of a membrane, by Émile Picard.—On the crystallisation of water by decompression below zero, by M. E. H. Amagat. The experiments were performed with the apparatus provided with glass sights used for studying the solidification of liquids under pressure. But the conical sights mounted in ivory were apt to split into plates, and lose their transparency under high pressures. Cylindrical pieces mounted with marine glue were substituted, some of which resisted pressures up to 1800 atmospheres. The water enclosed in the steel cylinder was first solidified and maintained at a temperature below zero. By gradually raising the pressure, the ice was fused and made to disappear completely. On diminishing the pressure, crystals were deposited on the inner surface of the glass, just as in the case of bodies denser in the solid state when the pressure was raised. The phenomenon is, however, rather more difficult to produce. The solidification was especially retarded when care was taken to fuse all the crystals by pressure, but even when a few fragments were left no such beautiful crystals were obtained as in the case of chloride of carbon. It would be extremely interesting to follow up, for a certain number of liquids, the variation of the point of fusion under very high pressures; as the ratio of the coefficients of compressibility of water and of ice is unknown, it may be asked whether under sufficient pressures the density of ice does not exceed that of water, thus giving rise to a point of inversion which would assimilate the behaviour of water to that of other liquids, or whether other liquids show such a point of inversion in the opposite sense. This would explain certain appearances observed in the case of chloride of carbon.—On an extension of Riemann's method applied to equations of the second order to equations of any order, by M. Delassus.—On the third principle of energetics, by M. H. Le Chatelier. This is a reply to M. Meyerhoffer's criticism, and shows that the term capacity for energy is differently defined by the two authors. Thermodynamic theory is based upon two experimental principles and an hypothesis concerning the nature of heat. The latter may be eliminated by substituting for it the experimental principle which can be expressed as follows: It is impossible to extract energy from a system of bodies without making two at least of its constituents experience changes of opposite sense. From this the proportionality of work performed and heat consumed or generated is easily deduced. It is this proportionality which enables us to reduce the number of algebraic equations to two, sufficient to represent three distinct experimental principles.—On the electric conveyance of heat, by M. L. Houllevigue. The difference of potential between a conductor and iron is different accordingly as the iron is magnetised or not. One joint of a copper-iron couple was brought into a magnetic field, and the other left out. Since this arrangement could not give rise to a steady current without creating energy, an opposing electromotive force was to be expected between the variously magnetised parts of the iron. Such a difference of potential was, in fact, found, the balance being in favour of the less magnetised portions.—On some properties of the oxides of lead, by M. A. Bonnet.—On the interior temperature of bread coming out of the oven, by M. Balland. Experiments performed on various kinds of bread from different ovens show that the temperature of the crumb during baking reaches 100° or 102°, that of the crust being much higher. When beyond 100° the steam imprisoned by the crust is under a certain pressure. If this pressure is relaxed by the bursting of the crust, the temperature of the interior falls to 100°.—Observations of the phenomena of karyokinesis in the blastoderm cellules of the teleostea, by MM. E. Bataillon and R. Kœhler.—On the germination of the Ricinus, by M. Leclerc du Sablon.—A new enemy of the vine, *Blanyulus guttulatus*, Fabr., by M. Fontaine. This is a myriapod which invades the buds in numbers, ranging from five to ten per bud, forming balls of the size of a small pea. Washing with potassium sulphocarbonate and sulphuring the soil are remedies proposed.—On some phenomena relating to the movement of the sea near Bonifacio, by M. Nicol.

DIARY OF SOCIETIES.

LONDON.

THURSDAY, OCTOBER 26.

INSTITUTION OF MECHANICAL ENGINEERS, at 7.30.—On the Working of Steam Pumps on the Russian South-Western Railways: Alexander Borodin.

FRIDAY, OCTOBER 27.

PHYSICAL SOCIETY, at 5.—On Air-Core Transformers: E. C. Rimington.—Two Experiments on the Rings and Brushes in Crystals, and Electrical Radiation in Copper Filings: W. B. Croft.

SUNDAY, OCTOBER 29.

SUNDAY LECTURE SOCIETY, at 4.—Savages and Barbarians: a Sketch of their Institutions and their Growth from Savagery to Barbarism: Prince Kropotkin.

THURSDAY, NOVEMBER 2.

LINNEAN SOCIETY, at 8.—A Contribution to the Phanerogamic Flora of Mato Grosso and the Northern Chaco: Spencer Le Marchant Moore.—On a New Freshwater Schizopod from Tasmania: G. N. Thomson.

FRIDAY, NOVEMBER 3.

GEOLOGISTS' ASSOCIATION, at 8.—*Conversazione.*

BOOKS RECEIVED.

BOOKS.—Plane Trigonometry: S. L. Loney (Camb. Univ. Press).—The Mummy: Dr. E. A. W. Budge (Camb. Univ. Press).—With the Woodlanders and by the Tide: a Son of the Marshes (Blackwood).—Romance of Low Life amongst Plants: Dr. M. C. Cooke (S.P.C.K.).—Eleventh Annual Report of the U.S. Geology Survey, Part 1: Geology.—Eleventh Annual Report of the U.S. Geological Survey, Part ii.: Irrigation: J. W. Powell (Washington).—Measurement of Light and Colour-Sensations: J. W. Lovibond (G.II).—Results of Astronomical Observations made at Sydney Observatory, N.S.W. in the years 1879, 1880, and 1881: H. C. Russell (Sydney, Potter)—Horns and Hoofs, or Chapters on Hoofed Animals: R. Lyddeker (H. Cox).—The Municipal Technical School and School of Art, Manchester, Session 1893-94, Syllabus (Manchester).—Round the Works of our Principal Railways (Arnold).

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