

must be heated about 240° above its boiling-point before its density becomes strictly normal. From the experiments of V. Meyer and others, iodine vapour appears to be normal a very few degrees above the boiling-point. It appears, therefore, probable that vapour of chlorine, bromine, or iodine at low temperatures, contains groups of molecules which are dissociated as the temperature rises, and that the greater the molecular weight the more easily are these molecular groups dissociated.

REFERENCE was made in a note (NATURE, vol. xxvi. p. 306), to Spring's researches on the expansion of isomorphous compounds; in last number of the *Berliner Berichte* Pettersson draws attention to accurate determinations of the specific gravities of various alums, published by him a few years ago, which proved that the quotients of the specific gravities of the alums by their respective formula weights, are not equal, as assumed by Spring, but show considerable differences. Spring's work on the expansion of alums may lead to interesting results, but it seems evident that he has been too hasty in drawing sweeping conclusions regarding the molecular structure of solids from quite insufficient data.

HERR G. KRUSS describes [*Berliner Berichte*, xv. 1243] a spectroscopic method for determining whether there is, or is not, any chemical action occurring in a solution containing two or more coloured salts. The method consists essentially in comparing the sums of the absorption spectra of the individual salts with the absorption spectrum of the solution containing all the salts.

AN abstract of an important paper by Mendelejeff on thermochemistry appeared in the *Berichte* for July 10 [xx. 1555]. Mendelejeff asserts that the data hitherto attained by Berthelot, Thomsen, and others, regarding the "heats of formation" of hydrocarbons stand in need of correction, because allowance has not been made for the physical changes, involving absorption or evolution of heat, which in every case accompany the chemical changes considered. Mendelejeff gives a table showing the "heats of formation" from marsh gas, carbon monoxide, and carbon dioxide, of a series of hydrocarbons; the chemical reactions, the thermal equivalents of which are set down in this table, are reactions which actually occur, unlike the reactions of formation of Berthelot and others, which as a rule cannot be realised in actual experiments.

MESSRS. SMITH AND LOWE find that when chlorine is passed through a porcelain tube heated to 1030° , and then into potassium iodide solution, less iodine is liberated than is the case when the same quantity of chlorine is allowed to act on the iodide at ordinary temperature; they conclude, therefore, that chlorine is partly dissociated at a temperature of 1030° (*Chem. News*, xlv. 226).

ACCORDING to Mixer (*Amer. Chem. J.*, iv. 35), urea is readily obtained by passing ammonia and carbon dioxide through a red-hot tube: ammonium cyanate is probably produced, and then transformed into urea.

SELMI (*R. Acad. dei Lincei*, v. 174) states that he has found alkaloidal compounds having specific poisonous actions in the urine of patients suffering from paralysis, tetanus, &c. He considers death to be determined by the action of these poisons produced by the progress of the disease.

By electrolysis of water by a powerful current, using a positive electrode of gas-coke purified by the action of chlorine at a very high temperature, Bartoli and Papisogli (*Gazzetta Chim. Ital.*, 1882, 113) obtained a black solution, which, when acidified with hydrochloric acid, yielded a black substance having the composition $C_{11}H_2O_4$ (when dried at 140°). The properties of this substance—*Mellogen*—are very peculiar; in some points it resembles graphitic acid; it dissolves in water to form an inky-black neutral liquid: on exposure to air or by the action of oxidising agents it yields mellitic acid and other acids, which are generally regarded as addition products of benzene.

UNIVERSITY AND EDUCATIONAL INTELLIGENCE

PROF. BONNEY begins his course of lectures on Petrology, Physiography, and Stratigraphical Geology at University College, Gower Street, on October 10, at twelve o'clock. The course will extend over two terms. Classes will also be formed for catechetical instruction and for the study of the microscopic structure of rocks.

SOCIETIES AND ACADEMIES

PARIS

Academy of Sciences, September 25.—M. Blanchard in the chair.—A report was given of the ceremony at the recent inauguration of a statue to Antoine-César Becquerel at Châtillon-sur-Loing, on September 24, when addresses were delivered by MM. Cochéry, Dumas, Fremy, Mercadier, Barral, and the Mayor.—On a question of principle which relates to the theory of shock of imperfectly elastic bodies, by M. Resal.—Outbreaks of plague in Kurdistan during the last twelve years, by M. Thalozan. The facts are thought to afford further proof of the independence of most of the plague-centres, the small tendency of the disease to spread beyond a small number of localities, and the limited duration of the epidemics, even in their gravest form. The north and north-west of Persia are the parts where plague-epidemics are less rare.—Possibility of introducing a tube into the larynx without producing pain or any reaction, by M. Brown-Séguard. He produces local anaesthesia in mammalia by directing a rapid current of carbonic acid on the upper part of the larynx (through an incision), for a variable time (fifteen seconds to two or three minutes). The effect lasts two to eight minutes after stoppage.—A telegram from the Emperor of Brazil (dated Rio, September 12, 6h. 10m.), announced the observation (at Rio Observatory) of a brilliant comet; estimated position in the morning, ascension 10h., declination 2° S. "probably Pona's comet expected.—On a comet observed at Nice, by MM. Thollon and Gouy. This was visible near the sun on September 18, at mid-day, to the naked eye, when the direct solar rays were masked. The spectrum had for essential character the presence of the bright lines of sodium (fine and perfectly separate) in the nucleus and parts near. A slight displacement was held to indicate withdrawal from the earth. No part of the comet showed bands of carbon, nor any band or line but those of sodium (probably because of a masking by diffuse light). On the morning of the 21st the comet had become invisible.—M. Flammarion communicated telegrams from Spain, Portugal, the South of France, Algeria, and Italy, announcing observations of a comet on September 17, 18, and 19.—On an observation of the great comet of 1882, seen from a balloon, by M. de Fonvielle. M. Mallet made the ascent at his request (having keener vision), and took some measurements. The diameter of the comet was about two-tenths of that of the sun, and the distance of the comet's centre from that of the sun about $2\cdot3$ subjective diameters of the sun. The cometary sphere was penetrated by an isosceles cone, symmetrically placed to the line of centres, penetrating to two-thirds of its vertical meridian plane. The length of the apothem of the cone was about a solar radius.—Description of a complete regular dodecahedron, by M. Barbier.—On the development of Alcyonarians, by MM. Kowalevsky and Marion.—On the histological structure of the digestive tube of *Holothuria tubulosa*, by M. Sourdau.—Analysis of the milk of Galibi women at the Jardin d'Acclimatation, by Mme. Brés. The milk is rich in butter and lactose, and there is very little casein.

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