already seen that in the former case the distance between the earth and sun would appear under an angle of 1″ and in the latter 0″·54, whence it is easy to conclude that the mean distances of the stars from each other, or the semi-axes of their orbits, are, in the former case about 15, and in the latter about $29\frac{2}{3}$ times that distance. The former orbit would be contained between those of Saturn and Uranus: the latter is about the size of that of Neptune.

(30.) In such orbits, then, gyrating round each other —not in the subordinate relation of sun and planet, but as compeers in dignity and on the equal footing of regal splendour; communicating to each other we know not what benefits, and bound on we know not what errand, —are these wonderful sidereal couples journeying onward through space at the respective rates of 920,000 and 2,500,000 miles *per diem* at the very least: for such would be their proper motions were we sure that *they* are not foreshortened by oblique presentation to our line of sight!

(31.) An interesting, and what to many of our readers will probably appear a very unexpected, conclusion follows from this determination of the distance of these stars, conjoined with the knowledge so obtained of the periodic times of their orbital motion. It enables us to *weigh them;* that is, to state in numbers the proportion which the total *ponderable mass* or *amount* of *gravitating matter* of the two stars of either couple bears to that of the sun, and therefore as a necessary consequence to that of our own globe, and ultimately (if we choose to luxuriate in the long array of figures in which such a calcu-