The forbidden $Fe\ II$ emission shows no conspicuous variations in either intensity or velocity throughout the orbital cycle. The mean velocity, on the basis of 83 plates, of the $[Fe\ II]$ lines in the blue region is $+34$ km/sec with a scatter of about 15 km/sec. This value is remarkably close to the center of mass velocity of the system.

Both the permitted $Fe\ II$ and hydrogen emission lines vary considerably in intensity. They are present with great strength for about one third of the orbit, reaching maximum intensity near the time of periastron passage. Small intensity variations may occur in less than a year.

Like VV Cephei, the hydrogen lines usually show a reversed P Cygni profile. In VV Cephei, however, the hydrogen emission lines disappear as the B star is eclipsed by the supergiant M star. In striking contrast to that conclusion we find in Boss 1985 that the hydrogen and $Fe\ II$ emission lines are exceedingly strong at the time when the B star is most distant, this is, at the time when an eclipse would occur if the inclination were suitable.

An ultraviolet shell-like absorption spectrum was noted by McLaughlin, Swings, and others between 1947 and 1949. Although it appeared at approximately the phase one would expect if it were due to an atmospheric eclipse of the B star by the M star (like that of VV Cephei) its interpretation is ambiguous, since this time closely coincides with the periastron passage of the stars in their quite eccentric orbits. Thus the shell spectrum may be associated with the close approach of the two stars. The shell spectrum appears to be weaker than that of VV Cephei.

A New Solar Curve of Growth. CHARLES R. COWLEY AND ANNE PYNE COWLEY, *Yerkes Observatory*.—A solar curve of growth has been assembled using photoelectrically determined equivalent widths obtained at the McMath-Hulbert Observatory. Six hundred and twelve lines of neutral Ca , Fe , Ti , V , Cr , Mn , and Co were used. Exclusive use has been made of the relative f values obtained by Corliss and Bozman. The new system of f values made it possible to treat lines of more elements over a wider range of excitation than earlier workers used. An excitation temperature of $T_{ex}=5143^\circ K$ was found to be most appropriate to our data.

The lines of chromium cover almost the full extent of the curve of growth, thus minimizing considerably the uncertainty sometimes met in fitting together the Doppler and damping portions of the curve of growth. The theoretical curves which agree most closely with the new empirical one are those given by van de Held. A comparison

of the empirical and theoretical curves of growth yields a turbulent velocity of 1.4 km/sec and a ratio of the observed to the classical damping constant of ~ 25 for $\lambda 5000$.

Color Photometry of Selected Lunar Features.

GEORGE V. COYNE, S.J., *Woodstock College*.—From observations obtained during the summer of 1963 and the winter of 1963–64 colors in the $B-V$ system for 36 areas on the moon have been determined with respect to a standard area in Mare Serenitatis. The colors are given by the relationship $\Delta(B-V) = (B-V) - (B-V)_0$, where $(B-V)_0$ is the color observed for the standard area. Each observation consists of five to ten alternate deflections in the two colors. The standard area was tied into the $(B-V)$ system on five nights, giving a value $(B-V)_0 = +0^m885 \pm 0^m008$. For the same area van den Bergh (*Astron. J.* 67, 147, 1962) obtained a value of $+0^m876 \pm 0^m022$.

The main purpose of the present investigation was to determine whether there exists any dependence of the lunar colors on phase angle. The observations range in phase angle from -19° to $+75^\circ$. A comparison for each area of the residuals $r = \Delta(B-V) - \Delta\langle(B-V)\rangle$ versus phase angle shows that there is no such dependence. A composite plot of the residuals for all areas versus phase angle indicates the same conclusion, though, for the summer observations, negative residuals predominate at phase angles greater than $+30^\circ$.

The colors for six areas observed by van den Bergh agree substantially with his results. In particular, an abnormally large blue color [$\Delta(B-V) = -0^m051 \pm 0^m005$] for the dark area north of Schröter is substantiated. Previous results from spectral scans at the Cassegrain scanner of the Mt. Wilson 60-in. telescope (Murray and Liu, *Annual Report*, NSG 56-60, 1960) indicate no difference in color for areas observed at the edge and the center of Mare Serenitatis. The present results show a difference, however, for four such areas observed. In particular, the color contrast between Le Monnier and an area east of it, for which no color difference was found by Murray and Liu, shows a contrast of 0^m047 , Le Monnier being bluer.

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Observations of Lunar Thermal Emission at 3.75 cm. DAVID D. CUDABACK, *University of California, Berkeley*.—Variation of radio brightness over the surface of the moon has been measured at the Hat Creek Radio Observatory at 3.75 cm, using