

Society.—Mr. Crisp referred to the great loss the Society had sustained by the death of Dr. Millar, who had always taken a lively interest in the affairs of the Society, and for nearly thirty years had been a member of Council.—Dr. Dallinger delivered his annual address.

PARIS.

Academy of Sciences, February 20.—M. Janssen in the chair.—Third note on the doctrine of probabilities as applied to target practice, by M. J. Bertrand. The object of this paper, which has been prepared at the request of several artillery officers specially interested in the subject, is to present in a form capable of immediate application the results already arrived at as set forth in the previous communications.—On the species of *Proneomenia* on the coast of Provence, by MM. A. F. Marion and A. Kowalevsky. In a previous note the authors described a new genus of *Solenogaster* from the Gulf of Marseilles differing from the *Proneomenia* by its thorny integument. Here he describes four distinct species of the genus *Proneomenia* which occur on the coast of Provence, and which present features by which they may be readily distinguished from *P. stultieri* described by Hubrecht. These species, none of which exceed 15 mm. in length, are respectively named *P. vagans*, *P. caulini*, *P. desiderata*, and *P. aglaophenia*. Incidental reference is made to a fifth species (*P. gorgonophila*) discovered on the coast of Algeria.—Observations of the new planet Charlois, 272, made at the Observatory of Algiers with the 0.50 m. telescope, by MM. Rambaud and Sy. The observations for right ascension, declination, apparent position, &c., extend over the period February 10–11.—Observations of the same planet are also recorded for February 8–13 made at the Observatory of Marseilles with the Eichens equatorial, by M. Borrelly.—Permanent deformations and thermodynamics (continued), by M. Marcel Brillouin. The chief subjects here discussed are the principle of equivalence, specific and latent heats, and the differential relations between the specific heats.—On the electrostatic attraction of electrodes in water and attenuated solutions, by M. Gouy. The theory of the propagation of electricity in the permanent state suggests the presence of free electricity during the passage of the current, not only on the outer surface of the conductors, but also on the surface separating two conductors of different specific resistance, the electric force necessarily having different values on either side of this surface. The author here endeavours to ascertain whether this hypothetical layer of free electricity on the contact surface might be capable of exercising any electrostatic action. For this purpose he studies the case of two metallic conductors placed in a moderately conducting liquid and maintained by a pile with different potentials, in order to determine how far they may be acted upon by appreciable forces. His experiments seem to show that these forces really exist, and are in fact much more considerable than could have been foreseen.—On the coefficients of proportionality in radiating heat, by M. L. Godard. The experiments here described seem to show that the coefficients of proportionality given by the study of the diffusion of heat, and confirmed by the spectro-photometric analysis of coloured substances, are the same as the numbers obtained by M. L. Mouton in his researches on the distribution of heat in the normal spectrum of the sun.—Preparation and properties of a bi-hydrofluoride and of a tri-hydrofluoride of fluoride of potassium, by M. H. Moissan. While hydrochloric acid yields with difficulty the hydrochlorates of chlorides, hydrofluoric acid combines readily with the neutral fluorides to produce hydrofluorates of the general formula KF , HFl . But these compounds, including 1 equivalent of hydrofluoric acid, are not the only ones that may be obtained, at least with the alkaline metals. The author has succeeded in preparing two new combinations containing 2 and 3 equivalents of acid for 1 of fluoride of potassium. These combinations, abounding in hydrofluoric acid, and capable of being kept in the fluid state at temperatures ranging from 65° to 105° C., may perhaps under certain conditions enable the hydrofluoric acid to react readily on a certain number of organic or mineral compounds.—On a new reagent of the products of saponification of cotton-oil, by M. Ernest Milliau. The chemical reagent here described, which is not observed in the fatty acids of olive-oil, is so sensitive that by its means the presence may easily be detected of 1 per cent. of cotton-oil in olive-oil. All risk of error is removed, as the operation is effected, not on the oil itself, but on the fatty acids free from all impurity. Science has thus supplied the long sought-for means of infallibly detecting any adultera-

