

analyses) in covered platinum crucibles at low temperatures, do not ordinarily occasion serious losses. Since losses may occur in such fusions, they should be avoided when accurate determinations of phosphorus pentoxide are desired.

Qualitative and quantitative tests of the vapors given off during special fusions in Gooch tubulated crucibles demonstrated that the phosphorus pentoxide losses were true volatilization losses and were not due to incomplete reconversion treatments.

### III. Summary.

1. No volatilization losses of phosphorus occur during evaporations of sulfuric acid solutions of phosphates, provided the evaporations are carried on at temperatures below  $150^{\circ}$  and stopped when fumes appear. Such evaporations are best performed over "radiators."

2. Volatilization losses during evaporation of sulfuric acid solutions of phosphates are occasioned by (1) evaporation to complete expulsion of sulfuric acid; (2) evaporation at high temperatures such as  $200$ – $260^{\circ}$ ; and (3) unduly prolonged evaporation at temperatures above  $150^{\circ}$ . Evaporations involving only a drop or two of sulfuric acid, such as apply in silica treatments, do not cause measurable losses.

3. Fusions with pyrosulfate in *covered* crucibles and at dull red temperatures result in appreciable losses in the case of secondary (and presumably primary) phosphates, and may result in slight losses in the case of basic phosphates.

4. Orthophosphoric acid and primary and secondary orthophosphates suffer conversion to pyro- and metaphosphoric acid or phosphates when evaporated to dryness with sulfuric acid or fused with pyrosulfate; such "converted" compounds must be subjected to "reconversion" treatments before precipitation with molybdic acid or magnesia mixture.

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### NOTE.

Correction.—In the articles "Adsorption by Charcoal," I and II, appearing in the July number of THIS JOURNAL, mention of the fact that the work was made possible by a grant from the "Elizabeth Thompson Science Fund" was overlooked. We would like at this time to express our thanks publicly for that assistance.

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