

need not necessarily be alternations of transparency and opacity in order to produce the desired effect. Very close contact between the film and the grating is essential.—On atmospheric polarisation, by M. A. Hurion.—Researches on the higher alcohols and other impurities in vinic alcohol, by M. Émile Gossart.—On the general relations which exist between the coefficients in the fundamental laws of electricity and magnetism, by M. E. Mercadier.—On the reflection of electric waves at the end of a linear conductor, by M. Birkeland.—Multiplication of the number of periods of sinusoidal currents, by M. Désiré Korda.—On the hygroscopic properties of several textile fabrics, by M. Th. Schlessing fils.—Contribution to the study of the Leclanché cell, by M. A. Ditte.—Attempt at a general method of chemical synthesis; formation of nitrogen compounds, by M. Raoul Pictet.—On the stereochemistry of the malic compounds, and the variation of the rotatory power of liquids, by M. Albert Colson.—On a chlorobromide of iron, by M. Lenormand.—On the saccharates of lime, by M. Petit.—On a new soluble ferment doubling trehalose into glucose, by M. Em. Bourquelot.—On the circulatory apparatus of *Mygale Cæmentaria*, Walck, by M. Marcel Causard.—Influence of the pressure of gases upon the development of vegetables, by M. Paul Jaccard.—On the ammonite layers of the inferior Malm in the county of Montejunta, Portugal; little known phases in the development of the mollusca, by M. Paul Choffat.—On the mode of reproduction of the parasites of cancer, by MM. Armand Ruffer and H. G. Plimmer.—M. Lippmann presented to the Academy, in the names of MM. Auguste and Louis Lumière, coloured photographs obtained by the interference method.

## BERLIN.

**Physical Society, March 10.**—Prof. Kundt, President, in the chair.—The President gave an account of some researches undertaken as an introduction to the study of Hall's phenomenon. As is well known, this is directly proportional to the intensity of the primary current, but inversely proportional to the pressure of the plates; on the other hand, it is not strictly proportional to the magnetising current in the case of the several metals so far examined, and it appeared probable that it might more possibly be proportional rather to the magnetisation of the plate. Prof. Kundt wished to test this possibility in the case of iron, nickel, and cobalt, employing transparent metallic films of these metals magnetised to 28,000 units, whose magnetisation could be tested directly by means of their rotatory power. It was found that the Hall effect increased hand in hand with the increase of rotatory power, and therefore proportionally to the magnetisation of the plates. The effect was, as Hall had already shown, positive in the case of iron and cobalt, negative in that of nickel. Bismuth deposited electrolytically in a transparent film gave very feeble or no results, whereas, when drawn out into a thin plate the effect was considerable.—Dr. Wren spoke on Maxwell's proposition that waves of light exert pressure in the direction of their transmission, as proved in a certain case by Boltzmann. He deduced, under certain assumptions, a formula for the calculation of temperature based upon a determination of maximal energy.

## AMSTERDAM.

**Royal Academy of Sciences, March 25.**—Prof. van de Sande Bakhuysen in the chair.—Mr. Pekelharing spoke of the peptone of Kühne. Some years ago he argued there was not a real difference between the substances called peptone, and the substance called propeptone or hemialbumose. The researches of Kühne and his disciples afterwards proved that what was called peptone by Schmidt-Mülheim and by Salkowski, contained albumose. But it was not proved by Kühne that the substance called by himself peptone was really free from albumose. Out of a solution of Kühne's peptone, saturated with ammoniumsulphate, there can be precipitated by metaphosphoric acid, and more fully by trichloroacetic acid, a substance which has the properties of albumose. It gives the biuret reaction, it is precipitated, the reaction may be acid, neutral, or alkaline, by ammoniumsulphate, it is precipitated by picric acid, and, in acid solution, by saturation with sodiumchlorid. So it is clear that there is no ground for believing with Kühne that the substance called by him peptone is a substance *sui generis*, and not an impure albumose.—Mr. Balhui Rozendoom dealt with the cryohydrates in systems of two salts. Three cases are to be considered. The first is that the two salts may exist without combination. Then there is a cryohydratic point in which the two salts A and B exist with ice next the

solution. This point is a minimum temperature. Besides, there are two cryohydratic lines, representing the series of solutions which may exist with ice and A or ice and B as solids. In the other cases when A and B form a double salt D, there are two cryohydratic points, one for the solution in equilibrium with ice + D + A, the other for ice + D + B; and three cryohydratic lines for the solutions in equilibrium with ice + D, ice + A, ice + B. When the double salt is soluble without decomposition, the two cryohydratic points are both minimum temperatures, and therefore there must exist a maximum temperature on the line for ice + D; this maximum relates to the solution which presents the same relation A/B as in the double salt. All these conclusions may be deduced from thermodynamical rules; they were confirmed in experimental research by Mr. Schreinemakers.

