

## THE ECLIPSING VARIABLE SW NORMAE(\*)

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**SUMMARY** — Lux stellae variabilis SW Normae hactenus binis tantum noctibus visa est diminuta, quare periodus prorsus ignoratur. Ope observationum in Observatorio Riverviewensi factarum Auctor demonstrat SW Normae stellam duplicem esse cum eclipsibus. Periodus parum a mense lunari differt. Eclipses igitur per aliquot annos circa tempus plenilunii eveniunt, ita ut tunc observari nequeant.

SW Normae was discovered by KRUYTBOSCH [1] in 1930. Out of 248 plates examined, taken on 90 nights, he found it faint on only two plates, taken on the same night. HOFFMEISTER [2] examined the variable on 134 plates, taken at WINDHOEK from 1934 to 1938, and found only one minimum. No other observations have been published.

The variable was estimated by the writer on 473 plates taken at Riverview Observatory from 1934 to 1950. It was found notably faint on only three plates. On two of these plates it was at minimum, and on the other about half way between maximum and minimum. These three epochs combined with the minima of KRUYTBOSCH and HOFFMEISTER give a period of  $29^d6349 \div n$ . When the writer's estimates are plotted with this period, the duration of minimum,  $D$ , is about  $0^d4$ . For 18.4 days after minimum there is no break in the mean light curve longer than  $0^d2$ , so that it seems certain that the period is  $29^d6349$  and not a submultiple of this.

The observations within  $0^d3$  of minimum are given in the table, together with the epochs of minimum observed by KRUYTBOSCH and HOFFMEISTER. The writer's estimates are given in steps. The phases were calculated with the formula

$$\text{Minimum} = \text{J.D. hel. } 2430965.87 + 29^d6349 \text{ E.}$$

The observations of KRUYTBOSCH and HOFFMEISTER are taken as occurring during totality. Of the Riverview observations two are during totality, one on the descending, and one on the ascending, branch.

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These observations are plotted in the figure. They suffice to give a rough approximation for the duration of minimum and of totality, which will serve as a guide for future observations.

From the mean light curve the following were obtained:

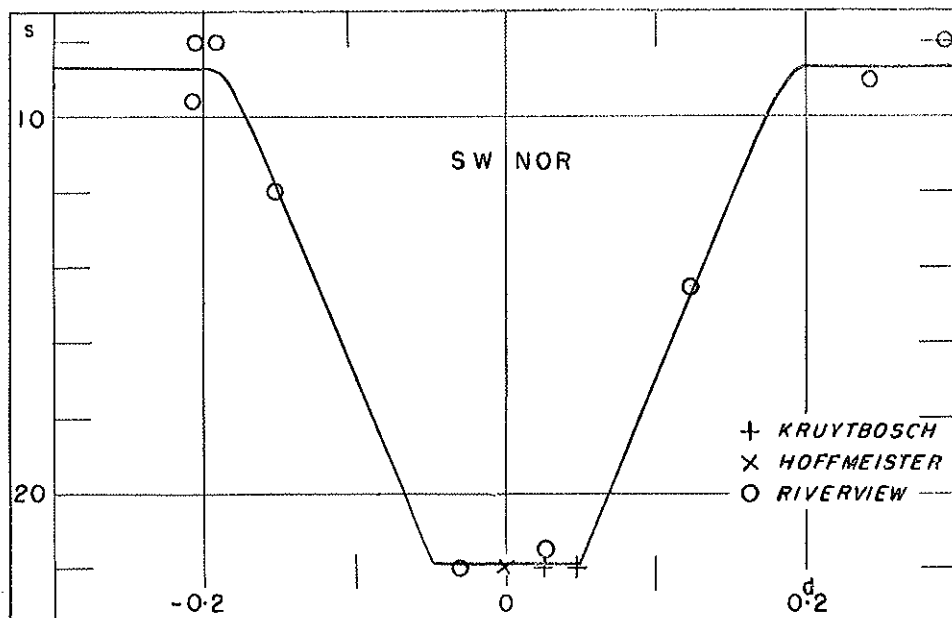
Maximum 8.7 steps  $D \sim 0^d4 = 0^p014$

Minimum 21.8 »  $d \sim 0.1 = 0.003$

Centre of minimum at phase  $0^d0$

No secondary minimum was observed.

The period is very near the synodical lunar month, so that for years on end the minima occur near full moon and are unobservable. In each period



*Minimum of SW Normae.* Abscissae are phases, in decimals of a day. Ordinates are steps.

the minimum advances  $0^d1043$  in the lunar month. It takes 283 periods (=23 years) for the minimum to advance one lunar month. It will be some years from now (1954) before the minimum is again far enough from full moon to be well observable, as may be seen from the following table:

Epoch	Minimum J. D. hel.	Date	Age of Moon
158	2435648.184	1956, June 23	14. <sup>d</sup> 7
194	36715.041	1959, May 26	18.6

The following formula should be adequate for predicting times of minima for several years to come:

$$\text{Minimum} = \text{J. D. hel. } 2430965.87 + 29^d 6349 \text{ E.}$$

## OBSERVATIONS OF SW NORMAE AT OR NEAR MINIMUM

Epoch	J. D. hel.	Steps	Phase	Observer
	2400000 +			
— 177	25720.520		+ 0 <sup>d</sup> .027	KRUYTBOSCH
— 177	.541		+ .048	»
— 98	28061.887	9.0	+ .237	O' CONNELL
— 87	28387.916	8.0	+ .282	»
— 77	28683.953	22.0	+ .030	»
— 75	28743.253		.000	HOFFMEISTER
— 61	29157.929	9.6 :	— .212	O' CONNELL
— 50	29483.915	8.0	— .210	»
— 49	29513.883	14.5	+ .123	»
— 28	35135.944	12.0	— .149	»
0	30965.897	21.5	+ .027	»
35	32002.899	8.0	— .193	»

## REFERENCES

- [1] W. E. KRUYTBOSCH, « B.A.N. », 6, 1930.  
 [2] C. HOFFMEISTER, « Kl. Ver. Berlin-Babelsberg », No. 27, 1943.