	V451 Cyg	V805 Aql
m_1	2.38 $\odot$	1.85 $\odot$
m_2	1.98 $\odot$	1.50 $\odot$
r_1	2.51 $\odot$	2.16 $\odot$
r_2	2.01 $\odot$	1.84 $\odot$
M_1	+0.5	+1.2
M_2	+1.3	+2.2
Te_2	9800°	8000°

These masses and luminosities when plotted as points on Plaut's (1953) mass-luminosity diagram lie close to the median of his points.

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Herzberg, Luise. Evidence for term-dependent wave-length displacements of solar absorption lines.

The limb-center displacements ("limb shift") of a group of infrared solar absorption lines has been measured to provide additional material for the clarification of the various processes causing the wave-length displacement generally observed in the solar spectrum. Observations at long wave lengths should be favorable for the purpose because, while the gravitational redshift, Doppler shifts due to motions in the solar atmosphere, etc., will increase proportionally to λ , the term-dependent contributions to the total line shifts will, as a whole, go up with λ^2 .

The results of the measurements on the limb-center displacements ($\lambda_L - \lambda_C$) are presented below, together with the differences ($\lambda_\odot - \lambda_{lab}$) computed from material in the literature (Moore 1945, Babcock and Moore 1947) between the wave lengths measured at the center of the solar disk and in a terrestrial vacuum source. All numbers are in angstrom units.

Transition	$\lambda_\odot$	$\lambda_L - \lambda_C$	$\lambda_\odot - \lambda_{lab}$
$4p^3D - 4d^3F^0$	10694.25	+0.009 $\pm$ 0.001 $_6$	+0.11
	689.71	+0.008 $\pm$ 0.001 $_6$	+0.19
	727.42	+0.013 $\pm$ 0.001 $_5$	+0.21
$4s^3P^0 - 4p^3P$	749.39	+0.005 $\pm$ 0.001 $_9$	-0.01
	786.85	+0.004 $\pm$ 0.001 $_4$	-0.01
	827.14	+0.003 $\pm$ 0.002 $_1$	+0.05

The lines studied belong to the same element, silicon, and have approximately the same excitation potentials, wave lengths and intensities; that is, they differ from each other essentially only with respect to the electronic terms involved. As the table shows, there is considerable

similarity in the wave-length displacements, both ($\lambda_L - \lambda_C$) and ($\lambda_\odot - \lambda_{lab}$) within each group of three lines belonging to the same electronic transition. On the other hand, going from the ($4s^3P^0 - 4p^3P$) to the ($4p^3D - 4d^3F^0$) multiplet, the average limb-center displacement ($\lambda_L - \lambda_C$) increases by a factor 2, the average absolute displacement ($\lambda_\odot - \lambda_{lab}$) by a factor 5 or 10. The contrast in the behaviour of the two multiplets definitely suggests the presence of a term-dependent component in the wave-length displacements, and shows that at least one of the electronic terms involved is probably perturbed under the conditions prevailing in the solar atmosphere.

Though it is, of course, impossible, on the basis of the present observational material to separate the components of the displacements which are produced by external perturbations from those due to other causes, it can be stated that the large absolute displacement ($\lambda_\odot - \lambda_{lab}$) of the ($4p^3D - 4d^3F^0$) multiplet is probably almost entirely due to perturbation, because it is about 10 times as large as the value which is derived by linear extrapolation from the results obtained at shorter wave-lengths.

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Ottawa, Canada.

Hosfeld, Roger. The velocity of stellar shadow-band patterns.

Systematic study of the illumination patterns of starlight incident upon a telescope objective date back to the beginning of the present century. Within the last few years interest in this phenomenon has revived because of the possibility of using starlight as an optical probe of the earth's atmosphere.

One of the most frequently observed starlight patterns appears composed of rapidly fluctuating streaks and bands. Direct determination of the pattern velocity by frame to frame examination of motion pictures of the Perkins 69-inch objective was not successful because rapid changes in the pattern mask the similarities, even at 64 frames per second. However, when the images of the objective were displaced during the exposures by rocking the camera back and forth, the bands became inclined with respect to their undisturbed orientation, the angle of inclination depending upon the velocity of the objective image across the emulsion relative to the velocity of the pat-