

11590344, proj. 2552W

1959phae.proj.2652v





January 28, 1957

Harvard Variable Stars  
for which Identification  
charts are required  
at the present time.

(see letter of George H.  
Herbig of October 31, 1956,  
and answer by D.H.M.  
on November 14, 1956.

Also note from D.H.M. to  
M.O. on Nov. 14, 1956, and  
note from M.O. to D.H.M.  
on Nov. 15, 1956, and  
note from D.H.M. to M.O.  
Jan. 23, 1957.)

ADW





# List of Variables

1959phae.proj.2652W





①

3 40.3 - 25 31.5 ✓

1911

U For HV 3320 Mackie HC 167

3<sup>h</sup> 40<sup>m</sup> 07<sup>s</sup> - 25° 33' 0" (1900)

9.8 - &lt; 13

17 plates

In list of "meridian spectra"

Card cat. AN 191, 341 name assigned

AN 190, 107

HB 860. CHD (g)

max 2413786 + 318 d E

g = L 96;  $\frac{3}{8}$ , 8

Prager g. a 2, 98 (1936)

B 4489"

A 4052

B 8873"

15096' ft

I 19404"

15833' ft.

B 17190" <sup>marked</sup> <sub>original</sub>20343" <sup>marked</sup> + DM\* In HC 167 RA = 3<sup>h</sup> 40<sup>m</sup> 3

maybe 07 should be 17

and Dec. is -25° 32



HD

23470 - 25° 1530 3 40.3 - 25 29 8.715  
1.1 29 13.6 +5 33.7

23530 - 25° 1535 3 40.8 - 25 54 9.9 AD  
1.1 39 43.1 +5 59.3

var 3 40 <sup>1</sup>27 - 25 33.0 (1900)  
39.2 38 (1895)

(2)

MWF 211



1940

XZ Eri HV 6276 Hughes HA 90, 170

$4^h 06^m 53^s - 15^{\circ} 39'4''$  (1900)

14.6 - [16.5 type SS Cyg.

Observed May.	14.8	2424798 * <sup>J.D.</sup> 6
	14.6	5183 * 2
	15.0	5867 * 2

"Rise and fall ... do not occupy more than 13 days."

\* MF 10926, 11136, 13525  
MWF EMHI, 131, ft  
rais marked on MF 10656

Pos. Orig. no. 14 chart <sup>A1443IV</sup> EMHI, 187  
I, 138

be MF 10916, 10926 ✓  
ft 10756, 10791 (ms)



(2)

1959-1960

1959-1960

1959-1960

1959-1960

1959-1960

1959-1960

1959-1960

1959-1960

1959-1960

1959-1960

1959-1960

(3)



1940

AH Eri HV6292 Hughes HA90,170

$4^h 18^m 04^s - 13^{\circ} 36'.0$  (1900)

13.5 - 16.5 SSCygni type

Observed maxima

13.5	2414885
15.0	25244
14.0	25560
15.0	26566

"The rise and fall occupy not more than 10 days."

Pos. EMH I, 196 Orig no. 3 A6577  
chart I, 138

MF 11136 <sup>✓</sup> hr  
11142 <sup>✓</sup> ft



4

25200 2 V. PPA 2  
124440 16.24 72184 10.5 11.7  
6 41 41.9 + 0 1959 9.9  
+ 623144.0 70 540242 20 3.2

DM + 00 16.48 1.34 2101-3.21  
6 43 54.4 + 0 6.5 9.9  
+ 1.1 - 46.2 2540 PPA 10.7

DM + 00 16.40  
6 42 55.2 + 0 12.2 9.9  
24.6 145.2 55.0 17 18.0

DM + 00 16.50 77.10 81.20  
6 44 4.0 + 0 25.21 7.8  
20.3 46.4 1.5 5 11.00

Var 6 43.1 + 0 10 1455  
20.3 45.4 + 0 9 1400

(4)

SA 98 ✓

1923

TW Mon HV3657 Cannon HB 786

 $6^h 45^m 24^s + 0^{\circ} 07'$  (1900)

12.8 - 13.5 short period

Pos. W 9:125

B2507 ✓marked on MC 6746 (red arrow)br I 31033 also markedbr MC 22357

med? B 26577

ft B 2507



DM + 0° 1624

6	41	41.9	+0	14.9	9.1
+2.3	44.0		-3	+0	12

DM + 0° 1648

6	43	54.4	+0	6.6	9.4
+2.3	46.2		-3	+0	4

DM + 0° 1640

6	42	55.7	+0	18.9	1855
+2.3	45.2		-3	+0	16 1900

DM + 0° 1650

6	44	4.0	+0	8.2	1855
+2.3	46.4		-3	+0	5 1900

Var	6	43.1	+0	10	1855
2.3	6	45.4	+0	7	1900

5



SV Pimp HV3569 Woods HC225

8<sup>h</sup> 12<sup>m</sup> 37<sup>s</sup> - 13<sup>h</sup> 29<sup>m</sup> 8<sup>s</sup> (1900)

9.5 - &lt; 13.1

Class II?

AK 215, 185 name  
Calamell HB 860

max 2415665 + 169.5<sup>d</sup> E.

Jan 16 - Mar 14 bz, BZ 1929 to 20 Lause

Dec, 4, 1929 8.5 Dec, 4 '29: 1930 " 5<sup>pl</sup>

BZ 1932 " 28 "

A 5831 ✓ bzA 10379 ✓ med

A 2244 ?

A 5066 ✓ ns

~~A 5831~~ ✓A 7218 ✓ of DM stars marked

A 10045

A 16405

A 10053

A 10368



HD 69560 -13° 2466 8 12.4 -14 6 (1900) 9.3  
2.1 10 19.6 -13 57.8

HD 69588 -12° 2438 8 12.5 -12 34 8.4 K2  
2.1 10 22.9 -8 26.5

HD 69616 -12° 2441 8 12.6 -12 40 9.2  
2.1 10 31.1 -8 32.3

var 8 12 37 -13 29.8  
10.5 22

(6)



1913

ST Hya HV 3352 Leavitt Hc 179

$9^{\circ} 33' 14'' - 20^{\circ} 12.1' (1900)$

9.4 -  $< 12.0$  Harvard map 39  
 $10^{\circ} - 30^{\circ}$

long period probably

HJ L 22: 165

am 1419<sup>o</sup>

3510<sup>✓</sup> region od by H

4106<sup>✓</sup>

3299<sup>✓</sup>

$g \sim L$  I, 276; 3, 22

A 3110 broken B 24927 <sup>marked by H</sup>

A 2496<sup>✓</sup> ns

B 24481<sup>✓</sup>

- A 10049<sup>✓</sup> <sup>br.</sup> marked by H - IM marked

A 10540<sup>✓</sup> ns

B 50266

- A 2489<sup>✓</sup> ns

B 53462

B 7441<sup>✓</sup> nf

B 2584<sup>✓</sup>

MC 4670<sup>o</sup>

I 16542

MC 9968 <sup>✓</sup> ng off

I 25352

I 19900



-19° 27 67

ND 83497 9 33.7 -20 6 8.88 A2  
 +2.1 31 37.6<sup>-12</sup> -19 53.5 2.6

Var 9 33 14 -20 12.1 -2.4  
 31.1 0

(7)



1936

AG Hya HV7591 Bayce HB 903,31

9<sup>h</sup> 45<sup>m</sup> 55<sup>s</sup> -23° 17' 0" (1900)

14.3 - 16.0 SS Cygni

m V F 16

14.3	2426505	15.8	2425262
------	---------	------	---------

14.6	7043	15.9	5264
------	------	------	------

14.8	6472,3	16.1	5273
------	--------	------	------

15.9	7513
------	------

Bayce Bk (MWF 6, 10, 16 m): 77 <sup>no plate</sup> <sub>no.</sub>

Only no. 120 chart p 76

br. MF 15596 ✓, 16260 ✓

15334 ✓

Chart on plotting paper, copied  
from MF 15596



1959pne.proj.2652w

10° 02' 14" N 172° 05' 00" W

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1959pne.proj.2652w

1959pne.proj.2652w

1959pne.proj.2652w

1959pne.proj.2652w

1959pne.proj.2652w

8

X Ant HV 3356 Learitt 1913 HC 179

$10^{\circ} 02' 14'' - 29^{\circ} 35.1' (1900)$

9.3 - < 12.0 Harvard Map 39  
notably long

HB 861 Chesley Miller P by C H F

$g \sim R \ I, 290; \bar{3}, 24$

B 7502 ✓ <sup>for</sup> marked originally now erased

B 35567 ✓ <sup>for</sup> marked (recently) by W

A 4342 ✓ off edge

A 4277 ✓

A 3462 ✓ on very edge if at all

B 46244 ✓

46345 ✓

A 8291 ✓ <sup>longer</sup> marked by 409 W

46384 ✓

A 11193 <sup>8x10</sup> ✓ marked by 9

46436 ✓

A 21597 ✓ <sup>mid</sup> marked by W  
best for charting

52791 ✓

41268 ✓

29281 ✓ close S

27217°



(P)

