

PARIS.

**Academy of Sciences, June 11.**—M. H. Poincaré in the chair.—Some points relating to the study of the specific heats and the application to these of the law of corresponding states: E. H. Amagat. It has been shown in a previous note that the specific heat at constant volume, following an isotherm, undergoes a discontinuity at each intersection of this isotherm with the saturation curve. In the present paper the question is discussed as to whether this discontinuity persists in the neighbourhood of the critical point.—The products of the reaction, at a high temperature, of sodium isobutylate and propylate of camphor: A. Haller and J. Minguin. Camphor, heated at about 230° C. with sodium isobutylate, gives sodium isobutyrate and isobutylcamphol, various derivatives of which have been prepared. The general action of sodium propylate on camphor at a high temperature is similar to that of sodium isobutylate, but the yields are not so good.—Some attempts made in the German Navy to utilise photography in voyages of exploration: A. Laussedat.—The orthography of the word *caesium*: M. de Forcrand.—Vaccination against tuberculosis by the digestive tracts: A. Calmette and C. Guérin. The authors summarise the views put forward by them in previous papers as to the exact mechanism of tuberculous infection, laying stress upon the fact that the tubercle bacilli are probably absorbed by the digestive tube, and find their way to the lungs indirectly, and not directly as usually assumed. It has been found that it is possible to vaccinate young calves by the simple intestinal absorption of tubercle bacilli modified by heat, and that this method of vaccination is quite free from danger.—Remarks by M. Emile Roux on the preceding paper. The results of experiments carried on by M. Roux since November, 1905, are in general agreement with those described in the preceding paper; it is possible to give immunity to cattle against tuberculosis by means of the digestive tracts.—The problem of the elliptical cylinder: Mathias Lerch.—Specific inductive power and conductivity. Electrical viscosity: André Broca.—The aurora borealis: P. Villard. A complete theory of the aurora is given, and, using this as a guide, it is shown that the characteristic features of the aurora can be reproduced by means of a large spherical bulb placed between the conical poles of an electromagnet.—The liquefaction of air by expansion with external work: Georges Claude. Details are given of the arrangements for "compound" liquefaction, this constituting an advance on the previous results. Whereas spontaneous liquefaction under atmospheric pressure gave the author only 0.2 litre of liquid air per horse-power hour, the second step, liquefaction under pressure, gave 0.66 litre per horse-power hour, whilst the compound liquefaction raises the yield to 0.85 litre per horse-power hour.—The magnetic properties of the compounds of boron and manganese: Binet du Jassonneix. Of the two manganese borides MnB and MnB<sub>2</sub>, the former alone possesses magnetic properties, and the permeability of ingots of manganese boride obtained from the electric furnace is proportional to the amount of MnB present.—The iodomercurates of magnesium and manganese: A. Duboin. These salts give rise to solutions of densities approaching 3.0, and various crystalline double iodides were separated and isolated.—The reduction of antimony selenide: P. Chrétien. The determination of the fusing points of mixtures of antimony and selenium in various proportions indicated the existence of three new compounds of selenium and antimony, SbSe, Sb<sub>2</sub>Se<sub>3</sub>, and Sb<sub>3</sub>Se<sub>4</sub>.—The attack of platinum by sulphuric acid: L. Quennessen. In the case of the sulphuric acid of the usual strength sold, it is the oxygen of the air which intervenes as the oxidising agent. In the absence of free oxygen with acids of high concentration, the necessary oxygen for the solution of the metal is furnished by the sulphur trioxide in solution in the acid.—The chlorination of wool: Leo Vignon and J. Mollard.—The estimation of albuminoid and gelatin materials by means of acetone: F. Bordas and M. Touplain. The authors have shown that egg-albumin, casein, and fibrin are completely insoluble in pure acetone. Diastases and peptones are also precipitated by acetone. In all cases the aqueous solutions separated by centrifugal action from the precipitate

gave on analysis no trace of nitrogen, showing the separation to be complete. Details are given for the processes recommended for the analysis of butter, cheese, and milk.—Researches on the development of *Botrytis cinerea*, the cause of grey rot in grapes: J. M. Guillon.—Note on the bathypelagic Nemertean collected by the Prince of Monaco: L. Joubin.—Impregnation and fertilisation: E. Bataillon.—The motility of the echinococcic scolex: J. Sabrazès, L. Muratet, and P. Husnot.—The graphitic schists of Morbihan: M. Pussenot.—The local winds in the neighbourhood of the Canaries: H. Hergesell.

