

and moulded into the bodies that make up the solar system as it is to-day. If some bold theorist allowed his imagination to see like origins for individual stars and to assign to them unseen similar planetary families, or to group the stars into ever-widening analogous systems, the children of vast parent nebulae, it was permitted him by a license kindred to that allowed the poet. The attitude of positive science probably found expression in the words of Comte :

" It may be admitted that we have a right to speculate, with some hope of success, on the formation of the solar system of which we are a part, for it presents many phenomena perfectly understood and, perhaps, capable of affording decisive testimony in regard to its veritable origin. But what rational basis have we for speculations on the formation of suns themselves? How by reasoning on phenomena can we confirm or invalidate an hypothesis of cosmogony when there is, indeed, not a single phenomenon pertaining thereto, explained or explainable?"

A new era dawned with the discovery by Kirchhoff of the significance of the lines in the solar spectrum, and it is a memorable coincidence that this discovery which was to afford a sure foundation for the theory of stellar evolution was given to the world in the year in which appeared Darwin's immortal work. It had long been known that a ray of sunlight when passed through a prism is resolved into a stream of divergent rays of different colors, producing on a screen a band in which is a succession of colors such as appears in the rainbow. This band is called the solar spectrum. It had also been known that the band is not continuous, as was at first supposed, but broken by almost countless fine lines parallel to one another and to what we may call the separations of the colors. More recent investigations had shewn that the light from an incandescent body yields a continuous spectrum, while the light from a glowing gas gives a spectrum consisting of one or more bright lines of a color that assigns to them a definite place in the spectrum band—a place characteristic of the particular gas. For example the spectrum of glowing hydrogen is an aggregate made up of a bright line in the red, a bright line in the green and certain others, the spectrum of sodium vapor an aggregate of a double bright line in the yellow and certain others, and the spectrum of iron vapor an aggregate