tact binary, component A having masses close to one solar mass, and an orbital inclination close to 90° . Component B, having less inclination in all probability, and more serious spectral blending, appears to have a smaller range in velocity; the data do not permit a resolution of the masses separately. While the A-B system is undoubtedly physical because of common proper motion, the spectroscopic results show a difference of $59 (\pm 22)$ km/sec in center-of-mass velocities. This serious discrepancy is doubtless indicative of strong systematic effects in the apparent radial velocities.

The B magnitudes at maxima are about 8.4 and 9.2 and suggest a distance to the system of the order of 60 pc, a separation of the order of 1000 a.u. and a period of the order of 10 000 yr.

Light Echoes from Ancient Supernovae. SIDNEY VAN DEN BERGH, *David Dunlap Observatory*.—Nova Persei, which attained $M_{pg} = -8.7$ at maximum light, was observed to illuminate the interstellar clouds in its vicinity for 20 months. A typical supernova is about 10 000 times as bright as nova Persei at maximum light. It might therefore be expected to produce light echoes which could remain visible for 2000 months = 167 yr. There are three reasons why this value probably represents an underestimate. (1) Fast modern Schmidt telescopes could observe fainter nebulosity than was the case at the turn of the century. (2) Typical supernovae remain near maximum light longer than did nova Persei and therefore produce light echoes of higher surface brightness. (3) The surface area illuminated by a supernova after n centuries is much larger than that illuminated by a common nova after n years. It is therefore much more probable that the ellipsoid of revolution, from which supernova light echoes could originate, will in fact intersect a dense interstellar cloud.

Calculations show that light echoes from Tycho's and Kepler's supernovae might still be observable at the present time. Light echoes from the supernova of 1054, which produced the Crab Nebula, would be exceedingly faint and dispersed over a large area of the sky. Detection of light echoes from Cas A is improbable because of strong interstellar absorption.

On the Spectra of Three Bright Southern Stars. WILLIAM P. BIDELMAN, *University of Michigan Observatory*.—Several years ago HR 5378 = HD 125823, a member of the Scorpio–Centaurus cluster, was found to exhibit conspicuous variation in helium-line strength on Lick Chile spectrograms. This variation has been recently confirmed on two 16 Å/mm

plates obtained for the writer by Dr. G. H. Herbig with the 120-in. reflector: on one plate the He lines, especially $\lambda 4121$ and $\lambda 3867$, are considerably weaker than on another taken the following night, while lines of N II are considerably stronger. There is little difference in radial velocity between the two plates. This object, classified B3 V by Bertiau, does not appear to have any other spectroscopic peculiarities, but has been found to be slightly variable in light by Cousins and Stoy (*Royal Obs. Bull.* No. 64, 1963).

Another member of the Scorpio–Centaurus cluster, HR 5780 = HD 138764, shows asymmetrical Si II lines on a 2 Å/mm spectrogram taken at Lick Observatory on 1 July 1960. This object has previously been shown to be a spectroscopic binary by Buscombe and Morris (*Monthly Notices Roy. Astron. Soc.* 121, 263, 1960).

Recent identification of lines measured by Padlock in the spectrum of 41 ν^4 Eridani (*Lick Obs. Bull.* 8, 168, 1915) shows that this bright double-lined spectroscopic binary ($P = 5.0$ days) is a Mn star, though it has not generally been considered to be so.

Ultraviolet Observations of Stars. R. C. BLESS, A. D. CODE, T. E. HOUCK, J. F. McNALL, AND D. J. TAYLOR, *Washburn Observatory*.—The brightnesses of approximately 100 stars have been observed in spectral bands centered at 2800, 2500, and 2100 Å by 2-in.-aperture photoelectric photometers carried to a peak altitude of 98 miles by an Aerobee 150 A rocket. This rocket was launched during the night of 2 September 1964 from the Wallops Island, Virginia, station of NASA. Eight photoelectric photometers were flown, two identical sets of four filter-photometer combinations, three of which were sensitive to the ultraviolet regions given above while the fourth was sensitive to the blue. The ultraviolet bands were isolated by five-layer Al-MgF₂ interference filters and had a half-intensity width of about 400 Å. O- and B-type stars as faint as 5 mag. were observed along with 3 mag. later-type stars and Saturn. Model atmospheres appropriate to several of the B- and A-type stars were fitted in the visual region of the spectrum. The measured ultraviolet fluxes of these stars agreed with the models to within $\pm 0^m.5$.

Prediction of Solar Flares Months in Advance. J. B. BLIZARD (introduced by John P. Cox), *The University of Denver*.—A theory of solar flares is postulated due to magnetohydrodynamic waves rising from the convective zone in the subphotosphere.