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UX ERIDANI*
 PHOTOGRAPHIC LIGHT-CURVE AND ELEMENTS

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The variability of UX Eridani was first discovered in 1931 on Sonnenberg plates by C. Hoffmeister¹ and the star was recognized as a short-period eclipsing binary.

This was confirmed by V. Zessewitsch², who defined it as a W Ursae Majoris type eclipsing variable and found that its period equals 0^d.44.

Later on he determined the following elements of the light-curve³:

$$\text{Min} = 2427425.291 + 0^d.445276 \cdot E.$$

The author estimated the light of the variable from 34 plates obtained with the 13-inch reflector of Abastumani Observatory during December 1935. The photographs were taken on Fulgur plates (emulsion 60187) using the usual method⁴, the length of exposures being 4 minutes. The total number of observations was 323.

The magnitudes of the comparison stars are derived from a comparison with KSA26⁵. The following Table contains the magnitudes of the comparison stars used.

TABLE I ცხრილი

Star	Mg	P. E.
a) Anonyma $\left\{ \begin{array}{l} \alpha_{1855} = 3^h 03^m 33^s \\ \delta_{1855} = -7^{\circ} 14'.6 \end{array} \right.$	10 ^m .22	± 0.000
b) Anonyma $\left\{ \begin{array}{l} \alpha_{1855} = 3^h 04^m 44^s \\ \delta_{1855} = -7^{\circ} 03'.2 \end{array} \right.$	10.06	± 0.057

* In the present issue of the Bulletin we publish the results of investigations of the four stars included in the program of photographic observations of eclipsing variable stars of the W Ursae Majoris type.

About this program and the methods of investigation used see „Introductory remarks“ in the Bulletin of the Abastumani Observatory No. 1, p. 9, 1937.

The Editor.

Star	Mg	P. E.
c) Anonyma $\left\{ \begin{array}{l} \alpha_{1855} = 3^h 02^m 47^s \\ \delta_{1855} = -7^\circ 28' 7'' \end{array} \right.$	11 ^m .77	$\pm 0^m.005$
d) Anonyma $\left\{ \begin{array}{l} \alpha_{1855} = 3^h 02^m 45^s \\ \delta_{1855} = -7^\circ 04' 3'' \end{array} \right.$	11.33	± 0.019

The distribution of comparison stars after brightness is not regular, because in the proximity of the variable there was not a single suitable comparison star in the interval from 10^m.22 to 11^m.33.

Table II contains the estimates of brightness, the first column giving the Julian Dates expressed in heliocentric Greenwich Mean Time (reckoned from the noon), the second one — the magnitudes⁶.

TABLE II 366050

J. D. _☉	Ph. Mg.	J. D. _☉	Ph. Mg.	J. D. _☉	Ph. Mg.
	^m		^m		^m
2428157.196	10.55	2428159.178	10.63	2428161.357	11.30
200	10.66	183	10.79	360	11.14
204	10.56	187	10.91	365	10.99
208	10.67	2428159.195	10.68	368	11.06
212	10.71	204	10.78	372	10.98
216	10.51	210	10.56	377	11.13
236	10.59	213	10.70	381	11.03
240	10.59	217	10.80	384	11.00
248	10.52	220	10.51	388	10.97
251	10.71	224	10.79	391	10.96
257	10.71	2428161.162	10.91	394	10.89
264	10.88	165	10.86	2428162.185	10.67
276	10.72	169	10.79	189	10.61
279	10.89	172	10.78	193	10.71
282	11.01	176	10.88	206	10.89
284	11.02	179	10.79	209	10.72
286	11.22	183	10.64	212	10.91
289	11.11	186	10.87	215	10.91
292	11.05	189	10.65	221	11.08
309	11.06	192	10.71	238	11.19
312	11.09	195	10.65	246	11.15
315	11.05	199	10.71	250	10.97
317	11.33	206	10.79	254	10.87
322	11.49	231	10.76	259	11.13
325	11.31	252	10.80	263	11.10
328	11.36	261	10.74	266	10.93
339	11.26	264	10.76	271	10.97
342	11.34	267	10.86	274	10.97
345	11.14	270	10.79	277	10.88
348	11.12	273	10.84	280	10.75
351	11.19	277	10.79	283	10.81
354	11.05	281	10.75	286	10.89
357	11.05	285	10.83	294	10.57
376	10.55	289	10.91	298	10.69
379	10.63	296	10.95	302	10.59
384	10.83	299	11.01	306	10.73
392	10.80	352	11.36	309	10.71

