

# BBSAG Bulletin 6

1972 December 6

## 39<sup>th</sup> List of Minima of Eclipsing Binaries

The following table lists all the 319 visual minima obtained during October and November 1972 by the BBSAG members

RD Roger Diethelm, Winterthur  
 RG Robert Germann, Wald  
 KL Kurt Locher, Grüt-Wetzikon  
 HP Hermann Peter, Otelfingen

The O-C refer to the linear elements of the GCVS 1969, disregarding improved elements in the 1971 first supplement to the GCVS. Reductions were made using the tracing paper method by each observer himself.

cur- rent no.	star	minimum or- der	JD hel 244...	O-C	ob- n ser- ver	cur- rent no.	star	minimum or- der	JD hel 244...	O-C	ob- n ser- ver
4082	RT And	I	1595.335	-0.022	11 RG	4120		I	1605.325	+0.011	10 KL
✓ 4083		I	1595.349	-0.007	9 RD	4121		I	1606.436	+0.009	13 HP
4084		I	1624.290	+0.003	11 RG	4122		I	1610.325	+0.003	10 KL
4085		I	1629.312	-0.005	10 RG	4123		I	1615.328	+0.006	6 RD
4086	TW And	I	1605.386	+0.018	14 HP	4124		I	1616.447	+0.012	6 KL
4087		I	1605.393	+0.026	7 KL	4125		I	1624.229	+0.011	6 KL
4088	UU And	I	1595.348	+0.111	13 HP	4126		I	1639.235	-0.005	11 KL
4089		I	1650.338	+0.108	11 HP	4127		I	1645.360	+0.014	7 KL
4090		I	1650.340	+0.110	15 KL	4128		I	1649.248	+0.010	11 KL
4091	WX And	I	1623.327	-0.232	14 KL	4129	CZ Aqr	I	1605.413	+0.015	8 KL
4092		I	1650.338	-0.233	12 KL	4130		I	1631.293	+0.013	9 KL
4093	XZ And	I	1616.347	-0.007	7 KL	4131		I	1637.326	+0.006	5 KL
4094		I	1616.347	-0.007	15 HP	4132		I	1650.276	+0.015	7 KL
4095		I	1627.229	-0.011	12 HP	4133	DX Aqr	I	1594.301	+0.020	10 KL
4096		I	1650.291	-0.023	9 RG	4134		I	1595.279	+0.054	11 KL
4097		I	1650.307	-0.007	11 HP	4135	EE Aqr	I	1594.293	-0.012	10 KL
4098	AB And	I	1604.394	+0.024	10 RG	4136		I	1595.323	-0.001	10 KL
4099		I	1610.360	+0.017	10 RG	4137		I	1596.340	-0.001	5 KL
✓ 4100		I	1615.334	+0.012	6 RD	4138		I	1621.282	0.000	7 KL
4101		I	1616.317	0.000	14 HP	4139		I	1623.314	-0.004	10 KL
4102		I	1616.326	+0.008	9 RG	4140		I	1648.264	+0.005	9 KL
4103		I	1621.313	+0.017	10 RG	4141		I	1649.290	+0.014	6 KL
4104		I	1623.302	+0.014	14 HP	4142	EK Aqr	II	1621.308	*	6 KL
4105		I	1624.305	+0.022	9 RG	4143	FK Aql	I	1595.342	-0.002	7 RD
4106		I	1625.293	+0.019	9 RG	4144	KP Aql	I	1627.281	+0.017	12 HP
4107		I	1626.296	+0.022	8 RG	4145	OO Aql	II	1595.416	-0.028	9 RD
4108		I	1627.299	+0.020	7 RG	4146		I	1603.286	-0.013	5 RG
4109		I	1628.278	+0.012	7 RG	4147		I	1604.292	-0.020	9 RG
4110		I	1628.291	+0.025	9 RD	4148		I	1605.294	-0.032	8 KL
4111		I	1632.275	+0.026	10 RG	4149		II	1621.265	-0.026	9 RG
4112		II	1649.367	+0.026	8 HP	4150		II	1622.272	-0.032	7 RG
4113		II	1650.359	+0.023	6 RG	4151		II	1623.290	-0.028	6 KL
✓ 4114	CN And	I	1595.344	-0.039	10 RD	4152		II	1623.291	-0.026	13 HP
✓ 4115	RY Aqr	I	1595.305	-0.084	8 RD	4153		II	1625.314	-0.030	9 RG
4116		I	1595.321	-0.068	10 HP	4154		II	1626.312	-0.046	10 RG
4117		I	1595.326	-0.062	10 KL	4155		I	1637.232	-0.022	7 KL
✓ 4118	CX Aqr	I	1595.312	+0.005	9 RD	4156		I	1639.255	-0.027	12 RG
4119		I	1595.313	+0.006	10 KL	4157	V 346 Aql	I	1595.321	-0.013	10 RD

