in the plane: $R^{-1}(\partial\Theta/\partial\theta)$, and $R^{-1}(\partial\Pi/\partial\theta)$. From the recent catalogue of radial velocities and proper motions of O-B5 stars within 2 kpc of the sun (Rubin *et al.*, *Astron. J.* **67**, 491, 1962) the following values are computed assuming circular symmetry.

A (560 stars)		B (396 stars)	
$+14.5 \pm 1.3$ (m.e.)		-8.5 ± 2.5	
Θ/R	$\partial\Theta/\partial R$	Π/R	$\partial\Pi/\partial R$
23 ± 3	-6 ± 3	-2 ± 1	-2 ± 1 km sec $^{-1}$ kpc $^{-1}$

The value of B is computed with proper motions on a mean N30-FK4 system; the same proper motions on the N30 system give $B = -7.4 \pm 2.8$ km sec $^{-1}$ kpc $^{-1}$. From these results there is evidence that the entire region studied has a component of velocity toward the center of the galaxy, with $\Pi \sim -20$ km/sec at $R = 10$ kpc. This motion is not interpreted as a large-scale galactic contraction, but points to a small departure from circular motion for this region.

If circular symmetry is not assumed, the above interpretation could be considerably altered. It is shown in the analysis that while an asymmetry in Θ could produce the K term observed in the radial velocities, no asymmetry is found in the circular velocity component of the O-B5 stars.

From other recent kinematic studies (Takase, *Astron. J.* **68**, 80, 1963; Kraft and Schmidt, *Astrophys. J.* **137**, 249, 1963), results similar to those above can be inferred.

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16-inch Coronagraph at Climax. JOSEPH H. RUSH, *High Altitude Observatory* AND GEORGE K. SCHNABLE, *Tropel, Inc.*—An achromatic coronagraph telescope of 16-inch aperture has been installed at the Climax station of the High Altitude Observatory. The instrument is designed for maximum flexibility in pursuing specialized observational problems. Its facilities include automatic linear and raster scans over small regions, and provision for occulting at any wavelength in the photographic spectrum. The disk may also be observed without occulting.

The optical train is an adaptation of Schupmann's catadioptric system (Baker, J. G., *Astron. J.* **59**, 74, 1954) in which a Mangin mirror corrects the chromatic aberration of a simple objective and, in this case, a third imaging element also. A coude system delivers a 3.8-inch solar image, which will be accessible to a high-resolution spectrograph, $H\alpha$ camera, magnetograph, and other accessory instruments. Tests of image resolution have shown a capability approaching the ideal expectation of approximately 0.3 in the visible. Instrumental background adjacent to the occulted limb is approximately 30 millionths of photospheric brightness.

The development of the coronagraph was supported by the Max C. Fleischmann Foundation of Nevada and the Institute for Solar-Terrestrial Research.

Two-Body Motion with Mass Loss. M. P. SAVEDOFF AND S. VILA, *University of Rochester*.—The problem of two bodies with variable mass has been suggested by problems of stellar evolution with mass loss. An identical problem with G variable arises in some cosmological speculations. For $GM = (a + bt)^{-1}$, an exact solution has been found by Mestchersky. For $GM = a + bt$, some cases are calculated by Boersma (*Bull. Astron. Inst. Neth.* No. 505). We have found, for Boersma's case, an analytic solution valid for small departures from circular motion with $r_0 \propto (GM)^{-1}$. The solution is expressible in Bessel functions of order $\pm 1/6$ and certain related integrals. Comparison with Boersma's direct integrations are given. The approximation seems adequate for eccentricity $e < 0.3$ and allows estimate of the breakdown of the adiabatic approximation $GMa = \text{const}$. In both cases, in the limit as $b \rightarrow 0$, the adiabatic result is confirmed.

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Image Analyses of Some Prime Focus Field Correctors. D. H. SCHULTE, *Kitt Peak National Observatory*.—A number of F. E. Ross's original designs for prime-focus field correctors have been obtained and spot diagrams showing their theoretical performance have been made, using the Kitt Peak computing equipment. Some of C. G. Wynne's designs for the Isaac Newton telescope field correctors are presented in similar fashion as well as some of Dr. Wynne's recent improvements on the Ross designs. Finally, as a status report on the Kitt Peak 150-inch optical studies, several designs by the author, using aspheric surfaces, will be described, which yield seeing-limited images over a 30' or more diameter field at $f/2.8$.

Correlations between Large-Scale Photospheric and Chromospheric Motions, Ca II (K) Emission, and Magnetic Fields. GEORGE W. SIMON AND ROBERT B. LEIGHTON, *California Institute of Technology*.—As previously reported (Leighton, R. *Nuovo Cimento Suppl.* **22**, 321, 1961; Leighton, R., Noyes, R., and Simon, G. *Astrophys. J.* **135**, 474, 1962), large-scale, principally horizontal, motions have been observed in the solar photosphere. These motions have a cellular appearance, and the flow proceeds from the center of each "cell" toward the