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## **Project PHaEDRA - Henrietta Swan Leavitt #40**

Extracted on Aug-30-2022 03:55:05

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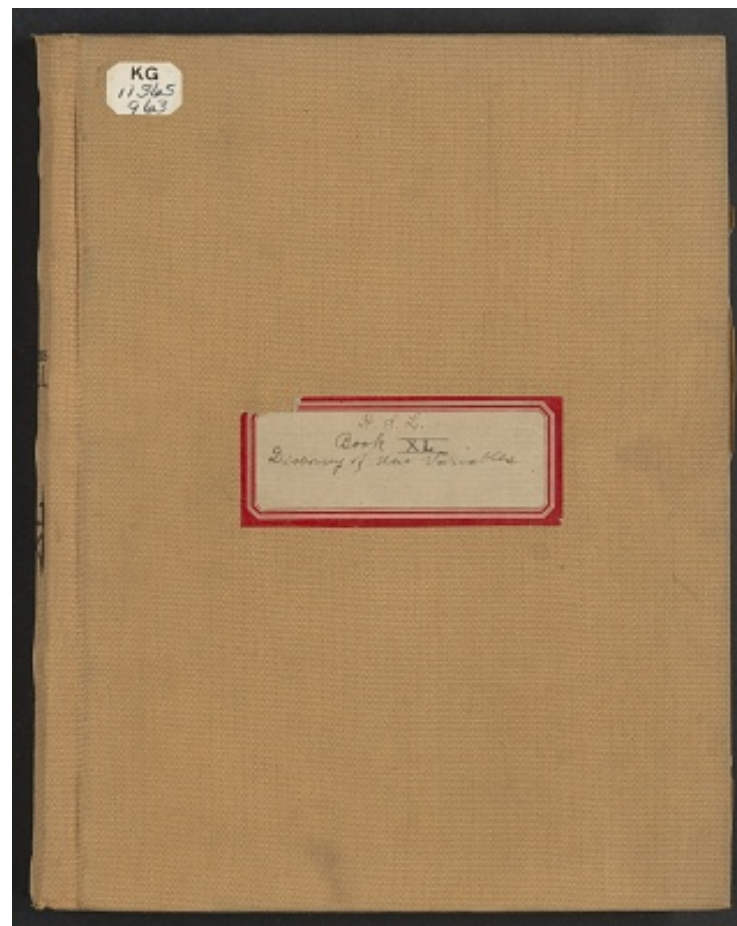
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KG  
11365  
963

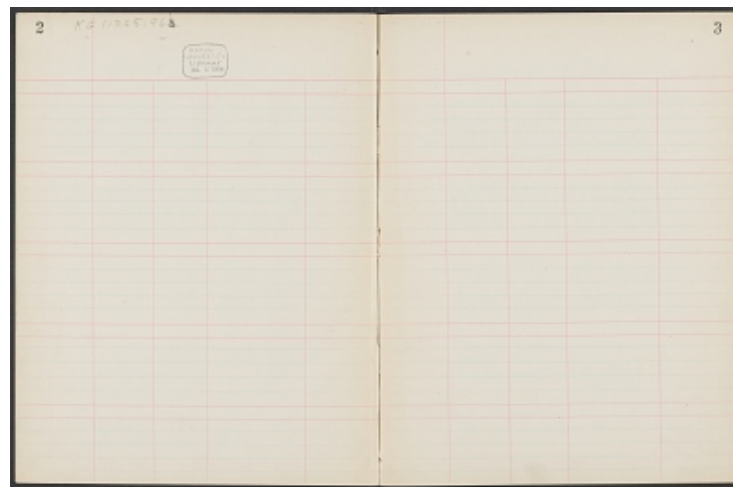
H.S.L  
Book XL  
Discovery of New Variables



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2 KG 11365 936 3  
[[stamp]]  
HARVARD UNIVERSITY LIBRARY  
JUL 17 1965  
[[/stamp]]

3



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4

Saturday, January 22, 1916  
 South Pole  
 AK.124 superposed on D17049= AK 193  
 Var | Br | Ft  
~~[[strikethrough]] 505| AK124 |AK 193~~ [[/strikethrough]]

Defective images ~~[[mirage?]]~~ on AK193  
 This position is very dark and poor. Not a single variable marked Do not include in announcement.

mag ~~[[?]]~~= 1922 system

5

Map of the Sky Region 11  $2^h, +30^\circ$   
 Plate AC 2318 superposed on D 17105 = AC 6731

Mag. in red = 1922 system

[[3 column table]] [[reading left to right]]

Var. | Br. | Ft.

\*505 | 2318, 7812 | 2838 6868 | 6731 6745<sup>10.8</sup> 12265 | 15922

(6717)<sup>10.7</sup> 12289 12798 | 15895 8984<sup>10.2</sup>

On 2318, 10.0 | On 6731, 10.9 | on 12265, 11.0

Do not announce until confirmed on more plates. Seems to be certainly variable of Algol type with ranges of 0.7 or 0.8 magn. Difficult on account of faintness.

506 ~~[[strike through]]~~

506 | 2318 7812 | 6717 <sup>sept. 23</sup>(12289) | 6731 <sup>sept. 25</sup> 7910 8016 |  
 6745 8984 12265

15895 (11.3) <sup>11.5</sup> On | 2318, 11.3 <sup>11.5</sup> | 15728 (12.2)

<sup>12.4</sup> On 6731, 12.1

Period apparently short

507 | 2318 (9.5)<sup>9.7</sup> | 2828 7910 | 6731 (10.2) 15728 | (10.3) <sup>10.5</sup>

6717 6745 | 6868 2752

8016 7812 | 12289 12798

12265 8984 | 13606

15895 11384

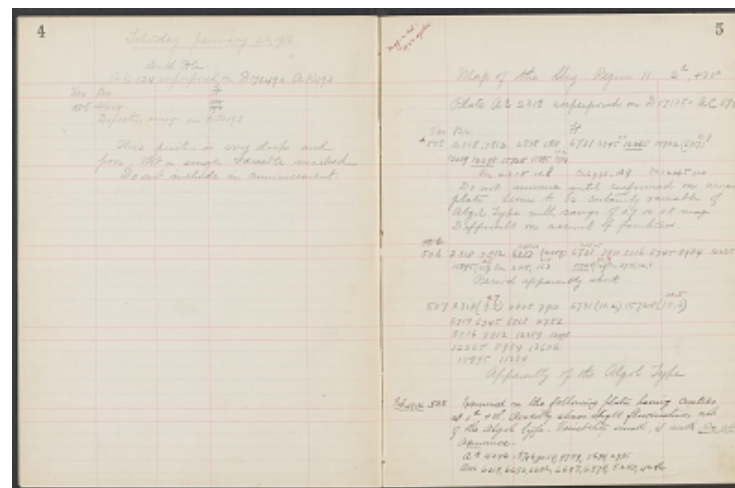
Apparently of the Algol ~~[[?]]~~ Type

Feb. 23, 1916 505 | Examined on the following plalis ~~[[?]]~~ having  
 cuties~~[[?]]~~ at  $1^h, +15^\circ$ . Possibly shows slight  
 fluctuations not ~~[[?]]~~ of the Algol ~~[[?]]~~ Type. Variability small, if real ~~[[?]]~~.

