

KG

11366

196

J. E. Woods
Book 20.
Special Examination of
MC Plates.

KG 11366.196

mC plates cover

 $16^m \pm \text{Center}$ $2\frac{1}{2}^o \pm \text{Center}$

See Count of Stars on Plates, p. 126.

to be compl.

p. 39

179 regions

at least one pair of
plates for each region

18 to 0

Milky Way Regions, p. 133

Exam. again.

p. 126

134

161 Var?

HANNA
LEDC

Harvard College Observatory

Ida E. Woods

Book No. 20.

Special Examination of MC Plates
for Variables, Nebulae, Asteroids, etc.

KG 11366.196



HAMMILL
LEDGER

6 Galactic Pole
Regions

Instructions.

July, 1922

Examination of ME Plates for
Variables

With special reference to Clusters.

Examine near M 3

M 5

M 13

M 53

All regions 13^h to 17^h $+10^\circ$ to $+50^\circ$
See diagram of regions, page 10.

July 24, 1922 See Lovell Obs. Bull. 1916 ± 34
Lampland new faint variables in high
latitudes.

Also examine 22^h to 4^h $+30^\circ$ to -30°

Count sample plates — see page 126.

13 10 +12.5	13 10 +17.5	13 10 +22.5	13 10 +27.5
15717	5439 15716	15715 15756	5440 15714
13 30 +12.5	13 30 +17.5	13 30 +22.5	13 30 +27.5
	4863	12706	4862 5223 15718 15757
13 50 +12.5	13 50 +17.5	13 50 +22.5	13 50 +27.5
12447			
14 10 +12.5	14 10 +17.5	14 10 +22.5	14 10 +27.5
10936 10947 10948			
14 30 +12.5	14 30 +17.5	14 30 +22.5	14 30 +27.5
10657 10730	10965	10628 12966	
14 50 +12.5	14 50 +17.5	14 50 +22.5	14 50 +27.5
	15762		
15 10 +12.5	15 10 +17.5	15 10 +22.5	15 10 +27.5
		15763	

13 10 +32.5	13 ⁰ 10 +37.5	13 12 +40.0	13 0 +42.5
		5224 5353	
13 30 +32.5	13 24 +37.5	13 36 +40.0	13 24 +42.5
		5224 5353	
13 50 +32.5	13 48 +37.5		13 48 +42.5
14 10 +32.5	14 12 +37.5	14 0 +40.0	14 12 +42.5
		7865	
14 30 +32.5	14 36 +37.5	14 24 +40.0	14 36 +42.5
10629 12731			
14 50 +32.5	15 0 +37.5	14 48 +40.0	15 0 +42.5
	10665		
15 10 +32.5	15 24 +37.5	15 12 +40.0	15 24 +42.5
5355			

15 30 +12.5	15 30 +17.5	15 30 +22.5	15 30 +27.5
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14574 17245 17367	15764	12846 14575 17228 17368	12847 14576 17227 17370
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15 50 +12.5	15 50 +17.5	15 50 +22.5	15 50 +27.5
-------------	-------------	-------------	-------------

			12848 12849
--	--	--	----------------

16 10 +12.5	16 10 +17.5	16 10 +22.5	16 10 +27.5
-------------	-------------	-------------	-------------

	10900		
--	-------	--	--

		10901	
--	--	-------	--

16 30 +12.5	16 30 +17.5	16 30 +22.5	16 30 +27.5
-------------	-------------	-------------	-------------

		12971	
--	--	-------	--

			12737 12906
--	--	--	----------------

16 50 +12.5	16 50 +17.5	16 50 +22.5	16 50 +27.5
-------------	-------------	-------------	-------------

	10678 10765 10786 10808 10856		
--	---	--	--

15 30 +32.5

15 48 +37.5

15 36 +40.0

15 48 +42.5

~~5386~~
~~5485~~
~~11210~~
~~11259~~
~~12808~~
~~12817~~

15 50 +32.5

16 0 +40.0

16 12 +42.5

~~10906~~
~~12816~~

16 10 +32.5

16 12 +37.5

16 24 +40.0

16 36 +42.5

~~5386~~
~~5485~~
~~11210~~
~~11259~~
~~12808~~
~~12817~~

16 30 +32.5

16 36 +37.5

16 48 +40.0

17 0 +42.5

~~12943~~
~~12912~~
~~5176~~
~~5693~~
~~5719~~

16 50 +32.5

17 0 +37.5

13 12 +45.0

13 0 +47.5

13 0 +50.0

13 36 +45.0

13 24 +47.5

13 30 +50.0

5441

14 0 +45.0

13 48 +47.5

14 0 +50.0

14 24 +45.0

14 12 +47.5

14 30 +50.0

12967

14 48 +45.0

14 36 +47.5

15 0 +50.0

10469
12112

15 12 +45.0

15 0 +47.5

17245

10664

15 36 +45.0

15 24 +47.5

15 30 +50.0

14547
14613

$16 \ 0 \ +45.0 \quad 15 \ 48 \ +47.5$ $16 \ 0 \ +50.0$

10671

 $16 \ 24 \ +45.0 \quad 16 \ 12 \ +47.5$ $16 \ 30 \ +50.0$ 10973
14615 $16 \ 48 \ +45.0 \quad 16 \ 36 \ +47.5$ $17 \ 0 \ +47.5$ $17 \ 0 \ +50.0$

13 0 +10.0

13 0 +15.0

13 0 +20.0

13 0 +25.0

5190
7827
7908
7950
8481

15742

12359
12109
12722
17222

13 20 +10

13 20 +15.0

13 20 +20.0

13 20 +25.0

13 40 +10

13 40 +15.0

13 40 +20.0

13 40 +25.0

5226
15758

14 0 +10

14 0 +15.0

14 0 +20.0

14 0 +25.0

7866
15746
17223

14 20 +10

14 20 +15.0

14 20 +20.0

14 20 +25.0

15760

14 40 +10

14 40 +15.0

14 40 +20.0

14 40 +25.0

5197

5198
12360
15761

15 0 +10

15 0 +15.0

15 0 +20.0

15 0 +25.0

7873
7917
7961
8154
8416
10221

10667

5691
5717
5774
5848
10501
10667
10764
10779

13 0 +30.0

5184
- 5435

13 20 +30.0

13 40 +30

5225
5336

14 0 +30

10496

14 20 +30

14 40 +30

5193

15 0 +30

5200
5229
5338
5849
8449

15 20 +10.0 15 20 +15.0 15 20 +20.0 15 20 +25.0

12939

15 40 +10 15 40 +15 15 ~~40~~ +²⁰~~15~~ 15 40 +25

16 0 +10 16 0 +15 16 0 +²⁰~~15~~ 16 0 +25

10669
12720
12929
12970
13042

5457

5391

5390
12610
12721
12905
17246
13043

16 20 +10 16 20 +15 16 20 +²⁰~~15~~ 16 20 +25

16 40 +10 16 40 +15 16 40 +²⁰~~15~~ 16 40 +25

17 0 +10 17 0 +15 17 0 +²⁰~~15~~ 17 0 +25

5752
8794
8909
9167
10680
10766
10784
10857
10881
10955

5490
10956
12818
17374

5676
5724
5780
5841
5851
6045

15 20 +30.0

15 40 +30

10504
12733

16 0 +30

5205
5389

16 20 +30

16 40 +30

17 0 +30

5428

July 6, 1922.

Cluster Variables.

Examination of MC Plates of special regions
for possible variables.

Region $13^h + 15^\circ$ MC 15715 February 24, 1919 Exp. 10^m Slide 4649
15756 March 1, 1919 Exp. 11^m
(15715 superposed)

These plates are only 10^m exp.

— No objects of interest.

Region $13\ 40 + 22^\circ$ Only small portion of plates in common.
MC 12686 March 28, 1917. Exp. 30^m
17161 February 17, 1921 Exp. 60^m
17161 Superposed
— No objects

Region $13\ 50 + 20^\circ$
17140 Feb. 6, 1921 Exp. 105^m
17150 Feb. 8 " 86
— No objects

Uncover
Magna

New Var.

July 7, 1922.

NB Cl T to use? 23

Cluster Variables.

Examination of MC Plates.

Examined card cat. of MC plates. Selected pairs of plates 13^h to 17^h , $+10^\circ$ to $+50^\circ$, Exp. 30^m

Region $13^h + 15^\circ$

MC 988 Cl. T. March 21, 1911, Exp. 30^m Slide 2898

MC 12539 Cl. L. March 15, 1917, Exp. 36

12539 superposed.

Comparison not satisfactory. Images 12539 elongated.

(1855)

13 1 + 14

1 obj. Br. 12539

Ft 988

H.A.

Compared directly with C. 7 MC 988 Magn. 7.1-4

13.4

MC 988

= star 23

12.5

12539

star 20-21

I 10819 Mar. 16, 1894

probably ft

11.6 ?

17953 Apr. 20, 1897

- 17-98 (near edge)

13.4

17990 " 21, "

= 23

13.9

26545 Jan. 29, 1901

= 24

28761 May 8, 1902

Ft.

not in Var. Cat.

magnitudes are approximate only -

24

Range 11.8 to 13.5 ^{cannot find}
N.B. plates of April 3, 1911 ^{26545 agn}

find 1667 & 16677

Approx Magn.

12.3	MC 281	March 9, 1910	<20	18740
13.5	379	April 24, "		18789.
13.4?	851	Jan. 4, 1911		19041
Seen Poor	855	" 5, "		19042
11.9	901	Jan. 28, "		19065
13.0	912	Feb. 5, "	21-22	19073
13.2	929	Feb. 18, "		19086
Poor 13.0	930	" 18, "		19086
13.2	931	" 18, "		19086
12.3*	946	" 28 " extreme edge		19096
"	947	" 28 " extreme edge		19096
13.3	1009	March 25 "		19121.
13.3	1016	" 31 "		19127
13.1	1018	April 1 "		2419128.606
X 13.3	1023	" 3 "		2419130.604
12.3	1024	" 3 "		" .683
12.2	1025	" 3 "		" .709
Same date				
	1055	" 20 "		
Too poor	1056	" 20 "		
	1568	Sent to Kapteyn		
Conf. by 11.8	1588	Jan 25, 1912		
Miss Walker				
12.3	4526	Dec. 28, 1913		
✓ 13.5	8164	March 9, 1915		
Fl	11955	Dec. 22, 1916		
see next page				

Uncorrected Magns. Used.
(Before we used Interim Corrections, 1922)

Magnitudes used H.A. 71, 4 page 275

	$C_7 = 13^h 0^m + 15^s$
18	11.69
19	12.01
20	12.26
21	12.88
22	13.24
23	13.40
24	13.90

Cont. from page 24
12.9 MC 12540 March 15, 1917

26

Uncom. Magn.
Reg. trid
Magn. (1855)

New Var.

Saturday, July 8, 1922

 $13 + 15^{\circ}$
 60^m Exp. MC Plates superposed.
MC 281 March 9, 1910 Exp. 60^m 4526 December 28, 1913, Exp. 60^m

4526 superposed.

12 51.5 + 16.0 Obj. on 4526

No. 281 Range

Not in Van. St. Cat.

near star 9 of C7

855 Jan. 5 1911

Ft MC 988 March 21, 1911 Slide 2898

Br 946 Feb. 28, 1911

N.S. 1055 Apr. 20 "

N.S. 379 April 27 1910

N.S. 851 Jan. 4 1911

Br 901 Jan. 28 " see Bk. 19, p. 86

Br. 912 Feb. 5 "

Br. 929 Feb. 18 "

Br. 930 " 18 "

Br. 931 " 18 "

Br. 947 " 28 "

N.S. 1009 March 25 "

N.S. 1016 " 31 "

Ft 1018 Apr. 1 "

N.S. 1588 Jan. 25 1912

* Br. 8164 Mar. 9, 1915 22-23 13.3

N.S. 12540 March 15, 1917

N.S. 1056 Apr. 20, 1911

N.S. 321 March 19, 1910

N.S. 322 " 19 "

N.S. 2595 Feb. 6, 1913

Ft? 1023 Apr. 3, 1911

* Ft 1024 " 3 " 27-28 = 14.9

Monday, July 10, 1922.

Region $13^h 50^m + 32^\circ$ $30-40^\circ$ Exp. MC Plates Exam.

MC 12383 Feb. 16, 1907 Exp. 31^m
 16644 Jan. 28, 1920 Exp. 42
 (16644 superposed.)

No objects of interest.

Several large objects - defects -

Region $13^h 37^m + 28^\circ$
 MC 443 June 28, 1910, Exp. 116^m
 447 " 29, " " 69^m
 (443 superposed)

MC 425 June 8, 1910 Exp. 36^m
 460 July 5, " Exp. 70 Cl. T'
 (460 superposed)

MC 425
 455 July 4, 1910 Exp. 30^m Cl. T'

2 Vars. near Cluster. Belong to Pole Exp.

On 460 a var. ? was noted near Var. 137 of M3
 This matches up with Pole Exp. star.

MC 447 Plates not comparable.
 460 Could only exam. few stars.
 Common to plates. Pole exp.
 on 460, also.

No objects of interest found.

28

July 10, 1922.

Region

14^h 00^m +10

MC 12791 April 14, 1917, Exp 36 37^m Sl. 4368
 12862 May 25, " " 36
 12862 superposed.

No objects of interest.

Region

14^h 40^m +45°

MC 233 February 10, 1910 Exp. 67^m
 264 March 4, " Exp. 60^m
 (264 superposed)

Images not comparable but attempt made to discover variation.

MC 311 March 17, 1910. Exp. 60^m
 940 February 25, 1911 Exp. 60^m
 (940 superposed)

940
 1113 May 28, 1911 Exp. 30^m Cl. T'
 (1113 superposed)

940
 955 March 2, 1911 Exp 30^m Cl. T'

942 February 27, 1911 Exp. 64^m
 8248 March 15, 1915 Exp. 60^m

No objects of interest.

Example of Dbl. Star with Diffra. Images.
Wednesday, July 11, 1922.

Region $14^h 30^m +27.5^\circ$
 MC 3071 March 31, 1913. Exp. 20^m
 15892 May 6, 1919 Exp. 32^m
 3071 superposed

Var. ?

Br. 15892 Fr. 3071
 R Bootis $+27^\circ 24'00''$ $14^h 32^m.8 +27^\circ 10'$ (1900)

N.B. A double star of very even components, with diff. images.
 Only $+28^\circ 23'31''$ 7.5 & $+28^\circ 23'32''$ 7.0

Region $14^h 30^m +32.5^\circ$
 MC 2671 February 9, 1913 Exp. 20^m
 3072 March 31, 1913 Exp. 20^m
 3072 superposed.

AI 11254 is superposed on MC 3072.

No examination has been made of stars not common to ^{the} two plates. Although possible novae, they are assumed to belong to extra exposure.

No objects of interest.

Region $13^h 50^m +22^\circ$
 MC 2598 February 6, 1913 Exp. 20^m
 12382 " 16, 1914 Exp. 28^m
 12382 superposed.

1 obj. suspected but little evidence of var.

30

Region

 l^m
 14 20 +30° July 11, 1922.

MC 15824 March 25, 1919

Exp. 30^m

15835 April 2, 1919

Exp. 32^m

15835 superposed

Many defects that look like star images.

Region

 l^m
 14 30 +22.5°

MC 2599 February 6, 1913

Exp. 22^m

12860 May 19, 1917

Exp. 40^m

2599 superposed

Plates not comparable.

No objects of interest.

Wednesday, July 12, 1922.

Region

$14^h 50^m + 22.5^\circ$

MC 2600 February 6, 1913 Exp. 20^m

15720 February 24, 1919 Exp. 30^m

15720 superposed

Images not comparable but exam. made.
No objects of interest.

Region

$14^h 50^m + 18^\circ$

MC 12449 February 24, 1917 - Exp. 30^m

16722 March 21, 1920 " 20

16722 superposed

No objects of interest.

Region

$15^h + 15^\circ$

MC 282 March 9, 1910 Exp. 64^m

948 February 28, 1911 Exp. 64^m (1 of 5)

282 superposed

No objects of interest.

Regim 15^h Thursday, July 13, 1922.
+15° cont.

Plates 60^m Exp.

✓ 282

✓ 317

✓ 948

✓ 957

✓ 960

✓ 1597

✓ 1641

✓ 1714

✓ 5168

Several of
These plates have exposures
of various lengths. These
extra images make
comparison difficult
and unsatisfactory.

MC 317 March 18, 1910 Exp. 60^m
1597 January 27, 1912 Exp. 64

MC 957 March 2, 1911 Exp. 64^m
1641 February 12, 1912 Exp. 64
1714 March 13, 1912 Exp. ?
1714 superposed

Obj. Br. ⁹⁵⁷1641 N. S. 1714

A fairly bright star.

Not a duplicate exposure.

Defect?

This star shows duplicate exposures.

Cont. p. 33.

$15^h + 15^\circ$ Cont.

Obj. on page 32 Cont.
N.S. on MC 282

This obj. is P.C. of brighter star near

MC 960 March 4, 1911, Exp. 64^m
5168 March 24, 1914 Exp. 60^m
5168 superposed

MC 948
1641 February 12, 1912 Exp. 64
1641 superposed.

No objects of interest

Saturday, July 15, 1922.

Region $15^h + 30^\circ$
 MC 1770 April 8, 1912, Exp. 60^m
 1816 May 10, " " 60^m
 1816 superposed

No objects of interest.

Region $15^h + 45^\circ$
 Plates too poor.

Region $14^h 50^m + 45^\circ$
 MC 1666 February 23, 1912 Exp. 60^m
 18508 March 6, 1922, Exp. 30^m
 18508 superposed

No objects of interest.

Region $15^h + 20^\circ$
 MC 12575 March 20, 1917, Exp. 28^m
 15893 May 6, 1919, Exp. 33^m

No objects of interest.

New Var.

35

Region 13 48 +37.5 ~ 40°
 MC 16550 December 30, 1919 Exp. 15^m 1346 +40
 17095 January 17, Exp. 26^m 1348 +36

These plates are superposed only in part. This
 portion has been examined.
 no objects

Region 13^{h m} 50 +12°
 MC 16672 February 20, 1920 Exp. 46^m
 16806 June 20, 1920 Exp. 31^m
 (16806 superposed)

1 object Br. 16806 Ft. 16672
 13^{h m} 48.2 +14.9 (1855)
 near bright star = +14° 2680 13^{h m} 48 51.8 +14 47.3 (1855) 0
not prismatic Comp. Magn. 6.7

I 930 April 1, 1890
 Poor Br. I 6254 May 16, 1892
 Br. 3254 May 16, 1892
 N.S. 3496 April 26, 1891 Slide 1529
 Br. 17954 April 20, 1897
 Ft. 24691 March 3, 1900
 Very Ft. 25373 May 28, 1900
 N.S. 25424 June 9, "
 N.S. 25491 " 25, " Poor, but ft. stars shown.
 Br. MC 12447 Feb. 24 1917
 Too poor I 25496, 22908, 31934, 29975, B50955
 Cont. Range?
 Bk. 19, p. 96. am 10452 14^h +15° proves that Am plates
 do not show faint stars

Monday, July 17, 1922.

Region

13 50 +12.5 Cont.

MC 16672 See page 35

12447 February 24, 1917 Exp. 10^m

12447 superposed.

The 10^m plate was examined for New Var. found, p. 35, so a brief exam. was made over whole plate. The plates are fairly comparable but 12447 does not show faint stars.

No objects of interest.

Region

14^h +15°

MC 397 May 12,

17396 April 12, 1921

397 superposed

Exp. 60^m

+13°

Exp. 61^m

+15°

Only a small portion of plates are in common region.

1 Object

Br. 17396

~~U.S.~~ 397

+14° 2700

2 Bootis

140113

14

1.7

+13

59

Verified by Dir. No.

Region $14^h + 15^\circ$ Cent.

MC 397 See p. 36.

19437 May 9, 1921.

Exp. 30^m

397 superposed

Z Bortis on this pair of plates,

140113

Br. 17437 N.S. ~~397~~ 397

Region $14^h 10^m + 12.5^\circ$

MC 10948 July 29 1916 Exp. 21^m

16812 June 9, 1920 Exp. 26

10948 superposed

Plates of short exposure, showing no faint stars.

