metric error of the field ΔE. The microphotometric readings $E = E' - \Delta E$ corrected for the error of the field are the definite characteristics of the photographic effect of the star.

The repeated microphotometric measurings of the same star give the probable error of a single measurement of E ca.± 1, which corresponds under normal working conditions to ca.$\pm 0^{m}01$ for the middle part of the characteristic curve (m, E). Owing to the insufficient uniformity of the background and other defects of the plate, the probable error of a single measurement of star brightness on different images proves to be much larger, being on the average about $\pm 0^{m}05$.

To eliminate accidental errors all the images of a variable on each plate are measured once before and after the measurement of comparison stars. An individual characteristic curve (m, E) is drawn for each exposure. From this curve the photographic magnitude of a variable can be easily read. This rather complicated and minute method is justified by reducing to a great extent the influence of guiding errors, which may considerably affect the results[4]. Moreover, it leads to the decrease of the influence of Vorbelichtung Effect, of transparency variation and other causes.

Several notes devoted to the individual stars of the W Ursae Majoris type are given below. Each note contains the computed elements of the given variable, its photographic light-curve, table of the brightness etc. In the tables mentioned, if it is not indicated otherwise, the moments of observation are given in heliocentric Julian dates (J. D.$_\odot$) reckoned from the mean Greenwich noon.

The brightness of the comparison stars is usually derived from the plate, on which the area of the given star and one of the Kapteyn's Selected Areas (KSA) is taken. The brightness of the stars of the KSA is taken from the work by Parkhurst and Farnsworth[5].

January, 1937.

THE EDITOR.

BB PEGASI

PHOTOGRAPHIC LIGHT—CURVE AND ELEMENTS

By V. B. NIKONOV and P. P. DOBRONRAVIN

The star 93,1931, later designated as BB Pegasi[1], was discovered photographically by Hoffmeister as a short-period eclipsing variable[2]. The following elements were calculated for this star by Zessewitsch[3]:

$$\text{Min} = 2426559.240 + 0^{d}.361498 \cdot E$$

In the summer of 1934 we obtained 21 plates of this W Ursae Majoris type star. Of the images secured 109 proved to be suitable for measurements. The investigation of this star was the first endeavour to photograph variables with a slight intrafocality (0.5 mm).

Comparison stars are given in Table I:

TABLE I ცხრილი

				m
a) BD+15°4637				10.16
b) BD+15°4634				10.80
c) Anonyma	$\begin{cases} \alpha = 22^{h} 15^{m} 22^{s},9 \\ \delta = 15°31',0 \end{cases}$			11.28
d) BD+15°4641				11.63
e) Anonyma	$\begin{cases} \alpha = 22^{h} 16^{m} 43^{s},0 \\ \delta = 15°28',5 \end{cases}$			11.38

Their brightness was determined by means of a plate of the BB Pegasi and KSA 37 areas.

The obtained values of photographic brightness of the variable are given in Table II.

TABLE II ცხრილი

J. D.⊙	Ph. Mg.	J. D.⊙	Ph. Mg.	J. D.⊙	Ph. Mg.
	m		m		m
2427654.361	11.08	2427656.418	11.18	2427657.505	10.84
367	11.08	427	11.13	512	10.75
2427655.305	11.34	433	10.99	2427688.285	11.33
311	11.29	439	10.98	300	11.16
318	11.38	445	10.99	308	11.08
325	11.21	454	10.82	323	10.92
332	11.14	462	11.02	332	11.21
338	11.04	468	11.08	363	10.94
344	11.07	474	10.78	371	10.92
353	10.96	481	10.87	377	11.01
358	10.98	484	10.70	384	10.60
363	11.01	494	10.72	393	11.12
378	10.68	501	10.87	407	10.75
384	10.63	508	11.05	414	11.11
391	11.01	514	11.08	434	11.13
397	10.82	528	11.15	443	11.15
403	10.79	534	11.13	450	11.07
409	10.79	541	11.03	457	11.12
416	10.73	2427657.276	11.38	471	11.22
422	10.94	282	11.42	478	11.30
429	11.17	288	11.27	485	11.31
434	11.26	294	11.31	492	11.16
451	11.11	301	11.44	499	11.06
456	11.28	308	11.39	519	11.16
463	11.28	315	11.22	526	11.18
470	11.46	320	11.23	540	11.91
476	11.41	326	10.98	2427693.380	11.06
482	11.30	332	11.16	387	11.05
488	11.54	343	11.14	394	11.84
2427656.321	10.68	349	10.81	400	11.97
328	10.73	355	10.84	460	10.97
334	10.95	361	10.92	412	11.12
346	10.97	373	10.95	418	11.39
351	11.00	378	10.93	425	10.31
357	11.16	384	10.65	432	10.24
364	11.20	390	10.80	438	10.27
370	11.30	498	10.96		

On the basis of Zessewitsch's elements the correction for the star period

$$\Delta P = 0\overset{d}{.}0000012$$

and consequently a more accurate value for the variable's period

$$P = 0\overset{d}{.}3614992$$

was obtained.