-29° 8098

HD 87794 -29° 8092 10 2.3 -29 28 8.6

-29° 8070

var 10 02 14 -29 35.1

(9)



1456 Can HV10120 Euro HB913

11 8.45 -37 1.5+ (1875)

11<sup>h</sup> 09<sup>m</sup> 51<sup>s</sup> -37° 09' 6 (1900)

-1.4 + 8.05 HLF354

11.9 - 15.4

May 12.1 J.D. 2426460 = 1931 <sup>Apr</sup> 2811.8 8970 = 1938 <sup>May</sup> 10

14.2

6085 = 1930 <sup>Apr</sup> 18

14.0

9150

MF plates also A, B, AM, RB

25 yr Prec. R.A. Dec.

C.P.D. 1<sup>m</sup> 11.0 - -8.2 (1)11<sup>h</sup> 8<sup>m</sup> 40<sup>s</sup> -37° 1.4 (5) 1875ft. ~~to~~ MF 20197<sup>✓</sup>f. 23026<sup>✓</sup> Examinef. 23016<sup>✓</sup> againBr. 20282<sup>✓</sup> with chartm.s. A 4249<sup>✓</sup> B 31335<sup>✓</sup> m.s.518/1 NG 29322<sup>✓</sup> m.s.



Jan. 2428970 = 1938 March 10  
2426460 = Ero. p 9  
p 90 RB 1644 11<sup>th</sup> - 45<sup>o</sup>

Examined RB plates - 11<sup>th</sup> - 45<sup>o</sup>  
120<sup>m</sup> app.

For identification see

MF 20197 original marking  
No. 8, very faint.

(Pos. processed to 1875 does not  
correspond closely to star on  
Union Obs. chart, which is on  
-37° 0' line.)

bright on RB 1644 position roughly  
indicated by H

For Ero chart see p 30, No. 8  
Chart corresponds to MF 20282

or  
Ero p 34 8 is br on MF 24433 ✓  
well marked.

(10)



V591 Cen #V10172 *Spermophata* HB 913

$12^h 36^m 58^s - 33^\circ 0' 0.8''$  (1900)

14.0 - 16.0  $P \approx 0.52$

"Only one maximum has been observed."

J.D. 2428631 14.1 MF 2428076  
33 14.2 : 3026

8631 197

Oct. 0, 1935 = J.D. 2428076

$\begin{array}{r} 555 \\ 366 \\ \hline 189 = 6 \text{ mo.} \end{array}$

Oct 0, 1936 = J.D. 2428442

2428631  $\pm$  Apr. 1937

- MF 23005  $\checkmark$  ms MF 23018  $\checkmark$  run -

22974  $\checkmark$  ms 23031  $\checkmark$  orig. mark 157

22967  $\checkmark$  ms 23058  $\checkmark$  run -

22945 23084

22927 23151

- 22916  $\checkmark$  limit 23166  $\checkmark$  ms

- 22903  $\checkmark$  ms A 10377  $\checkmark$  ms

22891  $\checkmark$  ms A 10142  $\checkmark$  ms

A 5205  $\checkmark$  ms - 3M



-338574

HD 110455 12 37.1 -33 28 9.5 FS  
+1.3 35 49.9 -8 19.6

-32° 8872

110386 12 36.6 -32 57 -8.7 A2  
+1.3 35 17.0 -8 49.0

12 36 57 -33 0.8  
35.6 -32 53

(11)



EX Hya AV 10215 Harehata HB 913

 $12^h 47^m 01^s - 28^\circ 42.9' (1900)$ 

11.5 - 13.3

" -- only one primary maximum  
determined by one obs. 11.4 JD 2428640

2428640 = April 1937

MF 23031 ✓

23084 ✓ orig mark 176 br <sup>swaled</sup> 485 Cen23018 ✓ ft (see 1591 Cen)

A 3188 ✓

5200 ✓ marked by W ft.

1094 0

130 50 ✓



(21)  
- 28° 9747

ND 111787 12 46.6 -28 11 8.6 Ko

- 28° 9754

111868 12 47.2 -28 28 9.6 Fg

111948 12 47.8 -29 28 7.70 Ko

var 12 47 01 -28 42.9

(12)

V485 Cen HV10231 Hurehata HB 913

12<sup>h</sup> 51<sup>m</sup> 55<sup>s</sup> - 32° 40.7' (1900)

13.0 - 516.3

239 = 8 mo - June 1936

2428076 = Oct 1935

MF max JD 2428315 13.2

Apr 1937 8640 13.3

MF 23084<sup>✓</sup> orig 148 (see EX (Hya))23018<sup>✓</sup> ms MF 21648<sup>✓</sup>23166<sup>✓</sup> ms 21678<sup>✓</sup>22969<sup>✓</sup> ms 21694<sup>✓</sup>22891<sup>✓</sup> ms 21779<sup>✓</sup> hr.22974<sup>✓</sup> ms 21808<sup>✓</sup>bright  
about A 3170<sup>✓</sup> ms B7463+ DM star 5335<sup>✓</sup> ms 140915276<sup>✓</sup> ms

ADH 1847

MF 21823<sup>✓</sup>

368

21836<sup>✓</sup> ms

377

461

518

520

527



(81)

HD 112505      12 52.1 - 32 37      8.0 K0  
DM -32° 9042      12 50<sup>1.4</sup> 39.5<sup>-8</sup> - 32 28.8      7.8

van      12 51 55 - 32      40.7  
50.5      33

(13)



1940

NN Cen HV6432 Swape HA 90, 178

 $13^{\text{h}} 07^{\text{m}} 56^{\text{s}} - 60^{\circ} 20.6' (1900)$ 

13.2 - [16.5 SS Cygni MWF 168

13.2 2425379 14.6 2424349

13.2 25382 14.6 25386

13.1 27195

HAS no. 245

Pos. MWF 168: II p. 107

A 2507✓Chart near book MWF 168 (Book I)  
p 36,br MF 11667✓ft 152 11695, 10476, 16484



(41)

(14)

BV Cen HV 4647 Waterfield HB 863

1929

see also DH HB 874

13<sup>h</sup> 25<sup>m</sup> 25<sup>s</sup> - 54° 33.0' (1900)

SS asym'tyke

12.7 - 13.9

MWF 167

13 31 - 53.8 MF plates <sup>7 min</sup> 1929  
four

- A 1892 °

2376 ✓

2550 ✓

= 6419 ✓ ft DM marked

15218 ✓

12973 ✓

16394 ✓

MF 11461 ✓

11474 ✓

11446 ✓

11450 ✓

11410 ✓

11392 ✓

11398 ✓

11403 ✓

MF 9026 ✓

9080 ✓ ft

9099 ✓ num?

