Nr	Design.	Star	Type	O	e.	O-C	n	Obs	Remarks

BBSAG

BULLETIN

120

1999 August 15

153. LIST OF MINIMA OF ECLIPSING BINARIES

The following table lists 45 electronically recorded (CCD; underlined) and 117 visual timings of minima of eclipsing binaries obtained primarily between February and July 1999 by the following observers:

EBl	Ernst BlŠttler, Wald, Switzerland
RD	Roger Diethelm, R. Szafraniec Observatory, Metzerlen, Switzerland
KL	Kurt Locher, GrŸt, Switzerland
APs	Anton Paschke, RŸti, Switzerland
JVe	Jean-Paul Verrot, Valence, France

The O-C values given in the table below generally refer to the linear elements of the GCVS 1985, with the remarked exceptions. For the determination of the time of the minima, the tracing paper method was employed. For the reduction of some of the electronic observations, the Kwee-van Woerden algorithm was used. All times are UTC.

	Nr	Design.	Star	Type	O	e.	O-C	n	Obs	Remarks
35639	0153+418	**XZ And**	s		50443.503	0.007	+0.069	32	APs	CCDR
35640			p		51349.511	0.002	+0.095	8	KL	
35641	0139+445	**EP And**	p		51349.515	0.003	+0.051	7	KL	
35642	0209+444	**GZ And**	s		51384.522	0.005	+0.004	8	KL	
35643	0207+486	**LM And**	p		50444.474	0.010	-0.498	25	APs	CCD
35644	2202-090	**XZ Aqr**	p		51376.488	0.005	+0.080	7	KL	
35645	2233-009	**CX Aqr**	p		51349.537	0.003	0.000	7	KL	
35646	2019-075	**XZ Aql**	p		51369.449	0.004	+0.112	26	APs	CCD
35647	1946+154	**V688 Aql**	p		51385.439	0.002	+0.012	11	RD	CCD
35648	0500+326	**EI Aur**	s		51270.3412	0.0014	-0.1250	9	RD	CCD
35649	0624+304	**KU Aur**	p		51250.453	0.004	+0.034	6	KL	
35650	0549+523	**IZ Aur**	p		51250.3637	0.0005	-0.0716	14	RD	CCD; elem. IBVS No. 4586
35651	1402+302	**TU Boo**	s		51236.600	0.007	+0.003	6	KL	elem. A&AS 117, 105
35652	1345+175	**AQ Boo**			51334.5469	0.0011	+0.0386	30	EBI	CCD; elem. PASP 108, 1105
35653					51358.365:	0.002	+0.018:	20	EBI	CCD
35654	0620+778	**AV Cam**	p		51251.3120	0.0006	-0.0519	22	EBI	CCD
35655	1300+568	**BI CVn**	s		51305.376	0.002	+0.007		JVe	elem. IBVS No. 4554
35656	0711-180	**RX CMa**	p		51225.322	0.005	-0.085	7	KL	
35657	0656-187	**UU CMa**	p		51247.279	0.008	-0.073	6	KL	
35658	0736+031	**RS CMi**	p		51198.32	0.02	-0.04	20	APs	CCD; see note page 5
35659	0232+710	**AB Cas**	p		51294.384	0.004	+0.055	7	KL	
35660	0123+698	**AE Cas**	p		51341.546	0.004	+0.059	6	KL	
35661	2304+538	**IR Cas**	p		51361.374	0.003	+0.020	6	KL	
35662	2347+528	**IV Cas**	p		50439.417	0.004	-0.017	49	APs	CCD
35663	0131+564	**V473 Cas**	p		51363.532	0.006	-0.004	8	KL	elem. IBVS No. 4669
35664	0037+499	**V523 Cas**	s		51224.293	0.005	+0.042	7	KL	
35665	2320+650	**CM Cep**	p		51338.505	0.008	-0.020	5	KL	
35666	0025+818	**OT Cep**	s		51363.3704	0.0008	-0.0587	22	EBI	CCD; new elem. see p. 5
35667	0158+786	**V357 Cep**	p		51384.379	0.004	-0.130	8	KL	elem. Brno Contr. 28, 34
35668	0220+809	**V358 Cep**	p		51247.373	0.004	+0.029	6	KL	elem. BBSAG Bull. 96, 10

Nr	Design.	Star	Type	O	e.	O-C	n	Obs	Remarks
35669	1226+220 **DD Com**	p		51308.4099	0.0013	+0.0473	12	RD	CCD
35670	1205-128 **W Crv**	p		51236.643	0.004	+0.007	6	KL	