Do not announce.

AC 4246, 8746, 9759, 5694, 2935

AM 6619, 6650, 6692, 6697, 6779, 5250, 4246



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[[Page 6]]

Saturday, February 5, 1916

Map of the Sky Map 11 2 + 30° Cont.

AC 2318 cont.

Vac Br H H

508 2318 [95] 11384 (10.0) 6731(10.7) 15922(10.4) 15895 8984  
(15728) 12289 7910 12265 8016 6868 (6745) 6717 7812

509 6731 (12261) 2318 15922 15895 15728  
13606 (8984) 12798 6745 7910  
7812

Variation doubtful appears to show a [?] of [?] or [?] [?] [?] about  
9.5 20 not [?]

510 2318 6731  
N Andromedae

On AC 2318, supposed on D 17105 (=AC 6731) [?] discomed  
Variables 505  
to 510, of much 509 is suspected and 510 is the known variable, at  
Andromedae  
Total, 4 new  
1 Known  
1 susp.

[[End page 6]]

[[page 7]]

Friday, February 11, 1916

Map of the Sky 11 2 + 30° cont

AC 4416 supposed on D 17105 (=AC 6731)

Vac Br H

511 6613 98 2268 6745(4356) 4416 (10.2) 12798

12289(6868)(7910) 7812

8016(9.9) (1082) 2162(10.6) 2318

Changes, but certainly variable

512 Known Var. 023530 Y Arietis

513 4416 6868 (7910)(7812) 6613 2318 12798 12265 12289 H384  
On 6868 10.4 On 12286 <12.0

R R Andromedae

514 4416 6613

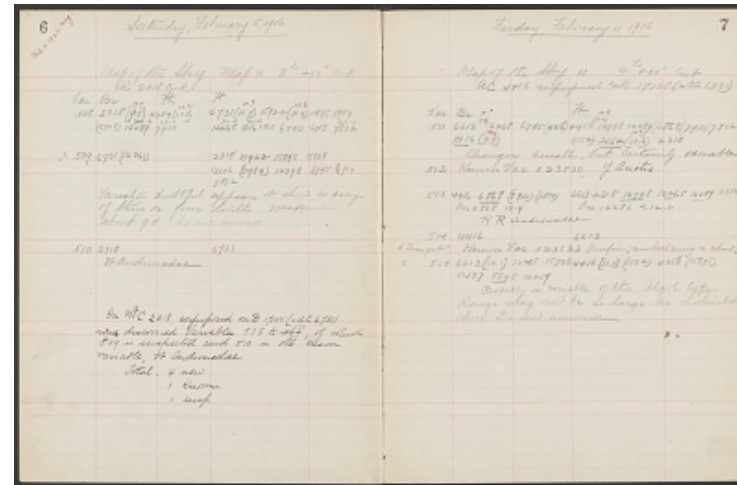
R [?] Known Var 023133 ([?]; masked [?] on chart?)

515 6613[10.1] 12265 15728 4416 [11.0] (1002) 4356 (15895)

5487 5795 12259

Probably a variable of the [?] [?] [?] may not be so large as [?]  
about Do not [?]

[[End page 7]]



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8 Saturday, Feb. ~~12~~ ~~22~~, 1916

Map 11 Cont.  
ac4416 cont.

Var Br 71  
516

[new page]

Tuesday, Feb.22, 1916 9

map 11 Cont.

ac 4416 Cont.

Var Br 71

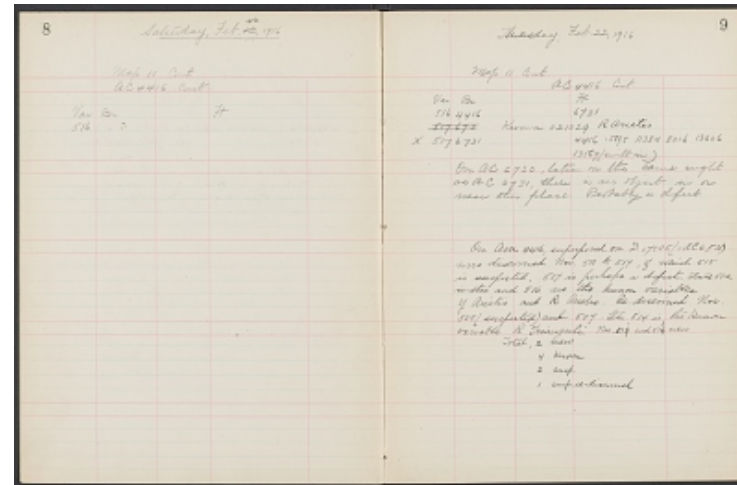
516 4416 6731

~~517~~ Known 021024 R Arietes

X 5176731 4416 15895 11384 8016 13606 13569 ([?])

On ac 6730, later in the same night as ac 6731, there is no ~~517~~ in or near this place. Probably a defect.

