K term	K (km/sec)	0 (m.e.)	-3.9 $\pm$ 1.1 (m.e.)
Sun's distance	R_0 (kpc)	11.1	11.0
Zero-point correction	ΔM (mag.)	0	0
Angular rotational	$\omega(R_0)$ (km/sec kpc)	31.2 $\pm$ 5.2	31.0 $\pm$ 5.2
velocity and its 1st	$\omega'(R_0)$ (km/sec kpc ²)	-2.54 $\pm$ 0.17	-2.57 $\pm$ 0.17
and 2nd derivatives	$\omega''(R_0)$ (km/sec kpc ³)	+0.29 $\pm$ 0.18	+0.36 $\pm$ 0.17
Oort's constant	A (km/sec kpc)	14.1 $\pm$ 1.0	14.1 $\pm$ 1.1
Solar motion	$S_\odot$ (km/sec)	19.2 $\pm$ 1.6	18.7 $\pm$ 1.5
Apex in galactic	$L^\text{II}_\odot$ (deg)	55.8 $\pm$ 5.7	59.5 $\pm$ 5.7
coordinates	$B^\text{II}_\odot$ (deg)	22.3 $\pm$ 1.9	22.9 $\pm$ 1.9

variables which have accurate photometric data and also the radial velocity and/or proper motion data were used to determine a consistent set of values concerning the galactic distance scale, the galactic rotation, and the local stellar motion.

We solve the equations which express the relations between the observed motion, the solar motion, the differential galactic rotation, the peculiar motion, and other systematic motions, under the condition that the expectation of the peculiar motions is zero. Distances of the Cepheids were calculated using the period-luminosity relation and the period-color relation recently established by Kraft (Kraft, R. P., *Astrophys. J.* **134**, 616, 1961). Thus we obtain the solar motion, the differential galactic rotation, the K term, and so on.

We tried two kinds of solutions, one of which includes K term and the other of which does not. Calculations were also made for several R_0 values, the distance of the sun from the galactic center, and for cases where the various zero-point corrections, ΔM , to the Kraft's period-luminosity relation were applied. The table shows results for cases selected from many others because of the reason that they give the AR_0 values, where A is the Oort constant, closest to 156 km/sec determined by Schmidt (Schmidt, M., *Bull. Astron. Inst. Neth.* **13**, 15, 1956) from the 21-cm radio observation. Since the photometric data of the Cepheids have been more accurately determined than their velocity data, it seems better to adopt the cases where no zero-point corrections were applied.

Variations in the Slope of the Correlation Between $\lambda 4430$ and Color Excess. E. JOSEPH WAMPLER, *Yerkes Observatory*.—An examination of $\lambda 4430$ intensities published by four different observers; Beals and Blanchet (*Monthly Notices Roy. Astron. Soc.* **98**, 398, 1938), Greenstein and Aller (*Astrophys. J.* **111**, 328, 1950), Duke (*Astrophys. J.* **113**, 100, 1951) and Miss Underhill (*Publ. Dominion Astrophys. Obs.* **10**, 201, 1955) reveals systematic variations in the slope of the correlation between $\lambda 4430$ and color excess for stars in different galactic

longitude regions. The computed probable errors are several times smaller than the deviations and this, together with the fact that the differences found from each of the four catalogues are in agreement, would indicate that the effect is real. Using narrow-band interference filters, photoelectric observations of $\lambda 4430$ were obtained for stars earlier than B2 in the regions near Cygnus and Scutum. A comparison of the relative $\lambda 4430$ intensities found for these stars indicates that for a given color excess the average $\lambda 4430$ intensity is about 40% higher for the stars in Scutum as compared to those in Cygnus. This is in agreement with the results obtained from Duke's data in these two galactic longitude regions. The observed scatter of the photoelectric $\lambda 4430$ intensities about an appropriate mean line is probably due to observational error. The variations found in the slope of the relation between $\lambda 4430$ and color excess appears to be well correlated with the variations previously found in the slope of the reddening line. This correlation is in the sense that a high value of $E(U-B)/E(B-V)$ implies a low value for $\lambda 4430/E(B-V)$. This means that for regions with large values of $E(U-B)/E(B-V)$ the interstellar dust, for a given value of $\lambda 4430$, is more efficient in extinguishing blue light as compared to visual light than it is in regions with low values of $E(U-B)/E(B-V)$.

Origin of Radio-Star Scintillations. JAMES W. WARWICK, *High Altitude Observatory*.—Radio-star scintillations arise from irregularities in the electron density of the ionosphere. Different regions of a plane-wave front impinging on the ionosphere undergo relative phase retardations and advances corresponding to the fluctuating electron density. If the fluctuations are thin, weak, and randomly distributed, the phase variations along the ionosphere may follow the same distribution as the electron density. However, a thick region of large fluctuations may produce phase variations not described well by the given function. Therefore, any direct guide that scintillations may provide towards