

BBSAG Bulletin 68

1983 October 8

101st List of Minima of Eclipsing Binaries

The following table lists 1 photoelectric and 265 visual minima obtained mainly during 1983 August and September by the observers

GB	Guy Boistel, Sautron, France
RB	Roland Boninsegna, Dourbes, Belgium
DE	Demetrius P. Elias, Ponteli, Greece, photoelectric
DE	" " " " " , visual
RG	Robert Germann, Wald, Switzerland
MKo	Michael Kohl, Uster, Switzerland
BK	Bruce A. Krobusek, Mayfield, Ohio USA
KL	Kurt Locher, Grüt, Switzerland
PLo	Patrick Louis, Namur, Belgium
GM	George Mavrofridis, Athens, Greece
EN	Edmond Nezry, Toulouse, France
APa	Aristos Parris, Larisa, Greece
PR	Philippe Ralinourt, Nantes, France
NS	Nikolaos Stoikidis, Larisa, Greece
PWi	Patrick Wils, Niel, Belgium
PWK	Philippe Wkonski, Lagny-sur-Marne, France

The O - C values refer to the linear elements of the GCVS 1969, disregarding improved elements in the 1971, 1974, and 1976 supplements to the GCVS. Reductions were made mainly using the tracing paper method.

(footnotes to page 2 :)

- * GCVS 1969 period erroneous, O - C according to the GCVS 1976: +.037 +.021 +.030
- ** not contained in the GCVS 1969, O - C according to the GCVS 1976: +.097 +.098 +.102
- *** O - C according to the GCVS exceeds one period, O - C according to the elements of BBSAG Bulletin 38, page 6: +.011
- **** not contained in the GCVS, O - C according to the elements of BBSAG Bulletin 65, page 6: +.155 +.125
- ***** GCVS period erroneous, O - C according to the elements of BBSAG Bulletin 53, page 5: +.005
- ***** not contained in the GCVS, O - C according to the elements of BBSAG Bulletin 67, page 4: -.009 +.013 +.006 -.018 +.005
- § §§ ambiguous minimum orders due to the lack of pre-recent observations: As judged from the O - C, § should be secondary and §§ primary, but as judged from the estimated brightness, reversely.
- §§§ period unknown
- §§§§ not contained in the GCVS 1969, O - C according to the GCVS 1976: +.007 +.006 .000 +.009 -.001 +.011
- §§§§§ not contained in the GCVS, O - C according to Шугаров 's elements Переменные Звёзды Приложение 3, page 709, 1979: +.051:
- §§§§§§ not contained in the GCVS, O - C according to the elements of

