

which a celestial body passes before and after its consolidation.

The differences in the colour and brightness of the fixed stars suggested to the early astrologists that the stars differed in their individual constitution. The catalogue of the Ptolemaic Stellar Chart classifies the stars in six groups according to their brilliancy. The attempt was frequently made—by Sir William Herschel among others—to erect a more precise system upon the basis of the intensity of the light radiated from the different stars, but no satisfactory result was obtained. The grouping of stars according to their colour met with more success. The early astrologists distinguished white, yellow, and red stars; in 1686 Mariotte observed blue stars for the first time; and later, in 1782, Herschel observed double stars displaying different colours. By means of the spectroscope recent researches have arrived at an explanation of the different brilliancy and colour of the fixed stars.

The sun and all fixed stars have a continuous spectrum that is interrupted by the dark lines of the vaporous substances in the photosphere; the Fraunhofer lines are absent in the spectra of planets, or bodies which have only reflected light. Angelo Secchi in his work on "the sun," in 1872, distinguished four groups according to the spectroscopical character of the stars: 1, white and blue; 2, yellow; 3, orange-coloured and red; 4, blood-red.

Secchi, Vogel, and Scheiner (1890) regard the differently coloured stars as bodies representing different phases in the cooling of nebulous masses. According to their investigations, the white and blue stars are the brightest and hottest; their temperature is so high that the gases and metallic vapours in their photosphere only exert a very slight absorptive power, and the spectra are consequently either quite simple or show extreme faint lines. The vast concourse of yellow stars are in the farthest phase of condensation, which is represented by the sun or central star of our system; their spectra exhibit numerous and powerful dark lines, indicating the presence of several of the metals in addition to gases and metallic vapours. The spectra of the red stars display broad dark streaks indicative of metallic compounds, and it is inferred that the temperature in those stars must be sufficiently reduced to allow the metallic vapours in the atmosphere to enter into various chemical combinations. The spectra of some of the