

and perpendicular to the dark lane. This nebula⁵ appears to be one of the best for detecting interstellar polarization.

It was necessary to use the highest gain provided in the amplifier and to dispense with the color filter in order to record the dark lane of NGC 4594. After subtracting the sky reading, which was over two-thirds of the total deflection and at least 14 percent polarized, the remaining deflection was less than two divisions. It was not feasible to increase the gain further at the time. However, the readings on different runs agreed within 7 percent and indicate zero polarization within the 7'' circular diaphragm used, although as much as 10 percent polarization might have remained undetected. I had intended to repeat these measurements with higher sensitivity and an improved method of guiding, but it now seems unlikely that this will be possible.

¹ T. L. Page, *M.N.*, **96**, 604, 1936, *Ap. J.*, **96**, 78, 1942; Swings and Struve, *Ap. J.*, **96**, 310, 1942; Page and Greenstein, *Ap. J.* (in press).

² W. A. Hiltner, *Ap. J.*, **108**, 56, 1948, **109**, 471, 1949.

³ J. S. Hall and A. H. Mikesell, *Pub. U.S. Naval Obs. II*, **17**, Part I, 1950.

⁴ Y. Öhman, *Stockholm Ann.*, **14**, No. 4, 1942. Öhman interpreted this polarization as due to reflection nebulae. The modern interpretation in terms of interstellar polarization reverses his argument concerning the orientation of M 31 and the direction of spiral arms.

⁵ A recently published photograph is given by E. P. Hubble, *Ap. J.*, **97**, 115, 1943. See Plate VI, facing page 133, in this *Publication*.

EMISSION OBJECT IN COMA

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On one of the plates of a general program carried on with the Tonantzintla Schmidt, which has as its fundamental aim a search for galaxies with emission characteristics, a peculiar object was discovered by the writer which shows the emission spectroscopic features of a planetary nebula. On a direct Schmidt plate (94'' = 1 mm) that reaches limiting magnitude 19, this object appears completely stellar with a photographic magnitude 16. On the

spectral plates the object shows a fairly strong $H\alpha$ emission and also very clear bright N_{1-2} , $H\beta$, $H\gamma$, $H\delta$, and $\lambda 3727$. No continuum is visible.

This faint high latitude object is at $12^h 52^m 5$ in right ascension and $+28^\circ 25' .3$ in declination (1855). It is in the edge of the Coma cluster of galaxies and in the same region where Humason and Zwicky¹ found a large number of faint early B stars.

Since Dr. Harlow Shapley suggested in *Harvard Announcement Card* 1110 that this object is possibly a galaxy with strong nuclear emission such as described by Seyfert in *Ap.J.*, 97, 28–40, 1943, the author has photographed some of Seyfert's objects with a view of finding out whether it is feasible to establish a clear distinction between this type of peculiar galaxies and the object under consideration.

In all cases the Seyfert galaxies showed a very clear continuum even with short exposures. In a series of exposures of NGC 4151 made by the writer on a 103a-E plate without filter, the shortest exposure just shows $H\alpha$ emission and part of the continuum in the red. It is clear that to bring out, on the Schmidt plates, emission lines of wave length shorter than $H\alpha$ in bright-line galaxies, the continuum must appear fairly strong. Besides the Seyfert galaxies, it has been found that NGC 5253, classified in the Shapley-Ames *Catalogue of External Galaxies* as an E: galaxy, shows a very bright $H\alpha$ and also in emission N_{1-2} , $H\beta$, $H\gamma$, $H\delta$, and probably $\lambda 4686$ and $\lambda 4363$. This galaxy in which nuclear emission is conspicuous, shows a weak continuum even with the shortest exposure.

In view of all the data at hand and principally because of the total lack of continuum in its spectrum, the new object is classified, provisionally, as a planetary nebula; if it is a galaxy, it must be a very peculiar one. It is desired that future observations definitely clarify the nature of this object.

¹ *Ap. J.*, 105, 85, 1947.