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IMPROVED PERIODS FOR VARIABLES IN NGC 5897

In 1939 a series of plates of the globular cluster NGC 5897 was taken by H. Sawyer Hogg with the 90-cm telescope of the Steward Observatory. Additional plates were taken from 1946 to 1969 with the 185-cm reflector of the David Dunlap Observatory. Beginning in 1970 plates were taken by A. Wehlau with the 122-cm telescope of the University of Western Ontario. Because of the low altitude in the northern hemisphere at which we were forced to observe this cluster, blending of the image occurs on many of the plates and this, combined with the low amplitudes of the light curves for most of the variables, made it hard to determine the periods.

Since 1972 several series of plates have been taken with the 60-cm telescope of the University of Toronto located at the Las Campanas Observatory of the Hale Observatories. This has led to improved values for the periods of the 6 RR Lyrae variables listed in the 3rd Catalogue of Variable Stars in Globular Clusters (Sawyer Hogg, 1973). One of these, variable 7, which was discovered by Sandage and Katem (1968) was incorrectly identified as star 119 on their chart. It is actually star 161. In addition, variability is confirmed for their star 63 which they called possibly variable. A period has also been derived for this star, variable 8. Variable 5 is a red variable still under investigation.

No variation can be seen on our plates for the UV-bright star No.2 discovered by Zinn, Newell and Gibson (1972). Variability of this star was reported by Samus (1976) who suggested two possible periods.

Table 1 lists the periods we have obtained as well as the values of V and B-V given by Sandage and Katem. There appears to be no doubt that variables 1 and 6 have unusually long periods. These two stars both lie at the red edge of the variable star gap and the other five RR Lyrae stars lie near the blue edge. The only star which falls between these two groups of variables on

the horizontal branch is star 120 of Sandage and Katem. Photo-electric observations of this variable would be valuable.

Table 1

RR Lyrae Stars in NGC 5897

Var.	Per.	Sandage No.	V	B-V
1	0.79730	351	16.14	0.50
2	0.45392	299	16.20	0.28
3	0.41993	206	16.20	0.25
4	0.33559	-	-	-
6	0.85623	118	16.39	0.55
7	0.35049	161	16.27	0.24
8	0.34180	63	16.35	0.26

The periods for variables 1, 4, 6 and 7 given here differ from those determined earlier from the northern hemisphere plates (Wehlau, Sawyer Hogg, and Potts, 1972). For variables 2 and 3 the periods are only slightly different from those given earlier. The correct variable 7 and the new variable 8 have not been measured on the older plates and the older measures of variable 4 are not considered reliable since the image for variable 4 is blended with that of another star.

Although there are not many variables in NGC 5897, the lack of variables with periods from 0.46 day to 0.79 day is quite unusual and the variables in this cluster deserve further study. The authors plan to obtain more plates of this cluster during the summer of 1979 and to publish their results in more detail including blue and visual light curves for the variables.

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