\* not contained in the GCVS 1969, O-C according to the 1971 GCVS supplement:

cur- rent no.	star	minimum or- der	JD hel 244...	O - C	n	ob- ser- ver	cur- rent no.	star	minimum or- der	JD hel 244...	O - C	n	ob- ser- ver
4158		I	1606.392	-0.005	8	HP	4209		I	1631.414	***	7	KL
4159		I	1616.331	-0.023	11	RG	4210		I	1645.347	***	9	KL
4160		I	1616.347	-0.007	12	HP	4211		I	1648.289	***	6	KL
4161		I	1626.304	-0.008	11	RG	4212		II	1649.369	***	8	KL
4162	TT Aur	I	1606.436	+0.016	10	HP	4213	UW Cyg	I	1595.419	-0.019	12	HP
4163	Y Cam	I	1593.405	+0.060	10	HP	4214	WW Cyg	I	1605.460	+0.021	8	KL
4164	SV Cam	I	1592.325	-0.007	12	HP	4215		I	1605.460	+0.022	13	HP
4165		I	1595.287	-0.010	7	RD	4216	DR Cyg	I	1603.434	+0.016	13	HP
4166		I	1637.400	-0.005	10	HP	4217	KR Cyg	I	1594.408	+0.025	10	HP
4167		I	1650.455	+0.002	10	HP	4218		I	1622.282	+0.009	5	KL
4168	WW Cam	II	1603.418	-0.155	10	HP	4219	V456 Cyg	II	1598.346	+0.015	14	HP
4169	AY Cam	I	1595.346	-0.032	10	RD	4220		II	1605.476	+0.015	10	HP
4170	AG CMi	I	1596.642	-0.006	7	KL	4221		II	1623.296	+0.011	14	HP
4171	TY Cap	I	1626.269	-0.078	10	KL	4222	V548 Cyg	I	1593.409	-0.028	9	HP
4172	RZ Cas	I	1596.285	0.000	11	HP	4223		I	1622.294	-0.027	8	RG
4173		I	1603.454	-0.002	19	HP	4224		I	1649.356	-0.043	9	HP
4174		I	1609.435	+0.003	10	KL	4225	V687 Cyg	I	1594.428	+0.014	10	HP
4175		I	1627.358	-0.002	16	RG	4226		I	1606.384	+0.019	11	HP
4176		I	1627.365	+0.005	15	HP	4227	V728 Cyg	I	1650.267	+0.043	12	HP
4177		I	1639.315	+0.001	10	KL	4228	W Del	I	1598.346	+0.138	14	HP
4178		I	1651.266	0.000	9	RG	4229	TY Del	I	1594.432	+0.018	9	HP
4179	TV Cas	I	1604.420	-0.007	15	HP	4230	FZ Del	I	1595.377	-0.001	10	RD
4180		I	1615.289	-0.014	11	RG	4231		I	1628.276	+0.003	10	RD
4181	AD Cas	I	1596.365	+0.011	12	HP	4232	RR Dra	I	1595.439	+0.080	12	HP
4182		I	1607.298	+0.009	13	HP	4233	RZ Dra	I	1592.308	-0.005	8	RG
4183		I	1637.369	+0.008	10	HP	4234		I	1598.361	-0.011	13	HP
4184		I	1648.313	+0.018	9	HP	4235		I	1604.417	-0.015	16	HP
4185	U Cep	I	1592.313	+0.025	12	KL	4236	AI Dra	I	1595.310	+0.010	9	RG
4186		I	1597.302	+0.028	5	KL	4237		I	1625.273	+0.003	7	RG
4187	XX Cep	I	1628.309	-0.016	10	RD	4238		I	1637.260	+0.002	11	KL
4188		I	1649.359	-0.002	9	HP	4239		I	1649.243	-0.004	12	KL
4189	EG Cep	I	1599.354	+0.006	8	RD	4240	S Equ	I	1593.402	+0.009	13	HP
4190	GK Cep	II	1596.309	-0.061	12	HP	4241	RU Eri	I	1595.632	+0.002	6	KL
4191		I	1604.282	-0.045	10	HP	4242		I	1623.461	+0.014	10	KL
4192		II	1610.358	-0.054	9	HP	4243		I	1649.400	+0.032	7	KL
4193	SS Cet	I	1627.536	-0.044	9	KL	4244	UX Eri	I	1606.634	-0.001	7	KL
4194		I	1645.379	-0.046	10	KL	4245		I	1624.457	+0.011	8	KL
4195		I	1648.349	-0.049	11	KL	4246	WX Eri	I	1595.623	+0.015	7	KL
4196		I	1648.352	-0.046	14	HP	4247		I	1624.445	+0.023	7	KL
4197	TW Cet	II	1623.398	-0.007	5	KL	4248		I	1648.306	+0.009	10	KL
4198		I	1627.351	-0.015	7	KL	4249	YY Eri	II	1616.494	-0.012	11	KL
4199		I	1645.414	-0.013	4	KL	4250		I	1620.516	-0.009	4	KL
4200		II	1648.425	-0.012	6	KL	4251		I	1623.416	-0.002	11	KL
4201		II	1649.372	-0.016	8	KL	4252		II	1627.423	-0.014	12	KL
4202	VY Cet	I	1645.408	*	7	KL	4253		I	1631.455	0.000	6	KL
4203	AA** Cet	I	1603.539	***	4	KL	4254		II	1648.334	-0.001	7	KL
4204		I	1609.437	***	7	KL	4255	AS Eri	I	1616.409	+0.021	12	KL
4205		II	1616.402	***	11	KL	4256	SZ Her	I	1594.330	+0.018	12	RG
4206		I	1623.358	***	8	KL	4257	TX Her	I	1592.358	-0.005	12	KL
4207		II	1624.454	***	7	KL	4258		I	1592.362	0.000	12	HP
4208		II	1627.377	***	10	KL	4259	BC Her	I	1605.327	-0.161	12	HP

