recorded whose characters do not agree with those of the three species recognised by Oliver and Bentham (but united by Baron von Mueller); and the whole five are figured.—List of mollusca collected at Green Point, Watson's Bay, by A. U. Henn, with descriptions of new species, by John Brazier. The specimens on which this list is based (in number 1365, representing 154 species) were contained in a discarded bottle found in a rock pool accessible only at very low tides. A genus new to Australia and several new species were recorded.—On a new *Patella* said to have been found at the Kermadec Islands, by John Brazier.—On a new Australian *Croton* and on a supposed new species of *Acacia*, by J. H. Maiden and R. T. Baker.—Under the name of *C. affinis*, a species allied to *C. acronychioides*, from near Tintenbar, was described. It differs from the latter species in the number and length of the stamens, the marked occurrence of petals, the persistent calyx under the fruit, the shape of the capsule (broader than long), which is both furrowed and deeply lobed, and the thin texture of the leaves.

AMSTERDAM.

Royal Academy of Sciences, May 26.—Prof. van de Sande Bakhuyzen in the chair.—Some observations on oxygen, by J. H. van't Hoff.—The remarkable fact that gaseous oxygen sometimes exhibits more energetic chemical activity in the dilute than in the more concentrated condition, has been investigated in van't Hoff's laboratory by Dr. Ewan, the course of the slow oxidation of sulphur and of phosphorus being selected for study. With phosphorus and oxygen (saturated with aqueous vapour at 20°) it was observed that for pressures of oxygen greater than 700 mm. the velocity of oxidation is excessively small or nothing at all. Below 700 mm. it increases very rapidly. This limit corresponds to that found by Joubert, below which phosphorescence begins. After reaching its maximum velocity a very simple relation exists between the rate of oxidation and the pressure of the oxygen, provided that the change in the rate of evaporation of the phosphorus, which, according to Stefan, is produced by the change in pressure, is taken into account. The rate of oxidation is then directly proportional to the pressure of the oxygen. In absence of water the oxidation also begins suddenly, but at a lower pressure (about 200 mm.). Taking into account the change in the rate of evaporation, the velocity of oxidation then reaches a maximum at a pressure which is approximately the same as that which van't Hoff formerly found to be the most favourable for the explosive combustion of phosphine. After the maximum the relation between the velocity of the reaction and the pressure could not be made out with certainty, because in dry oxygen the coating of oxide which forms on the surface of the phosphorus disturbs the regular course of the reaction. With sulphur and dry oxygen, where the slow oxidation can be conveniently followed at 160°, this relation has, however, been obtained. It appears, again taking into account the change in the velocity of evaporation, that the velocity of the oxidation is proportional to the square root of the pressure. This would appear to point to the conclusion that in the absence of water, the active part of the oxygen is only that very small part of it which is broken up into atoms. This conclusion is perhaps supported in the case of phosphorus by the composition of one of the products of the oxidation in dry oxygen, viz. P_4O.—Mr. Bakhuis Roozeboom discussed the equilibrium of solutions and solid phases formed of the system: HCl, H_2O and Fe_2Cl_6. In a three-dimensional representation the solutions which may coexist with a hydrate of Fe_2Cl_6 form a vault, whose summit lies in the melting point of the hydrate; the isotherms are not unlike half a circle. With a compound of the three components, solutions may coexist, whose compositions are represented for each temperature by a closed curve, surrounding the point which indicates the composition of the solid compound. Two of these were discovered: $Fe_2Cl_6 . 2HCl . 8H_2O$ and $Fe_2Cl_6 . 2HCl, 12H_2O$; melting points:—3° and −6°. The different ways in which the vaults for all the existing solid phases may encounter are discussed.—By diagrams and models Dr. Schoute showed that the natural connection between the homogeneous divisions of space by means of cubes and of orthic tetraikaidekahedra (*see* Lord Kelvin's paper in NATURE, March 8 and 15, 1894) is given by the known theorem, that the plane, orthogonally bisecting a central diagonal of the cube, cuts it in a regular hexagon. Every cube of a given homogeneous division in cubes, we divide into eight equal minor cubes by means of three planes, parallel to the faces. In each of these eight minor cubes we draw the central diagonal ending in the centre O of the original cube, and we divide these into two equal parts by means of planes orthogonally bisecting the diagonals. In this manner every original cube is divided into sixteen equal parts. The eight parts that surround the centre O of the original cube form a tetrakaidekahedron. The remaining "intercellular" parts form equal tetrakaidekahedra, the centres of which are the vertices of the original cubes.—Mr. Kamerlingh Onnes communicated the results of further experiments made by Dr. Kuenen in the Leiden Laboratory, "on the abnormal phenomena near the critical point." Dr. Kuenen has explained the abnormalities observed by Zambiasi, de Heen, and others, by impurities of the matter used. He has now repeated with the utmost care the experiments, from which Galitzine drew the startling conclusion, that ether above the critical temperature has very different densities according to its having been before entirely fluid or partly vapour. The differences found by Dr. Kuenen in the duly corrected densities at some degrees above the critical temperature are only slight, and probably due to the admixture of not more than a two-hundredth of a milligram of a non-coercible gas. This gas, if not air, perhaps originates by the decomposition of some ether during the sealing of the tube before the blowpipe.

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