TABLE II 366050

J. D. _☉	Ph. Mg.	J. D. _☉	Ph. Mg.	J. D. _☉	Ph. Mg.
	^m		^m		^m
2428162.313	10.77	2428164.213	10.96	2428167.242	10.61
318	10.74	217	11.01	246	10.82
321	10.61	222	11.10	250	10.71
325	10.71	225	11.17	252	10.71
328	10.76	230	11.21	257	10.75
332	10.81	233	11.31	260	10.58
335	10.59	237	11.16	263	10.62
342	10.75	240	11.15	267	10.70
346	10.78	243	11.17	271	10.65
349	10.81	246	11.16	274	10.63
353	10.72	253	11.20	283	10.87
356	10.67	256	11.15	286	10.81
360	10.78	259	11.07	289	10.84
364	10.73	263	10.99	294	10.81
368	10.70	266	11.02	297	10.86
371	10.71	272	10.99	300	10.86
375	10.75	275	10.82	305	10.91
378	10.79	279	10.83	308	10.95
382	10.87	282	10.93	312	10.97
2428163.258	10.78	285	10.97	316	10.98
263	10.71	288	10.87	320	10.99
267	10.71	291	10.87	323	10.99
271	10.93	298	10.79	341	11.25
274	10.94	302	10.73	344	11.20
278	10.85	305	10.74	348	11.22
284	10.71	308	10.89	351	11.26
287	10.70	312	10.85	355	11.31
290	10.78	316	10.69	358	11.26
294	10.93	323	10.55	363	11.17
298	10.85	327	10.67	366	11.22
302	10.19	337	10.51	370	11.16
310	10.79	343	10.57	373	11.03
315	10.95	347	10.60	377	10.95
319	10.81	351	10.91	380	10.97
323	11.06	355	10.92	2428168.200	10.77
328	11.03	359	10.89	206	10.93
332	11.14	362	10.67	211	11.01
338	11.31	366	10.79	214	11.25
341	11.18	370	10.77	217	10.95
345	11.29	373	10.82	227	11.14
349	11.15	377	10.85	234	11.07
352	11.16	380	10.77	238	11.45
356	10.96	383	10.88	249	10.97
364	10.88	2428167.184	11.12	252	11.11
367	10.99	187	10.86	255	11.34
371	11.02	192	10.83	258	11.09
374	10.94	195	10.51	262	11.41
378	10.91	202	10.61	268	11.11
381	10.85	205	10.71	271	10.91
386	10.97	209	10.69	274	11.21
390	10.71	212	10.81	278	10.81
393	10.68	216	10.63	281	10.74
397	10.68	219	10.74	296	10.68
401	10.74	223	10.69	699	10.99
405	10.52	226	10.81	302	10.64
2428164.200	11.07	235	10.73	307	10.91
207	11.11	238	10.88	310	10.73

TABLE II ცხრილი

J. D. ☉	Ph. Mg.	J. D. ☉	Ph. Mg.	J. D. ☉	Ph. Mg.
	^m		^m		^m
2428168.313	10.47	2428168.382	10.82	2428190.204	10.62
317	10.83	389	10.70	213	10.80
320	10.83	391	10.73	216	10.68
323	10.63	394	10.77	219	10.85
327	10.45	2428190.166	10.63	222	10.71
330	10.57	169	10.80	225	10.82
333	10.61	172	10.51	228	10.81
360	10.68	177	10.67	232	10.90
363	10.75	180	10.75	236	10.91
366	10.67	182	10.71	239	11.02
371	10.63	186	10.77	243	10.96
373	10.72	191	10.67	246	10.91
376	10.84	195	10.58	250	11.04
380	10.68	198	10.64		

The curve drawn on the basis of Zessewitsch's elements showed a displacement of the minimum equal to $0^{\text{p}}.01$, which gives for the correction of the period of UX Eridani

$$\Delta P = 0^{\text{d}}.0000026$$

The new elements are as follows:

$$\text{Min} = 2427425.291 + 0^{\text{d}}.4452786 \cdot E.$$

Basing on those elements the final light-curve was drawn (Fig. 1).

