

Troisième Mémoire sur les Etoiles Doubles. Par M. Villarceau.

According to this method the five coefficients of the apparent orbit are deduced from the *apparent* co-ordinates. The mean motion and the longitude of the epoch are then obtained by means of the time and the law of the areas.

Théorie Analytique de l'Inégalité de Lumière des Etoiles Doubles.
Par M. Villarceau.

In his memoir upon double stars (*Connaissance des Temps*, 1830), Savary first drew attention to the inequality depending on the difference of the times which light occupies in passing from the two components of a double star to the earth, and he suggested the possibility of hence deducing an inferior limit of the parallax of the star. M. Villarceau having undertaken an analytical investigation of the subject, obtained four inequalities depending upon this principle. The first of these depends simply on the distance of the star from the sun; the second, on the circumstance of the star's approach to, or recess from, the sun; the third, on the proper motion of the star; and the fourth, on the relative masses of the two components. The three inequalities first mentioned are confounded with the elliptic motion of the star. The fourth, which depends on the relation between the masses of the stars, had not been hitherto recognised by any one. If this relation was known, the parallax which is involved with it in the equations of condition might hence be deduced. Since, however, this element is totally unknown, it is impossible to establish even an inferior limit of the parallax by means of such researches.

Note de M. Faye, sur une nouvelle Détermination de la Parallaxe de l'Etoile d'Argelander (1830, Groombridge). Par M. Wichmann.

(*Comptes Rendus*, Dec. 13, 1852.)

It is well known that M. Faye, by comparing the right ascension of this star with that of another small star situate nearly on the same parallel (whose parallax was supposed to be insensible), found its parallax to amount to $1''\cdot08$. Subsequently, however, M. Peters, by observations of declination, obtained a parallax of only $0''\cdot28$. M. Otto Struve, by comparing the observed declinations of the star at different seasons of the year with the corresponding declinations of two other small stars in its vicinity, found the parallax to be $0''\cdot03$; and M. Wichmann, from observations made at Königsberg with the great heliometer, deduced a parallax amounting only to $0''\cdot18$.

The observations with the Königsberg heliometer were made by comparing the star of Argelander (A) with two other small stars, a , a' , whose parallaxes were supposed to be insensible, and the