



On an electrochemical actinometer

MM. Gouy & Rigollot

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the result that isohydric solutions contain equal dissociated parts per unit of volume. The author compares this theoretical conclusion with the results of his determinations of isohydric solutions, and finds a satisfactory agreement in the twenty-two cases which can be calculated. The author deduces further in the same way the general properties of isohydric solutions as found experimentally.

If to a solution of an electrolyte, a second electrolyte is added which has one ion common with the first, the state of equilibrium between the non-dissociated and the dissociated parts (the ions) of the first electrolyte is displaced, and so that the dissociation is less. This is particularly remarkable when the first electrolyte is a feeble acid or base. As moreover, according to the author, the facility with which a body reacts is proportional to the dissociated portion, then from the general conditions of equilibrium the influence of extraneous electrolytes on the velocity of reaction may be calculated. Such a calculation has been made for the case formerly investigated experimentally by the author, the saponification of ethyle acetate by ammonia, and yields results which agree with experiment. The author concludes from this calculation, that all ammonia salts act in this case in the same manner, as has been found. Other regularities observed in saponification may be deduced in the same way.

The author proves in conclusion, that if quantities a, b, c, d of four isohydric solutions of electrolytes, I_1J_1, I_1J_2, I_2J_1 , and I_2J_2 , are mixed with each other, there can be no chemical change between these four bodies, provided only $a \cdot d = b \cdot c$. A similar conclusion can be drawn for any given number of electrolytes. The chemical equilibrium between several electrolytes in the same solution may consequently be calculated from these regularities.—*Zeitschrift für Phys. Chem.* p. 284 (1888); *Beiblätter der Physik*, vol. xii. p. 678 (1888).

ON AN ELECTROCHEMICAL ACTINOMETER.

BY MM. GOUY AND RIGOLLOT.

Two copper plates, one of which was heated in a Bunsen's flame until the iridescent colours disappeared and the plate had become of a homogeneous brown, while the other is bright, or both are oxidized, are immersed in solution of sodium chloride. When light falls on an oxidized plate it becomes more strongly positive. The action is instantaneous and disappears in darkness: the apparatus is sensitive to all colours. On closing the circuit by a few ohms resistance the alteration of electromotive force is somewhat greater. Bromides act similarly, iodides somewhat more feebly. When the copper plates are heated too strongly they become less sensitive. They may advantageously be coated on the back with paraffin during cooling.—*Comptes Rendus*, p. 1470 (1888); *Beiblätter der Physik*, vol. xii. p. 681 (1888).