

COMMISSION 27 OF THE I. A. U.
INFORMATION BULLETIN ON VARIABLE STARS
NUMBER 69

Konkoly Observatory
Budapest
24 September 1964

SZ HYDRAE: AN RR_{ab} STAR WITH UNSTABLE PERIOD

To extend G. Lange's unpublished listing of maxima later than 1929, SZ Hydrae was examined on more than 1 000 Harvard patrol plates. Annual light curves (1899-1900 to 1951-1952) were plotted and combined into an approximate mean light curve. This curve was then fitted to each season's observations to determine the heliocentric times of maxima given in Table I.

All maxima to about 1930 are fitted by,

$$J. D. \text{Max}_{\odot} = 2\,415\,714.1429 + 0^{\text{d}}.537\,428\,15 \text{ E. (A).}$$

Later observations to 1952 showed large 0 - C residuals, requiring the elements:

$$J. D. \text{Max}_{\odot} = 2\,431\,881.5537 + 0^{\text{d}}.537\,230\,51 \text{ E. (B).}$$

Lange's observations from 1959 to 1962 (Ms.) show progressively larger positive residuals from B ($0^{\text{d}}.06$ to $0^{\text{d}}.12$), indicating a lengthened period.

The 0 - C values show that the period of SZ Hydrae also has slow oscillations, and rather large differences between successive residuals hint at short-term variations.

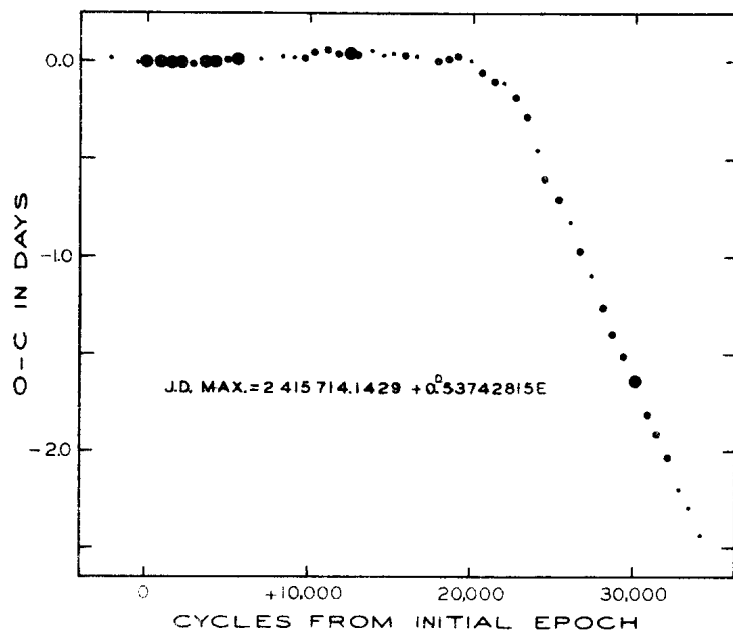
The shape and amplitude of the light curve varied considerably from season to season, as if a strong Blazko effect were present.

TABLE I.

<u>Hel.</u>	<u>J. D.</u>	<u>E</u>	<u>U - C</u> A
24...			
15 064. 943		- 1 208	+0. ^d 013
15 414. 249		558	-0. 009
15 714. 143		0	0. 000
16 170. 956		+ 850	-0. 001
16 539. 089		1 535	-0. 006
16 886. 269		2 181	-0. 005
17 216. 243		2 795	-0. 012
17 626. 850		3 559	0. 000
17 981. 015		4 218	0. 000
18 351. 844		4 908	+0. 004
18 716. 228		5 586	+0. 011
19 467. 013		6 983	+0. 009
20 195. 782		8 339	+0. 026
20 561. 231		9 019	+0. 024
20 923. 453		9 693	+0. 019
21 278. 179		10 353	+0. 042
21 658. 157		11 060	+0. 059
21 995. 111		11 687	+0. 045
22 391. 727		12 425	+0. 039
22 670. 642		12 944	+0. 029
23 119. 963		13 780	+0. 060
23 477. 323		14 445	+0. 030
23 841. 173		15 122	+0. 042
24 224. 348		15 835	+0. 030
24 578. 514		16 494	+0. 031
25 309. 387		17 854	+0. 002

TABLE I. cont.

<u>Hel.</u>	<u>J. D.</u>	<u>E</u>	<u>0 - C</u> _A		<u>0 - C</u> _B
24...					
25 668. 401	+18 522		+0. ^d 014		
25 977. 437	19 097		+0. 029		
26 410. 575	19 903		0. 000		
26 763. 611	20 560		-0. 055		
27 124. 180	21 231		-0. 100		
27 493. 386	21 918		-0. 107		
27 884. 024	22 645		-0. 179	<u>E</u>	<u>0 - C</u> _B
28 234. 321	23 297		-0. 286	-6 789	+0. ^d 025
28 600. 135	23 978		-0. 460	6 108	-0. 015
28 933. 236	24 412		-0. 603	5 488	+0. 003
29 327. 026	25 331		-0. 709	4 755	+0. 003
29 693. 974	26 014		-0. 825	4 072	+0. 023
30 047. 993	26 673		-0. 971	3 413	+0. 007
30 416. 004	27 358		-1. 098	2 728	+0. 015
30 777. 526	28 031		-1. 265	2 055	-0. 019
31 164. 339	28 751		-1. 401	1 335	-0. 012
31 522. 692	29 418		-1. 512	668	+0. 008
31 881. 563	30 086		-1. 643	0	+0. 009
32 276. 402	30 821		-1. 814	+ 735	-0. 016
32 605. 210	31 433		-1. 912	1 347	+0. 007
32 966. 244	32 105		-2. 030	2 019	+0. 022
33 343. 348	32 807		-2. 200	2 721	-0. 010
33 674. 309	33 423		-2. 295	3 337	+0. 017
34 052. 520	34 127		-2. 433	4 041	+0. 018



This diagram shows the residuals from elements "A". Only maxima determined from Harvard patrol plates are plotted. Dot size indicates relative weight.

L. J. ROBINSON
 "Sky and Telescope"
 49 Bay State Rd.
 Cambridge 38, Mass.
 U. S. A.