No objects of interest.

Region $16^h 12^m + 37.5^\circ$

MC 11259 October 2, 1916 Exp. 50^m

12808 May 11, 1917 Exp. 30 Slide 4473

12808 superposed

No objects of interest.

Tuesday, July 18, 1922.

Region

$16^h 18^m + 19^\circ$

MC 15868, April 22, 1919 Exp. 65^m

15881 April 30, " Exp. 60^m

15881 superposed.

Only about half of region is common to the two plates.

No objects of interest.

Region

$17^h 0^m + 15^\circ$

MC 1734 March 22, 1912, Exp. 30^m

1776 April 10, " Exp. 30^m

1734 superposed.

See page 2 exp. (Pole of region on each of these T¹ plates. Too difficult for comparison.)

Region

$16^h 57^m + 31^\circ$

MC 17262 March 18, 1921 Exp. 40^m

MC 17397 April 12, " Exp. 30^m

17397 superposed.

No objects of interest.

MC 17397 see above

17438 May 9, 1921. Exp. 31^m

17397 superposed

1 Object Br. 17397 ft 17438

165631

RV Hercules

$16^h 56.7^m + 31^\circ 22'$ (1900)

Verified from Print.

Region ~~1510 +22.5~~
mc 2601 ~~February 6, 1913~~ Exp. 20m
15721 ~~February 24, 1919~~ Exp. 40

40

Region

Thursday, July 20, 1922,

$15^{\text{h}} 20^{\text{m}} + 30^{\circ}$

MC 12665 March 25, 1917, Exp. 38^m

15955 June 14, 1919, Exp. 30^m

15955 superposed

No objects of interest.

Friday, July 21, 1922.

Region $15^{\text{h}} 30^{\text{m}} + 17.5^{\circ}$
 MC 550 September 7, 1910 Exp. 41^{m}
 2780 February 14, 1913. Exp. 20^{m}
 2780 superposed
 Images hardly comparable.

MC 550

MC 12450 February 24, 1917, Exp. 40^{m}
 550 superposed.

Object on 550 Metcalf's Comet?
 This was referred to Dr. S. Is probably Comet,
 but Metcalf's Comet is exam. and ruled on
 other plates.

Region $15^{\text{h}} 52^{\text{m}} + 29.7^{\circ}$
 MC 15866 April 22, 1919, Exp. 64^{m}
 15880 April 30, " Exp. 66^{m}
 15880 superposed
 1 plate has elongated images, 1 round,
 no objects of interest

Region $15^{\text{h}} 40^{\text{m}} + 20.0^{\circ}$
 MC 12576 March 20, 1917 Exp. 30^{m}
 15783 March 7, 1919 Exp. 22^{m}
 15783 superposed
 no objects of interest

Saturday, July 22, 1922

Region

$15^h 20^m + 20.0$

MC 12652 March 24, 1917 Exp. 30^m
 12861 May 19, " Exp. 54^m
 12652 superposed

Obj. $15^h 24^m + 22.0$

Peculiar, elongated image but star.
 Double?

A6418 shows double (close, stars nearly
 equal in magn.)

Many defects on these plates

Region

$15^h 40^m + 16.4$

MC 538 August 27, 1910 Exp. 33^m
 12793 April 14, 1917 Exp. 30^m
 538 superposed.

Metcalf's Comet (1910) already marked
 on 538

MC 540 August 1910 Exp. 42^m
 12793 see above
 540 superposed

These pairs of plates are hardly comparable.

Object at B. 12793 Ft. 540
 Shows change also, (Ft.) on 538

Dur $+15^{\circ} 29' 18''$ $15^h 44^m 0.8^s + 15^{\circ} 34.7'$ var. (1855)

154615

R Serpentis

Verified by Dur. No.

Monday, July 24, 1922.

Region

$17^h 6^m + 27^\circ 0'$

MC 398 May 14, 1910 Exp. 60^m

17441 May 9, 1921 Exp. 52^m

398 superposed

398 images elongated

17441 " round

1 object Br. 17441 N.S. 398

170627 R T Hercules $17^h 6^m + 27^\circ 11'$ (1902)

Verified by chart.

Region

$17^h 14^m + 43'$

MC 1325 October 13, 1911

Exp. $60^m (+45.2)$

15980 June 28, 1919

Exp. 60^m

16017 July 5, "

" 62^m

1325

15980

15980 superposed

Very little of the two plates in common region
No objects of interest.

15980

16017

15980 superposed

No objects of interest

5) M.G.C. 6341 is on these plates.

Examine N.G.C. 6341 = M 92

See Bk. 4, p. 36.

* Variable suspected in 1916, Bk. 4, p. 38,
was examined again and confirmed
by Dr. Shapley.

Announced H.B. —

Region Tuesday, July 25, 1922.

$17^h 50^m + 17.5$

MC 1103 May 21, 1911 Exp. 60^m

1121 June 2, " " 60^m

1103 superposed

Object apparently different from star images, but duplicated on 1103. A moving obj. (?) on 1121. Isn't it Pres. Comp. ? These are in same pos. on the two plates. Diff. in images accounts for diff. in these ft. images.

Object Br. 1121 Ft. 1103

Defect or Variable ?

Several objects were marked as suspected variables but decided they are prismatic companions. The P.C. of the two plates exactly coincide in position but not in magnitude. Noticed that the objects all bore the same relation in position to bright stars.

No other MC plate to compare. Have not compared with I plate.

July 25
 Region $17^h 30^m +52.5^\circ$
 mc 369 April 13, 1910 Exp. 56^m
 446 June 28, " " 60
 461 July 5, " " 60

mc 369
461

461 superposed

mc 446
461

461 superposed

No objects of interest.

See, also, Bb. 26, p. 42.

July 26, 1922

Region

$17^h 11^m + 15.0$

MC 1820 May 17, 1912

1834 June 5, 1912

1883 July 2, 1912

Eff. 60?

60

" 60

1820

1834

1820 superposed

1 object

1820

1883

1820 superposed

no objects of interest.

48

Thursday, August 17, 1922.

Region
with $h \sim 23 \ 30 + 7.5$

mc 1247 Sept. 1, 1911 Exp 10

1342 Oct. 24 " " 62

Plates not comparable —

Region

 $23 \ 35 + 0.2$ mc 719 November 7, 1910 Exp 62^m

1250 Sept. 2, 1911 Exp 56

mc 719 superposed

no objects

Repeat
Region $h \sim 22 \ 30 \ 0.$

mc 772 — Sp. Pl.

Repeat this region.

Friday, August 18, 1922

49

Region 23 $29 + 7.5$
 MC 792 (T') December 8, 1910 Exp. 10^m
 1341 October 24, 1911 60
 1343 " 24, " 63
 1344 " 24, " 62
 1345 " 24, " 31

Not of advantage to exam. Ask for one pl. of region.

Region $1^h 00 + 8.0$
 MC 208 February 2, 1910 Exp. 20^m
 225 " 7, " " 43
 2128 November 16, 1912 " 30
 2154 " 18, " " 30 Badly fogged —

225

2128

2128 superposed

208

225

208 superposed

No objects of interest.

Regin $22^{\text{h}} 50^{\text{m}} + 25.0^{\circ}$
 MC 16196 August 21, 1919 Exp. 30^{m}
 16197 " 21, " " 34
 16198 " 21, " " 32
 16209 " 22, " " 30

As these plates were taken close together,
 only two plates ~~even of same date~~ are compared.
 16196 compared.
 16198
 16209

Plates not good enough —
 Repeat.

16209 identifies $21^{\text{h}} 48^{\text{m}}$, not $22^{\text{h}} 48^{\text{m}}$

Regin $1^{\text{h}} 00^{\text{m}} + 7.5^{\circ}$
~~MC 208 February 2, 1910 Exp. 20^{m}~~
~~225 " 7, " " 43~~
~~2128 November 16, 1912 " 30~~
~~2154 " 18, " " 30~~

On page
 49

~~208~~

~~2128~~

~~208 superposed~~

Regin

$22^{\text{h}} 45^{\text{m}} + 17.4^{\circ}$

MC 16567 January 10, 1920, Exp. 66^{m}

16952 October 9, " Exp. 61

16952 superposed (1855)

neb. near DM. $+15^{\circ} 47' 42''$, $22^{\text{h}} 53^{\text{m}} 2.5^{\text{s}} + 15^{\circ} 12' 3'' 9.3$

Is it known? Is on both plates.

→ N.S.C. 7448 $22^{\text{h}} 53^{\text{m}} 8^{\text{s}}$ N.P.D. $74^{\circ} 46' 2''$ (1860)

Monday, August 21, 1922.

Region $23^{\text{h}} 00^{\text{m}} + 30.2$
 MC 1297 October 2, 1911. Eff. 60^{m}
 1924 July 24, 1912 " 60
 1924 Superposed
 No objects.

Region $23^{\text{h}} 17^{\text{m}} - 1.8$
 MC 17581 June 14, 1921, Eff. 36^{m}
 19601 June 15, " Eff. 30

Too poor and fogged.

Region $1^{\text{h}} 30^{\text{m}} + 15.4$
 MC 16237 September 4, 1919, Eff. 60^{m}
 MC 16279 October 1, " " 67
 16237 Superposed.

* Object $1 30 + 16.1$ (1855 Approx.) Be. in 16237
 Nova? Not on MC 16279
 or Asteroid?

not on A 6148 Sept. 8, 1902 Eff. 78^{m}
 Probably motion in image.
 Not in book of Asteroids — Possibly one
 not near opposition.
 (Not to be looked up further)

✓ Seen by Dr. S.
 Card made out.

Tuesday, August 22, 1922.

Region $17^h 30^m + 12.5$
 MC 12976 June 25, 1917 Eff. 42
 18919 August 15, 1922 Eff. 30^m
 (12976 superposed)

Many spots, defective, on plate 12976
 Region $16^h 20^m + 10.2$
 MC 12545 March 18, 1917. Eff. 20^m
 18918 August 15, 1922 Eff. 30^m
 18918 superposed

Region $22^h 20^m + 10.0$
 MC 13346 September 8, 1917 Eff. 34^m
 18925 August 15, 1922, Eff. 30^m
 13346 superposed

Region $23^h 30^m + 27.5$
 MC 13080 July 31, 1917. Eff. 38^m
 18927 August 15, 1922 Eff. 30
 13080 superposed.

Region $22^h 14^m + 21.5$
 MC 1194 July 21, 1911 Eff. 60^m
 18924 August 15, 1922 Eff. 30
 18924 superposed

Region $23^h 00^m + 10.0$
 MC 9901 December 10, 1915 Eff. 20
 18926 August 15, 1922 Eff. 30
 9901 superposed

August 22, 1922.

Region

 $2^h 50^m + 27.5$

MC 13483

September 13, 1917

Eff. 37^m

17002

November 29, 1920

Eff. 29^m

13483 superposed

no objects of interest.

Wednesday, August 23, 1922.

Region

$2^h 10^m - 12.5$

MC 11742 November 21, 1916 Eff. 25

18923 August 15, 1922, Eff. 30^m

18923 superposed.

Region

$2^h 00^m + 1.0$

MC 95 December 10, 1909 Eff. 33^m

99 " " " " 120

1430 November 18, 1911 " 60

No objects

Thursday, August 24, 1922.

Region

$3^h 50^m - 12.5$

MC 13557 September 18, 1917, Exp. 28.

16898 September 19, 1920, Exp. 38^m

13557 superposed.

Region

$4^h 00^m + 10.0$

MC 11421 October 27, 1916 Exp. 40^m

15607 December 30, 1916 Exp. 30

11421 superposed.

(15607 — film reversed)

Center only of 15607 is very good.

Does not show faint stars

Repeat

* Compare new pl. with 11421

Region

$3^h 30^m + 22.5$

MC 11699 November 18, 1916, Exp. 54^m

17003 November 28, 1920, Exp. 28^m

17003 superposed

Region

$4^h 18^m + 30.8$

MC 728 November 8, 1910 Exp. 61^m

13765 October 13, 1917 Exp. 20^m

13765 (broken) superposed

Region

$4^h 30^m + 22.5$

MC 11807, November 22, 1916, Exp. 52^m

16904, September 21, 1920, Exp. 46

16904 superposed

No objects of interest.

New Var.

57

Regim h_m
 4 38 +14.5
 MC 6985 November 21, 1914 Eff. 80^m
 15608 December 30, 1918 Eff. 30^m
 15608 superposed
 4 31 +13.8 (1855) approx.
 Comet? on 6985
 not seen on MD 6985 which does not
 show faint stars.

New Var.

h_m
 4 43 +14.3 (1855) approx.
 Obj. Br. 6985 N.S. 15608
 Seen on MD 6985

a 1224 December 22, 1894 Possibly trace
 7485 Sept. 8, 1905 Br.
 7520 November 16, 1905 N.S. Ft. St. near is seen.
 MD 4623 Tor por
 no magn. for V Tauri which is near

see cont., p. 59

58

Region

Friday, August 25, 1922.
 $3^h 23^m + 30.0$

MC4010 September 29, 1913. Exp. 60^m

4522 December 28, 1913. Exp. 60^m

4010 superseded

✓

Nebula Mkd. Cat. Kuorn

$3 20 + 30$ (1855)

Neither Cat. St.
nor Var. in Drap. Cat.

For Proof I 24182 Med. N.S. 59
McM 6985 28204 26194 #19594
6985 a1224
24386 *a7520
20488 (1855)

Cont. Object, Var., New, p. 57.
 $4^h 43^m + 14.3 (1855)$ Cat star near is $+14^\circ 77.3 + 43.2 + 14.23$ 9.5
Long exp. I plates show star. Mbd on I 24182

Br. I 24182 Dec. 6, 1899 Exp. 86^m

N.S. 26194 Dec. 9 1900 X¹¹ 74 N.S. Faint stars
near not seen, stars before ft.

Medium 28204 Jan. 4, 1902 Exp. 101

Medium Br. 31215 Nov. 28, 1903 Exp. 68^m

N.S. 33581 Oct. 27, 1905 " 21

N.S. 19594 Nov. 17 1897 " 15
Shows ft. stars.

* On A Plates

Very ft. A 1224 Dec. 22, 1894
Min. ?

Very ft

Ft. Sun. 7485 Sept. 8, 1905

Faintest N.S. 7520 Nov. 16, "

Ft. Stars near show.

For complete list of plates exam. later, see
Bk. 19, p. 36.

Range, see p. 60

New Var. Range 11.8 to <14.0
 Estimates of Magn.

method; Selected Star near α I 24182 = var.
 With MC 6255 & I 31215 selected stars
 meaning Comp. Seq., which is $5.8 + 15$
 a star near Star 1 of Seq. was
 selected nearly = var.
 This star is between 23 & 24 of Seq.
 = 11.7 in MC 4255

I 19594 Var. N. S. <14.0 ?
 limit of plate = 14.0 ?
 296 of C 3 is seen
 29 of C 3 = 13.82

MC 19021 both seq. well placed.
 Var. = about 24 = 11.82

Min. confirmed on A 1224
 I 41528

A 7520 m, o, p. all seen. Var. N. S.

Meas. 12516 ?

61

Magn.

Comp. Sequence = C3, See ^{H.A.} 71, 4.

Mbd on MC 4255 Also print.

Am 12516 both Sequences near Center,
but Bright Stars only show.

Magn. of C3 in H.A. 71-4.

62

Saturday, August 26, 1922.

Regina

23^{hr} 0 +15.0

- MC 505 August 2, 1910 Exp. 60^m
 Spect- 511 " 5, " " 60
 ✓ 518 " 9, " " 60
 ✓ 561 September 10, " " 61
 ✓ 598 " 28, " " 60
 - ✓ 614 October 1 " " 57
 { 1911 July 22, 1912 " 60
 1940 August 14, " " 60
 1154 June 22, 1911 " 30

MC 505

614

614 Superposed

MC 518

598

518 Superposed

518

561

518 Superposed

518
 Cl T' 1154

compared for variation in the
 stars that are common

A possible Asteroid or Nova might
 be among the unexamined obj.
 - 2nd Exp. is Pole.

Region $23^{\circ}11' + 15^{\circ}.0$
 mc 1911 July 22, 1912 Exp. 60^m
 1940 August 14, " Exp. 60
 1911 superposed)
 No objects of interest.

Region $23^{\circ}10' - 15^{\circ}.0$
 mc 520 August 11, 1910. Exp. 60^m
 555 Sept. 9, 1910 Exp. 60^m
 606 Sept. 29, " Exp. 60

520

555

520 superposed

606

555

606 superposed.

64

Regim

Wednesday, November 8, 1922.

16^h 00^m +50.0

MC 14782 April 15, 1918 Eff. 34^m

18994 Sept. 13, 1922 Eff. 30^m

(14782 superposed)

No objects.

Friday, November 10, 1922.

Region

$22^h 10^m + 28.0$

MC 13478 Sept. 13, 1917, Exp. 34^m
18922 August 15, 1922, Exp. 30.
(13478 superposed)

Var. 1 Object Br. 18922 Ft. 13478

Checked by ~~probably print~~ Comp. Seq. ^{made} on I 15660 →

$22 18.8 + 29.7 (1855)$

22 2129 RV Regasi 22 21.0 + 29 58 (1900)

Star? 1 Obj. Br. 13478 Ft. - N. S. 18922

N. S. I 15660

$22 5.1 + 29.9 (1855)$

✓

Assumed defect

not exam.

Several star like defects on plates

Region. $22^h 00^m + 25.1$

MC 13021 July 13, 1917, Exp. 33^m
18921 Aug. 15, 1922, Exp. 30
18948 Aug. 29, " Exp. 32

13021 Too poor to use for Comp. Out of focus.
18948 Excellent pl.
18921 Too poor.

Repeat.

66

November 10, 1922.

Region

16^h 30^m + 50^o0

MC 17433 May 1, 1921, Eff. 42^m
 18995 Sept. 13, 1922, Eff. 20^m
 (18995 superposed)

New? Nebulous? objects found.
 (Found on, day Prof. S. gave lecture on Nebulae, Lowell Institute)

Neb.?
 Unknown?

16 17.6 + 49.8 (1855) N.P.D. = 40.2
 Not in N.G.C. or 2nd Index.

Same?
 into

16 21.6 + 50.2 (1855) N.P.D. 39.8
 N.G.C. 6154 16 22 7 39 48.8 (1860)

A 1689 too poor
 A 5330 too poor

Saturday, November 11, 1922.

New Var. 67

Regim $23^h 30^m + 17.5$ MC 13480, Sept. 13, 1917 Exp. 36^m Slide 441718939 August 21, 1922, Exp. 2230^m

(13480 superposed)

✓ Obj. marked — probably defect.

Regim $22^h 30^m + 22.5$

MC 11784 November 22, 1916 Exp. ?

18938 August 21, 1922 Exp. 30^m

(18938 superposed)

New Var. ? $22 15 + 21.4$ (1855)(found this just
after Armistice)

Br. 18938

N.S. 11784

(barely seen)

N.S. on I 21472

(Day Salute was
fired at Princeton -
Harvard game)

Seen (ft star) on I 18855

N.S. 16405

Cont. p. 68.

✓

Defect or Comet ? Br. 11784.

 $22 33 + 20.4$ (1855)

Assume defect. Seen by Dr. S.

✓ Nebula

 $22 30 + 23.1 = N. G. C. 7332$ $22^h 30^m 44^s$ M.P.D. = $66^\circ 55' 6''$ (1880)

(approx. 1855) M.P.D. = 66.9

68

Uncorrected

Range 13.8 to 14.7 13.5 to 15.0 Corr. = 13.8 to 15.2 For Proof: Br. MC 18938, A 2014, ± 18855
Th. MC 11784, A 9619, A 1114 A 6780* MC 19235

New Var. 22 15 + 21.4 (1855) p. 67

Compared with magn. of Sequence of SS Pegasi,
222924, as marked on MC 11784.magn. used
(from ledger)

$g = 13.47$

$g' = 13.69$

$r = 13.93$

$r' = 14.00$

$r^2 = 14.20$

$s = 14.43$

MC 18938 about 1 or 2 brighter than $r = 13.7$ MC 11784 at least 2 fainter than $s = 14.6$ This

A 2014 about 13.9

A 9619 < 14.3

A 1114 N.S. ft. stars near, N.S.