On am 4416, superposed on D 17105(=ac 6731) were ~~517~~ nos. 511 to 517, of which 515 is suspected, 517 is perhaps a defect. Slais 512 ~~is the~~ and 516 are the known variables y axis and x axis. Re-dressed nos. 505(suspected) and 507. Stai 514 is the known variable R trianguli. Nos 51b and 513 new  
Total, 2 new  
4 known  
2 susp.  
1 susp. undescribed



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[[Page 10]]  
Friday, April 7, 1916

New Variable found while  
Var. [[expanding]] reference sequence selected by J. C. M. on Plate MC

518 In comparing the blue and yellow plates, star 15 was found to be  
extraordinarily bright  
on the yellow plate MC 9221, indicating that it was either red or  
variable

Confirmed as variable on the following plates, by J.C. Mackie  
MC9864 ft 12.7 W 12.6 P.F.  
3994 br 12.4 " 12.2  
3971 br 12.5 "  
3564 ft 12.6 "

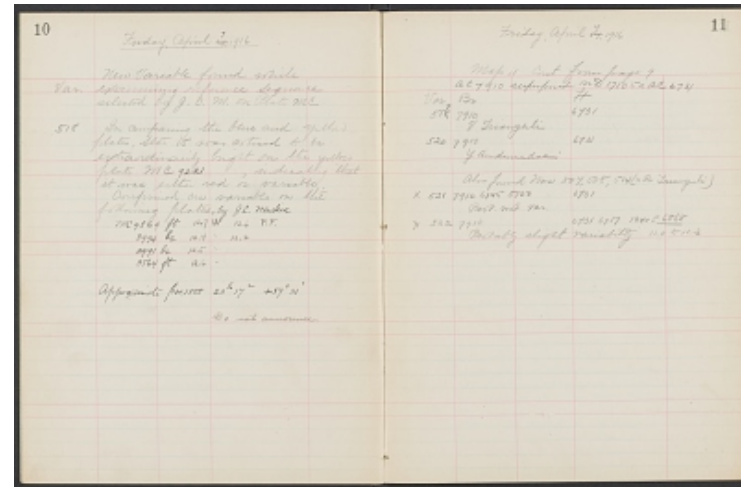
Approximate pos. 1855 23h 17m +59° 31'

Do not announce

[[End page 10]]  
[[page 11]]  
Friday, April 7, 1916

Map 11 Cont. from page 9  
AC7910 supposed on D 17105=AC 6731  
Var Br H  
519 7910 6731  
V Triangali  
520 7910 6731  
Y Andromedae

Also found Mos 507, 508, 514 (=R Triangali)  
X 521 7910 6745 5722 6731  
Prob. not var.  
X 522 7910 6731 6717 13405 6868  
Probably slight variability 11.0+11.3  
[[End page 11]]



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[[page 12]]  
Wednesday, April 12, 1916

Map 11 Cont  
Plate AC7910 Cont

Var. Br. H  
523 17910[9.7]5307[9.8]5317[9.7]8008[97] 6731 [10.2] 6717 15728  
2162 6745  
(8031) [9.8] 5722 158958016 7873 8087  
7812 7996[10.0] 8087[10.1] 7834[10.2]  
AM 995 multiple [?]  
1 ns 4 9.9 7 9.7  
2 10.2 5 9.9 8 9.7  
3 10.0 6 9.8 9 9.7  
4  
AM 1058 multiple im.  
1 9.9 5 9.8 9 10.1  
2 9.7 6 9.8 10 10.2  
3 9.8 7 9.8 11 9.3  
4 9.7 8 10.0

AM 3911 multiple im.  
This plate, like the two above, shows progression [?]. The variable was  
near maximum at beginning of exp. and near minimum at end

Variation, though small, is well confirmed by the above observations.  
Print very short  
Armorma Range of 9.7 to 10.2  
[[End page 12]]  
[[page 13]]

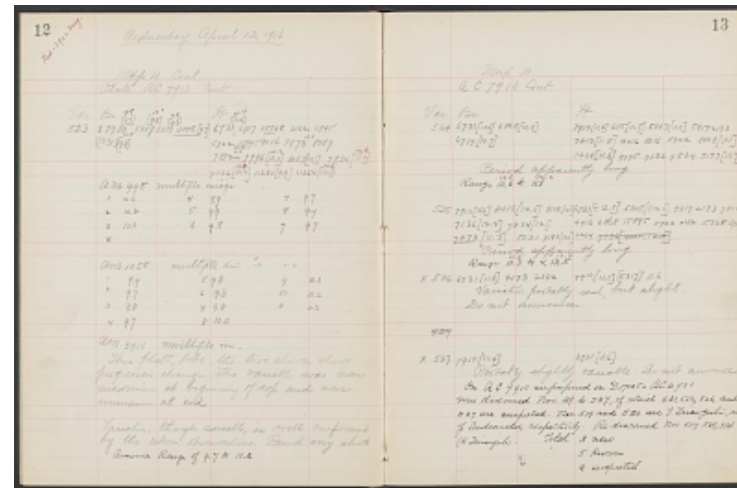
13  
Map 11  
AC7910 Cont

Var Br H  
524 6731[10.6] 6868[10.8] 7910[11.2] 655[11.5] 5307[11.5] 53172173  
6717[10.7] 7812[11.8] 4416 8016 5722 8008[11.1]  
11264[11.3]9795 7136 7834 7177[11.7]  
Period apparently long  
Range 10.6 to 11.8

525 7910[11.6] 8016[12.0] 8008[12.0]6731[<12.5] 5305[<12.0] 5317  
2173 7812  
7136[12.2] 7834[12.1] 4416 6868 15895 5722 2162 15728 6717  
7873[11.3] 8031 7183[12.1]11264 7136[seen 12.2]  
Period apparently long  
Range 11.3 to <12.5  
526 6731[11.0] 2173 2162 7910[11.5][5317] 11.6  
[?] probably real, but slight.  
Do not announce

527

527 7910[11.4] 6731[11.6]  
Probably slightly [?] Do not announce





On AC 7910 supupored on D17105=AC6731  
Mu discomed Nos. 519 to 527, of which 521,522, 526, and 527 are  
suspected. Nos. 519 and 520 are V Trianguli, and Y Andromedae,  
respectively. Re-discovered Nos. 507, 508, 514  
(R Trianguli Total 3 new  
5 Known  
4 suspected  
[[End page 13]]

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Red = 1922 Mag

Tuesday, April 18, 1916

Map 11 Cont.

