

(c) The test-fragment may colour the flame. Thus, most copper and all thallium compounds impart a rich green colour to the flame; compounds in which tellurium or antimony is present, also those containing baryta, and many phosphates and borates, with molybdates and the mineral molybdenite, colour the flame pale green; sulphur, selenium, lead, arsenic, and chloride of copper colour the flame blue of different degrees of intensity; compounds containing strontia and lithia impart a crimson colour to the flame; some lime compounds impart to it a pale red colour; soda compounds, a deep yellow colour; and potash compounds, a violet tint.

(d) The test-fragment may become caustic. Example, carbonate of lime. The carbonic acid is burned off, and caustic lime remains. This restores the blue colour of reddened litmus paper.

(e) The test-fragment may take fire and burn. Example, native sulphur, cinnabar, common bituminous coal, &c.

(f) The test-fragment may be volatilized or dissipated in fumes, either wholly or partially, and with or without an accompanying odour. Thus, gray antimony ore volatilizes with dense white fumes; arsenical pyrites volatilizes in part, with a strong odour of garlic; common iron pyrites yields an odour of brimstone; and so forth. In many cases the volatilized matter becomes in great part deposited in an oxidised condition on the charcoal. Antimonial minerals form a white deposit or incrustation of this kind. Zinc compounds, a deposit which is lemon-yellow whilst hot, and white when cold. Lead and bismuth are indicated by sulphur-yellow or orange-yellow deposits. Cadmium by a reddish brown incrustation.

(g) The test-fragment may fuse, either wholly, or only at the point and edges, and the fusion may take place quietly, or with bubbling, and with or without a previous "intumescence" or expansion of the fragment. Most of the so-called zeolites, for example (minerals abundant in trap rocks), swell or curl up on exposure to the blowpipe, and then fuse quietly; but some, as prehnite, melt with more or less bubbling.

(h) The test-fragment may remain unchanged. Example, quartz, and various other infusible minerals.

(2) *Treatment in the Flask or Bulb-Tube (The Water Test).*—Minerals are frequently subjected to a kind of distillatory process by ignition in small glass tubes closed at one end. These tubes are of two general kinds. One kind has the form of a small flask, and is commonly known as a "bulb-tube." Where it cannot be procured, a small-sized test-tube may supply its place. It is used principally in testing minerals for water. Many minerals contain a considerable amount of water, or the elements of water, in some unknown physical condition. Gypsum, for example, yields nearly 21 per cent. of water. As the presence of this substance is very easily ascertained, the water test is frequently resorted to, in practice, for the formation of determinative groups, or