

condensed upon it.—Mr. Peddie also read a note showing that the phenomenon of “electric-absorption” must be exhibited if a dielectric has a film of gas condensed on its surface.—Prof. Tait communicated a paper by Mr. Albert Campbell on the change in the thermo-electric properties of tin at its melting-point. While the tin is solid its line on the thermo-electric diagram is inclined upwards. Liquefaction occurs before the line reaches that of iron. At this point the direction of the line changes and becomes nearly identical with that of iron. Thus the “specific heat of electricity” in tin changes sign at the melting-point. This shows that the loosening of molecular attraction, which occurs at the melting-point, produces the same effect in tin as is produced in iron, while still solid, at the higher of the two temperatures at which its magnetic and other properties suddenly alter.—Prof. Tait read a paper on the thermo-electric properties of Signor Battelli’s iron; and showed from Mr. Omond’s Ben Nevis observations that ice-crystals may, in the greater number of cases, have at least a share in the production of the observed phenomena.

PARIS.

Academy of Sciences, February 6.—M. Janssen in the chair.—Second note on the law of probabilities as applied to target-firing, by M. J. Bertrand. The paper deals specially with the objections urged by General Putz in the *Revue d’Artillerie* against the principle admitted by Poisson, and against the law of probability now generally adopted in schools of gunnery. Reference was also made by General Menabrea to the important researches of M. Siacci in this field of inquiry.—Remarks in reply to an objection raised by M. Khandrikoff to the theory of solar spots and protuberances, by M. H. Faye. During his observation of the recent lunar eclipse Prof. Khandrikoff noted some protuberances, the presence of which in the absence of spots for some days before the eclipse seemed to militate against M. Faye’s well-known theory. To this objection M. Faye replied at some length, pointing out that it is partly based on a misunderstanding of the true character and bearing of his views.—On perfect numbers, by Prof. Sylvester. Recently M. Servais stated that a perfect number (if such exist) containing only three distinct prime factors is necessarily divisible by 3 and 5. It is here shown that no such number exists, the line of argument employed at the same time demonstrating the theorem that there exists no perfect number containing less than six distinct prime factors.—Observations made at the Observatory of Algiers during the total lunar eclipse of January 28, by M. Ch. Trépiéd. These observations comprise, among other matters, a study of the colours assumed by the lunar disk; a spectroscopic examination of the eclipsed portion of the disk; and the occultations of the stars contained in the list prepared by the Observatory of Pulkowa for the purpose of obtaining an exact determination of the apparent diameter of the moon. Communications were also received from the Observatories of Bordeaux and Nice on various phases of the same occurrence.—Ephemeris of the planet 252 for the opposition of the year 1888, by M. Charlois. The true positions, right ascension and declination, are given for the period from March 5 to March 19. At opposition (March 12) the magnitude will be 13.4.—Note on permanent deformations and thermodynamics, by M. Marcel Brillouin. Two propositions are established: (1) that for most elastic solids there exists no finite relation between the temperature t , the mechanic variable X , and the geometric variable x ; (2) that for most solid bodies there exists a linear equation with total differentials between t , X , and x ; or, more correctly, there exist as many equations of this class as there are independent geometric variables. In a future communication the theoretic results of this study will be announced.—Influence of diet in determining the fixation and elimination of carbon in man, by MM. Hanriot and Ch. Richet. The results are tabulated of mixed nitrogenous, fat, and feculent diets, including beef, bread, potatoes, butter, cheese, sugar, wine, and coffee, continued for a period of fifteen days.—On the presence of striated muscles in mollusks, by M. Raphael Blanchard. M. Hermann Fol’s recent statement that true transversal striation of the muscular fibre is found in no mollusk, is shown to be erroneous and based on defective observation of these organisms, in some of which true transversal striation certainly occurs.—On the endomorphic modifications of the granulitic systems in Morbihan, Brittany, by M. Charles Barrois. This paper is devoted to a careful study of the remarkable endomorphic modifications and mechanical transformations of the Guéméné, Saint-Jean Brevelay, and Grandchamp granulitic

formations, which traverse the Department of Morbihan in its entire length, and the typical constituents of which are: (1) zircon, apatite, black mica, oligoclase, orthose, and quartz; (2) orthose, microcline, quartz, tourmaline, and white mica.—On the Senonian and Danian systems of South-East Spain, by M. René Nicklès. Without attempting accurately to determine the respective limits of these formations, the author indicates the presence of extensive marine deposits in the Devonian containing fossiliferous limestones with several species of Hemipneustes associated with large banks of Hippurites and Pironea.—General Menabrea presented to the Academy the prospectus of a new edition of the works of Galileo, in about twenty-five volumes, which is about to be issued at the expense of the Italian Government, and copies presented to all the more important public libraries.—The Administrative Commission of the Academy announces that it has decided to supply Corresponding Members with the *Comptes rendus* free of charge from January 1, 1888. Correspondents are requested to acknowledge receipt of the first number, and notify their change of address to Messrs. Gauthier-Villars et Fils, publishers, Paris.

BOOKS, PAMPHLETS, and SERIALS RECEIVED.

A Treatise on Photography, 5th edition: Capt. Abney (Longmans).—The Story of Creation: E. Clodd (Longmans).—British Dogs, parts 15 and 16: H. Dalziel (U. Gill).—Beobachtungen der Russischen Polarstation an der Lenamündung, II. Thiel, meteorologische Beobachtungen: A. Eigner; H. Liefg. Beobachtungen vom Jahre 1883-84: R. Lenz.—Meteorological Observations at Stations of the Second Order for the Year 1883 (Eyre and Spottiswoode).—The Geographical Distribution of the Family Charadriidæ, H. Seebohm (Sothoran).—Anuario publicado pelo Imperial Observatorio do Rio de Janeiro, 1885-86-87 (Rio de Janeiro).—Memoirs and Proceedings of the Manchester Literary and Philosophical Society, 4th Series, vol. I. No. 2.—(Manchester).—Proceedings of the Manchester Literary and Philosophical Society, vol. xxvi. (Manchester).—Zeitschrift der Gesellschaft für Erdkunde zu Berlin, Nos. 133 und 134 (Reimer, Berlin).

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