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A PHOTOMETRIC SEQUENCE FOR OI 090.4
AND ADDITIONAL INFORMATION ON CSV 1180

The Ohio Radio source OI 090.4 was reported by Tapia et al. (1977) to be a BL Lacertae object with unusually high polarization. During the determination of the photometric history of this object (Baumert and Craine 1978), it became apparent that a comparison sequence for this object would be extremely useful. Such a sequence is reported here.

Plates of good photometric quality in the plate files of Harvard College Observatory were measured with the iris photometer at Harvard College Observatory to provide comparison stars for OI 090.4. The stars labelled A, B, C in Figure 1 are the primary standards whose B magnitudes (14.98, 13.65, and 16.29 respectively) were determined photoelectrically for Baumert and Craine by Santiago Tapia. These stars were used to determine the photographic magnitudes of the stars reported here.

Figure 1 identifies the new photometric sequence in the field of OI 090.4. North is at the top of the figure and east is to the left; the plate scale is approximately 0.16/mm. Magnitudes for the comparison sequence, along with their mean errors and the number of plates used to determine the magnitudes, are given in Table I.

The suspected variable 1180 (=Ross 200=Prager 512) is close to the position of OI 090.4. Precessing the 1900 coordinates of CSV 1180 to 1950 yields the coordinate differences $\Delta\alpha = +1.9^s$ and $\Delta\delta = +0.64'$ between itself and OI 090.4. The closest object to these coordinates is the faint star just to the north and west of star 6 in Figure 1. However, Ross (1927), the discoverer of CSV 1180 states that his star had magnitudes 11 and 13 on Mar. 12, 1915, and Jan. 5, 1927, respectively. The star mentioned above is considerably fainter than CSV 1180, so its

identity with the latter is doubtful. If star 6 is CSV 1180 it also is fainter than the magnitudes given by Ross by nearly 3 mag. Some of this difference may be attributed to a zero point difference between the magnitude systems, but it is unlikely that the difference would be that large. Also, the brightness of star 6 appears to be constant to within ± 0.20 mag as given in Table I. It is interesting to note that Sandig (1947) did not find any object at Ross' position that varied by more than ± 0.15 mag. Is it possible that Ross' position is slightly in error and that he observed a brightening of OI 090.4 in 1915 and 1927? The light curve of Baumert and Craine shows that OI 090.4 was brighter ($m=14.7$) than normal on Feb. 19, 1915, and was also brighter ($m=15.5$) in 1927. The answer will probably never be definitely known, since Ross did not publish a finding chart for CSV 1180.

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Table I The Photometric Sequence

Star	m	σ_m	n	Star	m	σ_m	n
1	14.5	± 0.17	15	6	15.7	± 0.20	16
2	14.4	.18	16	7	16.6	.12	4
3	16.3	.15	10	8	15.8	.14	11
4	15.1	.19	14	9	16.0	.24	12
5	15.9	.22	10	10	16.1	.17	7

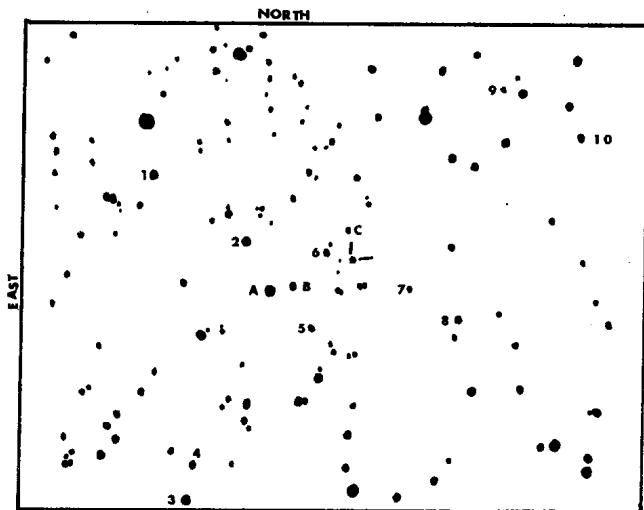


Figure 1. Identification of the stars listed in Table I. Stars labelled A, B, C have photoelectrically determined B magnitudes of 14.98, 13.65, and 16.29 respectively. The object between the tick marks is OI 090.4.