

Chemical and Blowpipe Characters.—Before the blowpipe colours the flame intensely yellow, becomes opaque, and often exfoliates or swells up into cauliflower-like forms. After ignition in the forceps, or in the closed tube, gives a strong alkaline reaction. Fragments which have not been ignited, when placed upon a piece of moistened turmeric paper, shew no alkaline reaction; but if the finely pulverised mineral is treated with water, the water is rendered slightly alkaline. In the closed tube gives off water and carbonic acid. With nitrate of cobalt gives a fine blue colour (alumina.) With hydrochloric or nitric acid dissolves in the cold completely, with evolution of carbonic acid; and this even when the mineral is in fragments and the acid exceedingly dilute. Addition of ammonia to the solution gives a copious precipitate of alumina. Acetic acid decomposes it, but does not appear to dissolve it completely; the solution, however, gives an abundant precipitate of alumina with ammonia.

Through the kindness of Dr. Dawson I have been enabled to obtain sufficient material for two analyses. The first was made some months ago, but so strange did the results appear, that I was unwilling to publish them before making a second analysis, in order to ascertain whether the mineral was at all constant in composition.

The first analysis gave me the following results :

I.	
Carbonic acid	29.88
Alumina*	32.84
Lime	5.95
Magnesia	traces.
Soda	20.20
Potash	0.38
Water	11.91
Silica	0.40
	101.56

The carbonic acid was determined with an ordinary single flask apparatus, and the water with a small chloride of calcium tube. Together they equal 41.79 per cent. Direct ignition of a separate portion of the mineral in a covered crucible gave a loss of 41.16 per cent.

For the second analysis, the material was obtained from at least twenty different specimens, and considering that the amount employed was small, the results are sufficiently close to those of

* With traces of peroxide of iron.