

no less varied, and in the highest degree characteristic. The presence in the flame of *each particular chemical element* determines the presence in its light of some one or more coloured rays of *definite* refrangibility and colour, producing often in its spectrum the appearance of a definite line of coloured light out of all proportion brighter than the rest. Thus the presence of soda in any flaming body is characterized by a narrow and exceedingly vivid line of yellow light. So completely characteristic are these lines of the chemical elements to which they bear relation, that no less than four new metals, Thallium, Rubidium, Cæsium, and Indium owe their first discovery to the observation of definite spectral lines of their appropriate colour, produced by their presence in quantities too minute to be rendered sensible in any other manner.\*

(51.) It is impossible in the compass of a lecture like the present, to do more than notice with extreme brevity these remarkable classes of phænomena, and that only as bearing upon the general object we have in view. They prove in the most convincing manner the close and intimate relation in which LIGHT stands to MATTER. It enters into the interior of the hardest and least penetrable bodies, and thereout brings us information of an

\* In reference to what is now called "Spectrum Analysis," in a chemical point of view, I may be here allowed to call attention to a passage in my "Treatise on Light," published in 1827 (Encyc. Metrop., vol. iv.):—"The colours thus communicated by the different bases to flame, afford in many cases a ready and neat way of detecting extremely minute quantities of them."—Article, "Light,"