interactions form a sequence intermediate between normal spirals and highly flattened objects of type So.

*David Dunlap Observatory
Richmond Hill, Ontario, Canada*

Van Herk, G. *Expanding motions in N30.*

The N30 proper motions in declination for the eight stars of spectral class A in the Lacerta region show a change with declination amounting to $+3.6 \pm 0.6$ (*p.e.*) in units of $0''.001$ per year per degree declination. This is several times the rate of expansion of $+0.86$ found by Blaauw and W. W. Morgan (1953) for the B stars in this region. These expansions could be catalogue effects. The stars in the zone $+36^\circ.5$ to $+52^\circ.5$ show the expansion rates given in the second column of the table below. As a check, the stars between $+0^\circ.0$ and $+15^\circ.0$ were treated in the same manner, and their rates of expansion are entered in the fifth column of the table.

Sp.	Rate	<i>n</i>	Rate	<i>n</i>
A	+0.67	95	+0.82	135
F	+0.92	46	+0.53	99
G	+0.54	35	-0.77	67
K & M	+0.40	116	-0.12	210
Mean	$+0.63 \pm 0.08$		$+0.12$	

The motions were corrected for the effect of solar motion before the rates were computed. The parallaxes were taken from *Ap. J.* **116**, 123, 1952, or *Ap. J.* **81**, 187, 1935, or estimated from the apparent visual magnitudes and the spectral classification, the latter being taken from *Mt. Wilson Obs. Papers* **8**, 1953 or from the Harvard classification. In cases of doubt the decision was based on an empirical relation between apparent proper motion and parallax. All proper motions exceeding $0''.075$ were excluded. As the boundaries of the first-mentioned zone lie close to the zenith of Washington and the average zenith of the European meridian circles, it is possible that discontinuities in meridian circle declinations near the zenith are responsible for the expansions in this zone which are absent from the lower zone. This would explain the criticism of Woolley and Eggen (1958) of Blaauw and Morgan's expansion.

REFERENCES

- Blaauw, A. and Morgan, W. W. 1953, *Ap. J.* **117**, 256.
Woolley, R. v. d. Riet and Eggen, O. J. 1958, *Observatory* **78**, 149.

*U. S. Naval Observatory
Washington, D. C.*

Violet, T. and Rense, W. A. *Far ultraviolet spectrum of the Sun.*

Solar ultraviolet spectrograms were obtained from Aerobee-Hi rocket flights on 4 June, 1958 and 30 March, 1959. In each case the instrument was a grazing-incidence grating spectrograph whose speed was increased by a suitably designed toroidal mirror placed in front of the slit at grazing incidence. The instruments were pointed at the sun by a biaxial pointing control. Zenith heights attained by the rockets were 220 km and 204 km, respectively. About 150 emission lines in the range $84\text{--}1216\text{\AA}$ were found to appear on spectrograms from both flights. About 200 other possible lines were present.

The wave lengths of the lines have been measured in most cases to within an accuracy of $0.5\text{\AA}$. Rough visual estimates of the relative intensities of the lines were made, along with a quantitative estimate of the intensity of the $304\text{\AA}$ HeII resonance line for several altitudes of the rockets. The HeII line was by far the most intense line other than $H\text{L}\alpha$, and possibly could be more intense than the latter outside the earth's atmosphere.

Identification of about 60 lines was made. The neutral and ionized atoms, *H*, *He*, *O*, *C*, *N*, and *Si*, dominate. The *OVI* line at $150\text{\AA}$ was present. A rather intense line at $84\text{\AA}$ possibly could be due to *NeVIII*. The high intensity of the scattered light background prevented the detection of any continuum in this region. A program for the systematic identification of the remaining lines has been launched.

The research reported in this paper has been sponsored by the Geophysics Research Directorate of the Air Force Cambridge Research Center, Air Research and Development Command.

*Physics Department
University of Colorado
Boulder, Colo.*

Wentzel, Donat G. *Equilibria of magnetic stars.*

A variational method has recently been developed by Chandrasekhar which permits the calculation of equilibrium configurations of magnetic stars. The magnetic and velocity fields and also the shape of the boundary surface may be evaluated even when the magnetic and kinetic energies are comparable to the gravitational potential energy of the star. The theory is restricted to an infinitely conducting fluid of uniform