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Red-Leak Corrections in Ultraviolet Photometry. CHENG-YUAN SHAO AND ANDREW T. YOUNG, *Harvard College Observatory, Cambridge, Massachusetts*.—Nearly 100 measurements of the red leak in the U band (Corning filter 9863) of the U,B,V system were made during 1964–1965 at Harvard's Agassiz Station for many standard stars from O9V to M2Ia. We used a 24-in. reflector together with an uncooled RCA 1P21 photomultiplier and standard filters [Johnson, H. L., *Basic Astronomical Data*, edited by K. Aa. Strand (The University of Chicago Press, Chicago, Illinois, 1963), p. 204].

Our red-leak corrections, which are very similar to those found by Argue at Kitt Peak (*Monthly Notices Roy. Astron. Soc.* **125**, 557, 1963), are 0.01 mag. at spectral type G5V, 0.1 mag. at K3III, and about 1.0 mag. at M2Ia.

An analytic representation of the correction is developed, accurate to 0.01 mag. for all stars with $B-V \lesssim 1.7$. The correction values for stars of greater $B-V$ color show considerable dispersion, and individual corrections must be obtained for each ultraviolet observation. Errors in U,B,V photometry which can be caused by inadequate correction of the red-leak effect are discussed.

Application of High-Resolution Lunar Radar Range Measurements. ALLAN SHAPIRO AND BENJAMIN S. YAPLEE, *E. O. Hulburt Center for Space Research*.—Accurate radar distance measurements to the lunar surface provide means for determining certain constants of lunar orbital theory and the lunar radar topography. The present uncertainty of the lunar radius and the velocity of light limit the accuracy of the radar derived constants to that obtained from other methods. In principle, a correction to the lunar radius can be derived from accurate long term radar observations. The accuracy of the radar topography does not depend on the lunar radius nor the velocity of light but only on the number of observations in a given area. Preliminary results are presented.

Population Differences among Bright G Dwarfs and Ca II Emission Reversals. A SKUMANICH, *High Altitude Observatory*.—The suggestion by O. C. Wilson that the strength of Ca II emission reversals in main sequence stars decreases with increasing age (Wilson, O. C., *Astrophys. J.*

138, 832, 1963; Wilson, O. C., and Skumanich, A., *Astrophys. J.* **140**, 1401, 1964) would imply the existence of kinematic and hence population differences among stars segregated by the presence or absence of Ca II reversals. This criterion for population discrimination has already been observed in M dwarfs with dMe stars characterized by smaller than average peculiar motions (Vyssotsky, A. N., and Dyer, E. R., Jr., *Astrophys. J.* **125**, 832, 1957).

It is found in this paper that dG stars with Ca II emission are also characterized by small peculiar motions in contradistinction to dG stars whose spectra are known to be free of any emission. In particular, 47 emission stars are found to have a dispersion in peculiar radial velocities of 18 km/sec as opposed to 29 km/sec for 106 nonemission stars. Furthermore, for 40 emission stars with known space motions, the vertex of the distribution of motions in the galactic plane deviates by some 23° from the direction to the galactic center, while no such deviation appears in the distribution for 95 zero-emission stars. It is also found that stars with strong reversals are characterized by the smallest peculiar motions.

The above findings indicate that bright dG stars with Ca II emission belong to the population subgroup previously designated as population A among the fainter G dwarfs and the bright K giant stars (Vyssotsky, A. N., and Skumanich, A., *Astron. J.* **58**, 96, 1953). Thus one may conclude that the existence of a population difference corroborates the Ca II intensity-age relationship.

A similar analysis for K giants indicates that Ca II emission is not a population indicator and hence is not age-correlated.

Radio Propagation Measurements of the Earth's Magnetospheric Wake. STAFF, *Center for Radar Astronomy, Stanford University and the Stanford Research Institute*. (Read by von R. Eshleman.)—Simultaneous radar echoes from the moon at 25 and 50 Mc/sec have been used to obtain differential group delay and dispersive Doppler measurements of the cislunar medium. For a single 2.5-sec echo, the accuracy of these two measurements is about 5 μ sec and 0.1 cps, corresponding to an uncertainty of $\pm 10^{16}$ m $^{-2}$ and $\pm 10^{13}$ m $^{-2}$ sec $^{-1}$ for the columnar electron density between the earth and the moon, and its time rate of change. Faraday polarization measurements are also used to subtract the near-earth ionospheric effects from the totals so as to obtain information about the magnetosphere, the magnetospheric wake, and the interplanetary medium between the earth and the moon. It appears that while the interplanetary density is quite low by comparison, the electron density in the magnetospheric wake of the earth is on the order of 200 cm $^{-3}$. It also