BLOWPIPE PRACTICE.

pipe operations. The first defect may be remedied (if the carb. soda, employed alone, produce the reaction) by substituting, as proposed by Plattner, oxalate of potash for the test, as that salt is generally pure and free from sulphates; and the flame of a candle, or an oil or spirit-flame, may be used in this experiment, when the gas flame is found by trial with pure soda or oxalate of potash to give the reaction.

Sulphides of natural occurrence are distinguished from sulphates, by emitting sulphurous acid (or, strictly, by emitting sulphur vapour which combines with atmospheric oxygen and forms sulphurous acid) on ignition; although in the case of certain sulphides (blende, molybdenite, &c.) a strong reaction is only produced by the ignition of the substance in powder. Most natural sulphides, also, present a metallic aspect, or otherwise are highly inflammable (orpiment, cinnabar, &c.), or yield a strongly-coloured streak. Light-coloured varieties of zinc blende are the only exception. On the other hand, no sulphate possesses a metallic aspect; and, in all, the streak is either colourless or very lightly tinted.

(4) Selenium.—Met with only in a few minerals of very rare occurrence. In these, its presence is revealed by the formation of a "hepar" with carb. soda, and simultaneous emission of strongly-smelling fumes, the odour resembling that of decaying vegetable matters or "cabbage water." In volatilizing, selenium, like sulphur, burns with a blue flame.

(5) Nitrogen.—Found only, as regards minerals proper, in an oxidized condition (Ni^2O^5) in nitrates. These are soluble or (as regards certain metallic nitrates) sub-soluble in water; and they deflagrate when ignited on charcoal or in contact with other carbonaceous bodies. Heated with a few drops of sulphuric acid (or fused with bisulphate of potash) in a test-tube, nitrates evolve, also, ruddy fumes of nitrous acid; and many nitrates, moistened with sulphuric acid, impart a dull green coloration to the flame-border.

(6) Chlorine.—Occurs, among minerals, in combination with various bases, forming the group of chlorides. In these, its presence is very easily recognized by the bright azure-blue coloration of the flame-bord a bead of j be perform fused witi coloured g then addee phosphor-s experimen chloride of and impar coloration of fresh t phosphor-s found to c Oxidize.

be stated t when fuse however, of contact wi and emit g acid (or fu smell strc Chlorides, off white f

(7) Bro bromides. but the fl green stree to shew th the test-mather peared. H excess of t red, strong same react when fused Appendix.

24