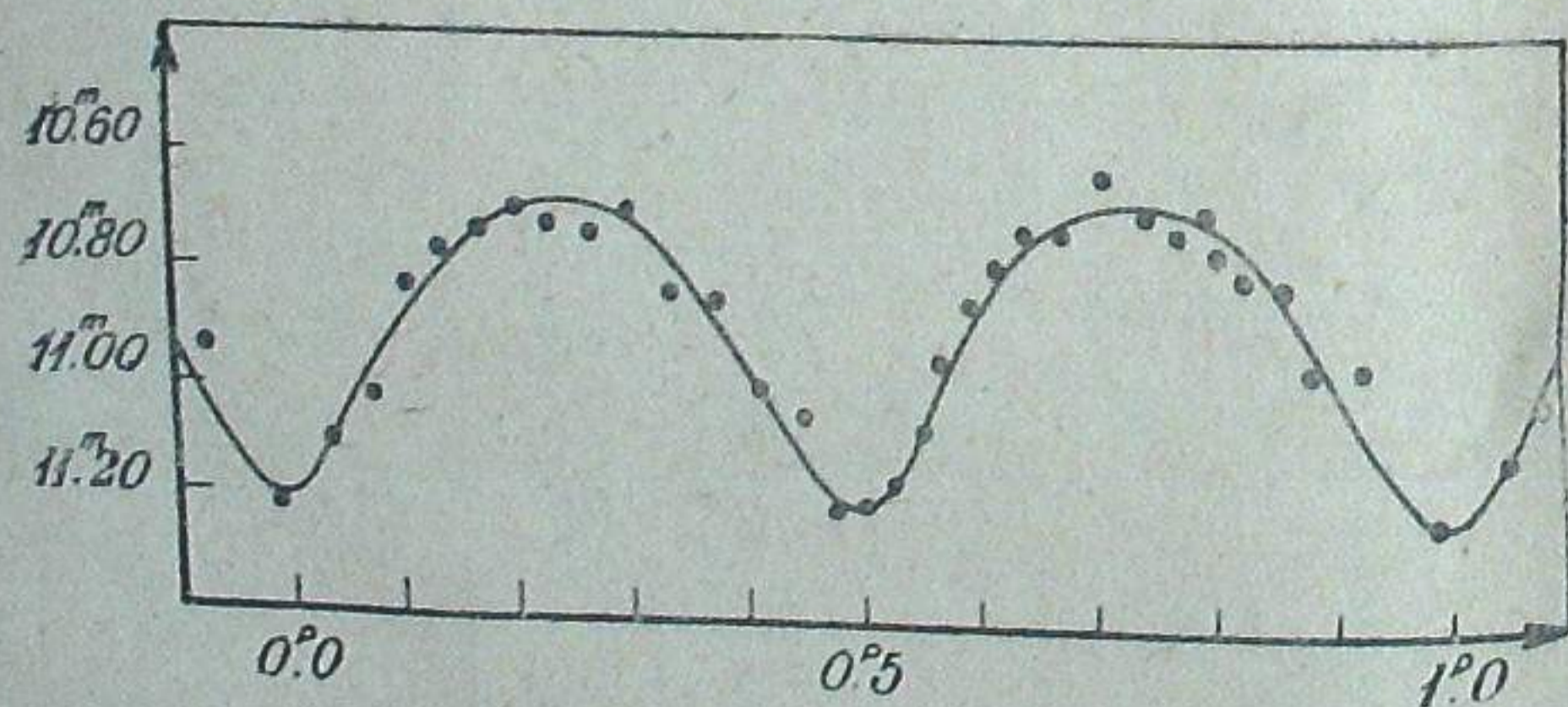


Fig. 1 ნახ.

The normal points of the light-curve are given in Table III, the last column showing the number of observations joined in the given normal point.

TABLE III ცხრილი

Phase	Ph. Mg.	n	Phase	Ph. Mg.	n	Phase	Ph. Mg.	n
0.050	^m 11.10	10	0.431	^m 10.99	10	0.714	^m 10.62	10
084	11.02	10	462	11.04	10	755	10.66	10
117	10.83	10	492	11.22	10	786	10.72	10
147	10.77	10	516	11.20	10	808	10.69	10
182	10.72	10	538	11.16	10	818	10.76	10
215	10.70	10	561	11.06	10	848	10.79	10
247	10.72	10	583	10.94	10	878	10.81	10
284	10.73	10	612	10.85	10	904	10.94	10
321	10.70	10	635	10.78	10	933	10.94	10
353	10.83	10	658	10.72	10	995	11.21	13
395	10.84	10	684	10.72	10			

The following elements were derived from the mean light-curve:

$$\text{Max} = 10^{\text{m}}.68;$$

$$A_I = A_{II} = 0^{\text{m}}.52.$$

The observations were carried out by K. G. Zakharin and by the author. The plates were measured by E. Dolidse and M. Zarandia.

February, 1936.

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4. Bull. Abast. Obs. 1, p. 9, 1937.
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UX ERIDANI

ფოტოგრაფიული სიკაზკაზის მრუდი და ელემენტები

ვ. ბოდოკია

(რეზუმე)

323 ფოტოგრაფიული გამონასახის დამუშავების საფუძველზე UX Eridani-სათვის მიღებულია ელემენტების ახალი მნიშვნელობა:

$$\text{Min} = 2427425.291 + 0^{\text{d}}.4452786 \cdot E.$$

ნორმალური წერტილები მოცემულია ცხრ. III-ში. სიკაზკაზის საშუალო მრუდი მოცემულია ნახ. 1-ზე.

თებერვალი, 1936.