Plate AC 3180 supupond mD17105 = AC6731

Var|Br|Ft

528|6731|[8.9]6717|[8.9]|3180|[9.3]5722|[9.3]12758|[9.4]

Evidently of the algal type. Bright in about 40 plates, although the thermal range is small, there is no question of the reality of the variation.  
"Delay announcement until measured"  
A.J.C. 7-25-1923

529|6731|[10.2]10.4 6717 6745 6868|2980 [11.5]11.7 (5248)|[10.3]

13405|[11.5] 11.7| 7812 2173 4416 1002 5307|

5317 8851 3205 8984

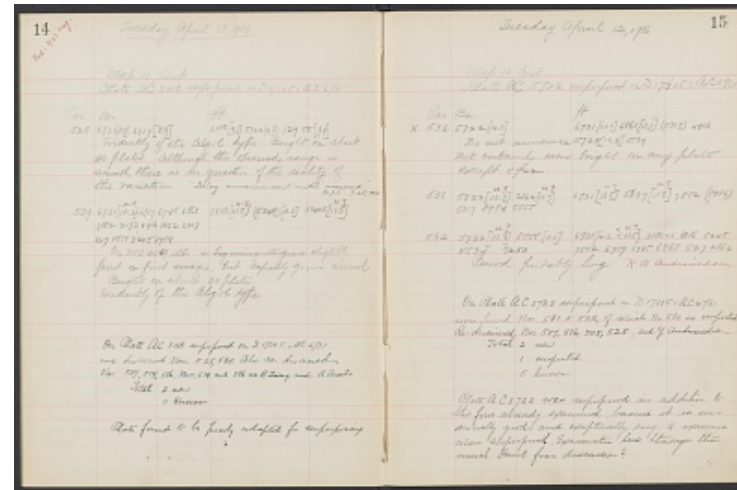
On MC 13569 star is ~~beginning~~ beginning to grow

~~slightly faint~~ slightly faint on first images, but rapidly grows normal.

Bright on almost 30 plates.

Evidently of the Algal type.

On Plate AC 3180 supernovomed on D 17105 = AC6731 one discovered nos. 5



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16

[[left margin]]

Red=1922 Mag.

[[/left margin]]

Wednesday, July 18, 1917

Map 17|R.A. =  $14^{\text{h}}[?][?][?]$ |Dec=+30°[[0]]

|Var|Plate AC|9292|superposed on D17106= AC 13012|

|Br|H|

[[[strikethrough]]532|[[[strikethrough]]533|9292, 16129, 11547 18562  
17487 13012 (dif?) 11299 11801|9.3]]

[[image]]

|17300|8.0|| 11299|9.2|

See H.C. 159 131546

|X534| [[[strikethrough]] 9292|11299|17300| |13012|[[[strikethrough]]

|9292|8.0|| |13012|8.3|]

Variation [[?]]. Perhaps there is some

[[?]], though [[?]], fluctuation. Do not announce.

[[image]]

|535|9292|10.4||9287^|[[?]]

edge|13012|11.1|||16129|11547|17487|17300|

|11299|11801|796|1416|2197|5648|

|7513|8478|8684|

Perhaps not variable. Do not announce. Certainly

bright on AC9292, and image does not

appear to be defective

[[image]]

|536|13012|8.5||8478|5648|9292|11.0||9287|7513|

Period probably long known?

On AC9292 superposed on D17106= AC13012

were discovered Nos. 533 to 536, of which 534  
and 535 are suspected [[[strikethrough]]Nos. [[[strikethrough]]No. 536

[[[strikethrough]] and 537 is|[[[strikethrough]] already known.

[[[strikethrough]]3|[[[strikethrough]]1 new

[[[strikethrough]]2|[[[strikethrough]]1 known

2 susp.

17

Tuesday, October 9, 1917

Map 17 Cont.

|Plate|AC|11299 sup. on D17106c|AC13012|

|Var|Br.|H.|[[[strikethrough]]H299F|[[[strikethrough]]

[[image]]

|537|13012|17487|98||11299|10.5||18562|11481|11508|11584|

|11784|(13076)|(1545)|12937|13098|17787|11661|11708|

|17677|8325|8333|8366|(8435)|

|11403|13098|

Variation, though small, is well seen on

many plates. Usually faint. Perhaps of

the Apheid [[type?]]. Do not announce

[[image]]

|538|13012|9.7|^|9.9||13096|17487|11299|8366|10.6|^|10.8||13098|(12  
937)|

|11784|17677|11661|15175|11584|9431|

|539|13012|9.6||13126||11299|10.7||18287|15175|

Variation well seen Var. 142932

On AC 11299 superposed on D170106 = AC13012

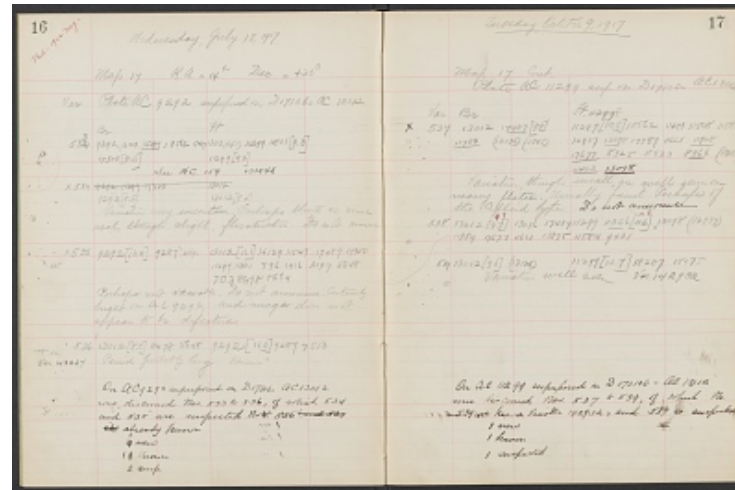
were discovered Nos. 537 & 539. of which No.

539 is known. Variable 142932, and 537 is suspected

1 new

1 known

1 suspected



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18

Thursday, November 15, 1917 [underlined]

Two new variables in the Nebula of Orion.

Var [margin] See Book 41 pages 49, 50.

540 [margin] The [??] Bond 490 was looked up because of discordant magnitudes derived from measures of [??] [??] made for [name].

541 [margin] Bond 516, used as a [??] [??] for Bond 490, was also found to be variable.

Summary of Observations. The Book 41 page 49

[margin] [sideways] mc 4209 6775 8048 8226 Mean Res [??] Mean Res

541 [margin] a = Bond 516

[margin] b. 6110 - .15 4132 [indent] 6110 [indent] .154312 +/- .30

[margin] c. 1102 10 0011 [indent] 0000 00 0000 \_ +/- .00

[margin] d. 2343 30 1010 3445 40 1001 +/- .05

540 [margin] Var 490 3 1 22 .05 3 1 22 [indent] 6363 45 2121.15

[margin] [??]

163 164

541 [margin] a

[margin] b [indent] 516 [indent] 4 6 -50 [strikethrough] ?