Nr	Design.	Star	Type	O	e.	O-C	n	Obs	Remarks
35671	2051+386 **WZ Cyg**	p		51274.602	0.002	+0.045	7	KL	
35672	2022+467 **ZZ Cyg**	p		51301.574	0.005	-0.034	7	KL	
35673	1928+342 **HK Cyg**	p		51347.452	0.008	-0.107	6	KL	
35674	1956+381 **QX Cyg**	p		51358.393	0.005	+0.299	12	RD	CCD
35675	1941+326 **V370 Cyg**	p		51308.473	0.003	-0.017	7	KL	
35676	2036+470 **V509 Cyg**	p		51386.4415	0.0008	+0.1306	15	RD	CCD
35677	1940+312 **V541 Cyg**	p		51385.4740	0.0007	+0.0290	20	RD	CCD
35678	2011+404 **V726 Cyg**	p		51376.517	0.003	+0.028	9	KL	
35679	2025+586 **V728 Cyg**	p		51316.499	0.006	+0.020	7	KL	
35680	1925+288 **V859 Cyg**	s		51354.5115	0.0012	-0.0396	10	RD	CCD
35681	2020+594 **V1193 Cyg**	p		51361.4369	0.0011	+0.0034	15	RD	CCD
35682	2051+044 **FZ Del**	p		51327.551	0.002	-0.028	7	KL	
35683	1841+626 **RR Dra**	p		51363.550	0.004	+0.048	7	KL	
35684	1214+651 **AR Dra**	p		51288.496	0.005	+0.001	7	KL	
35685	1922+698 **DW Dra**	p		51262.615	0.005	+0.002	5	KL	elem. BBSAG Bull. 118, 7
35686	1906+593 **LD282 Dra**	p		51199.56	0.02	0.00	9	KL	elem. see page 7
35687		p		51254.430	0.003	-0.002	15	KL	
35688		p		51255.625	0.003	0.000	10	KL	
35689		p		51273.514	0.003	-0.005	17	KL	
35690		p		51280.67	0.01	-0.01	6	KL	
35691		p		51303.33	0.02	-0.01	6	KL	
35692		p		51316.458	0.002	-0.005	13	KL	
35693		p		51341.505	0.003	-0.009	11	KL	
35694		p		51347.470	0.003	-0.008	13	KL	
35695	0558+531 **RW Gem**	p		51224.355	0.008	+0.003	5	KL	
35696	0625+205 **SX Gem**	p		51103.62	0.01	-0.05	51	APs	CCD
35697		p		51270.3728	0.0008	-0.0581	12	RD	CCD
35698	0733+170 **TX Gem**	p		51225.352	0.005	-0.017	7	KL	
35699	0647+214 **AF Gem**	p		51251.399	0.008	-0.060	5	KL	
35700	0628+197 **AY Gem**	p		51163.596	0.005	-0.049	67	APs	CCD
35701	1737+329 **SZ Her**	p		51221.695	0.003	-0.018	6	KL	
35702	1711+307 **TU Her**	p		51254.574	0.003	-0.081	8	KL	
35703	1615+090 **CC Her**	p		51251.596	0.003	+0.095	6	KL	
35704	1732+151 **DP Her**	p		51362.501	0.004	+0.060	7	KL	

Nr	Design.	Star	Type	O	e.	O-C	n	Obs	Remarks
35705	1843+252 **IT Her**		p	51362.4511	0.0007	+0.0254	32	EBI	CCD; elem. IBVS No. 4663

