tional amount of glycerin the p_H of the solution was 7.5 indicating that the mixture was well on the acid side of the incipient color change with phenolphthalein. To restore the pink color (p_H 8.3) it requires about 0.25 cc. 1 *N* sodium hydroxide solution, which gives results in accordance with theory. The dissociation constant of the glycerin-boric acid complex calculated from the $[H^+]$ in 0.2 molar solution is $Ka = \frac{(10^{-3})^2}{0.2} = 5 \times 10^{-6}$, which indicates clearly that the complex is a relatively strong acid.

SUMMARY.

1. The titration of boric acid has been studied.
2. The modified Pharmacopœia method herein described is satisfactory for an official method of assay.
3. The P.E. of an individual determination by this method is 0.19 per cent, *i. e.*, the chances are even that one in two determinations will be either mean ± P.E. or that it will differ from the mean by more than one P.E.

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ASSAY FOR ALKALI SALTS OF ORGANIC ACIDS.*

BY JOSEPH L. MAYER.

The United States Pharmacopœia on page 431 directs that alkali salts of organic acids be assayed by the following method:

> "Heat about 2 Gm. of the salt, accurately weighed, in a platinum or porcelain crucible, heating at first very gently, then gradually raising the temperature until the salt is thoroughly carbonized. (Caution.—Do not use platinum crucibles for lithium salts.) The final temperature must not exceed a dull red heat and the flame of the burner must not come in contact with the carbonized mass. After allowing the carbonized mass to cool, moisten with distilled water, ignite again and repeat the moistening and igniting until a white residue is obtained. Then disintegrate the ignited mass with the aid of a stout glass rod and transfer the mass and crucible to a beaker. Add 50 cc. of distilled water and titrate with half-normal sulphuric acid, using methyl orange T.S. as indicator. The number of cc. of half-normal sulphuric acid used, multiplied by the proper equivalent of the salt, represents the amount of salt present in the quantity taken."

This procedure has several defects; for example:

If a sufficiently large dish be substituted for the crucible, not only is it easier to obtain a white residue but there is no need to "transfer the mass and crucible to a beaker," the result being that the titration can be done without danger of loss.

Believing that residual titration would give better results than the direct method recommended by the U. S. P., the following experiments were made:

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A—Two-gram samples of potassium and sodium tartrate, in very small crystals, were ignited in porcelain evaporating dishes of about 160 cc. capacity and when a white residue was obtained, titrated as directed by the U. S. P. with half-normal sulphuric acid.

The assay indicated the presence of 74.061 per cent of $K\,Na\,C_4H_4O_6$.

B—Two-gram samples from the same container were ignited as in *A* and to the cooled residue there was added an excess (35 cc.) of half-normal sulphuric acid and the dish and contents placed on a steam-bath and stirred with a glass rod until all soluble matter was in solution, cooled, two drops methyl orange indicator added and the unacted upon acid determined by titration with half-normal sodium hydroxide.

The assay indicated the presence of 75.712 per cent of $K\,Na\,C_4H_4O_6$.

The results by both methods are far apart not withstanding the fact that the duplicates showed remarkably close agreement among themselves.

SUMMARY

1. In the assay of alkali salts of organic acids the U. S. P. should direct that a dish be used in place of a crucible, as it now does for the ashing, as this procedure would not only aid in ashing the material but the titration could be made without transferring.
2. In place of directly titrating the ash as it now does, the U. S. P. should direct that an excess of half-normal sulphuric acid be added to the ash, the dish and contents placed on the steam-bath, stirred until all soluble matter is in solution, cooled, methyl orange added and then titrated with half-normal sodium hydroxide until all unacted upon sulphuric acid is neutralized.

The writer wishes to acknowledge his indebtedness to Berl S. Alstodt for his assistance in making many of the assays.

CONTRIBUTION FROM THE CHEMICAL LABORATORY, BROOKLYN COLLEGE OF PHARMACY,
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CHEMICAL STUDIES OF THE FRESH JUICE OF THE MAGUEY PLANT.—(MANSO FINO, KARW).*

A PRELIMINARY REPORT.

BY HERMAN D. JONES.[1]

PAPER NO. I.

The two groups of Agaves, occurring in Mexico, have been previously classified as (1) the amoles, and (2) the magueys. There are three varieties of magueys, pita, mescal and pulque, and of the last named variety the species, Agave Atrovirens,

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* From the Department of Biological Chemistry, Alabama Polytechnic Institute, Auburn, Alabama.

[1] The writer is indebted to Don Javier Torres Rivas, of Mexico City, for permission to collect, on his hacienda, the juice used in this investigation, and to Sr. Javier de la Barra for his coöperation during the two years of work in Mexico, while on leave of absence from the Alabama Polytechnic Institute.