[strikethrough] ? 6 + 50 11 +/- .10

[margin] c [indent] 1 1 00 [indent] 1 1 [indent] 00 11 [indent] 10

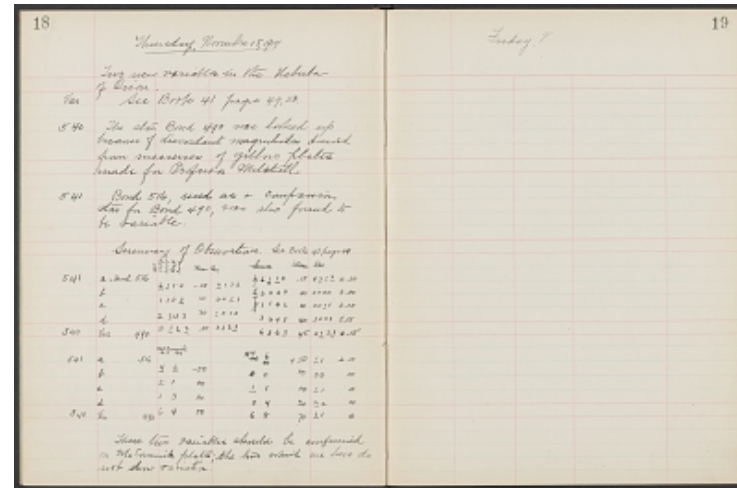
[margin] d [indent] 13 [indent] 20 [indent] 04 [indent] 20 22 [indent] 20

20

540 [margin] Var [indent] 490 [indent] 6 8 [indent] 70 11 [indent] 10

10

[margin] these two variables should be confirmed on McCormick [?]; the kind which are here do not show variation.



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20

Monday November 26, 1917

11:00 Map 17 14th +30 degrees  
AC16129 ~~[[?]]~~ on D 17106 AC 13012

11:30 3/4 finished

3:35

4:10 finished

21

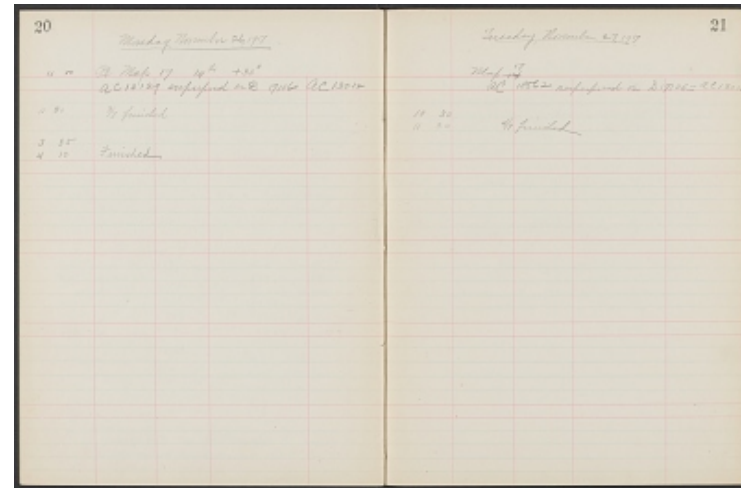
Tuesday November 27, 1917

May ~~[[?]]~~14~~[[?]]~~17

AC 18562 ~~[[?]]~~ on D17106 = AC13012

10:30

11:30 4/7 finished



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22

Thursday, November 25, 1917

10 35. Map 17

AC 18562 ~~[[superfund?]]~~ on 217106 cont

11 00 ~~[[strikethrough]]~~ ~~[[?]]~~ ~~[[strikethrough]]~~ 5th ~~[[?]]~~ finished

11 20 Finished

23

Friday, January 18, 1918

Map 6th +30 degrees

Examined by Miss ~~[[Cameron?]]~~ and

Result announced in H.C. 140

To be examined by ~~[[?]]~~

~~[[?]]~~, for ~~[[?]]~~

Plate D 13340 = AC 5440

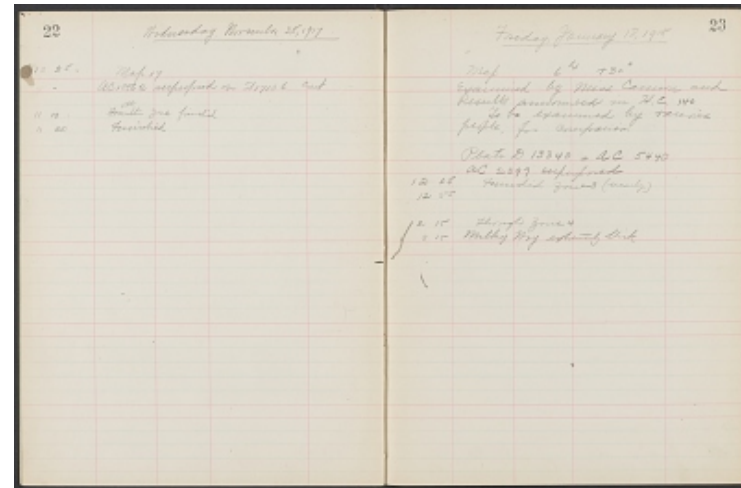
AC 2399 ~~[[?]]~~

12 05 Finished ~~[[?]]~~ (namely)

12 55

2 15 Through Zone 4

3 15 Milky Way extremely ~~[[?]]~~



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24 Saturday, January 19, 1918  
6th+30\* AC ~~5540~~ 2399 deciphered on  
D 13340

Cont

10 10 -11.00 ~~[[?]]~~ Plate  
Total ~~[[?]]~~ 22 45m

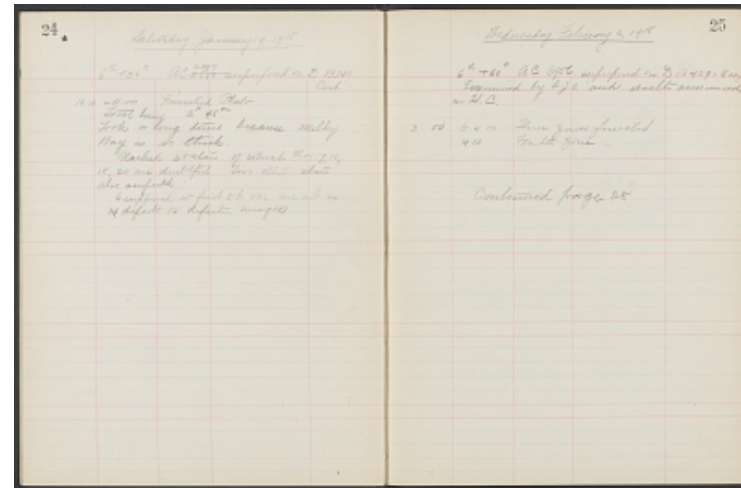
Took a long time because milky  
Nay is as think.  
Marked 21 ~~[[?]]~~ of March Noo. 7, 10,  
18, 20 are doubtful. ~~[[?]]~~ other ~~[[?]]~~  
also ~~[[?]]~~  
6 ~~[[?]]~~ at first to be var. all not so  
14 defeats or ~~[[?]]~~ images

Wednesday, February 6, 1918 25

6th+60o AC 6956 ~~[[?]]~~ on D 13409=9(4417  
Examined by A.J.C and results ~~[[?]]~~  
inn H.C.

