

MANCHESTER

Literary and Philosophical Society, Dec. 24, 1872.

—The president, Dr J. P. Joule, F.R.S., drew attention to the increasing number of cases of hydrophobia. There was every reason for believing that this dreadful disorder was communicated from one animal to another by a bite, and seldom, if ever, was spontaneously developed. Inasmuch therefore as the effects of a bite nearly always occurred within four months, it would only be necessary to isolate all dogs for that period in order to stamp out the disease. That was the opinion of Dr. Bardsley, whose elaborate paper will be found in the fourth volume of the Memoirs of the Society, and probably gave rise to the practice of confining dogs at certain periods of the year, which has unfortunately been rendered to a great extent nugatory in consequence of having been only partially adopted.

Jan. 7.—The president referred to the great loss which the Society had experienced by the death of one of its most distinguished honorary members, Dr. Rankine; called away in the prime of life, his loss is one of the most severe that could have befallen science.—Mr. William H. Johnson called attention to the action of sulphuric and hydrochloric acids on iron and steel. If after immersion for say ten minutes in either of these acids a piece of iron or steel be tested, its tensile strength and resistance to torsion will be found to have diminished. Exposure to the air for several days, or gentle heat will, however, completely restore its original strength. Prolonged immersion in acid has a tendency to produce a crystalline structure in even the best wrought iron.

January 21.—The president explained a simple apparatus by means of which a very high degree of rarefaction of air could be produced with much facility, and which might in some circumstances be found preferable to the common air-pump or even the Sprengel. It consists of a glass funnel *a* surmounting a globe *b*, from the lower part of which a tube *c* descends to a jar of mercury *d*. The tube *c*, in connection with the receiver to be exhausted, is furnished with a vulcanised india-rubber plug which fits into the neck of the funnel. In using the apparatus the stopcock *f* is shut and the funnel filled with mercury. Then by lifting the tube *e* with its plug, the mercury fills the globe *b* and the pipe *c*. The tube *e* is then replaced, and the stop-cock being opened, the mercury descends in *c*, emptying the globe. By returning the mercury into the funnel by means of a pump, or more simply, by lifting the jar *d*, the process is repeated until the requisite degree of rarefaction is produced.

PARIS

Academy of Sciences, Jan. 27.—M. de Quatrefages, president, in the chair.—M. A. Trecul read the second part of his paper on the carpellary theory of the Papaveraceæ. This portion of the paper treats of *Glaucium* and *Eschscholtzia*.—M. Boussingault read a note on alimentary substances preserved by cold. The author exposed several articles of food to a temperature of -20° for several hours in closed flasks; this was in 1865. The substances are now perfectly sound and free from putrefaction.—M. Th. Lestiboudois read the continuation of his paper on the structure of the *Heterogena*.—M. Marès read a note on the vine sickness characterised by *Phylloxera*. The paper was referred to the commission on that subject.—A letter from M. I. Pierre on the determination of the boiling point of liquid sulphurous anhydride was then read. The method consists in introducing a thermometer, through a pierced cork, into a thin tube containing the anhydride. Another hole in the cork holds an exit tube; the apparatus is then suspended in the air, the SO_2 begins to boil, and the thermometer is then read.—M. Faye presented M. Heis's "Atlas cœlestis novus," and made some quotations from it on the number of stars visible to the naked eye; the author can see many stars put down by other astronomers as of the 7th or 8th magnitude.—M. L. d'Henry read a paper on the use of the mono-chromatic

sodium light in observing the tints of litmus in alcalimetry. The author finds that this reaction is much more easily seen by the yellow light.—M. Ch. Valsen sent a note on the modulus of refrigerating power in saline solutions.—MM. C. Friedel and R. D. Silva sent a note on a new tertiary alcohol, &c.; M. H. Joulie a note on the commercial estimation of nitrates; and M. Gayon one on the spontaneous alteration of eggs: the author finds the putrid eggs full of vibrios; he intends to seek for the origin of these bodies.—M. Gréyhant sent a note on the estimation of carbonic oxide combined with hæmoglobin.—M. F. Pisani sent a paper on the analysis of Jeffersonite from New Jersey, and on the analysis of Arite from Mount Ar (Basses Pyrénées).—M. S. Chautrain sent a paper on the reproduction of eyes in the crayfish. The author has cut out the eyes of the crustacean, and finds that they grow again in about eleven months.

DIARY

THURSDAY, FEBRUARY 13.

ROYAL SOCIETY, at 8.30.—On Curvature and Orthogonal Surfaces: Prof. Cayley.—On a New Relation between Heat and Electricity: Prof. Guthrie.