## BOOKS, PAMPHLETS, and SERIALS RECEIVED.

**BOOKS.**—Carlsbad, a Médico-Practical Guide: Dr. E. Kleen (Putnam).—Louis Agassiz, his Life and Work: Dr. Holder (Putnam).—Die Natürliche Auslese beim Menschen: O. Ammon (Jena, Fischer).—Public Health Laboratory Work: H. R. Kenwood (Lewis).—Annual Statement of Works carried out by Public Works Department (Sydney, Potter).—The Principles of Agriculture: G. Fletcher (Derby, Central Educational Company).—Science et Religion: T. H. Huxley (Paris, Baillière).—Au Bord de la Mer: Dr. E. L. Trouessart (Paris, Baillière).—Conférences Scientifiques et Allocutions—Constitution de la Matière: Lord Kelvin. Traduites et Annotées sur la Deuxième Edition: P. Lugol and M. Brillouin (Paris, Gauthier, Villars).—Premiers Principes d'Électricité Industrielle: P. Janet (Paris, Gauthier-Villars).—The Great Barrier Reef of Australia: W. Saville-Kent (W. H. Allen).

**PAMPHLETS.**—Meteorological Results deduced from Observations taken at the Liverpool Observatory during the Years 1889, 1890, 1891 (Liverpool).—On the Effects of Urban Fog upon Cultivated Plants: Prof. F. W. Oliver (Spottiswoode).—The Fundamental Hypotheses of Abstract Dynamics: Prof. J. G. MacGregor.—Il Clima di Torino: C. B. Rizzo (Torino, Clausen).—On the Application of Interference Methods to Spectroscopic Measurements: A. A. Michelson (Washington, Smithsonian Institution).—Recreation: W. Odell (Torquay, Ireland).

**SERIALS.**—Journal of the Chemical Society, April (Gurney and Jackson).—Annalen des k. k. Naturhistorischen Hofmuseums, Band VIII No. 1 (Wien, Holder).—Timehri, No. xxii. (Stanford).—Notes from the Leyden Museum, vol. xv. No. 2 (Leyden, Brill).—L'Anthropologie, tome IV. No. 1 (Paris, Masson).—Journal of the Royal Microscopical Society, April (Williams and Norgate).—The Aesclepiad, No. 37, vol. x (Longmans).—Records of the Geological Survey of India, vol. xxvi. Part 1 (Calcutta).

## CONTENTS.

|   | PAGE |
|---|------|
| Dynamics in Nubibus   | 601  |
| Vertebrate Biology. By W. N. P.   | 605  |
| Our Book Shelf:—  |      |
| Marilaun: "Pflanzenleben."—D. H. S.   | 605  |
| Giacosa: "Bibliografia Medica Italiana"   | 606  |
| Balfour: "The Evolution of Decorative Art"  | 606  |
| Letters to the Editor:—   |      |
| Palæontological Discovery in Australia.—Prof. Alfred Newton, F.R.S.                                 | 606  |
| An International Zoological Record.—Dr. Herbert H. Field  | 606  |
| Lion tiger and Tiger-lion Hybrids.—Dr. V. Ball, F.R.S.  | 607  |
| Soot-figures on Ceilings. ( <i>Illustrated</i> ).—E. B. Poulton, F.R.S.; Prof. Oliver Lodge, F.R.S. | 608  |
| The Use of Ants to Aphides and Coccidæ.—T. D. A. Cockerell  | 608  |
| Blind Animals in Caves.—G. A. Boulenger   | 608  |
| Observations in the West Indies. By Prof. A. Agassiz  | 608  |
| Artionyx—a Clawed Artiodactyle. ( <i>With Diagrams</i> ). By Prof. Henry S. Osborn                  | 610  |
| The Hodgkins Fund Prizes. By Prof. S. P. Langley  | 611  |
| The Solar Eclipse   | 611  |
| Notes   | 612  |
| Our Astronomical Column:—   |      |
| Large Telescopes  | 616  |
| Spectrum of $\beta$ Lyræ  | 616  |
| Société Astronomique de France  | 616  |
| Wolsingham Circular, No. 34   | 616  |
| Astronomical Journal Prizes   | 616  |
| Geographical Notes  | 617  |
| Institution of Mechanical Engineers   | 617  |
| Coiners. By G. N.   | 619  |
| The Earthquakes in Zante  | 620  |
| Scientific Serials  | 620  |
| Societies and Academies   | 621  |
| Books, Pamphlets, and Serials Received  | 624  |