9115 ✓ ft

9128 ✓

9144 ✓

9193 ✓ ft DM

9208 ✓

MF 9225

9246

9265 ✓

9283

9323

9329 ✓

9339

9345-48



HD 117487 - 53° 56' 55" 13 25.5 - 54 0 8.5 K6  
+ 1.6 - 8  
23 56.4 - 53 52.0

HD 117386 - 54° 56' 23" 13 24.8 - 54 27 9.5 F8  
+ 1.6 - 8  
23 10.0 - 19.3

HD 117536 - 54° 56' 27" 13 25.8 - 54 34 9.6 A2  
+ 1.6 + - 8  
24 9.0 25.7

var 13 25 25 - 54 33.0  
22.8 25

MF 10187 ✓  
10198 ✓  
10199 - 10206 ✓  
10213 ✓ br?  
10221 ✓  
10229 ✓ br  
10262 ✓ br  
10294 ✓

var HB 874  
13 24.3 - 54.37 DH  
25.2 - 53 48 miles  
25.4 - 54 33 DH  
HB 874  
23.1 - 54 53  
23.4 - 54 33.0 DH  
B 27 306 ✓ 25492 ✓  
29 838 24942 ✓  
25181 ✓ ~ 15

(15)

UZ Boo HV 10426 Hanley, Shapley <sup>HB</sup> 913  
mFW 3

14<sup>h</sup> 39<sup>m</sup> 26<sup>s</sup> +22° 26.1 (1900)

13.2 - [16.1] IR cluster (+)

max JD 2411470<sup>x</sup> 13.6

max 30, 1938 2429049-50<sup>xx</sup> 13.3 7000

apr 1, 1929 2425703 14.0

June 5, 1937 2428690 13.7

"A star,  $m=14.1$ , proceeds north"

sp 9 " position (sufficiently  
accurate for identification)

<sup>x</sup> I 7007<sup>✓</sup> orig mark near pos of var

<sup>xx</sup> A 6794<sup>✓</sup> m5 DM but var m5

IR 2203<sup>✓</sup> br

IR 2201<sup>✓</sup> br

I 41124<sup>✓</sup> m5

IR 2198<sup>✓</sup> br

x apr. 12, 1890

IR 2199<sup>✓</sup> br

orig mark

I 30330<sup>✓</sup> tp

IR 2204<sup>✓</sup>

A 20115<sup>✓</sup> m5

orig 22

I 21214<sup>✓</sup> m5

IR 2205<sup>✓</sup> br

I 30330<sup>✓</sup> tp



HD 129618  $+22^{\circ}$  2738 14 38.4  $+22.12$  8.365  
 $+2.0$  36 25.3  $-12$  24.4

HD 129813  $+23^{\circ}$  2729 14 39.6  $+23.11$  9.065  
 $+2.0$  37 34.3  $-12$  25.0

HD 130003  $+21^{\circ}$  2682 14 40.7  $+21.30$  8.3 Ko  
 $+2.0$  38 41.3  $-12$  41.6

var 14 39 26  $+22$  26.1  
 37.4 38

JD Oct 0, 1935 = 2428076

Apr 0, 1929 = 2425702

$+22^{\circ}$  2741 14 37 16.3  $+22$  16.8  
 $+22^{\circ}$  2744 38 37.3 . 33.4 } 1855



1823

TT Boo HV 3681. Woods, Shapley HB 791

$14^h 54^m 00^s + 41^{\circ} 8'$  (1900)

12.7 - 15.6

"a star of 16<sup>th</sup> mag. brighter 2.3<sup>s</sup>  
in south 18" "

A 398 ✓

~~A 7681~~

A 5252 (orig) marked correctly?

MC 29478

MC 29979 ✓ off

Look up IR plate

MC 20556 0

H 474 1440 + 45

MC 15861 ✓ marked IR 9971 ✓ ms

MC 18639 ✓ ms

MC 19648 0

I 11094

I 829

- MC 19905 ✓ ms

1362

37835

? MC 257

41074

14913

? MC 17616

26656

6465

? MC 17618

40337

41226 1/4

MC 17502<sup>\*</sup>

43558

18267

MC 5692 ✓ marked (orig) bright

6465 1/4 42285 ✓



HD 132327 +41° 2541 14 53.4 +40 49 9.5  
 +1.7 51 44.6 +41 0.4

HD 132503 +41° 2542 14 54.4 +41 12 9.1 G  
 +1.7 52 39.7 -11 23.2

HD 132545 +41° 2543 14 54.6 +41 28 8.4 F5  
 +1.7 52 52.2 -11 39.2

var 14 54 00 +41 8  
 52.3 19

compare BM 2137 and RH 8832

MC 19849 ✓  
 19905 °  
 15861 ✓

AC 39015 ✓  
 RH 8762 ✓  
BM 2137 ✓  
BM 2086 ✓  
 RH 8832 ✓

T 2, RH 15586  
 RH 11017 ✓  
 BM 2364 ✓ br?  
 BM 2196 ✓

RH 15832 ✓ br  
RH 15659 ✓ br

~~MA 9349~~

HD 132542  
 HD 132541  
 BM 2137  
 IR 9971

(17)

BE Cen HV 4093 *Gerassimovic* HB 853 1927 $14^h 55^m 43^s - 29^\circ 51.6' (1900)$ 

9.6 - 14.0 long period AX plate

mag = 2424694 + 402 E

A 13368 r br marked (orig) 46 (other  
marked by H)  
9637<sup>v</sup>I identify the variable as  
DM - 29° 11.473AX 1144<sup>v</sup> brAX 1083<sup>v</sup> br



TT Boo HV 3681  $14^h 54^m 00^s +41^\circ 8' (1900)$

Range 12.7 - [15.6

HB 791 "A star of 16<sup>th</sup> mag precedes  
2.3<sup>s</sup>, south 18<sup>"</sup>

A 5252 an orig. mark indicating  
position.

MC 15861 Orig two arrows point to a  
star near position  
but I do not feel certain  
of the position

The following plates show faint stars:

BM 2137 <sup>hr</sup>	IR 9971	RH 15832
2364 <sup>ms</sup>	} shows ft stars	15586
		15639 ✓
	MC 19905 rem?	11066
	MC 18639	

~~Identify MC 29979 off  
edge~~  
14 43 + 43

HD132761 - 31° 11646 14 55.7 - 319 7.62  
+1.5 -6  
54 14.0 - 2.9

HD132664 - 29° 11468 14 55.2 - 29 14 8.8 60  
+1.5 -6  
53 39.5 7.9

var 14 55 43 - 29 51.6  
54.2 46

B 56033 ✓ *found*  
46826 ✓  
46887 ✓

A ~~10956~~  
10963



(18)

Y

AI 2195

RR Lup HV4889, Swape, Caldwell HB879

MWF 176

15<sup>h</sup> 29<sup>m</sup> 13<sup>s</sup> - 40° 14.4 (1900)

Record took MWF 176  
91 obs.

HB879 note 13.5 - 16.0 "SS Cygni type"

Seen on JD 2419998 13.1 1913-8-18  
MF 13163<sup>v</sup> 2424678 14.0 1924-6-11  
13185<sup>v</sup> 682 14.0 6-11  
13245<sup>v</sup> 2425327 16.4 1928-3-21  
13283<sup>v</sup> 5689 16.4 1929-3-18

13295-300<sup>v</sup> B44096 near  
13303<sup>v</sup> "near Aug 19, 1905 = JD

A 1973 orig 45<sup>v</sup> B27918<sup>o</sup> ~~B30238~~

A 15445<sup>v</sup> B31888<sup>v</sup> ~~A 23494~~

A 7437 ~~1905~~ - B27889<sup>v</sup> ~~B44094~~

A 16419<sup>v</sup> among B plates 15.35-05

A 13961<sup>v</sup> A 11650<sup>o</sup> ~~A 12400~~

13962<sup>v</sup> 12020 B 53890<sup>o</sup>

13963<sup>v</sup> 12021 B 53961<sup>v</sup>

13964 12022 B 54019<sup>v</sup>

13965 12023 -

13966 12163 A 16048<sup>v</sup>

~~16296~~ 12363 7350<sup>v</sup>

var 15 29 13 -40 14.4 (1400)  
27.5 9

CPD-40°7045 27 24.3 9.0 9.5

CDM-40°9766 27 23.3 8.4 9.3

HD 138794 15 29.2 -40 17 9.8  
-40°9768 } +1.7 27 27.3 -5 11.9  
CPD-40°7046 } 29.5 11.8

HD 138925 15 30.0 -40 14 10.6 A0  
-40°9784 +1.7 28 15.4 -5 9.4

AX 1689

MF 0376

HD 138940 15 30.1 -40 44 7.6  
-40°9787 +1.7 28 24.5 -5 38.9

A 10992 A 21848 ✓ A 1924 ✓  
11024 21883 12363

HD 138689 15 28.5 -40 22 12400  
-40°9758 +1.7 26 45.2 -5 16.7 12912  
90 28.5 50 2.95 (100)  
-40°9760 +1.7 26 48.9 -6 44.4

