

nences, with some remarks upon them by himself. Mr. Gould's letter related to the luminous protuberances observed during the last eclipse. He referred them to the chromosphere, which he regarded as the general atmosphere of the sun, and he accepted the notion that they indicate a predominance of hydrogen in that region, but he inclined to ascribe to this a greater elevation than is generally given to it, especially as the Coast Survey Expedition had obtained photographs which show traces of it at an elevation of 7 minutes. Mr. Gould also remarked upon the evidence furnished by the perihelion distance of the comet of 1843.—M. Respighi's note referred to the relation between the protuberances and solar spots, and he stated that in the neighbourhood of the poles of the sun the protuberances are almost constantly wanting, that they are in close relation with the faculæ and spots, and that the faint shadows which appear upon the photosphere are due to the interposition of the materials of eruptions, which may persist for many days together.—M. C. Marignac presented a paper on the influence of water upon saline double decompositions, and upon the thermic effects which accompany them. He described the mode in which he experimented, and gave the following results:—The dilution of a solution causes a variation of temperature in either direction, which usually diminishes with the degree of dilution, but with sulphuric acid the increase of temperature is augmented by dilution. The mixture of solutions of two salts which do not decompose each other, generally gives rise to an evolution of heat less than that produced by the simple dilution of the solutions. When they can form a double salt, there is usually absorption of heat. The mixture of alkaline sulphates with sulphuric acid causes a considerable absorption of heat. With solutions of the alkaline bisulphates, the addition of water produces a considerable and increasing evolution of heat. The mixture of two saline solutions, or of a salt and an acid capable of decomposition without producing an insoluble compound, gives rise to considerable thermic effects, which, in some cases, at least, are increased by dilution. With mixtures, the result appears to be different according as the dilution is effected before or after the mixture of the solutions.—A note by M. H. Resal, on the relative movements of the water in the curved floats of Poncelet's water-wheel was read; as also a note by M. Bosscha in answer to observations made by M. Regnault upon a previous letter of the author's on the measurement of temperatures.—M. Lecoq de Boisbandeau presented a memoir on some points of spectrum-analysis, in which he confirmed Secchi's observations on the spectra of different parts of Geissler's tubes, and communicated his own remarks on the spectra of the aureola of the positive pole, of the blue light of the negative pole, and of the spark itself. He also remarked upon differences caused by alterations in the conditions under which the spark is produced.—M. J. L. Soret communicated a note on the illumination of transparent bodies, in which he maintained, in opposition to M. Lallemand, that this is to be ascribed to suspended particles, especially in water. He described some experiments made by him. M. Chevreul in remarking upon this communication, noticed the decomposition of glass by water even at a temperature of 98° C. (= 208, 4° F.), and referred to the action of other bodies upon glass.—M. J. Maumené presented a reply to M. Dubrunfaut's note on inverted sugar, and M. Dubrunfaut a notice of his investigations of the catalytic phenomena presented by the action of acids upon crystallised sugar by the examination of the rotatory properties of its products.—M. A. Petit communicated a note on the sugar normally contained in wine, in which he stated that he had found in all wines a quantity of sugar varying from 0.50—5 grammes per litre. Sugar also occurs in vinegar.—M. Sanson, in a note on the caballine species of the genus *Equus*, endeavoured to show that our domestic horses belong to eight distinct species.—A memoir on the chemical composition of fossil bones by M. Scheurer-Kestner was presented by M. Milne-Edwards. The author remarked upon the conversion, in fossil bones, of a portion of the ordinary osseine into soluble osseine, and showed by analysis that the percentage of the latter is, *cæteris paribus*, equal in bones of the same date, so that its amount may furnish an almost infallible proof of the contemporaneity or otherwise of bones found together in the same cave or deposit. M. Elie de Beaumont made some remarks on this communication.—Notes were communicated by M. Ruffner on the preservation of meat by sulphurous acid, and on various questions of hygiene, and by M. Coffin on the "metaphysics of the differential calculus;" of these the titles only are given.

DIARY

THURSDAY, DECEMBER 16

ROYAL SOCIETY, at 8.30.—Researches into the Constitution of the Opium Bases. Part III. On the Action of Hydrochloric Acid on Codeia: A. Matthiessen, F.R.S., and C. Wright.—On the Thermodynamic Theory of Waves of Finite Longitudinal Disturbance: Prof. Rankine, F.R.S.—On Approach caused by Vibration: Prof. Guthrie.
 SOCIETY OF ANTIQUARIES, at 8.30.—On the Descent and Arms of the House of Compton: Mr. Evelyn Philip Shirley, F.S.A.
 LINNEAN SOCIETY, at 8.—On a species of *Ipomea* yielding Tampico Jalap: Daniel Hanbury, F.R.S.
 CHEMICAL SOCIETY, at 8.
 ZOOLOGICAL SOCIETY, at 4.
 NUMISMATIC SOCIETY, at 7.
 PHILOSOPHICAL CLUB, at 6.
 LONDON INSTITUTION, at 7.30.—Architecture: Prof. R. Kerr
 EDINBURGH GEOLOGICAL SOCIETY, at 8.

