potassium chromate it is convenient to speak of the silver ions and chromat-ions, but the fact should not be lost sight of that these ions do not diffuse as isolated entities, but each churged ion must be associated with a charge of equal amount and opposite sign borne by some other ion or ions.

Suppose that the concentrations of the silver and chromate ions at the planes from which they begin to diffuse are a and c respectively, that the rates of diffusion are V_a and V_c , and that



FIG. 10. Simple diffusion.

a precipitate is formed at some plane P at a distance d from the original silver diffusing front.

Then the concentrations of silver and chromate ions at P are $V_{a}a_{a}$ and $\frac{V_{a}c}{D-d}$ respectively. But the product of these two is the precipitation value, so that $\frac{V_{a}V_{c}a,c}{d(D-d)}$ has a value which is susceptible of measurement, because $\Lambda_{a}C_{a} = k_{a}X_{a}$. (1)

Assuming that the distance D remains about the same for two or three consecutive bands, the condition for the formation of a precipitate is from (1)

$$\frac{V_{\rm a}V_{\rm c}.a.c}{d(D-d)} = k.X$$
⁽²⁾

or, since V_a and V_c are constants for given concentrations and for a given temperature, the relation between the initial con-

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