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NEW VARIABLE STARS IN THE ξ CORONAE BOREALIS FIELD

This paper continues the study announced in IBVS No. 4125 and deals with the search and investigation of new variable stars using positive-negative method. Six new variables were discovered in the field $10° \times 10°$ centered on ξ CrB (Var 19–24). This study is based on Moscow collection plates taken with the 40 cm astrograph in Crimea.

The data in Tables 1 - 4 and Figures 1, 2 are as in Antipin (1996). The photoelectric standard near V596 Her was used to obtain the magnitudes of comparison stars (Shugarov, unpublished).

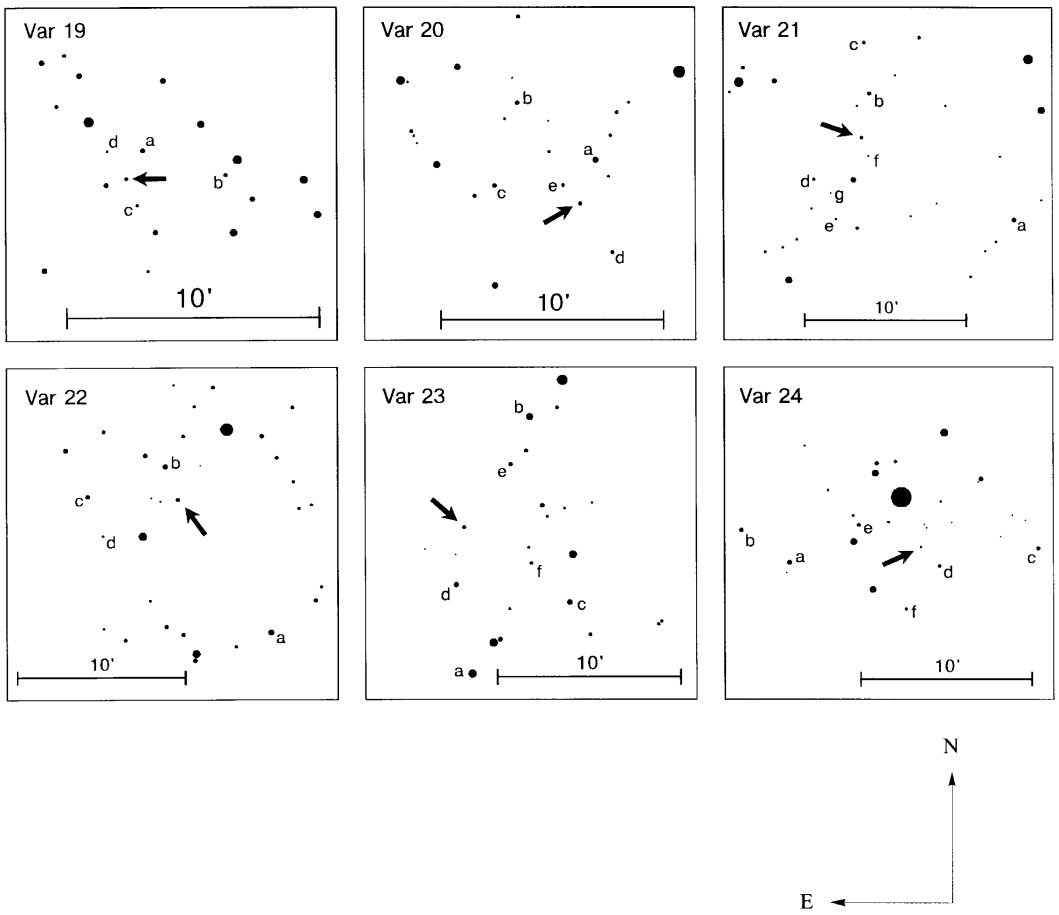

Figure 1. Finding charts

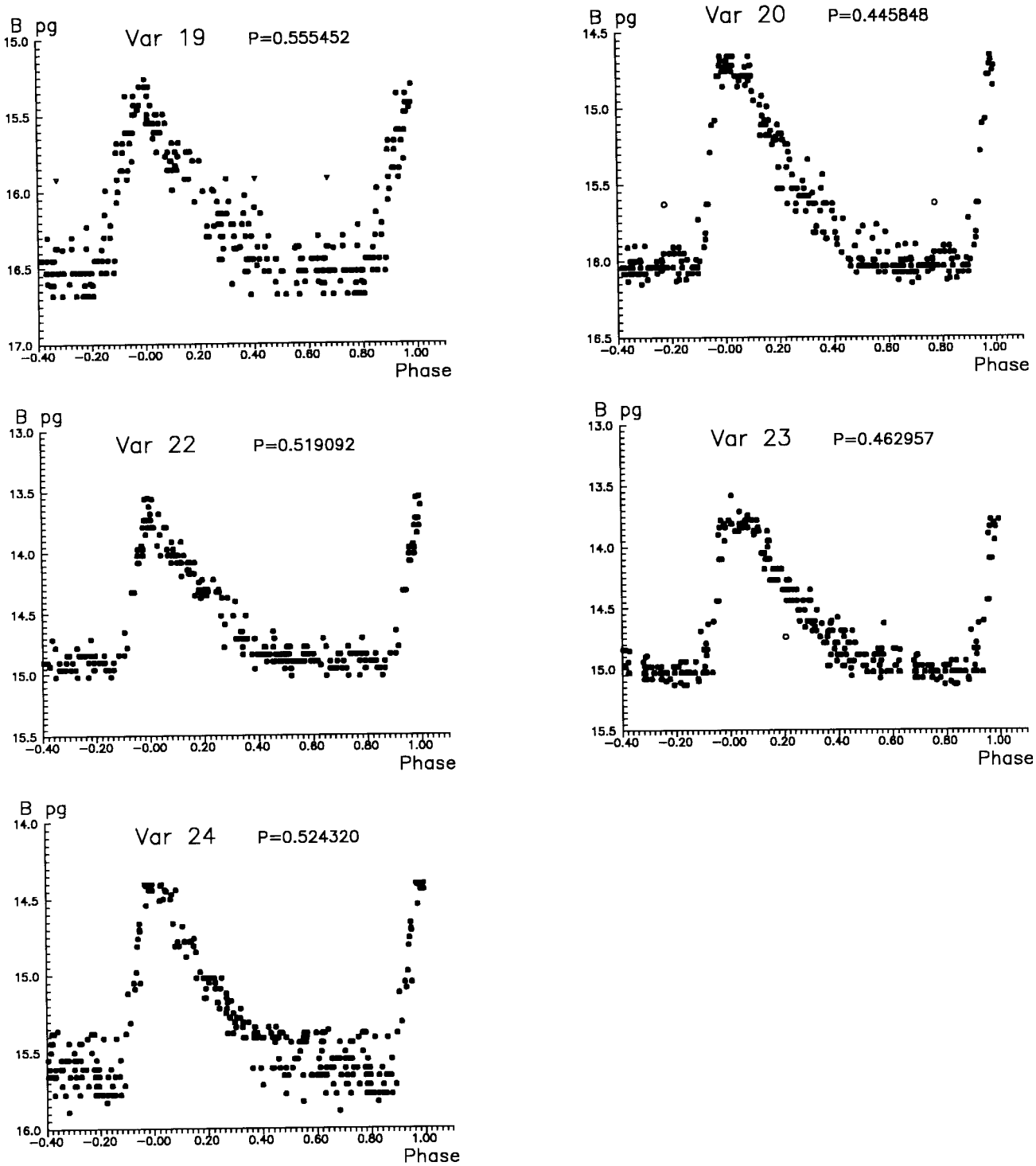

Figure 2. Light curves

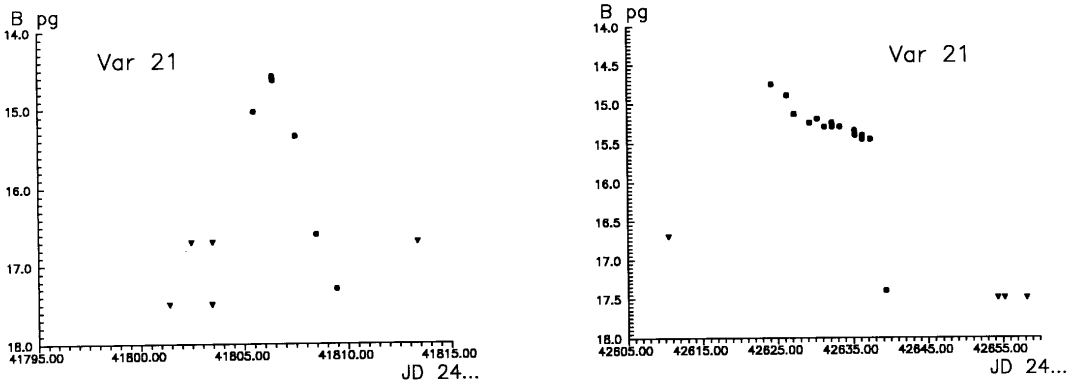

Figure 3. Light curve of variable No. 21

Remarks on individual stars

Var 21. Blue on Palomar prints. The star was seen on 42 plates. Nine outbursts were observed. Two kinds of outbursts, with duration less than 10 days (Figure 3a) and longer than 15 days (Figure 3b), were revealed. Outbursts (JD 24...):

