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PERIOD-CONTROL FOR ECLIPSING BINARIES
 BV 1161, 1162, 1209 and 1214

By the help of the Harvard plate material which was in a friendly manner at our disposal we were able to control the periods back to 1901. First this plate material (all minima estimated by D.FRIEDRICH, Bamberg, 1970) makes possible the derivation of the elements.

BV 1161 = CAP -56°8436(9^m0) = HD 161 160(Ao)

Elements from IBVS 289, 1968, but with the half of the period given there:

Min = JD 242 8686.375 + 1^d554 965 . E

	Minima	E	O - C		Minima	E	O - C
241	5117.823	-8726	+0.073	241	9589.733	-5850	-0.097
	5198.671	-8674	+0.063		9695.537	-5782	-0.030
	5226.533	-8656	-0.065		9897.706	-5652	-0.007
	5646.536	-8486	+0.098		9925.785	-5634	+0.083
	6296.507	-7968	+0.093		9978.655	-5600	+0.084
	6302.664	-7964	+0.030	242	0034.577	-5564	+0.027
	6563.768	-7796	-0.100		0037.613	-5562	-0.047
	6697.570	-7710	-0.025		0295.814	-5396	+0.030
	6933.844	-7558	-0.106		0348.623	-5362	-0.030
	7039.568	-7490	-0.119		.680	-5362	+0.027
	7297.847	-7324	+0.036		0373.622	-5346	+0.090
	7325.760	-7306	-0.041		0429.537	-5310	+0.026
	7353.833	-7288	+0.043		0609.808	-5194	-0.079
	7378.714	-7272	+0.044		0651.844	-5167	-0.027
	8034.812	-6850	-0.053		0662.737	-5160	-0.019
	8115.646	-6798	-0.077		0690.701	-5142	-0.044
	.713	-6798	-0.010		1007.835	-4938	-0.123
	8404.871	-6612	-0.075		1135.485	-4856	+0.020
	8451.707	-6582	+0.112		.533	-4856	+0.068
	8824.790	-6342	+0.003		1368.734	-4706	+0.024
	9180.805	-6113	-0.069		1396.656	-4688	+0.043
	9558.763	-5870	+0.033		1421.627	-4672	+0.049

	Minima	E	O - C		Minima	E	O - C
242	1424.589	-4670	-0.099	242	8378.428	-198	-0.064
	1449.538	-4654	-0.030		8456.245	-148	+0.005
	.586	-4654	+0.018		8742.321	+36	-0.033
	1452.579	-4652	-0.099		8745.409	+38	-0.055
	2133.646	-4214	-0.106		8770.239	54	-0.104
	2525.550	-3962	-0.054		9140.361	292	-0.064
	3237.638	-3504	-0.140		9168.307	310	-0.107
	.680	-3504	-0.098		9818.353	728	-0.037
	3576.716	-3286	-0.044		9821.390	730	-0.109
	3918.784	-3066	-0.068		9874.294	764	-0.074
	4024.576	-2998	-0.014				

A secondary minimum is suspected; Ampl. 0^m80.
No well-founded change in the period between 1900 and 1967.

BV 1162 = CAP -64°3890(10^m0)

Elements from IBVS 289, 1968, but the period has been slightly corrected:

Min = JD 242 8332.225 + 5^d730 685 . E

	Minima	E	O - C		Minima	E	O - C
241	5575.709	-2226	-0.011	242	3191.709	-897	-0.091
	6022.561	-2148	-0.153		3237.680	-889	+0.034
	6045.526	-2144	-0.110		3318.538	-875	+0.662
	6297.652	-2100	-0.134		3535.741	-837	+0.099
	7065.624	-1966	-0.074		4045.515	-748	-0.158
	7718.727	-1852	-0.269		4074.517	-743	+0.191
	8033.891	-1797	-0.293		4326.697	-699	+0.221
	8102.776	-1785	-0.176		4704.628	-633	-0.063
	8538.509	-1709	+0.025		8034.295	-52	+0.066
	8561.516	-1705	+0.109		8756.293	+74	-0.003
	9569.782	-1529	-0.226		8819.310	+85	-0.023
	9575.692	-1528	-0.046		9134.468	140	-0.053
242	0337.710	-1395	-0.209		9140.361	141	+0.110
	0343.671	-1394	+0.021		9501.376	204	+0.091
	0372.551	-1389	+0.247		9547.376	212	+0.246
	0429.537	-1379	-0.073		9822.479	260	+0.276
	1065.627	-1268	-0.089		9839.415	263	+0.020
	2584.487	-1003	+0.139	243	0177.436	322	-0.069

A secondary minimum is suspected; Ampl. 0^m55.
No well-founded change in the period between 1901 and 1967.

