The following method based on the reduction of the quinone to the corresponding hydroquinone and subsequent oxidation of the latter, however, effects a complete purification without loss of material.

Twenty grams of the crude, dark colored quinone is placed in a 500 cc. Erlenmeyer flask, 250 cc. of water saturated with sulphur dioxide is added, the flask is corked tightly and the whole shaken violently for about half a minute or until nearly all is dissolved. The shaking must not be continued too long or there will be a loss due to the separation of hydroquinone from the solution. The mixture is then quickly filtered by suction through a Buchner perforated funnel directly into a solution containing 60 grams potassium bichromate and 40 cc. conc. sulphuric acid in 1200 cc. water cooled to 5°–10°. The suction flask should be shaken with a circular motion during the filtration. The pure quinone falls to the bottom as a bright yellow orange precipitate and a black tarry residue remains on the filter. A second portion of twenty grams crude quinone may be dissolved in sulphurous acid as before, and filtered into the same oxidizing mixture without removing the quinone already there.

Determination of β-Naphthoquinone: Decinormal stannous chloride is added from a burette to the quinone dissolved in ether. A dark green, almost black, opaque solution results; owing, probably, to the formation of a quinhydrone. On adding more tin solution a point is finally reached at which the solution in ether suddenly becomes colorless and transparent, indicating the complete reduction of the quinone to hydroquinone. Each mol. quinone requires one mol. $SnCl_2$. (Taken, 0.0700 g.; found, 0.071 g.).

Purification of Phthalonic Acid: The syrupy solution prepared from naphthalene and potassium permanganate by the method of Graebe and Trümpy[1] crystallizes on long standing in a desiccator to a solid mass, said to consist of the dihydrate of phthalonic acid[2]; I found it, however, impossible to obtain a preparation of definite composition without completely dehydrating the acid. This is seen from the following determination of the water of crystallization.

1.9676 g. of the pulverized amorphous acid was heated in a steam bath for five hours; the loss in weight was 0.2116 g. It was further heated at 115° to constant weight. Total loss in weight, 0.2606 g.

	Found	Calc. for $C_9H_6O_7 \cdot 2H_2O$
H_2O	13.2	15.65

The acid thus contained 2.35% less water of crystallization than corresponds to the dihydrate.

Determination of Phthalonic Acid: Two methods were devised for the quantitative determination of phthalonic acid, both of which can be quickly and accurately carried out. In the first the carbon monoxide

[1] Ber. 31, 369, (1898).

[2] Ibid 370, (1898).