	Nr	Design.	Star	Type	O	e.	O-C	n	Obs	Remarks
35706	1819+144	**MT Her**	p	51278.543		0.004	+0.014	9	KL	
35707	1727+228	**V490 Her**	p	51305.4379		0.0014	+0.2891	15	RD	CCD
35708	1631+503	**GSC3505.677** Her	p	51358.4053		0.0014	+0.0020	10	RD	CCD; elem. IBVS No. 4611
35709	0928-187	**AS Hya**	p	51254.323		0.004	-0.025	6	KL	elem. BBSAG Bull. 83, 5
35710	2226+535	**DG Lac**	p	51338.440		0.004	-0.169	6	KL	
35711	2226+534	**MZ Lac**	p	51354.4932		0.0009	-0.0037	11	RD	CCD; elem. JAAVSO 19, 12
35712	0933+264	**Y Leo**	p	51270.376		0.004	+0.012	8	KL	
35713	1037+092	**RW Leo**	p	51303.377		0.006	-0.037	5	KL	
35714	0956+140	**XX Leo**	s	51198.59		0.02	-0.01	56	APs	CCD; elem. IAPPP C. 71, 57
35715	0955+185	**AL Leo**	p	51305.384		0.003	+0.013	11	RD	CCD; elem. IBVS No. 3401
35716	1142+250	**BL Leo**	p	51286.535		0.005	+0.005	5	KL	
35717	1925+415	**TT Lyr**	p	51305.564		0.005	-0.007	7	KL	
35718	1919+378	**UZ Lyr**	p	51296.622		0.004	-0.019	5	KL	
35719	1831+377	**EW Lyr**	p	51250.665		0.003	+0.237	6	KL	
35720	1852+268	**MZ Lyr**	s	51327.418		0.004	-0.008	12	RD	CCD
35721	1912+380	**V400 Lyr**	s	51294.3822		0.0006	-0.0006	20	EBI	CCD; GCVS el. in er., see p 6
35722			p	51294.5095		0.0010	0.0000	16	EBI	CCD
35723			p	51300.341		0.003	+0.003	12	EBI	CCD
35724			s	51300.4656		0.0009	+0.0012	14	EBI	CCD
35725			p	51308.4473		0.0006	+0.0008	23	EBI	CCD
35726			s	51308.575		0.002	+0.001	12	EBI	CCD
35727			p	51327.4544		0.0014	+0.0029	12	RD	CCD
35728	0657+022	**UU Mon**	p	51250.3323		0.0006	+0.0058	19	EBI	CCD
35729	1728+106	**V449 Oph**	p	51254.683		0.003	+0.039	7	KL	
35730	1756+135	**V508 Oph**	p	51245.706		0.003	+0.004	5	KL	
35731	1814+068	**V577 Oph**	s	51384.4339		0.0005	+0.4805	17	RD	CCD; displaced secondary
35732	1820+040	**V916 Oph**	p	51347.516		0.009	+0.181	6	KL	
35733	0552+201	**UW Ori**	p	51236.3300		0.0008	+0.0321	12	RD	CCD; elem. Chin. AA 14, 298
35734	0606+156	**DZ Ori**	p	51250.3779		0.0014	+0.0062	14	RD	CCD; elem. BBSAG B. 117, 9
35735	0618+031	**V647 Ori**	p	50860.352		0.009	+0.260	16	JVe	
35736			p	50862.320		0.005	+0.272	23	JVe	
35737			p	50863.310		0.005	+0.285	21	JVe	
35738			p	50864.261		0.006	+0.259	15	JVe	
35739			p	51255.311		0.004	+0.282	26	JVe	

	Nr	Design.	Star	Type	O	e.	O-C	n	Obs	Remarks
35740	0608+199	**V668 Ori**	p		51236.3295	0.0015	+0.0029	13	RD	CCD
35741	2226+177	**UX Peg**	p		51103.413	0.007	-0.003	44	APs	CCD
35742	2312+165	**EY Peg**	p		51378.576	0.008	+0.008	8	KL	elem. BBSAG Bull. 105, 8
35743	1756-173	**WX Sgr**	p		51316.452	0.004	-0.092	7	KL	
35744	1556+173	**AO Ser**	p		51237.669	0.004	+0.017	8	KL	
35745	1554+224	**AU Ser**	s		51252.535	0.004	-0.065	6	KL	
35746	1534+156	**CC Ser**	p		51358.469	0.003	-0.055	12	RD	CCD; elem. questionable
35747	0538+259	**GQ Tau**	p		51255.341	0.003	+0.184	17	JVe	
35748	1334+521	**UX UMa**	p		51273.366	0.001	+0.001	7	KL	
35749	0928+496	**XZ UMa**	p		51270.340	0.005	-0.050	8	KL	
35750	0851+651	**AC UMa**	p		51364.408	0.008	-0.071	5	KL	
35751	1123+428	**BS UMa**	p		51305.376	0.002	-0.002	8	RD	CCD; note page 5
35752	1402-099	**VV Vir**	p		51262.510	0.003	-0.019	6	KL	
35753	1325+033	**AW Vir**	s		51308.4045	0.0009	+0.0127	12	RD	CCD
35754	1241-084	**HW Vir**	p		51221.510	0.001	-0.002	6	KL	elem. IBVS No.4109
35755			p		51236.566	0.001	-0.003	6	KL	
35756			p		51236.683	0.001	-0.002	5	KL	
35757			p		51237.617	0.001	-0.002	5	KL	
35758			p		51247.422	0.001	-0.002	6	KL	
35759			p		51250.456	0.001	-0.002	6	KL	
35760			p		51250.691	0.001	-0.001	6	KL	
35761			p		51251.390	0.001	-0.002	6	KL	
35762			p		51251.506	0.001	-0.003	6	KL	
35763			p		51251.623	0.001	-0.003	6	KL	
35764			p		51252.556	0.001	-0.003	6	KL	
35765			p		51255.593	0.001	-0.001	5	KL	
35766			p		51261.661	0.001	-0.002	6	KL	
35767			p		51262.479	0.001	-0.002	6	KL	
35768			p		51262.595	0.001	-0.002	5	KL	
35769			p		51274.384	0.001	-0.002	6	KL	
35770			p		51274.500	0.001	-0.003	6	KL	
35771			p		51278.469	0.001	-0.002	6	KL	
35772			p		51278.586	0.001	-0.002	6	KL	
35773			p		51286.521	0.001	-0.004	6	KL	
35774			p		51288.507	0.001	-0.002	5	KL	
35775			p		51291.424	0.001	-0.003	4	KL	
35776			p		51294.342	0.001	-0.003	6	KL	
35777			p		51294.458	0.001	-0.004	6	KL	
35778			p		51300.412	0.001	-0.002	6	KL	
35779			p		51301.347	0.001	-0.001	6	KL	
35780			p		51303.331	0.001	-0.002	6	KL	
35781			p		51303.447	0.001	-0.002	5	KL	
35782			p		51305.429	0.001	-0.004	5	KL	
35783			p		51305.547	0.001	-0.003	5	KL	
35784			p		51308.349	0.001	-0.002	5	KL	

