A SUPERNOVA IN NGC 4725

By Josef J. Johnson

A supernova in NGC 4725 appeared on a photograph taken with the 18-inch Schmidt reflector on Palomar Mountain, May 5, 1940. The supernova is located on the edge of the main body of the nebula, about 2'.5 northeast of the nucleus. Since the luminosity was appreciably the same (estimated photographic magnitude = 12.5) on the discovery plate and on a second plate taken on May 6, it is impossible, as yet, to say whether the supernova was found before or after maximum.

NGC 4725 is a conspicuous early-type spiral in the position (1950), R.A. = $12^h\ 48^m$, Decl. = $+26°\ 46'$; Gal. Long. = 303°, Lat. = +87°. It appears to lie in the southern lobe of the large Ursa Major group of nebulae, whose distance is about 5.5 million light-years, according to unpublished estimates by Hubble. If it is a member of this group, the modulus of the distance is $m - M = 26.2$, and the absolute magnitude of the supernova was about −13.7 at the time of discovery.

California Institute of Technology
Pasadena, California
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SPECTRA OF THE SUPERNOVA IN NGC 4725

By Rudolph Minkowski

The supernova in NGC 4725 which was discovered by Johnson on May 5, 1940, was photographed on May 8 with a nebular spectrograph at the Newtonian focus of the 60-inch reflector, and again on May 12 at the Newtonian focus of the 100-inch with the same spectrograph. The scale was 500 A/mm at Hα. On May 9 a spectrogram was also obtained at the Cassegrain focus of the 100-inch with another nebular spectrograph, using two prisms and a three-inch camera (scale 220 A/mm at Hα). The plates used were Eastman I E hypersensitized with ammonia.

The spectrum of this supernova is entirely different from that of any nova or supernova previously observed. It is continuous and extends far into the ultraviolet, like spectra of stars

of very early type obtained with the same spectrographs. Neither absorptions nor emission bands can be definitely seen but some emission is suspected in the region of Hα.

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THE *ScO* BAND AT λ 4858 IN o CETI

BY DOROTHY N. DAVIS*

The presence in certain stellar spectra of the strongest bands of *ScO,* with heads at λλ 6036, 6064, 6072, 6079, 6101, 6110, and 6116, has been definitely established by F. E. Baxandall,[1] N. T. Bobrovnikoff,[2] P. P. Dobronravin,[3] and P. W. Merrill.[4] The writer has found these bands also in the spectrum of α Herculis, where they are weaker than in a post-maximum spectrogram of o Ceti. The band at λ 6036 is present also in β Pegasi, but the other bands cannot be clearly seen.

In addition to the well-known orange bands of the $^2\Pi$–$^2\Sigma$ system, the strongest band of the $^2\Sigma$–$^2\Sigma$ system of *ScO* has been found on a coudé spectrogram of o Ceti obtained 48 days after maximum by Dr. W. S. Adams. The two very close heads of the (0,0) band at λ 4857.8 and λ 4858.1 appear as a single head having a laboratory intensity comparable with that of the faintest band of the orange system which has been observed in stellar spectra. The lines in the head-forming branch are very closely crowded together, and should be visible in stellar spectra in which the orange bands are intense. Near-by absorption lines of *TiO* make it difficult to ascertain the exact wave length of the head, but a direct comparison with laboratory spectra makes the identification as *ScO* seem very probable.

In Plate XVII the complex molecular absorption in the region

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[1] *Pub. A.S.P.,* **41,** 168, 1929.

[2] *Ap. J.,* **77,** 345, 1933.

[3] *Poulkovo Obs. Circ.,* No. 24, 1938.

[4] *Pub. A.S.P.,* **51,** 357, 1939.