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SOUTHERN COOL STARS MISCLASSIFIED AS CARBON STARS

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Recently it was found that a number of stars in the third edition of the General Catalog of Galactic Carbon Stars (CGCS; Alksnis et al. 2001) and its earlier editions have either the TiO absorption bands of M stars or no bands at all indicating that they are not carbon stars. They were called carbon stars by Wray (1966) on the basis of objective-prism spectra exposed on Kodak 103a-E plates taken by K.G. Henize at the Lamont-Hussey Observatory, Bloemfontein, South Africa in the early 1950's. In that spectral region, the Swan bands of C_2 define the carbon stars, and there are 144 stars in the CGCS attributed to Wray. Of these, 104 were found independently by others, so there is little reason to question their nature. Following a request of Brian Skiff, I examined two of the 'Wray-only' stars on my collection of Curtis Schmidt objective-prism, near-IR plates (see MacConnell et al. 1992 for a detailed description) on which carbon stars have prominent CN bands near 0.79 μm and found that they are M stars. I therefore examined the remaining 21 stars of Wray that fall in the area covered by my plates and found that all are either M stars or have no molecular absorption bands and hence are not carbon stars. They are listed in Table 1 under their CGCS number with the spectral type assigned by me. Nos. 2382, 3100, and 3841 have been assigned to the 'Miscellaneous' variable class in the All-Sky Automated Survey-3 Catalog (`http://www.astrouw.edu.pl/~gp/asas/asas.html`; Pojmanski 2002), and no. 3841 has been classified both as M1 and M3 by Raharto et al. (1984; their Tables 5 and 4, respectively). There is no carbon star at or near the position of CGCS 3381, and the carbon star entry has been eliminated from the SIMBAD database. Finally, CGCS 2207, found solely by Henize (unpublished) on the same plates, was not found on my plates and is probably identical to CGCS 2200 as suggested by Stephenson in his notes to the second edition of the CGCS.

Table 1. M stars erroneously listed as carbon stars.

CGCS No.	Spec. Type	ASAS-3 Var. ID
2054	M3	–
2088	M5	–
2157	M3	–
2310	M5	–
2340	M6	–
2350	M6	–
2382	M4	085405-4539.7
2441	M3	–
2529	<M2	–
2545	M4	–
2564	M4	–
2625	M3	–
2633	M4	–
2634	M5	–
2652	M7	–
3069	<M2	–
3100	M5	114613-5704.1
3357	M3	–
3381	blank	–
3462	<M2	–
3655	M4	–
3804	<M2	–
3841	M3	173228-3403.2

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