nvestigation was undertaken with such an expectation. He remarks, however, that the conditions for a separation from a mass which is strongly concentrated at its centre, are necessarily very different from those which he has treated mathematically.

However, both his investigation and the considerations adduced here seem to show that, when a portion of the central body becomes detached through increasing angular velocity, the portion should bear a far larger ratio to the remainder than is observed in our satellites, as compared with their planets; and it is hardly probable that the heterogeneity of the central body can make so great a difference in the results as would be necessary if we are to make an application of these ideas.

It seems then at present necessary to suppose that after the birth of a satellite, if it takes place at all in this way, a series of changes occur which are still quite unknown.

PARIS.

Academy of Sciences, August 1.—M. Janssen in the chair.—On the silicates of thorine, by MM. L. Troost and L. Ouvrard. It was lately shown by the authors that the study of the double phosphates formed by thorine and zircon with phosphoric acid and potassa or soda furnished no argument for associating thorine with zircon. Their further researches on the combinations of thorine and silica have yielded a compound substance, in which this base seems to be still further removed from zircon. The silicates of thorine were prepared by heating a mixture of silica and thorine with the chloride of calcium used as a solvent, and by varying the conditions two silicates were obtained, differing entirely in their composition and crystalline form. The crystals belong to the orthorhombic system, with density 6·82 at 16° C., analysis yielding 18·01 silica and 81·80 thorine. This compound corresponds to the formula $2ThO \cdot SiO_2$ (Th = 58·1), or $Th'O_2 \cdot SiO_2$ (Th' = 116·2). There is no isomorphism between this silicate of thorine and zircon $ZrO_2 \cdot SiO_2$; but here thorine may be regarded as playing the part of a bioxide. This conclusion has been confirmed by the recent experiments of MM. Krüss and Nilson, who, when determining the vapour-density of thorium, obtained numbers approaching, but always inferior to, that corresponding to the formula $Th'Cl_2$.—New fluorescences with well-marked spectral bands, by M. Lecoq de Boisbaudran. The new fluorescences here described are specially remarkable both for the number and the position of their distinct rays. They are often very bright, and are obtained by taking as agents the oxides of Sm, Zα, Zβ, and as solid solvents alumina or gallina. Alumina with 1/50 of samarine shows a red, an orange, and a green band, whose positions differ little from those occupied by bands obtained from the inversion of the induction-spark on a solution of chloride of samarium. The red is extremely weak, the orange more visible, the green easily distinguished, although less luminous than the orange.—Fluorescence of spinel, by M. Lecoq de Boisbaudran. The natural spinels give both a red fluorescence, whose spectrum has been carefully described by M. Edm. Becquerel, and also occasionally a greenish fluorescence. It is here shown that the former is due to the presence of chromium, the latter to that of manganese. By introducing 1/1000 of MnO into the composition of artificial spinel, the beautiful green fluorescence gives the same green band, but considerably more intense. By replacing the manganese with 1/100 of oxide of chromium, there is developed a magnificent red fluorescence presenting all the characters of that of the ordinary natural spinels.—Heat of formation of some crystallized tellurides, by M. Ch. Fabre. It is shown that several metallic tellurides may be obtained by heating in nitrogen a mixture of powdered tellurium and filings of the metal. The tellurides of iron, nickel, cobalt, and thallium not hitherto obtained, are crystallized, resisting hydrochloric acid and sulphuric acid at a low temperature, but slowly changing in a moist atmosphere. Reduced to a fine powder they are easily dissolved in bromine and the water of bromine yielding the corresponding bromide, hydrobromic acid, and tellurous acid. A comparison of the heats of formation of the crystallized tellurides and selenides seems to show that in the same group, according as the equivalent weight of the metalloid combined with the metal increases, the quantity of heat liberated by the combination diminishes. But in order to verify this hypothesis, it would be necessary to determine the heat of formation of the corresponding crystallized sulphides.—On the succinimidoacetic and camphorimidoacetic ethers, by MM. Alb. Haller and G. Arth. In order to obtain these ethers, the authors have employed the sodified derivatives of succinimide and camphorimide, the latter behaving like its analogues in the presence of the alkaline metals.—On a new isomere of benzine, by M. G. Griner. Besides the dipropargyle belonging to the fatty series discovered by M. L. Henry, the author has obtained another isomere of benzine, which does not combine with ammoniacal cuprous chloride, and consequently is not acetylenic. Its simplest formula would seem to be $CH_2—C{\equiv}C—C{\equiv}C—CH_3$.—Remarks in connexion with the observations of M. Grawitz on the preparation of the chromates of aniline and their applications, by MM. Ch. Girard and L. L'Hote. The authors repeat that they were the first to isolate and study the bichromate of aniline, a crystalline salt, of which they gave the formula and chemical properties, and from which they have succeeded in preparing certain colours such as mauveine, pheno-safranine, violaniline, &c.—On the effects of salting on pig's flesh affected by charbon, by M. F. Peuch. The experiments here described show that even in thoroughly salted bacon the charbon is not killed, but its virulence is destroyed.—On a new microbe determining indigotic fermentation and the production of blue indigo, by M. E. Alvarez. The author's experiments show that indigo is a product of fermentation determined by a special microbe greatly resembling those of pneumonia and rhinosclerome, which also have the power of setting up indigotic fermentation. The microbe of indigo also possesses pathologic properties determining either a passing local inflammation, or even rapid death with congestions of the viscerae and fibrine exudations.

BOOKS, PAMPHLETS, and SERIALS RECEIVED.

A New Mode of Geometrical Demonstration, with Examples; D. Maver (Brown, Aberdeen).—Terra: A. A. Anderson (Reeves and Turner).—Annales de l'Observatoire de Nice, tome ii. (Paris).—Food Adulteration and its Detection: J. P. Battershall (Spon).—Electricity: W. Larden (Longmans).—British Dogs, Nos. 9 and 10: H. Dalziel (Gill).—Bees and Bee-keeping, vol. ii. parts 9, 10, 11: F. R. Cheshire (Gill).—McGill University Annual Calendar, Faculty of Medicine (Montreal).—On the Education of Engineers: H. Dyer (Munro, Glasgow).—Hints to Meteorological Observers, 2nd edition (W. Marriott (Stanford).—Archives Néerlandaises des Sciences Exactes et Naturelles, xxi. (Harlem).—Brain, part xxxviii. (Macmillan).—Quarterly Journal of the Royal Meteorological Society, April (Stanford).—Meteorological Record, vol. vi. No. 24, vol. vii. No. 25 (Stanford).—Annalen der Physik und Chemie, 1887, No. 8/ (Leipzig).—Beiblätter u den Annalen der Physik und Chemie, 1887, No. 7 (Leipzig).

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