

COMMISSION 27 OF THE I. A. U.
INFORMATION BULLETIN ON VARIABLE STARS

Number 1026

Konkoly Observatory
Budapest
1975 August 1

SPECTROSCOPIC OBSERVATIONS OF NOVA SCUTI 1975

Nova Scuti 1975 was observed on July 9.0 and 10.0, 1975 with the 340/500/1375 mm Schmidt telescope of the Hoher List Observatory. The spectrograms were obtained on Kodak 127-05 plates and have dispersions of 645 \AA/mm at H γ and 2200 \AA/mm at H α . Tracings of the spectra together with line identifications are shown in Fig. 1. Some uncertainty in line identification occurred around He where it is possible that the broad blend includes N III 3999,4004.

An additional Kodak I-N plate taken on July 15.0, 1975 shows the following emissions in the infrared region: He I 7281; [O II] 7219,30; O I 7772-75; N I 8185-8242; O I 8446,47; N I 8680-8747.

On the above dates the nova seems to be well within the "4640" stage - Q6, according to Vorontsov-Velyaminov - and thus about 3 magnitudes below maximum. Though the object was obviously discovered after maximum it must still be classified as a very fast nova, a finding which is supported by the high Balmer line velocities, averaging $-2300 \text{ km}\cdot\text{sec}^{-1}$, as obtained from the low-dispersion spectrograms. The lower than average velocity of H δ is explained as resulting predominantly from the He I 3889 absorption, which seems to be very strong and - as always - indicative of an extended atmosphere.

Lines H δ to H 10 have two emission peaks. A higher dispersion spectrogram (88 \AA/mm) of Nova Scuti obtained on June 26.9, 1975 shows a detailed structure of H α . The violet edge corresponds to a velocity of $-600 \text{ km}\cdot\text{sec}^{-1}$, the center to $+240 \text{ km}\cdot\text{sec}^{-1}$, a strong red peak to $+720 \text{ km}\cdot\text{sec}^{-1}$ and the red edge to $+1180 \text{ km}\cdot\text{sec}^{-1}$. The observed double structures of H δ to H 10 on the low-dispersion spectrograms obtained on July 9.0 and 10.0, 1975 suggest a reversal of the R/V intensities resulting in a markedly stronger violet peak. The mean separation of the two peaks of $910 \text{ km}\cdot\text{sec}^{-1}$ measured on

the low-dispersion spectrograms is in good agreement with the above assumption.

The very high velocity derived from the absorption attributed to N III 4640 may be erroneous. We hope that this value as well as the other statements made in this communication can be verified (or rejected) by other observers on the basis of high-dispersion spectrograms, since all measurements and interpretations made from such low-dispersion spectrograms carry some degree of uncertainty. Should the results be verified will this be another indication of the great usefulness of low-dispersion spectrograms, a finding which is expected on account of other work of the Bonn observatory carried out at very low dispersions.

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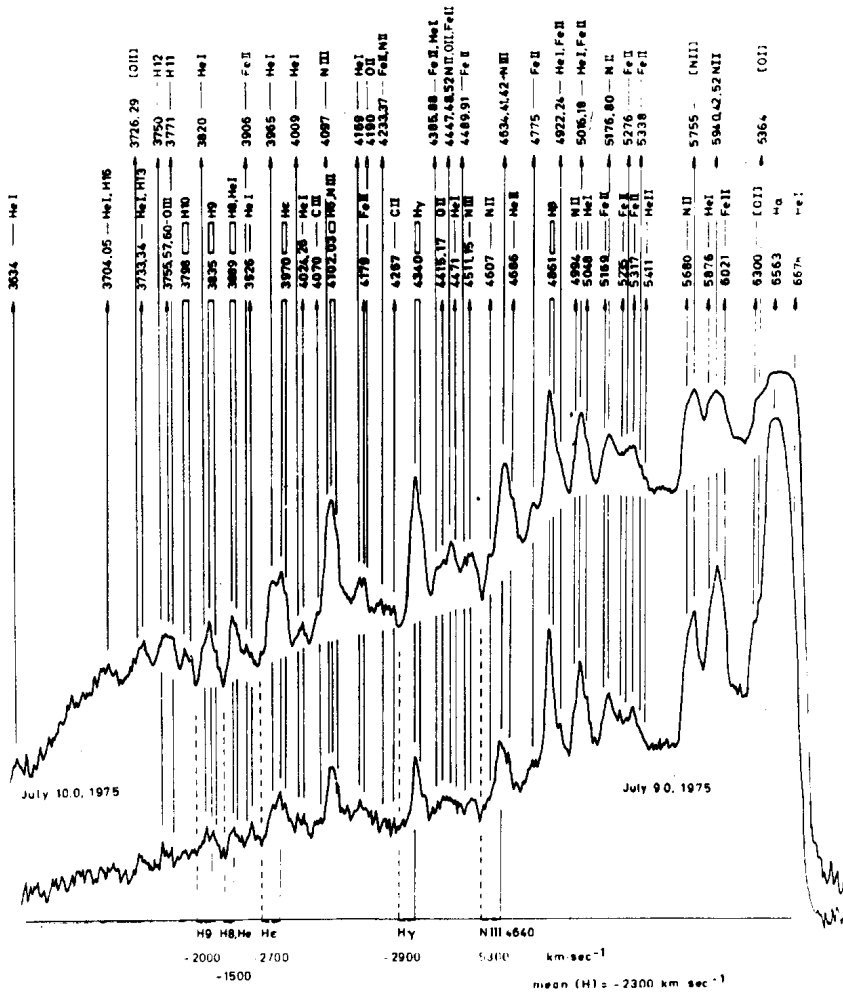


Fig.1. Spectral tracings of Nova Scuti 1975.