

—unless the latter substance be present in traces only—may be safely concluded.*

2. METHOD OF DISTINGUISHING THE RED FLAME OF LITHIA FROM THAT OF STRONTIA.

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It has been long known that the crimson coloration imparted to the blowpipe flame by strontia, is destroyed by the presence of baryta. This reaction, confirmed by PLATTNER—see, more especially, the third edition of his *Probirkunst*, page 107—was observed as early as 1829 by BUTZENGEIGER (*Annales des Mines*, t. v., p. 36). The latter substance, however, as first indicated by the writer, does not affect the crimson flame-coloration produced by lithia. Hence, to distinguish the two flames, the test-substance may be fused with 2 or 3 volumes of chloride of barium in a loop of platinum wire, the fused mass being kept just within the point or edge of the blue cone. If the original flame-coloration proceeded from strontia (or lime), an impure brownish-yellow tinge will be imparted to the flame-border; but if the original red colour were caused by lithia, it will not only remain undestroyed, but its intensity will be much increased.

This test may be applied, amongst other bodies, to the natural silicates, *Lepidolite*, *Spodumene*, &c. It is equally available, also, in the examination of phosphates. The mineral *Triphylite*, for example, when treated *per se*, imparts a green tint to the point of the flame, owing to the presence of phosphoric acid; but if this mineral be fused (in powder) with chloride of barium, a beautiful crimson coloration in the surrounding flame-border is at once produced.

* In testing this method, a mixture was prepared of 2 parts of ignited carbonate of soda with 1 part of carbonate of lithia, and portions of this were placed in six little porcelain capsules, distinguishing upon their under sides by a spot of ink; whilst into six similar but unmarked capsules, some carbonate of soda, only, was placed. The capsules being then arranged indiscriminately upon a tray, each was separately examined, and it was found that those which contained lithia could be separated from the rest without the slightest difficulty (November, 1850). This plan was repeated with equal success, on mixtures of 3 (NaO , CO^2) + 1 (LiO , CO^2), and 6 (NaO , CO^2) + 1 (LiO , CO^2), in May, 1865. When the lithia is in very small quantity, the blowpipe flame must not be too large.