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Morphia.—Nitric, and no other acid, changes it to a fine orange red, which becomes yellow.—*O'Shaughnessy*.

Potass changes turmeric brown, and syrup of violets green; the carbonate or nitrate of potass in solution gives, with chloride of platinum, a yellow precipitate, soda does not.—*Christison*.

Quina.—The disulphate of quina is not coloured by strong nitric acid, which reddens sulphate of cinchonia.

Soda is not, like potass, affected by chloride of platinum; and the perchlorate of soda (not of potass) is extremely soluble and deliquescent.—*Serullus*.

Strychnia.—One part, when pure, will prove distinctly bitter in 600,000 parts of water, and will not change colour with nitric acid; but common strychnia will change to an orange red.—*Apjohn*.

CHEMICAL TESTS FOR MINERAL WATERS.

These may be divided into five groups, viz:—

1. Carbonated, containing pure carbonic acid.
2. Sulphureous, containing sulphuretted hydrogen.
3. Chalybeate, containing carbonate of iron.
4. Alkaline, containing carbonate of soda; these are rare.
5. Saline, containing many salts. Siliceous waters are very rare, and are met with in Iceland.

The following brief rules of the qualitative analysis of mineral waters are added, as being useful. The first point to be determined, in the examination of a mineral water, is to which of the above classes does the water in question belong?

1. If the water reddens blue litmus paper before boiling, but not afterwards, and the blue colour of the reddened paper is restored on warming, it is carbonated.

2. If it possesses a nauseous odour, and gives a black precipitate, with acetate of lead, it is sulphureous.

3. If, after the addition of a few drops of hydrochloric acid, it gives a blue precipitate, with yellow or red prussiate of potash, the water is a chalybeate.

4. If it restores the blue colour to litmus paper after boiling, it is alkaline.

5. If it possesses neither of the above properties, in a marked degree, and leaves a large residue on evaporation, it is a saline water.

The substances which commonly enter into the composition of a mineral water, are:—

Acids.—Sulphuric, carbonic, phosphoric, silicic, hydrochloric, (chlorides).

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