

in the subjacent rocks. In the highlands of Scotland, so far as he had observed, there was not a valley, ravine, or lake-basin unconnected with a break or fault in the strata; and instanced particularly the Caledonian Canal, Loch Awe, Glencoe, Loch Fyne, and Lochlomond. He considered the deep parts of the latter lake were due to the meeting or crossing of two or more breaks, where consequently the rocks were fractured to a greater extent. Some of the dislocations, he was inclined to think, had been post-glacial.

PARIS

Academy of Sciences, April 15.—M. de Saint-Venant read a memoir on the intensity of the forces capable of deforming ductile cylindrical blocks placed under various conditions.—M. J. Boussinesq read a memoir on the influence of the centrifugal forces upon the varied permanent flow of water in prismatic channels of great width.—M. de Saint-Venant presented a note by M. E. Combesure on a process of integration by successive approximations of the equation

$$4 \left( \frac{d^2 \psi}{dx dz} \right)^2 + \left( \frac{d^2 \psi}{dx^2} - \frac{d^2 \psi}{dz^2} \right)^2 = 4 K^2$$

in plastic dynamics.—MM. P. A. Favre and C. A. Vaisson presented a continuation of their researches upon crystalline dissociation. This paper contains the first part of their investigations on the alums.—A note by M. Lecoq de Boisbaudran on the spectrum of the vapour of water. The spectrum was obtained by passing an induction current through a tube filled with rarefied aqueous vapour; the spectrum consists of white stratifications, the light of which is resolved into four principal lines.—Several papers relating to auroras were read, including a note by M. Chapelas on polar lights observed in Paris on the evening of April 10; one by M. Tarry, communicated by M. Le Verrier, on the prevision of magnetic auroras by means of terrestrial currents, as applied to the aurora of April 10 by M. Sureau; a general investigation of auroras by M. Heis, including a long list of parallel occurrences of such phenomena in the northern and southern hemispheres during the years 1870 and 1871; and a note by M. Linder on the theory of auroras, in which the author concludes that they are electro-magnetic phenomena which have their seat chiefly in the upper regions of the atmosphere.—M. Loewy presented a note on the discovery of two new planets, 119 and 120, one observed in Paris on April 9 by M. Paul Henry, the other at Marseilles on April 10 by M. Borelly. The positions of these planets on April 11-13 are given.—M. Berthelot read a note on the heat of formation of the oxygenated compounds of nitrogen.—M. A. Gillot presented a claim of priority with respect to a paper read by M. Gruner on January 22 on the action of oxide of carbon on iron and its oxides.—M. Cahours presented a note by MM. L. Dusart and C. Barty on the phenoles.—M. Bous-singault presented a note by M. A. Muntz on the statics of the cultivation of hops, containing a statement of the elements assimilated by the hop plants grown upon thirty-eight ares, and upon one hectare of land at Wörth.—A note by M. C. van Bambeke on the first effects of fecundation upon the ova of fishes and on the origin and interpretation of the mucous or glandular lamella in the osseous fishes was presented by M. de Quartrefages. The author stated, as the result of his researches, that under the influence of fecundation the germinal disc of the egg in osseous fishes divides into two layers, of which the upper one becomes segmented, whilst the lower one forms an intermediate layer between the segmented blastoderm and the vitelline sphere, and accompanies the former in its development around the latter. He regards the thin central portion of this intermediate layer as the homologue of the mucous lamella.—M. A. Gaudry read a paper on the fossil animals of the Léberon in Vaucluse. These fossils are chiefly mammalian, and present a remarkable analogy to those of the Miocene deposits of Pikermi in Attica, investigated some years since by the author.—M. A. Brongnart presented a note by M. de Saporta "On the more precise determination of certain Jurassic Coniferous Genera by Observation of their Fruits." The genera here referred to are *Brachyphyllum*, *Pachyphyllum*, *Echinostrobus*, *Cunninghamia*, *Widdringtonia*, *Palaeocypris* (a new genus proposed for some species described as belonging to *Thuyites*), and *Phyllostrobus* (a new genus allied to *Thuja*).—M. de Quartrefages communicated a note by MM. E. Massenet, P. Lalande, and Cartailhac "On the Discovery of a Human Skeleton of the Reindeer period at Laugerie-Basse in the Dordogne."—M. A. Milne-Edwards read some researches upon fossil birds, containing a sort of summary of the results of

his long-continued investigation.—M. L. V. Turquan submitted to the judgment of the Academy the description of an apparatus for indicating the presence of fire-damp in mines.

BOOKS RECEIVED

FOREIGN.—(Through Williams and Norgate).—Anatomische-systematische Beschreibung der Alcyonarien, 1<sup>te</sup> Abtheilung, die Pennatuliden: A. Kölliker.—Morphologie u. Entwicklungs-geschichte des Pennatulidenstammes, nebst allgemeinen Betrachtungen zur Descendenzlehre: A. Kölliker.—Beiträge zur Anatomie der Plattwürmer: Sommer u. Landois.—Index der Petrographie u. Stratigraphie der Schweiz u. ihrer Umgebungen: B. Studer.—Geschichte der Himmelskunde nach ihrem gesammten Umfange, Parts 1-3: J. H. v. Mädler.—Hydra, eine anatomische entwicklungs-geschichtliche Untersuchung: Dr. N. Kleinenberg.