B35787 - B34063 ✓ - B15782 ✓ B27175 ✓  
43341 ✓ 36325 ✓ 20274 ✓

44526 ✓ 9726 etc B54249 ✓

25907 11279 - 24919 ✓

33522 ✓ 14029 ~~81688~~



(19)

1940  
HA

ATara HV6551 Shapley, Swepe 90, 182

17<sup>h</sup> 23<sup>m</sup> 09<sup>s</sup> -46° 01.1 (1900)

105 MF 17A  
+ A,B,AM,

13.0 - 15.8 SS Cygni

mag	J.D.	mag	J.D.
13.3	2413994 xx	15.8	2426560 ✓

13.0	14185	15.8	26591 A 15726 ✓
------	-------	------	-----------------

12.9 21066 x Aug 6-7, 1931 no MF

A 15565<sup>r</sup> Aug 5

15576 ✓ " 7

xx 3994  
2413559 1898  
435  
425 mar 0 1899  
10 mar 10 "

4185  
3559  
626  
609 Sept 0 1899  
17 "

2421066  
0863 1916  
203  
182 July 0 1916  
21 "

A 6394 ✓ A 11531<sup>8x10</sup> yellow mg  
7656 - -59<sup>7</sup>20 ✓ rt in comp CPD marked

1723 11503<sup>8x10</sup> July 22 '16 bro

- 7874 ✓ red and black orig marker near pos.

10792 ✓ mult 4. var?

10794 ✓

Seen

m      & D  
 15.6      2411187  
 14      2411528  
 14.6      2412972  
 14.0      2415929  
 13.1      2419998 - B44096  
 14.0      2424678 -  
 14.0      2424682  
 14.9      2425325  
 16.4      2425327  
 16.4      2425689

1912      2419<sup>9998</sup>~~402~~ <sup>13.1</sup>  
             5796  
             57816 Aug 18  
             no MF May 10, 1913  
             B 43675, 6760 no A  
             2424678 14.0  
 1928      2423785  
             893 June 0 + 2  
             882  
             11

MF 14402°  
 June 11, 1930  
 B 64338-353° no A

2415929  
 1900 2415019

510

882

June 0 + 2

1902 June 28

~~B 30219~~

Try BR plates 4x5  
~~BR 2179~~

~~8495  
 4157  
 5677  
 11551~~

AX 2611 seen?  
 2671 seen?  
 1780 seen?  
 2201 seen?  
 2244 seen?  
 1689 ✓



15 10 - 37

		11627
13407	11969	11726
13421	11838	11738
11656		11697
<u>15 45 - 36</u>		

15499

16 06 - 393

8783

M F ~~13043~~

13185 ✓

13245 ✓

~~13283~~ ✓ good

13295 - 300 ✓

13303 ✓

8718 ✓

8660 ✓

8543 ✓ orig 45

8496 0

12922 ✓ good

11904 - 10 ✓

11795 ✓

11710 ✓

11683 ✓

11464

15 29 -40

no A

J.D. 2419998 = Aug 18, 1913

---

B44096  
seen

a 7437 = Aug. 19, 1905 =

ns

J.D. 2417077

---



Record book M W F 176

p 189 — estimates of  
magnitude of 45 (original number)

MF 10376<sup>v</sup> <sup>m</sup> 13.9

Plates used in discovery — p 100

p 108 45 bright on MF 10376<sup>v</sup>, B 30238<sup>o</sup>  
faint 10582 10590

sketch of region

contact 4889

p 109 bit of plates, all faint?

pos. p 174 " vis only twice "

A X 1689<sup>v</sup>

MF 10376<sup>v</sup>

pos measured on A 1973<sup>h</sup>

Var 17 23 09 -46 1.1 (1900)  
 + 1 52 -45 <sup>-1.4</sup> 59.7 (1875)  
 21 17

17 2 17 22 45 -46 7.3 (1900)  
 CPD -46° 86 84 20 <sup>1 51.5</sup> 53.5 <sup>-1.5</sup> 5.8 8.8

17 23 44 -46 4.4 (1900)  
 CPD -46° 86 95 21 <sup>1 51.5</sup> 53.0 <sup>-1.4</sup> 3.0 8.5

MF 6241 <sup>10 m m g</sup> } 3977  
 4698 } 3952  
 4669 } 3521  
 4579 } 6344 ✓  
 4557 ✓ } 26700 ✓ ft  
 4508 } 26782 ✓  
 4478 } 26835 ✓ br  
 4460 } 26902 ✓  
 4430  
 4412  
~~439~~  
 4000



20



V6990ph HV10577 Boyer HA109, 12 <sup>1942</sup>

16<sup>h</sup> 19<sup>m</sup> 58<sup>s</sup> - 4° 26' 8" (1900)

13.8 - [16.0 SS Cygni MWF 361

max. 2428690

9080

9400

9750

9816

EAB (361) pos. p 29 A 7701 (ms)  
chart p 28

orig no. 88

br MF 23 267 ✓

ft MF 20 706 ✓

24 992 ✓

20009

19426

A 19601 ✓

12



(21)



TV Oph (no. 30) Leavitt 1904 HC 90.

16<sup>h</sup> 20<sup>m</sup> 43<sup>s</sup> - 22° 05' 6" (1900)

HSL 30

12.9 - 15.5

A, B plates

26 Armin  
7 Bache  
3526

A 3227 ✓	A 3223 ✓	A 9351
3228 x	3313	9388
3233 x <sub>hr</sub>	<u>3304</u> ✓	9444
3312 ✓	<u>3305</u> ✓	9548 ✓
<del>3031</del>	3308	<u>-22471</u> ✓ <sub>perm</sub>
12008 ±	3309	<u>-23335</u> ✓ <sub>ms</sub>
-12008	-3531°	25454 ✓

B 3800 ✓	B-9592°	B 9591 ✓
- 3841°	-3603	A 11687
32581	-5374°	11896
25335 ✓	-9585°	3690
597	28222 ✓ <sub>chms</sub>	try SB 6167
3801°	9267°	6168
- 3875 ✓		6170
- 27176°		6171
32333 ✓	Pos HSL IX:53 (18)	
	A 2763 ✓	

var 16 20 43 -22 51.6  
 $\begin{matrix} +2.7 \\ 18.0 \end{matrix}$  -22  $\begin{matrix} -6 \\ 0 \end{matrix}$

HD 148087 16 20.6 -21 34 9.2  
 $\begin{matrix} +2.7 \\ -21^{\circ} 4356 \end{matrix}$   $\begin{matrix} 17.542 \\ 17.542 \end{matrix}$   $\begin{matrix} -6 \\ 27.9 \end{matrix}$

HD 148185 16 21.2 -21 57 10.2  
 $\begin{matrix} +2.7 \\ -21^{\circ} 4359 \end{matrix}$   $\begin{matrix} 18.32.6 \\ 18.32.6 \end{matrix}$   $\begin{matrix} -6 \\ 51.0 \end{matrix}$

HD 148211 16 21.4 -21 53 7.63  
 $\begin{matrix} +2.7 \\ -21^{\circ} 4360 \end{matrix}$   $\begin{matrix} 18.39.3 \\ 18.39.3 \end{matrix}$   $\begin{matrix} -6 \\ 47.0 \end{matrix}$

MF 4428 ✓  
 3885 ✓  
 6056 ✓



(22)

X Ser HV 3137 ✓ Leavitt 1908 17 C 142

16<sup>m</sup> 14<sup>m</sup> 05<sup>s</sup> - 2° 15.4 (1900)

8.9 - 14.5 max 1903 may 5-sept 25  
faint 1904  
ns 1906 except A 7701 ✓

B 356 47 ✓ 1905

34766 ✓ 1904 ns

31803 ✓ 1903<sup>br.</sup> no. 295 DM stars

32396 ✓ " br

A 7891 ✓ off edge

20056 ✓

19426 ✓

19459 ✓

7701 ✓ ft

ES

raw 16  $\begin{array}{r} 1 \\ 14 \\ + 2.3 \\ \hline 11.8 \end{array}$  5 - 2 15.4  
 $\begin{array}{r} - 6 \\ \hline 9 \end{array}$

~~HD 148669 16  $\begin{array}{r} 24.6 \\ - 2.3 \\ \hline 22 \end{array}$  18.8 - 2 30 8.8  
 $\begin{array}{r} - 6 \\ \hline 23.5 \end{array}$~~   
~~- 20 4199~~