With the aid of the computed period, the normal points were obtained (Table III) and the mean light-curve constructed (Fig. 1).

TABLE III ცხრილი

Phase	Ph. Mg.	n	Phase	Ph. Mg.	n	Phase	Ph. Mg.	n
p	m		p	m		p	m	
0.006	11.29	5	0.317	10.87	5	0.596	11.12	5
051	11.19	5	355	11.15	5	659	11.00	4
095	11.07	5	400	11.11	5	721	10.87	5
131	11.02	5	431	11.22	5	812	10.80	5
177	10.90	5	463	11.30	5	867	10.96	5
228	10.87	5	505	11.40	5	907	11.03	5
256	10.88	5	548	11.27	5	953	11.22	5
282	10.70	5						

The deviations of individual points from the mean curve usually did not exceed $0\overset{m}{.}2$.

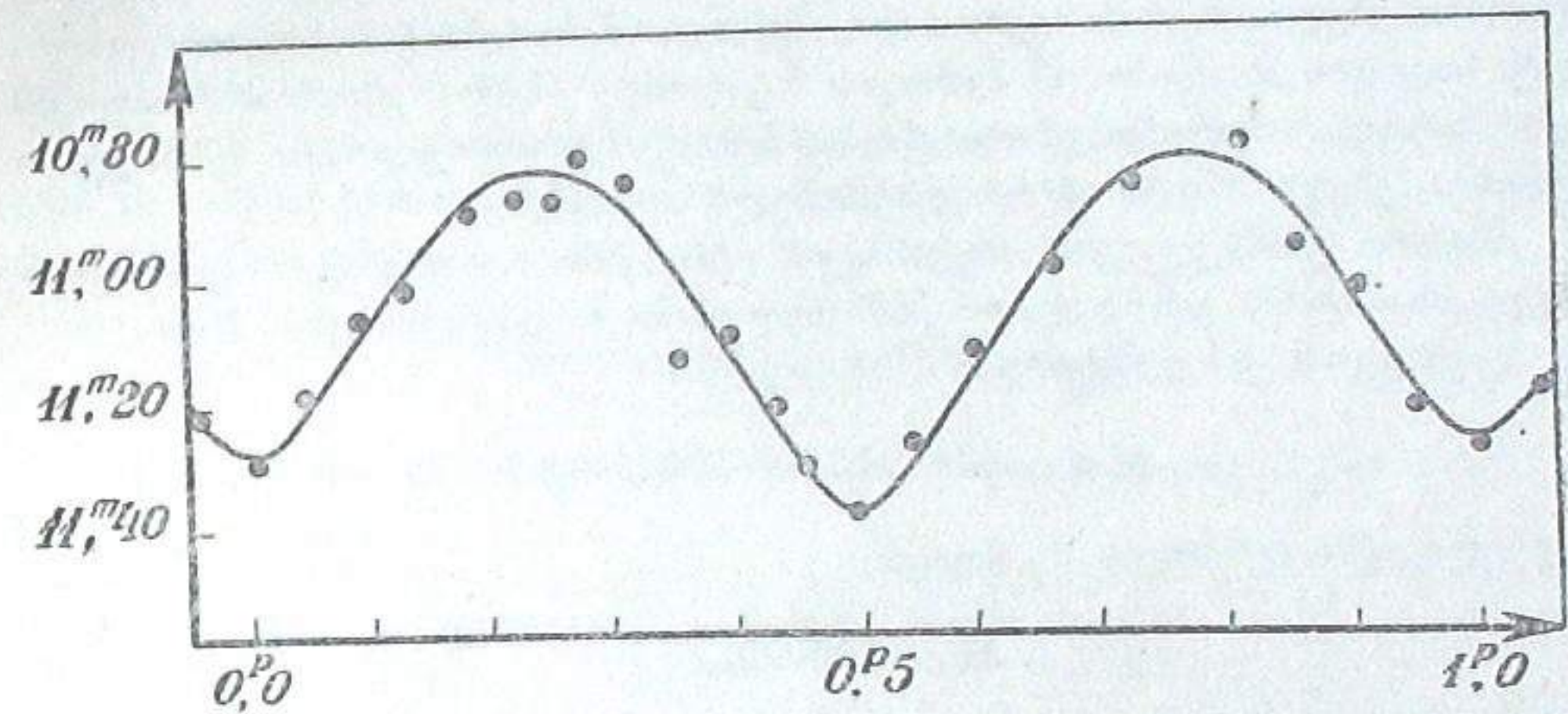Fig. 1 სახ.

