prominences, the gravitational forces upon the gas masses, and the known magnitude of current densities in the neighborhood of spots.

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Kushwaha, R. S. Apsidal motion of early main sequence stars.

Stellar models for the initial structure of three early main-sequence stars have been investigated. The masses were chosen to be $10 M_{\odot}$, $5 M_{\odot}$, and $2.5 M_{\odot}$. The corresponding spectral types were found to be approximately B2, B6, and A3. The integrations were performed by Mrs. Selberg on the electronic computer of the Institute for Advanced Studies.

Radiation pressure was taken into account, but was found even in the center of the heaviest of the three stars to amount only to 2.5 per cent of the total pressure.

The opacity was computed by straight addition of electron scattering and Kramers' absorption with the guillotine factor varying as a power of the density. This representation was compared with the accurate opacity tables by Keller and Meyerott and was found satisfactory except in the outermost layers which seem here unimportant. Electron scattering was found dominant in the interior of the heaviest star and still important in the interior of the lightest of the three stars.

Apsidal motion constants were computed for the three models. The effective polytropic indices were found to be 2.83, 3.04, and 3.25. This increase in the effective polytropic index with decreasing mass is in good agreement with the observed apsidal motions. The theoretical values are, however, somewhat lower than the average observed values. It is expected that this difference is caused by the fact that here only initial, homogeneous models have been considered. The investigation of subsequent inhomogeneous models is under way.

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Liller, William and Aller, Lawrence H. Photoelectric photometry of faint gaseous nebulae.

The advantages of the small focal ratio of the Curtis Schmidt telescope ($f/3.5$) and the large apertures of the Mt. Wilson reflectors (60- and

100-inch) have been utilized by the authors to extend to 122 objects the list of gaseous nebulae for which dependable monochromatic surface brightness values are known. Soon a list of these nebulae will be published giving (1) the surface brightness in $\text{ergs cm}^{-2} \text{sec}^{-1}$ in the light of the green forbidden lines of oxygen, (2) the upper limit of brightness of the central star and (3) of the nebular continuum. These values can be combined with published spectrophotometric data to give the absolute intensity of any single monochromatic nebular radiation. A narrow-band interference filter having a half-width of 50 Angstroms and a maximum transmission of 69 per cent at $\lambda 5007$ served to isolate the oxygen line at $\lambda 5007$. The brightness of this nearly monochromatic light was measured photoelectrically. A measurement of the brightness of the nebula in the wave length band from $\lambda 5100$ to $\lambda 6000$, where the monochromatic radiations are few and weak, yields an estimate of the usually feeble contribution of the nebular and central star continua. A small fraction of each deflection arises from the other forbidden oxygen line at $\lambda 4959$, but since its intensity is always one-third that of its brighter companion line, the necessary correction can be easily made.

We have observed extended objects of low surface brightness such as the Owl and Dumbbell nebulae, the giant planetary in Aquarius, and the diffuse objects M8 and M20 with the Curtis Schmidt telescope. Nearly 100 faint planetary nebulae and a few diffuse gaseous nebulae in M33 were reached with the Mt. Wilson instruments. Our program also included the measurement of the brightnesses of several central stars, tracings across a few large bright nebulae, and measures of the planetary nebula in M15.

The final surface brightness values are good to 1 per cent for most of the nebulae, but for those objects where the green nebular lines are faint with respect to the nebular or central star continua, a slight loss of accuracy results.

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Lilley, A. E. Absorption effects in the spectra of radio stars produced by interstellar hydrogen.

Observations show that 21 cm hydrogen line profiles for directions which contain radio stars are very unusual in shape and amplitude. When one obtains a 21 cm profile for the exact direction which contains a radio star, the profile is considerably distorted compared to the profiles obtained for directions immediately adjacent to the radio