A 6780 γ about .4 = Star 3 Var. N.S. = < 14.7

$\begin{matrix} \cdot \\ \cdot \\ 2- \\ 1- \end{matrix}$
 $\begin{matrix} \cdot \\ \cdot \\ \cdot \\ \cdot \end{matrix}$
 $\begin{matrix} \cdot \\ \cdot \\ \cdot \\ \cdot \end{matrix}$

Var 1 about = g of Seq. of SS Peg. = 13.5
 2 about = 14.0
 3 " = 14.3

I 18855 13.8 ? Give ^{less} little weight to thisI 18890 Miss Walker's est fainter than $g = 13.5$

N.S. MC 19235 Nov. 13, 1922 taken for this Var.

(Star 3 at least = .4 \therefore Var. < 14.7) SupersededLimit of this plate is at least 15.0 Var. = < 15

Too faint for I plates.

Examined.

I 7356 Oct. 14, 1892

16405 Oct. 31, 1896

21073 Aug. 16, 1898

23651 Sept. 23, 1899

27727 Oct. 5, 1901

If seen, Var. is at limit of plate on these
I plates. No estimates made.

Variation confirmed by Miss Cannon,
January 2, 1923.

Range confirmed by Miss Walker, Jan. 2, 1923.

August 18, 1896

August 4, 1909

Oct. 18, 1894

June 22, 1904

Images faint.

15.0

70

Tuesday, November 14, 1922.

Regim

 $22^h 20^m + 30.0$ MC 16235 September 4, 1919 Exp. 30^m 18930 August 16, 1922 Exp. 30^m

18930 superposed

No objects found.

Regim

 $22^h 40^m + 20.0$ MC 13036 July 22, 1917, Exp. 22^m 19004 Sept. 16, 1922, Exp. 30^m

19025 Sept. 22, " Exp. 30

~~13036~~ 19025

19004

19004 superposed

13036

19025

13036 superposed.

No objects found.

Regim

 $22^h 00^m - 15^0$ MC 16130, July 29, 1919, Exp. 31^m 19048 Sept. 25, 1922, Exp. 30^m

Call for better plate.

16130 rejected

Region $22^h 40^m - 15.0^\circ$
 MC 13576, Sept. 20, 1917, Exp. 40^m
 19049, Sept. 25, 1922, Exp. 30^m Slide 4390
 19049 superposed)
 No objects found.

Region $23^h 10^m + 2.5^\circ$
 MC 15355 (October 9, 1918, Exp. 45^m
 19026 Sept. 22, 1922, Exp. 30^m
 15355 superposed)
 No objects.

Region $23^h 10^m + 27.5^\circ$
 MC 13485 September 14, 1917 Exp. 20^m
 19028 Sept. 22, 1922 Exp. 30^m
 13485 superposed)
 Repeat this region - 13485 does not show ft. stars.

72

Wednesday, November 15, 1922.

Region

23 40 -10.0

mc 16161

August 2, 1919, Eff. 30^m

19076

September 28, 1922, Eff. 39^m

16167 superposed

No objects.

23 40 -15.0

Region A

mc 13578

September 20, 1917, Eff. 40^m

19077

"

28, 1922, Eff. 32^m

13578 superposed.

Assumed Defect

Defect? or Comet

seen (ft.) 19077

no

Ident. on B 20017



Ft. Nebula on both plates

V

23 31.0 -13.8 (1855)

N.P.D. = 103.8

N.G.C. 7723

23 31 42

103 44.2

Ft. Nebula on both plates

23 32.5 -13.1 (1855)

N.P.D. = 103.1

V probably coincident with -13° 6445 23 32 23.5 -13° 5.3

N.G.C. 7727

23 32 39

103° 4.1'

Especially excellent plates.

Comet ? on I 186473
23 43.8 +17.7

Region ^{h m} 23 50 +17.5

MC 18116 October 26, 1921

Exp. 54^m

Ident. on
I 18649

19063 September 26, 1922.

Exp 30^m

19063 superposed

1) Fh Nebula on both plates.

N.G.C. 23 43.6 +19.3 (1855) N.P.D. = 70.7

7769 } 23 43.58 70 37.7

7770 } 23 44 17 70 40.9

7771 } 23 44 19 70 40.0

2) Fh Nebula on both plates.

23 43.9 +19.3 (1855)

✓ 3 Fh Nebula on both plates.

23^h 50.5 +15.7 (1855) N.P.D. = 74.3

N.G.C. 7792 23 50 55 74 17.0 (1860)

3) 4 Fh. Nebula on both plates

Unknown 23 50.0 +17.5 (1855) N.P.D. = 72.5

not in N.G.C., not in 2nd Index.

4) 5 Fh. Nebula on both plates

23^h 50.7 +18.6 (1855) N.P.D. = 71.4

not in N.G.C., not in 2nd Index.

✓ 6 Fh. Nebula on both plates.

23 55.7 +15.3 (1855) N.P.D. = 74.7

N.G.C. 7814 23 56 5 +74 38.9

74

November 15, 1922.

Region $23^h 50^m - 12.5^\circ$
 MC 17938 September 24, 1921, Exp. 32^m
 19051 September 25, 1922, Exp. 35^m

Idem. on B26349

17938 superposed

Defect? Moving Object? - Bright 17938
 Missing, but not ragged.

$23^h 38^m - 12.5^\circ$ (1855)

Meas. Pos. Eos - 10.7 Eph. of 1921 =
 Bb. 211.30. Sept 23. $23^h 42^m 3 - 11.56$ (1921)

~~Unknown~~

Hazy object, Fl. Star or Neb.?
 $23^h 58^m 25^s - 11^\circ 21'$ (approx. 1900)

Neb. ? $23^h 56^m 1 - 11.6$ (1855) $\lambda, \mu D. = 101.6$

Pro. about $15^s = 5$ yr. $-100'' = 5$ yr.

not N.G.C. 7808 $23^h 54^m 30 - 101.31.0$ (1860)

not N.G.C. 7813 $23^h 56^m 4 - 102.46.0$ (1860)

~~Repeat region~~

Region $23^h 50^m + 27.5^\circ$

MC 13487, September 14, 1917, Exp. 20^m Slide
 19078, September 28, 1922, Exp. 30^m 4522

Region $23^h 10^m - 17.5^\circ$

MC 16123, July 28, 1919, Exp. 30^m
 19050, September 25, 1922, Exp. 30^m
 16123 superposed

✓ See image of star near Center, why slanting image?
 not double star.
 Assume defect in the glass.

✓ Bright defect? near Center 16123

Thursday, November 16, 1922,

Region

22^h 50^m -17.5

mc 18102 October 25, 1921, Exp. 54^m Slide 3768

19061 September 26, 1922, Exp. 35^m

18102 superseded

No objects.

Position

α -18° 6258 23 2 11.1 -18 19.6

0.2 less than Cat. St. =

- 1.3

23 2 9.8

δ -18 6259

-18 13.8

3.1^m $\eta = 304.42$

5.1

-18 8.7

76

Region

h Friday, November 17, 1922

 $23^h 40^m + 10.0$ MC 13075 July 30, 1917, Eff. 20^m 13075 September 28, 1922, Eff. 32^m

13075 superposed

✓

Fl. nebula on both plates.

 $23^h 37.0^m + 9.9$ or 10.0 (1855)M.C. = 7742 $23^h 37.9^m$ N.P.D. $80^\circ 0.7$

Tuesday, November 21, 1922.

Region

$0^h 18^m + 25.0$

MC 14030 November 3, 1917, Exp. 20^m

19064 September 26, 1922, Exp. 30

14032 superposed

many defects on these plates
no objects of interest.

Region

$2^h 11^m - 12.5$

MC 13554 September 18, 1917, Exp. 30^m

19053 Sept. 25, 1922, Exp. 30^m

13554 superposed.

F₄ Neb. on both plates.

✓ $2^h 10^m - 12.1$ N.P.D. = 102.1 (1855)

N.G.C. 873 = 29 43 102 0.0 1860

Repeat
Region

$3^h 20^m - 10.0$

MC 13572 September 19, 1917, Exp. 33^m

19055 Sept. 25, 1922, Exp. 30^m

13572 superposed

Apparently another exposure of MC 13572 -
Repeat.

78

~~to finish pl. later~~

Wednesday, November 22, 1922.

Begin $0^h 50^m + 22.5$ mc 15254, September 14, 1918, Exp. 57^m
18941, August 28, 1922, Exp. 30? 56.2 18941 superrock.
0 $50.6 + 21.8$ (1855)

Br. 18941

N. S. 15254

Not in Var. Cat.

Not Pris. Conf. Not Planet

No evidence Position marked on I 26603

of other stars " " " AC 13604

of a second exposure - AC plates would not show this star unless very fr. stars appeared.

N. B. Mayr.

No trace on MC 19277 taken on Nov. for this object.

Tergeste 11.0 Sept. 18 = $0 50.3 + 19^{\circ} 44'$

See 18933 perhaps may show an inter position

I 41536 Sept. 12.

41600 Sept. 23

List of I plates examined, see p. 91

0 $50.6 + 21.8$ (1855) $2.4 + 0.2$ 0 $58.0 22.0$ approx. 1900 $1.2 + 0.1$ 0 $54.2 22.1$ approx. 1922Miss Walker 0 $56.18 + 21.53$ 0 $56.3 21.53$ (1855)
could this be Ludmilla?Est. magn. MC 15606, Sep. 29 47K
Star 6 = Obj. 4 11.57

+22	170	0	55	49.4	+22	59.1	85
+21	135	0	55	30.5	+21	59.9	8.8
+21	136	0	55	32.9	+21	46.3	9.5

0.7 fol. 6

Thursday, November 23, 1922. New Var. 79

Region

 $0^h 30^m + 17.5^\circ$ MC 15583 December 23, 1918, $\text{Exp. } 31^m$ 19038 September 24, 1922, $\text{Exp. } 30$

(15583 superford)

No objects found

Region

 $0^h 00^m + 30.0^\circ$ MC 17838 August 29, 1921, $\text{Exp. } 34^m$ 18940 August 21, 1922, $\text{Exp. } 30^m$

17838 superford.

?

 $23^h 50.0^m + 31.3^\circ$ (1855)

New Var.

No. 17838

N. S. 18940

(Not in Var. Cat.)

Not in Asteroids list.

This plate and one on p. 78 are successive plates but
not successive dates.

in plate of 1921, not 1922.

I 41492 Aug. 16

41534 Sept. 12

41598

Not Planet

Recorded
Dec. 1.

→ Bright on 19284 taken on Nov. 24 for this star

Cont. on p. 92

$0^h 00^m + 30^\circ$ Cont.

? $0^h 6.8^m + 28.2^\circ$ (1855)
 B. 18740 N.S. 17838

Are these
 identical?

(NW Androm = $0^h 9.0^m + 28.29^\circ$)
 9.5 to 12 —

Saturday, November 25, 1922,

Region

Oh ^m 40 +25.0

mc 16207 August 22, 1919, Exp. 30^m Slide 4665

18933 August 16, 1922, Exp. 30^m

16207 superposed -

16207 is light streak - part of plate very poor
for comparison.

no objects of interest

Look up
Bb 20
h 20

82

Monday, November 27, 1922.

Region

 $1^h 22^m + 30.0$ MC 1286 September 26, 1911, Exp. 60^m 19080 September 28, 1922, Exp. 30^m

19080 superposed

1286 has 2 exposures.

No objects of interest found.

Region

 $1^h 20^m - 15.0$ MC 16218 August 25, 1919, Exp. 31^m 19052 September 25, 1922, Exp. 30^m

16218 superposed

No objects found.

Region

 $1^h 30^m + 30.0$ MC 17053 December 28, 1920, Exp. 20^m 19065 September 26, 1922, Exp. 30^m

17053 superposed

— ✓ Fh. Nebula Seen on both plates — Very ft. on
 $1^h 25.0^m + 30.0$ (1855) 17053
 Probably = Index No. 131 $1^h 25^m 22^s$ N.P.D. $59^\circ 58'$ (1860)

Defect or Star?

Fh. Object $1^h 29.8^m + 31.1$ (1855)

Seen on 17053 N.S. 19065

Moving Obj. $\times + 30 256 \quad 1 30 18.9 + 30 56.9$ $1 29.9 + 31.3$

$$\text{to Obj.} = -3.4^m \times 98.2 \times 1.2 \div 15 = 26.7$$

Magn. MC 15606

Seq. 47K = Star 10 = Obj. =

13.4

 $+ 31 284 \quad 1 29 30.5 + 31 4.0$

$$\text{to Obj.} = +2.6^m = 20.4$$

 $\delta = 0.6^m S$ $+ 31 28.4 =$

11.0

Region $2^h 00^m + 31.5^\circ$

Mc 6877 November 12, 1914, Exp. 68^m

19066 September 26, 1922, Exp. 30^m

19066 superposed

Many faint nebulae found. Are they known?
Seen on both plates.

1 1 51 $+30.2$ (1855) 59.8

✓ NGC 769 1 51 32 $59^\circ 46.4$ (1860)

✓ 2 1 52 $+30.5$ (1855) N.P.D. 59.5
NGC 778 $1^h 52^m 15^s 59^\circ 22.1$ (1860)

✓ 3 1 48.5 $+32.5$ (1855) N.P.D. = 57.5
NGC 733, 740
736
737
738
739

✓ { 4 1 49.5 $+32.5$ (1855) N.P.D. = 57.5
{ NGC 750
{ 751
{ 760
5 1 49.5 $+32.5$ (1855) N.P.D. = 57.5

Unknown?

6 1 51.8 + 31.4 (1855) $N.P.D. = 58.6$
 Distinctly seen on both plates — nebulous.
 Not in N.G.C.

" " 1st Index

" " 2nd "

✓ 7 1 52.8 + 31.2 (1855) $N.P.D. = 58.8$
 N.G.C. 783 1 53 0 58 47.8 (1860)

✓ 8 1 53.3 + 31.4 (1855) $N.P.D. = 58.6$

probably is faint star
 not in Catalogues

✓ 9 1 53.2 + 31.1 (1855) $N.P.D. = 58.9$
 N.G.C. 785 1 53 34 + 58 51.1

✓ 10 1 54.0 + 31.4 (1855) $N.P.D. = 58.6$
 N.G.C. 789 1 54 19 56 36.4 (1860)

✓ 11 1 55.0 + 31.4 (1855) $N.P.D. = 58.6$
 N.G.C. 798 1 55 12 58 36.0 (1860)

Unknown 12(?) 1 57.8 + 29.3 N.P.D. = 60.7
 not in N.G.C.
 " " 1st or 2nd Index
 Probably nebulous, both plates.

✓ 13 1 58.0 + 29.3 N.P.D. 60.7
 not in N.G.C.
 " " 1st or 2nd Index
 Probably is faint star.

✓ 14 Probably on both plates - very faint.
 2 7.8 + 32.0 N.P.D. = 58.0
 N.G.C. 2nd Cat. 1784 2 7 59 58 1.3

✓ 15 just folls. No. 14.
 N.G.C. 2nd Cat. 1785 2 8 7 58 0.3

Region $2^h 10^m + 28.0^\circ$
 MC 13278 August 27, 1917, Eff. 33^m
 19081 September 28, 1922, Eff. 30
 13278 superposed
 No objects found.

Regin $2^h 20^m + 25.0^\circ$
 MC 15605 December 30, 1918, Exp. 55^m
 19041 September 24, 1922, Exp. 30^m
 19041 superposed

Object Seen 15605 N.S. 19041

Many defects(?) on 15605 that are starlike and all similar. Second exposure, possibly.

Very faint nebula(?). Seen on both plates.

Unknown? $2^h 17.7^m + 25.3^\circ$ (1855) N.P.D. = 64.7
 Not in N.G.C.
 " " 1st Index "
 " " 2nd Index

Regin $+50 2^h 30^m + 27.5^\circ$
 MC 13493 September 14, 1917, Exp. 25^m
 19067 Sept. 26, 1922, Exp. 30^m
 13493 superposed
 Ft., elongated nebula.
 Very clearly seen in 19067
 $2^h 31.0^m + 29.5^\circ$ (1855) N.P.D. = 60.5
 = N.G.C. 1012 $2^h 30^m 57^s 60^\circ 27.5'$ (1860)

✓ Ft. Nebula? $2^h 22.8^m + 28.9^\circ$ (1855) N.P.D. = 61.1
 = N.G.C. 953 $2^h 22^m 56^s 61^\circ 2.1'$ 1860
 Seen in 19067

Ft. Nebula on 19067, barely seen on 13493.

$$\begin{array}{r} 2 \ 24.2 + 27.5 \ (1855) \quad N.P.D. = 62.5 \\ = N.G.C. 962 \ 2 \ 24 \ 29 \ 62^\circ 33.1 \ (1860) \end{array}$$

Asteroids
of Sept. are
21^h & 22^h

Asteroid? Moving Object, Be. on 19067

$$2 \ 36.2 + 28.3 \ (1855)$$

$$2.6 + 0.2$$

$$2 \ 38.8 + 28.5 \text{ Approx } 1900$$

$$1.3 + 0.1$$

$$2 \ 40.1 + 28.6 \text{ Approx } 1922$$

Est. Magn. MC 15606

2nd 47K.

Obj. = 5-6 (10.9-11.6) about 11.4

Pos. 1855

$$236.1 + 28 \ 16$$

$$\times +28 \ 453 \ 2 \ 35 \ 20.4$$

$$+ 6.4 \times 98.2 \times 1.1 \div 15 = 46.1$$

$$2 \ 36 \ 6.5$$

$$+ 28 \ 456 \ 2 \ 36 \ 36.2$$

$$- 4.0 = 28.8$$

$$2 \ 36 \ 7.4$$

$$\delta + 28 \ 453 \ 2 \ 35 \ 20.4 + 28 \ 15.0$$

$$N \ 0.7 \times 98.2 = 68.74 = 1.1$$

$$+ 28 \ 16.1$$

$$+ 28 \ 456 \ 2 \ 36 \ 36.2 + 28 \ 14.3$$

$$N \ 1.3 \times 98.2 = 127.66 = 2.1$$

$$+ 28 \ 16.4$$

Region

$$2^h 30^m - 17.5$$

Plates from 19009 black - Region not thickly covered with stars, so a hasty examination was made - Region need not be repeated.

MC 17096 January 18, 1921. Exp. 63^m

19009 September 17, 1922. Exp. 30

Region

$$1 \ 50 + 22.5$$

MC 13277 August 27, 1917 Exp. 40^m

18943 August 28, 1922. Exp. 30

13277 superposed

Ft. Nebulae?

$$No. 1 \ 1 \ 51.6 + 22.9 \ (1855) \quad N.P.D. \ 67.1$$

$$= N.G.C. 776 \ 1 \ 52 \ 5 \ 67 \ 2.3 \ (1860)$$

h_n
1 50 +22.5 Cont.

✓ No. 2 1 41.8 +21.3 H.P.D. = 68.7 (1855)
= 67.8 1 41 42 68 42.0 (1860)

No. 3 1 41.0 +21.4

~~67.4 1 41 29 68 21.3~~

✓ Probably = No. 3
Also 680 68 43 ← 142 4 68 43.5

✓ No. 4 1 42.8 +21.0 (1855) H.P.D. 69.0
NGC 691 1 42 56 68 56.9 (1860)

Wednesday, November 29, N.B. No. 2
1922

Region

$3^h 20^m - 15.0$

MC 13571 September 19, 1917, Exp. 31^m
19010 September 17, 1922, Exp. 30^m
13571 superposed

Ft. Nebulae

—

No. 1

3 26.9 - 14.2 N.P.D. = 75.8°

Not in N.G.C.

" " 1st & 2nd Index

Distinctly nebulous.

—

No. 2

On both plates

3 9.6 - 16.0

N.P.D. = 74.0°

Distinct, Ring-like

Not in N.G.C.

" " 1st or 2nd Index

Region

$3^h 30^m + 17.5$

MC 13484 September 13, 1917, Exp. 31^m
19094 Sept. 29, 1922, Exp. 30^m
13484 superposed

A defect almost superposed on a very faint star looked like variation. A rough defect. Ft. star also seen separated.

90

Transiting!
Region

Thursday, November 30, 1922.