cur- rent no.	star	minimum or- der	JD hel 244...	0-C	n	ob- ser- ver	cur- rent no.	star	minimum or- der	JD hel 244...	0-C	n	ob- ser- ver
20331	RT And	I	5564.528	-.012	32	PR	20378		II	5553.408	*****	8	KL
20332		I	5578.362	-.014	9	PWi	20379		I	5555.390	*****	5	KL
20333		I	5583.391	-.017	13	PWi	20380		I	5565.532	*****	5	KL
20334		I	5600.375	-.014	10	PWi	20381		II	5580.336	*****	4	KL
20335	TT And	I	5585.548	-.073	6	KL	20382	^{hel} NSV 13710 Cap		5548.534	§§§§	5	KL
20336		I	5596.584	-.098	6	KL	20383	RZ Cas	I	5527.452	-.001	26	GB
20337	TW And	I	5604.464	+.027	7	KL	20384		I	5527.457	+.004	23	EN
20338	XZ And	I	5586.415	-.058	6	KL	20385		I	5552.548	-.005	7	PR
20339	AB And	I	5600.372	+.032	11	PWi	20386		I	5558.526	-.003	47	EN
20340	EP And	I	5553.375	*	6	KL	20387		I	5558.526	-.003	18	PLo
20341		II	5562.452	*	6	KL	20388		I	5558.528	-.001	14	RB
20342		II	5577.413	*	6	KL	20389		I	5558.532	+.003	30	GB
20343	GZ And	II	5548.612	**	7	KL	20390		I	5564.507	+.002	26	PR
20344		I	5600.312	**	7	KL	20391		I	5571.680	+.003	19	BK
20345		II	5600.469	**	6	KL	20392		I	5582.434	.000	37	GB
20346	RY Aqr	I	5601.287	-.141	6	KL	20393		I	5582.435	+.001	29	PWk
20347	AT Aqr	§§	5548.558	+.049	6	KL	20394	TV Cas	I	5530.513	-.029	9	RD
20348	AY Aqr	§	5564.481	-.016	6	KL	20395	AB Cas	I	5370.308	+.009	10	GM
20349	CR Aqr	II	5548.360	+.176	7	KL	20396		I	5590.366	.000	5	APa
20350		II	5550.413	+.172	15	DE	20397		I	5590.386	+.019	6	NS
20351	CX Aqr	I	5553.377	+.011	7	KL	20398		I	5594.472	+.006	7	KL
20352		I	5592.300	+.015	7	NS	20399	IR Cas	I	5569.404	-.101	7	KL
20353		I	5602.309	+.016	7	RG	20400		I	5597.307	-.106	6	KL
20354		I	5602.311	+.018	6	HP	20401	IV Cas	I	5564.634	+.127	6	KL
20355		I	5607.317	+.020	8	RG	20402		I	5574.622	+.130	7	KL
20356		I	5607.317	+.020	6	KL	20403	OR Cas	I	5559.488	+.033	7	KL
20357	XZ Aql	I	5561.492	+.073	6	KL	20404		I	5600.594	+.031	6	KL
20358		I	5606.402	+.061	5	KL	20405		I	5604.349	+.048	8	HP
20359	V 342 Aql	I	5605.301	-.108	7	KL	20406	V 355 Cas	I	5559.568	-.002	5	KL
20360	V 343 Aql	I	5596.354	-.026	5	Mko	20407	V 523 Cas	II	5569.408	§§§§§§§§	6	KL
20361	V 346 Aql	I	5590.393	-.025	4	NS	20408		II	5583.428	§§§§§§§§	6	PWi
20362		I	5590.406	-.011	4	APa	20409		I	5586.577	§§§§§§§§	6	KL
20363	^{hel} V 557 Aql	I	5574.414	-.305	8	KL	20410		I	5595.466	§§§§§§§§	6	PWi
20364	V 760 Aql	I	5600.394	+.017	8	KL	20411		II	5598.378	§§§§§§§§	8	KL
20365	V 803 Aql	II	5564.385	***	6	KL	20412		I	5600.376	§§§§§§§§	11	PWi
20366	TX Ari	I	5574.619	-.142	8	KL	20413	^{hel} V 544 Cas	I	5559.589	§§§§§§§§	6	KL
20367	RY Aur	I	5574.542	+.001	6	KL	20414	XX Cep	I	5370.368	-.007	8	GM
20368	ZZ Boo	I	5519.427	-.006	9	RD	20415		I	5559.698	.000	20	DK
20369	WW Cnc	I	5387.366	-.301	8	GM	20416		I	5578.394	-.002	13	PWi
20370	NSV 487 Cnc	II	5592.595	****	8	KL	20417	DR Cep	I	5574.364	-.159	6	KL
20371		I	5594.634	****	5	KL	20418	CM Cep	I	5592.555	-.132	7	KL
20372	RX CMa	I	5386.323	-.028	9	GM	20419	EG Cep	I	5575.641	+.021	17	BK
20373	EG CMa	I	5600.627	*****	6	KL	20420	GI Cep	I	5604.373	.000	11	HP
20374	AK CMi	I	5337.356	+.022	9	GM	20421		I	5606.443	-.005	12	HP
20375		I	5370.350	+.020	7	GM	20422	NSV 817 Cep	II	5549.453	§§§§§§§§	10	DE
20376		I	5387.331	+.024	9	GM	20423		I	5555.433	§§§§§§§§	7	KL
20377	NSV 13478 Cap	II	5548.524	*****	8	KL	20424		I	5556.382	§§§§§§§§	7	KL
							20425		I	5561.592	§§§§§§§§	7	KL
							20426		I	5562.527	§§§§§§§§	6	KL
							20427		II	5565.589	§§§§§§§§	8	KL
							20428		II	5586.403	§§§§§§§§	6	KL
							20429		II	5587.347	§§§§§§§§	6	KL
							20430		II	5592.547	§§§§§§§§	6	KL