\* GCVS period erroneous, O - C according to the elements on page 6 of this issue: +0.018

\*\* hitherto reported as BV 1481 Cet, new designation according to DVS 717

\*\*\* not contained in the GCVS, O - C according to Bloomer's elements IDVS 587: +0.027 +0.058 +0.057 +0.047 +0.043: +0.033 +0.037 +0.037

cur- rent no.	star	minimum or- der	JD hel 244...	O - C	n	ob- ser- ver	cur- rent no.	star	minimum or- der	JD hel 244...	O - C	n	ob- ser- ver
4260	DH Her	I	1596.362	-0.035	14	HP	4317	DD Peg	I	1616.289	-0.007	5	KL
4261	PW Her	I	1616.321	-0.090	9	RG	4318		II	1618.283	-0.002	5	KL
4262	V 338 Her	I	1599.306	+0.063	13	HP	4319		II	1622.258	-0.004	6	KL
4263		I	1616.289	+0.071	7	KL	4320		I	1624.248	-0.001	7	KL
4264		I	1616.291	+0.073	11	HP	4321	DI Peg	I	1595.407	-0.012	8	RD
4265	RX Hya	I	1640.649	+0.010	12	KL	4322		I	1605.373	-0.014	5	KL
4266	WY Hya	II	1596.655	+0.007	7	KL	4323		I	1605.378	-0.009	10	HP
4267		II	1605.673	+0.001	8	KL	4324	DK Peg	I	1599.405	0.000	10	RD
4268	SW Lac	I	1599.343	-0.008	10	HP	4325	Z Per	I	1594.353	+0.017	14	HP
4269		II	1603.284	-0.039	6	RG	4326		I	1649.379	+0.029	8	KL
4270		I	1604.412	-0.033	8	RG	4327	RT Per	I	1626.288	-0.045	8	KL
4271		II	1610.339	-0.040	9	RG	4328		I	1648.368	-0.050	6	KL
4272		II	1610.349	-0.030	8	HP	4329		I	1649.211	-0.055	5	KL
4273		I	1616.271	-0.041	10	RG	4330	ST Per	I	1594.412	+0.006	11	HP
4274		II	1621.257	-0.027	8	RG	4331		I	1610.303	+0.006	10	KL
4275		I	1623.333	-0.036	11	HP	4332		I	1610.304	+0.007	12	HP
4276		I	1624.296	-0.034	10	RG	4333	WY Per	I	1650.430	-0.069	13	HP
4277		I	1625.259	-0.034	7	RG	4334	XZ Per	I	1593.462	+0.007	7	HP
4278		II	1628.296	-0.043	8	RG	4335		I	1623.400	+0.003	17	HP
4279		II	1628.316	-0.023	10	RD	4336	/3 Per	I	1604.336	-0.047	16	HP
4280		I	1632.295	-0.054	7	RG	4337		I	1604.350	-0.033	14	RG
4281		I	1632.305	-0.044	7	KL	4338		I	1627.259	-0.063	14	RG
4282		I	1650.267	-0.042	5	RG	4339		I	1627.287	-0.035	12	KL
4283	VX Lac	I	1592.298	-0.041	10	HP	4340		I	1650.223	-0.039	9	RG
4284		I	1607.340	-0.042	11	HP	4341	Y Psc	I	1598.305	+0.128	7	KL