$2^h 30^m - 17.5$

MC 17096 January 18, 1921 Eff. 63^m

19009 September 17, 1922, Eff. 30^m

17096

very black

17096-19009 superposed

— Comet like object, very fr — MC 19009

$2^h 38^m - 16.2$ (1855) N.P.D. = 106.2

Fr. nebula, confirmed by MC 19054, Sept. 25

Not seen on B 18950

✓ N.G.C. 1081 $2^h 38^m 24^s$ 106 10.5 (1860)

Region

$2^h 50^m + 7.5$

MC 17883

September 8, 1921, Eff. 34^m

19093

September 29, 1922, Eff. 38^m

19093 superposed

— Moving object on 19093

$2^h 49^m + 7.5$ (1855)

Pos. Meas. Is this (535) Montague

Bk. 21, p. 32.

(Oct. 20 = $2^h 38.5^m + 6^\circ 36'$ $M = 11.9$)

— Nebula — on both plates

$2^h 41.5^m + 7.5$ (1855) N.P.D. 82.5

✓

N.G.C. 1107 $2^h 41^m 49^s$ 82° 29' (1860)

— Fr. nebula on both plates

$2^h 47.5^m + 8.2$ (1855) N.P.D. = 81.8

✓

Second { 1863 2 47 22 81 48.4

Index { 1865 2 47 51 81 45.7

— See over defect or trail near edge, 19093

Cont. from p. 78.

91

Object α h m (1855) o
50.6 + 21.8 m MC 18941, p. 78List of I plates exam. Obj: not seen.
The stars on I 25816

I 2132	Oct. 31, 1890
2785	Jan 12, 1891
3060	Feb. 13, 1891
4975	Dec. 5, 1891
5128	Dec. 13, "
7468	Nov. 5, 1892
7558	Nov. 20, "
9531	Sept. 20, 1893
15823	Aug. 29, 1896
19257	Oct. 13, 1897. Slide 1525
21608	Nov. 2, 1898
25816	Sept. 18, 1900
27382	Aug. 28, 1901
27905	Nov. 1, 1901

A few ac plates exam., Nothing seen.

Comet on I 21441 ?

Cont. fr: p. 79.

New Var.Object 23 50.0 + 31.3 (Approx. 1855)
Bright on 17838, p. 79.Exam. AC 24507 0^h 0' + 30°

AM 15661 0 0' + 15°

Both, good plates but do not show
stars as faint as Object.
AC & AM not looked up further.

Exam. of I plates

Br. on I 11438, ~~13484~~

Fl. but Seen	26156	10390	10359
	9377	*29695	*19700
	*34997	10552	

Comp. Seq. = TW Andromedae, MC 4364

Var. Confirmed
by Miss Cannon,
December 5, 1922. For Proof.

Range 11.8 to < 15.0
Corr. 12.0 to < 15.2

} Range 93
Confirmed by
Miss Walker

Br. II 11438 MC 19284
29695

Fl. 29695 19700 34997

N.S. 4364 MC 18940

N.S.

I 1856 September 24, 1890

16905 " 7, 1892

9123 August 8, 1893

9371 Sept. 2, 1893

9561 Sept. 30, "

4493

Slide 1560

10389 January 7, 1894

10441 " 19, "

10630 Feb. 2, "

11732 Oct. 18, "

11809 Nov. 6, "

11934 Nov. 16, "

12020 Dec. 5, "

12064 " 13, "

12133 " 20, "

12176 Jan. 2, 1895

18675 Sept. 5, 1897

21441 October 17, 1898

21525 " 28, "

27730 " 5, 1901

94

Meas. Seq., if needed, on $MC 19284$
 ∓ 11438
 $I 29695$

Uncorrected Magns.

($I 9377$ probably n.s. $< 13.6 = < 13.9$
 ent. ≈ 93 ,
 Magns. see Bk. 19, p. 104,

Estimated
 Corr. = 12.0/11.8 11438 Sept. 11, 1894
 12.0/11.8 15739 Aug. 19, 1896
 12.6/12.4 19700 December 6, 1897
 12.1/11.9 23772 October 12, 1899
 13.9/13.6 26156 November 28, 1900
 13.0/12.7 29695 December 23, 1902
 14.1/13.8 34997 December 4, 1907
 13.3 or 13.5/13.0 or 13.2 10359 Jan. 2, 1894
 13.5/13.2 10390 Jan. 7, "
 13.3/13.0 10552 Jan. 25, "
 or brighter

corner, from
 corner, from

13.0 about 12.7 $MC 17838$ August 29, 1921
 $MC 18940$ Aug 21, 1922 ^{first of}
 no trace of Var. ^{Comp. Seq. off plate,}
 star $r =$ perhaps .2
 $r = 14.8$

< 15.2

Var. = < 15.0

< 15.2

< 15.0 $MC 4364$ November 22, 1913Var. n.s. $r = .2$

12.3

12.1 $MC 19284$ November 24, 1922

~~N.B. Plates of 1894 for detenn. Class~~

Cont. Bks. 19, p. 102.

96

Regim

Saturday, December 2, 1922,

h_m
30 + 27.5

MC 13246 August 25, 1917, q_p , 30ⁿ

18942 Aug. 28, 1922, q_p , 30ⁿ

Tuesday, December 5, 1922.

97

Region
repeat

22^h 0^m - 5.0

MC 16140 July 30, 1919 Exp. 31^m

19047 September 25, 1922, Exp. 30

Repeat — faint stars do not show on 16140

Region

22 10 + 22.5

MC 11651, November 16, 1916, Exp. 38^m

18934 August 20, 1922, Exp. 30^m

11651 superseded.

11651 is a colored plate but apparently no screen was used.

Many objects were marked but are assumed to be defects. They all occur on 11651 and, though in many cases very starlike, are not just like the surrounding stars.

98

Repeat
RegionWednesday, December 6, 1922. $1^h 20^m + 20.0$ MC 16208 August 22, 1919, Exp. 34^m19030 September 22, 1922, Exp. 30^mRepeat this region — 16208 does not
show faint stars

Region

23 12 +17.8

MC 18115 October 26, 1910, Exp. 39^m19027 September 22, 1922, Exp. 30^m

19027 superposed.

Nebulous objects, on both plates.

✓

No. 1	23	13.5	+16.4	(1855)	MPD. 73.6
MSC. 7625	23	13	31	73	82.4

✓

No. 2	23	7.8	+18.2	(1855)	MPD. 71.8
MSC. 7547	23	8	6	71	47.4

✓

3 foll 2
and S

No. 3	23	8.1	+18.2	(1855)	MPD. 71.8
MSC. 7549	23	8	18	71	43.2

✓
4 foll. 3, No. 4 23 8.0 +18.3 (1855) NPD, 71.7
North 7550 23 8 19 71 48.1

also 7553

7558

New? No. 5 23 15.0 +18.0 (1855) NPD 72.0
not in N.G.C.

Distinct & " " Index I or II.

fuzzy on both
plates

✓ Nebular or defect in 18115 N. S. 19027
Assumed to be defect

100

Regime

Thursday, December 7, 1922.

$$3^{th} 40 + 20.5$$

MC 15571. December 21, 1918, Eff. 41^m19022 September 18, 1922, Eff. 30^m

19022 superposed.

— Moving Obj. ? on 15571

$$3 44.2 + 20.5 \quad (1855)$$

(179) Klytaemnestra 11.3

$$\text{Dec. 20} \quad 3 \quad 48.3 + 20 \quad 50$$

 α decreases. δS

$$\text{approx. (1855)} \quad 3 \quad 29.1 + 4 \quad 6$$

$$2.4 + 9$$

$$\text{approx. (1900)} \quad 3 \quad 31.5 + 4 \quad 15$$

$$1.2 + 4$$

$$\text{approx. (1922)} \quad 3 \quad 32.7 + 4 \quad 19$$

Wednesday, December 13, 1922.

Region

$3^h 40^m + 30^\circ$

MC 17901 18136 October 26, 1921, Exp. 41^m Cracked
 19034 September 22, 1922, Exp. 30
 19034 superposed
 No objects found.

Region

$3^h 30^m + 2.5^\circ$

MC 17901, September 14, 1921, Exp. 40^m
 19095 Sept. 29, 1922, Exp. 43
 17901 superposed

Not a Planet / Br. object in 19095, Missing Obj. ?
 $3^h 29^m + 4.1^\circ$ (1855 approx)

I 41706 prompt error region
 ac 24900 $3.0 + 15.0$ Sept. 29 Obj. Seen Br.!
 ac or I
 only other plates of nearby region and date is
 ac 24974 $1.0 + 15.0$ Nov. 13.

Sept. 29.

MC 19095 Exp. from $4^h 06^m$ to $4^h 49^m$
 ac 24910 " " $0^h 27^m$ to $5^h 27^m$
 for A-T plates see p. 102

AI	21968	3	0	Sept. 18
	21979	4 ²	0 ⁰	" 22
	21980	4	+30	" 22
-	21984	3	+15	" 23
-	21987	4	0	" 24
-	22014	2	0	" 30
-	22017	3	+15	Oct. 1

AI	22023	4 ^h 0 ^o	Oct. 2
	22033	4 0	" 13
	22050	4 0	" 20

Seen	21987	Sept. 24
Seen	22014	Sept. 30

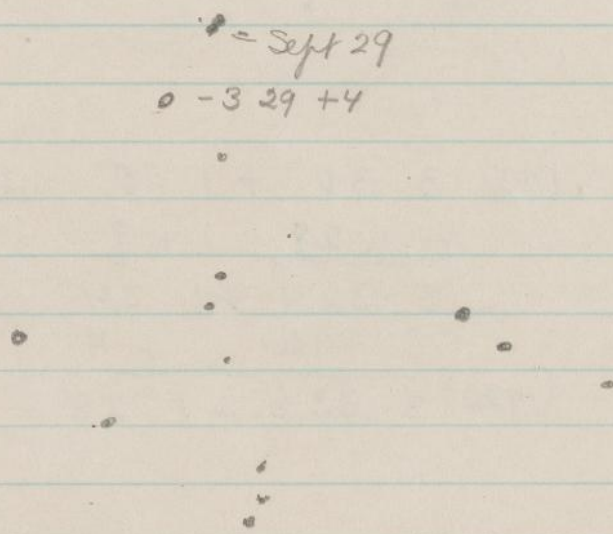
Superseded —
see p. 105

Plotting, apparent scale
of mc 19095

Sept 29^{me} 19095
ac 24900

• = Sept 29
o - 3 29 + 4

Sept. 30 A.I. 22014



$$\begin{array}{r}
 22033 \quad 1855) \quad 3 \quad 30 \quad +1 \quad 15 \quad \text{Oct 13} \\
 \underline{2.4 \quad +9} \\
 3 \quad 32.4 \quad +1 \quad 24 \\
 \underline{1.2 \quad +4} \\
 (1922) \quad 3 \quad 33.6 \quad +1 \quad 28
 \end{array}$$

$$\begin{array}{r}
 \text{On } 22050 = \quad 3 \quad 29 \quad -0 \quad \overset{12}{2} \quad (1855) \text{ Oct. 20} \\
 \underline{2.4 \quad +9} \\
 (1900) \quad 3 \quad 314 \quad -0 \quad 3 \\
 \underline{1.2 \quad +4} \\
 (1922) \quad 3 \quad 32.6 \quad +0 \quad 1
 \end{array}$$

$$\begin{array}{r}
 21979 \quad (1855) \quad 3 \quad 26 \quad +5 \quad 15 \quad \text{Sept 22} \\
 \underline{2.4 \quad +9} \\
 3 \quad 28.4 \quad +5 \quad 24 \\
 \underline{1.2 \quad +4} \\
 (1922) \quad 3 \quad 29.6 \quad +5 \quad 28
 \end{array}$$

$$\begin{array}{r}
 22017 \quad 1855 \quad 3 \quad 30 \quad +3 \quad 37 \quad \text{Oct. 1} \\
 \underline{2.4 \quad +9} \\
 3 \quad 32.4 \quad +3 \quad 46 \\
 \underline{1.2 \quad +4} \\
 (1922) \quad 3 \quad 33.6 \quad +3 \quad 50
 \end{array}$$

Plotting,
apparent scale of
mc 19095.

N

AI 21979 Sept. 22

21980 Sept. 22

21984 Sept. 23

21987 Sept. 24

mc 19095

AI 21980 Sept. 29

AI 22017 Oct. 1

22014 Sept. 30

22023 Oct. 2

22033 Oct. 13

22050 Oct. 20

- Sept. 22

- Sept. 23

- AI 21987
Sept. 24- Sept. 29
Sept. 30

- 22017 Oct. 1

- Oct. 2

- Oct. 13

- Oct. 20

Smith up - M.H. 7/01)

3 30 + 2.5 Cont. Sept 14, 1921
faint obj. on 17901 N.S. on 19095

Defect? or star?

For Position: On 17901

1855
3 32.4 + 3 12

checked by Miss Walker

δ +3 502 3^h 29^m 56.0 + 3° 12.5 9.5
+ 3 521 3 36 34.2 + 3 14.0 9.5

Obj. about 0.3^m S of 502

κ +2 581 3 32 18.8 + 2 36.5 5.8
0.4^m fol. 581 = 3rd

Est. Mag. MC 15606 Sep. 47 K
about = 12 = 14.2

Friday, December 15, 1922.

Bright dbl. star 107
on this plate

Regim

 $22^h 30^m + 2.5$ mc 15354 October 9, 1918, Eff. 31^m18998 September 13, 1922, Eff. 31^m

15354 superseded

New Var.

New Var.?

Br. 18998

Ft. 15354

 $22^h 37.0^m + 1.0^s$ (1855)Marked (ft) on B 41728 & I 31839
Not in Var. Cat.Proc. 2.3 $+14'$ $22^h 39.3^m + 1.2^s$ (1900)

Plot Seq.

Comp. Seq. = 114 K on MC 5935
 Magn. in Bk. 7, p. 117

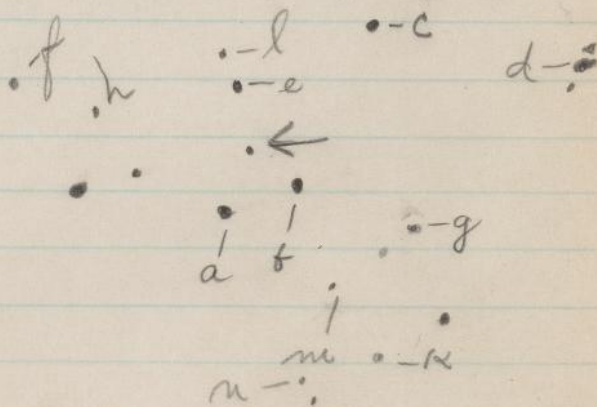
Uncorr. — as copied from Bk. 7.

Check
 later

6 10.63
 7 10.93
 8 11.24
 9 11.89
 10 12.05
 11 12.62
 12 13.43
 13 13.86
 14 14.38
 15 14.64
 16 14.55
 17 15.06

As compared with 114K	a		Corr. Magns.
Var. Seq. as	6	11.3	+0.24 = 11.5
mkd on	c	11.7	+0.24 = 11.9
MC 18998	d	12.0	+0.24 = 12.1
	e	12.1	+0.24 = 12.3
	f	12.6	+0.25 = 12.8
	g	12.8	+0.25 = 13.0
	h	13.1	+0.26 = 13.4
	k	13.3	+0.26 = 13.6
	l	13.6	+0.26 = 13.9
	m	14.5	+0.25 = 14.8
	n	14.9	+0.24 = 15.1

Provisional Sequence
 for Preliminary Magns.



18812
 mark 23863
 24176

23863 Comet?

109

meas. B 150.57
Corrected Magnitudes
 Range 12.0 on one pl.

Sub 16268 mhd Sep MC 18998

13.3 to 15.3

12.6 in 1904

12.7? in 1901

Brightest MC = 18998
 Br. 31839 21737 & 41738
 N.S. other B & I plates

Probably long period variable
 (written by Dr. Shapley)

MC 5935
 Corr. 12.0

Range Confirmed by
 Miss Walker or the Irish
 estimates of 12.2 to 15.5
 Dec. 26, 1922.

Est 11.8 on MC 18998

All other plates range from
 41728 13.0 = 13.3
 Corr.

(See p. III) to MC 5935 $< 15.1 =$ ^{Corr.} < 15.3 ^{Corr. later} 15.3
 (15.06 seen Var. probably Tr.)
 Superseded Var. seen.

* N.B. images small but floods

Recent AC Plates

23+15	AC 24868	Sept. 16, 1922	Too poor, in corner. N.S. < 11.5
23+15	24878	Sept. 22, 1922	Too faint
22 0	24978	Nov. 16, 1922	h barely seen Var N.S. < 13.4

Corr. Magnos used.

I Plates

I 4364	Sept. 26, 1891	Too poor
4464	October 8, 1891	$c = .2$ Var. N.S. < 12.1
6961	Sept. 9, 1892	e Tr. Var N.S. < 12.3
7354	Oct. 14, 1892	Too poor
9439	Sept. 10, 1893	about 12.9 of Tr. Var. Tr.
16268	Oct. 24, 1896	h trace Var. N.S. < 13.9
18812	Sept. 14, 1897	Var = 14.8 = m
21307	Sept. 30, 1898	g trace Var N.S. < 13.0
23863	Oct. 20, 1899	about 13.6
24176	Dec. 5, 1899	13.4
31839	July 8, 1904	12.6

B 11467	June 20, 1894	13.7 ⁸
14939	Oct. 24, 1895	h = .1 Var. N.S. < 13.5
15057	Oct. 31, 1895	13.8
16736	July 8, 1896	< 13.4
21737	June 21, 1898	13.3
23142	June 20, 1899	13.5
	image, small, black -	
26070	Sept. 11, 1900	13.7
26215	Sept. 18, 1900	< 12.1
28640	Oct. 4, 1901	12.7?

* N.B.
Est = ?

N.B

Another small image

20399 Sept 16, 1897 about 14.5

SD 13349

B32142 July 6, 1903 13.5
 41728 July 27, 1910 ~~at~~ 13.5

MC 5935 July 21, 1914 Trace, 15.3 + 15.4
 18998 Sept. 23, 1922 12.0 in corner
 15354 Oct. 9, 1918 13.5

Cont. Bk. 19, p. 110

112

Region

Saturday, December 30, 1922.
^{h m}
 23 40 +20.0

MC 16205 August 22, 1919 Exp. 33^m

18932 Aug. 16, 1922 Exp. 30^m

16205 superposed

No objects of interest

Region

23 50 -17.5

MC 18103 October 25, 1921, Exp. 36^m

19236 November 13, 1922, Exp. 135

18103 superposed

Plates fogged, rather dark

No objects found.

Region

22 40 +25.0

MC 16203 August 22, 1919, Exp. 32^m

18931 Aug. 16, 1922, Exp. 30^m

18931 superposed

No objects found.

Region

^{h m}
 17 00 +50.0

MC 14784 April 15, 1918, Exp. 30^m Slide 4540

18989 September 11, 1922, Exp. ?

18989 superposed

No objects found.

1923Monday, January 1, 1923,

Region

 $2^h 10^m + 12.5$

MC 11416

October 27, 1916,

Exp. 30^m

19279

November 22, 1922,

Exp. 30^m

19279 superseded

No. 1 Nebulous — on both plates.

 $2^h 0.5^m + 13.6$ (1855)N.P.D. = 76.4°

✓

NGC 820 $2^h 0^m 50^s$ $76^\circ 19'$ (1860)

No. 2 Nebulous — on both plates.

 $2^h 0.7^m + 10.3$ (1855)N.P.D. = 79.7°

✓

NGC 821 $2^h 0^m 53^s$ $79^\circ 40.4'$ (1860)

No. 3 Nebulous — on both plates, Faint.

New?

 $2^h 5.0^m + 13.7$ (1855)N.P.D. = 76.3°

or F. star

Not in NGC.

?

