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Structure of the Corona Borealis Cluster of Galaxies. G. O. ABELL AND RONALD RICHARD, *University of California, Los Angeles*.—The luminosity function of galaxies in the Corona Borealis cluster of galaxies (Cluster 2065 in the Abell Catalogue) has been determined by the method of extrafocal photographic photometry, on six sets of blue and yellow plates, at varying amounts out of focus. The luminosity function is found to be similar to that found for the Coma cluster (Cluster 1656).

Counts of galaxies in strips across the cluster yield the density distribution within the cluster, as well as an estimate of the total potential energy. The distributions of galaxies to different limiting magnitudes (down to $m_{\text{pv}}=19.5$) are compared to test for effects of segregation within the cluster by mass, which in turn is an indication of the extent to which the cluster has approached statistical equilibrium. Mass segregation, although present, is far too little to be consistent with equipartition of energy.

Rotational Velocities of Ap Stars. HELMUT A. ABT, FREDERIC H. CHAFFEE, AND GRAHAM SUFFOLK *Kitt Peak National Observatory*.—Rotational velocities have been obtained from coude spectra for the 63 brightest Ap stars; these velocities average 22% of those of the normal stars, using hydrogen-line spectral types. It is shown that the idea that Ap stars are normal stars seen pole on is incompatible with the frequency distributions of rotational velocities. Assuming, therefore, random orientations of axes for both normal main-sequence and Ap stars, we find that there are no slowly rotating ($V < 100$ km/sec) normal stars in the range B7-A0 and no rapidly rotating ($V > 150$ km/sec) Ap stars. Again assuming random orientations of axes, we find no serious inconsistencies between rotational periods and the periods of 16 spectrum variables, magnetic variables, and short-period spectroscopic binaries.

Spectrum of the Diffuse Nebula NGC 604 in the Triangulum Galaxy M33. L. H. ALLER AND M. F. WALKER, *University of California, Los Angeles, and Santa Cruz*, AND STANLEY CZYSAK, *The Ohio State University*.—NGC 604 is the brightest and most spectacular of the emission nebulae in the Triangulum Spiral. In general appearance, it resembles the great 30 Doradus Nebula in the Large Magellanic Cloud, although it is smaller and has a lower surface brightness. Observations secured at the Lick 120-in. coude both with and without the image converter, prime focus Lick spectrograms, and photoelectric scans obtained with the Mount Wilson 60-in. reflector yield a picture of a low excitation spectrum, similar to those of many diffuse nebulae in our galaxy, e.g., the diffuse nebula associated with η Carinae. The 3729/3726 [O II] intensity ratio provides an estimate of the electron density, but the $\lambda 5363$ [O III] line is too weak to allow a conventional-type estimate of the electron temperature. Not only does the He/H ratio appear to be normal, as was pointed out by Mathis, but the entire character of the spectrum suggests that other elements such as oxygen, neon, and sulfur also very well may be "normal." Weaker lines such as $\lambda 4267$ C II and those of [Fe III] are lost in background continuum that is produced by stars in the NGC 604 association.

Polarimetric Observations of Spiral Galaxies. IMMO APPENZELLER (introduced by C. R. O'Dell), *Yerkes Observatory*.—The analysis of the interstellar polarization of starlight shows that the direction of the projection of the interstellar magnetic field on the galactic plane is constant between the sun and the axis of the local spiral arm. In order to distinguish between the different models that have been proposed for the galactic magnetic field, it is necessary to determine the angle between this direction and the direction of the local spiral arm. While