In the experiments of Series E, where the quantity of acid present was small,[1] the rate is much less affected by changes in the concentration of that reagent than the formula requires. Taken alone, this fact might seem to lend plausibility to the view that the action of the hydrogen-ion is catalytic merely, i. e. that the acceleration, not the rate, is proportional to the square of its concentration.[2] As, however, in the experiments of the same series the rate is only slightly increased by doubling the concentration of the potassium chlorate, it seems preferable to ascribe the deviation to the large excess of neutral salt in the reacting mixture.[3]

The increased effect of the acid when more than twice normal (Expt. 37) may be due to the occurrence of new reactions — iodates are formed from chlorates and iodides in the presence of strong acid; — and the minimum referred to on page 109 may be compared with the retardation exerted by potassium iodide on the oxidation of sodium thiosulphate, studied by Bell;[4] experiments with potassium chlorate, potassium iodide, and sulphuric acid might throw light on this subject.

Appendix—H. Schlundt's measurements

In order to compare the results of Schlundt's measurements with those of my own, I have taken advantage of the fact that k_1 is numerically much smaller than k_2 to replace Eq. I by the following simpler form:

$$dx/d\theta = K(A - x)(C - x)^2(B - x) \ldots\ldots\ldots \text{Eq. II.}$$

It is true that on account of the difference between the temperatures at which the two series of experiments were carried out the ratio k_1/k_2 may not be the same in both; but in view of the similarity of the two (hypothetical) reactions involved, and of

[1] Similarly in Expt. 17, 33, and 40, where the quantity of salts is large in comparison with that of the acid, there is a marked discrepancy between *K obs* and *K calc* (Table 41).

[2] Zeit. phys. Chem. 19, 599 (1896).

[3] In one case 30 mols of salt to one of acid.

[4] Jour. Phys. Chem. 7, 79 (1903).