" " Index 1

" " " 2

Nebulous — on both plates

 $2^h 9.2^m + 13.8$ (1855)N.P.D. = 76.2°

✓

NGC { 870 $2^h 9^m 33^s$ $76^\circ 8'$ { 871 $2^h 9^m 34^s$ $76^\circ 6.4'$

Nebulous — on both plates

 $2^h 10.0^m + 13.8$ N.P.D. = 76.2°

✓

NGC { 876 $2^h 10^m 18^s$ $76^\circ 7.6'$ { 877 $2^h 10^m 23^s$ $76^\circ 6.3'$

Region

 $3^h 18^m + 30.0$ January 1, 1923.

MC 15606 December 30, 1918

19083 September 28, 1922.

19083 superposed

? Moving Object? Fr. in MC 15606

 $3^h 7.2 + 28.0$ (1855)

Minerva last pos. in 1918 Dec. 20 1918

 $3^h 15.8 + 28 49'$
Position meas. Db. 21, p. 22

Wednesday, January 3, 1923.

Region

$4^h 50^m + 27.5^\circ$

MC 15585 December 23, 1918, Exp. 38^m

19241 Nov. 13, 1922, Exp. 30

15585 superposed

Medea

(212) 11.5 Moving Object Obs. on 19241

$4^h 36.7^m + 28.3^\circ$ (1855)

Measured Position — see Pl. 21, p. 12.

Region

$4^h 00^m - 15^\circ$

MC 17975 October 1, 1921, Exp. 45^m

19056 September 25, 1922, Exp. 33

19056 superposed

New
Nebula?

Faint Nebula — on both plates.

$3^h 57^m - 14.7^\circ$ (1855) 94.7 N.P.D.

Not in NGC

" " Index I

" " " II

MC 17974

also covers this region. Badly broken,
not exam.

No proof of Neb. as broken in this part.

Region

Monday, January 8, 1923.
 $1^h 50^m + 2.5$

mc 4528, December 29, 1913, Exp. 60^m
 16240 September 4, 1919, Exp. 30^m
 19287, November 24, 1922, Exp. 30^m
 19287 superposed
 19287 has many more stars.

16240 }
 19287 } no objects found

4528 }
 19287 } no objects found -

425

Tuesday, January 9, 1923

117
New Var.

Region

h m
17 0 +47.5MC 18658 April 25, 1922, Eff. 35^m Sl. 4788

18659 " 25, " 23 -

19012 Sept. 18, "

19012 superposed

18659, very black plate.

19012

no objects found

18658

19012

18658 superposed

16 42.9 +47.8 1855 =

✓
Seen by D.S. N.B. br. cluster. nearby are two stars showing prismatic companions — but cluster does not.

New Var.

marked on I 41122

Object seen on 18658

165149 is confirmed on 18659, but was not found on this, as it is a black plate.

see H.B. 784

Br. 18658 & 18659 N.S. ¹⁷⁹⁰¹ ~~19012~~

* Br. I 41122 April 18, 1922

41205 May 1, "

41250 May 14, "

41158 April 25, "

16 50 +49.2 (1855)

Obj. not seen, faint stars near, seen.
 N.S. I 32043 Sept. 16, 1904
 25717 Sept. 1, 1900
 25716 Sept. 1, "
 17901 Apr. 18, 1897
 21315 Oct. 3, 1898
 22955 May 26, 1899
 A 363 March 14, 1898
 5293 June 5, 1901

Suspected this to be Nova from 1922 obs., p. 117.
 Not Nova — see page 120 for other
 dates of appearance

For Proof:

Br. 16170

medium MC 18658, 18659
 I 41158
 I 41122
 41205

Seen, Faint I 41250
 24920

N.S., Faint stars near seen:

I 17901

a plates do not show ft. stars

*Confirmed by Miss Cannon, January 12, 1923.

Object not seen, plate too poor to show faint stars.

I 25210, April 20, 1900

36 K, Magns. Bb. 7, p. 39.

Comp. Sequence on MC 3101 Slide 3684

Estimates of Magn. Range Unsatisfactory as both regions are on few of these plates.
Method; stars near var are compared, then others selected, going toward margin of plate.
On I 16170 between 8-9 $11.8 = \overset{\text{Corr.}}{12.0}$

MC 41122 " 9-10 $12.5 = 12.8$

I 17901 fainter stars are seen than faint
of sequence = $15^{10} = 14.43 / 2.68$
var. ≤ 14.05 at least
 < 13.0 (corr. value)

Miss Walker checked range

Corr. Magns. 12.0 to < 13.0

Obj. Seen

26949 May 3, 1901

See defect (scratch)
but var. probably seen.

24920 March 27, 1900

Max. Br. *

16170 Oct. 10, 1896

Thursday, January 11, 1923.

Regin

$4^h 30^m + 27.5$

MC 11700, November 18, 1916, Eff. 41^m

19269, November 19, 1922, Eff. 30^m

11700 superposed

(212)

Medea

11.5

Moving object on 19269

$4^h 31.8^m + 28.1$ (1855)

Measured, Bk. 21, p. 16.

Regin

$4^h 30^m - 12.5$

MC 16899 September 19, 1920, Eff. 42^m

19364 December 19, 1922, Eff. 37^m

16899 superposed.

22

Friday, January 12, 1923.

Regin ~~sup~~ plotting
 ~ Bulina
 Nov. 4 = $3^h 48^m + 8^{\circ} 32'$

MC 11421, (October 27, 1916, $E_{\phi} 40^m$
 19260, November 17, 1922, $E_{\phi} 30^m$
 11421 superposed

~~Kreusa~~ Morning object Br. 11421
 Nov. 4 = $3^h 24^m + 7^{\circ} 48'$ $3^h 50.1^m + 8.1^{\circ}$ (1855)
 Oct. would be greater, O.V.
 Meas. Pos. = Bb. 21, p. 24

Regin

$2^h 00^m + 20^{\circ} 0'$

MC 11478, November 1, 1916, $E_{\phi} 67^m$
 19278, November 22, 1922, $E_{\phi} 30^m$
 19278 superposed

2 Morning(?) objects. Br. 11478

(139)

~~Juena~~ 11.4 1 $53.5 + 21.3$ (1855)

Meas. Pos. = Bb. 21, p. 27

Oct. 27 $2^h 2.7^m + 21^{\circ} 56'$

rate about 1.0^m per d. (minus)

(Approx. Nov. 1 = $57.9 + 21^{\circ} 44'$)

" " 2.5 " " S

Nov. 4 $1^h 54.9^m + 21^{\circ} 36'$

(47)

~~Aglaia~~ 11.0 $[2^h 3.5^m + 17.9^{\circ}$ (1855)

Meas. Pos. = Bb. 21, p. 29

Oct. 27 $2^h 11.4^m + 17^{\circ} 36'$

(Approx. Nov. 1 $2^h 1^m + 17^{\circ} 20'$) Berolina

Nov. 4 $2^h 4.2^m + 17^{\circ} 10'$

Nebulae:

✓ No. 1. $1^h 51.0^m + 18.3^{\circ}$ (1855) N.P.D. 71.7
 NSC. 772 $1^h 51.39^m + 18.6^{\circ}$ (1860)
 also 770

No. 2 $1^h 55.4^m + 17.9^{\circ}$ (1855) N.P.D. 72.1

> (See 794 $1^h 54.9^m + 18.18^{\circ}$ & F stellar does not seem to
 iden with this)

Not in Index 1 or 2

Region $1^h 30' + 27.5^\circ$
 MC 18942, August 28, 1922, Exp. 30^m
 19348 December 13, 1922, Exp. 39
 18942 superposed

New? 2 nebulae on both plates
 1 29.1 + 28.2 (1855) N.P.D. 61.8
 Not in N.G.C.
 " " Index I
 " " " II

✓ 1 39.6 + 26.7 (1855) N.P.D. 63.3
 N.G.C. 1 39^m 39^s 63 22.3 (1860)
 Index no 1727

Region $0 10' + 27.5^\circ$
 MC 13481 September 13, 1917, Exp. 44^m
 19347 December 13, 1922, Exp. 68
 13481 superposed

1 Nebulae Nos 1 to 9 on both plates, many
 of these too faint on poorer plate to be
 noticed but confirming better plate.

No. 10 on one plate only 19347 Defect?

Is No. 1 fr. star or nebula? 61.6

New? No. 1 23 53.5 + 27.6 (1855) N.P.D. 62.4
 Not in N.G.C.
 " " Index I or II

✓ No. 2 23 59.7 + 26.9 (1855) N.P.D. 63.1
 N.G.C. 7839 23 59 50

✓ 3 23 59.6 + 26.9 (855) 71 P D 63.1
7833 23 59 21 63 8 (1860)

New? 4 0 0.8 + 26.8²

63.8
~~64.0~~

Very distinct not in N.G.C. —

both plates Not Index I or II

✓ 5 0 1.5 + 26.9 63.1
N.G.C. 16 0 1 52 63 3.0

New? 6 0 2.8 + 27.4

62.6

Very distinct Not in N.G.C.

both plates " " Index I or II

No. 7 0.3^m + 25.0

65.0

✓ N.G.C. 23 0 2 41 64 51.0
26 0 3 44 64 56.2

✓ 8 0 15.2 + 28.9

61.1

97 0 15 11 61 1.5

✓ 9 0 18.3 + 28.4

61.6

106 0 18 40 61 33.8

10 0 13.8 + 29.4

NPD 60.6

This is probably defect on 19347. N.S. on
other plate.
Not in Catalogues.

Region 23^h 00^m +5.0
 NC 15343 October 7, 1918, Eph. 90^m
 19276 November 22, 1922, Eph. 30
 19276 superficial

Nebulae

no. 1 23 7.0 + 3.7 (1855) NPD 86.3
 ✓ 2 W.C. 7537 23 7 27 86 15.7 (1860)

2 follows 1 and north
 ✓ W.C. 7541 23 7 36 86 13.7 (1860)

3 23 8.8 + 5.9 (1855) NPD 84.1
 ✓ W.C. 7562 23 8. 51 84 4.5 (1860)

4 Is this ft. star or Neb.?
 23 10.2 + 6.5 (1855) NPD 83.5
 ✓ W.C. 7577 23 10 13 83 23
 7583 23 10 46 83 21

Count

Plates selected for count of stars

mc 4511 $1^h - 15^0$

19347 0.2 +27.5

19361 1.8 -12.5

19526 14.2 +19.1

See Pl. 24,
p.

Saturday, January 13, 1922.

Region

h_m
1° 00' - 15° 0'

MC 4511 December 27, 1913, Exp. 60~

19252 November 16, 1922, Exp. 30~

19252 superposed

no objects of interest.

Other plates of this region, are several -

Selected for exam.:

badly fogged. MC 4553, January 5, 1914, Exp. 60~

9885 December 4, 1915, Exp. 90

11141 September 2, 1916 Exp. 60

11256 October 1, 1916 80

13245 August 25, 1917 33

Does not show ft. stars 13612 September 25, 1917 33

9885

11256 badly marked up by some previous examination

brief survey given this pair of plates -
no objects noted

11141

13245

brief survey made.
no objects noted.

Monday, January 15, 1923.

Region

13^h 00 + 50.0

MC 17171, March 1, 1921, Exp. 32^m

19377 December 29, 1922, Exp. 31^m

17171 superposed

No objects found.

Region

13 30 + 12.5

MC 16678 February 25, 1920, Exp. 46^m

19357 December 15, 1922, Exp. 30^m

19357 superposed

19357 fairly
shows these
but confirms
better plate
✓

Nebulae:

No. 1 13 22.3 + 11.8 (1855) P.P.D. = 78.2

MC 5174 } 13 22 29 78 16.1

5175 }

No. 2 Nebula or star, faint?

13 27.8 + 14.5 (1855) P.P.D. 75.5

✓ MC 5221 13 28 4 75 27.8

No. 3

✓ MC 5222 13 28 4 75 32.3

No. 4 13 28.5 + 14.5 (1855) P.P.D. 75.5

✓ ? 5226 } 13 28 38 75 36.2 (1860)
5230 }

January 15, 1923.

Region $22^h 00^m + 2.0$ MC 18971, October 1, 1921, Exp. 22^m 18947, August 29, 1922, Exp. 30^m

18947 superposed

No objects found.

Region $22 40 -10.0$ MC 13577 Sept. 20, 1917, Exp. 35^m 19274 November 21, 1922, Exp. 38^m Not
exam-
ined
to be
repeated19274 is so much better, this region should
be repeated -But, see bright star near center of plate.
Br. 19274 N.S. 13577∴ $22 42.8 -9.0$ (1855)

Almanac

✓ Uranus, November 21, 1922 = $22^h 46^m 7.06^s - 8^{\circ} 40' 0.2''$ Region $1^h 50^m -12.5$ MC 17947 September 26, 1921, Exp. 36^m 19361 December 19, 1922, Exp. 51^m

17947 superposed

Missing Obj. (or defect)

Br. 19361 N.S. 17947

 $1.37 -12.5$ (1855)Cat. Magn. 47K
MC 15606 Sep. 47K
Obj. about = 4V = 10.8x Same as $-12 322$
 $1.37 16.4$

$\begin{array}{r} 4.4^m \\ 98.2 \\ \hline 432 \end{array}$	$\begin{array}{r} S of -12 323 (-12 234) \\ 7.2 \\ \hline -12 30.6 \end{array}$
--	---

✓ Assumed to be defect.
Dr. S. saw this object.Asteroid
List as Ast. $137.3 -12.31$
(1855)

Nebulae, on both plates

no. 1 1 46.0 -14.5 (1855) N.P.D. = 104.5

✓ N.G.C. 720 146 12 104° 25.8 (1860)

✓ 2 1 44.0 -13.3 (1855) N.P.D. = 103.3

1st Index

Sto. 169 1 43 47 103 22.4 (1860)

✓ 3 1 42.0 -11.2 (1855) N.P.D. 101.2

N.G.C. 681 1 42 15 101 7.3

✓ 4 1 44.0 -10.4 (1855) N.P.D. 100.4

N.G.C.

701 1 44 8 100° 23.8 (1860)

New? 5 1 48.5 -10.7 (1855) N.P.D. 100.7

Not in N.G.C.

nearest is 1 49 19

" " Index I

100 8.9

" " Index II

(N.G.C. 747)

extremely faint on 19361 but appears to confirm
better plate.

New? 6 1 48.5 -11.5 (1855) N.P.D. 101.5

Not in N.G.C.

" " Index I

" " " II

a neb. at 1 47.5 101 30 N.G.C. 726 is not this
position.

7 1 51.8 - 12.3 (1855) $\text{NPD } 102.3^\circ$ +

✓ NSC 773 1 52 1 102 10.8 (1860)

8 1 56.2 - 10.7 (1855) $\text{NPD } 100.7^\circ$
 ✓ NSC 806 1 56 51 100 36.1 (1860)

9

132

Tuesday, January 16, 1923

Regin

 $13^h 10^m + 11.0$ mc 11955, December 22, 1916, Exp. 42^m19378 December 29, 1922, Exp. 36^m

11955 superposed

Plates rather black -

Nebula? On both plates.

 $13^h 5.6^m + 13.4 (1855) \lambda. P. D. = 76.6$ ✓ N.C. 5020 $13^h 5.43^m 76^\circ 39.5' (1860)$

Thursday, February 8, 1923,

See 17525 ¹³³
below

Examination of MC Milby Way Regions

Region 16 12 -15 Region of 132 K

MC 3142 April 7, 1913 Eff 10^m
 5426 10
 8553 10^m

Reject because 10^m Eff.

Region 18 33 -24 Region of NGC 6656

MC 17525 June 2, 1921 Eff 66^m17964 ~~17664~~ July 26, "

17864 Sept. 5, "

X 17913 Sept. 22, "

~~27-8780~~17664 not
good enough

62

Eff. Incl.

Additional plates of this region: 493 (60-31) 16930 (20-4)

16931 (42-4) 17263 (40-3) 17401 (42-3) 17402 (43-3)

17525

17864

Exam.

see below.

17864 superposed

17864 quite dark.

comparison rather difficult on
this account - large number of
faint stars.

Moving Obj. on 17525

Add. plates: 17442 (72-?) 17451 (41-?) 17663 (60-?) 17819 (60-?)

17823 (60-?) (17841 (69-4) 17842 (80-4) 17849 (20-3)

17865 (60-4) 17934 (80-?) 17950 (60-?) 17963 (38-?)

17964 (80-?) 17981 (78-?) (17680 (60-?) 17681 (60-?)

17692 (60-?) 17693 (60-?) 17923 (75-?)

Excellent plate — 17823
 of 6656 17842

MC 17913 } compared
 17964 }
 reject

both plates quite
 dark.

MC 17823 August 26, 1921 Exp. 60
 17842 Sept. 1, 1921 Exp. 80
 17823 superposed.

These plates not separated by many days.
 Other plates that were tried were too dark.
 One star near 6656 suspected of slight
 Var., marked on print in

X New Var.

Br 17864 Sept. 5 " N.S. 17823

17964

17913

17525

17819

17842

17841

17865 Sept. 7

Place (N.S.)
 Marked on
 X 6793
 which shows
 faint stars.

Seen only on 17864 but seems to be
 a real star. This is a good plate.
 Watch on other plates
 Exam. of X plates

N.S. 6764

6789

6793

Best X fl. = 7995

135

NS. 6975

7026

7141

7161

Moving obj. ?

7662

probably defects

7791

7995

8031

8644

Not on

NW 3888

3891

3887

Thursday, February 13, 1923.

Region

h m $-3^{\circ}6'$

MC 1279 September 22, 1911 Eff. 60^m

5976 August 14, ? 60

6276 September 15, 1914 60

{ 1279

{ 5976

5976 Superposed

No objects

{ 5976

{ 6276

5976 Superposed

No objects

RX

St. Lyrae 9, 203

$h' = 13.08$

$h^2 = 13.20$

$k = 13.39$

$n = 14.66$

Nova ? 13.3 to < 16.0 Confirmed by Dr. S. July 31.

July 31

Estimate of Magn. of Obj. on 19906, July 17

Compared with Reg. of RX Lyrae (MC 5785, Bk 9, p. 203)

overlapping region - selected stars = mhd 5785 Nova bet $h' \text{ to } k = 13.3$

Note July 19, 1923

19909 July 19 Nova, not seen, limiting mag., See n of Reg. = star mhd 5785 & 19909 = 1 mag. or more brighter than limit

19906 Eff 70^m is not as good as 16785, 70^m

18 48.0
47.7 +35° 37' (1855)

Exam. of 19906 with 17453

July 1923.

Var.?, New Star? or Defect? 18 48.2 +35.7 (1855)

No trace on 17453 or 16785

I 2370 shows

Superposed 18 48.1 +35.7 (1855)

very ft. stars. Ft. star near this is seen.

1.6 + 4^h

Same as
+35° 34' 11"

18 49.7 +35.8 (1900)

Too ft. for 19906 taken simultaneously.

Region SU Lyrae near

See A. N. 168, p. 77. Announcement of SU Lyrae "2 plates, may be Nova."

MC 19909 July 19, 1923

MD 19909

Wednesday, February 14, 1923.

137

Region 18 50 - 2
 Mc 5603 June 1, 1914 Exp. 60^m 18^h 50^m
 8384 April 8, 1915 Exp. 53^m 19 00
 8384 superposed
 Only a small portion of plates in common,
 Plates hardly comparable.
 Repeat region of 5603

Region 18.50^h +36°
 Mc 16785 May 16, 1920, Exp. 70^m
 17453 May 16, 1921 Exp. 30
 17453 superposed
 → 16785 is a wonderful plate!

These defects are not confirmed by Mc 19906
 These have not been noted.
 The two susp. Neb. are common to both plates, especially noted on 16785
 taken July 17.

New Nebulae?

18 44.8 +35.1 (1855) N.P.D. 54.9

Not in P.C.

" " Index I & II

Confirmed on 17450

Confirmed on 19906
 very fr. " " a 2759 Exp. 80^m See also A 1726
 Confirmed by 19906 18 37.6 +35.4 (1855) N.P.D. 54.6 " " nearly star
 Not in N.G.C. " " noted 1726
 " " Nebulous?

Not in Index I & II

Probably trace A 1726

Confirmed A 7495

→ New Variable?

Certainly not P.C.

18 40.3 + 36.2 (1855)

Note: few stars

Br 16785

N.S. 17453 just in this region

N.B. Seen Ft 17450 May 11, 1921
 mean date of 17453 Very ft. 17495

Br. A 675 June 13, 1894

N.S. A 1680 Sept 13, 1895

Too poor A 1705

SV Lyrae 1842.0 + 36 12 (1900) found by Wolf 1905
 A.M. 169: 211
 chart - 217 fig. 2.