~~HD 148559 16 23.8 - 1 36 9.5  
- 10 3198~~

~~- 20 4200 16 22 24.4 - 2 38.7 9.6  
- 20 4201 23 18.2 11.7 9.1~~

~~HD 147099 16  $\begin{array}{r} 14.7 \\ + 2.3 \\ \hline 12 \end{array}$  24.9 - 2 47 8.6  
 $\begin{array}{r} - 6 \\ \hline 40.5 \end{array}$~~   
~~- 20 4160~~

- 20 4155 16 11 28.2 - 2 9.8  
41.56 11 36.0 20.1



(23)



1904

YY Sco (no. 47) Leavitt HC 90

$16^h 31^m 58^s - 28^\circ 22.0' (1900)$

10.5 - < 15.0 Orig. no 47

orig  
no. 47  
H.L.L. Record bk X, 160  
126

be A 2520<sup>12.5</sup> ft? A 5551<sup>✓</sup> 13.0  
X 4691 13.4  
7949 13.4

A 2756<sup>✓</sup> B 19841<sup>✓</sup>

2286<sup>✓</sup> 5374<sup>✓</sup>

28159<sup>o</sup>

32063<sup>✓</sup>

3832<sup>✓</sup> off

9511<sup>✓</sup>

Orig 47 probably ~~is not~~ cat. 47

No. 58 on B 19841

be on A 2520 (marked  $\pm$ )

ns A 5551

ns B 32063 CDM stars marked

(H2)

HD 16 32.0 -28 0 9.0 11.0  
30.6 -28 54 8.8 10.4

50 16 29.7 -28 1 2.91  
25.2 -26 19 6.22

54 16 26.3 -29 59 8.82  
CDM -29° 126 15 mag 8.6  
-29° 126 14 " 8.7  $\begin{matrix} 5 \\ \sim 1.2 \\ n 1.3 \end{matrix}$

CDM -27° 110 21 16 29 1.1 -27 52.2 1875  
22.9 16 30.6 -27 55 1900

CDM -27° 110 33 16 29 54.4 -27 53.6 1875  
16 31.5 -27 57 1900

CDM -27° 122 50 16 29 49.8 -28 21.5 1875  
16 31.4 -28 25 1900

CDM -27° 110 40 16 30 23.0 -27 56.7 1875  
16 32.0 -28 0 1900

16 32.0 -28 22 1900 var  
-1.6 + 3

16 30.4 -28 19 1875



24



1940

MM Sco HV 6553 Shapley, Lurpe 17A90, 182

17<sup>h</sup> 23<sup>m</sup> 39<sup>s</sup> - 42° 06.4 (1900)

13.0 - L16.5 SS again MWF 189

mag. J.D. mag. J.D.  
12.5 2412329 15.7 2426125

13.0 17375 15.2 26133

13.4 20313

7375 1904  
6450 June  
895 042  
882 13 1906

JD 2412329  
2412098 1892

12.31 May 0 + 3 B13353

1216  
15 May 15, 1895 no A's

MF 8652

2426125 9758 ✓

2425246 1928 9783 9768 ✓

879  
857 May 0 + 2 9778 ✓

B 28 May 28, 1930 A14742

See near CDB 3: 24 pf 14745

B64705 65862 15529 ✓ A9805

64862 66312 15535 B10204

65335 66349 15704 ✓ B27911

65619 + MF 38560 A6456 ✓

(55)

var 17 23 39 -42 6.4  
 +1.8 -1.3  
 21.8 -42 5

HD 158323 17 23.5 -42 58 9.0 8.0 B<sub>9</sub>  
 -42° 12197 +1.8 -1.2  
 CPD-42° 7799 17 21.7 -42 57

HD 158361 17 23.7 -42 6 9.1 8.6 A<sub>2</sub>  
 -42° 122057 1.8 -1.5  
 CPD-42° 7802 17 21.9 -42 4.5  
 -42° 8022 17 22 09 -42 55.6 8.4

HD 158362 17 23.7 -42 22 8.9 8.0 A<sub>0</sub>  
 -42° 12202 1.8 -1.5  
 CPD-42° 7800 17 21.9 -42 21

MF 26782<sup>v</sup> br? A 2679<sup>v</sup> *marked*  
 MF 26902<sup>v</sup> br? A 9811  
 MF 6344<sup>v</sup> med? A 6313<sup>v</sup> *off*  
 MF 4557<sup>v</sup> med?  
 MF 4433 fainter than med?  
 MF 7607 ft? B 16654  
 B 16097  
 B 15435 B 35528



(25)



1942

HA109

21

V810 Oph HV11017 Boyce, Hershata

 $17^h 35^m 58^s + 7^{\circ} 05' 3'' (1900)$ 

14.8 - 15.8

SS Cygni

MWF 11

max

242 7680

8340

A 25487 br? marked by H

25491 ft? br?

+6° 3495 marked

25498 br?

25481 ?

MC 21962 br?B 64544 br?MC 24980 ft.

HD 160589 DM + 7° 3434

$$\begin{array}{rcl} 17^h 35^m.2 & + & 7^{\circ} 51' \\ + 2.2 & & - 2 \\ 32.57.9 & & - 52.7 \end{array} \quad \begin{array}{l} 7.14 \text{ K0} \\ (1855) \end{array}$$

HD 160558 DM + 6° 3490

$$\begin{array}{rcl} 17^h 35^m.5 & + & 6^{\circ} 37' \\ + 2.2 & & - 2 \\ 33.17.0 & & - 38.9 \end{array} \quad \begin{array}{l} 7.32 \text{ K2} \\ (1855) \end{array}$$

HD 160741 DM + 6° 3495

$$\begin{array}{rcl} 17^h 36^m.5 & + & 6^{\circ} 50' \\ + 2.2 & & - 2 \\ 34.15.5 & & - 51.8 \end{array} \quad \begin{array}{l} 8.7 \text{ G5} \\ (1855) \end{array}$$

$$\begin{array}{rcl} \text{var. } 17^h 36^m.0 & + & 7^{\circ} 5' \\ + 2.2 & & - 2 \\ 33.8 & & - 7 \end{array} \quad \begin{array}{l} (1900) \\ (1855) \end{array}$$



(26)



1942

HA 109,  
21

1812 Oph HV 11021 Boyce, Huruhaton

 $17^{\text{h}} 36^{\text{m}} 41^{\text{s}} + 6^{\circ} 46.'8$  (1900)11.8 - 12.9 Semi regular  $P = 96^{\text{d}} \pm$ A 25481<sup>v</sup> med nov.br MC 24980 (marked by H)

med MC 22446

br MC 23580

br MC 23416

br A 25489

pt MC 21962

br MC 24943

br MC 23423

HD 160741 DM +6° 3495

$$17 \quad 36.5 + 6 \quad 50 \quad 8.7 \quad 65$$

$$+ 2.2 \quad 34 \quad 15.5 \quad - 2 \quad 51.8 \quad (1855)$$

HD 160781 DM +6° 3498

$$17 \quad 36.7 + 6 \quad 22 \quad 5.98 \quad K_0$$

$$+ 2.2 \quad 34 \quad 27.7 \quad - 2 \quad 23.5 \quad (1855)$$

Var

$$17 \quad 36.7 + 6 \quad 47 \quad (1900)$$

$$+ 2.2 \quad 34.5 \quad - 2 \quad 49 \quad (1855)$$

Var

$$17 \quad 36.7 + 6 \quad 47 \quad (1900)$$

$$+ 2.2 \quad 34.5 \quad - 2 \quad 49 \quad (1855)$$



(27)

CQ Sec HV4118

1928  
Dooder HB 854 $17^{\circ} 42' 53'' - 40^{\circ} 17.7' (1900)$ 

12.2 - 14.0

MF, A plates

CPD-40° 8135

var → " → a

L A 8996 ✓ br? MF 38560 ✓

S 8361 4433 ✓

L 15973 ✓ br? 6346 ✓6776 ✓ ns

A 1876 7607 ✓

2309 ~~21083~~ ✓ class DS 3644 ~~27620~~ ✓ class DL 19444 ✓ 4538 ✓

6212 6347 ✓

L 26790

15456 ✓ ft?

