

that these figures depended on the presence of dust, or other impurities on the surface of the glass, and that similar effects might be produced by means of heat. The results of his experiments verified his conjecture and showed that dust has an effect on the formation of some kinds of breath figures.—A paper, communicated by Mr. H. B. Stocks, on some concretions from coal measures, and the fossil plants which they contain, was read. The concretions are found at Halifax, Yorkshire, and at Oldham, Lancashire. They are called "coal-balls" by the miners, and are found in a bed, belonging to the lower coal measures, above a stratum containing marine shells. The chief constituents are carbonate of lime and iron pyrites. The remains of plants which the balls contain are wonderfully preserved, every cell being well defined. Often the nodule is a mass of fossil wood, with a thin mineral coating. The author thinks that the bed has been formed in shallow water near the sea coast, the process of formation being similar to that now going on in the mangrove swamps of South America.—Lord Maclaren communicated a paper on the general eliminant of three equations of different degrees.

PARIS.

Academy of Sciences, May 8.—M. Loewy in the chair.—On the equation $\Delta u = kx^2$, by M. Emile Picard.—On an objection to the Kinetic theory of gases, by M. H. Poincaré. If, in equation 75 of the theory of adiabatic expansion, Maxwell had made $Q = \phi$ instead of $= \theta$, as he ought to have done, since Q is a function of $u + \xi, v + \eta, w + \zeta$, he would have obtained the formula

$$\frac{d\phi}{p} = \frac{5}{3} \frac{dp}{p}$$

where ϕ is the pressure and p the density. This formula is not in accordance with experiment, but is a legitimate conclusion from the kinetic theory. Another error is pointed out in the theory of the conductivity of gases, where Maxwell's formula $K = \frac{5}{3} \nu$ ought to have been $K = \frac{5}{2} \nu$. For air, the experimental value is 56×10^{-6} , the calculated value from Maxwell's formula 54×10^{-6} , and the value calculated from the corrected formula 81×10^{-6} .—Shooting stars and fluctuations of latitude, by M. d'Abbadie.—On a new type of phosphorites, by M. Armand Gautier.—On a general case in which the problem of the rotation of a solid body admits of integrals expressible by means of uniform functions, by M. Hugo Gylden.—The surmulot in the ancient western world, by M. A. Pomel. From evidence furnished by archaeological excavations carried out by Prof. Waile at Cherchell, on the coast of Algiers, it appears that the surmulot or Norway rat, *Mus decumanus*, lived there at the time of the Roman occupation, instead of invading Europe from India in the middle of the eighteenth century. There appears to be no doubt that the remains found were contemporary with the Roman settlement of Julia Cæsarea.—Mr. Rowland was elected correspondent for the section of physics in the place of the late M. Soret.—Researches on the formation of the planets and satellites, by M. E. Rodger.—Solar observations of the first quarter of 1893, by M. Tacchini.—On isothermal surfaces with plane lines of curvature in one or both systems, by M. P. Adam.—On the transcendentality of the number e , by M. Gordan.—On an application of the theory of Lie's groups, by M. Drach.—On the limitation of degree for algebraic integrals of the differential equation of the first order, by M. Autonne.—On a theorem relating to the transformation of algebraic curves, by M. Simart.—On a class of dynamical problems, by M. Goursat.—Remarks on the specific heat of carbon, by M. H. Le Chatelier. Recent experiments conducted by MM. Euchène and Biju-Duval, engineers to the Parisian Gas Company, place beyond doubt the conclusion arrived at by M. Monckman, that the specific heat of carbon does not asymptotically approach a certain value as the temperature rises. A large number of experiments show that the specific heat of graphite increases between 250° and 1000° in a manner rigorously proportional to the temperature. For temperatures between 0° and 250° the atomic heat $c = 1.92 + 0.0077t$, and between 250° and 1000° $c = 3.54 + 0.00246t$.—Electric interferences produced in a liquid lamina, by M. R. Colson.—On the flame-spectra of some metals, by M. Denys Cochin.—An attempt at a general method of chemical synthesis, by M. Raoul Pictet.—On the basicity and the functions of manganous acid, by M. G. Rousseau.—On the constitution of licareol, by M. Ph. Barbier.—On aluminium chloride

syntheses, by M. P. Genvresse.—On a liquid isomer of hydrocamphene, by M. L. Bouveault.—On the chemical composition of essence of Niaouli, by M. G. Bertrand.—Methodical moulding of glass, by M. Léon Appert.—On basic nepheline rocks of the Central Plateau of France, by M. A. Lacroix.—On the quantities of water contained in the arable lands after a prolonged drought, by MM. Demoussy and Dumont. The percentages of water contained in garden earth at depths of 0, 25, 50, 75, and 100cm. respectively were $4.5, 27.1, 24.0, 24.2$, and 22.8 . One hectare of such soil, 1m. deep, and weighing 12000 tons, would therefore contain 2460 tons of water, while a specimen of open land containing double the amount of fine sand contained only 1400 tons of water.—Comparative toxicity of the blood and the venom of the common toad (*Bufo vulgaris*), considered from the point of view of the internal secretion of the cutaneous glands of this animal, by MM. Phisalix and G. Bertrand.—The pyocyanic bacillus among vegetables, by M. A. Charrin.—Microbian synthesis of tartar and salivary calculus, by M. V. Galippe.

BOOKS, PAMPHLETS, and SERIALS RECEIVED.

BOOKS.—Essays on Rural Hygiene: Dr. G. V. Poore (Longmans).—Notes on Recent Researches in Electricity and Magnetism: Prof. J. J. Thomson (Oxford, Clarendon Press).—The Health Resorts of Europe: Dr. T. Linn (Kimpton).—Catalogue of the Snakes in the British Museum (Natural History), vol. 1: G. A. Boulenger (London).—Lehrbuch der Botanik, Zweiter Band: Dr. A. B. Frank (Leipzig, Engelmann).—Sitzungsberichte der K. b. Gesellschaft der Wissenschaften. Math.-Naturw. Classe 1892 (Prag).—The Story of the Atlantic Telegraph: H. M. Field (Gay and Bird).—The Mammals of Minnesota: C. L. Herrick (Minneapolis, Harrison).—U.S. Commission of Fish and Fisheries; Commissioner's Report, 1888 (Washington).—Geology of the Eureka District, Nevada, and Atlas to ditto; A. Hague (Washington).
PAMPHLETS.—The Moon's Face: C. K. Gilbert (Washington).—Observations on Karyokinesis in Spirogyra; Dr. J. W. Moll (Amsterdam, Müller).—The Colours of Cloudy Condensation: Prof. C. Barus.—Beiträge zur Anatomie holziger und succulenter Compositen: J. Müller (Berlin, Friedländer).—Report on the Climatology of the Cotton Plant: Dr. P. H. Mell (Washington).
SERIALS.—Journal of the Institution of Electrical Engineers, No. 105, vol. xxii. (Spon).—The Physical Society of London Proceedings, vol. xii. Part 1 (London).—Proceedings of the Academy of Natural Sciences of Philadelphia, 1892, Part 3 (Philadelphia).—Zeitschrift für Wissenschaftliche Zoologie, 56 Band, 1 Heft (Williams and Norgate).—Morphologisches Jahrbuch, 20 Band, 1 Heft (Williams and Norgate).—Mémoires de la Section Caucasienne de la Société Impériale Russe de Géographie, livre xv.

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