3 00 G400 Three zones frosted  
410 Fourth zone "

Continued page 28



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26

Red = 1922 mag

Tuesday, February 26, 1918

New variable found while examining plates for proper motion

542 See Book 42, pages 26

Bright on B 3124, Nov. 7 1888 11.8 compared with Carte 20h -9.5  
 11. ~~7~~ ~~6~~  
 Faint on B 40520 June 28, 1909 12.5 ~~<~~ ~~<~~  
 12.3 confirmed by P. Fairfield  
 DM -14° 5604  
 19h 53.0m -14° 13' (1900)

Seen also of medium brightness on B41741, June 19,1910

543 Variable in Carte Region 4h -23°5  
 Star 9 found to be variable from discordance in series plates.  
 Confirmed by J.C.M book 2, page 115 on 6 plates  
~~some~~ 3 times between stars 12 and 13,  
 once between 13 and 14, twice between 8 and 10. Range from  
 11.8^~~12.0~~ to 12.46^~~12.6~~ or 12.6^~~12.8~~ a little over half a  
 magnitude, but certainly real.

27

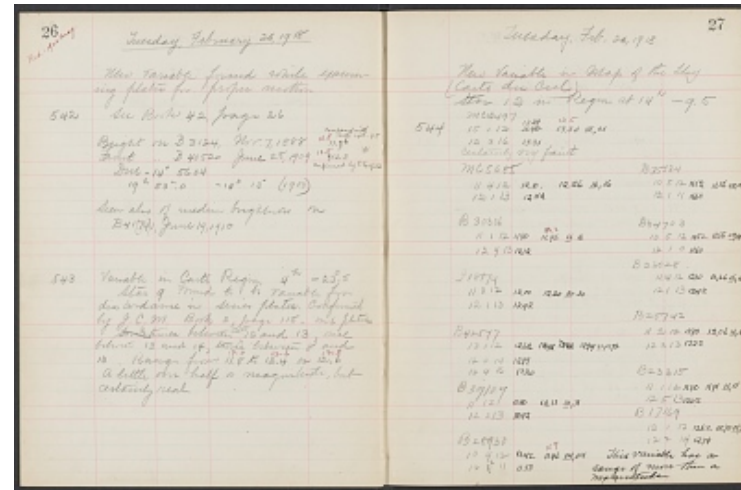
Tuesday, Feb, 26, 1918

New variable in map of the Sky  
 (Carte du Ciel)  
 Star 12 in Region at 14h -9.5  
 MC 10497

544  
 15 1 12 ~~11.80~~ 13.29 13.30^ 13.5  
01 01  
 12 3 16 13.31  
 certainly very faint  
 [ two columns]  
 MC 5685 | B 35534  
 11 4 12 12.10, 12.26 16 (underlined), 16 | 10 5 12 11.52 11.56 04  
 (underlined), 04  
 12 1 13 12.42 | 12 1 11 11.60

B30306 | B34703  
 11 1 12 11.80 11.96 (12.2 written above) 16 (underlined) 16 | 10 5 12  
 11.52 11.56 04 (underlined), 04  
 12 4 13 12.12 | 12 1 11 11.60

L18174 | B28028  
 11 13 12 12.00 12.20 20 20 | 11 14 12 12.10 12.26  
 16 16



12 1 13 12.42 | 12 1 13 12.42

B42577 | B25742

13 1 12 12.62 ~~12.99 13.20~~  
12.94, 32, 05, 26 | 11 2 12 11.90 12.06 16 16  
12 0 14 12.99 | 12 3 13 12.22  
12 4 16 13.20 |

B39107 | B23315

11 12 11.80 12.11 31, 31 | 11 1 12 11.80 11.91  
11 11, 11  
12 2 13 12.42 | 12 5 13 12.02

B25930 | B17169

10 4 12 11.42 11.46 [11.7 written on top] 04, 04 | 13 1 12  
12.62 12.70 08, 09  
12 ~~0~~ 2 11 11.50 | 12 2 14 12.79

This variable has a range of more than a magnitude

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Thursday, Feb. 28, 1918

6<sup>h</sup> +60° Plate AC 6956 superposed  
on D13409 = AC 4417  
Continued from page 25  
10 50 Fifth Zone began  
11 50 Plate Finished

2<sup>h</sup> 10<sup>m</sup> occupied in  
examination of plate. Rather  
rich margin in Milky Way

Variables which might have been found but were not marked  
A.G.C. No. 70  
S ~~Cncr~~ Aurigae ~~Camelop.~~  
J ~~Cncr~~? ~~Camelop.~~?  
R Lymis!  
X ~~Cncr~~? ~~Aurigae~~?  
Variables not marked by A.G.C.  
1, 2, ~~3~~, 4, 5

Known Variables marked  
R ~~Cncr~~ Aurigae  
3=044068  
Variables found by Miss Cannon are marked on AC 5492  
Numbers of variables found by HSL AC 6956 are transferred to AC  
5355, in order that plate may be marked for Miss Blok + Miss Nam

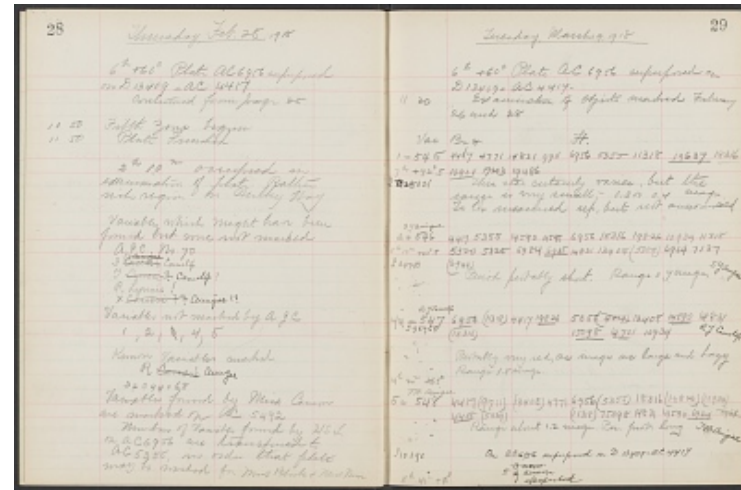
29

Tuesday, March 19, 1918  
6<sup>h</sup> +60° Plate AC 6956 superposed on  
D13409=AC4414.  
11 20 examination of objects marked February  
26 and 28

Van Br ~~4~~ H.  
1=545 44~~0~~ 17 4771 14831 9711 6956  
5355 11318 19637 18316  
7<sup>h</sup> +72°.5 10934 7203 19486  
L ~~B~~28021 This star certainly varies, but  
the magn is very small; - 0.3 or 0.4 magn  
To the measured up, but not announced

SY Aurigae  
2=546 4417 5355 41590 14545 6956 18316 19826 10934 11318  
5<sup>h</sup> +42°.5 5320 5325 6984 6935  
14831 13408 (5389) 6964 7137  
L24743 (6944)  
[[drawing of star plot]] Period probably short, Ranges 0.7 magn, SY  
Aurigae

R Y Camelop.