cur- rent no.	star	minimum or- der	JD hel 244...	0-C n	ob- ser- ver	cur- rent no.	star	minimum or- der	JD hel 244...	0-C n	ob- ser- ver
0431		I	5600.356	0.033	8 KL	20460	V 456 Cyg	I	5574.396	+0.18	7 RG
0432		II	5604.341	0.033	6 KL	20461	^{na} V 616 Cyg	I	5564.470	-0.172	7 KL
0433		II	5605.313	0.033	6 KL	20462	W 635 Cyg	I	5592.370	+0.077	4 KL
0434		I	5607.434	0.033	6 KL	20463	V 687 Cyg	I	5606.410	+0.005	10 HP
0435	^{nee} NSV 14111 Cep		5561.490	*	7 KL	20464	SVS 2194 Cyg	I	5554.452	****	18 DE
0436	TW Cet	II	5566.603	-0.033	7 KL	20465		I	5554.455	****	17 KL
0437		II	5585.610	-0.038	6 KL	20466	NSV 13198 Cyg	I	5555.398	*****	6 KL
0438		II	5594.490	-0.029	6 KL	20467		I	5586.432	*****	10 KL
0439	VY Cet	I	5561.620	**	6 KL	20468		I	5594.585	*****	5 KL
0440		II	5585.646	**	6 KL	20469		I	5606.379	*****	7 KL
0441		II	5594.503	**	9 KL	20470	NSV 13250 Cyg		5558.7	*****	7 KL
0442	AA Cet	I	5566.615	***	7 KL	20471			5574.1	*****	8 KL
0443		II	5585.650	***	7 KL	20472			5587.6	*****	12 KL
0444		I	5594.509	***	6 KL	20473			5601.6	*****	9 KL
0445		I	5596.655	***	6 KL	20474	TT Del	I	5536.738	+0.055	25 DK
0446	^{nee} NSV 292 Cet		5585.606		5 KL	20475		I	5591.312	+0.079	5 NS
0447	RW Com	I	5518.383	-0.070	6 KL	20476	TY Del	I	5607.331	+0.030	8 RG
0448	UW Cyg	I	5598.330	+0.019	7 KL	20477		I	5607.340	+0.040	6 KL
0449	WZ Cyg	I	5578.367	+0.025	10 PWi	20478	YY Del	I	5562.430	+0.025	7 KL
0450	ZZ Cyg	I	5577.422	-0.041	6 KL	20479	DM Del	I	5605.3727	+0.0492	14 DE
0451		I	5606.338	-0.041	6 KL	20480	FZ Del	I	5580.349	-0.017	7 RG
0452		I	5606.342	-0.037	10 HP	20481		I	5602.282	-0.014	6 KL
0453	AE Cyg	I	5555.425	+0.018	9 RG	20482		I	5602.289	-0.007	8 HP
0454	CG Cyg	I	5555.401	-0.029	7 RG	20483		I	5602.290	-0.006	5 MKo
0455	KR Cyg	I	5600.392	-0.020	12 PWi	20484	Z Dra	I	5370.301	+0.016	10 GM
0456	MR Cyg	I	5578.383	-0.001	14 PWi	20485		I	5564.422	+0.022	6 KL
0457	V 370 Cyg	I	5574.533	+0.046	7 KL	20486	RZ Dra	I	5559.705	-0.021	8 DK
0458		I	5592.352	+0.051	5 KL	20487		I	5575.677	-0.025	12 DK
0459	V 387 Cyg	I	5604.428	+0.070	9 HP	20488		I	5604.314	-0.033	7 RG
						20489	TW Dra	I	5559.375	-0.042	6 KL