✓ Var. Br. 16785 " Very Ft. or N.S. 17453
 2 Lyrae 18 56 + 34.49 1900
 verified by print.

Tuesday, February 20, 1923.

Region

$19^h 9^m + 33.1$

Mc 17703 August 5, 1921, Exp. 30^m slide 4761
17824 August 26, 1921, 50^m

17703 superposed

17824 a very fine plate

Portions of 17703 are covered by patching.
Comparison impossible in these sections.

? New Nebula? very faint on both plates.

$19^h 17.2^m + 33.6$ (1855) N.P.D. 56.4

Not in N.G.C.

" " 2 indices

Is this a chain of faint stars or Neb.?

Looks like Neb. on A 5383 Exp. 60^m

Another suspected near-seems to be faint stars.

Var.?

Br. 17824

N.S. or covered by defect
on 17703

This defect seems to be
a little S of place where
this star comes on other
plate. If this star is the
one which appears close
to defect, isn't it faint?

$19^h 3.0^m + 30.9$ (1855)

Is seen, normal, on A 5383.

" " " " Mc 11260

" " " " 11100

140

This is 2 Lyræ 185634 18 56.0 +34 49 (1900)

Confirmed by print

Not in Cat. New Var.? Br. 17824 Seen(?) Very ft. 17703
+ 18 54.8 + 35.8 (1855)Does not seem defective as the
other ft. star close to it is also
seen.

Ft. or N.S. 17453

Ft. Seen, 17450

Set 16785 MC5185 Too poor.

17450

17453

~~cover req. cannot find~~

Very br. 16785 May 16, 1920

Ft. A 7495

Sept. 19, 1905 ~~extreme~~ edge

Br. Should 2759

Very Br. A 1726 Sept. 24, 1895

- Very Br. (Poor fl.) A 675

N.S. A 1680

Too poor for proof

- Brightest? A 4656

Near edge but ft. stars show

Proof & Range:

Brightest A 4656

Medium but Br. A 675 A 2759 * A 1726

Ft. or N.S. A 7495

$$18\ 54.8 + 35.8$$

$$1.6 + 1.1$$

$$18\ 56.4 + 35.9\ 1900$$

Region

19 0 -15°

MC 1141

603

1234

10730

11233

12892

13356

17820

ft. stars Is var. Seen on ft. st.
e. above. close, free. ?

Wednesday, February 22, 1923.

143

Region $19^h + 30.0^\circ$
 MC 11100 August 31, 1916 Exp. 89^m Slide 4355
 11260 October 2, 1916 Exp. 90
 11100 superposed.
 11100, poor, long trails,
 No objects.

Region $19^h 46^m + 28.0^\circ$
 MC 17801 August 23, 1921, Exp. 36^m
 17821 August 25, 1921 Exp. 46^m
 17821²¹ superposed.
 586 September 22, 1910 Exp. 60^m
 Conf. with 17821
 17821 superposed -
 No objects

Region

144

Saturday, February 24, 1923.

Region

 $13^h 30^m + 22.5$ MC 2597 February 6, 1913, Eff. 30^m 19517 February 11, 1923, Eff. 30^m

2597 superseded

2597 is poor plate, i.e. does not show
very fr. stars.

No objects found.

Region

 $13^h 10^m + 32.5$ MC 15822 March 25, 1919 Eff. 32^m 19515 February 11, 1923, Eff. 30^m

19515 superseded

Defect(?) like Comet? m 15822

Seen by Dr. S.
Deflect.
✓

Tuesday, February 27, 1923.

Region $14^{\text{h}} 3^{\text{m}} + 19^{\circ}$

MC 12573 March 20, 1917 Exp. 31^{m}

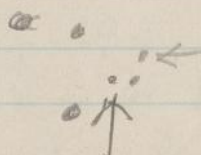
19547 February 17, 1923 Exp. 30^{m}

12573 superposed

2 ? New Neb. Very ft., but seen on both plates
13 55.5 + 19.2 NPD = 70.8

Not in NLS C

Not in Index I or II



Neb. both pl.

V 14 3.5 + 20.3 NPD = 69.7
NGC 5492 14 4 1 69 43.8

Neb. ?

A hazy star, both pl.

V 14 6.5 + 21.2 NPD = 68.8
NGC 5513 14 6 36 68 55.1

146

See Bb. 21 p. 6.

Motion \times $6' \text{ in } 8^d$
 $0.75' \text{ in } 1^d$
 $0.031' \text{ in } 1^h$
 $0.016' \text{ in } \frac{1}{2}^h$

Regin

13 20 + 20

MC 12790 April 14, 1917 Exp. 24
19523

12790 superposed

Defect, New Star?

13 25 + 21.5 (1855 approx)

Br. 12790

N.S. 19523

1900 about +22-14

13 27 + 21 16

(Asteroid 729) [191208]

Apr. 13, 1917 12.4

13 27.9 + 20 56 (1917)

Apr. 21, 1917
13 21.8 + 21 27 (1917)

region marked on

I 10871

no I plates
about this
date.not on A 4321 April 21, 1900 Exp 60 which
shows faint stars.

not on A 392 March 16, 1894

" " A 3142 June 29, 1898

not on I 10706 Feb 24, 1894

10871 March 23, 1894

12547 March 19, 1895

15088 May 11, 1896

15893 April 18 1897

some of these show ft. stars.

24677 shows
ft. stars.

not on I 17436 Feb. 25, 1897

20678 Apr. 8, 1898

22740 April 21, 1899

24670 Feb. 27, 1900

24677 March 2, "

25216 April 24, "

24621 Feb. 18, "

Motion is
hardly indicated
except by a
possibly different
slant.
Prec. - N.
Tol. - S.

Thursday, March 1, 1923.

Region $13^{\text{h}} 50^{\text{m}} + 20^{\circ}$
 MC 17150 February 8, 1921, Exp. 86"
 Not 19518 " 11, 1923, Exp.
 exam. 17150 has trailed images — was taken to find
 Wimmer's Comet of that date.
 No examination of two plates — calling for a
 new one.
 Idem. of one obj. which was susp. of being the
 Comet but appears on both plates.
 $13^{\text{h}} 39.5^{\text{m}} + 21.5^{\circ}$ N.P.D. ~~115~~ 68.5
 Not in N.G.C.
 " " Index I & II
 New Nebula? See also p. $\begin{cases} 151 \\ 180 \end{cases}$

Region $14^{\text{h}} 30^{\text{m}} + 17.5^{\circ}$
 MC 16679 February 25, 1920, Exp. 61"
 19548 February 17, 1923, Exp. 33"
 19548 superposed
 16679 trailed images but exam. was made
 as faint stars are seen on the poorer plate.
 New Nebula
 1) $14^{\text{h}} 36.2^{\text{m}} + 17.1^{\circ}$ (1855) N.P.D. = 72.9
 Not in N.G.C.
 " " Index I & II
 2) New Nebula
 $14^{\text{h}} 37.1^{\text{m}} + 17.1^{\circ}$ (1853) = 72.9
 Index I, 1053 $14^{\text{h}} 39^{\text{m}} 12^{\text{s}}$ 72 27.3 1860 near this?

New Neb.?

$$3) \quad 14 \quad 32.7 + 17.7 \quad (1855) \quad NPD = 72.3$$

Not in N&C.

" " Index 1

2nd Index " " " 2

$$4483 \quad 14 \quad 33 \quad 44 \quad 72 \quad 44 \quad 1860$$

this is next one

$$\begin{array}{r} 90 \\ 72.7 \\ + 17.3 \end{array}$$

This seems
intense, not
in direction
of other tracks.
Nebulous?

Known Neb.

$$4) \quad 14 \quad 33.6 + 17.3 \quad (1855) \quad NPD \quad 72.7$$

$$2nd \text{ Index } 4483 \quad 14 \quad 33 \quad 44 \quad 72^{\circ}44' \quad (1860)$$

Known Nebula

$$5 \quad 14 \quad 36.8 + 19.5 \quad (1855) \quad NPD \quad 70.5$$

$$N\&C. 5737 \quad 14 \quad 36 \quad 43 \quad 70 \quad 31.1 \quad (1860)$$

Friday, March 2, 1923.

Region

 $16^h 00^m + 10.0$

MC 12666 March 25, 1917

Exp. 50^m

19550 February 17, 1923;

Exp. 31^m

19550 superposed

MC 13042 Same
reg. proc.

New Var. or New Star Br. 19550

Very ft but seen, 12666

 $15^h 49.5^m + 9.5$ (1855)Mbd. on ± 21043 . Probably Ft. A ft. star, maybe
diff. to find change on
plates

Not in Var. Cat.

See p. 152 — list of plates exam.

Region

 $13^h 40^m + 15.0$

MC 16792

May 17, 1920

Exp. 36^m

19520

February 11, 1923

30^m

16792 superposed

defects several, on 16792, probably
caused by rubbing — not stellar

Region

Saturday, March 3, 1923.

 $15^h 20^m + 10^s$

MC 12778 April 13, 1917 Exp. 30"

19527 February 15, 1923, Exp. 30

12778 superposed

Heb. or ft. Star?

In both plates - better image on 19527

5956 $15^h 28^m 23^s$
77 47.0 + 12.2 $15^h 28^m 0 + 12^s 0$ (1855) N.P.D. 78.05957 $15^h 28^m 46^s$
77 29.2 12.5

This may be identical with 5957

Position does not seem just the same

See A 5924.

New?
Not in Cat.

Var.? Br. 19527

Ft., barely seen, 12778

Cont. p. 156

 $15^h 10.8 + 10.1$ (1855) $2.2 - 0.2$ $15^h 13.0 + 9.9$ (1900)

Cont. p. 156

Barely seen on B I 34692 Normal

Heb.? Nebula - long, very ft., but wispy-like, divided, and definitely seen on both plates - better image on 19527

 $15^h 9.5 + 11.0$ (1855) N.P.D. 79.0

Not in N.G.C.

" " Index I

" " " I

Seen by
Dr. S.

May 24 →

Confirmed on A 6403 June 1 1903

Note: Has this changed? Image does not look like the one on later plates (MC).

Early plate is very indistinct

Diff. in plates accounts for apparent shift.

Region 13 ^{h m} 40 +20°

MC 12686 March 28, 1917 Eff. 30[~]

195²⁴~~76~~ February 11, 1923 Eff. 30

12686 augmented

MC 17161 Eff. 60 is also of this region.

New? Nebulous, ^{larger} ~~small~~, faint object. Much spread out
but extremely ^{note} ft. ~~in~~ even color.

13 39.5 + 21.5 (1855) N P D 68.5

Not in N & C

" " Index I or II

See, also, p. 147
180

15

d. d,

152

~~To measure
magn. & more
plates~~

Cont.

fr. p. 149 Friday, March 16, 1923
New Var. 15 49.5 + 9.5 (1855)

I 6372 ?
Comet ?

Found p. 149
" March 2, 1923

New —

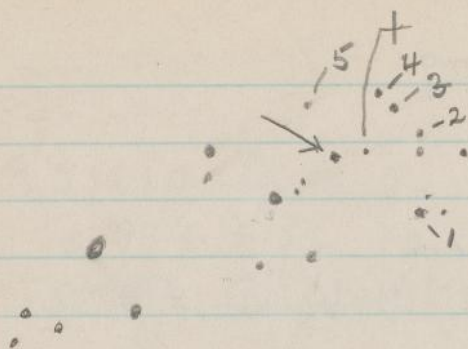
→ Positions mess. Bb. 19, p. 130.

Range — Bb. 19, p. 133

Confirmed, April 6, 1923, by Dr. Shapley.
" " 11, " by Miss Cannon.

Difficult to parse bright. May be an —

from MC 19550



Max. = 4

usually = or fainter than 5

→ Do not confuse this with X.

For iden. see I 28788 1

For Proof: Br. MC 19550 I 17370 MC 10669 Br.
 B 29843 Brighter than usual, not max. ^{but not max.}
 B 28453 Br.

Ph 28788 MC 12666 B 27610
 30540 B 29699
 B 23444

155109

Plates exam.

I 6372 Too poor.
 11119 May 15, 1894 Poor. Ft. Stars seen
 Var. very ft.

12605 April 5, 1895 Too poor.

14926 Apr. 15, 1896 Medium.

* 17370 Feb. 18, 1897 Br. ?

18225 June 15, 1897 Ft.

21043 Aug. 6, 1898 Ft. ? but seen.

* 22389 Feb. 22, 1899 N.S. ft. stars seen

25542 July 10, 1900 N.S. " " "

* 27068 June 11, 1901 Var. N.S. Ft. " "

* 28788 May 13, 1902 Var. Ft. " " "

31802 June 19, 1904 Var. N.S. " " "

* 41083 April 2, 1922. Var. Ft. " " "

Poor pl. but
 necessary for
 proof.

Mc Plates

* 10669 April 2, 1916 Seen, not May.

12929 June 18, 1917 Var. N.S. few stars

* 12666 March 25, 1917 Ft.

* 19550 Feb. 17, 1923 Br.

13042 July 26, 1917. Var. N.S. ft. stars

see p. 155 for later Mc plates taken for this star. poor plate. seen.

A Plates

660

defective film in this
 part of plate but a little distance from ex

1815 Too poor

9507 July 6, 1909. Va. N.S.

5927 Region off edge.

for Range 20254

155

B	27610	June 7, 1901	N.S. Fh stars seen
	21949	Sept. 12, 1898	Fh. but seen.
	17202	August 17, 1896	N.S. Fh stars seen
	13343	May 13, 1895	N. S. " " "
	20254	Sept. 3, 1897	" " " "
*	23444	July 13, 1899	Very ft.
	23614	July 25, 1899	N.S. Fh stars barely seen — Poor.
	23866	August 16, 1899	N.S. All ft. stars seen.
***	28453	Sept. 5, 1901	Slide 2104 Br. Use for Proof.
*	29699	May 15, 1902	Seen Fh.
	30540	Aug. 12, 1902	Seen — very ft. Ex
	31462	Apr. 17, 1903	Fh. but seen.
	35541	Jan. 24, 1905	Ex, N.S.
	35564	Feb. 25, 1905	N.S.
	29843	May 27, 1902	Medium Br.
	29569	April 30, 1902	N.S.
<hr/>			
mc	19690	April 8, 1923	Fh.
	19694	" 9, "	Fh.

tu
exact pos. of this var. Var. N.S.

156

Cont. from p. 150.

New Variable. (?) 15 10.8 + 10.1 (855)

Found p. 150, March 3, 1923.

April 13. Little proof of Min.
Exam. by Miss Cannon.
Take more MC Plates.
Watch white defect in filing 12778.
Does this affect star?
Prove by more plates before announcing

from MC 19527

Br. MC 19527 MC 1952

I 32783 B 25858 *B 20251
 *B 23014 B 14025 Brightest?

Fh. or N.S. MC 12778 ^{Poor} I 14925 ~~I 41283~~
 I 20951 Poor?

Plates examined $+12.5$ (most of these)

B 20251 Sept. 3, 1897 Br. (+7.5)

21922 Sept. 5, 1898 Br.

23014 June 6, 1899 Br. +7.5

25858 Sept. 1, 1900 Br. +9.5

27608 June 7, 1901 Br.

28430 Sept. 4, 1901 Br.

29563 April 30, 1902 Br.

30538 August 12, " Br.

33104 February 23, 1904 Br.

I 935 April 1, 1890

6439 June 11, 1892

11097 May 14, 1894

Pmr. * I 14925 April 15, 1896 N.S. Poor.

33104 February

22385 February 22, 1899 Br.

23127 July 4, 1899 Br.

31852

31935 August 18, 1904 Br. Too poor.

31984

Too poor

* 32783 March 1, 1905 Br.

34692

40319 February 17, 1921 Seen all ft. stars near limit

41191 April 30, 1922 Br.

* 41283 May 22, 1922 Ft? Not Min.

41324

Too poor

(a 9599 just off edge. 15.0)

2010 " " " $+12.5$

6403 " " " $+13.0$

a 659

Br.

Additional plates at +7.5

I 10940 March 27, 1894 Br.

I 12604 April 5, 1895 Too poor.

15582 Too poor.

17367 Too poor.

22911 " "

20951 Ft? or Poor?

25464 June 18, 1900 Br.

26916 April 27, 1901 Br.

28804 May 15, 1902 Br.

28655 April 15, 1902 Br.

seems fainter than nearby stars.

B 20251 Sept. 3, 1897 Br.

B 13302 May 11, 1895 Br. ~~or~~ Ft. or Poor?

17172 August 15, 1896 Br.

31905 June 2, 1903 Br.

33479 April 23, 1904 Br.

35623 March 27, 1905 P

37663 June 28, 1907 Br.

38443 February 29, 1908 Br.

40168 May 7, 1909 Br.

6248 Too poor.

* B 14025 July 9, 1895 Brightest?

7867 Too poor

9381 May 7, 1893 Br.

9911 Too poor

18412 Too poor

16489 June 27, 1896 Br.

* Mc 12778 April 13, 1917. Ft.

19527 , 1923 Br.

19689 April 8, 1923 Br.

19693 April 9, " Br.

160

Friday, March 23, 1923

Region

15 10 + 45

MC 12863 May 25, 1917 Eff. 30

19562 February 19, 1923 Eff. 33

print
in card

19562 does not cover.

Identifies at

Region

15^h 20^m + 25°

MC 12779 April 13, 1917 Eff. 30

19549 February 17, 1923, Eff. 30^m

12779 supposed

No objects of interest

Monday, April 9, 1923.

Region

14^h 00^m + 40°

MC 19173 March 1, 1921. Exp. 45^m

19561 February 19, 1923, Exp. 31^m

19561 superposed.

several nebulae, many of them faint,
possibly new.

numbered on MC 19561

Plates reg. June 27

Object ?

?

very ft on 19561 N.S. 17173

beyond limit of I 24633

←

Seen by
Wint.
June 27.
Var.?

13 41.5 + 39.4 (1855)

Var. ~~X~~ Be. 19561

Change but not ft. 17173

13 42.9 + 40.3

Verified by print.

Cat. Var. 134440 R Cam Ven. 13 44.7 + 40.2 (1900)

Nebulae.

No. 1 13 43.1 + 40.2 (1855) Trace on I 24633 $NPQ = 49.8$

No. 2 Seen on I 24633

13 42.7 + 40.7

$NPQ = 49.3$

5311 13 42 58 49 19.1 (1860)

No. 3 Seen on I 24633

✓ 13 43.6 + 40.7 (1855) $NPD = 49.3$
 N.G.C. 5313 13 43 45 49° 19' 6" (1860)

No. 4 Trace on I 24633

13 44.6 + 40.5 (1855) $NPD = 49.5$

✓ No. 5 Seen on I 24633

13 44.7 + 40.3 (1855) $NPD = 49.7$
 N.G.C. 5326 13 44 51 49 44.1" (1860)

No. 6 Trace on I 24633

13 46.0 + 40.4 (1855) $NPD = 49.6$

5337

No. 7 Trace? on I 24633

13 44.2 + 42.0 + (1855) $NPD = 48.0$

Possibly 5320 13 44 27 47 56.2 (1860)

No. 8

$$13\ 44.0 + 39.0\ (1855)\ \text{N.P.D. } 51.0$$

No. 9

$$13\ 44.6 + 39.1\ (1855)\ \text{N.P.D. } 50.9$$

$$\text{W.C. } 5325\ ?\quad 13\ 44\ 45\ 51\ 1.2\ (1860)$$

No. 10 Trace on I 24633

$$13\ 45.2^5 + 38.8\ (1855)\ \text{N.P.D. } 51.2$$

No. 11 Trace on I 24633

$$13\ 46.2 + 38.5\ (1855)\ \text{N.P.D. } 51.5$$

$$\text{W.C. } 5341\ 13\ 46\ 40\ 51\ 30\ (1860)$$

No. 12 Trace on I 24633

$$13\ 47.1 + 38.6\ (1855)\ \text{N.P.D. } 51.4$$

$$\text{W.C. } 5349\ 13\ 47\ 16\ 51\ 26\ 1860$$

Continued p. 166.