4~~3~~ = 547 6956  
(11318) 4417 19826 5355  
~~(4417)~~ 13408 14590  
14831  
235958 (18316) 15098 14701 1093 4R Y  
Camelop.

[[image - drawing of star map]]

Probably very red, as images are large and hazy

Ranges 1.5 magn.

4<sup>h</sup> 20<sup>m</sup> +65°

TW Aurigae 5 = 548 4417 (9711) (3408) 4471 6956 (5355) 18316

(19826) (10934)

4408 (5339) (11318) 15098 14831 14590

6964 6964 ~~6964~~

Range about 1.2 magn. Per. prob. long TW Aurigae

L 10190 On AC 6956 superposed in D 13409 = AC 4417

~~3~~ new ~~3~~

5<sup>h</sup> 40<sup>m</sup> +45° ~~2~~ ~~5~~ known

1 superposed

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33  
AC 18461 Jan 18, 1917  
10.6  
AC 18665 Mar 15, 1917  
10.9  
AC 10338 Mar 20, 1909  
10.0  
AC 10178  
10.4  
AC 10160 Jan 18, 1909  
10.5  
AC 18738 March 30, 1917  
10.8  
AC 10186  
10.5  
AC 10255  
10.3  
AC 10097 Dec 23, 1908  
10.4  
AC 10169 Jan 21, 1909  
10.4

| 32    |  | 33   |
|-------|--|--|
|       | <u>Saturday, November 30, 95</u>             | <u>Sunday, Nov. 30, 95</u>                     |
| 25-28 | Key Vantage in East of Oak Ridge             | Vantage - East of Oak Ridge 6 <sup>25</sup> 20 |
| 29-30 | Franklin Mass. Nov. 9 on 20 plate            | 26-1041 Jan. 15, 97                            |
| 1     | 85 2000, 1000, 1000, 1000, 1000              | 104  |
| 2     | 77 Nov. 9 on 20715, 1000 on Nov. 20715, 1000 | 26-1041 Jan. 15, 97                            |
| 3     | 9 104  | 104  |
| 4     | 10 104                                       | 26-1041 Jan. 15, 97                            |
| 5     | 10 104                                       | 104  |
| 6     | 10 104                                       | 26-1041 Jan. 15, 97                            |
| 7     | 10 104                                       | 104  |
| 8     | 10 104                                       | 26-1041 Jan. 15, 97                            |
| 9     | 10 104                                       | 104  |
| 10    | 10 104                                       | 26-1041 Jan. 15, 97                            |
| 11    | 10 104                                       | 104  |
| 12    | 10 104                                       | 26-1041 Jan. 15, 97                            |
| 13    | 10 104                                       | 104  |
| 14    | 10 104                                       | 26-1041 Jan. 15, 97                            |
| 15    | 10 104                                       | 104  |
| 16    | 10 104                                       | 26-1041 Jan. 15, 97                            |
| 17    | 10 104                                       | 104  |
| 18    | 10 104                                       | 26-1041 Jan. 15, 97                            |
| 19    | 10 104                                       | 104  |
| 20    | 10 104                                       | 26-1041 Jan. 15, 97                            |
| 21    | 10 104                                       | 104  |
| 22    | 10 104                                       | 26-1041 Jan. 15, 97                            |
| 23    | 10 104                                       | 104  |
| 24    | 10 104                                       | 26-1041 Jan. 15, 97                            |
| 25    | 10 104                                       | 104  |
| 26    | 10 104                                       | 26-1041 Jan. 15, 97                            |
| 27    | 10 104                                       | 104  |
| 28    | 10 104                                       | 26-1041 Jan. 15, 97                            |
| 29    | 10 104                                       | 104  |
| 30    | 10 104                                       | 26-1041 Jan. 15, 97                            |
| 31    | 10 104                                       | 104  |
| 32    | 10 104                                       | 26-1041 Jan. 15, 97                            |
| 33    | 10 104                                       | 104  |

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Wednesday, January 8, 1919

Super[[?]] of  
[[?]]

R.A.  $12^h$  Die. =  $-60^\circ$

Am 12913 March 27, 1917, superposed

Am 13957, May 7, 1918

Occupied 35 minutes no exam

time Marked 22 objects. of these

all but four are definto

Rather bright in am 12913 (faint tfjint)

Does not show variation on other [[?]]

and need not be followed further

Carriage marked. There suspended objects are not variable.

Object mark (2) is a difenton Am 13957 [[?]] [[?]] from a star mirage.

Result of superposition one known variable and [[?]]

35

Thursday, January 16, 1919

New variable found [[?]] examining

MC 15617 for asteroid seen by Mrs. McAtur [[?]]

[[?]]

R.A. =  $7^h 51.3^m$  Dec =  $+21^\circ 35'$

No. 550 Br

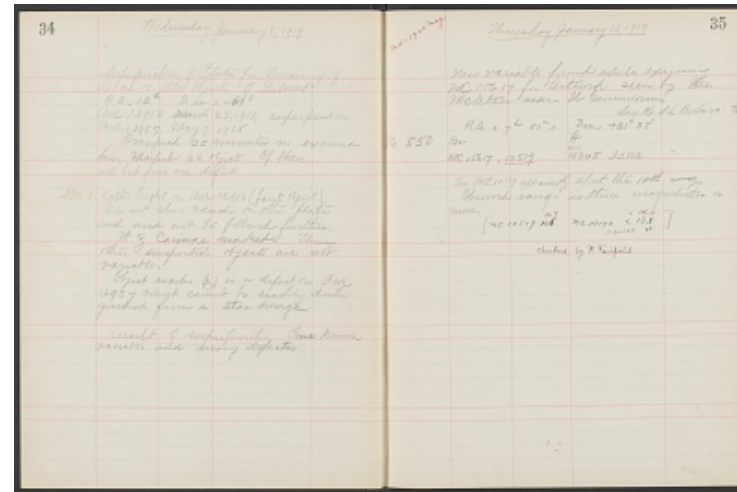
MC 15517, 10519 10348 [[?]]

