(8) *Iodine.*—In nature, occurs only in one or two rare minerals, compounds of iodine and silver, or iodine, silver, and mercury. In these, as well as in all artificial iodides, its presence may be recognized by the vivid green coloration imparted to the flame during fusion with a cupreous phosphor-salt bead. The test-matter must not be added to the bead until the copper oxide is completely dissolved in the latter, and all traces of green (communicated by the CuO) have disappeared from the flame. Iodides, also, when warmed with a few drops of sulphuric acid (or fused with excess of bisulphate of potash) in a test-tube, evolve strongly smelling violet-coloured vapours, which impart a deep blue stain to matters containing starch. A strip of moistened tape or starched cotton may be held at the top of the tube. Iodates exhibit the same reactions, but deflagrate when ignited with carbonaceous bodies. (*See* Appendix, No. 20).

(9) *Fluorine.*—This element, as an essential component of minerals, occurs in combination with calcium and other bases, forming the various fluorides. It is also largely present in topaz, probably in combination with silicon and aluminium; and it occurs, though in smaller proportion, in chondrodite, and as an accidental or inessential component in many other silicates. Its presence is revealed most readily, by warming the substance, in powder, with a few drops of sulphuric acid (or fusing it with bisulphate of potash) in a test-tube, when stifling fumes, which strongly corrode the inside of the glass, are given off. Or, the trial may be made in a platinum crucible covered with a glass plate: on washing the test-tube or glass, and drying it, the corrosion is rendered visible. When fluorine is present in very small quantity in a substance, it is generally driven off the more readily, often by the mere ignition of the substance (either alone, or with previously fused phosphor-salt) at one end of an open narrow tube—the flame being directed into the tube, so as to decompose the test-matter and drive the expelled gases before it. A slip of moistened Brazil-wood paper, placed at the mouth of the tube, is rendered yellow. Many silicates which contain only traces of fluorine lose their polish when strongly ignited, in the form of a small splinter, *per se*.