SOCIETY OF ANTIQUARIES, at 8.30.—On a Brass Bowl of the 13th century: T. A. Gardiner.—On Early Deeds and Charters: R. H. Wood.

MATHEMATICAL SOCIETY, at 8.—On Systems of Linear Congruences: Prof. H. J. S. Smith.—Application of the Hodograph to the Solution of Problems on Projectiles: J. Macleod.

FRIDAY, FEBRUARY 14.

ASTRONOMICAL SOCIETY, at 8.—Anniversary.

ROYAL INSTITUTION, at 9.—On Recent Progress in Weather Knowledge: R. H. Scott.

QUEKETT CLUB, at 8.

SATURDAY, FEBRUARY 15.

ROYAL INSTITUTION, at 3.—Comparative Politics: Dr. E. A. Freeman.

SUNDAY, FEBRUARY 16.

SUNDAY LECTURE SOCIETY, at 4.—Pre-Historic Fortifications: Lawson Tait.

MONDAY, FEBRUARY 17.

LONDON INSTITUTION, at 4.—Physical Geography: Prof. Duncan.

ENTOMOLOGICAL SOCIETY, at 7.

ASIATIC SOCIETY, at 3.
COLLEGE OF SURGEONS, at 4.—Osteology and Dentition of Extinct Mammalia, with their Geological and Geographical Distribution, &c.: Prof. Flower (Hunterian Lectures).

TUESDAY, FEBRUARY 18.

ANTHROPOLOGICAL INSTITUTE, at 8.—Note on the Macas Indians: Sir John Lubbock, Bart.—On the Relation of the Parish Boundaries in the South East of England to Great Physical Features: William Topley.

ZOOLOGICAL SOCIETY, at 8.30.—Report on the Hydroids collected during the Expeditions of H.M.S. Porcupine: Prof. G. J. Allman.—On (Egitho)gnathous Birds: W. K. Parker.—Notes on the Anatomy of the Binturong (*Arctictis binturong*): A. H. Garrod.

ROYAL INSTITUTION, at 3.—Forces and Motions of the Body: Prof. Rutherford.

WEDNESDAY, FEBRUARY 19.

SOCIETY OF ARTS, at 8.

METEOROLOGICAL SOCIETY, at 7.—Description of an Electrical Self-registering Anemometer and Rain-gauge: Fenwick W. Stow.—On the Madras Cyclone of May 2, 1872: Capt. H. Toynebee.—On the Character of the Storm of August 21–23, 1868, over the British Isles: Capt. T. O. Watson.—On some Results of Meteorological Telegraphy: Robert H. Scott.

LONDON INSTITUTION, at 7.—Paper and Discussion.

COLLEGE OF SURGEONS, at 4.—Hunterian Lectures.

BOOKS RECEIVED

ENGLISH.—On the Miracle recorded in Joshua x.: Rev. E. Biley (Hatchard).—Lessons on Elementary Anatomy: St. G. Mivart (Macmillan).
FOREIGN.—Annuaire de l'Académie Royale de Belgique, 1873.—Lehrbuch der Physik: 2nd part, 1873.—Fauna der Kieler Bucht, vol. ii.: H. A. Mayer and R. Robins (Englemann: Leipzig).

CONTENTS

	PAGE
MODERN APPLICATIONS OF THE DOCTRINE OF NATURAL SELECTION.	
By A. R. WALLACE, F.L.S.	277
HACKEL ON SPONGES	279
OUR BOOK SHELF	280
LETTERS TO THE EDITOR:—	
Inherited Instinct.—CHARLES DARWIN, F.R.S.	281
The Unreasonable.—Prof. W. K. CLIFFORD	282
Prof. Clifford on Curved Space.—Dr C. M. INGLEBY	282
Earthquake in Pembrokeshire.—Rev. T. W. WEBB, M.A., F.R.S.	283
Meteorology of the Future.—L. TROUVELOT	283
Deep Wells.—W. HOPE	283
THE GRESHAM LECTURES ON PHYSICS	283
THE BIRTH OF CHEMISTRY, VII. By G. F. RODWELL, F.C.S. (With Illustrations.)	285
GLACIER MOTION. By JOHN AITKEN	287
SUB-WALEDEN EXPLORATION	288
NOTES	289
ON THE COAL QUESTION, II. By Sir W. ARMSTRONG, C.B., F.R.S.	291
SCIENTIFIC SERIALS	294
SOCIETIES AND ACADEMIES	294
BOOKS AND PAMPHLETS RECEIVED	296
DIARY	296

ERRATUM.—No. 171, p. 275, 1st col., line 7 from bottom: for "boiled Bacteria" read "living Bacteria."