

ing the latter, is to boil or warm the powdered substance in a test-tube with a few drops of nitric acid, and after half-filling the tube with distilled water, to drop into it a small fragment of molybdate of ammonia. In the presence of phosphoric acid, this will turn yellow immediately, especially if the solution be warmed, and a canary-yellow precipitate (soluble in ammonia) will rapidly form. All natural phosphates, with the exception of the rare phosphate of yttria, xenotime, are dissolved or readily attacked by nitric acid; and xenotime, if in fine powder, is generally attacked sufficiently to yield the reaction. Phosphates may also be decomposed by fusion, in fine powder, with three or four parts of carbonate of soda in a platinum spoon or loop of platinum wire. An alkaline phosphate, soluble in water, is formed by this treatment—with xenotime as with other phosphates—and the solution, rendered acid, may then be tested by molybdate of ammonia. Or it may be rendered neutral by a drop of acetic or very dilute nitric acid, and tested with a fragment of nitrate of silver, in which case a canary-yellow precipitate will also be produced. Or it may be tested by adding to it a small fragment or two of acetate of lead, and fusing the resulting precipitate on charcoal. On cooling, the surface of the fused bead shoots into crystalline facets.

(11) *Boron*.—Present in nature in an oxidized condition only, as boracic acid. This occurs: (1), in the hydrated state; (2), in combination with bases, in the group of borates; and (3), in certain so-called boro-silicates. Boracic acid (or anhydride) and many borates and boro-silicates impart *per se* a green coloration to the flame-border, and all produce this coloration if previously saturated with sulphuric acid. In some few silicates, however, in which little more than traces of BO^3 are present, the reaction is scarcely or only very feebly developed unless the test-substance, in fine powder, after treatment with sulphuric acid, and partial desiccation, be moistened with glycerine, according to a process first made known by Hles. But a similar flame-coloration is produced by phosphates and certain other bodies. For the proper detection of borates, therefore, the following long-known method should be resorted to. The test-matter, in fine powder, is saturated with sulphuric acid, and allowed to stand for a minute or two; a small quantity of alcohol is then added, and the mixture is stirred and inflamed. The presence of BO^3 —unless in

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(12) *Carbon*.—Graphite, combined substances; and in the group very slow ignition. In minute quantities, carbonate exhibits reaction in carbonate during the previously CO^2 being fragments fluxes. In other bodies. It should be on ignition but, with bodies are

(13) *Silica*.—In condition, quartz and minerals. In combination with FeO , Na^2 simple state. With charcoal of CO^2 from portions, and on cooling until per