evident. The residual intensity of the light in strong F absorption lines is greater than it is in strong G lines. In the presence of strong G absorption, only the F spectrum is apparent, while in a region of weak G lines, the G spectrum is dominant. Thus the energy curves of both components intermingle below $\lambda 4100$.

The intensity ratio found by Wright for $\lambda 5500$ might be altered by considering this intensity range difference just explained.

Relatively undisturbed F lines reveal a broadening influence which tends to obliterate weak lines. Comparison with the turbulently broadened lines of α Per indicates a disturbance of the order of 10–12 km/sec, although the widening mechanism has not been determined.

1. Otto Struve and S. M. Kung, *Ap. J.* **117**, 1, 1953.
2. Paul W. Merrill, *Ap. J.* **56**, 40, 1922; *Mt. W. Contr.*, No. 240.
3. Private communication.
4. Morgan, Keenan, and Kellman, *An Atlas of Stellar Spectra*, Univ. of Chicago Press, 1943.

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Giclas, H. L. Photoelectric magnitudes and color of Uranus.

The brightness of Uranus was observed photoelectrically in three colors on 46 nights during the oppositions of 1950, 1951, and 1952 with a conventional 1P21 photomultiplier photometer attached to the Cassegrain focus of the Lowell 42-inch reflector. The approximate effective wavelengths for each color is 3750 Å for the violet; 4550 Å blue, and 5250 Å for the yellow. Two color indices, yellow-blue and yellow-violet, and a yellow magnitude were derived from the mean of each night of observation. The probable error of a single night's observation of the magnitude is ± 0.0045 mag.; for the yellow-blue index the probable error is about half this amount; for the yellow-violet index the probable error is four times that of yellow-blue index. Measurements were made in wave lengths stated above, but conversion to the system of Johnson and Morgan has been derived.¹ All magnitudes were reduced to the mean opposition distance for 1950.

The individual determinations of the magnitude for each single night's run were investigated for possible short-period variations which might be correlated with the planet's rotation period, but nothing which might be ascribed to this cause was found. The nightly mean magnitude was plotted against the phase angle, but no clear cut relationship was indicated. The mean oppo-

sition brightness and color on the Johnson-Morgan system are listed in the following table.

SUMMARY OF OPPOSITION MAGNITUDES

Year	U-V	B-V	V
1950	0.829	0.546	5.441
1951	0.807	0.547	5.433
1952	0.788	0.535	5.452

It is found from these observations that the real variation in brightness of Uranus, if any, over the whole period observed is restricted to less than 0.01 mag. The much larger variations reported by other observers during this period are not confirmed. We also find less than 0.08 mag. difference in mean brightness of Uranus now as compared to the value obtained photoelectrically by Stebbins in 1927.² These measures of Uranus' brightness have been compared to the values of the solar constant measured concurrently, but no correlation between the small fluctuations in each is found. The same is also true of comparison with magnetic observations of sunspots.

1. *Ap. J.* **117**, 313, 1953.
2. *Lick Obs. Bull.* **13**, 180, 1927.

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Henize, K. G., L. H. Aller and L. Doherty. Photometry of emission nebulosities in the Large Magellanic Cloud.

The emission objects in the Large Magellanic Cloud have been studied with a ten-inch camera and objective prism loaned by Mount Wilson Observatory. A plate filter combination isolating $H\alpha$ was employed and both direct photographs and objective prism spectrograms were obtained. In addition to a finding list of 221 nebulae and 170 associated stars prepared by Henize, photometric measures of the emission nebulosities have also been made. The photometric catalogue gives the surface brightness at selected points in the larger nebulae, the nebular dimensions, and the relative total brightness of the stellar objects. The catalogue is supplemented by charts which show exactly where the measurements were made. An approximate reduction to surface brightness in terms of $\text{ergs cm}^{-2} \text{sec}^{-1}$ per unit solid angle is made with the aid of tracings of G stars of known magnitude by the method of Ambartsumian. If an assumption is made concerning the electron temperature and the shape of the emitting volume, electron densities may be derived. These turn out to be of the order of 1 to 5 electrons per