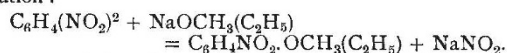


Waals gave a simple deduction for the formula (p, v, t) for substances whose molecules are compound, and must be considered small bodies of a certain magnitude. In this deduction, which is entirely founded upon the virial equation, a first approximation is given for the variation of the co-volume, and the way is pointed out in which a second approximation might be calculated.—Prof. Lobry de Bruyn made a communication, on behalf of Dr. Steger and himself, concerning the rate of substitution of a nitro-group by an oxyalkyl in accordance with the equation :



It was proved that the nitro-group is more rapidly substituted in paradinitrobenzol than in orthodinitrobenzol, and that sodium methylate acts more slowly than sodium ethylate. It was also determined that the decrease of concentration does not raise the reaction constant, a result opposed to that arrived at by Hecht, Conrad and Brückner as to the formation of ether from alkyl iodide and alcoholate.—Prof. Behrens made a communication concerning some anomalies in Mendeléeff's system, which will also be inserted in the Report of the meeting.—Prof. Hoogewerff and Dr. van Dorp found that the imides of bibasic acids, when heated with methylalcohol, are in many cases transformed into the ethers of amidic acids.—Prof. Kamerlingh Onnes described an open manometer of reduced height, placed in the Leiden Laboratory. The apparatus is composed of fifteen partial manometers of 4 atm., arranged in series. To obtain the requisite pressure in the connecting tubes between the consecutive monometers, compressed gas is introduced into them by needle cocks from a high-pressure cylinder. The apparatus ranges to 60 atmospheres at once, and by two further steps 100 atm. may be reached with part of it.—Dr. Hoek made a communication, on behalf of Mr. M. C. Dekhuysen of Leiden, concerning crater-shaped blood corpuscles (chromocraters). The observations described give ground for the opinion that the chromocrater is an ancestral inheritance from the worms, which has also been preserved in mammals and in man.—Prof. H. G. van de Sande Bakhuyzen presented a communication from Dr. E. F. van de Sande Bakhuyzen, entitled "Some observations on the 14-monthly movement of the terrestrial pole and on the length of its period."—Prof. van der Waals presented a paper on behalf of Mr. N. J. van der Lee, entitled "On the influence of pressure on the critical temperature of solution." Experiments were made with the mixture phenol-water, and the critical temperatures of solution appeared to rise by increased pressure. The rise was about 0.1° for 30 atm. In the case of this mixture theory points to a maximum in the line indicating the pressure of the vapour in contact with the liquid as function of the composition. This conclusion was confirmed by experiments.

DIARY OF SOCIETIES.

THURSDAY, DECEMBER 1.

LINNEAN SOCIETY, at 8.—On the Biology of *Agaricus velutipes*, Curt. : R. H. Biffen.—On the Gastric Glands of the Marsupialia: Jas. Johnstone.

CHEMICAL SOCIETY, at 8.—Ballot for the Election of Fellows.—The Oxidation of Polyhydric Alcohols in presence of Iron: H. J. H. Fenton and H. Jackson.

FRIDAY, DECEMBER 2.

GEOLOGISTS' ASSOCIATION, at 8.—Contributions to the Geology of the Thame Valley: A. M. Davies.

INSTITUTION OF CIVIL ENGINEERS, at 8.—The Sunlight Gold-bearing Reef, Lydenberg, Transvaal: Charles Benjamin Saner.

QUEKETT MICROSCOPICAL CLUB, at 8.

MONDAY, DECEMBER 5.

SOCIETY OF ARTS, at 8.—Acetylene: Prof. Vivian B. Lewes.

IMPERIAL INSTITUTE, at 8.30.—A National Photographic Record: Sir Benjamin Stone.

VICTORIA INSTITUTE, at 4.30.—Recent Discoveries on Babylonian Tablets: T. G. Pinches.

TUESDAY, DECEMBER 6.

SOCIETY OF ARTS, at 4.30.—The Yangtse Basin and the British Empire: Archibald Little.

ANTHROPOLOGICAL INSTITUTE, at 8.30.—Exhibition of Ethnological Photographs, with Remarks: Rev. H. N. Hutchinson.—On the Caves, Shell-Mounds, and Stone Implements of South Africa: George Leith.—On Worked Flints from Griqualand East: J. M. Frames.