Tuesday, April 10, 1923.

Region

$15^h 48^m + 37.5^\circ$

MC 18655, April 25, 1922, Exp. 34^m

19563, February 19, 1923, Exp. 31^m

19563 superposed.

✓ Var.

Br. 19563 (poorer images for other stars,
very br. for this) Ft. 18655

✓ Cor. Bor. 154639 $15^h 46.0^m + 39.52^\circ$ (~~Exp. 1878~~ ^{Dunlap 1878})

Many very faint nebulæ. Seen on both plates.
Some of them may be new.

As numbered on 19563.

No. 1.

$15^h 30.5^m + 39.2^\circ$ (1855) N.P.D. = 50.8

Not in A.G.C.

No. 2

$15^h 39.5^m + 36.5^\circ$ (1855) N.P.D. = 53.5

Not in A.G.C.

No. 3.

$15^h 47.5^m + 37.1^\circ$ (1855) N.P.D. = 52.9

Not in A.G.C.

No. 4

15 56.5 + 37.8 (1855) N.P.D. = 52.2
 See NGC 6038 - ?

No. 5

15 58.0 + 40.0 (1855) N.P.D. = 50.0
 Not in NGC.

No. 6

16 1.5 + 37.5 (1855) N.P.D. = 52.5
 Not in NGC.

Noted DM + 37

15 34.2 + 37 59 (1855)

This is fainter than other stars that are
 not as large or closer.

Continued from p. 163.

90
488
412

No. 13 Trace on I 24633

13 47.2 + 38.6 (1855) N.P.D. 51.4

✓ Neg. C. 5351 13 47 26 51 23.7

✓ No. 14

13 48.3 + 39.2 (1855) N.P.D. 50.8

5361 13^h 48^m 39^s 50° 52.9' (1860)

No. 15 13 47.2 + 41.1 (1855)

"

No. 16 follows 15, south fr.

No. 17 Same R.A. as 16, slightly S, ^{new} fr.

No. 18 Trac^(?) on I 24633.
 13 48.9 + 42.1 (1855) NPD 48.9⁷
 Not in NGB

No. 19 Seen on I 24633
 13 51.0 + 42.5 (1855) NPD 47.5
 WSC 5383 13 51 18 + 47 28.3 (1860)

No. 20 13 54.0 + 38.8 (1855)

No. 21 follows 20, slightly N.

No. 22 13 52.2 + 39.7

No. 23 13 54.8 + 39.8

No. 24 Seen on I 24633

13 49.2 + 41.2 (1855) $\Delta PD = 48.8$

NGC 5371 13 49 47 48 49.7

No. 25

13 55.5 + 41.7 (1855) ΔPD 483

5410

one
of
these
= 5410

No. 26

13 55.6 + 41.7 (1855) ΔPD 483

No. 27 13 57.5 + 39.7 (1855)

No. 28 13 57 + 39.2 (1855)

No. 29 14 0.3 + 40.3 (1855)

No. 30 14 6.6 + 40.0

No. 31 14 ^{10.2}~~26.0~~ + ^{40.2}~~38.7~~ (1855)

No. 32 slightly fol. & n. of 31.

Friday, April 13, 1923.

Region $15^{\text{h}} 00^{\text{m}} +45^{\circ}$

MC 257 March 3, 1910 Eff. 61^{m}

19562 February 19, 1923, Eff. 33^{m}

19562 Superimposed.

257 has elongated images — not a good plate — Variation could hardly be detected except of large range.

No objects found.

Friday, April 20, 1923.

Region

$17^h 30^m + 22.5^\circ$

MC 15968 June 21, 1919 $\text{Exp. } 31^m$

19710 April 12, 1923 $\text{Exp. } 33^m$

15968 superposed

Object — ?

Br. 15968 NS 19710

all asteroids
of this time
are — but
are 17^h

$17^h 24.0 + 24.7 (1855)$

$\times +24 \ 3192 \ 17 \ 23 \ 38.7$
 $4.4^m = 31.7 \ 17 \ 24 \ 31.2$
 $3198 \ 17 \ 24 \ 28.4$
 43.9

$3195 \ 17 \ 23 \ 57.2$

$1.8^m \text{ rel. } 13.0$

$17 \ 24 \ 10.2$

$17 \ 24 \ 10.4$

$17 \ 24 \ 14.1$

Pos. 1855

$\delta +24 \ 3198 \ \delta = +24 \ 35.4$

$1.8^m \ \eta = 176.8 = \frac{2.9}{+24 \ 38.3}$

Est. Mag. MC 15606

Seq. 47K.

Obs. = 12.4 (8 = 12.6)

?

Object — ?

Br. 15968 — NS 19710

1

$17^h 33.2 + 21.2 (1855)$

$17^h 33.3 + 21.16$ This is not elongated in same direction
(+21 15 = Mrs Walker) as star images.

same \times as +21 3149 $17 \ 33 \ 45.2$

$\delta +21 \ 3167 \ 17 \ 31 \ 16.7 + 21 \ 14.3 \ 8.5$

$+21 \ 3186 \ 17 \ 35 \ 23.0 + 21 \ 15.9 \ 9.4$

$\delta = +21 \ 3186$

Est. Mag. (same method
above) = 12.9

Region

$14^h 38^m + 15.0^\circ$

MC 16807 June 2, 1920,

$\text{Exp. } 28^m$

19706 April 12, 1923,

$\text{Exp. } 30^m$

16807 superposed

16807 very black
few stars in region.

no objects

174

Region

h_m April 20, 1923.
 14 50 +12.5

MC 16673 February 20, 1920, Exp. 30^m
 19717 April 14, 1923, Exp. 30^m
 19717 superposed.

One star marked shows change
 defective image on 19717

1) Nebula - both plates.

14 37.5 +12.8 (1855) NPD 77.2
 NSC 5747 14 38 26 77° 18.5 (1860)

2) Star & Nebula?

14 42.0 +13.1 (1855) NPD = 76.9

NSC { 5762 14 42 13 76 58.3 (1860)
 { 5763 14 42 38 76 56.3 (1860)

Trail or Defect? 16673

Nebula 3) 14 $50.5 + 14.8$
~~42.0 + 13.1~~ (1855) NPD = ~~75.2~~
 Not in N.G.C.

" " Index I or II
 very fr. but on both plates

Nebula 4) just follows 3)
 Not in N.G.C.

" " Index I & II
 very fr. but seen on both plates

Nebula 5) 14 56.0 + 11.8 (855) NPD 78.2
 Not in N.G.C.

" " Index I & II

Very fr. but seen on both plates

✓ Nebula 6) 14 57.8 + 13.2 (1855) NPD 76.8
 N.G.C. 5837 14 57 55 ~~76~~ 49.1 (1860)

✓ Nebula 7) 15 00 + 13.4 NPD 76.6
 N.G.C. (5851 15 0 17 76 36.1
 (5852 15 0 17 76 36.1

Nebula 8) just follows S. of 7

See idem. 7)

new Var.: $1453.2 + 13.3(1855)$

not in Catalogue

$$14\ 55.3 + 13.1\ (1900)$$

I 28551 Exp. 75^m March 2, 1902
does not show stars as ft. as this

Took ft. for exam. on I Plates
Examined the following:

I 10839 March 16, 1894 12

10877 10

11097 " 16

149'57" 12

17602 2

24692. 64

20885 June 21, 1898 17
1902

28551 March 27; 1898 - Eff 1775

MC 15761 Eff. 10^2 off edge

Requested later plates

177

		Exp.	
A 3542	10		does not show ft. stars
✓ 5926	60		very ft.
✓ 7654	10		very ft.
9599	10		does not cover region
✓ 7679	120	15.0 + 15	excellent pl. Star very ft. ✓
660			
659	11		too poor -
2010			too poor - spot on plate in position
6403			does not cover - off edge
7668	12		does not show ft. stars.
7670	—		too exp., diff. regions - poor.

Seen by Miss Cannon, April 25

Conclusion:

Wait for more plates.

Normal = faint

Only bright = 19717 which seems to be good image.

MC 198⁵⁶~~65~~ June 16, 1923. Ft

19865 ~~April 14~~, 1923 Ft.

19778 May 7, 1923 Ft.

Saturday, April 21, 1923.

Region

$13^h 00^m + 42.5$

mc 18652 April 25, 1922, Exp. 34^m

19705 April 12, 1923, Exp. 43,

19705 superposed

2 nebulae

✓

$12 42.0 + 42.7$ (1855) NPD 47.3

ngc 4704 $12 42 9$ $47 18.7$ (1860)

$12 55.2 + 41.2$ (1855) NPD 48.8

Not in NGC

" " Index I or II

Distinct on both plates.

"

Region

$14^h 40^m + 20.0$

mc 12574, March 20, 1917, Exp. 30^m

19707, April 12, 1923, Exp. 30

12574 superposed

few stars in region

2 nebulae

1) $14 29.2 + 22.4$ (1855) NPD. 67.6

Not in NGC

" " Index I or II

Is this a 1st star? Seems larger, very ft. ^{plates} On both,

2) $14 41.2 + 19.1$ (1855) N.P.D. 70.9

ngc 5760 $14 41 13$ $70 54.6$ (1860)

Thursday, April 26, 1923.

Regin

$13^h 20^m + 15.0$

MC 12789 April 14, 1917 Exp. 46^m

19516 February 11, 1923 Exp. 30^m

12789 superposed

12789 elongated images

Friday, April 27, 1923.

Regin ^{h m} 13 45 + 19.0
 MC 17137 February 3, 1921 Ep 60^m Slide 167
 19546 February 17, 1923 Ep. 30
 19546 superseded.

17137 was taken with trailed images for
 Whinecke's Comet.

Poor plate for comparisons.

A quick exam. made — no objects found.

Except obj. marked for W.'s Comet.

Same object as p. 147, on 2 MC Plates.
 new neb.?

See, also, p. 147 & 180.

Saturday, April 28, 1923.

Region $13^h 30^m + 32.5^\circ$
 Mc 16643 January 28, 1920 Exp. 35^m
 19733 April 21, 1923, Exp. 30
 19733 superposed

Plates are hardly comparable
 16643 has elongated images
 19733 does not show any ft. stars.

Many smudgy streaks on one or both plates.
 May be faint nebulae. I have marked as
 neb. all that seem to be common
 to both plates. 19733 is poor for proof.

→ * Might have a long exp. of this region to
 prove ft. neb. ?
 nebulae ?

✓ No. 1 $13\ 20.8 + 32.8 (1855)$ $NPD = 57.2$
 $NSC\ 5157\ 13\ 20\ 49\ 57\ 15.5 (1860)$

✓ No. 2 $13\ 21.5 + 32.8 (1855)$ $NPD\ 57.2$
 $NSC\ 5166\ 13\ 21\ 47\ 57\ 14.6 (1860)$

No. 3 $13\ 23.1 + 33.2 (1855)$ $NPD\ 56.8$
 not in NSC,
 " " Index I or II
 Seems hazy — may be ft. star.

* No. 4 13 23.8 + 32.3 (1855) $NPD = 57.7$
 Fairly Br. new?
 not in NGC
 " " Index I or II
 Brighter than 5187
 This is not 5187
 58.1 4a ~~Noted~~ 5187 13 23 18 58 NPD 8.6 = Dec 31.9

5 13 25.9 + 34.3 (1855) $N.P.D.$ 55.7
 not in NGC.
 " " Index I or II

6 fols. 5 and 5
 not in NGC
 " " Index I or II

7 13 26.2 + 33.9 (1855) NPD 561
 not in NGC
 " " Index I or II

8 fols. 7 to 8.
 not in NGC
 " " Index I or II

9 13 28.3 + 34.8 (1855) $NPQ = 55.2$
 Not in NYC
 " " Index I or II

10 13 28.5 + 34.5 (1855) $NPQ = 55.5$
 Not in NYC
 " " Index I or II

11 13 32.8 + 31.8 (1855) $NPQ = 58.2$
 NYC 5259 13 33.0 58 18.1 (1860)

12 13 36.5 + 31.0 (1855) $NPQ = 59.0$ 31.1 = 589
 Several at 59 not at this Dec?
 5280 (59 25.5)
 5282 (59 13.5)
 5287 (59 31)

Tuesday, May 1, 1923.

Region

$13^h 28^m +25^\circ$

mc 19356

December 15, 1922, Exp. 1922

19732

April 21, 1923,

Exp. 30^m

19732 superposed.

Nebulae? on both plates

✓ No. 1 13 4.3 + 23.7 (1855) NPD 66.3
 V N.C. 5013 13 4 53 # 66 20.4 (1860)

No. 2 13 8.2 + 25.4 (1855) NPD 64.6

✓ Index I 860 13 8 20 64 38.9 (1860)

Comet? Seen only on 19356

Seen by Dr. Shapley

No proof.

13 8.2 + 23.8 (1855)

May 28 AC 25041 (12+30) Dec. 17, 1922
 exam.

This region just off edge but exam. near this for possible Comet. No obj. found - probably would be very faint on AC plate. This date was so close to Dec. 15, plate was searched for and exam.

186

Regim

Friday, May 10, 1923.

Also, MC
1978513^h 12 + 14^oMC 19379 December 29, 1922, Eff. 32^m

19774 May 7, 1923

Eff. 39^m?

19379 superposed

No. 1 12 59.8 + 14.4 (1855) N.P.D. = 75.6

NGC 4969 12 59 41 75 36.6 (1860)

Probably this is No. 1 and No. 2 is not in Cat.

No. 2 slightly following No. 1
on both pl. Not in NGC
" " Index I or II

No. 3 13 1.9 + 12.4 (1855) N.P.D. = 77.6

NGC 4992 13 2 6 77 37.0 (1860)

No. 4 13 4.0 + 12.2 (1855) N.P.D. = 77.8
large Not in NGC
" " Index I
" " " IINo. 5 13 5.2 + 12.4 (1855) N.P.D. = 77.6
on both pl. Not in NGC
" " Index I or II

+16° 2497 13 14 33.5 +16 27.2 9.0

Is this star known to be dbl.? Almost equal comp.

No. 6 13 5.5 +13.4 (1855) N.P.D. = 76.6

NGC 5020 13 5 43 76 39.5 "little br. in middle"
a decided star in center on MC plates

No. 7 13 8.0 +13.5 (1855) N.P.D. = 76.5

on both pl.

Not in NGC

" " Index I or II

No. 8 13 7.5 +14.4 (1855) N.P.D. = 75.6

ft. on
both pl.

Not in NGC

" " Index I or II

No. 9 13 9.3 +13.3 (1855) N.P.D. 76.7

fairly br.

Not in NGC.

" " Index I or II

No. 10 13 15.6 +14.7 (1855) N.P.D. = 75.3

~~No~~

? No. 11 13 16.5 +14.7 75.3

NGC 5115 13 16 16 75 18.7

or No. 13?

No. 12 13 16.2 +14.6 75.4

Examine Nos. 11 to 14 again. New except 5115 which equals -? unless they are very far apart

No. 13 13 17.1 + 14.6 $\text{NPD} = 75.4$

No. 14 13 17.2 + 14.7 $\text{NPD} = 75.3$
 5129 13 17 16 75 17.3

No. 13a 13 18 + 14.4 $\text{NPD} = 75.6$

No. 14a 13 18 + 14.5 $\text{NPD} = 75.5$

No. 15 13 21.2 + 13.5 $\text{NPD} = 76.5$
 5167 13 21 47 76 34

No. 16 13 22.2 + 14.1 $\text{NPD} = 75.9$
 ? 5181 13 22 49 75 58.3

No. 17 13 22.5 + 12.3 $\text{NPD} = 77.7$
 several near this pos in N.S.C.

*Not this
 provided?*

Regin

Monday, May 21, 1923.
 $14^h 10^m + 9.1$

MC 19526 February 15, 1923

19786 May 9, 1923,

19526 Superfused

Exp 30^m
 " 36^m

New Var? $14^h 5.8^m + 18.2$ (1855)
 140718

Br. 19526 Ft. 19786

Small range but certain (?)

Ft. Stars, see I 24577

Not in
 order of
 magnitude

* Stars 1 to 4, giving approx. range of var.,
 marked on I 24416

Br. MC 19526

I 10784 March 7, 1894

Br. 19904
 taken for
 star

10785 Mar. 7, 1894

10914 Mar. 26, "

14556 Feb. 25, 1896 Slide 1718

20219 Feb. 12, 1898

20754 April 26, 1898

22607 March 24, 1899

24416 Jan. 8, 1900

24577 Feb. 6, "

24631 Feb. 19, "

25393 June 4, "

25496 June 26, "

25561 July 16, "

28756 May 8, 1902

Plates at 13.8 do not show it well enough for
 any estimates.

* —

Position meas. Bk. 19, p. 136.

Confirmed by Miss C. Mark stars on ± 22607
 June 27, 1923
 Var. Ft.?

191

Mc. 19786 Mc 5744

* I 15445 (this is proof) July 11, 1896
 25491 June 25, 1900
 These are poor plates. The 25491 neg.
 is on extreme edge. But Var. seems
 ft.

Uncertain A 544
 A plates.

A 501 Poor.
 683 Poor

3156 June 30, 1898 Br.

5955 June 14, 1902 Br.

* 6398 May 27, 1903 — Ft.?

This proof is only on a few plates but
 certain proof.
 Accepted in examination by Dr. Shapley,
 May 24, 1923

Uncorrected

Est. of magn. Comp. Seq. = Carte 14^h + 17.5 Mc 5744, Pl. 32, 93.

Seq.	Mc	1 = star 10 = 11.6	19855 Var = 11.8	Approx.
9 = 11.34	19855	2 = 14-15 = 13.5	5744	13.3 12.8
10 = 11.61		3 = 13 = 12.5	19526	11.7
11 = 11.66		4 = = 13.0	A 6398	12.8
12 = 12.26		Mc 19786	12.5	
13 = 12.50		± 24416	11.4	Miss Walker 11.5
14 = 13.27				

Range $\frac{\text{Uncorr.}}{11.4 \text{ to } 12.8}$ $\frac{\text{Corrected}}{11.6 \text{ to } 13.0}$

Nebulous Obj. on 19786 & 19526. On both plates
as numbered on 19526.

? No. 1 13 59.5 + 20.8 (1855) N.P.D. = 69.2

Not in N.G.C.

" " Index I & II.

faint, long, seen on both plates.

✓ No. 2 14 3.6 + 20.3 N.P.D. = 69.7

N.G.C. 5492 14 4 1 69 43.8 (1860)

? No. 3 14 5.0 + 22.1 N.P.D. = 67.9

21.9 would = 68.1

edge of pl

Not in N.G.C..

" " Index I & II

fairly bright, on both plates.

✓ No. 4 14 3.5 + 19.1 (1855) N.P.D. = 70.9

Index I 984 14 3 31 70 57.5 (1860)

✓ No. 5 14 3.0 + 18.2 (1855) N.P.D. = 71.8

N.G.C. 5490 14 3 17 71 47.3

No. 6 14 5.2 + 19.0 (1855) N.P.D. = 71.0

No. 7 a little N of No. 6

~~Index I 984 14 3 31 70 57.5 = No. 4~~

~~is probably 6 or 7 (nearer 7) R.A. not same?~~

new? ~~Both~~ Neb.

6 & 7 equally fr.

→ 6 is dbl.?

Cont. page 196

May 21, 1923.

Region

16^h 00 + 20°

MC 15838 April 2, 1919 Exp.

19792 May 10, 1923 Exp. 30"

19792 superposed

a circle in red sketched on 15838 by
Miss Learitt

Br. Obj. Large Range

160118 Br. 19992 F₁ but seen 15838

R Hercules 15 59.8 + 18.8 (1855) var. on DMC chart

8 Nebulae on both plates Nos. on 15838

No. 1 15 46.5 + 21.5 (1855) $\Delta PD = 78.5$

new? Not in N5C

" " Index I & II

Distinct on both plates.

