

this occurs, are distributed (for their more ready determination) into groups and sections founded essentially on blowpipe reactions. An attempt is also made, not only here but throughout the entire work, to trace back all discoveries to their primary source, so as to give full credit to their originators.* Nothing, at least, is taken from any source without due acknowledgment.†

Division 5. *Plan of Analysis in the examination of bodies generally*—(The method of analysis given in this division, is entirely original, and applicable both to natural substances and art-products. By its aid, the composition of a body may be arrived at, it is thought, much more rapidly, and with greater certainty, than by the blowpipe method of Rose, or that of Laurent. In Rose's plan, as adopted by Plattner and others, much time is lost, for example, by the same component being detected over and over again, whilst others escape detection altogether. In numerous instances also, by the employment of this method, a substance is subjected to many useless experiments. Laurent's system partially avoids this defect; but in other respects it is exceedingly incomplete, especially as regards the examination of bodies containing several bases.)

PART II. BLOWPIPE ASSAYING.

Division 1.—*Instruments and Appliances*—(Amongst other instruments, a new scale for the measurement of silver globules, is described in this division.)

Division 2. *Reagents.*

Division 3. *Operations.*

Division 4. *Quantitative Examination of Metallic Ores, Coals, and other Assay-Matters*—(This division is necessarily based on the great work of PLATTNER. It will be found to contain, however, no inconsiderable amount of new matter, including many useful hints derived from the author's constant practice in this mode of assaying.)

* This is too often completely lost sight of. In a modern work, for example—well enough compiled in other respects, and useful as a book of reference—the *Untersuchungen mit dem Löthrohr* of Dr. HUGO HARTMANN, many well-known reactions, which were really announced by BERZELIUS or still earlier workers, are credited to PLATTNER. See, for instance, under the Chlorides, p. 18 of the first part of the work, and various other examples.

† The following heads of paragraphs, referring to the element sulphur, will serve to convey a general idea of the method adopted in this portion of the work:

XII. SULPHUR.

226. Conditions of occurrence.

227. Pyrognostic characters of sulphur and sulphur compounds generally (including sulphites, sulphates, &c.)

228. Special methods for the detection of sulphur and its oxygen-acids in bodies of all kinds.

229. Distinction between sulphur and selenium compounds.

230. Detection of sulphur in the presence of selenium.

231. Detection of sulphates in the presence of selenates.

232. Distinction between sulphides and sulphates (or other oxygen-salts.)

233. Distinction between sulphites and sulphates.

234. Sulphides of natural occurrence—(These are arranged in 4 primary and 26 secondary groups, founded essentially on blowpipe characters.)

235. Sulphates of natural occurrence—(Arranged in 17 determinative groups founded on their blowpipe reactions.)