

imparting a secondly, the position of a body, of some manganese, may be used of a metallic in the sub-

and this is a depression of and on simultaneous action becomes which the twenty or thirty to restrict flame, with blowpipe in now, and the extremity, rist and the rates. The served either ture of the n sufficient oint of the usily fusible orceps with experienced point; but from the blowpipe and r's practice. a piece of ar manner.

points, such as  
a silk thread or  
points must be

In these experiments, the beginner must be careful not to operate on fragments of too large a bulk. The smaller the object submitted to the flame, the more certain will be the results of the experiment.

In out-of-the-way places, the common form of blowpipe described above is frequently the only kind that can be obtained. It answers well enough for ordinary operations, but the moisture which collects in it, by condensation from the vapour of the breath, is apt to be blown into the flame. This inconvenience is remedied by the form of construction shewn in the annexed figures, in which the instrument consists of two principal portions, a main stem closed at one end, and a short tube fitting into this, at right angles, near the closed extremity. The short tube is also commonly provided with a separate jet or nozzle of platinum. In this case, the jet can be cleaned by simple ignition before the blowpipe-flame, or over the flame of the spirit-lamp. In



FIG. 2.

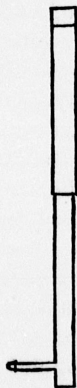


FIG. 3.

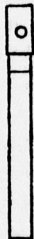


FIG. 4.

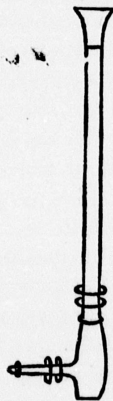


FIG. 5.

the variety of blowpipe known as "Black's Blowpipe," Fig. 2, the main tube is usually constructed of japanned tin-plate, and the instrument is thus sold at a cheap rate. Mitscherlich's Blowpipe, Fig. 2, consists of three separate pieces which fit together, when not in use, as shewn in Fig. 4. This renders it as portable as an ordinary pencil-case. Fig. 5 represents Gahn's or Berzelius's Blowpipe, with a trumpet-shaped mouth-piece of horn or ivory as devised by Plattner. This mouth-piece is placed, of course, on the outside of the lips. It is preferable to the ordinary mouth-piece, but is not readily used by the