The values of photographic brightness obtained for maximum and minima are:

$$\text{Max} = 10\overset{m}{.}82$$

$$\text{Min}_\text{I} = 11\overset{m}{.}40$$

$$\text{Min}_\text{II} = 11\overset{m}{.}29$$

The measuring of plates and a part of the computations were carried out by M. P. Imnadse, E. D. Mgaloblishvili and V. V. Vikhrov.

November, 1934.

ლიტერატურა: Literature:

1. A. N. 247, p. 121, 1932.   3. T. A. C. 12, 1934.
2. A. N. 242, p. 129, 1931.

BB PEGASI

ფოტოგრაფიული სიკაშკაშის მრუდი და ელემენტები

ვ. ნიკონოვი და კ. დობრონრავინი

(რეზუმე)

1934 წლის ზაფხულს მიღებული იყო BB Pegasi-ს 109 ფოტოგრაფიული გამონასახი. ამ ვარსკვლავის. შესწავლის დროს პირველად იყო გამოყენებული ცვალებადის ინტრაფოკალური ფოტოგრაფია.

ცვალებადის სიკაშკაშის განსაზღვრის მეთოდი მდგომარეობდა სადარი ვარსკვლავების სიდიდეთა და ვალვანომეტრის გადახრის ანათვლების მიხედვით დამახასიათებელი მრუდის აგებასა და, შემდეგ, ამ მრუდის გამოყენებით ცვალებადის სიდიდის ათვლაში. ამ მეთოდის მაგალითზე აშკარა გახდა ინტრაფოკალური ფოტოგრაფირების უპირატესობა: მცირე ინტრაფოკალობის შემთხვევაში დამახასიათებელი მრუდი უფრო დაკანებული აღმოჩნდა.

სადარი ვარსკვლავები მოყვანილია ცხრ. I-ში. ცვალებადის ფოტოგრაფიული სიკაშკაშის გამოთვლილი მნიშვნელობანი მოყვანილია ცხრ. II-ში.

ცესევიჩის[3] ელემენტების სათუქველზე

$$Min = 2426559.240 + 0^{d}361498 \cdot E$$

მიღებული იქნა პერიოდის შესწორება:

$$\Delta P = 0^{d}0000012$$

და ამის მიხედვით, პერიოდის უფრო ზუსტი მნიშვნელობა:

$$P = 0^{d}3614992$$

გამოთვლილი პერიოდის საშუალებით მიღებული იქნა ნორმალური წერტილები (ცხრ. III) და სიკაშკაშის საშუალო მრუდი (ნახ. 1).

ცალკეული წერტილების გადახრა საშუალო მრუდიდან $0^{m}2$-ს არ აღემატება.

ნოემბერი, 1934.

AP AURIGAE

PHOTOGRAPHIC LIGHT—CURVE AND ELEMENTS

By V. B. NIKONOV and V. M. BODOKIA

The variability of AP Aurigae was discovered in 1921 by A. Stanley Williams when examining previously taken plates[1]. The star received its present designation in 1931[2].

On the basis of visual observations during 1921—1925 and 1931, and with the aid of plates taken in 1901 and 1902, A. Stanley Williams computed the following elements for the star[3]:

$$Min = 2423080.520 + 0^{d}569287 \cdot E$$

In 1933 the following values for the normal epochs were given by Zessewitsch[4]:

$$Min_{I} = 2426771.228; \qquad Min_{II} = 2426771.528.$$

At the Abastumani Observatory observations of AP Aurigae were conducted from November 2, 1934 to January 12, 1935. In all 117 images (24 plates) suitable for measurements were secured. Exposures of 15 and 20 minutes were made. Such long exposures were necessary owing to the orthochromatic effect of the Ilford Monarch plates employed (1934 series, emulsion 6428 A). To eliminate this effect a special filter supplied by the State Optical Institute, Leningrad, was used.

To determine the brightness of six comparison stars, two plates of AP Aurigae and KSA26 were taken at equal zenith distances. The plates were exposed 30 minutes each in the following order: AP Aurigae, KSA26, AP Aurigae.

The characteristic curve was drawn for each plate, from which the photographic brightness values of the comparison stars were determined. The mean of these curves was adopted as the final value.

The obtained photographic magnitudes of the comparison stars and their probable errors are listed in Table I.