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POSSIBLE 1990 ECLIPSE OF δ SGE

The bright star δ Sge displays a composite spectrum (M2II + B) and is a known spectroscopic binary with an estimated period of 3720 days (Reimers and Schröder 1983). McLaughlin et al. (1952) called attention to spectroscopic phenomena observed at the 1939 and 1949 conjunctions that suggest that the early-type component passes behind the atmosphere of the giant star. Similar phenomena were reported by Batten and Fisher (1981) shortly after the conjunction of 1979-80. It is thus possible that the early-type component may be eclipsed at conjunctions. Even though present estimates suggest that such an eclipse is unlikely, it would be very useful to determine the matter by making photometric observations.

Because the longitude of periastron is very close to 270° , conjunctions almost coincide in time with periastron passage. The orbital elements derived by Reimers and Schröder give, for the time of periastron passage,

$$T = \text{J.D. } 2444271 + 3720E,$$

which predicts that the next such passage will be in the middle of May 1990. Radial-velocity measurements at Victoria have now been made over an interval of 3515 days. The radial velocity of the giant star passed through its minimum value close to the end of 1988 and is now increasing rapidly. The Victoria observations can be brought into better agreement with other high-dispersion observations from Lick and Mount Wilson, and be made more self-consistent, if a somewhat shorter value is chosen for the period. Provisionally, I adopt 3700 days, but the period could be shorter still. On the other hand, it must be more than 3650 days, since the time of periastron passage does occur a little bit later (in every tenth year) than the previous one. If the shorter period is correct, periastron passage, and conjunction, will be earlier than predicted by Reimers and Schröder - possibly as early as the beginning of March. Unfortunately, this is also just about as early in the year as

δ Sge can be conveniently observed from most observatories. It is desirable, however, that the system should be observed as late as possible this fall and as early as possible next spring.

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