4285		I	1622.376	-0.049	5	KL	4342	SX Psc	I	1595.298	-0.029	6	KL
4286		I	1623.453	-0.046	10	KL	4343		I	1595.300	-0.028	9	RD
4287		I	1650.317	-0.045	10	HP	4344		I	1599.411	-0.046	8	RD
4288	VY Lac	I	1628.272	+0.032	10	RD	4345		I	1603.557	-0.029	5	KL
4289	AU Lac	I	1628.289	-0.050	11	RD	4346		I	1628.340	-0.023	9	RD
4290	CM Lac	I	1595.305	-0.006	8	RD	4347	UV Psc	I	1598.333	+0.026	7	KL
4291		I	1595.310	-0.001	9	RG	4348		I	1610.374	+0.013	8	KL
4292		I	1603.346	+0.011	10	RG	4349		I	1616.407	+0.018	9	KL
4293		I	1627.404	-0.001	11	HP	4350		I	1622.433	+0.016	8	KL
4294		I	1648.262	-0.004	9	HP	4351		I	1623.303	+0.026	11	KL
4295		I	1648.262	-0.004	7	KL	4352		I	1648.263	+0.015	8	KL
4296	Y Leo	I	1637.665	+0.072	13	KL	4353	RW PsA	II	1595.346	-0.019	11	KL
4297	UV Leo	II	1637.668	-0.015	9	KL	4354		I	1606.316	-0.042	10	KL
4298	T LMi	I	1637.617	-0.075	7	KL	4355		I	1632.256	-0.055	5	KL
4299	RR Lep	I	1596.620	-0.027	11	KL	4356		II	1639.295	-0.045	14	KL
4300	RS Lep	I	1596.587	-0.010	10	KL	4357		I	1649.214	-0.039	7	KL
4301		I	1649.421	-0.007	6	KL	4358	UZ Pup	I	1595.650	-0.028	5	KL
4302	EW Lyr	I	1606.325	+0.036	12	HP	4359	AY Pup	I	1627.656	+0.047	11	KL
4303		I	1606.327	+0.038	11	KL	4360		I	1649.706	+0.056	10	KL
4304	FL Lyr	I	1593.338	+0.003	10	HP	4361	BS Pup	I	1606.666	-0.006	10	KL
4305		I	1606.385	-0.019	8	HP	4362	RZ Pyx	I	1640.647	+0.184	5	KL
4306	DD Mon	I	1640.643	+0.114	16	KL	4363	U Sge	I	1599.335	+0.008	20	HP
4307	V 508 Oph	I	1604.279	+0.005	7	KL	4364	XY Sgr	I	1594.292	-0.006	10	KL
4308		II	1610.306	-0.002	10	RG	4365	YY Sgr	I	1596.279	-0.016	6	KL
4309		I	1652.201	+0.001	5	KL	4366	V 505 Sgr	I	1594.308	-0.033	9	KL
4310	ER Ori	I	1603.562	-0.005	7	KL	4367		I	1594.315	-0.026	10	HP
4311		I	1620.498	-0.006	5	KL	4368		I	1639.251	-0.040	12	KL
4312	UX Peg	I	1599.384	-0.009	10	RD	4369		I	1639.254	-0.037	14	RG
4313		I	1616.378	-0.006	10	HP	4370	RT Scl	I	1623.390	-0.062	8	KL
4314		I	1650.370	+0.003	8	HP	4371		I	1624.416	-0.059	7	KL
4315	AT Peg	I	1599.374	-0.057	9	RD	4372	AD Ser	I	1627.260	-0.003	7	KL
4316		I	1599.393	-0.038	12	HP	4373	RW Tau	I	1622.332	-0.071	12	RG