§§§§§ see page 1

* period unknown

** GCVS 1969 period erroneous, 0 - C according to the GCVS 1976: -0.020 -0.023 -0.026

*** not contained in the GCVS 1969, 0 - C according to the GCVS 1974: -0.039 -0.038 -0.026 -0.025

**** not contained in the GCVS, 0 - C according to Шырапов 's elements Астрономический Циркуляр 949, 1977: +0.101 +0.104

***** not contained in the GCVS, 0 - C according to the elements on page 7 of this issue: +0.035 +0.006 +0.023 -0.017

***** not contained in the GCVS, 0 - C according to the elements on page 6 of this issue: -1.2: +0.1 -0.5 -0.6

cur- rent no.	star	minimum or- der	JD hel 244...	0-C	n	ob- ser- ver	cur- rent no.	star	minimum or- der	JD hel 244...	0-C	n	ob- ser- ver
20490	AI Dra	I	5564.574	+.002	32	PR	20524	Y Leo	I	5596.632	+.143	8	KL
20491	CM Dra	I	5580.389	*	6	KL	20525	RS Lep	I	5364.296	-.006	4	GM
20492		I	5587.389	*	6	KL	20526	TZ Lyr	I	5549.629	+.047	18	BK
20493		I	5592.441	*	5	KL	20527		I	5559.666	+.036	15	BK
20494	AM Eri	I	5564.613	**	5	KL	20528	UZ Lyr	I	5596.343	+.022	5	MKo
20495	SZ Her	I	5569.469	+.040	6	KL	20529	EW Lyr	I	5554.518	+.088	8	KL
20496		I	5574.375	+.037	7	RG	20530		I	5554.519	+.089	8	DE
20497		I	5579.285	+.038	7	GM	20531		I	5597.391	+.089	6	KL
20498		I	5592.371	+.035	7	NS	20532	FH Lyr	I	5554.400	-.039	13	DE
20499		I	5597.284	+.040	8	RG	20533		I	5554.408	-.031	13	KL
20500		I	5606.279	+.035	6	KL	20534	GZ Lyr	I	5564.528	*****	6	KL
20501		I	5606.280	+.037	7	HP	20535	HM Mon	I	5596.650	+.084	5	KL
20502		I	5606.289	+.045	7	RG	20536	U Oph	I	5528.469	+.005	14	RD
20502	TU Her	I	5555.401	-.079	8	RG	20537	V 449 Oph	I	5561.354	+.051	6	KL
20503		I	5555.415	-.066	10	KL	20538	V 451 Oph	I	5561.464	+.033	34	GD
20504		I	5580.347	-.070	6	KL	20539	V 508 Oph	I	5606.285	+.014	7	HP
20505	CT Her	I	5597.293	+.069	7	RG	20540		I	5606.291	+.021	7	RG
20506	DH Her	I	5577.402	-.046	6	KL	20541	V 511 Oph	I	5549.317	+.066	10	DE
20507	DQ Her	I	5548.330	+.010	25	DE	20542		I	5550.406	+.089	12	DE
20508		I	5548.331	+.011	11	KL	20543	EQ Ori	I	5379.248	-.095	10	GM
20509		I	5564.403	+.012	6	KL	20544		I	5386.232	-.095	6	GM
20510	HZ Her	I	5549.401	***	7	DE	20545	FK Ori	I	5600.652	+.334	7	KL
20511	MT Her	I	5586.377	+.039	6	KL	20546	FL Ori	I	5564.606	+.096	6	KL
20512	SW Lac	II	5576.662	-.161	14	BK	20547	OS Ori	I	5386.349	-.040	5	GM
20513	TW Lac	I	5555.473	-.152	5	KL	20548	V 640 Ori	I	5370.399	-.014	5	GM
20514	VX Lac	I	5574.373	-.078	7	RG	20549	DN Peg	I	5602.293	-.291	7	RG
20515		I	5602.300	-.088	8	HP	20550		I	5602.304	-.280	10	HP
20516		I	5602.301	-.087	8	RG	20551		I	5607.293	-.284	8	RG
20517	AU Lac	I	5585.602	-.080	6	KL	20552	BY Peg	I	5561.421	+.095	6	KL
20518	PP Lac	§	5577.375	****	9	PWi	20553		I	5565.518	+.088	6	KL
20519		§	5578.385	****	10	PWi	20554		II	5579.377	+.099	6	GM
20520		§	5583.390	****	9	PWi	20555		II	5604.326	+.087	7	KL
20521		§	5595.438	****	10	PWi							
20522		§	5600.444	****	6	PWi							
20523	SAO 72799 Lac	I	5558.533	*****	13	RD	20556	CW Peg	I	5559.597	-.267	5	KL

§ §§ see page 1

* GCVS 1969 incomplete, O - C according to Martins' elements PASP 87, page 168, 1975: -.609 -.587 -.608

** O - C according to the GCVS amounts to several entire periods, O - C according to the elements of DOSAG Bulletin 50, page 5: -.060

*** no period given by the GCVS 1969, O - C according to the GCVS 1974: -.034

**** no period given by the GCVS, O - C according to Figer's (1st set) elements IDVS 1231: +.186 +.193 +.184 +.199 +.193:

