

chloride was slowly added while the contents of the flask was shaken thoroughly to prevent caking. The reaction was carried out on the water-bath until hydrogen chloride was no longer evolved, when 60 cc. of 10% hydrochloric acid was added and the benzene was distilled with steam. The distillation with steam removes the acetyl radical. The precipitate was shaken with a hot saturated solution of sodium carbonate and filtered from the brownish insoluble material. Slow addition of 5% hydrochloric acid to the filtrate gave a crystalline precipitate which, when recrystallized from ethyl alcohol, was white and melted at 193-4°. Yield, 51% calculated on the basis of the 3-acetylamino-phthalic anhydride used. The alcohol solution evaporated to dryness gave a small quantity of a pale yellow crystalline substance which melted at 159-60° when recrystallized from water.

Identification of the Substance Melting at 193-4°.—Hydrolysis.—Hydrolysis with potassium hydroxide was not very successful; the only product that could be identified was benzoic acid.

Preparation by Reduction of the Nitro Compound.—To a solution of 2 g. of 2-benzoyl-3-nitrobenzoic acid in a small quantity of ammonia, 12 g. of ferrous sulfate and more ammonia were added. At first this was heated gently and then it was boiled for a few minutes. Six g. of charcoal was added and it was boiled again for a few minutes before it was filtered. The black precipitate was boiled with water for about 10 minutes. After the residue had been removed the filtrate was boiled until all free ammonia was expelled; then powdered potassium alum was added, and the mixture was allowed to stand until it became cold. The precipitate formed was dried, boiled with 95% alcohol, and the solution filtered hot. The crystals separated from the cold alcoholic solution were identical with those obtained in the Friedel and Crafts reaction,

Calc. for $C_{14}H_{11}O_3N$: N, 5.81. Found: 5.74.

This substance melting at 193-4° is, therefore, 2-benzoyl-3-amino-benzoic acid. It is slightly soluble in water, in ether and in benzene, and soluble in hot alcohol.

Identification of the Substance Melting at 159-60°.—As a very small quantity of this substance was obtained, it was not possible to make a nitrogen determination. On so small a scale, fusion with potassium hydroxide was not successful, but the substance was prepared from 6-benzoyl-2-nitrobenzoic acid by the method described above. Since this acid is soluble in hot water, the aluminum hydroxide was filtered from the hot solution. Crystals separated from the cold solution gave a melting-point of 159-60°. Therefore, this pale yellow substance is 6-benzoyl-2-amino-benzoic acid. It is insoluble in benzene but soluble in alcohol, in ether, in acetone, and in hot water.

Identification of the Substance Insoluble in Hot Sodium Carbonate Solution.—This brown material from the Friedel and Crafts reaction is