

ture does not affect the dielectric constant by more than 10 per cent. is shown to be erroneous. In the absence of more accurate data for ordinary temperatures, the author prefers to assume a value for the dielectric constant of water vapour obtained by extrapolating the results secured by Baedeker for higher temperatures. It is shown that the lowest layers of the atmosphere refract electromagnetic waves towards the earth, so that the greater part of the space waves will reach the receiver, contrary to the conclusion of Kiebitz.

**Challenger Society**, January 31.—Dr. S. F. Harmer in the chair.—G. H. Fowler: (i) The currents of the United States Atlantic coast, illustrated by the drift of the Nantucket Shoals buoy, 1915-16. The buoy was at large for twenty months; it drifted down the Labrador current to off Cape Hatteras, was drawn into the Gulf Stream, went east, and was thrown out southward; this occurred three times, the buoy being returned to the Gulf Stream twice by the Bahama branch of the N. Atlantic Drift and once by towage. (ii) A graphic method of finding the density of sea-water from the salinity and temperature based on Knudsen's tables.

### BOOKS RECEIVED.

Mathematical Papers for Admission into the Royal Military Academy and the Royal Military College, September-November, 1916. By R. M. Milne. Pp. 32. (London: Macmillan and Co., Ltd.) 1s. net.

A Bibliography of British Ornithology. By W. H. Mullens and H. Kirke Swann. Part v. (London: Macmillan and Co., Ltd.) 6s. net.

High-speed Internal Combustion Engines. By A. W. Judge. Pp. ix+350. (London: Whittaker and Co.) 15s. net.

A Practical Manual of Autogenous Welding (Oxy-Acetylene). By R. Granjon and P. Rosenberg. Translated by D. Richardson. Fourth edition. Pp. xxv+244. (London: C. Griffin and Co., Ltd.) 5s. net.

The Study of Animal Life. By Prof. J. A. Thomson. Revised edition. Pp. xi+477. (London: J. Murray.) 6s. net.

Plants, Seeds, and Currents in the West Indies and Azores. By H. B. Guppy. Pp. xi+531+3 maps. (London: Williams and Norgate.) 25s. net.

A Text-book of Thermochemistry and Thermodynamics. By Prof. O. Sackur. Translated and revised by Dr. G. E. Gibson. Pp. xvi+439. (London: Macmillan and Co., Ltd.) 12s. net.

### DIARY OF SOCIETIES.

#### THURSDAY, FEBRUARY 15.

ROYAL SOCIETY, at 4.30.—Structure and Development of the Tubular Enamel of the Sparidæ and Labridæ: Dr. J. H. Mummery.—And other papers.

ROYAL INSTITUTION, at 3.—The Mechanism of Chemical Change: Prof. F. G. Donnan.

SOCIETY OF GLASS TECHNOLOGY, at the University, Western Bank, Sheffield, at 4.30.—The Annealing of Glass: F. Twyman.

ROYAL SOCIETY OF ARTS, at 4.30.—The Indian Silk Industry: Prof. H. Maxwell-Lefroy.

INSTITUTION OF MINING AND METALLURGY, at 5.30.—The Wet Assay of Tin Concentrate: H. W. Hutchin.—Hydraulic Tin Mining in Swaziland: J. Jervis Garrard.

LINNEAN SOCIETY, at 5.—The Home-life of the Sparrow-hawk: J. H. Owen.

#### FRIDAY, FEBRUARY 16.

ROYAL INSTITUTION, at 5.30.—Authors' Dedications in the Seventeenth Century: The Dean of Durham.

INSTITUTION OF MECHANICAL ENGINEERS, at 6.—Annual General Meeting.—Alternating Stress Experiments: Dr. W. Mason.

GEOLOGICAL SOCIETY, at 3.—Annual General Meeting.

#### SATURDAY, FEBRUARY 17.

ROYAL INSTITUTION, at 3.—The Mystery of Counterpoint: Dr. H. Walford Davies.

#### MONDAY, FEBRUARY 19.

ROYAL SOCIETY OF ARTS, at 4.30.—The History and Practice of Town Planning and Civic Architecture. Lecture iv.: Prof. A. Beresford Pite.

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ROYAL GEOGRAPHICAL SOCIETY, at 5.30.—The Baghdad Railway and its Tributaries: H. Charles Woods.

ARISTOTELIAN SOCIETY, at 8.—The Nature of Knowledge as conceived by Malebranche: Morris Ginsberg.

VICTORIA INSTITUTE, at 4.30.—From World Dominion to Subjection; the Story of the Fall of Babylon: Dr. T. G. Pinches.

#### TUESDAY, FEBRUARY 20.

ROYAL INSTITUTION, at 3.—Pain and its Nervous Basis: Prof. C. S. Sherrington.

ZOOLOGICAL SOCIETY, at 5.30.—(1) Notes from the Caird Insect House, with Exhibition of Specimens and Lantern-slides: (2) The Coleoptera of the Family Cissidæ found in Britain, with Descriptions of Two New Species. A New Species of the Coleopteran Genus *Cryptorrhynchus*, Illiger: C. J. C. Pool.—Heude's Collection of Fishes, Sika, Serows, and Gorals in the Sikawei Museum, Shanghai: A. de C. Sowerby.—The Lizards of the Genus *Philochortus*, Matschie: G. A. Boulenger.

ROYAL STATISTICAL SOCIETY, at 5.15.

ILLUMINATING ENGINEERING SOCIETY, at 5.—The Effect on the Eye of Varying Degrees of Brightness and Contrast: Dr. James Kerr.

INSTITUTION OF PETROLEUM TECHNOLOGISTS, at 8.—Liquid Fuel and its Combustion: Prof. J. S. S. Brame.

#### WEDNESDAY, FEBRUARY 21.

ROYAL MICROSCOPICAL SOCIETY, at 8.—Parasitology of *Pyorrhœa*: Dr. A. H. Drew and Dr. Una Griffin.

ROYAL SOCIETY OF ARTS, at 4.30.—The Training of Educated Women for Secretarial and Commercial Work, and their Permanent Employment: Mrs. C. Hoster.

ROYAL METEOROLOGICAL SOCIETY, at 5.—The Heat Balance of the Atmosphere: W. H. Dines.—Continentality and Temperature: C. E. P. Brooks.

#### THURSDAY, FEBRUARY 22.

ROYAL SOCIETY, at 4.30.—*Probable Papers*: 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.

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.

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