

be the first striated blocks observed near Paris. M. Elie de Beaumont made some remarks upon these blocks.—M. A. Trécul communicated the fourth part of his remarks upon the position of the tracheæ in the ferns and on the ramification and radicular propagation of the rhizomes of some of those plants.—M. Duchartre presented a note by M. E. Prillieux on the influence of blue light upon the production of starch in chlorophyll. The author remarked that the production of starch was generally supposed to be due to the action of the yellow rays, and that blue light had no such effect. He considered that the results upon which this opinion was founded were due to the greater brilliancy of the yellow light, and by exposing a plant of *Spirogyra* deprived of starch to a more brilliant blue light, he found that formation of starch took place.—M. Duchartre also communicated a note by M. C. Cave on the free central placenta of the *Primulacæ*, in which the author adduces as a further proof of the axial nature of that organ, that, on examination, the parts of recent formation are found to be outside the medullary sheath.—M. Auguste Duméril described some peculiar organs of the branchial apparatus in the Rays belonging to the genus *Cephaloptera*. These organs are the *prebranchial appendages* discovered by M. P. Panceri in *C. giorna*, which M. Duméril had detected in the large Indian *C. kuhlii*. He stated that they occurred in no other fishes.—M. Pouchet noticed a transformation of the nests of the house martin (*Hirundo urbica*), and maintained that the nests of birds, instead of being, as generally supposed, constructed in the same way from century to century, really undergo certain progressive modifications of structure. In the case of the house martin, he stated that within the last forty years that bird has adopted a new form for its nests. The old nests are in the form of the quarter of a hemisphere, with a very small circular aperture for entrance. The improved nests, according to M. Pouchet, are in the form of the quarter of a hemi-ovoid with the poles much elongated, and the entrance is by a long transverse slit.—A second note on the tracheæ and differential characters of the lungs in birds, by M. Campana, was presented by M. C. Bernard. The author described the various modes of interbranchial communication, the mode of insertion of the pneumatic receptacles upon the lung, and the structure of the parenchyma of the organ.—M. Milne-Edwards communicated an extract from a letter from the Abbé David, giving the diagnosis of a new species of *Crossophtilon* (*C. cæruleusculus*) discovered by him at Sse-tchuaru.—A note by M. Demarquay, on the reproduction and union of divided tendons was communicated by M. J. Cloquet. The author maintained that the regeneration of a divided tendon is effected by the proliferation of the elements on the inner surface of its sheath, in a manner analogous to the reproduction of bone by the periosteum. M. Dupuis presented some remarks on the confusion which has often occurred between the physicist, J. A. C. Charles, and the geometrician, J. Charles, and communicated some particulars relating to the biography of the two Academicians.

SYDNEY

Royal Society of New South Wales.—Mr. F. B. Miller, F.C.S., one of the assayers of the Sydney Royal Mint, described the practical results of his method for separating silver and gold directly by the use of chlorine gas, a process of which an account was given to the Chemical Society rather more than a year ago. At the Sydney Mint 6,820,198 ounces of gold have been received for coinage from the date of its establishment in May 1855 to December 31, 1868. The average composition of this gold would be about 94½ per cent. of gold, 5 per cent. of silver, and ¾ per cent. of base metals; the gross amount of silver contained in the gold would be about 334,190 ounces, so that about 24,750 ounces of silver per annum have been lost to the colony for the want of a simple process of refining. The gold now obtained in Queensland, as also that now brought from New Zealand, contains a much larger proportion of silver, so that the present loss to the colony is more nearly 42,000 ounces per year. The experience of the Sydney Mint proves that on the average there is a marked deterioration in the gold proceeding from Victoria, where the fineness is 96 per cent., northwards through New South Wales, where the average is 93½ per cent., to Queensland, average 87¾ per cent. The silver can now be readily separated by passing a stream of chlorine gas into the melted gold for about an hour and a half, as it lies in a crucible heated in an ordinary melting furnace. The chlorine is at first rapidly absorbed, and the process is completed when a brownish yellow vapour appears. The

