and the corresponding conditions of equilibrium:—

$$(\overset{+}{H})(\overline{OH}) = W$$
$$(\overset{+}{H})(\overline{OI}) = D(HOI)$$
$$(\overline{OH})(\overline{I}_3) = E(HOI)(\overline{I})^2,$$

(where the symbols in brackets signify the amounts of the reagents in a fixed volume of solution, and W, D, and E are constants) and representing the initial quantities of potash, iodide, and iodine by A, B, and C as before, the following equations

$$Wy = Dz(A - 2y - z)$$
$$(A - 2y - z)(C - y - z) = Ez(B + 2y + 2z)^2,$$

determining y, the concentration of the $\overline{OI}$ ions, and z that of undissociated HOI (before the formation of $\overline{IO_3}$ has begun) may be obtained. These equations may be solved for y and z, and the results substituted in the expression for the rate of formation of iodate,

$$R = Kyz(B + 2y + 2z),$$

but without knowledge of the numerical values of D and E the relation so obtained cannot be compared directly with the experiments. I hope to determine these constants during the present winter; in the meantime the experiments of this section, though perhaps not so accurate as those in which the potash was in excess, and not leading to such simple results, serve to show how much the brown solutions differ from the colourless in respect to the influence exerted by the amounts of iodide and of potash on the rate of formation of potassium iodide.

Temperature Coefficient

A few experiments were undertaken at 30.3° in order to test the influence of the temperature on the rate; those with the colourless solutions are given in Table XIII, and those with brown solutions in Table XIV. In neither case is the temperature coefficient as great as usual, but as in all probability the dissociation of HOI and the equilibrium constant E (see above) change with the temperature, abnormal results are not to