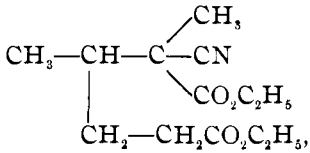
2,3-Dimethyl-2-cyanadipic Ester,



was prepared, as usual, by condensing the monomethyl ester with methyl iodide by means of sodium ethylate in an alcoholic solution. It boils at 181°-194° under a pressure of 29 mm.

The analysis gave:

Calculated for $C_{13}H_{21}O_4N$, C, 61.18; H, 8.24; N, 5.49. Found: C, 61.12, 61.95; H, 8.49, 8.53; N, 5.43.

2,3-Dimethyl-1,2',6 Acid.—The ester was saponified with much greater difficulty than the corresponding monomethyl ester. It required two days' heating on the water-bath with sodium hydroxide before the evolution of ammonia was complete. The resulting tribasic acid crystallizes in pearly white granules which melt at 159°. On titration with lime-water, 0.0361 gram took the equivalent of 5.07 cc. N/10 alkali, and 0.0407 gram took 5.55 cc.; calculated, 4.97 cc. and 5.60 cc.

α,β-Dimethyladipic Acid.—The dimethyladipic acid, formed by heating the tribasic acid to 200°, could not be induced to crystallize. An analysis of its silver salt gave 55.45 per cent. silver; calculated for $C_8H_{12}O_4Ag_2$, 55.67 per cent.

The copper salt from another preparation gave only 24.90 and 24.98 per cent. copper instead of 27.00 per cent calculated. A salt containing 1 molecule of water would give 24.68 per cent. of copper, and it seems probable that this was the composition of the salt, but such evidence is not altogether satisfactory. We had no time for the further investigation of the salt.

NOTES.

Note on the Avery-Beans Method for the Determination of Arsenious Acid in Paris Green.—This method rests on the principle that arsenious acid may be titrated with iodine in the presence of cupric salts, provided an alkaline tartrate be present. As originally published,[1] the method gives accurate results only when

[1] This Journal, **23**, 485.

no free, white arsenic appears on treating the green with cold dilute hydrochloric acid. In this laboratory I have, for some time, treated such greens as show a tendency to separate out white arsenic as follows: The sample is treated with hydrochloric acid (approximately 0.5 N) solution and boiled gently. Five to 10 cc. of acid for each 0.1 gram of green is sufficient. No loss of arsenic by volatilization takes place unless the solution becomes concentrated to less than one-half its original volume. If solution is not effected, add a cold saturated solution of sodium acetate, using about 3 grams of the salt for each 0.1 gram of the green originally weighed out, and boil till all arsenious acid dissolves. The dilute acid dissolves all copper and what we may call "firmly combined white arsenic." The concentrated acetate solution dissolves all white arsenic left by the acid. The proportions of the two solvents may be varied to meet the requirements of individual greens, but all copper should be in solution before the acetate is added. After solution is effected, an alkaline tartrate and solid bicarbonate are added and the diluted solution titrated as usual.

LINCOLN, NEB., Sept. 1, 1903. S. AVERY.

NEW BOOKS.

ANALYTICAL CHEMISTRY. Vol. I. QUALITATIVE ANALYSIS. By F. P. TREADWELL, PH.D., Professor of Analytical Chemistry in the Polytechnic of Zurich. Translated from the second German edition by WILLIAM T. HALL, S.B., Instructor in Chemistry, Massachusetts Institute of Technology. New York : John Wiley and Sons. 1903. Price, $3.00.

This book is an amplified reproduction of the lectures on qualitative analysis that Professor Treadwell has delivered yearly at Zurich since 1882. The first German edition was issued in 1899 and met with such a favorable reception that it was followed two years later by a second edition which now appears in English form.

The general plan is that usually followed in text-books on this subject. Under the heading General Principles, an introduction of some thirty pages treats briefly of precipitation, oxidation and reduction, hydrolysis, mass action and the ion theory. The last two subjects are alluded to occasionally in the body of the text but are not made the basis of the method of presentation.