

## SECTION VIII.

*Of the Sources of Heat and Light.*

THE principal and obvious sources of heat and light are the sun, electricity, mechanical action; change of physical condition, change of chemical condition; and organic action.

Fig. 16, p. 69.) Now the unfavourable position, and greater distance, of the chemical polarities under these circumstances, may be supposed to so much diminish the intensity of their attractive powers, that although from their perfect equality in opposite directions, they are able to preserve the chemical axes in a state of parallelism; these chemical polarities are not able to overcome the superior influence of the equatorial repulsion between contiguous molecules, and thus to prevent the recession of these molecules from each other. Hence, when a series of self-repulsive molecules move onwards in virtue of their self-repulsive powers, (as in the radiation of light, &c.) the equatorial, or cohesive diameters, of the molecules, will always be in the line of motion, and each successive molecule will present alternately an opposite polarity; while the chemical axes, of course, will be all in the same plane, and transverse to the line of motion. Such will be the order in a single series of molecules in motion; but when a number of series move onward together, as in common solar light, there is reason to conclude, that the molecules of contiguous series have a tendency to arrange themselves thus . . . . . with the chemical axes at right angles to each other. Those who are interested in the subject of light, will perhaps readily conceive how such arrangements may be applied, to explain the various phenomena we have been considering.