

lysis from anhydrous hydrofluoric acid or from the hydrofluorate of fluoride is fluor, as already anticipated.—On the separation of antimony from tin, by M. Ad. Carnot. This difficult process has been successfully accomplished by a method analogous to that already employed by the author for the separation of zinc and cadmium. It is based on the simultaneous employment of oxalic acid and of the hyposulphide of soda.—On the manganese of soda, by M. G. Rousseau.—On the determination of the absolute acidity of the fluids present in the organism, and on some phenomena connected with the saturation of orthophosphoric acid, by M. Ch. Blarez. From the experiments here described it is inferred that the exact determination of the absolute basic property of phosphoric acid is impossible, there being nothing absolute in this property itself; also that it is impossible to determine the absolute acidity of the animal fluids, of whose constituent principles phosphoric acid and the phosphates form part.—On some thermic data relating to the chromates, by M. Paul Sabatier.—Thermic researches on the seleniures, by M. Charles Fabre. The author here deals with the heat of formation of the seleniure of dissolved ammonium, and with some problems connected with the seleniures of lithium.—Researches on some crystallised basic sulphates, by M. Athanasesco. By employing the process used by Friedel for the artificial reproduction of brochantite, the author has succeeded in obtaining fine crystallised subsulphates of cadmium, zinc, alumina, iron, and uranium. By a slightly modified process he afterwards obtained some subsulphates of nickel, cobalt, mercury, and bismuth.—Researches on some crystallised arseniates, by M. Coloriano. All these arseniates, except the bibasic, are insoluble in water, and resist the acids. They were obtained by the various processes of Debray, Friedel and Sarasin, Verneuil and Bourgeois.—On a nitrated camphor and its saline and alcoholic combinations, by M. P. Cazeneuve.—Discussion on the reactions of pilocarpine, by MM. E. Hardy and G. Calmels.—Physiological function of the pulmonary tissue in the exhalation of carbonic acid, by M. L. Garnier.—On a universal chromatometer, by M. L. Andrieu (de l'Étang). The apparatus here described and illustrated is intended to define and measure the colours of liquids by giving them numerical expression.—On the Anguillules of smut, by M. G. Penetier. From his recent experiments the author concludes that these parasites preserve the vital spark for a period of fourteen years, but no longer.—On the milky secretion of pigeons during incubation, by MM. Charbonnel-Salle and Phisalix.—Researches on the structure of the brain of the Myriapods, by M. G. Saint-Remy.—Researches on the Miocene vegetation of Brittany, by M. Louis Crié.—On the picturesque group of rocks collectively known by the name of Montpellier-le-Vieux (Aveyron), by M. E. A. Martel.

BERLIN

Physiological Society, July 2.—Dr. Joseph reported on the results of experiments instituted with a view to ascertaining the influence of the nerves on the skin. Following up the experiments of Waller, he had excised a somewhat large piece of the second cervical nerve peripherically from the ganglion, and a few days thereafter had observed behind the ear of the side operated upon a perfectly circumscribed place on which the hairs had fallen out, but which, beyond the baldness, showed no symptom of change. The cutting through of the posterior root of the cervical nerve had not the same effect, but the extirpation of the second cervical ganglion had that result. The microscopic examination of the hairless spots showed absence of hair papillæ and of the hair root, while the other constituents of the skin remained unchanged. No abnormal vascularisation of the spots in question nor of the ears generally was observed. Seeing that the protected situation of the depilated spot and the presence of sensibility went to disprove the idea of a mechanical removal of the hairs, while the result of the anatomical examination attested that the hairs were exclusively affected without the vascular system having undergone any essential alteration; the speaker was therefore of opinion that the results of his investigations might be taken as demonstration of the existence of tropical nerves. After the separation of the peripheral nerve no change in the ganglion was ever observed, whereas the dissection of the posterior root gave rise to atrophy.—Dr. H. Virchow next demonstrated four drawings representing the incurvations of the vertebrate columns of different human types and manifesting the surprisingly great differences obtaining among the normal vertebrate columns of a Russian, an Italian, a male German existing in model, and a pregnant German wife. From these figures it was to be

