T Canis Majoris—A Case of Mistaken Identity

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Abstract Observers have misidentified the semiregular variable T CMa over many years due to the use of charts with insufficient detail. A detailed chart is provided to allow for correct identification and it is also suggested T CMa may be non-variable and should be dropped from observing lists.

1. Introduction

T CMa is located at R.A. $07^h\ 21^m\ 26^s$, Dec. –25° 26' 48" (equinox 2000), and has alternative designations, including CoD –25 4409, CPD –25 2242, and ASAS3 072126-2526.8. It is listed in the *General Catalogue of Variable Stars* (Kholopov *et al.* 1985) as a semiregular variable of visual magnitude range 9.5 to 11 and 309-day mean period. No spectral classification is given. This star is found some 28 arcmin NW of the peculiar red variable VY CMa.

It had been observed visually on an occasional basis by the author between 1998 and 2003, showing little variation around a mean magnitude 11.5. Intrigued by this apparent lack of large amplitude variability, a check was made of observations in the AAVSO International Database via the AAVSO Light Curve Generator to look for any long-term regular variability.

This also failed to show any such variation but did reveal other observers were recording T CMa some 2 magnitudes brighter at a mean magnitude near 9.3.

2. Identification and observations

T CMa does not appear on a dedicated chart. It is, however, plotted on the AAVSO chart for the nearby VY CMa and it appears observers have been using this chart to also estimate the brightness of T CMa.

The AAVSO chart for VY CMa is clearly not intended for the observation of T CMa and does not show the immediate area surrounding this star in any detail. Omitted from this chart is CD–25 4407, a star of magnitude 9.19*V* and spectral class A situated just 2 arcmin SW of T CMa.

It is apparent from the light curve data that CD–25 4407 has been mistaken for T CMa.

An investigation into the identification of T CMa by Skiff (2003) suggested T CMa was likely to be non-variable as the reported variations appeared the result of a misinterpretation of the combined visual and photographic observations obtained around the turn of the 20th century. Morel (2003) indicated a *B–V* of +0.16 for

T CMa, consistent with a star of near spectrum A, as also indicated by Skiff, but inconsistent with a star of reported semiregular variability.

Reproduced here as Figure 1 is Chart 988, courtesy of the VSS, RASNZ (Bateson and Morel, 1990), on which the area immediately surrounding T CMa is shown in greater detail. Additional comparison star magnitudes, including CD –25 4407, have been added. This chart has North at top and West to the right.

The limited number of visual observations available for the true T CMa do not indicate any large amplitude variation. A check of the ASAS-3 data (Pojamski 2002) confirms this lack of large amplitude variability.

It is therefore suggested that T CMa is non-variable at approximately 11.5 and the reported brightness range between magnitudes 9.5 and 11 is consistent with a misidentification between T CMa and the nearby 9.19*V* CD–25 4407.

3. Conclusion

T CMa has been misidentified by observers who have instead recorded CD–25 4407, largely due to the use of a chart not specifically intended for this star and which does not show sufficient detail of the surrounding field. Chart makers should bear this in mind during the preparation of charts.

Variability of T CMa remains unconfirmed but the available data suggests this star is non-variable. It is therefore recommended this object be dropped from observing lists.

4. Acknowledgements

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References

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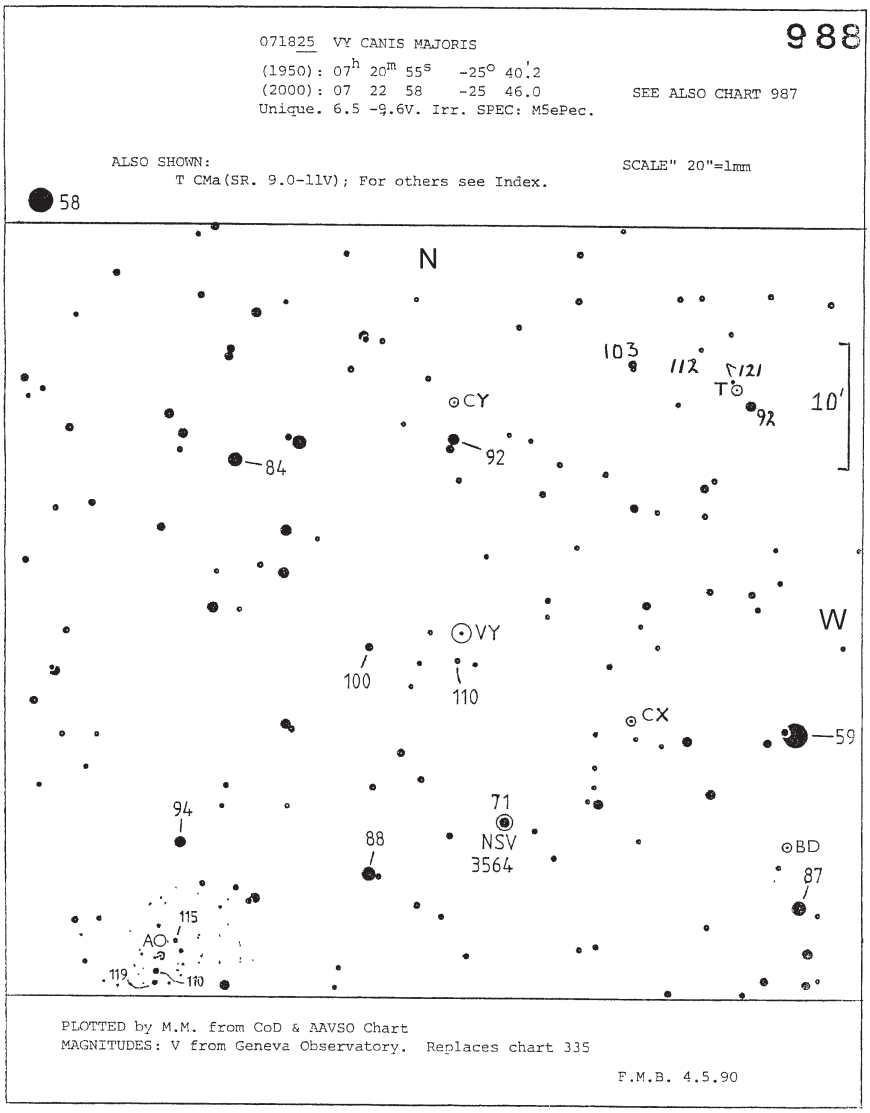

Figure 1. Identification chart for T CMa. Courtesy VSS, RASNZ.