

measurement of high temperatures. (3 and 4.) Note on Linear Differential Equations in Quaternions, and Note on some Quaternio Integrals, by Prof. Tait. (5.) Note on an Ice Calorimeter, by Prof. Crum Brown. The author had, some years back, ordered the construction of an instrument on the same principle as that lately described by Bunsen. It is not yet completed, and he sent this note, not of course to claim priority, but to reserve to himself the right to use his own instrument.

Royal Physical Society, December 21.—Mr. R. F. Logan in the chair. The office-bearers for the session were elected as follows:—Presidents: R. F. Logan, C. W. Peach, Dr. Robert Brown. Council: James M'Bain, M.D., R.N.; Stevenson Macadam, Ph.D.; Andrew Wilson, Robert Scot Skirving, David Grieve, Professor Duns. Secretary: John Alexander Smith, M.D. Treasurer: Henry Budge, C.A. Assistant Secretary: James Boyd Davies. Honorary Librarian: Andrew Taylor. The Secretary exhibited the head of a roedeer, with the upper part of each horn bent backwards into a hook shape, or rather a complete loop; probably due to an injury when the horns were growing. He also exhibited a curious large specimen of a pigeon, with a bluish-grey head, mottled with white, and rest of plumage nearly white, the back and wings mottled with a few darker feathers; tail large, nearly white; the breast and abdomen show traces of the reddish colour of the cushat, and the sides of the neck also showed the bright white spot, slightly bordered with green and red reflections, as in the cushat. It was shot in company with a flock of wood pigeons at Aldrught, near Elgin, in December, 1869. The bird has been supposed to be probably a hybrid between the cushat, or wood pigeon, and a fancy domestic pigeon, as a pouter, being rather larger in size than the cushat. If this were so, it is perhaps the first instance of the kind that has been observed; but probably a much more simple explanation may be given by considering it simply an albino cushat, or variety showing the plumage much changed to white. Very little variety occurs in the plumage of the cushat, so that the specimen is a rare one. The secretary also exhibited a specimen of the *Labrus mixtus*, or cuckoo wrass, taken on a long or hadock line in the Firth of Forth, in September, 1870. It is common on some rocky coasts, and specimens have been taken according to Mr. C. W. Peach, at Wick, Iverach, and Kirkwa, in Orkney, but has apparently not before been recorded as taken in the Firth. The *Labrus trimaculatus*, or three-spotted wrass has, however, been taken once or twice in the Firth of Forth; and, according to Dr. Günth, in his valuable "Catalogue of Fishes," the latter is not a distinct species, but simply the female of the *Labrus mixtus*.—Mr. Robert Brown, Ph. D., M.A., submitted some recent observations regarding the Arctic marine currents. The author considered that there, were three main currents, which traversed the Arctic, American and European seas, exclusive of those of Asia and Behring Straits. These were:—1. The current sweeping out of the Kara Sea to the westward, getting deflected against the Greenland coast; sweeping down that coast at the average rate of eight knots an hour, varying according to the season, doubles Cape Farewell, and then runs north along the western shores of Greenland, decreasing in rapidity and in breadth from about 100 miles, to which it stretches at Cape Farewell, until its force is exhausted at near Disco Island. This current jams up the eastern shores of Greenland, within which it is always on the move summer and winter, and as seen rounding Cape Farewell is known to Davis Strait navigators as the "Cape Ice." It brings into Davis Straits great quantities of driftwood and Polar bears. 2. A current down Davis Strait. About Riskol it is deflected off to the westward, and flows down the western shores of Davis Strait, carrying down great quantities of icebergs, which strand and melt on the banks of Newfoundland, there depositing their loads, others helping to form these banks. Here it meets with the Gulf Stream—the meeting of the cold and warm currents giving rise to the fogs so characteristic of that locality. At the mouth of Davis Strait there is an indraught of the Gulf Stream, which joins the Cape ice on the Greenland coast. It is also to this indraught that the drift mahogany logs, now and then picked up on the Greenland coast, are due. 3. The Gulf Stream, with the exception of the indraught already mentioned, does not enter Davis Strait, but sweeps across the Atlantic, retaining some degree of warmth as far as Novai Zemlai, and landing tropical products on the shores of Iceland and Spitzbergen. It is to this current that is due the freedom of the harbours of Norway and South-Western Iceland from ice.

BOOKS RECEIVED

ENGLISH.—The Heavens; A. Guillemin, 4th edition, edited by J. N. Lockyer (Bentley).—Travels in the Air: Jas. Glaisher, C. Flammarion, W. de Foville, and G. Tissandier (Bentley).—A Treatise on Magnetism: G. B. Airy (Macmillan).—The Student's Elements of Geology: Sir C. Lyell (Murray).—The Marvels of the Heavens: C. Flammarion, translated by Mrs. Lockyer (Bentley).—Elementary Natural Philosophy: J. Clifton Ward (Trübner).—The Duke of Edinburgh in Ceylon (Provost and Co.).  
FOREIGN.—Jahrbuch der k. k. geologischen Reichsanstalt zu Wien, 1870. (Through Williams and Norgate).—Die Mineralien: J. C. Weber.—Die Fische Deutschlands und der Schweiz: J. C. Weber.

