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# A PHOTOMETRIC CAMPAIGN ON OW GEMINORUM

The eclipsing nature of the 8th magnitude variable star OW Gem (BD+17°1281, HDE 258878) was discovered by Kaiser (Kaiser et al., 1988), who also determined the period of 1258.6 days from a study of Harvard patrol plates (Kaiser, 1988). The remarkable primary eclipse is more than 1.5 magnitudes deep and two weeks in duration. Williams (1989) found the secondary eclipse, $0\overset{m}{.}1$ deep, at phase 0.23, indicating that the orbit is highly eccentric.

Griffin and Duquennoy (1993) published a first general investigation of the system, based on radial velocity measures over a full orbital cycle and matches of model light curves to the available eclipse photometry. They found that the system contains two luminous giants, the primary spectral type being F2 Ib-II and the secondary about G8 IIb. Component masses are close to $6M_\odot$ and $4M_\odot$.

The orbital eccentricity is 0.52, in such an orientation ($\omega = 140°$) that the stars have twice the separation at secondary eclipse as at primary eclipse. As a result, the primary eclipse lasts 16 days, the secondary 30 days.

Eclipses and a double-lined spectrum make OW Gem a favorable subject for comprehensive investigation. Radial velocity observations are continuing, so better understanding of the system is now constrained by the available photometry–mostly visual and photographic estimates for the primary eclipse and sparse photoelectric observations in only one color for the secondary eclipse.

Since the 1988 primary and 1989 secondary minima, the eclipses have occurred near solar conjunction. During 1995, however, both eclipses will be favorably placed for observation, the primary eclipse occurring from February 4-20 and the secondary eclipse from November 17 - December 17.

Observations from widely spaced longitudes will help to fill in the eclipse light curves and avoid weather gaps during the northern hemisphere's winter months. We therefore invite suitably equipped observers to participate in an international photometric campaign on OW Gem during 1995, with the lead author serving as coordinator.

Participating observers should be able to achieve $0\overset{m}{.}01$ precision down to 9.9 in V and 10.6 in B during the primary eclipse. The secondary minimum, 8.3 V, 9.0 B, is brighter, but the demand for precision remains high in order to define the shallow eclipse. Multiple passband observations are very desirable and infrared observations would show a deeper secondary eclipse than visible ones. Because observations from a variety of instruments and detectors must be combined, observers are asked to take particular care in determining color transformation coefficients and standardizing the observed differential magnitudes.

All observers should use the same comparison and check stars. The designated comparison star is SAO 95777 (BD +17°1280, HD 258848), 9.0 V, marked as star #2 on the chart in IBVS No. 3196 (Kaiser et al. 1988). The check star is GSC 1332:0578, 9.9 V, star marked #3 on the chart. These stars are similar in color to the variable and are located

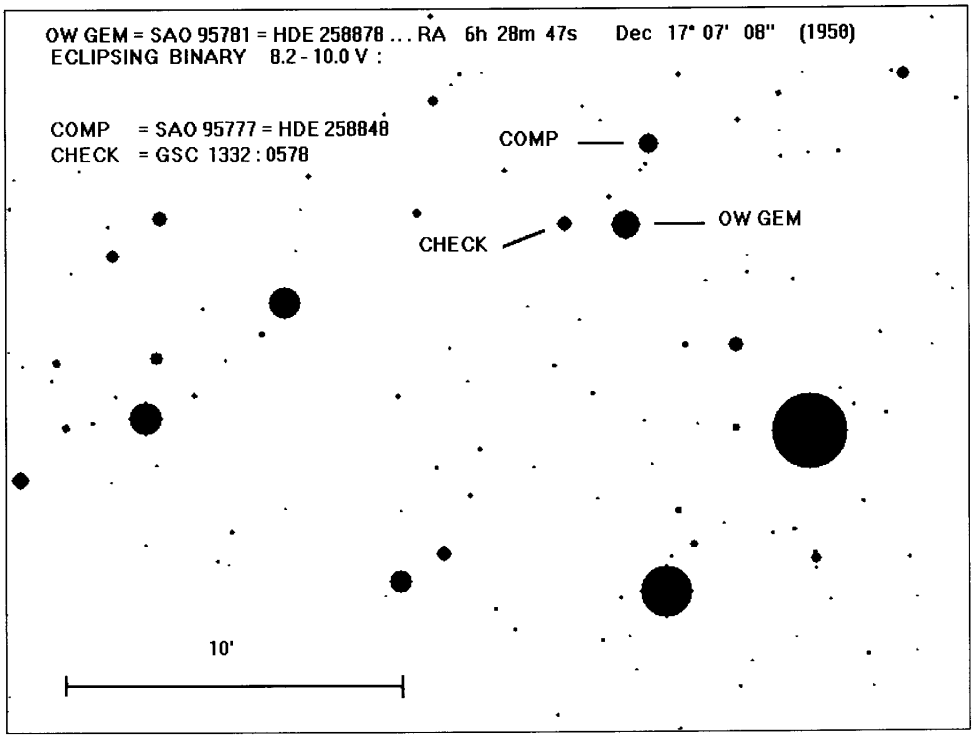


Figure 1. Finding chart for OW Geminorum

within 3.5 arcminutes, which will assist observers using CCD detectors with limited fields. Figure 1 shows a finding chart for the system.

All interested observers are urged to register with the lead author. We intend to distribute a circular with final information prior to the first 1995 event and again following each of the two eclipses.

Dirk TERRELL
Department of Physics and Astronomy
University of Calgary
Calgary, Alberta T2N 1N4
E-Mail: terrell@algol.iras.ucalgary.ca

Daniel H. KAISER
Crescent Moon Observatory,
2631 Washington St., Columbus,
IN 47201, USA
E-Mail: d.kaiser2@genie.geis.com

David B. WILLIAMS
9270-A Racquetball Way,
Indianapolis, IN 46260, USA

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