a maximum corresponding to the observational error followed by a slower and irregular decline at higher values. One can deduce from the frequency curves the percentage of stars of variable velocity, assuming that the observational errors are distributed normally. Five homogeneous samples have been investigated as follows: 489 B stars observed at Victoria, with single-prism dispersion; 510 A stars observed at Victoria with single-prism dispersion; 237 G stars, 373 K stars, and 150 M stars, all observed at Mount Hamilton with three-prism dispersion. The percentage of variable velocity stars and the average probable error of one plate are as follows:

Stars	Variable velocity	Probable error
B	49%	± 4.5 km/sec
A	55%	± 1.8 and ± 3.8 km/sec
G	50%	± 0.5 km/sec
K	50%	± 0.5 km/sec
M	59%	± 0.5 km/sec

Thus approximately one-half of the stars measured for radial velocity appear to be variable and are, presumably, mainly double stars.

On the Recession of Stellar Associations from the Galactic Center. PARIS PISMIS, *Tacubaya and Tonantzintla Observatories, Mexico*.—The radial velocities of the stellar associations listed by Morgan *et al.*, are analysed. Of the 27 associations only 23 are considered for which sufficient data on the radial velocities are available (from Wilson's Catalogue). After the effects of the local solar motion and of galactic rotation—the latter with the exact formula and the Camm function—are eliminated, the residuals show a systematic tendency to be negative in the hemisphere towards the galactic center and positive away from the center. It is shown that these residuals can be interpreted as the radial components of an expanding motion of the associations; hence the conclusion, that the spiral arms in the solar neighborhood are receding from the galactic center at the rate of 4 km/sec, with respect to the sun. It is possible that this velocity is the vestige of the rather high expansion velocity that the primeval neutral hydrogen arm may have had, similar to the expansion velocity observed by the Dutch astronomers at 3 km/sec from the galactic center. This work will be published in detail in "Boletín de los Observatorios Tonantzintla y Tacubaya No. 19"

The Profile of Solar Lyman-Alpha. J. D. PURCELL AND R. TOUSEY, *U. S. Naval Research Laboratory*.—During the flight of an Aerobee-HI rocket on July 21, 1959 nine solar exposures were made showing the profile of the Lyman-alpha line of hydrogen. Mean altitudes ranged from 92 to 195 km. The dispersion and resolving power of the spectrograph were 2.6 mm/A and 40 000, respectively. Because the spectrograph was stigmatic and pointing was maintained with considerable accuracy, profiles were obtained for several different regions of the sun. The profile shows significant differences between plage areas, inactive regions, and areas near the limb. The width of the emission line at half-maximum is of the order of 1 Å and the wings extend to at least 1 Å on either side. There is a broad central reversal, with an optical depth of 0.1 to 0.5, producing two maxima, separated by 0.35 to 0.5 Å. The maximum on the long wavelength side is usually but not always the less high. The emission line at half-maximum is usually Doppler shifted about 0.025 Å to short wavelengths but one plage region shows a shift to long wavelengths. In addition there is a deep and narrow absorption which is believed to be produced by neutral hydrogen between the earth and the sun. It is assumed that this core is not appreciably Doppler shifted, and can be used as a wavelength standard. The optical depth at the center is of the order of $\frac{1}{2}$ and the half-width is 0.05 Å, uncorrected for instrumental broadening.

The Spectrum of Venus. E. H. RICHARDSON (introduced by ROBERT M. PETRIE), *Dominion Astrophysical Observatory*.—Spectra of Venus and the moon have been compared from 3150 to 4500 Å and from 4850 to 6400 Å. The spectrograph used was a Littrow grating instrument with a dispersion of 16 Å/mm. The absorption bands reported by Kozyrev at 4120 Å and at 4372 Å are not present on the Victoria plates.

Applications of Interferometry to Astronomy. JAMES B. SAUNDERS (introduced by HARRIET H. MALITSON), *National Bureau of Standards, Washington, D. C.*—An interferometer for measuring the aberrations of telescope objectives of all sizes and types has been developed and tested. It is quite applicable to the testing of astronomical refractors and reflectors in situ, concave mirrors (spherical or aspherical), and camera objectives. To test an astronomical objective the eyepiece of the telescope is replaced with a modified Köster's double image prism and the telescope is directed toward a bright star. Two symmetrically located pairs of coherent light beams emerge from the prism, one of which is received by a camera and the other by the operator's eye for maintaining adjustments of the interference fringes. The width of the fringes may have any chosen value and the contrast in the neighborhood of the zero-order fringe approaches infinity. Due to polarization effects in the prism, two quarter wave plates are used with it for obtaining best contrast in the fringe pattern. Other important applications of this interferometer are: (1) the measurement of the angular separation of binary stars, (2) the study of the turbidity of the atmosphere through which light travels to a telescope, and (3) the automatic control of telescope pointing, in combination with photoelectric cells.

Emission Cores in the Ca II Lines in Plages. ELSKE V. P. SMITH, *Sacramento Peak Observatory*.—Observations of the Ca II H and K lines in plages were undertaken to investigate some of the observed characteristics of the emission cores, specifically (a) the intensities of the emission, H₂ and K₂, (b) the intensities of the central absorption, H₃ and K₃, and (c) the intensities of the H₁ and K₁ absorption, (d) the emission line widths, and (e) the separation of the emission peaks. The behavior of these parameters in the H-line closely parallels those in the K-line. Similarly, there exists a very high correlation between the K₂ and K₃ intensities. A range of a factor three in the emission-line width occurs on the sun between such different features as sunspots on the disk and plages near the limb. The relevance to the Wilson and Bappu (1957) effect will be discussed. The separation of the emission peaks is not uniquely related to the width and, in fact, behaves differently in certain respects. Whereas the emission-line width in plages exceeds that of the neighboring quiet disk, the separation is less in plages than on the normal disk. The separation is inversely proportional to the intensity of either K₃ or K₂. The width behaves in a more complex fashion. We question the validity of using velocity units for either width or separation since the difference between the H and K lines is not consistent with Doppler displacement. The intensity of the K₁ absorption just beyond the emission core depends somewhat on the intensity of the emission, though the variation within a single plage and from plage to plage is very much less. This fact, as well as the center-to-limb variations of their emission profiles, suggests that plages are restricted to a thin layer in the chromosphere with little effect on the temperature structure of the underlying photosphere.

A Search for Possible White Dwarfs in the Coma Berenices Galactic Cluster. C. B. STEPHENSON, *Warner and Swasey Observatory*.—The region of the Coma Berenices galactic cluster has been searched for stars having ultraviolet excesses such as should characterize typical white dwarfs, using Case Schmidt plates and the three-image method first utilized at Tonantzintla. The method has in fact been applied at