03.04.06 UV Observations of the Helium-Weak Star HD 21699. A. D. MALLAMA AND M. R. MOLNAR, U. Toledo - OAO-2 broadband photometry covering the spectral region 1910Å to 4250Å indicate that the helium-weak star HD 21699 is an UV photometric variable. The UBV observations of Winzer (A.J., 79, 45, 1974) found a period of $2^d.4761$ (or $1^d.9678$ for the one-day resonance). If this period is altered slightly to $2^d.4928$ (or $1^d.6857$) which is within observational error, our few observations at 3320Å and 4250Å fit well the U and B light curves, respectively. The amplitudes of the UV light curves are about $0^m.04$; however, there are no apparent variations at 1910Å. This effect appears to be analogous to the UV behavior of Ap variables which show spectral regions with no photometric variations. These "null points" have been found at 2960Å for α^2 CVn (Molnar, M. R., 1973, Ap.J., 179, 527), at 3320Å for ε UMa (Molnar, M. R., 1973 B.A.A.S., 5, 325) and at 2460Å for HD 215441 (Leckrone, D. S., 1974, Ap.J., 190, in press). The photometric variations shortward of the null point are in antiphase to the longward regions. However, we do not have photometry for HD 21699 shortward of 1910Å to ascertain whether this UV region varies oppositely to the region of longward of 1910Å

We also have some coudé plates at 8.9Å/mm which show radial velocity variations of Si II λλ3856, 3862, and 4128 with a minimum amplitude of 13 km/s relative to Mg II λ4481 and the interstellar Ca II K-line. Thus, HD 21699 appears similar to the Ap silicon stars.

Possible models will be discussed to explain these observations.

03.05.06 Far Ultraviolet Spectrum of UW Canis Majoris Observed from Copernicus. G. E. McCluskey, Jr., Lehigh Univ., Y. Kondo, Johnson Space Center & Univ. of Okla., and D.C. Morton, Princeton Univ. - The ultraviolet spectrum of the eclipsing binary UW C Ma (O7f + O - B ?) has been obtained with the Princeton Telescope Spectrometer on Copernicus in the wavelength range about 950-1400Å at a resolution of 0.2Å. A number of stellar and interstellar lines appear in the spectrum. Lines showing P-Cygni characteristics have been observed: C III (977, 1175Å), S IV (1062, 1072Å), P V (1117Å), Fe III + Si IV ? (1122Å), P V + Si IV ? (1128Å), N V (1238, 1242Å), and Si IV (1393, 1403Å). The centers of the absorption components of the P-Cygni lines yield radial velocities of from -200 to -800 Km/S while the peaks of the emission components are shifted by +400 to +800 Km/S. These velocities are significantly larger than the orbital velocities of about 200 Km/S and indicate that gas motions in the system are occurring. A few photospheric absorption lines from the O7f component are present: N III (1006, 1183, 1184Å) and possibly He II (1084Å). Combining the analysis of the far ultraviolet spectrum with earlier ground-based spectroscopic and photometric investigations, a preliminary interpretation of the evolution of this system is discussed.

03.06.05 Skylab S019 Ultraviolet Spectrograph Results: Intermediate Progress Report. J.D. WRAY, G.F.BENEDICT, K.G. HENIZE, & S.B. PARSONS, Univ. of Texas - Intermediate dispersion spectra obtained with the S019 objective prism spectrograph in the 1300 to 2500Å region are presented with results derived to date. Qualitative dependence of Si IV (1394, 1403Å) and C IV (1549Å) strengths on temperature and luminosity are presented. The P Cygni phenomenon frequently present in the C IV line is found to increase with both temperature and luminosity, being present in very hot main-sequence stars (HR 6187, O6.5 V) as well as relatively cooler supergiants (ρ Leo, B1 Ib). This work is being supported by NASA under contract NAS9-13176.

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04.01.10 The Rate of Change of G as Determined from Lunar Occultations. T. C. Van Flandern, U.S. Naval Obs. An analysis of lunar occultation data covering the nineteen years for which atomic time has been available, and utilizing a numerically-integrated lunar ephemeris, has indicated a total lunar deceleration nearly twice as large as the lunar tidal deceleration. Because of the methods used to determine the tidal component, this result implies decreases in the mean motions of the Sun and Moon by the same proportional amount. Such changes are most readily interpreted as due to a changing value for the Universal Gravi-