FRIDAY, DECEMBER 17

PHILOLOGICAL SOCIETY, at 8.15.
 QUEKETT MICROSCOPICAL CLUB, at 8.

MONDAY, DECEMBER 20.

MEDICAL SOCIETY, at 8.
 ROYAL ASIATIC SOCIETY, at 8.
 LONDON INSTITUTION, at 4.—Elementary Physics: Prof. Guthrie.
 INSTITUTE OF ACTUARIES, at 7.
 SOCIETY OF ARTS, at 8.—The Spectroscope and its Applications: Mr. J. Norman Lockyer, F.R.S.

TUESDAY, DECEMBER 21.

INSTITUTION OF CIVIL ENGINEERS, at 8.—Anniversary Meeting.
 STATISTICAL SOCIETY, at 8.
 PATHOLOGICAL SOCIETY, at 8.
 ETHNOLOGICAL SOCIETY, at 8.—On an Ancient Calvaria, assigned to Conifucius: Prof. Busk, F.R.S.—On the Koords and Armenians: Major Millingen, F.R.G.S.—On the Kitai and Kara-kitai: Dr. Gustav Oppert

WEDNESDAY, DECEMBER 22.

SOCIETY OF ARTS, at 1.—On Wines—their Origin, Nature, Analysis, and Uses; with special reference to a new Alcoholic Drink made from Tea: Dr. J. L. W. Thudichum.
 GEOLOGICAL SOCIETY, at 8.—On the Iron-ores associated with the Basalts of the North-east of Ireland: Mr. Ralph Tate, F.G.S., and Dr. J. S. Holden, F.G.S.—Note on the Skull of the Large Kimmeridge Crocodilian, *Dakosaurus maximus*, Buenstedt, *Sinesosaurus*, Geoffr. St. Hilaire: Mr. J. W. Hulke, F.R.S.—Note on a fragment of a Jaw with peculiar Teeth from Kimmeridge Bay: Mr. J. W. Hulke, F.R.S.—Notes on the Structure of *Sigillaria*: Principal Dawson, F.R.S.—Notes on some new Animal Remains from the Carboniferous and Devonian of Canada: Principal Dawson, F.R.S.

THURSDAY, DECEMBER 23.

SOCIETY OF ANTIQUARIES, at 8.30.

BOOKS RECEIVED

ENGLISH.—Home Life of Sir David Brewster: By his daughter, Mrs. Gordon (Edinburgh: Edmonston and Douglas):

FOREIGN.—Histoire de la Création: par H. Burmeister; traduite de l'allemand: E. Maupas.—Monographie des Ligumineuses Cæsalpinides: H. Bailion.—Die Nordamerikanische Zuckerfabrikation aus Sago und Impby: Dr. Karl Löffler and Peter von Papi-Balogh.—Untersuchungen über Bau und Entwicklung der Arthropoden: Dr. Anton Dohrn.—Ueber die Bauweise des Feldspaths: Dr. Fredrich Scharff.—Japanisches Meeres-Conchylien: Dr. C. E. Lischke.—Die Pflanzenstoffe: Dr. Aug. Husemann und Dr. Theod. Husemann.—Die Lagerstätten der Nutzbauren Mineralien: Johann Grimm.—Archiv für Mikroskopische Anatomie: Max Schultze.

CONTENTS

	PAGE
DARWINISM AND NATIONAL LIFE	183
THE PROGRESS OF NATURAL PHILOSOPHY. By Prof. P. G. TAIT	184
DANA'S MINERALOGY. II. By Prof. N. STORV MASKELYNE	186
BIBLIOTHÈQUE DES MERVEILLES. By G. FARRER RODWELL, F.C.S. (With Illustrations)	187
OUR BOOK SHELF	188
THE JAPANESE. By J. C. CHESLAR. (With Illustrations.)	190
THE FOOD OF OCEANIC ANIMALS. By J. GWYN JEFFREYS, F.R.S.	192
GOLD DIGGERS IN THIBET.	192
LETTERS TO THE EDITOR:—	
Lectures to Ladies	193
Chrysophanus Dispar	193
The Brighton Aquarium	193
The Cloaca Maxima	193
Lightning in a Clear Sky	193
NOTES	193
SOCIETIES AND ACADEMIES. DIARY. BOOKS RECEIVED.	194—202

ERRATUM.—Line 26, col. 2, p. 166, should read as follows: "total number about 200. I have identified at least 60"