

peratures, and when cold placed in the vacuum jars and the temperatures carefully recorded in the manner described in the paper. It was found that there was an evolution of heat of minute but appreciable quantity. As regards the bearing of this research as applied to industrial practice, whilst the rise of temperature is minute and may not have any direct bearing upon hardening results, the curious phenomenon noticed throws light upon the series stresses and strained condition of the material produced in large masses of steel during hardening operations.

Royal Microscopical Society, January 17.—Mr. E. Heron-Allen, president, in the chair.—The report of the council for the year was read.—E. Heron-Allen: Presidential address: Alcide d'Orbigny, his life and his work.

Mathematical Society, February 1.—Prof. H. M. Macdonald, president, in the chair.—Major MacMahon: (i) The significance of a certain algebraic fraction in the theory of distributions. (ii) The number of ways of pairing off the members of two identical sets of different quantities. W. H. Salmon: Curves of constant torsion. Informal communications were made by Lt.-Col. A. Cunningham and Messrs. E. H. Neville and L. J. Mordell.

BOOKS RECEIVED.

The Correct Arms of Kingston-upon-Hull. By T. Sheppard. Pp. vii+47. (Hull: A. Brown and Sons, Ltd.) 2s. 6d. net.

General Chemistry for Colleges. By Prof. A. Smith. Second edition: Pp. x+662. (London: G. Bell and Sons, Ltd.) 6s. 6d. net.

One Hundred Chemical Problems. By E. A. Mason. Pp. 8. (London: G. Bell and Sons, Ltd.) 6d. net.

Hawaiian Legends of Volcanoes (Mythology). Collected and translated from the Hawaiian by W. D. Westervelt. Pp. xv+205. (Boston, Mass.: Ellis Press; London: Constable and Co., Ltd.) 6s. net.

Herbert Spencer. ("Makers of the Nineteenth Century Series.") By H. E. Elliot. Pp. 330. (London: Constable and Co., Ltd.) 6s. net.

Chemical Bacteriology and Hæmatology for Practitioners. By Prof. W. D'Este Emery. Fifth edition. Pp. xiii+310+plates and figs. (London: H. K. Lewis and Co., Ltd.) 9s. net.

The Cambridge History of English Literature. Vol. xiv. Pp. xii+658. (Cambridge: At the University Press.) 9s. net.

Life and Habit. By S. Butler. New edition. Pp. x+310. (London: A. C. Fifield.) 5s. net.

Memoirs of the Geological Survey, Scotland. The Economic Geology of the Central Coalfield of Scotland, including Parts of the Counties of Lanark, Stirling, Renfrew, Linlithgow, Dumbarton, and Edinburgh. Description of Area V. By C. T. Clough and others. (Edinburgh: H.M.S.O.: London: E. Stanford, Ltd., and others.) 4s. 6d.

Revision Papers in Arithmetic. By W. G. Borchardt. Pp. viii+156+xxxii. (London: Rivingtons.) 2s., with Answers.

The Pennatulacea of the Siboga Expedition, with a General Survey of the Order. By Prof. S. J. Hickson. 10 plates, 45 text figs., 1 chart+pp. x+265. (Leyden: E. J. Brill.) 13.50 francs.

DIARY OF SOCIETIES.

THURSDAY, FEBRUARY 22.

ROYAL SOCIETY, at 4.30.—The Fossil Human Skull found at Talgai, Queensland: S. A. Smith.—The Magnetic Storm of August 22, 1916: Dr. C. Chree.—The Ordinary Convergence of Restricted Fourier Series: Prof. W. H. Young.

NO. 2469, VOL. 98]

ROYAL INSTITUTION, at 3.—Memorial Art in History: Prof. E. S. Prior. ROYAL GEOGRAPHICAL SOCIETY, at 5.—The Origin and Growth of the Dry Lakes in Western Australia: J. T. Jutson.

FRIDAY, FEBRUARY 23.

ROYAL INSTITUTION, at 5.30.—Some Guarantees of Liberty: H. Wickham Steed.

SATURDAY, FEBRUARY 24.

ROYAL INSTITUTION, at 3.—The Pronunciation of Languages in General: Daniel Jones.

TUESDAY, FEBRUARY 27.

ROYAL INSTITUTION, at 3.—Strength and Structure of Metals: Prof. W. E. Dalby.

ROYAL SOCIETY OF ARTS, at 4.30.—Imperial Assets, and How to Use Them: Alfred Bigland, M.P.

ROYAL ANTHROPOLOGICAL INSTITUTE, at 8.—The Criminal in the Western Punjab. (Epidiascope): Major A. J. O'Brien.

WEDNESDAY, FEBRUARY 28.

GEOLOGICAL SOCIETY, at 5.30.—Fourth Note on the Pitdown Gravel, with Evidence of a Second Skull of *Eoanthropus dawsoni*: Dr. A. Smith Woodward.

ROYAL SOCIETY OF ARTS, at 4.30.—The War and Our Supply of Drugs: Francis A. Hocking.

THURSDAY, MARCH 1.

ROYAL INSTITUTION, at 3.—Memorial Art To-day: Prof. E. S. Prior. MATHEMATICAL SOCIETY, at 5.30.

FRIDAY, MARCH 2.

ROYAL INSTITUTION, at 5.30.—Cellulose and Chemical Industry (1866-1916): C. F. Cross.

SATURDAY, MARCH 3.

ROYAL INSTITUTION, at 3.—The Pronunciation of English at the Time of Shakespeare. (Lecture II.): Daniel Jones.

CONTENTS.

PAGE

Plant Physiology and Teratology	485
Works on Civil Engineering	486
The Geology and Supply of Mineral Oil. By J. W. G.	487
Our Bookshelf	488
Letters to the Editor:—	
Impending Developments in Chemical Enterprises.—	
"Krypton"	489
Science in Public Schools.—Rev. Canon James M. Wilson	489
The Nature of Growths in Colloidal Silica Solutions.—Hon. H. Onslow	489
Stability in Flight.—Rt. Hon. Sir Herbert Maxwell, Bart., F.R.S.; Prof. D'Arcy W. Thompson, C.B., F.R.S.	490
Alpine Strain in the Bengali People.—Ramaprasad Chanda	491
Shakespeare's England. (Illustrated.) By Sir Herbert Warren, K.C.V.O.	491
The Future of French Metallurgy. By Prof. H. C. H. Carpenter	493
The Development of British Oil-shale Resources. By V. C. I.	494
Notes	495
Our Astronomical Column:—	
The Spectra of Cepheid Variables	498
Daylight Photography of Stars	499
Report of the Cape Observatory	499
The Theory of Isostasy as Applied to the Quaternary Oscillations of Sea-level. By W. B. Wright	499
Plant Diseases	500
Coal and its Economic Utilisation. By Prof. J. S. S. Brame	500
University and Educational Intelligence	503
Societies and Academies	503
Books Received	504
Diary of Societies	504

Editorial and Publishing Offices:

MACMILLAN & CO., LTD.,
ST. MARTIN'S STREET, LONDON, W.C.

Advertisements and business letters to be addressed to the Publishers.

Editorial Communications to the Editor.

Telegraphic Address: PHUSIS, LONDON.

Telephone Number: GERRARD 8830.