On MC 10519 apparently about the 12th [[?]]

Observed range is there [[?]] or

[MC 10519 11.7 11.5 MC 14170 7-26-23 < 14.0 < 13.8

checked by P. Fairfield



36

July 26, 1920

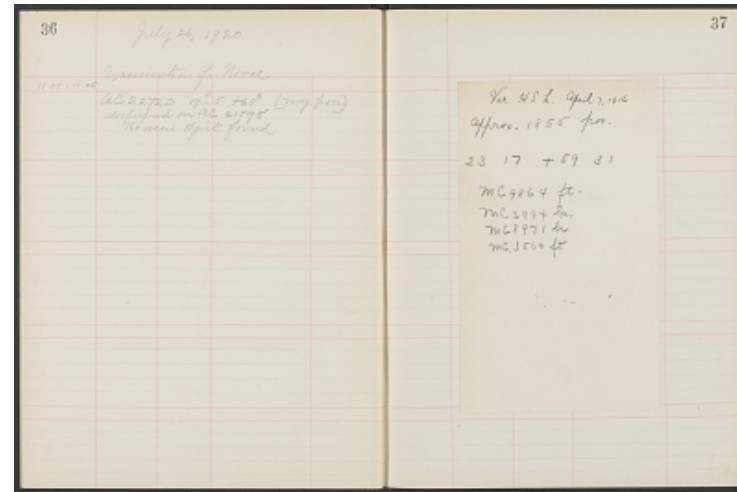
Experimentation for Novae

11 05 . 11 25

AC22722 19.5 + 60° (very poor)  
[[?]] in AC 21598  
No new [[?]]

37

Var. H.S.L. April 7, 1916  
approx. 1855 hrs.  
23 17 + 59 31  
MC9864 FT.  
MC3994 FT.  
MC3971 FT.  
MC3564 FT



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| Des.   | Name         | Max. | Min. | Class | Year | Discoverer | [[]?]  |
|--------|--------------|------|------|-------|------|------------|--------|
| 023530 | Y Arietis    | 10.0 | 11.5 |       | 1911 | Leland     |        |
| 023534 |              | 8.5  | 9.1  |       | 1911 | Fleming    |        |
| 023735 | TV Persei    | 9    | 11   |       | 1911 | L. Ceraski |        |
| 024136 | - Persei     | 9.7  | 10.6 |       | 1914 | Luizet     | D      |
| 024136 | TX Persei    | 9.2  | 9.9  |       | 1911 | L. Ceraski | Dm     |
| 024217 | T Arietis    | 7.9  | 10.1 | II    | 1870 | Auwers     | ib     |
| 024216 | Nova Arietis |      |      |       | 1911 |            | Dm     |
| 025338 | ST Persei    | 8.5  | 10.5 | algo  | 1907 | Leawitt    | Sample |
| 025838 | p Persei     | 3.4  | 4.2  | III   | 1854 | Schmidt    | Dm Cl  |

[illegible]

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40 [[page blank]]

41

List of Known Variables

Harvard Map of the Sky Region 11

Centre 2h 00m +30.0degrees Limits: 1h to 3h +15° to +45°

Feb. 4, 1916

[[8 column table]]

[Des.][Name][Max.][Min.][Class][Year][Discoverer][Plate]

010940 | U Andromeda | 8.9 | 14.5 | II | 1895 | Anderson | I1959

011041 | UZ Androm. | 8.0 | 13.0 | (crossed out)III ( ) 1906 (Kendall  
crossed out) Fleming I2442

011025 Z Pionium "" "" (roman numeral) 1906 Kendall +25 (degree)  
205, DM

011638 TX Audrom. 10.7 12.0 1910 L. Cersei DM chart v1855 [[?]]

012336 UV Audrom. 11.3 12.0 1910 L. Cersei DM chart v1855 [[?]]

012629 V Friang 10.5 11.8 1913 Leavitt I24160

013238 AU Audrom. 9.2 (less than arrow) 13 (roman numeral) 1903  
Williams I15832

013338 Z Androm. 8.3 13 (roman numeral) 1900 Androm. I158321

014933 U Fringuli 11 12 S [[?]] 1911 L. Cersei

015023 [[?]] 1914 [[?]]

015033 T [[?]] 10 1/2 (less than arrow) 12 1/2 1911 L Cersei [[?]] v1855

021024

[[/8 column table]]

| Des.   | Name        | Max.  | Min.                     | Class                | Year           | Discoverer                       | Plate                   |
|--------|-------------|-------|--------------------------|----------------------|----------------|----------------------------------|-------------------------|
| 010940 | U Andromeda | 8.9   | 14.5                     | II                   | 1895           | Anderson                         | I1959                   |
| 011041 | UZ Androm.  | 8.0   | 13.0                     | (crossed out)III ( ) | 1906           | (Kendall<br>crossed out) Fleming | I2442                   |
| 011025 | Z Pionium   | ""    | ""                       | (roman numeral)      | 1906           | Kendall                          | +25 (degree)<br>205, DM |
| 011638 | TX Audrom.  | 10.7  | 12.0                     | 1910 L. Cersei       | DM chart v1855 | [[?]]                            |                         |
| 012336 | UV Audrom.  | 11.3  | 12.0                     | 1910 L. Cersei       | DM chart v1855 | [[?]]                            |                         |
| 012629 | V Friang    | 10.5  | 11.8                     | 1913 Leavitt         | I24160         |                                  |                         |
| 013238 | AU Audrom.  | 9.2   | (less than arrow)        | 13 (roman numeral)   | 1903           | Williams                         | I15832                  |
| 013338 | Z Androm.   | 8.3   | 13 (roman numeral)       | 1900 Androm.         | I158321        |                                  |                         |
| 014933 | U Fringuli  | 11    | 12 S                     | [[?]]                | 1911 L. Cersei |                                  |                         |
| 015023 | [[?]]       | 1914  | [[?]]                    |                      |                |                                  |                         |
| 015033 | T           | [[?]] | 10 1/2 (less than arrow) | 12 1/2               | 1911 L Cersei  | [[?]] v1855                      |                         |
| 021024 |             |       |                          |                      |                |                                  |                         |

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