tion of olive-oil by cotton-oil in the proportion of from 5 to 20 per cent., as is usually practised in the trade.—On the essence of lavender, by MM. R. Voiry and G. Bouchardat. The results of the analysis of this essence differ in some respects from those hitherto published. The authors have determined the presence of an oxygenated compound identical with eucalyptol, and the almost complete absence of carburets of hydrogen.—The sardine fisheries on the west coast of France in 1887, by M. Georges Pouchet. Last year was characterized by an extreme abundance of sardine on the French fishing-grounds, at the very time when the most opposite reasons were being advanced to account for a supposed gradual disappearance of the species from the French waters. On this point nothing positive can be asserted in the absence of any accurate knowledge of the migrations and spawning-grounds of the sardine.—On the Quaternary station of La Quina, Charente, by M. Emile Rivière. This station of pre-historic man, which lies near the banks of the Voultron in the Canton of La Valette, has recently been carefully explored by the author, who agrees with M. Chauvet in assigning it to the Mousterian (reindeer) epoch. The animal remains include the cave-bear, jackal, wild cat, horse, *Bos primigenius*, *Cervus elephas*, and especially the reindeer, in great abundance. No human bones were found, but there is an abundance of chipped flints, some very fine, and evidently worked on the spot.

BOOKS, PAMPHLETS, and SERIALS RECEIVED.

Navigation and Nautical Astronomy: W. R. Martin (Longmans).—The Method of Creation: H. W. Crosskey (Sunday Sch. Assn.).—Elementary Physiography: J. Thornton (Longmans).—Life in Corea: W. R. Carles (Macmillan).—Discursive Essays on the Phenomena of the Heavens and Physical History of the Earth, Part 1 (London Literary Society).—Technological Dictionary, 3 vols. English, German, and French: Röhrig and Schiller (Trübner).—Emin Pasha in Central Africa (Philip).—Das Antlitz der Erde, vol. ii.: E. Suess (Tempsky, Wien).—Jahrbuch der k. k. Geologischen Reichsanstalt, Jahrg. 1887, xxxvii. Band, 2 Heft; Abhandlungen der k. k. Geologischen Reichsanstalt, Jahrg. 1887, xi. Band, 2 Abthg. (Wien).—Industrial Instruction: R. Seidel (Heath, Boston).—The Manual Training School: C. M. Woodward (Heath, Boston).—A Pocket-book of Electrical Rules and Tables, 5th Edition: Munro and Jamieson (Griffin).—ii. Jahresbericht (1886) der Ornithologischen Beobachtungsstationen im Königreich Sachsen: Dr. A. B. Meyer and Dr. F. Helm (Dresden).

CONTENTS.

	PAGE
Physical Science and the Woolwich Examinations	409
Tea Cultivation in India. By J. R. Royle	409
Living Lights	411
Our Book Shelf:—	
Battershall: "Food Adulteration and its Detection"	411
Pinkerton: "Dynamics and Hydrostatics"	412
Hughes: "Geography for Schools"	412
Hunter: "Key to Todhunter's Differential Calculus"	412
Bottone: "Electrical Instrument Making for Amateurs"	412
Letters to the Editor:—	
Language = Reason.—Prof. F. Max Müller	412
"Coral Formations."—John Murray; Prof. G. C. Bourne	414
Natural Science and the Woolwich Examinations.—Henry Palin Gurney	415
International Tables.—Robert H. Scott, F.R.S.	415
Weight and Mass.—Prof. T. C. Mendenhall; Dr. Oliver J. Lodge, F.R.S.	416
The Composition of Water.—Dr. Sydney Young	416
On the Divisors of the Sum of a Geometrical Series whose First Term is Unity and Common Ratio any Positive or Negative Integer. By Prof. J. J. Sylvester, F.R.S.	417
Lord Rayleigh on the Relative Densities of Hydrogen and Oxygen	418
Notes	421
Our Astronomical Column:—	
Solar Activity in 1887	423
A New Comet	424
Astronomical Phenomena for the Week 1888	
March 4–10	424
The Relations between Geology and the Biological Sciences. II. By Prof. John W. Judd, F.R.S.	424
On the Number of Dust Particles in the Atmosphere. By John Aitken	428
University and Educational Intelligence	430
Societies and Academies	430
Books, Pamphlets, and Serials Received	432