cur- rent no.	star	minimum or- der	JD hel 244...	0 - C	ob- n ser- ver	cur- rent no.	star	minimum or- der	JD hel 244...	0 - C	ob- n ser- ver
4374		I	1622.334	-0.069	9 KL	4388		I	1629.318	-0.025	8 RG
4375	CT Tau	I	1595.424	+0.017	9 RD	4339		I	1631.260	-0.026	10 HP
4376	X Tri	I	1592.399	-0.026	10 KL	4390		I	1632.232	-0.026	7 KL
4377		I	1593.371	-0.025	11 HP	4391	ZZ UMa	I	1628.343	-0.014	7 RD
4378		I	1594.341	-0.025	10 KL	4392	AH Vir	II	1627.644	-0.007	12 KL
4379		I	1594.345	-0.023	9 RG	4393	Z Vul	I	1592.357	+0.011	12 HP
4380		I	1595.310	-0.029	9 HP	4394		I	1592.358	+0.013	12 KL
4381		I	1595.317	-0.022	10 RD	4395	DE Vul	I	1615.319	+0.018	6 RD
4382		I	1595.320	-0.019	10 RG	4396	DO Vul	I	1599.367	-0.058	9 RD
4383		I	1595.320	-0.019	6 KL	4397		I	1599.369	-0.055	21 HP
4384		I	1627.374	-0.026	12 KL	4398	DU Vul	I	1592.317	-0.009	7 RG
4385		I	1627.375	-0.025	13 HP	4399		I	1592.332	+0.006	10 HP
4386		I	1628.345	-0.026	14 RG	4400		I	1637.278	+0.001	7 KL
4387		I	1628.350	-0.022	7 RD						

European Observers ,

Be Ready for VY Hydrae !

After 4 years of invisibility, minima of this extraordinary eclipsing binary will be again observable from European longitudes beginning with JD 2441780 , when the minimum is expected at UT 23<sup>h</sup> 0<sup>m</sup>. Its period is only 102 seconds longer than 2 days. Because of its relative brightness and steep eclipse light curve branches the star is very suitable for visual timing of minima, as the following normal point, derived from 8 minima observed in 1968 by BDSAG members (ORION 106 & 107), shows:

$$\text{JD } 2439951 \quad 0 - C_{\text{GCVS } 1969} = +0.014 \pm .001 \text{ (p.e.)}$$