1	41805.491	15.03	6	42624.318	14.75	7	42865.455	14.58
	41806.385	14.58		42626.356	14.89		42867.469	14.72
	41806.419	14.63		42627.297	15.13		42868.383	14.97
	41807.476	15.34		42627.335	15.13		42870.447	15.08
	41808.473	16.60		42629.349	15.24		42874.465	15.24
	41809.443	17.30		42629.386	15.24		42875.498	15.27
				42630.358	15.19			
2	41860.385	15.03		42630.393	15.19	8	43695.322	14.72
	41867.433	15.19		42631.349	15.29			
	41868.441	15.45		42632.322	15.24	9	44042.349	14.80
	41869.423	15.50		42632.357	15.29			
				42633.389	15.29			
3	41923.334	16.80		42635.321	15.34			
	41924.351	15.24		42635.409	15.40			
	41925.302	16.01		42636.342	15.45			
				42636.380	15.40			
4	42196.391	14.86		42637.407	15.45			
	42197.434	15.24		42639.367	17.40			
5	42303.279	14.50						

Table 1. Coordinates and Identifications of Variable Stars

Var	$\alpha(2000.0)$	$\delta(2000.0)$	GSC
Var 19	$16^h21^m29^s.2$	$29°20'02''$	
Var 20	16 16 28.9	29 56 19	
Var 21	16 00 03.7	33 11 15	
