

not the place to discuss the probability or improbability* of such an hypothesis. Praise is, however, due to the eminently active director of the Observatory at Dorpat for having, by his diligent labors, determined the positions and proper motions of more than 800 stars, and at the same time excited investigations which, if they do not lead to the satisfactory solution of the great problem itself, are nevertheless calculated to throw light on kindred questions of physical astronomy.

VI.

MULTIPLE OR DOUBLE STARS.—THEIR NUMBERS AND RECIPROCAL DISTANCES.—PERIOD OF REVOLUTION OF TWO SUNS ROUND A COMMON CENTER OF GRAVITY.

WHEN, in contemplating the systems of the fixed stars, we descend from hypothetical, higher, and more general considerations to those of a special and restricted nature, we enter a domain more clearly determined, and better calculated for direct observation. Among the *multiple stars*, to which belong the *binary* or *double stars*, several self-luminous cosmical bodies (suns) are connected by mutual attraction, which necessarily gives rise to motions in closed curved lines. Before actual observation had established the fact of the revolution of the double stars,† such movements in closed curves were only known to exist in our own planetary solar system. On this apparent analogy inferences were hastily drawn, which for a long time gave rise to many errors. As the term "double stars" was indiscriminately applied to every

the earth. But, according to the *Iliad*, i., v. 592, Hephæstus fell down to Lemnos in one day, "when but a little breath was still in him." The length of the chain hanging down from Olympus to the earth, by which all the gods were challenged to try and pull down Jupiter (*Iliad*, viii., v. 18), is not given. The image is not intended to convey an idea of the height of heaven, but of Jupiter's strength and omnipotence.

* Compare the doubts of Peters, in Schum., *Astr. Nachr.*, 1849, s. 661, and Sir John Herschel, in the *Outl. of Astr.*, p. 589: "In the present defective state of our knowledge respecting the proper motion of the smaller stars, we can not but regard all attempts of the kind as to a certain extent premature, though by no means to be discouraged as forerunners of something more decisive."

† Compare *Cosmos*, vol. i., p. 146-149. (Struve, *Ueber Doppelsesterne nach Dorpater Micrometer-Messungen von 1824 bis 1837*, s. 11.)