BL TELESCOPII - A RARE ECLIPSING BINARY

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BL Telescopii was discovered by Luyten in 1935 while searching for stars of high proper motion. Until 1948 this star was classified as an R CrB type variable by Kukarkin and Parenago. However, Cousins at the Royal Observatory in South Africa observed this star visually from 1939 to 1945 and decided that it was a long period eclipsing binary. On the basis of his observations minima were observed on the predicted dates and it is accepted today that this star is an eclipsing binary.

BL Tel, with the designation 185851, is a very interesting binary. It has a period of 778 days. Outside the eclipse the system shows a supergiant F type spectrum. During the eclipse spectroscopic as well as photometric changes occur; TiO bands appear indicating the presence of an M type companion.

Studies of the observations have shown that this star lies a considerable distance from the plane of the Galaxy, with a galactic latitude of $b^{11} = -23^{o}$. Spectroscopic investigations have indicated a high radial velocity of +92 km/sec. On the basis of the above information, this star is assumed to be a "run-away" star by Feast (1966). According to Blaauw and Zwicky's hypothesis, such systems were formerly low velocity objects in the galactic plane. When one of the members of the system loses large amounts of mass, probably by supernova activity, the binary system is disrupted. High velocity is acquired by the other member which does not become a supernova. "Run-away" stars of this kind then just appear as single objects. The other components, the supernova remnants, have not been identified. However, it is possible in certain circumstances for the two stars to remain together as a binary after the rapid mass loss. BL Tel is a rare binary of this kind where, if the hypothesis is right, the supernova remnant still exists as part of the system. Feast (1966) estimates that this system was of low velocity some 10^{7} years ago.

BL Tel entered into the observing program of the AAVSO in the early 1940's, and continuous observations are present from 1952 on. Most of the observations are by De Kock, at the Royal Observatory in South Africa. Using the observations since 1952, a light curve was plotted (Fig. 1). As the plot indicates, De Kock was quite lucky to observe so many minima, particularly when Feast (1966) writes that both he and Cousins were not able to observe some of the minima between 1953 and 1962. De Kock has not observed the star since 1968. Cousins and Lagerway (1969) and Knipe (1969) did observe the 9.4 magnitude minimum of that year, however.

BL Tel is an interesting object astronomically, and should certainly be kept on observing programs in spite of the long periods of inactivity.

REFERENCES

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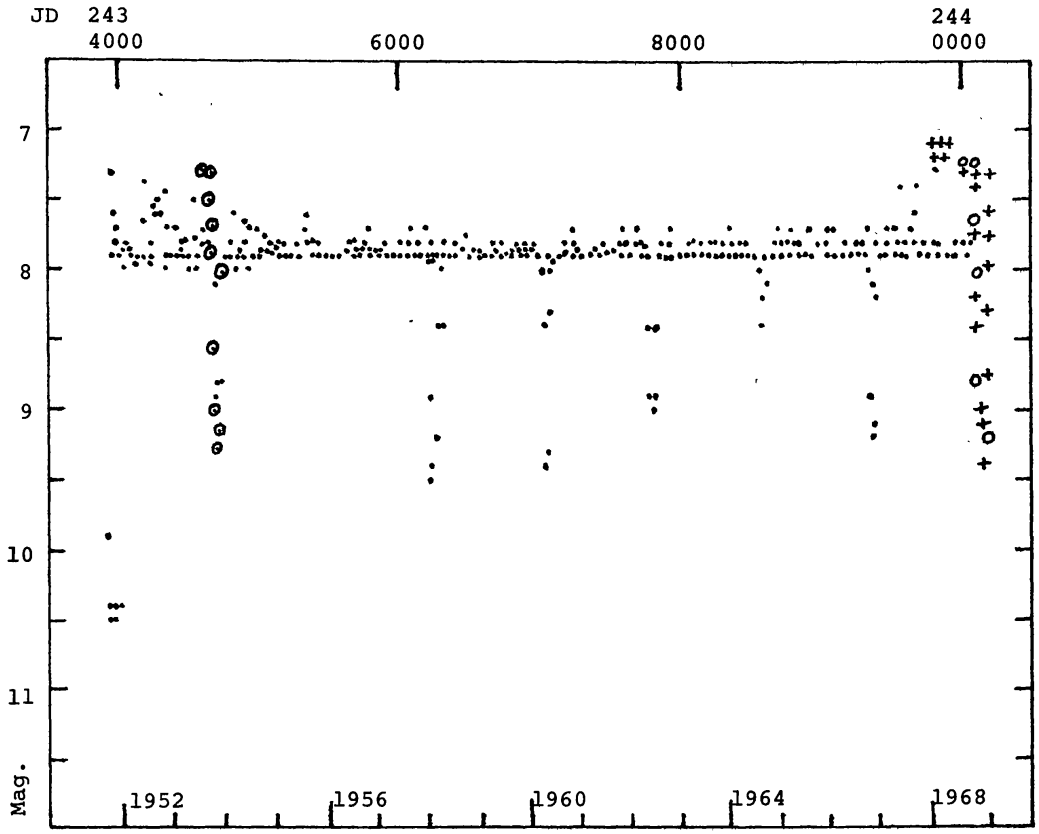

Figure 1. The Light Curve of BL Telescopii.

· = AAVSO Visual observations
⊙ = Cousins and Feast (1954) photometric (Pv)
+ = Cousins and Lagerway (1969) photometric (V filter)
o = Knipe(1969) photometric (V filter)