Var 22	16 00 03.5	34 58 21	2576.0466
Var 23	16 06 11.6	33 22 16	2576.0980
Var 24	16 37 42.4	27 00 02	2053.0776

Table 2. Data on New Variable Stars

Var	N	JD24...	Type	Max	Min	$M-m$
Var 19	212	41750–48394	RRab	15.30	16.60	0.20
Var 20	213	41750–48394	RRab	14.70	16.10	0.12
Var 21	205	41750–48394	UG	14.50	< 17.5	
Var 22	202	41750–48394	RRab	13.60	15.00	0.14
Var 23	214	41750–48394	RRab	13.70	15.10	0.11
Var 24	209	41750–48394	RRab	14.40	15.80	0.12

Table 3. Light Elements

Var	Max JD	Period
Var 19	2441838.40	$0^d.555452$
Var 20	2442609.40	0.445848
Var 22	2442637.41	0.519092
Var 23	2441776.41	0.462957
Var 24	2442926.44	0.524320

Table 4. Comparison Stars

Var	a	b	c	d	e	f	g
Var 19	14.84	15.31	15.92	16.68			
Var 20	14.27	14.92	15.24	15.73	16.17		
Var 21	14.16	14.63	14.92	15.45	15.71	16.70	17.50
Var 22	13.56	14.14	14.40	15.02			
Var 23	13.17	13.59	13.90	14.41	14.69	15.18	
Var 24	14.50	14.66	14.78	15.12	15.44	16.00	

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Reference:
Antipin, S.V., 1996, *Inf. Bull. Var. Stars*, No. 4342