***** not contained in the GCVS, O - C according to the elements by Fernandes and Frank IBVS 2053: -.016

***** GCVS 1969 elements incomplete, O - C according to the GCVS 1976: -.014

cur- rent no.	star	minimum or- JD hel- der 244...	0-C n	ob- ser- ver	cur- rent no.	star	minimum or- JD hel- der 244...	0-C n	ob- ser- ver
20557	RT Per	I 5602.328	-.080	7 MKo	20577	AM Tau	I 5386.279	-.170	5 GM
20558	WY Per	I 5586.462	-.028	6 KL	20578	V Tri	I 5604.328	+.019	7 RG
20559	XZ Per	I 5566.600	+.012	6 KL	20579	RV Tri	I 5589.392	-.037	6 NS
20560	KW Per	I 5596.684	+.043	7 KL	20580	RW Tri	I 5380.250	-.003	14 GM
20561		I 5600.417	+.051	6 KL	20581	XZ UMa	I 5370.261	-.064	11 GM
20562		I 5602.284	+.056	6 KL	20582	AC UMa	I 5606.375	+.361	5 KL
20563	SX Psc	I 5607.422	-.041	4 KL	20583	AW Vul	I 5573.364	-.025	6 KL
20564	RW PsA	I 5553.446	-.053	6 KL	20584		I 5577.401	-.021	8 PWi
20565		I 5565.515	-.060	6 KL	20585		I 5577.402	-.020	6 KL
20566	WX Sgr	I 5597.309	+.454	7 KL	20586		I 5606.431	-.023	9 HP
20567	V 505 Sgr	I 5560.464	-.046	29 EN	20587	AX Vul	I 5586.382	-.004	8 KL
20568		I 5560.481	-.028	8 PLo	20588	AY Vul	I 5592.378	+.043	9 KL
20569		I 5560.490	-.019	15 RB	20589	BO Vul	I 5586.466	-.085	6 KL
20570	RS Sct	I 5580.331	+.021	7 RG	20590		I 5590.347	-.096	6 NS
20571	AD Ser	I 5569.378	.000	4 KL	20591		I 5590.354	-.088	6 APa
20572		I 5606.318	+.007	9 HP	20592	BU Vul	I 5555.371	+.012	7 RG
20573	AU Ser	I 5555.384	*	7 RG	20593		I 5604.304	+.011	7 RG
20574	EG Ser	I 5561.410	+.052	13 PWi	20594	CD Vul	I 5600.399	-.019	13 PWi
20575	LX Ser	I 5548.443	**	27 DE	20595	GP Vul	I 5589.362	-.030	5 NS
20576		I 5548.443	**	9 KL	20596	NB Vul	I 5564.363	**	6 KL

* GCVS 1969 elements too inaccurate for reasonable reduction, O - C according to the GCVS 1974: -.004

** not contained in the GCVS, O - C according to the elements by Africano, Horne and Margon IAUC 3466: +.024 +.024

5th Report on Visual Survey of N S V Stars Suspected to be Eclipsing

Improvements with respect to previous reports are underlined.

N S V no.	Con- stel- lation	catalogued am- pli- tude	* type	resulting am- pli- tude	* type	number nights sur- veyed	remarks
292	Cet	0.7p	E	0.5v	E	7	minimum page 3 of this issue
403	Psc	0.6p	S	0.0v	CST:	6	
583	Tri	1.1p	E	1.0v	<u>S</u>	<u>11</u>	
587	Cas	1.1p	E	1.0v	E:	8	
588	Cas	1.1p	EA	0.1v	CST:	14	
817	Cep	1.0p	EA	1.1v	EB	<u>59</u>	see BBSAG Bulletin 63, page 6
1126	Ari	1.0p	S:	0.2v	CST:	<u>18</u>	
1508	Eri	0.7p	E	0.4v	S	4	
1564	Eri	0.8p	S:	0.0v	CST:	4	
1903	Aur	0.9p	S	0.2v	CST:	4	
11241	Oph	1.2p	S	<u>0.4v</u>	<u>S</u>	<u>16</u>	
12452	Aql	2.3p	S	<u>0.9v</u>	<u>S</u>	<u>25</u>	
13198	Cyg	1.2p	S	<u>1.0v</u>	<u>EA</u>	<u>27</u>	see page 7 of this issue
13250	Cyg	1.5p	S	1.1v	EB*)	27	*) or CEP, see next page
13478	Cap	0.9p	EW	0.5v	EW	<u>16</u>	see BBSAG Bulletin 67, page 4
14111	Cep	2.0p	S	0.8v	EB	<u>12</u>	minimum page 3 of this issue, rare minima, equally frequent