The Duration of Totality of  
WX Andromedae

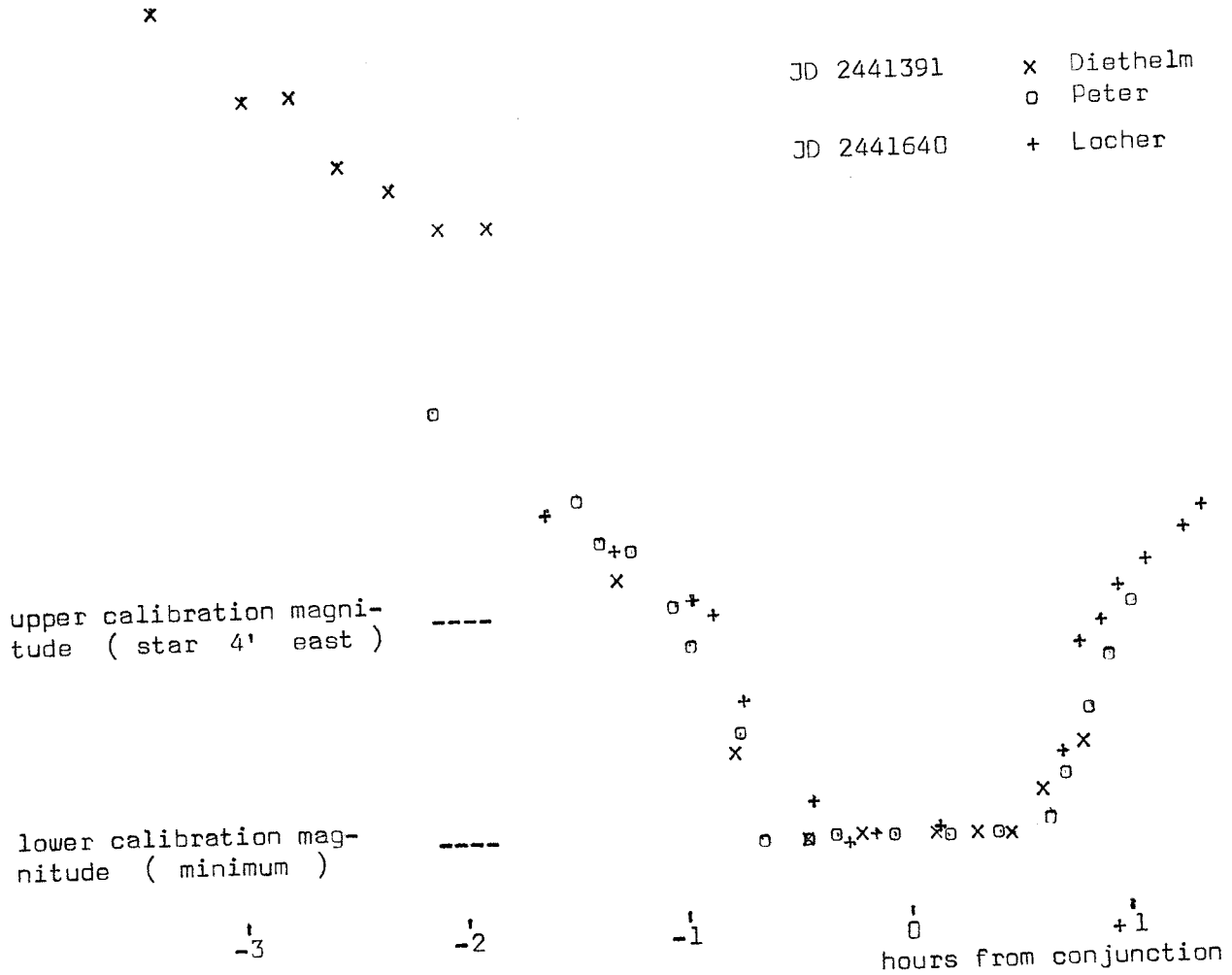
The 1969 and 1971 editions of the GCVS do not mention any  $d$  value for this EA type binary. Observing the 2 minima no. 4091 and 4092 listed on page 1 of this issue, I obtained  $d = (140 \pm 10)$  minutes or  $(0.032 \pm .002)$  period.

K. Locher

The Duration of Totality of BO Mon

The GCVS 1969 listing  $d=0$  for BO Monocerotis and the GCVS 1971 extension giving no correction, we would like to show this to be erroneous by figure 8, where 3 individual visual lightcurves of ours are superimposed. Accordingly  $d$  amounts to  $(66 \pm 6)$  minutes or  $(.021 \pm .002)$  period.

figure 8



Probable Period Change of Y Leonis

My most recent minimum timing (see page 3 of this issue) was obtained under excellent observational conditions but resulted 0.012 later than it would have been expected from linear elements fitted to the 26 minima observed by BBSAG members 1965 through 1971.

The same positive residual can also be obtained comparing to the recent slope in the secular O-C diagram published by L.P.Surkova (II. 3. 18 (1972) p. 266 fig. 2a). It is therefore suggested that a discontinuity took place in 1971. Particular attention may hence be paid this winter by observers of this star.