Nr	Design.	Star	Type	O	e.	O-C	n	Obs	Remarks
35785		p		51308.465	0.001	-0.003	6	KL	
35786		p		51315.468	0.001	-0.003	4	KL	
35787		p		51316.402	0.001	-0.003	6	KL	
35788		p		51316.519	0.001	-0.002	4	KL	
35789		p		51317.337	0.001	-0.002	5	KL	
35790		p		51318.386	0.001	-0.003	5	KL	
35791		p		51327.374	0.001	-0.003	6	KL	
35792	1241-084 **HW Vir**	p		51328.426	0.001	-0.001	4	KL	
35793		p		51329.357	0.001	-0.003	5	KL	
35794		p		51341.379	0.001	-0.004	6	KL	
35795	2030+246 **AX Vul**	p		51377.399	0.007	-0.021	7	KL	
35796	2033+224 **AY Vul**	p		51377.408	0.006	-0.015	6	KL	
35797	2023+272 **BE Vul**	p		51385.449	0.006	+0.020	10	KL	
35798	1954+327 **BO Vul**	p		51334.568	0.003	+0.014	8	KL	
35799	2023+208 **BP Vul**	p		51327.564	0.004	-0.002	8	KL	
35800	1944+277 **GO Vul**	p		51362.382	0.002	-0.032	13	RD	CCD

Notes on observations in table above

APs wishes to express his gratitude towards the Nicholas Kopernicus Observatory in Brno, Czech Republic, for the permission to use their equipment.

RS CMi
Due to the value of the period, the minima always occured while the brightness of RS CMi was already on the rise. Consequently, the descending part of the light curve has not been observed properly. A. Paschke

OT Cep
Our observations can be used to refine the elements of variation to:
Min(JD, hel) = 2449169.4362(±0.0010) + 0.9624627 (±0.0000007) * E. E. BlŠttler

UW Ori
From our observation we find a duration of totality for this star of d = $0.06^d \pm 0.01^d$.
R. Diethelm

BS UMa
The variable is 1.8^m brighter than given in the GCVS. R. Diethelm

BL CMi = NSV 3570 = KZP 1032 = P 0461 = AN 132.1929
The variability of BL Canis Minoris was discovered by C. Hoffmeister. The star was included in many catalogs but obviously not observed since its discovery. First elements were published by the writer (BBSAG Bulletin 95). In BBSAG Bulletin 102 a refinement with a slightly longer period was attempted. R. Boninsegna observed BL CMi at Jungfraujoch Observatory and according to him, the period should be doubled.

Nr	Design.	Star	Type	O	e.	O-C	n	Obs	Remarks

The star was observed again from JD245200.279 to JD245200.635, as the ascending part of the light curve was covered. Consequently, a shorter period must be assumed. The presently favoured elements are: Min(JD, hel) = 2447170.60 + 5.90425 * E. Since the base minimum was observed visually it must be considered rather uncertain. BL CMi shows EB-type variability with an unfiltered CCD amplitude of 0.35^m in both minima. A. Paschke

Erratum

No.	Bulletin	Star	Correction
32569	110	**V541 Cyg**	O = 49935.3937: ± 0.0012

CCD light curve of PG1336-018 Vir

The following Fig. 1 shows the CCD light curve of the post-common envelope binary PG1336-018 Vir as recorded on the night of JD2451199.