## DIARY OF SOCIETIES.

THURSDAY, JUNE 28.

ROYAL SOCIETY, at 4.30.—Sex-determination in Hydatina, with some Remarks on Parthenogenesis: R. C. Punnett.—On the Julianiaceae, a New Natural Order of Plants: W. B. Hemsley, F.R.S.—On Regeneration of Nerves: Dr. F. W. Mott, F.R.S., Prof. W. D. Halliburton, F.R.S., and A. Edmunds.—The Pharmacology of Ethyl Chloride: Dr. E. H. Embley.—The Alcoholic Ferment of Yeast Juice, part ii., The Co-ferment of Yeast Juice: Dr. A. Harden and W. J. Young.—Total Eclipse of the Sun, August 30, 1905, Account of the Observations made by the Solar Physics Observatory Eclipse Expedition and the Officers and Men of H.M.S. *Venus* at Palma, Majorca: Sir Norman Lockyer, K.C.B., F.R.S., and others.—Researches on Explosives, part iv.: Sir Andrew Noble, Bart., K.C.B., F.R.S.—Tidal Regime of the River Jersey as affected by the Recent Dredgings at the Bar, in Liverpool Bay: J. N. Shoolbred.—The Refractive Indices of Water and Sea-water: J. W. Gifford.—The Ionisation produced by Hot Platinum in Different Gases: O. W. Richardson.—The Action of Plants on a Photographic Plate in the Dark: Dr. W. J. Russell, F.R.S.—On the Ultra-Violet Spectrum of Ytterbium: Sir William Crookes, F.R.S.—On the "Kew" Scale of Temperature and its Relation to the International Hydrographic Scale: Dr. J. A. Harker.—Note on the Production of Secondary Rays by "a" Rays from Polonium: W. H. Logeman.—The Hygroscopic Action of Cotton: Prof. Orme Masson, F.R.S., and E. S. Richards.

THURSDAY, JULY 5.

CHEMICAL SOCIETY, at 8.30.—Saponarin, a New Glucoside, Coloured Blue with Iodine: G. Barger.—The Constitution of Umbellulone: F. Tutin.—Electrolytic Oxidation: H. D. Law.—The Action of Ethyl Iodide and of Propyl Iodide on the Disodium Derivative of Diacetylacetone: A. W. Bain.

## CONTENTS.

PAGE

The Organisation of Agriculture. By E. H. G.	193
The Manufacture of Cyanides. By Dr. T. K. Rose	195
A Year on the "Siboga"	196
Yorkshire Fungi	196
Our Book Shelf:—	
Macfarlane: "The Principles and Practice of Iron and Steel Manufacture"	197
Blythe: "On Models of Cubic Surfaces"	197
Distant: "A Synonymic Catalogue of Homoptera"	197
McHardy: "Iona"	197
Letters to the Editor:—	
Kew Publications.—Sir W. T. Thiselton-Dyer, K.C.M.G., F.R.S.	198
A Remarkable Lightning Discharge.—Sir Edw. Fry, P.C., F.R.S.	198
The Magnetic Inertia of a Charged Sphere in a Field of Electric Force.—G. F. C. Searle, F.R.S.	199
The Date of Easter.—Dr. J. L. E. Dreyer; Rev. C. S. Taylor	199
Musical Thunder.—G. H. Martyn	200
How do Inquiline Bees find the Nest of their Host?—Oswald H. Latter	200
The Disturbance of Greenwich Observations. (Illustrated.)	200
The Sea-Serpent. By R. L.	202
The Royal Society Conversazione	203
National Physical Laboratory. (Illustrated.)	205
Notes	206
Our Astronomical Column:—	
Astronomical Occurrences in July	210
The Figure of the Sun	210
Discovery of Algol Variables	210
An Interesting Minor Planet	210
Observations of Jupiter in 1903 and 1905-6	210
Photometric Observations of Saturn's Satellites	210
New Double Stars	211
The International Congress of Anthropology and Prehistoric Archaeology	211
Summer Temperatures of the North Sea	212
University and Educational Intelligence	212
Societies and Academies	214
Diary of Societies	216