Experiments were made with the esters of a number of dibasic acids. The ester was dissolved in the corresponding alcohol and the solution of potassium hydroxide in the same alcohol added in the proportion of a little less than one formula weight of potassium hydroxide to one formula weight of the ester. The precipitate, which usually began to appear after a few cubic centimeters of the alkali solution had been added, was filtered off, washed with the alcohol used and dried at 100°. This precipitate was analyzed by boiling with an excess of standard potassium hydroxide solution for about one and one-half hours, using a reflux condenser, and titrated back with standard acid, using phenolphthalein as indicator.

Oxalic esters gave practically pure potassium alkyl oxalate.

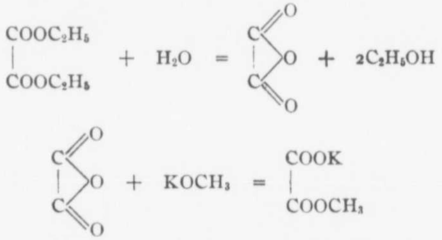
Tartaric esters gave potassium alkyl tartrate and a little dipotassium tartrate.

Succinic esters gave potassium alkyl succinate and considerable dipotassium succinate.

Phthalic esters gave dipotassium phthalate only.

Experiments with sodium hydroxide gave, in some cases, precipitates which would not crystallize and the reaction of oxalic esters with potassium hydroxide was selected for further study. It was found that for obtaining pure potassium alkyl oxalate from a dialkyl oxalate it is better not to use a very dilute solution of the ester, not to raise the temperature of the solution, and to use noticeably less than the calculated amount of potassium hydroxide.

Saloman[1] noticed that if ethyl oxalate be treated with a solution of potassium methylate in methyl alcohol the product was potassium methyl oxalate and he suggested representing this reaction in two stages:



Saloman's experiment was repeated, using an alcoholic solution of potassium hydroxide. Ten grams of diethyl oxalate were dissolved in 50 cc. methyl alcohol and 89 cc. of 0.767 *N* potassium hydroxide solution (in methyl alcohol) added, drop by drop, with constant shaking, the temperature being kept about 0°. This was the only case where it was found necessary to work below room temperature. The precipitate was washed with 50 cc. methyl alcohol, dried, and titrated as shown above. The re-

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[1] *Ber.*, 8, 1509 (1875).