INSTITUTION OF CIVIL ENGINEERS, at 8.—Paper to be further discussed: The Effect of Subsidence due to Coal-Workings upon Bridges and other Structures: Stanley Robert Kay.—And, time permitting, Paper to be read with a view to discussion: The Ventilation of Tunnels and Buildings: Francis Fox.

RÖNTGEN SOCIETY, at 8.—A Discussion on Dermatitis, in relation to Röntgen Ray Work, will be introduced by Mr. Ernest Payne and Dr. Walsh.

ROYAL VICTORIA HALL.—Photography in Colours: Child Bayley.

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WEDNESDAY, DECEMBER 7.

SOCIETY OF ARTS, at 8.—Egypt and the Sudan, in 1897 and 1898: W. T. Maud.

GEOLOGICAL SOCIETY, at 8.—The Geological Structure of the Southern Malverns and the Adjacent Districts to the West: Prof. T. T. Groom.—The Permian Conglomerates of the Lower Severn Basin: W. W. King.

ENTOMOLOGICAL SOCIETY, at 8.

SOCIETY OF PUBLIC ANALYSTS, at 8.—The Use of the Micro-spectroscope, and the Methods of Detecting Blood in Chemical-Legal Investigations: A. H. Allen.

THURSDAY, DECEMBER 8.

ROYAL SOCIETY, at 4.30.

MATHEMATICAL SOCIETY, at 8.—On Groups of the Order p^2q^2 : Prof. Burnside, F.R.S.—On Simultaneous Partial Differential Equations: J. E. Campbell.

INSTITUTION OF ELECTRICAL ENGINEERS, at 8.—Improvement in Magnetic Space Telegraphy: Prof. Oliver Lodge, F.R.S.—And, if time permit: Telegraphy by Magnetic Induction: Sydney Everard.

FRIDAY, DECEMBER 9.

PHYSICAL SOCIETY, at 5.—Longitudinal Vibrations in Solid and Hollow Cylinders; Dr. C. Chree, F.R.S.—On the Thermal Properties of Normal Pentane: J. Rose-Innes and Dr. Sydney Young F.R.S.

ROYAL ASTRONOMICAL SOCIETY, at 8.

MALACOLOGICAL SOCIETY, at 8.

BOOKS and PAMPHLETS RECEIVED.

BOOKS.—Nichelatura: I. Ghersi (Milano, Hoepli).—Colorazione e Decorazione dei Metalli: I. Ghersi (Milano, Hoepli).—L'Alluminio: Dr. C. Formenti (Milano, Hoepli).—Ricettario Industriale: I. Ghersi (Milano, Hoepli).—Journal and Proceedings of the Royal Society of New South Wales, 1897, Vol. xxxi. (Sydney).—Schantung und Deutsch China: E. von Hesse-Wartegg (Leipzig, Webber).—Congrès National d'Hygiène et de Climatologie Médicale de la Belgique et du Congo, seconde partie, Congo (Bruxelles, Hayez).—Natalité et Démocratie: A. Dumont (Paris, Schleicher).—Human Immortality: Prof. W. James (Constable).—A New Astronomy: Prof. D. P. Todd (Low).—Quaero [some questions in Matter, Energy, Intelligence, and Evolution]: Dr. J. H. Keeling (Taylor).—Illustrated Catalogue of Balances and Weights, &c., Manufactured and Imported by W. and J. George, Ltd. (George).—University College, Sheffield, Calendar, Session 1898-99 (Sheffield).—Repetitorium der Zoologie: Prof. K. Eckstein, Zweite Auflage (Leipzig, Engelmann).—Grundriss der Psychologie: W. Wundt, Dritte Auflage (Leipzig, Engelmann).

PAMPHLETS.—Les Bases de la Météorologie Dynamique: Dr. Hildebrandsson and L. T. de Bort, 1^{re} Livⁿ (Paris, Gauthier-Villars).—Observations et Mesures de la Suede, i. and ii. (Upsala).—Das Mittelenglische Gedicht, the Boke of Cupide, Kritische Ausgabe: Dr. E. Vollmer (Berlin, Ebering).—Incubators and Chicken-Rearing Appliances (Cassell).

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