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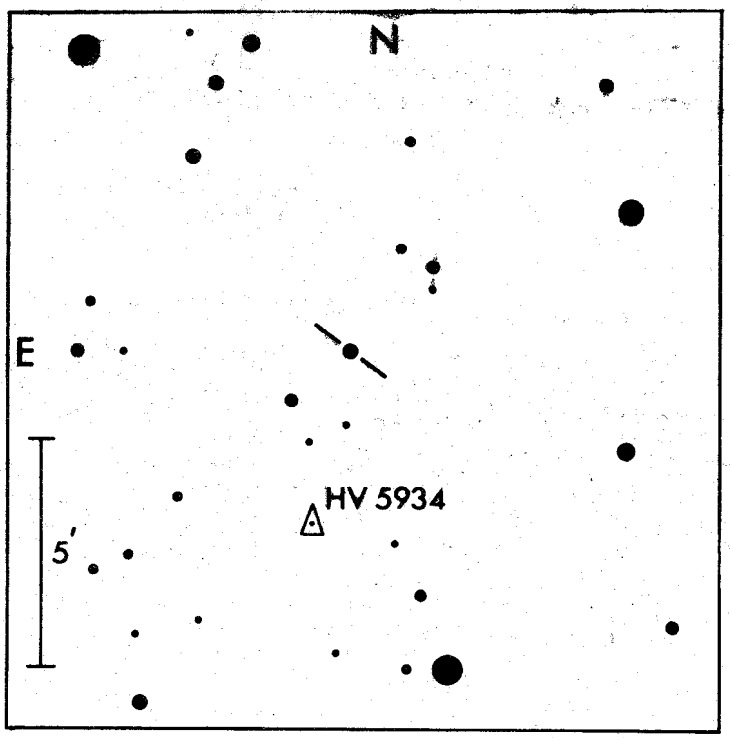
A NOVA IN THE LARGE MAGELLANIC CLOUD

Nova Mensae 1970 was discovered on an objective-prism plate taken by Sr. Arturo Gómez with the Curtis Schmidt-type telescope of this University currently on loan to the Cerro Tololo Interamerican Observatory in Chile. The discovery plate was taken on the night of March 8 (U.T.), 1970, and the most recent plate of the area with which to compare the nova plate was taken on February 8, 1970; the earlier plate shows nothing in the position of the nova down to the limiting magnitude of about m_{pg} 13.8. Both the discovery and comparison plates are of type IIa-O exposed one hour through a GG 5 filter; the spectral region covered is approximately $\lambda\lambda$ 4500-5000 A with a dispersion of about 400 A/mm at 4800 A. Measured relative to the 1975 coordinate grid on the Uppsala-Mt. Stromolo Atlas, the approximate position is: RA = $5^h33^m.5$, D = $-70°36'$. On the Hodge-Wright Atlas of the LMC it is about 1.2 cm north and 0.3 cm west of H.V. 5934 and is fainter than their plate limit of m_{pg} 17.5. The chart shows the position and brightness as drawn from the discovery plate; no direct plate is available. The nova is about $0°.5$ south of the center of the Bar and $0°.5$ southwest of Nova Doradus 1948.

The spectrum on the discovery plate appears as follows: H is very bright, flat-topped, and broad, and faint, broad Fe II emission at λ4924 and λ 5018 is present. No other emission or absorption features are evident in this spectral range at our dispersion. According to the spectral criteria given by McLaughlin (1), our discovery plate seems to have been obtained during the stage of "principal" spectrum probably within one magnitude and several days of maximum. The magnitude of the nova at discovery is about m_{pg} 12 as estimated from comparison with several OB stars near the nova having magnitudes assigned by Sanduleak (2). With a distance modulus of 18.7 for the LMC and maximum apparent magnitude of 11, the nova would have attained M_{max} about -7.7 which is in good agreement with the mean probable absolute magnitude (-7.6) of the nine Magellanic Cloud novae discussed by Henize, Hoffleit, and Nail (3). Discounting Nova Hydri 1935 which may have been a supernova in the spiral galaxy NGC 1511, there are now six novae known in the LCM and four in the SMC. The ratio of novae in the two Clouds (3:2) compares well with



that of planetary nebulae as given by Westerlund (4) although the ratio of masses is about four to one. Thus, the frequency of both novae and planetary nebulea per unit mass is higher by a factor of about three in the SMC than in the LMC.

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D.J.MacCONNELL
Department of Astronomy
University of Michigan
Ann Arbor, Michigan 48104

(1) McLaughlin, D.B. 1960, Stellar Atmospheres, ed. J.L. Greenstein (Chicago: The University of Chicago Press), chap. 17.
(2) Sanduleak, N. 1969, Cerro Tololo Contr. No.89.
(3) Henize,K.G., Hoffleit, D., and Nail,V. McK. 1954, Proc. U.S. Nat. Acad. Sci. 40, 365; Harvard Repr. No.387.
(4) Westerlund,B.E. 1968, I.A.U. Symp. No.34, 23.