H. M. Vernon.—(1) The Homogeneity of Helium; (2) Fergussite, an Endothermic Mineral: Prof. W. Ramsay, F.R.S., and Morris W. Travers.—On the Modifications of the Spectra of Iron and other Substances radiating in a Strong Magnetic Field: T. Preston.

ROYAL INSTITUTION, at 3.—The Halogen Group of Elements: Prof. Dewar, F.R.S.

SOCIETY OF ARTS, at 4.30.—Recreations of an Indian Official: Right Hon. Sir Mountstuart Elphinstone Grant Duff, G.C.S.I., C.I.E., F.R.S.

LINNEAN SOCIETY, at 8.—On the Larval Hyobranchial Skeleton of the Anurous Batrachians, with special reference to the Axial Parts: Dr. W. G. Ridewood.—On the "Abdominal Pore" in the Myxinidæ: R. H. Burne.

CHEMICAL SOCIETY at 8.—Ballot for the Election of Foreign Members.—The Action of Caustic Alkalies on Amides: Dr. Julius B. Cohen and Edward Brittain.—The Formation of Monomethylaniline from Dimethylaniline: Dr. Julius B. Cohen and H. T. Calvert.—Note on the Aluminium-Mercury Couple: Dr. Julius B. Cohen and H. T. Calvert.—Action of Chloroform and Alkaline Hydroxides on the Nitro-benzoic Acids: W. J. Elliott.—Researches on the Terpenes. II. On the Oxidation of Fenchene: J. Addyman Gardner and G. B. Cockburn.—The Preparation of Pure Iodine: Dr. Bevan Lean and W. H. Whatmough.

FRIDAY, JANUARY 21.

ROYAL INSTITUTION, at 9.—Buds and Stipules: Sir John Lubbock, Bart., M.P.

PHYSICAL SOCIETY, at 5.—On Electric Signalling without Conducting Wires: Prof. O. Lodge, F.R.S.—A Tesla Oscillator will be exhibited by Prof. S. P. Thompson, F.R.S.

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TUESDAY, JANUARY 25.

ROYAL INSTITUTION, at 3.—The Simplest Living Things: Prof. E. Ray Lankester, F.R.S.

ANTHROPOLOGICAL INSTITUTE, at 8.30.—Anniversary Meeting.

INSTITUTION OF CIVIL ENGINEERS, at 8.—Reservoirs with High Earthen Dams in Western India: W. L. Strange.

ROYAL VICTORIA HALL, at 8.30.—Mars as a World: R. A. Gregory.

THURSDAY, JANUARY 27.

ROYAL SOCIETY, at 4.30.

ROYAL INSTITUTION, at 3.—The Halogen Group of Elements: Prof. J. Dewar, F.R.S.

INSTITUTION OF ELECTRICAL ENGINEERS, at 8.—Notes on the Electro-Chemical Treatment of Ores containing the Precious Metals: Major-General Webber, C.B.

FRIDAY, JANUARY 28.

ROYAL INSTITUTION, at 9.—Instinct and Intelligence in Animals: Prof. C. Lloyd Morgan.

INSTITUTION OF CIVIL ENGINEERS, at 8.—Condensing Apparatus: H. Williams.

BOOKS RECEIVED.

BOOKS.—The Tutorial Chemistry: Dr. G. H. Bailey. Part 2. Metals (Clive).—On a Sunshine Holyday: The Amateur Angler (Low).—Nature's Diary: F. H. Allen (Gay).—An Elementary Course of Practical Organic Chemistry: F. C. Garrett and A. Harden (Longmans).—The Essentials of Experimental Physiology: Dr. T. G. Brodie (Longmans).—Premature Burial: Fact or Fiction?: Dr. D. Walsh (Baillière).—The Tailless Batrachians of Europe: G. A. Boulenger, Part 1 (Ray Society).—A First Year's Course of Experimental Work in Chemistry: Dr. E. H. Cook (Arnold).—Views on some of the Phenomena of Nature: J. Walker (Sonnenschein).—Korea and her Neighbours: Mrs. Bishop, 2 Vols. (Murray).—United States Geological Survey, Monographs xxv.-xxviii (Washington).—Annuaire de l'Académie Royale des Sciences, &c., de Belgique, 1898 (Bruxelles).—The Purification of Sewage and Water: W. J. Dibdin (Sanitary Publishing Company, Ltd.).—Proceedings of the Chemical and Metallurgical Society of South Africa, Vol. 1 (Edinburgh, Hunter).—Audubon and his Journals: M. R. Audubon, 2 Vols. (Scribner).—The Observer's Atlas of the Heavens: W. Peck (Gall).—The War of the Worlds: H. G. Wells (Heinemann).

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