these equilibrium models were then solved numerically in order to study their stability against pulsation. An upper limit for the damping in the interior was estimated. It is found that a star in the δ Cephei region ($M=11.5M_{\odot}$, $L=5000L_{\odot}$, $T_e=5390^{\circ}$) having a period of 6^d is pulsationally unstable due to the destabilizing effect of the He^+ ionization region. Overtone pulsations of this model are damped. Models having higher effective temperatures than Cepheids, as well as stars having smaller mass or higher luminosity, and obeying the same period-density relation as Cepheids, are stable.

Star Catalogues on Punched Cards and Magnetic Tape. J. H. BERBERT, *National Aeronautics and Space Administration, Goddard Space Flight Center.*—Announcement is made of the completion of the punched-card star catalogue which includes the data for 300 000 stars taken from the AGK₂, the Yale Zone, and the Cape Photographic Star position catalogues on punched cards and magnetic tape. The anticipated application of the punched card catalogue is to automatically identify the stars used in the plate reductions of the Minitrack calibration photographic plates. Instructions are given on how to obtain duplicates of the punched cards or magnetic tapes from the Technical Information Division, Goddard Space Flight Center, National Aeronautics and Space Administration, Greenbelt, Maryland.

Stellar Flux Measurements in the Middle Ultraviolet. ALBERT BOGGESS, III, *Astrophysics Branch, Goddard Space Flight Center, National Aeronautics and Space Administration.*—The program of rocket-based broad-bandpass stellar photometry at ultraviolet wavelengths is being continued. Small photometers are employed using combination interference and crystal filters which isolate 250-Å bands centered at 2600 and 2200 Å. A band at 2700 Å is used as a control to compare the present data with those previously obtained at the latter wavelength (Boggess and Dunkelman 1958). Absolute fluxes have been obtained with an accuracy of about 20%, and when these data are combined with ground observation, colors below and spanning the Balmer discontinuity may be formed for comparison with conventional visual color data.

Color-Magnitude Arrays for Two Associations in the Large Magellanic Cloud. BART J. BOK, PRISCILLA F. BOK, and JANE M. BASINSKI, *Mount Stromlo Observatory.*—The paper is concerned with color-magnitude arrays of stars between $m_v=11$ and 15 ($M_v=-7.5$ to -3.5) in two star concentrations in constellation III of the Large Magellanic Cloud, NGC 1955 and 1968–1974, and their im-

mediate surroundings. UBV colors of selected OB stars (M_v near -6.0) show that: (1) interstellar reddening is very small or absent; (2) the $(B-V)_0$ colors predicted from the observed values of $(B-V)$ and $(U-B)$ are in excellent agreement with those predicted from the spectral data; (3) in color the OB supergiants of luminosity class Ia in the Large Cloud behave exactly like the class Ia supergiants in our galaxy. The two color-magnitude arrays are affected only very slightly by foreground stars. They show that most of the stars in these two groupings fall either in the color-interval $B-V=-0.4$ to -0.1 or in the interval $B-V=+0.4$ to $+0.8$, with the very blue stars outnumbering those with positive color indices by a factor of 3 or 4 to 1. The membership in the cloud of the very few stars outside these ranges requires checking.

A Radio Telescope with a Minute-of-Arc Beam. R. N. BRACEWELL, *Radio Astronomy Institute, Stanford University.*—Fan-beam radio interferometers with a beamwidth of one minute of arc, which have been demonstrated at Ottawa and Stanford, make it certain that there are no fundamental objections to minute-of-arc resolution. The cost of maintaining a suitably figured reflector in shape does, however, rule out the simple paraboloidal design; its dimensions would be between 2000 and 3000 ft at 21 cm. To reach these sizes one must change to designs that can grow with time at a constant cost per increment. This means iterated, multifocus structures, which possess unwanted grating responses. Techniques of suppression that make them feasible have been developed.

Helium Resonance Radiation in the Night and Day Sky. JOHN C. BRANDT, *Mount Wilson and Palomar Observatories.*—The intensities expected from the helium resonance lines scattered by interplanetary and terrestrial helium are estimated. The apparent emission rates for these lines from the interplanetary medium are very small ($4\pi I \lesssim 1R$), since it appears that helium flowing from the sun does not have time to recombine. Hence, helium in the interplanetary medium is probably predominantly $HeIII$. The emissions from the upper atmosphere have been estimated on the basis of assumptions concerning the escape of atmospheric helium. Very little emission is expected on the night side ($4\pi I \lesssim 10R$), but on the day side, an observer looking down from several earth radii should see a substantial amount of $\lambda 584 HeI$. A mean of $4\pi I(\lambda 584: \text{day}) \approx 10^3 R$ is found, which could be as high as $1400R$ with the sun in the zenith.

Supergiant B stars in the Small Magellanic Cloud. WILLIAM BUSCOMBE and PAMELA M. MORRIS, *Mount Stromlo Observatory.*—For each of the B