N S V 13250 Cygni

D e t e c t i o n o f t h e P e r i o d

This star has been suspected of rapid variability over a 1.5 magnitude photographic range by HOFFMEISTER, ASTRONOMISCHE NACHRICHTEN 259, page 37, 1936. My visual survey during 27 nights August to October 1983 has yielded a somewhat smaller range and a sinusoidal lightcurve 14 days long. Since the B-V colour is nearly +1.1 as estimated on the Palomar Atlas, this may be interpreted as

- either a 28-day symmetric supergiant EB pair, rather late type or reddened, yet inconsistent with the fact that the minima show no narrower curvature than the maxima.
- or a 14-day cepheid of either population type, yet inconsistent with the high symmetry of the curve, especially for the I population type. The galactic latitude is 3° .

In any case it is of considerable astrophysical interest, thus requiring spectroscopy and photometry.

Figure 69 plots all my observations versus phase, using the symbols

§	for the cycle beginning with maximum JD 2445496.58
x	5552.90
+	5566.98
*	5581.06
o	5595.14
z	5609.22

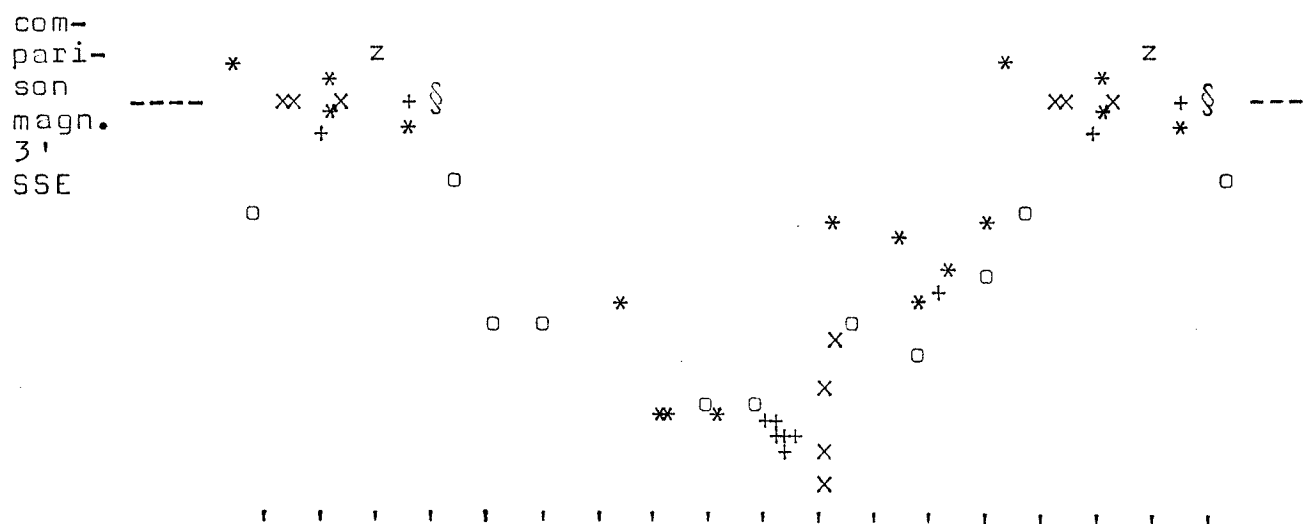
For the EB interpretation the elements would read

$$\text{Min}_I \text{ JD} = 2445588.1 + 28.16 C$$

K. Locher

Figure 69

com-
pari-
son
magn. ----
5'
SSE



N S V 13198 Cygni

D e t e c t i o n o f t h e P e r i o d

Also this star was suspected to show rapid variations by HOFFMEISTER, ERGAENZUNG SHEFTE ZU DEN ASTRONOMISCHEN NACHRICHTEN 12, no.1, 1949, with 1.2^m photographic amplitude. Surveying it visually during 27 nights May to October 1983, I have found EA variations with a somewhat smaller amplitude and the elements

$$\text{Min}_I \text{ JD hel} = 2445449.6 + .7396 E$$

Possibly the period must be doubled. Figure 70 plots all my observations against phase, using the symbols

JD 2445449	..502	..504	..519	..523	..555	..556	..561	..562	..573
	U	W	S	A	§	x	∩	o	Y
	..577	..580	..581	..585	..586	..587	..589	..590	..591
	E	*	T	M	+	o	H	I	w
	..594	..602	..604	..605	..606	..607	..609		
	B	C	D	K	Q	X	c		

K. Locher

Figure 70

