be a necessary consequence of the relaxation process in the cluster. Also, when r_0 is large this formula becomes the same as Hubble's law for the outer parts of spherical galaxies.

No attempt has yet been made to modify the formula to represent the leveling off of density in the central parts. However, it appears possible to do this by introducing one more parameter, to express the central concentration of the cluster. If this turns out to be so, it will be possible to represent the radial density distributions in all globular clusters by a single formula, and except for scale factors the differences between distributions will be given by a single concentration parameter.

The Dynamics of the Pleiades Cluster. D. NELSON LIMBER, *Yerkes Observatory, Williams Bay, Wisconsin*.—An estimate for the total stellar mass of the Pleiades is obtained through the application of an extended form of the virial theorem that takes account of the intracluster gas and dust. Published observational data have been taken as the sources for the required estimates for the relative spatial distribution of the stars and for the relative spatial distribution and total mass of the intracluster neutral hydrogen. With the results so obtained, the larger problem of the evolution of the cluster is examined in some detail. Conclusions are drawn concerning the luminosity function, the mass-spectrum, and the detailed dynamical state of the cluster.

The Distribution of Local Hydrogen from a 21-cm Multichannel Survey of the Sky. R. X. MCGEE AND J. D. MURRAY, *CSIRO Radiophysics Laboratory, Sydney, Australia*.—The whole sky visible from Murraybank, (lat. $-33^{\circ}75'$), near Sydney, has been observed with a multichannel 21-cm hydrogen-line receiver and a widebeam aerial ($2^{\circ}2'$ between half-power points). From sample reductions of H -line profiles the disposition of local neutral hydrogen is presented in terms of three schematic diagrams: The distribution in N_H , the number of hydrogen atoms in a line-of-sight column of 1 cm^2 section, a diagram of representative line half-widths and the observed distribution of profile peak radial velocities.

Indications have been found that the gas has a general horizontal stratification in which regions of excess density occur. Its arrangement in space does not appear to be correlated with the so-called Local System but may have some connection with the local galactic magnetic field. Assuming the form of the distribution with z given by Schmidt, half-thickness 220 parsecs, an estimate of the density near the sun is $1.0 \text{ H atoms cm}^{-3}$.

The line profiles away from the Milky Way were generally single peaked with a range 12 to 35 km/sec

in half-width. Wide profiles of half-widths 36 to 140 km/sec were consistently observed in large regions near the galactic poles. Large-scale grouping of profiles in the comparatively narrow range 12–20 km/sec occurred corresponding closely with the outstanding features of the N_H distribution. This fact pointed to the compact nature of such large local complexes as the Scorpius-Ophiuchus spur and the Taurus-Orion region.

The Latest Cycle of the Be Shell Star β Mon. DEAN B. McLAUGHLIN, *University of Michigan, Ann Arbor, Michigan*.—This star is one of the brightest actively changing Be shell stars. Variation of V/R type is conspicuous, with a period of about 12.5 years. The hydrogen-emission lines, about 5 Å wide, oscillate in the same direction and with practically the same amplitude as the central absorption lines. As in other V/R variables, greatest positive velocity occurs when the violet emission component is strongest.

In previous cycles (McLaughlin, D. B., *Astron. J.* 56, 44, 1951) the velocity range was from about +5 to +45 km/sec. During the latest cycle the amplitude was greater, the maximum being +60 km/sec. Throughout much of the rising branch of the curve, from 1952 to 1956, the shell absorption was greatly weakened, repeating the behavior in the previous cycle. Velocities of the absorption lines became systematically discordant. The first line to shift positively was $H\delta$ early in 1954. In 1955 $H\gamma$ followed, but $H\beta$ lagged and the lines remained discordant until late in 1956, when they had recovered much of their usual great strength.

The K line of Ca II showed unusual behavior. From 1930 to 1952 it was evidently wholly interstellar, with velocity +20 km/sec. From early 1953 to 1955 its velocity appeared definitely higher, averaging +35 km/sec. Throughout 1956 and 1957 a conspicuous additional K line appeared with velocity +100 to +130 km/sec. Simultaneously $H\delta$, $H\epsilon$, and $H\zeta$ developed weak absorption components with similar velocities, while the strong main hydrogen absorptions were at about +60 km/sec. During 1958 these extra hydrogen lines were not seen, and the K line shifted toward accordance with the main hydrogen components. In 1959 and 1960 the K line was accordant with hydrogen near +50 km/sec.

The Radio Telescope of the University of Illinois. G. C. McVITTIE, *University of Illinois Observatory*.—The telescope is a transit instrument with a reflector fixed to the ground; it has been designed by George W. Swenson, Jr., and its construction is being financed by the Office of Naval Research. The reflector is a parabolic cylinder whose dimensions are 600 by 400 ft, the longer dimension running