

owes its singular character the author was inclined to attribute to the epoch when the Eastern Desert, a flat stoneless tract, extending from the Trachonitis to the Euphrates, was a mighty inlet of the Indian Ocean, having its northern limit in the range of limestones and sandstones, the furthest outliers of the Anti-Libanus, upon whose southern and eastern feet Palmyra is built, and which runs eastward to the actual valley of the great river. Mr. Drake took a continuous set of compass bearings during the journey, which had enabled him to draw an excellent map of the region. Mr. W. Giffard Palgrave spoke on the subject of the paper, stating that Captain Burton was the only European who had properly explored El Safa. He had himself explored about two-thirds of the distance, without, however, reaching the cavern of Umm Niran. His own visit terminated at the southern part of the *El Leja*, the great volcanic district celebrated for the destruction of the Egyptian army in the time of Ibrahim Pacha, when they attacked the Druses in the basaltic labyrinth.—A second paper was read, "On the Geography of Southern Arabia," by the Baron Von Maltzan, which contained interesting elucidations of the physical configuration and tribal distribution of the region north of Aden, compiled by systematic interrogation of Arabs at Aden.

EDINBURGH

Naturalists' Field Club.—The annual business meeting of this club was held on Wednesday, the 29th ult., when Mr. Skerwing was elected President and Mr. John Brown Honorary Secretary and Treasurer. A vote of thanks was accorded to Mr. Taylor, the retiring secretary. The club now numbers 87 members; and 13 excursions have been made to places of local interest during the summer months.

PARIS

Academy of Sciences, November 27.—M. Chasles presented a theorem concerning the harmonic axes of the geometrical curves, in which there are two series of points corresponding anharmonically on a unicursal curve.—M. P. A. Favre communicated the continuation of his thermic investigations upon electrolysis, in which he gave the results of experiments made especially with the voltameter with plates of copper immersed in sulphate of copper.—M. de Fonville presented a note on musical sounds produced at the opening of the valve in balloon ascents.—M. des Cloiseaux communicated some optical and crystallographical observations upon montebasite and the ambygonite of Montebas, the former a new fluophosphate of alumina, soda, and lithia.—A letter was read from M. Moison describing the use of sea-water for making bread in the environs of Cancale.—M. H. Sainte-Claire Deville presented a note by M. T. Schloesing on the separation of potash and soda. The author's process is founded upon that proposed by Serullas, in which perchloric acid is employed. He uses, instead of this acid, pure perchlorate of ammonia, treated with weak nitro-muriatic acid. The preparation of the perchlorate is described by the author.—M. Chabrier presented some further observations on the alternate predominance of nitrous and nitric acids in rain-water. The author finds that in calm weather nitrous acid is present in excess in rain water, whilst nitric acid predominates in stormy weather.—M. Chevreul communicated a letter from M. Sacc on the properties of drying oils, with regard to which M. Thenard also made some observations.—A note by MM. Dusan and C. Bady on the phenols was presented by M. Cahours.—M. C. Bernard communicated a note by M. E. Favre on the movements of the sap through the bark. The author describes a series of experiments made upon mulberry trees, and demonstrates that it is in the bark, and particularly in its liber, that the ascending and descending movements of the sap take place.—M. Joseph-Lafosse presented some observations on the germination of seeds submerged in 1870-71 during the inundation of the neighbourhood of Carenton for the defence of Cherbourg. He stated that after the retirement of the water many plants sprang up in unusual abundance and vigour, and suggested that experiments should be made upon the effects of long soaking upon the germination of the seeds of useful plants.—A letter from M. A. dela Rive on M. Marey's recent communications relating to the electrical discharge of the torpedo was read. The author considered the action of the nerves in causing muscular contraction to be electrical, and that the electrical effect produced by the apparatus of the torpedo was caused by the accumulation in it of the energy of the immense multitude of nervous filaments with which it is supplied.—M. C. Bernard presented a note by M. L. Reverdin on epidermic grafting, describing and discussing the phenomena

produced by the transfer of portions of skin from one living animal to another. The author maintains that the adherence of these grafts is produced principally by the epidermis, the dermis having only a secondary action.—M. S. Meunier, in a note on meteoric metamorphism, described the transformation of aumalite into chantonite by exposure for a quarter of an hour to a red heat, which confirms his conclusion that the latter is the eruptive form of the former.

