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Note to double star observers

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Citation

Bos, W. H. van den. (1923). Note to double star observers. *Bulletin Of The Astronomical Institutes Of The Netherlands*, 2, 30. Retrieved from <https://hdl.handle.net/1887/5612>

Version: Not Applicable (or Unknown)

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Note: To cite this publication please use the final published version (if applicable).

On the whole the measures are well represented. The observed arc is however too short to conclude that the elements are near to the truth. The invisibility of the companion in 1907 is rather remarkable. The pair never being too close, even for instruments of small size, only three explanations are suggested: that a wrong star was looked at, that the conditions were insufficient, and that the companion is variable. The first and second are improbable, as the star was looked up on several nights, and the invisibility confirmed by the Sydney Observatory. Nevertheless variability of the companion is by no means certain. The star, in this respect, resembles δ Cygni on the northern hemisphere (LEWIS, *Mem. R. A. S.* LVI, p. 590).

VOÛTE gives the trigonometrical parallax $0''.190$ (*M. N.* LXXIX, p. 636); this would make the sum of the masses $0.38 \odot$; a parallax of $0''.138$ gives $1 \odot$. A mass of $0.4 \odot$ is however not improbably small for a system of type *Ko*.

The star is Boss 4378, p. m. $0''.97$ in 77° ; the Harvard

magnitude is 5.58. The mean parallax, according to VAN RHIJN's tables, is $0''.087$.

The large size of the orbit makes this an attractive object for a photographic determination of the mass ratio, which is obtained as a byproduct of a parallax determination, as has been done by VAN BIESBROECK at the Yerkes Observatory for many northern binaries.

I am again indebted to Dr. INNES for the completion of the list of measures.

<i>Ephemeris.</i>		
y	$170^\circ 11'$	$2'' 980$
1920.0	170.11	2.980
22	176.39	3.049
24	182.40	3.079
26	188.43	3.069
28	194.49	3.032
30	200.78	2.975
32	207.34	2.899
34	214.33	2.811
36	221.78	2.722
38	229.58	2.641
40	238.00	2.579

Note to Double Star Observers, by *W. H. van den Bos*.

The writer has measured the series of plates of ξ Ursae Majoris, taken by Professors HERTZSPRUNG and MÜNCH with the visual refractor of 50 cm aperture at Potsdam in the years 1914—1923. In order to derive a set of elements for the perturbation, first suspected by NØRLUND, it is necessary to have a thoroughly reliable primary orbit. Notwithstanding the great pains taken by NØRLUND in deriving his elements, these do not fit the photographic results sufficiently well. It is thought, that only a careful discussion of the results from the separate nights, with

a view to the elimination of systematic errors, may possibly overcome this difficulty. The circumstances to be considered are first of all the hour angle at which the measure has been made, and further the position of the head (eyes horizontal, or parallel or perpendicular to the wire), the condition, the aperture of the telescope, the power etc.

Observers having unpublished measures, or measures published without detail, are therefore respectfully requested to communicate their results, with any remarks they might think to be of interest.