NOTE ON THE ORBIT OF THE SPECTROSCOPIC BINARY 112 HERCULIS

BY

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After publishing the results on the orbit of the spectroscopic binary 112 *Herculis* in *Lick Observatory Bulletin No. 381*, a letter was received from Dr. Frank Schlesinger, drawing my attention to the large probable errors of the elements. Upon his suggestion I recomputed the coefficients of the normal equations and in so doing discovered errors in three of the coefficients. The resulting least squares solution did not seriously affect the corrections to the elements nor to the residuals, but the probable errors were materially reduced.

The new least squares solution gave the following corrections to the preliminary elements:

$$\begin{aligned}\delta T &= +0.183 \text{ days} \\ \delta e &= +0.016 \\ \delta \omega &= +10^{\circ}53 \\ \delta K &= -0.315 \text{ km.} \\ \delta \gamma &= +0.03 \text{ km.}\end{aligned}$$

FINAL ELEMENTS

$$\begin{aligned}P &= 6.3624 \text{ days} \\ T &= \text{J.D. } 2424589.683 \pm 0.166 \\ e &= 0.116 \quad \pm 0.017 \\ \omega &= 195^{\circ}53 \quad \pm 5^{\circ}81 \\ K &= 17.68 \text{ km.} \quad \pm 0.28 \text{ km.} \\ \gamma &= -19.63 \text{ km.} \\ a \sin i &= 1,537,000 \text{ km.}\end{aligned}$$

The probable error of a Lick observation is 1.05 km. The probable error of a normal place of weight unity is 0.70 km. The sum of the squares of the weighted residuals was reduced from 14.6165 to 13.069. The maximum difference between the residuals of a normal place from the elements and the condition equations was 0.08 km.

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