THE X-RAY SOURCES SCO X-1 AND CYG X-2 AS BINARIES

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(Abstract)

1. Sco X-1

The analysis of photometric observations of the X-ray source Sco X-1 leads to the conclusion of the existence of a periodic component in the light variations of this source. For 1966–74, the results can be presented as

$$\text{Min} = \text{JD}2439946.58 + 3^{d}.9309\ \text{E}.$$

The photoelectric observations of some authors are shown in Figure 1, using the $3^{d}.9309$ period. Figure 2 shows the mean light-curve of Sco X-1. The amplitude ΔB is about $0^{m}.25$.

The data on radial velocities also confirm the existence of the 3.9309-day period. So Sco X-1 is a binary. The recent data on radial velocities obtained by Esipov from observations during 1971–72 are a strong confirmation of this conclusion.

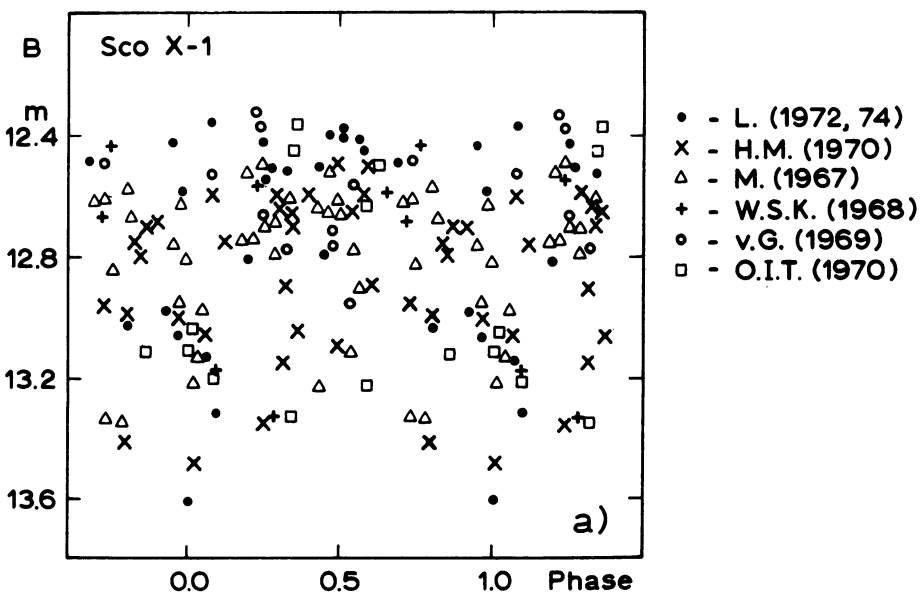

Fig. 1. Sco X-1 Min. = JD 2439946.58 + 3.9309 E, photoelectric observations: 125 nights, 1966–1974.

Sherwood and Plaut (eds.), Variable Stars and Stellar Evolution, 465–466.

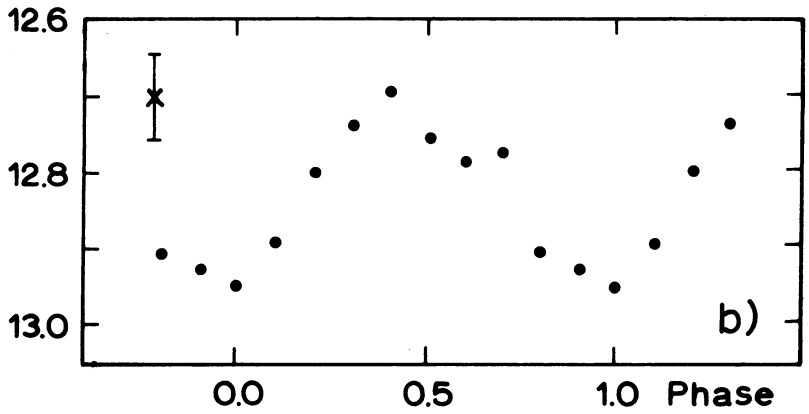

Fig. 2. Sco X-1 mean light curve.

2. Cyg X-2

All the available published data on radial velocities suggest the existence of a 0.251451-day period for this source. The orbital velocity is 180–200 km s^{-1}, the mean velocity of the system is about 200 km s^{-1}. The emission line He II 4686 velocity curve is in antiphase to the one from the absorption hydrogen lines (Figure 3).

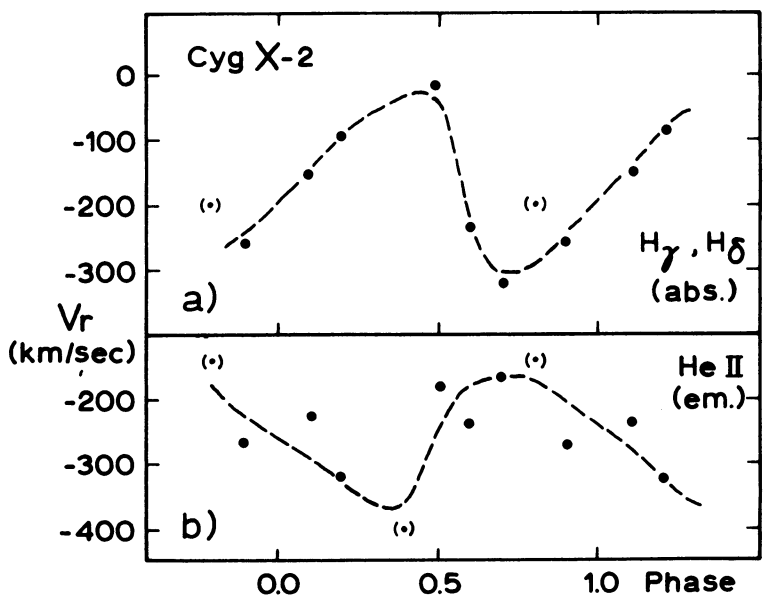

Fig. 3. Cyg X-2 mean velocity curves ($p=0.251451$) – (a) absorption Hγ, Hδ. (b) emission He II λ 4686.

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