15537 A 6313 ft? scratched

15543

15546 ✓ br? near edge

var 17 42 53 -40 17.7  
+ 1.7 (4) -1

44.2 (1) -40 17

HD 161876 17 42.9 -40 48 9.8  
DM-40° 11882 }  $\begin{matrix} +1.8 \\ 41.1 \\ 3.7 \end{matrix}$   $\begin{matrix} -1 \\ 46.18 \\ 9.2 \end{matrix}$   
CPD-40 8134 } 41 2.9 47.7 9.0

HD 161912 17 43.1 -40 4 4.88  
DM-40° 11886 }  $\begin{matrix} +1.7 \\ 41.2 \\ 26.8 \end{matrix}$   $\begin{matrix} -1 \\ 3.0 \\ 5.6 \end{matrix}$   
CPD-40 8138 } 26.1 2.9 5.9

CPD-40 8135 17 41 3.9 -40 16.2 10.2

B 37906°

38031°

27595° ✓

~~2 33768 class~~

2 27920°

25206°

31404°

2 23786°

32058° ✓ ft

44902°



28



1940

1551 Sgr HV 7095 Sample HA 90, 220

17<sup>h</sup> 54<sup>m</sup> 16<sup>s</sup> -34° 35.5' (1900)

13.7 - [16.5 SS Cygni MWF 187

13.9 2414571 16.0 2420362

14.0 20339 15.2 26150

Pos. HHS. 9:59 A 13996 ✓

HHS no. 310

Chart HHS. 6:162

14.3 MF 14488 ✓ 14746

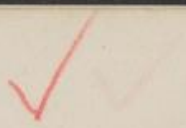
15.2 14502 ✓ 14751

14.3 ✓ 15589 ✓

*[Faint, mostly illegible handwritten notes on lined paper. Some words like "Hubble" and "1959" are visible.]*



(29)



1940

✓ 557592 HV 7102 Sinepe HA 90, 221

17<sup>h</sup> 54<sup>m</sup> 55<sup>s</sup> - 35° 39.0' (1900)

14.2 - 15.4 Cepheid: 16.260<sup>d</sup>  
MWF 187

Apparent change of period

Per. HHS. 9:10 see note  
Δ 5622 ✓ (not marked?)

No. 162 B 19 (HHS no. X)

" 19a 7<sup>mm</sup> following Var 19  
x 0.2<sup>mm</sup> South of 19

Chart HHS 7:190

h MF19455<sup>✓</sup> f MF19434<sup>✓</sup>  
no it's not! just visible

= Plant var # 78

See chart in Leiden Ann XX #1.

(OE)

$$\Delta \delta = -.3$$

$$\Delta \alpha = +1.67$$

$$1^m 40^s$$

$$40.20$$

$$-35 \quad 39.3$$

$$17.5 \quad 3 \quad 15$$

MF 39027  
 39028  
 39045  
 39020  
 39129  
 39228  
 39067  
 39086  
 39124  
 39136

ADH 410  
 438  
 440  
 447  
 428  
 507  
 396  
 500  
 572  
 618  
 631  
 1389  
 627

4 27178  
 27208  
 27220  
 27225  
 27215  
 27308  
 27352  
 27252  
 27286  
 27474 6.2  
 27230 9.0

\*19 14.3 on MF 17055  
 15.3 on MF 15554

\*19 a <sup>very</sup> br on B 9482  
 May 19, 1893



(30)

1938

--- HV 7864 Cannon Mayall HB 908

17h 58m 16s - 32° 43' 4" (1900)

(12) var. sp. RO 12.0 - 14.5  
MF sp.

MF ~~15482~~ sp MF 8089 ✓

MF 27723 ✓ mstr mf  
27703 ✓  
15494 ✓

A 10613 <sup>a=2</sup>	A 15554	<del>ME 26699</del>
27255	<u>15666</u> var B 25824 ✓	
27341	etc	33486 ✓
27179	l 20763	l 33759 ✓
etc	l 20765 ✓	<u>31948</u> <sup>snr</sup> ✓
l 272310	<u>22676</u>	l 32049 °
27239		l 21703 °
9051 ✓	B 4136 ✓ ms	l 31862 °
<u>14635</u> ✓	l 6616 °	l 25506 ✓
14834	l 54570 °	28657
	<del>67561</del> ✓	many neg.

15

var 17 58 16 - 32 43.2 (1900)  
+ 1.6  
56.7



DM stars marked  
A 15666 br DM stars marked  
A 14834 ft.  
A 14635 ft.  
B 25506 br  
MF 15494 br  
B 31948 br mag 12 comp stars  
B 33759 br  
B 33486 br  
B 25824 med  
MF 27723 m.s. mrf



HD 164847 17 58.0 -33 0 9.0  
 -32° 13690  $\begin{matrix} +1.6 \\ 56 \end{matrix}$  22.3 -32 59.7 87

HD 164997 17 58.7 -32 16 87100  
 -32° 13706  $\begin{matrix} +1.6 \\ 57 \end{matrix}$  3.6 15.8 85

(31)



1901-

YCrA ... Fleming HC 54

$18^{\circ} 07' 12'' - 42^{\circ} 52' 3'' (1900)$

MA 12.0-12.9

HD 166813 Dec 76, 29

Sp 341298 ✓

A 12186

A 12688

6736 <sup>mag</sup>

12224

6340 <sup>mag</sup> ✓

Sp 38804 ✓

12520

6313 <sup>mag</sup>

12531

g & L: 2, 122, 3, 46, 1, 298

Comp stars HA 47, 52

var

$18^{\circ} 5' 24.5'' - 42^{\circ} 52' 3''$

g: -  $42^{\circ} 13' 02.5''$  18 5 37.2 -  $42^{\circ} 50.8''$

A 1927 <sup>pos</sup> A 5209 <sup>pos</sup> A 5634 <sup>pos</sup> A 5709 <sup>pos</sup>

mid 1975 <sup>pos</sup> 5633 ✓ + 140" + 98"

B 14546 ✓

pos. ind.

3876

B 4096 ✓ <sup>pos indicated</sup> B 47326 1916

30298 ✓ <sup>pos</sup>

3812

B 3959

27930 0

3535 ✓

3493 <sup>pos</sup> - 35"



HD 166813 7.2 53  
var 18 7 12 - 42 52.3

Y 6 a . . . . .

var. 18 09<sup>m</sup> 12<sup>s</sup> - 42<sup>o</sup>

HD 166813 7.2

12.0 - 12.9

52.3 (1900)  
53 (1900)

Alt. 47, 52

Pres. 18

var 18 5

24.5

- 42 52.31

(1875)

comp. 18 5

37.2 - 42 50.8

mag. 10

- 42015025

comp. + m

18 5 6.2 - 42 57.9

mag. 10

- 42013020

Y Ga . . . .

var.  $18^{\circ} 07' 12'' - 42^{\circ} 52' 3'' (1900)$ 

HD 166813 7.2

53 (1900)

12.0 - 12.9

H.A. 47, 52 Prec.

+1.8

+0.2

var  $18^{\circ} 5' 24.5'' - 42^{\circ} 52' 31'' (1875)$ competing  $18^{\circ} 5' 37.2'' - 42^{\circ} 50.8''$  mag. 10  
- 42° 13025comp + m  $18^{\circ} 5' 6.2'' - 42^{\circ} 57.9''$  mag. 10  
- 42° 13020comp + h  $18^{\circ} 5' 52.6'' - 42^{\circ} 55.6''$  mag 10  
- 42° 13028CPD 8344  $18^{\circ} 5' 58.4'' - 42^{\circ} 40.8''$  8.4 (1875)  
+1.8 +0.2

---

 $18^{\circ} 7.8'' - 42^{\circ} 40.6''$ 

- 4.



1959phaseproj.2652W

CPD 8344 1

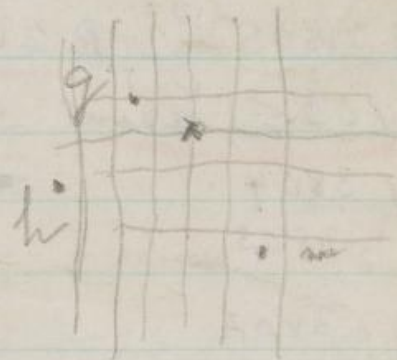
HD 166813 7.2  
var 18 7 12 -

HD 166724 18 6.8 -4.