DIARY

THURSDAY, JANUARY 12.

ROYAL, at 8.30.—On Fluoride of Silver, Part II.: G. Gore, F.R.S.—Polarisation of Metallic Surfaces in Aqueous Solutions: Some Experiments on the Discharge of Electricity through Rarefied Media: C. F. Varley.  
SOCIETY OF ANTIQUARIES, at 8.30.—Election of Fellows.  
LONDON MATHEMATICAL SOCIETY, at 8.—On Systems of Tangents to Plane Cubic and Quartic Curves: J. J. Walker.—On the Order and Singularities of the Parallel of an Algebraical Curve: S. Roberts.

FRIDAY, JANUARY 13.

ROYAL ASTRONOMICAL SOCIETY, at 8.  
QUEKETT MICROSCOPICAL SOCIETY, at 8.

TUESDAY, JANUARY 17.

ZOOLOGICAL SOCIETY, at 9.—On a Skull of a Narwhal with two tusks, in the Cambridge University Museum: John W. Clark.—Descriptions of some new species of Australian Land Shells: Dr. James C. Cox.—Notes on some points in the Osteology of *Rhea Americana* and *Rhea Darwinii*: Dr. R. O. Cunningham.  
ROYAL INSTITUTION, at 3.—Nutrition of Animals: Dr. M. Foster.  
STATISTICAL SOCIETY, at 7.45.—On the Comparative Taxation on Real Property, Personality, and Income: R. Dudley Baxter, M.A.  
ANTHROPOLOGICAL SOCIETY, at 4.—Annual Meeting.

WEDNESDAY, JANUARY 18.

METEOROLOGICAL SOCIETY, at 7.—Heights and Velocities of August Meteors in 1870: Prof. A. S. Herschel.—Lunar Influence upon Rainfall: John C. Bloxam.—On Prof. Poey's new Classification of Clouds: Dr. R. J. Mann.  
SOCIETY OF ARTS, at 8.  
ROYAL SOCIETY OF LITERATURE, at 8.30.—On Prospero's Clothes-line (by A. E. Brae): Dr. C. M. Ingleby.

THURSDAY, JANUARY 19.

ROYAL SOCIETY, at 8.30.  
SOCIETY OF ANTIQUARIES, at 8.30.  
LINNEAN SOCIETY, at 8.—On the Vegetation of the Solomon Islands: Mr. Atkin.—Note on *Byrsanthus (Homalinee)*: Dr. M. T. Masters, F.R.S., F.L.S.—Historical Notes on the *Radix Galanga* of Pharmacy: Daniel Hanbury, F.R.S., F.L.S.  
CHEMICAL SOCIETY, at 8.  
ROYAL INSTITUTION, at 3.—Davy's Discoveries: Dr. Odling.

CONTENTS

PAGE

THE NEW HOSPITAL OF ST. THOMAS. (With Plan.) . . . . .	201
THE COLLECTION OF INVERTEBRATE ANIMALS IN THE FREE PUBLIC MUSEUM, LIVERPOOL. By Rev. HENRY H. HIGGINS . . . . .	202
UTILISATION OF SEWAGE . . . . .	204
OUR BOOK SHELF . . . . .	205
LETTERS TO THE EDITOR:—	
Professor Max Müller and the Insulation of St. Michael's Mount, Cornwall.—W. PENGELLY, F.R.S.	205
Glycerine Solutions of Pepsin and other Substances.—Dr. LIONEL S. BEALE, F.R.S.	207
Tails of Comets, Solar Corona, and Aurora.—Dr. J. BEDFORD . . . . .	207
The Artificial Introduction of Planis . . . . .	208
Science Teaching.—SAMUEL H. MILLER . . . . .	208
The Frost.—JOHN CAREY; JOHN JAMES HALL . . . . .	208
Sharks announcing their own Capture.—G. F. McDougall . . . . .	208
Extraordinary Meteor.—ROBERT GRYSOON . . . . .	209
NATURAL SCIENCE AT CAMBRIDGE . . . . .	209
EXPLORATION OF THE PERENE (AMAZONS) RIVER. By Dr. HYDRÉ CLARKE . . . . .	209
BRITISH DIATOMACEÆ . . . . .	210
PAPERS ON IRON AND STEEL. II. THE BESSEMER PROCESS. (With Diagram.) By W. MATTIEU WILLIAMS, F.C.S. . . . .	211
NOTES . . . . .	212
ON THE GEOLOGY OF NOVA SCOTIA . . . . .	214
LETTERS FROM CENTRAL AFRICA. By Dr. SCHWEINFURTH . . . . .	215
SCIENTIFIC SERIALS . . . . .	210
SOCIETIES AND ACADEMIES . . . . .	217
BOOKS RECEIVED . . . . .	220
DIARY . . . . .	220

ERRATUM.—Page 182, first column, line 34, for "we are justified," read "we are not justified."