DIARY

THURSDAY, APRIL 25.

ROYAL SOCIETY, at 8.30.—On a Supposed Periodicity in the Elements of Terrestrial Magnetism, with a Period of 26½ Days: The President.—Contributions to Formal Logic: A. J. Ellis, F.R.S.  
LONDON INSTITUTION, at 7.30.—On the Effects of Certain Faults of Vision on Painting, with especial reference to the Works of Turner and Mulready: Dr. Liebreich.  
ROYAL INSTITUTION, at 3.—On Heat and Light: Prof. Tyndall, F.R.S.

FRIDAY, APRIL 26.

ROYAL INSTITUTION, at 9.—On the Genius and Character of the Modern Greek Language: Prof. Blackie, F.R.S.E.  
QUEKETT MICROSCOPICAL CLUB, at 8.

SATURDAY, APRIL 27.

ROYAL INSTITUTION, at 3.—The Star-Depths: R. A. Proctor.  
GOVERNMENT SCHOOL OF MINES, at 8.—On Geology: Dr. Cobbold.

SUNDAY, APRIL 28.

SUNDAY LECTURE SOCIETY, at 4.—On Geographical Influences on History: Prof. John Young, M.D.

MONDAY, APRIL 29.

ZOOLOGICAL SOCIETY, at 1.—Anniversary Meeting.  
LONDON INSTITUTION, at 4.—Elementary Botany, with special reference to the Classification of Plants: Prof. Bentley, F.L.S.

TUESDAY, APRIL 30.

ROYAL INSTITUTION, at 3.—On the Development of Belief and Custom amongst the Lower Races of Mankind: E. B. Tylor, F.R.S.

WEDNESDAY, MAY 1.

ROYAL INSTITUTION, at 2.—Annual Meeting.  
SOCIETY OF ARTS, at 8.—On Telegraphy without Insulation, the means of cheapening Internal Communication: H. Highton.  
MICROSCOPICAL SOCIETY, at 8.

THURSDAY, MAY 2.

ROYAL SOCIETY, at 8.30.  
SOCIETY OF ANTIQUARIES, at 8.30.  
LINNEAN SOCIETY, at 8.—On *Alibertia edulis*: Señor Correa de Mello.  
CHEMICAL SOCIETY, at 8.  
ROYAL INSTITUTION, at 3.—On Heat and Light: Prof. Tyndall, F.R.S.

CONTENTS

	PAGE
A PHYSICAL OBSERVATORY . . . . .	497
LANKESTER'S PHYSIOLOGY . . . . .	497
OUR BOOK SHELF . . . . .	498
LETTERS TO THE EDITOR:—	
Spectroscopic Nomenclature.—Capt. J. HERSHEL, F.R.S. . . . .	499
Turner's Vision: W. M. WILLIAMS, F.C.S. . . . .	500
The Adamites.—C. S. WAKE . . . . .	500
Meteor.—T. FAWCETT . . . . .	501
A Waterspout.—J. GRAY . . . . .	501
Cuckoo's Eggs.—T. H. POTTS . . . . .	501
Sun-spots and the Vine Crop.—ARTHUR SCHUSTER . . . . .	501
Tide Gauge.—ELLIOTT BROTHERS . . . . .	501
Colour of the Hydrogen Flame . . . . .	501
The "Cheironectes pictus."—Lieut. J. E. MERYON, R.N. . . . .	501
OCEAN CURRENTS. By J. CROLL, F.R.S. . . . .	502
THE FOSSIL MAMMALS OF AUSTRALIA. By Prof. OWEN, F.R.S. . . . .	503
THE CONNECTION BETWEEN COLLIERY EXPLOSIONS AND WEATHER. By ROBERT H. SCOTT, F.R.S., and W. GALLOWAY . . . . .	504
THE TEMPERATURE OF THE SURFACE OF THE SUN. By Capt. J. ERICSSON. (With Illustrations.) . . . . .	505
THE CYCLONE IN THE WEST INDIES. By BISHOP WESTERBY . . . . .	507
PROFESSOR S. F. B. MORSE . . . . .	509
NOTES . . . . .	509
OBSERVATIONS OF THE AURORA BOREALIS OF FEBRUARY 4 AND 5, 1872. By Prof. L. RESPIGHI . . . . .	511
PHYSIOLOGY:—Recurrent Vision. By Prof. C. A. YOUNG . . . . .	512
SCIENTIFIC SERIALS . . . . .	512
SOCIETIES AND ACADEMIES . . . . .	513
BOOKS RECEIVED . . . . .	516
DIARY . . . . .	516

ERRATUM.—Mr. J. J. Hall requests us to correct an error in the "Contents" of our last number, whereby he is described as "F.R.S." instead of "F.M.S."