If either (2) or (3) is the better representation we might expect to find dimethyl oxalate or methyl ethyl oxalate in the residual dialkyl ester when considerably less than the calculated amount of potassium hydroxide solution is used.

Four cc. diethyl oxalate were dissolved in 10 cc. methyl alcohol and to this was added 2 cc. of 0.769 *N* potassium hydroxide solution in methyl alcohol but no precipitate was obtained although it was left for several hours. The alcohol was allowed to evaporate at room temperature and the dialkyl ester extracted with chloroform. The oily residue obtained by evaporation of the chloroform at room temperature might be diethyl oxalate, diethyl oxalate and dimethyl oxalate or diethyl oxalate and methyl ethyl oxalate but could not be dimethyl oxalate since the melting point of the latter is 54°. This residue was titrated and the results indicate either 7.5% dimethyl oxalate and 92.5% diethyl oxalate or 16.8% methyl ethyl oxalate and 83.2% diethyl oxalate.

Table II contains the data of a series of experiments in which varying amounts of 0.769 *N* solution of potassium hydroxide in methyl alcohol were used with 4 cc. ethyl oxalate dissolved in 10 cc. methyl alcohol. The 4 cc. ethyl oxalate used would require 38.5 cc. of the potassium hydroxide solution to completely convert it to potassium alkyl oxalate and the amount of this solution used is expressed in the first row of the table as the precentage of the total amount necessary to convert the diethyl oxalate to potassium alkyl salt. As the last three experiments in the series gave residual esters containing crystals of dimethyl oxalate the analyses of these residual esters were interpreted as indicating the proportions of dimethyl oxalate and diethyl oxalate and these appear in the last row. The analyses were done in duplicate and the average taken.

Table II.

Diethyl Oxalate (4 cc.) Dissolved in 10 cc. of Methyl Alcohol.

KOH sol. Me alc., %	5.2	10.4	15.6	20.8	26.0
Dimethyl oxalate, %	7.5	33.0	59.5	84.6	98.7

The results of this series of experiments show that a methyl alcohol solution of potassium hydroxide converts diethyl oxalate into dimethyl oxalate and that the amount of dimethyl oxalate formed depends on the amount of potassium hydroxide used. This reaction is accompanied by another reaction which produces potassium methyl oxalate. If, in the last experiment, a further amount of 28.5 cc. of the potassium hydroxide solution had been added there would have been complete conversion to potassium methyl oxalate and it would have been the conversion of dimethyl oxalate and not of diethyl oxalate to potassium methyl oxalate.

The two stages of the reaction are, therefore, represented as first, the change of diethyl oxalate to dimethyl oxalate and, second, the change of dimethyl oxalate to potassium methyl oxalate, see (2) above.