

the brighter than among the telescopic fixed stars, have led other astronomers to conjecture that the average mass of the larger number of the binary stars exceeds the mass of the Sun.* We are, however, far from having arrived at general results regarding this subject. Our Sun, according to Arge-lander, belongs, with reference to proper motion in space, to the class of rapidly-moving fixed stars.

The aspect of the starry heavens, the relative position of stars and nebulæ, the distribution of their luminous masses, the picturesque beauty, if I may so express myself, of the whole firmament, depend in the course of ages conjointly upon the proper motion of the stars and nebulæ, the translation of our solar system in space, the appearance of new stars, and the disappearance or sudden diminution in the intensity of the light of others, and, lastly and specially, on the changes which the Earth's axis experiences from the attraction of the Sun and Moon. The beautiful stars in the constellation of the Centaur and the Southern Cross will at some future time be visible in our northern latitudes, while other stars, as Sirius and the stars in the Belt of Orion, will in their turn disappear below the horizon. The places of the North Pole will successively be indicated by the stars β and α Cephei, and δ Cygni, until after a period of 12,000 years, Vega in Lyra will shine forth as the brightest of all possible pole stars. These data give us some idea of the extent of the motions which, divided into infinitely small portions of time, proceed without intermission in the great chronometer of the universe. If for a moment we could yield to the power of fancy, and imagine the acuteness of our visual organs to be made equal with the extremest bounds of telescopic vision, and bring together that which is now divided by long periods of time, the apparent rest that reigns in space would suddenly disappear. We should see the countless host of fixed stars moving in thronged groups in different directions; nebulæ wandering through space, and becoming condensed and dissolved like cosmical clouds; the veil of the Milky Way separated and broken up in many parts, and *motion* ruling supreme in every portion of the vault of heaven, even as on the Earth's surface, where we see it unfolded in the germ, the leaf, and the blossom, the organisms of the vegetable world. The celebrated Spanish botanist Cavanilles was the first who entertained the idea of "seeing grass grow," and he directed the horizontal micrometer threads of a powerfully magnifying glass at one time to

* Mädler, *Astron.*, s. 476; also in Schum., *Jahrb.*, 1839, s. 95.