

discussion ensued, in which Prof. Meldola, Mr. Poulton, Dr. Sharp, and others took part.

## PARIS.

**Academy of Sciences, July 18.**—M. Janssen in the chair.—On the transition between the aromatic and fatty series, by MM. Berthelot and Recoura. By the synthetic process this transition is effected very clearly in the polymeric transformation of acetylene into benzene, and in the allied pyrogenous reactions. Some light has also been thrown on the more obscure problem of the transition in living organisms by Prunier's experiments with quercite, and Maquenne's with inosite. These studies are here subjected to further investigation by the measurement of the heats of formation of the various principles, themselves deduced from the heats of combustion. In all cases the passage of a body belonging to the fatty series to one of the aromatic series by deshydration is shown to be accompanied by a considerable liberation of heat; that is to say, by a loss of energy corresponding to the excess of stability acquired by the fundamental hydrocarbonated nucleus.—Comparative locomotion: action of the pelvic member in man, the elephant, and the horse, by MM. Marey and Pagès. Their recent researches on the locomotion of the horse and elephant enable the authors to establish certain analogies and differences presented by the posterior member of these quadrupeds compared with the movement of the lower member in man. The parallelism, which is illustrated by several diagrams, bears both on the slow and rapid motion (walking and running) of the three types here under consideration. Contrary to the general opinion, there appears to exist in the step or pace of the quadrupeds a period of double rest more prolonged in the hind than in the fore-quarters. It is also shown that the trot in the horse corresponds unquestionably with the running action of man, but that elephants have no such action, just as man lacks the gallop of the horse, which in this respect thus stands at the head of the series. But, when urged to quicken their speed, the elephants broke into an action somewhat approaching that assumed by man when passing from a walk to a run. In general, both in slow and rapid motion, the action of the pelvic member remains essentially the same in all three types. The difference between them lies in the action on the concurrent limbs, which is slight between man and the elephant, much greater between these two and the horse.—On the habits of Phylloxera, and on the present state of the French vineyards, by M. P. Boiteau. During the year 1886 the author continued his experiments on the reproduction of Phylloxera, which he has cultivated for six consecutive years. In 1885 he had reached the nineteenth generation by the parthenogenetic process, all necessary precautions being taken to prevent fertilized insects from coming in contact with those derived directly from the winter egg. At present he has reached a second generation for 1887, or a total of 24 or 25 altogether, all these agamous generations being very healthy, lively, and prolific. The condition of the vines, which suffered so much last year, is described as highly satisfactory, with every prospect of a good vintage in most of the wine-growing districts.—Comparison of the energies radiated by platina and silver in fusion, by M. J. Violle. By the process here described the total radiation of platina is found to be 54 times that of silver in fusion. Yet this relation, great as it is, is far less than that of the luminous intensities, which is superior to 1000.—Solidification of liquids by pressure, by M. E. H. Amagat. Theoretically, J. Thomson's formula implies that at a given temperature solidification becomes possible under sufficient pressure, provided the density be greater in the solid than in the fluid state. But no instance has hitherto been known of any liquid properly so called being solidified by pressure alone. Now, however, the author, after numerous experiments, has succeeded in solidifying the bichloride of carbon ( $C_2Cl_4$ ), obtaining some crystals which are here figured, and which appear evidently to belong to the cubic system. This substance is solidified at the temperatures of  $-19^{\circ}5$ ,  $0^{\circ}$ ,  $10^{\circ}$ , and  $19^{\circ}5$  C. under the respective pressures of 210, 620, 900, and 1160 atmospheres. This and other results would seem to imply that every fluid has a critical point of solidification; that is, a temperature above which solidification will take place under no pressure: just as there appears to be a temperature below which the body remains solid under the slightest pressures.—On the calorific conductivity of bismuth in a magnetic field, by M. A. Righi. The considerable increase of electric resistance, and the intense rotation of the equipotential lines (Hall's phenomenon) which occur when bismuth is introduced into the magnetic field, naturally led to

the inference that a decrease of calorific conductivity and a rotation of the isothermal lines should take place under the same conditions. The author has now completed a series of extensive experiments, which completely confirm this supposition, and the summary results of which have been published in the *Resoconti dell' Accademia Reale dei Lincei* for June 12; that is, eight days before the analogous communication recently sent by M. Leduc to the *Comptes rendus*.—On the *Chlorama dujardini* and *Siphonostoma diplochaitos*, by M. Joyeux-Laffuie. In reply to M. Kunster, it is pointed out that there is no ground for supposing that these two organisms are identical, the former being from 15 mm. to 20 mm., the latter 8 cm. long.—On the earthquake of June 9, 1887, in Central Asia, by M. Venukoff. A detailed account is given of the disastrous effects of this disturbance, especially in Vernoi, a town of 17,000 inhabitants, where 1700 out of 2500 buildings of brick and stone were levelled with the ground, while 800 wooden houses remained almost uninjured. As many as 200 persons perished in Vernoi, and over 800 in the surrounding district, chiefly in the Ala-tau Mountains. The first great shock of June 9 has been followed by several others, which still continue, obliging the inhabitants to take shelter under tents on the open plains.—On a hailstone inclosing a stony nucleus, by M. G. Tissandier. This specimen fell during a violent thunder and hailstorm in the Tarbes district on June 20. The nucleus consisted of some gypsum, which had clearly been worked, and no doubt sucked up by a water-spout to a thunder-cloud, where it became incrustated with ice.

## BOOKS, PAMPHLETS, and SERIALS RECEIVED.

Course of Practical Instruction in Botany, part ii.: Bower and Vine (Macmillan).—The Teaching of Geography: A. Geikie (Macmillan).—Sunlight, Second Edition, 1887 (Trübner).—Morality and Utility: G. P. Best (Trübner).—The Scenery of Scotland, Second Edition: A. Geikie (Macmillan).—The Forms of Nasal Obstruction: G. Macdonald (A. P. Watt).—Report of the Royal Commission for the Colonial and Indian Commission, 1887 (Clowes).—Smithsonian Report, 1885, part 1. (Washington).

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