BV 1209 = CAP $-69^{\circ}1617(8^m3)$ = HD 104 191(Ao)

Elements from IBVS 330, 1969, but the period has been slightly corrected:

Min = JD 243 4315.550 + 3 d 247 610 . E

	Minima	E	O - C		Minima	E	O - C
241	5547.618	-5779	+0.006	242	1331.585	-3998	-0.020
	6190.633	-5581	-0.005		1685.621	-3889	+0.026
	8093.736	-4995	-0.002		1724.577	-3877	+0.011
	8694.460	-4810	-0.086		8710.211	-1726	+0.036
	9509.675	-4559	-0.021		9382.482	-1519	+0.052
242	0295.631	-4317	+0.013		9421.372	-1507	-0.030

Ampl. 0^m60 , without remarkable secondary minimum, EA.
No well-founded change in the period between 1901 and 1968.

BV 1214 = CAP $-50^{\circ}8564(9^m7)$ = CoD $-50^{\circ}9816(10^m)$

	Minima	E	O - C		Minima	E	O - C
241	5870.755	-770	+0.550	242	0754.495	-460	-0.845
	5885.629	-769	-0.335		0959.774	-447	-0.426
	5933.640	-766	+0.401		0960.701	-447	+0.501
	6264.669	-745	+0.501		0991.726	-445	+0.008
	6279.759	-744	-0.167		1006.763	-444	-0.713
	6563.768	-726	+0.189		1007.675	-444	+0.199
	6578.835	-725	-0.503		1370.709	-421	+0.782
	6633.664	-721.5	-0.828		1400.623	-419	-0.815
	6691.523	-718	+1.876		1716.711	-399	+0.103
	7035.624	-696	-0.710		1731.676	-398	-0.691
	7068.588	-694	+0.737		1732.663	-398	+0.296
	8123.575	-627	-0.095		2141.592	-372	-0.496
	8155.533	-625	+0.345		2142.600	-372	+0.512
	.602	-625	+0.414		2456.719	-352	-0.539
	8501.544	-603	-0.330		3221.598	-303.5	+0.053
	8533.511	-601	+0.119		3229.597	-303	+0.173
	8833.558	-582	+0.755		3269.516	-300.5	+0.695
	8911.533	-577	-0.063		3575.722	-300	-0.978
	9226.550	-557	-0.216		4678.694	-211	-0.512
	9242.535	-556	+0.011		5419.349	-164	-0.507
	9557.717	-536	+0.023		8019.225	+ 1	-0.783
	9605.580	-533	+0.610		.292	+ 1	-0.716
	9903.694	-514	-0.687		8035.230	2	-0.537
242	0313.572	-488	-0.530		8240.587	+ 15	-0.040
	0314.623	-488	-0.521		8366.356	23	-0.340
	0346.575	-486	+0.956		8397.225	25	-0.987
	0392.528	-483	-0.366		8429.238	27	-0.492
	0612.847	-469	-0.667		8602.584	38	-0.489
	0613.749	-469	+0.235		9501.245	95	-0.063
	0724.563	-462	+0.740		.344	95	+0.036
	0747.484	-460.5	+0.023				

The CAP and CoD numbers published in IBVS 330,
1969 are wrong; they belong to a neighbouring
star.

Elements from IBVS 330, but the period has been
slightly corrected:

Min = JD 242 8004.250 + 15^d7585 . E

Ampl. 0^m30, with very deep secondary minimum, EA or EB
No well-founded change in the period between 1902 and 1968.

Remeis-Observatory Bamberg
1970 October 15

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