K. Locher

The Minimum Brightness of EW Lyrae

According to the GCVS, including its 1971 extension, the brightness at total eclipse of EW Lyr is unknown but fainter than  $13^{m.6}$ . Comparing to the nearby AAVSO sequence for TW Lyr, I obtained visually  $14.1 \pm .2$  at the mini-

K. Locher

A New Interpretation of VY Ceti

I observed this EW type binary visually during 7 November nights 1972 but failed getting any concordance with the GCVS period of 0.<sup>d</sup>3150, originating from Eggen's (PASP 68, p.142) 1956 study. My present rediscussion leads to the proposal of a period 0.<sup>d</sup>34086 as follows:

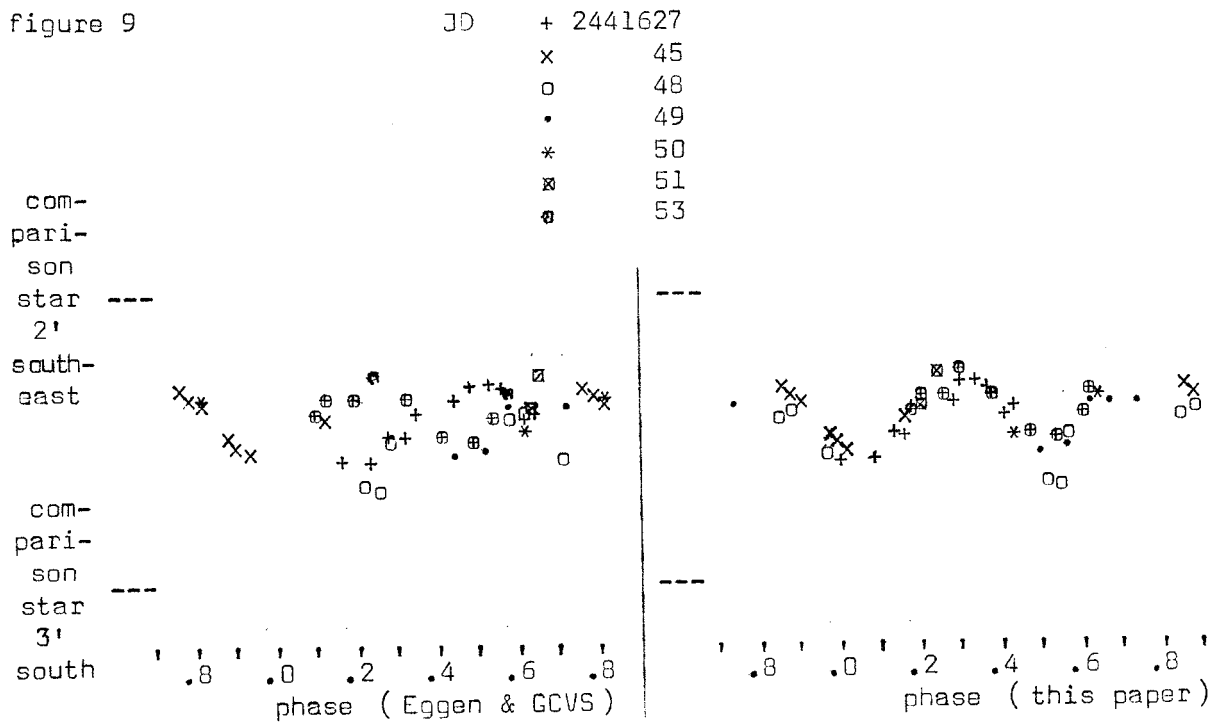
Eggen got 3 well defined photoelectric minima at JD 2435406.183, ..29.021, and ..31.066, obtaining the striking O-C results of +.001, +.001, and -.001 respectively by interpreting 72.5 respectively 6.5 periods interlapsed. Nevertheless I propose these numbers to be replaced by 67 respectively 6, the ratio 72.5/6.5 differing from 67/6 by less than 2 parts in 1000. Figure 9 shows my recent observations plotted versus phase according to both interpretations.

The new elements accordingly are

$$\text{Min hel JD} = 2441645.390 + .34086 \times E$$

which should be accurate enough for unambiguous attribution of E numbers as late as next summer's reappearance. However, if the star has been neglected by observers since Eggen's 1956 research, the exact number of periods meanwhile elapsed can probably never be found out.

K.Locher



E r r a t a

BDSAG Prediction Book 1972

U Sct: The minimum of October 19/20 should be given 48 hours later