HD 166792 18 7.1 -43 7 10.1

HD 166834 18 7.3 -41 56 7.9

var 0 0  
g +140 +98  
m -174 -358  
h +304 -152



(32)



WW Sgr .... Leavitt HC 91 <sup>1904</sup>

18<sup>h</sup> 16<sup>m</sup> 48.8 - 27° 28.4 (1900)  
 15 14.6 29.0 (1875)

11.5 - 13.0

A, B plates

HSL 14 Sgr in HC 91

~~2. X: 6 ±~~ (cont from Bk IX p)

See HSL IX p 39 also VIII?

Pec. B 26483° Var 22 mag. no.

A 2605° B 26473° ✓ dr.

10251 ✓ faint 5245<sup>mag</sup> ✓ water soaked!

out	3804	5150475 ✓
	3803	24376 ✓
	3802	26491°
	3801	72758
	3807	65385
	3800	65863°
	3808	RB 5343 ft
	3809	RB 5340 run



88

var. 18 16 48.8 - 27 28.4  
<sup>1</sup> 34.2  
 15 14.6 - 27 29.0 +0.6

HD

CPD - 27° 6389 18 17 9.9 - 27 34.5

CDM - 27° 12782 18 15 35.7 - 27 33.9 8.0  
<sup>1</sup> 34.2 +0.6

HD

CPD - 27° 6392

HD 168541 18 15.1 - 27 27 10.7 A  
<sup>13.5</sup> 28  
 168681 18 15.9 - 27 22 10.2 G  
<sup>14.3</sup> 23

HD 168646 18 15.7 - 28 29 6.07  
 168767 16.3 - 26 57 8.7 A  
 168941 17.2 - 27 0 9.3 B<sub>0</sub>

Prec. 1 34.2 + 0.6

(33)



1924

✓ W Set HV3808 Cannon HC265

18<sup>h</sup> 26<sup>m</sup> 52.5 - 9<sup>h</sup> 59.5 (1900)

12.2 - E16.0 long period MC

MMF 1830-12.5  
1845-8.1

1923-1924  
60<sup>m</sup>-90<sup>m</sup>

max JD 2423588 + 222<sup>d</sup>

Five max betw 1898 and 1923

JD 2423588

2422324 1920

1264  
1247 June +3

June 17 1923

1264  
222

1042  
1035 Nov +2

Nov, 7 1922

1830-12.5

23-6-17

MC 20804 ✓ MF 19861 ✓ " p4" = var br

20890 ✓

20780 ✓ ft. A 10069

20806

2760 ✓ ft.

20015

10281

23-5-18

19809

20802

23-5-22

19819 ✓ br



48

var 18 26.52 - 9 59.5  
+ 2.5  
24.4 1 + 2  
57

HD 171052 18 27.5 - 10 46 8.765  
- 10° 47' 17" + 2.5 + 2  
25.04 48.4 8.5

HD 170759 18 26.0 - 9 33 9.142  
- 9° 47' 56" + 2.5 + 2  
23 30.2 35.2 8.8

34



1937

35

AA Ser HV4925 Walton Pop Act '25

18<sup>h</sup> 36<sup>m</sup> 11<sup>s</sup> - 1° 12' 3 (1900)

13.6 - 15.1 01 - 2 5 m m obs plates

(Dec, 2)

Chart from Maria  
Mitchell Obs,

marked on A 10782 with Master



33

18 36.1 - 1 12.3  
+ 2.3 + 2

33.9 - 1 14

HD 172615 18 36.1 - 1 55 8.45  
+ 2.3 + 2  
- 1° 3539 33 45.7 57.2

(35)



BV Sct HV4928 - Walton P.A. 35-25

18<sup>h</sup> 41<sup>m</sup> 04<sup>s</sup> - 5<sup>s</sup> 15.3 (1900)

(Dec. 6)

12.7 - 13.4

mmob plates

chart from Maria  
Mitchell Obs.

all A plates out

all MC " out

ADH 1072 (use for sketch)

variable marked from chart

I didn't find any A plates or MC  
plates in the stacks, so marked  
an MF plate MF 4544



var 18 41 04 - 5 15.3  
 $+2.4$   $+2$   
 38.7 17

HD 173531 18 40.7 - 5 46 1.4  
 $-50$  4751  $38^{+2.4}$  17.6  $47.8$

$-50$  4749 18 38 0.9 - 5 18.6 95

(36)



SV Sct HV3107 Leavitt Hc 141

$18^h 48^m 01.5$   $-14^\circ 19.1'$  (1900)

45.6

-14 22

1855

rough estimate from B.D.

+2.4

+4

A 2845 ✓

15.4

4091 ✓

12.0

323 ~~?~~

~~5712~~ ~~102~~ ~~19.0~~





(1905) ✓

Nova Aql 2 Fleming

 $18^h 56^m 49^s - 4^{\circ} 35.0' (1900)$ 

"A photograph of the field has been published in HC 106, as well as the coordinates of nearby stars, but these are inadequate for identification of the nova at minimum. A sketch of the surroundings to a limiting magnitude of at least 17 is desirable."

A 6506 ✓

1910, Sept. 4

A 10259 ✓

JD 18919.580 121

+54 +96 15.0

+63 +36 15.0

+75 +67 15.0

+79 +77 15.0

+87 -93 15.4

+95 +109 15.2

+96 +87 15.3

+96 +57 15.5



cont. near body.

x	y	mag
-15"	+57"	14.9
-6	+135	14.8
-5	-18	15.3
-1	+18	14.9
0	0	hora
0	+147	15.4
+6	-72	14.6
+13	+126	14.8
+18	+144	15.4
+29	+18	15.2
+47	-113	14.8
+48	+105	14.9
-15	+78	14.8
-30	+15	15.2
-36	-71	15.2
-41	+111	15.0
-45	+123	15.4
-54	+84	15.0
-65	-78	15.4
-66	-30	15.2
-66	-17	15.2
-75	+39	15.0

1908

--- HV 3178 Fleming HC 143

19<sup>h</sup> 06<sup>m</sup> 18<sup>s</sup> - 10 33' (1900)

10.8 - 11.7 on 19 plates

between April 30, 1893 and  
July 13, 1904

April 30, 1893 no I in stack

July 13, 1904 I 31860 ✓ br <sup>marked</sup> orig  
see A 6506 ◊

A 17852 ✓ <sup>surface</sup> br

2573 ✓

2729

l 6012

l 10117 ✓ med

l 10136 ✓ ft <sup>SM</sup> marked 5974

B 298610

33591 ✓

26143 ✓

29707 ✓

28625 ✓ orig marks

31821 ✓

I 25533 ✓

8899 ✓



Var 19 06 18 -1 33 (1900)  
+2.3 +4  
4.0 -1 37

HD 179191 19 6.5 -1 36 10.5 45  
-1°36'79 4<sup>+2.3</sup> 12.4 39.7<sup>+4</sup> 9.5



1944

CG Vul ... Haro PNAS 30, 247

$19^h 12^m 36^s + 21^{\circ} 44'$  (1900)

large color index

IR red yellow  
later May 26 and June MC blue  
5, 1944

8.10 red

9.75 yel CI (blue-red) 6.65 ±

14.75 br (blue-yellow) 5.00 ±

Aug. 31, 1897 13.53

Sept 11, 1917 15.10 MC 13392 ✓  
= 6 br?

MC 33467 ✓ *dominant ft*  
34480 ✓  
IR 7076 ✓ br  
7075 ✓ ft  
7086 ? ✓

A 929 broken ✓  
R 2681 ✓ ft  
3214 ✓  
5500 broken  
thrown away

7081 ✓  
7084 ✓  
7085 ✓  
7086 ✓  
7089 ✓ *marked  
m  
br*



var 19 12 36 +21 44  
 $\begin{matrix} +2.0 \\ 10.6 \end{matrix}$   $\begin{matrix} +7 \\ 37 \end{matrix}$  (1853 PNAS)

HD 180739 19 12.6 +20 23 8.4  
 $\begin{matrix} +2.0 \\ 35.8 \end{matrix}$   $\begin{matrix} +5 \\ 18.2 \end{matrix}$  8.3

HD 180811 19 12.9 +22 15 8.0  
 $\begin{matrix} +1.9 \\ 1.4 \end{matrix}$   $\begin{matrix} +5 \\ 10.1 \end{matrix}$  8.0

HD 180889 19 13.2 +21 38 6.72  
 $\begin{matrix} +1.9 \\ 20.0 \end{matrix}$   $\begin{matrix} +5 \\ 33.0 \end{matrix}$  7.3  


---

 HD 180554 19 11.9 +21 13 4.60  
 $\begin{matrix} 959.8 \end{matrix}$  8.2 4.7

(1899) ✓

Nova Aql 1 Fleming

$19^h 15^m 16^s - 0^\circ 19.2'$  (1900)

"Relative coordinates of nearby stars have been published in HA 47, 63 and 84, 126, but a more detailed map is required for identification at minimum."