chlorine is conveniently evolved from a self-acting generator, and 2,000 ounces of gold are readily refined in five hours, by three melting furnaces, 98 per cent. of the gold being delivered ready for coinage on the same day. The gold thus refined is perfectly tough, and contains only about one-half per cent. of alloy. The ultimate loss of gold is found to be only 19 parts in 100,000; the loss of silver is 240 in 100,000. The cost of refining, including the above loss, but excluding rent of premises and expenditure, is five farthings per ounce. The silver is obtained in the form of fused chloride, and is reduced to the metallic state by plates of zinc combined with slabs of the chloride into a galvanic arrangement, devised by Dr. Leibniz. In twenty-four hours the chloride is completely reduced to the state of spongy silver, and 1,400 or 1,500 ounces could thus be readily treated in a day. No acid is required, and the zinc consumed is only 25 per cent. of the chloride reduced. The whole process, having been thoroughly tested at the time, is to be brought into active operation at once. It is already employed by some of the banks in Australia and New Zealand.

DIARY

THURSDAY, MARCH 17.

- ROYAL SOCIETY, at 8.30.—On the Law which Regulates the Relative Magnitude of the Areas of the Four Orifices of the Heart: Dr. Herbert Davies.—On the Estimation of Ammonia in Atmospheric Air: H. T. Brown.
ROYAL INSTITUTION, at 3.—Chemistry of Vegetable Products: Prof. Odling.
LINNEAN SOCIETY, at 8.—The Flora and Fauna of Isle Ronde, near Mauritius: Sir Henry Barkly.—On Algæ found in the North Atlantic Ocean: Dr. Dickie.
ZOOLOGICAL SOCIETY, at 4.
CHEMICAL SOCIETY, at 8.—On Artificial Alizarine: W. H. Prekin, F.R.S.—On the Combination of Carbonic Anhydride with Ammonia and Water: Dr. Divers.
NUMISMATIC SOCIETY, at 7.
SOCIETY OF ANTIQUARIES, at 8.30.—On Ancient Round Barrows: Dr. Thurnam.

FRIDAY, MARCH 18.

- PHILOLOGICAL SOCIETY, at 8.15.
ROYAL INSTITUTION, at 8.—On the Subway to France: J. F. Bateman, F.R.S.

SATURDAY, MARCH 19.

- ROYAL INSTITUTION, at 3.—The Sun: J. Norman Lockyer, F.R.S.

MONDAY, MARCH 21.

- LONDON INSTITUTION, at 4.
ROYAL ASIATIC SOCIETY, at 3.
ENTOMOLOGICAL SOCIETY, at 7.
TUESDAY, MARCH 22.
ROYAL INSTITUTION, at 3.—Nervous System: Prof. Rolleston, M.D., F.R.S.
ETHNOLOGICAL SOCIETY, at 8.—On Current British Mythology and Oral Tradition: Mr. Campbell of Islay.
INSTITUTION OF CIVIL ENGINEERS, at 8.
ROYAL MEDICAL AND CHIRURGICAL SOCIETY, at 8.30.

WEDNESDAY, MARCH 23.

- GEOLOGISTS' ASSOCIATION, at 8.
SOCIETY OF ARTS, at 8.—On Surface Decoration: W. Pitman.
GEOLOGICAL SOCIETY OF LONDON, at 8.—On the Discovery of Organic Remains in the Caribbean series of Trinidad: R. J. Lechmere Guppy, F.L.S., F.G.S.—On the Palæontology of the Junction-beds of the Lower and Middle Lias in Gloucestershire: Ralph Tate, F.G.S.—On the Geology of the district of Waipara River in New Zealand: T. H. C. Hood, F.G.S.

THURSDAY, MARCH 24.

- ZOOLOGICAL SOCIETY, at 8.30.—On the Birds of Veragua: Osbert Salvin.—Exhibition of a metamorphosed Axolotl: W. B. Tegetmeier.—On two rare species of Pheasants recently added to the Society's Collection: Mr. Slater.

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