Fig. 1

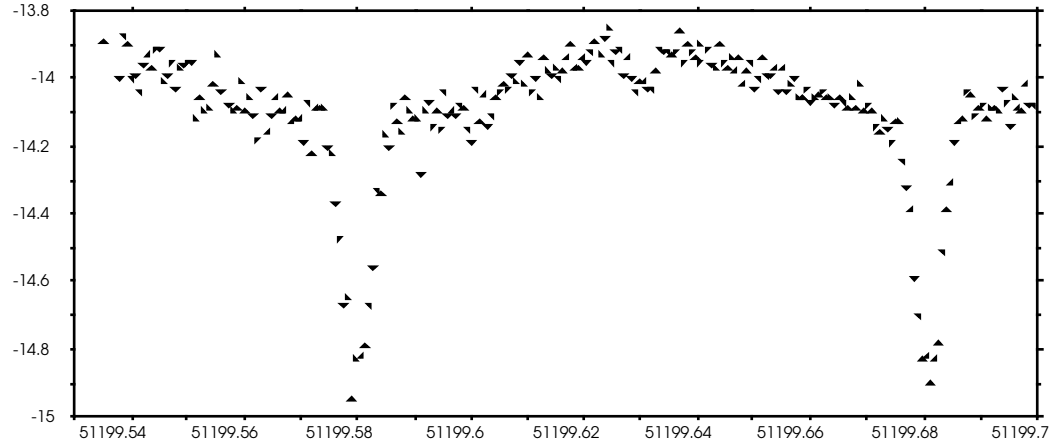

Fig. 1 E. BlŠttler

CCD light curve and corrected elements of variation for V400 Lyrae

During the current observing season, we have followed the EW type eclipsing binaryV400 Lyr. It became soon apparent, that the elements stated in the GCVS are incorrect. From our photometry, the following new formula can be deduced:

Min (JD, hel) = 2451294.5095 (±0.0008) + 0.2534 (±0.0002) * E. Fig. 2 shows our data folded with these elements.

Nr	Design.	Star	Type	O	e.	O-C	n	Obs	Remarks

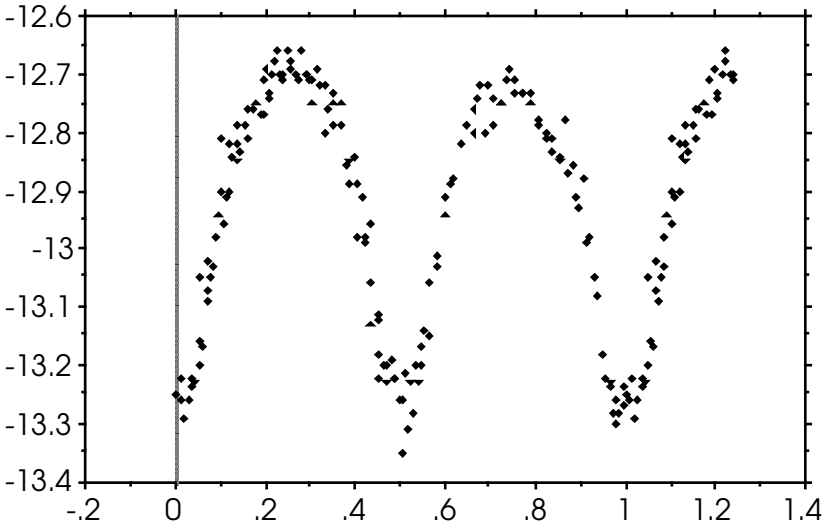

Fig. 2

E. BlŠttler

Nr	Design.	Star	Type	O	e.	O-C	n	Obs	Remarks

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The Period of LD 282 Dra

In L.Dahlmark's lists of photographically discovered variable stars continued ever 1982, a remarkable object appeared recently (IBVS 4642, 1998), which he anno as "short period eclipsing" with a yellow amplitude of 3^{m}0. My visual survey, last winter, was very lucky in that it caught 2 minima in consecutive nights o very first occasion. They quickly turned out to be separated by *one* period, so could use the five following months to improve its accuracy to five digits.
11 out of my 33 observing nights covered the phase fraction between .94 and which is where partial eclipse occurs. Fig. 3 plots visual magnitude versus the calculated as

$$JD_{hel\ min\ I} = 2451195.98 + 1.1929 \cdot E$$

K.Lc