

discovered by Maraldi between 1694 and 1709, their existence is more than questionable, they can not be introduced in our present list. (Jacques Cassini, *Elémens d'Astron.*, p. 73-77; Delambre, *Hist. de l'Astr. Mod.*, t. ii., p. 780.)

(v) One hundred and seventy-eight years elapsed after the appearance of the new star in Vulpes without a similar phenomenon having occurred, although in this long interval the heavens were most carefully explored, and its stars counted, by the aid of a more diligent use of telescopes and by comparison with more correct catalogues of the stars. On the 28<sup>th</sup> of April, 1848, at Mr. Bishop's private observatory (South Villa, Regent's Park), Hind made the important discovery of a new reddish-yellow star of the fifth magnitude in Ophiuchus (R. A.  $16^{\circ} 50' 59''$ ; S. Decl.  $12^{\circ} 39' 16''$ , for 1848). In the case of no other new star have the novelty of the phenomenon and the invariability of its position been demonstrated with greater precision. At the present time (1850) it is scarcely of the eleventh magnitude, and, according to Lichtenberger's accurate observations, it will most likely soon disappear. (*Notices of the Astr. Soc.*, vol. viii., p. 146 and 155-158.)

The above list of new stars, which, within the last two thousand years, have suddenly appeared and again disappeared, is probably more complete than any before given, and may justify a few general remarks. We may distinguish three classes: new stars which suddenly shine forth, and then, after a longer or shorter time, disappear; stars whose brightness is subject to a periodical variability, which has been already determined; and stars, like  $\eta$  Argûs, which suddenly exhibit an unusual increase of brilliancy, the variations of which are still undetermined. All these phenomena are, most probably, intrinsically related to each other. The new star in Cygnus (1600), which, after its total disappearance (at least to the naked eye), again appeared and continued as a star of the sixth magnitude, leads us to infer the affinity of the two first kinds of celestial phenomena. The celebrated star discovered by Tycho Brahe in Cassiopeia in 1572 was considered, even while it was still shining, to be identical with the new star of 945 and 1264. The period of 300 years which Goodricke conjectured, has been reduced by Keill and Pigott to 150 years. The *partial* intervals of the actual phenomena, which perhaps are not very numerically accurate, amount to 319 and 308 years. Arago\* has pointed out the great improbability that Tycho Brahe's star of 1572 belongs to those which are periodically *variable*. Nothing, as yet, seems to justify us in regarding *all* new stars as variable in long periods, which from their very length have remained unknown to us. If, for instance, the self-luminosity of all the suns of the firmament is the result of an electro-mag-

\* Arago, *Annuaire pour 1842*, p. 332.