The A-star pair closely resembles β Aurigae. The values of $m \sin^2 i$ show that the inclination of the orbit of the A pair is less than that of the long-period orbit. Even if the latter is 90° , the former does not exceed 70° , so that an eclipse is extremely unlikely.

Infrared Astronomy. A. B. MEINEL, *Steward Observatory and the Lunar and Planetary Laboratory, University of Arizona*.—The progress of infrared astronomy has been handicapped by the insensitivity of detectors and the absorption of the atmosphere. In recent years much effort has been placed upon the development of means to explore the far ultraviolet, yet some of the most interesting unanswered astrophysical questions can be answered by infrared observations. Atomic and molecular transitions in the ultraviolet are generally of the exclusive type: beyond a limiting wavelength a large region of frequencies is absorbed. As a consequence a single species can block out detection of other species. In the middle infrared the rotation-vibration transitions are of a nonexclusive type in that a single species typically blocks out a few short frequency intervals. The infrared could therefore provide astronomers with information concerning numerous interstellar and stellar molecules and interstellar particle formation.

Infrared detectors are now approaching sensitivities of 10^{-14} w (thermocouple $= 10^{-9}$) using liquid-helium-cooled germanium detectors. With present detectors like the cooled *PbS* cell we obtain sensitivities of 10^{-12} w but are able to observe only a few bright stars in moderate spectral detail with the largest telescopes. Infrared astronomy therefore needs much larger telescopes as well as more efficient detectors.

Infrared detectors are large in comparison with the resolution of a photographic emulsion and can therefore operate efficiently with an image size of the order of $10''$ as compared with $1''$ for a precision optical telescope. Several designs for infrared telescopes are of practical importance in the 28-ft aperture size. While such a telescope would not be seeing-limited, the infrared spectrum from the ground is blocked partially by water vapor and carbon dioxide in the middle infrared and completely absorbed by water vapor in the far infrared. A dry mountain site will permit observation of about 30% of the region between 1 and 24μ . Balloon altitudes will permit complete observation of this region, but be limited by the small aperture of a balloon-borne telescope. Satellite altitudes will open the entire infrared spectrum, but observations will also be limited by telescope aperture, yet important observations could be made from balloons and satellites with a 36-inch telescope.

Distribution of High-Energy Stars in Spherical Stellar Systems. RICHARD W. MICHIE, *Berkeley Astronomical Department, University of California*.—It is shown that the kinematical and dynamical terms in the Boltzmann equation are very small compared to the encounter term at and near the escape energy E_e . This leads to an equation expressing the constancy of flux of representative points in phase space for $E \lesssim E_e$. At this E_e boundary the distribution function is zero, and for small values of the energy it must approach the Maxwellian (equilibrium) distribution. It is therefore possible to obtain the form for the distribution function at low and high energy; and for stars of mass m encountering stars of average mass m_0 , a fairly accurate distribution function is obtained for all values of the energy provided $m/m_0 \geq \frac{1}{2}$. In this study the field stars were approximated by a Maxwellian velocity distribution, and so the velocity space anisotropy had to be assumed. With the distribution of J^2 (angular momentum squared) the same as used previously (Michie, R. W., *Astrophys. J.* 133, 781, 1961), the distribution function now depends on the mass ratio m/m_0 , the model parameter C , the integrals of the motion E and J^2 , and finally on t . The depopulation of high-energy stars is more severe the smaller the mass ratio, the closer to the center, and the larger the value of C .

This distribution function for a spherical system now allows accurate computation of the loss of stars of different mass at varying distances from the center of the system. This was done for the mass ratio ranging from $\frac{1}{2}$ to $1\frac{1}{2}$, and a wide range of the model parameter. With evolution, the low-mass stars evaporate at a continually increasing rate relative to the stars of average mass.

Light Curve of Humason's Supernova in Virgo. DIMITRI M. MIHALAS, *Mount Wilson and Palomar Observatories, Carnegie Institution of Washington, California Institute of Technology*.—The supernova discussed in this paper was discovered by M. L. Humason in a faint anonymous galaxy in Virgo ($\alpha = 13^h 08^m 51^s$, $\delta = +3^\circ 40' 25''$, 1950) during the 1959 Palomar Supernova Search under the direction of F. Zwicky. This object is number 64 on Zwicky's list. A large number of photographic observations were subsequently made by several observers with the 48-inch Schmidt telescope, and by Arp, Miller, and Zwicky with the 200" telescope; Arp obtained *U, B, V* magnitudes of the supernova on 5 nights and the galaxy itself on one night. Spectra were obtained by Greenstein and Zwicky, and will be discussed by them elsewhere.

The observations extend over about 275 days. The light curve shows a sharp initial decline of 0.07