BOOKS RECEIVED

ENGLISH.—The Young Collector's Handybook of Botany: Rev. H. N. Dunster (Reeve and Co.).—Journal of the Iron and Steel Institute, Vol. II., No. 4.—Astronomical Phenomena in 1872: W. F. Denning (Wyman and Son).
 AMERICAN AND COLONIAL.—The Fossil Plants of the Devonian and Upper Silurian Formations of Canada, 21 plates: Principal Dawson.—Elements of Chemistry, Vol. II.: G. Hinrichs.
 FOREIGN.—Zeitschrift für Ethnologie; Supplement Band: Bastian and Hartmann. (Through Williams and Norgate).—Die Sonne, von P. A. Secchi, autorisirte Ausgabe von Dr. H. Schellen, 1^{te} Abtheilung.—Sitzungsberichte der Gesellschaft naturforschender Freunde zu Berlin, 1870.—Die ältesten Spuren Menschen in Europa: A. Müller.

DIARY

THURSDAY, DECEMBER 7.

ROYAL SOCIETY, at 8.30.—On the Fossil Mammals of Australia. Part VI. Genus Phascolomys: Prof. Owen, F.R.S.—On the Solvent Power of Liquid Cyanogen. On Fluoride of Silver. Part III.: G. Gore, F.R.S.
 SOCIETY OF ANTIQUARIES, at 8.30.—Exhibition of Stone Implements.
 LINNEAN SOCIETY, at 8.—Botany of the Grant and Speke Expedition: Lieut.-Col. Grant, C.B., C.S.I.—On a hybrid *Vaccinium* between the Bilberry and Crowberry: R. Garner, F.L.S.—On the Formation of British Pearls, and their possible improvement: R. Garner, F.L.S.
 CHEMICAL SOCIETY, at 8.

FRIDAY, DECEMBER 8.

ASTRONOMICAL SOCIETY, at 8.
 QUEKETT MICROSCOPICAL CLUB, at 8.
 SUNDAY, DECEMBER 10.
 SUNDAY LECTURE SOCIETY, at 4.—On the Optical Construction of the Eye: Dr. R. E. Dudgeon.

MONDAY, DECEMBER 11.

ROYAL GEOGRAPHICAL SOCIETY, at 8.30.
 TUESDAY, DECEMBER 12.
 PHOTOGRAPHIC SOCIETY, at 8.

WEDNESDAY, DECEMBER 13.

SOCIETY OF ARTS, at 8.—Observations on the Esparto Plant: Robert Johnston
 ARCHAEOLOGICAL INSTITUTE, at 8.

THURSDAY, DECEMBER 14.

ROYAL SOCIETY, at 8.30.
 SOCIETY OF ANTIQUARIES, at 8.30.
 MATHEMATICAL SOCIETY, at 8.—On the Celebrated Theorem that any Arithmetical Progression, two of whose Terms have no Common Factor, contains an Infinitude of Prime Numbers: J. J. Sylvester, F.R.S.

CONTENTS

	PAGE
THE CHAIRS OF SCIENCE IN THE SCOTTISH UNIVERSITIES	97
JUKES'S LETTERS	98
OUR BOOK SHELF	99
LETTERS TO THE EDITOR:—	
The Planet Venus.—WILLIAM F. DENNING, F.R.A.S.	100
The Flight of Butterflies.	101
The Origin of Insects.—B. T. LOWNE, M.B.	102
Aspect.—Prof. J. M. PEIRCE	102
Cause of Low Barometric Pressure.—A. WCJEIKOFER	102
Symbols of Acceleration.—THOMAS MUIR	103
Occurrence of the Eagle Ray.—W. S. M. D'URBAN	103
Deep Sea Dredging.—T. H. HENNAH	103
The Solar Halo.—GEO. C. THOMPSON	103
ON THE ZIPHIID WHALES. By Prof. W. H. FLOWER, F.R.S.	106
CONTINUITY OF THE FLUID AND GASEOUS STATES OF MATTER. By Prof. JAMES THOMSON, LL.D. (With diagram.)	108
ALTERNATION OF GENERATIONS IN FUNGI. By M. C. COOKE	109
THE SCIENCE AND ART DEPARTMENT	110
ARCTIC EXPLORATIONS. By Dr. JOHN RAE, F.R.G.S.	110
NOTES	110
COLDING ON THE LAWS OF CURRENTS IN ORDINARY CONDUITS AND IN THE SEA. III.	112
SCIENTIFIC SERIALS	114
SOCIETIES AND ACADEMIES	116
BOOKS RECEIVED	116
DIARY	116

ERRATA.—Vol. v., p. 82, col. 2, line 9, for "150°" read "15°."—Vol. v. p. 95, col. 2, line 22 from bottom, for "inverse direction" read "inverse ratio."