most recent gives one ninth, as the proportion of the cosmical bodies which, by an observed motion both of the primary star and the companion, are manifestly proved to be physically double stars.

Very little has as yet been numerically determined regarding the relative distribution of the binary star-systems throughout space, not only in the celestial regions, but even on the *apparent vault of heaven*. In the northern hemisphere, the double stars most frequently occur in the direction of certain constellations (Andromeda, Bootes, the Great Bear, the Lynx, and Orion). For the southern hemisphere Sir John Herschel has obtained the unexpected result, "that in the extra-tropical regions of this hemisphere the number of multiple stars is far smaller than that in the corresponding portion of the northern." And yet these beautiful southern regions have been explored, under the most favorable circumstances, by one of the most experienced of observers, with a brilliant twenty-feet reflecting telescope, which separated stars of the eighth magnitude at distances even of three quarters of a second.*

The frequent occurrence of contrasted colors constitutes an extremely remarkable peculiarity of multiple stars. Struve, in his great work† published in 1837, gave the following results with regard to the colors presented by six hundred of the brighter double stars. In 375 of these, the color of both principal star and companion was *the same and equally intense*. In 101, a mere difference of intensity could be discerned. The stars with perfectly different colors were 120 in number, or one fifth of the whole; and in the remaining four fifths the principal and companion stars were uniform in color. In nearly *one half* of these six hundred, the principal star and its companion were white. Among those of different colors, combinations of yellow with blue (as in ι Cancri), and of orange with green (as in the ternary star γ Andromedæ),‡ are of frequent occurrence.

Arago was the first to call attention to the fact that the diversity of color in the binary systems principally, or at least in very many cases, has reference to the *complementary* col-

experiments with very complicated systems have confirmed the astronomer in the hope that these estimates are mostly correct within $0''{\cdot}1$ (Struve, *über Doppelsterne nach Dorpater Beob.*, s. 29.)

* Sir John Herschel, *Observations at the Cape*, p. 166.

† Struve, *Mensuræ Microm.*, p. lxxvii. to lxxxiv.

‡ Sir John Herschel, *Outlines of Astr.*, p. 579.