Very F₁.No. 2 15 52.0 + 17.8 (1855) $\Delta PD = 72.2$

Index 1151 15 52 12 72 8.7 (1860)

No. 3 15 55.7 + 19.2 (1855) $\Delta PD = 70.8$

Not in N5C

" " Index I & II

not N5C 6028

Look up on Afl. for both

No. 4 15 52.8 +21.2 (1855) $NPD = 68.8$
 NSC 6027 15 53 3 68 49.8

No. 5 15 58.0 +18.1 (1855) $NPD = 71.9$
 Index 1170 15 58 13 71 53.2

No. 6 fol. and S of No. 5
 Index 1171 or 1172

No. 7 15 58.8 +20.9 (1855) $NPD = 69.1$
 NSC 6052 15 59 5 69° 4' (1860)

No. 8 15 59.6 +21.8 (1855) $NPD = 68.2$
 NSC 6060 15 59° 46 68 8.0 (1860)

Cont. from p. 192.

✓ No. 8 on MC 19526

$$14 \quad 6.0 + 21.1 \quad (1855) \quad \text{NPD} = 68.9$$

$$\text{N.G.C. } 5513 \quad 14 \quad 6 \quad 36 \quad 68 \quad 55.1 \quad (1860)$$

✓ No. 9 $14 \quad 6.5 + 21.1 \quad (1855) \quad \text{NPD} = 68.9$

$$\text{N.G.C. } 5513 \quad 14 \quad 6 \quad 36 \quad 68 \quad 55.1$$

✓ No. 10 $14 \quad 13.0 + 18.5 \quad (1855) \quad \text{NPD} = 71.5$

✓ No. 11 falls S of No. 10

Not in N.G.C.

$$\text{Index I } 999 \quad 14 \quad 12 \quad 59 \quad 71 \quad 28.9 \quad (1860.)$$

$$\text{" } 1000 \quad 14 \quad 13 \quad 7 \quad 71 \quad 30.1$$

Thursday, May 31, 1923.

See p. 199.

197

Region

 $17^h 30^m + 17.5$ MC 16022 July 8, 1919 Exp. 45^m19721 April 14, 1923 30^m

16022 superposed

16022 images elongated, especially near edge.
Difficult for comparison.An apparent neb. on 16022, near center,
edge, is seen in 19721 as a group of
faint stars. $17 27 + 20.1 (1855)$ Var. Br. 16022 Ft. 19721
→ see p. 199.→ Comet? in ~~1972~~ + 16022
Head(?) at $17 30.5 + 16.5 (1855)$

15968

No MC Plate of nearby plate.

Ac 21586 July 5.

This object is probably too faint for Ac Pl.
Region exam., nothing seen.

Cont. p. 199

Region

Tuesday, May 22, 1923

16^h 40 + 25.0mc 15839 April 2, 1919, Exp. 35^m19798 May 14, 1923, Exp. 35^m

19798 Superposed

One image of a star is completely missing from 15839 but a bit of the film is also gone. Was not looked up or identified. Assumed defective.

Star elongated. on both plates. See also, A72496. 7902 2 stars, fol. is ft.

apparently not dbl. st.

See pos. below

16 27.0 + 26.6 (1855)

Take plates later. mc 19901 July 16, 1923 Tol. poor.

19903 " 17, " Ft.

S fol. of 2 ft. stars

Defective image ? "

Br. 19798

Ft. 15839

16 27 + 24.2 (1855)

mc 19903 ft.

Object above

x. +25° 3097 16 27 19.6 +25 59.7 7.7

+25 3095 16 26 42.3 +25 58.8 9.4

3095 to Obj. = +2.4 × 98.2 × 1.1 = 259.2 + 15 = 17.3

3097 to Obj. = -2.7 × 98.2 × 1.1 = -259.2 + 15 = -17.4

(1855)

Dm

I 28967 & mc 19798

16 27.0 + 26 37 +26° 2853 16 25 28.7 +26 38.8 9.3

2854 16 25 37.1 +26 44.7 8.4

δ = 0.8^m S of 2853 = 78.6

+26 2858 not used because 2 stars are on plate either of which might be Cat. Star

Probably the northern = +26 2858

ft. star means is about 0
ft. st. - means is
at least as faint as ft.

Entry on page 197 should be on this page

Cont.

New Var. 17 ~~38~~ 36.6 +17.6 (1855)
2.3 - 2'

17 38.9 +17.6 (Approx. 1900)

not in Cat.

Not Pris. Comp. See 18795 for P.C./Bn Ft. n N.S.

Large range. For Prof: - 18795 41140

Seen by Dr. S. June 1. 5 Range 23239

these two plates not at extreme range.

*
The Plate
Asked for
to cover
both Seq.
42287
42293

Magns. of Comp. Seq.

20 Hercules

MC 5494

Bk. 9a, p. 77.

Est. of Magn.

~~11454~~ I 42287 & I 42293 taken at 17 48 + 15
to cover both Sequences.

Uncorrected

$h = 11.02$
 $k = 11.75$

Max. Range est. on 18795 by stars near, compared on
42287 & 42293, with 2 Her. Seq. $h = 11.4$

Images on 42293 are elongated - difficult

$g = 14.35$ Min. in 41140 limit of pl. = Star g or a little
 $h = 14.82$ fainter = 14.4 Var. ~~fainter than~~ ~~14.4~~ < 14.4

On 23239 est ~~14.5~~ fainter than r

Range 11.4 to 14.5 < 14.8

Corrected by Miss Walker, June 27

Corr. = 11.6 to < 15.0

* Position meas. Bk. 19, h m 17 38.6 + 17° 34' (1900)

200

*

Confirmed by Miss Cannon June 1.

New Var. Plates examined.

- I 8838 July 20, 1893 Ft. stars seen. Var. N. S.
 9156 Aug. 10, 1893 Poor.
 11454 Sept. 20, 1894 Poor.
 11471 Sept. 21, " "
 11495 Sept. 24, " Br.
 12945 June 7, 1895 Br.
 13056 July 11, " Prob. Ft.
 16167 October 10, 1896 N. S. Min? Slide 1345
 * 18795 Sept. 14, 1897 Br. Max.
 * 23239 July 28, 1899 N. S. Min.
 23885 Oct. 21, 1899 Too poor.
 * 25304 May 7, 1900 Ft. but seen.
 29016 July 28, 1902 Min. N. S.
 29139 Aug. 23, 1902 Min N. S.
 29163 Aug. 25, 1902 Min, N. S.
 * 41140 April 23, 1922 Min. N. S.

taken for Var. 42287 June 10, 1923 Very Ft.
 Exam. June 25 42293 " 11, " " "

202

Region

Friday, June 1, 1923
 $16^h 40^m + 30^\circ$

MC 15828 March 25, 1919 Exp. 31^m

19727 April 20, 1923 Exp. 30

19727 superposed

No objects found.

Region

$15^h 44^m + 28.0^\circ$

MC 16809 June 7, 1920 Exp. 20

19720 April 14, 1923 Exp. 30

16809 superposed

Nebula on both plates

✓ $15 29.0 + 29.2$ (1855) $\eta, \rho, \delta = 60.8$

NGC 5958 $15 28 58$ $60 51.4$ (1860)

Van. 15 $50.2 + 29.7$ (1855) Br. 16809 Very Fk
 $1.8 - (8')$ 19720

15 $52.0 + 29.6$ (1900) approx.

✓ $15 52.2 + 29 32$

2 Cor. Bor.

Confirmed by Print.

Region $13^h 30^m + 35.0^\circ$

MC 12859 May 19, 1914 Exp. 43^m

19687 April 7, 1923 Exp. 30^m

12859 Superposed (Portion only in common)

Nebulae - on both plates.

Moving Obj?

13 23 + 36.5 (1855)

Tab.

✓ 13 29.5 + 36.4 (1855) NPD = 53.6 ✓ ✓
 NYC. 5240 13 29 30 53 43.1 ✓ ✓, ✓ L

✓ 13 27.8 + 35.3 (1855) NPD = 54.7
 NYC. 5223 13 28 6 54 34.8

Is this
 new? 13 27.9 + 35.5 (1855) NPD = 54.5

✓ 13 28.3 + 35.4 (1855) NPD = 54.6
 NYC. 5228 13 28 17 54 29.4

13 29.0 + 36.7 (1855) NPD = 53.3

See 5233 }
 5240 } ?

Cont. p. 207

Saturday, June 2, 1923.

Regin

13^h 50 + 27.5

MC 15891 May 6, 1919

Ref. 34^m

19688 April 7, 1923

31

19688 superseded

13 42.5 + 26.0 (1855) m 19688 only

Probably defect 2

Neb ? or Fh St.

13 44.4 + 25.8 (1855)

13 43.8 + 25.6 (1855)

Position
✓ 1350.0 + 2634

x about 1^m for + 27 2310 13 49 53.0

+ 26 2508 13 49 30.7 + 26 38.4 6.8 2.0 mm x 98.2 = 196"

+ 26 2511 13 52 25.7 + 26 31.2 7.3 1.6 mm 157"

Defect or Obj.

Est. May.
MC 15606 Sep. 47K
7-8, 12.0 - 12.6 = 12.5

13 50.0 + 26.5 (1855) on 15891 only

? New Neb. 13 43.9 + 28.8 (1855) on both pl. NPD = 61.2
Not in N9C

" " Index I & II

? New? Neb. on both pl. 13 48.7 + 29.2 (1855) NPD 60.8
Not in N9C

" " Index I or II

✓ Neb. on both pl. 13 50.2 + 29.8 (1855) NPD = 60.2
N9C 5375 13 50 37 60 9.0 (1860)

✓ P.B.

? New Neb. 13 43.9 + 30.2 (1855) NPD 59.8

probably a Not in N9C

Probably not N9C

Is + 49

14 3. known as dbl. ? 205

Region

 h_n
14 00 +50.0

MC 17172 March 1, 1921 Exp. 32

19647 March 24, 1923 Exp. 37

17172 superposed

Var. ?

13 57.0 +48.4 (1855)

This may be elongated because dbl st.
and the diff. in the plates looks like
change.

new ?
new 1 Feb. 14 3.9 +48.7 (1855) $NPD = 41.3$

Not in NGC

no. 4.

Not in Index I & II

Very distinct, long, fairly bright.

no. 1

13 58.0 +49.9 (1855)

 $NPD = 40.1$

new ?

Not in NGC

" " Index I & II

no. 2

14 1.0 +51.3 (1855)

 $NPD = 38.7$ NGC. 14 1 25 38 37.3
5480

no. 3

14 1.2 +51.4³ (1855) $NPD = 38.7$

NGC 5481 14 1 43 38 37.8

no. 4

13 40 26 59 37.9

59.6

x 30.4

Cont from p. 203.

207

13 28.8 +34.6 (1855) $\lambda PD = 554$
See Index II several at 55° but
not exactly this pos.

208

Monday, June 4, 1923.

Region $14^h 45^m + 40.0$
 MC 15861 April 21, 1919 Exp 21^m
 19648 Mar. 24, 1923 Exp 30
 15861 superposed.

* New? Var. ? Br. 19648 N.S. 15861

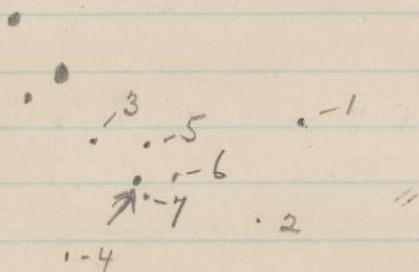
Position meas. $14^h 52^m + 41.3$ (1855)

Bk. 19, p. 146. This does not look like Asteroid trail.

$14^h 53^m 57.89$ $14^h 53^m 58 + 41.1$ (1900 approx.)

+41 7 333 Not in Var. Cat.
 (1900)

MC 19648



657 added June 12

Prd. Seq. chosen to show limits of plates.

Plates show few of these ft. stars.

On MC 19648 Var. a little fainter than 3

Estimated June 12 June 10, 1923 = 19849 Var. N.S. $7 = .1$

See, also find, Bk. 26, p. 4.

I 42285

4 Seen Var. N.S. June 5, 1923

Proof. Br. I 26763 MC 19648 MC 5718
 Th. I any pl. MC 15861 MC 19849
 h. 269.49
 26763

Range: R R Bootis
 144339, MC 15861
 no phot. magns.

See p. 211 for
 Range

(Objects cont. on p. 212)

Confirmed by Miss Cannon, July 4.

209

I 829	March 9, 1890		1 seen
I 1385			
1362	June 30, 1890	Var. N.S.	Th. stars N.S.
1509	July 22, 1890	Var. N.S.	1 seen
1523	July 23, 1890	Var. N.S.	2 seen
6100	April 13, 1892	3 seen.	Var. N.S.
6465	June 13, 1892	Var. N.S.	1 seen, Poor
12853	May 9, 1895	Var. N.S.	Poor
14913	April 15, 1896	Var. N.S.	1 seen 2 barely seen?
17961	April 20, 1897	Var. N.S.	5 seen
18267	June 22, 1897	Var. N.S.	5 seen
20631	April 6, 1898	Var. N.S.	3 & 4 very fr.
22459	Feb. 24, 1899	Var. N.S.	4
25414	June 6, 1900	Var. N.S.	5
* 26763	March 6, 1901	Var. br. than	3 (a little brighter)
²⁶⁹¹⁹ 28550	April 27, 1901	Var. N.S.	4 4 seen
28550	March 2, 1902	Var. N.S.	4
28620	April 3, 1902	Var. N.S.	4
37835	June 22, 1912	Var. N.S.	4
41011	March 3, 1922	Var. N.S.	5 seen
39872	Feb. 26, 1920	Var. N.S.	4, possibly 5, seen
41074	Mar. 29, 1922	Var. N.S.	4 seen
41226	May 8, 1922	Var. N.S.	4 seen
41238			Too poor

@ 398 March 16, 1894 Var. N.S. 4 seen

@ 5252 May 28, 1901 Var. N.S. 4 seen, probably
5 barely seen

mo 19803 14 24 + 40 does not cover region

19813 15 12 + 45 " " " "

mc 19744⁴¹ Yellow fl. covers reg. April 26, 1923

210

Saturday, June 8, 1923Region $15^h 30^m + 27.5$

mc 12974

19639

June 25, 1917, Exp. 30^m March 21, 1923 Exp. 30^m

12974 superseded

Few stars in region.

No objects found.

except an Asteroid or defect on 12974

 $15 16.0 + 26.9$ (1855)

Nearly all ast. are -

21 is fainter than 21 because it is not
seen on MC 5718 which shows 21

This Var. could have been found on MC
10^m plates

211

Var. 145⁴41

Cont. from page 209

Additional MC Plates

5718 June 18, 1914 Exp. only 10^m but Var. brighter
of all plates found.

5692 June 17, 1914 Br.

8417 April 13, 1915 N.S.

8493 May 6, 1915 N.S.

Range:

Comp. Seq. Carte 15^h00 + 39.5

14 = 12.29

as marked on MC 5718, Migno. Bb. 32, p. 57

15 = 12.65

MC 5718 = 12.6

Min Walker = 12.6

Var. about = 15 seems not as black but fully

21 = 15.2

15 = 12.65

as large but Var. is nearer edge

Min Walker = 12.6

On 19648 Var. is fainter

Min.

MC 15861

Var. N.S. < 15.5⁴

Min W. < 15.2

Star no. 21 is at least .2

21 = 15.2²

2 ft. stars near Var. are distinctly seen, no
trace of Var.

MC 5692

Var = 14 - 15 = 12.5

Min Walker = 12.8^{over}

Range - Uncorr. 12.5 to < 15.4

Corr. 12.7 to < 15.6

Cont. from p. 208.

No. 1

Nebulae No. on 15861

Neb. 14 32.4 + 41.1 (1855) $NPD = 48.9$

N.G.C. 5704 14 32 27 48 52.6

Var. Br. 15861

Ft. 19648

This var. is at center of a region which is mbd. for enlargement. Var. itself was not mbd. Change between plates was noted.

14 41.5 + 40.1 (1855)

RR Bootis

144339 14 43.2 + 39 44 (1900)

Verified by Print

No. 2

Neb. 14 31.5 + 39.0 $NPD = 51.0$
 N.G.C. 5698 14 31 39 50 56.0

No. 3

? New? Neb. 14 51.5 + 39.3 $NPD = 50.7$

not in N.G.C.

" " Index I & II

Fairly br.

No. 4 ~~14 52.0 + 41.2 $NPD = 48.8$~~

14 51.5 + 39.2

New?

fols to S of No. 3

3 & 4 may be very ft stars but they
 seem nebulous.

214

Confirmed by Miss Cannon,
June 22, 1923.

Thursday, June 6, 1923.

Region

16 00^m + 30.0mc 15827 March 25, 1919 Exp. 30^m19725 April 20, 1923 Exp. 30^m

19725 superposed

? New Var.?

Br. 15827 Fl. 19725

16 4.2 + 32.3 (1855)

1.7

-7'

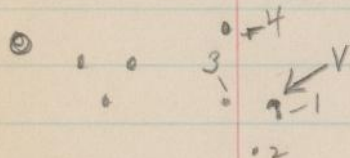
16 5.9 + 32.2 (1900)

not in Var. Cat

* Meas. of Position Bb. 19, p. 138.

Var. is northern of two close stars.
I plates do not show so faint stars as
a rule. Several examined.

I 41127 shows only one star, brighter
than limit of plate, and apparently
this star, or V & 1' comb. — Var. bright
4 is usually nearly the limit
of I plates



from mc 15827

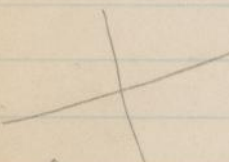
arrangement of

Seq. is nearly R.A.

(not magn.)

V & 1 combined would not be as

bright as 3 when V is faint. See m

On 41127 the comb. star is brighter
than 3.A 6769 Exp. 60^m shows all stars.
Var. ft.alignment
of stars -
Var in center

I 41284 shows fainter stars than most I
plates. Fl. stars surrounding V not
seen at all. V. N. S.

Dr. Chapley's Est. of Range
14.0 to 15.5 not to add for 1922 Cor.
approx. Proof: Br. MC 15827

Bruce pl. limit = 17.0 **215**
Var. on A 6769 about $1\frac{1}{2}M$ = 15.5 Min
Range at least $1\frac{1}{2}M$ max = 140
Ft. 19725
A 6769

Var. Conf. by Dr. S. June 8.

I 22784 if seen at limit of plate,
vis to.

I 22784 April 27, 1899
41127 April 20, 1922

Doubtful — limit of pl.?

Variable is beyond limit of these I plates:

I 6521 July 7, 1892 July 17, 1893

⁸⁸⁰⁵ 10885 March 23, 1894

15651 Aug. 10, 1896

18282 June 25, 1897

~~22760~~

21230 Sept 21, 1898

22760 April 22, 1899

25715 Sept. 1, 1900

41284 May 22, 1922

24862 Mar. 16, 1900

41218 May 2, 1922

41310 May 24, 1922

Ft. A 6769 June 16, 1904

A 7916 July 31, 1906

391 March 16, 1894

782 August 11, 1894

3768 July 25, 1899

— if seen Var. is ft.
at limit of pl. Doubtful
does not show ft. st.
" " " " "

Mc 15827

other objects marked are probably
suspected from diff. in two plates.
No var. looked up.

Thursday, June 14, 1923.

Region

$17^h 22^m + 37.5$

MC 12809, May 11, 1917, Exp. 30^m

19724, April 18, 1923, Exp. 30^m

12809 superposed

One star defective on one plate — not looked up
No objects

Region

$13^h 40^m + 22.0$

MC 17161 February 17, 1921 Exp. 60

19790 May 10, 1923 Exp. 37

17161 trailed images for Win. Comet.

Repeat. 19790 is an excellent pl.

Friday, June 15, 1923.

Region

16^h 40^m + 20° 0'

mc 15897

May 6, 1919

Exp. 30^m

19695

April 9, 1923

Exp. 30

15897

superficial

Asteroid? or Defect on 19695

Probably scratch, see one near.

Defect? on 15897

nebula

nebula

Region

June 15.
15^h 36^m +45°De Oliveira's visit to
HCO —
meteor —MC 18509 March 6, 1922 Sep. 30^m

19649 March 24, 1923 Sep. 30

18509 unperfected

19649 corner missing

?

meteor trail? 19649 — March 24, 1923

Conf. by Dr. Shapley.

Recorded by Dr. Fisher.

Several Nebulae

Continued in Book 24.

HAMMILL
LEDGER

11

RECEIVED
JAN 10 1922

1922phae.proj.1198w