concluded that the breadth of the normal fluctuations of these incurvations was great. On the study of the vertebral column it was to be observed that it was indeed comparable to an elastic rod which became expanded by lateral pressure, and compressed by pressure from the top, but that it was composed of several parts independent of one another (the lumbar, pectoral, and cervical parts) which were adapted to the special functions of the respective sections of the rump. By a simple model he made these differences among the different sections apparent. On a second model he showed that very marked displacements in the centre of gravity at the uppermost part of the body were equalised, not by compensatory incurvations, but by bendings in the undermost joints. The speaker then demonstrated by curves rendered in paste the incurvations shown by the vertebral column of dead bodies when the ligaments of the vertebrate bodies in front or behind, in the dorsal or lumbar vertebræ, were cut through. The curves became more marked after the elastic ligaments of the upper vertebræ were cut through, but they hardly changed at all when the lowest tendinous ligaments were cut through. The intersticular ligaments consisted of a soft elastic kernel and of distended ligamentous fibres compressing the kernel. The action of the expending kernels, which made the vertebral column firmer, was illustrated by a third model. The speaker had taken exact measure of the situation of the kernel in each disk on vertebrate columns sawn through, and when he combined together these points on a drawing, he obtained a more marked incurvation than that possessed by the vertebral column. Thus altogether apart from the muscular activity, the different forces acted on the incurvation of the vertebrate column, which for the rest appeared to be different in the different races.

BOOKS AND PAMPHLETS RECEIVED

"Indigenous Fodder Grasses of North-West India" (Roorkee).—"Die Ergebnisse der Untersuchungsfahrten, S. M. Knbt." "Drache" (Mittler und Sohn, Berlin).—"Russland," by Von Waldeck (Freytag).—"Der Ozean," by Dr. O. Krümmel (Freytag).—"Die Schweiz," by Dr. Z. Z. Egli (Freytag).—"Vital Statistics of the City of Glasgow," by Dr. J. B. Russell (Macdougall).—"Beiträge zur Biologie der Pflanzen" Vierter Band, Zweiter Heft (Kern, Breslau).—"Transactions of Vasser Brothers Institute and its Scientific Section," vol. iii. part 1.—"Partiality in Unity" (Wyman).—"Bulletin of the U.S. Geological Survey," Nos. 24, 25, 26 (Washington).—"Speculations on Political Economy," by C. B. Clarke (Macmillan).—"Annalen der k. k. Universitäts Sternwarte in Wien," ii. iii. Band, 1883, by E. Weiss (Wien).—"Report on the Migration of Birds," 7th Report, 1885 (Macfarlane and Erskine).

CONTENTS

PAGE

The Book of Duck Decoys	309
Cometary and Planetary Orbits	310
Letters to the Editor :—	
The Silver-Blue Cloudlets again.—Prof. C. Piazzi Smyth	311
The Bright Clouds.—T. W. Backhouse	312
Aurora.—G. H. Kinahan; Donald Cameron	312
Halos and Mock Suns.—E. Douglas Archibald; Robert H. F. Rippon. (<i>Illustrated</i>)	313
A Singular Case.—Prof. Henry H. Giglioli	313
The Weather at Caracas.—Dr. A. Ernst	313
The Indivisibility of Certain Whole Numbers.—M. A. Quadruped Duck.—Rev. Edward Geoghegan	314
Physiological Selection : an Additional Suggestion on the Origin of Species. By Dr. George J. Romanes, F.R.S.	314
Tropical Fruits. By D. Morris	316
Microscopic Organisms in Air and Water. (<i>Illustrated</i>)	318
The Recent Volcanic Eruption in New Zealand. By Arch. Geikie, Director-General of the Geological Survey of the United Kingdom. (<i>With a Map</i>)	320
Notes	322
Astronomical Phenomena for the Week 1886 August 8-14	324
The Scientific Development of the Coal-Tar Colour Industry. By Prof. R. Meldola, F.R.S.	324
Drying up of Siberian Lakes	329
University and Educational Intelligence	330
Scientific Serials	330
Societies and Academies	331
Books and Pamphlets Received	332