~~A DH 1943, 1944 off edge~~

SB 4794 ✓ off  
4800 ✓ edge

A 19063 strong region

A 6012 comp stars marked by WPF

A 17020

B 37319

17456

45581

L 19712 -50

75499 ✓

9725

75574 ✓

L 18583 ✓

L 19360 ✓ orig. Mag. 1899 marked  
planetary neb. 4850 m.s.



Ha 84,126 N aql 1899



+317-4335  
-0° 37'10"

+227-168  
-0° 37'10"

EUGENE DIETZGEN CO.  
MADE IN U. S. A.

+9+60  
-14.94



4850

Also marked on A 2573

var 19 15 16 - 0 19.2 (190

-0°3710

-0°3711

See card 19 13 15 - 0 23 IC4850  
in net catalogue

Also marked on A 2573





XX Agl. HV 3428 Haffler + HB 887

$19^{\text{h}} 29^{\text{m}} 18^{\text{s}} + 14^{\circ} 04.7' (1900)$

marked on pty print 5428  
taken from Miss Smop's file  
top drawer; folder  
"Variable Charts"  
HB 885, 887 "

vis only Sept 28, 1927 <sup>not MF, I</sup>  
Oct 22, 1930 <sup>not MF, I</sup>  
13.1 - < 16.3 <sup>MC 22721°</sup>  
<sup>MC 25179 7V</sup>  
<sup>25184 ✓</sup>





✓  
OTagl HV5474 Hafflit HB887

$19^{\circ}44'50'' + 150^{\circ}48.9' (1900)$

marked on a pty print  
taken from HHS file  
top drawer, folder  
"Variable Charts  
HB885,887"

$14.0 - < 16.3? \quad lp?$

on July 14, 1959

1959phae.proj.2652W

on July 14, 1959

1959phae.proj.2652W

on July 14, 1959

1959phae.proj.2652W

on July 14, 1959

1959phae.proj.2652W

on July 14, 1959





OW Aql HV5477 Hoffleit HB 887

$19^{\text{h}} 46^{\text{m}} 47^{\text{s}} + 14^{\circ} 45.0' (1900)$

Marked pty print  
 taken from HHS file  
 top drawer, folder  
 "Variable Charts"  
 HB 885, 887 "

12.3 - 14.8

24 251 40 + 435, E







1910

RX Cap HV 3223 Leland, Pickering HC 152

20<sup>h</sup> 09<sup>m</sup> 22<sup>s</sup> - 13° 14' 8" (1900)

9.6 - 511.0

A 2617 ✓

MC 18890°

med 10195 ✓

6214 ✓

9830

br. 7504 ✓ marked by W and DM stars

10964°

4311 ✓

br 10468 ✓

9070

B 3093

10214

- 9898 ✓ br

20800°

10448 ✓

20947

10971 ✓

21097

16888 ✓

21164

18791 ✓ br

21706

- 19093 ✓

25836

45401

26348

45610 ✓

26355

br 28507 ✓ marked by

26370

ft. 7

E. F. L.

HD 192308 - 13° 56' 17"

20 9.1 - 12 56 9.4 F5 (1900)  
- 2.5 + 8+  
6 38.4 - 13 4.5 (1855)

HD 192289<sup>3?</sup> - 13° 56' 19"

20 9.5 - 13 42 7.11 K0 (1900)  
- 2.5 + 7+  
7 2.1 49.2 (1855)

Var 20 9 22 - 13 14.8 (1900)  
- 2.5 + 8  
6.9 - 13 23 (1855)





1940  
HA 90,

CVagr HV6262 Shapley, Hughes 170

21<sup>h</sup> 16<sup>m</sup> 13<sup>s</sup> - 14<sup>h</sup> 43.6 (1900)

LM - V - 61 - 2.59

12.4 - E 165 SS Cyg MWF 209

June 12, 1931 no A, MF 15594

two { 12.4 2426505 June 10, 1931: 2426493

max { 15.3 6205 Aug 10, 1930 = 6189

Aug. 16, 1930 no A, MF 14743

A 3915 - A 19445 (neb) MC 4314

X 5713 - 6856 8x10 4341

7888<sup>✓</sup> ns 7422 17924

9043<sup>✓</sup> - 6803<sup>?</sup> 6689<sup>✓</sup>

9086<sup>✓</sup> ns MC 16950<sup>✓</sup> 6847<sup>✓</sup>

X 9840 24407<sup>✓</sup> 6865

- A 9077<sup>✓</sup> no. 59 ns marked by? DM marked

X 17613

20914<sup>✓</sup> MC 15594<sup>✓</sup> br. marked by W

20950<sup>✓</sup> DM marked

21066<sup>o</sup> I 9046<sup>1</sup> A 7003<sup>5</sup> A 6846

21077<sup>o</sup> I 33231<sup>ug</sup> A 3816<sup>5</sup> A 6847

21261 I 33230<sup>ug</sup> A 6607 A 6848

24475<sup>✓</sup> A 9444 A 7095<sup>o</sup>

26439<sup>✓</sup> A 6978 A 7097

A 6979

DM -14° 6019

21 17 16.2 -14 6.8 8.5 1855

-14° 6003 21 16.3 -14 28 9.2 F8(1900)

21 13 <sup>2.5</sup>48.4 -14 <sup>+11</sup>39.1 9.0 (1855)

var 21 16 13 -14 43.6 1900  
<sup>2.5</sup>13.7 -14 <sup>+11</sup>55

-14° 6011 21 18.4 -14 20 10.3 F8 1900  
<sup>2.5</sup>15.56.6 + <sup>11</sup>30.7 1855

-13° 5915 21 16.2 -13 25 10.7 K2 1900

-14° 6010 21 17.9 -13 57 9.8 K0 (1900)

-14° 6009 21 16.8 -13 51 9.1 G0(1900)  
Two obs. max.

-15° 5971 21 17.5 -14 50 9.4 K2 (1900)

Look up AM plates around dates

MF 15719 15022





✓

12506 20 1507

12506 20 1507

12506 20 1507

12506 20 1507

12506 20 1507

12506 20 1507



(37.)

✓ cont

Nova Aquilae 2

18 56 49 - 4 35.0

HA 84 - 204

mag. 15.9 J.D. 2417473  $\alpha =$ 

From HA 80 p 54

A 7721

out of stack

also A 7517°

" " "

" A 7505 ✓

" " "

" A 75080

" " "

I 33301 ✓

AM 27996 ✓

ADH 512 ✓ off edge

1072 ✓ " "

1835 0 " "

2069 ± 0 " "

J.D. 2417473 =

64 80 1904993  
944

Sept + 2

Sept 19 1906 No A plate

no B no MC

no H 1902-1940C 15938 ✓

A 6506  $ms < 15.7$

"It was at first thought that the  
nova might be identical  
with star a"  $\alpha = -4^{\circ} 46' 63''$  (6.8)

nova is on C 15938 but not  
on A 6506

I 33295



(37)

✓ int

From 1921 > 1922 1923 A  
1924 1925 1926 1927

It was first that the  
the first of the series  
with the "1924-1925" in the  
the first of the series

1921-1922 1923-1924  
1925-1926 1927-1928  
1929-1930 1931-1932

1933-1934 1935-1936  
1937-1938 1939-1940  
1941-1942 1943-1944  
1945-1946 1947-1948

1949-1950 1951-1952  
1953-1954 1955-1956  
1957-1958 1959-1960  
1961-1962 1963-1964

1965-1966 1967-1968  
1969-1970 1971-1972  
1973-1974 1975-1976  
1977-1978 1979-1980

1959bhrs, proj. 2652W





astrophysics proj. 2652W



1959phae.proj. 2652W